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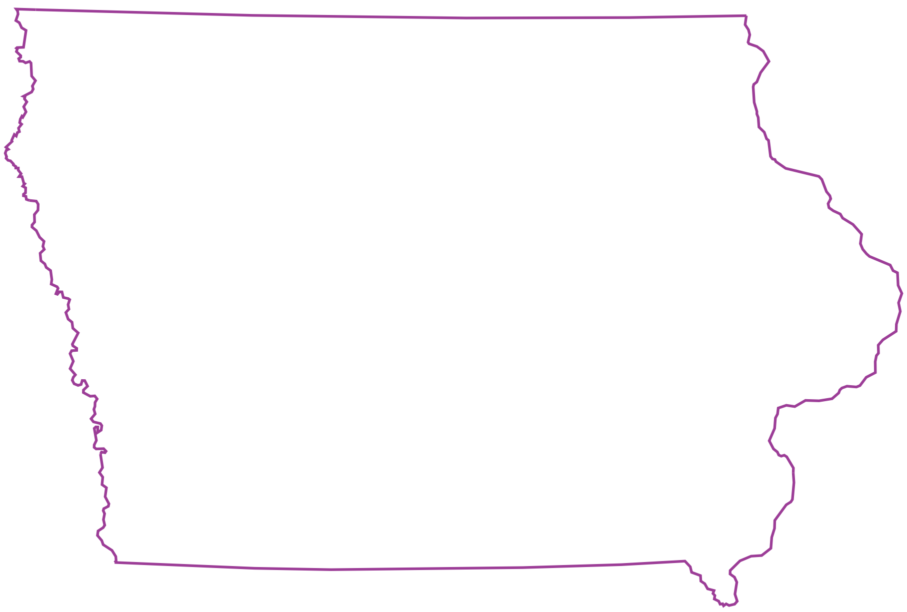
Water Resources Data
Iowa
Water Year 2004

Volume 1. Surface Water and Precipitation



Water-Data Report IA-04-1

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

Calendar for Water Year 2004

2003

October

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2004

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26	27	28	29	30		

Water Resources Data
Iowa
Water Year 2004

Volume 1. Surface Water and Precipitation

By Greg M. Nalley, Joseph G. Gorman, Robert D. Goodrich, Von E. Miller, and Kevin S Housel

Water-Data Report IA-04-1

Prepared in cooperation with the Iowa Department of Natural Resources–Iowa Geological Survey; Iowa Department of Transportation; and Federal agencies

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

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U.S. Geological Survey
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2005

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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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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*

2. REPORT DATE
January 31, 2005

3. REPORT TYPE AND DATES COVERED
Annual, 1 Oct. 2003 - 30 Sept. 2004

4. TITLE AND SUBTITLE
Water Resources Data, Iowa, Water Year 2004
Volume 1: Surface Water and Precipitation

5. FUNDING NUMBERS

6. AUTHOR(S)
G.M. Nalley, J.G. Gorman, R.D. Goodrich, V.E. Miller, and K.S. Housel

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Geological Survey, Water Resources Division
P.O. Box 1230
Iowa City, IA 52244

8. PERFORMING ORGANIZATION REPORT NUMBER
USGS-WRD-IA-04-1

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Geological Survey, Water Resources Division
P.O. Box 1230
Iowa City, IA 52244

10. SPONSORING / MONITORING AGENCY REPORT NUMBER
USGS-WRD-IA-04-1

11. SUPPLEMENTARY NOTES
Prepared in cooperation with the Iowa Department of Natural Resources–Iowa Geological Survey; Iowa Department of Transportation; and Federal agencies.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
No restrictions on distribution. This report may be purchased from:

National Technical Information Service
Springfield, VA 22161

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*
Water resources data for Iowa for the 2004 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 134 gaging stations; stage or contents for 9 lakes and reservoirs and 3 streams; water quality for 4 stream-gaging stations; sediment records for 11 stream-gaging stations; and precipitation record for 7 precipitation stations. Also included are data for 90 crest-stage partial-record stations.

14. SUBJECT TERMS
*Iowa, *Hydrologic data, *Surface water, *Water quality, Flow rates, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Sampling sites, Water levels, Water analyses, Data collection.

15. NUMBER OF PAGES
473

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT
Unclassified

18. SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

19. SECURITY CLASSIFICATION OF ABSTRACT
Unclassified

20. LIMITATION OF ABSTRACT

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DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

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

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

Station name	Station number	Drainage area (mi^2)	Period of record
Upper Iowa River near Decorah, Ia. (d)	05388000	568	1913-14; 1919-27, 1933-51
Paint Creek at Waterville, Ia. (d)	05388500	42.8	1952-73
Yellow River at Ion, Ia. (d)	05389000	221	1934-51
Sny Magill Creek near Clayton, Ia. (d)	05411400	27.6	1992-01
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
Roberts Creek at St. Olaf, Ia. (d)	05412100	70.7	1986-01
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
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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
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
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
Des Moines River at Estherville (d)	05476500*	1,372	1951-95

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

Station name	Station number	Drainage area (mi^2)	Period of record
East Fork Des Moines River near Burt, Ia. (d)	05478000	462	1951-74
Des Moines River near Fort Dodge, Ia. (d)	05479500	3,753	1911-13
Lizard Creek near Clare, Ia. (d)	05480000	257	1940-82
Des Moines River near Boone, Ia. (d)	05481500	5,511	1920-68
North Raccoon River near Newell, Ia. (d)	05482135*	233	1982-95
Storm Lake at Storm Lake, Ia. (e)	05482140	28.3	1970-75
Big Cedar Creek near Varina, Ia. (d)	05482170	80.0	1960-91
East Fork Hardin Creek near Churdan, Ia. (d)	05483000	24.0	1953-91
Hazelbrush Creek near Maple River, Ia. (d)	05483343	9.22	1990-94
Springbrook Lake near Guthrie Center, Ia. (e)	05483460	5.18	1936-71
Raccoon River at Des Moines, Ia. (e)	05485000	3,628	1902-03
Lake Ahquabi near Indianola, Ia. (e)	05487000	4.93	1936-71
White Breast Creek near Knoxville, Ia. (d)	05488000	380	1945-62
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
Sny Magill Creek near Clayton, Ia.	05411400	27.6	Sed., Temp., Cond.	1992-01
Mississippi River at Dubuque, Ia.	05414700	81,600	Chem.	1969-73
Maquoketa River at Manchester, Ia	05416900	275	Sed., Temp., Cond.	2000-02
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
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
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	Temp.,* Cond.* Sed.	1969-86; 1991-03 1971-76; 1991-03
Mule Creek near Malvern, Ia.	06808000	10.6	Temp. Sed.	1958-69 1954-69
Davids Creek near Hamlin, Ia.	06809000	26.0	Temp.* Sed.	1952-53; 1965-68 1952-68
East Nishnabotna River at Red Oak, Ia.	06809500	894	Temp.*, Sed., Cond.*	1962-73
Nishnabotna River above Hamburg, Ia.	06810000	2,806	Chem. Temp.*, Cond. Bio.	1979-93 1979-81 1979-81
Nodaway River at Clarinda	06817000	762	Cond.*, Temp.*, Sed.	1976-92
Platte River near Diagonal, Ia.	06818750	217	Chem.	1969-73
Elk Creek near Decatur City, Ia.	06897950	52.5	Bio. Chem.	1970-72 1968-94
Thompson River at Davis City, Ia.	06898000	701	Chem. Temp.*, Sed., Cond.*	1967-73 1968-73
Weldon River near Leon, Ia.	06898400	104	Chem.	1968-73
Chariton River near Chariton, Ia.	06903400	182	Temp.*, Sed., Cond.*	1969-73
Honey Creek near Russell, Ia.	06903500	13.2	Sed.	1952-62
Chariton River near Rathbun, Ia.	06903900	549	Temp.*, Sed.*, Cond.*	1962-69

Water Resources Data, Iowa, Water Year 2004

Volume 1—Surface Water and Precipitation

By Greg M. Nalley, Joseph G. Gorman, Robert D. Goodrich, Von E. Miller, and Kevin S. Housel

Introduction

The Water Resources Discipline 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 2004 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 volume of the report contains stage or discharge records for 134 gaging stations; stage records for 9 lakes and reservoirs; water-quality records for 4 gaging stations; sediment records for 11 gaging stations; peak-flow data for 90 crest-stage partial-record stations; and precipitation data collected at 6 gaging stations and 1 precipitation site. Additional water data were collected at various sites not included in the systematic data-collection program and are published as miscellaneous measurements and analyses.

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 are 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-04-1." 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 Center Director at the address given on the back of the title page or by telephone, (319) 337-4191.

Cooperation

The U.S. Geological Survey has had cooperative agreements with various governmental agencies in the State of Iowa for the systematic collection of streamflow records since 1914, ground-water levels since 1935, and water-quality records since 1943. During water year 2004, the agencies that assisted through cooperative agreements were:

Iowa Department of Natural Resources–Geological Survey
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
Fremont County Board of Supervisors
Lake Panorama Association
Van Buren County Board of Supervisors

City of Ames
City of Bettendorf
City of Burlington
City of Cedar Falls
City of Cedar Rapids
City of Charles City
City of Clear Lake
City of Clinton
City of Coralville
City of Davenport
City of Decorah Water Department
City of Des Moines
City of Des Moines Water Works
City of Fort Dodge
City of Iowa City
City of Marshalltown
City of Milford
City of Sioux City
City of Waterloo Water Pollution Control Plant
City of Waverly
City of West Des Moines

Services and financial assistance were provided by the U.S. Army Corps of Engineers in collecting streamflow records for 73 stream-gaging stations. Data were provided by NOAA-National Weather Service, U.S. Department of Commerce, and the U.S. Geological Survey Biological Resources Discipline. The following organizations aided in collecting records and are acknowledged in the respective station descriptions:

Milford Municipal Utilities
Central Iowa Energy Cooperative
Ameren-Union Electric Company

Summary of Hydrologic Conditions

Precipitation

For water year 2004 (October 1, 2003 to September 30, 2004) climatological conditions were well above normal. Recorded precipitation for the year ranged from +6.66 inches above normal in the Northeast Iowa Climatological District to -1.39 inches less than normal in the Southeast Iowa Climatological District (fig. 1). Precipitation recorded for the State averaged 36.80 inches, which was +2.72 inches above normal or 108 percent of the normal 34.08 inches for 1971-00 (table 1). Overall, water year 2004 was the 22nd wettest and 62nd warmest for 131 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., 2004).]

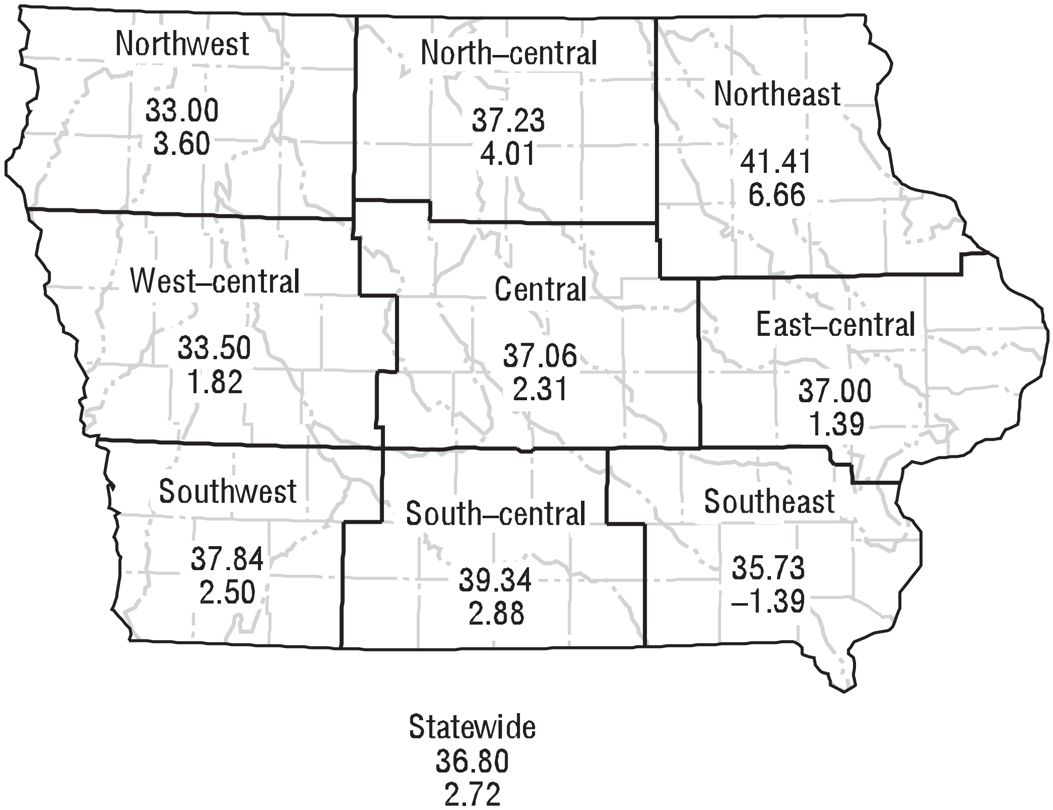


Figure 1. Water year 2004 precipitation record for the National Weather Service's designated Climatological Districts [upper value: average precipitation for the water year, in inches; lower value: deviation from long-term average (1971-2000), in inches;] source: Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, written commun., 2004).

Table 1. Monthly and annual precipitation during the 2004 water year as a percentage of normal precipitation (1971-2000).
[Source: Harry Hillaker, State Climatologist, Iowa Department of Agriculture and Land Stewardship, written commun., 2004]

National Weather Service Climatological District	2003			2004									
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Annual
Northwest	30	48	123	129	163	142	83	164	48	111	58	319	112
North-central	24	109	77	69	160	172	74	227	76	119	81	135	112
Northeast	41	204	78	49	138	203	47	273	113	130	84	33	119
West-central	40	130	94	168	156	195	72	164	100	79	68	99	106
Central	41	225	98	97	156	167	65	180	66	81	126	49	107
East-central	54	188	127	71	105	189	39	192	85	81	114	20	104
Southwest	35	218	107	168	103	197	38	184	63	109	109	45	107
South-central	44	186	108	135	93	164	39	163	77	93	200	29	108
Southeast	46	110	177	96	66	153	46	128	65	89	178	23	96
Statewide	40	161	112	105	123	176	57	186	78	99	110	80	108

Surface water

Streamflow

The water year 2004 runoff at Cedar Rapids was 3,812,000 acre-feet, which is 1,074,000 acre-feet more than the mean annual runoff for the period of record, 2,738,000 acre-feet. The water year 2004 runoff at Fort Dodge was 1,205,000 acre-feet, which is 74,000 acre-feet less than the mean for the period of record, 1,279,000 acre-feet. The water year 2004 runoff at Hamburg was 984,000 acre-feet, which is 76,700 acre-feet more than the mean for the period of record, 907,300 acre-feet. The annual period-of-record runoffs at the index stations are shown in figure 2.

The locations of the active continuous-record gaging stations and crest-stage gaging stations for water year 2004 are shown in figure 3.

Suspended Sediment

Daily suspended-sediment discharge data (hereafter referred to as sediment discharge) were collected at 11 streamflow-gaging stations in Iowa during the 2004 water year. Four stations have 25 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 or more of record: 06486000 Missouri River at Sioux City, Nebraska and 06807000 Missouri River at Nebraska City, Nebraska; one station in northeast Iowa has 13 years of record: 05389400 Bloody Run Creek near Marquette; one station in east-central Iowa has 10 years of record; 05418500 Maquoketa River near Maquoketa; three stations in central Iowa have 9 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 4.

The peak daily sediment discharge on 8 of 11 stations occurred between May 20-30, after significant rain events.

Mississippi River at McGregor, which has most of its drainage basin in Minnesota and Wisconsin, had an annual sediment discharge of 1.21 million tons, which was 75.4 percent of the average mean sediment discharge shown in figure 5.

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 2004 was 75.5 thousand tons. This represents 33.4 percent of the 27-year mean sediment discharge. The mean annual sediment discharge since dam completion is 226,000 tons (fig. 5).

Sediment discharges for Iowa River at Wapello and Skunk River at Augusta in southeast Iowa were indicative of the below-normal precipitation in central and eastern Iowa. The Iowa River basin drainage includes parts of the Southeast, East-central, Central, Northeast, and North-central Climatological Districts, and drains an area nearly three times as large as the Skunk Basin. These districts had about 108 percent of normal precipitation. Wapello had an annual sediment discharge of 2.11 million tons and represents 82.7 percent of the 26-year mean sediment discharge of 2.55 million tons (fig. 5). 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 108 percent of normal for water year 2004. The 2004 annual sediment discharge for Skunk River at Augusta was 1.74 million tons and represents 66.3 percent of the 29-year mean sediment discharge of 2.63 million tons (fig. 5).

The 2004 annual sediment discharge for the small drainage basin in northeast Iowa; Bloody Run Creek near Marquette (05489400) was 12.9 thousand tons, which is the 2nd highest sediment discharge for period of record, with the largest percentage of total yearly runoff occurring in May at 89 percent. The annual runoff was 300 percent of the 13-year mean sediment discharge of 4,253 tons. The annual sediment discharge for the station in east-central Iowa, Maquoketa River near Maquoketa (05418500), had an annual sediment discharge of 710 thousand tons and was the 6th lowest sediment discharge in the 10-year record. Fifty-three percent of the yearly total was measured in May.

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 5,640 tons. Thirty-two percent of Squaw Creek's annual sediment discharge was measured in July. The annual sediment discharge for Walnut Creek near Prairie City (05487540) was 475.6 tons, while Walnut Creek near Vandalia (05487550) was 4,330 tons of annual sediment discharge. Vandalia has a drainage area approximately three times the size of Prairie City, but had about 9 times the amount of sediment discharge of Prairie City.

The two Missouri River stations (fig. 5) have large drainage areas, which the sediment discharges reflect. The annual sediment discharge at Sioux City was 4.35 million tons, which was 37 percent of the 15-year mean of 11.8 million tons. The annual sediment discharge at Nebraska City was 16.3 million tons, which was 55 percent of the 18-year mean of 29.8 million tons.

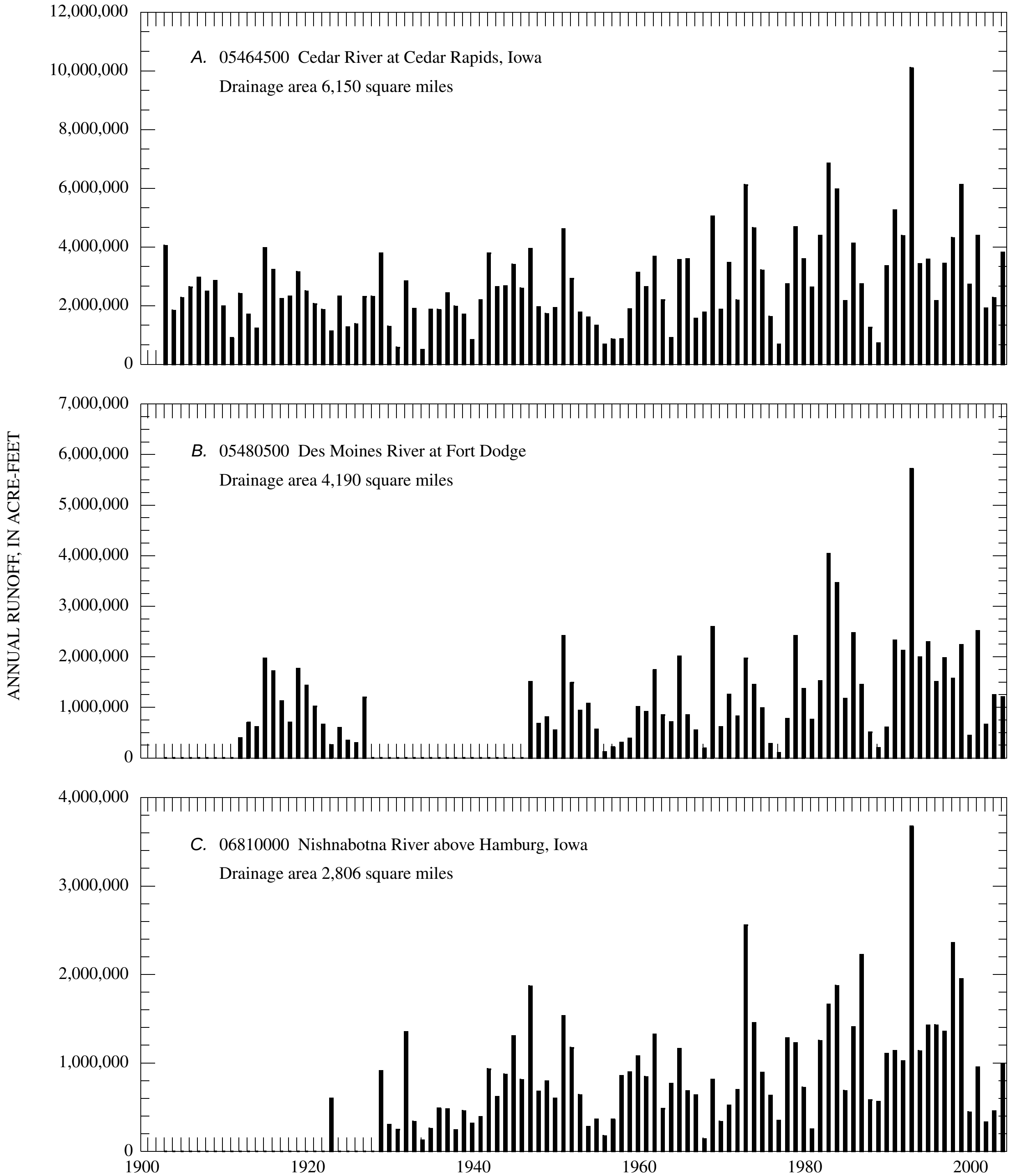


Figure 2. Annual runoff for period of record at index stations.

Water Quality

Surface-water-quality data was collected in Iowa during water year 2004 at two National Stream-Quality Accounting Network (NASQAN) stations. The NASQAN stations in Iowa are the Mississippi River at Clinton (station number 05420500) and

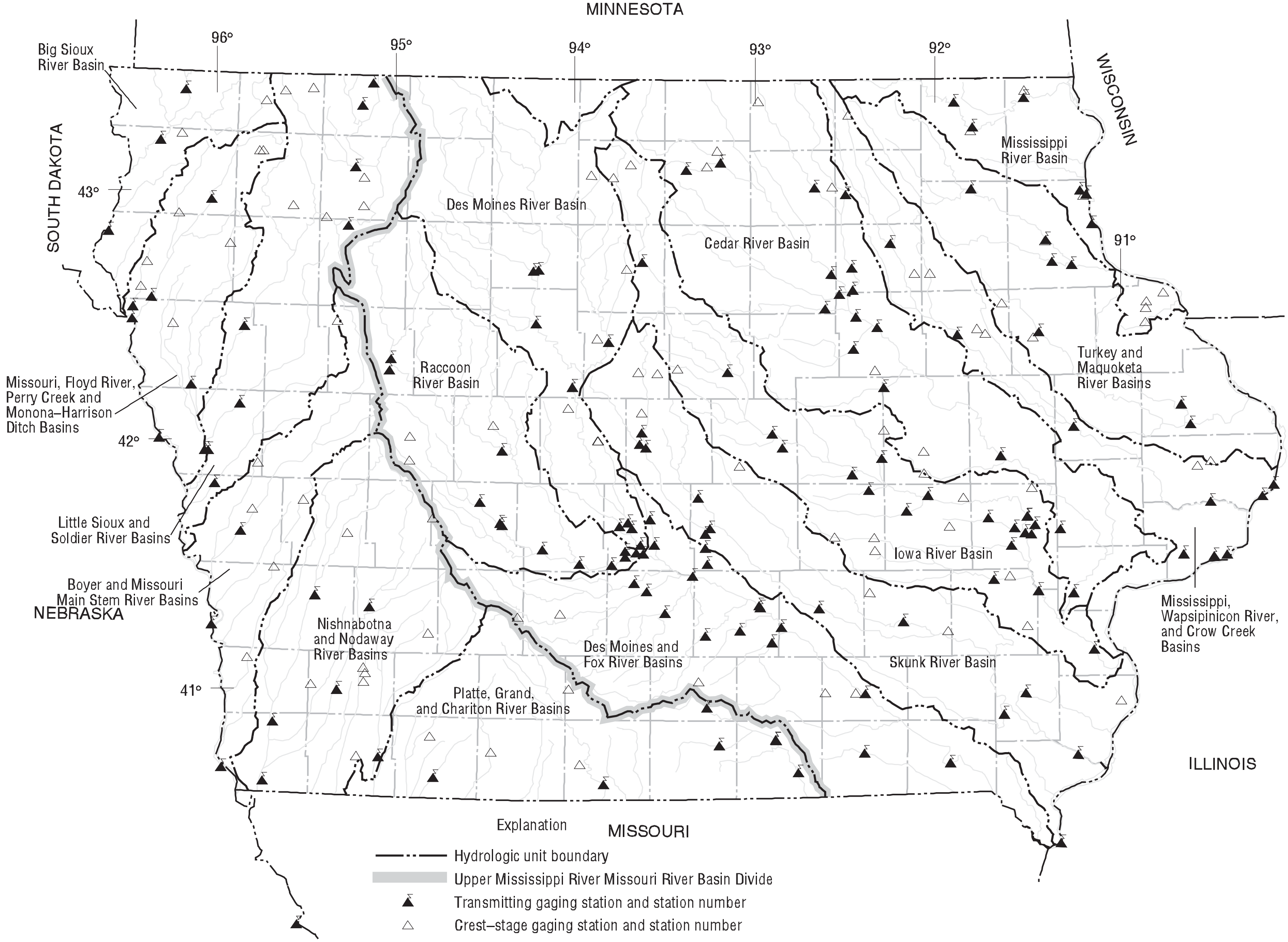


Figure 3. Location of continuous-record and crest-stage gaging stations in Iowa, water year 2004. See drainage-basin maps for gaging-station identification.

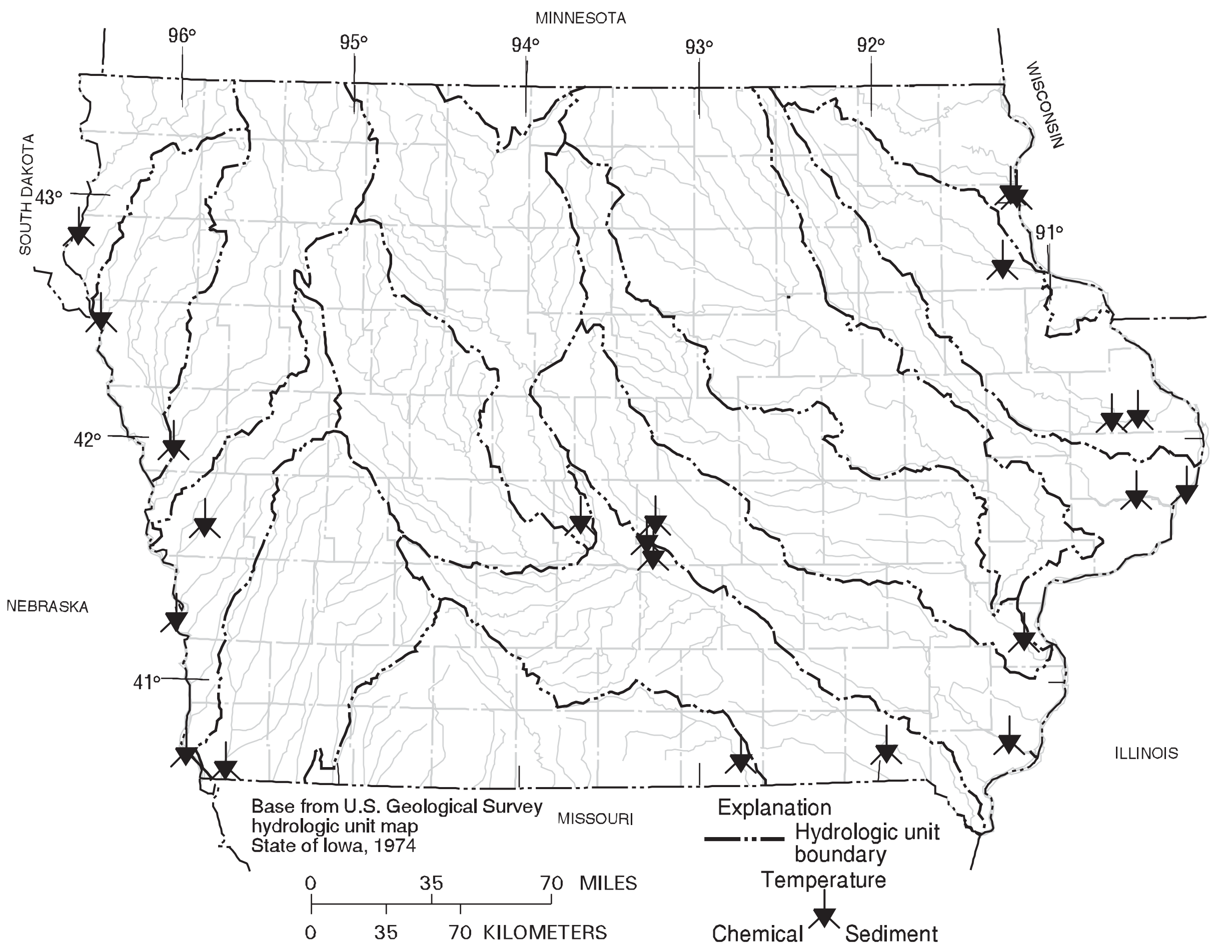


Figure 4. Location of active sediment and surface-water quality stations in Iowa, water year 2004.

Missouri River at Omaha(06610000). The combined drainage area of the two stations is approximately 408,000 sq.miles. Land use throughout the two drainage basins is primarily agricultural. Fifteen water samples were collected at Missouri River at Omaha, and thirteen water samples were collected at Mississippi River at Clinton during the 2004 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 2004 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 <.06 mg/L on October 20 to 3.39 mg/L, on July 7. Nitrate concentrations at Omaha ranged from 0.16 mg/L on September 3, to 2.40 mg/L, on May 25. 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 28 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 limits and are marked with an "E" code for an estimated value. An “E” code means the compound was detected, but the value is approaching quantifiable limits. Acetochlor was detected Fifteen times at Omaha and Thirteen times at Clinton. The largest herbicide concentration was 4.81 ug/L (micrograms per liter) of atrazine in the water sample collected from the Mississippi River on May 26. The largest overall concentration of acetochlor, alachlor, atrazine, cyanazine, and metolachlor in a single event was also at the Mississippi River on May 26. This water sample had 2.80 ug/L of acetochlor, 0.048 ug/L of alachlor, 4.81 ug/L of atrazine, <0.018 ug/L of cyanazine, and 1.21 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 at both the Mississippi River and the Missouri

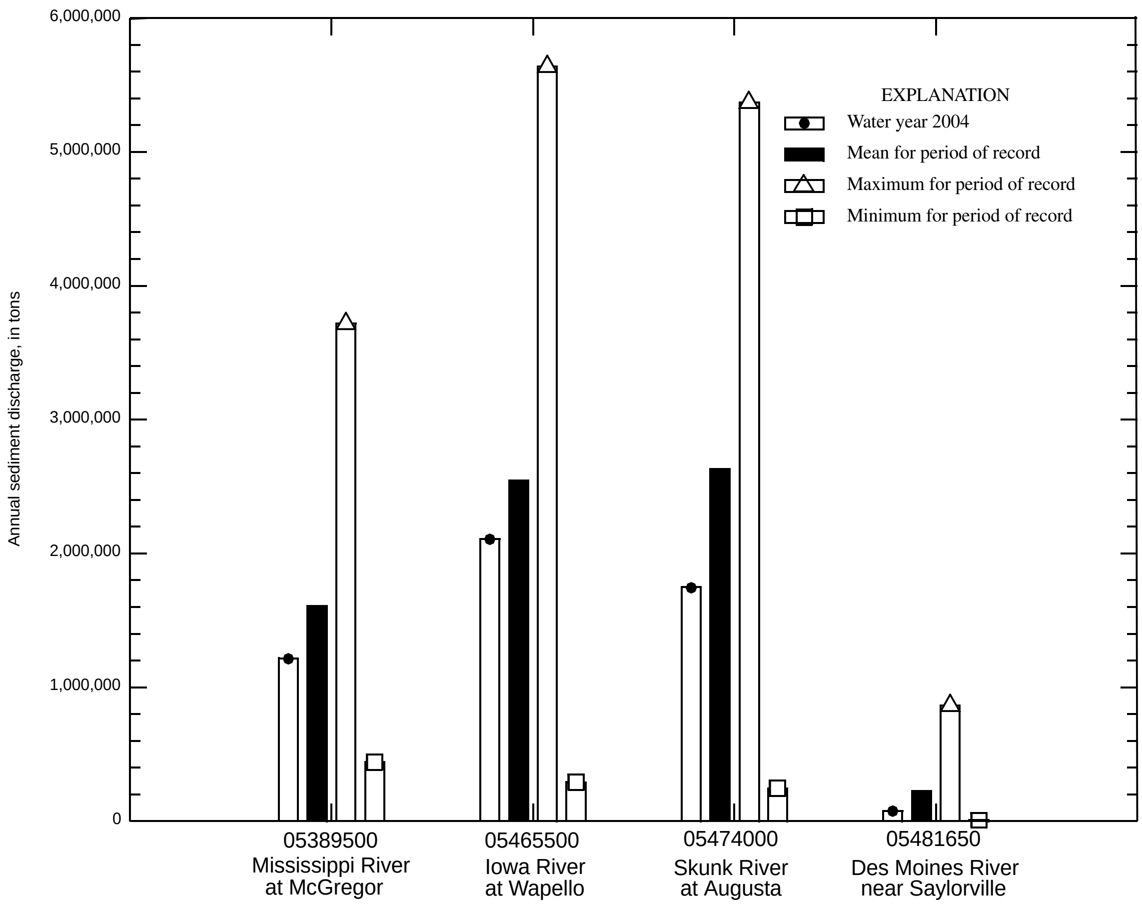


Figure 5. Annual sediment discharge statistics at four long-term streamflow-gaging stations, water year 2004

River site. The USEPA MCL for Atrazine is 3.0 mg/L. The Mississippi River at Clinton had Atrazine above the MCL on May 26, with a value of 4.81 ug/L. The Missouri River at Omaha had Atrazine above the MCL on both May 25, with a value of 3.43 ug/L and June 18, with a value of 3.44 ug/L Herbicide concentrations were generally larger in samples collected during May, June, and July, than in samples collected at other times during 2004 water year. Water samples collected in October through February had the lowest overall concentrations of the five herbicides during the 2004 water year.

Downstream Order and Station Number

Since October 1, 1950, hydrologic-station records in USGS reports have been listed in order of downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary entering between two main-stream stations is listed between those stations. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is located with respect to the stream to which it is immediately tributary is indicated by an indention in that list of stations in the front of this report. Each indentation represents one rank. This downstream order and system of indentation indicates which stations are on tributaries between any two stations and the rank of the tributary on which each station is located.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These station numbers are in the same downstream order used in this report. In assigning a station number, 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 composed of both types of stations. Gaps are consecutive. The complete 8-digit (or 10-digit) number for each station such as 05454500, which appears just to the left of the station name, includes a 2-digit part number “05” plus the 6-digit (or 8-digit) downstream order number “454500.” In areas of high station density, an additional two digits may be added to the station identification number to yield a 10-digit number. The stations are numbered in downstream order as described above between stations of consecutive 8-digit numbers.

Special Networks and Programs

Hydrologic Benchmark Network is a network of 61 sites in small drainage basins in 39 States that was established in 1963 to provide consistent streamflow data representative of undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program may be accessed from *http://water.usgs.gov/hbn/*.

National Stream-Quality Accounting Network (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande River basins. For the period 2000 through 2005, sampling was reduced to 27 index stations so that a network of 5 stations could be implemented on the Yukon River. 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 (NAWQA) Program; (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. Additional information about the NASQAN Program may be accessed from *http://water.usgs.gov/nasqan/*.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a network of monitoring sites that provide continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead Federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from this network of 250 precipitation-chemistry monitoring sites. The USGS supports 74 of these 250 sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as data from the individual sites, may be accessed from *http://bqs.usgs.gov/acidrain/*.

The USGS National Water-Quality Assessment (NAWQA) Program 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; to provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and to provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 42 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents is 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 water-resources managers to use in making decisions 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 may be accessed from *http://water.usgs.gov/nawqa/*.

The USGS National Streamflow Information Program (NSIP) is a long-term program with goals to provide framework streamflow data across the Nation. Included in the program are creation of a permanent Federally funded streamflow network, research on the nature of streamflow, regional assessments of streamflow data and databases, and upgrades in the streamflow information delivery systems. Additional information about NSIP may be accessed from *http://water.usgs.gov/nsip/*.

Explanation of Stage- and Water Discharge Records

Data Collection and Computation

The base data collected at gaging stations (fig. 3) consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and volume of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder that is either downloaded electronically in the field to a laptop computer or similar device or is transmitted using telemetry such as GOES satellite, land-line or cellular-phone modems, or by radio transmission. Measurements of discharge are made with a current meter or acoustic doppler current profiler, using the general methods adopted by the USGS. These methods are described in standard textbooks, USGS Water-Supply Paper 2175, and the Techniques of Water-Resources Investigations of the United States Geological Survey (TWRIs), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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

The stage-discharge relation at some stream-gaging stations is affected by backwater from reservoirs, tributary streams, or other sources. Such an occurrence 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 at some distance from the base gage.

An index velocity is measured using ultrasonic or acoustic instruments at some stream-gaging stations and this index velocity is used to calculate an average velocity for the flow in the stream. This average velocity along with a stage-area relation is then used to calculate average discharge.

At some stations, stage-discharge relation is affected by changing stage. At these stations, the rate of change in stage is used as a factor in computing discharge.

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

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

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

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

Data Presentation

The records published for each continuous-record surface-water discharge station (stream-gaging station) consist of five parts: (1) the station manuscript or description; (2) the data table of daily mean values of discharge for the current water year with summary data; (3) a tabular statistical summary of monthly mean flow data for a designated period, by water year; (4) 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; and (5) a hydrograph of discharge.

Station Manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the 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 follow that clarify information presented under the various headings of the station description.

LOCATION.—Location information is obtained from the most accurate maps available. The location of the gaging station 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, given for only a few stations, 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 term indicates the time period for which records have been published 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 its flow reasonably can be considered equivalent to flow at the present station.

REVISED RECORDS.—If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

GAGE.—The type of gage in current use, the datum of the current gage referred to a standard datum, 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 either will be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily discharge table. (See section titled Identifying Estimated Daily Discharge.) Information is presented 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, the outlet works and spillway, and the purpose and use of the reservoir.

COOPERATION.—Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.—Information here documents 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 USGS.

REVISIONS.—Records are revised if errors in published records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (*http://water.usgs.gov/nwis/nwis*). Users are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent data updates. Updates to NWISWeb are made on an annual basis.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because no current or, possibly, future station manuscript would be published for these stations 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 revised after the station was discontinued. If, however, the data for a discontinued station were obtained by computer retrieval, the data would be current. 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 stage-capacity table when daily volumes are given.

Peak Discharge Greater than Base Discharge

Tables of peak discharge above base discharge are included for some stations where secondary instantaneous peak discharge data are used in flood-frequency studies of highway and bridge design, flood-control structures, and other flood-related projects. The base discharge value is selected so an average of three peaks a year will be reported. This base discharge value has a recurrence interval of approximately 1.1 years or a 91-percent chance of exceedence in any 1 year.

Data Table of Daily Mean Values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed TOTAL gives the sum of the daily figures for each month; the line headed MEAN gives the arithmetic average flow in cubic feet per second for the month; and the lines headed MAX and MIN give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month is 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). Values for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if extensive regulation or diversion is in effect or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir volumes are given. These values are identified by a symbol and a corresponding footnote.

Statistics of Monthly Mean Data

A tabular summary of the mean (line headed MEAN), maximum (MAX), and minimum (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 values. The designated period will be expressed as FOR WATER YEARS __-__, BY WATER YEAR (WY), and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. The designated period will consist of all of the station record within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript.

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, WATER YEARS __-__, will consist of all of the station records within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript. 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 the dates of occurrence do not fall within the selected water years listed in the heading, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration-curve statistics and runoff data also are given. Runoff data may be omitted if extensive regulation or diversion of flow is in effect in the drainage basin.

The following summary statistics data are provided with each continuous record of discharge. Comments that 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.

ANNUAL MEAN.—The arithmetic mean for the individual daily mean discharges for the year noted or for the designated period.

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.

MAXIMUM PEAK FLOW.—The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.—The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, 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 square mile (CFSM) 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) indicate 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 has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.—The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.—The discharge that has been 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 table lists annual maximum stage and discharge at crest-stage stations, and the second table lists discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are often made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for a 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. This identification is shown either by flagging individual daily values with the letter “e” and noting in a table footnote, “e–Estimated,” or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of Field Data and Computed Results

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

The degree of accuracy of the records is stated in the REMARKS in the station description. “Excellent” indicates that about 95 percent of the daily discharges are within 5 percent of the true value; “good” within 10 percent; and “fair,” within 15 percent. “Poor” indicates that daily discharges have less than “fair” accuracy. Different accuracies may be attributed to different parts of a given record.

Values of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to the nearest tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 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 discharge values listed for partial-record stations.

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

Other Data Records Available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the District office (see address that is shown on the back of the title page of this report).

Explanation of Precipitation Records

Data Collection and Computation

Rainfall data generally are collected using electronic data loggers that measure the rainfall in 0.01-inch increments every 15 minutes using either a tipping-bucket rain gage or a collection well gage. Twenty-four hour rainfall totals are tabulated and presented. A 24-hour period extends from just past midnight of the previous day to midnight of the current day. Snowfall-affected data can result during cold weather when snow fills the rain-gage funnel and then melts as temperatures rise. Snowfall-affected data are subject to errors. Missing values are indicated by this symbol “---” in the table.

Data Presentation

Precipitation records collected at surface-water gaging stations are identified with the same station number and name as the stream-gaging station. Where a surface-water daily-record station is not available, the precipitation record is published with its own name and latitude-longitude identification number.

Information pertinent to the history of a precipitation station is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, period of record, and general remarks.

The following information is provided with each precipitation station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

PERIOD OF RECORD.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

INSTRUMENTATION.—Information on the type of rainfall collection system is given.

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

Explanation of Water-Quality Records

Collection and Examination of Data

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

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

For ground-water records, no descriptive statements are given; however, the well number, depth of well, sampling date, or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water Analysis

Most of the methods used for collecting and analyzing water samples are described in the TWRIs. The website for theTWRIs is provided in this report.

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 at several verticals to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum values (and sometimes mean or median values) for each constituent measured, and are based on 15-minute or 1-hour intervals of recorded data beginning at 0000 hours and ending at 2400 hours for the day of record.

Surface-Water-Quality Records

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because discharge data is useful in the interpretation of surface-water quality. Records of surface-water quality in this report 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 *continuous-record station* is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A *partial-record station* is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A *miscellaneous sampling site* is a location other than a continuous- or partial-record station, where 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 *continuous records* as used in this report and *continuous recordings* that refer to a continuous graph or a series of discrete values recorded at short intervals. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 4.

Accuracy of the Records

One of four accuracy classifications is applied for measured physical properties at continuous-record stations on a scale ranging from poor to excellent. The accuracy rating is based on data values recorded before any shifts or corrections are made. Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

Rating classifications for continuous water-quality records

[≤, less than or equal to; ±, plus or minus value shown; °C, degree Celsius; >, greater than; %, percent; mg/L, milligram per liter; pH unit, standard pH unit]

Measured physical property	Rating			
	Excellent	Good	Fair	Poor
Water temperature	≤ ±0.2 °C	> ±0.2 to 0.5 °C	> ±0.5 to 0.8 °C	> ±0.8 °C
Specific conductance	≤ ±3%	> ±3 to 10%	> ±10 to 15%	> ±15%
Dissolved oxygen	≤ ±0.3 mg/L	> ±0.3 to 0.5 mg/L	> ±0.5 to 0.8 mg/L	> ±0.8 mg/L
pH	≤ ±0.2 unit	> ±0.2 to 0.5 unit	> ±0.5 to 0.8 unit	> ±0.8 unit
Turbidity	≤ ±5%	> ±5 to 10%	> ±10 to 15%	> ±15%

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 is assuring that the data obtained represent the naturally occurring quality of the water. To ensure this, certain measurements, such as water temperature, pH, and dissolved oxygen, must be made on site when the samples are taken. To assure that measurements made in the laboratory also represent the naturally occurring water, carefully prescribed procedures must be 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 on-site measurements and for collecting, treating, and shipping samples are given in TWRIs Book 1, Chapter D2; Book 3, Chapters A1, A3, and A4; and Book 9, Chapters A1-A9. Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from http://water.usgs.gov/pubs/twri/. Also, detailed information on collecting, treating, and shipping samples can be obtained from the USGS District office (see address that is shown on the back of title page in this report).

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

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 section.

During periods of rapidly changing flow or rapidly changing concentration, samples may be 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 are collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

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

Laboratory Measurements

Samples for biochemical oxygen demand (BOD) and indicator bacteria are analyzed locally. All other samples are analyzed in the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chapter C1. Methods used by the USGS laboratories are given in the TWRIs, Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These methods are consistent with ASTM standards and generally follow ISO standards.

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 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 information in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

DRAINAGE AREA.—See Data Presentation information in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

PERIOD OF RECORD.—This indicates the time periods for which published water-quality records for the station are available. 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 USGS by a cooperating organization are identified here.

EXTREMES.—Maximums and minimums are given only for parameters measured daily or more frequently. For parameters measured weekly or less frequently, true maximums or minimums may not have been obtained. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.—Records are revised if errors in published water-quality records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (*http://waterdata.usgs.gov/nwis*). Users of USGS water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent updates. Updates to the NWISWeb are made on an annual basis.

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

Remark Codes

The following remarks codes may appear with the water-quality data in this section.

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

Water-Quality Control Data

The USGS National Water Quality Laboratory collects quality-control data on a continuing basis to evaluate selected analytical methods to determine long-term method detection levels (LT-MDLs) and laboratory reporting levels (LRLs). These values are re-evaluated each year on the basis of the most recent quality-control data and, consequently, may change from year to year.

This reporting procedure limits the occurrence of false positive error. Falsely reporting a concentration greater than the LT-MDL for a sample in which the analyte is not present is 1 percent or less. Application of the LRL limits the occurrence of false negative error. The chance of falsely reporting a non-detection for a sample in which the analyte is present at a concentration equal to or greater than the LRL is 1 percent or less.

Accordingly, concentrations are reported as less than LRL for samples in which the analyte was either not detected or did not pass identification. Analytes detected at concentrations between the LT-MDL and the LRL and that pass identification criteria are estimated. Estimated concentrations will be noted with a remark code of “E.” These data should be used with the understanding that their uncertainty is greater than that of data reported without the E remark code.

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 office 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. These data are not presented in this report but are available from the District office.

Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated in 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. Many types of blank samples are possible; each is designed to segregate a different part of the overall data-collection process. The types of blank samples collected 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. The reference material 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. Many types of replicate samples are 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:

Concurrent Samples--A type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating the collection of samples into two or more compositing containers.

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, each subsample 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.

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). These data may be accessed from http://water.usgs.gov.

Water-quality data and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on various media. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each Water Discipline District Office (See address that is shown on the back of the title page of this report.)

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, and 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. Other glossaries that also define water-related terms are accessible from http://water.usgs.gov/glossaries.html.

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.

Adjusted discharge is discharge data that have been mathematically adjusted (for example, to remove the effects of a daily tide cycle or reservoir storage).

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. (See also “Biomass” and “Dry weight”)

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 through 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 poly-chlorinated 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 percentage weight of the hydrogen-substituted chlorine.

Artificial substrate is a device that purposely is 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 collected. 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 a 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” and “Dry mass”)

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas 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.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

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 peak flows per year will be published. (See also “Peak flow”)

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.

Bed material is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also “Bedload” and “Sediment”)

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

Bedload discharge (tons per day) is the 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,” “Dry weight,” “Sediment,” and “Suspended-sediment discharge”)

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 that are autotrophic (plants). This also is called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton and periphyton organisms with a blue pigment in addition to a green pigment called chlorophyll. Blue-green algae can cause nuisance water-quality conditions in lakes and slow-flowing rivers; however, they are found commonly in streams throughout the year. The abundance of blue-green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter ($\mu m^3/mL$).

The abundance of blue-green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton"and "Periphyton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved-solids content of the pore water, and the lithology and porosity of the rock.

Canadian Geodetic Vertical Datum 1928 is a geodetic datum derived from a general adjustment of Canada's first order level network in 1928.

Cell volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are used frequently 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 or 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:

$$\text{sphere } 4/3\ \pi r^3 \quad \text{cone } 1/3\ \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

pi (π) 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 for all species.

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 generally are reported as cells or units per milliliter (mL) or liter (L).

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

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

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 the 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 water 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 bound-aries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

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

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects 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-foot" sometimes is used synonymously with "cubic foot 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 numerically are 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 mean concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also "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 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 usually are 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 Universal Transverse Mercator (UTM) coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

Diatoms *(Bacillariophyta)* are unicellular or colonial algae with a siliceous cell wall. The abundance of diatoms in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter ($\mu m^3/mL$). The abundance of diatoms in periphyton samples is given in cells per square centimeter ($cells/cm^2$) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton" and "Periphyton")

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 sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, and so forth, 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 chemicals, 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:

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

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")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria commonly are found in the feces of humans and other warmblooded 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 (nutrient medium for bacterial growth) 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 generally are considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli *(E. coli)* are bacteria present in the intestine and feces of warmblooded 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 (nutrient medium for bacterial growth). 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 identified qualitatively 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 (<). For bacteriological data, concentrations are reported as estimated when results are based on non-ideal colony counts.

Euglenoids (*Euglenophyta*) are a group of algae that usually are 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 semivolatile and extractable by ethyl acetate from air-dried streambed sediment. 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 sediment.

Fecal coliform bacteria are present in the intestines or feces of warmblooded animals. They often are 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 intestines of warmblooded 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 greater than the maximum depth of water. Because the gage datum is not an actual physical object, the datum is usually 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 often is 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.

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.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

Green algae *(Chlorophyta)* are unicellular or colonial algae with chlorophyll pigments similar to those in terrestrial green plants. Some forms of green algae produce mats or floating “moss” in lakes. The abundance of green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also “Phytoplankton” and “Periphyton”)

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat typically are made over a wider geographic scale than are measurements of species distribution.

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 commonly is 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 that 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 index stations referred to in this report are 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.), in reference to streamflow, 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 distributed uniformly on it. (See also “Annual runoff”)

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

International Boundary Commission Survey Datum refers to a geodetic datum established at numerous monuments along the United States-Canada boundary by the International Boundary Commission.

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year, on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) generally is 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 nondetection 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 (NWQL) 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 on the basis of the most current quality-control data and, therefore, may change. The LRL replaces the term 'non-detection value' (NDV).

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

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

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 usually are 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.

Megahertz is a unit of frequency. One megahertz equals one million cycles per second.

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.

Method of Cubatures is a method of computing discharge in tidal estuaries based on the conservation of mass equation.

Methylene blue active substances (MBAS) indicate the presence of detergents (anionic surfactants). 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 milligrams per liter 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.

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 29) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It formerly was 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 Datum of 1927 (NAD 27) is the horizontal control datum for the United States that was defined by a location and azimuth on the Clarke spheroid of 1866.

North American Datum of 1983 (NAD 83) is the horizontal control datum for the United States, Canada, Mexico, and Central America that is based on the adjustment of 250,000 points including 600 satellite Doppler stations that constrain the system to a geocentric origin. NAD 83 has been officially adopted as the legal horizontal datum for the United States by the Federal government.

North American Vertical Datum of 1988 (NAVD 88) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States 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 sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or **volatile mass** of a 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 uses 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
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, 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 of 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 a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

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. Although 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 7.0 standard units are termed “acidic,” and solutions with a pH greater than 7.0 are termed “basic.” Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

Phytoplankton is the plant part of the plankton. They usually are 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 commonly are 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.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photo-synthetic 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. The 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 with unenriched water samples. 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. The 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 elements 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.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

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 nonexceedance 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 nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. 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")

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

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 is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin during 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.

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 affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of precipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

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

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

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.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

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) 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 water, to evaluate mixing of different water, 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 (<2 mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

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

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 foot) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Surrogate is an analyte that behaves similarly to a target analyte, but that is highly unlikely to occur in a sample. A surrogate is added to a sample in known amounts before extraction and is measured with the same laboratory procedures used to measure the target analyte. Its purpose is to monitor method performance for an individual sample.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally 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 mate-rial collected on the filter or, more commonly, by difference, on the basis of 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 foot 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/d) 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 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.

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, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also “Suspended”)

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic 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 (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

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

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

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

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 ton 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 warmblooded 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 milliliters 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 “Bedload,” “Bedload discharge,” “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

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”)

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution because of 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 USEPA 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.

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 absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of path length of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See “Water-table aquifer”)

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 often are 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.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

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

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, 2002, is called the “2002 water year.”

Watershed (See “Drainage basin”)

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 often are 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")

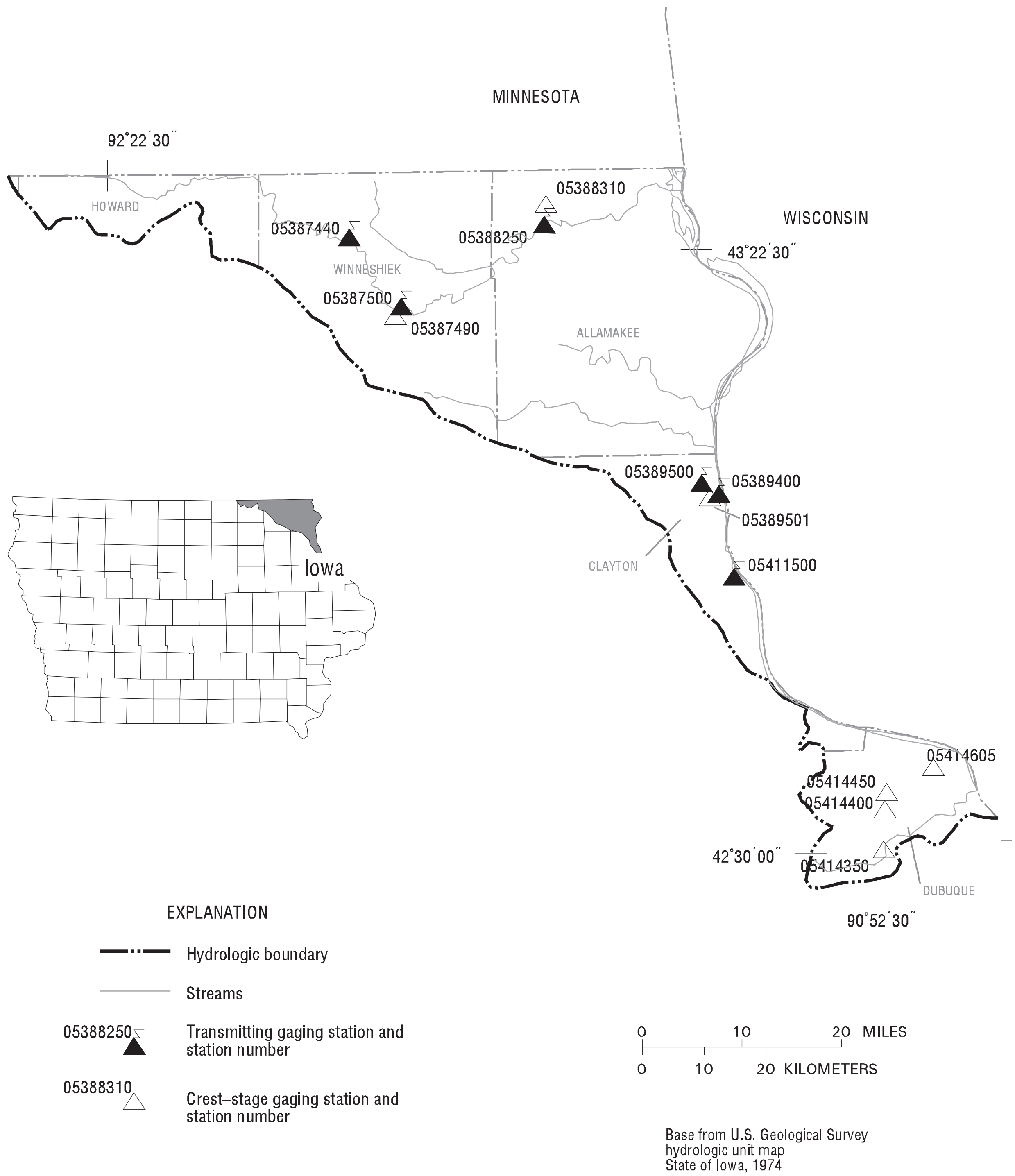
Techniques of Water-Resources Investigations of the U.S. Geological Survey

The USGS publishes a series of manuals, the Techniques of Water-Resources Investigations, 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.

Reports in the Techniques of Water-Resources Investigations series, which are listed below, are online at http://water.usgs.gov/pubs/twri/. Printed copies are for sale by the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office), telephone 1-888-ASK-USGS. Please telephone 1-888-ASK-USGS for current prices, and refer to the title, book number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Products can then be ordered by telephone, or online at http://www.usgs.gov/sales.html, or by FAX to (303)236-469 of an order form available online at http://mac.usgs.gov/isb/pubs/forms. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Surface-Water Records

Surface water daily records are presented on the following pages.


MINNESOTA
WISCONSIN
92°22´30˝
43°22´30˝
42°30´00˝
90°52´30˝
HOWARD
WINNESHIEK
ALLAMAKEE
CLAYTON
DUBUQUE
Iowa
05387440
05388310
05388250
05387500
05387490
05389500
05389400
05389501
05411500
05414605
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

05387440 Upper Iowa River at Bluffton, IA 40
05387500 Upper Iowa River at Decorah, IA 42
05388250 Upper Iowa River near Dorchester, IA 44
05389400 Bloody Run Creek near Marquette, IA 46
05389500 Mississippi River at McGregor, IA .55
05411500 Mississippi River at Clayton, IA 62

Crest Stage Gaging Stations

05387490 Dry Run Creek near Decorah, IA 486
05388310 Waterloo Creek near Dorchester, IA 486
05389501 Mississippi River Tributary at McGregor, IA 486
05414350 Little Maquoketa River near Graf, IA 486
05414400 Middle Fork Little Maquoketa River near Rickardsville, IA 486
05414450 North Fork Little Maquoketa River near Rickardsville, IA 486
05414605 Bloody Run Tributary near Sherrill, IA 487

05387440 UPPER IOWA RIVER AT BLUFFTON, IA

LOCATION.--Lat 43°24'25", long 91°53'56", in SW$\frac{1}{4}$ SW$\frac{1}{4}$ NE$\frac{1}{4}$ 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: Stage only records from October 20, 1999 to September 30, 2002: Discharge records from October 1, 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 945.50 ft. above NGVD of 1929.

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

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.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	46	41	e59	e39	e297	143	100	1,300	329	285	181
2	40	49	e40	e50	e40	e795	126	88	1,080	305	270	176
3	43	53	44	e47	e41	e516	111	85	916	297	302	164
4	40	64	41	e44	e37	e404	102	86	784	372	466	159
5	42	61	47	e40	e39	e1,260	97	82	691	334	436	159
6	44	65	46	e47	e41	e1,840	99	82	718	1,620	353	204
7	46	64	46	e56	e42	e1,300	89	74	950	1,210	306	182
8	53	50	48	e53	e43	e525	87	81	676	1,090	291	169
9	50	50	49	e49	e47	381	82	104	2,020	1,090	347	159
10	49	43	57	e50	e45	311	78	152	2,520	988	423	156
11	46	49	e44	e54	e47	252	72	335	1,850	1,070	346	153
12	47	47	e29	e48	e45	212	73	290	2,240	1,740	308	149
13	46	46	e35	e42	e45	215	73	252	2,220	1,760	281	144
14	46	47	e41	e43	e44	225	73	1,290	1,500	1,180	258	150
15	44	49	e46	e40	e40	e199	74	768	1,140	935	240	286
16	44	51	e43	e43	e39	e180	76	405	960	786	227	3,250
17	48	52	e41	e38	e39	e160	78	340	1,900	671	232	2,700
18	53	63	e46	e35	e42	150	84	293	1,640	568	226	946
19	50	58	e46	e37	e45	153	82	259	1,200	503	220	640
20	52	60	e43	e44	e47	146	77	325	950	458	208	481
21	51	56	e46	e49	e45	124	90	1,060	819	465	201	395
22	52	56	e43	e38	e48	128	91	5,020	720	470	199	351
23	51	57	e41	e40	e51	129	92	5,300	639	435	192	313
24	45	52	e38	e40	e45	126	84	3,020	560	383	188	288
25	50	e46	e41	e44	e48	122	88	2,180	500	358	184	264
26	49	51	e46	e43	e52	145	92	1,680	464	336	191	241
27	45	47	e52	e41	e57	152	107	1,340	414	316	207	224
28	48	43	58	e39	e63	169	135	1,090	392	299	179	213
29	49	46	61	e39	e131	184	122	1,100	371	298	191	215
30	51	40	61	e37	---	185	106	1,640	338	281	192	208
31	50	---	e66	e36	---	164	---	1,750	---	275	177	---
TOTAL	1,468	1,561	1,426	1,365	1,387	11,149	2,783	30,671	32,472	21,222	8,126	13,320
MEAN	47.4	52.0	46.0	44.0	47.8	360	92.8	989	1,082	685	262	444
MAX	53	65	66	59	131	1,840	143	5,300	2,520	1,760	466	3,250
MIN	40	40	29	35	37	122	72	74	338	275	177	144
AC-FT	2,910	3,100	2,830	2,710	2,750	22,110	5,520	60,840	64,410	42,090	16,120	26,420
CFSM	0.13	0.14	0.13	0.12	0.13	0.98	0.25	2.70	2.95	1.87	0.71	1.21
IN.	0.15	0.16	0.14	0.14	0.14	1.13	0.28	3.11	3.29	2.15	0.82	1.35

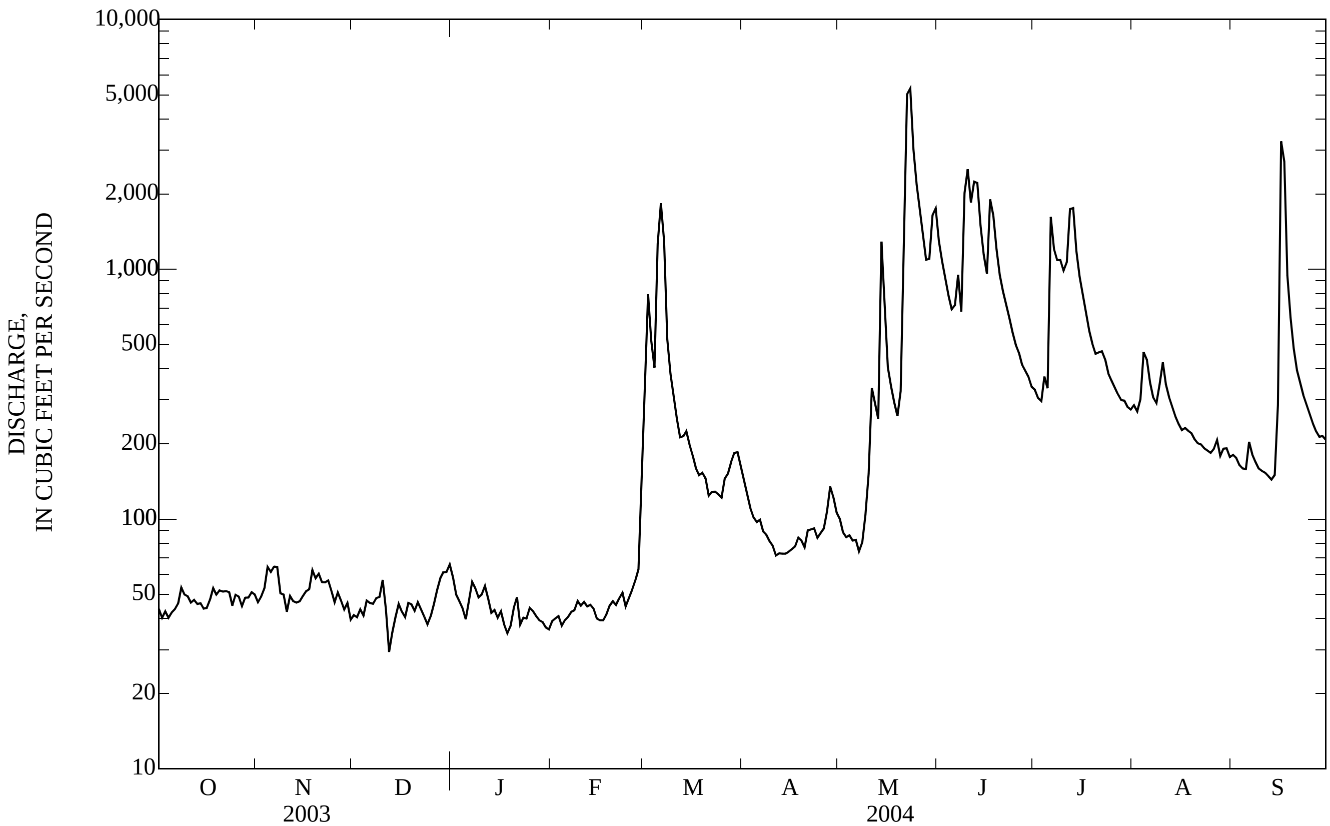
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	61.0	61.9	48.1	43.2	51.1	223	104	713	632	432	164	244
MAX	74.7	71.7	50.2	44.0	54.4	360	116	989	1,082	685	262	444
(WY)	(2003)	(2003)	(2003)	(2004)	(2003)	(2004)	(2003)	(2004)	(2004)	(2004)	(2004)	(2004)
MIN	47.4	52.0	46.0	42.4	47.8	86.5	92.8	436	183	178	66.5	44.5
(WY)	(2004)	(2004)	(2004)	(2003)	(2004)	(2003)	(2004)	(2003)	(2003)	(2003)	(2003)	(2003)

05387440 UPPER IOWA RIVER AT BLUFFTON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2003 - 2004	
ANNUAL TOTAL	41,382		126,950			
ANNUAL MEAN	113		347		232	
HIGHEST ANNUAL MEAN					347	2004
LOWEST ANNUAL MEAN					118	2003
HIGHEST DAILY MEAN	1,460	May 12	5,300	May 23	5,300	May 23, 2004
LOWEST DAILY MEAN	29	Dec 12	29	Dec 12 a	29	Dec 12, 2003 a
ANNUAL SEVEN-DAY MINIMUM	36	Jan 17	38	Jan 29	36	Jan 17, 2003 a
MAXIMUM PEAK FLOW			6,300	May 23	6,300	May 23, 2004
MAXIMUM PEAK STAGE			10.26	May 23	10.26	May 23, 2004
ANNUAL RUNOFF (AC-FT)	82,080		251,800		168,400	
ANNUAL RUNOFF (CFSM)	0.309		0.945		0.633	
ANNUAL RUNOFF (INCHES)	4.19		12.87		8.60	
10 PERCENT EXCEEDS	230		1,060		479	
50 PERCENT EXCEEDS	57		105		77	
90 PERCENT EXCEEDS	42		42		42	

a Ice affected
e Estimated



05387500 UPPER IOWA RIVER AT DECORAH, IA

LOCATION.--(revised)Lat 43°18'18", long 91°47'43", 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 Drive, 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, October 1, 2002 to current year;Stage only records from October 20, 1999 to September 30,2002.

GAGE.--Water-stage recorder. Datum of gage is 850.00 ft. above NGVD of 1929.

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

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.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	75	67	e69	e52	e479	221	159	1,620	511	486	230
2	67	75	e66	e57	e57	e1,070	e200	150	1,360	481	501	220
3	73	76	67	e56	e58	e697	e190	143	1,160	461	633	205
4	72	87	69	e53	e52	e526	e179	136	1,030	635	1,000	198
5	70	84	69	e51	e55	e1,360	174	131	937	557	835	192
6	70	82	69	e61	e57	2,080	170	126	873	2,370	668	224
7	68	75	67	e65	e58	1,710	163	121	1,240	1,830	571	228
8	69	74	66	e62	e57	825	156	129	930	1,590	518	e209
9	68	76	65	e58	e61	584	151	148	2,150	1,680	610	198
10	64	77	70	e59	e59	460	146	174	3,340	1,580	675	193
11	65	74	e59	e63	e61	391	142	340	2,310	1,620	599	187
12	66	72	e51	e56	e60	326	138	355	2,770	2,220	507	183
13	66	71	e57	e49	e60	305	135	322	2,620	2,390	436	177
14	64	76	e59	e52	e56	319	130	663	1,960	1,720	385	189
15	63	77	e61	e50	e52	287	126	828	1,510	1,400	344	251
16	62	78	e59	e51	e52	250	123	553	1,310	1,220	321	2,320
17	63	76	e52	e46	e53	234	121	438	2,020	1,080	313	3,540
18	66	89	e55	e43	e56	221	124	371	2,010	967	307	1,260
19	68	85	e55	e45	e57	225	129	323	1,550	932	308	889
20	63	83	e50	e53	e59	211	136	389	1,250	859	287	703
21	64	81	e56	e59	e57	196	148	1,570	1,120	1,040	275	575
22	64	77	e54	e52	e60	186	149	6,550	1,010	992	265	481
23	64	77	e52	e60	e62	176	145	7,380	900	912	264	426
24	64	74	e49	e56	e56	166	144	4,420	832	823	260	385
25	64	66	e53	e61	e58	169	150	3,190	767	750	247	356
26	65	73	e56	e59	e61	242	151	2,370	702	665	254	332
27	64	78	61	e55	e67	231	159	1,830	651	593	387	312
28	67	73	65	e53	e84	246	179	1,440	611	551	274	296
29	73	68	66	e51	e200	251	173	1,670	576	546	259	282
30	74	78	68	e50	---	265	166	1,930	547	514	259	267
31	73	---	e74	e48	---	243	---	2,090	---	488	241	---
TOTAL	2,068	2,307	1,887	1,703	1,837	14,931	4,618	40,439	41,666	33,977	13,289	15,508
MEAN	66.7	76.9	60.9	54.9	63.3	482	154	1,304	1,389	1,096	429	517
MAX	74	89	74	69	200	2,080	221	7,380	3,340	2,390	1,000	3,540
MIN	62	66	49	43	52	166	121	121	547	461	241	177
AC-FT	4,100	4,580	3,740	3,380	3,640	29,620	9,160	80,210	82,640	67,390	26,360	30,760
CFSM	0.13	0.15	0.12	0.11	0.12	0.94	0.30	2.55	2.72	2.14	0.84	1.01
IN.	0.15	0.17	0.14	0.12	0.13	1.09	0.34	2.94	3.03	2.47	0.97	1.13

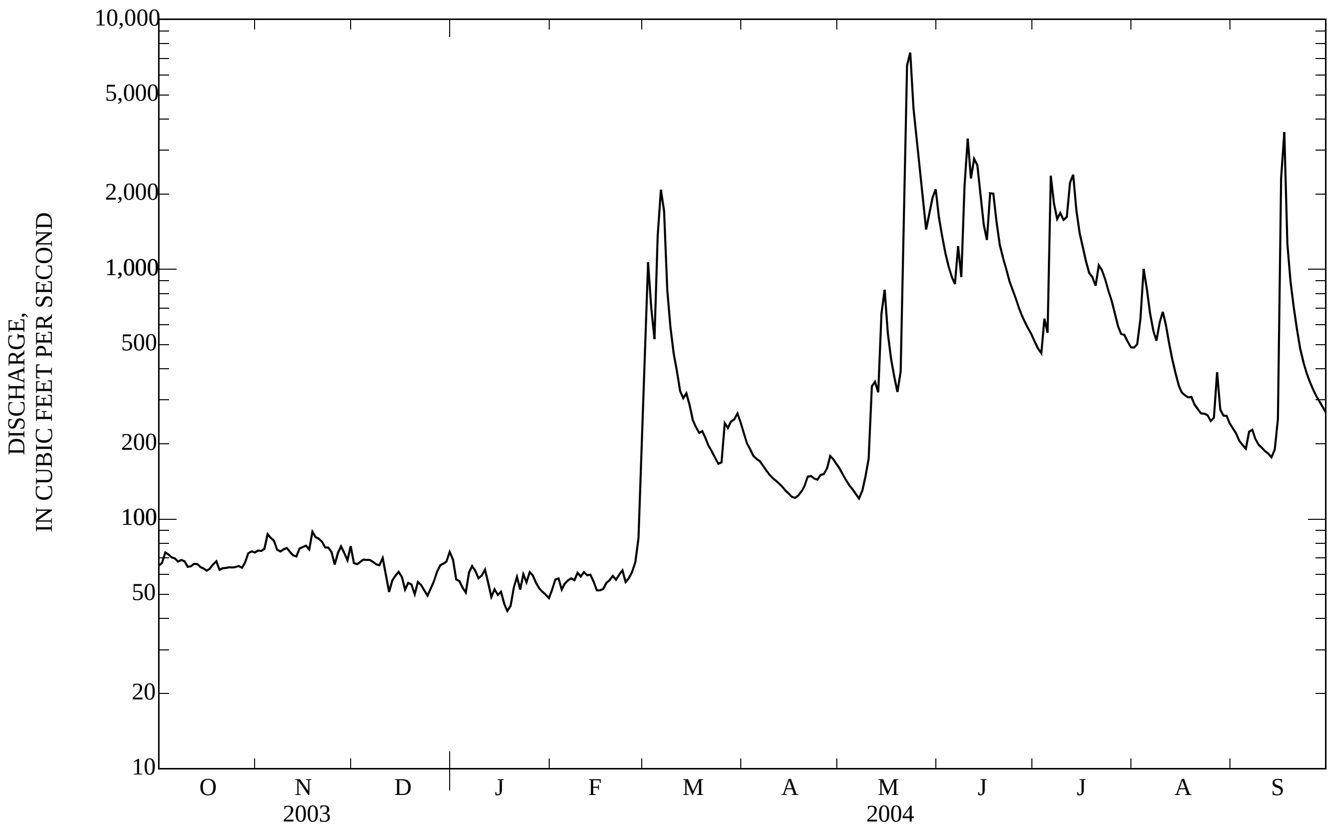
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2004, BY WATER YEAR (WY)

MEAN	239	210	156	129	157	675	607	446	454	328	247	274
MAX	896	1,111	940	662	789	1,937	2,067	1,453	1,652	1,096	1,353	1,305
(WY)	(1973)	(1983)	(1983)	(1973)	(1966)	(1961)	(1965)	(1973)	(1969)	(2004)	(1953)	(1965)
MIN	37.2	43.2	40.2	25.7	25.2	72.6	89.6	81.6	64.5	53.0	44.8	39.6
(WY)	(1959)	(1965)	(1959)	(1959)	(1959)	(1968)	(1957)	(1958)	(1958)	(1958)	(1958)	(1958)

05387500 UPPER IOWA RIVER AT DECORAH, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1952 - 2004	
ANNUAL TOTAL	54,581		174,230			
ANNUAL MEAN	150		476		327	
HIGHEST ANNUAL MEAN					845	1983
LOWEST ANNUAL MEAN					96.7	1958
HIGHEST DAILY MEAN	1,630	May 13	7,380	May 23	15,000	Mar 27, 1961
LOWEST DAILY MEAN	49	Dec 24	43	Jan 18 a	22	Feb 2, 1959
ANNUAL SEVEN-DAY MINIMUM	53	Dec 19	48	Jan 13	22	Feb 1, 1959
MAXIMUM PEAK FLOW			8,180	May 23	20,200	Mar 27, 1961
MAXIMUM PEAK STAGE			9.32	May 23	13.08	Mar 27, 1961
ANNUAL RUNOFF (AC-FT)	108,300		345,600		236,600	
ANNUAL RUNOFF (CFSM)	0.293		0.932		0.639	
ANNUAL RUNOFF (INCHES)	3.97		12.68		8.68	
10 PERCENT EXCEEDS	284		1,370		650	
50 PERCENT EXCEEDS	77		168		152	
90 PERCENT EXCEEDS	59		56		60	

a Ice affected.
e Estimated



05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA

LOCATION.--Lat 43°25'16", long 91°30'31", in SW$\frac{1}{4}$ NW$\frac{1}{4}$ 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 NGVD of 1929. 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 data collection platform with satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	133	130	e118	e96	e1,040	352	242	2,080	617	578	433
2	134	134	116	e112	e102	e1,630	325	229	1,680	582	605	420
3	137	147	118	e106	e102	e1,180	302	217	1,430	563	638	409
4	137	187	123	e101	e100	e893	284	208	1,240	598	1,220	379
5	136	184	133	e99	e105	e1,890	268	203	1,120	645	920	386
6	134	165	133	e105	e111	2,990	267	201	1,050	1,790	813	456
7	132	157	129	e114	e112	2,090	257	195	1,150	2,190	713	502
8	130	145	127	e110	e112	1,260	244	212	1,070	1,630	655	488
9	127	135	127	e101	e118	810	231	234	1,310	1,570	645	457
10	130	136	130	e109	e117	642	222	259	3,970	1,810	672	446
11	131	145	e117	e113	e122	552	215	300	2,640	1,490	715	439
12	135	142	e97	e107	e120	471	210	473	3,040	1,920	646	443
13	137	136	e99	e100	e122	419	205	479	2,710	2,200	602	440
14	138	134	e101	e107	e117	414	201	468	2,420	1,870	564	453
15	134	136	e104	e101	e109	404	197	815	1,840	1,470	534	484
16	130	138	e103	e102	e109	367	194	728	1,550	1,270	517	548
17	130	137	e99	e98	e111	342	194	610	1,890	1,130	508	3,690
18	130	169	e104	e94	e114	326	e196	537	2,090	1,020	495	1,790
19	135	179	e103	e98	e119	317	e200	483	1,750	941	493	1,150
20	134	159	e100	e104	e121	322	208	477	1,440	1,040	475	e993
21	132	149	e107	e109	e119	304	230	1,190	1,270	1,020	454	e851
22	130	144	e105	e97	e120	286	233	6,780	1,170	1,160	442	e745
23	131	141	e100	e103	e122	276	232	8,430	1,050	955	436	e673
24	134	134	e96	e102	e115	274	222	6,030	968	863	472	e619
25	134	127	e98	e106	e117	270	236	3,480	901	791	444	e580
26	131	119	e101	e105	e122	341	241	2,520	828	737	441	e534
27	134	131	e106	e102	e139	396	231	1,990	776	699	753	e480
28	137	136	e107	e100	e204	383	234	1,620	731	664	548	420
29	137	127	e110	e96	e469	382	251	2,240	691	648	474	415
30	137	117	e114	e93	---	378	248	2,500	653	650	454	403
31	136	---	e120	e93	---	376	---	2,460	---	607	444	---
TOTAL	4,135	4,323	3,457	3,205	3,766	22,025	7,130	46,810	46,508	35,140	18,370	20,526
MEAN	133	144	112	103	130	710	238	1,510	1,550	1,134	593	684
MAX	138	187	133	118	469	2,990	352	8,430	3,970	2,200	1,220	3,690
MIN	127	117	96	93	96	270	194	195	653	563	436	379
AC-FT	8,200	8,570	6,860	6,360	7,470	43,690	14,140	92,850	92,250	69,700	36,440	40,710
CFSM	0.17	0.19	0.14	0.13	0.17	0.92	0.31	1.96	2.01	1.47	0.77	0.89
IN.	0.20	0.21	0.17	0.15	0.18	1.06	0.34	2.26	2.25	1.70	0.89	0.99

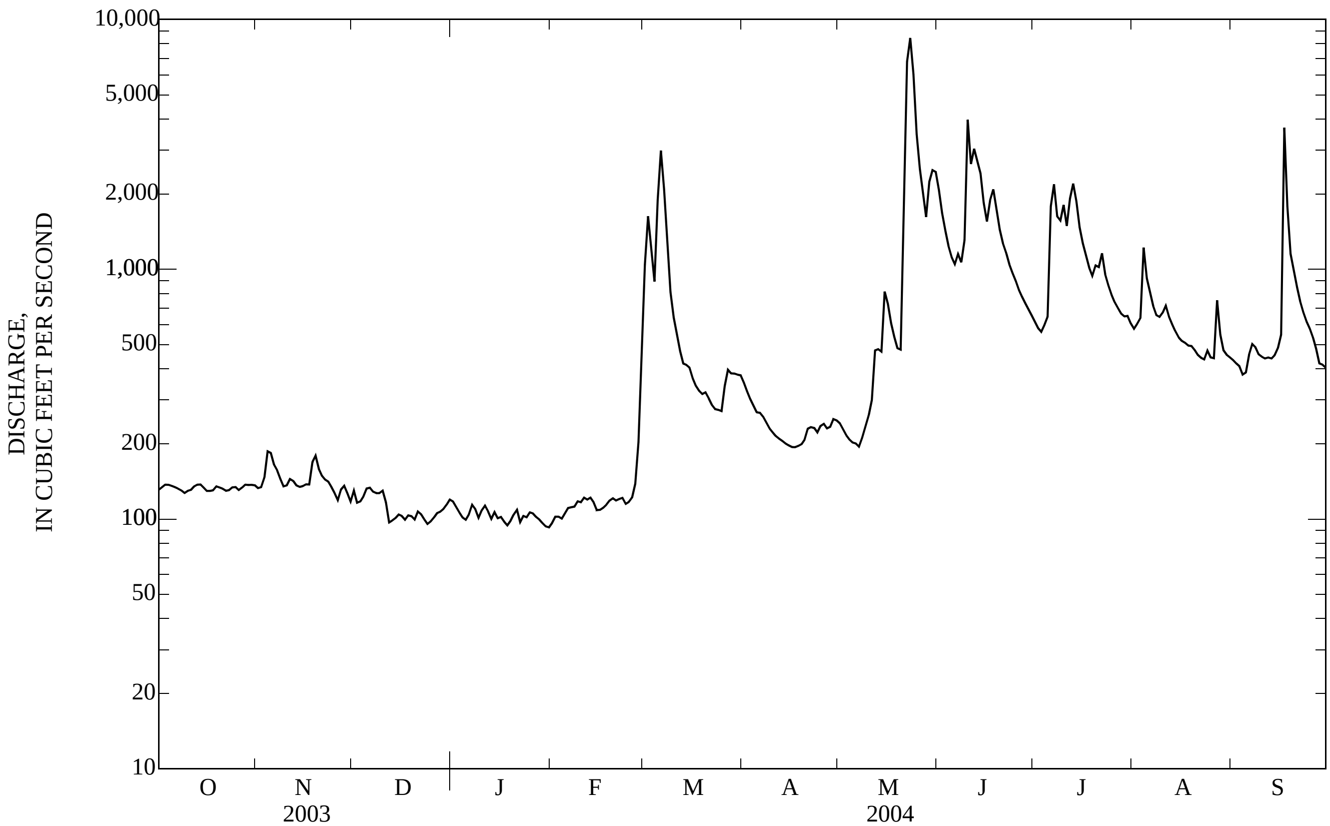
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	396	416	335	248	381	959	1,039	856	907	687	561	444
MAX	2,045	1,476	1,421	836	1,400	1,922	3,973	2,066	3,538	3,318	3,702	1,334
(WY)	(1987)	(1983)	(1983)	(1983)	(1984)	(1983)	(1993)	(1991)	(2000)	(1993)	(1993)	(1986)
MIN	116	125	99.9	96.7	112	221	225	175	123	92.9	112	77.5
(WY)	(1990)	(1990)	(1990)	(1977)	(1978)	(2003)	(1977)	(1977)	(1977)	(1939)	(1989)	(1939)

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1939 - 2004	
ANNUAL TOTAL	88,029		215,395			
ANNUAL MEAN	241		589		605	
HIGHEST ANNUAL MEAN					1,726	1993
LOWEST ANNUAL MEAN					178	1977
HIGHEST DAILY MEAN	1,730	May 13	8,430	May 23	15,100	Aug 17, 1993
LOWEST DAILY MEAN	82	Jan 23	93	Jan 30 a	30	Sep 23, 1939
ANNUAL SEVEN-DAY MINIMUM	86	Jan 20	97	Jan 27	49	Sep 20, 1939
MAXIMUM PEAK FLOW			9,320	May 22	22,000	Aug 17, 1993
MAXIMUM PEAK STAGE			15.37	May 22	20.00	Aug 17, 1993
ANNUAL RUNOFF (AC-FT)	174,600		427,200		438,400	
ANNUAL RUNOFF (CFSM)	0.313		0.764		0.786	
ANNUAL RUNOFF (INCHES)	4.25		10.41		10.68	
10 PERCENT EXCEEDS	436		1,510		1,300	
50 PERCENT EXCEEDS	150		254		357	
90 PERCENT EXCEEDS	107		105		136	

a also January 31; Ice affected
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 NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	9.0	9.4	9.1	8.2	57	23	10	38	8.3	8.1	8.7
2	10	9.7	9.1	10	8.5	27	19	9.5	27	8.0	11	8.7
3	10	13	10	10	8.5	13	14	10	20	8.1	25	8.6
4	9.9	28	9.7	8.8	8.3	14	14	9.9	17	11	32	8.5
5	10	12	10	9.2	8.6	240	14	9.8	16	13	12	8.5
6	10	10	9.9	8.4	8.9	47	13	10	16	15	10	8.6
7	9.3	9.7	9.9	8.2	8.6	24	13	9.7	14	14	9.7	8.4
8	9.1	9.2	10	8.6	8.4	16	13	11	12	13	9.6	8.3
9	9.1	9.0	10	8.9	8.2	13	12	10	11	14	10	8.3
10	8.6	9.5	11	9.1	8.2	13	12	13	14	14	9.1	8.4
11	8.6	9.6	8.7	9.3	8.0	13	12	12	28	13	8.9	8.4
12	8.5	9.2	8.6	9.5	7.7	12	12	11	33	14	8.8	8.3
13	9.5	9.0	8.5	9.7	7.4	12	12	18	17	11	8.7	8.5
14	9.1	9.0	9.0	9.5	8.0	14	11	16	14	10	8.6	9.2
15	8.3	9.2	9.3	8.8	7.6	12	11	14	13	10	8.5	8.4
16	8.4	9.4	9.7	9.5	7.7	11	11	13	25	17	8.7	8.6
17	8.6	9.2	9.4	9.7	7.6	12	11	14	34	13	9.0	8.6
18	8.7	10	9.8	9.0	7.5	12	11	20	14	9.4	9.1	8.6
19	8.6	10	9.8	8.5	7.9	13	11	15	12	9.3	9.2	8.6
20	8.6	9.8	8.7	8.6	8.3	12	11	14	11	9.3	9.0	8.5
21	8.6	9.6	9.2	9.0	11	11	12	28	24	19	9.0	8.5
22	8.5	9.5	9.8	e8.8	9.1	11	10	390	15	13	9.1	8.5
23	8.6	11	9.8	8.5	9.6	11	9.9	e1,800	12	10	9.3	8.9
24	8.6	10	8.9	8.5	19	14	10	e370	11	9.0	9.7	9.0
25	8.6	9.4	8.7	8.6	13	24	11	e150	10	8.5	10	8.9
26	9.0	9.8	9.1	8.7	19	95	10	53	10	8.1	9.7	8.8
27	8.9	9.9	9.9	8.9	46	52	9.6	40	9.6	8.1	18	8.9
28	8.8	9.6	11	8.8	78	43	10	30	9.3	8.0	12	8.8
29	9.1	9.4	9.7	8.7	68	37	9.6	79	8.9	8.6	10	8.8
30	9.3	9.7	9.6	e8.5	---	33	10	57	8.6	8.6	9.2	8.9
31	9.1	---	10	8.4	---	28	---	54	---	8.2	8.9	---
TOTAL	280.0	311.4	296.2	277.8	434.8	946	362.1	3,300.9	504.4	343.5	339.9	258.7
MEAN	9.03	10.4	9.55	8.96	15.0	30.5	12.1	106	16.8	11.1	11.0	8.62
MAX	10	28	11	10	78	240	23	1,800	38	19	32	9.2
MIN	8.3	9.0	8.5	8.2	7.4	11	9.6	9.5	8.6	8.0	8.1	8.3
AC-FT	555	618	588	551	862	1,880	718	6,550	1,000	681	674	513
CFSM	0.26	0.30	0.28	0.26	0.44	0.89	0.35	3.12	0.49	0.32	0.32	0.25
IN.	0.31	0.34	0.32	0.30	0.47	1.03	0.39	3.60	0.55	0.37	0.37	0.28

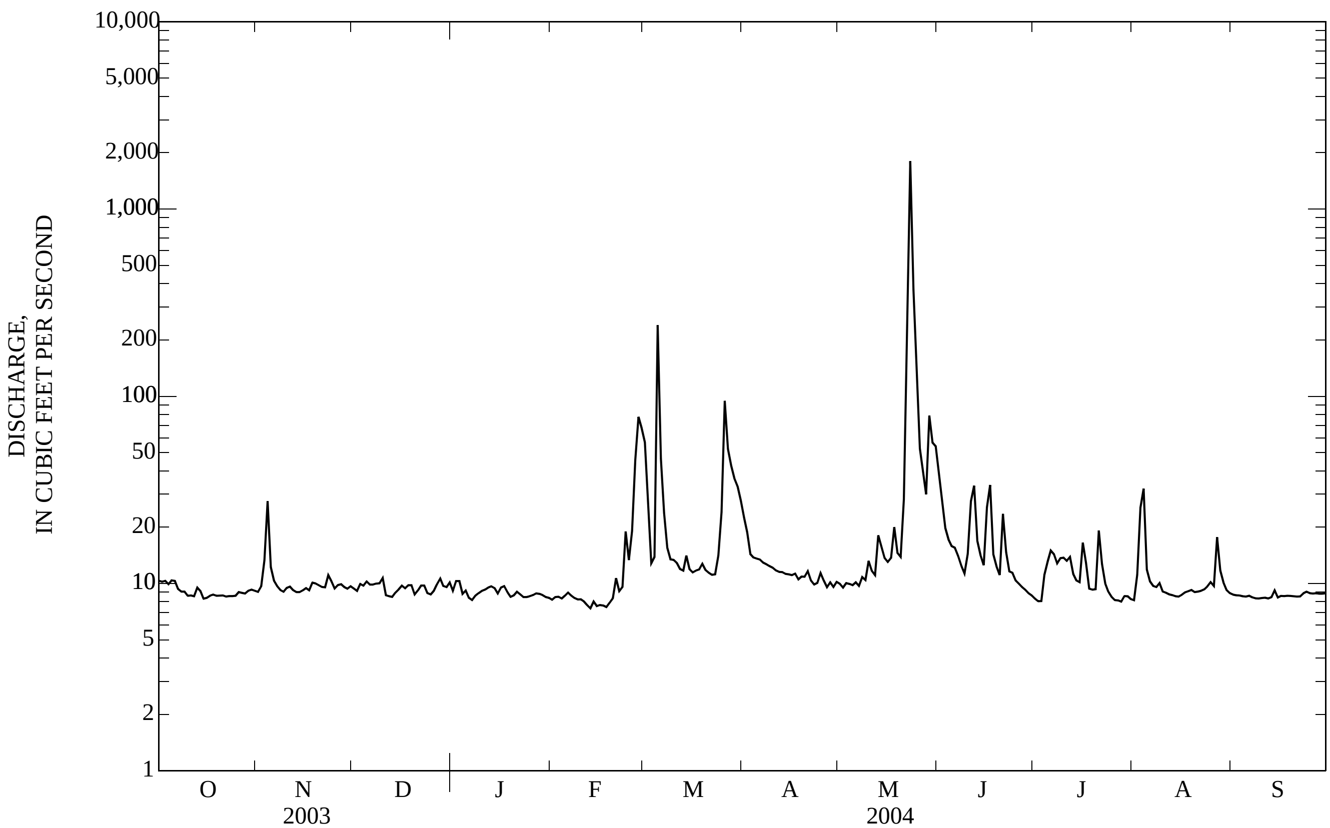
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	19.3	20.2	17.0	15.3	20.5	27.6	24.5	35.1	28.3	25.1	23.6	20.7
MAX	30.9	35.3	26.0	22.3	33.6	87.6	55.3	106	55.4	54.2	48.9	36.4
(WY)	(1994)	(1992)	(1992)	(1992)	(1994)	(1993)	(1993)	(2004)	(1993)	(1993)	(1993)	(1993)
MIN	9.03	10.4	9.55	8.96	11.3	14.0	11.3	16.9	12.1	11.1	11.0	8.62
(WY)	(2004)	(2004)	(2004)	(2004)	(2001)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1992 - 2004	
ANNUAL TOTAL	4,380.4		7,655.7			
ANNUAL MEAN	12.0		20.9		23.1	
HIGHEST ANNUAL MEAN					42.1	1993
LOWEST ANNUAL MEAN					12.8	2003
HIGHEST DAILY MEAN	49	Mar 14	1,800	May 23	1,800	May 23, 2004
LOWEST DAILY MEAN	8.3	Oct 15	7.4	Feb 13	6.8	Jan 20, 2001
ANNUAL SEVEN-DAY MINIMUM	8.5	Oct 15	7.6	Feb 12	7.6	Feb 12, 2004
MAXIMUM PEAK FLOW			4,620	May 23	4,620	May 23, 2004
MAXIMUM PEAK STAGE			12.38	May 23	12.38	May 23, 2004
INSTANTANEOUS LOW FLOW			6.5	Feb 15 a		
ANNUAL RUNOFF (AC-FT)	8,690		15,190		16,740	
ANNUAL RUNOFF (CFSM)	0.352		0.613		0.677	
ANNUAL RUNOFF (INCHES)	4.77		8.34		9.20	
10 PERCENT EXCEEDS	14		23		34	
50 PERCENT EXCEEDS	11		9.7		20	
90 PERCENT EXCEEDS	9.2		8.5		11	

a also February 16.
e Estimated



05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1991 to September 30, 2004 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1991 to September 30, 2004 (discontinued).
WATER TEMPERATURES: October 1991 to September 30, 2004 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: October 1991 to September 30, 2004 (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, 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, Dec. 9, 2002.
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, 8120 tons MAt 23, 2004; minimum daily, 0.08 tons Oct. 30, 1994, Nov. 23-24, 1997, and Dec. 8, 1997.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 617 microsiemens July 5; minimum daily, 317 microsiemens May 22.
WATER TEMPERATURES: Maximum daily, 23.0°C July 13; minimum daily, 1.0°C Dec. 13, Jan. 5,6,18,28,29, Feb. 28.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1670 mg/L May 23; minimum daily mean, 9.0 mg/L Apr. 13,14.
SEDIMENT LOADS: Maximum daily, 8120 tons May 23; minimum daily, 0.26 tons Jan. 14.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Temperature, water, deg C (00010)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
OCT						
29...	1140	9.3	8.3	82	53	1.3
DEC						
09...	0850	9.9	--	69	53	1.4
JAN						
21...	1004	9.2	--	74	92	2.3
MAR						
09...	1220	14	--	41	50	1.9
APR						
20...	0825	10	--	25	54	1.5
MAY						
25...	1600	68	--	94	89	16
JUL						
07...	0910	14	--	62	48	1.9
AUG						
04...	0810	34	--	100	264	24

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	477	401	457	392	---	378	472	---	555	411	462	449
2	455	---	491	411	394	456	---	434	---	410	465	423
3	470	387	528	---	389	512	---	409	---	---	472	492
4	---	440	530	---	408	540	---	411	---	439	473	---
5	---	436	526	412	384	359	480	---	---	617	483	---
6	463	400	---	468	399	464	460	---	---	430	404	472
7	447	424	---	403	---	---	517	461	489	438	520	406
8	517	---	---	444	399	---	427	---	477	---	507	---
9	474	---	419	---	380	497	537	475	430	417	490	472
10	523	422	---	---	479	429	---	462	---	426	396	---
11	---	414	385	422	409	437	507	---	438	409	431	470
12	---	368	390	384	390	---	430	503	---	---	475	551
13	538	431	423	526	---	533	482	---	445	438	430	448
14	---	---	439	423	---	---	448	---	514	408	---	473
15	492	435	426	441	393	437	480	---	465	391	567	491
16	512	---	405	477	410	432	---	538	---	---	420	536
17	451	424	401	447	404	433	---	---	---	---	386	447
18	---	435	404	417	391	---	---	576	---	412	471	---
19	478	450	---	438	390	---	---	---	445	386	486	455
20	407	446	400	548	---	496	492	550	480	384	---	492
21	503	408	---	409	---	406	454	---	500	480	---	---
22	479	---	425	---	---	443	400	317	503	398	434	434
23	435	---	393	---	543	438	475	342	508	---	---	504
24	470	429	---	---	---	468	402	487	465	---	---	524
25	---	435	395	406	546	---	444	529	---	449	406	532
26	524	452	404	391	544	---	410	486	---	---	---	473
27	511	487	416	415	---	---	403	---	---	---	541	498
28	---	468	---	396	413	---	447	---	415	---	---	---
29	450	---	394	393	348	478	469	549	456	413	448	440
30	405	---	423	410	---	445	---	---	---	---	438	---
31	432	---	415	---	---	517	---	530	---	394	484	---

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	9.0	5.0	3.0	---	4.0	14.0	---	17.0	20.0	18.0	20.0
2	9.0	---	4.0	5.0	4.0	4.0	---	15.0	---	21.0	20.0	20.0
3	10.0	7.0	5.0	---	3.0	6.0	---	15.0	---	---	20.0	20.0
4	---	8.0	5.0	---	2.0	6.0	---	17.0	---	19.0	21.0	---
5	---	7.0	5.0	1.0	4.0	3.0	15.0	---	---	20.0	20.0	---
6	13.0	6.0	---	1.0	6.0	6.0	17.0	---	---	18.0	20.0	17.0
7	14.0	6.0	---	3.0	---	---	16.0	15.0	22.0	14.2	16.0	17.0
8	15.0	---	---	4.0	4.0	---	16.0	---	21.0	---	20.0	---
9	15.0	---	6.0	---	5.0	8.0	14.0	19.0	21.0	17.0	20.0	17.0
10	15.0	6.0	---	---	4.0	8.0	---	18.0	---	20.0	16.0	---
11	---	8.0	3.0	5.0	5.0	3.0	13.0	---	19.0	18.0	16.0	18.0
12	---	5.0	2.0	4.0	5.0	---	13.0	20.0	---	---	17.0	16.0
13	13.0	6.0	1.0	4.0	---	5.0	15.0	---	21.0	23.0	16.0	18.0
14	---	---	4.0	3.0	---	---	17.0	---	21.0	21.0	---	19.0
15	12.0	7.0	5.0	3.0	4.0	5.0	16.0	---	21.0	21.0	17.0	19.0
16	9.0	---	3.0	4.0	4.0	5.0	---	14.0	---	---	16.0	17.0
17	10.0	8.0	3.0	4.0	5.0	9.0	---	---	---	---	19.0	17.0
18	---	9.0	5.0	1.0	8.0	---	---	18.0	---	20.0	19.0	---
19	13.0	7.0	---	2.0	6.0	---	---	---	18.0	19.0	18.0	18.0
20	14.0	7.0	4.0	3.0	---	10.0	8.7	20.0	16.0	21.0	---	17.0
21	11.0	6.0	---	4.0	---	10.0	14.0	---	17.0	20.0	---	---
22	11.0	---	5.0	---	---	10.0	14.0	17.0	18.0	20.0	17.0	17.0
23	11.0	---	4.0	---	6.0	13.0	16.0	17.0	19.0	---	---	17.0
24	9.0	4.0	---	---	---	13.0	13.0	16.0	17.0	---	---	16.0
25	---	5.0	2.0	3.0	5.0	---	12.0	13.5	---	19.0	17.0	16.0
26	8.0	5.0	5.0	3.0	5.0	---	14.0	17.0	---	---	---	13.0
27	8.0	5.0	6.0	3.0	---	---	13.0	---	---	---	22.0	16.0
28	---	4.0	---	1.0	1.0	---	20.0	---	16.0	---	---	---
29	8.3	---	4.0	1.0	2.0	13.0	19.0	16.0	16.0	19.0	18.0	15.0
30	10.0	---	5.0	2.0	---	10.0	---	---	---	---	20.0	---
31	9.0	---	4.0	---	---	13.0	---	17.0	---	17.0	18.0	---

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

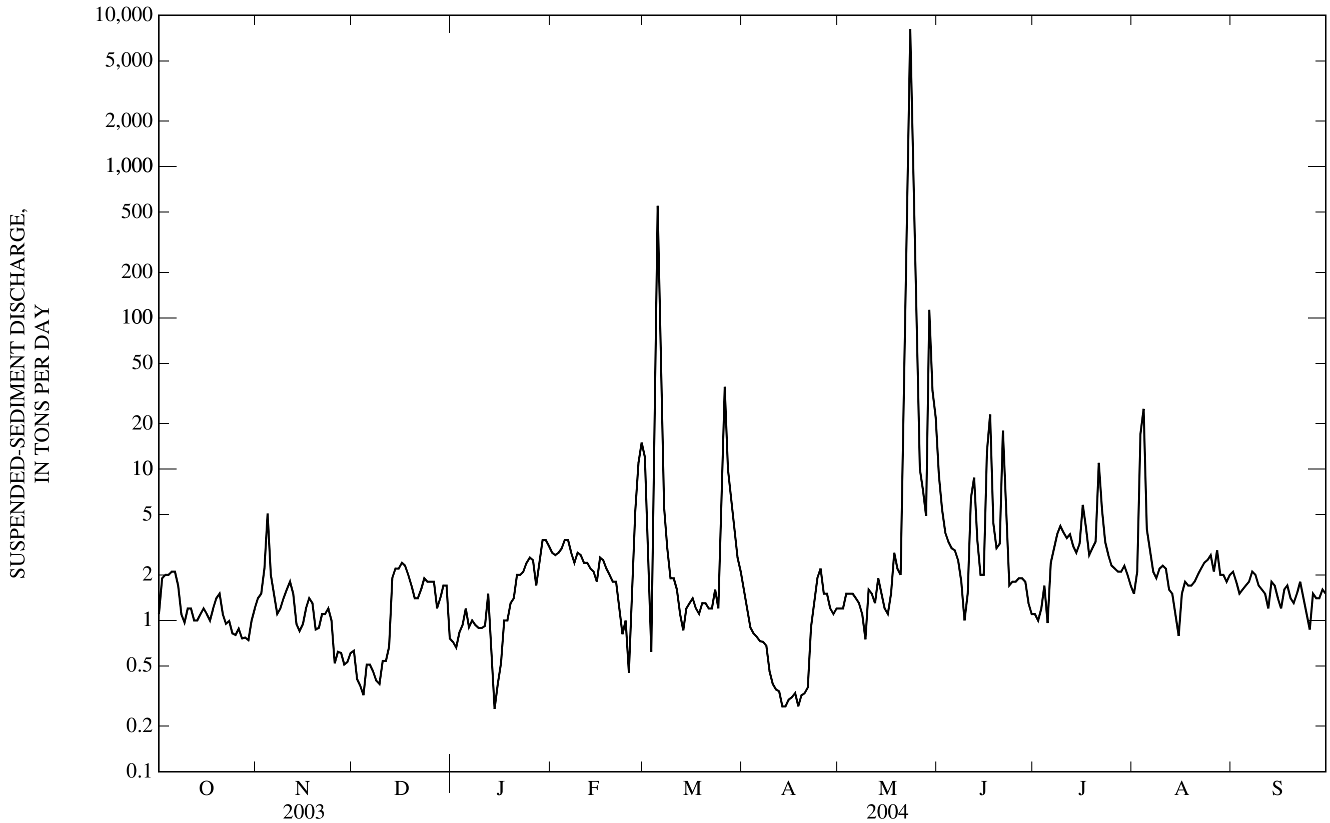
Day	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	40	1.1	55	1.4	25	0.63	29	0.72	128	2.8	80	12
2	68	1.9	59	1.5	17	0.41	24	0.66	120	2.7	39	3.2
3	72	2.0	62	2.2	14	0.37	30	0.83	123	2.8	18	0.62
4	73	2.0	69	5.1	12	0.32	39	0.93	133	3.0	71	5.0
5	75	2.1	61	2.0	18	0.51	47	1.2	147	3.4	884	550
6	76	2.1	54	1.5	19	0.51	40	0.90	140	3.4	348	52
7	68	1.7	43	1.1	17	0.46	46	1.0	122	2.8	86	5.6
8	45	1.1	47	1.2	15	0.40	40	0.93	108	2.4	72	3.0
9	40	0.97	55	1.4	14	0.38	37	0.89	128	2.8	51	1.9
10	50	1.2	64	1.6	19	0.54	36	0.89	123	2.7	53	1.9
11	50	1.2	68	1.8	23	0.54	37	0.92	113	2.4	44	1.6
12	45	1.0	61	1.5	29	0.67	57	1.5	116	2.4	34	1.1
13	41	1.0	39	0.95	83	1.9	24	0.63	109	2.2	27	0.86
14	46	1.1	35	0.85	92	2.2	10	0.26	97	2.1	32	1.2
15	53	1.2	38	0.94	87	2.2	16	0.38	88	1.8	41	1.3
16	48	1.1	47	1.2	92	2.4	20	0.52	124	2.6	47	1.4
17	43	1.0	56	1.4	89	2.3	39	1.0	124	2.5	37	1.2
18	49	1.2	48	1.3	77	2.0	43	1.0	107	2.2	36	1.1
19	59	1.4	32	0.87	66	1.7	57	1.3	96	2.0	39	1.3
20	65	1.5	34	0.89	57	1.4	61	1.4	81	1.8	41	1.3
21	47	1.1	41	1.1	57	1.4	81	2.0	64	1.8	40	1.2
22	41	0.95	41	1.1	59	1.6	84	2.0	48	1.2	40	1.2
23	43	0.99	39	1.2	72	1.9	94	2.1	31	0.81	52	1.6
24	35	0.82	37	1.0	76	1.8	104	2.4	20	1.0	32	1.2
25	35	0.80	21	0.52	78	1.8	112	2.6	13	0.45	49	5.3
26	36	0.88	23	0.62	74	1.8	105	2.5	30	1.7	131	35
27	32	0.76	23	0.61	44	1.2	73	1.7	43	5.3	73	10
28	32	0.77	20	0.51	49	1.4	100	2.4	51	11	55	6.4
29	30	0.74	21	0.53	65	1.7	143	3.4	81	15	42	4.2
30	42	1.0	23	0.61	67	1.7	146	3.4	---	---	29	2.6
31	49	1.2	---	---	28	0.76	137	3.1	---	---	28	2.1
TOTAL	---	37.88	---	38.50	---	38.90	---	45.46	---	89.06	---	718.38

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	26	1.6	46	1.2	87	9.1	47	1.1	67	1.5	88	2.1
2	24	1.2	47	1.2	73	5.4	46	1.0	69	2.1	77	1.8
3	23	0.90	54	1.5	72	3.8	54	1.2	121	17	66	1.5
4	22	0.82	58	1.5	71	3.3	57	1.7	252	25	68	1.6
5	21	0.78	55	1.5	70	3.0	27	0.96	123	4.0	73	1.7
6	20	0.73	52	1.4	68	2.9	61	2.4	106	2.9	78	1.8
7	21	0.72	48	1.3	67	2.5	79	3.0	81	2.1	92	2.1
8	20	0.68	37	1.1	55	1.8	106	3.7	75	1.9	88	2.0
9	14	0.46	27	0.75	34	1.0	114	4.2	80	2.2	75	1.7
10	12	0.38	44	1.6	32	1.5	102	3.8	92	2.3	70	1.6
11	11	0.35	48	1.5	82	6.4	97	3.5	91	2.2	66	1.5
12	11	0.34	44	1.3	98	8.8	100	3.7	69	1.6	55	1.2
13	9	0.27	40	1.9	75	3.4	103	3.1	62	1.5	81	1.8
14	9	0.27	36	1.5	51	2.0	98	2.8	46	1.1	69	1.7
15	10	0.30	32	1.2	58	2.0	116	3.2	34	0.79	63	1.4
16	10	0.31	31	1.1	112	13	131	5.8	66	1.5	52	1.2
17	11	0.33	41	1.5	211	23	117	4.1	74	1.8	71	1.6
18	10	0.27	52	2.8	113	4.4	108	2.7	70	1.7	72	1.7
19	11	0.32	55	2.2	89	3.0	122	3.0	69	1.7	61	1.4
20	11	0.33	54	2.0	106	3.2	130	3.3	75	1.8	55	1.3
21	12	0.36	290	42	264	18	204	11	83	2.0	63	1.5
22	32	0.90	1,540	1,640	136	5.8	154	5.4	91	2.2	76	1.8
23	49	1.3	1,670	8,120	54	1.7	122	3.3	95	2.4	60	1.4
24	69	1.9	1,340	1,340	57	1.8	111	2.7	98	2.5	46	1.1
25	73	2.2	281	114	65	1.8	100	2.3	99	2.7	36	0.87
26	55	1.5	72	10	69	1.9	98	2.2	81	2.1	62	1.5
27	58	1.5	67	7.2	74	1.9	98	2.1	60	2.9	57	1.4
28	45	1.2	61	4.9	73	1.8	98	2.1	63	2.0	59	1.4
29	43	1.1	426	113	53	1.3	97	2.3	72	2.0	68	1.6
30	45	1.2	218	33	49	1.1	87	2.0	71	1.8	61	1.5
31	---	---	147	22	---	---	75	1.7	83	2.0	---	---
TOTAL	---	24.52	---	11,476.15	---	140.6	---	95.36	---	101.29	---	46.77
YEAR	12,852.87											

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued



05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

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

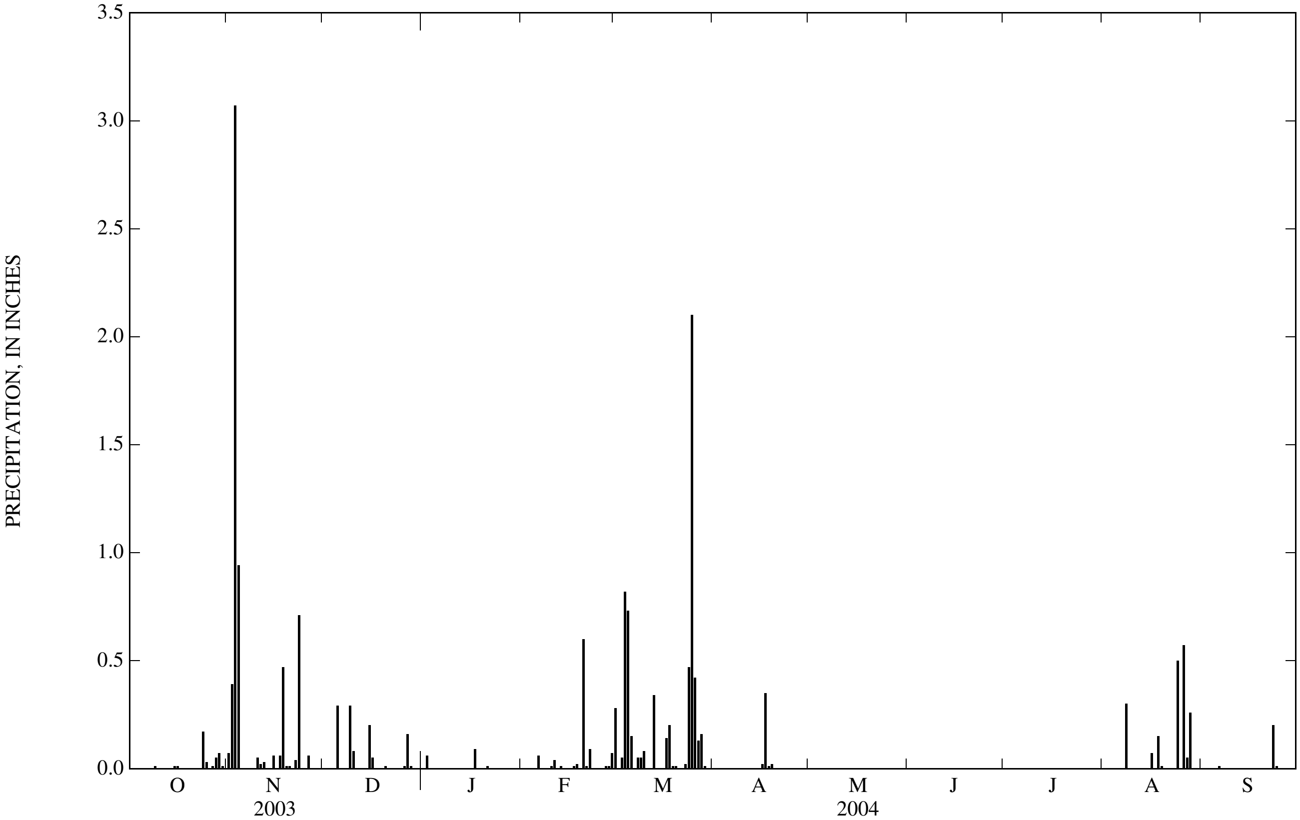
EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation, 3.07 in., Novmeber 3, 2003.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, unable to determine, gage malfunction during annual peak.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.07	0.00	0.00	0.00	0.28	0.00	---	---	---	---	0.00
2	0.00	0.39	0.00	0.06	0.00	0.00	0.00	---	---	---	---	0.00
3	0.00	3.07	0.00	0.00	0.00	0.05	0.00	---	---	---	---	0.00
4	0.00	0.94	0.00	0.00	0.00	0.82	0.00	---	---	---	0.00	0.00
5	0.00	0.00	0.29	0.00	0.00	0.73	0.00	---	---	---	0.00	0.00
6	0.00	0.00	0.00	0.00	0.06	0.15	0.00	---	---	---	0.00	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.05	0.00	---	---	---	0.30	0.00
9	0.01	0.00	0.29	0.00	0.00	0.05	0.00	---	---	---	0.00	0.00
10	0.00	0.05	0.08	0.00	0.01	0.08	0.00	---	---	---	0.00	0.00
11	0.00	0.02	0.00	0.00	0.04	0.00	0.00	---	---	---	0.00	0.00
12	0.00	0.03	0.00	0.00	0.00	0.00	0.00	---	---	---	0.00	0.00
13	0.00	0.00	0.00	0.00	0.01	0.34	0.00	---	---	---	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	0.00	0.00
15	0.01	0.06	0.20	0.00	0.00	0.00	0.00	---	---	---	0.00	0.00
16	0.01	0.00	0.05	0.00	0.00	0.00	0.02	---	---	---	0.07	0.00
17	0.00	0.06	0.00	0.09	0.01	0.14	0.35	---	---	---	0.00	0.00
18	0.00	0.47	0.00	0.00	0.02	0.20	0.01	---	---	---	0.15	0.00
19	0.00	0.01	0.00	0.00	0.00	0.01	0.02	---	---	---	0.01	0.00
20	0.00	0.01	0.01	0.00	0.60	0.01	---	---	---	---	0.00	0.00
21	0.00	0.00	0.00	0.01	0.01	0.00	---	---	---	---	0.00	0.00
22	0.00	0.04	0.00	0.00	0.09	0.00	---	---	---	---	0.00	0.00
23	0.00	0.71	0.00	0.00	0.00	0.02	---	---	---	---	0.00	0.20
24	0.17	0.00	0.00	0.00	0.00	0.47	---	---	---	---	0.50	0.01
25	0.03	0.00	0.00	0.00	0.00	2.10	---	---	---	---	0.00	0.00
26	0.00	0.06	0.01	0.00	0.00	0.42	---	---	---	---	0.57	0.00
27	0.01	0.00	0.16	0.00	0.01	0.13	---	---	---	---	0.05	0.00
28	0.05	0.00	0.01	0.00	0.01	0.16	---	---	---	---	0.26	0.00
29	0.07	0.00	0.00	0.00	0.07	0.01	---	---	---	---	0.00	0.00
30	0.01	0.00	0.00	0.00	---	0.00	---	---	---	---	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	---	---	---	0.00	---
TOTAL	0.37	5.99	1.10	0.16	0.94	6.22	---	---	---	---	---	0.22
MEAN	0.01	0.20	0.04	0.01	0.03	0.20	---	---	---	---	---	0.01
MAX	0.17	3.07	0.29	0.09	0.60	2.10	---	---	---	---	---	0.20
MIN	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	---	0.00

05389400 BLOODY RUN CREEK NEAR MARQUETTE, IA—Continued



05389500 MISSISSIPPI RIVER AT MCGREGOR, IA

LOCATION.--Lat 43°01'37"(revised), long 91°10'21", in SE¼ SE¼ 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 NGVD of 1929. 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 data collection platform with satellite and telephone modem telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1828, 25.38 ft. of on Apr. 24, 1965; Maximum discharge since at least 1828, 276,000 cfs on Apr. 24, 1965.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17,800	18,000	16,600	16,600	e13,500	e20,700	69,000	53,400	72,800	50,400	26,400	17,300
2	12,900	19,500	15,900	16,900	e13,600	e29,700	74,700	50,500	75,300	44,200	25,100	17,900
3	e13,400	21,500	15,000	16,800	e14,200	43,200	80,400	43,900	77,700	39,000	19,700	16,800
4	12,500	22,600	15,600	e15,100	e15,500	45,800	83,500	37,400	81,700	37,100	31,500	16,500
5	13,200	21,100	17,200	e14,300	e15,600	48,000	83,400	36,300	87,100	34,500	34,300	16,900
6	15,700	16,900	18,300	e13,900	e15,600	49,200	82,300	34,000	91,200	37,400	23,600	17,500
7	16,100	16,200	18,300	e14,600	e15,400	49,300	79,400	32,200	94,000	41,700	22,400	19,400
8	16,100	17,000	18,400	e14,600	e15,100	45,700	75,000	30,800	95,300	42,200	25,500	19,800
9	13,500	17,500	19,800	e14,500	e14,800	36,100	69,500	37,300	96,600	42,300	25,000	20,000
10	12,500	17,400	20,600	e13,700	e14,800	29,500	62,700	38,200	97,600	43,400	23,500	23,200
11	12,400	17,600	18,500	e13,300	e15,000	26,900	56,300	35,900	101,000	44,100	23,000	24,500
12	13,100	16,100	19,000	e13,100	e15,000	26,200	51,300	34,200	102,000	41,800	23,700	24,600
13	16,300	17,100	16,900	e13,100	e14,800	28,100	47,200	36,300	103,000	39,800	24,400	23,300
14	18,500	17,400	13,900	e13,100	e14,800	31,000	44,100	38,600	106,000	42,600	24,800	21,300
15	20,400	18,700	9,590	e13,100	e14,900	35,400	43,600	37,400	110,000	43,700	24,800	25,700
16	17,200	19,000	9,620	e13,200	e14,800	35,300	40,600	37,900	113,000	43,700	23,800	38,400
17	13,100	19,100	11,900	e13,300	e15,000	32,200	37,900	40,600	114,000	43,500	22,800	44,500
18	11,500	22,300	14,500	e13,500	e15,300	30,700	35,100	45,400	114,000	42,600	24,400	48,500
19	13,800	23,900	19,600	e13,400	e15,200	30,500	33,800	44,900	110,000	41,800	25,800	51,600
20	9,990	e22,200	22,300	e13,300	e15,300	33,200	36,400	41,200	106,000	41,300	23,300	50,900
21	12,700	e19,200	22,200	e13,400	e15,600	36,100	40,000	42,800	101,000	42,700	20,300	48,500
22	12,900	e18,600	21,100	e13,400	e15,800	35,600	40,800	55,500	96,300	42,700	17,400	45,700
23	14,000	e19,600	19,400	e13,400	e16,700	34,400	44,300	63,200	91,200	38,100	17,600	43,800
24	15,900	e21,100	19,500	e13,300	e20,100	33,400	46,900	65,700	87,500	31,700	18,400	42,700
25	18,700	e17,900	19,400	e13,200	e20,100	32,900	50,500	59,900	83,500	28,800	19,500	43,300
26	18,700	17,900	19,000	e13,100	e18,700	35,500	52,800	58,600	79,300	29,900	20,400	44,900
27	16,600	18,400	18,500	e13,100	e18,800	37,600	53,500	59,500	75,200	28,700	23,500	45,100
28	11,900	18,500	18,100	e13,000	e18,000	42,800	53,800	61,300	71,800	24,000	24,300	44,800
29	10,900	17,300	17,500	e13,100	e18,400	52,800	54,100	66,300	65,300	19,400	21,100	43,900
30	12,900	15,800	17,200	e13,100	---	58,800	54,000	69,000	57,400	16,900	17,700	42,700
31	16,800	---	16,500	e13,300	---	63,800	---	71,100	---	22,900	17,000	---
TOTAL	451,990	565,400	539,910	428,800	460,400	1,170,400	1,676,900	1,459,300	2,756,800	1,162,900	715,000	984,000
MEAN	14,580	18,850	17,420	13,830	15,880	37,750	55,900	47,070	91,890	37,510	23,060	32,800
MAX	20,400	23,900	22,300	16,900	20,100	63,800	83,500	71,100	114,000	50,400	34,300	51,600
MIN	9,990	15,800	9,590	13,000	13,500	20,700	33,800	30,800	57,400	16,900	17,000	16,500
AC-FT	896,500	1,121,000	1,071,000	850,500	913,200	2,321,000	3,326,000	2,895,000	5,468,000	2,307,000	1,418,000	1,952,000
CFSM	0.22	0.28	0.26	0.20	0.24	0.56	0.83	0.70	1.36	0.56	0.34	0.49
IN.	0.25	0.31	0.30	0.24	0.25	0.65	0.92	0.80	1.52	0.64	0.39	0.54

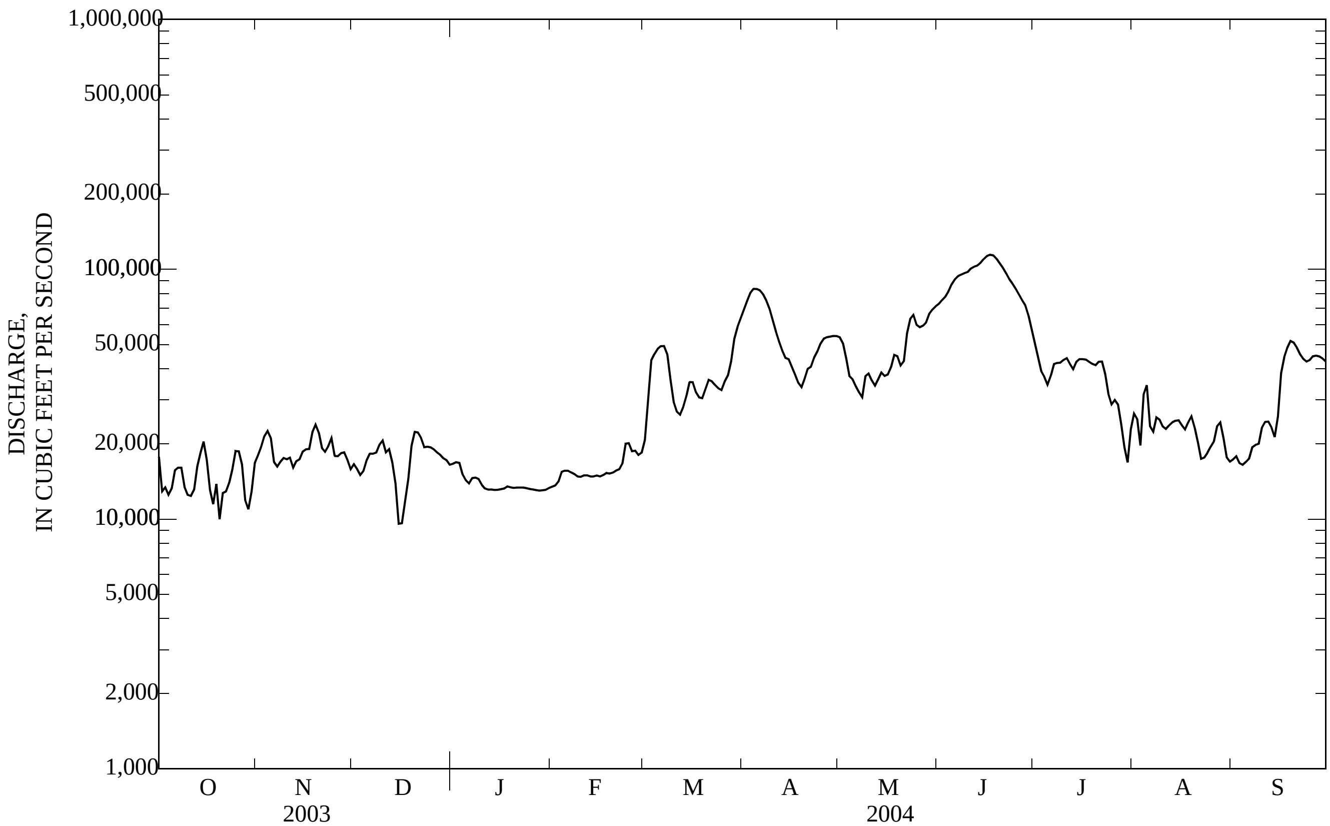
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	28,700	29,290	22,420	19,400	20,170	39,220	75,590	62,390	50,650	41,690	28,310	28,800
MAX	114,600	64,840	59,200	35,700	48,540	103,800	164,800	138,700	112,600	142,200	84,430	72,890
(WY)	(1987)	(1983)	(1992)	(1983)	(1984)	(1983)	(1965)	(2001)	(1993)	(1993)	(1993)	(1986)
MIN	9,874	10,870	9,506	7,665	9,934	13,190	27,780	18,240	13,420	11,220	10,330	10,650
(WY)	(1937)	(1938)	(1937)	(1940)	(1940)	(1940)	(1990)	(1977)	(1988)	(1988)	(1964)	(1940)

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1936 - 2004	
ANNUAL TOTAL	11,940,440		12,371,800			
ANNUAL MEAN	32,710		33,800		37,270	
HIGHEST ANNUAL MEAN					64,720	1993
LOWEST ANNUAL MEAN					17,400	1977
HIGHEST DAILY MEAN	113,000	May 20	114,000	Jun 17 a	276,000	Apr 24, 1965
LOWEST DAILY MEAN	9,510	Sep 7	9,590	Dec 15	6,200	Dec 9, 1936
ANNUAL SEVEN-DAY MINIMUM	11,500	Aug 25	12,600	Oct 17	6,490	Dec 7, 1936
MAXIMUM PEAK FLOW			115,000	Jun 16	276,000	Apr 24, 1965
MAXIMUM PEAK STAGE			17.30	Jun 18	25.38	Apr 24, 1965
ANNUAL RUNOFF (AC-FT)	23,680,000		24,540,000		27,000,000	
ANNUAL RUNOFF (CFSM)	0.485		0.501		0.552	
ANNUAL RUNOFF (INCHES)	6.58		6.82		7.50	
10 PERCENT EXCEEDS	68,500		70,000		75,800	
50 PERCENT EXCEEDS	20,400		23,600		27,800	
90 PERCENT EXCEEDS	13,700		13,400		13,400	

a also June 18.
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 September 30, 2004 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1975 to September 30, 2004 (discontinued).
WATER TEMPERATURES: July 1975 to September 30, 2004 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: July 1975 to September 30, 2004 (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, 633 microsiemens Nov. 3, 1996; minimum daily, 190 microsiemens Sept. 29, 1980.
WATER TEMPERATURES: Maximum daily, 31.0°C June 28, 2002; 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, 504 microsiemens July 25; minimum daily, 246 microsiemens May 22.
WATER TEMPERATURES: Maximum daily, 29.0°C, July 20; minimum daily, 0.0°C many days Dec.- Feb.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 445 mg/L May 22; minimum daily mean, 2 mg/L Feb. 15, 16, 25.
SEDIMENT LOADS: Maximum daily, 66,700 tons May. 22; minimum daily, 84 tons Feb 16.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instan-taneous dis-charge, cfs (00061)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)	Sus-pended sedi-ment dis-charge, tons/d (80155)
OCT					
22...	1230	20,800	97	17	955
NOV					
25...	1200	21,700	100	44	2,580
MAR					
10...	1300	35,300	100	29	2,760
APR					
20...	1250	38,300	98	29	3,000
MAY					
19...	1150	53,900	94	34	4,950
JUN					
21...	1200	147,000	97	27	10,700
AUG					
03...	1230	21,700	99	11	644

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	427	---	---	404	---	---	328	467	484	434
2	---	---	430	---	474	397	---	275	348	---	470	---
3	---	400	428	---	390	404	---	285	---	---	470	---
4	---	405	---	---	373	---	---	288	---	---	449	---
5	---	402	---	416	---	---	254	---	---	472	---	---
6	407	408	---	442	---	351	280	---	---	480	---	430
7	410	---	---	452	---	---	306	---	316	470	---	430
8	409	---	---	---	418	---	---	---	318	---	450	---
9	---	---	423	---	514	364	---	296	350	---	452	428
10	---	342	---	---	452	374	---	287	---	---	---	---
11	---	372	416	---	---	---	356	---	349	471	---	---
12	---	414	422	446	---	---	362	302	---	---	---	428
13	406	---	---	443	---	394	364	---	352	466	---	426
14	---	---	435	444	---	---	---	---	363	478	---	426
15	360	---	440	---	426	404	---	---	358	---	456	---
16	391	---	438	---	434	413	---	304	---	---	460	---
17	---	416	366	---	463	---	---	---	---	---	462	---
18	---	416	---	---	---	---	---	310	---	486	---	---
19	384	419	---	459	---	---	318	287	---	488	---	380
20	382	---	---	468	---	430	320	301	388	486	---	378
21	383	---	---	467	---	394	318	---	416	---	---	---
22	392	---	424	---	---	440	321	246	405	---	442	396
23	---	---	449	---	456	---	---	256	---	---	444	---
24	---	416	---	---	---	---	---	292	---	---	---	---
25	---	413	440	472	455	---	308	314	---	504	---	---
26	388	419	---	474	456	---	294	333	---	---	436	432
27	390	---	---	465	---	---	266	---	---	---	---	444
28	---	---	---	441	---	---	---	---	448	---	---	---
29	400	---	448	---	---	440	---	348	454	498	---	---
30	408	---	444	---	---	439	---	---	---	---	437	---
31	---	---	354	---	---	406	---	319	---	488	434	---

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.0	---	---	1.0	---	---	19.0	25.0	26.0	26.0
2	---	---	1.0	---	0.0	1.0	---	15.0	20.0	---	28.0	---
3	---	8.0	1.0	---	0.0	1.0	---	15.0	---	---	29.0	---
4	---	7.0	---	---	0.0	---	---	16.0	---	---	27.0	---
5	---	6.0	---	0.0	---	---	10.0	---	---	27.0	---	---
6	12.0	6.0	---	0.0	---	1.0	12.0	---	---	26.0	---	25.0
7	14.0	---	---	0.0	---	---	12.0	---	24.0	24.0	---	25.0
8	15.0	---	---	---	0.0	---	---	---	25.0	---	26.0	---
9	---	---	1.0	---	0.0	1.0	---	18.0	25.0	---	26.0	25.0
10	---	4.0	---	---	0.0	2.0	---	19.0	---	---	---	---
11	---	4.0	0.0	---	---	---	12.0	---	23.0	25.0	---	---
12	---	4.0	0.0	0.0	---	---	12.0	21.0	---	---	---	25.0
13	15.0	---	---	0.0	---	1.0	12.0	---	23.0	27.0	---	25.0
14	---	---	0.0	0.0	---	---	---	---	24.0	27.0	---	26.0
15	14.0	---	1.0	---	0.0	1.0	---	---	24.0	---	23.0	---
16	12.0	---	1.0	---	0.0	1.0	---	19.0	---	---	23.0	---
17	---	5.0	1.0	---	0.0	---	---	---	---	---	23.0	---
18	---	6.0	---	---	---	---	---	20.0	---	27.0	---	---
19	14.0	5.0	---	0.0	---	---	17.0	17.6	---	28.0	---	22.0
20	14.0	---	---	0.0	---	7.0	14.3	22.0	23.0	29.0	---	22.0
21	13.0	---	---	0.0	---	6.0	15.0	---	21.1	---	---	---
22	13.0	---	1.0	---	---	6.0	15.0	20.0	22.0	---	23.0	22.0
23	---	---	1.0	---	0.0	---	---	21.0	---	---	24.0	---
24	---	3.0	---	---	---	---	---	19.0	---	---	---	---
25	---	3.0	0.0	0.0	0.0	---	15.0	20.0	---	26.0	---	---
26	10.0	2.0	---	0.0	0.0	---	14.0	19.0	---	---	25.0	21.0
27	9.0	---	---	0.0	---	---	14.0	---	---	---	---	20.0
28	---	---	---	0.0	---	---	---	---	22.0	---	---	---
29	9.0	---	0.0	---	---	12.0	---	20.0	23.0	28.0	---	---
30	9.0	---	1.0	---	---	11.0	---	---	---	---	25.0	---
31	---	---	1.0	---	---	11.0	---	20.0	---	27.0	25.0	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	21	1,010	23	1,100	18	828	6	278	6	230	50	2,790
2	24	836	25	1,300	21	894	6	291	4	165	42	3,370
3	28	1,010	26	1,520	20	797	7	298	6	222	38	4,390
4	28	932	22	1,370	18	752	7	277	9	381	51	6,320
5	24	859	19	1,080	17	765	7	270	10	404	69	8,990
6	21	881	16	709	15	747	7	259	9	383	85	11,300
7	21	893	21	935	14	679	6	248	9	358	76	10,100
8	19	814	29	1,310	12	617	7	264	8	326	60	7,380
9	20	713	36	1,710	12	625	8	294	7	288	43	4,290
10	22	701	43	2,010	15	835	8	307	6	248	29	2,310
11	24	790	42	1,990	19	935	9	327	5	215	22	1,600
12	26	914	26	1,100	17	853	10	354	4	182	20	1,390
13	28	1,250	20	920	11	516	12	424	4	148	18	1,360
14	39	1,960	19	880	7	253	10	347	3	116	23	1,890
15	50	2,770	18	885	7	173	8	283	2	89	28	2,640
16	40	1,900	16	842	6	156	7	242	2	84	18	1,730
17	30	1,060	16	804	12	397	6	201	3	113	15	1,320
18	27	829	20	1,210	16	623	4	160	3	124	15	1,290
19	32	1,200	24	1,540	18	960	3	116	3	123	16	1,300
20	29	786	23	1,370	19	1,150	3	111	3	124	17	1,490
21	24	806	22	1,110	17	1,040	4	137	3	126	20	1,960
22	21	723	21	1,050	15	842	4	159	3	128	29	2,800
23	26	986	20	1,060	6	308	5	177	3	135	33	3,050
24	30	1,280	20	1,140	6	328	5	194	3	141	34	3,040
25	27	1,350	33	1,720	9	488	6	210	2	119	35	3,090
26	22	1,110	25	1,210	8	427	6	216	4	212	36	3,440
27	19	866	23	1,140	7	332	8	283	14	711	37	3,740
28	17	556	22	1,090	5	242	13	456	27	1,310	38	4,380
29	16	463	21	963	3	160	12	424	39	1,940	39	5,600
30	18	643	19	831	3	149	10	354	---	---	47	7,510
31	21	938	---	---	5	242	8	298	---	---	61	10,500
TOTAL	---	31,829	---	35,899	---	18,113	---	8,259	---	9,145	---	126,360

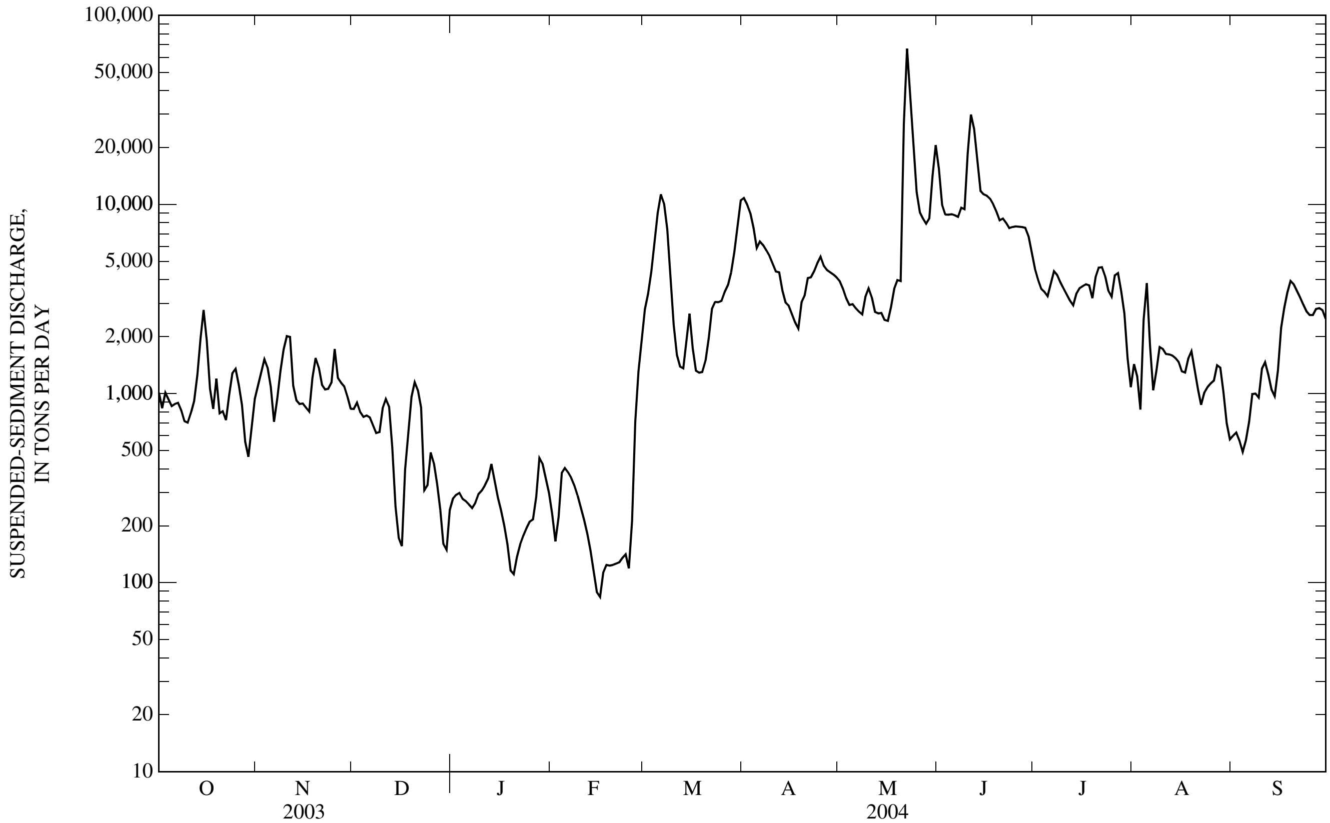
05389500 MISSISSIPPI RIVER AT MCGREGOR, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Day	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)	Mean concentration (mg/l)	Load (tons/day)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	58	10,800	27	3,920	78	15,400	34	4,580	20	1,430	13	598
2	50	10,000	26	3,580	49	9,960	33	3,990	18	1,230	13	622
3	42	9,000	27	3,190	42	8,840	34	3,570	15	823	12	563
4	33	7,510	29	2,940	40	8,820	34	3,450	29	2,460	11	492
5	26	5,870	30	2,970	38	8,880	35	3,270	41	3,830	12	566
6	29	6,360	31	2,820	36	8,760	38	3,810	27	1,790	15	708
7	28	6,100	31	2,710	34	8,580	39	4,440	17	1,040	19	994
8	28	5,710	32	2,620	37	9,590	37	4,240	19	1,320	19	1,000
9	28	5,340	32	3,250	36	9,430	34	3,880	26	1,760	18	952
10	29	4,860	35	3,600	71	18,700	31	3,590	27	1,720	21	1,350
11	29	4,420	33	3,220	110	29,900	28	3,340	26	1,620	22	1,460
12	32	4,380	29	2,700	91	25,100	28	3,100	25	1,610	19	1,260
13	27	3,510	27	2,650	60	16,800	27	2,930	24	1,590	17	1,050
14	25	3,030	26	2,670	41	11,800	29	3,380	23	1,540	17	968
15	25	2,910	24	2,450	38	11,300	31	3,610	22	1,470	19	1,320
16	24	2,630	24	2,420	37	11,100	31	3,700	20	1,310	21	2,220
17	23	2,380	26	2,870	35	10,700	32	3,780	21	1,290	24	2,850
18	23	2,210	29	3,580	33	10,000	32	3,730	23	1,530	26	3,420
19	33	3,040	33	3,980	31	9,160	28	3,190	24	1,670	28	3,940
20	34	3,290	35	3,930	29	8,250	37	4,120	21	1,320	28	3,780
21	38	4,080	227	26,800	31	8,420	40	4,630	19	1,060	27	3,490
22	37	4,120	445	66,700	31	7,990	40	4,660	19	871	26	3,220
23	37	4,440	235	39,600	30	7,490	41	4,170	21	1,010	25	2,950
24	39	4,890	117	20,800	32	7,600	41	3,490	22	1,080	24	2,720
25	39	5,290	72	11,600	34	7,650	42	3,250	21	1,130	22	2,600
26	33	4,740	57	9,090	36	7,630	52	4,220	21	1,170	22	2,600
27	31	4,500	52	8,400	37	7,590	56	4,330	22	1,410	23	2,800
28	30	4,380	48	7,910	39	7,520	54	3,470	21	1,370	23	2,830
29	29	4,260	47	8,430	39	6,800	50	2,640	18	1,010	23	2,760
30	28	4,110	76	14,100	36	5,610	34	1,530	15	697	22	2,480
31	---	---	107	20,600	---	---	18	1,080	12	572	---	---
TOTAL	---	148,160	---	296,100	---	325,370	---	111,170	---	43,733	---	58,563

YEAR 1,212,701

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA—Continued



05411500 MISSISSIPPI RIVER AT CLAYTON, IA

LOCATION.--Lat 42°54'13", long 91°08'45", NE$\frac{1}{4}$ NW$\frac{1}{4}$ sec.1, T.93 N., R.3 W., Clayton County, Hydrologic Unit 07060003, 6 miles below the Wisconsin River.

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

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

GAGE.--Water-stage recorder. Datum of gage is 602.60 ft above NGVD of 1929.

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

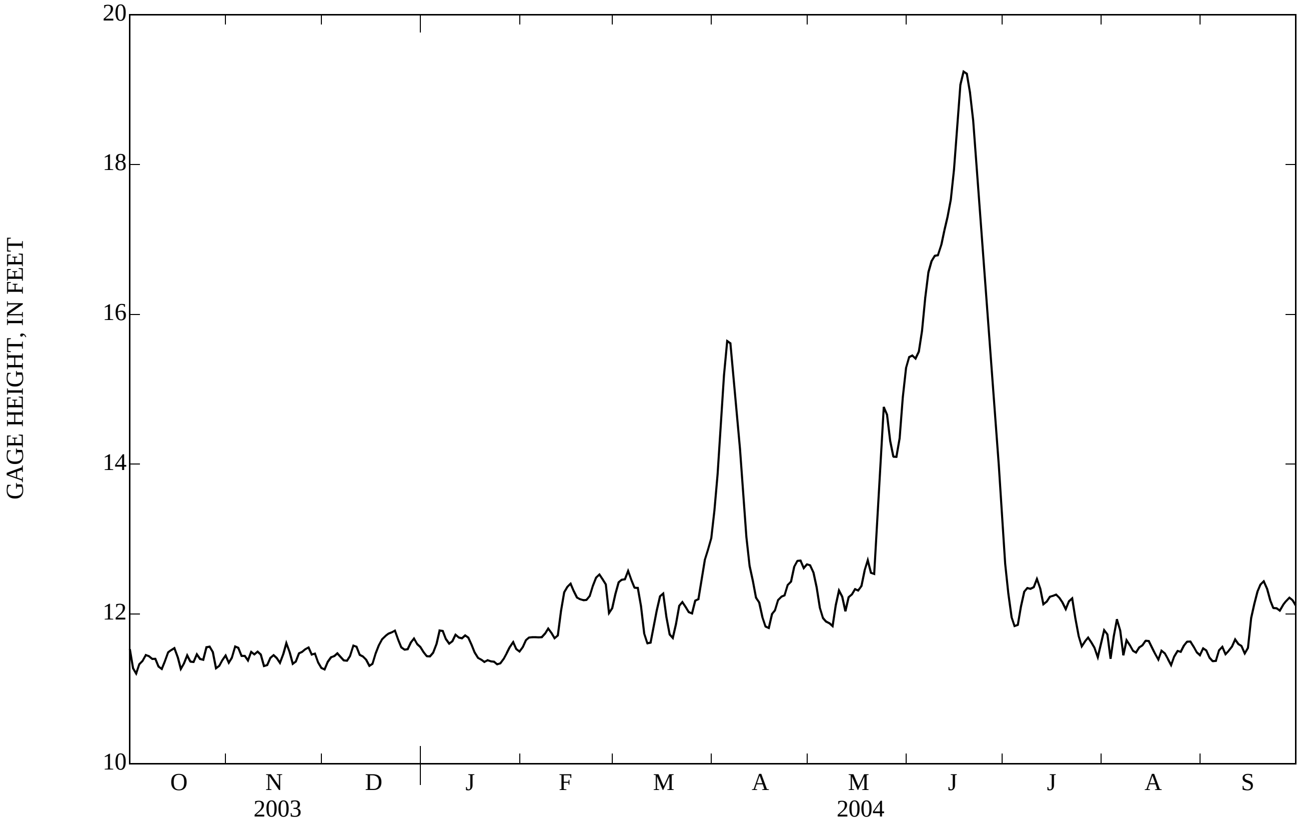
EXTREMES FOR CURRENT WATER YEAR.--Maximum gage height 19.29 ft on June 19; minimum gage height 11.14 ft on Oct 3.

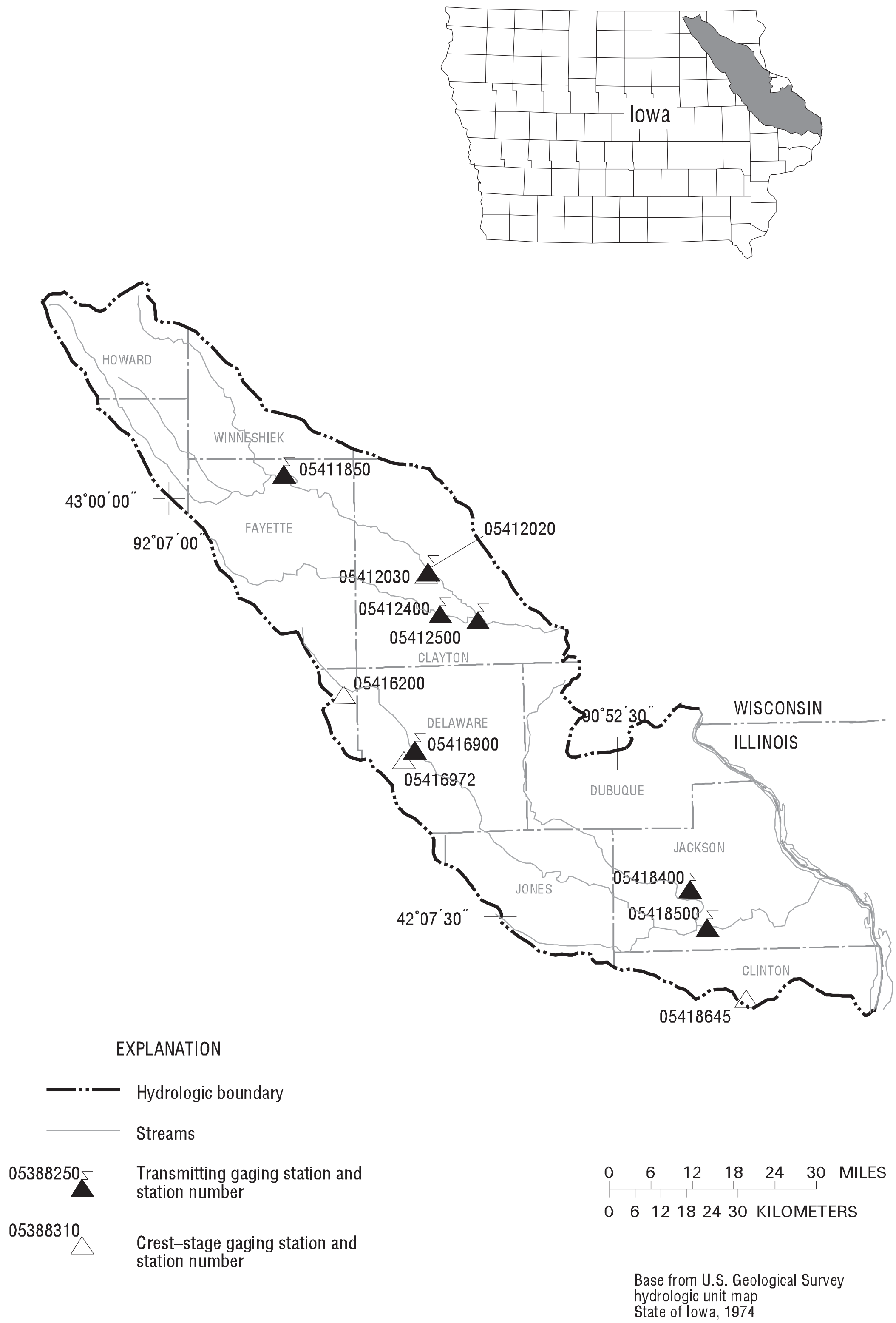
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 25.48 ft Apr. 20, 2001; minimum gage height 11.11 ft Aug. 20, 2003.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.53	11.35	11.26	11.49	11.55	12.27	13.38	12.65	15.43	12.67	11.78	11.54
2	11.27	11.41	11.36	11.43	11.65	12.42	13.87	12.55	15.45	12.27	11.73	11.51
3	11.20	11.56	11.42	11.43	11.68	12.45	14.53	12.36	15.41	11.96	11.40	11.41
4	11.33	11.54	11.43	11.48	11.69	12.46	15.19	12.09	15.50	11.83	11.70	11.37
5	11.37	11.44	11.47	11.59	11.69	12.57	15.64	11.94	15.77	11.85	11.93	11.37
6	11.45	11.44	11.42	11.78	11.68	12.45	15.61	11.89	16.21	12.10	11.78	11.52
7	11.43	11.38	11.38	11.77	11.69	12.35	15.09	11.87	16.56	12.29	11.45	11.56
8	11.40	11.49	11.37	11.66	11.73	12.35	14.63	11.84	16.71	12.34	11.65	11.46
9	11.40	11.46	11.44	11.60	11.80	12.10	14.20	12.12	16.78	12.33	11.58	11.51
10	11.29	11.49	11.57	11.63	11.75	11.74	13.67	12.31	16.79	12.35	11.51	11.56
11	11.26	11.45	11.56	11.72	11.67	11.61	13.02	12.23	16.92	12.47	11.48	11.65
12	11.37	11.30	11.45	11.68	11.71	11.61	12.64	12.03	17.12	12.34	11.55	11.60
13	11.48	11.31	11.43	11.67	12.04	11.84	12.44	12.22	17.30	12.12	11.58	11.57
14	11.52	11.41	11.39	11.71	12.29	12.05	12.21	12.26	17.53	12.16	11.64	11.47
15	11.54	11.45	11.30	11.68	12.36	12.23	12.15	12.33	17.93	12.23	11.64	11.54
16	11.43	11.41	11.33	11.59	12.40	12.27	11.96	12.31	18.51	12.24	11.55	11.94
17	11.26	11.34	11.47	11.48	12.30	11.95	11.83	12.37	19.07	12.25	11.46	12.13
18	11.34	11.46	11.58	11.41	12.22	11.73	11.81	12.57	19.24	12.21	11.39	12.29
19	11.44	11.61	11.66	11.39	12.19	11.68	11.99	12.71	19.21	12.15	11.51	12.39
20	11.36	11.49	11.70	11.36	12.18	11.87	12.04	12.55	18.96	12.06	11.47	12.43
21	11.36	11.33	11.73	11.38	12.18	12.10	12.19	12.53	18.59	12.17	11.39	12.34
22	11.46	11.36	11.75	11.36	12.24	12.15	12.23	13.35	18.02	12.20	11.31	12.18
23	11.40	11.47	11.77	11.36	12.37	12.09	12.24	14.11	17.41	11.94	11.43	12.08
24	11.39	11.49	11.66	11.32	12.49	12.02	12.39	14.76	16.79	11.71	11.50	12.07
25	11.55	11.53	11.55	11.34	12.52	12.00	12.43	14.66	16.11	11.57	11.49	12.04
26	11.56	11.55	11.52	11.39	12.46	12.17	12.63	14.31	15.53	11.63	11.57	12.11
27	11.49	11.45	11.53	11.47	12.39	12.19	12.71	14.10	15.00	11.68	11.63	12.17
28	11.27	11.47	11.62	11.56	12.01	12.45	12.71	14.10	14.49	11.62	11.63	12.21
29	11.30	11.35	11.67	11.62	12.07	12.71	12.61	14.34	13.99	11.54	11.56	12.18
30	11.38	11.27	11.59	11.53	---	12.85	12.66	14.89	13.29	11.42	11.49	12.11
31	11.44	---	11.55	11.49	---	13.00	---	15.28	---	11.59	11.45	---
MEAN	11.40	11.44	11.51	11.53	12.03	12.18	13.09	12.96	16.72	12.04	11.56	11.84
MAX	11.56	11.61	11.77	11.78	12.52	13.00	15.64	15.28	19.24	12.67	11.93	12.43
MIN	11.20	11.27	11.26	11.32	11.55	11.61	11.81	11.84	13.29	11.42	11.31	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
05412020
05412030
05412400
05412500
05416200
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

05411850 Turkey River near Eldorado, IA 66
05412020 Turkey River above French Hollow Creek at Elkader, IA 68
05412400 Volga River at Littleport, IA 70
05412500 Turkey River at Garber, IA 72
05416900 Maquoketa River at Manchester, IA 77
05418400 North Fork Maquoketa River near Fulton, IA 79
05418500 Maquoketa River near Maquoketa, IA 81
05418600 Maquoketa River near Spragueville, IA 88

Crest Stage Gaging Stations

05412030 French Hollow Creek near Elkader, IA 486
05416200 Lamont Creek Tributary near Lamont, IA 487
05416972 Sand Creek near Manchester, IA 487
05418645 Williams Creek near Charlotte, IA 487

05411850 TURKEY RIVER NEAR ELDORADO, IA

LOCATION.--Lat 43°03'15", long 91°48'32", in NW$\frac{1}{4}$ SE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 current year.

GAGE.--Water-stage recorder. Datum of gage is 890.00 ft. above NGVD of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1991, gage height 18.78 ft, discharge 17,600; 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	61	68	74	e32	e508	513	268	3,050	568	538	210
2	57	63	85	78	e33	e531	455	244	2,340	532	583	197
3	58	73	88	80	e32	e561	414	224	1,940	511	594	186
4	58	117	98	e52	e28	e622	374	213	1,680	682	644	179
5	59	103	75	e45	e32	e1,800	345	202	1,500	1,660	644	173
6	59	91	78	e39	e39	2,500	322	198	1,400	9,480	592	209
7	59	80	77	e49	e35	1,470	289	189	1,280	6,680	525	266
8	59	64	74	e47	e31	685	263	197	1,170	2,700	483	255
9	57	61	74	e42	e33	496	241	206	1,100	2,000	526	208
10	57	77	69	e35	e36	416	220	315	1,480	3,620	512	189
11	57	79	e47	e37	e38	358	206	604	1,500	3,790	538	179
12	60	74	e43	e39	e37	254	199	750	1,600	5,560	474	173
13	58	67	e48	e39	e30	277	189	965	1,570	3,900	432	167
14	62	66	e50	e35	e33	264	179	1,270	1,390	2,350	400	171
15	65	70	e51	e28	e30	221	179	1,370	1,230	1,780	360	202
16	64	71	e50	e35	e33	195	176	879	1,630	1,480	340	191
17	62	69	e42	e35	e32	186	179	719	1,680	1,290	329	258
18	60	88	e46	e25	e37	182	177	704	2,180	1,110	313	263
19	60	94	e44	e29	e41	175	206	599	2,090	1,020	304	220
20	60	86	e38	e36	e108	172	218	532	1,370	925	285	190
21	58	81	e48	e36	e140	167	301	2,040	1,260	1,210	265	180
22	57	79	e44	e26	e120	165	319	17,500	1,180	1,350	234	171
23	56	80	e42	e31	e134	164	315	17,800	1,030	1,210	223	168
24	57	69	e39	e29	e161	182	298	9,690	944	1,020	225	167
25	58	65	e57	e26	e147	240	309	5,420	874	896	235	163
26	57	84	e66	e27	e179	1,420	317	3,840	793	803	227	161
27	57	88	78	e27	e224	1,230	325	2,840	731	726	355	159
28	62	75	81	e25	e294	877	341	2,250	691	656	311	156
29	61	73	78	e25	e381	793	319	4,180	649	656	269	153
30	61	79	76	e26	---	697	293	6,720	601	587	245	153
31	63	---	77	e26	---	591	---	4,690	---	563	222	---
MEAN	59.2	77.6	62.3	38.2	87.2	594	283	2,826	1,398	1,978	394	191
MAX	65	117	98	80	381	2,500	513	17,800	3,050	9,480	644	266
MIN	56	61	38	25	28	164	176	189	601	511	222	153
AC-FT	3,640	4,620	3,830	2,350	5,020	36,490	16,820	173,800	83,170	121,600	24,250	11,340
CFSM	0.09	0.12	0.10	0.06	0.14	0.93	0.44	4.41	2.18	3.09	0.62	0.30
IN.	0.11	0.14	0.11	0.07	0.15	1.07	0.49	5.08	2.43	3.56	0.71	0.33

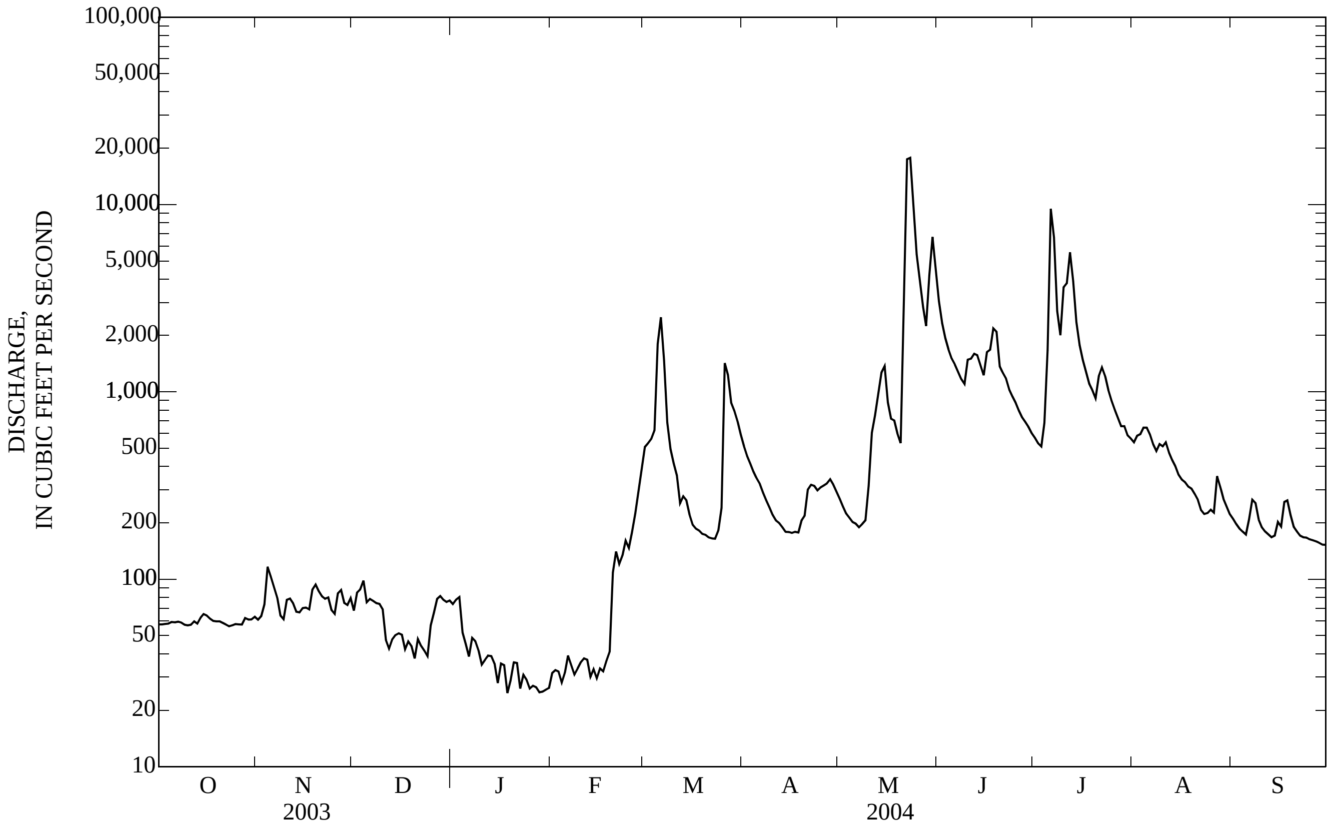
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

MEAN	136	153	105	79.5	116	449	916	1,496	721	683	231	143
MAX	188	270	147	123	182	883	2,764	2,826	1,398	1,978	394	196
(WY)	(2002)	(2001)	(2002)	(2001)	(2001)	(2001)	(2001)	(2004)	(2004)	(2004)	(2004)	(2001)
MIN	59.2	77.6	62.3	38.2	44.1	144	277	526	286	229	93.6	61.8
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2002)	(2003)	(2001)	(2003)	(2003)

05411850 TURKEY RIVER NEAR ELDORADO, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL MEAN	188		671		438	
HIGHEST ANNUAL MEAN					671	2004
LOWEST ANNUAL MEAN					199	2003
HIGHEST DAILY MEAN	1,930	May 11	17,800	May 23	17,800	May 23, 2004
LOWEST DAILY MEAN	36	Jan 23	25	Jan 18 a	25	Jan 18, 2004 a
ANNUAL SEVEN-DAY MINIMUM	38	Feb 7	26	Jan 25	26	Jan 25, 2004
MAXIMUM PEAK FLOW			19,700	May 23	19,700	May 23, 2004
MAXIMUM PEAK STAGE			19.61	May 23	19.61	May 23, 2004
ANNUAL RUNOFF (AC-FT)	136,100		486,900		317,000	
ANNUAL RUNOFF (CFSM)	0.293		1.05		0.683	
ANNUAL RUNOFF (INCHES)	3.98		14.25		9.27	
10 PERCENT EXCEEDS	402		1,490		932	
50 PERCENT EXCEEDS	79		190		165	
90 PERCENT EXCEEDS	43		38		59	

a Ice affected; Also January 28,29.
e Estimated.



05412020 TURKEY RIVER ABOVE FRENCH HOLLOW CREEK AT ELKADER, IA

LOCATION.--Lat 42°50'36", long 91°24'04", in NW¼ SE¼ sec.26, T.93 N., R.05 W., Clayton County, Hydrologic Unit 07060004, on left bank 5 ft. downstream of bridge on State Highway 13, and 100 ft upstream of the mouth of French Hollow Creek.

DRAINAGE AREA.--903 mi^2.

PERIOD OF RECORD.--August 28, 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 694.93 ft. above NGVD of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1991, gage height 27.32 ft. and discharge 38,300cfs; 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	107	128	123	71	871	883	382	4,780	805	838	427
2	118	116	105	141	71	886	774	352	3,680	760	910	410
3	117	144	110	134	68	892	689	333	e3,210	733	1,000	397
4	119	278	121	95	66	957	626	318	2,740	723	1,060	382
5	117	233	125	90	69	3,180	573	305	2,420	933	895	370
6	123	197	131	80	71	3,040	535	297	2,220	8,820	855	372
7	124	174	125	89	70	2,200	502	288	2,000	9,890	788	401
8	123	153	126	93	67	1,430	471	289	1,800	4,140	730	445
9	121	135	129	89	69	909	440	297	1,650	2,670	719	437
10	117	132	131	86	70	729	413	310	1,980	2,980	703	406
11	115	143	87	91	71	621	390	392	2,770	4,930	706	375
12	115	146	87	95	70	500	370	718	2,320	6,370	707	360
13	118	138	100	96	68	436	356	851	2,270	5,410	656	346
14	123	130	100	95	69	467	342	1,180	2,050	3,320	623	335
15	119	129	100	81	66	424	325	1,450	1,810	2,400	596	342
16	118	130	105	99	67	384	314	1,300	1,740	2,090	570	363
17	120	131	94	96	66	357	317	1,010	3,000	1,890	555	355
18	120	147	102	70	69	344	308	976	2,450	1,640	533	405
19	120	156	97	74	72	331	318	880	2,670	1,500	512	407
20	116	163	84	85	174	320	343	772	2,380	1,440	496	376
21	117	155	107	82	195	303	399	839	1,950	1,660	476	348
22	119	146	101	63	157	292	429	12,000	1,870	1,840	461	330
23	116	153	104	73	180	289	431	26,200	e1,600	1,680	454	322
24	118	143	90	72	214	327	420	20,100	e1,410	1,520	454	317
25	117	120	128	67	187	385	412	9,480	e1,270	1,350	455	308
26	117	119	110	67	228	1,700	407	5,440	e1,160	1,220	462	300
27	114	129	113	67	326	2,060	398	3,970	e1,070	1,120	690	298
28	115	138	128	61	500	1,560	410	3,120	e1,000	1,010	606	293
29	113	113	123	60	752	1,320	414	3,820	e950	941	523	287
30	110	123	115	62	---	1,190	396	8,590	875	955	483	285
31	109	---	127	67	---	1,040	---	8,070	---	867	446	---
TOTAL	3,650	4,421	3,433	2,643	4,223	29,744	13,405	114,329	63,095	77,607	19,962	10,799
MEAN	118	147	111	85.3	146	959	447	3,688	2,103	2,503	644	360
MAX	124	278	131	141	752	3,180	883	26,200	4,780	9,890	1,060	445
MIN	109	107	84	60	66	289	308	288	875	723	446	285
AC-FT	7,240	8,770	6,810	5,240	8,380	59,000	26,590	226,800	125,100	153,900	39,590	21,420
CFSM	0.13	0.16	0.12	0.09	0.16	1.06	0.49	4.08	2.33	2.77	0.71	0.40
IN.	0.15	0.18	0.14	0.11	0.17	1.23	0.55	4.71	2.60	3.20	0.82	0.44

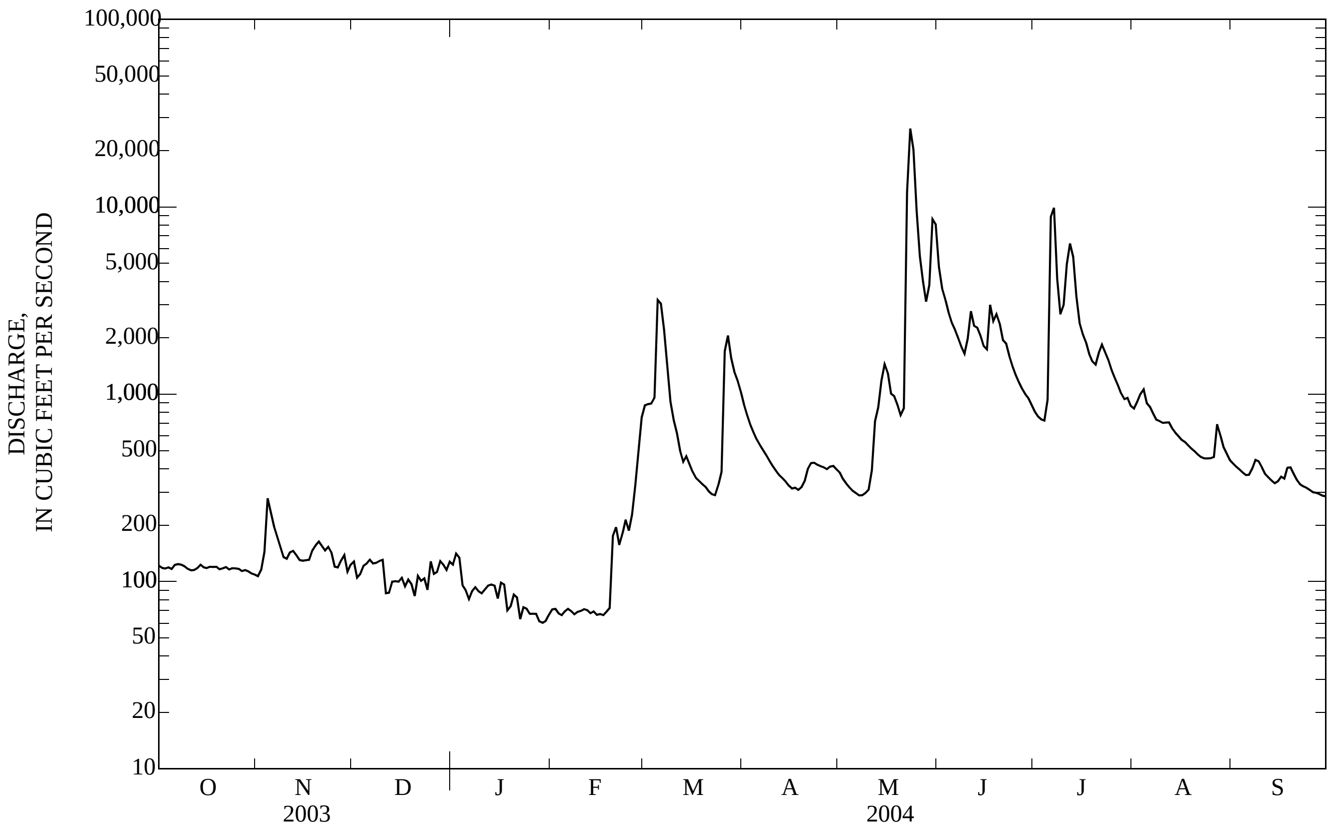
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	238	208	183	130	175	503	441	1,851	1,129	1,110	458	236
MAX	380	294	295	218	303	959	530	3,688	2,103	2,503	644	360
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2004)	(2002)	(2004)	(2004)	(2004)	(2004)	(2004)
MIN	118	147	111	85.3	77.8	212	346	721	462	388	175	125
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2002)	(2003)	(2002)	(2003)	(2003)

05412020 TURKEY RIVER ABOVE FRENCH HOLLOW CREEK AT ELKADER, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2001 - 2004	
ANNUAL TOTAL	105,408		347,311			
ANNUAL MEAN	289		949		559	
HIGHEST ANNUAL MEAN					949	2004
LOWEST ANNUAL MEAN					303	2003
HIGHEST DAILY MEAN	2,820	May 11	26,200	May 23	26,200	May 23, 2004
LOWEST DAILY MEAN	53	Jan 23	60	Jan 29	53	Jan 23, 2003 a
ANNUAL SEVEN-DAY MINIMUM	56	Jan 21	64	Jan 25	56	Jan 21, 2003 a
MAXIMUM PEAK FLOW			33,300	May 23	33,300	May 23, 2004
MAXIMUM PEAK STAGE			25.57	May 23	25.57	May 23, 2004
ANNUAL RUNOFF (AC-FT)	209,100		688,900		404,700	
ANNUAL RUNOFF (CFSM)	0.320		1.05		0.619	
ANNUAL RUNOFF (INCHES)	4.34		14.31		8.41	
10 PERCENT EXCEEDS	590		2,120		951	
50 PERCENT EXCEEDS	144		345		289	
90 PERCENT EXCEEDS	74		86		100	

a Ice affected
e Estimated



05412400 VOLGA RIVER AT LITTLEPORT, IA

LOCATION.--Lat 42°45'15", long 91°22'10", in NE¼ NE¼ SE¼ sec.25, T.92 N., R.5 W., Clayton County, Hydrologic Unit 07060004, on left bank 10 ft. downstream of bridge on County Highway X21, 6 miles upstream of confluence with the Turkey River, and 8.0 miles southeast of Elkader.

DRAINAGE AREA.--348 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 677.00 ft. above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	44	55	52	e45	560	456	177	2,240	332	248	176
2	52	48	53	58	e45	474	399	169	1,420	311	275	164
3	52	78	54	56	e44	338	350	163	1,110	295	396	152
4	50	312	53	e40	e42	247	309	157	916	289	387	143
5	50	192	56	e39	e44	1,340	279	155	796	307	317	136
6	49	141	54	e44	e46	1,340	256	156	748	5,850	273	135
7	48	101	54	e43	e45	703	240	155	644	2,410	249	132
8	48	77	55	e41	e43	461	225	151	564	1,400	232	126
9	47	66	55	e40	e44	356	208	145	510	1,110	293	123
10	47	64	59	e41	e45	303	194	147	998	948	272	120
11	47	64	e44	e47	e46	273	183	141	2,000	1,270	237	116
12	49	63	e39	e52	e46	238	175	137	1,400	e1,870	217	112
13	47	64	e37	e51	e44	223	169	156	1,040	e1,290	200	110
14	50	62	e36	e47	e45	232	163	342	883	e875	189	108
15	48	62	e46	e39	e41	215	159	451	737	e654	178	106
16	46	62	e52	e47	e43	201	155	369	786	565	173	102
17	47	61	e48	e46	e44	195	165	327	2,430	543	186	99
18	47	76	e46	e36	e45	198	161	398	1,510	458	175	98
19	46	82	e42	e40	e45	201	159	496	1,030	412	165	94
20	46	68	e40	e48	e55	207	165	422	840	377	155	90
21	45	66	e46	e47	e104	206	195	409	759	522	148	88
22	45	63	e45	e40	e100	202	214	3,090	795	526	144	88
23	45	76	e44	e45	e125	198	219	13,600	687	449	142	87
24	45	76	e40	e44	e166	239	207	4,990	614	392	140	89
25	47	62	e45	e42	e127	299	207	2,020	556	350	140	85
26	46	60	e49	e42	e232	817	205	1,530	500	319	139	84
27	47	59	58	e42	e367	1,360	192	1,130	454	295	327	84
28	47	56	64	e40	e422	958	183	876	422	275	300	83
29	47	55	61	e39	e523	789	183	3,240	387	266	256	77
30	46	56	57	e41	---	648	180	3,910	356	257	215	78
31	45	---	56	e43	---	536	---	4,470	---	249	190	---
TOTAL	1,474	2,416	1,543	1,372	3,063	14,557	6,555	44,079	28,132	25,466	6,958	3,285
MEAN	47.5	80.5	49.8	44.3	106	470	218	1,422	938	821	224	110
MAX	53	312	64	58	523	1,360	456	13,600	2,430	5,850	396	176
MIN	45	44	36	36	41	195	155	137	356	249	139	77
AC-FT	2,920	4,790	3,060	2,720	6,080	28,870	13,000	87,430	55,800	50,510	13,800	6,520
CFSM	0.14	0.23	0.14	0.13	0.30	1.35	0.63	4.09	2.69	2.36	0.64	0.31
IN.	0.16	0.26	0.16	0.15	0.33	1.56	0.70	4.71	3.01	2.72	0.74	0.35

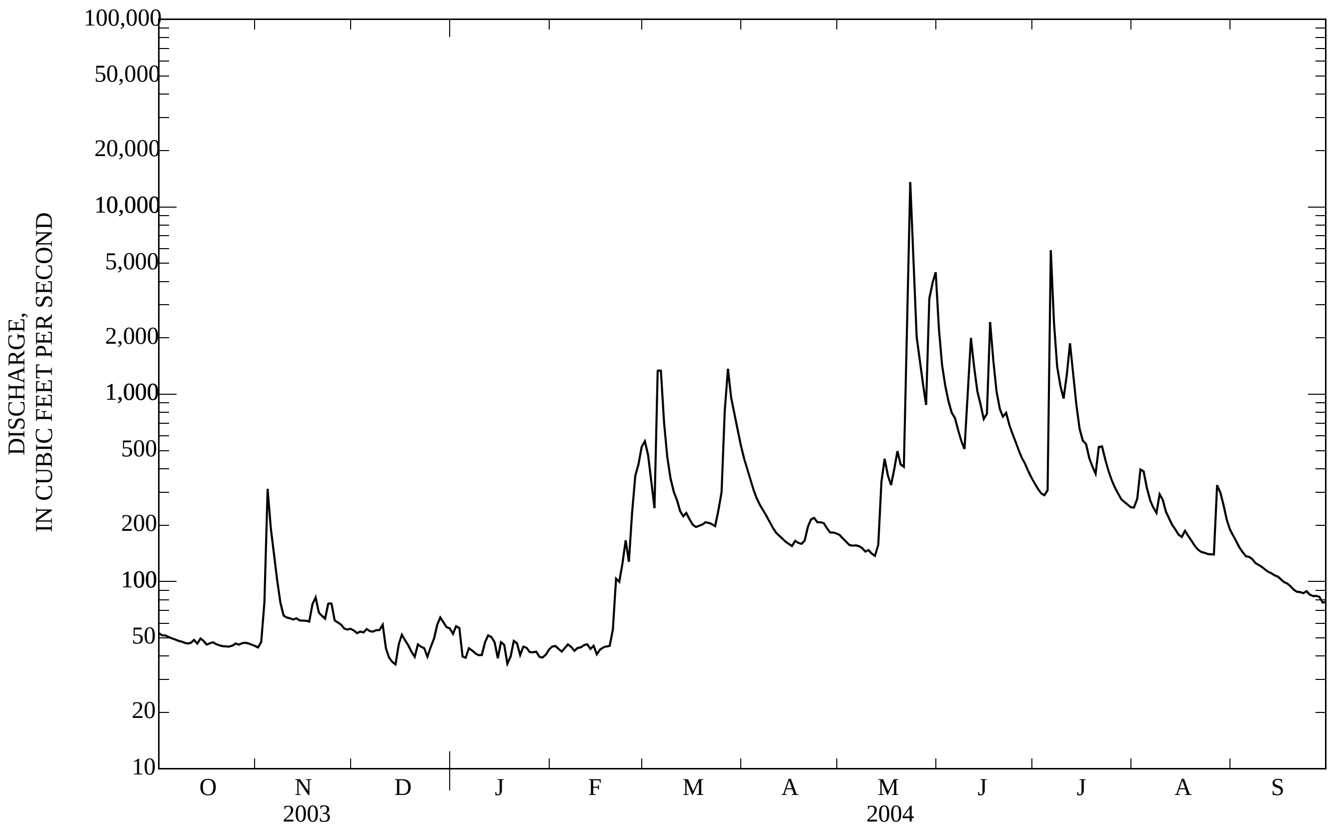
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	102	104	74.1	53.8	113	306	286	628	521	378	134	112
MAX	186	144	150	89.2	175	649	590	1,422	938	821	224	246
(WY)	(2002)	(2002)	(2002)	(2002)	(2000)	(2001)	(2001)	(2004)	(2004)	(2004)	(2004)	(2001)
MIN	47.5	68.4	43.7	30.4	42.6	81.0	103	270	180	121	63.5	52.2
(WY)	(2004)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(2002)	(2003)	(2003)

05412400 VOLGA RIVER AT LITTLEPORT, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	49,259		138,900			
ANNUAL MEAN	135		380		235	
HIGHEST ANNUAL MEAN					380	2004
LOWEST ANNUAL MEAN					138	2003
HIGHEST DAILY MEAN	1,570	Jul 9	13,600	May 23	13,600	May 23, 2004
LOWEST DAILY MEAN	20	Jan 22	36	Dec 14 a	20	Jan 22, 2003
ANNUAL SEVEN-DAY MINIMUM	22	Jan 17	41	Jan 4	22	Jan 17, 2003
MAXIMUM PEAK FLOW			21,000	May 23	21,000	May 23, 2004
MAXIMUM PEAK STAGE			21.98	May 23	21.98	May 23, 2004
ANNUAL RUNOFF (AC-FT)	97,710		275,500		170,100	
ANNUAL RUNOFF (CFSM)	0.388		1.09		0.675	
ANNUAL RUNOFF (INCHES)	5.27		14.85		9.17	
10 PERCENT EXCEEDS	271		824		485	
50 PERCENT EXCEEDS	60		152		123	
90 PERCENT EXCEEDS	37		44		46	

a also January 18, Ice affected.
e Estimated



05412500 TURKEY RIVER AT GARBER, IA

LOCATION.--Lat 42°44'24", long 91°15'42", in SE¼ NW¼ 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.

WATER-DISCHARGE RECORDS

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 NGVD of 1929. 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	212	302	e235	e159	2,160	1,580	631	8,590	1,520	1,160	664
2	201	238	283	e246	e155	2,050	1,360	601	6,040	1,450	1,170	636
3	203	360	263	e228	e150	1,760	1,240	573	4,870	1,390	1,440	610
4	207	1,440	276	e185	e155	1,680	1,130	552	4,130	1,340	1,510	584
5	206	745	291	e175	e162	5,320	1,030	534	3,660	1,390	1,370	566
6	203	546	296	e161	e169	5,350	966	523	3,380	10,500	1,250	553
7	203	449	287	e160	e169	3,530	910	522	3,080	e11,700	1,160	567
8	204	384	288	e175	e166	2,610	861	525	2,810	6,500	1,070	576
9	201	340	285	e165	e169	1,760	804	519	2,560	4,490	1,090	596
10	198	324	314	e161	e170	1,320	757	550	2,960	4,110	1,080	560
11	200	329	245	e167	e199	1,160	714	574	5,000	5,740	1,010	536
12	213	324	e253	e172	e205	979	683	730	4,060	7,570	1,000	514
13	208	307	e254	e177	e226	893	655	1,040	3,520	6,590	943	496
14	237	289	e256	e177	e226	905	635	1,310	3,250	4,530	891	480
15	223	284	e256	e179	e236	851	618	1,720	2,860	3,390	842	474
16	213	277	e263	e161	e243	792	603	1,730	2,840	2,910	815	489
17	211	273	e257	e175	e233	753	619	1,410	5,360	2,780	826	481
18	214	297	e259	e165	e250	744	599	1,410	4,050	2,350	801	499
19	214	325	e254	e149	e260	732	589	1,450	3,670	2,090	767	522
20	210	314	e236	e152	e451	722	610	1,290	3,330	1,940	735	492
21	207	307	e265	e162	e1,050	691	682	1,270	2,830	2,110	709	464
22	207	293	e261	e160	e967	663	726	14,900	2,880	2,480	687	443
23	206	343	e259	e148	e1,030	646	740	52,200	2,540	2,200	673	429
24	210	337	e236	e155	e1,090	743	718	31,100	2,310	1,970	667	424
25	218	e277	e248	e157	e1,060	867	706	14,800	2,220	1,760	663	411
26	213	e290	e241	e151	e1,100	2,390	695	8,570	2,050	1,620	659	400
27	214	318	e242	e153	e1,320	3,680	674	6,480	1,910	1,500	976	394
28	219	325	e257	e142	e1,670	2,700	663	5,170	1,810	1,390	982	384
29	220	312	e248	e144	e2,000	2,220	666	7,090	1,700	1,310	866	379
30	221	290	e240	e144	---	2,060	648	12,900	1,600	1,300	767	387
31	218	---	e251	e149	---	1,820	---	14,500	---	1,210	703	---
TOTAL	6,526	11,149	8,166	5,230	15,440	54,551	23,881	187,174	101,870	103,130	29,282	15,010
MEAN	211	372	263	169	532	1,760	796	6,038	3,396	3,327	945	500
MAX	237	1,440	314	246	2,000	5,350	1,580	52,200	8,590	11,700	1,510	664
MIN	198	212	236	142	150	646	589	519	1,600	1,210	659	379
AC-FT	12,940	22,110	16,200	10,370	30,630	108,200	47,370	371,300	202,100	204,600	58,080	29,770
CFSM	0.14	0.24	0.17	0.11	0.34	1.14	0.52	3.91	2.20	2.15	0.61	0.32
IN.	0.16	0.27	0.20	0.13	0.37	1.31	0.57	4.51	2.45	2.48	0.71	0.36

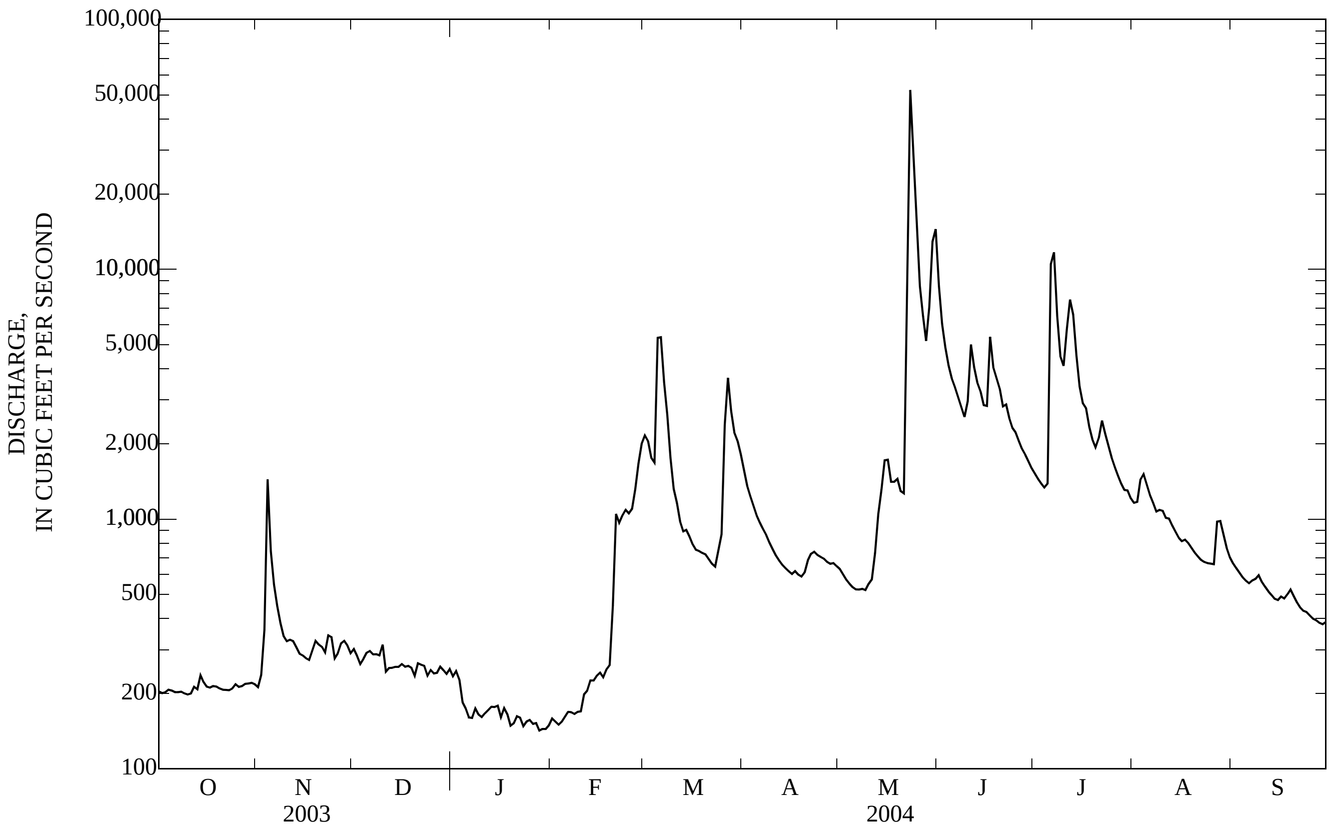
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	569	610	475	498	811	1,988	1,710	1,425	1,438	1,016	849	632
MAX	2,527	2,834	2,889	3,306	4,265	4,832	6,382	6,038	5,316	5,772	5,119	3,011
(WY)	(1987)	(1962)	(1983)	(1916)	(1922)	(1979)	(1951)	(2004)	(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1913 - 2004	
ANNUAL TOTAL	207,785		561,409			
ANNUAL MEAN	569		1,534		1,006	
HIGHEST ANNUAL MEAN					2,905	1993
LOWEST ANNUAL MEAN					249	1934
HIGHEST DAILY MEAN	6,450	May 11	52,200	May 23	52,200	May 23, 2004
LOWEST DAILY MEAN	172	Jan 22	142	Jan 28 a	49	Jan 28, 1940
ANNUAL SEVEN-DAY MINIMUM	180	Jan 16	149	Jan 25	51	Jan 25, 1940
MAXIMUM PEAK FLOW			66,700	May 23	66,700	May 23, 2004
MAXIMUM PEAK STAGE			32.80	May 23	32.80	May 23, 2004
ANNUAL RUNOFF (AC-FT)	412,100		1,114,000		728,500	
ANNUAL RUNOFF (CFSM)	0.368		0.993		0.651	
ANNUAL RUNOFF (INCHES)	5.00		13.52		8.84	
10 PERCENT EXCEEDS	1,040		3,340		2,130	
50 PERCENT EXCEEDS	307		614		530	
90 PERCENT EXCEEDS	200		178		171	

a Ice affected
e Estimated



05412500 TURKEY RIVER AT GARBER, IA—Continued

(Large river mass contaminents station)

WATER QUALITY RECORDS

PERIOD OF RECORD.-- October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instan- taneous dis- charge, cfs (00061)	Stream width, feet (00004)	Turbid- ity, wat unf lab, Hach 2100AN NTU (99872)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Alka- linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicar- bonate, wat flt incrm. titr., field, mg/L (00453)	Chlor- ide, water, fltrd, mg/L (00940)
MAR													
15...	1100	853	160	12	742	13.2	99	8.2	575	2.3	229	279	18.6
APR													
20...	0950	594	145	3.4	740	11.8	114	8.1	541	12.4	257	314	20.2
MAY													
19...	1200	1,510	160	84	--	9.4	--	8.1	525	18.1	--	208	26.0
24...	1100	28,800	260	710	--	--	--	--	--	--	42	52	9.72
JUN													
10...	1000	3,060	180	1,100	744	7.2	83	7.8	506	20.9	--	210	15.9
JUL													
21...	1130	2,030	180	130	--	8.2	--	8.2	560	22.5	219	267	17.9
AUG													
17...	1445	830	170	9.9	--	10.4	--	8.3	594	19.7	240	293	17.6
SEP													
14...	1300	476	165	12	--	9.9	--	8.3	584	21.0	--	302	19.0

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Partic- ulate nitro- gen, susp, water, mg/L (49570)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Total nitro- gen, wat flt by anal ysis, mg/L (62854)	Total nitro- gen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inor- ganic carbon, suspnd sedimnt total, mg/L (00688)
MAR													
15...	11.3	29.7	.12	6.11	.014	.11	.104	.123	.151	6.37	6.76	1.1	<.1
APR													
20...	2.7	28.8	<.04	5.00	.022	.24	.013	.022	.065	5.04	5.60	1.3	<.1
MAY													
19...	9.2	20.2	.04	12.8	.037	.68	.088	.102	.36	12.5	12.9	6.4	.2
24...	8.8	9.0	.14	9.16	.077	3.22	.153	.166	1.52	9.42	11.5	29.9	.4
JUN													
10...	8.3	17.5	E.03	8.69	.029	2.03	.102	.118	1.80	9.19	13.2	18.7	<.1
JUL													
21...	11.5	22.6	<.04	9.16	.010	.48	.090	.102	.38	9.79	10.9	4.7	.3
AUG													
17...	7.6	25.0	<.04	7.32	.008	.15	.043	.056	.099	6.99	7.64	1.4	<.1
SEP													
14...	8.2	26.2	<.04	5.54	.014	.24	.028	.035	.092	5.63	6.00	1.7	<.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheo- phytin a, phyto- plank- ton, ug/L (62360)	Chloro- phyll a phyto- plank- ton, fluoro, ug/L (70953)	2,6-Di- ethyl- aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto- chlor, water, fltrd, ug/L (49260)	Ala- chlor, water, fltrd, ug/L (46342)	alpha- HCH, water, fltrd, ug/L (34253)	Atra- zine, water, fltrd, ug/L (39632)	Azin- phos- methyl, water, fltrd 0.7u GF ug/L (82686)	Ben- flur- alin, water, fltrd 0.7u GF ug/L (82673)	Butyl- ate, water, fltrd, ug/L (04028)
MAR													
15...	1.1	4.0	.9	1.3	<.006	E.051	.038	<.007	<.005	.104	<.050	<.010	<.004
APR													
20...	1.3	2.5	9.7	16.3	<.006	E.058	.029	<.005	<.005	.125	<.050	<.010	<.004
MAY													
19...	6.2	3.1	12.2	9.2	<.006	E.184	2.48	.014	<.005	5.60	<.050	<.010	<.004
24...	29.4	6.3	8.8	4.4	<.006	E.475	4.85	.147	<.005	7.11	<.050	<.010	<.013
JUN													
10...	18.6	4.7	14.1	16.9	<.006	E.166	.336	.008	<.005	1.94	<.050	<.010	<.004
JUL													
21...	4.4	2.2	3.6	5.6	<.006	E.091	.019	<.005	<.005	.264	<.050	<.010	<.004
AUG													
17...	1.3	1.6	1.8	3.3	<.006	E.112	.016	<.005	<.005	.189	<.050	<.010	<.004
SEP													
14...	1.7	.9	9.6	12.3	<.006	E.078	.008	<.005	<.005	.147	<.050	<.010	<.004

05412500 TURKEY RIVER AT GARBER, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
MAR													
15...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	.008	<.009	<.02	<.004	<.009	<.005
APR													
20...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
MAY													
19...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	E.002	<.009	<.005
24...	<.041	<.020	.009	<.006	.021	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
JUN													
10...	<.041	E.016	.037	<.006	E.013	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
JUL													
21...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
AUG													
17...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
SEP													
14...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
MAR													
15...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.080	<.006	<.003	<.007
APR													
20...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.031	<.006	<.003	<.007
MAY													
19...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.594	.013	<.003	<.007
24...	<.029	<.013	E.007	E.013	<.003	<.004	<.035	<.027	<.015	.930	.029	<.004	<.007
JUN													
10...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.415	<.006	<.003	<.007
JUL													
21...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.025	<.006	<.003	<.007
AUG													
17...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.019	<.006	<.003	<.007
SEP													
14...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.015	<.006	<.003	<.007

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
MAR													
15...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
APR													
20...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02	<.034
MAY													
19...	<.003	<.010	<.004	<.022	<.011	M	<.004	<.025	<.011	<.02	.029	<.02	<.034
24...	<.010	<.010	<.004	E.011	<.011	.01	<.004	<.025	<.011	<.02	.046	.04	<.034
JUN													
10...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.042	<.02	<.034
JUL													
21...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	.010	<.02	<.034
AUG													
17...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.011	<.02	<.034
SEP													
14...	<.003	<.010	<.004	<.022	<.011	M	<.004	<.025	<.011	<.02	<.010	<.02	<.034

05412500 TURKEY RIVER AT GARBER, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Number of sam-pling points, count (00063)
MAR						
15...	<.02	<.010	<.002	<.009	31	11
APR						
20...	<.02	<.010	<.002	<.009	29	10
MAY						
19...	<.02	<.010	<.002	<.009	214	11
24...	<.02	<.010	<.002	<.009	1,720	11
JUN						
10...	<.02	<.010	<.002	<.009	1,570	11
JUL						
21...	<.02	<.010	<.002	<.009	432	11
AUG						
17...	<.02	<.010	<.002	<.009	83	11
SEP						
14...	<.02	<.010	<.002	<.009	59	11

05416900 MAQUOKETA RIVER AT MANCHESTER, IA

LOCATION.--Lat 42°28'12", long 91°26'54", in SW$\frac{1}{4}$ SW$\frac{1}{4}$ SW$\frac{1}{4}$ 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.

PERIOD OF RECORD.--April 26, 2000 to December 16, 2002; June 23, 2003 to current year.

GAGE.--Water-stage recorder. Datum of gage is 895.00 ft above NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	63	180	e102	e70	479	464	158	2,470	e345	e135	81
2	62	76	171	e99	e71	521	417	152	1,380	e267	e145	80
3	63	119	169	e97	e70	370	385	146	1,030	302	e189	78
4	63	1,180	168	e97	e67	297	355	144	884	317	e154	74
5	62	1,080	171	e96	e68	1,310	326	140	777	292	e133	73
6	61	536	163	e99	e69	1,720	310	138	758	422	e123	73
7	62	367	161	e97	e68	942	278	134	717	1,350	e117	70
8	61	289	161	e93	e69	594	245	132	664	588	e116	68
9	61	250	162	e93	e70	448	225	133	614	368	e117	68
10	61	229	179	e91	e72	385	219	147	595	288	e111	67
11	65	224	e140	e91	e73	362	217	141	757	e262	e109	65
12	70	210	e142	e93	e69	313	212	140	1,130	e751	e109	65
13	66	194	e146	e94	e76	298	199	153	966	e496	e108	64
14	71	184	e148	e93	e71	287	200	181	843	334	e105	62
15	67	182	e151	e90	e72	272	204	209	873	239	e108	63
16	64	179	e152	e88	e65	251	e200	196	735	214	e106	62
17	62	178	e145	e98	e73	248	e190	192	2,040	e198	e105	60
18	63	182	e139	e92	e70	274	e195	215	1,500	e180	e105	59
19	64	247	e136	e90	e84	333	e190	209	926	e168	e104	57
20	67	238	e128	e88	e101	359	e195	212	726	e171	e103	57
21	67	213	e132	e85	e118	333	220	216	645	e158	e101	55
22	67	197	e131	e88	e131	309	216	1,760	580	e156	e102	55
23	68	230	e130	e83	e177	292	206	14,800	510	e150	e108	55
24	69	282	e124	e81	e272	381	197	6,310	e485	e144	e88	55
25	68	261	e126	e79	e231	573	202	2,000	e469	e132	e88	53
26	66	235	e127	e80	e299	1,220	194	1,460	e441	e133	e93	52
27	65	217	e137	e77	478	1,220	181	1,120	e410	e126	e158	52
28	67	204	e147	e77	536	978	178	876	e384	e122	e152	51
29	66	194	e150	e74	566	817	173	838	e364	e131	e129	48
30	65	192	e130	e70	---	672	162	1,940	e344	e133	e102	48
31	63	---	e107	e69	---	541	---	4,400	---	e132	e84	---
TOTAL	2,008	8,432	4,553	2,744	4,256	17,399	7,155	38,992	25,017	9,069	3,607	1,870
MEAN	64.8	281	147	88.5	147	561	238	1,258	834	293	116	62.3
MAX	71	1,180	180	102	566	1,720	464	14,800	2,470	1,350	189	81
MIN	61	63	107	69	65	248	162	132	344	122	84	48
AC-FT	3,980	16,720	9,030	5,440	8,440	34,510	14,190	77,340	49,620	17,990	7,150	3,710
CFSM	0.24	1.02	0.53	0.32	0.53	2.04	0.87	4.57	3.03	1.06	0.42	0.23
IN.	0.27	1.14	0.62	0.37	0.58	2.35	0.97	5.27	3.38	1.23	0.49	0.25

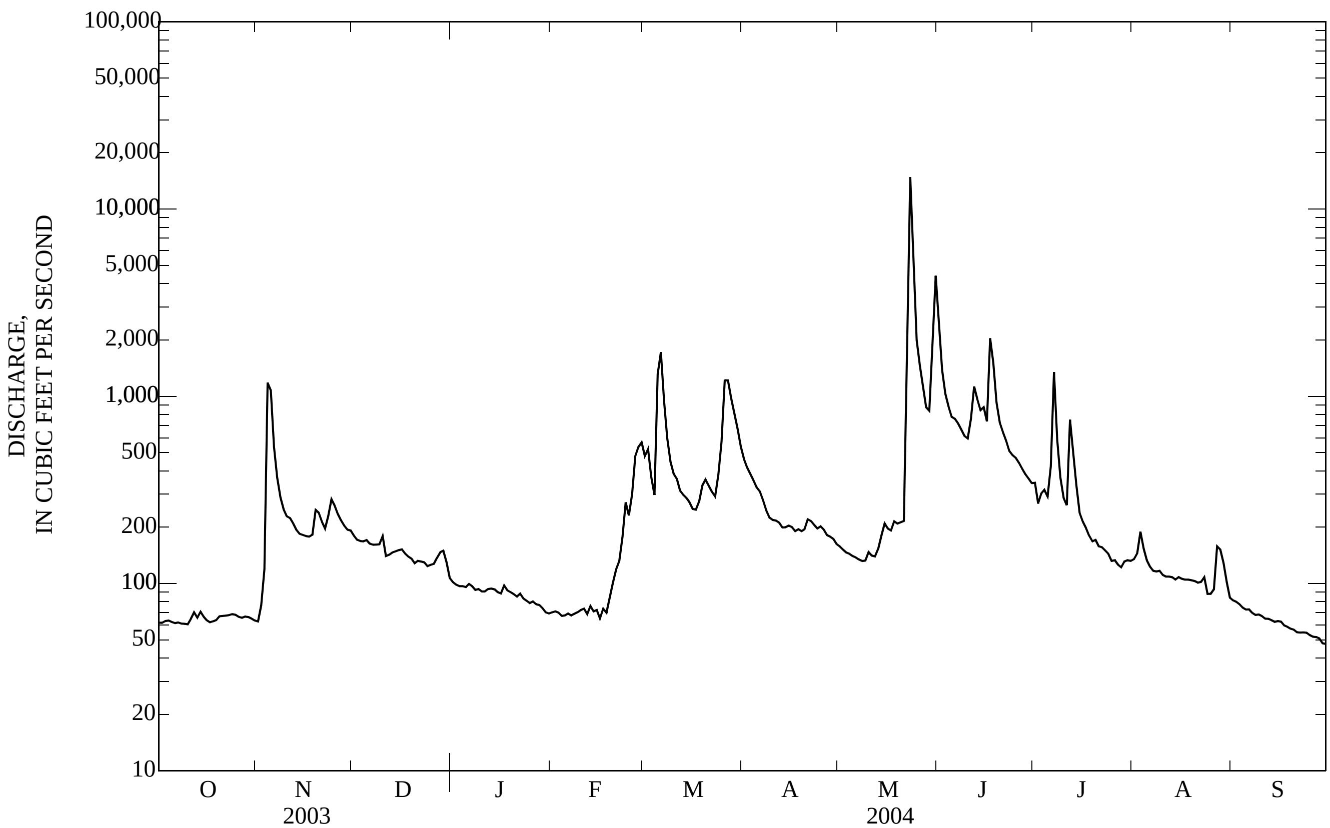
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	121	160	121	85.2	140	457	310	613	785	311	140	122
MAX	230	281	173	115	157	645	474	1,258	1,005	540	210	302
(WY)	(2002)	(2004)	(2002)	(2002)	(2002)	(2001)	(2001)	(2004)	(2000)	(2003)	(2001)	(2001)
MIN	64.8	91.5	43.4	52.0	115	165	217	280	427	141	97.0	62.3
(WY)	(2004)	(2003)	(2001)	(2001)	(2001)	(2002)	(2002)	(2002)	(2001)	(2002)	(2003)	(2004)

05416900 MAQUOKETA RIVER AT MANCHESTER, IA—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	125,102			
ANNUAL MEAN	342		277	
HIGHEST ANNUAL MEAN			342	2004
LOWEST ANNUAL MEAN			228	2002
HIGHEST DAILY MEAN	14,800	May 23	14,800	May 23, 2004
LOWEST DAILY MEAN	48	Sep 29 a	23	Dec 4, 2002 b
ANNUAL SEVEN-DAY MINIMUM	51	Sep 24	33	Dec 3, 2002
MAXIMUM PEAK FLOW	26,000	May 23	26,000	May 23, 2004
MAXIMUM PEAK STAGE	21.66	May 23	21.66	May 23, 2004
ANNUAL RUNOFF (AC-FT)	248,100		200,600	
ANNUAL RUNOFF (CFSM)	1.24		1.01	
ANNUAL RUNOFF (INCHES)	16.92		13.68	
10 PERCENT EXCEEDS	729		533	
50 PERCENT EXCEEDS	152		157	
90 PERCENT EXCEEDS	65		67	

a also September 30.
b Ice affected.
e Estimated



05418400 NORTH FORK MAQUOKETA RIVER NEAR FULTON, IA

LOCATION.--(revised) Lat 42°09'52", long 90°43'45", in SW$\frac{1}{4}$ SE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	147	296	e233	e180	708	705	319	1,900	421	263	255
2	137	180	281	e221	e188	718	644	315	1,270	406	256	243
3	140	293	274	e225	e172	606	593	310	1,040	401	279	237
4	143	1,690	273	e195	e177	471	553	308	892	418	758	233
5	144	1,540	281	e188	e181	2,260	518	307	805	414	398	231
6	143	683	276	e178	e193	1,610	493	307	757	440	324	230
7	142	459	268	e184	e199	922	476	310	706	498	297	225
8	139	383	270	e225	e172	701	454	307	644	425	287	219
9	141	350	275	e258	e184	580	429	305	609	393	282	220
10	135	334	e323	e225	e192	506	404	317	591	385	274	221
11	134	327	e297	e214	e212	464	390	368	648	376	269	218
12	138	318	e287	e193	e197	424	383	370	595	432	265	215
13	142	300	e257	e183	e197	390	375	355	693	582	263	215
14	170	287	e252	e202	e192	389	372	349	910	428	259	215
15	170	284	e252	e218	e178	367	367	342	983	386	256	248
16	156	281	e259	e238	e192	351	364	328	715	377	254	258
17	145	278	e259	e226	e200	344	364	323	1,640	793	255	229
18	143	282	e245	e195	e209	348	367	343	1,490	585	256	217
19	144	280	e237	e220	e217	360	358	380	921	429	253	212
20	146	278	e247	e273	e249	362	356	361	766	387	246	205
21	145	273	e233	e232	e282	351	379	349	723	370	242	202
22	143	e304	e240	e202	e384	339	374	1,010	690	358	239	199
23	142	e457	e233	e224	e488	334	360	5,970	620	344	239	199
24	151	e741	e242	e206	e456	455	348	2,450	572	326	238	201
25	171	429	e230	e206	e537	700	350	1,470	559	312	248	199
26	163	367	e200	e196	e691	1,310	350	1,210	527	300	265	197
27	155	344	e260	e202	786	1,580	340	1,010	497	287	300	197
28	157	325	e351	e192	721	1,110	332	871	484	276	340	197
29	157	309	e476	e184	706	1,050	330	766	465	264	324	196
30	156	304	e359	e183	---	909	324	899	437	285	280	194
31	153	---	e266	e172	---	792	---	2,620	---	286	262	---
TOTAL	4,583	12,827	8,499	6,493	8,932	21,811	12,452	25,249	24,149	12,384	8,971	6,527
MEAN	148	428	274	209	308	704	415	814	805	399	289	218
MAX	171	1,690	476	273	786	2,260	705	5,970	1,900	793	758	258
MIN	134	147	200	172	172	334	324	305	437	264	238	194
AC-FT	9,090	25,440	16,860	12,880	17,720	43,260	24,700	50,080	47,900	24,560	17,790	12,950
CFSM	0.29	0.85	0.54	0.41	0.61	1.39	0.82	1.61	1.59	0.79	0.57	0.43
IN.	0.34	0.94	0.63	0.48	0.66	1.61	0.92	1.86	1.78	0.91	0.66	0.48

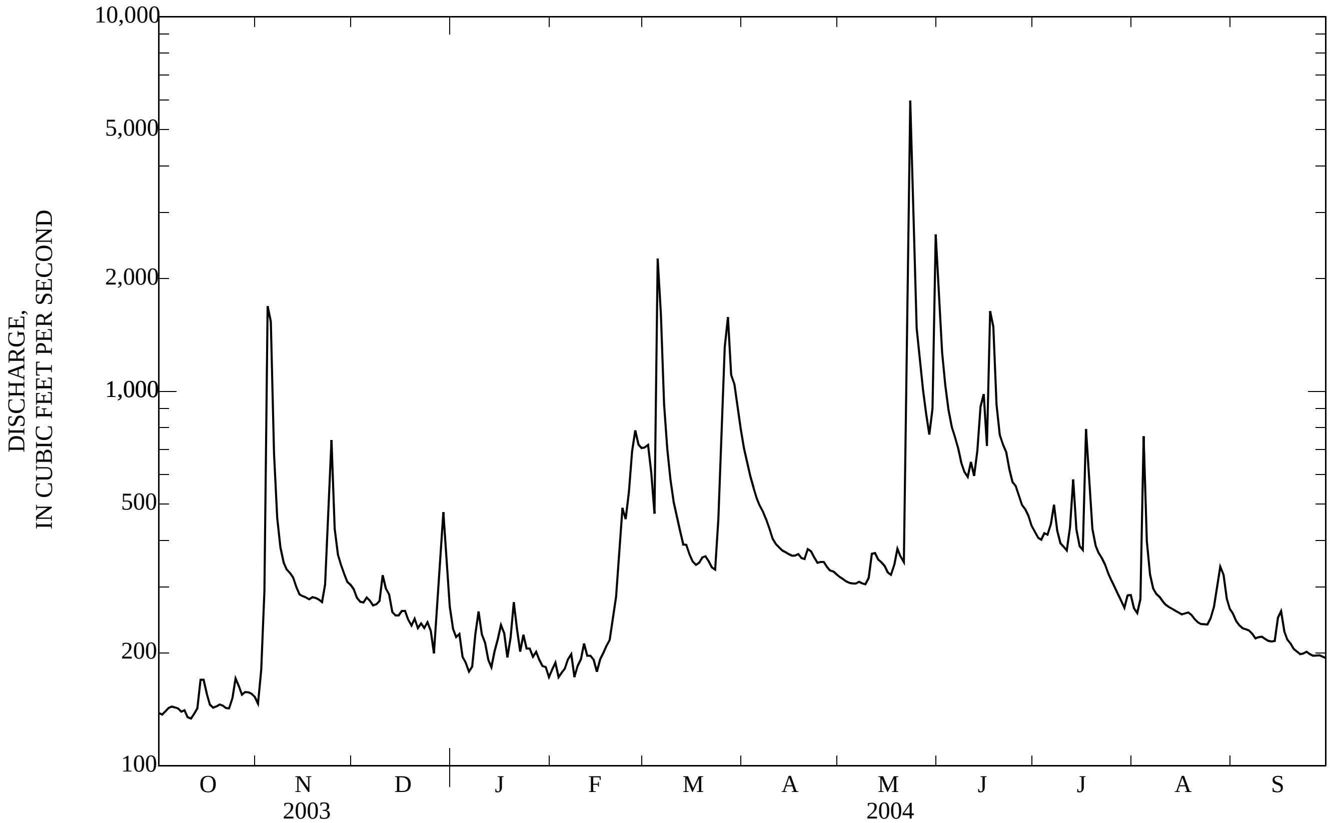
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2004, BY WATER YEAR (WY)

MEAN	304	290	198	162	346	423	438	575	1,018	454	416	278
MAX	490	428	274	214	549	800	857	1,179	2,667	595	1,217	432
(WY)	(1999)	(2004)	(2004)	(2002)	(2001)	(2001)	(1999)	(1999)	(2002)	(2002)	(2002)	(2002)
MIN	148	182	64.5	85.3	195	223	185	312	254	268	199	172
(WY)	(2004)	(2001)	(2001)	(2000)	(2002)	(2000)	(2003)	(2002)	(2003)	(2001)	(2003)	(2003)

05418400 NORTH FORK MAQUOKETA RIVER NEAR FULTON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1998 - 2004	
ANNUAL TOTAL	97,676		152,877			
ANNUAL MEAN	268		418		412	
HIGHEST ANNUAL MEAN					585	2002
LOWEST ANNUAL MEAN					268	2003
HIGHEST DAILY MEAN	2,080	Jul 9	5,970	May 23	20,200	Jun 5, 2002
LOWEST DAILY MEAN	134	Oct 11	134	Oct 11	44	Dec 5, 2000 a
ANNUAL SEVEN-DAY MINIMUM	139	Oct 7	139	Oct 7	56	Dec 21, 2000
MAXIMUM PEAK FLOW			9,680	May 23	22,600	Jun 5, 2002
MAXIMUM PEAK STAGE			15.34	May 23	19.87	Jun 5, 2002
INSTANTANEOUS LOW FLOW			129	Oct 11	129	Oct 11, 2003
ANNUAL RUNOFF (AC-FT)	193,700		303,200		298,200	
ANNUAL RUNOFF (CFSM)	0.530		0.827		0.815	
ANNUAL RUNOFF (INCHES)	7.20		11.26		11.07	
10 PERCENT EXCEEDS	375		746		689	
50 PERCENT EXCEEDS	224		300		274	
90 PERCENT EXCEEDS	154		178		160	

a Ice affected
e Estimated



05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA

LOCATION.--Lat 42°05'00", long 90°37'58", in SW$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929. 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	436	430	881	992	e571	2,050	2,440	993	8,300	1,360	835	760
2	423	471	847	919	e591	2,030	2,160	922	6,730	1,340	837	724
3	429	631	831	939	e567	2,010	1,970	902	4,360	1,310	808	691
4	431	1,990	775	865	e565	1,700	1,840	896	3,570	1,340	1,660	690
5	432	4,700	808	752	e581	5,040	1,670	881	3,110	1,330	1,400	639
6	409	3,150	771	596	e599	5,500	1,600	873	2,810	1,420	1,080	691
7	408	2,120	801	e642	e612	3,990	1,480	863	2,420	1,420	988	640
8	417	1,600	777	e688	e584	2,890	1,490	871	2,100	1,770	919	641
9	432	1,380	823	e657	e599	2,310	1,420	866	2,390	1,680	921	615
10	431	1,150	e970	e634	e615	2,000	1,320	870	1,420	1,400	888	603
11	425	1,090	e928	e596	e668	1,750	1,230	1,070	1,990	1,270	831	559
12	420	1,090	e872	e594	e637	1,650	1,220	1,310	2,130	1,210	860	581
13	409	1,010	e838	e622	e599	1,490	1,190	1,180	2,430	1,380	818	580
14	491	895	e770	e647	e584	1,430	1,150	1,130	2,660	1,290	775	600
15	483	894	e752	e641	e580	1,420	1,130	1,120	3,160	1,210	784	595
16	458	846	e765	e603	e565	1,330	1,090	1,020	2,790	1,190	781	716
17	433	811	e779	e649	e599	1,320	1,070	1,020	5,920	1,690	803	603
18	427	861	e744	e751	e698	1,310	1,140	1,270	5,110	1,450	781	571
19	430	820	e702	e680	e906	1,370	1,090	1,250	3,690	1,200	782	551
20	428	799	e655	e646	e1,200	1,430	1,080	1,170	2,800	1,110	765	566
21	413	801	e664	e625	e1,390	1,490	1,200	1,180	2,690	1,030	748	506
22	414	828	e689	e637	e1,640	1,430	1,150	2,700	2,570	1,010	738	523
23	414	1,100	e686	e613	e1,770	1,310	1,180	9,770	2,180	1,000	732	500
24	432	1,620	e677	e599	e1,740	1,770	1,130	11,500	1,970	929	731	517
25	487	1,490	e669	e607	e1,830	2,580	1,130	14,100	1,910	884	739	508
26	446	1,280	e621	e601	e1,910	3,190	1,120	8,190	1,790	861	777	512
27	426	1,120	e714	e592	1,980	4,850	1,060	4,440	1,640	848	874	492
28	432	1,080	e799	e579	2,050	4,120	1,020	3,600	1,590	833	963	469
29	439	986	1,300	e575	1,950	3,580	995	3,020	1,530	827	1,050	481
30	439	962	1,160	e575	---	3,130	970	3,070	1,470	888	885	478
31	433	---	1,070	e561	---	2,730	---	6,090	---	875	802	---
TOTAL	13,427	38,005	25,138	20,677	29,180	74,200	39,735	88,137	89,230	37,355	27,355	17,602
MEAN	433	1,267	811	667	1,006	2,394	1,324	2,843	2,974	1,205	882	587
MAX	491	4,700	1,300	992	2,050	5,500	2,440	14,100	8,300	1,770	1,660	760
MIN	408	430	621	561	565	1,310	970	863	1,420	827	731	469
AC-FT	26,630	75,380	49,860	41,010	57,880	147,200	78,810	174,800	177,000	74,090	54,260	34,910
CFSM	0.28	0.82	0.52	0.43	0.65	1.54	0.85	1.83	1.92	0.78	0.57	0.38
IN.	0.32	0.91	0.60	0.50	0.70	1.78	0.95	2.11	2.14	0.89	0.66	0.42

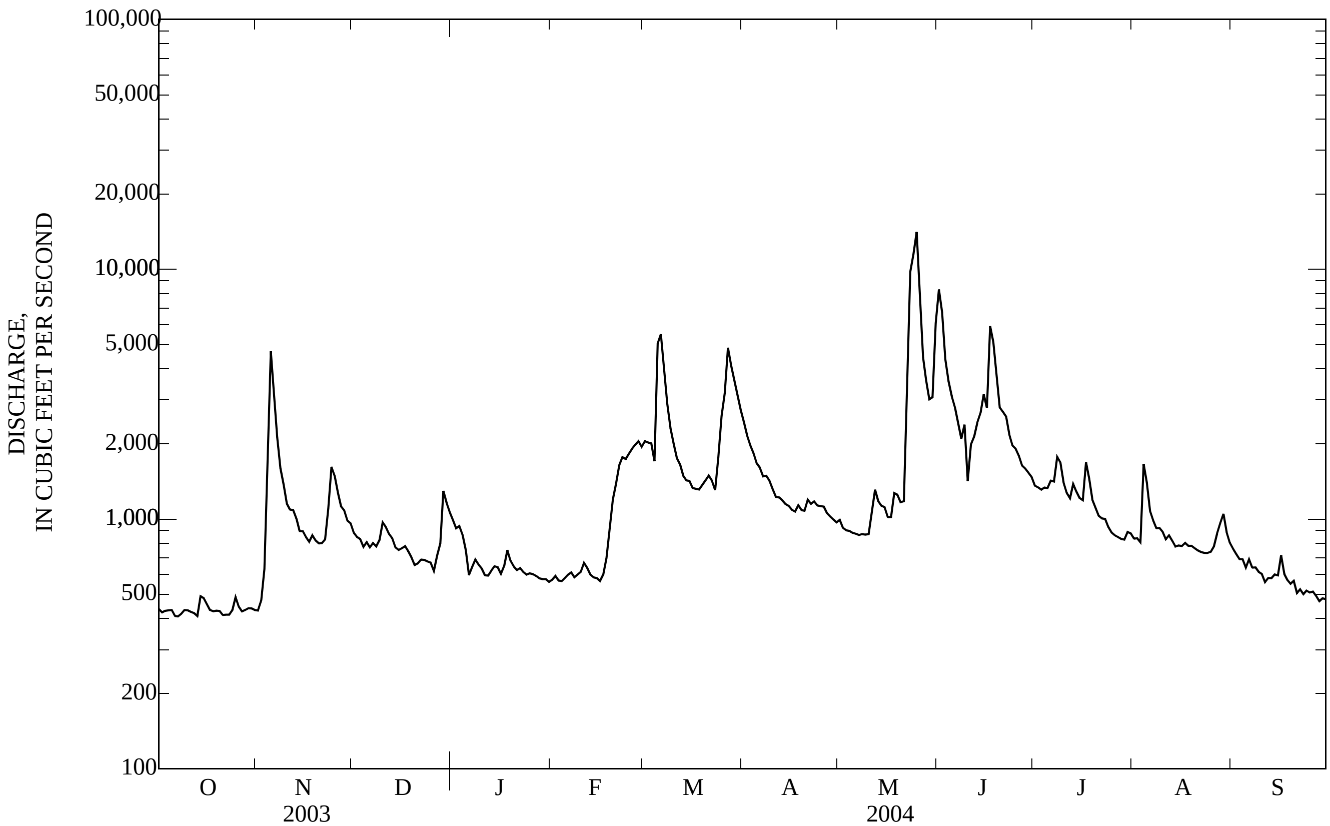
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	740	793	655	678	1,097	1,839	1,380	1,288	1,556	1,087	844	875
MAX	2,486	4,983	2,397	2,851	4,161	4,798	4,843	4,267	6,670	8,835	3,340	3,074
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	316,458		500,041			
ANNUAL MEAN	867		1,366		1,068	
HIGHEST ANNUAL MEAN					2,874	1993
LOWEST ANNUAL MEAN					306	1958
HIGHEST DAILY MEAN	6,050	Jul 10	14,100	May 25	45,900	Jun 5, 2002
LOWEST DAILY MEAN	394	Sep 10	408	Oct 7	105	Feb 11, 1936
ANNUAL SEVEN-DAY MINIMUM	411	Sep 6	420	Oct 6	105	Feb 11, 1936
MAXIMUM PEAK FLOW			15,900	May 25	48,000	Jun 27, 1944
MAXIMUM PEAK STAGE			25.61	May 25	24.70	Jun 27, 1944 a
ANNUAL RUNOFF (AC-FT)	627,700		991,800		773,900	
ANNUAL RUNOFF (CFSM)	0.558		0.880		0.688	
ANNUAL RUNOFF (INCHES)	7.58		11.98		9.35	
10 PERCENT EXCEEDS	1,460		2,600		2,010	
50 PERCENT EXCEEDS	631		904		664	
90 PERCENT EXCEEDS	437		492		300	

a Datum in use prior to Oct. 1, 1972.
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 Sepember 30, 2004 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to Sepember 30, 2004 (discontinued).
WATER TEMPERATURES: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to Sepember 30, 2004 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to December 1981; October 1994 to September 30, 1997; April 13, 2000 to Sepember 30, 2004 (discontinued).

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, 1194 microsiemens Jan. 6, 2004; 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, 1194 microsiemens Jan. 6; minimum daily, 313 microsiemens May 23.
WATER TEMPERATURES: Maximum daily, 25×C July 22; minimum daily, 4.4×C Mar. 17.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3580 mg/L May 25; minimum daily mean, 14 mg/L Jan. 14.
SEDIMENT LOADS: Maximum daily, 138,100 tons May 25; minimum daily, 24 tons Jan. 14.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	557	---	---	---	---	---
2	---	---	---	---	---	---	570	---	---	---	---	---
3	---	---	---	---	---	---	---	556	---	---	---	---
4	---	---	---	---	---	---	---	542	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	1,194	---	---	566	---	---	---	---	---
7	---	---	---	601	---	---	558	---	---	---	---	---
8	---	---	---	405	---	---	547	---	---	---	---	---
9	---	---	---	449	---	---	516	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	542	---	---	---	---
12	---	---	---	---	---	---	548	---	---	---	---	---
13	---	---	---	420	---	---	597	---	---	---	---	---
14	---	---	---	1,184	---	---	---	---	---	---	---	---
15	423	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	553	---	---	---	---	---	---
18	---	---	---	---	---	594	---	---	---	---	---	---
19	---	---	---	---	---	---	517	---	---	---	---	---
20	421	---	---	---	---	---	---	---	---	---	---	---
21	---	508	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	319	---	601	---	---
23	---	---	---	---	---	577	---	313	554	---	---	---
24	---	---	---	---	---	475	---	329	---	---	---	---
25	---	---	---	---	---	567	---	---	---	---	---	---
26	---	---	---	---	447	499	---	---	---	---	---	---
27	---	---	---	---	448	---	---	---	---	---	---	---
28	---	---	---	---	---	---	570	---	---	---	---	---
29	---	---	---	---	---	514	---	---	---	---	---	---
30	---	---	---	---	---	509	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	557	---

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	15.0	---	---	---	---
4	---	---	---	---	---	---	---	15.0	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	12.0	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	9.0	---	---	---	---	---
13	---	---	---	---	---	---	9.0	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	12.0	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	4.4	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	15.0	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	6.7	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	25.0	---	---
23	---	---	---	---	---	11.0	---	---	21.0	---	---	---
24	---	---	---	---	---	10.0	---	17.0	---	---	---	---
25	---	---	---	---	---	11.0	---	---	---	---	---	---
26	---	---	---	---	6.0	13.0	---	---	---	---	---	---
27	---	---	---	---	6.0	---	---	---	---	---	---	---
28	---	---	---	---	---	---	12.0	---	---	---	---	---
29	---	---	---	---	---	13.0	---	---	---	---	---	---
30	---	---	---	---	---	12.0	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	20.0	---

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	74	87	63	73	46	109	38	102	37	57	338	1,870
2	70	79	64	81	45	103	38	95	38	61	384	2,100
3	68	79	66	112	44	99	38	97	39	60	387	2,100
4	67	78	69	379	43	90	37	87	41	63	283	1,320
5	67	78	76	967	42	92	33	68	42	66	1,280	18,900
6	67	74	74	629	41	86	31	50	44	71	1,690	25,300
7	68	74	70	404	41	88	30	52	45	74	1,100	12,000
8	69	78	68	292	40	84	19	35	46	73	603	4,780
9	69	80	65	241	41	92	35	62	47	76	484	3,030
10	67	78	63	197	42	110	37	63	47	78	409	2,210
11	66	76	62	182	38	95	39	63	44	79	335	1,590
12	65	73	61	178	34	80	40	64	42	72	270	1,210
13	67	74	60	162	34	77	35	59	40	65	226	911
14	74	98	59	143	35	73	14	24	38	60	183	707
15	79	103	59	142	41	83	21	36	36	56	140	538
16	72	89	58	133	44	91	29	47	35	53	97	351
17	64	75	58	127	41	86	31	54	34	55	76	272
18	61	70	57	134	39	78	32	65	32	60	116	412
19	58	68	57	126	39	74	31	57	37	91	114	421
20	56	65	56	122	38	67	31	54	85	275	106	409
21	56	62	55	120	34	61	31	52	239	897	98	396
22	55	62	54	122	37	69	32	55	956	4,230	90	348
23	55	62	57	170	40	74	32	53	1,170	5,590	83	294
24	61	72	64	280	35	64	32	52	1,270	5,970	92	450
25	67	88	60	240	33	60	33	54	1,140	5,630	162	1,140
26	63	76	56	191	32	54	33	54	892	4,600	402	3,600
27	62	72	52	158	33	64	33	53	315	1,720	1,060	13,900
28	62	73	50	147	35	76	34	53	245	1,350	818	9,180
29	64	76	48	129	39	135	34	53	291	1,530	345	3,330
30	63	75	47	122	35	111	35	54	---	---	696	5,880
31	63	73	---	---	35	101	36	55	---	---	473	3,510
TOTAL	---	2,367	---	6,503	---	2,626	---	1,822	---	33,062	---	122,459

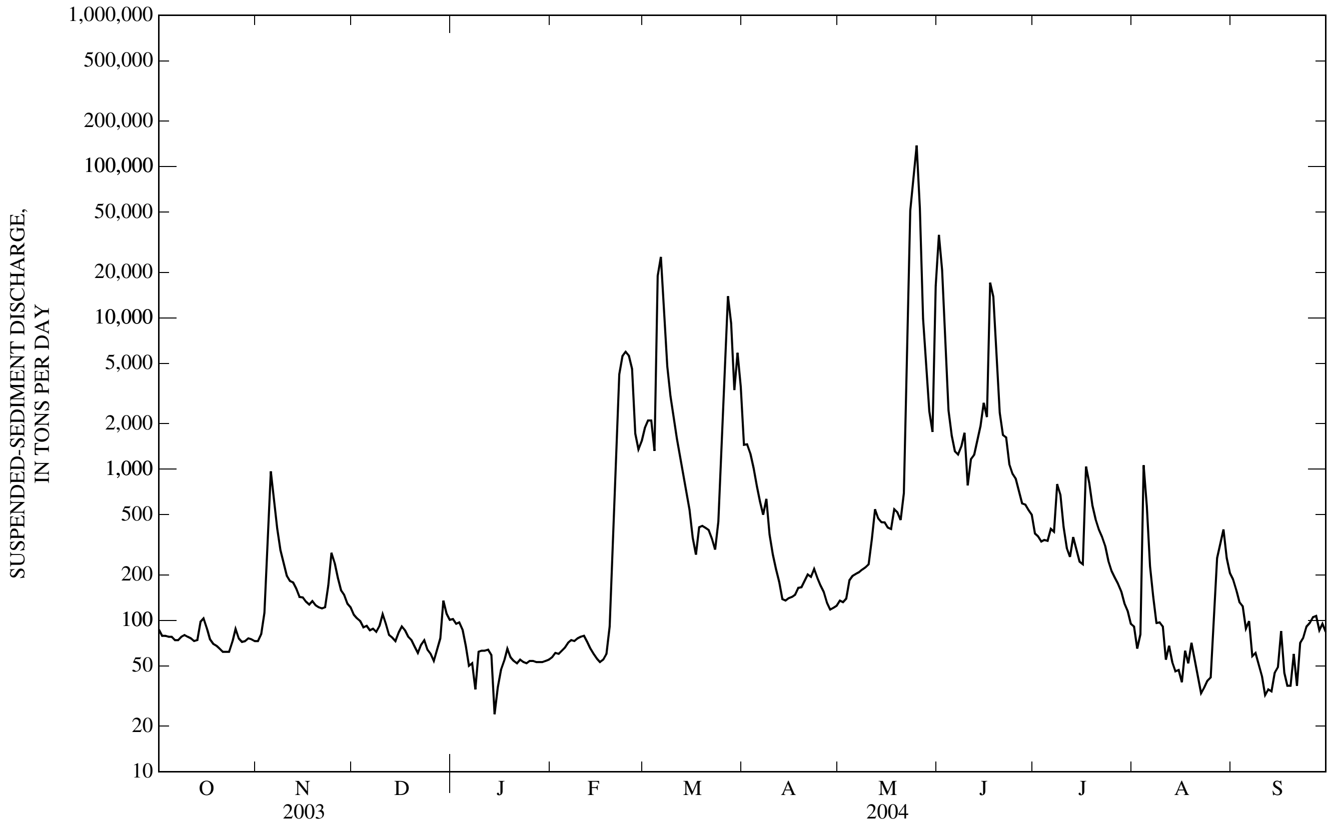
05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	219	1,450	50	135	1,580	35,400	102	375	41	91	91	187
2	250	1,460	53	132	1,110	20,700	99	359	28	65	82	159
3	238	1,270	57	139	554	6,650	94	332	30	81	71	132
4	205	1,020	76	184	249	2,440	94	340	218	1,060	66	124
5	172	778	83	197	199	1,670	93	336	148	569	51	88
6	141	611	86	203	173	1,310	104	402	77	228	53	99
7	125	500	89	208	192	1,250	100	385	54	143	32	58
8	158	636	92	217	242	1,410	160	796	39	96	35	61
9	96	369	96	224	268	1,740	147	679	39	97	30	51
10	77	274	100	235	198	780	109	414	38	91	26	43
11	66	219	118	344	214	1,160	87	301	24	55	18	32
12	55	180	153	543	214	1,240	80	263	30	68	22	35
13	43	138	148	472	236	1,560	95	355	24	53	22	34
14	44	135	146	446	266	1,930	85	296	22	46	25	45
15	46	140	148	445	320	2,740	74	244	23	47	22	49
16	49	143	149	410	277	2,210	73	235	19	39	42	85
17	51	148	146	401	1,060	17,100	217	1,040	29	63	27	45
18	54	164	157	543	972	13,800	207	814	24	52	22	37
19	56	166	153	518	598	6,040	178	575	33	71	21	37
20	62	182	146	461	304	2,360	156	467	26	54	39	60
21	62	201	207	692	230	1,680	144	400	21	42	27	37
22	62	194	982	7,800	232	1,620	132	358	17	33	50	71
23	69	219	1,780	51,300	183	1,080	115	311	19	36	57	77
24	62	191	2,730	86,300	175	933	98	247	20	40	65	91
25	55	170	3,580	138,000	167	864	89	212	21	42	69	96
26	51	154	2,140	53,100	147	711	83	192	44	92	76	105
27	46	131	815	9,900	134	593	76	175	109	258	78	107
28	43	118	475	4,650	136	582	69	156	122	321	67	86
29	45	121	294	2,410	130	536	59	130	140	399	73	95
30	48	125	211	1,760	125	500	49	116	108	259	65	84
31	---	---	860	16,300	---	---	40	95	95	206	---	---
TOTAL	---	11,607	---	378,669	---	132,589	---	11,400	---	4,797	---	2,310

YEAR 710,211

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA—Continued



05418600 MAQUOKETA RIVER NEAR SPRAGUEVILLE, IA
(Large River Mass Contaminents Station)

LOCATION.--Lat 42°06'04", long 90°31'04", in NE$\frac{1}{4}$ NW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.8, T.84 N., R.4 E., Jackson County, Hydrologic Unit 07060006, at bridge on County Road E23Y, 2.0 mi downstream of Dark Hollow Creek, 1.5 mi upstream of Brush Creek, 6 miles northwest of Spragueville, and 20 mi upstream from mouth.

DRAINAGE AREA.--1,632 mi^2 (approximate).

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instan- taneous dis- charge, cfs (00061)	Stream width, feet (00004)	Turbid- ity, wat unf lab, Hach 2100AN NTU (99872)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Alka- linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicar- bonate, wat flt incrm. titr., field, mg/L (00453)	Carbon- ate, wat flt incrm. titr., field, mg/L (00452)
MAR													
15...	1700	E1,420	265	20	--	12.6	--	8.1	577	3.9	212	259	--
29...	1500	E3,540	375	170	--	10.9	--	7.8	504	11.7	145	169	4
APR													
20...	1510	E1,080	280	12	740	16.2	165	8.7	545	14.7	274	334	--
MAY													
19...	0800	E1,260	260	42	745	9.0	96	8.2	539	17.2	214	261	--
25...	1000	E14,500	270	1,100	--	8.3	--	7.5	236	17.2	67	82	--
JUN													
10...	1300	E1,050	255	83	--	7.9	--	8.0	600	22.7	--	269	--
JUL													
21...	0720	E1,050	260	50	--	7.8	--	8.2	575	24.1	--	--	--
AUG													
17...	1025	E825	250	23	--	11.0	--	8.4	591	19.6	251	306	--
SEP													
14...	1000	E577	280	24	--	8.7	--	8.3	606	20.5	266	325	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chlor- ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Partic- ulate nitro- gen, susp, water, mg/L (49570)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Total nitro- gen, wat flt by anal ysis, mg/L (62854)	Total nitro- gen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
15...	19.6	11.8	26.2	E.03	9.34	.016	.16	.127	.141	.21	9.33	9.86	1.3
29...	22.8	10.4	23.4	.05	11.2	.029	.70	.173	.192	.61	11.0	12.5	6.2
APR													
20...	19.1	4.1	25.3	<.04	7.15	.018	.57	.033	.043	.148	7.35	7.75	3.2
MAY													
19...	19.3	8.1	19.6	E.04	7.91	.040	.37	.093	.109	.25	7.87	8.26	2.8
25...	7.04	6.1	7.6	.34	5.66	.067	4.50	.072	.093	2.72	6.36	9.63	53.8
JUN													
10...	18.9	12.0	23.1	<.04	10.5	.020	.69	.118	.134	.41	11.1	11.3	6.0
JUL													
21...	17.0	11.0	24.8	<.04	6.96	.014	.30	.104	.122	.29	7.65	8.57	2.4
AUG													
17...	16.3	7.6	26.2	<.04	5.68	.018	.18	.043	.056	.162	5.51	6.13	1.2
SEP													
14...	17.0	9.6	25.5	<.04	5.15	.022	.27	.089	.097	.171	5.45	5.65	1.8

05418600 MAQUOKETA RIVER NEAR SPRAGUEVILLE, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
15...	<.1	1.2	3.0	.7	.9	<.006	E.065	.009	.006	<.005	.074	<.050	<.010
29...	<.1	6.1	3.2	4.9	4.6	<.006	E.088	.015	.008	<.005	.090	<.050	<.010
APR													
20...	<.1	3.2	1.9	26.2	65.5	<.006	E.074	.052	<.005	<.005	.154	<.050	<.010
MAY													
19...	<.1	2.7	2.3	10.9	16.2	<.006	E.128	.526	.007	<.005	1.47	<.050	<.010
25...	.5	53.4	4.9	26.9	11.9	<.006	E.440	5.53	.080	<.005	10.2	<.050	<.010
JUN													
10...	<.1	6.0	2.3	6.2	12.3	<.006	E.114	.075	E.005	<.005	.571	<.050	<.010
JUL													
21...	<.1	2.4	1.9	11.8	21.3	<.006	E.100	.017	<.005	<.005	.238	<.050	<.010
AUG													
17...	<.1	1.1	1.6	13.9	35.6	<.006	E.078	.009	<.005	<.005	.135	<.050	<.010
SEP													
14...	<.1	1.8	1.4	6.5	12.6	<.006	E.079	<.010	<.005	<.005	.095	<.050	<.010

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)
MAR													
15...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
29...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
20...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
19...	<.004	<.041	<.020	.006	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
25...	<.004	<.041	E.092	.013	<.006	.023	<.003	<.012	<.005	<.009	<.02	.006	<.009
JUN													
10...	<.004	<.041	E.006	E.004	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
JUL													
21...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
17...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP													
14...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
15...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.024	<.006	<.003
29...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.053	<.006	<.003
APR													
20...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.041	<.006	<.003
MAY													
19...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.238	.006	<.003
25...	<.005	<.029	<.013	<.024	E.019	<.003	<.004	<.035	<.027	<.015	2.84	.019	<.003
JUN													
10...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.128	<.006	<.003
JUL													
21...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.039	<.006	<.003
AUG													
17...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.022	<.006	<.003
SEP													
14...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.015	<.006	<.003

05418600 MAQUOKETA RIVER NEAR SPRAGUEVILLE, IA—Continued

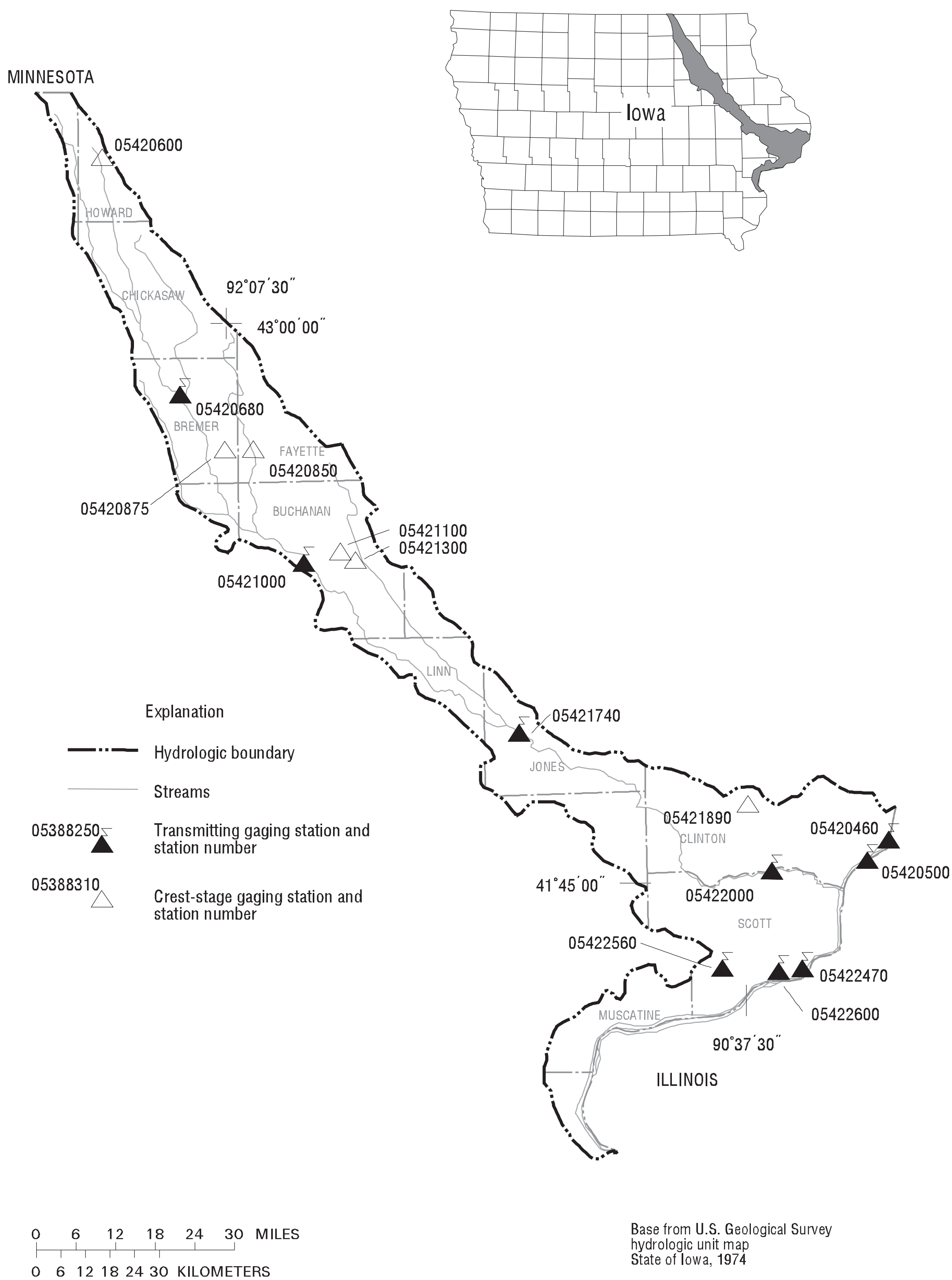
WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propy-zamide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)
MAR													
15...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02
29...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02
APR													
20...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
MAY													
19...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.050	<.02
25...	<.007	<.010	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.046	.02
JUN													
10...	<.007	E.002	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.007	<.02
JUL													
21...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02
AUG													
17...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.008	<.02
SEP													
14...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Number of sam-pling points, count (00063)
MAR							
15...	<.034	<.02	<.010	<.002	<.009	59	13
29...	<.034	<.02	<.010	<.002	<.009	470	13
APR							
20...	<.034	<.02	<.010	<.002	<.009	38	15
MAY							
19...	<.034	<.02	<.010	<.002	<.009	126	12
25...	<.034	<.02	<.010	<.002	<.009	2,350	11
JUN							
10...	<.034	<.02	<.010	<.002	E.004	281	13
JUL							
21...	<.034	<.02	<.010	<.002	<.009	129	10
AUG							
17...	<.034	<.02	<.010	<.002	<.009	71	10
SEP							
14...	<.034	<.02	<.010	<.002	<.009	86	11

05418600 MAQUOKETA RIVER NEAR SPRAGUEVILLE, IA—Continued


Iowa
MINNESOTA
05420600
HOWARD
CHICKASAW
92°07´30´´
43°00´00´´
05420680
BREMER
FAYETTE
05420850
05420875
BUCHANAN
05421100
05421300
05421000
LINN
05421740
JONES
05421890
CLINTON
05420460
05420500
41°45´00´´
05422000
SCOTT
05422560
05422470
05422600
MUSCATINE
90°37´30´´
ILLINOIS
Explanation
Hydrologic boundary
Streams
05388250
Transmitting gaging station and station number
05388310
Crest-stage gaging station and station number
0 6 12 18 24 30 MILES
0 6 12 18 24 30 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05420460 Beaver Slough at 3rd Street at Clinton, IA 94
05420500 Mississippi River at Clinton, IA 96
05420680 Wapsipinicon River nr Tripoli, IA 103
05421000 Wapsipinicon River at Independence, IA 110
05421740 Wapsipinicon River at Anamosa, IA 112
05422000 Wapsipinicon River near De Witt, IA 114
05422470 Crow Creek at Bettendorf, IA 119
05422560 Duck Creek at 110th Ave at Davenport, IA 121
05422600 Duck Creek at Duck Creek Golf Course, Davenport, IA 123

Crest Stage Gaging Stations

05420600 Little Wapsipinicon River Tributary near Riceville, IA 487
05420850 Little Wapsipinicon River near Oran, IA 487
05420875 Buck Creek near Oran, IA 487
05421100 Pine Creek Tributary near Winthrop, IA 487
05421300 Wapsipinicon River Tributary at Winthrop, IA 487
05421890 Silver Creek at Welton, IA 488

05420460 BEAVER SLOUGH AT THIRD STREET CLINTON, IA

LOCATION.--Lat 41°49'38", long 90°11'25", in SW¼ SE¼ NW¼ 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 NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,120	4,050	5,080	5,180	e3,450	e8,720	20,100	16,300	29,500	21,700	8,180	6,790
2	5,060	5,270	4,260	4,740	e3,500	10,300	21,500	16,000	31,200	18,800	7,970	6,740
3	4,620	6,100	3,730	4,390	e3,610	13,300	22,600	15,300	31,200	15,000	8,980	6,820
4	3,380	7,680	3,820	3,500	e4,190	14,400	24,200	14,400	30,200	13,900	9,000	6,700
5	3,430	10,000	4,420	3,560	e4,370	16,900	25,000	12,300	29,000	12,600	10,100	6,220
6	3,960	9,060	4,880	e3,450	e4,460	20,100	25,700	11,500	28,800	11,600	11,800	5,780
7	4,140	7,290	4,810	e3,540	e4,370	20,600	27,100	10,500	29,000	13,500	10,700	6,670
8	4,160	6,050	4,810	e3,610	e4,350	17,900	27,600	10,500	30,000	14,900	9,410	6,770
9	4,320	5,730	5,200	e3,630	e4,350	16,500	26,600	10,200	31,000	15,400	9,220	6,530
10	4,480	5,500	6,490	e3,750	e4,350	14,300	24,200	10,300	32,600	15,000	8,900	6,700
11	4,650	5,520	6,580	e4,070	e4,370	12,800	22,400	11,500	32,900	15,200	8,900	7,560
12	4,600	5,700	5,430	e4,320	e4,440	11,400	19,500	11,500	33,400	15,500	8,540	7,680
13	4,550	4,810	4,230	e3,930	e4,440	9,500	17,200	12,200	34,100	16,400	8,230	7,700
14	4,460	4,830	3,860	e3,700	e4,440	9,910	15,600	13,300	35,000	16,300	8,260	7,680
15	5,660	4,650	3,700	e3,610	e4,420	10,600	14,200	13,200	35,500	15,600	8,230	7,250
16	5,430	4,620	3,910	e3,820	e4,390	11,100	13,500	13,000	36,000	14,900	8,020	7,870
17	5,010	5,200	3,540	e4,090	e4,440	11,500	13,000	13,000	36,700	14,400	7,660	11,400
18	4,280	5,730	3,220	e3,930	e4,440	11,500	12,000	13,800	39,400	14,400	7,970	12,800
19	4,160	6,390	3,820	e3,700	e4,460	11,300	11,000	15,600	40,600	14,400	8,140	14,200
20	4,370	e7,130	4,460	e3,540	e4,460	11,200	10,600	15,600	41,000	14,100	8,540	14,800
21	4,370	e7,360	4,970	e3,840	e4,740	11,400	11,600	15,500	41,000	13,700	8,280	14,600
22	4,190	e6,900	5,010	e3,630	e5,200	11,200	13,200	16,100	40,600	13,900	7,580	15,200
23	4,300	e6,560	4,970	e3,520	e5,890	10,900	13,500	23,000	39,600	13,900	6,790	14,700
24	4,460	e6,320	5,040	e3,520	e6,650	11,600	13,200	31,000	37,900	13,800	6,290	13,600
25	4,720	6,140	5,040	e3,430	e7,610	12,300	13,700	34,300	36,000	12,500	6,820	13,000
26	5,150	5,860	4,970	e3,380	e7,980	13,200	15,300	34,300	33,800	10,400	7,460	13,100
27	6,100	5,930	5,080	e3,590	e7,590	14,700	15,900	31,700	31,000	10,100	7,630	12,900
28	5,310	6,190	5,180	e3,500	e6,950	14,900	15,700	27,400	27,400	9,600	7,800	12,800
29	4,050	6,050	5,500	e3,500	e7,540	15,600	15,400	23,900	24,200	7,920	8,740	13,200
30	3,750	5,590	5,640	e3,450	---	17,800	15,900	23,900	23,500	7,730	8,500	12,900
31	3,820	---	5,640	e3,470	---	18,500	---	26,600	---	8,180	7,130	---
TOTAL	139,060	184,210	147,290	116,890	145,450	415,930	537,000	547,700	1,002,100	425,330	259,770	300,660
MEAN	4,486	6,140	4,751	3,771	5,016	13,420	17,900	17,670	33,400	13,720	8,380	10,020
MAX	6,100	10,000	6,580	5,180	7,980	20,600	27,600	34,300	41,000	21,700	11,800	15,200
MIN	3,380	4,050	3,220	3,380	3,450	8,720	10,600	10,200	23,500	7,730	6,290	5,780
AC-FT	275,800	365,400	292,100	231,900	288,500	825,000	1,065,000	1,086,000	1,988,000	843,600	515,300	596,400
CFSM	0.05	0.07	0.06	0.04	0.06	0.16	0.21	0.21	0.39	0.16	0.10	0.12
IN.	0.06	0.08	0.06	0.05	0.06	0.18	0.23	0.24	0.44	0.18	0.11	0.13

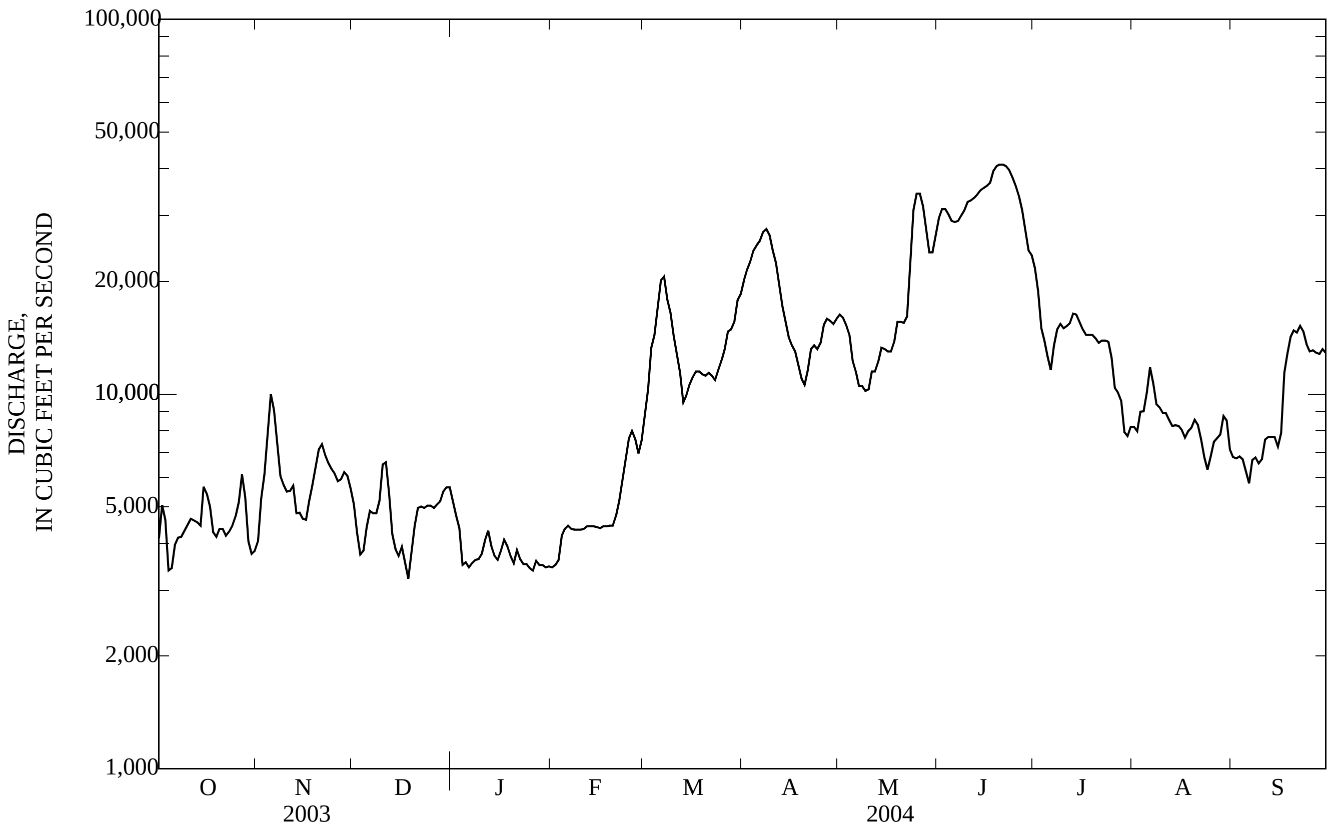
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10,540	11,470	9,098	8,423	9,469	14,230	26,770	25,530	21,410	18,920	12,710	10,780
MAX	17,900	18,320	11,680	12,780	14,510	19,900	43,980	42,580	35,240	49,690	28,330	21,640
(WY)	(2003)	(1996)	(1997)	(1995)	(1994)	(1995)	(1997)	(2001)	(1993)	(1993)	(1993)	(1993)
MIN	4,486	6,140	4,751	3,771	5,016	9,474	10,350	11,590	13,010	11,950	5,371	4,277
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2001)	(2000)	(2000)	(1997)	(1995)	(2003)	(2003)

05420460 BEAVER SLOUGH AT THIRD STREET CLINTON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1993 - 2004	
ANNUAL TOTAL	3,709,420		4,221,390			
ANNUAL MEAN	10,160		11,530		14,960	
HIGHEST ANNUAL MEAN					23,060	1993
LOWEST ANNUAL MEAN					10,720	2000
HIGHEST DAILY MEAN	37,700	May 22	41,000	Jun 20 a	61,600	Apr 23, 2001
LOWEST DAILY MEAN	2,820	Sep 8	3,220	Dec 18	2,820	Sep 8, 2003
ANNUAL SEVEN-DAY MINIMUM	3,250	Sep 5	3,470	Jan 25	3,250	Sep 5, 2003
MAXIMUM PEAK FLOW			42,000	Jun 21		
MAXIMUM PEAK STAGE			21.08	Jun 21		
ANNUAL RUNOFF (AC-FT)	7,358,000		8,373,000		10,840,000	
ANNUAL RUNOFF (CFSM)	0.119		0.135		0.175	
ANNUAL RUNOFF (INCHES)	1.61		1.83		2.37	
10 PERCENT EXCEEDS	22,400		26,600		27,400	
50 PERCENT EXCEEDS	6,380		8,200		12,100	
90 PERCENT EXCEEDS	4,120		3,850		6,390	

a also June 21.
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 NGVD of 1929. 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17,900	17,600	22,100	22,500	e15,000	e35,000	83,800	68,000	123,000	90,400	34,100	28,300
2	22,000	22,900	18,500	20,600	e15,200	43,100	89,500	66,700	130,000	78,400	33,200	28,100
3	20,100	26,500	16,200	19,100	e15,700	55,300	94,100	63,600	130,000	62,700	37,400	28,400
4	14,700	33,400	16,600	15,200	e18,200	60,000	101,000	60,200	126,000	58,000	37,500	27,900
5	14,900	43,600	19,200	15,500	e19,000	70,600	104,000	51,300	121,000	52,700	41,900	25,900
6	17,200	39,400	21,200	e15,000	e19,400	83,600	107,000	48,000	120,000	48,400	49,000	24,100
7	18,000	31,700	20,900	e15,400	e19,000	85,700	113,000	43,800	121,000	56,100	44,500	27,800
8	18,100	26,300	20,900	e15,700	e18,900	74,600	115,000	43,800	125,000	62,100	39,200	28,200
9	18,800	24,900	22,600	e15,800	e18,900	68,700	111,000	42,600	129,000	64,100	38,400	27,200
10	19,500	23,900	28,200	e16,300	e18,900	59,700	101,000	43,000	136,000	62,700	37,100	27,900
11	20,200	24,000	28,600	e17,700	e19,000	53,300	93,400	48,100	137,000	63,400	37,100	31,500
12	20,000	24,800	23,600	e18,800	e19,300	47,300	81,300	47,900	139,000	64,400	35,600	32,000
13	19,800	20,900	18,400	e17,100	e19,300	39,600	71,600	50,800	142,000	68,500	34,300	32,100
14	19,400	21,000	16,800	e16,100	e19,300	41,300	65,100	55,500	146,000	67,800	34,400	32,000
15	24,600	20,200	16,100	e15,700	e19,200	44,200	59,000	55,000	148,000	65,100	34,300	30,200
16	23,600	20,100	17,000	e16,600	e19,100	46,100	56,100	54,300	150,000	62,000	33,400	32,800
17	21,800	22,600	15,400	e17,800	e19,300	48,100	54,000	54,000	153,000	60,100	31,900	47,500
18	18,600	24,900	14,000	e17,100	e19,300	48,100	49,900	57,500	164,000	60,000	33,200	53,300
19	18,100	27,800	16,600	e16,100	e19,400	47,200	45,700	65,100	169,000	60,100	33,900	59,100
20	19,000	e31,000	19,400	e15,400	e19,400	46,800	44,200	65,100	171,000	58,800	35,600	61,500
21	19,000	e32,000	21,600	e16,700	e20,600	47,400	48,300	64,400	171,000	57,200	34,500	60,900
22	18,200	e30,000	21,800	e15,800	e22,600	46,700	55,200	66,900	169,000	58,100	31,600	63,400
23	18,700	e28,500	21,600	e15,300	e25,600	45,500	56,400	95,900	165,000	57,900	28,300	61,400
24	19,400	e27,500	21,900	e15,300	e28,900	48,200	54,800	129,000	158,000	57,700	26,200	56,500
25	20,500	26,700	21,900	e14,900	e33,100	51,200	56,900	143,000	150,000	51,900	28,400	54,200
26	22,400	25,500	21,600	e14,700	e33,400	55,200	63,700	143,000	141,000	43,300	31,100	54,400
27	26,500	25,800	22,100	e15,600	e29,000	61,100	66,400	132,000	129,000	42,200	31,800	53,900
28	23,100	26,900	22,500	e15,200	e29,000	62,100	65,400	114,000	114,000	40,000	32,500	53,400
29	17,600	26,300	23,900	e15,200	e29,800	64,900	64,200	99,500	101,000	33,000	36,400	54,800
30	16,300	24,300	24,500	e15,000	---	74,200	66,400	99,400	98,000	32,200	35,400	53,600
31	16,600	---	24,500	e15,100	---	77,200	---	111,000	---	34,100	29,700	---
TOTAL	604,600	801,000	640,200	508,300	622,800	1,732,000	2,237,400	2,282,400	4,176,000	1,773,400	1,081,900	1,252,300
MEAN	19,500	26,700	20,650	16,400	21,480	55,870	74,580	73,630	139,200	57,210	34,900	41,740
MAX	26,500	43,600	28,600	22,500	33,400	85,700	115,000	143,000	171,000	90,400	49,000	63,400
MIN	14,700	17,600	14,000	14,700	15,000	35,000	44,200	42,600	98,000	32,200	26,200	24,100
AC-FT	1,199,000	1,589,000	1,270,000	1,008,000	1,235,000	3,435,000	4,438,000	4,527,000	8,283,000	3,518,000	2,146,000	2,484,000
CFSM	0.23	0.31	0.24	0.19	0.25	0.65	0.87	0.86	1.63	0.67	0.41	0.49
IN.	0.26	0.35	0.28	0.22	0.27	0.75	0.97	0.99	1.81	0.77	0.47	0.54

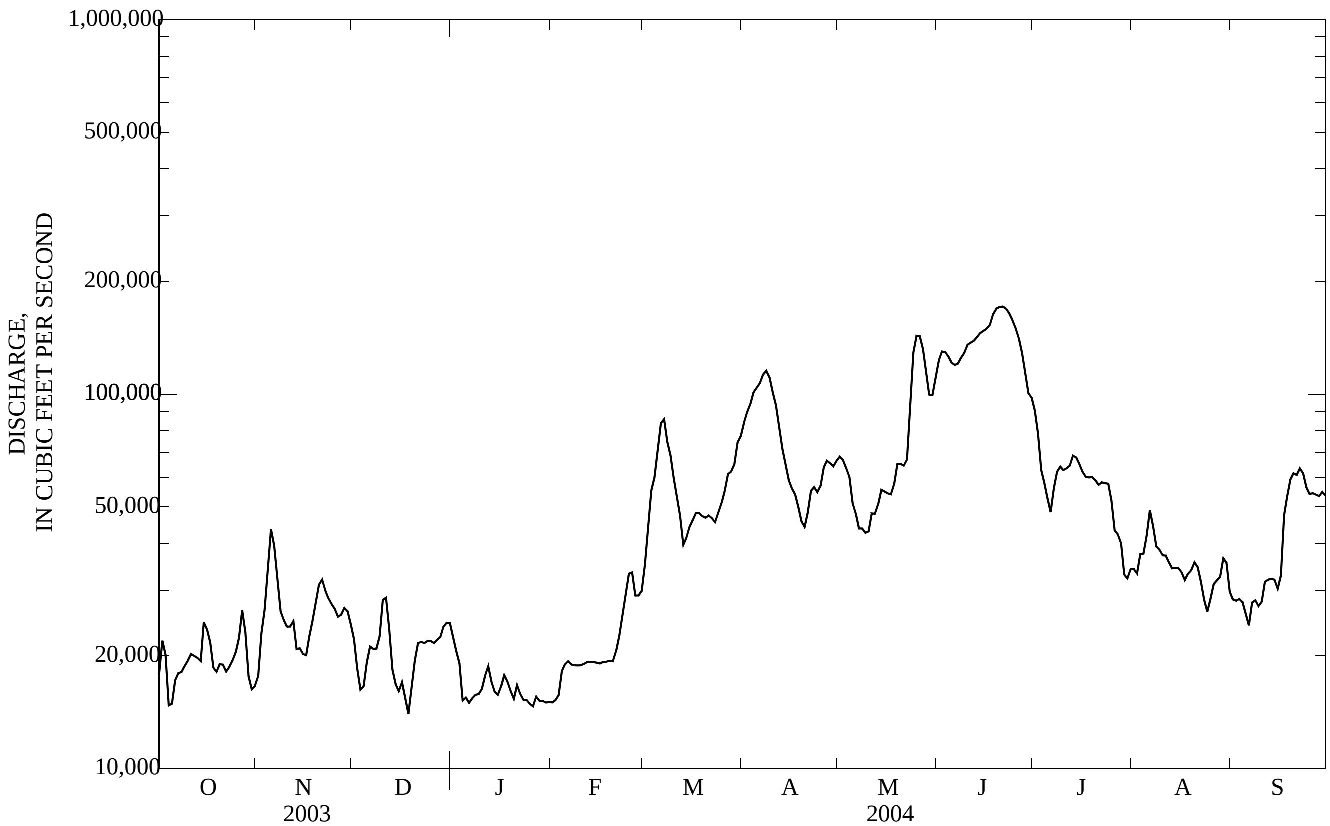
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1874 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40,720	39,200	27,970	25,790	28,190	50,510	89,790	82,630	69,850	56,280	37,860	38,040
MAX	203,600	146,800	73,590	54,100	65,680	127,500	175,900	212,400	182,100	198,900	113,400	92,380
(WY)	(1882)	(1882)	(1882)	(1973)	(1966)	(1973)	(1997)	(1888)	(1892)	(1993)	(1993)	(1938)
MIN	13,490	13,760	11,120	11,390	14,000	17,600	26,040	23,190	15,420	14,690	12,460	13,870
(WY)	(1934)	(1934)	(1934)	(1890)	(1893)	(1934)	(1931)	(1977)	(1988)	(1988)	(1936)	(1933)

05420500 MISSISSIPPI RIVER AT CLINTON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1874 - 2004	
ANNUAL TOTAL	15,604,900		17,712,300			
ANNUAL MEAN	42,750		48,390		48,940	
HIGHEST ANNUAL MEAN					94,690	1882
LOWEST ANNUAL MEAN					18,870	1934
HIGHEST DAILY MEAN	157,000	May 22	171,000	Jun 20 a	307,000	Apr 28, 1965
LOWEST DAILY MEAN	13,900	Sep 30	14,000	Dec 18	6,500	Dec 25, 1933
ANNUAL SEVEN-DAY MINIMUM	16,000	Sep 5	15,100	Jan 25	7,430	Dec 24, 1933
MAXIMUM PEAK FLOW			175,000	Jun 21		
MAXIMUM PEAK STAGE			18.17	Jun 21	24.65	Apr 28, 1965
ANNUAL RUNOFF (AC-FT)	30,950,000		35,130,000		35,460,000	
ANNUAL RUNOFF (CFSM)	0.499		0.565		0.572	
ANNUAL RUNOFF (INCHES)	6.78		7.70		7.77	
10 PERCENT EXCEEDS	90,000		111,000		95,200	
50 PERCENT EXCEEDS	27,400		34,200		37,600	
90 PERCENT EXCEEDS	18,500		16,800		19,000	

a also June 21.
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 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)
OCT													
20...	1030	19,700	15	744	11.4	112	8.9	8.6	376	390	20.0	14.6	190
NOV													
19...	1005	30,300	23	738	16.2	128	8.8	7.8	386	390	--	5.5	180
FEB													
26...	1110	33,600	23	756	12.8	88	7.7	7.5	390	389	3.5	.0	170
MAR													
23...	1000	44,600	17	748	14.3	113	8.0	8.1	346	388	10.5	4.7	170
APR													
22...	0950	56,900	20	751	9.6	93	9.0	8.1	310	306	7.0	13.9	150
MAY													
11...	1030	48,100	20	747	8.4	90	8.8	8.2	278	277	--	17.5	130
26...	1100	143,000	340	746	5.6	60	7.6	7.9	257	263	--	17.4	120
JUN													
08...	1030	124,000	50	749	7.0	81	7.6	7.5	300	312	28.0	22.3	140
22...	1015	167,000	32	743	--	--	7.6	7.8	293	310	--	21.1	140
JUL													
07...	1100	53,300	15	745	7.1	86	7.9	8.2	404	433	12.5	23.4	200
21...	0930	57,000	11	752	6.1	78	8.0	8.0	422	450	--	27.0	210
AUG													
17...	0920	31,400	12	748	8.6	99	8.6	8.5	389	426	--	21.4	210
SEP													
02...	1020	27,600	15	748	7.7	93	8.7	--	--	412	28.0	23.5	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)
OCT													
20...	41.9	19.8	2.72	.4	12.7	163	158	169	12	18.6	<.2	1.91	20.9
NOV													
19...	41.3	18.6	2.31	.4	11.7	162	158	166	13	19.1	<.2	3.17	21.3
FEB													
26...	39.9	16.5	4.69	.4	13.0	146	140	171	.0	23.0	<.2	8.23	20.5
MAR													
23...	41.8	16.8	4.46	.5	14.3	146	129	157	.0	20.9	<.2	10.2	20.9
APR													
22...	36.5	14.3	2.94	.4	10.4	122	115	129	5	14.5	<.2	.48	19.2
MAY													
11...	29.3	12.9	2.56	.3	8.69	109	105	117	6	13.0	<.2	.15	17.3
26...	32.1	10.7	4.11	.2	4.98	96	92	112	.0	9.26	<.2	5.69	10.4
JUN													
08...	33.5	12.8	2.64	.3	9.34	113	110	134	.0	14.2	<.2	5.20	15.6
22...	36.4	12.5	2.94	.3	7.10	106	100	122	.0	11.3	<.2	11.0	21.1
JUL													
07...	48.4	19.2	2.72	.3	8.35	149	148	180	.0	16.7	.2	10.1	34.7
21...	51.0	20.1	2.67	.3	8.83	158	155	189	.0	16.2	.2	9.27	37.1
AUG													
17...	46.6	21.8	2.28	.3	9.58	166	159	175	9	16.8	.2	7.60	29.6
SEP													
02...	--	--	--	--	--	--	158	172	10	--	--	--	--

05420500 MISSISSIPPI RIVER AT CLINTON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Residue water, fltrd, tons/ acre-ft (70303)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Alum- inum, water, fltrd, ug/L (01106)
OCT													
20...	.31	224	.41	.91	<.04	<.06	<.008	.014	.029	.118	2.6	5.9	2
NOV													
19...	.31	228	.43	1.4	<.04	.65	.008	<.006	.013	.143	4.6	5.1	--
FEB													
26...	.34	252	1.5	1.9	.51	1.74	.021	.177	.21	.31	2.4	9.0	--
MAR													
23...	.33	243	.75	1.2	.24	2.05	.019	.057	.078	.163	1.6	6.5	3
APR													
22...	.25	184	.43	1.3	<.04	.54	.012	<.006	.016	.14	2.2	6.8	--
MAY													
11...	.22	162	.49	1.1	E.02	.21	E.007	.010	.028	.136	2.6	7.9	--
26...	.23	168	.69	2.5	<.04	3.12	.075	.085	.095	.78	14.5	9.1	3
JUN													
08...	.26	191	.48	1.2	E.04	1.56	.024	.054	.069	.22	3.1	9.7	--
22...	.23	169	.62	.99	.05	2.66	.065	.074	.094	.194	1.3	9.4	--
JUL													
07...	.36	264	.72	.94	.17	3.39	.045	.063	.082	.129	1.8	8.3	--
21...	.36	263	.70	.80	.09	2.82	.035	.081	.103	.144	.9	6.8	2
AUG													
17...	.34	249	.53	.96	E.04	1.58	.022	.071	.094	.154	1.8	5.7	E2
SEP													
02...	--	--	.50	.85	.04	.83	.016	.071	.086	.147	1.8	5.7	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Anti- mony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryll- ium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chrom- ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan- ese, water, fltrd, ug/L (01056)
OCT													
20...	<.20	1.5	28	<.06	28	E.02	<.8	.362	8.2	E4	1.31	4.0	1.4
NOV													
19...	--	.9	--	--	27	--	--	--	--	20	--	3.2	--
FEB													
26...	--	.8	--	--	23	--	--	--	--	39	--	2.3	--
MAR													
23...	E.12	.6	39	<.06	32	<.04	<.8	.285	2.4	50	.08	2.7	8.4
APR													
22...	--	.8	--	--	22	--	--	--	--	25	--	2.6	--
MAY													
11...	--	.9	--	--	20	--	--	--	--	26	--	2.5	--
26...	<.20	1.4	48	<.06	18	<.04	<.8	.170	1.1	14	<.08	1.1	1.3
JUN													
08...	--	.9	--	--	23	--	--	--	--	29	--	2.6	--
22...	--	1.0	--	--	25	--	--	--	--	61	--	3.7	--
JUL													
07...	--	1.4	--	--	28	--	--	--	--	11	--	5.7	--
21...	E.16	1.5	53	<.06	28	<.04	<.8	.315	4.3	E5	.27	6.1	11.1
AUG													
17...	E.17	2.0	47	<.06	30	<.04	<.8	.317	1.6	E5	<.08	5.9	3.6
SEP													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--

05420500 MISSISSIPPI RIVER AT CLINTON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Molybdenum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selenium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Strontium, water, fltrd, ug/L (01080)	Vanadium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)
OCT													
20...	1.4	9.84	.4	<.2	80.4	2.2	38.0	<.006	<.006	<.006	<.004	<.005	95.6
NOV													
19...	--	--	E.4	--	77.9	2.0	--	<.006	E.008	E.005	<.005	<.005	82.6
FEB													
26...	--	--	.5	--	76.3	2.1	--	<.006	E.024	.013	<.005	<.005	102
MAR													
23...	.8	1.73	E.4	<.2	73.0	1.2	2.5	<.006	E.021	.015	<.005	<.005	95.4
APR													
22...	--	--	E.3	--	63.6	1.7	--	<.006	E.020	.027	<.005	<.005	106
MAY													
11...	--	--	E.3	--	59.8	1.8	--	<.006	E.021	.131	<.005	<.005	89.3
26...	.7	1.23	E.4	<.2	56.0	2.2	1.3	<.006	E.178	2.80	.048	<.005	98.6
JUN													
08...	--	--	E.2	--	63.5	2.1	--	<.006	E.040	.196	.015	<.005	96.3
22...	--	--	.4	--	69.5	1.8	--	<.006	E.059	.171	.012	<.005	93.3
JUL													
07...	--	--	.7	--	106	2.3	--	<.006	E.053	.073	.006	<.005	96.9
21...	1.5	1.99	.9	<.2	111	2.8	2.1	<.006	E.050	.024	<.005	<.005	96.8
AUG													
17...	1.6	1.91	.7	<.2	105	3.3	E.4	<.006	E.042	.011	<.005	<.005	91.3
SEP													
02...	--	--	--	--	--	--	--	<.006	E.047	.008	<.005	<.005	99.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)
OCT													
20...	E.006	<.050	<.010	<.002	E.006	<.020	<.005	<.006	<.018	<.003	E.003	107	<.005
NOV													
19...	.032	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	115	<.009
FEB													
26...	.053	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	113	<.009
MAR													
23...	.044	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	107	<.009
APR													
22...	.061	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	109	<.009
MAY													
11...	.187	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	111	<.009
26...	4.81	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	101	<.009
JUN													
08...	.485	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	114	<.009
22...	1.04	<.050	<.010	<.004	<.041	E.037	<.005	<.006	<.018	<.003	E.004	111	<.009
JUL													
07...	.826	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	110	<.009
21...	.440	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	108	<.009
AUG													
17...	.252	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	104	<.009
SEP													
02...	.171	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	124	<.009

05420500 MISSISSIPPI RIVER AT CLINTON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
20...	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.006	<.013	<.006	<.002	<.007
NOV													
19...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	E.011	<.006	<.003	<.007
FEB													
26...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.025	<.006	<.003	<.007
MAR													
23...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.096	<.006	<.003	<.007
APR													
22...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.053	<.006	<.003	<.007
MAY													
11...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.057	<.006	<.003	<.007
26...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	1.21	.012	<.003	<.007
JUN													
08...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.220	E.005	<.003	<.007
22...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.305	<.006	<.003	<.007
JUL													
07...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.167	<.006	<.003	<.007
21...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.060	<.006	<.003	<.007
AUG													
17...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.027	<.006	<.003	<.007
SEP													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.020	<.006	<.003	<.007

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
OCT													
20...	<.003	<.010	<.004	<.022	<.011	E.01	<.004	<.010	<.011	<.02	.152	.03	<.034
NOV													
19...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.007	<.02	<.034
FEB													
26...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.009	<.02	<.034
MAR													
23...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.018	<.02	<.034
APR													
22...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	.009	<.02	<.034
MAY													
11...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	.006	<.02	<.034
26...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	.048	<.02	<.034
JUN													
08...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.016	<.02	<.034
22...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.021	<.02	<.034
JUL													
07...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.013	<.02	<.034
21...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.013	<.02	<.034
AUG													
17...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.016	<.02	<.034
SEP													
02...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.10	<.005	<.02	<.034

05420500 MISSISSIPPI RIVER AT CLINTON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Uranium natural water, fltrd, ug/L (22703)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)	Sus-pended sedi-ment dis-charge, tons/d (80155)
OCT								
20...	<.02	<.005	<.002	<.009	.91	98	18	957
NOV								
19...	<.02	<.010	<.002	<.009	--	98	26	2,130
FEB								
26...	<.02	<.010	<.002	<.009	--	--	26	2,360
MAR								
23...	<.02	<.010	<.002	<.009	.60	86	36	4,340
APR								
22...	<.02	<.010	<.002	<.009	--	46	3	461
MAY								
11...	<.02	<.010	<.002	<.009	--	--	32	4,160
26...	<.02	<.010	<.002	<.009	.52	100	529	204,000
JUN								
08...	<.02	<.010	<.002	<.009	--	98	122	40,800
22...	<.02	<.010	<.002	<.009	--	97	75	33,800
JUL								
07...	<.02	<.010	<.002	<.009	--	98	28	4,030
21...	<.02	<.010	<.002	<.009	2.18	99	19	2,920
AUG								
17...	<.02	<.010	<.002	<.009	1.84	92	63	5,340
SEP								
02...	<.02	<.010	<.002	<.009	--	92	27	2,010

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA

LOCATION.--Lat 42°50'10", long 92°15'26", in NW$\frac{1}{4}$ SW$\frac{1}{4}$ SW$\frac{1}{4}$ 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; October 1, 2000 to current year. 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 NGVD of 1929, from map.

REMARKS.--Records good except for those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	17	20	e29	e12	e214	374	153	2,890	191	139	114
2	14	18	22	e31	e14	e307	306	138	2,320	174	144	102
3	15	23	17	e30	e13	e400	261	125	1,710	174	177	91
4	15	35	20	e26	e12	e490	228	116	1,150	195	162	84
5	15	39	21	e21	e13	e587	196	109	855	271	145	78
6	15	37	21	e16	e16	e641	172	105	710	535	148	85
7	15	32	22	e16	e15	e678	156	101	610	1,070	150	135
8	16	32	23	e15	e13	e665	143	105	517	1,110	131	116
9	15	29	23	e14	e14	e535	131	109	446	840	118	111
10	15	24	26	e14	e14	e317	121	110	432	721	121	93
11	14	25	35	e16	e15	e206	116	112	604	1,020	230	82
12	16	26	e26	e19	e14	e159	109	150	734	1,490	232	68
13	14	26	e21	e19	e14	136	104	182	867	2,090	178	66
14	18	24	e21	e19	e13	162	99	212	927	2,320	149	66
15	16	24	e23	e17	e11	150	95	334	801	1,900	130	73
16	18	23	e28	e20	e12	124	92	427	650	1,330	120	98
17	18	23	e25	e22	e12	113	90	329	633	800	113	176
18	19	27	e22	e20	e14	115	90	274	651	546	103	301
19	18	34	e21	e18	e16	110	97	234	785	415	96	426
20	18	33	e19	e17	e28	106	109	203	896	343	92	557
21	16	30	e25	e18	e41	102	138	264	881	311	88	417
22	16	28	e23	e15	e58	100	168	4,090	705	386	84	240
23	16	27	e22	e15	e92	97	168	7,410	621	353	79	186
24	16	26	e19	e15	e67	104	157	7,830	467	328	80	159
25	16	32	e25	e15	e49	136	155	5,200	391	274	109	137
26	16	28	e29	e15	e37	381	163	3,660	336	230	216	122
27	16	22	e34	e14	e50	809	192	2,820	292	200	186	110
28	17	23	e32	e13	e78	820	217	2,220	259	176	177	100
29	18	29	e30	e12	e124	674	200	2,010	235	164	155	91
30	18	19	e29	e11	---	648	174	1,940	212	150	139	85
31	18	---	e29	e11	---	485	---	2,500	---	141	131	---
TOTAL	502	815	753	553	881	10,571	4,821	43,572	23,587	20,248	4,322	4,569
MEAN	16.2	27.2	24.3	17.8	30.4	341	161	1,406	786	653	139	152
MAX	19	39	35	31	124	820	374	7,830	2,890	2,320	232	557
MIN	14	17	17	11	11	97	90	101	212	141	79	66
AC-FT	996	1,620	1,490	1,100	1,750	20,970	9,560	86,430	46,780	40,160	8,570	9,060
CFSM	0.05	0.08	0.07	0.05	0.09	0.99	0.46	4.06	2.27	1.89	0.40	0.44
IN.	0.05	0.09	0.08	0.06	0.09	1.14	0.52	4.68	2.54	2.18	0.46	0.49

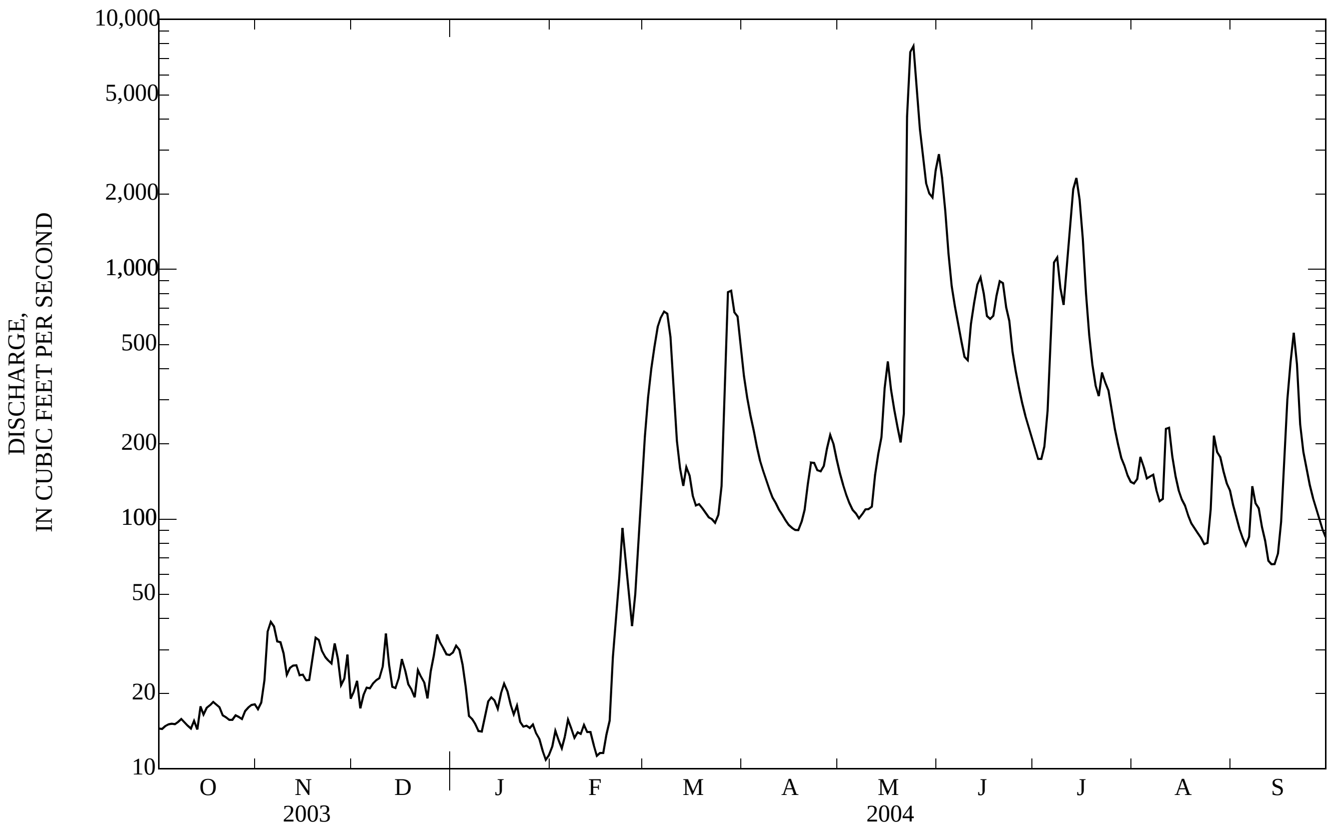
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	130	67.8	46.2	43.9	115	443	567	595	564	274	95.7	72.8
MAX	407	114	84.5	77.0	275	1,354	1,648	1,406	1,172	653	229	152
(WY)	(1998)	(2001)	(1997)	(1997)	(1998)	(1997)	(2001)	(2004)	(1998)	(2004)	(2002)	(2004)
MIN	16.2	27.2	24.3	17.8	21.1	51.3	161	174	188	69.2	36.0	18.8
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2004)	(1996)	(1997)	(2001)	(2001)	(2003)

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	51,021		115,194			
ANNUAL MEAN	140		315		255	
HIGHEST ANNUAL MEAN					367	1998
LOWEST ANNUAL MEAN					127	2002
HIGHEST DAILY MEAN	1,600	May 11	7,830	May 24	7,830	May 24, 2004
LOWEST DAILY MEAN	12	Jan 27	11	Jan 30 a	11	Jan 30, 2004
ANNUAL SEVEN-DAY MINIMUM	12	Feb 7	12	Jan 29	12	Feb 7, 2003
MAXIMUM PEAK FLOW			9,680	May 23	9,680	May 23, 2004
MAXIMUM PEAK STAGE			15.97	May 23	15.97	May 23, 2004
ANNUAL RUNOFF (AC-FT)	101,200		228,500		184,900	
ANNUAL RUNOFF (CFSM)	0.404		0.910		0.738	
ANNUAL RUNOFF (INCHES)	5.49		12.39		10.02	
10 PERCENT EXCEEDS	341		706		648	
50 PERCENT EXCEEDS	30		104		80	
90 PERCENT EXCEEDS	15		15		23	

a Also Jan. 31 and Feb. 15. Ice affected.
e Estimated.



05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 2001 to September 30, 2004 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)
OCT													
06...	0945	6.90	15	5.6	745	10.3	95	8.2	--	443	--	10.9	149
NOV													
04...	1005	7.21	37	6.5	728	11.9	94	7.8	378	396	--	5.7	149
DEC													
02...	0952	7.07	22	4.8	746	14.6	102	7.8	--	488	6.0	.1	160
JAN													
06...	1026	7.20	16	12	739	11.3	80	7.8	--	539	--	.1	172
FEB													
09...	1016	7.46	14	--	754	4.5	31	7.2	--	550	--	.1	186
APR													
05...	1025	8.41	200	12	735	11.1	95	7.6	--	462	15.0	8.6	113
MAY													
03...	0924	7.92	123	8.6	739	10.3	92	7.7	--	457	10.0	10.4	113
JUN													
02...	1035	13.06	2,250	--	736	7.5	79	7.6	--	347	15.0	15.7	68
JUL													
06...	1022	10.02	516	54	732	7.3	85	7.6	--	433	19.0	21.0	99
AUG													
03...	1025	8.45	184	31	732	7.5	92	7.9	402	423	31.0	23.5	134
12...	0915	8.79	E250	41	735	8.4	89	7.8	--	343	18.3	16.5	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)
OCT													
06...	182	.0	30.4	26.5	<.04	.93	.009	.026	.068	<.006	E.037	E.005	E.004
NOV													
04...	180	.0	23.0	22.1	<.04	.47	.012	.022	.079	--	--	--	--
DEC													
02...	195	.0	30.3	31.4	E.03	2.28	.017	<.006	.056	<.006	E.011	.015	.006
JAN													
06...	210	.0	36.0	33.9	<.04	3.74	.033	.015	.071	--	--	--	--
FEB													
09...	227	.0	36.2	30.6	.22	3.38	.063	.015	.062	<.006	E.047	.006	.011
APR													
05...	137	.0	32.4	25.5	<.04	9.43	.048	E.003	.095	<.006	E.056	.014	.008
MAY													
03...	138	.0	34.0	25.3	<.04	8.08	.070	.016	.088	<.006	E.062	.048	.006
JUN													
02...	83	.0	19.5	10.8	<.04	12.0	.144	.078	.177	<.006	E.215	.447	.039
JUL													
06...	121	.0	21.3	18.6	<.04	8.28	.032	.073	.22	<.006	E.113	.240	.006
AUG													
03...	163	.0	22.3	23.3	<.04	5.35	.013	.057	.141	<.006	E.070	.021	.006
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)
OCT													
06...	<.005	.049	<.050	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.005
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
02...	<.005	.085	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JAN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
09...	<.005	.065	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
APR													
05...	<.005	.081	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
MAY													
03...	<.005	.206	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JUN													
02...	<.005	2.37	<.050	<.010	<.004	<.041	<.020	.005	<.006	.049	<.003	<.005	<.009
JUL													
06...	<.005	.761	<.050	<.010	<.004	E.007	E.049	<.005	<.006	E.008	<.003	<.005	<.009
AUG													
03...	<.005	.220	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
06...	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.006	.023	<.006	<.002	<.007
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.056	<.006	<.003	<.007
JAN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
09...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.028	<.006	<.003	<.007
APR													
05...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.041	<.006	<.003	<.007
MAY													
03...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.071	<.006	<.003	<.007
JUN													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.433	<.009	<.003	<.007
JUL													
06...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.127	<.006	<.003	<.007
AUG													
03...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.047	<.006	<.003	<.007
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)
OCT													
06...	<.003	<.010	<.004	<.022	<.011	E.01	<.004	<.010	<.011	<.02	<.02	<.034	<.02
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
02...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JAN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
09...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
APR													
05...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	M	<.034	<.02
MAY													
03...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JUN													
02...	<.003	<.010	<.004	<.022	<.011	.01	<.004	E.006	<.011	<.02	<.02	<.034	<.02
JUL													
06...	<.003	<.010	<.004	<.022	<.011	.07	<.004	<.025	<.011	<.02	<.02	<.034	<.02
AUG													
03...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
12...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)
OCT				
06...	<.005	<.002	<.009	44
NOV				
04...	--	--	--	50
DEC				
02...	<.010	<.002	<.009	8
JAN				
06...	--	--	--	6
FEB				
09...	<.010	<.002	<.009	8
APR				
05...	<.010	<.002	<.009	11
MAY				
03...	<.010	<.002	<.009	--
JUN				
02...	<.010	<.002	<.009	24
JUL				
06...	<.010	<.002	<.009	55
AUG				
03...	<.010	<.002	<.009	28
12...	--	--	--	--

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.

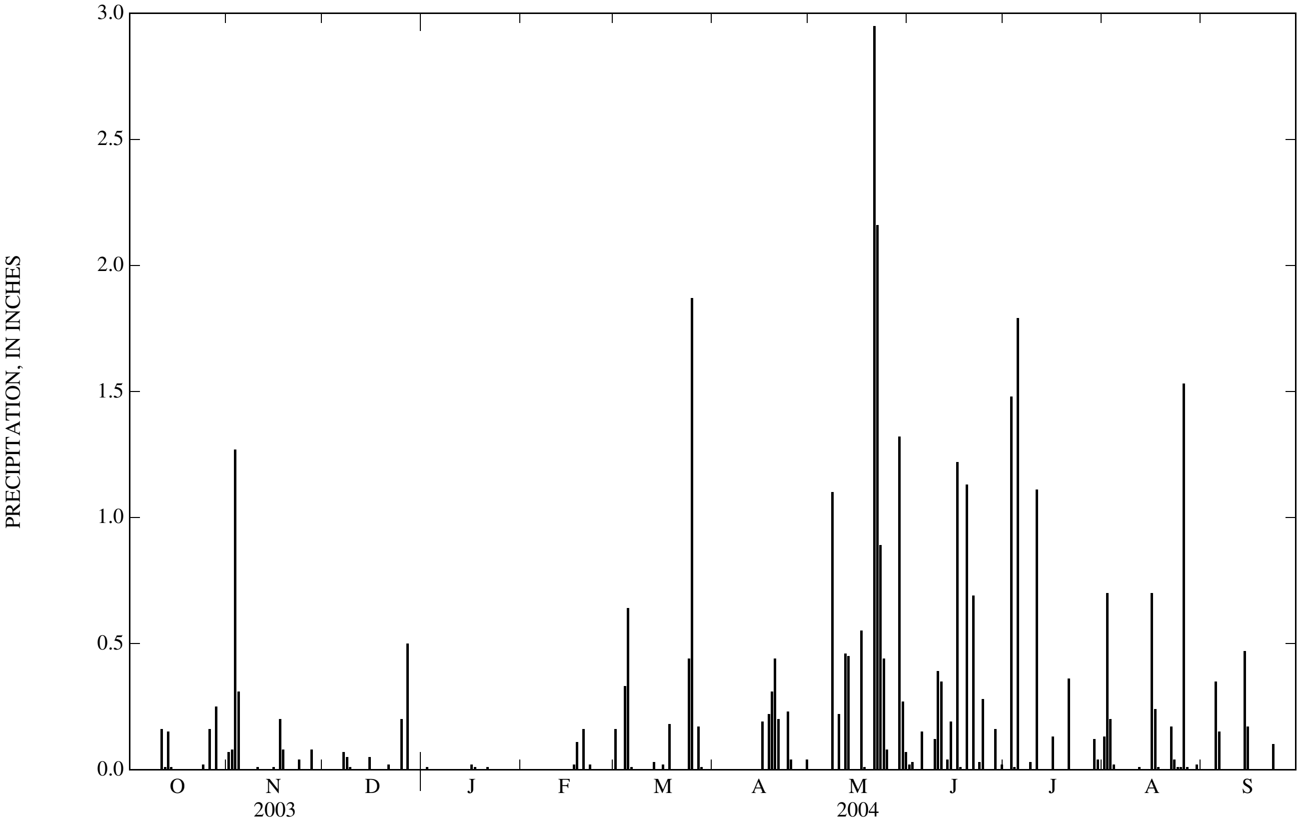
EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation 2.95 in., May 21, 2004.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 2.95 in., May 21.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.07	0.00	0.00	0.00	0.16	0.00	0.00	0.02	0.00	0.13	0.00
2	0.00	0.08	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.70	0.00
3	0.00	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	0.20	0.00
4	0.00	0.31	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.01	0.02	0.00
5	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.15	1.79	0.00	0.35
6	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.15
7	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.05	0.00	0.00	0.00	0.00	1.10	0.00	0.00	0.00	0.00
9	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.03	0.00	0.00
10	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.22	0.39	0.00	0.00	0.00
11	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	1.11	0.00	0.00
12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.01	0.00
13	0.15	0.00	0.00	0.00	0.00	0.03	0.00	0.45	0.04	0.00	0.00	0.00
14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.47
15	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
16	0.00	0.00	0.00	0.02	0.00	0.02	0.19	0.00	1.22	0.13	0.70	0.00
17	0.00	0.20	0.00	0.01	0.02	0.00	0.00	0.55	0.01	0.00	0.24	0.00
18	0.00	0.08	0.00	0.00	0.11	0.18	0.22	0.01	0.00	0.00	0.01	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	1.13	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.16	0.00	0.44	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.02	0.01	0.00	0.00	0.20	2.95	0.69	0.36	0.00	0.00
22	0.00	0.00	0.00	0.00	0.02	0.00	0.00	2.16	0.00	0.00	0.17	0.00
23	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.89	0.03	0.00	0.04	0.10
24	0.02	0.00	0.00	0.00	0.00	0.44	0.23	0.44	0.28	0.00	0.01	0.00
25	0.00	0.00	0.20	0.00	0.00	1.87	0.04	0.08	0.00	0.00	0.01	0.00
26	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.00
27	0.00	0.08	0.50	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.01	0.00
28	0.25	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	0.12	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.04	0.27	0.02	0.04	0.02	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.07	---	0.00	0.00	---
TOTAL	0.76	2.15	0.90	0.05	0.31	3.86	1.67	10.97	4.83	5.07	3.80	1.24
MEAN	0.02	0.07	0.03	0.00	0.01	0.12	0.06	0.35	0.16	0.16	0.12	0.04
MAX	0.25	1.27	0.50	0.02	0.16	1.87	0.44	2.95	1.22	1.79	1.53	0.47
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

05420680 WAPSIPINICON RIVER NEAR TRIPOLI, IA—Continued



05421000 WAPSIPINICON RIVER AT INDEPENDENCE, IA

LOCATION.--Lat 42°27'49", long 91°53'42", in SE¼ 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 NGVD of 1929. Prior to May 24, 1941 nonrecording gage in tailrace of powerplant 1,800 ft upstream at datum 80.00 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	58	125	114	48	516	1,800	517	7,390	694	362	328
2	46	79	112	129	52	629	1,450	471	5,710	631	371	306
3	47	139	112	124	50	682	1,180	427	5,270	587	410	277
4	46	542	117	89	45	659	998	399	4,770	600	578	243
5	46	524	126	85	46	1,250	867	366	3,880	753	570	207
6	45	353	120	105	49	2,100	782	355	3,100	1,580	485	212
7	47	259	125	94	47	1,810	707	326	2,440	2,070	417	191
8	49	201	135	87	45	1,640	641	324	1,920	2,120	380	184
9	49	168	139	90	45	1,490	573	316	1,590	2,280	361	207
10	48	158	149	89	48	1,320	525	335	1,590	2,600	323	211
11	51	165	94	86	48	1,120	473	334	2,460	2,680	301	205
12	51	162	104	85	48	811	443	333	2,530	2,270	294	180
13	52	127	111	87	48	679	420	1,120	2,330	2,130	350	160
14	65	124	115	87	48	634	394	2,380	2,150	2,480	359	146
15	57	126	120	84	48	559	368	1,700	2,030	2,810	321	138
16	56	125	122	82	48	544	361	1,450	2,660	3,220	323	130
17	54	117	104	86	48	509	366	1,310	5,770	3,230	193	125
18	56	152	106	78	48	516	350	1,310	4,200	2,700	193	136
19	55	153	102	71	49	543	347	1,310	3,030	1,930	243	189
20	59	154	92	70	81	606	343	1,150	2,450	1,240	226	282
21	57	147	100	68	163	546	406	1,030	2,030	959	207	382
22	56	147	105	65	240	508	454	2,520	1,900	831	196	466
23	59	175	108	59	303	480	526	17,300	1,780	765	185	417
24	57	153	97	57	369	546	550	21,100	1,630	776	179	322
25	61	132	99	55	321	614	580	20,300	1,490	717	175	263
26	58	137	104	55	273	962	572	17,200	1,250	641	174	235
27	60	139	109	54	318	1,710	538	11,600	1,080	557	339	215
28	68	139	129	54	373	2,080	531	7,920	971	487	623	191
29	57	110	130	54	434	2,340	547	6,270	862	445	520	171
30	60	126	118	51	---	2,320	543	7,460	769	421	422	157
31	64	---	125	50	---	2,110	---	8,570	---	393	363	---
TOTAL	1,687	5,291	3,554	2,444	3,783	32,833	18,635	137,503	81,032	45,597	10,443	6,876
MEAN	54.4	176	115	78.8	130	1,059	621	4,436	2,701	1,471	337	229
MAX	68	542	149	129	434	2,340	1,800	21,100	7,390	3,230	623	466
MIN	45	58	92	50	45	480	343	316	769	393	174	125
AC-FT	3,350	10,490	7,050	4,850	7,500	65,120	36,960	272,700	160,700	90,440	20,710	13,640
CFSM	0.05	0.17	0.11	0.08	0.12	1.01	0.59	4.23	2.58	1.40	0.32	0.22
IN.	0.06	0.19	0.13	0.09	0.13	1.17	0.66	4.88	2.88	1.62	0.37	0.24

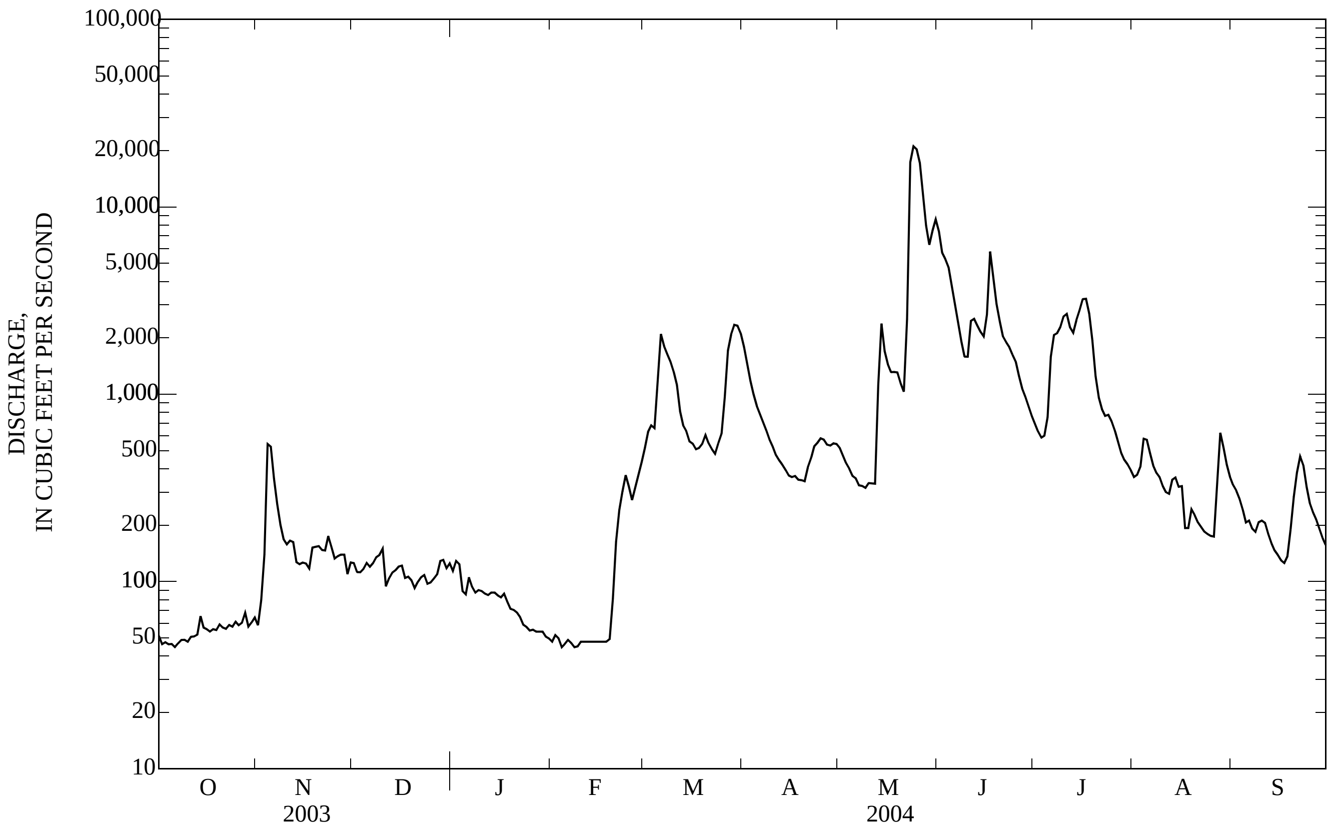
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	382	435	296	218	349	1,387	1,353	1,057	1,039	746	538	360
MAX	2,306	2,280	1,962	1,411	1,698	3,201	5,578	4,436	4,721	4,836	5,443	1,940
(WY)	(1973)	(1992)	(1992)	(1946)	(1984)	(1986)	(1993)	(2004)	(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1934 - 2004	
ANNUAL TOTAL	152,004		349,678			
ANNUAL MEAN	416		955		681	
HIGHEST ANNUAL MEAN					2,304	1993
LOWEST ANNUAL MEAN					74.5	1934
HIGHEST DAILY MEAN	4,920	May 16	21,100	May 24	28,000	May 18, 1999
LOWEST DAILY MEAN	33	Feb 6	45	Oct 6 a	7.0	Oct 1, 1933 b
ANNUAL SEVEN-DAY MINIMUM	34	Feb 5	46	Feb 4	7.1	Jan 24, 1977
MAXIMUM PEAK FLOW			22,600	May 23	31,100	May 18, 1999
MAXIMUM PEAK STAGE			18.00	May 23	22.35	May 18, 1999
ANNUAL RUNOFF (AC-FT)	301,500		693,600		493,500	
ANNUAL RUNOFF (CFSM)	0.397		0.912		0.650	
ANNUAL RUNOFF (INCHES)	5.40		12.41		8.83	
10 PERCENT EXCEEDS	1,010		2,270		1,680	
50 PERCENT EXCEEDS	124		320		273	
90 PERCENT EXCEEDS	40		54		53	

a Also Feb. 4, 8, & 9.
b Many days in 1934 when power plant shut down; Jan. 25-30, 1977.



05421740 WAPSIPINICON RIVER AT ANAMOSA, IA

LOCATION.--Lat 42°05'00", long 91°16'02", in SW$\frac{1}{4}$ NW$\frac{1}{4}$ SW$\frac{1}{4}$ sec.13, T.84 N., R.4 W., Jones County, Hydrologic Unit 07080103, on left bank, 6 ft. upstream of bridge on Shaw Road, 1.5 miles downstream from dam at Anamosa, and 700 feet upstream of the mouth of Dutch Creek, and an unnamed creek.

DRAINAGE AREA.--1,575 mi^2.

PERIOD OF RECORD.--July 10, 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 755.00 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on June 18, 1968 and May 18, 1999. No gage height or discharge was determined.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	133	440	440	e172	1,310	3,430	923	12,800	1,300	721	524
2	125	185	423	436	e170	1,300	3,110	901	12,800	1,190	671	474
3	122	379	411	428	e178	1,330	2,690	860	11,100	1,130	666	439
4	123	1,650	400	346	e183	1,330	2,310	803	8,670	1,060	811	412
5	122	2,450	406	e188	e201	2,730	2,000	760	7,420	1,000	818	386
6	121	1,850	397	e247	e186	3,220	1,780	724	6,700	1,020	856	353
7	118	1,240	390	e380	e191	3,550	1,620	733	5,770	1,980	790	329
8	116	954	386	e397	e188	3,290	1,500	677	4,640	3,500	709	312
9	114	782	400	e368	e194	2,780	1,380	646	3,560	2,750	644	301
10	114	684	509	e364	e188	2,480	1,280	765	3,170	2,660	607	292
11	117	622	451	e354	e197	2,260	1,190	876	2,750	2,740	570	295
12	122	575	397	e351	e226	1,970	1,110	792	3,320	2,940	536	298
13	127	534	e411	e356	e217	1,690	1,040	756	3,970	2,910	508	289
14	156	497	e416	e340	e212	1,490	995	861	4,010	2,590	496	273
15	145	467	e419	e311	e230	1,400	948	1,970	3,680	2,520	530	273
16	140	445	e415	e335	e208	1,300	908	2,450	3,310	2,750	524	267
17	154	428	e401	e375	e217	1,240	881	2,130	3,190	3,000	496	251
18	155	416	e395	e319	e221	1,260	855	2,130	4,930	3,270	501	180
19	136	415	e385	e310	e208	1,280	826	1,910	7,770	3,300	407	199
20	123	460	e377	e291	e450	1,330	815	1,890	6,540	2,820	386	233
21	129	452	e401	e287	e846	1,320	847	2,140	4,690	2,090	402	236
22	126	437	414	e251	e1,130	1,270	906	3,630	3,520	1,590	384	315
23	130	594	402	e249	e1,370	1,210	933	5,620	2,920	1,370	363	401
24	134	646	398	e262	e1,480	1,580	958	11,300	2,660	1,220	365	466
25	142	664	361	e232	e1,410	1,950	1,010	19,200	2,480	1,160	344	441
26	134	610	417	e213	e1,370	2,200	1,020	21,700	2,300	1,110	321	397
27	139	555	397	e215	1,340	3,100	1,010	21,500	2,030	1,030	365	345
28	132	516	619	e186	1,200	3,370	974	19,300	1,790	944	413	321
29	142	486	579	e194	1,290	3,520	947	15,300	1,630	865	537	306
30	142	472	511	e176	---	3,590	932	12,000	1,450	825	660	275
31	155	---	484	e184	---	3,580	---	11,400	---	771	589	---
TOTAL	4,082	20,598	13,212	9,385	15,673	65,230	40,205	166,647	145,570	59,405	16,990	9,883
MEAN	132	687	426	303	540	2,104	1,340	5,376	4,852	1,916	548	329
MAX	156	2,450	619	440	1,480	3,590	3,430	21,700	12,800	3,500	856	524
MIN	114	133	361	176	170	1,210	815	646	1,450	771	321	180
AC-FT	8,100	40,860	26,210	18,620	31,090	129,400	79,750	330,500	288,700	117,800	33,700	19,600
CFSM	0.08	0.44	0.27	0.19	0.34	1.34	0.85	3.41	3.08	1.22	0.35	0.21
IN.	0.10	0.49	0.31	0.22	0.37	1.54	0.95	3.94	3.44	1.40	0.40	0.23

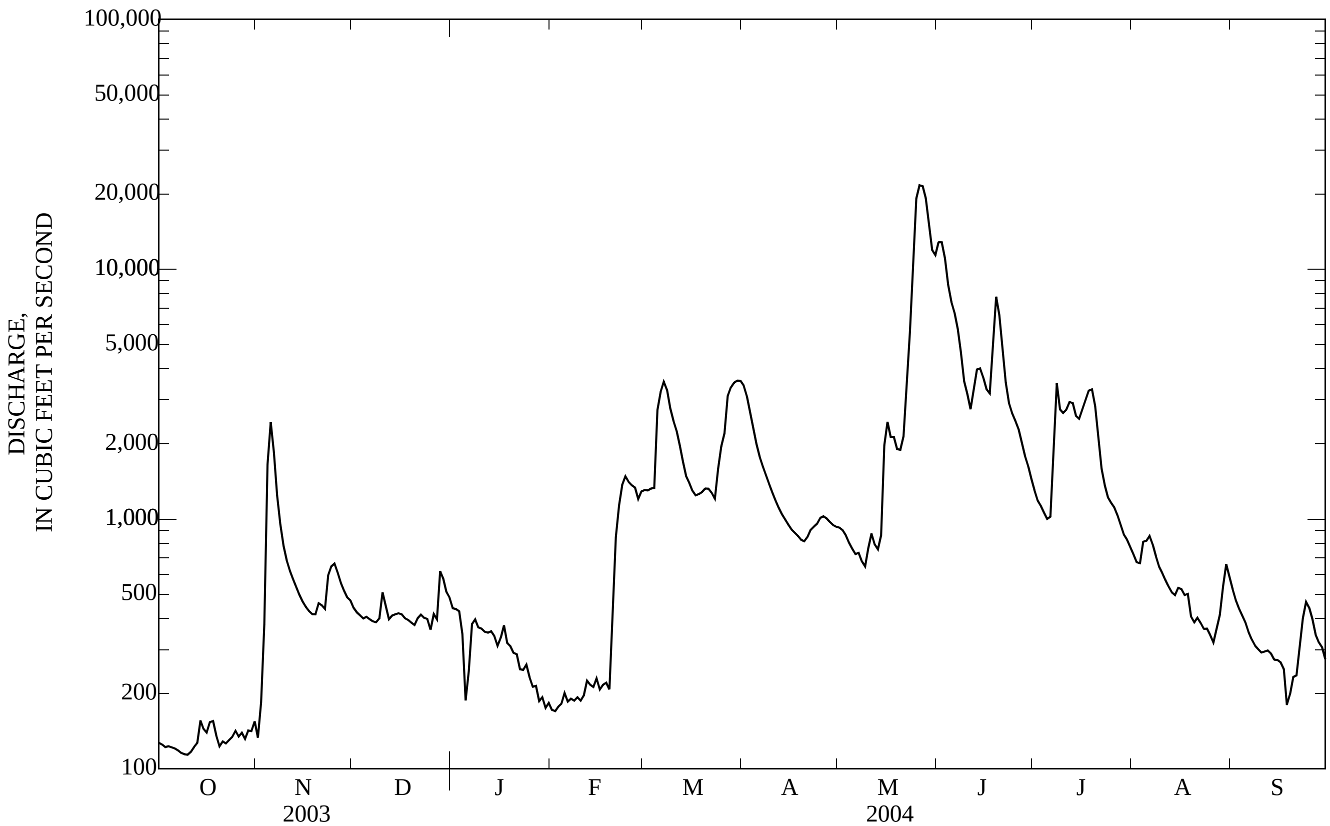
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	235	475	301	218	316	1,166	916	4,354	3,049	1,774	507	258
MAX	339	687	426	303	540	2,104	1,340	5,376	4,852	1,916	696	329
(WY)	(2003)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2002)	(2004)
MIN	132	263	176	134	83.6	228	491	3,333	1,245	1,631	276	146
(WY)	(2004)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)

05421740 WAPSIPINICON RIVER AT ANAMOSA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	270,374		566,880			
ANNUAL MEAN	741		1,549		1,126	
HIGHEST ANNUAL MEAN					1,549	2004
LOWEST ANNUAL MEAN					702	2003
HIGHEST DAILY MEAN	6,800	May 17	21,700	May 26	21,700	May 26, 2004
LOWEST DAILY MEAN	73	Feb 17	114	Oct 9	73	Feb 17, 2003
ANNUAL SEVEN-DAY MINIMUM	75	Feb 16	117	Oct 5	75	Feb 16, 2003
MAXIMUM PEAK FLOW			22,000	May 26	22,000	May 26, 2004
MAXIMUM PEAK STAGE			22.73	May 26	22.73	May 26, 2004
ANNUAL RUNOFF (AC-FT)	536,300		1,124,000		815,800	
ANNUAL RUNOFF (CFSM)	0.470		0.983		0.715	
ANNUAL RUNOFF (INCHES)	6.39		13.39		9.71	
10 PERCENT EXCEEDS	1,840		3,300		2,750	
50 PERCENT EXCEEDS	351		614		398	
90 PERCENT EXCEEDS	95		179		127	

a Also Oct 20.
e Estimated.



05422000 WAPSIPINICON RIVER NEAR DE WITT, IA

LOCATION.--Lat 41°46'01", long 90°32'05", in SW¼ NE¼ 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.

WATER-DISCHARGE RECORDS

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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	280	265	717	827	e324	1,770	4,780	1,580	23,400	2,720	1,190	881
2	277	300	694	787	e331	1,760	4,600	1,520	17,900	2,460	1,110	822
3	274	402	672	762	e316	1,750	4,290	1,510	15,800	2,280	1,070	777
4	260	534	649	757	e334	1,760	3,860	1,500	15,300	2,390	1,140	735
5	257	650	653	e573	e348	3,920	3,410	1,430	15,300	2,370	1,200	692
6	254	1,600	640	e466	e360	5,590	3,060	1,370	13,700	2,170	1,180	666
7	255	2,040	626	e540	e371	4,830	2,780	1,370	11,600	2,200	1,150	648
8	253	1,610	611	e579	e339	4,670	2,520	1,410	10,500	2,160	1,140	623
9	248	1,300	619	e562	e357	4,570	2,340	1,360	9,490	3,510	1,040	594
10	247	1,100	e790	e554	e362	3,870	2,200	1,310	8,240	3,840	961	580
11	245	981	e740	e532	e390	3,370	2,050	1,290	6,450	3,430	933	567
12	245	888	e709	e522	e373	2,980	1,940	1,500	5,810	3,380	903	546
13	244	821	e677	e523	e336	2,730	1,850	1,560	5,140	3,480	859	531
14	263	772	e641	e537	e302	2,500	1,770	1,480	5,220	3,560	825	495
15	260	735	e646	e514	e313	2,250	1,680	1,400	5,670	3,330	798	461
16	276	704	e655	e463	e307	2,080	1,640	1,600	5,710	3,090	775	448
17	264	676	e676	e494	e256	1,960	1,600	2,540	6,140	3,660	784	515
18	253	652	e613	e584	e268	1,950	1,540	3,330	6,470	3,580	771	457
19	252	632	e581	e491	e390	2,040	1,510	3,770	6,370	3,660	738	403
20	258	615	e576	e462	e646	2,070	1,500	3,250	6,110	3,830	722	374
21	261	605	e573	e446	e960	1,990	1,690	3,240	6,940	3,650	681	346
22	254	628	e594	e417	e1,330	1,930	1,810	4,750	8,280	3,080	650	361
23	251	644	e583	e372	e1,480	1,890	1,720	7,280	9,780	2,470	652	368
24	252	794	e574	e366	e1,660	2,150	1,720	8,480	9,230	2,060	653	402
25	256	986	e567	e383	e1,710	2,990	1,730	9,080	5,970	1,820	671	474
26	264	940	e506	e368	e1,790	4,050	1,730	8,950	4,730	1,640	669	536
27	268	896	e653	e366	e1,850	4,930	1,710	9,210	4,150	1,540	707	552
28	268	840	e763	e352	e1,890	4,720	1,700	19,200	3,810	1,450	802	506
29	264	787	813	e348	1,740	5,010	1,660	29,100	3,410	1,350	861	472
30	273	749	950	e321	---	4,980	1,600	30,100	3,020	1,320	926	460
31	263	---	888	e320	---	4,880	---	28,900	---	1,310	884	---
TOTAL	8,039	25,146	20,649	15,588	21,433	97,940	67,990	194,370	259,640	82,790	27,445	16,292
MEAN	259	838	666	503	739	3,159	2,266	6,270	8,655	2,671	885	543
MAX	280	2,040	950	827	1,890	5,590	4,780	30,100	23,400	3,840	1,200	881
MIN	244	265	506	320	256	1,750	1,500	1,290	3,020	1,310	650	346
AC-FT	15,950	49,880	40,960	30,920	42,510	194,300	134,900	385,500	515,000	164,200	54,440	32,320
CFSM	0.11	0.36	0.29	0.22	0.32	1.35	0.97	2.68	3.70	1.14	0.38	0.23
IN.	0.13	0.40	0.33	0.25	0.34	1.56	1.08	3.10	4.13	1.32	0.44	0.26

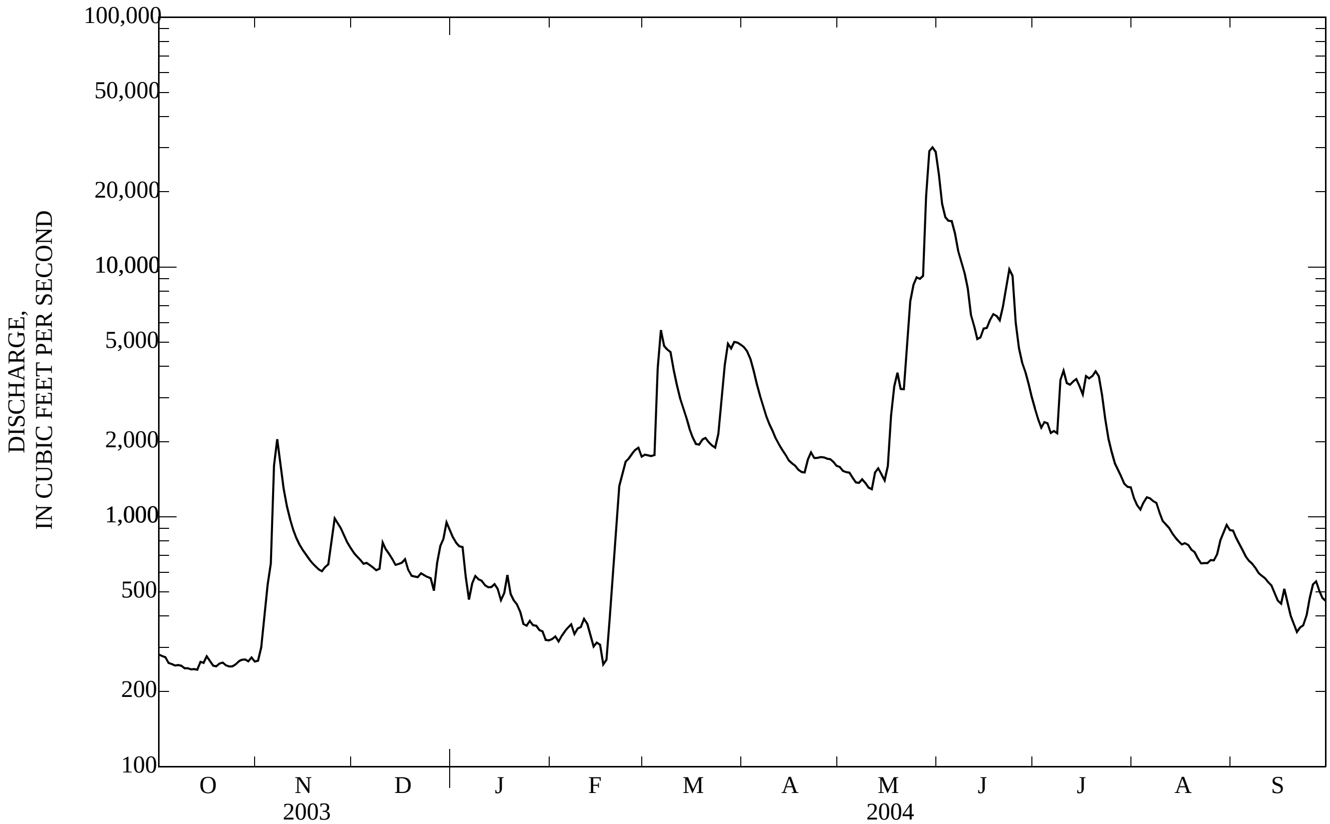
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	918	1,104	902	812	1,248	2,942	2,998	2,501	2,580	1,805	1,141	1,007
MAX	3,549	6,435	4,945	4,086	3,798	7,137	9,768	6,854	10,950	14,280	8,550	5,647
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1935 - 2004	
ANNUAL TOTAL	388,299		837,322			
ANNUAL MEAN	1,064		2,288		1,663	
HIGHEST ANNUAL MEAN					5,461	1993
LOWEST ANNUAL MEAN					374	1989
HIGHEST DAILY MEAN	7,160	May 20	30,100	May 30	30,100	May 30, 2004
LOWEST DAILY MEAN	244	Oct 13	244	Oct 13	46	Jan 22, 1977
ANNUAL SEVEN-DAY MINIMUM	248	Oct 7	248	Oct 7	47	Jan 18, 1977
MAXIMUM PEAK FLOW			31,500	May 30	31,500	May 30, 2004
MAXIMUM PEAK STAGE			13.79	May 30	14.19	Jun 17, 1990
ANNUAL RUNOFF (AC-FT)	770,200		1,661,000		1,205,000	
ANNUAL RUNOFF (CFSM)	0.455		0.979		0.712	
ANNUAL RUNOFF (INCHES)	6.18		13.33		9.67	
10 PERCENT EXCEEDS	2,270		4,990		3,950	
50 PERCENT EXCEEDS	653		914		918	
90 PERCENT EXCEEDS	279		306		239	

e Estimated



05422000 WAPSIPINICON RIVER NEAR DE WITT, IA—Continued

(Large River Mass Contaminents Station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
MAR													
17...	0830	1,990	225	26	740	12.7	97	8.1	442	2.9	146	178	--
APR													
15...	0830	1,680	235	23	745	11.6	111	8.4	408	12.2	136	166	--
MAY													
18...	1200	3,290	205	170	--	7.9	--	7.9	374	18.8	109	133	--
25...	1400	9,150	260	170	--	7.1	--	7.5	373	18.1	97	119	--
JUN													
16...	1230	5,680	--	110	749	6.8	82	7.7	475	23.5	131	147	6
JUL													
20...	1200	3,850	235	64	--	8.0	--	8.1	347	25.2	112	137	--
AUG													
17...	0745	784	210	30	--	8.3	--	8.3	373	20.5	124	151	--
SEP													
14...	0730	507	210	25	744	6.9	81	8.1	362	22.2	131	159	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat flt by anal ysis, mg/L (62854)	Total nitrogen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
17...	21.8	10.2	27.3	.12	8.20	.016	.19	.079	.098	.119	8.54	9.10	1.5
APR													
15...	25.1	E.1	28.0	<.04	7.21	.016	1.16	<.006	.011	.191	7.29	8.55	7.7
MAY													
18...	19.5	7.0	14.3	E.04	10.2	.072	1.01	.046	.064	.46	10.1	11.3	11.1
25...	15.5	10.4	15.4	.05	9.96	.089	.90	.131	.147	.55	9.93	11.1	7.9
JUN													
16...	20.2	11.2	17.0	<.04	12.2	.042	.68	.107	.119	.41	13.3	14.0	6.0
JUL													
20...	15.9	11.4	15.6	<.04	7.07	.009	1.20	.084	.104	.30	7.50	8.59	6.7
AUG													
17...	19.6	2.6	27.3	<.04	1.78	.014	1.13	E.003	.014	.21	1.95	3.34	8.6
SEP													
14...	19.1	4.0	25.9	<.04	.56	.010	.61	<.006	.009	.178	.79	1.94	4.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benflur-alin, water, fltrd 0.7u GF ug/L (82673)
MAR													
17...	<.1	1.5	4.6	2.9	3.2	<.006	E.050	.023	.007	<.005	.078	<.050	<.010
APR													
15...	<.1	7.7	2.4	38.9	116	<.006	E.054	.012	<.005	<.005	.069	<.050	<.010
MAY													
18...	2.5	8.6	4.1	30.4	32.7	<.006	E.265	3.42	.019	<.005	9.51	<.050	<.010
25...	<.1	7.8	5.0	2.6	1.7	<.006	E.418	3.22	.149	<.005	8.58	<.050	<.010
JUN													
16...	.1	5.8	3.7	7.0	8.1	<.006	E.228	.219	.007	<.005	2.52	<.050	<.010
JUL													
20...	<.1	6.7	4.2	7.5	14.7	<.006	E.165	.029	<.005	<.005	.517	<.050	<.010
AUG													
17...	.3	8.4	2.5	43.5	133	<.006	E.073	.015	<.005	<.005	.247	<.050	<.010
SEP													
14...	.3	4.0	2.5	77.9	92.8	<.006	E.068	.011	<.005	<.005	.173	<.050	<.010

05422000 WAPSIPINICON RIVER NEAR DE WITT, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)
MAR													
17...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
15...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
18...	<.004	<.041	<.020	E.008	<.006	E.015	<.003	<.012	<.005	<.009	<.02	<.004	<.009
25...	<.004	<.041	E.026	.010	<.006	E.017	.003	<.012	<.005	<.009	<.02	E.004	<.009
JUN													
16...	<.004	<.041	E.516	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
JUL													
20...	<.004	<.041	E.031	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
17...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP													
14...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinylfipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
17...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.102	<.006	<.003
APR													
15...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.042	<.006	<.003
MAY													
18...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	1.64	<.006	<.003
25...	<.005	<.029	<.013	<.024	E.016	<.003	<.004	<.035	<.027	<.015	2.38	.025	<.004
JUN													
16...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.310	<.010	<.003
JUL													
20...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.063	<.006	<.003
AUG													
17...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.048	<.006	<.003
SEP													
14...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.039	<.006	<.003

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)
MAR													
17...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02
APR													
15...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02
MAY													
18...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.063	<.02
25...	<.007	<.010	<.010	<.004	E.014	<.011	.01	<.004	<.025	<.011	<.02	.059	E.01
JUN													
16...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.017	<.02
JUL													
20...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02
AUG													
17...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.008	<.02
SEP													
14...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02

05422000 WAPSIPINICON RIVER NEAR DE WITT, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Number of sampling points, count (00063)
MAR							
17...	<.034	<.02	<.010	<.002	<.009	59	11
APR							
15...	<.034	<.02	<.010	<.002	<.009	82	12
MAY							
18...	<.034	<.02	<.010	<.002	<.009	594	10
25...	<.034	<.02	<.010	<.002	<.009	460	12
JUN							
16...	<.034	<.02	<.010	<.002	<.009	426	10
JUL							
20...	<.034	<.02	<.010	<.002	<.009	151	10
AUG							
17...	<.034	<.02	<.010	<.002	<.009	130	10
SEP							
14...	<.034	<.02	<.010	<.002	<.009	64	11

05422470 CROW CREEK AT BETTENDORF, IA

LOCATION.--(revised) Lat 41°33'04", long 90°27'18", in NW$\frac{1}{4}$ NW$\frac{1}{4}$ 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 NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.90	1.5	1.3	2.7	e1.6	2.9	29	11	50	7.5	2.3	2.4
2	0.98	7.6	1.3	2.9	e1.9	2.3	25	9.5	62	7.3	2.2	2.1
3	1.2	18	1.3	2.9	e1.4	1.5	23	8.4	55	9.7	5.4	1.9
4	1.2	11	1.6	3.1	e0.91	19	20	8.2	35	10	22	1.7
5	1.0	5.3	2.8	e2.3	e0.84	71	18	8.0	30	12	5.5	1.5
6	0.91	2.9	3.4	e1.8	e0.73	33	17	7.0	27	17	3.7	1.2
7	0.67	2.2	2.1	e1.3	e0.51	24	16	42	23	8.6	3.0	1.3
8	0.96	1.8	1.9	e0.68	e0.41	19	15	18	20	7.4	2.6	1.1
9	1.1	1.6	9.9	e0.54	e0.44	17	14	20	18	9.3	2.2	1.1
10	1.3	1.6	92	e0.50	e0.44	16	13	15	54	29	2.2	0.98
11	1.3	1.9	17	0.77	e0.42	15	12	e16	49	11	2.2	1.0
12	3.2	1.7	e9.8	1.4	e0.41	12	12	e14	22	8.9	1.9	0.94
13	1.6	1.5	e2.4	0.82	e0.40	9.1	12	43	19	7.7	1.7	0.89
14	7.4	1.5	e1.4	0.67	e0.50	11	11	45	45	6.6	1.7	0.93
15	3.1	1.8	1.8	0.56	e0.56	9.6	11	33	24	5.9	1.5	12
16	5.8	1.9	7.2	0.58	e0.56	11	9.9	28	19	5.7	1.5	6.5
17	3.0	2.4	e5.3	2.4	e0.60	13	11	28	17	6.5	2.0	2.8
18	1.6	6.5	e3.4	e1.5	e0.98	15	11	168	15	4.9	2.4	2.1
19	1.3	3.1	e2.9	e1.1	e2.4	13	12	73	14	4.4	2.2	1.7
20	1.3	2.1	e3.1	e1.3	e22	12	18	63	13	4.1	1.5	1.5
21	1.6	1.7	4.0	e1.4	15	9.9	37	78	20	3.9	1.3	0.90
22	1.6	1.6	6.0	e1.0	15	9.5	16	209	16	17	1.2	1.2
23	1.7	4.8	4.4	e1.5	12	9.6	14	110	12	9.2	1.1	0.96
24	2.0	3.5	5.6	e1.1	6.3	24	14	72	12	5.0	16	1.0
25	2.9	2.2	3.0	e1.1	4.6	19	16	76	11	4.5	11	1.2
26	2.8	1.8	2.8	e1.4	3.8	85	12	60	9.4	4.1	6.0	1.2
27	2.5	1.7	3.2	e0.95	3.0	53	11	53	9.1	3.6	5.6	1.3
28	2.7	1.5	4.1	e0.90	2.4	55	10	47	10	3.2	43	1.1
29	2.8	1.4	3.9	e0.89	2.3	48	9.6	43	9.0	2.8	12	1.3
30	2.3	1.4	3.1	e0.88	---	35	9.5	259	8.1	2.8	4.6	1.2
31	1.6	---	2.9	e0.96	---	37	---	83	---	2.6	3.0	---
TOTAL	64.32	99.5	214.9	41.90	102.41	711.4	459.0	1,748.1	727.6	242.2	174.5	57.00
MEAN	2.07	3.32	6.93	1.35	3.53	22.9	15.3	56.4	24.3	7.81	5.63	1.90
MAX	7.4	18	92	3.1	22	85	37	259	62	29	43	12
MIN	0.67	1.4	1.3	0.50	0.40	1.5	9.5	7.0	8.1	2.6	1.1	0.89
AC-FT	128	197	426	83	203	1,410	910	3,470	1,440	480	346	113
CFSM	0.12	0.19	0.39	0.08	0.20	1.29	0.86	3.17	1.36	0.44	0.32	0.11
IN.	0.13	0.21	0.45	0.09	0.21	1.49	0.96	3.65	1.52	0.51	0.36	0.12

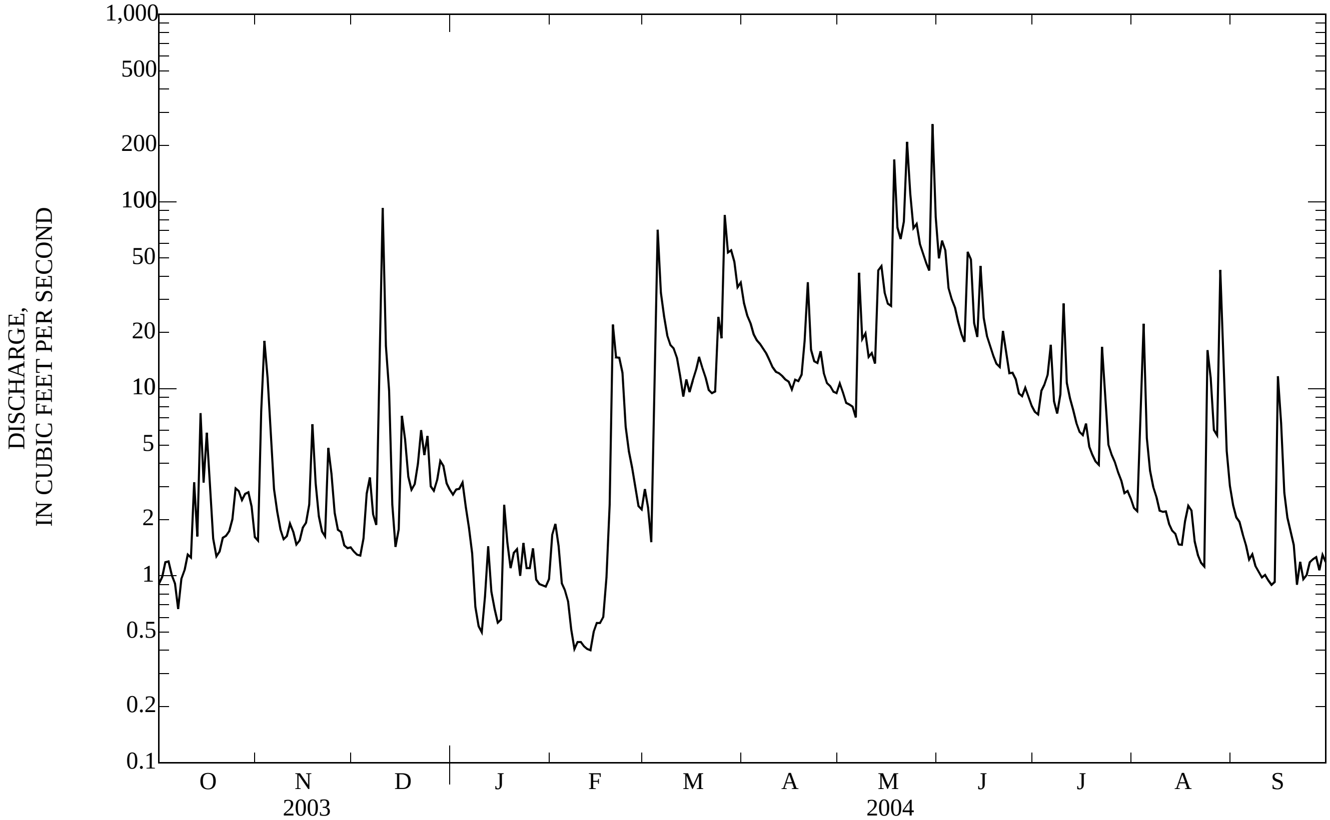
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	9.93	10.8	11.1	7.08	13.2	20.9	20.9	26.0	27.6	14.1	13.9	6.74
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	0.67	1.19	0.77	1.09	0.76	3.45	2.33	1.68	3.17	0.74	0.85	0.49
(WY)	(1989)	(1990)	(1990)	(2000)	(1989)	(1989)	(1989)	(1989)	(1988)	(1988)	(1978)	(1988)

05422470 CROW CREEK AT BETTENDORF, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1978 - 2004	
ANNUAL TOTAL	2,143.95		4,642.83			
ANNUAL MEAN	5.87		12.7		15.2	
HIGHEST ANNUAL MEAN					31.7	1990
LOWEST ANNUAL MEAN					3.35	1989
HIGHEST DAILY MEAN	127	Jul 10	259	May 30	1,660	Jun 16, 1990
LOWEST DAILY MEAN	0.28	Sep 11	0.40	Feb 13 a	0.13	Aug 16, 1988
ANNUAL SEVEN-DAY MINIMUM	0.33	Sep 5	0.43	Feb 8 a	0.21	Aug 13, 1988
MAXIMUM PEAK FLOW			1,180	May 30	7,700	Jun 16, 1990
MAXIMUM PEAK STAGE			6.95	May 30	11.03	Jun 16, 1990
ANNUAL RUNOFF (AC-FT)	4,250		9,210		11,000	
ANNUAL RUNOFF (CFSM)	0.330		0.713		0.853	
ANNUAL RUNOFF (INCHES)	4.48		9.70		11.59	
10 PERCENT EXCEEDS	10		31		32	
50 PERCENT EXCEEDS	2.8		3.8		7.0	
90 PERCENT EXCEEDS	1.1		0.97		1.3	

a Ice affected.
e Estimated.



05422560 DUCK CREEK AT 110th AVENUE, DAVENPORT, IA

LOCATION.--Lat 41°33'24", long 90°41'15", in NW¼ SW¼, 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 NGVD of 1929.

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 telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.21	0.14	0.56	1.6	e0.66	6.8	21	6.7	76	8.3	4.6	2.6
2	0.16	0.35	0.52	1.6	e0.98	5.3	19	6.5	68	12	4.5	2.2
3	0.20	0.79	0.57	1.5	e0.97	4.4	17	6.2	51	e15	4.6	2.0
4	0.23	0.71	0.59	1.7	e0.71	11	15	6.2	41	9.9	6.6	1.9
5	0.22	0.29	0.77	e1.7	e0.72	75	14	5.8	35	8.7	4.6	1.9
6	0.22	0.16	0.79	e1.4	e0.79	33	13	5.7	30	10	4.1	1.8
7	0.21	0.12	0.74	e1.2	e0.75	23	12	32	27	8.2	3.9	1.7
8	0.19	0.08	0.77	e1.1	e0.77	18	11	22	23	7.5	3.7	1.6
9	0.22	0.10	1.3	e1.1	e0.82	15	10	16	20	8.5	3.5	1.6
10	0.29	0.10	16	e1.3	e0.77	13	9.8	17	44	9.3	3.3	1.5
11	0.33	0.11	e3.8	e1.8	e0.71	11	9.6	17	42	7.8	3.3	1.4
12	0.42	0.16	e2.1	e1.9	e0.67	14	9.2	14	26	7.3	3.1	1.4
13	0.34	0.24	e1.3	e1.6	e0.64	9.8	8.9	24	22	6.7	3.0	1.4
14	0.68	0.29	e1.00	e1.1	e0.63	10	8.5	20	114	6.2	2.8	1.3
15	0.35	0.32	2.7	e0.98	e0.60	8.9	8.3	17	34	5.9	2.7	1.5
16	0.43	0.32	2.9	e1.6	e0.60	9.2	8.0	16	26	7.1	2.7	1.6
17	0.32	0.33	e2.0	e2.4	e0.91	10	7.7	17	23	6.5	2.7	1.4
18	0.25	0.41	e1.2	e1.6	e1.3	13	7.5	138	19	5.7	2.7	1.3
19	0.24	0.31	e1.2	e1.1	e2.4	13	7.1	44	17	5.3	2.7	1.2
20	0.27	0.24	e1.7	e1.4	e19	12	8.1	38	16	5.1	2.4	1.2
21	0.23	0.21	e2.0	e1.7	e8.6	10	10	50	16	4.8	2.3	1.2
22	0.22	1.4	e2.1	e1.5	e15	10	8.1	173	14	48	e2.1	1.1
23	0.22	1.0	e1.7	e1.2	e12	10	7.6	72	13	16	2.1	1.1
24	0.22	0.60	e1.3	e1.1	e9.9	11	7.8	40	12	10	3.5	1.2
25	0.23	0.57	e1.2	e1.1	e8.0	9.8	8.7	47	12	8.7	3.0	1.1
26	0.19	0.57	e1.3	e1.1	e6.9	62	7.3	31	11	7.5	2.7	1.1
27	0.20	0.61	e1.5	e0.95	e6.1	47	7.1	25	10	6.7	2.4	1.1
28	0.17	0.55	2.5	e0.77	5.8	37	7.4	21	10	6.1	5.9	1.2
29	0.16	0.69	1.9	e0.60	6.0	34	6.6	18	9.4	5.6	4.4	1.1
30	0.17	0.65	1.9	e0.60	---	28	6.7	435	8.6	5.3	2.9	1.2
31	0.16	---	1.6	e0.59	---	25	---	196	---	4.9	4.0	---
TOTAL	7.95	12.42	61.51	40.89	113.70	599.2	302.0	1,577.1	870.0	284.6	106.8	43.9
MEAN	0.26	0.41	1.98	1.32	3.92	19.3	10.1	50.9	29.0	9.18	3.45	1.46
MAX	0.68	1.4	16	2.4	19	75	21	435	114	48	6.6	2.6
MIN	0.16	0.08	0.52	0.59	0.60	4.4	6.6	5.7	8.6	4.8	2.1	1.1
AC-FT	16	25	122	81	226	1,190	599	3,130	1,730	565	212	87
CFSM	0.02	0.03	0.12	0.08	0.24	1.20	0.63	3.16	1.80	0.57	0.21	0.09
IN.	0.02	0.03	0.14	0.09	0.26	1.38	0.70	3.64	2.01	0.66	0.25	0.10

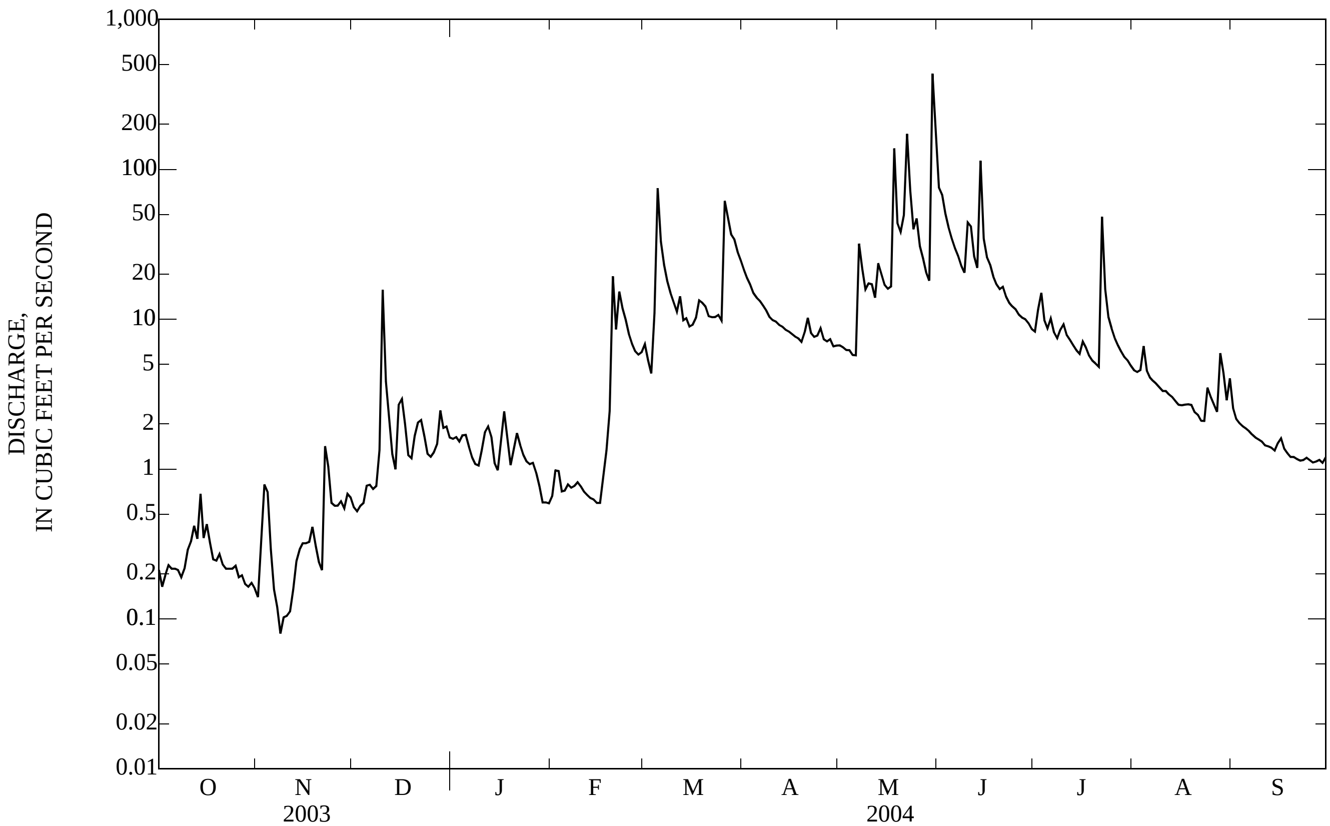
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.62	4.22	3.11	3.50	14.8	14.6	19.4	36.1	26.6	9.70	3.77	2.17
MAX	38.0	23.2	10.1	10.8	45.1	50.1	39.4	68.8	44.2	23.3	14.5	8.53
(WY)	(1999)	(1999)	(1999)	(1999)	(2001)	(1998)	(1998)	(1996)	(2000)	(2002)	(2002)	(1998)
MIN	0.26	0.41	0.74	0.73	2.53	2.94	2.60	14.0	6.09	3.03	0.96	0.32
(WY)	(2004)	(2004)	(1997)	(1997)	(2003)	(2003)	(1996)	(1997)	(2003)	(1997)	(2003)	(2003)

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	1,519.77		4,020.07			
ANNUAL MEAN	4.16		11.0		12.0	
HIGHEST ANNUAL MEAN					17.5	1998
LOWEST ANNUAL MEAN					4.64	2003
HIGHEST DAILY MEAN	60	May 5	435	May 30	648	May 28, 1996
LOWEST DAILY MEAN	0.08	Nov 8	0.08	Nov 8	0.08	Nov 8, 2003
ANNUAL SEVEN-DAY MINIMUM	0.12	Nov 6	0.12	Nov 6	0.12	Nov 6, 2003
MAXIMUM PEAK FLOW			1,440	May 30	1,870	May 28, 1996
MAXIMUM PEAK STAGE			17.77	May 30	18.44	May 28, 1996
INSTANTANEOUS LOW FLOW			0.07	Nov 9	0.07	Nov 9, 2003
ANNUAL RUNOFF (AC-FT)	3,010		7,970		8,700	
ANNUAL RUNOFF (CFSM)	0.259		0.682		0.746	
ANNUAL RUNOFF (INCHES)	3.51		9.29		10.14	
10 PERCENT EXCEEDS	8.3		23		28	
50 PERCENT EXCEEDS	2.5		3.0		3.9	
90 PERCENT EXCEEDS	0.21		0.29		0.81	

e Estimated



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

LOCATION.--Lat 41°32'46", long 90°31'26", in SW$\frac{1}{4}$ SE$\frac{1}{4}$, NW$\frac{1}{4}$, 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 NGVD of 1929.

REMARKS.--Records good except those for periods of estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.91	1.8	1.9	6.0	e4.0	26	56	23	e213	23	12	9.9
2	0.62	47	1.7	6.3	e7.9	e24	49	20	e190	27	11	7.0
3	0.76	67	1.7	6.3	e5.7	e18	44	18	e117	e56	48	6.4
4	1.1	29	1.7	6.6	e3.4	e101	39	18	109	33	e133	5.9
5	0.72	8.3	14	6.2	e4.3	283	37	17	91	58	e21	5.7
6	0.83	4.7	5.1	e4.7	e6.0	89	35	17	80	50	12	5.7
7	1.1	3.3	3.1	e4.1	e3.7	63	33	212	68	25	10	5.1
8	e1.0	3.3	2.7	e3.6	e4.5	47	31	51	59	22	9.6	4.9
9	0.83	2.4	73	e4.1	e5.7	41	28	38	56	56	8.8	4.8
10	1.5	2.4	329	e4.4	e5.0	35	27	69	259	60	7.9	4.7
11	3.8	3.3	35	e6.9	e4.5	31	25	43	152	26	7.8	4.3
12	6.9	2.4	e16	e10	e3.2	26	24	39	73	22	7.6	4.2
13	1.5	1.8	e7.9	e8.2	e3.0	27	24	90	59	20	7.0	4.1
14	43	2.3	e6.7	e6.0	e4.1	37	23	75	381	18	6.7	38
15	4.8	2.5	e7.1	e2.9	e3.9	26	22	40	105	16	6.4	51
16	22	2.8	18	e3.1	e3.5	37	22	34	74	19	11	14
17	4.6	6.8	15	e10	e3.9	38	24	40	64	22	9.4	5.9
18	2.8	17	10	e6.4	e8.8	45	21	516	54	15	14	5.0
19	1.9	4.2	7.6	e3.3	e40	33	20	133	e46	14	10	4.3
20	1.7	2.7	7.7	e3.6	e203	31	84	140	e41	14	6.7	3.9
21	1.5	2.2	8.2	e4.5	e87	26	97	175	e86	14	5.9	3.6
22	1.4	2.1	9.1	e3.9	e119	25	27	597	43	268	5.4	3.5
23	1.6	22	8.3	e3.4	e150	26	23	262	35	57	5.2	3.2
24	1.6	5.1	7.2	e3.3	e69	57	36	136	e38	27	154	3.4
25	5.9	3.1	6.1	e3.3	e37	46	36	179	e35	22	49	3.2
26	2.1	2.4	6.0	e3.4	e27	303	23	103	30	18	16	3.0
27	1.3	2.2	6.7	e3.5	e23	114	21	86	28	16	18	3.2
28	e1.7	2.1	e13	e3.2	23	133	21	71	33	15	169	2.6
29	e1.8	1.9	e9.1	e3.2	23	94	20	62	26	14	29	2.5
30	1.8	1.9	6.4	e2.6	---	76	23	e1,270	24	13	14	2.6
31	1.8	---	6.3	e2.6	---	71	---	e526	---	13	10	---
TOTAL	124.87	260.0	651.3	149.6	886.1	2,029	995	5,100	2,669	1,073	835.4	225.6
MEAN	4.03	8.67	21.0	4.83	30.6	65.5	33.2	165	89.0	34.6	26.9	7.52
MAX	43	67	329	10	203	303	97	1,270	381	268	169	51
MIN	0.62	1.8	1.7	2.6	3.0	18	20	17	24	13	5.2	2.5
AC-FT	248	516	1,290	297	1,760	4,020	1,970	10,120	5,290	2,130	1,660	447
CFSM	0.08	0.16	0.40	0.09	0.58	1.23	0.63	3.10	1.68	0.65	0.51	0.14
IN.	0.09	0.18	0.46	0.11	0.62	1.42	0.70	3.58	1.87	0.75	0.59	0.16

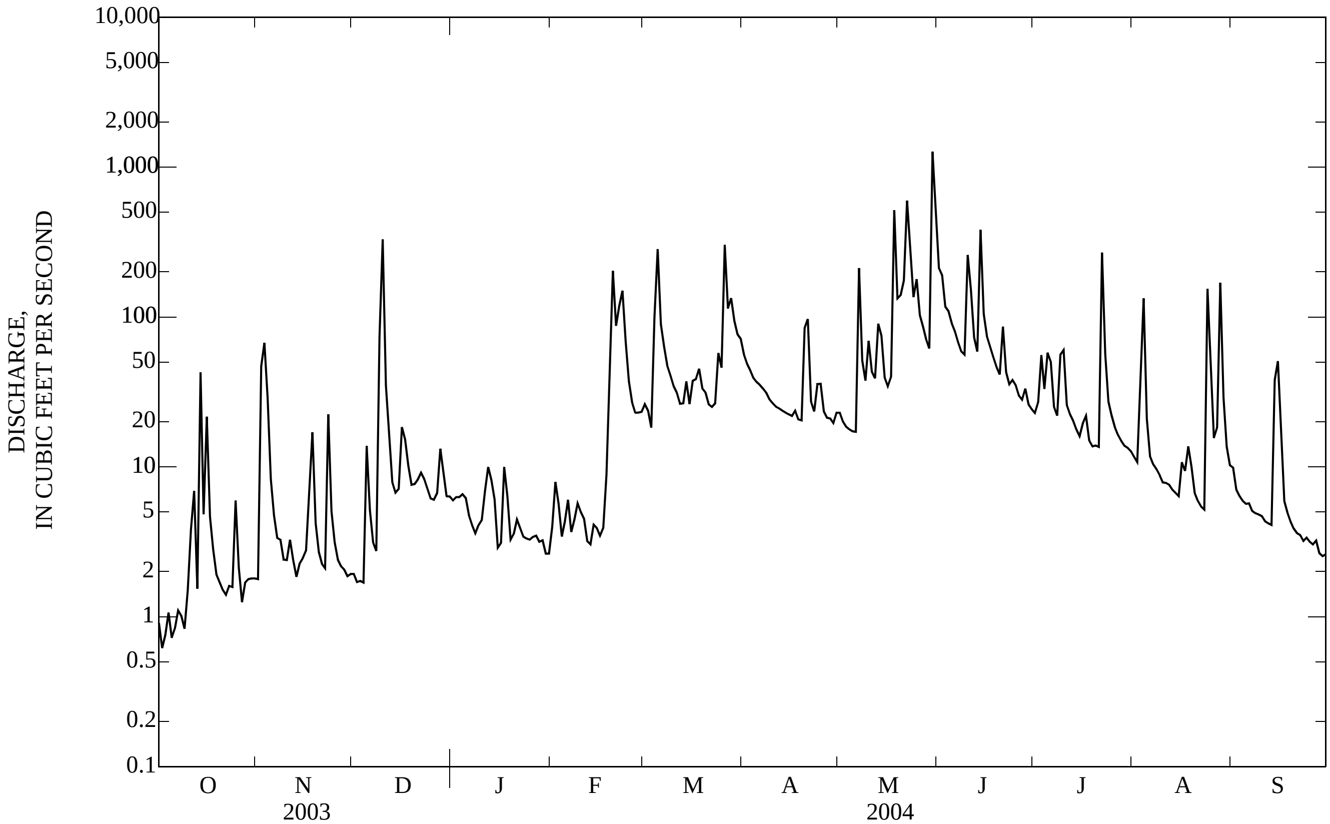
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.6	16.7	12.1	13.6	53.3	51.3	72.4	129	98.6	41.9	23.3	15.7
MAX	125	68.3	33.1	38.6	173	143	141	250	177	100	41.5	35.1
(WY)	(1999)	(1999)	(1999)	(1999)	(2001)	(1998)	(1998)	(1996)	(2000)	(2002)	(2002)	(1998)
MIN	3.26	4.84	3.74	4.59	5.34	13.5	16.5	56.3	28.0	10.4	6.40	4.96
(WY)	(1995)	(2000)	(1997)	(2000)	(2003)	(2003)	(1996)	(1997)	(2003)	(1997)	(2003)	(1995)

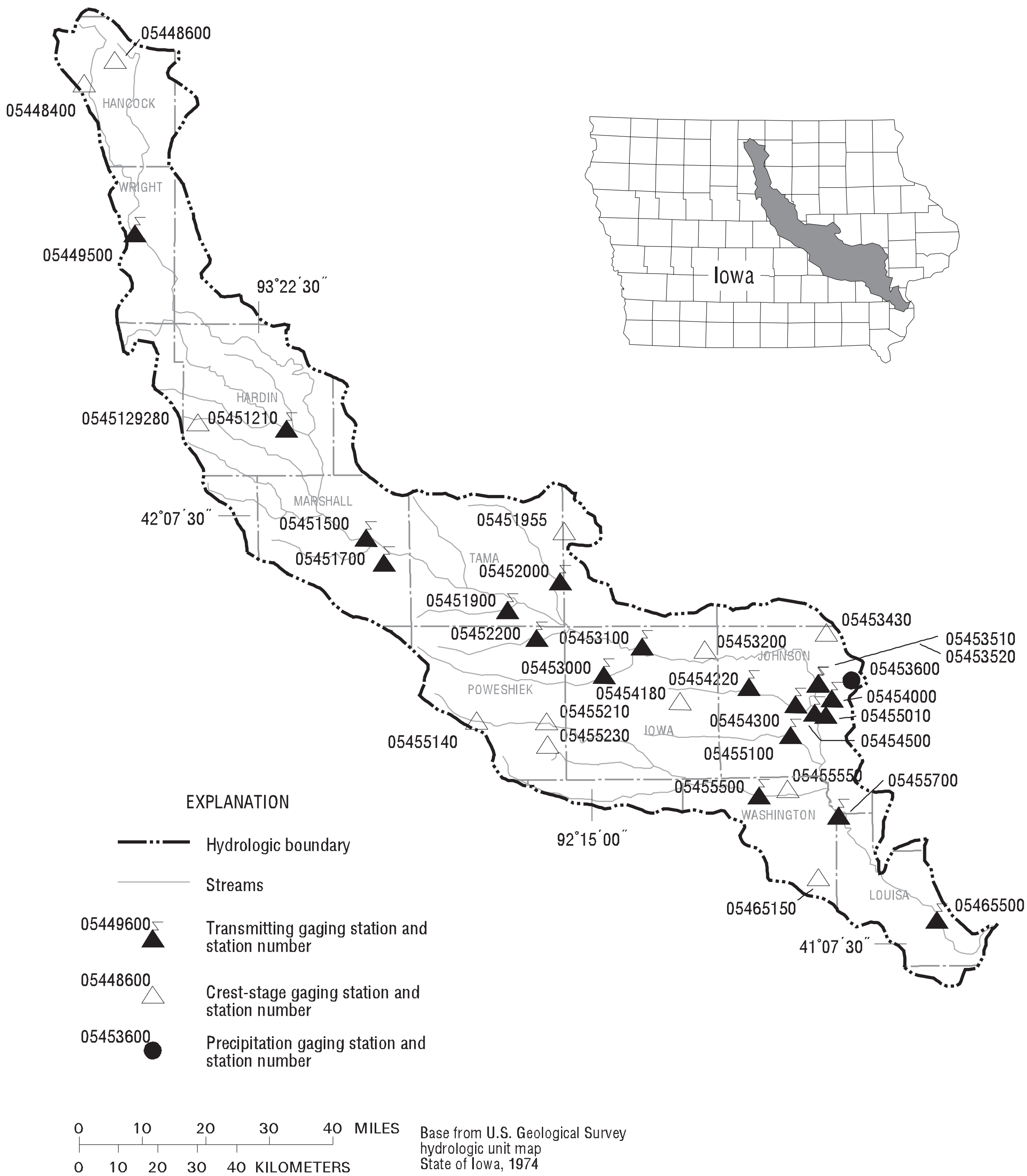
05422600 DUCK CREEK AT DUCK CREEK GOLF COURSE, DAVENPORT, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	8,218.29		14,998.87			
ANNUAL MEAN	22.5		41.0		45.7	
HIGHEST ANNUAL MEAN					61.8	1998
LOWEST ANNUAL MEAN					22.7	2003
HIGHEST DAILY MEAN	531	Jul 10	1,270	May 30	2,910	Jun 4, 2002
LOWEST DAILY MEAN	0.45	Sep 11	0.62	Oct 2	0.45	Sep 11, 2003
ANNUAL SEVEN-DAY MINIMUM	0.70	Sep 5	0.86	Oct 1	0.70	Sep 5, 2003
MAXIMUM PEAK FLOW			4,040	May 30	7,310	Jun 4, 2002
MAXIMUM PEAK STAGE			12.72	May 30	16.34	Jun 4, 2002
ANNUAL RUNOFF (AC-FT)	16,300		29,750		33,120	
ANNUAL RUNOFF (CFSM)	0.425		0.773		0.863	
ANNUAL RUNOFF (INCHES)	5.77		10.53		11.72	
10 PERCENT EXCEEDS	42		90		99	
50 PERCENT EXCEEDS	7.1		14		16	
90 PERCENT EXCEEDS	1.7		2.4		3.7	

e Estimated.



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


05448600
05448400
HANCOCK
WRIGHT
05449500
93°22´30´´
HARDIN
0545129280
05451210
MARSHALL
42°07´30´´
05451500
05451700
05451955
TAMA
05452000
05451900
05452200
05453100
05453200
JOHNSON
05453430
05453510
05453520
05453600
05453000
POWESHIEK
05454180
05454220
05454000
05455010
05454300
05455210
05455230
IOWA
05455140
05455100
05454500
05455500
05455550
05455700
WASHINGTON
92°15´00´´
05465150
LOUISA
05465500
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

05449500	Iowa River near Rowan, IA	128
05451210	South Fork Iowa River NE of New Providence, IA	133
05451500	Iowa River at Marshalltown, IA	140
05451700	Timber Creek near Marshalltown, IA	142
05451900	Richland Creek near Haven, IA	144
05452000	Salt Creek near Elberon, IA	146
05452200	Walnut Creek near Hartwick, IA	148
05453000	Big Bear Creek at Ladora, IA	150
05453100	Iowa River at Marengo, IA	152
05453510	Coralville Lake near Coralville, IA	154
05453520	Iowa River below Coralville Dam near Coralville, IA	156
05453600	Rapid Creek below Morse, IA (precipitation)	158
05454000	Rapid Creek near Iowa City, IA	160
05454220	Clear Creek near Oxford, IA	162
05454300	Clear Creek near Coralville, IA	164
05454500	Iowa River at Iowa City, IA	166
05455010	South Branch Ralston Creek at Iowa City, IA	168
05455100	Old Mans Creek near Iowa City, IA	170
05455500	English River at Kalona, IA	172
05455700	Iowa River near Lone Tree, IA	174
	(Cedar River Basin Stations	(176-209)
05465500	Iowa River at Wapello, IA	210

Crest Stage Gaging Stations

05448400	West Main Drainage Ditch 1 & 2 at Britt, IA	488
05448600	East Branch Iowa River above Hayfield, IA	488
0545129280	Honey Creek tributary near Radcliffe, IA	488
05451955	Stein Creek near Clutier, IA	488
05453200	Price Creek at Amana, IA	488
05453430	North Fork Tributary to Mill Creek near Solon, IA	488
05454180	Clear Creek Tributary near Williamsburg, IA	488
05455140	North English River near Montezuma, IA	488
05455210	North English River at Guernsey, IA	488
05455230	Deep River at Deep River, IA	489
05455550	Bulgers Run near Riverside, IA	489
05465150	North Fork Long Creek at Ainsworth, IA	489

05449500 IOWA RIVER NEAR ROWAN, IA

LOCATION.--Lat 42°45'36", long 93°37'18"(revised), in NW1/4 NE1/4 sec.25, T.92 N., R.24 W., Wright County, Hydrologic Unit 07080207, on left bank 10 ft downstream from bridge on county highway C38, 0.9 mi downstream from drainage ditch 123, 3.8 mi northwest of Rowan, 10.7 mi downstream from confluence of East and West Branches, and at mile 316.4.

DRAINAGE AREA.--429 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 NGVD of 1929. 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 Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	26	22	e36	e28	e477	297	230	1,900	319	112	57
2	28	26	25	e38	e25	e490	233	209	1,640	293	160	55
3	27	28	30	e35	e29	365	195	193	1,420	277	200	51
4	27	42	e30	e32	e31	237	173	181	1,200	285	175	47
5	28	48	31	e21	e27	324	155	169	995	303	179	48
6	28	36	28	e23	e31	538	144	157	847	871	171	50
7	27	26	e25	e22	e28	540	137	148	739	1,200	142	51
8	26	23	27	e20	e25	382	127	139	643	1,350	124	48
9	27	25	26	e21	e28	259	117	151	583	1,350	113	42
10	23	30	e26	e23	e30	200	111	143	570	1,190	104	42
11	25	30	e23	e24	e28	153	107	140	556	1,070	96	40
12	35	30	e22	e24	e27	101	102	131	781	1,010	90	41
13	30	26	e24	e27	e25	122	99	173	1,120	879	85	39
14	29	24	e26	e26	e25	125	96	330	1,260	662	81	53
15	30	22	e28	e28	e26	103	93	377	1,190	486	76	70
16	29	28	e21	e36	e26	87	88	313	933	400	76	270
17	27	31	e19	e32	e29	80	84	265	1,040	342	80	364
18	27	38	e20	e27	e32	82	82	251	1,270	296	78	258
19	27	46	e19	e24	e35	80	84	225	1,380	265	71	184
20	26	37	e22	e27	e37	76	102	208	1,370	242	65	140
21	25	30	e28	e24	e34	81	135	241	1,210	247	62	113
22	25	27	e29	e29	e36	68	162	1,160	988	248	61	100
23	24	26	e24	e27	e34	71	150	3,300	786	224	73	88
24	23	25	e22	e25	e33	74	139	5,110	640	196	67	82
25	23	25	e26	e27	e58	88	207	4,440	555	178	61	78
26	25	22	e34	e30	e69	390	483	3,500	498	166	60	73
27	25	22	e37	e29	e102	530	505	2,900	451	155	87	68
28	25	21	e35	e25	e216	572	385	2,510	417	144	96	65
29	25	e24	e41	e24	e364	606	318	2,280	398	134	72	64
30	28	26	e38	e25	---	441	268	2,100	351	126	64	61
31	26	---	e33	e26	---	329	---	2,010	---	116	61	---
TOTAL	828	870	841	837	1,518	8,071	5,378	33,684	27,731	15,024	3,042	2,742
MEAN	26.7	29.0	27.1	27.0	52.3	260	179	1,087	924	485	98.1	91.4
MAX	35	48	41	38	364	606	505	5,110	1,900	1,350	200	364
MIN	23	21	19	20	25	68	82	131	351	116	60	39
AC-FT	1,640	1,730	1,670	1,660	3,010	16,010	10,670	66,810	55,000	29,800	6,030	5,440
CFSM	0.06	0.07	0.06	0.06	0.13	0.62	0.43	2.60	2.21	1.16	0.23	0.22
IN.	0.07	0.08	0.07	0.07	0.14	0.72	0.48	3.00	2.47	1.34	0.27	0.24

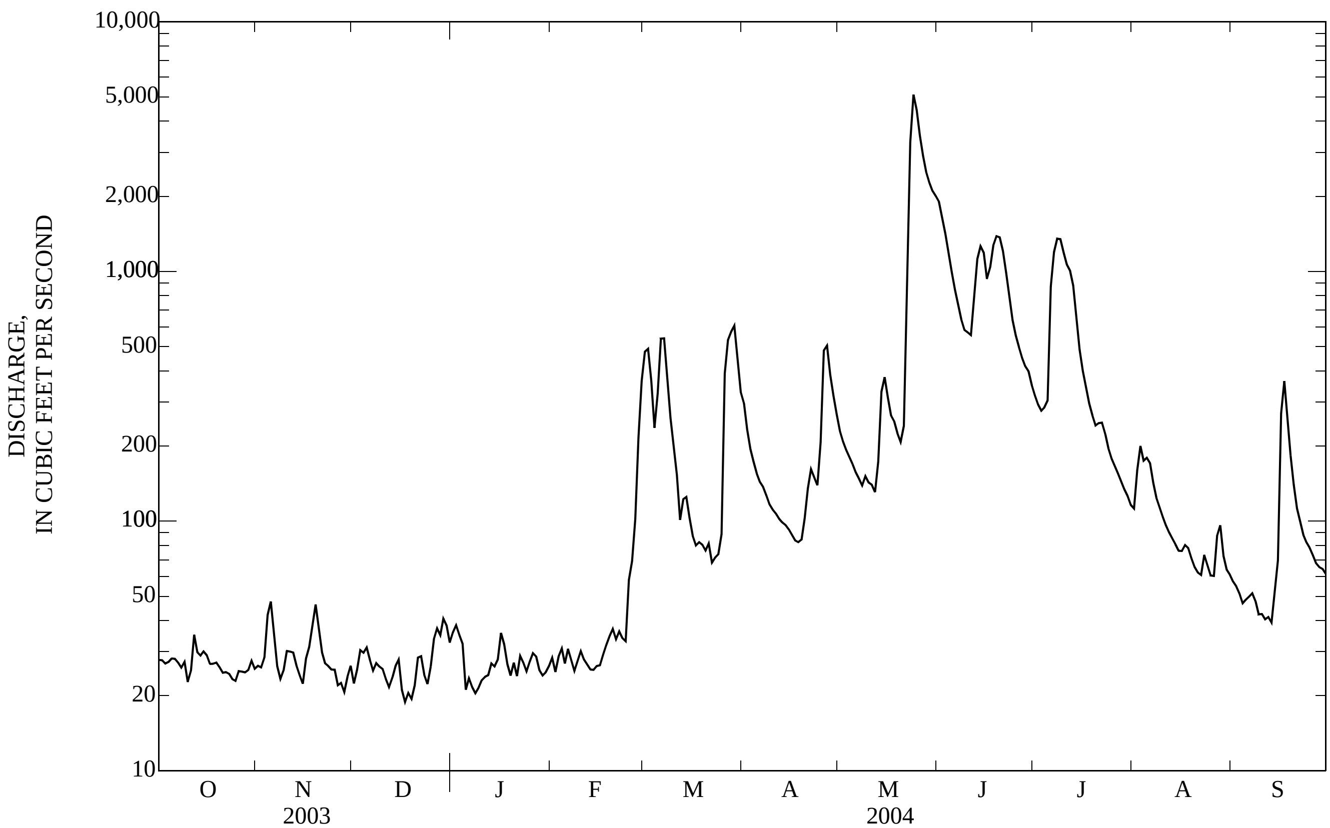
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

MEAN	137	131	86.1	55.3	112	385	490	397	499	310	164	137
MAX	720	695	588	298	931	1,415	2,439	1,793	2,452	1,922	1,684	1,213
(WY)	(1987)	(1993)	(1983)	(1983)	(1984)	(1973)	(1965)	(1991)	(1984)	(1993)	(1979)	(1965)
MIN	8.14	9.49	5.62	3.63	3.54	23.9	32.4	44.3	19.2	5.36	5.14	3.98
(WY)	(1990)	(1990)	(1990)	(1959)	(1959)	(1968)	(1957)	(1989)	(1989)	(1977)	(1977)	(1977)

05449500 IOWA RIVER NEAR ROWAN, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	71,789		100,566			
ANNUAL MEAN	197		275		243	
HIGHEST ANNUAL MEAN					869	1993
LOWEST ANNUAL MEAN					30.4	1956
HIGHEST DAILY MEAN	1,680	May 7	5,110	May 24	7,640	Jun 21, 1954
LOWEST DAILY MEAN	19	Dec 17	19	Dec 17 a	2.2	Sep 11, 1977
ANNUAL SEVEN-DAY MINIMUM	22	Dec 14	22	Jan 5	2.9	Sep 8, 1977
MAXIMUM PEAK FLOW			5,210	May 24	8,460	Jun 21, 1954
MAXIMUM PEAK STAGE			13.95	May 24	14.88	Jun 21, 1954
INSTANTANEOUS LOW FLOW					2.2	Sep 11, 1977
ANNUAL RUNOFF (AC-FT)	142,400		199,500		176,000	
ANNUAL RUNOFF (CFSM)	0.471		0.657		0.581	
ANNUAL RUNOFF (INCHES)	6.39		8.95		7.90	
10 PERCENT EXCEEDS	540		752		620	
50 PERCENT EXCEEDS	57		75		87	
90 PERCENT EXCEEDS	26		25		18	

a Also Dec. 19, Ice affected.
e Estimated.



05449500 IOWA RIVER NEAR ROWAN, IA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 2001 to September 30, 2004 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)
OCT													
06...	1440	3.38	29	21	745	10.9	111	8.2	--	613	--	15.0	231
NOV													
04...	1330	3.54	40	8.3	724	13.7	109	8.2	--	588	2.0	5.3	224
DEC													
02...	1435	3.42	25	2.9	734	13.9	100	8.2	--	680	.6	.5	219
JAN													
06...	1458	3.61	23	--	734	16.6	119	7.4	--	816	--	.3	295
FEB													
09...	1502	4.03	28	--	754	5.2	36	7.5	--	707	--	.1	276
APR													
05...	1440	4.34	152	44	736	11.4	103	8.1	--	658	18.5	11.0	228
MAY													
03...	1402	4.53	190	28	734	12.0	115	8.2	--	650	18.0	11.6	221
JUN													
02...	1510	10.27	1,590	--	735	7.7	80	7.7	--	583	15.0	15.1	182
JUL													
06...	1530	8.11	984	200	734	7.4	84	7.7	--	387	--	19.5	118
AUG													
02...	1520	4.60	193	64	732	--	--	8.2	600	637	31.0	24.6	231
10...	0815	4.07	E124	32	730	8.0	89	8.2	--	679	13.5	18.7	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)
OCT													
06...	272	5	22.0	68.2	<.04	1.59	.051	.031	.093	<.006	E.007	<.006	<.004
NOV													
04...	269	.0	22.7	54.8	<.04	1.58	.025	.044	.094	--	--	--	--
DEC													
02...	267	.0	23.0	70.2	.06	2.86	.028	.039	.075	<.006	<.006	<.006	<.005
JAN													
06...	360	.0	26.8	86.9	.06	3.08	.026	.050	.079	--	--	--	--
FEB													
09...	336	.0	22.7	57.4	<.04	2.59	.101	.180	.21	<.006	E.011	E.005	<.005
APR													
05...	271	3	23.5	44.3	<.04	7.25	.054	.029	.25	<.006	E.018	.008	.016
MAY													
03...	269	.0	25.5	40.9	<.04	9.49	.084	.041	.131	<.006	E.020	.089	<.010
JUN													
02...	222	.0	18.2	24.9	<.04	13.7	.120	.195	.27	<.006	E.068	.703	.015
JUL													
06...	144	.0	8.34	11.7	<.04	6.87	.034	.175	.46	<.006	E.106	.062	.006
AUG													
02...	279	1	21.3	54.3	<.04	4.58	.030	.064	.20	<.006	E.022	.008	.008
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)
OCT													
06...	<.005	.016	<.050	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.005
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
02...	<.005	.017	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JAN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
09...	<.005	.018	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
APR													
05...	<.005	.035	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
MAY													
03...	<.005	.072	<.050	<.010	<.004	E.008	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JUN													
02...	<.005	.719	<.050	<.010	<.004	E.006	<.020	E.004	<.006	<.018	<.003	<.005	<.009
JUL													
06...	<.005	.960	<.050	<.010	<.004	<.041	E.052	<.005	<.006	<.018	<.003	<.005	<.015
AUG													
02...	<.005	.115	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
06...	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.006	.015	<.006	<.002	<.007
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.029	<.006	<.003	<.007
JAN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
09...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.028	<.006	<.003	<.007
APR													
05...	<.02	E.003	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.035	<.006	<.003	<.007
MAY													
03...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.038	<.006	<.003	<.007
JUN													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.286	<.006	<.003	<.007
JUL													
06...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.118	<.006	<.003	<.007
AUG													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.026	<.006	<.003	<.007
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

05449500 IOWA RIVER NEAR ROWAN, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Para- thion, water, fltrd, ug/L (39542)	Peb- ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi- meth- alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome- ton, water, fltrd, ug/L (04037)	Propy- zamide, water, fltrd 0.7u GF ug/L (82676)	Propa- chlor, water, fltrd, ug/L (04024)	Pro- panil, water, fltrd 0.7u GF ug/L (82679)	Propar- gite, water, fltrd 0.7u GF ug/L (82685)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)	Terba- cil, water, fltrd 0.7u GF ug/L (82665)	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)
OCT													
06...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.010	<.011	<.02	<.02	<.034	<.02
NOV													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
02...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JAN													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
09...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
APR													
05...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
MAY													
03...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JUN													
02...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JUL													
06...	<.003	<.010	<.004	E.007	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
AUG													
02...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
10...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Sus- pended sedi- ment concen- tration mg/L (80154)
OCT				
06...	<.005	<.002	<.009	22
NOV				
04...	--	--	--	49
DEC				
02...	<.010	<.002	<.009	59
JAN				
06...	--	--	--	13
FEB				
09...	<.010	<.002	<.009	35
APR				
05...	<.010	<.002	<.009	96
MAY				
03...	<.010	<.002	<.009	114
JUN				
02...	<.010	<.002	<.009	46
JUL				
06...	<.010	<.002	<.009	243
AUG				
02...	<.010	<.002	<.009	96
10...	--	--	--	--

05451210 SOUTH FORK IOWA RIVER NORTHEAST OF NEW PROVIDENCE, IA

LOCATION.--Lat 42°18'55", long 93°09'07", in SE1/4 NW1/4 SW1/4 sec.26, T.87 N., R.20 W., Hardin County, Hydrologic Unit 07080207, located 15 ft from the left bank downstream side of the bridge on County Road, 4.0 miles upstream of the confluence with the Iowa River, and 2.0 miles NE of New Providence.

DRAINAGE AREA.--230 mi^2.

WATER DISCHARGE RECORDS

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

GAGE.--Water stage recorder. Datum of gage is 945 ft above NGVD of 1929, 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 satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	4.6	e4.3	e13	e2.6	e291	209	123	906	134	32	14
2	3.4	6.8	e3.8	e15	e4.1	e237	176	114	628	122	30	13
3	3.3	16	e2.6	e14	e3.3	e153	156	104	485	116	35	e15
4	3.2	38	e4.1	e9.2	e2.9	e108	142	99	403	118	152	e14
5	3.3	28	e4.8	e5.0	e4.5	e201	130	94	352	126	234	e14
6	3.4	20	4.2	e3.1	e7.1	e411	120	89	315	118	154	e14
7	2.4	15	e3.8	e3.5	e5.9	e328	112	83	277	113	107	e16
8	1.8	13	4.3	e4.6	e4.9	215	100	81	246	107	81	e15
9	2.0	9.9	4.6	e4.2	e6.2	132	91	89	221	106	66	13
10	2.4	e6.9	e3.8	e4.1	e5.4	101	83	88	347	97	53	12
11	3.6	e6.6	e3.2	e7.0	e6.5	81	77	83	708	95	43	11
12	5.1	e6.1	e3.0	e8.3	e5.2	50	74	82	680	122	38	9.9
13	5.3	e5.1	e3.5	e8.5	e4.3	64	73	99	804	133	33	9.0
14	7.2	e4.8	e4.1	e8.3	e4.0	51	68	195	651	110	29	8.9
15	6.5	e4.6	e5.8	e7.0	e5.1	41	65	213	470	90	25	8.8
16	6.0	e6.1	e5.0	e8.5	e5.1	37	63	181	363	77	26	9.0
17	6.0	e8.0	e3.9	e9.1	e6.3	35	66	167	406	68	42	8.7
18	6.0	9.9	e5.1	e7.6	e9.6	37	63	172	443	59	26	9.2
19	5.5	10	e4.2	e6.6	e13	41	62	185	339	53	24	8.6
20	4.9	9.2	e3.7	e6.2	e17	43	67	192	282	48	22	7.7
21	3.9	8.0	e5.7	e7.8	e14	37	85	174	277	48	20	7.1
22	4.3	7.9	e8.2	e5.3	e16	32	88	469	275	58	18	6.8
23	4.1	8.9	e7.0	e5.9	e13	30	85	1,280	231	125	17	6.4
24	4.1	e8.8	e6.0	e5.3	e41	43	85	1,610	215	88	16	6.4
25	4.1	e7.4	e7.5	e5.5	e35	62	129	1,790	247	69	15	5.9
26	4.2	7.6	e9.6	e5.8	e29	82	216	1,400	274	58	15	6.0
27	4.3	7.4	e12	e4.9	e64	86	213	1,060	234	52	23	5.7
28	4.2	e5.7	e15	e3.9	e140	328	184	750	200	46	20	5.3
29	4.0	e4.9	e13	e2.6	e229	496	159	731	170	45	18	5.0
30	4.3	6.9	e12	e2.0	---	338	137	1,100	150	39	19	4.7
31	4.3	---	e12	e2.2	---	257	---	1,220	---	32	16	---
TOTAL	130.7	302.1	189.8	204.0	704.0	4,448	3,378	14,117	11,599	2,672	1,449	290.1
MEAN	4.22	10.1	6.12	6.58	24.3	143	113	455	387	86.2	46.7	9.67
MAX	7.2	38	15	15	229	496	216	1,790	906	134	234	16
MIN	1.8	4.6	2.6	2.0	2.6	30	62	81	150	32	15	4.7
AC-FT	259	599	376	405	1,400	8,820	6,700	28,000	23,010	5,300	2,870	575
CFSM	0.02	0.04	0.03	0.03	0.11	0.64	0.50	2.03	1.73	0.38	0.21	0.04
IN.	0.02	0.05	0.03	0.03	0.12	0.74	0.56	2.34	1.93	0.44	0.24	0.05

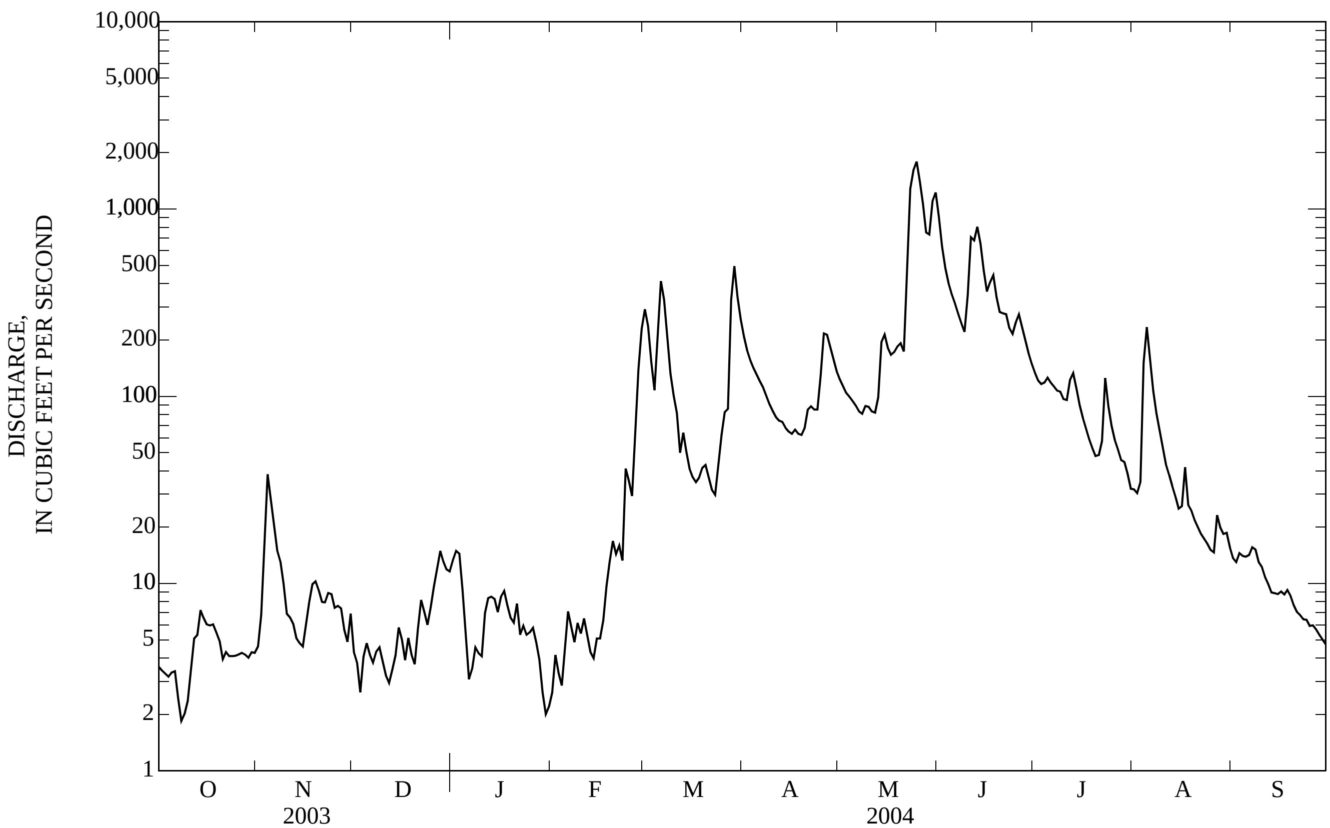
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40.2	53.3	36.5	24.3	88.9	153	200	343	427	171	44.1	20.6
MAX	157	199	119	65.7	250	386	513	643	1,173	414	161	79.4
(WY)	(2003)	(1997)	(1997)	(1997)	(1997)	(2001)	(1999)	(1999)	(1998)	(1998)	(2002)	(2002)
MIN	2.59	4.90	5.03	4.63	7.51	8.73	7.17	13.1	153	59.9	12.5	3.51
(WY)	(2000)	(2000)	(2000)	(2001)	(2001)	(2000)	(2000)	(2000)	(2003)	(1996)	(2000)	(2000)

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	34,693.8		39,483.7			
ANNUAL MEAN	95.1		108		140	
HIGHEST ANNUAL MEAN					218	1998
LOWEST ANNUAL MEAN					36.6	2000
HIGHEST DAILY MEAN	1,330	Jul 10	1,790	May 25	2,920	Jun 30, 1998
LOWEST DAILY MEAN	1.8	Oct 8	1.8	Oct 8	1.7	Sep 13, 2000
ANNUAL SEVEN-DAY MINIMUM	2.6	Oct 4	2.6	Oct 4	1.9	Sep 11, 2000
MAXIMUM PEAK FLOW			1,960	May 25	3,550	Jun 21, 1998
MAXIMUM PEAK STAGE			8.64	May 25	11.59	Jun 21, 1998
INSTANTANEOUS LOW FLOW			1.7	Oct 8	1.7	Sep 26, 1999 a
ANNUAL RUNOFF (AC-FT)	68,820		78,320		101,800	
ANNUAL RUNOFF (CFSM)	0.424		0.482		0.627	
ANNUAL RUNOFF (INCHES)	5.76		6.56		8.52	
10 PERCENT EXCEEDS	235		274		365	
50 PERCENT EXCEEDS	24		20		49	
90 PERCENT EXCEEDS	3.8		4.1		4.7	

a Also Oct. 3, 2000 and Oct. 8, 2003.
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 2003 TO SEPTEMBER 2004

Date	Time	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf lab, uS/cm 25 degC (90095)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)
OCT													
07...	0819	1.90	2.0	11	735	8.0	79	8.0	--	538	--	13.3	250
NOV													
05...	0750	2.51	26	19	739	12.4	94	8.1	--	489	.5	3.8	168
DEC													
03...	0837	2.32	5.5	4.1	738	13.8	98	7.9	--	603	-2.5	.1	217
JAN													
07...	0834	2.30	3.5	--	742	13.6	96	7.9	--	894	--	.1	356
FEB													
10...	0847	2.94	5.4	--	740	9.4	67	7.5	--	686	--	.1	308
APR													
06...	0840	3.28	119	9.8	731	10.8	96	8.3	--	686	6.0	9.9	218
MAY													
04...	0815	3.19	97	7.8	729	10.6	95	7.8	--	634	13.0	10.8	198
JUN													
03...	0800	5.05	496	--	743	9.8	97	8.1	--	712	18.0	13.8	221
JUL													
07...	0815	3.25	111	18	732	8.5	95	8.2	--	709	15.0	18.5	234
AUG													
02...	1045	2.42	31	28	735	8.9	109	8.2	485	514	--	23.9	176
11...	0800	2.57	E37	5.5	733	10.3	108	8.2	--	697	19.4	15.6	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)
OCT													
07...	295	5	15.1	25.6	<.04	.27	.011	<.006	.087	<.006	E.011	<.006	<.004
NOV													
05...	203	.0	13.4	33.2	<.04	.74	.016	.172	.30	--	--	--	--
DEC													
03...	264	.0	22.5	39.7	E.02	.67	E.004	<.006	.025	<.006	E.004	E.005	<.005
JAN													
07...	434	.0	41.6	64.6	.07	3.42	.029	.010	.030	--	--	--	--
FEB													
10...	376	.0	19.7	34.5	.40	1.50	.018	.022	.045	<.006	E.012	E.005	<.005
APR													
06...	261	.0	29.3	34.1	<.04	13.5	.041	<.006	.051	<.006	E.023	.012	<.005
MAY													
04...	241	.0	29.0	31.4	<.04	15.3	.059	<.006	.022	<.006	E.027	.034	<.005
JUN													
03...	264	2	26.2	23.2	<.04	22.4	.112	.103	.21	<.006	E.051	.157	<.005
JUL													
07...	285	.0	27.2	28.0	<.04	19.7	.043	.023	.065	<.006	E.045	.023	<.005
AUG													
02...	200	7	22.7	29.8	<.04	6.90	.062	.021	.092	<.006	E.037	.015	<.005
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)
OCT													
07...	<.005	.023	<.050	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.005
NOV													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
03...	<.005	.037	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JAN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
10...	<.005	.046	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
APR													
06...	<.005	.042	<.050	<.010	<.004	E.011	<.020	<.005	<.006	<.018	<.003	<.005	<.009
MAY													
04...	<.005	.077	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JUN													
03...	<.005	.430	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
JUL													
07...	<.005	.259	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
AUG													
02...	<.005	.172	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
07...	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.006	E.011	<.006	<.002	<.007
NOV													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
03...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.084	<.006	<.003	<.007
JAN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
10...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.115	<.006	<.003	<.007
APR													
06...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.250	<.006	<.003	<.007
MAY													
04...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.220	<.006	<.003	<.007
JUN													
03...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.510	<.006	<.003	<.007
JUL													
07...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.223	<.006	<.003	<.007
AUG													
02...	<.02	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.100	<.006	<.003	<.007
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)
OCT													
07...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.010	<.011	<.02	<.02	<.034	<.02
NOV													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
03...	<.003	<.010	<.004	<.022	<.011	M	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JAN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
10...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
APR													
06...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
MAY													
04...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JUN													
03...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
JUL													
07...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
AUG													
02...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)
OCT				
07...	<.005	<.002	<.009	8
NOV				
05...	--	--	--	16
DEC				
03...	<.010	<.002	<.009	29
JAN				
07...	--	--	--	8
FEB				
10...	<.010	<.002	<.009	59
APR				
06...	<.010	<.002	<.009	85
MAY				
04...	<.010	<.002	<.009	--
JUN				
03...	<.010	<.002	<.009	192
JUL				
07...	<.010	<.002	<.009	107
AUG				
02...	<.010	<.002	<.009	41
11...	--	--	--	--

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.-- Estimated totals Oct. 1, Feb. 8-10, and Aug. 21, 22. 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, 5.37 in., June 21, 1997.

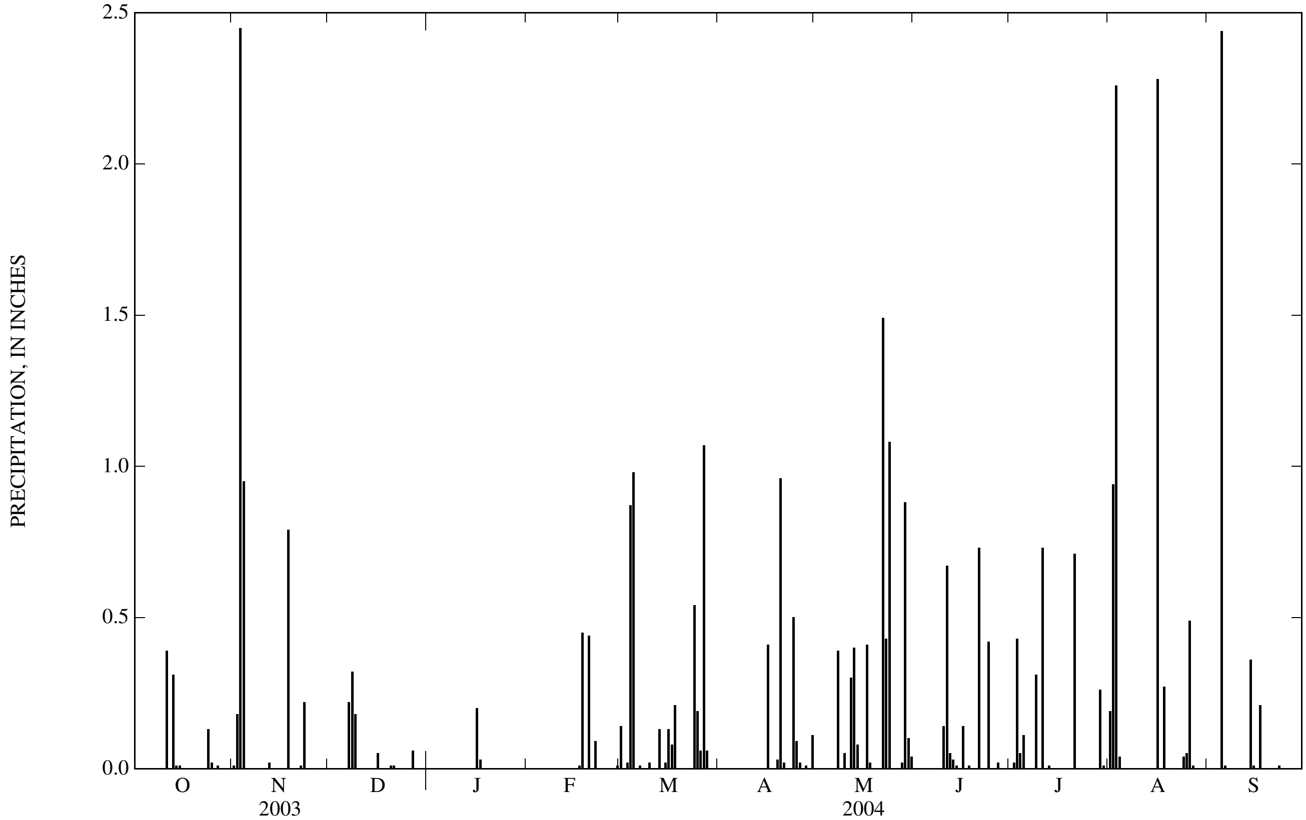
EXTREME FOR CURRENT YEAR.-- Maximum daily accumulation 2.45 in., November 3.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.01	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.19	0.00
2	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.94	0.00
3	0.00	2.45	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.43	2.26	0.00
4	0.00	e0.95	0.00	0.00	0.00	0.87	e0.00	0.00	0.00	0.05	0.04	0.00
5	0.00	0.00	0.00	0.00	0.00	0.98	0.00	e0.00	0.00	0.11	0.00	2.44
6	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	e0.00	0.00	0.00	0.00	0.01
7	0.00	0.00	0.22	0.00	e0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.32	0.00	e0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00
9	0.00	e0.00	0.18	e0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00
10	0.00	---	0.00	e0.00	0.00	0.02	0.00	0.05	0.14	0.00	0.00	0.00
11	0.39	---	0.00	e0.00	e0.00	0.00	0.00	0.00	0.67	0.73	0.00	e0.00
12	0.00	e0.02	0.00	e0.00	e0.00	0.00	0.00	0.30	0.05	0.00	0.00	0.00
13	0.31	e0.00	0.00	0.00	---	0.13	0.00	0.40	0.03	0.01	0.00	0.00
14	0.01	e0.00	0.00	0.00	---	0.00	0.00	0.08	0.01	0.00	0.00	0.36
15	0.01	---	e0.00	0.00	e0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01
16	0.00	---	e0.05	0.20	0.00	0.13	0.41	0.00	0.14	0.00	2.28	0.00
17	0.00	---	e0.00	0.03	0.01	0.08	0.00	0.41	0.00	0.00	0.00	0.21
18	0.00	e0.79	e0.00	0.00	0.45	0.21	0.00	0.02	0.01	0.00	0.27	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.01	e0.00	0.44	e0.00	0.96	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.01	e0.00	0.00	0.00	0.02	0.00	0.73	0.71	0.00	0.00
22	0.00	0.01	0.00	0.00	0.09	0.00	0.00	1.49	0.00	0.00	0.00	0.00
23	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.01
24	0.13	0.00	0.00	0.00	0.00	0.54	0.50	1.08	0.42	0.00	0.04	0.00
25	0.02	0.00	0.00	e0.00	0.00	0.19	0.09	0.00	0.00	0.00	0.05	0.00
26	0.00	0.00	0.00	e0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.49	0.00
27	0.01	0.00	0.06	0.00	0.00	1.07	0.00	0.00	0.02	0.00	0.01	0.00
28	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.02	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.88	0.00	0.26	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.11	0.10	0.00	0.01	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.04	---	0.00	0.00	---
TOTAL	0.88	---	0.85	0.23	---	4.53	2.15	5.69	2.22	2.64	6.57	3.04
MAX	0.39	---	0.32	0.20	---	1.07	0.96	1.49	0.73	0.73	2.28	2.44
MIN	0.00	---	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00

e Estimated

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



05451500 IOWA RIVER AT MARSHALLTOWN, IA

LOCATION.--Lat 42°03'57", long 92°54'27", in SE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	122	173	e90	e93	e1,960	1,800	1,010	6,060	1,320	473	295
2	120	151	160	e91	e94	2,120	1,520	923	5,300	1,230	456	271
3	143	274	163	e85	e95	1,940	1,360	857	4,770	1,170	480	259
4	167	1,100	e155	e74	e93	1,810	1,220	808	4,240	1,170	973	252
5	181	758	e150	e66	e94	3,300	1,110	767	3,790	1,210	1,310	247
6	198	526	e149	e69	e93	4,070	1,030	731	3,370	1,170	981	368
7	220	424	e143	e67	e92	3,240	958	696	2,930	1,140	760	493
8	185	362	e145	e66	e91	2,540	890	660	2,540	1,410	661	360
9	64	321	e135	e67	e91	2,030	825	671	2,230	1,660	591	307
10	67	303	e105	e71	e91	1,690	767	669	2,090	1,860	524	275
11	77	286	e78	e71	e89	1,420	719	653	2,460	2,090	475	251
12	90	266	e75	e78	e80	1,190	682	643	2,580	2,710	437	228
13	92	241	e80	e87	e80	1,120	648	694	2,730	e2,650	404	212
14	112	233	e88	e85	e82	1,030	621	777	2,830	e1,860	379	e213
15	104	230	e89	e83	e78	989	593	920	2,640	1,640	353	e207
16	108	221	e76	e111	e81	951	570	1,030	2,510	1,440	338	e210
17	108	217	e68	e100	e83	942	561	1,050	2,560	1,220	557	e224
18	107	234	e74	e95	e99	931	526	1,050	2,590	1,050	841	e240
19	106	225	e71	e93	e152	1,030	506	1,010	2,330	946	817	e280
20	106	230	e74	e101	e352	1,050	548	1,000	2,200	868	607	333
21	104	217	e87	e100	e620	984	760	952	2,330	816	489	350
22	104	210	e92	e99	e928	935	760	1,350	2,550	813	417	301
23	108	220	e87	e111	e1,690	902	755	6,270	2,490	826	370	264
24	110	e214	e77	e103	1,280	904	766	6,990	2,340	816	340	240
25	116	e222	e80	e109	1,050	1,020	827	7,610	2,220	739	318	225
26	115	202	e85	e112	e934	1,070	964	8,210	2,000	671	315	212
27	118	185	e93	e106	e1,310	1,240	1,110	8,020	1,800	619	388	202
28	123	188	e90	e98	e1,680	1,780	1,220	7,990	1,640	576	388	195
29	119	e195	e95	e94	e1,800	2,770	1,250	7,260	1,500	548	401	186
30	125	e198	e92	e92	---	2,450	1,130	7,110	1,400	527	372	181
31	125	---	e87	e93	---	2,100	---	6,740	---	495	334	---
TOTAL	3,728	8,775	3,216	2,767	13,395	51,508	26,996	85,121	83,020	37,260	16,549	7,881
MEAN	120	292	104	89.3	462	1,662	900	2,746	2,767	1,202	534	263
MAX	220	1,100	173	112	1,800	4,070	1,800	8,210	6,060	2,710	1,310	493
MIN	64	122	68	66	78	902	506	643	1,400	495	315	181
AC-FT	7,390	17,410	6,380	5,490	26,570	102,200	53,550	168,800	164,700	73,910	32,820	15,630
CFSM	0.08	0.19	0.07	0.06	0.30	1.08	0.59	1.79	1.81	0.78	0.35	0.17
IN.	0.09	0.21	0.08	0.07	0.33	1.25	0.66	2.07	2.02	0.90	0.40	0.19

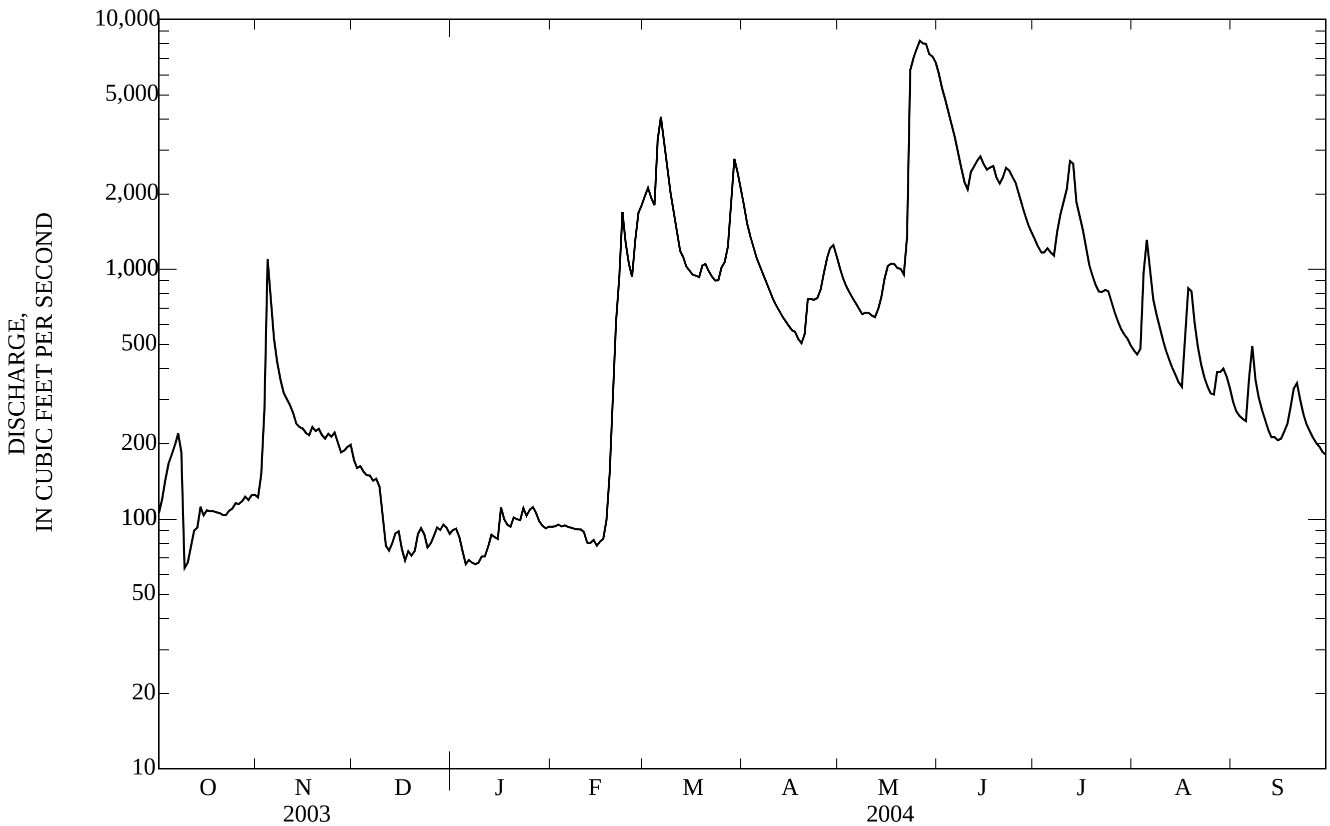
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	490	489	355	297	617	1,550	1,494	1,386	1,811	1,048	563	484
MAX	2,721	2,593	2,139	2,231	3,424	4,206	6,796	5,559	7,619	8,389	7,062	3,362
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1903 - 2004	
ANNUAL TOTAL	262,535		340,216			
ANNUAL MEAN	719		930		882	
HIGHEST ANNUAL MEAN					3,456	1993
LOWEST ANNUAL MEAN					77.3	1934
HIGHEST DAILY MEAN	5,290	May 10	8,210	May 26	39,400	Jun 4, 1918
LOWEST DAILY MEAN	44	Sep 11	64	Oct 9	4.7	Jan 25, 1977
ANNUAL SEVEN-DAY MINIMUM	55	Sep 5	68	Jan 5	5.2	Jan 20, 1977
MAXIMUM PEAK FLOW			8,330	May 26	42,000	Jun 4, 1918
MAXIMUM PEAK STAGE			18.18	May 26	20.77	Aug 17, 1993
INSTANTANEOUS LOW FLOW			60	Oct 8		
ANNUAL RUNOFF (AC-FT)	520,700		674,800		638,900	
ANNUAL RUNOFF (CFSM)	0.469		0.607		0.576	
ANNUAL RUNOFF (INCHES)	6.37		8.26		7.82	
10 PERCENT EXCEEDS	1,930		2,330		2,170	
50 PERCENT EXCEEDS	226		430		395	
90 PERCENT EXCEEDS	92		88		76	

e Estimated



05451700 TIMBER CREEK NEAR MARSHALLTOWN, IA

LOCATION.--Lat 42°00'32", long 92°51'08", in SE$\frac{1}{4}$ SW$\frac{1}{4}$ sec.8, T.83 N., R.17 W., Marshall County, Hydrologic Unit 07080208, on left bank 20 ft upstream from bridge on Shady Oaks Road, 3.0 mi upstream from mouth, and 3.0 mi southeast of Marshalltown.

DRAINAGE AREA.--118 mi^2.

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

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

GAGE.--Water stage recorder. Datum of gage is 849.44 ft above NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	8.6	49	e16	e50	133	122	98	391	120	68	82
2	6.8	11	48	e17	e50	125	114	93	327	116	69	69
3	6.9	97	51	e16	e52	104	108	91	275	119	77	62
4	7.0	1,730	49	e12	e53	101	101	88	237	115	293	57
5	7.3	459	50	e9.2	e54	534	98	84	213	159	136	53
6	7.3	251	47	e15	e57	278	94	82	195	134	102	56
7	7.1	183	47	e18	e57	190	90	78	178	116	91	51
8	6.6	146	48	e19	e58	156	86	78	160	110	85	46
9	6.4	126	e35	e18	e60	139	82	76	147	132	80	44
10	6.6	116	e32	e21	e61	127	80	73	142	126	75	42
11	6.7	107	e36	e23	e59	116	78	72	142	126	72	40
12	8.6	95	e33	e25	e56	108	77	70	168	152	70	39
13	8.1	84	e34	e24	e54	102	75	77	134	129	68	37
14	12	82	e36	e20	e58	99	73	76	122	115	66	36
15	12	79	e37	e19	e51	93	71	71	112	106	63	36
16	9.9	74	e27	e30	e51	95	70	69	107	101	63	34
17	9.2	71	e23	e25	e52	93	70	69	134	97	142	33
18	8.7	74	e29	e20	e54	117	67	149	107	93	94	33
19	8.8	68	e27	e20	e64	192	65	123	99	91	79	32
20	8.5	65	e29	e24	e1,060	171	88	111	94	88	69	30
21	8.3	62	e33	e23	1,310	144	279	101	323	86	64	29
22	8.3	61	e32	e18	833	132	201	186	253	85	61	28
23	8.4	64	e26	e28	e616	125	162	3,010	193	82	59	27
24	8.6	61	e17	e34	352	121	143	1,300	174	79	60	27
25	8.5	63	e19	e35	223	113	143	2,090	163	77	60	26
26	8.8	61	e22	e37	150	110	125	910	151	75	63	25
27	8.6	63	e23	e33	144	108	116	686	143	73	619	25
28	8.4	61	e24	e47	134	134	113	559	140	71	291	24
29	8.7	63	e23	e50	131	139	104	490	131	72	182	23
30	8.9	55	e19	e49	---	139	100	547	125	74	129	23
31	8.8	---	e14	e48	---	130	---	483	---	70	99	---
TOTAL	255.7	4,540.6	1,019	793.2	6,004	4,468	3,195	12,090	5,280	3,189	3,549	1,169
MEAN	8.25	151	32.9	25.6	207	144	106	390	176	103	114	39.0
MAX	12	1,730	51	50	1,310	534	279	3,010	391	159	619	82
MIN	6.4	8.6	14	9.2	50	93	65	69	94	70	59	23
AC-FT	507	9,010	2,020	1,570	11,910	8,860	6,340	23,980	10,470	6,330	7,040	2,320
CFSM	0.07	1.28	0.28	0.22	1.75	1.22	0.90	3.31	1.49	0.87	0.97	0.33
IN.	0.08	1.43	0.32	0.25	1.89	1.41	1.01	3.81	1.66	1.01	1.12	0.37

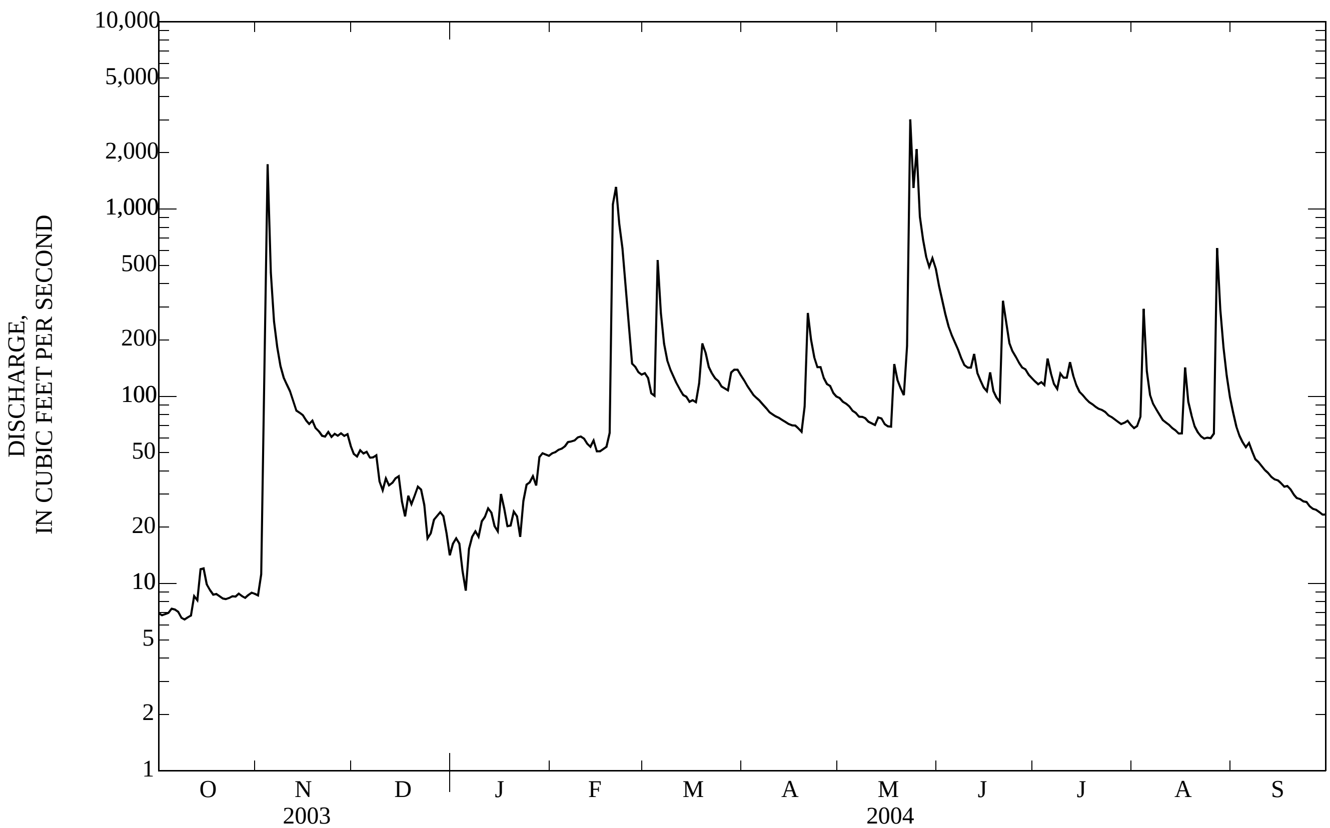
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2004, BY WATER YEAR (WY)

MEAN	35.1	40.1	34.2	34.3	84.4	139	108	134	156	93.7	57.3	36.7
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	0.76	1.11	0.60	0.05	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1950 - 2004	
ANNUAL TOTAL	21,010.28		45,552.5			
ANNUAL MEAN	57.6		124		79.3	
HIGHEST ANNUAL MEAN					299	1993
LOWEST ANNUAL MEAN					2.84	1956
HIGHEST DAILY MEAN	1,730	Nov 4	3,010	May 23	6,570	Aug 16, 1977
LOWEST DAILY MEAN	0.01	Feb 28	6.4	Oct 9	0.00	Jul 24, 1956 a
ANNUAL SEVEN-DAY MINIMUM	0.35	Feb 26	6.9	Oct 5	0.00	Oct 4, 1956
MAXIMUM PEAK FLOW			4,240	May 23	12,000	Aug 16, 1977
MAXIMUM PEAK STAGE			15.62	May 23	17.69	Aug 16, 1977
INSTANTANEOUS LOW FLOW			6.1	Oct 9	0.00	Jul 24, 1956
ANNUAL RUNOFF (AC-FT)	41,670		90,350		57,460	
ANNUAL RUNOFF (CFSM)	0.488		1.05		0.672	
ANNUAL RUNOFF (INCHES)	6.62		14.36		9.13	
10 PERCENT EXCEEDS	113		187		173	
50 PERCENT EXCEEDS	21		72		32	
90 PERCENT EXCEEDS	3.5		15		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 SE¼ NE¼ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.1	15	e11	e11	43	44	28	121	19	3.5	88
2	1.8	5.4	15	e9.2	e11	39	41	27	93	18	49	71
3	e2.1	59	16	e7.8	e9.0	31	38	26	77	24	19	59
4	e2.0	522	16	e5.7	e7.3	43	36	26	66	20	243	50
5	1.8	135	17	e9.9	e8.9	281	36	25	59	20	44	46
6	1.7	75	16	e15	e12	126	34	24	54	19	22	81
7	1.6	51	16	e14	e9.8	84	33	24	47	16	17	49
8	1.5	40	16	e14	e9.8	67	31	24	40	15	14	43
9	1.5	35	18	e9.9	e11	58	30	23	36	15	11	41
10	1.6	32	28	e12	e12	53	29	23	36	14	9.6	38
11	1.6	29	e22	e18	e8.9	47	29	23	37	22	8.6	35
12	2.1	26	e19	e18	e9.8	45	28	22	30	18	7.2	33
13	2.3	22	e18	e18	e6.4	40	27	25	27	14	5.9	31
14	6.5	23	e19	e16	e8.1	39	27	25	25	12	6.1	30
15	3.6	22	e19	e12	e8.9	36	26	23	22	11	3.8	29
16	2.7	20	e21	e20	e8.9	37	25	22	26	14	9.1	27
17	2.5	20	e20	e58	e9.8	37	26	23	63	13	7.0	26
18	2.2	21	e19	e27	e11	56	25	113	28	10	4.7	26
19	2.1	18	e18	e20	e25	88	24	73	24	9.7	5.2	24
20	3.4	17	e17	e19	e485	72	31	57	22	8.8	3.2	23
21	4.5	16	e18	e19	e197	57	46	49	266	8.3	2.7	22
22	4.3	16	e18	e15	e124	52	37	61	113	8.5	2.3	21
23	4.9	21	e18	e12	e79	49	34	427	62	7.8	2.1	21
24	3.7	18	e17	e12	e49	48	34	217	48	5.9	3.6	21
25	4.4	21	e18	e11	41	44	36	489	40	5.6	2.7	20
26	3.6	19	e19	e12	40	42	31	192	33	4.6	50	20
27	3.1	17	19	e12	39	42	30	142	30	3.9	899	20
28	2.5	16	20	e11	37	54	30	105	27	3.3	480	19
29	2.1	23	18	e9.0	39	53	27	89	24	5.2	218	18
30	2.1	18	e15	e8.1	---	51	27	238	21	6.4	156	18
31	2.1	---	e12	e7.3	---	48	---	173	---	3.6	114	---
TOTAL	84.0	1,359.5	557	462.9	1,328.6	1,862	952	2,838	1,597	375.6	2,423.3	1,050
MEAN	2.71	45.3	18.0	14.9	45.8	60.1	31.7	91.5	53.2	12.1	78.2	35.0
MAX	6.5	522	28	58	485	281	46	489	266	24	899	88
MIN	1.5	2.1	12	5.7	6.4	31	24	22	21	3.3	2.1	18
AC-FT	167	2,700	1,100	918	2,640	3,690	1,890	5,630	3,170	745	4,810	2,080
CFSM	0.05	0.81	0.32	0.27	0.82	1.07	0.57	1.63	0.95	0.22	1.39	0.62
IN.	0.06	0.90	0.37	0.31	0.88	1.23	0.63	1.88	1.06	0.25	1.61	0.70

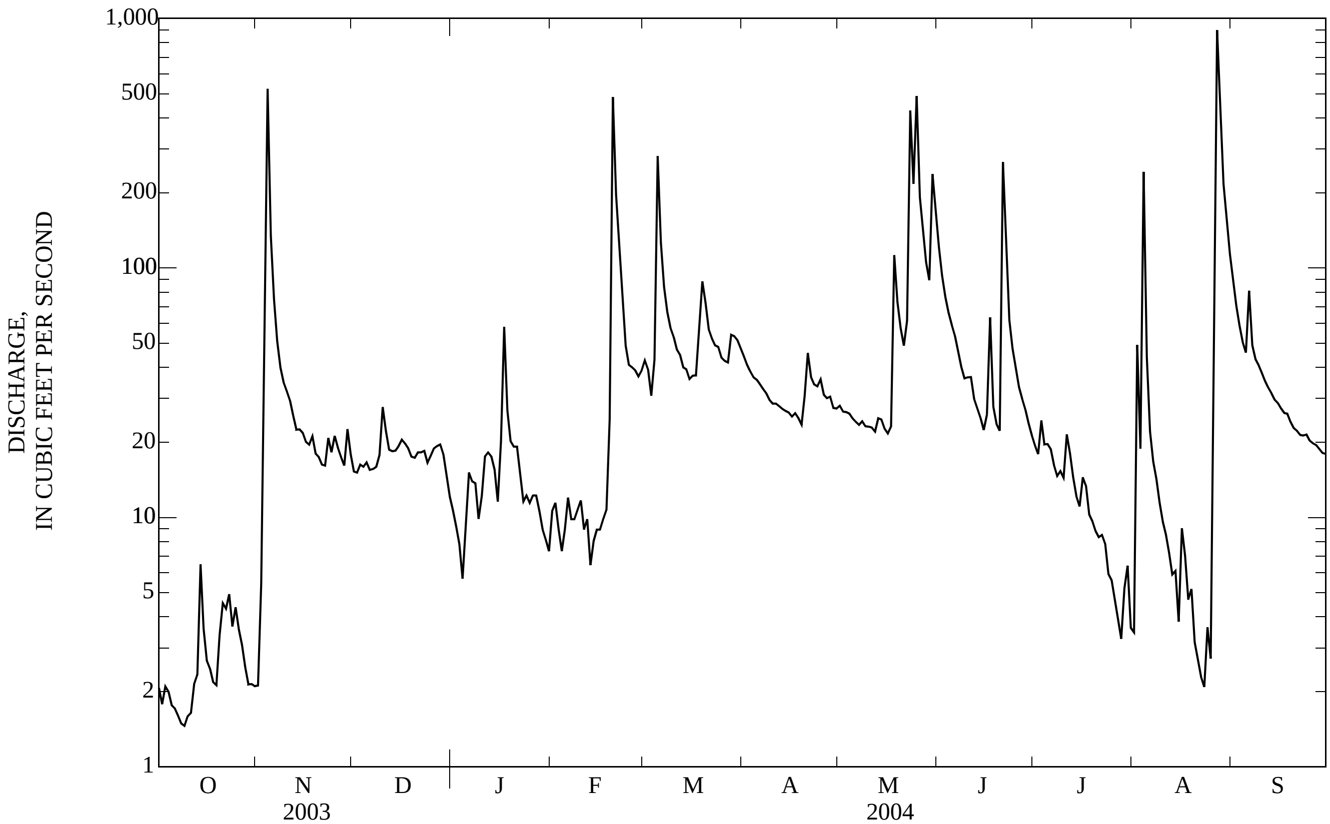
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	17.7	22.5	16.7	18.7	42.0	66.2	56.5	63.1	67.8	44.4	31.9	19.2
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	0.24	0.31	0.25	0.02	0.32	1.05	0.85	2.04	0.25	0.66	0.76	0.58
(WY)	(1957)	(1951)	(1957)	(1977)	(1989)	(1956)	(1956)	(1956)	(1956)	(1977)	(1955)	(1950)

05451900 RICHLAND CREEK NEAR HAVEN, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1950 - 2004	
ANNUAL TOTAL	12,380.7		14,889.9			
ANNUAL MEAN	33.9		40.7		38.8	
HIGHEST ANNUAL MEAN					162	1993
LOWEST ANNUAL MEAN					2.49	1956
HIGHEST DAILY MEAN	577	May 1	899	Aug 27	2,880	Aug 16, 1977
LOWEST DAILY MEAN	1.5	Oct 8	1.5	Oct 8 a	0.00	Jan 22, 1977 b
ANNUAL SEVEN-DAY MINIMUM	1.6	Oct 5	1.6	Oct 5	0.00	Jan 22, 1977
MAXIMUM PEAK FLOW			1,430	Aug 27	12,200	Apr 12, 1991
MAXIMUM PEAK STAGE			20.22	Feb 20 c	26.71	Apr 12, 1991
INSTANTANEOUS LOW FLOW			1.2	Oct 1		
ANNUAL RUNOFF (AC-FT)	24,560		29,530		28,140	
ANNUAL RUNOFF (CFSM)	0.605		0.725		0.692	
ANNUAL RUNOFF (INCHES)	8.21		9.87		9.41	
10 PERCENT EXCEEDS	74		71		80	
50 PERCENT EXCEEDS	13		22		14	
90 PERCENT EXCEEDS	3.0		3.8		1.4	

a Also Oct. 9.
b Also Jan. 23 to Feb. 2, 1977, July 9 and 10, 1959.
c Ice affected.
e Estimated.



05452000 SALT CREEK NEAR ELBERON, IA

LOCATION.--Lat 41°57'51", long 92°18'47", in NW1/4 NW1/4 sec.36, T.83 N., R.13 W., Tama County, Hydrologic Unit 07080208, 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 NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	11	e49	e38	e19	164	165	95	436	134	63	65
2	10	17	e49	e36	e23	172	153	91	371	128	99	59
3	11	46	e50	e34	e21	130	145	88	338	194	95	54
4	11	1,100	e50	e26	e21	125	137	88	315	230	189	51
5	11	338	e48	e31	e23	847	132	84	297	184	122	49
6	11	159	44	e33	e25	414	129	83	282	399	90	62
7	10	113	44	e30	e23	273	124	79	263	196	80	52
8	10	90	45	e29	e25	219	118	80	245	163	74	46
9	10	81	46	e24	e26	194	111	80	232	148	68	44
10	10	73	58	e27	e26	176	107	78	256	141	63	42
11	11	70	47	e31	e24	164	103	79	376	151	60	38
12	11	63	e42	e33	e23	141	101	78	277	182	58	36
13	12	55	e42	e35	e22	148	99	93	245	149	55	35
14	16	54	e42	e32	e22	147	97	110	223	133	54	34
15	15	55	e44	e27	e23	137	95	97	206	123	51	34
16	13	53	e46	e34	e22	139	94	89	196	116	52	33
17	12	51	e44	e57	e23	141	93	90	356	110	60	31
18	12	55	e43	e45	e29	164	91	126	226	105	55	32
19	12	54	e40	e34	e37	222	89	108	202	101	54	30
20	12	52	e40	e31	e597	212	93	101	190	95	50	28
21	12	51	e42	e31	e1,140	180	151	95	309	92	48	28
22	11	48	e42	e28	e789	169	133	258	278	91	46	27
23	11	61	e41	e25	e519	163	119	1,920	213	88	45	27
24	11	57	e38	e25	e351	168	114	2,320	198	84	48	27
25	12	64	e41	e25	194	176	122	1,850	194	81	49	26
26	12	61	e43	e26	164	181	112	1,500	178	78	50	26
27	12	e57	52	e24	165	186	104	605	166	74	124	25
28	12	e54	62	e22	146	208	105	474	159	71	223	24
29	12	e56	52	e20	148	208	99	426	149	73	127	23
30	12	e61	e43	e18	---	193	95	533	141	73	90	23
31	11	---	e40	e18	---	177	---	573	---	68	73	---
TOTAL	358	3,160	1,409	929	4,670	6,338	3,430	12,371	7,517	4,055	2,415	1,111
MEAN	11.5	105	45.5	30.0	161	204	114	399	251	131	77.9	37.0
MAX	16	1,100	62	57	1,140	847	165	2,320	436	399	223	65
MIN	10	11	38	18	19	125	89	78	141	68	45	23
AC-FT	710	6,270	2,790	1,840	9,260	12,570	6,800	24,540	14,910	8,040	4,790	2,200
CFSM	0.06	0.52	0.23	0.15	0.80	1.02	0.57	1.99	1.25	0.65	0.39	0.18
IN.	0.07	0.58	0.26	0.17	0.86	1.17	0.63	2.29	1.39	0.75	0.45	0.21

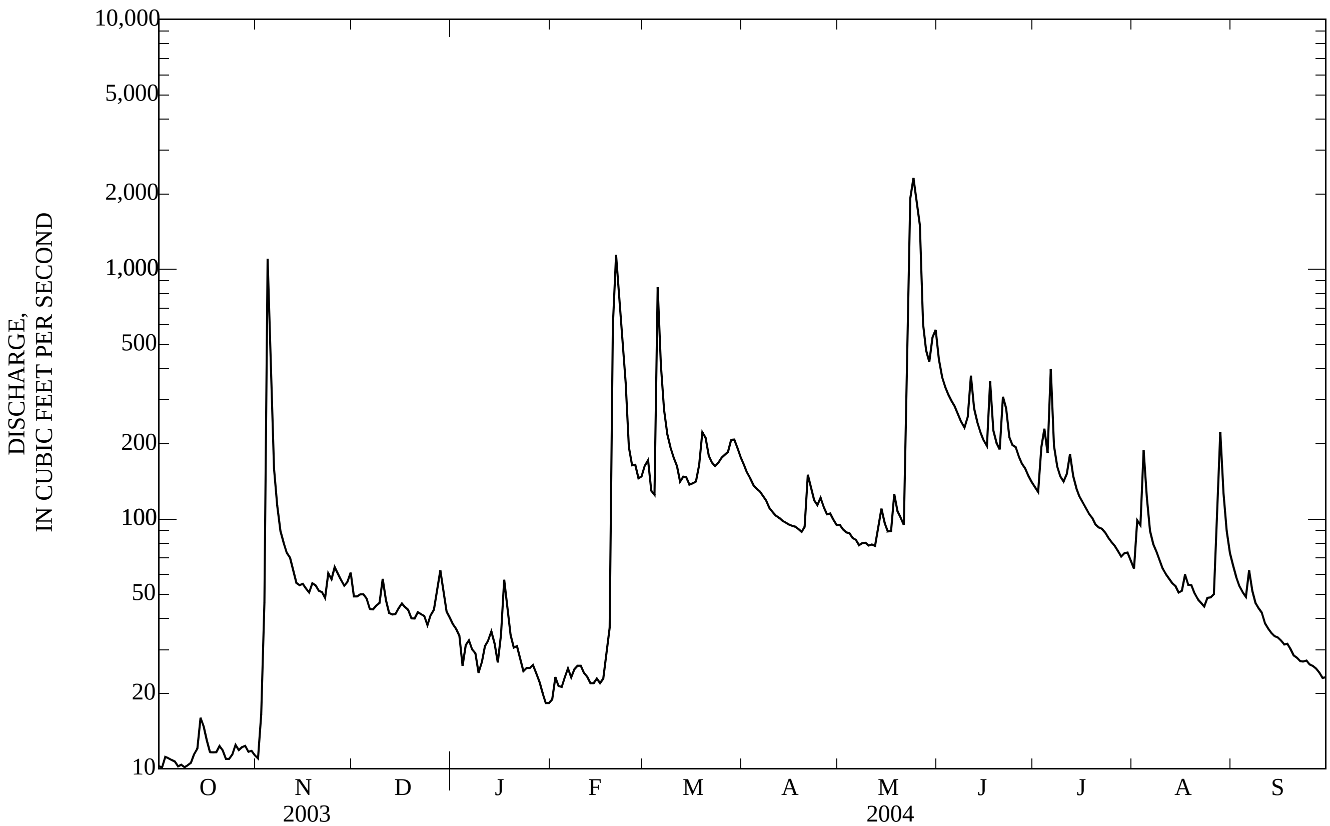
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	64.0	79.1	62.2	68.8	137	258	189	200	264	191	98.7	64.1
MAX	250	425	314	337	607	844	652	573	1,826	1,803	1,157	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	29,969.4		47,763			
ANNUAL MEAN	82.1		130		140	
HIGHEST ANNUAL MEAN					569	1993
LOWEST ANNUAL MEAN					23.2	1989
HIGHEST DAILY MEAN	1,320	May 11	2,320	May 24	14,000	Jul 9, 1993
LOWEST DAILY MEAN	6.9	Jan 27	10	Oct 1 a	0.85	Jan 31, 1977
ANNUAL SEVEN-DAY MINIMUM	8.3	Jan 23	10	Oct 4	0.95	Jan 25, 1977
MAXIMUM PEAK FLOW			4,170	May 23	41,800	Jul 9, 1993
MAXIMUM PEAK STAGE			16.64	May 23	20.85	Jul 9, 1993
ANNUAL RUNOFF (AC-FT)	59,440		94,740		101,100	
ANNUAL RUNOFF (CFSM)	0.408		0.649		0.694	
ANNUAL RUNOFF (INCHES)	5.55		8.84		9.43	
10 PERCENT EXCEEDS	204		236		280	
50 PERCENT EXCEEDS	30		68		54	
90 PERCENT EXCEEDS	11		20		9.6	

a Also Oct. 2, 7-10.
e Estimated.



05452200 WALNUT CREEK NEAR HARTWICK, IA

LOCATION.--Lat 41°50'06", long 92°23'10", in SE$\frac{1}{4}$ SW$\frac{1}{4}$ sec.8, T.81 N, R.13 W., Poweshiek County, Hydrologic Unit 07080208, on right bank 5 ft downstream from bridge on county highway V21, 1.2 mi downstream from North Walnut Creek, 4.0 mi northwest of Hartwick, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--70.9 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 786.59 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.8	20	e19	e12	78	78	38	112	36	9.5	117
2	2.3	8.3	19	e18	e13	73	72	34	99	33	45	94
3	2.4	84	21	e17	e12	62	67	33	91	52	33	79
4	2.3	396	20	e16	e11	89	62	33	86	43	133	68
5	2.1	113	21	e16	e12	360	61	31	81	34	50	61
6	2.2	71	19	e20	e14	168	60	30	75	33	34	76
7	2.1	54	20	e19	e12	126	57	28	67	29	27	59
8	2.0	43	21	e18	e12	107	53	29	61	27	23	52
9	1.9	38	24	e16	e13	94	50	27	56	32	20	48
10	2.0	35	48	e18	e13	87	48	31	79	28	17	44
11	2.1	33	e37	e20	e12	77	45	29	80	35	15	40
12	2.3	30	e25	e23	e12	69	43	27	61	34	14	38
13	2.6	27	e23	e23	e11	60	42	33	55	26	12	35
14	6.1	27	e22	e21	e11	59	40	31	52	22	11	33
15	3.9	27	e24	e15	e11	54	39	29	46	20	9.8	32
16	3.6	25	e25	e23	e11	53	38	27	57	19	14	30
17	3.2	24	e24	e53	e12	52	39	33	64	18	14	29
18	2.8	26	e22	e32	e13	82	37	136	48	17	11	29
19	2.6	22	e19	e23	e29	120	35	77	43	16	11	27
20	2.6	21	e18	e19	e275	108	48	65	40	15	9.3	26
21	2.5	19	e20	e21	e124	91	63	57	719	14	8.3	25
22	2.5	19	e16	e16	e89	84	51	89	185	15	7.6	24
23	2.6	33	e13	e13	e67	79	48	369	108	14	6.8	24
24	2.6	28	e16	e15	e49	77	47	179	83	12	8.1	25
25	2.9	33	e27	e14	84	74	49	559	69	11	7.7	23
26	2.8	26	e22	e15	80	76	43	205	59	10	98	23
27	2.7	24	e19	e14	75	76	41	159	52	8.7	2,190	23
28	2.7	23	e21	e13	72	98	41	131	48	7.8	1,540	22
29	2.6	28	e19	e10	74	99	38	118	42	7.8	326	21
30	2.8	26	e19	e9.1	---	92	38	157	38	8.4	204	21
31	2.6	---	e19	e9.4	---	84	---	138	---	7.6	149	---
TOTAL	82.9	1,366.1	683	578.5	1,235	2,908	1,473	2,962	2,756	685.3	5,058.1	1,248
MEAN	2.67	45.5	22.0	18.7	42.6	93.8	49.1	95.5	91.9	22.1	163	41.6
MAX	6.1	396	48	53	275	360	78	559	719	52	2,190	117
MIN	1.9	2.8	13	9.1	11	52	35	27	38	7.6	6.8	21
AC-FT	164	2,710	1,350	1,150	2,450	5,770	2,920	5,880	5,470	1,360	10,030	2,480
CFSM	0.04	0.64	0.31	0.26	0.60	1.32	0.69	1.35	1.30	0.31	2.30	0.59
IN.	0.04	0.72	0.36	0.30	0.65	1.53	0.77	1.55	1.45	0.36	2.65	0.65

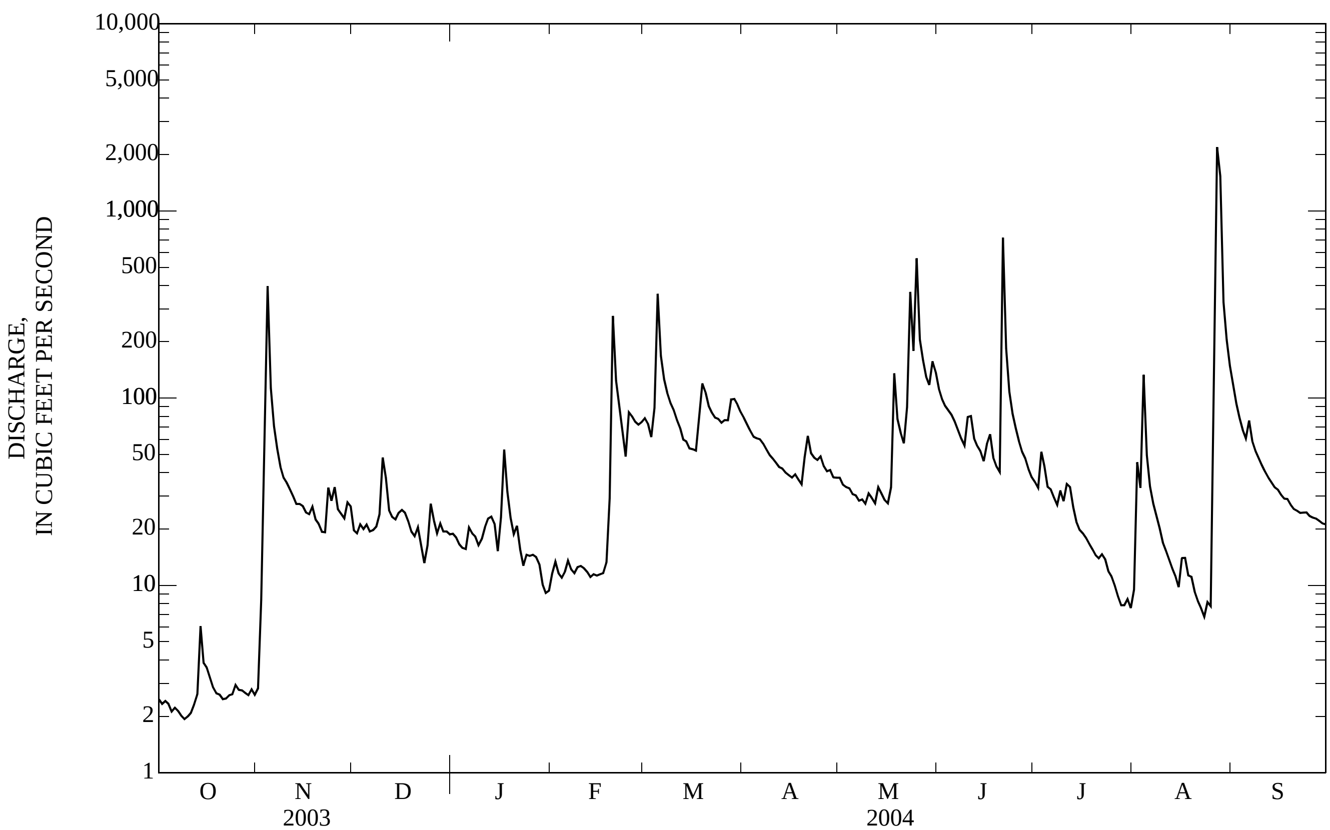
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.9	27.1	22.2	24.8	49.7	82.3	74.0	80.4	83.2	54.3	36.8	23.6
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	0.00	0.29	0.06	0.01	1.40	1.64	1.03	1.62	0.76	1.01	0.38	0.28
(WY)	(1957)	(1956)	(1977)	(1956)	(1954)	(1954)	(1957)	(1977)	(1956)	(1954)	(1955)	(1953)

05452200 WALNUT CREEK NEAR HARTWICK, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1950 - 2004	
ANNUAL TOTAL	11,733.8		21,035.9			
ANNUAL MEAN	32.1		57.5		48.1	
HIGHEST ANNUAL MEAN					200	1993
LOWEST ANNUAL MEAN					4.76	1956
HIGHEST DAILY MEAN	396	Nov 4	2,190	Aug 27	4,840	Jul 2, 1983
LOWEST DAILY MEAN	1.9	Mar 10	1.9	Oct 9	0.00	Jul 31, 1954
ANNUAL SEVEN-DAY MINIMUM	2.1	Oct 5	2.1	Oct 5	0.00	Aug 27, 1955 a
MAXIMUM PEAK FLOW			7,180	Aug 27	7,900	Apr 29, 1991
MAXIMUM PEAK STAGE			15.59	Aug 27	16.93	Apr 29, 1991
INSTANTANEOUS LOW FLOW			1.7	Oct 8 b		
ANNUAL RUNOFF (AC-FT)	23,270		41,720		34,810	
ANNUAL RUNOFF (CFSM)	0.453		0.811		0.678	
ANNUAL RUNOFF (INCHES)	6.16		11.04		9.21	
10 PERCENT EXCEEDS	73		94		102	
50 PERCENT EXCEEDS	13		29		16	
90 PERCENT EXCEEDS	3.1		7.8		1.5	

a Many days in 1954-57 and 1977.
b Also Oct. 9.
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 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 744.94 ft above NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	18	50	e46	e27	119	221	96	356	89	54	142
2	13	28	42	e44	e31	116	200	92	293	85	86	117
3	12	91	44	e41	e27	93	184	89	259	199	94	100
4	12	877	45	e41	e26	123	169	88	234	236	320	88
5	13	394	46	e39	e28	1,230	160	85	215	133	164	81
6	12	198	45	e42	e30	542	153	82	202	122	101	91
7	12	139	43	e36	e28	350	145	76	184	109	83	91
8	11	109	45	e35	e29	261	136	75	167	101	74	72
9	11	93	48	e33	e29	221	126	75	152	248	67	67
10	11	83	100	e33	e30	195	120	74	170	221	61	62
11	13	79	e78	e38	e29	177	115	75	495	148	57	59
12	13	70	e56	e42	e27	149	112	72	212	152	55	56
13	14	58	e54	e40	e25	148	108	80	181	135	51	53
14	17	56	e53	e38	e28	145	106	86	198	116	48	51
15	22	56	e58	e39	e30	133	103	76	196	103	45	49
16	17	53	e64	e66	e27	134	100	72	166	96	45	48
17	15	49	e61	e109	e30	138	102	73	263	99	48	45
18	15	55	e57	e61	e31	189	101	558	178	86	48	44
19	13	49	e50	e47	e35	424	95	294	150	83	47	42
20	13	45	e49	e45	e737	352	100	218	136	81	40	40
21	13	42	e53	e46	e553	262	174	183	215	79	e37	38
22	14	41	e52	e39	e378	228	137	262	321	79	e37	36
23	14	57	e51	e35	e262	211	124	813	174	79	38	36
24	15	61	e44	e35	e174	202	120	543	148	74	42	35
25	16	63	e51	e34	135	187	124	1,660	134	71	45	32
26	17	62	e55	e33	127	209	111	681	121	67	47	31
27	17	52	e73	e31	123	246	101	469	113	61	777	30
28	17	45	120	e29	116	310	102	362	111	57	1,170	29
29	17	57	93	e27	115	330	98	308	103	56	464	28
30	18	72	73	e24	---	283	96	505	95	57	251	29
31	17	---	e55	e25	---	244	---	533	---	56	178	---
TOTAL	446	3,152	1,808	1,273	3,267	7,951	3,843	8,755	5,942	3,378	4,674	1,722
MEAN	14.4	105	58.3	41.1	113	256	128	282	198	109	151	57.4
MAX	22	877	120	109	737	1,230	221	1,660	495	248	1,170	142
MIN	11	18	42	24	25	93	95	72	95	56	37	28
AC-FT	885	6,250	3,590	2,520	6,480	15,770	7,620	17,370	11,790	6,700	9,270	3,420
CFSM	0.08	0.56	0.31	0.22	0.60	1.36	0.68	1.49	1.05	0.58	0.80	0.30
IN.	0.09	0.62	0.36	0.25	0.64	1.56	0.76	1.72	1.17	0.66	0.92	0.34

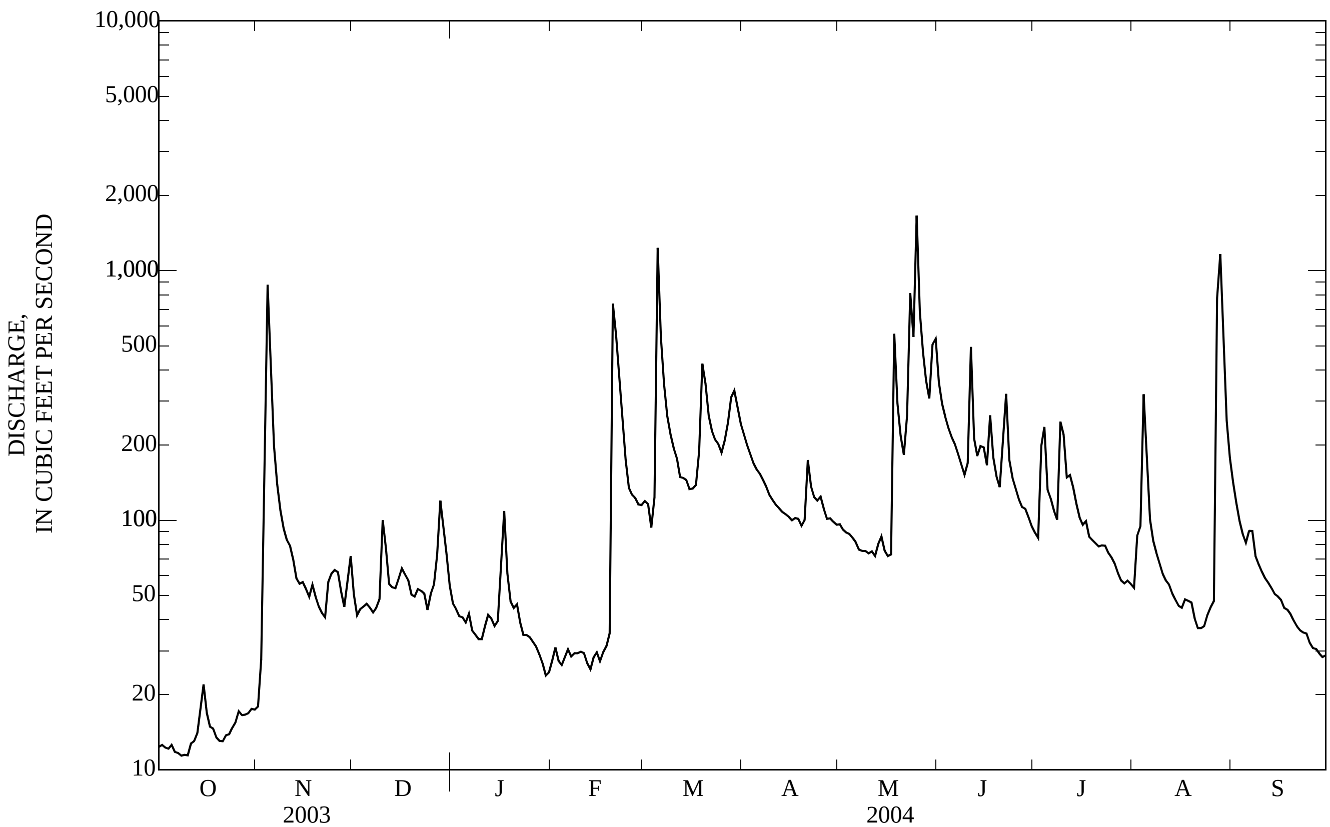
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	57.4	72.4	60.4	70.3	121	235	195	218	230	139	89.7	70.5
MAX	375	341	294	432	543	895	704	1,185	1,136	1,011	1,537	559
(WY)	(1987)	(1993)	(1983)	(1960)	(1971)	(1979)	(1973)	(1974)	(1947)	(1993)	(1993)	(1993)
MIN	0.49	1.68	0.33	0.02	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	32,128		46,211			
ANNUAL MEAN	88.0		126		130	
HIGHEST ANNUAL MEAN					516	1993
LOWEST ANNUAL MEAN					8.26	1956
HIGHEST DAILY MEAN	1,120	May 9	1,660	May 25	9,480	Mar 30, 1960
LOWEST DAILY MEAN	11	Sep 9	11	Oct 8 a	0.00	Jan 22, 1956 b
ANNUAL SEVEN-DAY MINIMUM	12	Oct 4	12	Oct 4	0.00	Jan 22, 1956
MAXIMUM PEAK FLOW			3,100	May 25	10,500	Mar 30, 1960
MAXIMUM PEAK STAGE			20.20	May 25	15.32	Sep 8, 1977 c
INSTANTANEOUS LOW FLOW			10	Oct 8		
ANNUAL RUNOFF (AC-FT)	63,730		91,660		93,980	
ANNUAL RUNOFF (CFSM)	0.466		0.668		0.686	
ANNUAL RUNOFF (INCHES)	6.32		9.10		9.33	
10 PERCENT EXCEEDS	181		261		279	
50 PERCENT EXCEEDS	46		74		46	
90 PERCENT EXCEEDS	14		27		5.9	

a Also Oct. 9, 10.
b Also Jan. 23 to Feb. 8, 1956, Jan. 19 to Feb. 3, 1977.
c Datum in use prior to Oct. 1, 1980.
e Estimated.



05453100 IOWA RIVER AT MARENGO, IA

LOCATION.--(revised) Lat 41°48'46", long 92°03'53", in SE$\frac{1}{4}$ NE$\frac{1}{4}$ sec.24, T.81 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on left bank 5 ft upstream from bridge on county highway V66, 1.0 mi downstream from Big Bear Creek, 0.8 mi north of Marengo, 4.6 mi upstream from Hilton Creek, and at mile 139.1.

DRAINAGE AREA.--2,794 mi^2.

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

REVISED RECORDS.--WSP 1558: 1957.

GAGE.--Water-stage recorder. Datum of gage is 720.52 ft above NGVD of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	231	650	660	e357	2,900	3,300	2,020	13,500	2,280	862	1,750
2	268	270	645	707	e363	2,930	3,010	1,900	12,600	2,130	937	1,470
3	270	390	638	727	e365	2,940	2,700	1,780	11,600	2,370	1,150	1,250
4	267	1,900	629	e599	e360	2,840	2,450	1,690	10,800	2,790	1,430	1,110
5	267	4,580	636	e554	e365	4,950	2,260	1,610	9,950	2,320	1,940	1,010
6	268	3,650	640	e515	e363	5,140	2,100	1,540	9,160	2,330	1,950	962
7	266	2,280	637	e487	e366	5,270	1,980	1,490	8,290	2,350	1,820	979
8	265	1,690	623	e455	e363	5,080	1,890	1,430	7,330	2,040	1,520	905
9	272	1,400	630	e430	e367	4,300	1,770	1,390	5,730	2,080	1,300	950
10	273	1,250	719	e419	e364	3,560	1,680	1,360	4,640	2,390	1,160	873
11	277	1,150	e667	e402	e366	3,060	1,590	1,360	5,530	2,470	1,060	798
12	273	1,070	e644	e400	e358	2,590	1,530	1,330	4,560	2,740	978	747
13	277	976	e640	e387	e355	2,300	1,470	1,340	4,300	3,020	913	708
14	286	898	e639	e389	e354	2,120	1,430	1,370	4,210	2,950	861	668
15	270	853	e644	e379	e357	2,000	1,390	1,420	4,200	2,710	818	638
16	269	824	e657	e392	e354	1,900	1,360	1,450	4,030	2,460	794	614
17	259	800	e650	e408	e352	1,820	1,340	1,560	4,020	2,300	818	590
18	248	792	e646	e428	e331	1,850	1,330	2,410	4,010	2,090	779	576
19	245	775	e635	e404	e428	2,250	1,290	2,360	3,800	1,820	906	566
20	251	765	e632	e386	e1,100	2,440	1,270	2,180	3,610	1,620	1,100	556
21	248	733	e640	e376	e1,950	2,380	1,420	2,040	4,200	1,470	1,080	585
22	246	714	e645	e373	e3,210	2,200	1,730	2,230	5,000	1,370	950	647
23	236	749	e640	e363	e3,990	2,050	1,950	3,850	4,350	1,290	856	632
24	231	774	e623	e363	e4,070	2,000	1,830	5,790	3,960	1,230	811	599
25	229	743	e638	e369	e3,870	1,960	1,800	7,130	3,690	1,200	803	564
26	237	743	e653	e362	3,250	1,990	1,790	7,630	3,450	1,170	790	536
27	243	718	e681	e366	2,530	2,120	1,790	10,200	3,180	1,090	4,530	514
28	236	702	e802	e363	2,380	2,290	1,870	13,900	2,930	1,020	6,970	498
29	230	645	786	e363	2,500	2,570	1,970	14,000	2,700	953	4,900	484
30	232	661	759	e363	---	3,220	2,030	14,200	2,480	940	2,950	473
31	233	---	726	e358	---	3,540	---	14,300	---	908	2,170	---
TOTAL	7,942	33,726	20,494	13,547	35,738	88,560	55,320	128,260	171,810	59,901	49,906	23,252
MEAN	256	1,124	661	437	1,232	2,857	1,844	4,137	5,727	1,932	1,610	775
MAX	286	4,580	802	727	4,070	5,270	3,300	14,300	13,500	3,020	6,970	1,750
MIN	229	231	623	358	331	1,820	1,270	1,330	2,480	908	779	473
AC-FT	15,750	66,900	40,650	26,870	70,890	175,700	109,700	254,400	340,800	118,800	98,990	46,120
CFSM	0.09	0.40	0.24	0.16	0.44	1.02	0.66	1.48	2.05	0.69	0.58	0.28
IN.	0.11	0.45	0.27	0.18	0.48	1.18	0.74	1.71	2.29	0.80	0.66	0.31

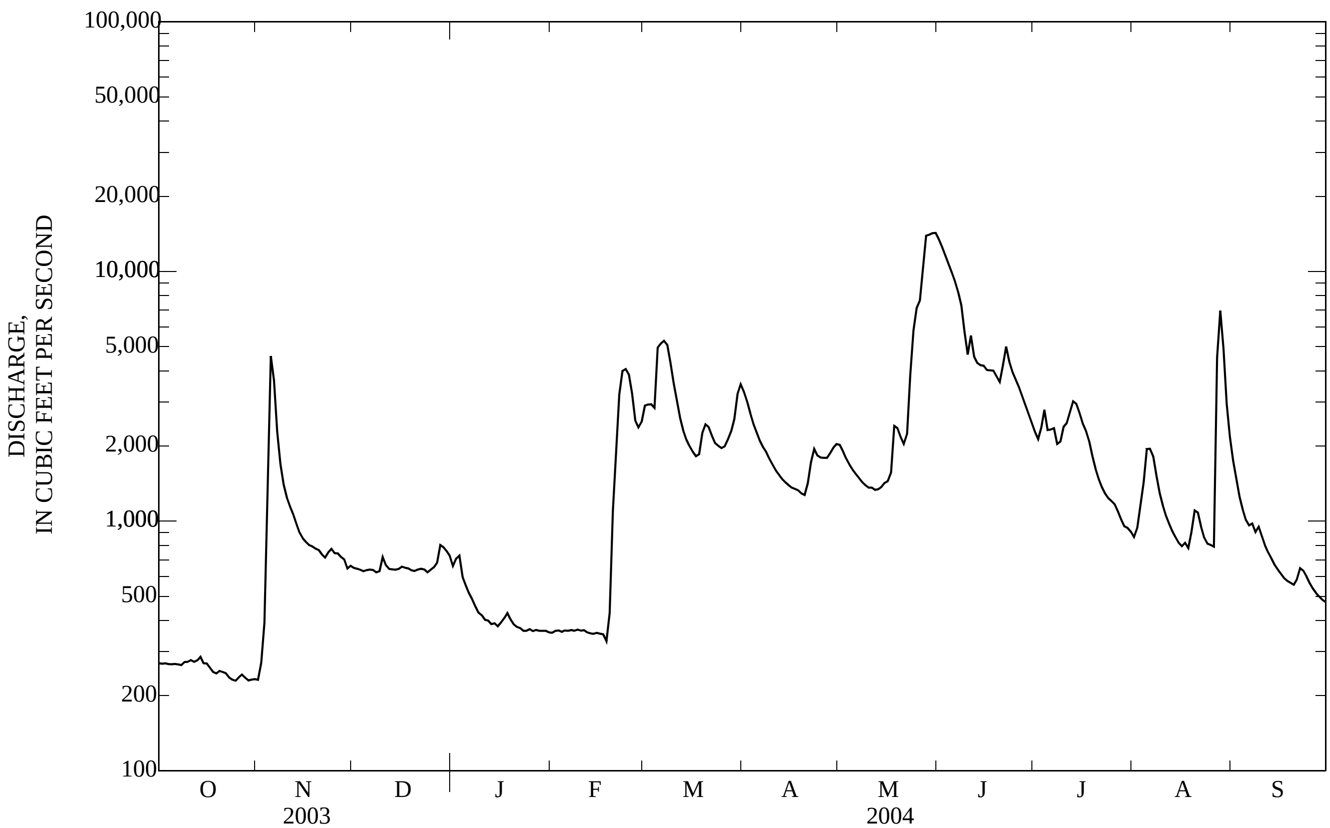
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	986	1,123	926	796	1,349	3,080	3,258	3,095	3,438	2,676	1,475	978
MAX	5,078	3,878	3,633	4,194	5,424	8,227	11,310	9,340	9,287	19,620	15,290	7,901
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1957 - 2004	
ANNUAL TOTAL	490,025		688,456			
ANNUAL MEAN	1,343		1,881		1,933	
HIGHEST ANNUAL MEAN					7,192	1993
LOWEST ANNUAL MEAN					283	1989
HIGHEST DAILY MEAN	8,820	May 15	14,300	May 31	35,600	Jul 12, 1993
LOWEST DAILY MEAN	196	Jan 25	229	Oct 25	24	Jan 29, 1977
ANNUAL SEVEN-DAY MINIMUM	200	Jan 24	234	Oct 24	25	Jan 28, 1977
MAXIMUM PEAK FLOW			14,600	May 31	38,000	Jul 19, 1993
MAXIMUM PEAK STAGE			17.97	May 31	20.31	Jul 19, 1993
INSTANTANEOUS LOW FLOW			223	Oct 25 a		
ANNUAL RUNOFF (AC-FT)	972,000		1,366,000		1,400,000	
ANNUAL RUNOFF (CFSM)	0.481		0.673		0.692	
ANNUAL RUNOFF (INCHES)	6.52		9.17		9.40	
10 PERCENT EXCEEDS	3,350		4,040		4,840	
50 PERCENT EXCEEDS	650		1,100		982	
90 PERCENT EXCEEDS	243		354		214	

a Also Oct. 26.
e Estimated.



05453510 CORALVILLE LAKE NEAR CORALVILLE, IA

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

DRAINAGE AREA.--3,115 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is at NGVD 0f 1929 (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.

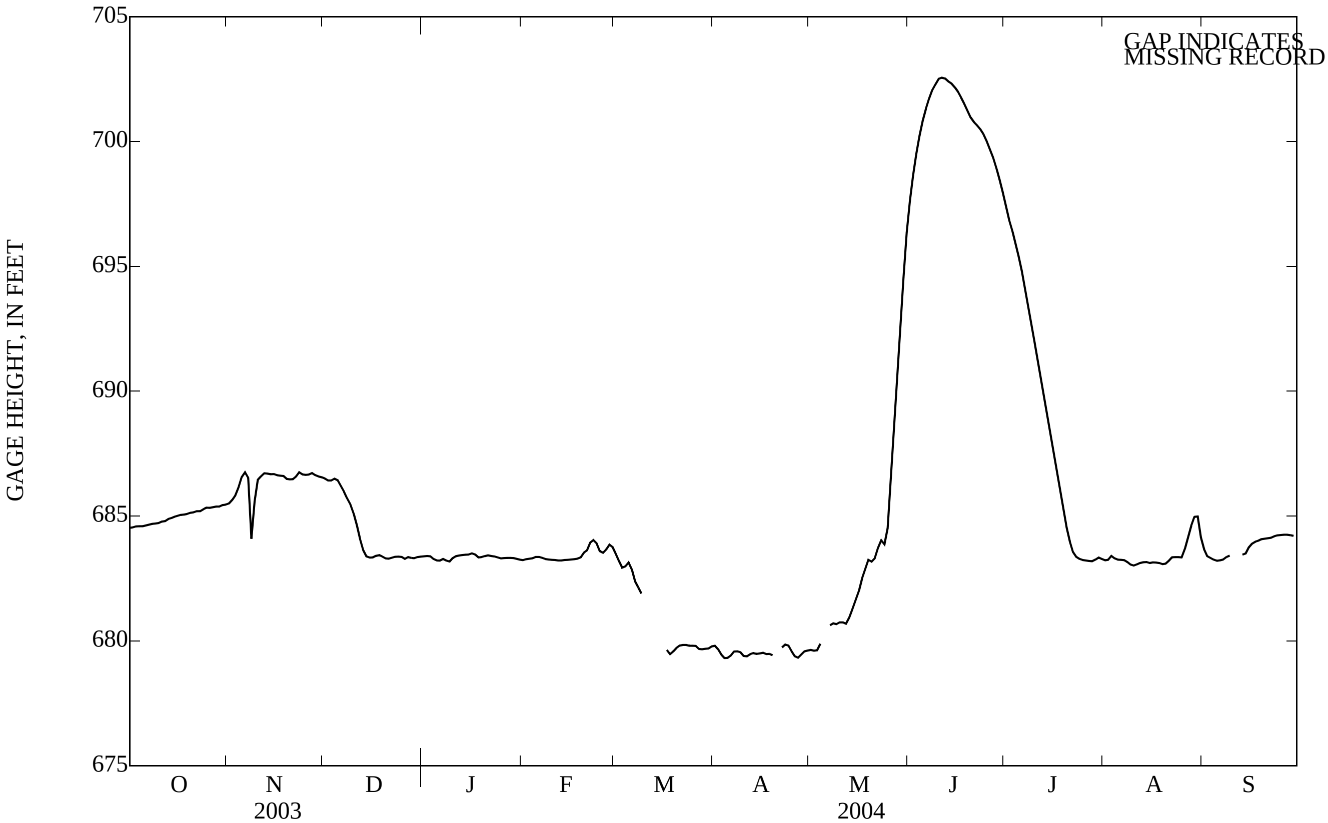
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 716.71 ft July 24, 1993; minimum elevation, 658.77 ft Mar. 10, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 902.57 ft on June 11; minimum elevation, 679.28 ft on Apr. 5.

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	684.50	685.45	686.54	683.37	683.24	683.70	679.80	679.61	696.75	697.84	683.25	683.88
2	684.53	685.51	686.48	683.39	683.22	683.40	679.80	679.64	697.91	697.28	683.21	683.60
3	684.55	685.68	686.40	683.40	683.28	683.12	679.61	679.59	698.89	696.72	683.25	683.32
4	684.59	685.87	686.43	683.38	683.29	682.86	679.39	679.63	699.71	696.33	683.44	683.32
5	684.59	686.24	686.51	683.24	683.31	683.02	679.28	679.96	700.40	695.80	683.25	683.22
6	684.59	686.67	686.40	683.21	683.37	683.17	679.32	---	700.97	695.28	683.25	683.20
7	684.63	686.77	686.13	683.21	683.35	682.75	679.44	680.50	701.42	694.66	683.24	683.23
8	684.66	686.44	685.91	683.29	683.31	682.26	679.61	680.66	701.81	693.96	683.22	683.26
9	684.69	683.30	685.62	683.18	683.26	682.10	679.56	680.71	702.14	693.21	683.13	683.38
10	684.70	686.34	685.40	683.17	683.25	681.82	679.53	680.65	702.34	692.51	683.02	683.42
11	684.72	686.48	684.99	683.36	683.24	---	679.34	680.76	702.57	691.77	683.01	---
12	684.79	686.62	684.50	683.40	683.23	---	679.39	680.73	702.55	691.15	683.07	---
13	684.79	686.74	683.93	683.42	683.21	---	679.48	680.66	702.51	690.46	683.13	683.49
14	684.90	686.68	683.52	683.44	683.22	---	679.51	681.01	702.37	689.79	683.15	683.43
15	684.92	686.67	683.33	683.45	683.24	---	679.46	681.34	702.31	689.06	683.15	683.51
16	684.98	686.68	683.33	683.45	683.24	---	679.50	681.71	702.13	688.27	683.10	683.82
17	685.01	686.62	683.34	683.51	683.26	679.89	679.52	682.07	701.95	687.39	683.15	683.91
18	685.05	686.61	683.42	683.43	683.27	679.54	679.45	682.62	701.70	686.55	683.13	683.98
19	685.06	686.60	683.43	683.31	683.29	679.43	679.48	682.95	701.45	685.79	683.11	684.01
20	685.09	686.45	683.35	683.36	683.35	679.61	679.39	683.34	701.16	685.06	683.05	684.09
21	685.14	686.47	683.28	683.40	683.58	679.74	---	683.11	700.89	684.37	683.10	684.09
22	685.15	686.47	683.29	683.43	683.63	679.83	679.70	683.37	700.74	683.86	683.24	684.11
23	685.20	686.61	683.34	683.38	684.03	679.83	679.74	683.83	700.61	683.45	683.38	684.13
24	685.19	686.79	683.37	683.37	684.03	679.83	679.88	684.09	700.45	683.33	683.34	684.20
25	685.29	686.62	683.37	683.33	683.86	679.79	679.78	683.79	700.24	683.26	683.35	684.23
26	685.34	686.65	683.35	683.29	683.50	679.80	679.51	684.75	699.94	683.23	683.33	684.24
27	685.32	686.66	683.26	683.32	683.53	679.79	679.33	686.64	699.61	683.21	683.79	684.25
28	685.36	686.73	683.38	683.32	683.70	679.63	679.31	688.48	699.28	683.19	684.26	684.25
29	685.38	686.60	683.30	683.32	683.90	679.67	679.49	690.21	698.83	683.18	684.72	684.22
30	685.37	686.57	683.31	683.31	---	679.68	679.60	692.72	698.36	683.27	685.05	684.20
31	685.45	---	683.36	683.27	---	679.69	---	695.16	---	683.35	684.95	---
MEAN	684.95	686.35	684.37	683.35	683.42	---	---	---	700.73	688.92	683.41	---
MAX	685.45	686.79	686.54	683.51	684.03	---	---	---	702.57	697.84	685.05	---
MIN	684.50	683.30	683.26	683.17	683.21	---	---	---	696.75	683.18	683.01	---

05453510 CORALVILLE LAKE NEAR CORALVILLE, IA—Continued



05453520 IOWA RIVER BELOW CORALVILLE DAM NEAR CORALVILLE, IA

LOCATION.--(revised)Lat 41°43'19", long 91°31'41", in SW1/4 NE1/4 sec.22, T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080208, on left bank about 500 ft downstream of Coralville Dam control house, 2.3 miles upstream from Rapid Creek, 4.3 miles northeast of Coralville post office, and at mile 83.2.

DRAINAGE AREA.--3,115 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good. U.S. Army Corps of Engineers data collection platform with satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145	196	781	775	472	4,260	3,870	2,370	5,680	5,870	1,130	4,430
2	191	284	857	779	414	4,080	3,950	2,370	5,940	5,840	1,030	2,970
3	184	309	781	769	346	3,980	3,750	2,170	5,900	5,870	1,070	2,180
4	182	239	689	758	343	4,010	3,390	1,630	5,960	5,930	1,810	1,800
5	169	1,330	970	499	342	5,140	3,010	1,320	6,000	5,960	2,120	1,640
6	160	3,360	1,460	227	417	6,270	2,630	1,240	6,040	5,950	2,220	1,370
7	153	3,630	1,610	161	488	6,580	2,410	1,450	5,970	5,880	2,290	1,160
8	147	2,910	1,730	277	490	6,260	2,340	1,630	5,930	5,870	2,280	994
9	145	1,840	1,950	457	465	6,030	2,330	1,670	5,940	5,900	2,070	1,000
10	145	1,220	2,180	525	431	5,670	2,310	1,700	6,090	5,830	1,600	1,090
11	155	909	2,210	531	429	5,420	1,970	1,700	6,070	5,770	1,110	1,090
12	156	1,020	2,190	559	423	4,430	1,700	1,700	6,010	5,810	908	1,080
13	155	1,080	1,840	673	401	3,490	1,640	1,350	5,990	5,830	905	1,080
14	171	1,090	1,260	675	363	3,170	1,660	808	6,100	5,830	895	878
15	163	1,090	833	674	362	3,000	1,580	708	6,020	5,810	896	698
16	165	1,090	716	675	362	2,990	1,530	719	5,980	5,750	840	554
17	154	1,090	705	1,020	359	3,050	1,530	739	5,960	5,440	868	461
18	158	1,150	699	1,200	360	2,870	1,560	1,220	5,930	4,920	935	459
19	154	1,210	775	896	362	2,730	1,510	1,880	5,910	4,460	930	457
20	157	1,000	804	676	840	2,810	1,420	2,770	5,890	3,950	930	518
21	165	812	698	680	1,810	2,890	1,610	2,450	5,970	3,460	815	580
22	191	737	625	668	2,550	2,890	1,620	2,360	5,910	3,000	728	669
23	192	1,070	615	668	3,470	2,890	1,860	3,150	5,870	2,220	851	787
24	190	1,140	617	661	4,060	2,910	2,420	4,730	5,860	1,760	984	784
25	202	932	615	656	4,230	2,950	2,600	5,070	5,870	1,560	990	783
26	198	784	731	568	3,810	3,250	2,490	2,180	5,870	1,420	979	782
27	196	784	837	488	3,490	3,110	2,180	846	5,850	1,330	e2,150	780
28	204	839	1,310	489	3,490	3,080	1,930	844	5,920	1,220	e5,190	776
29	195	835	1,240	481	3,970	3,000	1,970	1,350	5,950	1,080	e6,130	779
30	195	786	840	479	---	e3,080	2,260	2,720	5,900	997	e5,980	736
31	195	---	781	477	---	3,700	---	4,780	---	1,090	5,940	---
TOTAL	5,332	34,766	33,949	19,121	39,349	119,990	67,030	61,624	178,280	131,607	57,574	33,365
MEAN	172	1,159	1,095	617	1,357	3,871	2,234	1,988	5,943	4,245	1,857	1,112
MAX	204	3,630	2,210	1,200	4,230	6,580	3,950	5,070	6,100	5,960	6,130	4,430
MIN	145	196	615	161	342	2,730	1,420	708	5,680	997	728	457
AC-FT	10,580	68,960	67,340	37,930	78,050	238,000	133,000	122,200	353,600	261,000	114,200	66,180
CFSM	0.06	0.37	0.35	0.20	0.44	1.24	0.72	0.64	1.91	1.36	0.60	0.36
IN.	0.06	0.42	0.41	0.23	0.47	1.43	0.80	0.74	2.13	1.57	0.69	0.40

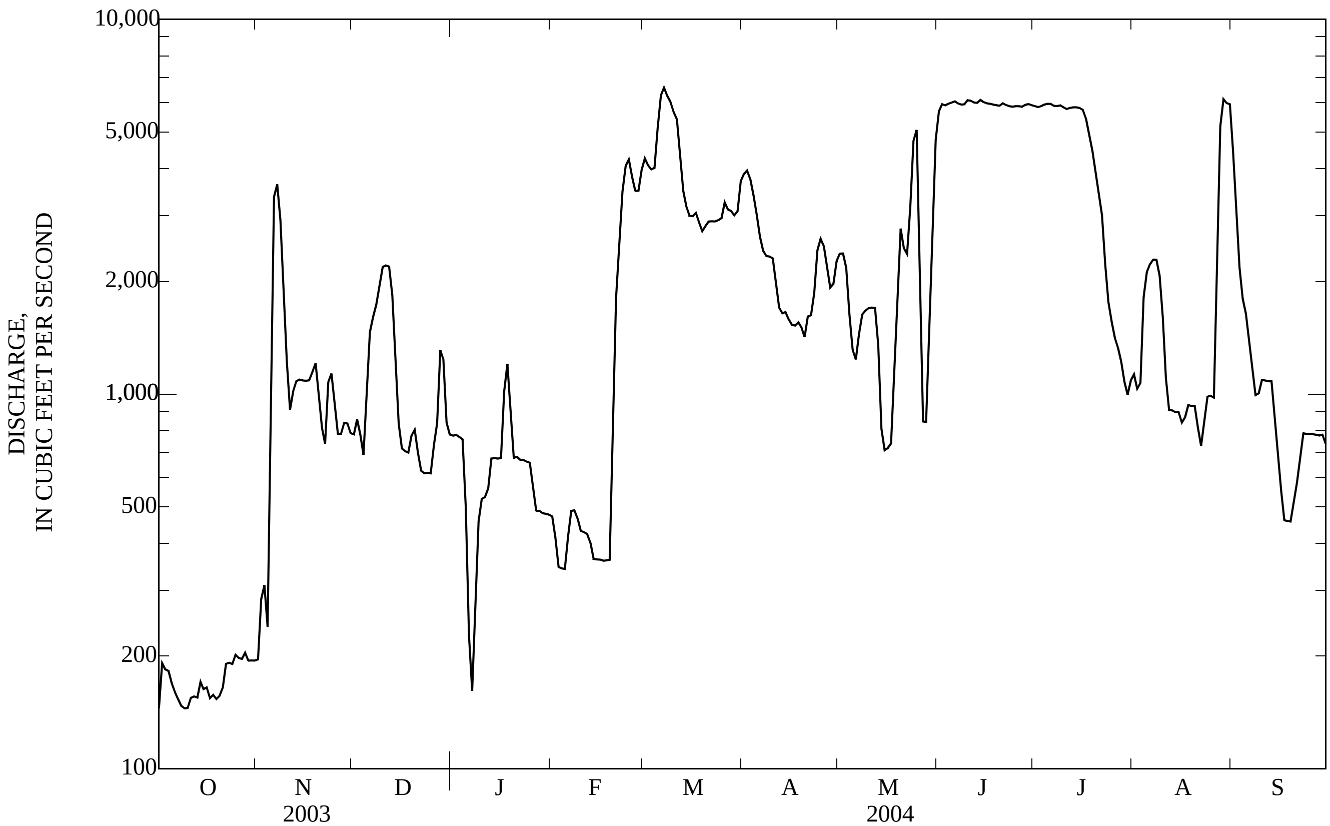
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1,050	1,110	1,258	703	1,604	3,014	3,151	3,882	4,566	4,973	2,750	1,568
MAX	4,012	2,771	4,229	1,723	3,006	6,587	7,776	9,347	7,203	20,610	18,500	13,050
(WY)	(1994)	(1993)	(1993)	(1993)	(1997)	(1993)	(1993)	(1993)	(1993)	(1993)	(1993)	(1993)
MIN	172	156	230	231	346	426	445	412	2,334	1,389	581	241
(WY)	(2004)	(2000)	(2000)	(2000)	(2003)	(2000)	(2000)	(2000)	(2003)	(2002)	(1997)	(2003)

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1993 - 2004	
ANNUAL TOTAL	513,495		781,987			
ANNUAL MEAN	1,407		2,137		2,474	
HIGHEST ANNUAL MEAN					7,910	1993
LOWEST ANNUAL MEAN					866	2000
HIGHEST DAILY MEAN	6,130	May 15	6,580	Mar 7	25,000	Jul 21, 1993
LOWEST DAILY MEAN	145	Oct 1	145	Oct 1 a	129	Oct 26, 1999
ANNUAL SEVEN-DAY MINIMUM	151	Oct 7	151	Oct 7	141	Oct 23, 1999
MAXIMUM PEAK FLOW			6,650	Mar 7	25,800	Jul 19, 1993
MAXIMUM PEAK STAGE			54.50	Mar 7	63.95	Jul 19, 1993
ANNUAL RUNOFF (AC-FT)	1,019,000		1,551,000		1,793,000	
ANNUAL RUNOFF (CFSM)	0.452		0.686		0.794	
ANNUAL RUNOFF (INCHES)	6.13		9.34		10.79	
10 PERCENT EXCEEDS	3,790		5,870		6,060	
50 PERCENT EXCEEDS	712		1,250		1,260	
90 PERCENT EXCEEDS	192		282		273	

a Also Oct. 9, 10.
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 Nov. 11. 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.

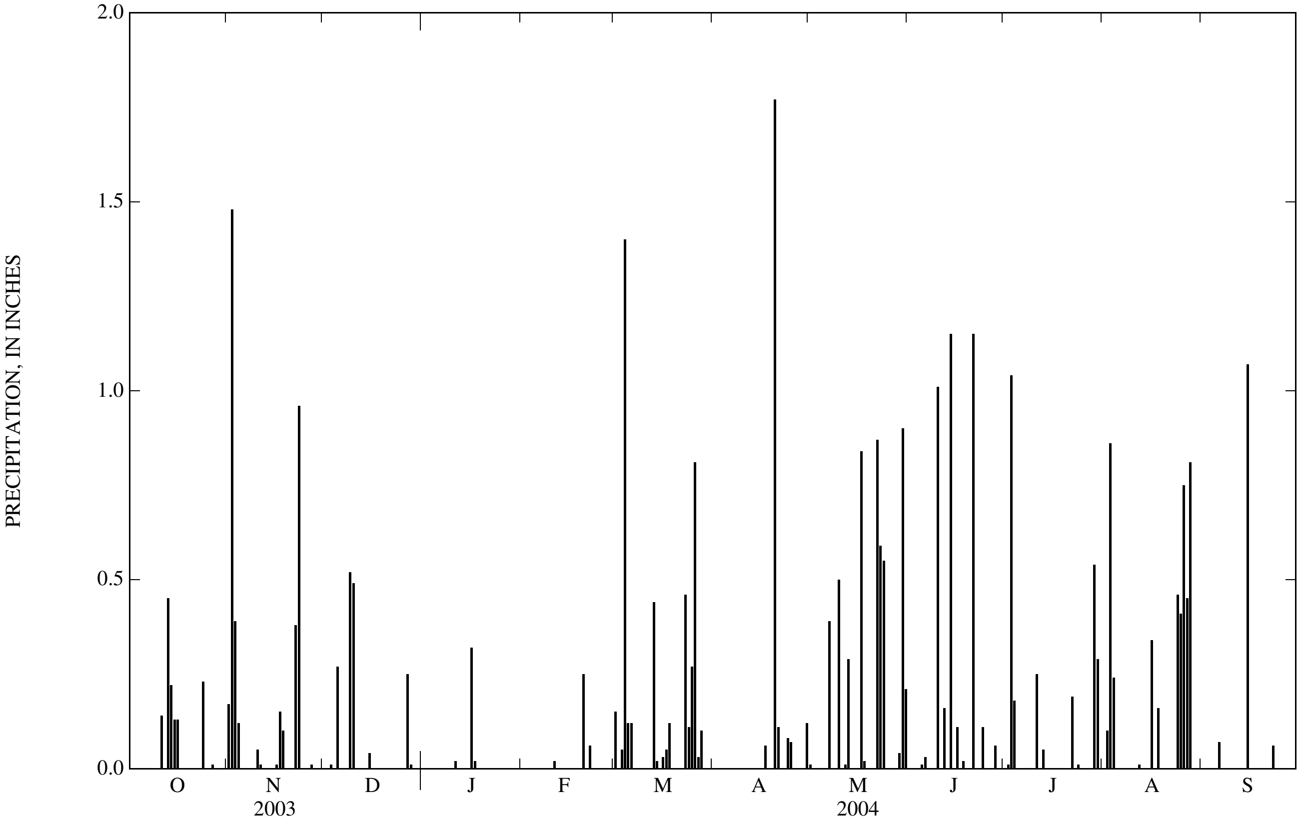
EXTREME FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.65 in., May 9, 1996, June 13, 2000.

EXTREME FOR CURRENT YEAR.--Maximum daily accumulation, 1.77 in., April 20.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.17	0.00	0.00	0.00	0.15	0.00	0.01	0.00	0.00	0.00	0.00
2	0.00	1.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.00
3	0.00	0.39	0.01	0.00	0.00	0.05	0.00	0.00	0.00	1.04	0.86	0.00
4	0.00	0.12	0.00	0.00	0.00	1.40	0.00	0.00	0.00	0.18	0.24	0.00
5	0.00	0.00	0.27	0.00	0.00	0.12	0.00	0.00	0.01	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.03	0.00	0.00	0.07
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.05	0.49	0.00	0.00	0.00	0.00	0.50	1.01	0.00	0.00	0.00
11	0.14	0.01	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.25	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.00	0.01	0.00
13	0.45	0.00	0.00	0.00	0.00	0.44	0.00	0.29	0.00	0.05	0.00	0.00
14	0.22	0.00	0.00	0.00	0.00	0.02	0.00	0.00	1.15	0.00	0.00	0.00
15	0.13	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
16	0.13	0.01	0.00	0.32	0.00	0.03	0.00	0.00	0.11	0.00	0.34	0.00
17	0.00	0.15	0.00	0.02	0.00	0.05	0.06	0.84	0.00	0.00	0.00	0.00
18	0.00	0.10	0.00	0.00	0.00	0.12	0.00	0.02	0.02	0.00	0.16	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.25	0.00	1.77	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	1.15	0.00	0.00	0.00
22	0.00	0.38	0.00	0.00	0.06	0.00	0.00	0.87	0.00	0.19	0.00	0.00
23	0.00	0.96	0.00	0.00	0.00	0.46	0.00	0.59	0.00	0.00	0.00	0.06
24	0.23	0.00	0.00	0.00	0.00	0.11	0.08	0.55	0.11	0.01	0.46	0.00
25	0.00	0.00	0.00	0.00	0.00	0.27	0.07	0.00	0.00	0.00	0.41	0.00
26	0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.75	0.00
27	0.01	0.01	0.25	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.45	0.00
28	0.00	0.00	0.01	0.00	0.00	0.10	0.00	0.00	0.06	0.00	0.81	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.54	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.12	0.90	0.00	0.29	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.21	---	0.00	0.00	---
TOTAL	1.31	3.83	1.59	0.36	0.33	4.28	2.21	5.22	3.81	2.56	4.59	1.20
MEAN	0.04	0.13	0.05	0.01	0.01	0.14	0.07	0.17	0.13	0.08	0.15	0.04
MAX	0.45	1.48	0.52	0.32	0.25	1.40	1.77	0.90	1.15	1.04	0.86	1.07
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

05453600 RAPID CREEK BELOW MORSE, IA—Continued



05454000 RAPID CREEK NEAR IOWA CITY, IA

LOCATION.--Lat 41°42'00", long 91°29'15", in NE$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929.

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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.10	0.47	6.5	12	e3.2	22	40	16	47	15	5.9	15
2	0.09	6.6	5.7	12	e3.6	21	36	15	39	14	5.9	13
3	0.08	17	6.2	11	e3.2	18	32	14	33	21	6.5	11
4	0.08	12	5.7	8.7	e3.0	63	29	14	29	22	19	9.7
5	0.09	6.9	6.3	e7.3	e3.7	247	27	13	27	25	10	8.5
6	0.13	4.7	5.5	e8.6	e4.4	79	25	12	25	39	7.3	7.8
7	0.14	3.4	5.3	e6.5	e4.1	61	23	13	22	23	6.4	6.7
8	0.14	2.6	5.8	e5.6	5.2	49	22	12	20	19	5.8	6.2
9	0.18	2.0	6.6	e5.0	5.6	41	20	11	18	32	5.0	5.7
10	0.23	2.2	51	e5.0	5.3	36	19	14	37	25	4.4	5.2
11	0.32	2.5	e35	e6.6	4.8	31	18	14	50	23	4.4	4.7
12	0.19	1.9	e24	e7.6	4.5	28	17	12	30	22	4.2	4.4
13	0.17	1.4	22	e7.3	4.0	25	16	13	25	18	3.7	4.1
14	0.60	1.2	20	e6.4	3.9	31	16	12	175	15	3.5	4.1
15	0.60	1.4	17	e4.6	4.0	28	15	12	61	14	3.0	13
16	0.72	1.5	16	e6.9	3.3	29	15	11	43	13	3.1	13
17	0.59	1.4	13	e14	3.4	31	14	11	36	12	4.1	7.4
18	0.68	1.9	13	e8.9	4.0	46	13	26	31	11	4.1	5.7
19	0.41	1.8	10	e6.7	6.0	47	12	21	27	10	4.1	4.6
20	0.31	1.3	e8.9	e5.8	e58	41	28	19	24	9.6	2.8	4.0
21	0.37	1.2	11	e6.4	e94	34	53	17	80	9.1	2.4	3.6
22	0.51	1.2	11	e5.4	e42	31	34	39	49	9.6	2.0	3.4
23	0.44	44	11	e4.8	e50	29	28	103	35	9.0	1.8	3.1
24	0.39	30	e4.7	e4.9	45	40	26	57	29	8.2	3.0	3.0
25	0.56	20	9.0	e4.9	27	39	25	76	26	7.9	3.9	2.7
26	0.54	15	9.2	e4.7	25	195	22	51	23	7.2	4.5	2.5
27	0.55	12	10	e4.3	20	100	20	42	21	6.7	29	2.5
28	0.50	9.8	19	e2.8	18	77	19	35	19	6.2	133	2.3
29	0.50	8.5	17	e1.0	19	63	17	31	17	6.7	49	2.1
30	0.47	8.3	14	e1.2	---	53	16	66	16	10	27	2.0
31	0.47	---	13	e2.2	---	46	---	72	---	7.4	19	---
TOTAL	11.15	224.17	412.4	199.1	477.2	1,681	697	874	1,114	470.6	387.8	181.0
MEAN	0.36	7.47	13.3	6.42	16.5	54.2	23.2	28.2	37.1	15.2	12.5	6.03
MAX	0.72	44	51	14	94	247	53	103	175	39	133	15
MIN	0.08	0.47	4.7	1.0	3.0	18	12	11	16	6.2	1.8	2.0
AC-FT	22	445	818	395	947	3,330	1,380	1,730	2,210	933	769	359
CFSM	0.01	0.30	0.53	0.25	0.65	2.14	0.92	1.11	1.47	0.60	0.49	0.24
IN.	0.02	0.33	0.61	0.29	0.70	2.47	1.02	1.29	1.64	0.69	0.57	0.27

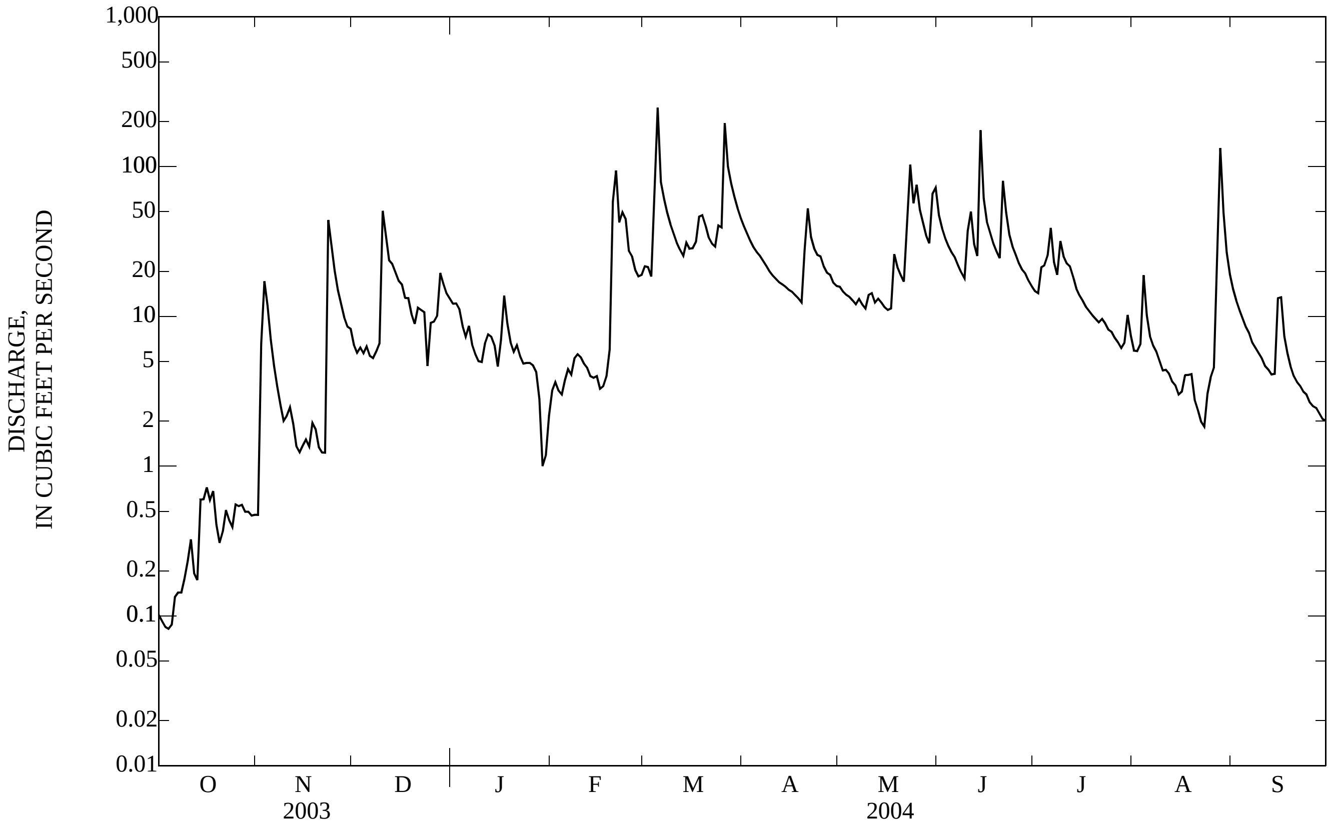
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	7.58	10.0	8.87	9.35	22.1	29.1	24.2	27.6	25.7	15.7	11.6	7.69
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	0.00	0.00	0.00	0.00	0.22	0.42	1.25	1.13	0.21	0.00	0.03	0.00
(WY)	(1954)	(1956)	(1956)	(1940)	(1989)	(1956)	(1956)	(1977)	(1956)	(1957)	(1955)	(1955)

05454000 RAPID CREEK NEAR IOWA CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1938 - 2004	
ANNUAL TOTAL	3,106.09		6,729.42			
ANNUAL MEAN	8.51		18.4		16.6	
HIGHEST ANNUAL MEAN					63.8	1993
LOWEST ANNUAL MEAN					1.09	1957
HIGHEST DAILY MEAN	157	May 9	247	Mar 5	1,720	May 17, 1986
LOWEST DAILY MEAN	0.02	Sep 12	0.08	Oct 3 a	0.00	Manyyears
ANNUAL SEVEN-DAY MINIMUM	0.07	Sep 6	0.10	Oct 1	0.00	Manyyears
MAXIMUM PEAK FLOW			619	Mar 5	6,700	Aug 10, 1993
MAXIMUM PEAK STAGE			8.59	Mar 5	15.61	Aug 10, 1993
INSTANTANEOUS LOW FLOW			0.07	Oct 2		
ANNUAL RUNOFF (AC-FT)	6,160		13,350		12,000	
ANNUAL RUNOFF (CFSM)	0.336		0.727		0.655	
ANNUAL RUNOFF (INCHES)	4.57		9.89		8.90	
10 PERCENT EXCEEDS	18		42		35	
50 PERCENT EXCEEDS	4.1		11		5.1	
90 PERCENT EXCEEDS	0.34		1.2		0.10	

a Also Oct. 4.
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 NGVD of 1929.

REMARKS.--Records good except for those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.70	0.84	8.0	25	e10	49	64	26	143	19	9.7	46
2	0.67	5.4	7.9	25	e12	47	58	25	107	18	12	37
3	0.68	26	7.7	23	e10	41	54	24	89	29	13	31
4	0.73	28	8.3	21	e9.6	70	50	24	78	32	38	26
5	0.74	19	8.4	e19	e11	661	47	23	71	24	27	23
6	0.76	10	e8.3	e22	e13	215	45	22	65	24	17	26
7	0.79	6.8	7.8	e20	e11	142	43	20	58	21	14	22
8	0.77	6.0	8.5	e18	e12	108	40	21	52	19	12	17
9	0.71	6.3	10	e16	e14	91	37	20	48	34	11	16
10	0.69	5.5	33	e15	e13	81	35	22	56	37	7.5	14
11	0.72	5.6	e25	e18	e11	68	33	21	57	30	7.5	13
12	0.83	4.8	e17	e21	e10	61	32	20	47	34	7.4	12
13	0.91	3.6	e15	e20	e9.2	58	31	21	43	26	6.6	12
14	2.7	3.9	e13	e18	e10	62	30	21	45	21	6.9	11
15	2.0	4.0	e15	e12	e9.6	56	30	19	40	19	5.2	12
16	1.6	4.1	e17	e24	e10	57	29	18	37	17	5.3	11
17	1.2	4.5	e16	e45	e11	59	28	19	36	15	8.0	10
18	0.97	5.6	e14	e30	e14	91	27	33	33	14	5.6	9.7
19	0.94	5.6	e11	e22	e27	148	26	26	32	14	7.0	9.0
20	0.90	4.5	e10	e18	e182	110	31	24	30	13	6.1	8.4
21	0.85	4.3	e14	e21	e302	84	52	23	32	13	5.2	8.2
22	0.84	4.0	e13	e16	e200	75	37	102	30	14	4.6	8.0
23	0.85	32	e11	e14	e134	69	33	215	27	14	3.4	7.5
24	2.2	27	e5.7	e14	e95	73	32	136	26	13	4.2	7.8
25	e3.1	17	e10	e14	71	68	33	185	26	12	5.8	7.4
26	e1.5	14	e13	e13	53	104	31	125	24	12	7.3	7.1
27	0.89	12	16	e12	49	102	29	96	23	11	621	6.9
28	0.87	10	65	e11	45	99	29	77	23	11	704	6.4
29	0.85	12	45	e9.7	45	89	27	67	21	10	217	6.0
30	0.85	11	33	e9.0	---	80	26	195	20	12	101	6.2
31	0.85	---	29	e9.4	---	71	---	279	---	11	62	---
TOTAL	33.66	303.34	515.6	575.1	1,403.4	3,189	1,099	1,949	1,419	593	1,962.3	437.6
MEAN	1.09	10.1	16.6	18.6	48.4	103	36.6	62.9	47.3	19.1	63.3	14.6
MAX	3.1	32	65	45	302	661	64	279	143	37	704	46
MIN	0.67	0.84	5.7	9.0	9.2	41	26	18	20	10	3.4	6.0
AC-FT	67	602	1,020	1,140	2,780	6,330	2,180	3,870	2,810	1,180	3,890	868
CFSM	0.02	0.17	0.28	0.32	0.83	1.76	0.63	1.08	0.81	0.33	1.08	0.25
IN.	0.02	0.19	0.33	0.37	0.89	2.03	0.70	1.24	0.90	0.38	1.25	0.28

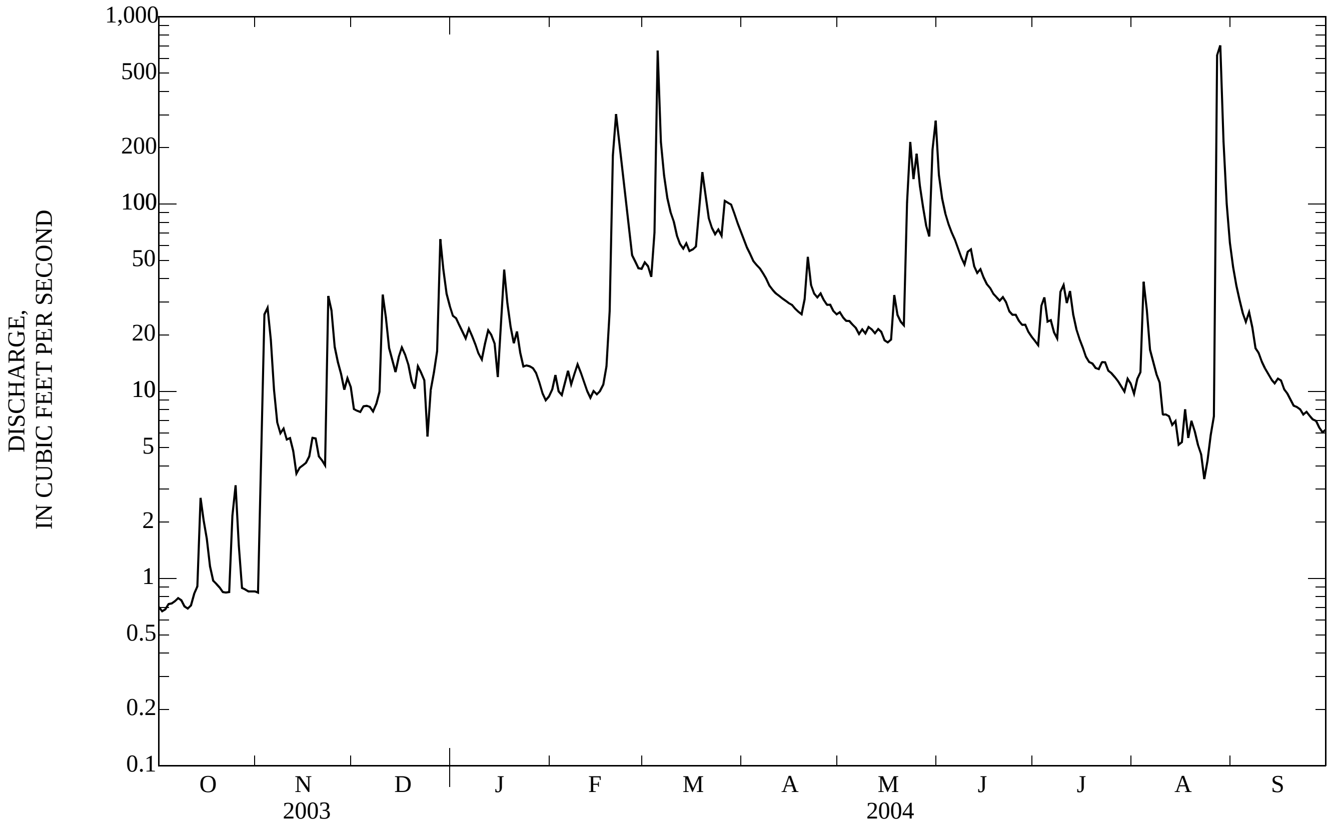
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	23.3	16.6	10.9	14.7	46.6	53.0	52.8	91.7	68.2	29.5	18.5	7.70
MAX	153	74.4	28.1	35.2	129	152	113	269	120	77.0	63.3	29.4
(WY)	(1999)	(1999)	(1999)	(1998)	(2001)	(2001)	(1998)	(1996)	(2001)	(2000)	(2004)	(1998)
MIN	1.09	2.30	2.07	3.04	6.00	5.71	8.16	15.0	17.5	10.4	2.94	1.35
(WY)	(2004)	(2000)	(2000)	(2000)	(2000)	(2000)	(1996)	(2000)	(2003)	(1997)	(2003)	(1999)

05454220 CLEAR CREEK NEAR OXFORD, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	4,728.06		13,480.00			
ANNUAL MEAN	13.0		36.8		36.0	
HIGHEST ANNUAL MEAN					56.4	1999
LOWEST ANNUAL MEAN					15.9	2003
HIGHEST DAILY MEAN	141	May 9	704	Aug 28	2,400	May 10, 1996
LOWEST DAILY MEAN	0.67	Oct 2	0.67	Oct 2	0.67	Oct 2, 2003
ANNUAL SEVEN-DAY MINIMUM	0.71	Sep 28	0.72	Oct 1	0.71	Sep 28, 2003
MAXIMUM PEAK FLOW			867	Mar 5	4,230	May 10, 1996
MAXIMUM PEAK STAGE			10.77	Mar 5	14.89	May 10, 1996
INSTANTANEOUS LOW FLOW			0.62	Oct 2 a		
ANNUAL RUNOFF (AC-FT)	9,380		26,740		26,100	
ANNUAL RUNOFF (CFSM)	0.222		0.631		0.617	
ANNUAL RUNOFF (INCHES)	3.01		8.59		8.38	
10 PERCENT EXCEEDS	26		77		84	
50 PERCENT EXCEEDS	8.7		19		14	
90 PERCENT EXCEEDS	0.90		4.0		2.4	

a Also Oct. 10.
e Estimated.



05454300 CLEAR CREEK NEAR CORALVILLE, IA

LOCATION.--Lat 41°40'36", long 91°35'55", in NE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	4.6	20	47	e15	61	100	43	189	35	17	71
2	3.8	36	18	46	e19	65	91	41	143	35	19	58
3	3.4	59	18	42	e16	56	85	39	122	59	27	51
4	3.2	44	17	43	e15	124	78	38	106	59	60	44
5	3.2	33	20	e41	e17	835	74	37	96	47	40	40
6	3.4	21	19	e45	e19	348	71	35	89	47	25	39
7	3.3	16	17	e38	e17	222	67	35	80	37	21	38
8	2.9	13	18	e34	e19	170	64	35	73	34	19	33
9	2.9	11	25	e30	e20	143	59	34	66	74	16	31
10	3.2	12	83	e29	e19	121	57	39	281	63	14	29
11	3.1	11	e49	e34	e19	113	55	40	235	49	13	27
12	2.9	10	e32	e37	e17	98	53	37	108	54	13	26
13	3.8	8.8	e30	e37	e16	98	52	40	88	45	12	24
14	9.7	8.4	e29	e34	e17	103	50	40	104	36	12	23
15	6.5	9.0	e34	e28	e17	93	48	37	88	32	12	110
16	7.7	8.3	e41	e53	e17	97	48	35	73	30	17	36
17	5.5	9.7	e36	e71	e17	103	46	40	67	28	20	28
18	5.1	12	e32	e50	e20	140	45	73	61	27	18	27
19	4.4	10	e23	e36	e40	202	44	46	58	25	16	24
20	4.9	9.2	e22	e31	e258	169	63	40	54	24	13	21
21	4.5	8.3	e27	e32	e382	128	81	37	124	23	11	21
22	4.7	8.5	e26	e25	e302	114	62	116	68	26	10	23
23	4.9	92	e25	e22	e210	106	54	286	55	25	9.3	24
24	5.1	61	e15	e22	e143	119	51	195	51	23	19	22
25	7.1	36	e24	e22	e100	111	55	224	50	22	21	20
26	5.7	30	e28	e22	e85	272	51	170	46	21	17	18
27	5.1	26	e50	e20	69	190	47	136	43	19	522	18
28	4.9	23	e103	e18	57	169	46	112	43	18	689	16
29	4.6	22	85	e15	56	147	43	100	39	25	316	14
30	4.7	22	62	e14	---	123	42	191	37	22	134	13
31	4.4	---	53	e14	---	111	---	358	---	20	92	---
TOTAL	142.5	674.8	1,081	1,032	2,018	4,951	1,782	2,729	2,737	1,084	2,244.3	969
MEAN	4.60	22.5	34.9	33.3	69.6	160	59.4	88.0	91.2	35.0	72.4	32.3
MAX	9.7	92	103	71	382	835	100	358	281	74	689	110
MIN	2.9	4.6	15	14	15	56	42	34	37	18	9.3	13
AC-FT	283	1,340	2,140	2,050	4,000	9,820	3,530	5,410	5,430	2,150	4,450	1,920
CFSM	0.05	0.23	0.36	0.34	0.71	1.63	0.61	0.90	0.93	0.36	0.74	0.33
IN.	0.05	0.26	0.41	0.39	0.77	1.88	0.68	1.03	1.04	0.41	0.85	0.37

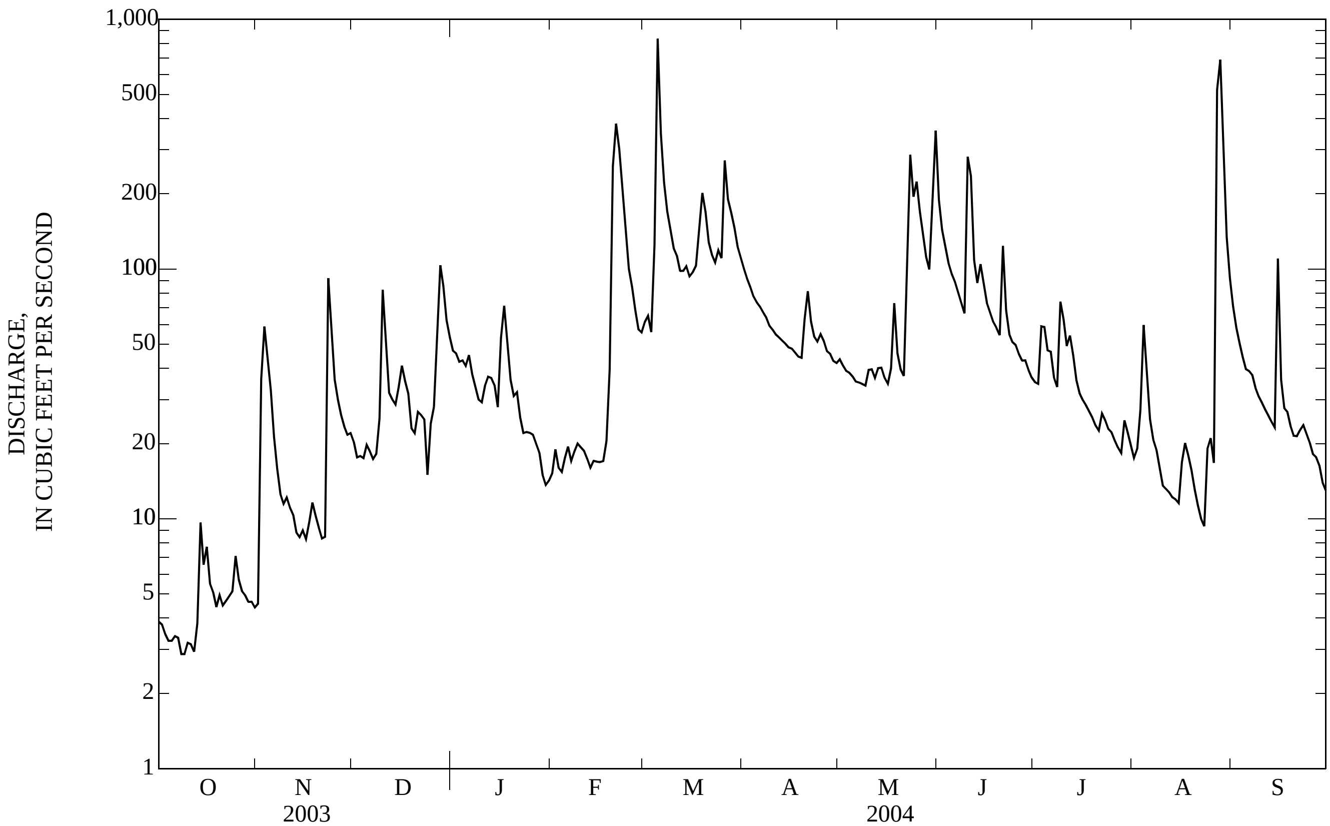
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

MEAN	33.2	43.3	37.4	38.3	71.9	111	100	110	105	87.9	58.8	41.5
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	0.55	0.95	0.54	0.10	2.79	4.49	4.15	3.79	0.83	1.69	1.94	0.69
(WY)	(1958)	(1956)	(1956)	(1977)	(1954)	(1954)	(1956)	(1956)	(1956)	(1954)	(1953)	(1953)

05454300 CLEAR CREEK NEAR CORALVILLE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004	
ANNUAL TOTAL	8,858.8		21,444.6			
ANNUAL MEAN	24.3		58.6		69.9	
HIGHEST ANNUAL MEAN					327	1993
LOWEST ANNUAL MEAN					6.57	1957
HIGHEST DAILY MEAN	288	May 9	835	Mar 5	7,310	Jun 17, 1990
LOWEST DAILY MEAN	2.9	Oct 8	2.9	Oct 8	0.00	Jan 18, 1977
ANNUAL SEVEN-DAY MINIMUM	3.1	Oct 6	3.1	Oct 6	0.00	Jan 18, 1977
MAXIMUM PEAK FLOW			987	Mar 5	10,200	Jun 17, 1990
MAXIMUM PEAK STAGE			8.21	Feb 20 a	16.36	Jun 17, 1990
INSTANTANEOUS LOW FLOW			2.7	Oct 7 b		
ANNUAL RUNOFF (AC-FT)	17,570		42,540		50,630	
ANNUAL RUNOFF (CFSM)	0.247		0.597		0.712	
ANNUAL RUNOFF (INCHES)	3.36		8.13		9.68	
10 PERCENT EXCEEDS	50		122		145	
50 PERCENT EXCEEDS	18		36		27	
90 PERCENT EXCEEDS	4.4		8.9		3.1	

a Ice affected
b Also Oct. 8-11.
e Estimated



05454500 IOWA RIVER AT IOWA CITY, IA

LOCATION.--Lat 41°39'24", long 91°32'27", in SE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929. 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 rain gage and data collection platform with satellite telemetry and U.S. Geological Survey data collection platform with telephone modem backup at station.Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	134	857	781	503	4,400	4,010	2,180	6,020	5,820	1,260	4,840
2	133	225	840	777	482	4,300	4,160	2,170	6,510	5,780	1,210	2,870
3	136	512	779	774	398	4,120	4,020	2,100	6,480	5,940	1,160	2,190
4	137	373	654	764	394	4,190	3,630	1,690	6,520	6,050	1,550	1,700
5	136	430	780	622	397	5,780	3,140	1,390	6,560	5,980	1,900	1,590
6	136	2,190	1,260	345	428	6,930	2,700	1,310	6,590	6,050	1,910	1,350
7	133	3,380	1,520	257	509	7,310	2,440	1,370	6,550	5,870	1,980	1,130
8	135	3,350	1,610	314	512	7,100	2,320	1,540	6,440	5,820	1,970	967
9	137	2,160	1,850	542	502	6,640	2,300	1,550	6,450	6,060	1,900	939
10	137	1,350	2,290	662	465	6,370	2,270	1,590	6,680	5,930	1,670	1,070
11	138	860	2,290	664	460	5,880	2,120	1,610	7,040	5,830	1,360	1,070
12	141	888	2,190	664	456	5,180	1,840	1,580	6,530	5,830	1,100	1,060
13	142	976	1,950	661	444	3,820	1,750	1,500	6,370	5,850	1,050	1,050
14	159	983	1,380	660	410	3,340	1,740	1,000	6,410	5,790	1,040	949
15	157	983	906	651	404	3,120	1,710	831	6,320	5,790	1,030	769
16	160	979	754	662	407	2,980	1,640	818	6,110	5,720	1,020	713
17	154	982	717	847	404	3,140	1,630	826	6,020	5,490	1,010	605
18	148	1,020	732	1,030	405	3,010	1,630	1,110	5,970	4,930	1,070	596
19	144	1,110	752	898	411	2,880	1,610	1,590	5,930	4,410	1,080	591
20	142	979	781	682	678	2,830	1,620	2,220	5,900	3,920	1,070	626
21	141	760	731	671	1,610	2,940	1,780	2,630	6,210	3,360	1,040	701
22	138	678	653	658	2,100	2,930	1,740	2,210	6,040	2,900	915	677
23	138	1,090	646	656	2,910	2,920	1,840	3,050	5,920	2,320	921	691
24	138	1,150	634	653	4,040	2,990	2,260	4,460	5,880	1,760	1,120	693
25	139	1,010	634	654	4,320	2,990	2,450	6,020	5,870	1,620	1,170	688
26	138	888	693	611	4,110	3,660	2,450	2,940	5,870	1,500	1,190	688
27	136	873	796	518	3,620	3,510	2,150	1,080	5,840	1,420	1,900	684
28	135	898	1,110	512	3,580	3,350	1,900	1,020	5,860	1,350	5,350	678
29	133	924	1,380	509	3,830	3,290	1,830	1,300	5,900	1,270	6,390	679
30	139	865	882	506	---	3,360	2,030	2,540	5,860	1,210	6,070	651
31	138	---	797	503	---	3,640	---	4,690	---	1,190	5,980	---
TOTAL	4,351	33,000	33,848	19,708	39,189	128,900	68,710	61,915	186,650	132,760	59,386	33,505
MEAN	140	1,100	1,092	636	1,351	4,158	2,290	1,997	6,222	4,283	1,916	1,117
MAX	160	3,380	2,290	1,030	4,320	7,310	4,160	6,020	7,040	6,060	6,390	4,840
MIN	133	134	634	257	394	2,830	1,610	818	5,840	1,190	915	591
AC-FT	8,630	65,460	67,140	39,090	77,730	255,700	136,300	122,800	370,200	263,300	117,800	66,460
CFSM	0.04	0.34	0.33	0.19	0.41	1.27	0.70	0.61	1.90	1.31	0.59	0.34
IN.	0.05	0.38	0.38	0.22	0.45	1.47	0.78	0.70	2.12	1.51	0.68	0.38

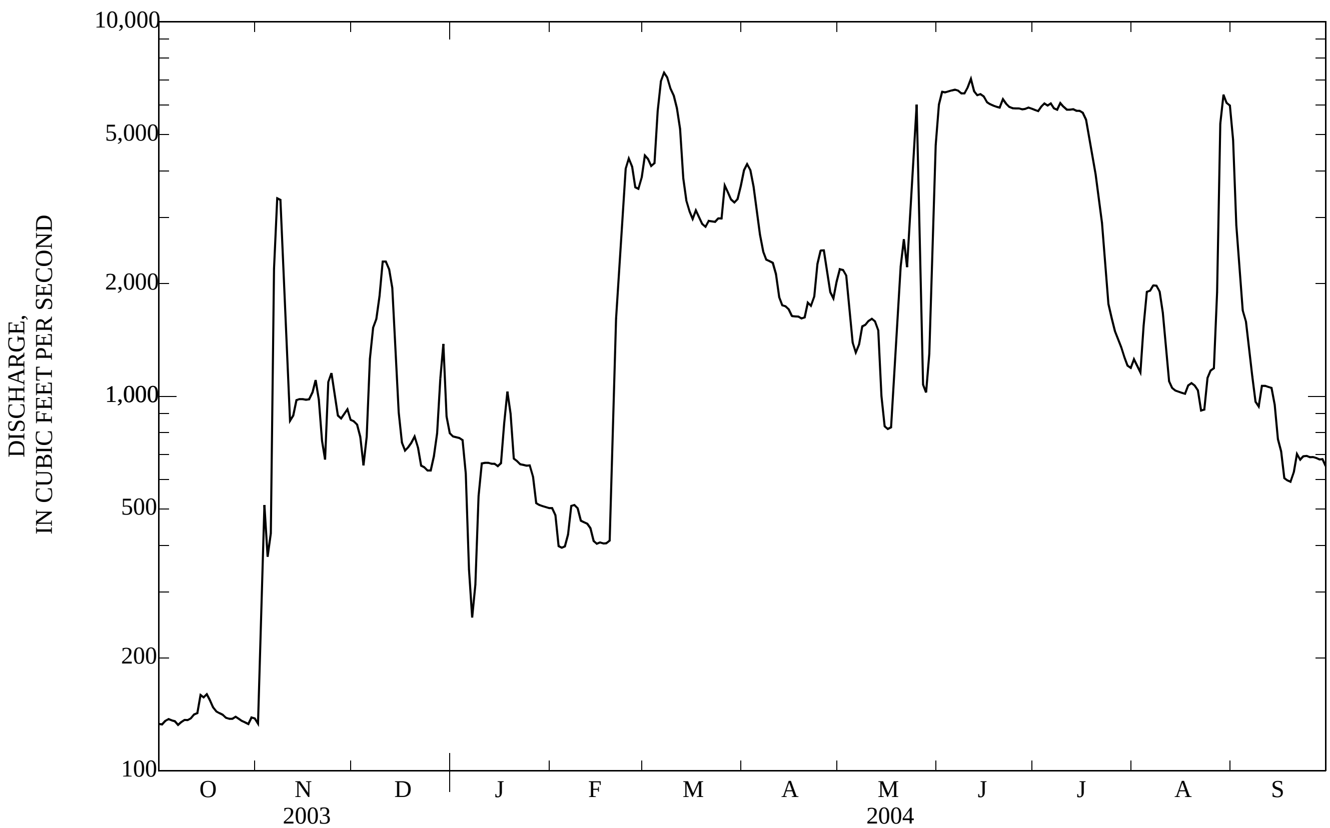
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1,120	1,409	1,390	1,025	1,715	3,343	3,674	3,290	3,689	3,488	2,148	1,399
MAX	4,277	5,395	4,580	5,381	5,789	7,988	9,764	9,763	11,590	22,220	20,060	13,760
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004 a	
ANNUAL TOTAL	516,916		801,922			
ANNUAL MEAN	1,416		2,191		2,309	
HIGHEST ANNUAL MEAN					8,502	1993
LOWEST ANNUAL MEAN					304	1989
HIGHEST DAILY MEAN	6,180	May 15	7,310	Mar 7	26,200	Jul 21, 1993
LOWEST DAILY MEAN	133	Oct 1	133	Oct 1 b	49	Aug 1, 1977 c
ANNUAL SEVEN-DAY MINIMUM	135	Oct 1	135	Oct 1	50	Jul 31, 1977
MAXIMUM PEAK FLOW			7,550	Jun 11	28,200	Aug 10, 1993
MAXIMUM PEAK STAGE			17.40	Jun 11	28.52	Aug 10, 1993
ANNUAL RUNOFF (AC-FT)	1,025,000		1,591,000		1,673,000	
ANNUAL RUNOFF (CFSM)	0.433		0.670		0.706	
ANNUAL RUNOFF (INCHES)	5.88		9.12		9.59	
10 PERCENT EXCEEDS	3,800		5,920		5,980	
50 PERCENT EXCEEDS	720		1,330		1,280	
90 PERCENT EXCEEDS	147		365		219	

a Post regulation.
b Also Oct. 2,7, and 29.
c Also Aug. 2, 1977.



05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IA

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

DRAINAGE AREA.--2.94 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.--Records good except those for Nov. 11, Jan. 28, Feb. 28 to Mar. 16, and Sept. 13. Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 678.03 ft above NGVD of 1929.

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.

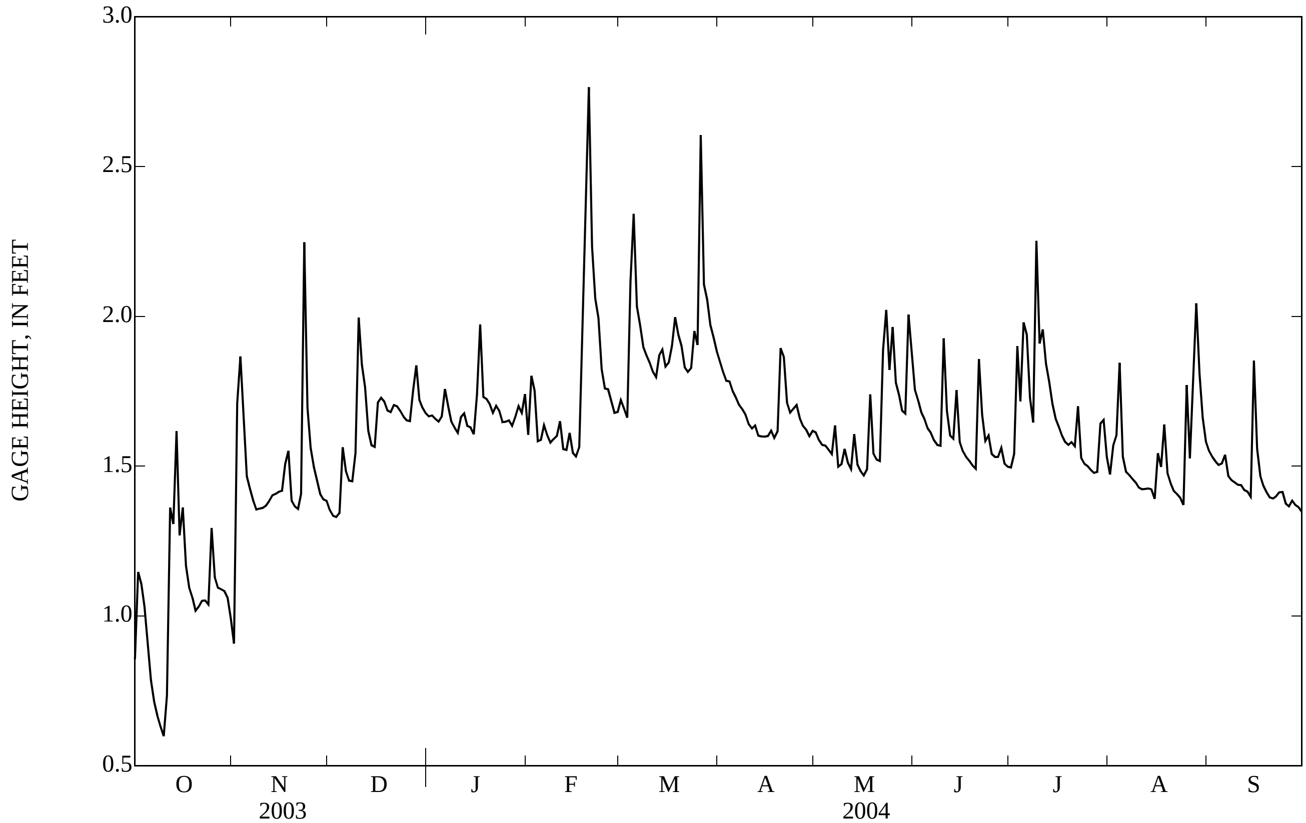
EXTREMES FOR CURRENT YEAR.--Maximum instantaneous gage height 6.25 ft on July 5. Minimum gage height of 0.56 ft. on Oct.11.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.85	0.91	1.35	1.67	1.60	1.72	1.85	1.61	1.75	1.50	1.47	e1.55
2	1.15	1.71	1.33	1.67	1.80	1.69	1.81	1.59	1.72	1.54	1.57	1.53
3	1.11	1.87	1.33	1.66	1.75	1.66	1.78	1.57	1.68	1.90	1.60	1.52
4	1.03	1.64	1.34	1.65	1.58	2.12	1.78	1.57	1.66	1.72	1.84	1.50
5	0.90	1.47	1.56	1.67	1.59	2.34	1.75	1.55	1.63	1.98	1.53	1.51
6	0.79	1.42	1.48	1.76	1.64	2.03	1.73	1.54	1.61	1.94	1.48	1.54
7	0.71	1.38	1.45	1.70	1.60	1.97	1.70	1.64	1.59	1.73	1.47	1.47
8	0.67	1.35	1.45	1.65	1.58	1.90	1.69	1.50	1.57	1.65	1.46	1.45
9	0.63	1.36	1.54	1.63	1.59	1.87	1.67	1.51	1.57	2.25	1.45	1.45
10	0.60	1.36	2.00	1.61	1.60	1.85	1.64	1.56	1.93	1.91	1.43	1.44
11	0.73	1.37	1.84	1.66	1.65	1.81	1.63	1.51	1.68	1.96	1.42	1.44
12	1.36	1.38	1.76	1.68	1.56	1.80	1.64	1.49	1.60	1.84	1.42	1.42
13	1.31	1.40	1.62	1.63	1.55	1.87	1.60	1.61	1.59	1.78	1.42	1.41
14	1.62	1.41	1.57	1.63	1.61	1.89	1.60	1.50	1.75	1.71	1.42	1.40
15	1.27	1.41	1.56	1.61	1.54	1.83	1.60	1.48	1.58	1.66	1.39	1.85
16	1.36	1.42	1.71	1.74	1.53	1.85	1.60	1.47	1.55	1.63	1.54	1.56
17	1.17	1.51	1.73	1.97	1.56	1.90	1.62	1.49	1.53	1.60	1.50	1.47
18	1.09	1.55	1.72	1.73	1.88	2.00	1.59	1.74	1.52	1.58	1.64	1.43
19	1.06	1.38	1.68	1.72	2.27	1.94	1.62	1.54	1.50	1.57	1.48	1.41
20	1.02	1.37	1.68	1.71	2.76	1.90	1.89	1.52	1.49	1.58	1.44	1.40
21	1.03	1.36	1.70	1.68	2.23	1.83	1.87	1.52	1.86	1.57	1.42	1.39
22	1.05	1.41	1.70	1.70	2.06	1.81	1.71	1.89	1.67	1.70	1.41	1.40
23	1.05	2.25	1.68	1.68	1.99	1.83	1.68	2.02	1.58	1.53	1.39	1.41
24	1.04	1.69	1.67	1.65	1.82	1.95	1.69	1.82	1.60	1.51	e1.37	1.41
25	1.29	1.56	1.65	1.65	1.76	1.90	1.70	1.96	e1.54	1.50	e1.77	1.37
26	1.13	1.50	1.65	1.65	1.76	2.60	1.66	1.78	e1.53	1.49	1.53	1.37
27	1.09	1.45	1.75	1.63	1.72	2.11	1.63	1.74	e1.53	1.48	1.78	1.38
28	1.09	1.41	1.84	1.66	1.68	2.06	1.62	1.68	1.56	1.48	2.04	1.37
29	1.08	1.39	1.72	1.70	1.68	1.97	1.60	1.67	1.51	1.64	1.81	1.36
30	1.06	1.38	1.69	1.68	---	1.93	1.62	2.01	1.50	1.65	1.66	1.35
31	0.99	---	1.68	1.74	---	1.88	---	1.87	---	1.53	1.58	---
MEAN	1.04	1.47	1.63	1.68	1.76	1.93	1.69	1.64	1.61	1.68	1.54	1.45
MAX	1.62	2.25	2.00	1.97	2.76	2.60	1.89	2.02	1.93	2.25	2.04	1.85
MIN	0.60	0.91	1.33	1.61	1.53	1.66	1.59	1.47	1.49	1.48	1.37	1.35

e Estimated

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



05455100 OLD MANS CREEK NEAR IOWA CITY, IA

LOCATION.--Lat. 41°36'23", long. 91°36'56", in SE$\frac{1}{4}$ SW$\frac{1}{4}$ NW$\frac{1}{4}$ sec.36, T.79 N., R.7 W., Johnson County, Hydrologic Unit 07080209, on left bank 10 ft downstream from bridge on county highway W62, 5 miles southwest of Iowa City, 5.9 miles upstream of Dirty Face Creek, and 8.6 miles upstream from mouth.

DRAINAGE AREA.--201 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 637.49 ft above NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	3.6	25	77	e13	170	217	93	430	56	30	91
2	4.3	8.3	21	76	e18	168	197	89	317	53	32	77
3	4.4	47	17	70	e14	150	179	85	267	79	34	65
4	4.5	93	18	e40	e13	187	165	82	236	146	165	56
5	4.7	82	19	e47	e17	1,460	154	83	218	86	133	50
6	4.5	44	19	e52	e18	965	148	76	200	100	62	46
7	4.9	27	21	e44	e16	476	137	79	181	75	46	51
8	4.4	20	18	e38	e17	357	122	72	164	61	40	38
9	4.4	15	20	e33	e18	302	109	72	150	529	35	36
10	4.5	15	94	e30	e18	263	104	67	393	402	32	34
11	4.4	18	95	e36	e17	237	98	71	441	189	29	31
12	4.2	13	e36	e39	e15	204	94	67	226	198	26	29
13	5.7	11	e33	e39	e14	198	90	67	181	161	24	26
14	5.9	9.1	e31	e37	e15	206	86	74	167	129	23	24
15	6.9	8.6	e38	e29	e12	191	83	68	160	106	21	92
16	9.4	8.6	e44	e51	e13	191	79	64	134	94	21	63
17	5.9	9.1	e38	e70	e15	188	75	63	124	80	27	37
18	5.2	9.2	e35	e48	e19	285	74	118	110	69	29	31
19	5.0	10	e26	e34	e25	433	67	138	101	64	28	28
20	5.1	10	e24	e29	e382	348	80	113	93	59	23	25
21	4.2	7.9	e30	e29	e788	267	230	108	153	53	18	23
22	4.4	7.5	e31	e23	e594	231	164	195	121	55	16	22
23	3.5	50	e30	e20	e502	215	134	734	96	58	14	21
24	3.7	102	e15	e20	e419	217	124	579	86	48	21	20
25	3.6	52	e27	e20	332	213	125	522	83	44	26	19
26	3.5	45	e30	e19	230	432	115	415	77	40	31	18
27	5.2	35	e51	e19	186	364	104	314	72	36	43	17
28	4.3	28	173	e17	161	323	104	255	71	34	992	17
29	3.7	19	163	e13	156	303	98	222	67	34	408	16
30	3.8	24	106	e12	---	266	90	361	60	41	182	16
31	3.5	---	93	e13	---	246	---	816	---	34	117	---
TOTAL	146.0	831.9	1,421	1,124	4,057	10,056	3,646	6,162	5,179	3,213	2,728	1,119
MEAN	4.71	27.7	45.8	36.3	140	324	122	199	173	104	88.0	37.3
MAX	9.4	102	173	77	788	1,460	230	816	441	529	992	92
MIN	3.5	3.6	15	12	12	150	67	63	60	34	14	16
AC-FT	290	1,650	2,820	2,230	8,050	19,950	7,230	12,220	10,270	6,370	5,410	2,220
CFSM	0.02	0.14	0.23	0.18	0.70	1.61	0.60	0.99	0.86	0.52	0.44	0.19
IN.	0.03	0.15	0.26	0.21	0.75	1.86	0.67	1.14	0.96	0.59	0.50	0.21

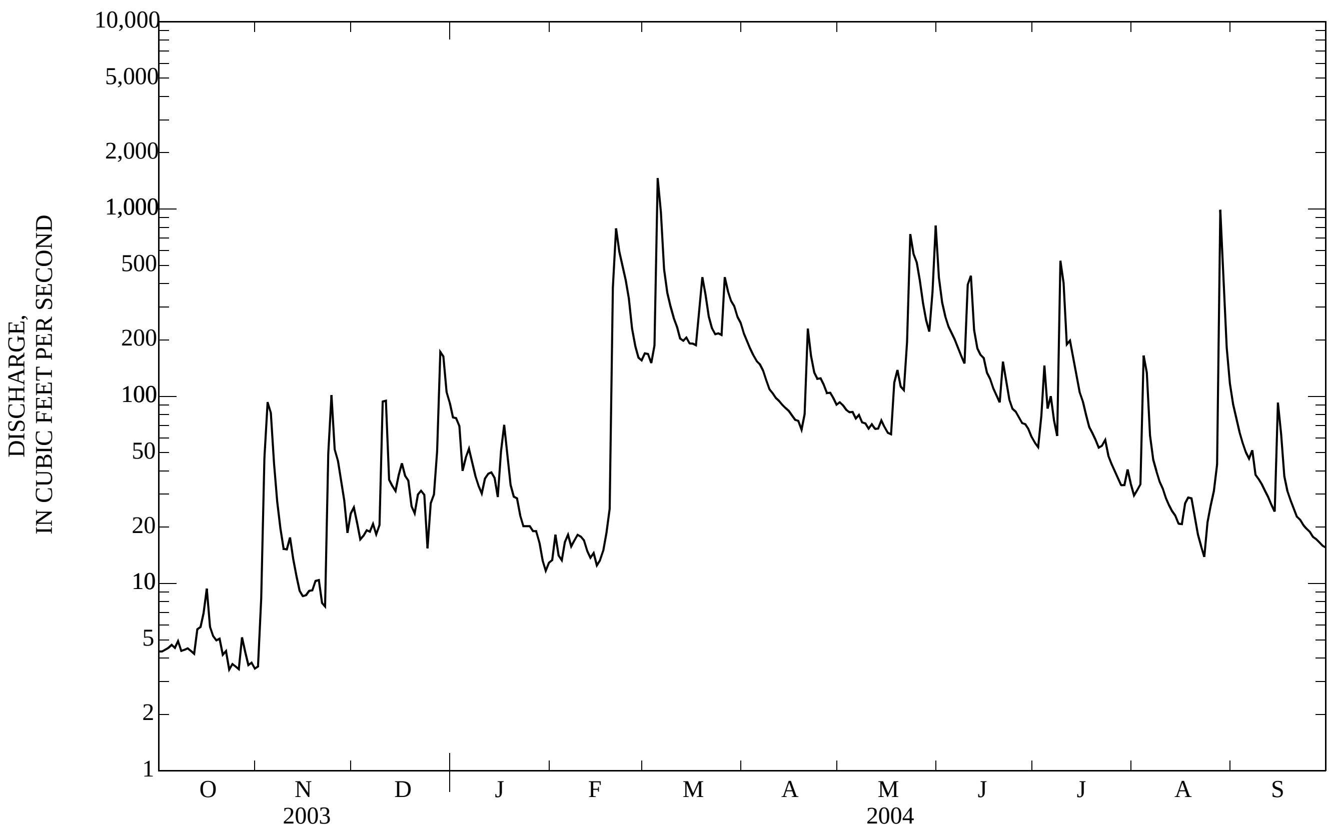
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	60.4	87.2	52.9	59.0	125	240	167	231	191	148	100	57.7
MAX	541	636	337	436	536	793	625	1,071	907	1,515	1,190	598
(WY)	(1999)	(1962)	(1993)	(1960)	(2001)	(1962)	(1993)	(1996)	(1990)	(1993)	(1993)	(1993)
MIN	0.21	0.39	0.35	0.26	2.50	2.12	1.29	4.97	5.34	1.43	2.97	0.36
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1951 - 2004	
ANNUAL TOTAL	12,861.1		39,682.9			
ANNUAL MEAN	35.2		108		127	
HIGHEST ANNUAL MEAN					607	1993
LOWEST ANNUAL MEAN					10.3	1954
HIGHEST DAILY MEAN	539	May 9	1,460	Mar 5	8,780	Jul 6, 1993
LOWEST DAILY MEAN	3.4	Sep 10	3.5	Oct 23 a	0.10	Sep 6, 1957
ANNUAL SEVEN-DAY MINIMUM	3.5	Sep 6	3.9	Oct 23	0.10	Sep 6, 1957
MAXIMUM PEAK FLOW			1,650	Mar 5	13,000	Jul 6, 1993
MAXIMUM PEAK STAGE			10.78	Mar 5	17.61	Jul 6, 1993
INSTANTANEOUS LOW FLOW			3.1	Oct 23		
ANNUAL RUNOFF (AC-FT)	25,510		78,710		91,710	
ANNUAL RUNOFF (CFSM)	0.175		0.539		0.630	
ANNUAL RUNOFF (INCHES)	2.38		7.34		8.56	
10 PERCENT EXCEEDS	82		264		280	
50 PERCENT EXCEEDS	19		52		39	
90 PERCENT EXCEEDS	4.4		9.0		2.2	

a Also Oct. 26, 31.
e Estimated.



05455500 ENGLISH RIVER AT KALONA, IA

LOCATION.--Lat 41°28'11", long 91°42'52",(revised) in SE¼ SE¼ 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 NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	10	32	134	e64	e359	734	248	1,630	110	48	147
2	7.4	17	37	132	e64	e326	635	243	986	103	43	115
3	7.2	44	35	127	e64	349	562	225	776	446	78	96
4	7.3	116	33	e108	e58	358	500	213	659	527	185	84
5	7.4	228	33	e98	e61	4,040	443	204	586	370	483	74
6	7.5	175	32	e83	e58	3,230	413	191	533	300	211	69
7	7.9	94	34	e67	e58	1,660	383	182	474	261	112	71
8	7.6	63	36	e61	e61	1,020	353	173	413	198	80	70
9	7.6	45	38	e52	e61	810	316	165	359	954	64	61
10	7.1	41	205	e56	e58	679	286	158	503	869	53	54
11	7.2	39	e132	e65	e58	590	268	152	1,410	426	46	50
12	7.1	39	e66	e71	e61	478	256	148	912	499	42	47
13	6.7	37	e60	e71	e58	431	244	150	564	379	39	44
14	9.4	31	e57	e74	e61	459	233	166	453	256	36	41
15	9.9	29	e68	e80	e63	465	224	166	387	181	32	71
16	10	28	e89	e74	e55	441	214	150	337	145	29	78
17	10	28	e75	e118	e49	465	205	140	356	123	29	46
18	15	31	e63	e199	e43	829	202	310	600	108	33	41
19	13	30	e43	e307	e40	1,800	197	547	356	97	35	38
20	11	30	e39	e210	e677	1,460	209	472	284	86	31	36
21	9.8	30	e53	e164	e1,250	1,000	983	924	260	77	28	34
22	9.3	28	e51	e134	e1,500	753	860	1,480	253	87	23	31
23	9.2	104	e49	e113	e1,370	650	581	2,180	225	173	21	31
24	8.9	129	e40	e99	e1,100	618	469	1,970	194	114	25	29
25	9.1	91	e50	e94	e835	619	432	1,570	177	89	39	29
26	9.3	67	e66	e87	e658	2,040	396	1,850	165	78	46	28
27	11	60	e129	e83	e528	1,500	346	1,100	150	71	41	29
28	11	54	e367	e80	e431	1,190	315	845	140	63	632	28
29	9.9	40	e307	e73	e383	1,360	291	685	132	56	1,090	26
30	11	35	222	e70	---	1,090	262	967	121	56	388	25
31	9.7	---	162	e64	---	872	---	2,510	---	56	211	---
TOTAL	282.4	1,793	2,703	3,248	9,827	31,941	11,812	20,484	14,395	7,358	4,253	1,623
MEAN	9.11	59.8	87.2	105	339	1,030	394	661	480	237	137	54.1
MAX	15	228	367	307	1,500	4,040	983	2,510	1,630	954	1,090	147
MIN	6.7	10	32	52	40	326	197	140	121	56	21	25
MED	9.2	40	53	83	61	753	331	243	373	123	43	45
AC-FT	560	3,560	5,360	6,440	19,490	63,350	23,430	40,630	28,550	14,590	8,440	3,220
CFSM	0.02	0.10	0.15	0.18	0.59	1.80	0.69	1.15	0.84	0.41	0.24	0.09
IN.	0.02	0.12	0.18	0.21	0.64	2.07	0.77	1.33	0.93	0.48	0.28	0.11

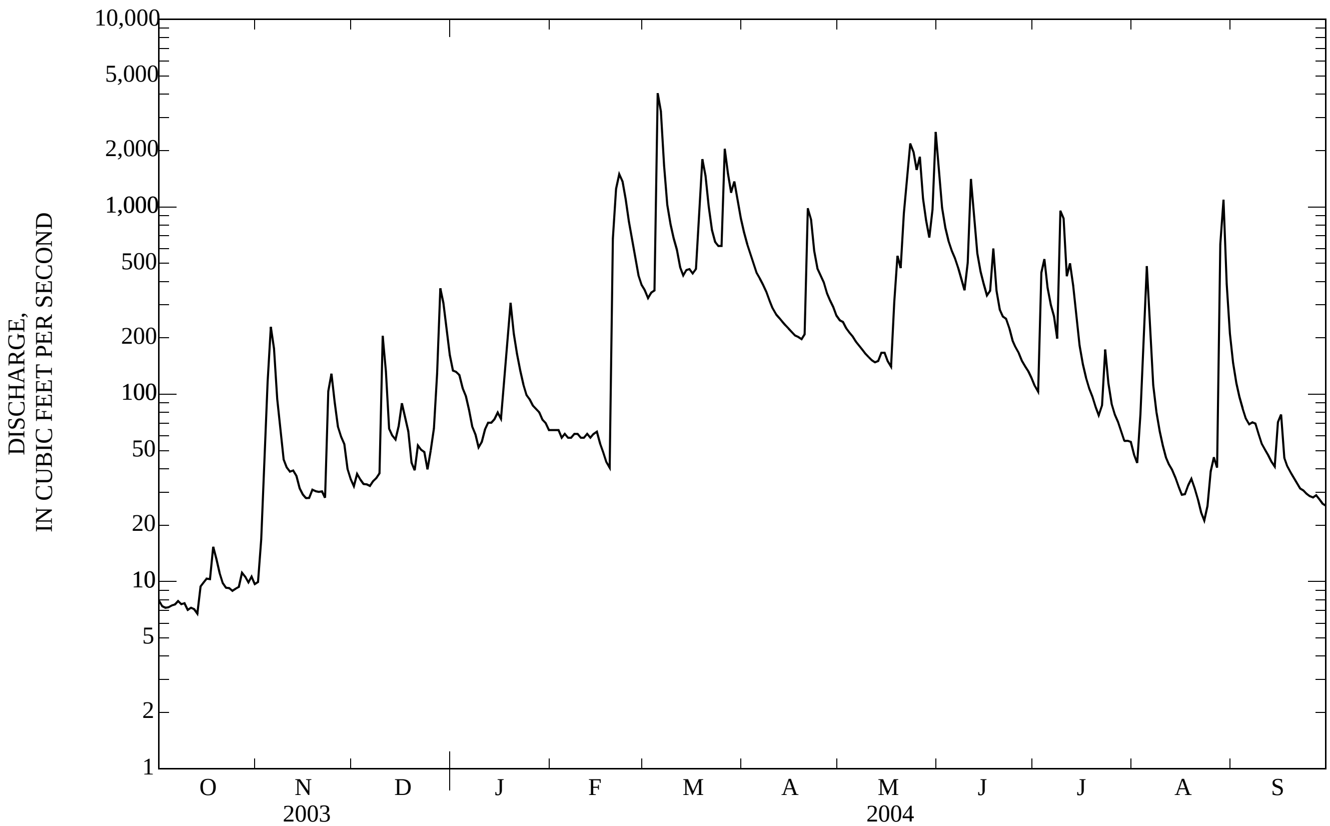
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	160	240	179	201	360	693	629	684	593	399	261	222
MAX	1,274	2,060	1,085	1,429	1,066	2,957	2,736	3,529	2,570	4,207	3,696	3,169
(WY)	(1999)	(1962)	(1983)	(1946)	(1984)	(1979)	(1973)	(1974)	(1990)	(1993)	(1993)	(1965)
MIN	2.98	2.38	2.19	0.76	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	38,950.5		109,719.4			
ANNUAL MEAN	107		300		385	
HIGHEST ANNUAL MEAN					1,721	1993
LOWEST ANNUAL MEAN					41.7	1954
HIGHEST DAILY MEAN	1,760	May 10	4,040	Mar 5	22,300	Jul 6, 1993
LOWEST DAILY MEAN	6.7	Oct 13	6.7	Oct 13	0.66	Feb 5, 1977
ANNUAL SEVEN-DAY MINIMUM	7.3	Oct 7	7.3	Oct 7	0.68	Feb 1, 1977
MAXIMUM PEAK FLOW			4,840	Mar 5	36,100	Jul 6, 1993
MAXIMUM PEAK STAGE			14.76	Mar 5	22.55	Jul 6, 1993
INSTANTANEOUS LOW FLOW			6.2	Oct 13		
ANNUAL RUNOFF (AC-FT)	77,260		217,600		278,900	
ANNUAL RUNOFF (CFSM)	0.186		0.522		0.671	
ANNUAL RUNOFF (INCHES)	2.52		7.11		9.11	
10 PERCENT EXCEEDS	252		838		860	
50 PERCENT EXCEEDS	43		106		118	
90 PERCENT EXCEEDS	9.9		25		12	

e Estimated



05455700 IOWA RIVER NEAR LONE TREE, IA

LOCATION.--(revised)Lat 41°25'26", long 91°28'43", 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 30 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	207	1,020	1,220	e583	4,960	5,140	2,700	8,960	6,490	1,610	6,390
2	185	249	1,000	1,200	e565	4,980	5,190	2,700	8,220	6,440	1,570	3,960
3	192	517	996	1,190	e495	4,630	5,020	2,670	7,720	6,610	1,500	3,180
4	180	507	870	1,120	e479	4,650	4,590	2,350	7,510	7,480	1,860	2,240
5	184	499	855	e957	e494	9,690	4,080	1,960	7,410	7,030	2,660	2,070
6	182	2,020	1,140	e671	e535	12,600	3,600	1,800	7,370	7,110	2,610	1,810
7	182	3,590	1,460	e478	e647	10,400	3,260	1,790	7,300	6,840	2,470	1,530
8	182	3,800	1,530	e394	e666	8,930	3,050	1,980	7,080	6,660	2,400	1,330
9	182	2,520	1,740	e649	e630	7,910	2,980	2,000	7,000	7,200	2,360	1,150
10	182	1,590	2,450	e691	e582	7,490	2,910	2,040	7,040	8,670	2,120	1,220
11	184	1,150	2,760	e698	e573	6,760	2,820	2,080	9,010	7,210	1,770	1,230
12	193	991	2,370	e715	e557	6,300	2,440	2,040	7,980	7,030	1,440	1,210
13	193	1,070	e2,210	e713	e555	4,770	2,300	2,040	7,400	7,040	1,370	1,190
14	229	1,090	1,830	e711	e524	4,210	2,260	1,580	7,260	6,780	1,350	1,170
15	231	1,090	1,430	e706	e503	4,030	2,230	1,290	7,360	6,670	1,330	897
16	214	1,080	1,230	e718	e488	3,800	2,130	1,230	7,080	6,520	1,330	1,270
17	221	1,090	1,180	e895	e488	3,950	2,120	1,220	6,970	6,330	1,330	846
18	205	1,110	1,110	e1,200	e488	4,180	2,080	1,540	7,100	5,730	1,380	745
19	208	1,160	1,100	e995	e501	5,060	2,070	2,280	6,960	5,130	1,430	718
20	207	1,170	1,190	e795	e824	5,120	2,060	2,860	6,820	4,630	1,370	694
21	202	963	1,190	e766	e2,120	4,620	2,750	3,930	6,940	4,020	1,340	751
22	196	864	1,010	e740	e3,200	4,210	3,180	3,840	7,090	3,550	1,190	768
23	198	1,200	988	e738	e4,360	4,030	2,770	6,150	6,770	3,100	1,140	741
24	199	1,580	978	e735	6,220	4,030	2,800	7,420	6,680	2,390	1,350	758
25	207	1,350	989	e723	5,490	4,020	3,100	8,710	6,620	2,140	1,480	745
26	203	1,160	960	e713	5,000	7,360	3,210	6,820	6,600	1,960	1,490	738
27	204	1,080	1,070	e651	4,230	6,890	2,880	3,690	6,550	1,850	1,690	731
28	204	1,050	1,230	e626	4,110	5,450	2,590	2,650	6,540	1,760	6,510	715
29	204	1,090	2,110	e614	4,200	5,300	2,400	2,310	6,610	1,660	8,910	692
30	204	1,040	1,600	e593	---	5,110	2,530	4,110	6,560	1,610	7,410	688
31	208	---	1,310	e585	---	4,980	---	7,760	---	1,530	6,910	---
TOTAL	6,157	37,877	42,906	24,200	50,107	180,420	90,540	97,540	216,510	159,170	74,680	42,177
MEAN	199	1,263	1,384	781	1,728	5,820	3,018	3,146	7,217	5,135	2,409	1,406
MAX	231	3,800	2,760	1,220	6,220	12,600	5,190	8,710	9,010	8,670	8,910	6,390
MIN	180	207	855	394	479	3,800	2,060	1,220	6,540	1,530	1,140	688
AC-FT	12,210	75,130	85,100	48,000	99,390	357,900	179,600	193,500	429,400	315,700	148,100	83,660
CFSM	0.05	0.29	0.32	0.18	0.40	1.36	0.70	0.73	1.68	1.20	0.56	0.33
IN.	0.05	0.33	0.37	0.21	0.43	1.56	0.78	0.85	1.88	1.38	0.65	0.37

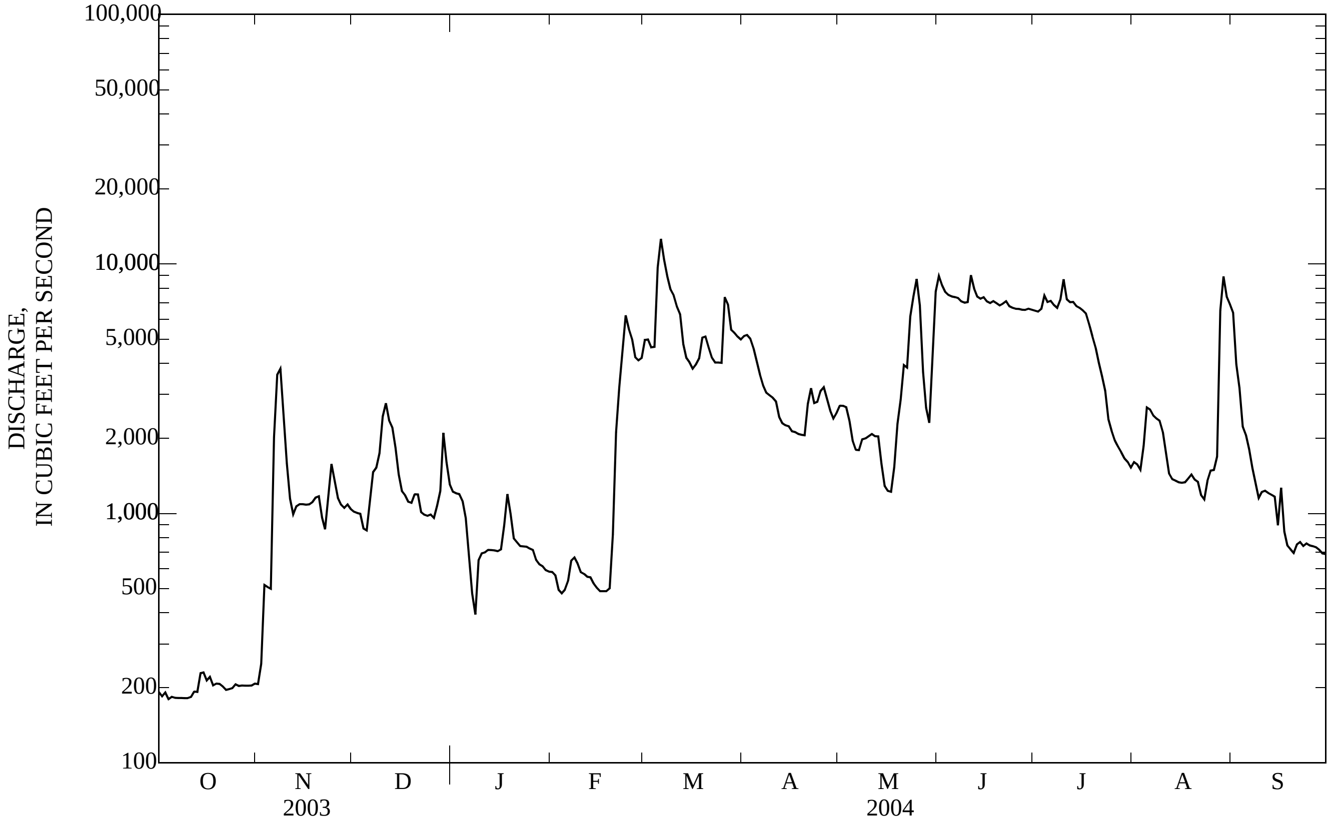
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

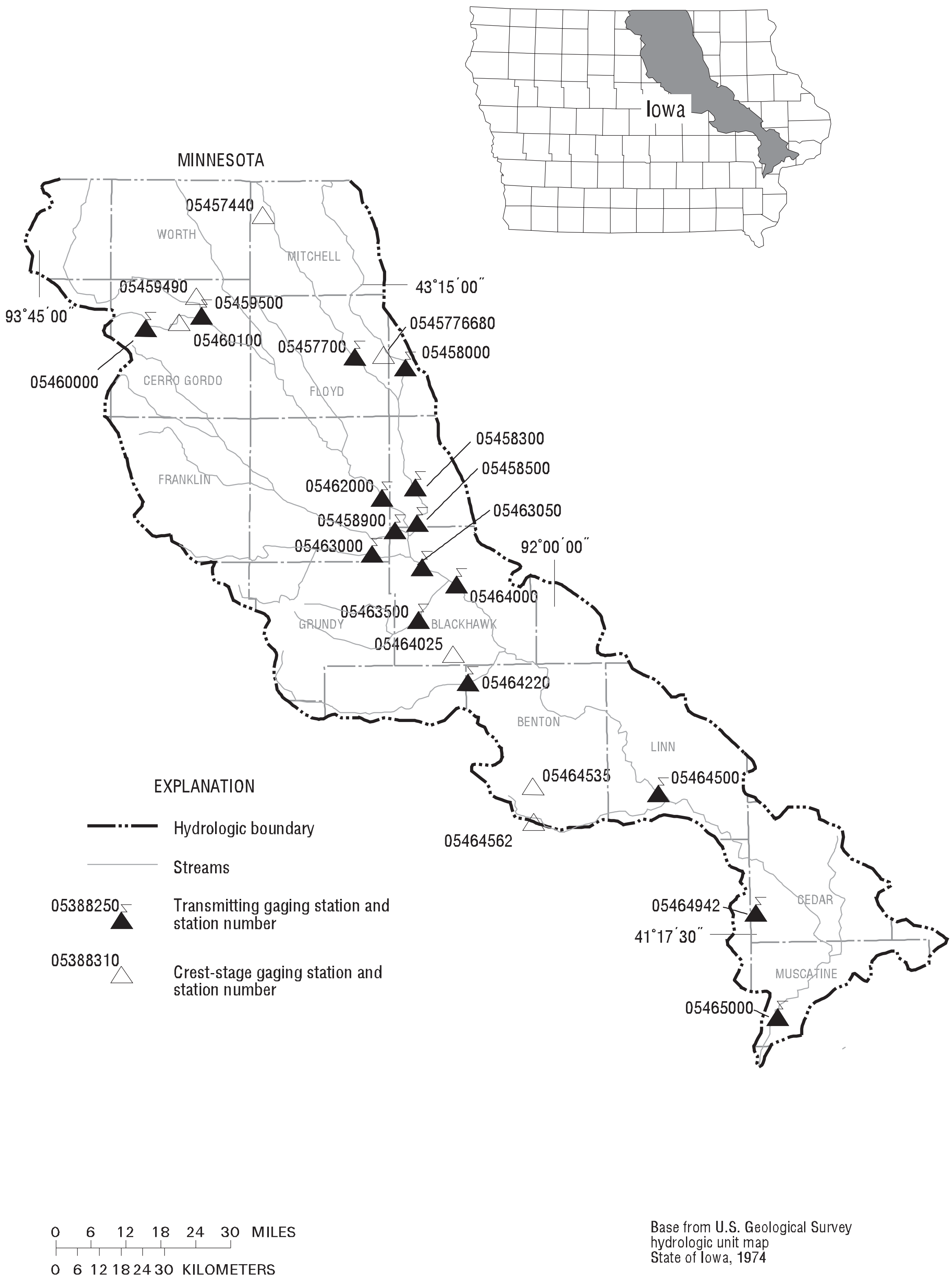
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1,506	1,923	1,822	1,436	2,380	4,643	4,961	4,653	4,796	4,392	2,759	1,961
MAX	6,115	6,347	6,678	7,814	7,205	10,410	12,230	14,030	13,150	30,320	26,150	18,150
(WY)	(1994)	(1962)	(1983)	(1973)	(1973)	(1993)	(1979)	(1993)	(1974)	(1993)	(1993)	(1993)
MIN	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004 a	
ANNUAL TOTAL	588,469		1,022,284			
ANNUAL MEAN	1,612		2,793		3,105	
HIGHEST ANNUAL MEAN					11,900	1993
LOWEST ANNUAL MEAN					483	1989
HIGHEST DAILY MEAN	8,800	May 10	12,600	Mar 6	55,100	Jul 7, 1993
LOWEST DAILY MEAN	180	Oct 4	180	Oct 4	69	Aug 4, 1977
ANNUAL SEVEN-DAY MINIMUM	182	Oct 4	182	Oct 4	75	Jul 30, 1977
MAXIMUM PEAK FLOW			13,100	Mar 6	57,100	Jul 7, 1993
MAXIMUM PEAK STAGE			14.51	Mar 6	22.94	Jul 7, 1993
ANNUAL RUNOFF (AC-FT)	1,167,000		2,028,000		2,249,000	
ANNUAL RUNOFF (CFSM)	0.376		0.651		0.723	
ANNUAL RUNOFF (INCHES)	5.10		8.86		9.83	
10 PERCENT EXCEEDS	4,170		7,030		7,500	
50 PERCENT EXCEEDS	948		1,720		1,750	
90 PERCENT EXCEEDS	208		485		320	

a Post regulation.
e Estimated.




Iowa
MINNESOTA
05457440
WORTH
MITCHELL
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05459490
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93°45′00″
0545776680
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CERRO GORDO
FLOYD
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FRANKLIN
05462000
05463050
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92°00′00″
05463000
05464000
05463500
GRUNDY
BLACKHAWK
05464025
05464220
BENTON
LINN
05464535
05464500
EXPLANATION
Hydrologic boundary
Streams
05388250
Transmitting gaging station and station number
05388310
Crest-stage gaging station and station number
05464562
05464942
CEDAR
41°17′30″
MUSCATINE
05465000
0 6 12 18 24 30 MILES
0 6 12 18 24 30 KILOMETERS
Base from U.S. Geological Survey
hydrologic unit map
State of Iowa, 1974

Gaging Stations

05457700 Cedar River at Charles City, IA 178
05458000 Little Cedar River near Ionia, IA 180
05458300 Cedar River at Waverly, IA 182
05458500 Cedar River at Janesville, IA 184
05458900 West Fork Cedar River at Finchford, IA 186
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05460000 Clear Lake at Clear Lake, IA 190
05462000 Shell Rock River at Shell Rock, IA 192
05463000 Beaver Creek at New Hartford, IA 194
05463050 Cedar River at Cedar Falls, IA 196
05463500 Black Hawk Creek at Hudson, IA 198
05464000 Cedar River at Waterloo, IA 200
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Crest Stage Gaging Stations

05457440 Deer Creek near Carpenter, IA 489
0545776680 Gizzard Creek Tributary near Bassett, IA 489
05459490 Spring Creek near Mason City, IA 489
05460100 Willow Creek near Mason City, IA 489
05464025 Miller Creek near Eagle Center, IA 489
05464535 Prairie Creek Tributary near Van Horne, IA 489
05464562 Thunder Creek at Blairstown, IA 489

05457700 CEDAR RIVER AT CHARLES CITY, IA

LOCATION.--Lat 43°03'45", long 92°40'23", in SE$\frac{1}{4}$ NE$\frac{1}{4}$, 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 current year. Stage-only records from October 1995 to September 2000.

GAGE.--Water-stage recorder. Datum of gage is 973.02 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	195	201	158	e161	408	449	376	3,510	558	639	447
2	179	197	167	e163	e165	740	395	351	2,570	509	773	425
3	182	209	185	e173	e161	1,790	357	323	2,030	567	791	393
4	183	250	189	124	e164	1,350	335	313	1,740	643	958	370
5	180	237	202	e120	e170	1,150	312	301	1,530	1,160	1,450	357
6	182	215	196	116	e168	2,150	294	297	1,400	10,500	1,310	389
7	182	205	191	131	e164	2,700	285	284	1,270	12,300	1,020	347
8	184	189	190	157	e161	1,710	279	284	1,160	5,380	836	323
9	185	179	191	147	e170	1,040	259	300	2,170	3,610	1,100	316
10	185	190	174	144	e175	899	259	306	3,860	3,090	1,200	303
11	193	205	112	145	e184	791	249	321	4,130	2,850	1,060	296
12	200	199	141	153	e183	648	249	330	4,540	4,490	841	282
13	196	194	165	152	e181	561	244	473	3,530	3,860	723	272
14	204	192	185	149	e181	594	241	1,350	3,430	2,890	636	330
15	193	193	178	142	e175	476	236	1,600	2,440	2,100	562	2,420
16	188	201	177	143	e184	434	240	1,080	1,860	1,700	518	15,000
17	185	209	162	e127	e178	361	243	813	2,160	1,480	556	18,600
18	194	227	167	e120	e188	362	241	683	2,320	1,320	675	14,000
19	203	234	171	106	e189	340	279	585	1,810	1,260	795	6,250
20	201	226	161	122	209	352	287	522	1,510	1,280	1,070	4,850
21	200	210	167	e119	188	348	314	811	1,380	1,330	1,000	4,040
22	190	196	175	e121	174	354	316	8,650	1,240	1,430	806	3,430
23	195	208	172	126	178	324	318	12,800	1,090	1,540	770	2,950
24	194	167	162	122	171	352	308	7,910	990	1,440	856	2,590
25	193	149	157	124	175	427	358	5,530	882	1,300	790	2,270
26	190	197	166	123	171	552	510	3,480	788	1,190	750	2,010
27	190	226	182	e121	169	456	565	2,700	734	1,110	698	1,880
28	191	197	195	e116	208	566	518	2,120	692	1,030	608	1,550
29	193	145	199	e118	265	622	465	3,080	643	972	547	1,540
30	194	214	186	e129	---	627	416	5,640	596	959	503	1,370
31	202	---	182	e146	---	527	---	5,230	---	671	472	---
TOTAL	5,909	6,055	5,448	4,157	5,210	24,011	9,821	68,843	58,005	74,519	25,313	89,600
MEAN	191	202	176	134	180	775	327	2,221	1,934	2,404	817	2,987
MAX	204	250	202	173	265	2,700	565	12,800	4,540	12,300	1,450	18,600
MIN	178	145	112	106	161	324	236	284	596	509	472	272
AC-FT	11,720	12,010	10,810	8,250	10,330	47,630	19,480	136,600	115,100	147,800	50,210	177,700
CFSM	0.18	0.19	0.17	0.13	0.17	0.73	0.31	2.11	1.83	2.28	0.77	2.83
IN.	0.21	0.21	0.19	0.15	0.18	0.85	0.35	2.43	2.05	2.63	0.89	3.16

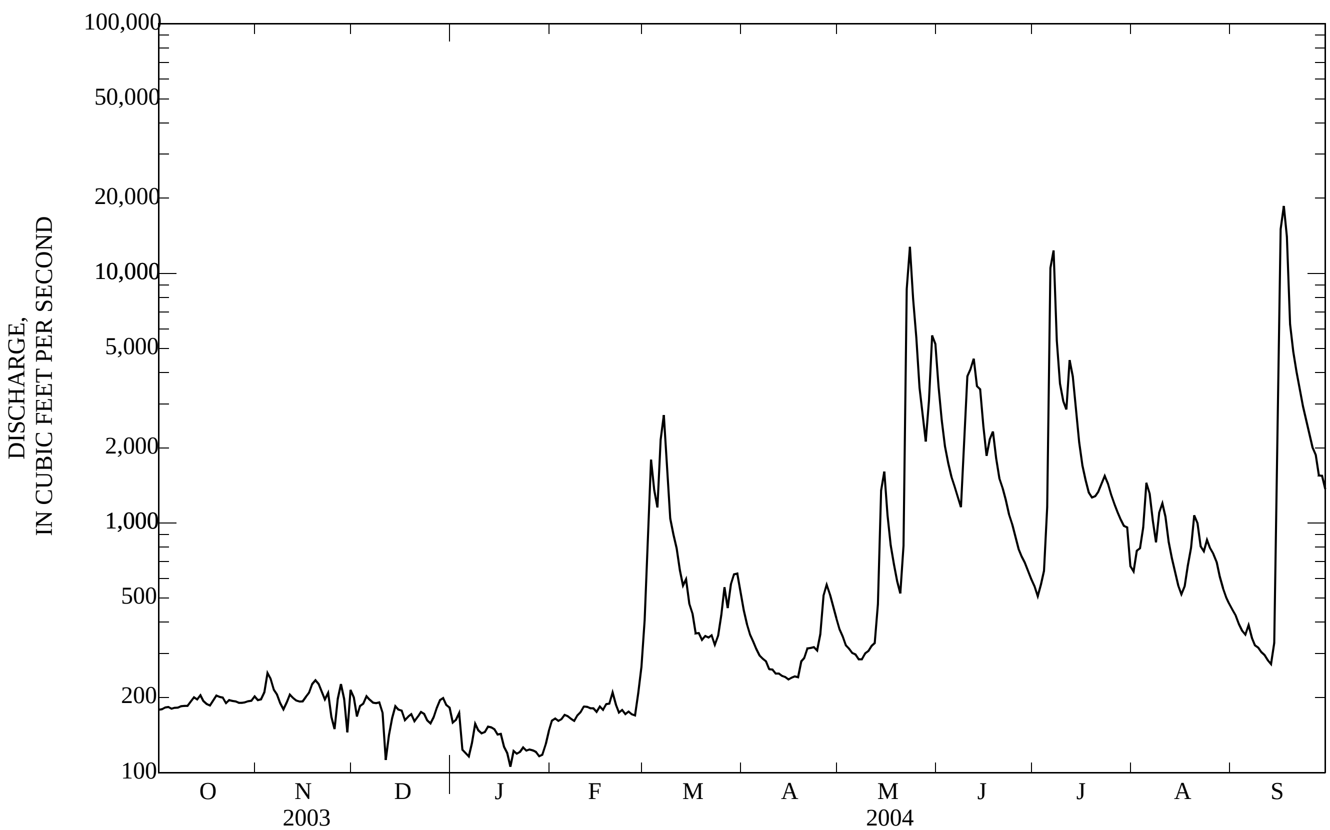
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	554	484	352	274	367	1,230	1,540	1,107	1,049	855	669	575
MAX	2,339	1,639	1,396	888	1,707	3,388	6,010	3,434	4,071	3,009	4,704	2,987
(WY)	(1987)	(1983)	(1983)	(1973)	(1984)	(1997)	(2001)	(1991)	(1993)	(1993)	(1993)	(2004)
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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1965 - 2004	
ANNUAL TOTAL	187,318		376,891			
ANNUAL MEAN	513		1,030		762	
HIGHEST ANNUAL MEAN					2,048	1993
LOWEST ANNUAL MEAN					159	1977
HIGHEST DAILY MEAN	4,800	May 13	18,600	Sep 17	22,100	Aug 17, 1993
LOWEST DAILY MEAN	112	Dec 11	106	Jan 19	60	Nov 23, 1976 a
ANNUAL SEVEN-DAY MINIMUM	160	Dec 11	119	Jan 18	65	Dec 17, 1989
MAXIMUM PEAK FLOW			19,200	Sep 17	31,200	Jul 21, 1999
MAXIMUM PEAK STAGE			20.58	Sep 17	22.81	Jul 21, 1999
INSTANTANEOUS LOW FLOW			86	Nov 29 b	45	Nov 17, 1989
ANNUAL RUNOFF (AC-FT)	371,500		747,600		552,000	
ANNUAL RUNOFF (CFSM)	0.487		0.977		0.723	
ANNUAL RUNOFF (INCHES)	6.61		13.30		9.82	
10 PERCENT EXCEEDS	1,160		2,430		1,620	
50 PERCENT EXCEEDS	213		317		375	
90 PERCENT EXCEEDS	171		161		160	

a Also Jan. 7, 1978.
b Also Dec. 10, 11.
e Estimated.



05458000 LITTLE CEDAR RIVER NEAR IONIA, IA

LOCATION.--(revised)Lat 43°02'00", long 92°30'12", in SW¼ NE¼ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	29	21	28	18	221	136	95	937	300	224	108
2	26	29	19	27	18	404	119	87	699	286	217	98
3	24	33	32	26	17	538	107	80	594	303	198	89
4	24	40	27	23	17	475	96	75	525	578	193	82
5	24	41	32	19	17	e453	89	70	483	530	224	78
6	25	41	33	17	e16	e679	83	67	456	2,830	219	90
7	25	35	30	15	e16	e834	78	62	429	2,150	182	85
8	25	22	32	14	e14	446	74	63	399	1,350	159	79
9	25	25	32	13	e16	308	69	62	396	1,230	242	75
10	25	37	19	13	e16	224	65	62	703	1,270	476	70
11	26	38	14	17	17	173	61	60	803	1,710	388	66
12	28	33	18	20	17	e113	59	61	739	2,540	321	62
13	29	30	18	22	17	e121	57	175	622	1,890	253	58
14	32	32	19	24	17	137	55	428	553	1,220	202	71
15	30	32	20	25	17	113	54	340	501	894	165	96
16	29	32	21	e25	17	97	54	254	464	760	141	826
17	30	33	20	e24	17	91	55	197	578	675	125	4,840
18	30	39	20	e20	17	87	55	166	802	611	122	1,780
19	30	37	21	e15	18	82	60	141	738	562	116	606
20	31	36	20	e18	19	82	62	138	597	515	109	472
21	32	35	21	e16	20	80	73	470	553	484	105	404
22	30	32	21	e14	21	78	77	2,530	511	490	104	356
23	29	33	22	23	23	74	71	6,690	468	465	108	307
24	29	19	22	23	26	79	67	3,970	433	418	111	270
25	29	23	21	23	27	113	79	2,650	410	379	116	240
26	e29	27	20	23	26	320	131	1,540	384	350	126	209
27	28	34	23	e20	32	204	155	948	364	319	150	187
28	29	28	27	e18	55	304	140	706	353	283	163	173
29	29	22	28	e18	123	245	123	1,140	337	255	171	159
30	29	33	28	19	---	195	106	2,880	318	238	140	144
31	30	---	28	19	---	160	---	1,720	---	232	121	---
TOTAL	866	960	729	621	691	7,530	2,510	27,927	16,149	26,117	5,691	12,180
MEAN	27.9	32.0	23.5	20.0	23.8	243	83.7	901	538	842	184	406
MAX	32	41	33	28	123	834	155	6,690	937	2,830	476	4,840
MIN	24	19	14	13	14	74	54	60	318	232	104	58
AC-FT	1,720	1,900	1,450	1,230	1,370	14,940	4,980	55,390	32,030	51,800	11,290	24,160
CFSM	0.09	0.10	0.08	0.07	0.08	0.79	0.27	2.94	1.76	2.75	0.60	1.33
IN.	0.11	0.12	0.09	0.08	0.08	0.92	0.31	3.40	1.96	3.18	0.69	1.48

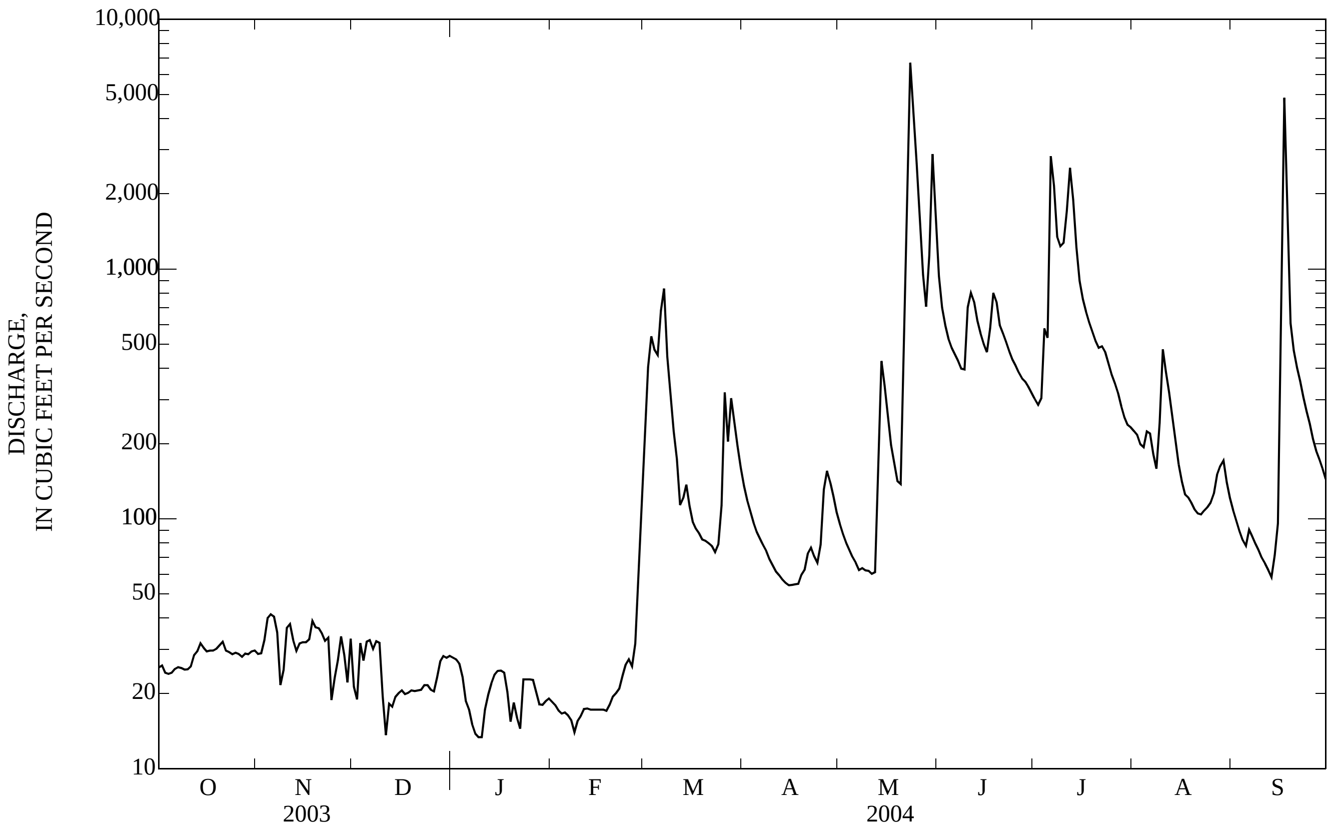
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	136	116	74.7	47.1	82.6	351	368	263	296	216	168	135
MAX	902	632	503	265	644	1,056	1,636	906	1,199	1,317	1,744	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1955 - 2004	
ANNUAL TOTAL	43,622		101,971			
ANNUAL MEAN	120		279		188	
HIGHEST ANNUAL MEAN					584	1993
LOWEST ANNUAL MEAN					32.0	1977
HIGHEST DAILY MEAN	1,130	Jul 11	6,690	May 23	9,930	Mar 27, 1961
LOWEST DAILY MEAN	12	Jan 26	13	Jan 9 a	3.0	Feb 4, 1959 b
ANNUAL SEVEN-DAY MINIMUM	14	Jan 23	15	Jan 5	3.0	Feb 3, 1959
MAXIMUM PEAK FLOW			7,840	May 23	14,000	Aug 16, 1993
MAXIMUM PEAK STAGE			15.24	May 23	18.99	Aug 16, 1993
INSTANTANEOUS LOW FLOW			7.5	Dec 10	3.0	Feb 4, 1959
ANNUAL RUNOFF (AC-FT)	86,520		202,300		136,200	
ANNUAL RUNOFF (CFSM)	0.391		0.910		0.615	
ANNUAL RUNOFF (INCHES)	5.30		12.40		8.35	
10 PERCENT EXCEEDS	321		608		394	
50 PERCENT EXCEEDS	32		76		72	
90 PERCENT EXCEEDS	18		19		20	

a Also Jan. 10.
b Also Feb. 5-9, 1959.
e Estimated.



05458300 CEDAR RIVER AT WAVERLY, IA

LOCATION.--Lat 42°44'14", long 92°28'12", in NE$\frac{1}{4}$ NW$\frac{1}{4}$ SW$\frac{1}{4}$ sec.35, T.92 N., R.14 W., Butler County, Hydrologic Unit 07080201, in middle of the County Highway V-14 bridge on the north edge of Waverly.

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

PERIOD OF RECORD.--August 30, 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 892.64 ft above NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	e252	e250	e243	e234	e526	719	443	7,130	e989	1,170	960
2	252	e274	e233	e244	e236	609	643	417	4,260	e905	e1,130	903
3	e243	e312	e252	e245	e231	e864	550	e394	2,700	e960	e1,300	937
4	e258	e393	e256	e230	e233	e1,640	468	e290	2,410	e1,120	e1,330	908
5	e246	e375	e282	e226	e238	e2,170	455	e410	2,260	e1,190	e1,380	868
6	255	e316	e279	e222	e235	e1,830	475	e358	2,140	1,550	e1,850	968
7	e245	e309	e271	e234	e233	e2,440	521	e398	2,190	e6,910	1,810	879
8	e254	e289	e303	e244	e233	e3,140	492	e382	2,230	e14,300	e1,520	896
9	249	e261	333	e238	e238	e2,610	473	e470	2,340	7,450	e1,340	771
10	e260	e249	264	e231	e241	e1,630	e450	e406	2,280	4,540	e1,520	735
11	e252	288	238	e223	e254	e1,240	459	e446	3,360	3,850	1,880	762
12	e301	288	e259	239	e251	1,130	437	e398	4,050	4,150	1,690	753
13	e400	332	e276	e230	e249	834	446	e486	4,470	7,110	1,510	725
14	e277	228	e291	217	e249	778	456	e654	3,120	5,310	1,340	730
15	e284	272	e306	e200	e243	745	450	e1,130	2,880	3,150	1,190	e683
16	e224	263	308	e217	e247	606	490	2,070	2,010	2,090	1,070	e1,000
17	e183	277	e281	e214	e240	557	570	e1,270	2,010	2,000	1,010	10,300
18	e194	324	e275	e209	e248	469	581	e1,030	2,330	2,280	959	23,300
19	206	309	e279	e209	e249	463	533	e840	2,650	2,210	1,020	17,400
20	239	332	e282	e223	e266	475	520	e814	2,170	2,030	1,120	6,590
21	212	298	e257	e216	e249	419	553	e840	2,210	1,840	1,300	4,000
22	e221	301	e238	e211	e244	534	561	5,250	e2,120	e1,730	1,260	3,130
23	e228	293	e256	e219	e260	519	567	e12,700	e1,830	e1,970	1,160	2,560
24	e230	297	e252	e206	e255	526	468	e20,600	e1,710	1,950	1,140	2,410
25	e241	238	248	e204	e266	583	500	14,500	e1,550	e1,700	1,170	2,330
26	e236	e203	e262	e206	e258	900	476	9,300	e1,360	e1,500	1,160	2,170
27	e227	e249	e241	e199	e258	1,060	607	5,540	e1,310	e1,380	1,180	1,860
28	e251	e233	e256	e197	e319	929	645	3,440	e1,190	e1,250	1,030	1,660
29	e235	e215	e259	e197	e411	1,040	614	2,590	e1,110	e1,180	977	1,420
30	e248	e256	e248	e207	---	887	525	4,950	e1,030	e1,100	1,030	1,140
31	e243	---	e244	e225	---	825	---	8,750	---	e1,130	994	---
TOTAL	7,638	8,526	8,279	6,825	7,368	32,978	15,704	101,566	74,410	90,824	39,540	93,748
MEAN	246	284	267	220	254	1,064	523	3,276	2,480	2,930	1,275	3,125
MAX	400	393	333	245	411	3,140	719	20,600	7,130	14,300	1,880	23,300
MIN	183	203	233	197	231	419	437	290	1,030	905	959	683
AC-FT	15,150	16,910	16,420	13,540	14,610	65,410	31,150	201,500	147,600	180,100	78,430	185,900
CFSM	0.16	0.18	0.17	0.14	0.16	0.69	0.34	2.12	1.60	1.89	0.82	2.02
IN.	0.18	0.21	0.20	0.16	0.18	0.79	0.38	2.44	1.79	2.18	0.95	2.25

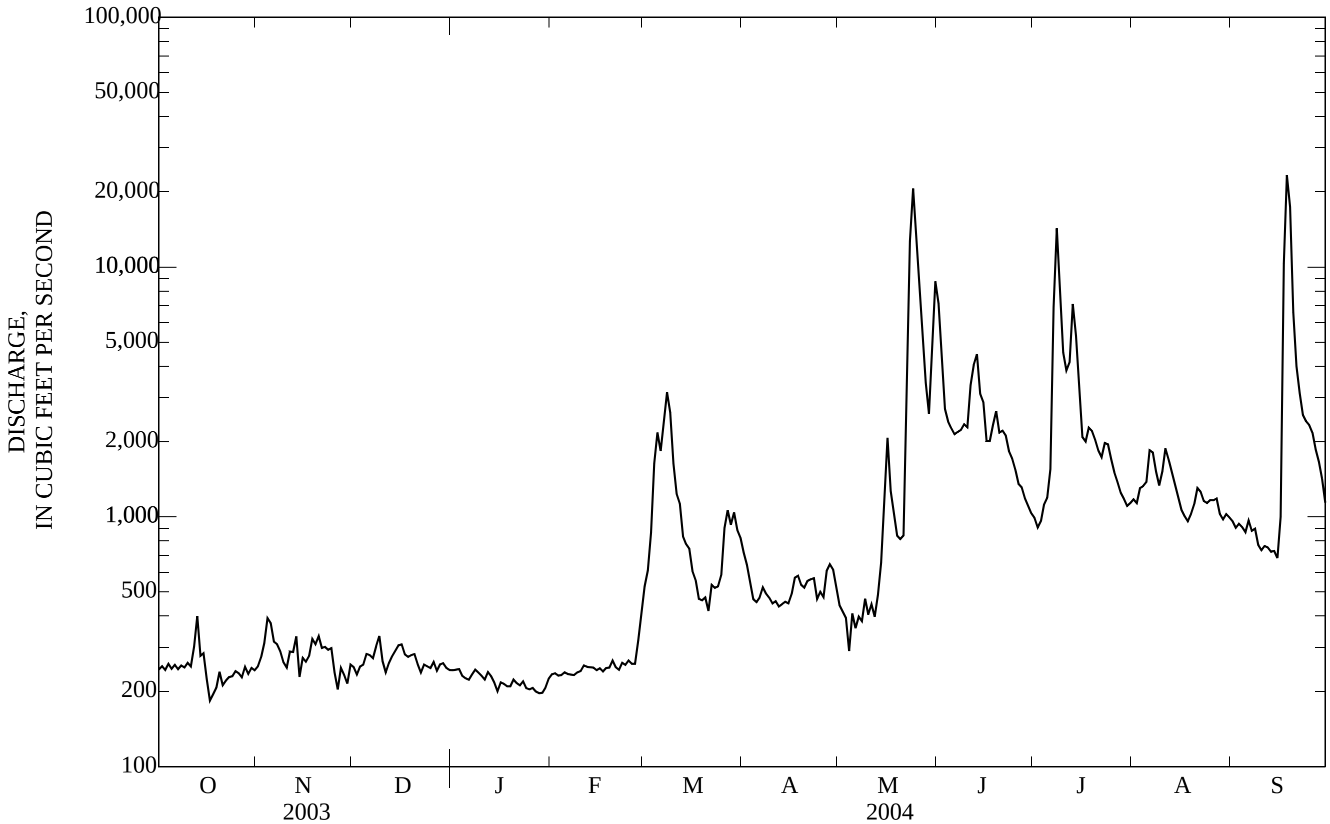
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	409	363	332	293	297	681	2,338	2,724	1,864	1,417	742	935
MAX	619	413	404	422	366	1,064	7,454	4,340	2,634	2,930	1,275	3,125
(WY)	(2003)	(2003)	(2002)	(2001)	(2002)	(2004)	(2001)	(2001)	(2001)	(2004)	(2004)	(2004)
MIN	246	284	267	220	231	364	523	794	1,053	420	407	293
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2004)	(2002)	(2002)	(2002)	(2003)	(2003)

05458300 CEDAR RIVER AT WAVERLY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	252,047		487,406			
ANNUAL MEAN	691		1,332		1,045	
HIGHEST ANNUAL MEAN					1,584	2001
LOWEST ANNUAL MEAN					527	2002
HIGHEST DAILY MEAN	6,140	May 14	23,300	Sep 18	23,400	Apr 14, 2001
LOWEST DAILY MEAN	181	Jan 11	183	Oct 17	181	Jan 11, 2003
ANNUAL SEVEN-DAY MINIMUM	203	Jan 23	202	Jan 24	202	Jan 24, 2004
MAXIMUM PEAK FLOW			25,200	Sep 18	25,600	Apr 14, 2001
MAXIMUM PEAK STAGE			13.16	Sep 18	13.16	Sep 18, 2004
ANNUAL RUNOFF (AC-FT)	499,900		966,800		757,200	
ANNUAL RUNOFF (CFSM)	0.446		0.861		0.676	
ANNUAL RUNOFF (INCHES)	6.06		11.72		9.18	
10 PERCENT EXCEEDS	1,700		2,570		2,190	
50 PERCENT EXCEEDS	312		496		440	
90 PERCENT EXCEEDS	221		231		249	

e Estimated



05458500 CEDAR RIVER AT JANESVILLE, IA

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

DRAINAGE AREA.--1,661 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 NGVD of 1929. 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 satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	278	278	e254	e244	e236	425	888	609	9,200	1,100	1,180	939
2	282	283	e237	e246	e238	537	782	551	6,400	1,000	1,140	878
3	270	316	e254	e248	e234	766	692	518	4,440	1,040	1,300	839
4	287	405	e259	e233	e236	1,620	628	357	3,430	1,280	1,330	806
5	271	394	269	e229	e240	2,200	573	488	2,970	1,340	1,380	755
6	278	329	292	e225	e236	1,820	538	410	2,700	2,150	1,860	840
7	263	321	284	e234	e234	2,450	514	435	2,440	7,020	1,820	834
8	278	313	270	e254	e232	e3,160	492	421	2,180	14,300	1,550	738
9	260	280	296	e242	e238	2,620	467	498	2,040	9,540	1,360	722
10	273	265	337	e238	e241	1,650	445	431	2,540	5,690	1,530	686
11	266	313	e234	e227	e254	1,270	443	466	4,580	4,890	1,860	663
12	305	284	e262	e231	e253	1,090	415	416	4,990	4,400	1,750	648
13	309	332	e282	e227	e249	926	412	520	5,860	6,650	1,470	624
14	455	255	293	e219	e249	831	408	694	4,600	6,240	1,320	631
15	278	296	308	e202	e245	859	399	1,230	4,300	4,580	1,210	828
16	290	280	308	e214	e248	715	381	1,950	3,440	3,400	1,100	1,690
17	e226	284	e284	e205	e243	669	407	1,350	2,880	2,760	1,100	8,090
18	e186	313	276	e201	e249	579	383	1,140	2,900	2,480	1,040	20,600
19	e202	359	e282	e198	e249	569	405	929	3,270	2,210	1,110	20,700
20	282	301	e285	e207	e268	514	511	852	2,850	2,010	1,220	10,200
21	308	308	e261	e204	e251	548	406	796	2,470	1,870	1,410	6,410
22	265	308	243	e205	e245	462	511	5,710	2,360	1,760	1,430	4,950
23	288	293	260	e213	e263	517	473	13,000	2,000	1,990	1,280	4,100
24	280	294	e254	e207	e256	476	461	20,900	1,840	1,950	1,230	3,530
25	279	266	e249	e205	e265	542	496	16,500	1,690	1,720	1,290	3,040
26	287	209	265	e207	e259	761	546	11,800	1,480	1,510	1,270	2,820
27	281	257	244	e200	e258	1,290	614	8,070	1,420	1,370	1,380	2,470
28	267	e239	259	e197	e297	817	703	5,650	1,310	1,250	1,210	2,310
29	296	e218	261	e201	374	1,260	716	4,650	1,220	1,190	1,100	1,960
30	260	e261	e253	e212	---	1,030	677	6,090	1,140	1,120	1,030	1,810
31	287	---	e246	e229	---	994	---	9,520	---	1,150	965	---
TOTAL	8,637	8,854	8,361	6,804	7,340	33,967	15,786	116,951	94,940	100,960	41,225	106,111
MEAN	279	295	270	219	253	1,096	526	3,773	3,165	3,257	1,330	3,537
MAX	455	405	337	254	374	3,160	888	20,900	9,200	14,300	1,860	20,700
MIN	186	209	234	197	232	425	381	357	1,140	1,000	965	624
AC-FT	17,130	17,560	16,580	13,500	14,560	67,370	31,310	232,000	188,300	200,300	81,770	210,500
CFSM	0.17	0.18	0.16	0.13	0.15	0.66	0.32	2.27	1.91	1.96	0.80	2.13
IN.	0.19	0.20	0.19	0.15	0.16	0.76	0.35	2.62	2.13	2.26	0.92	2.38

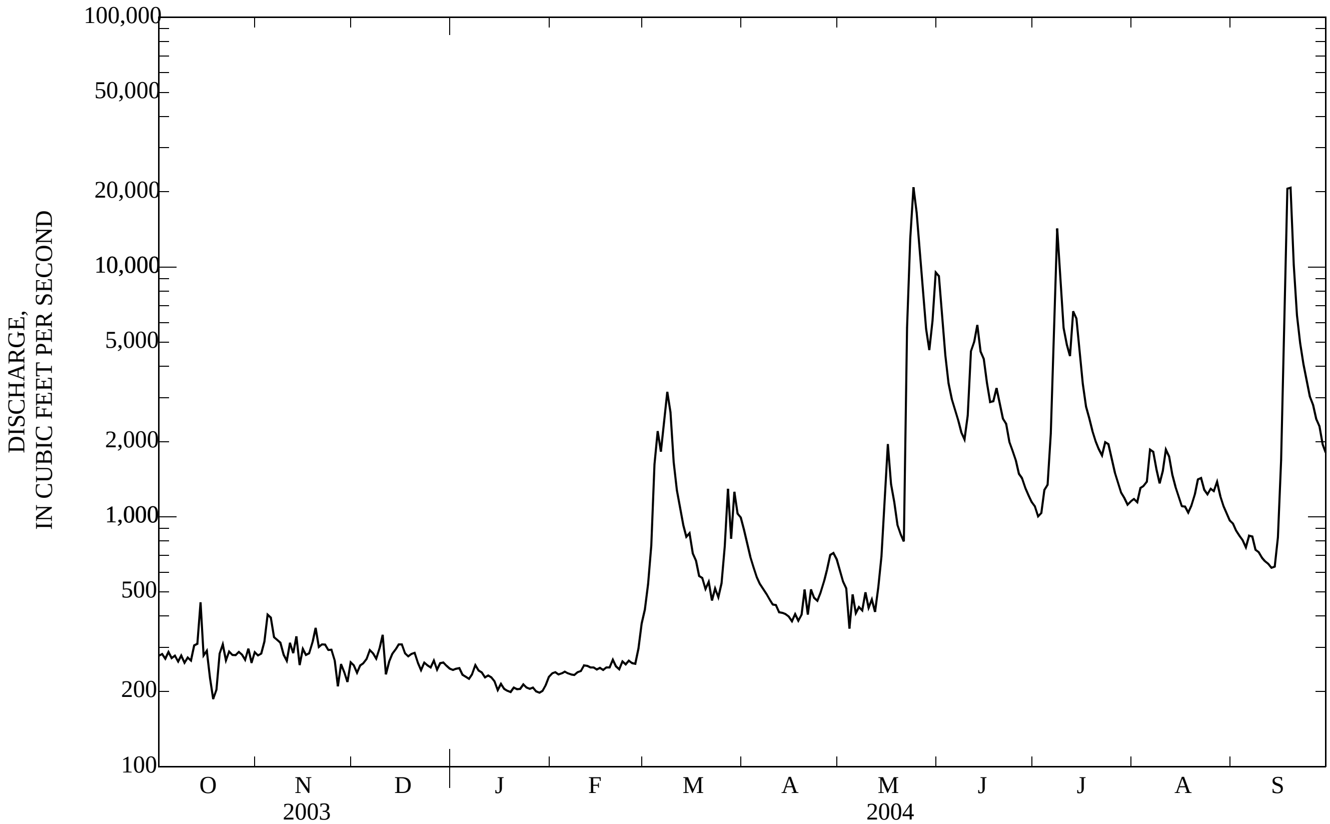
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	613	581	433	344	541	1,787	1,866	1,342	1,402	1,098	794	655
MAX	3,793	2,672	2,404	1,293	3,393	4,851	8,966	5,668	6,223	6,328	7,762	3,537
(WY)	(1987)	(1983)	(1983)	(1983)	(1984)	(1973)	(1993)	(1991)	(1993)	(1999)	(1993)	(2004)
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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1905 - 2004	
ANNUAL TOTAL	275,176		549,936			
ANNUAL MEAN	754		1,503		956	
HIGHEST ANNUAL MEAN					3,454	1993
LOWEST ANNUAL MEAN					187	1934
HIGHEST DAILY MEAN	6,150	May 14	20,900	May 24	38,800	Jul 22, 1999
LOWEST DAILY MEAN	183	Jan 26	186	Oct 18	28	Oct 21, 1922
ANNUAL SEVEN-DAY MINIMUM	192	Jan 21	204	Jan 24	50	Feb 1, 1918
MAXIMUM PEAK FLOW			25,000	Sep 18	42,200	Jul 22, 1999
MAXIMUM PEAK STAGE			13.40	Sep 18	17.15	Jul 22, 1999
ANNUAL RUNOFF (AC-FT)	545,800		1,091,000		692,600	
ANNUAL RUNOFF (CFSM)	0.454		0.905		0.576	
ANNUAL RUNOFF (INCHES)	6.16		12.32		7.82	
10 PERCENT EXCEEDS	1,830		3,430		2,100	
50 PERCENT EXCEEDS	324		514		476	
90 PERCENT EXCEEDS	227		236		165	

e Estimated



05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IA

LOCATION.--(revised)Lat 42°37'46", long 92°32'36", in SW¼ SE¼ 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 NGVD of 1929. 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 satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	73	106	e136	e92	1,320	996	480	4,110	542	195	147
2	62	75	102	e141	e98	1,400	794	440	3,980	505	193	125
3	62	85	102	e142	e93	1,230	665	411	3,640	483	203	114
4	62	115	119	e122	e95	851	571	393	3,090	471	357	103
5	61	132	e135	e110	e99	878	507	e372	2,610	512	398	98
6	60	144	e151	e105	e97	1,480	470	360	2,240	638	371	133
7	60	137	e147	e111	e95	2,010	446	349	1,970	1,090	323	132
8	59	131	e142	e124	e93	2,040	422	342	1,720	1,470	273	126
9	59	121	164	e117	e100	1,230	401	339	1,520	1,630	239	109
10	60	116	170	e112	e103	822	378	359	1,430	1,520	216	99
11	63	124	e130	e98	e115	650	360	372	1,420	1,110	199	96
12	65	121	e145	e103	e113	524	347	365	1,530	1,070	183	95
13	67	118	e159	e99	e110	465	340	370	1,680	910	172	95
14	71	113	e167	e93	e109	460	329	414	1,740	745	162	90
15	73	100	182	e78	e103	432	317	584	1,570	621	156	e87
16	75	90	175	e86	e109	405	311	744	1,320	554	154	e84
17	76	89	159	e77	e102	382	307	653	1,180	489	161	e82
18	75	95	e148	e69	e111	370	295	596	1,190	470	301	250
19	70	108	e155	e61	e112	361	288	565	1,490	441	336	415
20	68	114	163	e68	e129	354	297	531	1,660	409	244	e110
21	68	113	e149	e66	e117	344	329	520	1,620	393	202	e90
22	68	112	e136	e65	e109	331	361	2,170	1,380	379	177	e88
23	68	110	e152	e74	e126	313	403	3,940	1,230	366	160	e85
24	69	e110	e145	e71	e121	319	409	6,880	1,080	346	151	e81
25	68	e117	e140	e68	e163	323	406	11,300	971	322	147	e77
26	69	110	e148	e72	e156	375	432	8,740	870	290	150	e72
27	70	105	e136	e68	e147	574	570	6,850	780	267	202	71
28	71	107	e144	e64	e353	1,220	691	5,670	712	246	195	71
29	73	105	e146	e67	e760	1,530	621	4,990	650	236	212	72
30	74	103	e142	e73	---	1,660	543	4,720	595	218	191	72
31	75	---	e140	e85	---	1,370	---	4,350	---	202	166	---
TOTAL	2,083	3,293	4,499	2,825	4,130	26,023	13,606	69,169	50,978	18,945	6,789	3,369
MEAN	67.2	110	145	91.1	142	839	454	2,231	1,699	611	219	112
MAX	76	144	182	142	760	2,040	996	11,300	4,110	1,630	398	415
MIN	59	73	102	61	92	313	288	339	595	202	147	71
AC-FT	4,130	6,530	8,920	5,600	8,190	51,620	26,990	137,200	101,100	37,580	13,470	6,680
CFSM	0.08	0.13	0.17	0.11	0.17	0.99	0.54	2.64	2.01	0.72	0.26	0.13
IN.	0.09	0.14	0.20	0.12	0.18	1.14	0.60	3.04	2.24	0.83	0.30	0.15

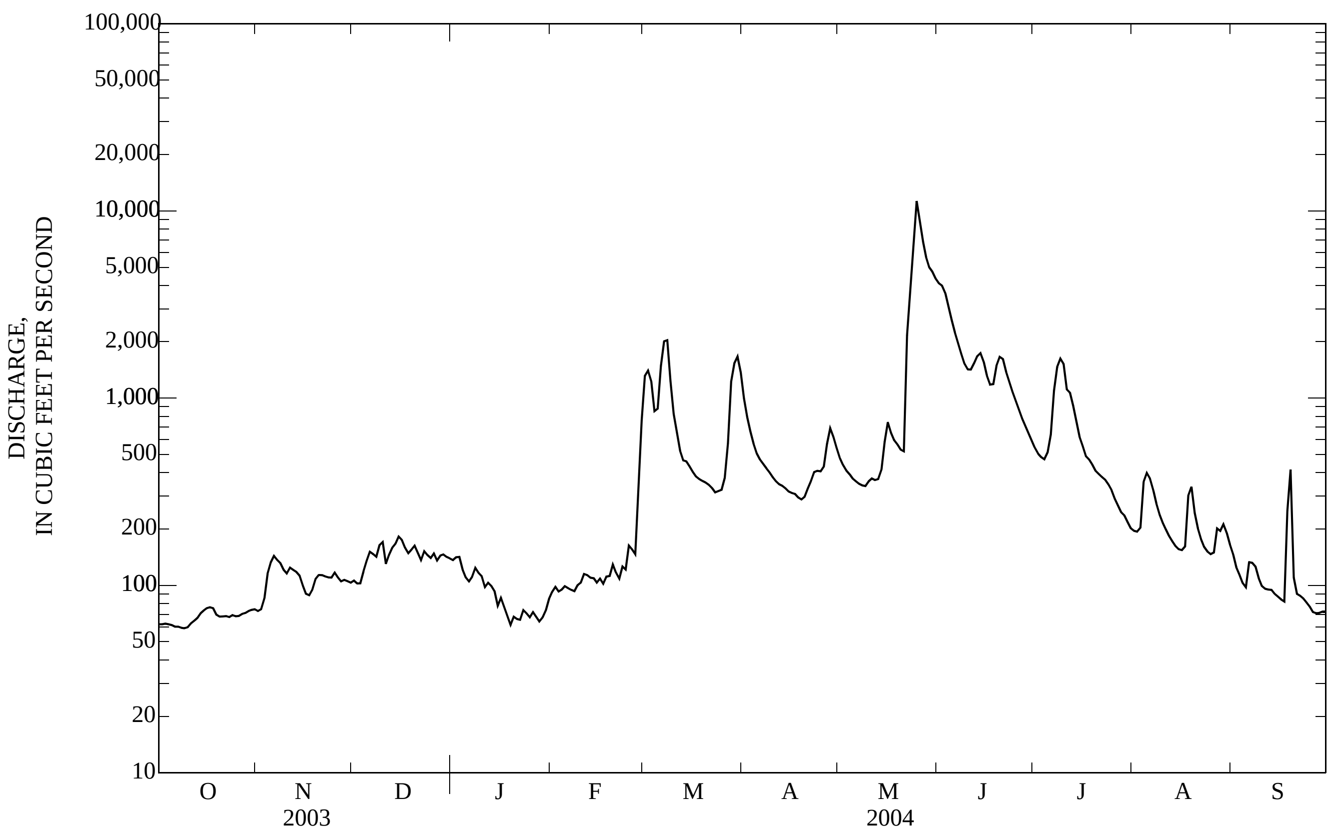
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	312	311	246	168	301	980	1,042	898	1,035	744	382	299
MAX	1,412	1,502	1,165	995	2,303	2,456	4,170	3,472	3,358	3,995	3,023	2,149
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	146,925		205,709			
ANNUAL MEAN	403		562		561	
HIGHEST ANNUAL MEAN					1,800	1993
LOWEST ANNUAL MEAN					65.5	1956
HIGHEST DAILY MEAN	3,330	May 10	11,300	May 25	25,100	Jun 27, 1951
LOWEST DAILY MEAN	58	Sep 11	59	Oct 8 a	5.9	Feb 26, 1959 b
ANNUAL SEVEN-DAY MINIMUM	60	Oct 4	60	Oct 4	6.1	Feb 23, 1959
MAXIMUM PEAK FLOW			12,000	May 25	31,900	Jun 27, 1951
MAXIMUM PEAK STAGE			15.14	May 25	18.45	Jul 29, 1990
INSTANTANEOUS LOW FLOW			58	Oct 8 a	5.9	Feb 26, 1959
ANNUAL RUNOFF (AC-FT)	291,400		408,000		406,100	
ANNUAL RUNOFF (CFSM)	0.476		0.664		0.663	
ANNUAL RUNOFF (INCHES)	6.46		9.05		9.00	
10 PERCENT EXCEEDS	977		1,410		1,370	
50 PERCENT EXCEEDS	148		166		242	
90 PERCENT EXCEEDS	67		72		49	

a Also Oct. 9.
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$\frac{1}{4}$ NW$\frac{1}{4}$ sec.3, T.96 N., R.20 W., Cerro Gordo County, Hydrologic Unit 07080203, on right bank 650 ft upstream from Thirteenth Street Bridge in Mason City, 0.1 mi downstream from Calmus Creek, 1.0 mi upstream from Willow Creek, and at mile 275.8 upstream from mouth of Iowa River.

DRAINAGE AREA.--526 mi^2.

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

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,069.59 ft above NGVD of 1929. 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 satellite and telephone modem telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	40	e29	41	e42	379	197	176	2,700	363	604	139
2	35	40	e31	43	41	525	171	161	2,220	341	1,310	134
3	35	44	38	40	34	375	148	150	1,860	346	1,170	123
4	35	56	32	35	34	278	133	138	1,590	544	1,190	112
5	35	52	39	28	33	468	123	128	1,390	806	1,140	104
6	35	46	42	32	33	1,030	117	118	1,240	3,700	991	106
7	35	42	34	28	31	657	110	113	1,110	2,270	876	104
8	35	30	38	25	e28	390	102	108	981	1,620	777	101
9	37	36	44	26	e32	342	99	112	1,330	1,460	706	100
10	35	40	26	28	e33	324	93	111	1,280	1,410	620	93
11	37	42	e25	27	38	284	90	102	1,190	1,220	540	82
12	39	42	e24	30	33	188	84	106	1,380	1,130	478	74
13	38	43	e27	33	e32	156	89	405	1,420	1,010	418	68
14	40	41	30	31	e30	166	92	654	1,340	931	363	113
15	41	38	32	30	e29	126	83	495	1,180	841	313	3,320
16	42	39	e27	30	e32	101	81	376	1,200	764	284	3,550
17	38	45	e24	30	e35	86	76	303	1,430	673	342	3,590
18	36	67	e28	e25	36	107	77	262	1,220	586	378	3,610
19	36	64	e26	e20	35	130	83	224	1,050	526	397	3,100
20	37	54	e29	25	36	127	102	566	932	478	361	2,750
21	42	46	35	e21	38	119	127	1,250	852	523	319	2,400
22	39	44	36	e18	35	112	144	7,550	773	605	292	2,080
23	38	44	39	26	36	104	139	6,140	700	522	270	1,800
24	37	26	35	25	37	110	129	6,250	640	449	249	1,580
25	36	36	34	26	38	115	265	4,680	595	395	230	1,390
26	34	e33	34	25	38	144	496	3,470	540	356	221	1,230
27	33	37	39	e23	41	166	390	2,720	497	326	216	1,100
28	34	e28	43	e21	47	276	312	2,200	463	301	193	983
29	36	27	54	e21	85	334	248	3,990	427	279	176	895
30	38	e31	47	e23	---	283	203	3,950	392	270	163	823
31	36	---	43	e33	---	233	---	3,070	---	269	147	---
TOTAL	1,139	1,253	1,064	869	1,072	8,235	4,603	50,078	33,922	25,314	15,734	35,654
MEAN	36.7	41.8	34.3	28.0	37.0	266	153	1,615	1,131	817	508	1,188
MAX	42	67	54	43	85	1,030	496	7,550	2,700	3,700	1,310	3,610
MIN	33	26	24	18	28	86	76	102	392	269	147	68
AC-FT	2,260	2,490	2,110	1,720	2,130	16,330	9,130	99,330	67,280	50,210	31,210	70,720
CFSM	0.07	0.08	0.07	0.05	0.07	0.51	0.29	3.07	2.15	1.55	0.96	2.26
IN.	0.08	0.09	0.08	0.06	0.08	0.58	0.33	3.54	2.40	1.79	1.11	2.52

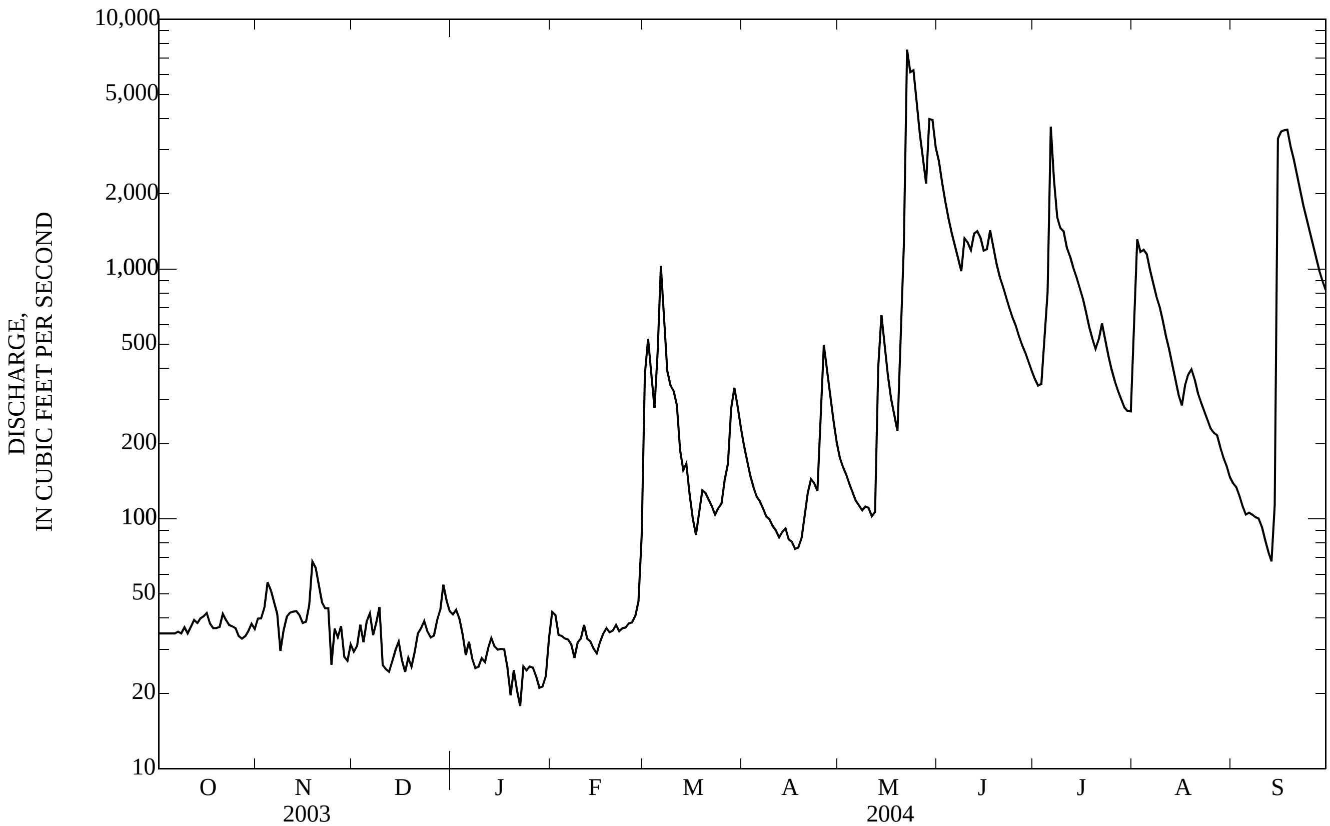
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2004, BY WATER YEAR (WY)

MEAN	173	166	109	73.7	119	504	611	454	508	328	225	190
MAX	840	811	724	378	1,002	1,707	2,880	1,807	2,160	1,915	2,054	1,188
(WY)	(1966)	(1942)	(1983)	(1983)	(1984)	(1973)	(1965)	(1991)	(1993)	(1993)	(1979)	(2004)
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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1933 - 2004	
ANNUAL TOTAL	86,651		178,937			
ANNUAL MEAN	237		489		289	
HIGHEST ANNUAL MEAN					947	1993
LOWEST ANNUAL MEAN					28.1	1934
HIGHEST DAILY MEAN	1,840	May 12	7,550	May 22	9,370	Mar 27, 1961
LOWEST DAILY MEAN	22	Jan 26	18	Jan 22 a	1.2	Aug 19, 1989
ANNUAL SEVEN-DAY MINIMUM	27	Dec 11	23	Jan 18	3.1	Dec 29, 1933
MAXIMUM PEAK FLOW			9,990	May 22	10,800	Mar 30, 1933
MAXIMUM PEAK STAGE			14.67	May 22	15.70	Mar 30, 1933
INSTANTANEOUS LOW FLOW					0.86	Aug 18, 1988 b
ANNUAL RUNOFF (AC-FT)	171,900		354,900		209,200	
ANNUAL RUNOFF (CFSM)	0.451		0.929		0.549	
ANNUAL RUNOFF (INCHES)	6.13		12.65		7.46	
10 PERCENT EXCEEDS	623		1,320		734	
50 PERCENT EXCEEDS	54		110		114	
90 PERCENT EXCEEDS	34		30		21	

a Ice affected.
b Also Aug. 19, 1988.
e Estimated.



05460000 CLEAR LAKE AT CLEAR LAKE, IA

LOCATION.--(revised)Lat 43°08'05", long 93°23'01", in SE¼ NE¼ 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 NGVD of 1929, 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 data collection platform with satellite telemetry at station.

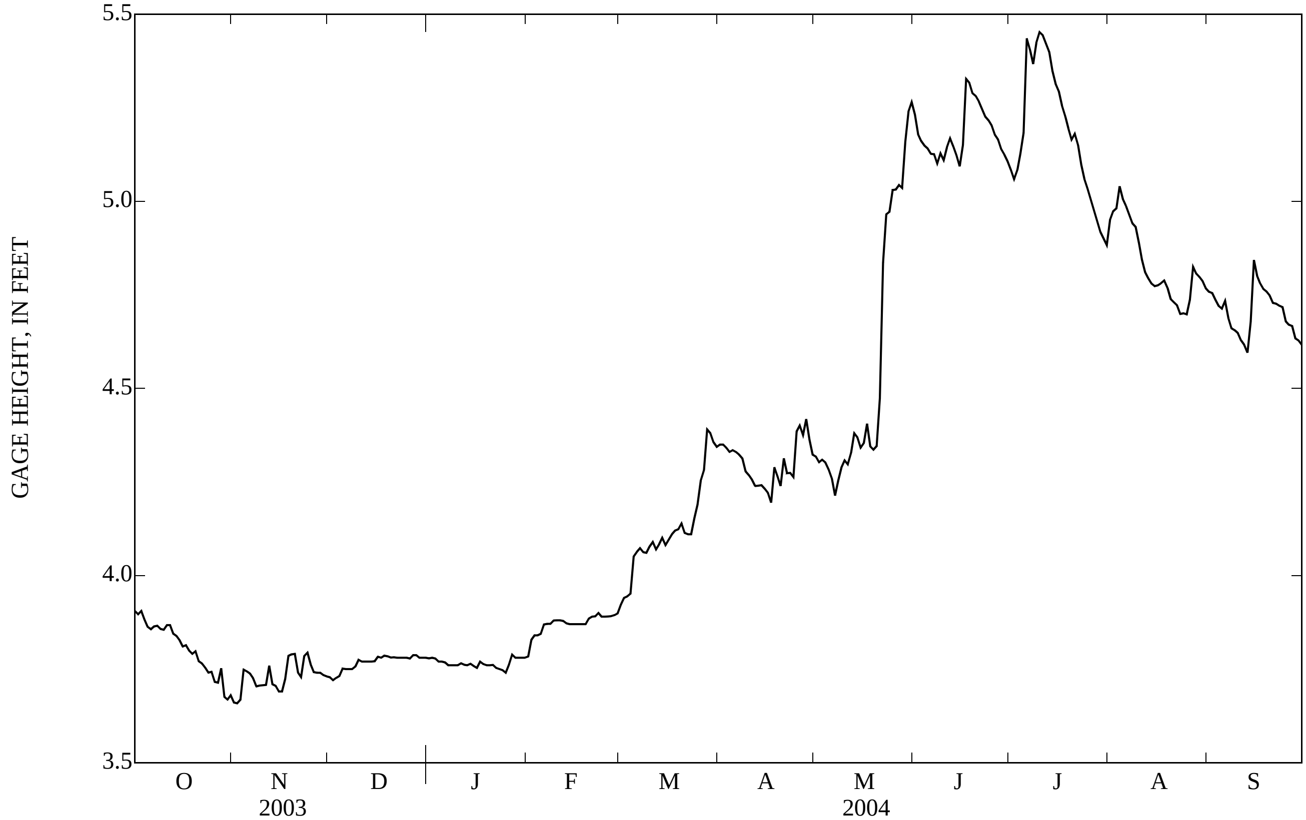
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.94 ft July 3, 1951; minimum observed, 0.76 ft Oct. 26, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.48 ft on July 6, 9; minimum, 3.62 ft on Nov. 3.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.90	3.66	3.73	3.78	3.78	3.92	4.35	4.32	5.23	5.08	4.95	4.76
2	3.90	3.66	3.72	3.78	3.83	3.94	4.35	4.30	5.18	5.06	4.97	4.75
3	3.91	3.67	3.73	3.78	3.84	3.94	4.34	4.31	5.16	5.08	4.98	4.74
4	3.88	3.75	3.73	3.77	3.84	3.95	4.33	4.30	5.15	5.13	5.04	4.72
5	3.86	3.74	3.75	3.77	3.84	4.05	4.33	4.28	5.14	5.18	5.01	4.71
6	3.86	3.74	3.75	3.77	3.87	4.06	4.33	4.26	5.13	5.44	4.99	4.73
7	3.86	3.73	3.75	3.76	3.87	4.07	4.32	4.21	5.13	5.41	4.96	4.69
8	3.87	3.70	3.75	3.76	3.87	4.06	4.31	4.25	5.10	5.37	4.94	4.66
9	3.86	3.71	3.76	3.76	3.88	4.06	4.28	4.29	5.13	5.42	4.93	4.66
10	3.85	3.71	3.77	3.76	3.88	4.08	4.27	4.31	5.11	5.45	4.89	4.65
11	3.87	3.71	3.77	3.77	3.88	4.09	4.26	4.30	5.14	5.44	4.84	4.63
12	3.87	3.76	3.77	3.76	3.88	4.07	4.24	4.33	5.17	5.42	4.81	4.62
13	3.84	3.71	3.77	3.76	3.87	4.08	4.24	4.38	5.15	5.40	4.79	4.60
14	3.84	3.71	3.77	3.76	3.87	4.10	4.24	4.37	5.12	5.35	4.78	4.68
15	3.83	3.69	3.77	3.76	3.87	4.08	4.23	4.34	5.09	5.31	4.77	4.84
16	3.81	3.69	3.78	3.75	3.87	4.10	4.22	4.35	5.15	5.29	4.78	4.80
17	3.81	3.72	3.78	3.77	3.87	4.11	4.19	4.41	5.33	5.26	4.78	4.78
18	3.80	3.78	3.79	3.76	3.87	4.12	4.29	4.35	5.32	5.23	4.79	4.77
19	3.79	3.79	3.78	3.76	3.87	4.12	4.26	4.34	5.29	5.19	4.77	4.76
20	3.80	3.79	3.78	3.76	3.88	4.14	4.24	4.35	5.28	5.16	4.74	4.75
21	3.77	3.74	3.78	3.76	3.89	4.11	4.31	4.47	5.27	5.18	4.73	4.73
22	3.76	3.73	3.78	3.75	3.89	4.11	4.27	4.84	5.25	5.15	4.72	4.73
23	3.75	3.79	3.78	3.75	3.90	4.11	4.27	4.96	5.23	5.10	4.70	4.72
24	3.74	3.79	3.78	3.75	3.89	4.15	4.26	4.97	5.22	5.06	4.70	4.72
25	3.74	3.76	3.78	3.74	3.89	4.19	4.38	5.03	5.20	5.03	4.70	4.68
26	3.72	3.74	3.78	3.76	3.89	4.25	4.40	5.03	5.18	5.00	4.74	4.67
27	3.71	3.74	3.79	3.79	3.89	4.28	4.38	5.04	5.16	4.98	4.83	4.67
28	3.75	3.74	3.79	3.78	3.89	4.39	4.42	5.04	5.14	4.95	4.81	4.63
29	3.68	3.73	3.78	3.78	3.90	4.38	4.36	5.16	5.12	4.92	4.80	4.63
30	3.67	3.73	3.78	3.78	---	4.36	4.32	5.24	5.11	4.90	4.79	4.62
31	3.68	---	3.78	3.78	---	4.34	---	5.26	---	4.88	4.77	---
MEAN	3.81	3.73	3.77	3.77	3.87	4.12	4.30	4.56	5.18	5.19	4.83	4.70
MAX	3.91	3.79	3.79	3.79	3.90	4.39	4.42	5.26	5.33	5.45	5.04	4.84
MIN	3.67	3.66	3.72	3.74	3.78	3.92	4.19	4.21	5.09	4.88	4.70	4.60

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$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	241	238	238	219	148	607	970	752	9,920	1,190	1,070	941
2	236	237	225	224	149	807	856	690	7,660	1,120	1,430	872
3	234	262	228	211	149	1,060	770	641	6,050	1,180	2,240	849
4	234	298	244	162	145	1,060	691	612	5,030	1,180	2,280	812
5	231	308	240	171	142	1,220	642	576	4,340	1,340	2,450	785
6	231	290	240	172	143	1,980	613	555	3,840	3,280	2,490	877
7	231	269	243	184	149	2,550	570	531	3,400	7,950	2,340	783
8	231	252	244	182	151	2,000	551	549	3,040	8,430	2,200	740
9	229	e240	243	178	152	1,690	516	690	2,730	5,690	2,080	724
10	226	228	250	174	155	1,690	505	719	3,230	5,580	2,030	705
11	232	245	170	178	156	1,370	483	645	3,480	5,050	1,910	685
12	238	255	201	187	158	1,040	454	605	3,500	4,500	1,770	659
13	237	252	209	186	e158	867	443	639	3,590	4,160	1,630	627
14	248	248	219	187	157	910	441	1,170	3,460	3,680	1,500	664
15	244	241	212	181	153	841	424	1,650	3,210	3,190	1,390	744
16	240	252	206	191	152	749	421	1,370	2,940	2,850	1,350	5,190
17	237	245	193	197	156	612	424	1,170	3,550	2,610	1,310	7,630
18	236	268	223	150	155	618	405	1,040	4,150	2,390	1,380	7,000
19	236	285	211	157	154	578	431	934	3,480	2,150	1,450	7,050
20	233	291	e200	178	165	576	438	860	2,980	1,940	1,460	6,540
21	232	280	223	175	170	532	502	1,290	2,680	1,800	1,440	6,000
22	229	265	218	149	171	520	559	7,740	2,460	1,870	1,390	5,470
23	230	261	213	166	175	500	587	21,700	2,230	1,960	1,330	4,950
24	229	255	200	165	179	496	578	23,900	2,060	1,750	1,320	4,490
25	230	e228	209	158	185	524	595	17,600	1,890	1,580	1,260	4,100
26	229	226	213	159	197	782	900	14,000	1,730	1,440	1,210	3,750
27	227	241	213	156	236	1,120	1,350	10,500	1,580	1,340	1,250	3,440
28	229	248	227	149	280	1,170	1,170	7,810	1,450	1,260	1,190	3,160
29	234	217	238	146	400	1,400	1,000	6,730	1,350	1,180	1,110	2,910
30	230	228	233	146	---	1,350	849	9,130	1,270	1,110	1,040	2,700
31	238	---	234	148	---	1,130	---	11,400	---	1,090	925	---
TOTAL	7,242	7,653	6,860	5,386	5,040	32,349	19,138	148,198	102,280	85,840	49,225	85,847
MEAN	234	255	221	174	174	1,044	638	4,781	3,409	2,769	1,588	2,862
MAX	248	308	250	224	400	2,550	1,350	23,900	9,920	8,430	2,490	7,630
MIN	226	217	170	146	142	496	405	531	1,270	1,090	925	627
AC-FT	14,360	15,180	13,610	10,680	10,000	64,160	37,960	294,000	202,900	170,300	97,640	170,300
CFSM	0.13	0.15	0.13	0.10	0.10	0.60	0.37	2.74	1.95	1.59	0.91	1.64
IN.	0.15	0.16	0.15	0.11	0.11	0.69	0.41	3.16	2.18	1.83	1.05	1.83

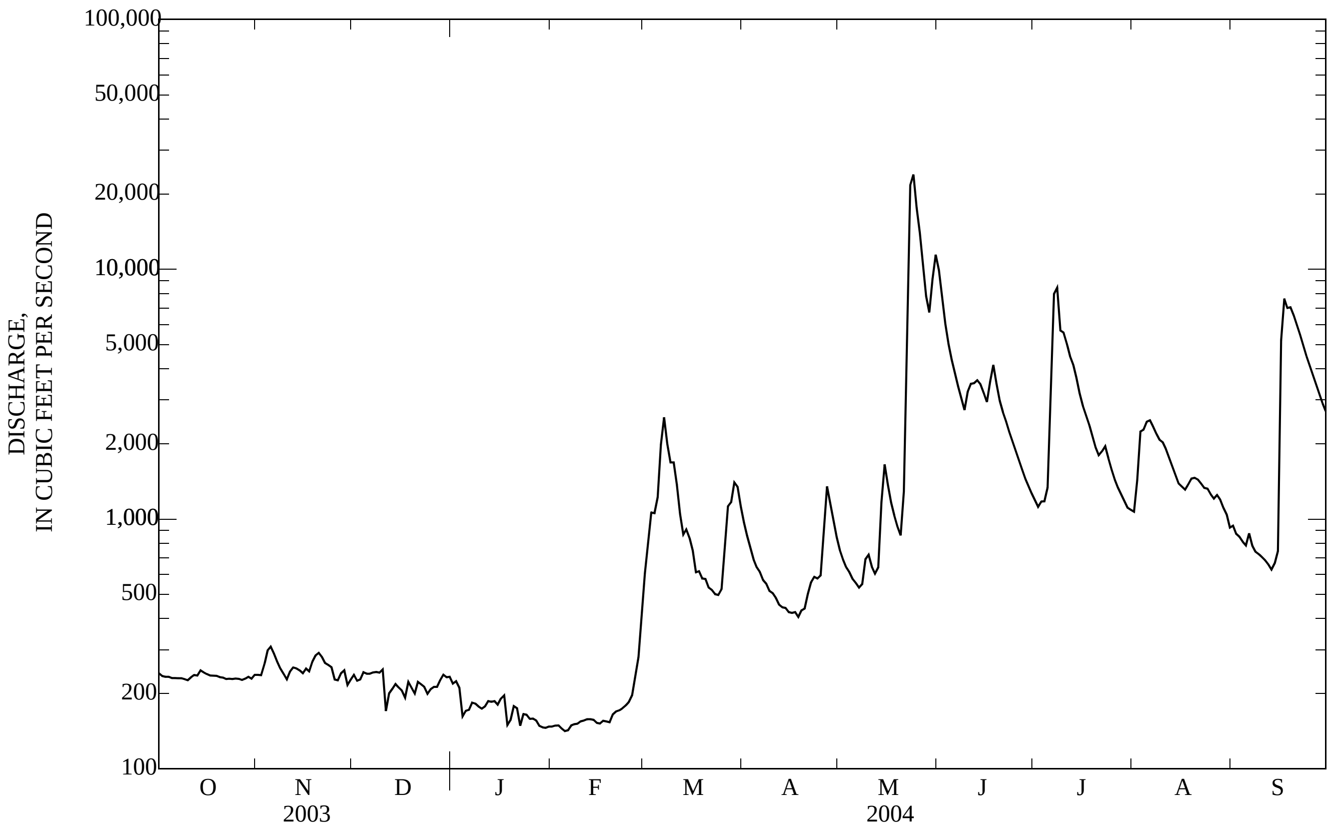
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	727	674	507	342	487	1,593	2,076	1,761	1,837	1,366	914	731
MAX	2,544	2,326	2,381	1,375	2,833	5,426	8,540	5,889	6,239	6,461	5,637	2,862
(WY)	(1987)	(1983)	(1983)	(1983)	(1984)	(1992)	(1965)	(1991)	(1993)	(1993)	(1979)	(2004)
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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1954 - 2004	
ANNUAL TOTAL	303,401		555,058			
ANNUAL MEAN	831		1,517		1,086	
HIGHEST ANNUAL MEAN					3,231	1993
LOWEST ANNUAL MEAN					171	1977
HIGHEST DAILY MEAN	6,120	May 13	23,900	May 24	32,100	Mar 28, 1961
LOWEST DAILY MEAN	170	Dec 11	142	Feb 5	27	Dec 22, 1989
ANNUAL SEVEN-DAY MINIMUM	200	Jan 24	146	Jan 31	29	Dec 16, 1989
MAXIMUM PEAK FLOW			27,400	May 23	33,500	Mar 28, 1961
MAXIMUM PEAK STAGE			15.87	May 23	16.73	Jul 22, 1999
INSTANTANEOUS LOW FLOW			97	Jan 18		
ANNUAL RUNOFF (AC-FT)	601,800		1,101,000		787,000	
ANNUAL RUNOFF (CFSM)	0.476		0.869		0.622	
ANNUAL RUNOFF (INCHES)	6.46		11.83		8.45	
10 PERCENT EXCEEDS	2,130		3,620		2,560	
50 PERCENT EXCEEDS	286		606		535	
90 PERCENT EXCEEDS	213		171		160	

e Estimated



05463000 BEAVER CREEK AT NEW HARTFORD, IA

LOCATION.--Lat 42°34'22", long 92°37'04", in SE1/4 SE1/4 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 NGVD of 1929. 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 satellite and telephone modem telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	31	43	e47	e44	777	525	190	1,400	195	94	152
2	29	33	44	e50	e41	598	449	e181	1,080	183	e90	138
3	29	38	45	e46	e35	417	391	170	909	177	102	124
4	28	84	e46	e42	e34	308	348	163	799	177	420	113
5	29	147	e49	e37	e33	747	317	157	723	180	583	106
6	28	89	e48	e40	e31	1,560	297	152	672	227	286	168
7	28	67	e41	e35	e30	1,050	276	145	609	200	189	229
8	28	56	e41	e32	e29	580	256	144	532	176	148	173
9	27	61	e42	e32	e32	432	233	154	483	179	124	147
10	27	56	42	e35	e35	367	217	147	989	195	106	131
11	28	e53	e42	e31	e39	322	203	143	863	177	94	118
12	31	48	e40	e36	e37	252	196	137	872	171	85	108
13	31	44	e41	e38	e36	275	190	157	804	160	78	100
14	34	43	e43	e35	e35	240	187	292	633	143	72	98
15	33	43	e45	e35	e34	220	182	268	537	129	68	100
16	32	42	e42	e31	e38	208	178	237	471	128	65	93
17	31	e42	e39	e31	e42	200	175	221	435	134	235	87
18	32	45	e42	e28	e47	199	170	225	396	143	847	85
19	31	50	e40	e23	e45	204	163	221	361	136	1,020	83
20	31	49	e44	e26	e67	210	164	223	335	130	408	78
21	30	47	e47	e23	e64	192	209	226	324	134	300	74
22	30	46	e48	e20	e89	180	214	1,430	308	136	245	71
23	30	48	e51	e26	e112	177	203	4,780	278	128	211	69
24	31	47	e46	e25	e249	205	194	3,860	271	119	188	68
25	31	48	e43	e26	e323	350	212	2,940	295	114	174	66
26	31	51	e44	e25	e242	554	240	2,560	284	110	169	64
27	31	49	e48	e25	e362	816	249	1,780	260	105	300	63
28	32	44	e54	e23	e700	945	242	1,260	243	101	338	61
29	31	45	e58	e23	1,090	1,210	223	1,380	224	104	250	60
30	31	49	e53	e27	---	870	200	2,380	208	102	202	59
31	31	---	e49	e35	---	652	---	2,200	---	98	171	---
TOTAL	935	1,595	1,400	988	3,995	15,317	7,303	28,523	16,598	4,591	7,662	3,086
MEAN	30.2	53.2	45.2	31.9	138	494	243	920	553	148	247	103
MAX	34	147	58	50	1,090	1,560	525	4,780	1,400	227	1,020	229
MIN	27	31	39	20	29	177	163	137	208	98	65	59
AC-FT	1,850	3,160	2,780	1,960	7,920	30,380	14,490	56,580	32,920	9,110	15,200	6,120
CFSM	0.09	0.15	0.13	0.09	0.40	1.42	0.70	2.65	1.59	0.43	0.71	0.30
IN.	0.10	0.17	0.15	0.11	0.43	1.64	0.78	3.06	1.78	0.49	0.82	0.33

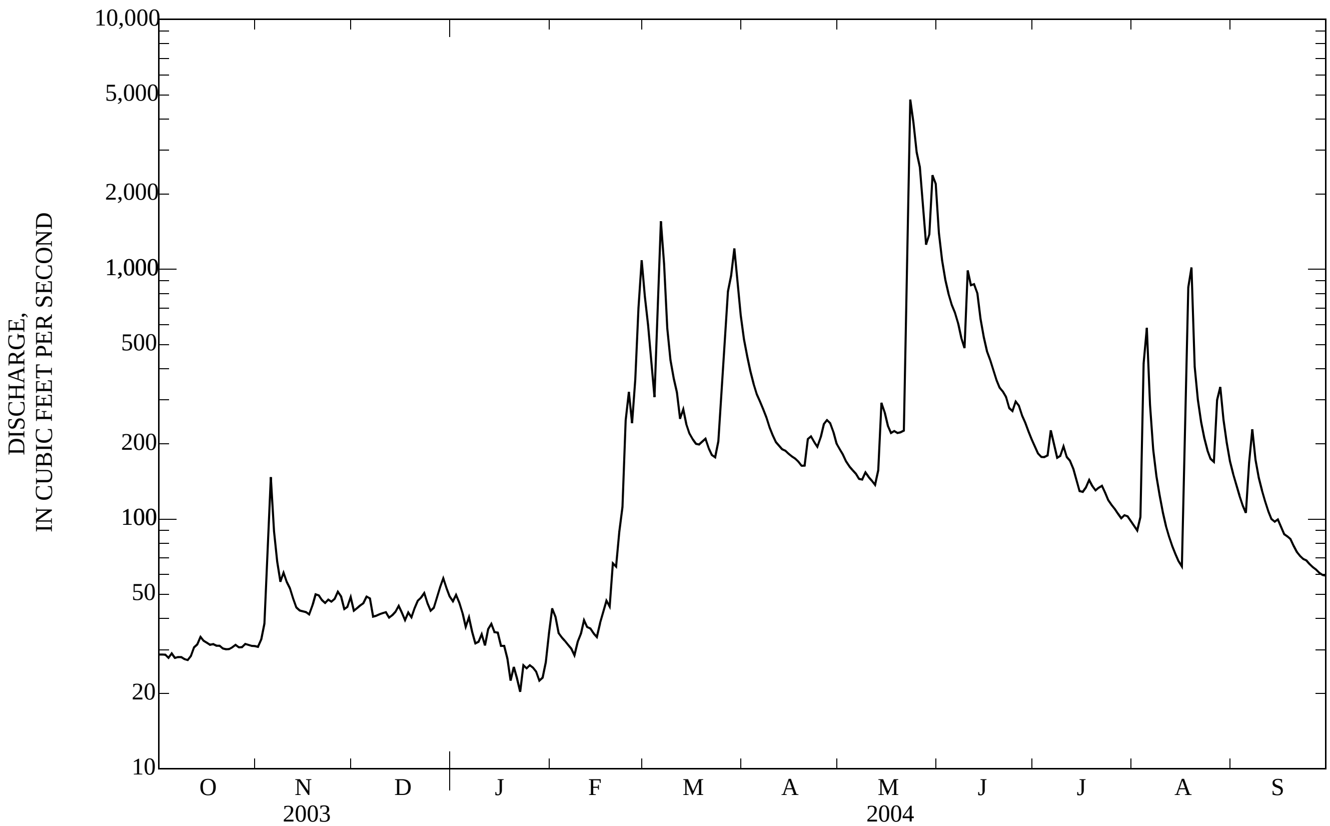
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	116	122	84.2	71.1	150	446	378	357	432	281	144	106
MAX	495	673	514	403	651	1,606	1,578	1,606	2,213	1,686	1,368	1,028
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	65,239.2		91,993			
ANNUAL MEAN	179		251		224	
HIGHEST ANNUAL MEAN					874	1993
LOWEST ANNUAL MEAN					21.8	1956
HIGHEST DAILY MEAN	2,610	Jul 10	4,780	May 23	16,300	Jun 13, 1947
LOWEST DAILY MEAN	9.2	Jan 12	20	Jan 22 a	2.0	Sep 30, 1989
ANNUAL SEVEN-DAY MINIMUM	13	Jan 11	24	Jan 19	2.3	Jan 19, 1956
MAXIMUM PEAK FLOW			5,420	May 23	18,000	Jun 13, 1947
MAXIMUM PEAK STAGE			11.05	May 23	13.50	Jun 13, 1947
ANNUAL RUNOFF (AC-FT)	129,400		182,500		162,400	
ANNUAL RUNOFF (CFSM)	0.515		0.724		0.646	
ANNUAL RUNOFF (INCHES)	6.99		9.86		8.78	
10 PERCENT EXCEEDS	468		588		490	
50 PERCENT EXCEEDS	48		116		88	
90 PERCENT EXCEEDS	27		31		18	

a Ice affected.
e Estimated.



05463050 CEDAR RIVER AT CEDAR FALLS, IA

LOCATION.--Lat 42°32'20", long 92°26'58", in NW$\frac{1}{4}$ NE$\frac{1}{4}$ 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 mi^2.

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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily stages, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

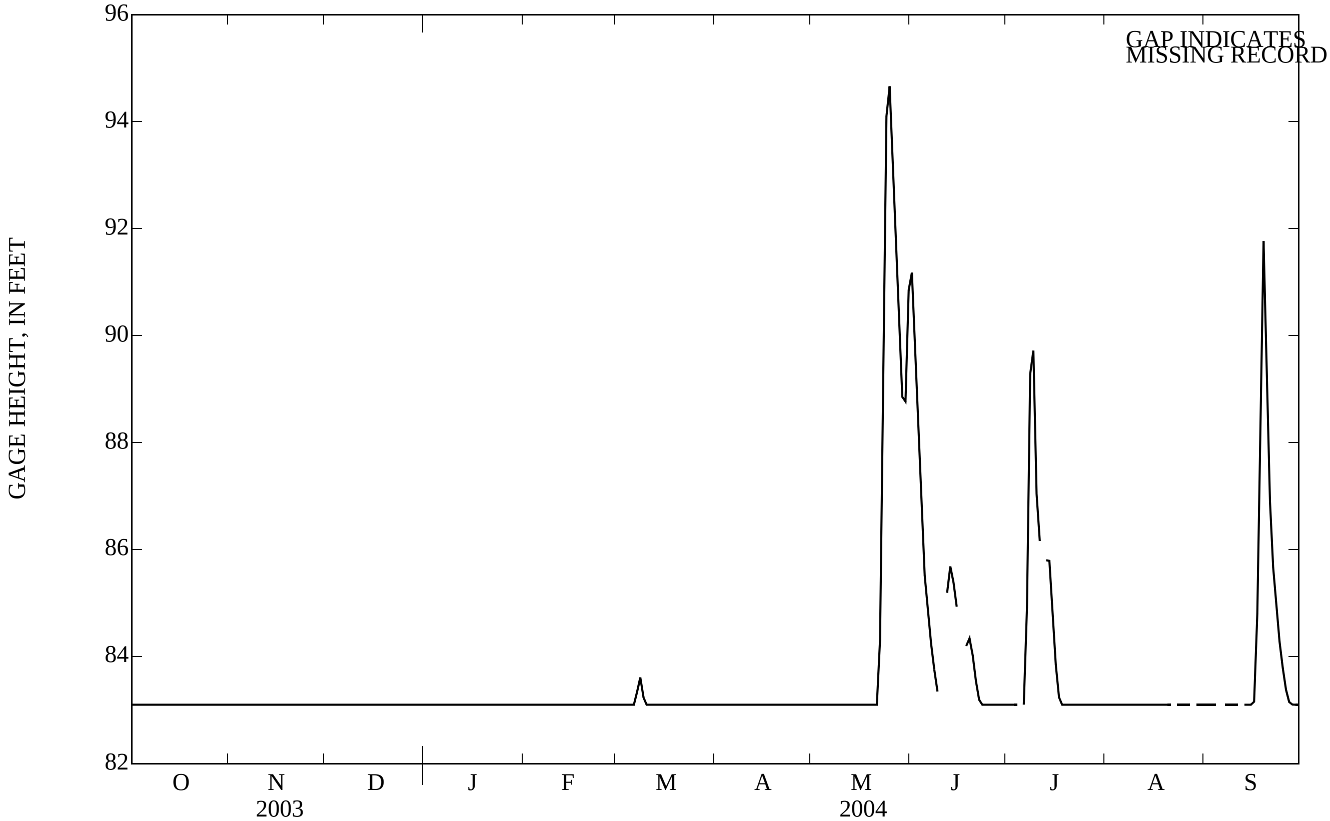
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 94.99 ft on May 25, 2004.

EXTREMES FOR CURRENT YEAR.--Maximum gage height 94.99 ft on May 25, 2004.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
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	83.10	91.18	83.10	83.10	83.10
2	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	89.62	83.10	83.10	83.10
3	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	88.01	83.10	83.10	83.10
4	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	86.58	83.10	83.10	83.10
5	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.52	---	83.10	---
6	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.86	83.10	83.10	---
7	83.10	83.10	83.10	83.10	83.10	83.34	83.10	83.10	84.24	84.92	83.10	83.10
8	83.10	83.10	83.10	83.10	83.10	83.61	83.10	83.10	83.75	89.28	83.10	83.10
9	83.10	83.10	83.10	83.10	83.10	83.24	83.10	83.10	83.34	89.72	83.10	83.10
10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	87.04	83.10	83.10
11	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	86.16	83.10	83.10
12	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.19	---	83.10	---
13	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.68	85.80	83.10	83.10
14	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	85.39	85.79	83.10	83.10
15	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.93	84.85	83.10	83.10
16	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.85	83.10	83.16
17	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	83.24	83.10	84.79
18	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.20	83.10	83.10	89.21
19	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.34	83.10	83.10	91.77
20	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.02	83.10	83.10	89.91
21	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.54	83.10	83.10	86.91
22	83.10	83.10	83.10	83.10	83.10	83.10	83.10	84.31	83.19	83.10	---	85.67
23	83.10	83.10	83.10	83.10	83.10	83.10	83.10	89.92	83.10	83.10	83.10	84.90
24	83.10	83.10	83.10	83.10	83.10	83.10	83.10	94.10	83.10	83.10	83.10	84.28
25	83.10	83.10	83.10	83.10	83.10	83.10	83.10	94.66	83.10	83.10	83.10	83.79
26	83.10	83.10	83.10	83.10	83.10	83.10	83.10	93.43	83.10	83.10	83.10	83.38
27	83.10	83.10	83.10	83.10	83.10	83.10	83.10	91.89	83.10	83.10	83.10	83.15
28	83.10	83.10	83.10	83.10	83.10	83.10	83.10	90.17	83.10	83.10	---	83.10
29	83.10	83.10	83.10	83.10	83.10	83.10	83.10	88.86	83.10	83.10	83.10	83.10
30	83.10	83.10	83.10	83.10	---	83.10	83.10	88.77	83.10	83.10	83.10	83.10
31	83.10	---	83.10	83.10	---	83.10	---	90.85	---	83.10	83.10	---
MEAN	83.10	83.10	83.10	83.10	83.10	83.13	83.10	85.55	---	---	---	---
MAX	83.10	83.10	83.10	83.10	83.10	83.61	83.10	94.66	---	---	---	---
MIN	83.10	83.10	83.10	83.10	83.10	83.10	83.10	83.10	---	---	---	---

05463050 CEDAR RIVER AT CEDAR FALLS, IA—Continued



05463500 BLACK HAWK CREEK AT HUDSON, IA

LOCATION.--Lat 42°24'28", long 92°27'47", in SW¼ NE¼ sec.27, T.88 N., R.14 W., Black Hawk County, Hydrologic Unit 07080205, on left bank 35 ft. from bridge on State Highway 58, 0.2 mi northwest of Chicago and Great Western Railway tracks at the west edge of Hudson, 4.5 mi. upstream from Prescotts Creek, and 9.6 mi. upstream from mouth.

DRAINAGE AREA.--303 mi^2.

PERIOD OF RECORD.--April 1952 to September 30, 1995. October 2001 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 865.03 ft. above NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	20	36	e40	e35	288	358	161	1,150	182	58	44
2	15	23	34	e42	e33	202	311	152	885	170	60	43
3	16	35	29	e37	e28	158	277	146	780	170	e68	40
4	16	152	29	e32	e28	133	252	141	694	172	e319	38
5	16	e107	33	e27	e27	553	237	134	638	170	e550	37
6	15	e81	33	e31	e26	1,170	220	127	592	175	e302	39
7	15	60	27	e26	e25	516	203	120	546	166	e164	57
8	15	45	28	e24	e22	320	190	117	502	152	e140	65
9	14	46	29	e24	e26	255	175	119	466	143	115	52
10	15	46	29	e27	e27	218	164	113	468	143	97	46
11	16	41	29	e25	e30	197	157	107	605	147	86	42
12	18	38	e27	e29	e27	152	150	106	609	146	79	39
13	20	34	e29	e31	e26	175	143	122	532	136	73	37
14	23	32	e32	e29	e25	152	138	184	464	122	67	36
15	23	33	e34	e29	e24	135	133	191	419	112	63	38
16	22	32	e30	e26	e27	129	129	167	393	106	60	37
17	20	32	e27	e26	e30	126	127	158	442	113	67	35
18	20	35	e30	e21	e33	126	121	159	353	104	131	35
19	20	35	e29	e17	e31	138	118	151	323	96	121	34
20	19	32	e32	e20	e54	152	118	149	308	91	92	32
21	19	30	e36	e16	e106	141	178	157	305	91	78	31
22	19	29	e37	e14	e218	133	206	978	288	91	70	30
23	19	30	e40	e20	e488	130	186	5,450	261	86	65	30
24	19	25	e36	e19	e540	188	174	2,900	253	79	62	e31
25	20	31	e34	e21	e378	368	188	2,260	265	76	60	e30
26	21	36	e35	e20	e234	575	208	2,950	252	73	58	e28
27	21	33	e38	e19	e268	782	210	1,850	234	69	62	e23
28	21	28	e43	e17	e344	627	202	1,130	222	65	65	e22
29	21	31	e48	e17	e459	724	187	1,060	206	64	56	e22
30	21	34	e44	e21	---	542	168	1,410	193	62	52	e22
31	23	---	e41	e28	---	429	---	1,610	---	61	46	---
TOTAL	576	1,266	1,038	775	3,619	9,934	5,628	24,579	13,648	3,633	3,386	1,095
MEAN	18.6	42.2	33.5	25.0	125	320	188	793	455	117	109	36.5
MAX	23	152	48	42	540	1,170	358	5,450	1,150	182	550	65
MIN	14	20	27	14	22	126	118	106	193	61	46	22
AC-FT	1,140	2,510	2,060	1,540	7,180	19,700	11,160	48,750	27,070	7,210	6,720	2,170
CFSM	0.06	0.14	0.11	0.08	0.41	1.06	0.62	2.62	1.50	0.39	0.36	0.12
IN.	0.07	0.16	0.13	0.10	0.44	1.22	0.69	3.02	1.68	0.45	0.42	0.13

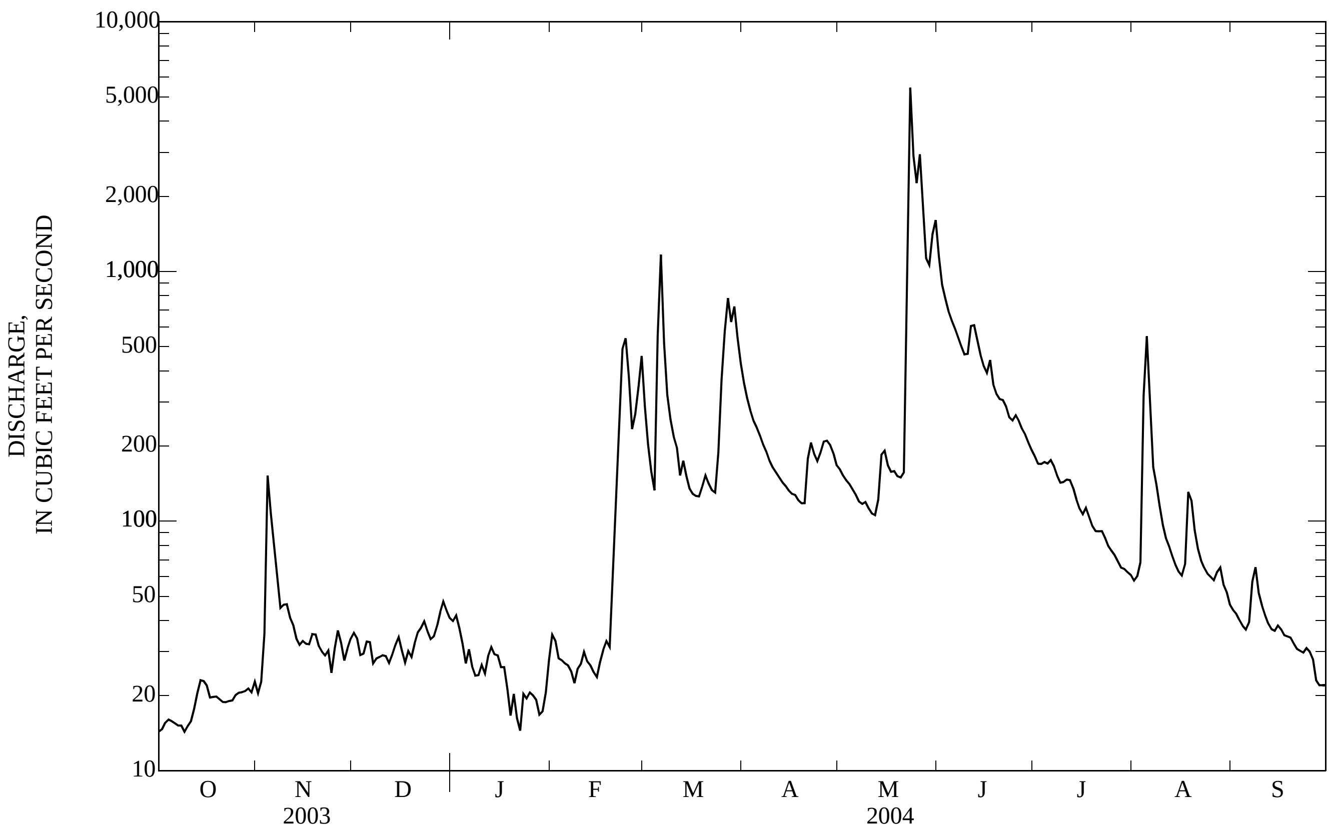
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	95.5	107	84.9	68.8	141	368	311	295	328	250	124	86.7
MAX	440	359	418	463	564	1,280	1,173	1,036	1,403	1,705	1,134	735
(WY)	(1966)	(1973)	(1983)	(1973)	(1984)	(1993)	(1991)	(1991)	(1990)	(1993)	(1993)	(1965)
MIN	5.37	7.45	3.78	2.34	3.07	15.9	20.5	22.9	10.2	5.33	2.38	7.18
(WY)	(1990)	(1956)	(1990)	(1956)	(1956)	(1954)	(1956)	(1977)	(1956)	(1989)	(1989)	(1989)

05463500 BLACK HAWK CREEK AT HUDSON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004	
ANNUAL TOTAL	44,700.3		69,177			
ANNUAL MEAN	122		189		189	
HIGHEST ANNUAL MEAN					697	1993
LOWEST ANNUAL MEAN					18.4	1956
HIGHEST DAILY MEAN	1,750	May 10	5,450	May 23	11,300	Jul 9, 1969
LOWEST DAILY MEAN	5.5	Jan 26	14	Oct 1 a	0.12	Jan 26, 1977
ANNUAL SEVEN-DAY MINIMUM	8.4	Jan 12	15	Oct 4	0.32	Jan 23, 1977
MAXIMUM PEAK FLOW			8,070	May 23	19,300	Jul 9, 1969
MAXIMUM PEAK STAGE			16.42	May 23	18.23	Jul 9, 1969
INSTANTANEOUS LOW FLOW			13	Oct 9		
ANNUAL RUNOFF (AC-FT)	88,660		137,200		136,600	
ANNUAL RUNOFF (CFSM)	0.404		0.624		0.622	
ANNUAL RUNOFF (INCHES)	5.49		8.49		8.45	
10 PERCENT EXCEEDS	313		447		434	
50 PERCENT EXCEEDS	35		64		75	
90 PERCENT EXCEEDS	15		21		15	

a Also Oct. 9.
e Estimated.



05464000 CEDAR RIVER AT WATERLOO, IA

LOCATION.--Lat 42°29'44", long 92°20'03", in NW1/4 NW1/4 sec.25, T.89 N., R.13 W., Black Hawk County, Hydrologic Unit 07080205, on left bank at foot of East Seventh Street, 0.3 mi upstream from Eleventh 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 NGVD of 1929.

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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	827	757	778	e716	e657	3,620	5,270	3,430	26,400	4,150	3,410	2,520
2	799	821	765	e708	e672	4,000	4,580	3,100	21,700	3,950	3,230	2,440
3	792	1,080	777	e724	e661	4,180	4,290	2,870	17,600	3,980	4,380	2,270
4	792	1,400	799	e708	e675	4,510	4,010	2,540	14,200	4,060	5,330	2,110
5	792	1,250	e825	e637	e692	5,700	3,720	2,430	11,800	4,160	5,660	1,990
6	784	1,210	e842	e623	e686	7,170	3,480	2,460	10,400	4,970	6,010	2,120
7	790	1,070	e917	e742	e683	8,150	3,230	2,230	9,190	9,200	5,680	2,250
8	798	985	e913	e780	e681	8,470	3,010	2,260	8,250	17,800	5,190	2,100
9	790	910	e881	e707	e688	7,840	2,840	2,370	7,460	21,600	4,750	1,960
10	781	894	e930	e650	e701	6,350	2,620	2,540	7,490	15,400	4,510	1,860
11	784	885	e608	e625	e726	5,340	2,520	2,560	9,790	12,700	4,650	1,750
12	785	935	e500	e612	732	4,610	2,380	2,510	10,700	11,100	4,580	1,700
13	806	863	e635	e608	654	4,190	2,270	2,650	11,500	11,300	4,210	1,640
14	926	888	e715	e605	697	3,970	2,240	2,930	11,300	11,900	3,920	1,580
15	866	835	e749	e577	661	3,670	2,140	4,280	10,300	10,200	3,630	1,690
16	808	846	e787	e586	661	3,570	2,100	5,290	9,490	8,360	3,350	e2,960
17	803	845	e860	e584	679	3,240	2,130	5,110	8,310	7,180	3,220	e11,900
18	790	908	e755	e568	669	3,000	2,040	4,450	8,680	6,470	3,790	17,200
19	784	912	e782	e562	660	2,830	1,980	4,170	9,000	5,810	4,510	26,000
20	786	938	e730	e610	e736	2,770	2,200	3,890	8,570	5,310	4,280	23,300
21	775	921	e778	631	e700	2,640	2,270	3,960	7,780	5,110	3,920	15,000
22	793	908	e753	e591	e759	2,460	2,490	8,710	7,190	4,890	3,910	11,800
23	749	897	e700	e584	e950	2,400	2,590	21,100	6,630	4,930	3,680	10,200
24	773	841	e718	631	e1,060	2,770	2,700	45,900	6,160	4,990	3,490	9,010
25	784	800	e710	639	e1,170	2,940	2,790	57,100	5,660	4,640	3,390	8,130
26	765	743	e700	552	e1,110	3,920	2,870	46,300	5,400	4,330	3,370	7,380
27	765	749	e732	612	e1,140	5,230	3,620	32,700	5,070	4,040	3,770	6,810
28	766	800	e724	e560	1,620	5,530	4,150	23,800	4,810	3,820	3,620	6,260
29	734	699	e736	e555	2,480	6,420	4,080	19,800	4,550	3,720	3,290	5,700
30	771	813	e736	e573	---	6,550	3,800	18,800	4,340	3,430	3,010	5,380
31	742	---	e726	e609	---	5,980	---	23,400	---	3,260	2,760	---
TOTAL	24,500	27,403	23,561	19,469	24,660	144,020	90,410	365,640	289,720	226,760	126,500	197,010
MEAN	790	913	760	628	850	4,646	3,014	11,790	9,657	7,315	4,081	6,567
MAX	926	1,400	930	780	2,480	8,470	5,270	57,100	26,400	21,600	6,010	26,000
MIN	734	699	500	552	654	2,400	1,980	2,230	4,340	3,260	2,760	1,580
AC-FT	48,600	54,350	46,730	38,620	48,910	285,700	179,300	725,200	574,700	449,800	250,900	390,800
CFSM	0.15	0.18	0.15	0.12	0.17	0.90	0.59	2.29	1.88	1.42	0.79	1.28
IN.	0.18	0.20	0.17	0.14	0.18	1.04	0.65	2.64	2.09	1.64	0.91	1.42

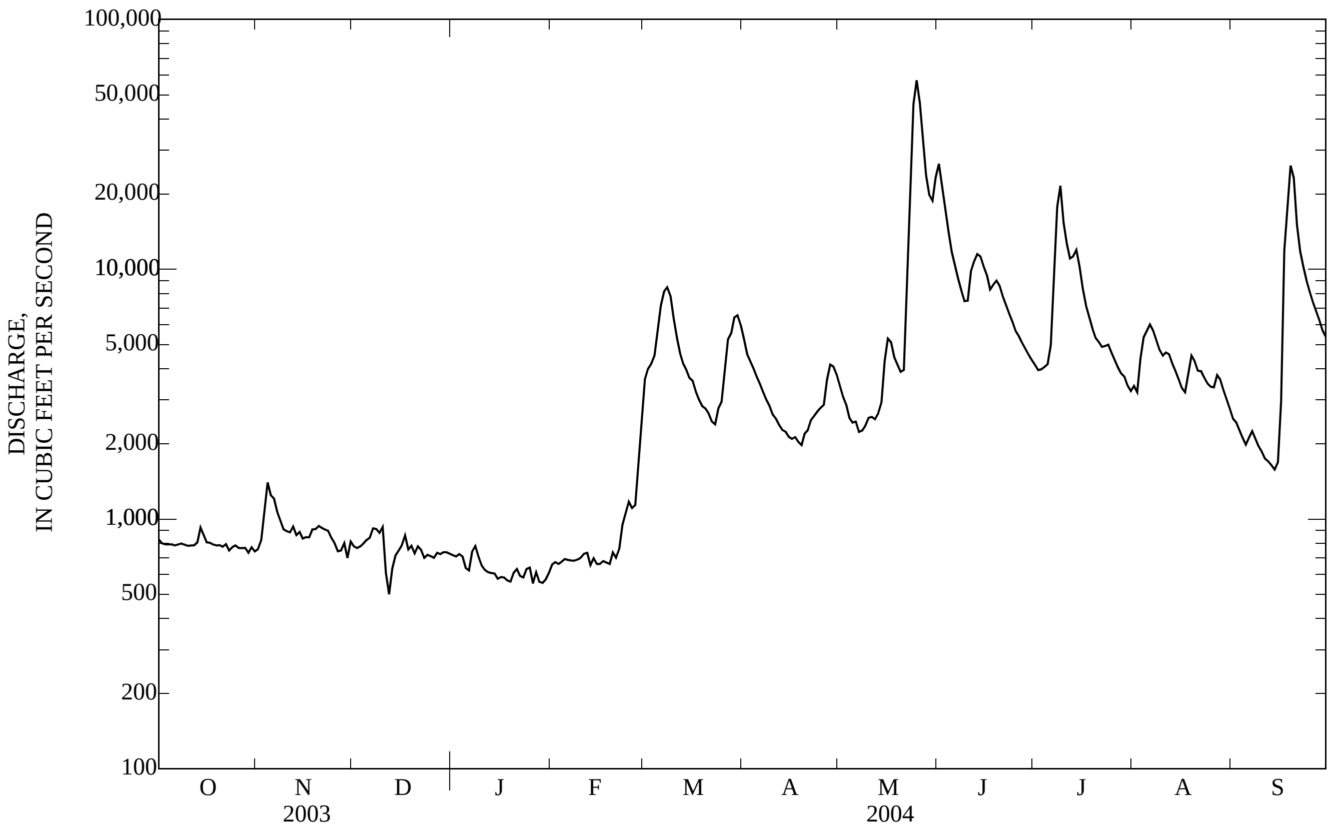
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

MEAN	2,090	2,033	1,522	1,211	1,750	5,450	6,273	4,975	5,469	4,182	2,734	2,094
MAX	8,499	7,434	6,891	5,479	9,448	13,760	24,940	19,010	18,320	21,210	18,770	9,258
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	957,569		1,559,653			
ANNUAL MEAN	2,623		4,261		3,320	
HIGHEST ANNUAL MEAN					10,580	1993
LOWEST ANNUAL MEAN					636	1977
HIGHEST DAILY MEAN	16,000	May 11	57,100	May 25	74,000	Mar 29, 1961
LOWEST DAILY MEAN	500	Dec 12	500	Dec 12 a	152	Jan 28, 1959
ANNUAL SEVEN-DAY MINIMUM	614	Jan 25	584	Jan 13	173	Feb 13, 1959
MAXIMUM PEAK FLOW			58,500	May 25	76,700	Mar 29, 1961
MAXIMUM PEAK STAGE			19.32	May 25	21.86	Mar 29, 1961
ANNUAL RUNOFF (AC-FT)	1,899,000		3,094,000		2,405,000	
ANNUAL RUNOFF (CFSM)	0.510		0.828		0.645	
ANNUAL RUNOFF (INCHES)	6.92		11.27		8.77	
10 PERCENT EXCEEDS	6,400		9,290		7,600	
50 PERCENT EXCEEDS	1,080		2,480		1,800	
90 PERCENT EXCEEDS	749		678		575	

a Ice affected.
e Estimated.



05464220 WOLF CREEK NEAR DYSART, IA

LOCATION.--Lat 42°15'06", long 92°17'55", in SE$\frac{1}{4}$ NE$\frac{1}{4}$ NE$\frac{1}{4}$ sec.24, T.86 N., R.13 W., Tama County, Hydrologic Unit 07080205, on bank 20 ft upstream of right bank side of bridge on County Highway V37, 10.0 miles upstream of confluence with the Cedar River, and 5.0 miles north of Dysart.

DRAINAGE AREA.--299 mi^2.

PERIOD OF RECORD.--October 24, 1995 to September 30, 1998. May 16, 2001 to current year.

GAGE.--Water stage recorder. Datum of gage is 835 ft above NGVD of 1929, from map.

REMARKS.--Records good except those for estimated daily discharges, which is poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	48	e32	e21	256	280	168	860	234	82	50
2	14	22	42	e30	e25	248	255	162	698	225	90	48
3	15	50	40	e26	e21	205	235	153	660	234	103	45
4	16	346	40	e24	e20	177	218	150	566	245	179	44
5	15	336	44	e25	e24	798	208	145	525	225	219	43
6	14	155	41	e30	e25	968	197	140	490	232	154	49
7	15	106	40	e26	e22	476	186	141	450	220	124	45
8	15	82	40	e26	e23	344	179	138	414	207	109	41
9	15	76	42	e24	e25	290	169	138	383	200	99	40
10	14	67	42	e23	e23	255	160	135	371	197	89	39
11	16	64	e25	e27	e23	234	155	129	372	192	82	38
12	18	58	e22	e31	e22	207	153	145	572	216	78	36
13	19	49	e19	e31	e21	203	146	389	491	203	74	36
14	24	46	e20	e31	e21	190	146	327	490	183	71	34
15	24	46	e25	e26	e21	174	143	277	459	172	68	34
16	22	45	e31	e32	e21	169	138	241	603	165	67	35
17	19	43	e30	e36	e21	168	141	222	1,050	170	74	33
18	18	49	e26	e43	e21	174	139	236	516	162	73	33
19	18	48	e27	e33	e33	203	134	220	425	150	69	33
20	18	45	e25	e24	e188	222	134	208	383	142	65	32
21	17	43	e29	e27	e991	204	182	251	395	137	60	31
22	16	41	e29	e32	e712	192	235	1,060	396	131	57	31
23	16	46	e29	e25	e560	188	219	8,360	343	125	55	33
24	17	37	e26	e25	e469	244	202	4,430	323	118	56	32
25	19	44	e30	e25	e314	304	208	3,390	314	112	56	31
26	18	49	e32	e25	e281	329	201	3,020	291	108	56	31
27	18	50	e38	e24	e286	346	197	1,670	276	102	60	30
28	19	43	e49	e23	300	342	195	974	274	94	76	30
29	18	31	e61	e21	269	352	185	873	259	91	71	29
30	18	53	e45	e20	---	341	173	1,150	245	88	60	29
31	18	---	e35	e20	---	307	---	1,170	---	86	53	---
TOTAL	537	2,187	1,072	847	4,803	9,110	5,513	30,212	13,894	5,166	2,629	1,095
MEAN	17.3	72.9	34.6	27.3	166	294	184	975	463	167	84.8	36.5
MAX	24	346	61	43	991	968	280	8,360	1,050	245	219	50
MIN	14	17	19	20	20	168	134	129	245	86	53	29
AC-FT	1,070	4,340	2,130	1,680	9,530	18,070	10,940	59,930	27,560	10,250	5,210	2,170
CFSM	0.06	0.24	0.12	0.09	0.55	0.98	0.61	3.26	1.55	0.56	0.28	0.12
IN.	0.07	0.27	0.13	0.11	0.60	1.13	0.69	3.76	1.73	0.64	0.33	0.14

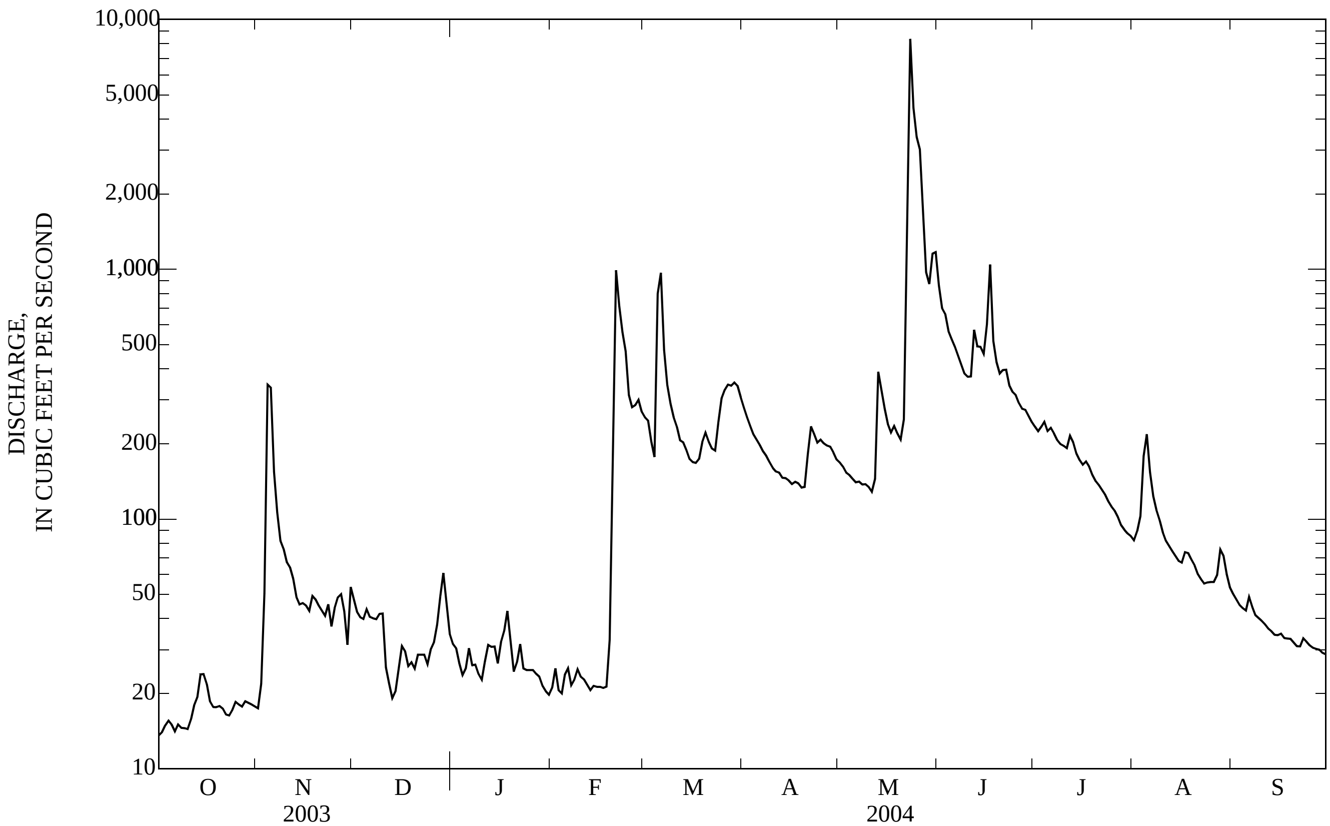
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	89.6	61.3	52.0	40.0	177	181	197	400	540	208	75.4	36.5
MAX	267	101	119	92.6	513	440	695	975	1,773	584	163	62.9
(WY)	(1999)	(1997)	(1998)	(1998)	(1997)	(1998)	(1998)	(2004)	(1998)	(1998)	(1998)	(1998)
MIN	17.3	29.6	17.2	13.4	21.0	34.5	43.7	121	116	52.5	44.6	20.3
(WY)	(2004)	(2002)	(1996)	(2002)	(2003)	(2002)	(2002)	(2002)	(2002)	(2002)	(2003)	(2003)

05464220 WOLF CREEK NEAR DYSART, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	38,750		77,065			
ANNUAL MEAN	106		211		185	
HIGHEST ANNUAL MEAN					394	1998
LOWEST ANNUAL MEAN					50.1	2002
HIGHEST DAILY MEAN	1,200	May 9	8,360	May 23	8,360	May 23, 2004
LOWEST DAILY MEAN	13	Jan 10	14	Oct 1 a	7.1	Jan 15, 2002
ANNUAL SEVEN-DAY MINIMUM	15	Sep 30	15	Oct 1	8.8	Jan 13, 2002
MAXIMUM PEAK FLOW			14,500	May 23	14,500	May 23, 2004
MAXIMUM PEAK STAGE			17.39	May 23	17.39	May 23, 2004
ANNUAL RUNOFF (AC-FT)	76,860		152,900		134,100	
ANNUAL RUNOFF (CFSM)	0.355		0.704		0.619	
ANNUAL RUNOFF (INCHES)	4.82		9.59		8.41	
10 PERCENT EXCEEDS	293		385		376	
50 PERCENT EXCEEDS	35		74		72	
90 PERCENT EXCEEDS	17		21		20	

a also Oct. 2, 6, 10.
e Estimated



05464500 CEDAR RIVER AT CEDAR RAPIDS, IA

LOCATION.--Lat 41°58'19"(revised), 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. and U.S. Geological Survey data collection platform with telephone modem at station.Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	897	790	1,140	1,170	e670	3,310	6,950	3,970	28,300	5,810	3,370	2,870
2	807	1,130	1,170	1,160	e606	3,870	6,260	3,710	29,300	5,500	3,470	2,700
3	853	1,580	1,140	1,190	e526	4,360	5,570	3,510	32,400	5,360	3,560	2,590
4	849	4,610	1,150	887	e608	4,660	5,030	3,300	29,300	5,410	4,030	2,480
5	813	4,790	1,170	e337	e606	6,930	4,680	3,140	23,800	5,500	5,360	2,340
6	813	3,360	1,180	e527	e563	7,890	4,360	2,930	19,300	5,640	5,420	2,280
7	803	2,510	1,150	e577	e595	8,610	4,110	3,050	16,300	5,920	5,900	2,240
8	810	1,960	1,210	e707	e603	8,790	3,860	2,930	14,100	7,880	5,710	2,300
9	821	1,720	1,320	e787	e622	8,980	3,680	2,820	12,600	11,400	5,240	2,280
10	825	1,580	1,430	e795	e659	8,760	3,470	2,900	11,500	15,700	4,790	2,150
11	806	1,500	1,020	e800	e687	7,460	3,330	3,050	11,200	20,500	4,420	2,090
12	845	1,490	e683	e816	e669	6,220	3,170	2,990	12,100	18,900	4,400	1,990
13	807	1,330	e492	e800	e629	5,410	3,060	3,080	13,500	15,100	4,410	1,910
14	922	1,360	e692	e724	e588	4,900	2,870	3,650	14,300	13,200	4,180	1,820
15	866	1,320	e858	e810	e602	4,560	2,930	4,030	14,600	13,200	3,830	1,790
16	1,020	1,240	e867	e860	e588	4,350	2,830	4,250	14,300	13,100	3,600	1,790
17	866	1,240	e812	e909	e575	4,130	2,830	5,230	13,400	11,400	3,400	1,910
18	824	1,250	e783	e1,130	e481	4,060	2,760	6,010	13,800	9,140	3,260	5,160
19	822	1,290	e519	e876	e575	4,010	2,730	5,350	12,700	7,750	3,310	9,560
20	834	1,280	e712	e553	e750	3,900	2,750	4,870	12,000	6,860	3,890	13,300
21	803	1,280	e820	e725	e1,570	3,760	2,770	4,890	12,200	6,010	4,130	19,000
22	830	1,300	e1,150	e648	e3,060	3,530	3,030	11,500	11,400	5,580	3,700	24,400
23	836	1,550	e1,220	e600	e3,840	3,400	3,010	16,700	10,000	5,270	3,580	19,000
24	801	1,550	e1,000	e635	e3,710	3,690	3,160	28,400	9,230	5,070	3,520	13,600
25	881	1,430	e831	e640	e3,050	4,520	3,210	43,500	8,490	5,150	3,350	11,200
26	820	1,360	e903	e628	2,760	4,830	3,270	55,500	7,880	4,850	3,320	9,540
27	815	1,300	e950	e628	2,640	5,890	3,220	61,800	7,290	4,460	3,600	8,270
28	811	1,220	1,550	e596	2,690	6,500	3,390	55,900	6,900	4,150	3,980	7,340
29	797	1,140	1,350	e588	3,450	7,090	3,950	44,100	6,530	3,890	3,670	6,550
30	788	1,210	1,270	e551	---	7,070	4,110	34,200	6,140	3,760	3,350	5,920
31	810	---	1,260	e583	---	7,470	---	31,600	---	3,560	3,100	---
TOTAL	25,895	50,670	31,802	23,237	38,972	172,910	110,350	462,860	434,860	255,020	124,850	190,370
MEAN	835	1,689	1,026	750	1,344	5,578	3,678	14,930	14,500	8,226	4,027	6,346
MAX	1,020	4,790	1,550	1,190	3,840	8,980	6,950	61,800	32,400	20,500	5,900	24,400
MIN	788	790	492	337	481	3,310	2,730	2,820	6,140	3,560	3,100	1,790
MED	821	1,350	1,140	724	629	4,830	3,250	4,250	12,600	5,810	3,700	2,650
AC-FT	51,360	100,500	63,080	46,090	77,300	343,000	218,900	918,100	862,500	505,800	247,600	377,600
CFSM	0.13	0.26	0.16	0.12	0.21	0.86	0.57	2.29	2.23	1.26	0.62	0.97
IN.	0.15	0.29	0.18	0.13	0.22	0.99	0.63	2.64	2.48	1.46	0.71	1.09

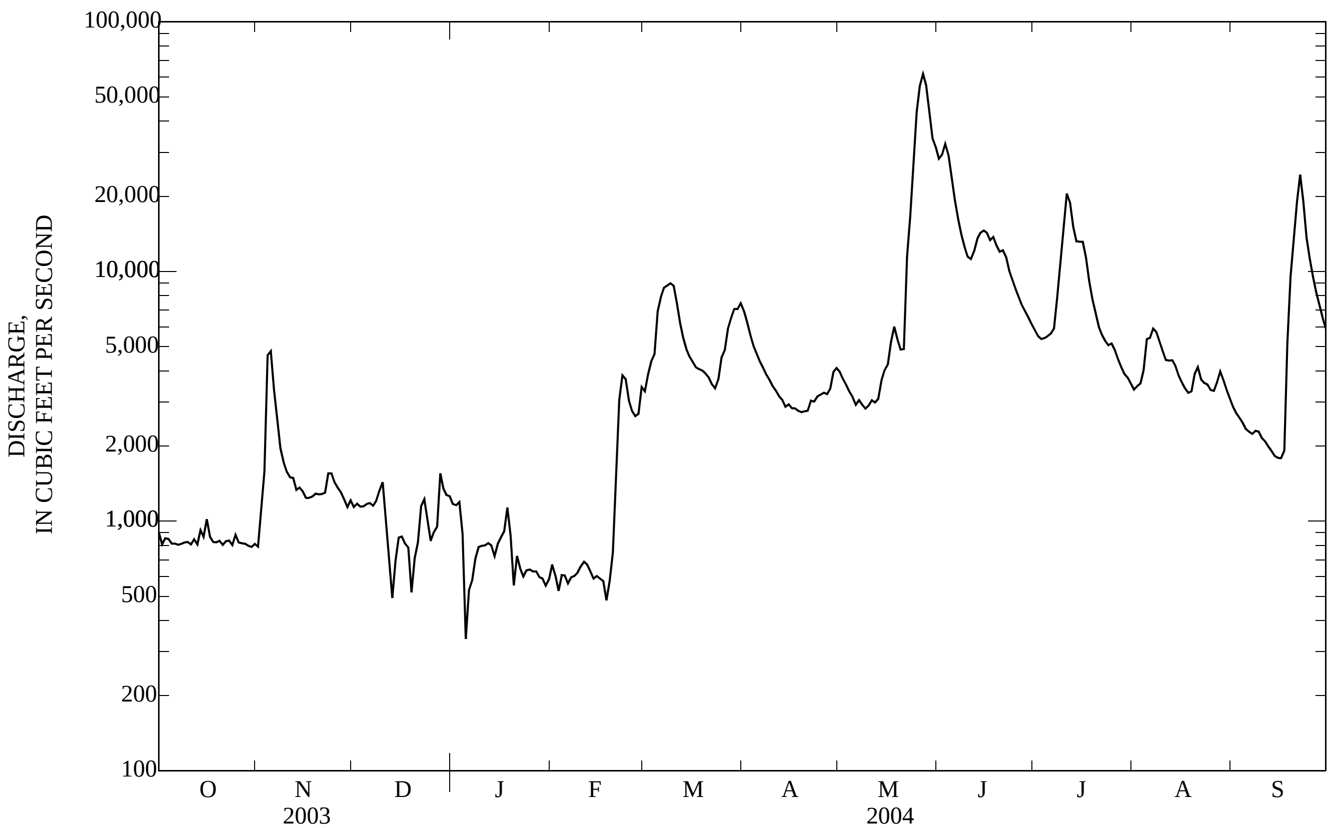
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2,341	2,411	1,849	1,566	2,458	6,587	6,842	5,483	5,992	4,353	3,014	2,425
MAX	10,570	9,327	8,675	8,529	12,230	17,420	35,320	24,500	23,420	33,910	28,700	13,990
(WY)	(1987)	(1973)	(1983)	(1973)	(1984)	(1929)	(1993)	(1991)	(1947)	(1993)	(1993)	(1993)
MIN	463	410	290	299	304	664	1,045	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1903 - 2004	
ANNUAL TOTAL	1,060,736		1,921,796			
ANNUAL MEAN	2,906		5,251		3,780	
HIGHEST ANNUAL MEAN					15,130	1993
LOWEST ANNUAL MEAN					689	1934
HIGHEST DAILY MEAN	19,500	May 16	61,800	May 27	71,500	Mar 31, 1961
LOWEST DAILY MEAN	326	Jan 12	337	Jan 5 a	140	Nov 18, 1989 b
ANNUAL SEVEN-DAY MINIMUM	645	Feb 14	577	Feb 13	224	Dec 20, 1989
MAXIMUM PEAK FLOW			62,500	May 27	73,000	Mar 31, 1961
MAXIMUM PEAK STAGE			18.30	May 27	20.00	Mar 18, 1929
ANNUAL RUNOFF (AC-FT)	2,104,000		3,812,000		2,738,000	
ANNUAL RUNOFF (CFSM)	0.446		0.807		0.581	
ANNUAL RUNOFF (INCHES)	6.06		10.98		7.89	
10 PERCENT EXCEEDS	6,910		12,600		8,420	
50 PERCENT EXCEEDS	1,330		3,120		2,160	
90 PERCENT EXCEEDS	752		690		687	

a Ice affected
b Result of accidental gage operation at hydroelectric dam upstream.
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$\frac{1}{4}$ NE$\frac{1}{4}$ NE$\frac{1}{4}$ 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 704.890 ft above NGVD of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1967 reached a stage of 6.52 ft , 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 10.41 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.01	0.07	0.66	1.3	e0.95	1.6	3.2	1.3	3.9	1.9	0.97	0.83
2	0.01	1.1	0.66	1.2	e0.93	1.5	2.9	1.3	3.5	1.9	1.0	0.76
3	0.01	0.97	0.67	1.1	e0.66	1.4	2.8	1.3	3.2	2.4	1.5	0.71
4	0.01	0.43	0.68	1.1	e0.55	8.2	2.6	1.2	3.0	2.1	2.1	0.67
5	0.01	0.28	0.77	e0.94	e0.61	11	2.5	1.2	2.8	4.5	1.2	0.64
6	0.01	0.22	0.69	e1.2	e0.61	5.4	2.3	1.2	2.6	4.0	1.0	0.65
7	0.02	0.17	0.70	e0.97	e0.58	4.6	2.1	1.3	2.4	2.2	0.98	0.60
8	0.02	0.15	0.73	e0.82	e0.59	4.1	2.0	1.2	2.2	1.8	0.93	0.56
9	0.02	0.13	1.2	e0.66	e0.60	3.6	1.9	1.1	2.1	3.3	0.89	0.54
10	0.02	0.15	6.6	e0.64	e0.59	3.3	1.8	1.1	2.5	2.5	0.88	0.51
11	0.07	0.16	3.6	0.81	e0.60	3.0	1.7	1.0	2.3	2.3	0.88	0.52
12	0.04	0.11	2.7	0.78	e0.57	2.9	1.7	0.98	2.1	2.1	0.84	0.51
13	0.05	0.10	2.2	0.74	e0.56	2.9	1.6	1.1	2.1	1.9	0.79	0.51
14	0.30	0.10	1.8	0.79	e0.54	3.1	1.6	0.98	4.0	1.7	0.76	0.59
15	0.07	0.10	1.7	0.76	e0.52	3.0	1.5	0.93	3.1	1.6	0.74	0.89
16	0.17	0.10	1.6	0.83	e0.49	3.1	1.5	0.89	3.0	1.5	0.82	0.53
17	0.07	0.12	1.4	1.3	e0.46	3.4	1.4	1.2	2.7	1.4	0.78	0.49
18	0.05	0.14	1.3	1.2	e0.48	3.9	1.4	2.1	2.5	1.4	0.81	0.51
19	0.05	0.11	1.2	e0.96	e0.61	3.7	1.3	1.5	2.3	1.3	0.74	0.49
20	0.06	0.10	1.2	e0.85	e8.0	3.5	1.9	1.4	2.2	1.2	0.69	0.48
21	0.06	0.10	1.2	e0.93	e5.3	3.2	1.8	1.3	5.6	1.2	0.66	0.49
22	0.06	0.10	1.2	e0.85	e3.8	3.1	1.6	3.8	3.6	1.4	0.64	0.52
23	0.06	6.5	1.1	e0.79	e3.2	3.0	1.5	6.0	3.1	1.2	0.62	0.58
24	0.09	1.6	1.1	e0.77	2.5	3.5	1.6	4.2	2.8	1.2	0.78	0.59
25	0.09	1.3	1.1	e0.76	2.0	3.5	1.6	5.0	2.6	1.1	0.94	0.61
26	0.08	1.1	0.99	e0.74	1.7	12	1.4	4.1	2.4	1.1	0.73	0.63
27	0.08	0.92	1.2	e0.69	1.6	5.8	1.4	3.6	2.3	1.0	2.3	0.65
28	0.08	0.80	1.7	e0.51	1.5	4.8	1.4	3.3	2.2	0.96	2.1	0.65
29	0.07	0.76	1.4	e0.44	1.5	4.2	1.3	3.1	2.1	0.98	1.5	0.65
30	0.07	0.73	1.4	e0.48	---	3.8	1.3	6.0	2.0	1.5	1.1	0.66
31	0.06	---	1.3	e0.86	---	3.5	---	4.7	---	1.0	0.92	---
TOTAL	1.87	18.72	45.75	26.77	42.60	127.6	54.6	69.38	83.2	55.64	31.59	18.02
MEAN	0.06	0.62	1.48	0.86	1.47	4.12	1.82	2.24	2.77	1.79	1.02	0.60
MAX	0.30	6.5	6.6	1.3	8.0	12	3.2	6.0	5.6	4.5	2.3	0.89
MIN	0.01	0.07	0.66	0.44	0.46	1.4	1.3	0.89	2.0	0.96	0.62	0.48
AC-FT	3.7	37	91	53	84	253	108	138	165	110	63	36
CFSM	0.02	0.24	0.57	0.33	0.57	1.60	0.71	0.87	1.07	0.70	0.39	0.23
IN.	0.03	0.27	0.66	0.39	0.61	1.84	0.79	1.00	1.20	0.80	0.46	0.26

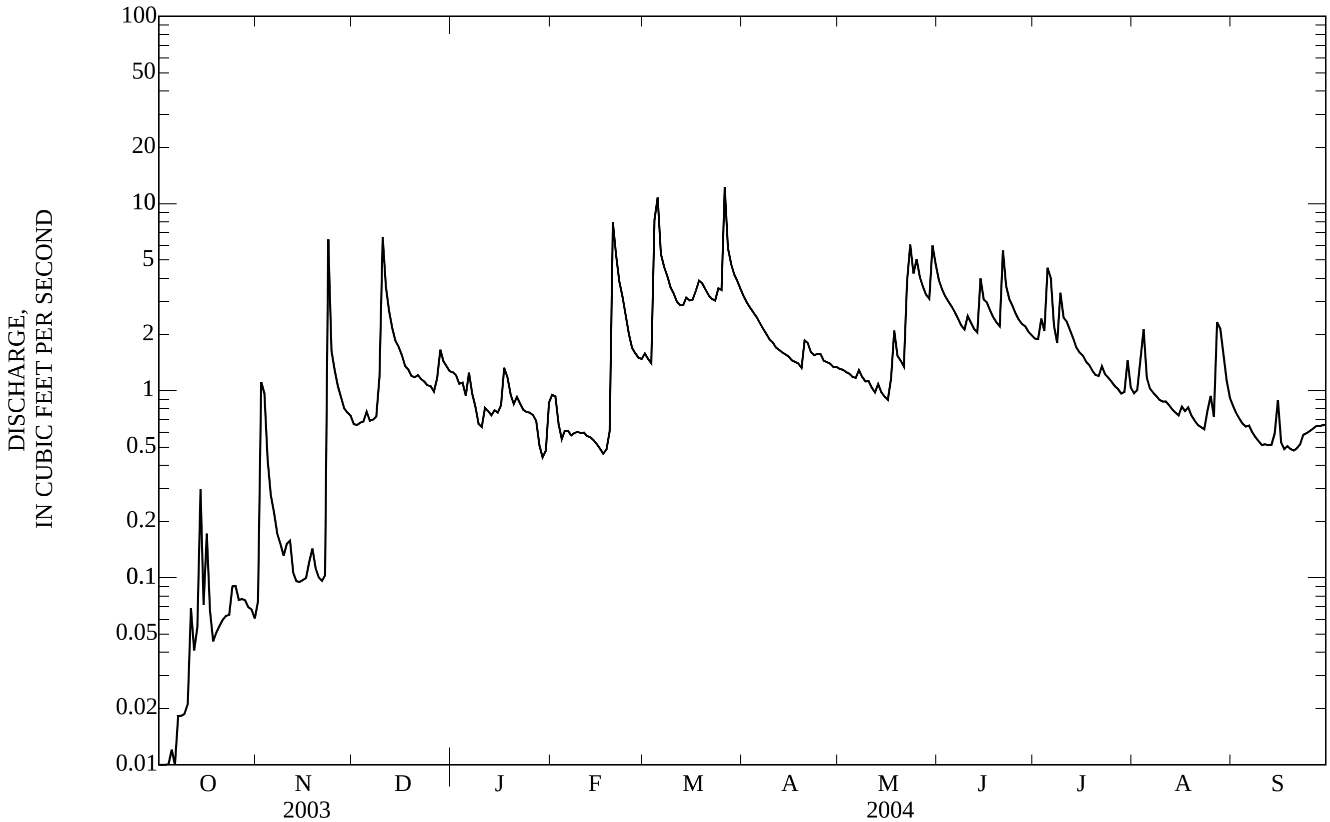
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.02	0.64	0.73	0.56	2.47	3.13	2.38	4.36	3.28	1.62	0.91	0.31
MAX	2.75	0.85	1.48	0.86	7.46	5.28	3.92	7.60	5.51	2.26	2.89	0.60
(WY)	(2003)	(2003)	(2004)	(2004)	(2001)	(2001)	(2001)	(2001)	(2001)	(2002)	(2002)	(2004)
MIN	0.06	0.38	0.22	0.40	0.26	1.10	0.44	2.24	1.44	0.96	0.15	0.08
(WY)	(2004)	(2001)	(2001)	(2003)	(2003)	(2003)	(2003)	(2004)	(2003)	(2003)	(2003)	(2003)

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

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	296.44		575.74			
ANNUAL MEAN	0.81		1.57		1.77	
HIGHEST ANNUAL MEAN					2.68	2001
LOWEST ANNUAL MEAN					0.98	2003
HIGHEST DAILY MEAN	12	Mar 12	12	Mar 26	78	May 31, 2000
LOWEST DAILY MEAN	0.00	Aug 30	0.01	Oct 1 a	0.00	Sep 5, 2001
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 4	0.01	Oct 1	0.00	Sep 4, 2003
MAXIMUM PEAK FLOW			44	Mar 4	207	May 31, 2000
MAXIMUM PEAK STAGE			4.16	Mar 4	7.45	Aug 23, 2002
INSTANTANEOUS LOW FLOW			0.01	Oct 1 b	0.00	Sep 4, 2001 c
ANNUAL RUNOFF (AC-FT)	588		1,140		1,280	
ANNUAL RUNOFF (CFSM)	0.315		0.610		0.687	
ANNUAL RUNOFF (INCHES)	4.27		8.30		9.34	
10 PERCENT EXCEEDS	1.7		3.5		4.0	
50 PERCENT EXCEEDS	0.45		1.1		0.80	
90 PERCENT EXCEEDS	0.02		0.10		0.12	

a Also Oct. 2-6.
b Also Oct. 2-9.
c Also Sept. 5, 6, 2001; Aug. 28-31, Sept. 4-13, 26, and Sept. 30, 2003.
e Estimated.



05465000 CEDAR RIVER NEAR CONESVILLE, IA

LOCATION.--(revised)Lat 41°24'33", long 91°17'25", in SW$\frac{1}{4}$ SW$\frac{1}{4}$ sec.2, T.76 N., R.4 W., Muscatine County, Hydrologic Unit 07080206, on right bank 10 ft downstream from bridge on county highway G28, 3.4 mi northeast of Conesville, 5.2 mi downstream from Wapsinonoc Creek, 10.7 mi upstream from mouth, and at mile 39.8 upstream from mouth of Iowa River.

DRAINAGE AREA.--7,785 mi^2.

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

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

GAGE.--Water-stage recorder. Datum of gage is 581.95 ft above NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,250	1,120	1,740	1,940	e981	3,930	8,950	4,550	46,200	7,210	4,490	4,130
2	1,230	1,200	1,760	1,850	e1,050	4,380	8,470	4,500	41,500	6,810	4,220	3,790
3	1,220	1,420	1,670	1,760	e964	4,350	7,690	4,230	37,300	6,550	4,150	3,520
4	1,190	1,910	1,660	1,750	e904	4,850	7,020	3,970	36,300	6,580	4,590	3,310
5	1,180	3,860	1,690	e1,250	e992	7,780	6,280	3,860	37,500	6,570	4,840	3,150
6	1,160	6,290	1,690	e899	e990	12,000	5,880	3,780	34,900	7,000	5,610	3,000
7	1,160	4,720	1,670	e953	e955	11,200	e5,350	3,730	29,100	6,840	5,970	2,850
8	1,160	3,610	1,660	e1,080	e985	10,400	e4,910	3,810	23,100	6,800	6,310	2,710
9	1,150	3,020	1,700	e1,140	e1,000	10,100	4,690	3,690	18,300	8,080	6,400	2,680
10	1,160	2,660	2,010	e1,160	e994	10,100	4,490	3,440	15,700	11,400	6,080	2,710
11	1,150	2,420	2,660	e1,160	e1,020	9,970	4,360	3,510	15,000	14,900	5,590	2,640
12	1,160	2,300	e2,370	e1,190	e1,000	8,880	4,080	3,960	14,600	19,100	5,240	2,500
13	1,170	2,210	e1,760	e1,140	e996	7,460	3,850	3,960	14,300	21,300	5,090	2,400
14	1,230	2,100	e1,380	e1,060	e1,020	6,630	3,730	3,850	15,800	18,100	5,190	2,290
15	1,260	2,000	e1,570	e1,210	e986	6,040	3,680	4,000	18,700	14,400	5,100	2,230
16	1,320	1,950	e1,670	e1,300	e966	5,620	3,520	4,490	17,800	13,500	4,750	2,300
17	1,240	1,890	e1,670	e1,350	e942	5,350	3,590	4,580	17,400	13,500	4,560	2,210
18	1,320	1,840	e1,570	e1,640	e996	5,260	3,510	5,700	16,300	11,900	4,430	2,100
19	1,210	1,830	e1,540	e1,320	e1,010	5,340	3,510	8,400	15,600	10,100	4,210	2,990
20	1,180	1,820	e1,350	e1,060	e1,230	5,330	3,430	7,510	14,700	8,810	4,050	7,310
21	1,160	1,820	e1,520	e1,300	e2,250	5,190	3,920	6,780	13,600	7,950	4,340	10,800
22	1,150	1,770	e1,600	e1,130	e3,940	4,870	3,880	6,810	16,300	7,400	4,840	14,900
23	1,130	1,890	e1,620	e1,040	e5,450	4,620	3,800	17,000	14,400	6,920	4,620	19,300
24	1,140	2,380	e1,460	e1,080	e6,310	4,510	3,790	23,300	12,000	6,480	4,410	21,200
25	1,160	2,620	e1,320	e1,070	e6,710	4,810	3,830	25,700	11,000	6,140	4,450	15,600
26	1,170	2,360	e1,360	e1,060	5,710	7,120	3,850	32,100	10,100	6,060	4,290	11,400
27	1,180	2,150	e1,430	e1,060	4,260	8,740	3,870	46,900	9,420	5,850	4,270	9,800
28	1,150	2,040	1,530	e1,020	3,850	8,170	3,780	61,100	8,710	5,470	5,690	8,690
29	1,150	1,920	2,000	e964	3,680	8,560	3,860	69,200	8,180	5,130	6,820	7,860
30	1,130	1,790	2,370	e920	---	9,040	4,190	65,400	7,670	4,990	5,980	7,160
31	1,120	---	2,040	e920	---	8,790	---	55,100	---	4,800	4,820	---
TOTAL	36,740	70,910	53,040	37,776	62,141	219,390	139,760	498,910	591,480	286,640	155,400	187,530
MEAN	1,185	2,364	1,711	1,219	2,143	7,077	4,659	16,090	19,720	9,246	5,013	6,251
MAX	1,320	6,290	2,660	1,940	6,710	12,000	8,950	69,200	46,200	21,300	6,820	21,200
MIN	1,120	1,120	1,320	899	904	3,930	3,430	3,440	7,670	4,800	4,050	2,100
AC-FT	72,870	140,600	105,200	74,930	123,300	435,200	277,200	989,600	1,173,000	568,600	308,200	372,000
CFSM	0.15	0.30	0.22	0.16	0.28	0.91	0.60	2.07	2.53	1.19	0.64	0.80
IN.	0.18	0.34	0.25	0.18	0.30	1.05	0.67	2.38	2.83	1.37	0.74	0.90

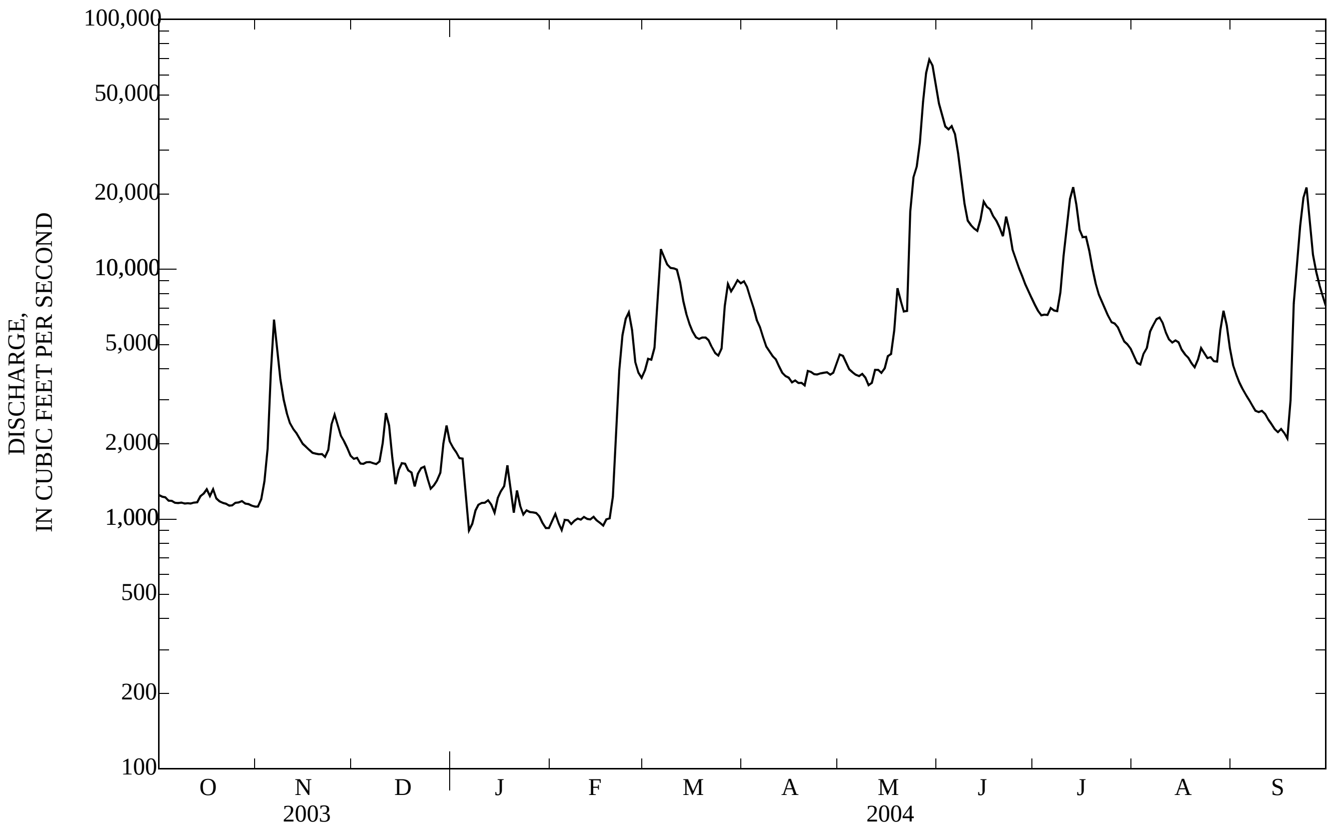
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3,084	3,273	2,562	2,340	3,191	7,880	9,428	7,854	8,458	6,560	4,206	3,291
MAX	12,380	10,240	11,110	11,860	12,000	17,590	36,790	24,440	27,780	42,110	34,190	19,530
(WY)	(1987)	(1973)	(1983)	(1973)	(1984)	(1948)	(1993)	(1991)	(1993)	(1993)	(1993)	(1993)
MIN	599	590	429	365	359	1,056	1,244	1,219	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	1,302,218		2,339,717			
ANNUAL MEAN	3,568		6,393		5,182	
HIGHEST ANNUAL MEAN					18,710	1993
LOWEST ANNUAL MEAN					1,176	1956
HIGHEST DAILY MEAN	21,700	May 18	69,200	May 29	69,800	Apr 6, 1993
LOWEST DAILY MEAN	848	Jan 13	899	Jan 6 a	250	Nov 28, 1955
ANNUAL SEVEN-DAY MINIMUM	1,100	Feb 16	958	Jan 29	329	Jan 30, 1940
MAXIMUM PEAK FLOW			70,200	May 29	74,000	Apr 6, 1993
MAXIMUM PEAK STAGE			17.00	May 29	17.11	Apr 6, 1993
ANNUAL RUNOFF (AC-FT)	2,583,000		4,641,000		3,754,000	
ANNUAL RUNOFF (CFSM)	0.458		0.821		0.665	
ANNUAL RUNOFF (INCHES)	6.22		11.18		9.04	
10 PERCENT EXCEEDS	7,740		14,600		11,900	
50 PERCENT EXCEEDS	2,000		3,860		3,130	
90 PERCENT EXCEEDS	1,170		1,130		954	

a Ice affected
e Estimated



05465500 IOWA RIVER AT WAPELLO, IA

LOCATION.--Lat 41°10'41", long 91°10'55", in NW¼ SE¼ 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 NGVD of 1929; 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,390	1,310	2,460	e2,990	e1,840	7,620	15,700	6,840	57,000	15,200	6,720	11,800
2	1,370	1,350	2,420	e2,730	e1,910	8,620	15,900	7,220	49,900	14,700	6,520	10,200
3	1,350	1,560	2,390	e2,660	e1,990	9,170	15,100	7,150	45,400	14,400	6,260	7,850
4	1,350	1,950	2,310	e2,590	e1,870	9,340	13,900	6,850	41,800	14,700	6,380	6,820
5	1,340	2,460	2,230	e2,560	e1,770	12,900	12,500	6,300	40,700	15,100	7,020	5,900
6	1,330	5,260	2,200	e1,910	e1,840	21,600	11,200	5,800	41,200	14,900	8,030	5,570
7	1,310	7,950	2,430	e1,560	e1,910	25,900	10,300	5,520	39,300	15,200	8,800	5,170
8	1,290	7,810	2,730	e1,520	e1,960	23,500	9,510	5,480	35,100	14,700	8,950	4,810
9	1,270	6,950	2,830	e1,690	e1,990	21,700	8,930	5,680	29,800	14,600	9,180	4,520
10	1,270	5,270	3,600	e1,900	e1,950	20,600	8,500	5,660	26,200	18,300	9,030	4,360
11	1,270	4,170	4,450	e1,990	e1,880	19,800	8,130	5,530	24,900	21,300	8,410	4,380
12	1,280	3,450	4,950	e2,060	e1,870	18,700	7,720	5,630	25,100	23,400	7,630	4,320
13	1,280	3,100	4,580	e2,150	e1,850	16,800	7,180	6,050	23,600	25,800	6,960	4,190
14	1,330	3,050	4,230	e2,000	e1,840	14,000	6,850	5,940	23,300	26,800	6,720	4,090
15	1,390	2,940	3,600	e2,100	e1,820	12,100	6,650	5,440	24,700	24,400	6,670	4,000
16	1,450	2,840	3,100	e2,290	e1,780	11,300	6,470	5,360	25,600	21,800	6,470	3,810
17	1,460	2,790	2,830	e2,440	e1,770	10,600	6,220	5,630	25,000	21,100	6,220	4,020
18	1,420	2,760	2,940	e2,650	e1,740	10,600	6,170	5,890	24,700	20,400	6,040	3,700
19	1,470	2,680	2,930	e2,850	e1,840	11,200	6,030	7,650	23,800	18,200	6,310	3,550
20	1,380	2,700	2,850	e2,350	e2,110	12,000	5,980	10,300	23,300	16,000	5,990	5,230
21	1,320	2,660	2,660	e2,090	e2,770	11,700	6,170	10,300	22,100	14,100	5,690	9,680
22	1,300	2,470	2,740	e2,230	e5,120	10,900	7,060	10,600	22,400	12,600	5,880	13,300
23	1,300	2,380	2,460	e1,950	e8,760	10,100	7,230	14,500	23,400	11,900	6,080	16,700
24	1,300	2,820	2,410	e1,930	e11,600	9,680	6,860	24,500	21,400	10,600	5,900	19,300
25	1,310	3,620	2,450	e1,930	e13,500	9,580	6,940	29,000	19,800	9,390	5,970	20,200
26	1,320	3,570	2,460	e1,920	e11,900	10,800	7,150	32,100	18,700	8,800	6,130	16,200
27	1,350	3,170	2,390	e1,900	11,100	18,200	7,200	35,700	17,700	8,500	5,990	12,700
28	1,370	2,880	2,370	e1,930	8,370	17,100	6,920	46,200	17,000	8,100	7,230	10,900
29	1,330	2,740	2,570	e1,830	7,570	16,000	6,550	56,800	16,300	7,610	13,900	9,740
30	1,340	2,650	3,560	e1,850	---	16,100	6,430	62,900	15,800	7,210	15,300	8,920
31	1,310	---	e3,250	e1,760	---	16,000	---	63,500	---	6,970	12,900	---
TOTAL	41,550	101,310	91,380	66,310	118,220	444,210	257,450	512,020	845,000	476,780	235,280	245,930
MEAN	1,340	3,377	2,948	2,139	4,077	14,330	8,582	16,520	28,170	15,380	7,590	8,198
MAX	1,470	7,950	4,950	2,990	13,500	25,900	15,900	63,500	57,000	26,800	15,300	20,200
MIN	1,270	1,310	2,200	1,520	1,740	7,620	5,980	5,360	15,800	6,970	5,690	3,550
AC-FT	82,410	200,900	181,300	131,500	234,500	881,100	510,700	1,016,000	1,676,000	945,700	466,700	487,800
CFSM	0.11	0.27	0.24	0.17	0.33	1.15	0.69	1.32	2.25	1.23	0.61	0.66
IN.	0.12	0.30	0.27	0.20	0.35	1.32	0.77	1.52	2.51	1.42	0.70	0.73

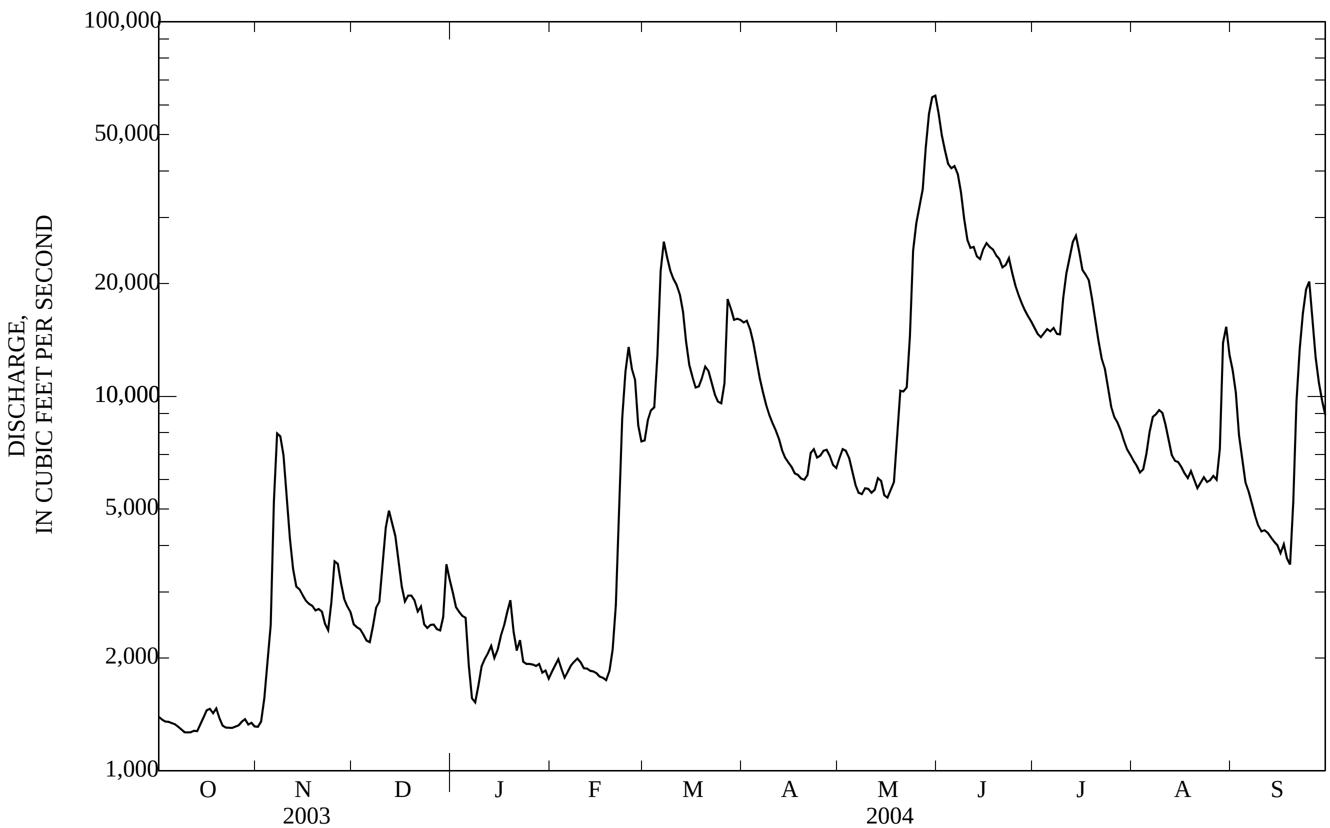
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5,336	5,911	5,128	4,302	6,071	13,260	15,940	14,080	14,340	12,400	7,810	5,940
MAX	17,200	16,080	18,150	20,420	17,080	26,130	45,840	33,030	36,630	77,320	61,750	37,270
(WY)	(1987)	(1993)	(1983)	(1973)	(1984)	(1982)	(1993)	(1993)	(1993)	(1993)	(1993)	(1993)
MIN	926	882	664	533	661	2,273	2,536	1,709	1,022	1,019	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004 a	
ANNUAL TOTAL	1,929,110		3,435,440			
ANNUAL MEAN	5,285		9,386		9,219	
HIGHEST ANNUAL MEAN					30,550	1993
LOWEST ANNUAL MEAN					1,908	1989
HIGHEST DAILY MEAN	28,400	May 19	63,500	May 31	106,000	Jul 8, 1993
LOWEST DAILY MEAN	1,270	Oct 9	1,270	Oct 9 b	460	Jan 21, 1977
ANNUAL SEVEN-DAY MINIMUM	1,280	Oct 7	1,280	Oct 7	470	Jan 20, 1977
MAXIMUM PEAK FLOW			65,700	May 31	111,000	Jul 8, 1993
MAXIMUM PEAK STAGE			26.65	May 31	29.53	Jul 7, 1993
ANNUAL RUNOFF (AC-FT)	3,826,000		6,814,000		6,679,000	
ANNUAL RUNOFF (CFSM)	0.423		0.751		0.738	
ANNUAL RUNOFF (INCHES)	5.74		10.22		10.02	
10 PERCENT EXCEEDS	12,100		22,200		21,100	
50 PERCENT EXCEEDS	2,930		6,170		5,890	
90 PERCENT EXCEEDS	1,470		1,650		1,760	

a Post regulation.
b Also Oct. 10, 11.
e Estimated.



05465500 IOWA RIVER AT WAPELLO, IA—Continued

WATER-QUALITY RECORDS

LOCATION -- Samples collected from a boat about 0.75 mile downstream 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, 727 microsiemens Jan. 8; minimum daily, 423 microsiemens June 11.
WATER TEMPERATURES: Maximum daily, 24°C, Aug. 5; minimum daily, 0.0°C Feb. 11.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 711 mg/L May 30; minimum daily mean, 4 mg/L Feb. 11-13.
SEDIMENT LOADS: Maximum daily, 121,000 tons May 30; minimum daily, 21 tons Feb. 11.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)
OCT													
08...	0917	10.26	1,280	50	748	9.4	99	9.3	498	--	17.1	111	111
NOV													
03...	1015	10.42	1,540	43	747	12.4	110	8.9	558	8.0	9.5	151	173
DEC													
04...	0930	11.28	2,220	15	750	11.3	84	8.3	596	3.0	2.3	173	206
JAN													
08...	0958	10.78	1,490	--	749	16.7	117	8.2	724	--	.1	210	256
FEB													
11...	0930	11.82	1,900	--	748	12.1	85	7.9	690	1.0	.0	209	255
APR													
07...	0848	14.57	10,300	14	743	11.0	104	8.4	569	11.7	12.8	182	216
MAY													
05...	1108	13.28	6,310	63	748	11.0	113	8.5	422	--	15.9	118	133
JUN													
01...	1105	25.26	58,500	--	737	--	--	7.5	--	--	20.0	116	142
JUL													
01...	0945	16.33	15,100	74	749	9.2	111	8.5	569	--	23.9	192	229
AUG													
05...	0930	13.40	7,110	88	751	7.7	93	8.4	490	23.0	24.0	150	173
SEP													
08...	0930	12.41	E5,090	--	754	10.8	127	8.7	448	24.0	22.8	--	--

05465500 IOWA RIVER AT WAPELLO, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)
OCT													
08...	12	58.9	52.8	<.04	<.06	<.008	E.004	.42	<.006	E.038	.010	<.004	<.005
NOV													
03...	5	56.1	50.8	--	--	--	--	--	--	--	--	--	--
DEC													
04...	2	40.3	43.5	E.02	5.15	.010	.108	.24	<.006	E.013	.011	<.005	<.005
JAN													
08...	.0	46.7	52.1	<.04	6.41	.019	.124	.22	--	--	--	--	--
FEB													
11...	.0	49.3	51.4	<.04	4.21	.137	.186	.25	<.006	E.038	.007	<.005	<.005
APR													
07...	.0	30.4	34.2	<.04	9.03	.102	.019	.30	<.006	E.040	.016	<.005	<.005
MAY													
05...	5	32.8	37.4	<.04	6.05	.019	<.006	.26	<.006	E.042	.131	<.005	<.005
JUN													
01...	.0	17.2	15.9	<.04	9.38	.093	.148	.34	<.006	E.109	1.01	.055	<.005
JUL													
01...	2	24.9	28.7	<.04	8.23	.044	.093	.28	<.006	E.122	.071	<.005	<.005
AUG													
05...	5	29.1	35.9	<.04	4.10	.020	.052	.29	<.006	E.071	.010	<.005	<.005
SEP													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)
OCT													
08...	.223	<.050	<.010	<.002	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.005	<.02
NOV													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
04...	.178	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02
JAN													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
11...	.073	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02
APR													
07...	.076	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02
MAY													
05...	.397	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02
JUN													
01...	6.22	<.050	<.010	<.004	<.041	E.010	.006	<.006	E.015	<.003	<.005	<.009	<.02
JUL													
01...	1.04	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02
AUG													
05...	.380	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02
SEP													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--

05465500 IOWA RIVER AT WAPELLO, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)
OCT 08...	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.006	.021	<.006	<.002	<.007	<.003
NOV 03...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	E.002	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.043	<.006	<.003	<.007	<.003
JAN 08...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 11...	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.023	<.006	<.003	<.007	<.003
APR 07...	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.089	<.006	<.003	<.007	<.003
MAY 05...	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.104	<.006	<.003	<.007	<.003
JUN 01...	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	1.24	<.014	<.003	<.007	<.010
JUL 01...	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.205	<.006	<.003	<.007	<.003
AUG 05...	<.004	<.009	<.005	<.003	<.004	<.035	<.027	<.015	.037	<.006	<.003	<.007	<.003
SEP 08...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)
OCT 08...	<.010	<.004	<.022	<.011	E.01	<.004	<.010	<.011	<.02	<.02	<.034	<.02	<.005
NOV 03...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
JAN 08...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB 11...	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
APR 07...	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
MAY 05...	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
JUN 01...	<.010	<.004	E.009	<.011	.01	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
JUL 01...	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
AUG 05...	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.02	<.034	<.02	<.010
SEP 08...	--	--	--	--	--	--	--	--	--	--	--	--	--

05465500 IOWA RIVER AT WAPELLO, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)
OCT			
08...	<.002	<.009	5
NOV			
03...	--	--	--
DEC			
04...	<.002	<.009	12
JAN			
08...	--	--	10
FEB			
11...	<.002	<.009	4
APR			
07...	<.002	<.009	121
MAY			
05...	<.002	<.009	151
JUN			
01...	<.002	E.005	232
JUL			
01...	<.002	<.009	140
AUG			
05...	<.002	<.009	110
SEP			
08...	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instan-taneous dis-charge, cfs (00061)	Temper-ature, water, deg C (00010)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)	Sus-pended sedi-ment dis-charge, tons/d (80155)
OCT						
08...	1140	1,280	--	3	994	3,440
NOV						
03...	1025	1,540	9.5	96	59	245
DEC						
04...	0959	2,220	--	92	14	84
APR						
07...	0858	10,300	--	94	143	3,980
MAY						
05...	1030	6,310	--	48	171	2,910
JUN						
01...	1030	58,500	--	17	596	94,100
JUL						
01...	1024	15,100	--	27	392	16,000
AUG						
05...	1000	7,110	--	85	127	2,440

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Bed sedi-ment, dry svd sve dia percent <.063mm (80164)	Bed sedi-ment, dry svd sve dia percent <.125mm (80165)	Bed sedi-ment, dry svd sve dia percent <.25mm (80166)	Bed sedi-ment, dry svd sve dia percent <.5 mm (80167)	Bed sedi-ment, dry svd sve dia percent <1 mm (80168)	Bed sedi-ment, dry svd sve dia percent <2 mm (80169)	Bed sedi-ment, dry svd sve dia percent <4 mm (80170)	Bed sedi-ment, dry svd sve dia percent <8 mm (80171)	Bed sedi-ment, dry svd sve dia percent <16 mm (80172)	Number of sam-pling points, count (00063)
APR											
07...	0858	.0	.0	3	33	71	89	96	100	100	5
MAY											
05...	1030	.0	.0	4	44	86	97	100	100	--	5
JUN											
01...	1030	.0	.0	1	28	74	94	100	100	--	4
JUL											
01...	1030	.0	.0	5	32	74	92	98	100	--	5
AUG											
05...	1000	.0	1	5	45	75	83	90	96	100	5

05465500 IOWA RIVER AT WAPELLO, IA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	426	575	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	596	---	---	---	---	---	---	---	---	---	---
4	610	---	608	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	524	---	---	508	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	595	---	---	---	---	---
8	574	---	---	727	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	696	---	---	---	423	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	20.0	23.9	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	9.5	---	---	---	---	---	---	---	---	---	---
4	2.3	---	2.3	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	15.9	---	---	24.0	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	13.6	---	---	---	---	---
8	17.1	---	---	0.1	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	0.0	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

05465500 IOWA RIVER AT WAPELLO, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	15	56	52	186	27	178	29	234	11	55	113	2,330
2	15	56	56	204	22	141	23	170	11	57	136	3,180
3	15	53	63	267	17	107	18	129	12	64	160	3,960
4	16	58	88	467	8	47	18	126	11	56	184	4,650
5	25	91	116	770	6	33	17	118	10	47	227	7,990
6	36	128	143	2,060	8	47	13	67	9	44	290	17,000
7	46	162	168	3,610	12	76	9	36	8	41	331	23,200
8	58	203	155	3,280	16	117	10	41	7	37	306	19,500
9	57	195	129	2,430	22	165	14	64	6	32	276	16,200
10	50	172	108	1,540	33	329	17	87	5	26	249	13,900
11	44	149	93	1,050	46	557	20	107	4	21	235	12,600
12	37	127	79	738	54	722	22	122	4	22	221	11,200
13	31	107	71	597	47	582	23	134	4	22	207	9,410
14	53	192	68	564	39	447	23	124	5	24	193	7,320
15	73	274	66	521	31	302	22	125	5	25	183	5,980
16	89	350	63	482	23	194	21	130	5	25	178	5,410
17	86	340	60	451	18	137	20	132	6	26	173	4,930
18	80	307	57	424	20	157	22	157	6	27	173	4,960
19	87	345	55	398	20	158	23	177	9	45	178	5,390
20	75	281	59	427	18	137	21	133	25	142	183	5,910
21	62	222	56	406	17	124	20	113	43	322	178	5,600
22	55	194	52	348	20	148	22	132	94	1,300	170	4,990
23	50	177	51	325	17	111	22	116	159	3,760	163	4,440
24	45	159	64	492	16	104	19	99	224	7,020	155	4,050
25	41	144	76	746	18	117	17	89	220	8,020	148	3,820
26	45	160	66	639	18	121	16	83	175	5,620	187	5,550
27	53	194	52	450	16	101	14	72	147	4,410	278	13,700
28	57	210	42	328	15	94	12	63	123	2,800	271	12,600
29	52	185	37	274	23	158	9	44	102	2,090	248	10,700
30	55	198	32	228	32	305	9	46	---	---	229	9,960
31	51	182	---	---	35	307	10	47	---	---	215	9,270
TOTAL	---	5,671	---	24,702	---	6,323	---	3,317	---	36,180	---	269,700

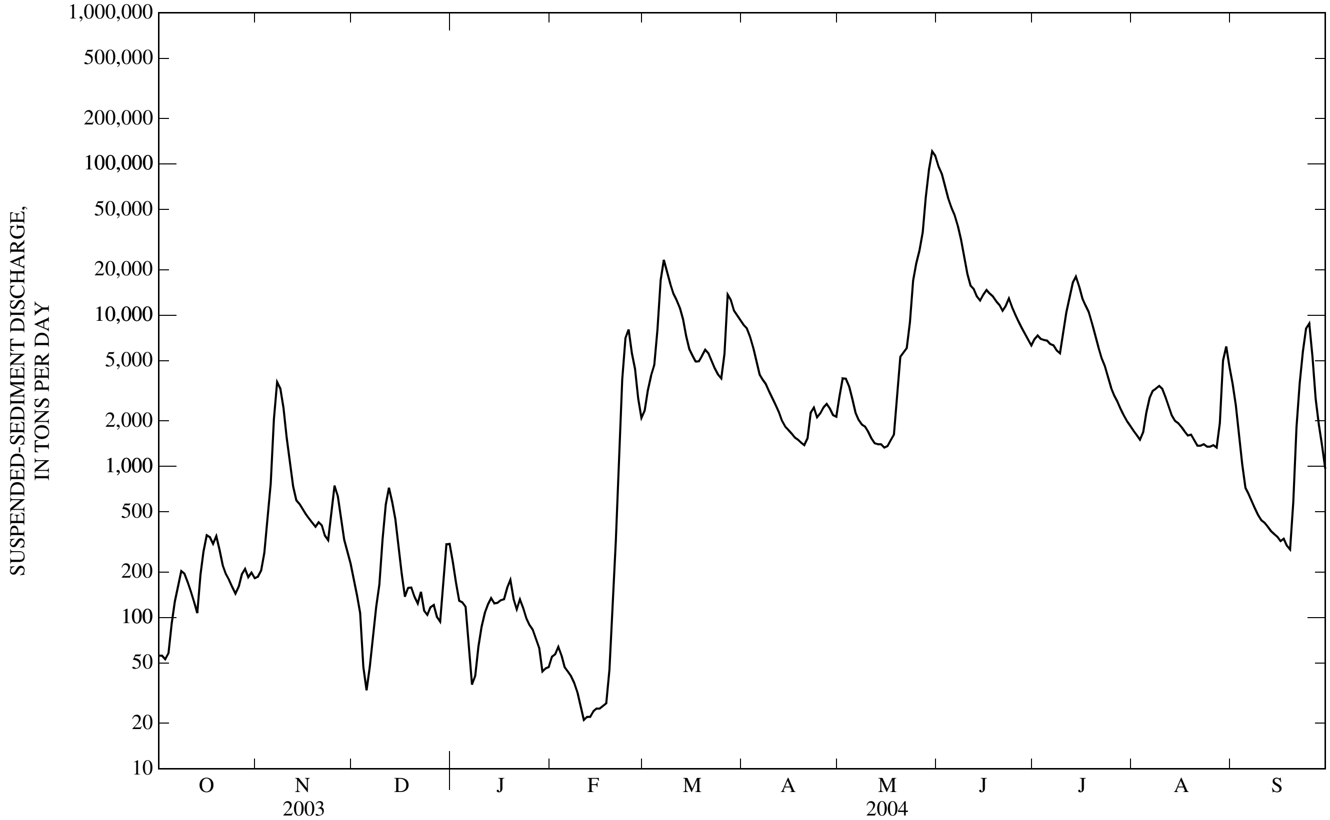
05465500 IOWA RIVER AT WAPELLO, IA—Continued

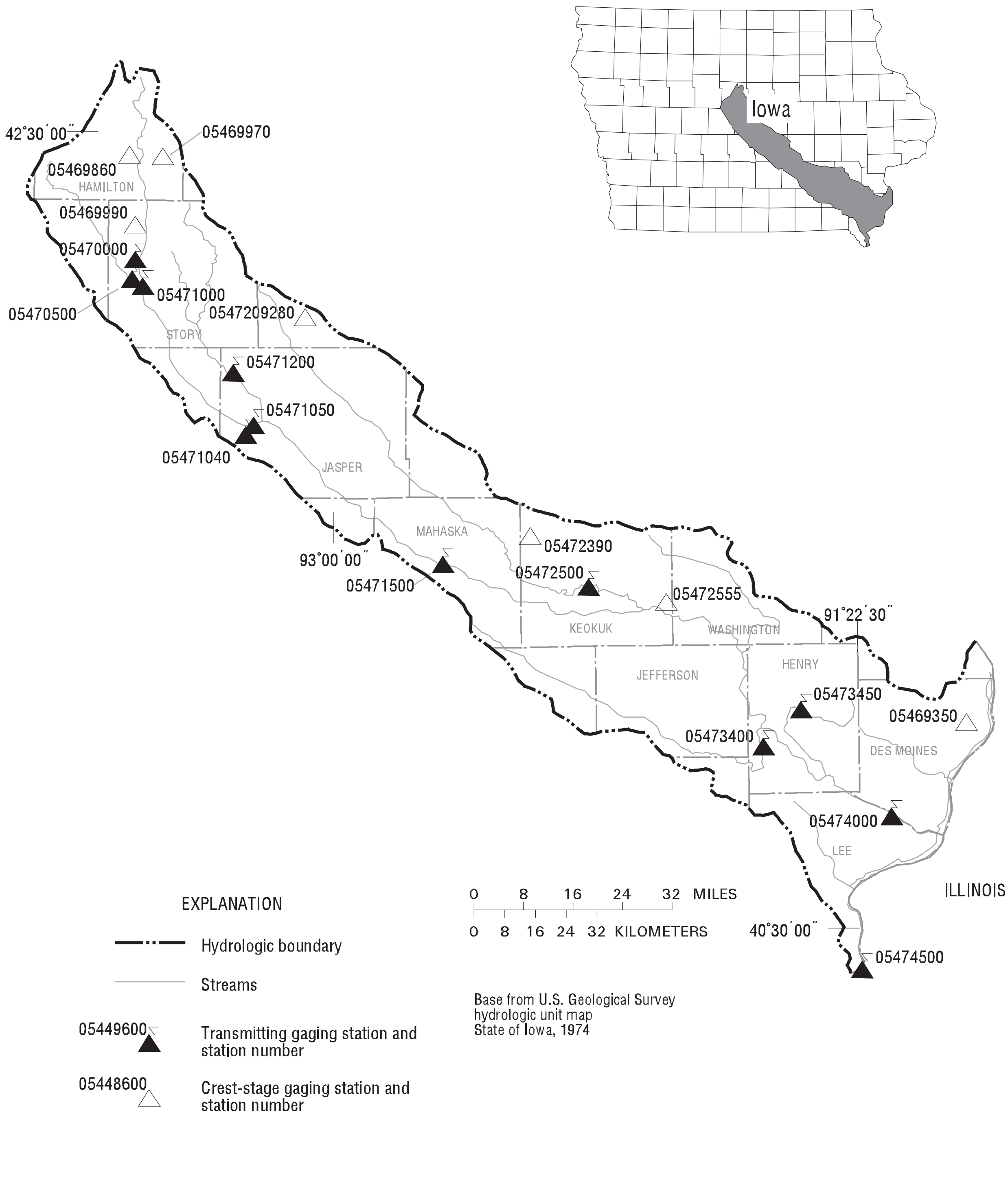
SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	203	8,610	157	2,910	628	96,500	169	6,940	95	1,720	110	3,510
2	190	8,180	196	3,820	641	86,500	185	7,340	91	1,610	91	2,530
3	177	7,210	197	3,800	585	71,700	179	6,950	88	1,500	74	1,560
4	162	6,100	183	3,390	528	59,600	173	6,860	97	1,680	56	1,030
5	148	4,980	164	2,800	471	51,700	166	6,780	120	2,280	45	722
6	133	4,040	145	2,270	415	46,200	160	6,440	131	2,830	44	657
7	135	3,730	136	2,030	370	39,200	154	6,310	133	3,160	42	588
8	136	3,480	128	1,890	335	31,800	147	5,840	135	3,270	41	526
9	129	3,120	119	1,830	300	24,200	142	5,600	137	3,400	39	475
10	123	2,820	111	1,690	265	18,800	157	7,800	133	3,250	37	439
11	116	2,550	102	1,530	234	15,700	183	10,500	127	2,890	36	423
12	110	2,290	94	1,420	220	14,900	209	13,200	121	2,500	34	398
13	103	2,000	86	1,400	209	13,300	235	16,400	115	2,170	33	372
14	99	1,830	87	1,400	199	12,500	249	18,000	110	2,000	32	356
15	97	1,740	91	1,330	205	13,700	235	15,500	107	1,930	32	342
16	94	1,650	94	1,360	212	14,700	219	12,900	104	1,820	31	320
17	92	1,550	98	1,490	206	13,900	204	11,600	101	1,700	31	332
18	90	1,500	102	1,620	199	13,300	190	10,500	98	1,600	30	299
19	88	1,430	138	2,890	192	12,400	180	8,870	95	1,620	29	282
20	86	1,380	189	5,300	186	11,700	171	7,380	92	1,490	39	579
21	92	1,530	203	5,660	179	10,700	162	6,160	89	1,370	68	1,810
22	119	2,270	212	6,040	190	11,500	153	5,220	87	1,370	98	3,540
23	125	2,450	227	8,950	204	12,900	144	4,630	85	1,400	127	5,740
24	114	2,110	255	16,900	197	11,300	137	3,920	85	1,350	157	8,170
25	119	2,240	282	22,100	188	10,100	130	3,300	84	1,350	161	8,810
26	127	2,450	310	26,900	180	9,090	123	2,930	83	1,380	120	5,320
27	133	2,590	364	35,300	172	8,240	116	2,670	82	1,330	81	2,790
28	129	2,410	480	60,200	164	7,510	109	2,390	97	1,930	64	1,880
29	123	2,180	598	91,800	156	6,870	105	2,160	133	5,020	52	1,370
30	123	2,130	711	121,000	147	6,300	102	1,980	150	6,200	40	962
31	---	---	658	113,000	---	---	98	1,850	130	4,560	---	---
TOTAL	---	92,550	---	554,020	---	756,810	---	228,920	---	71,680	---	56,132

YEAR 2,106,005

05465500 IOWA RIVER AT WAPELLO, IA—Continued




Iowa
42°30´00´´
05469970
05469860
HAMILTON
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05470000
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STORY
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JASPER
MAHASKA
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93°00´00´´
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05472500
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91°22´30´´
KEOKUK
WASHINGTON
HENRY
JEFFERSON
05473450
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DES MOINES
05474000
LEE
ILLINOIS
40°30´00´´
05474500
EXPLANATION
Hydrologic boundary
Streams
05449600
Transmitting gaging station and station number
05448600
Crest-stage gaging station and station number
0 8 16 24 32 MILES
0 8 16 24 32 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05470000	South Skunk River near Ames, IA	222
05470500	Squaw Creek at Ames, IA	224
05471000	South Skunk River below Squaw Creek near Ames, IA	226
05471040	Squaw Creek near Colfax, IA	228
05471050	South Skunk River at Colfax, IA	237
05471200	Indian Creek near Mingo, IA	239
05471500	South Skunk River near Oskaloosa, IA	241
05472500	North Skunk River near Sigourney, IA	243
05473400	Cedar Creek near Oakland Mills, IA	245
05473450	Big Creek near Mt. Pleasant, IA	247
05474000	Skunk River at Augusta, IA	249
05474500	Mississippi River at Keokuk, IA	259

Crest Stage Gaging Stations

05469350	Haight Creek at Kingston, IA	490
05469860	Mud Lake Drainage Ditch 71 at Jewell, IA	490
05469970	Long Dick Creek near Ellsworth, IA	490
05469990	Keigley Branch near Story City, IA	490
0547209280	Snipe Creek Tributary at Melbourne, IA	490
05472390	Middle Creek near Lacey, IA	490
05472555	Skunk River Tributary near Richland, IA	490

05470000 SOUTH SKUNK RIVER NEAR AMES, IA

LOCATION.--Lat 42°04'06", long 93°37'09", in NW$\frac{1}{4}$ SW$\frac{1}{4}$ 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 NGVD of 1929 (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 satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.9	7.1	e14	e20	426	211	190	817	258	78	45
2	0.75	3.2	7.7	e16	e19	388	195	178	619	247	76	42
3	0.90	11	7.9	e17	e18	265	189	171	509	342	87	37
4	1.0	67	9.3	e18	e21	205	181	173	440	401	290	34
5	1.3	45	9.7	e19	e24	598	177	166	395	326	358	30
6	1.2	24	9.2	e16	e24	918	170	164	377	429	202	48
7	1.9	16	8.0	e16	e23	465	160	152	350	377	148	37
8	1.1	12	9.1	e16	e23	301	153	152	320	303	119	29
9	e2.1	11	9.7	e16	e27	226	144	187	299	272	102	25
10	e1.4	10	8.3	e16	e29	186	136	233	303	252	88	27
11	e2.5	8.8	9.6	e16	e29	158	131	200	442	375	76	25
12	e1.5	8.5	6.7	e15	e29	123	129	187	1,030	817	69	22
13	e1.3	7.2	6.1	e16	e29	135	127	280	e1,830	524	62	20
14	e2.0	7.3	5.4	e15	e32	116	128	548	e1,090	352	62	19
15	2.3	6.6	6.5	e15	e31	108	127	392	e749	279	56	21
16	2.0	7.5	9.6	e14	e32	103	129	326	e517	239	49	20
17	2.1	8.5	9.6	e16	e31	104	136	280	e1,480	212	48	17
18	3.1	12	11	e14	e30	125	134	330	e1,400	187	48	20
19	2.6	13	9.5	e13	e32	155	132	296	e775	173	46	18
20	2.7	16	9.3	e12	37	151	136	313	e585	162	43	19
21	2.5	14	8.1	e11	53	126	177	271	580	150	39	16
22	2.4	13	9.2	e11	169	113	177	327	e1,060	152	37	14
23	2.6	11	9.4	e12	570	112	169	1,480	643	147	34	12
24	2.3	14	8.6	e12	548	113	161	1,980	482	128	32	12
25	2.3	12	7.7	e12	303	109	226	2,360	449	115	31	11
26	2.2	11	7.8	e12	216	113	313	2,000	412	107	38	11
27	2.4	9.1	e10	e13	318	114	281	1,190	361	101	95	11
28	2.6	8.2	e13	e14	541	380	258	859	326	94	93	9.7
29	2.9	6.7	e14	e14	432	435	227	1,090	298	86	68	9.2
30	2.8	8.5	e13	e20	---	300	200	1,380	276	83	56	9.2
31	2.9	---	e13	e20	---	247	---	1,180	---	78	49	---
TOTAL	62.85	405.0	283.1	461	3,690	7,418	5,214	19,035	19,214	7,768	2,679	670.1
MEAN	2.03	13.5	9.13	14.9	127	239	174	614	640	251	86.4	22.3
MAX	3.1	67	14	20	570	918	313	2,360	1,830	817	358	48
MIN	0.75	2.9	5.4	11	18	103	127	152	276	78	31	9.2
AC-FT	125	803	562	914	7,320	14,710	10,340	37,760	38,110	15,410	5,310	1,330
CFSM	0.01	0.04	0.03	0.05	0.40	0.76	0.55	1.95	2.03	0.80	0.27	0.07
IN.	0.01	0.05	0.03	0.05	0.44	0.88	0.62	2.25	2.27	0.92	0.32	0.08

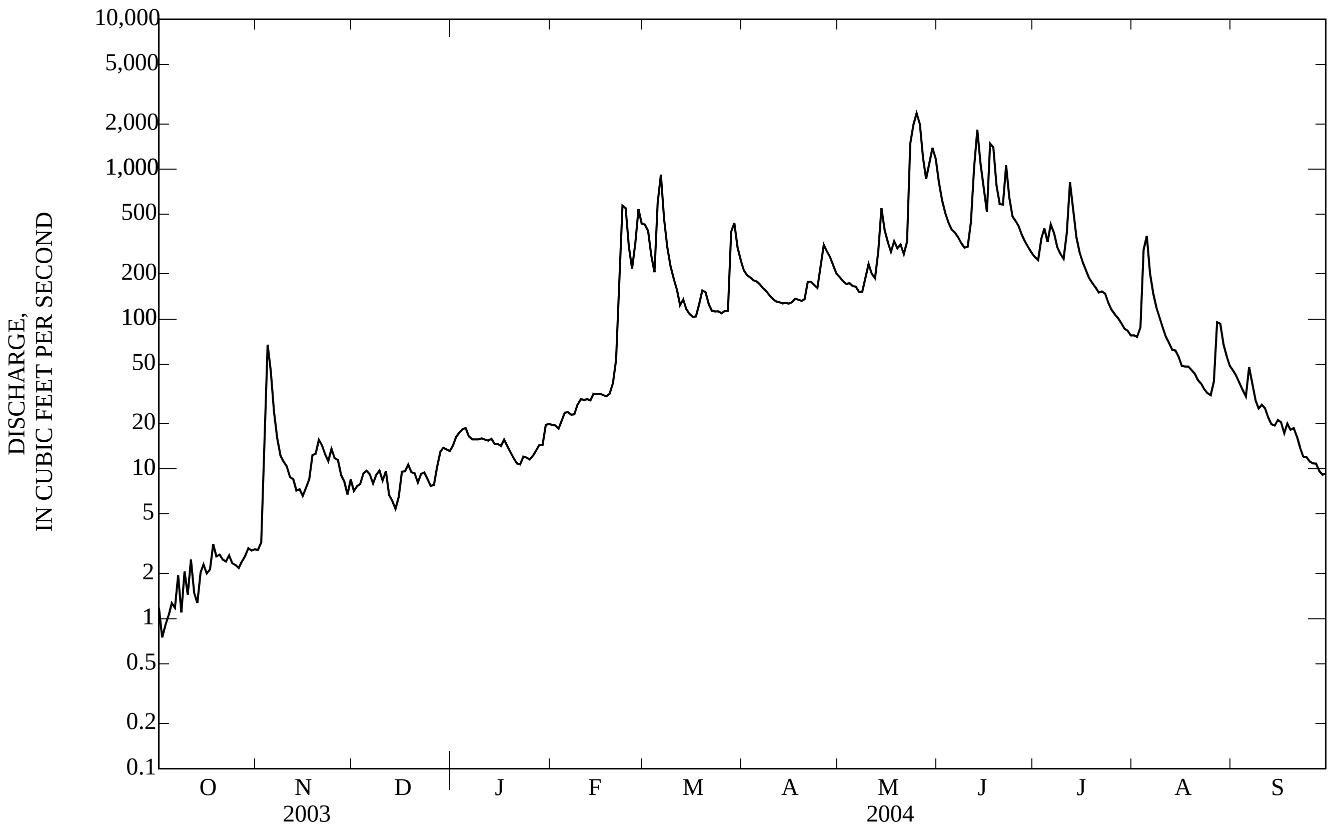
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	92.0	95.5	68.4	48.2	117	307	278	289	388	223	110	91.5
MAX	723	726	537	315	623	1,034	1,208	1,193	1,900	2,628	1,782	577
(WY)	(1987)	(1973)	(1983)	(1973)	(1984)	(1979)	(1965)	(1944)	(1947)	(1993)	(1993)	(1926)
MIN	0.12	0.14	0.00	0.00	0.31	6.35	5.44	2.28	0.01	0.02	0.09	0.08
(WY)	(1954)	(1956)	(1977)	(1977)	(1956)	(1981)	(2000)	(1934)	(1977)	(1977)	(1934)	(1976)

05470000 SOUTH SKUNK RIVER NEAR AMES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1921 - 2004	
ANNUAL TOTAL	44,707.55		66,900.05			
ANNUAL MEAN	122		183		176	
HIGHEST ANNUAL MEAN					752	1993
LOWEST ANNUAL MEAN					5.58	1956
HIGHEST DAILY MEAN	1,930	Jul 10	2,360	May 25	8,980	Jul 9, 1993
LOWEST DAILY MEAN	0.75	Oct 2	0.75	Oct 2	0.00	Jun 20, 1934
ANNUAL SEVEN-DAY MINIMUM	1.2	Oct 2	1.2	Oct 2	0.00	Jun 20, 1934 a
MAXIMUM PEAK FLOW			2,520	May 25	11,200	Aug 16, 1993
MAXIMUM PEAK STAGE			9.24	May 25	14.23	Aug 16, 1993 b
INSTANTANEOUS LOW FLOW			0.43	Oct 2	0.00	Jun 20, 1934
ANNUAL RUNOFF (AC-FT)	88,680		132,700		127,300	
ANNUAL RUNOFF (CFSM)	0.389		0.580		0.558	
ANNUAL RUNOFF (INCHES)	5.28		7.90		7.58	
10 PERCENT EXCEEDS	338		441		430	
50 PERCENT EXCEEDS	16		49		57	
90 PERCENT EXCEEDS	2.8		6.6		2.5	

a Many days in 1934, 1953-56, 1976-77.
b From previous site and datum of gage.
e Estimated.



05470500 SQUAW CREEK AT AMES, IA

LOCATION.--(revised)Lat 42°01'23", long 93°37'49", in NE$\frac{1}{4}$ NW$\frac{1}{4}$ sec.10, T.83 N., R.24 W., Story County, Hydrologic Unit 07080105, on left bank 65 ft downstream from Lincoln Way Bridge in Ames, 0.2 mi downstream from College Creek, and 2.4 mi upstream from mouth.

DRAINAGE AREA.--204 mi^2.

PERIOD OF RECORD.--May 1919 to September 1927, May 1965 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: Drainage area, 1920-22 (M), 1923, 1924-25 (M), 1926, 1927 (M), WDR IA-66-1: 1965, WDR IA-71-1: 1970 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 881.00 ft. above NGVD of 1929 (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 satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	2.1	6.0	e18	e14	616	234	146	e540	180	55	17
2	0.00	4.2	6.1	e18	e12	486	206	137	365	201	44	15
3	0.00	77	5.5	e17	9.7	313	185	128	303	226	62	13
4	0.00	106	9.0	e16	8.3	273	168	125	274	202	189	12
5	0.00	43	9.1	e18	8.0	820	156	118	252	183	145	30
6	0.00	24	8.0	e18	8.0	677	148	114	236	206	93	33
7	0.00	16	7.0	e14	7.9	411	137	104	215	157	69	16
8	0.00	11	9.7	e15	10	298	129	110	199	136	56	14
9	0.00	9.5	10	e15	8.8	249	119	134	191	137	48	12
10	0.00	9.8	6.1	e15	8.3	219	112	140	194	123	40	12
11	2.9	9.6	5.7	e15	8.3	189	107	120	216	288	35	10
12	0.74	8.2	4.7	e14	8.3	159	104	125	429	495	30	7.6
13	1.4	6.3	4.1	e15	e8.1	158	101	179	456	289	27	6.9
14	5.4	5.7	4.5	e14	8.9	143	98	232	408	207	24	11
15	1.7	6.2	6.0	e13	9.3	136	96	184	303	171	22	8.6
16	2.0	6.8	6.4	e13	e8.8	137	100	164	305	145	20	7.8
17	1.2	14	6.3	e15	8.1	135	115	162	1,310	124	22	8.5
18	1.3	12	7.4	e13	9.1	180	124	180	966	111	24	8.7
19	0.86	10	7.4	e13	12	283	115	177	629	100	21	7.5
20	1.2	13	6.8	e10	38	251	143	171	435	91	18	6.5
21	0.75	10	8.0	e7.9	35	199	166	156	450	85	16	6.0
22	0.10	9.5	9.0	e7.9	192	179	162	379	e890	75	14	5.9
23	0.00	11	9.2	e8.4	623	169	146	1,530	612	66	15	5.7
24	0.00	6.6	8.0	e8.6	523	159	155	1,050	451	59	15	14
25	0.00	7.6	7.9	e7.9	331	143	223	1,960	395	55	18	14
26	0.00	7.0	8.5	e7.9	264	136	282	1,130	332	50	34	8.7
27	1.1	7.7	e12	e8.4	499	185	231	814	289	46	95	4.0
28	2.9	5.7	e13	e9.6	767	757	206	525	257	40	55	8.6
29	2.3	5.1	e15	e10	646	525	177	628	224	37	33	11
30	1.7	7.1	e15	e14	---	351	158	896	200	34	25	6.6
31	2.0	---	e17	e15	---	275	---	842	---	33	20	---
TOTAL	29.55	471.7	258.4	404.6	4,093.9	9,211	4,603	12,860	12,326	4,352	1,384	341.6
MEAN	0.95	15.7	8.34	13.1	141	297	153	415	411	140	44.6	11.4
MAX	5.4	106	17	18	767	820	282	1,960	1,310	495	189	33
MIN	0.00	2.1	4.1	7.9	7.9	135	96	104	191	33	14	4.0
AC-FT	59	936	513	803	8,120	18,270	9,130	25,510	24,450	8,630	2,750	678
CFSM	0.00	0.08	0.04	0.06	0.69	1.46	0.75	2.03	2.01	0.69	0.22	0.06
IN.	0.01	0.09	0.05	0.07	0.75	1.68	0.84	2.35	2.25	0.79	0.25	0.06

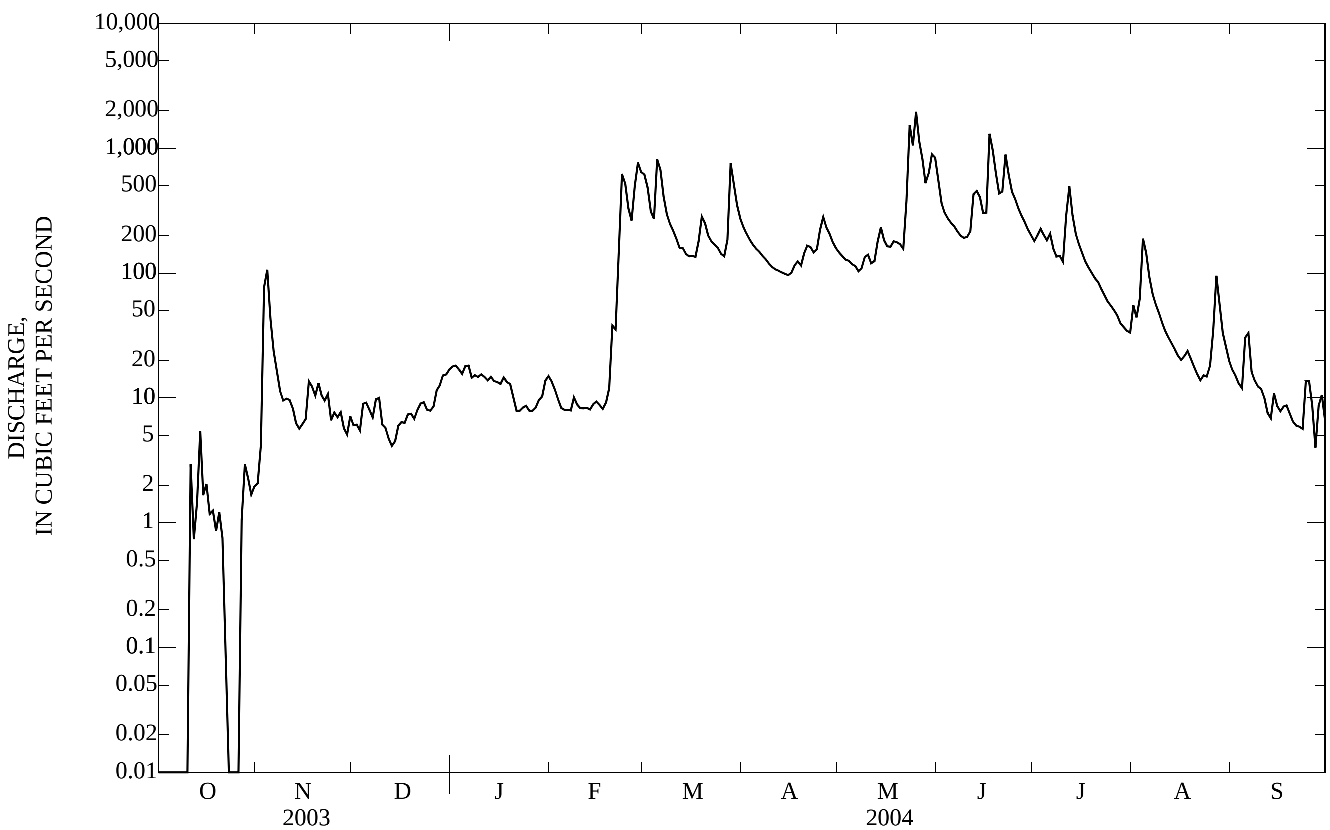
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	75.0	79.8	57.2	37.8	95.1	204	215	241	316	175	80.8	75.3
MAX	505	491	372	275	465	777	796	817	1,107	2,128	1,177	568
(WY)	(1974)	(1973)	(1983)	(1973)	(1973)	(1979)	(1999)	(1990)	(1975)	(1993)	(1993)	(1926)
MIN	0.30	0.63	0.00	0.00	0.09	2.51	4.32	1.42	2.97	3.61	0.95	0.07
(WY)	(2001)	(1967)	(1977)	(1977)	(1977)	(1981)	(1977)	(1981)	(1977)	(1927)	(1989)	(1971)

05470500 SQUAW CREEK AT AMES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1920 - 2004	
ANNUAL TOTAL	37,878.57		50,335.75			
ANNUAL MEAN	104		138		138	
HIGHEST ANNUAL MEAN					528	1993
LOWEST ANNUAL MEAN					13.6	1981
HIGHEST DAILY MEAN	2,160	Jul 9	1,960	May 25	12,200	Jul 9, 1993
LOWEST DAILY MEAN	0.00	Sep 9	0.00	Oct 1 a	0.00	Jul 31, 1925 b
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 26	0.00	Oct 1	0.00	Oct 7, 1971
MAXIMUM PEAK FLOW			2,380	May 25	24,300	Jul 9, 1993
MAXIMUM PEAK STAGE			6.58	May 25	18.54	Jul 9, 1993
INSTANTANEOUS LOW FLOW			0.00	Oct 1 a	0.00	Jul 31, 1925 b
ANNUAL RUNOFF (AC-FT)	75,130		99,840		99,970	
ANNUAL RUNOFF (CFSM)	0.509		0.674		0.676	
ANNUAL RUNOFF (INCHES)	6.91		9.18		9.19	
10 PERCENT EXCEEDS	347		369		340	
50 PERCENT EXCEEDS	11		30		44	
90 PERCENT EXCEEDS	1.2		5.0		1.7	

a Many days in October.
b Many years.
e Estimated.



05471000 SOUTH SKUNK RIVER BELOW SQUAW CREEK NEAR AMES, IA

LOCATION.--Lat 42°00'24", long 93°35'43", in NE$\frac{1}{4}$ NW$\frac{1}{4}$ 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 NGVD of 1929. 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 satellite and telephone modem telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.38	0.00	10	e32	e35	1,140	546	354	1,430	447	140	63
2	0.09	0.03	11	e32	e34	1,000	478	331	1,140	476	118	54
3	0.01	123	17	e30	e31	691	427	312	964	571	158	48
4	0.00	239	e14	e30	e38	562	390	301	855	618	468	43
5	0.00	102	e13	e32	e39	1,390	365	284	783	558	619	78
6	0.00	56	e13	e30	e42	1,760	348	271	734	644	376	111
7	0.00	37	e14	e28	e41	1,040	327	258	671	585	276	60
8	0.00	28	e18	e27	e42	728	306	255	611	489	223	48
9	0.58	26	e21	e27	e45	566	286	295	564	451	189	43
10	0.05	21	24	e26	e44	475	268	364	564	407	162	40
11	1.5	16	27	e28	e45	414	256	314	703	646	137	36
12	0.11	13	16	e27	e45	320	248	307	1,250	1,240	118	32
13	0.00	9.2	15	e28	e44	335	239	424	2,010	860	104	30
14	1.6	8.4	14	e25	e45	297	230	786	1,430	632	92	33
15	1.9	8.1	17	e26	e47	280	226	634	1,040	512	82	29
16	0.12	8.0	19	e27	e47	278	224	531	877	437	75	27
17	1.8	20	21	e31	e46	274	252	486	2,480	386	72	27
18	0.08	20	25	e30	e45	330	253	516	2,240	343	79	28
19	0.00	18	24	e28	e72	471	243	508	1,370	310	71	25
20	0.00	24	22	e28	e111	437	293	480	1,040	282	61	22
21	0.00	22	21	e26	e245	358	338	435	1,030	261	53	21
22	0.31	20	21	e22	585	323	339	743	1,670	250	47	17
23	0.00	21	18	e24	1,290	306	316	3,530	1,170	242	45	16
24	0.04	21	32	e23	1,070	294	325	3,120	914	212	45	21
25	1.5	25	22	e26	704	278	433	4,660	825	190	48	24
26	0.00	18	15	e25	575	273	604	3,310	748	171	75	19
27	0.00	16	e21	e31	811	327	547	2,060	664	157	223	13
28	0.00	16	e29	e30	1,260	1,150	490	1,500	605	142	207	13
29	0.38	24	e35	e31	1,170	1,050	430	1,690	538	125	128	16
30	2.6	13	e38	e36	---	798	383	2,220	488	118	98	13
31	1.4	---	e37	e35	---	614	---	1,960	---	111	75	---
TOTAL	14.45	972.73	644	881	8,648	18,559	10,410	33,239	31,408	12,873	4,664	1,050
MEAN	0.47	32.4	20.8	28.4	298	599	347	1,072	1,047	415	150	35.0
MAX	2.6	239	38	36	1,290	1,760	604	4,660	2,480	1,240	619	111
MIN	0.00	0.00	10	22	31	273	224	255	488	111	45	13
AC-FT	29	1,930	1,280	1,750	17,150	36,810	20,650	65,930	62,300	25,530	9,250	2,080
CFSM	0.00	0.06	0.04	0.05	0.54	1.08	0.62	1.93	1.88	0.75	0.27	0.06
IN.	0.00	0.07	0.04	0.06	0.58	1.24	0.70	2.22	2.10	0.86	0.31	0.07

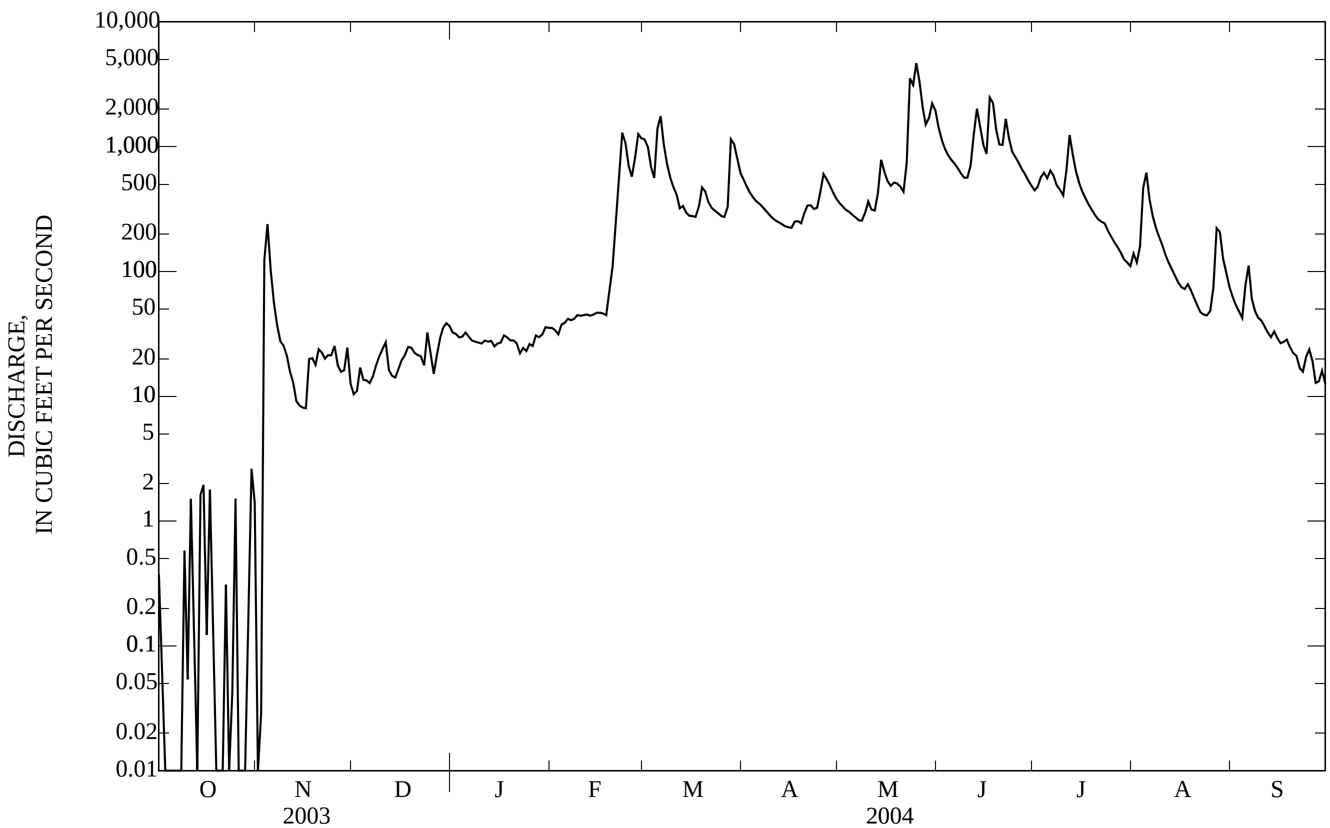
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	156	169	115	77.7	179	523	530	560	801	490	268	151
MAX	1,079	1,270	438	599	919	2,026	2,037	1,421	2,818	5,220	3,921	1,157
(WY)	(1974)	(1973)	(1997)	(1973)	(1973)	(1979)	(1965)	(1974)	(1998)	(1993)	(1993)	(1993)
MIN	0.00	0.00	0.00	0.00	0.00	8.71	3.62	6.71	0.00	0.00	0.03	0.03
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004	
ANNUAL TOTAL	82,919.18		123,363.18			
ANNUAL MEAN	227		337		335	
HIGHEST ANNUAL MEAN					1,475	1993
LOWEST ANNUAL MEAN					5.95	1956
HIGHEST DAILY MEAN	4,480	Jul 10	4,660	May 25	20,500	Jul 9, 1993
LOWEST DAILY MEAN	0.00	Oct 4	0.00	Oct 4	0.00	Dec 17, 1953 a
ANNUAL SEVEN-DAY MINIMUM	0.01	Oct 2	0.01	Oct 2	0.00	Jan 11, 1954
MAXIMUM PEAK FLOW			5,110	May 25	26,500	Jul 9, 1993
MAXIMUM PEAK STAGE			19.90	May 25	25.57	Jun 27, 1975
INSTANTANEOUS LOW FLOW			0.00	Oct 4	0.00	Dec 17, 1953 a
ANNUAL RUNOFF (AC-FT)	164,500		244,700		242,500	
ANNUAL RUNOFF (CFSM)	0.409		0.606		0.602	
ANNUAL RUNOFF (INCHES)	5.55		8.25		8.18	
10 PERCENT EXCEEDS	596		888		815	
50 PERCENT EXCEEDS	26		100		104	
90 PERCENT EXCEEDS	1.5		9.0		1.2	

a Many days.
e Estimated.



05471040 SQUAW CREEK NEAR COLFAX, IA

LOCATION.--Lat 41°39'33", long 93°16'14", in NE$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.56	0.60	7.0	7.2	9.8	17	21	16	42	10	16	8.0
2	0.53	1.1	7.1	7.4	5.4	15	19	15	38	10	17	6.9
3	0.53	39	7.5	6.9	4.5	14	19	15	34	17	37	6.7
4	0.57	195	7.5	e8.4	4.7	21	18	15	32	12	95	5.8
5	0.56	29	7.7	e6.0	4.7	79	18	14	32	10	26	5.6
6	0.57	18	7.5	e5.3	4.7	39	17	14	32	10	20	6.3
7	0.54	14	7.7	e6.4	4.6	29	17	14	30	9.5	e13	5.3
8	0.57	12	8.0	e7.1	4.6	24	16	14	26	8.8	e13	4.8
9	0.52	11	9.1	6.6	4.0	22	15	15	24	23	e12	4.6
10	0.47	10	e12	6.5	4.9	21	15	13	27	12	e12	4.3
11	0.46	9.7	e9.1	7.0	4.7	19	15	13	28	199	e11	4.1
12	0.71	8.7	9.0	6.9	4.4	19	15	13	25	80	e11	4.0
13	0.56	8.0	8.5	6.6	4.5	18	14	14	27	36	e11	3.9
14	1.3	8.0	8.6	6.7	4.6	17	14	13	29	24	e11	3.9
15	0.79	7.7	8.6	6.4	4.3	17	14	13	26	e21	e11	4.2
16	0.72	7.1	8.0	7.8	4.3	17	14	13	47	e19	e11	3.6
17	0.68	7.0	12	17	4.3	17	17	15	42	e17	12	3.7
18	0.67	7.0	7.3	9.9	4.5	27	15	46	25	16	11	3.7
19	0.67	6.9	6.9	11	8.5	42	15	28	22	15	8.2	3.5
20	0.69	8.1	7.9	6.6	262	35	31	24	20	14	4.2	3.2
21	0.62	7.8	7.2	6.6	87	28	38	21	19	16	3.6	3.1
22	0.64	7.8	7.7	6.7	82	25	27	39	16	87	3.6	3.0
23	0.66	8.6	8.2	6.7	31	24	24	157	15	36	4.3	3.0
24	0.67	8.2	8.1	5.7	18	22	22	183	14	24	5.0	3.0
25	0.65	8.0	8.5	5.7	16	20	22	254	14	e15	1.6	2.9
26	0.65	7.9	6.3	5.5	17	20	19	123	13	e14	1.5	2.9
27	0.68	7.7	5.4	e6.8	16	19	18	72	12	e13	1.3	3.0
28	0.78	7.5	5.6	e8.7	16	24	18	50	12	e12	26	2.8
29	0.63	7.9	5.0	e6.3	16	24	17	44	11	e12	12	2.9
30	0.61	7.5	6.1	e9.0	---	22	16	55	10	e11	10	3.1
31	0.67	---	7.1	e11	---	21	---	48	---	11	9.2	---
TOTAL	19.93	486.80	242.2	232.4	657.0	758	560	1,383	744	814.3	440.5	125.8
MEAN	0.64	16.2	7.81	7.50	22.7	24.5	18.7	44.6	24.8	26.3	14.2	4.19
MAX	1.3	195	12	17	262	79	38	254	47	199	95	8.0
MIN	0.46	0.60	5.0	5.3	4.0	14	14	13	10	8.8	1.3	2.8
AC-FT	40	966	480	461	1,300	1,500	1,110	2,740	1,480	1,620	874	250
CFSM	0.03	0.88	0.42	0.41	1.23	1.33	1.01	2.42	1.35	1.43	0.77	0.23
IN.	0.04	0.98	0.49	0.47	1.33	1.53	1.13	2.80	1.50	1.65	0.89	0.25

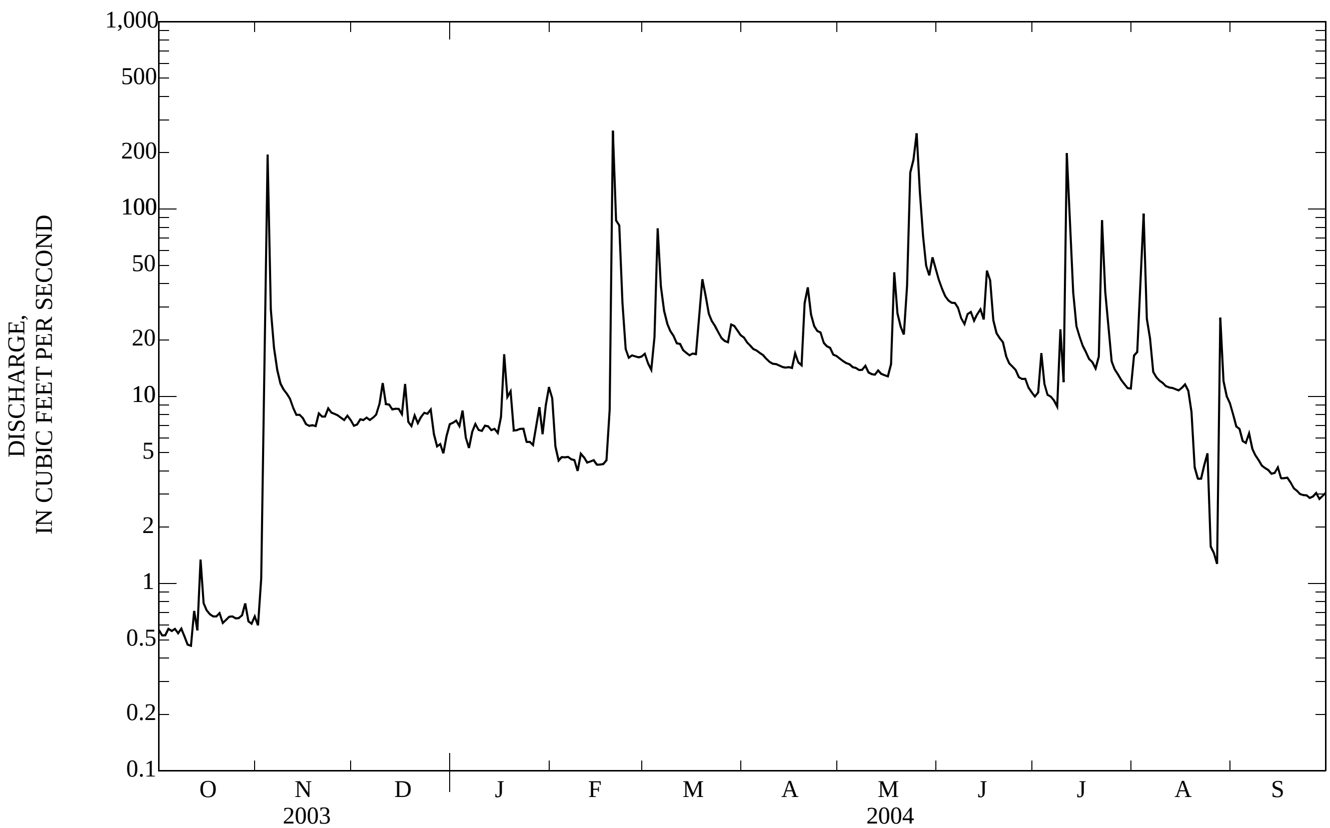
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

MEAN	3.50	5.54	3.86	3.64	15.9	15.3	13.6	34.7	30.8	15.1	6.38	2.00
MAX	8.91	16.2	9.33	9.52	65.0	48.4	45.4	65.7	83.0	34.3	15.8	4.19
(WY)	(1998)	(2004)	(1998)	(1998)	(1996)	(2001)	(1998)	(1996)	(1998)	(1998)	(1999)	(2004)
MIN	0.64	1.02	0.82	0.84	1.51	1.81	3.03	13.5	12.5	6.78	1.90	0.84
(WY)	(2004)	(2001)	(2001)	(2002)	(2002)	(2002)	(2000)	(2001)	(1997)	(2001)	(2001)	(2003)

05471040 SQUAW CREEK NEAR COLFAX, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	4,123.42		6,463.93			
ANNUAL MEAN	11.3		17.7		12.7	
HIGHEST ANNUAL MEAN					25.4	1998
LOWEST ANNUAL MEAN					5.05	2002
HIGHEST DAILY MEAN	239	May 9	262	Feb 20	847	Jun 18, 1998
LOWEST DAILY MEAN	0.35	Sep 11	0.46	Oct 11	0.27	Jan 1, 2002
ANNUAL SEVEN-DAY MINIMUM	0.47	Sep 3	0.53	Oct 5	0.37	Dec 29, 2001
MAXIMUM PEAK FLOW			785	Jul 11	7,020	Jun 18, 1998
MAXIMUM PEAK STAGE			10.77	Jul 11	13.94	Jun 18, 1998
INSTANTANEOUS LOW FLOW			0.33	Oct 2 a	0.00	Sep 11, 2003
ANNUAL RUNOFF (AC-FT)	8,180		12,820		9,190	
ANNUAL RUNOFF (CFSM)	0.614		0.960		0.689	
ANNUAL RUNOFF (INCHES)	8.34		13.07		9.37	
10 PERCENT EXCEEDS	25		31		29	
50 PERCENT EXCEEDS	4.2		11		4.8	
90 PERCENT EXCEEDS	0.67		2.4		1.0	

a Also Oct. 11.
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, 680 microsiemens Jan. 4, 2002; 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, Oct. 4, 8, 2001, and Oct. 6, 9, 2003.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 652 microsiemens Oct. 16; minimum daily, 206 microsiemens Feb. 20.
WATER TEMPERATURES: Maximum daily, 23.0°C July 1, 4, 20, Aug. 2, Sept. 1; minimum daily, 0.0°C many days during winter.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,660 mg/L Feb. 22; minimum daily mean, 8.0 mg/L Dec. 5.
SEDIMENT LOADS: Maximum daily, 1,100 tons July 11; minimum daily, 0.01 tons Oct. 6, 9.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	455	---	581	478	---	513	459	584	574	481	597	542
2	456	---	480	448	496	529	454	---	553	514	548	489
3	527	398	536	546	531	541	490	516	549	571	493	587
4	491	461	546	---	451	545	492	528	548	520	556	---
5	---	562	530	447	458	512	474	522	---	443	552	---
6	611	---	---	455	---	---	535	554	497	437	568	---
7	480	---	572	467	---	541	522	518	550	435	478	566
8	521	---	541	460	---	545	566	---	572	509	590	463
9	602	---	570	464	448	556	498	571	542	---	518	---
10	455	578	592	---	490	555	529	492	566	---	521	---
11	---	589	570	---	468	562	528	561	572	---	---	---
12	556	---	516	447	493	563	445	544	---	---	---	586
13	488	572	---	534	477	---	548	557	570	---	---	466
14	579	---	---	459	---	562	491	501	537	---	---	550
15	647	---	501	458	522	541	441	551	572	---	---	576
16	652	580	533	450	506	553	462	501	---	---	---	518
17	651	540	506	508	516	556	507	572	---	---	---	511
18	---	566	524	587	498	548	522	570	---	549	524	542
19	---	584	447	501	538	551	566	556	---	567	---	589
20	624	576	---	501	206	---	479	578	---	523	---	541
21	574	578	452	531	---	527	566	577	572	550	---	536
22	532	498	548	511	272	532	560	495	---	283	574	587
23	478	565	471	---	480	562	552	550	---	565	460	---
24	465	587	458	---	510	547	---	568	---	560	522	---
25	525	484	---	520	523	552	553	540	---	537	573	---
26	508	580	581	456	529	532	544	563	---	477	506	549
27	461	---	---	442	528	523	560	567	559	543	489	547
28	523	561	523	437	---	572	568	571	465	513	---	576
29	475	---	496	492	535	542	539	---	552	458	554	594
30	536	582	440	490	---	547	470	567	448	511	495	589
31	520	---	459	438	---	481	---	571	---	444	584	---

05471040 SQUAW CREEK NEAR COLFAX, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	---	4.0	4.0	---	5.0	10.0	14.0	15.0	23.0	21.0	23.0
2	11.0	---	3.0	5.0	0.0	4.0	12.0	---	15.0	19.0	23.0	22.0
3	15.0	8.0	3.0	1.0	0.0	4.0	11.0	14.0	18.0	19.0	22.0	22.0
4	16.0	9.0	3.0	---	0.0	4.0	12.0	15.0	19.0	23.0	19.0	---
5	---	7.0	3.0	0.0	0.0	5.0	13.0	17.0	---	20.0	20.0	---
6	18.0	---	---	0.0	---	---	16.0	17.0	20.0	18.0	20.0	---
7	20.0	---	3.0	0.0	---	5.0	14.0	11.0	22.0	19.0	19.0	18.0
8	20.0	---	6.0	0.0	---	6.0	14.0	---	21.0	20.0	21.0	16.0
9	21.0	---	4.0	0.0	0.0	8.0	12.0	19.0	20.0	---	21.0	---
10	20.0	7.0	0.0	---	0.0	7.0	11.0	19.0	19.0	---	17.0	---
11	---	11.0	0.0	---	0.0	2.0	11.0	19.0	22.0	---	---	---
12	12.0	---	0.0	1.0	0.0	6.0	11.0	18.0	---	---	---	21.0
13	14.0	7.0	---	1.0	0.0	---	12.0	12.0	21.0	---	---	22.0
14	14.0	---	---	1.0	---	7.0	15.0	14.0	21.0	---	---	22.0
15	12.0	---	3.0	1.0	0.0	2.0	12.0	15.0	18.0	---	---	22.0
16	9.0	10.0	2.0	1.0	0.0	6.0	18.0	18.0	---	---	---	20.0
17	12.0	8.0	1.0	1.0	0.0	8.0	20.0	19.0	---	---	---	16.0
18	---	11.0	3.0	1.0	0.0	8.0	18.0	15.0	---	21.0	---	19.0
19	---	9.0	1.0	0.0	1.0	6.0	16.0	15.0	---	22.0	---	20.0
20	19.0	10.0	---	0.0	0.0	---	10.0	16.0	---	23.0	---	21.0
21	16.0	6.0	4.0	1.0	---	6.0	13.0	20.0	19.0	21.0	---	21.0
22	15.0	5.0	5.0	0.0	1.0	8.0	11.0	18.0	---	19.0	22.0	19.0
23	14.0	4.0	2.0	---	3.0	11.0	14.0	15.0	---	18.0	20.0	---
24	12.0	1.0	1.0	---	3.0	14.0	---	15.0	---	17.0	22.0	---
25	11.0	4.0	---	0.0	5.0	12.0	12.0	14.0	---	19.0	20.0	---
26	7.0	4.0	4.0	0.0	6.0	13.0	13.0	16.0	---	19.0	22.0	17.0
27	9.0	---	---	0.0	6.0	13.0	12.0	15.0	18.0	19.0	22.0	18.0
28	7.0	1.0	4.0	0.0	---	9.0	18.0	18.0	20.0	21.0	---	18.0
29	8.0	---	1.0	0.0	8.0	12.0	14.0	---	20.0	22.0	20.0	17.0
30	12.0	5.0	3.0	0.0	---	5.6	10.0	16.0	21.0	20.0	21.0	16.0
31	8.0	---	3.0	0.0	---	10.0	---	16.0	---	22.0	21.0	---

05471040 SQUAW CREEK NEAR COLFAX, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

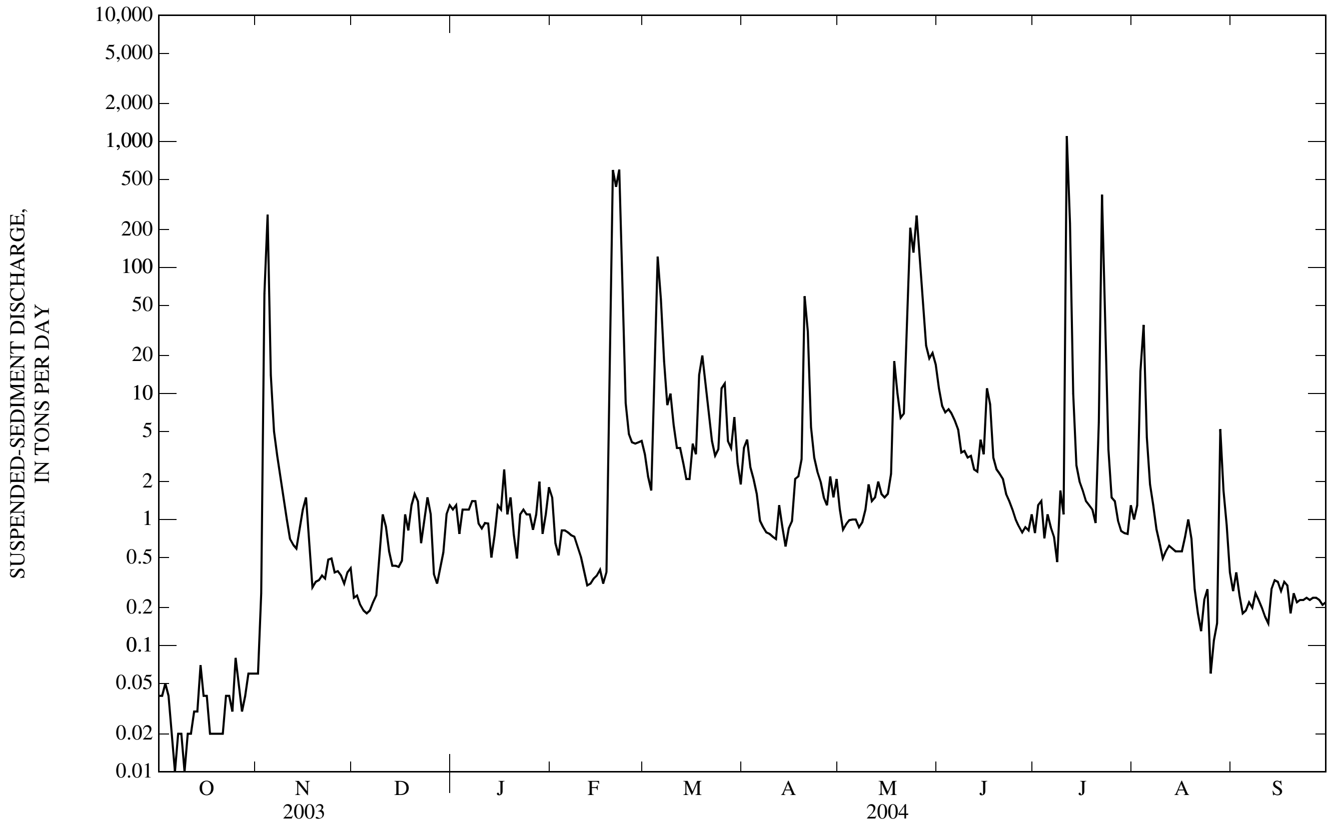
Day	OCTOBER Mean concentration (mg/l)	OCTOBER Load (tons/day)	NOVEMBER Mean concentration (mg/l)	NOVEMBER Load (tons/day)	DECEMBER Mean concentration (mg/l)	DECEMBER Load (tons/day)	JANUARY Mean concentration (mg/l)	JANUARY Load (tons/day)	FEBRUARY Mean concentration (mg/l)	FEBRUARY Load (tons/day)	MARCH Mean concentration (mg/l)	MARCH Load (tons/day)
1	26	0.04	37	0.06	13	0.24	62	1.2	54	1.5	73	3.3
2	24	0.04	69	0.26	13	0.25	66	1.3	44	0.65	54	2.2
3	32	0.05	511	62	10	0.21	41	0.77	42	0.52	46	1.7
4	25	0.04	450	262	10	0.19	52	1.2	64	0.82	94	8.4
5	16	0.02	163	14	8	0.18	76	1.2	64	0.82	610	122
6	9	0.01	101	5.0	9	0.19	85	1.2	62	0.79	525	56
7	11	0.02	84	3.2	11	0.22	80	1.4	61	0.75	233	18
8	12	0.02	68	2.2	12	0.25	71	1.4	59	0.73	122	8.1
9	10	0.01	52	1.5	21	0.52	52	0.93	57	0.61	169	10
10	16	0.02	36	1.0	35	1.1	48	0.85	38	0.51	98	5.6
11	18	0.02	27	0.70	36	0.88	50	0.94	31	0.39	71	3.7
12	17	0.03	27	0.63	23	0.56	50	0.93	25	0.30	71	3.7
13	19	0.03	28	0.59	19	0.43	28	0.50	26	0.31	59	2.8
14	19	0.07	39	0.83	18	0.43	41	0.75	28	0.34	45	2.1
15	18	0.04	60	1.2	18	0.42	74	1.3	31	0.36	48	2.1
16	21	0.04	78	1.5	22	0.47	60	1.2	34	0.40	87	4.0
17	12	0.02	35	0.64	36	1.1	56	2.5	26	0.31	72	3.3
18	10	0.02	15	0.29	42	0.82	40	1.1	31	0.38	184	14
19	11	0.02	17	0.32	69	1.3	51	1.5	86	3.4	174	20
20	12	0.02	15	0.33	74	1.6	43	0.76	808	593	132	12
21	11	0.02	17	0.36	70	1.4	27	0.49	1,810	436	94	7.0
22	22	0.04	16	0.34	31	0.65	57	1.1	2,660	598	62	4.2
23	22	0.04	21	0.48	47	1.0	67	1.2	894	96	50	3.2
24	19	0.03	22	0.49	68	1.5	70	1.1	170	8.4	60	3.6
25	45	0.08	18	0.38	49	1.1	71	1.1	111	4.8	206	11
26	27	0.05	18	0.39	21	0.37	56	0.83	92	4.1	217	12
27	16	0.03	17	0.36	21	0.31	58	1.1	91	4.0	81	4.2
28	17	0.04	16	0.31	28	0.42	85	2.0	94	4.1	56	3.7
29	35	0.06	18	0.38	41	0.55	45	0.77	96	4.2	101	6.5
30	34	0.06	21	0.41	66	1.1	44	1.1	---	---	46	2.8
31	36	0.06	---	---	68	1.3	59	1.8	---	---	34	1.9
TOTAL	---	1.09	---	362.15	---	21.06	---	35.52	---	1,766.49	---	363.1

05471040 SQUAW CREEK NEAR COLFAX, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	67	3.7	27	1.2	100	11	29	0.78	23	1.0	12	0.27
2	81	4.3	20	0.83	78	8.0	47	1.3	27	1.3	21	0.38
3	51	2.6	23	0.92	77	7.1	30	1.4	141	15	14	0.25
4	44	2.1	25	0.99	85	7.5	23	0.71	129	35	12	0.18
5	34	1.6	27	1.0	81	6.9	39	1.1	61	4.5	12	0.19
6	21	0.98	27	1.0	72	6.1	32	0.87	34	1.9	13	0.22
7	19	0.87	23	0.87	64	5.2	28	0.73	38	1.3	14	0.20
8	18	0.79	25	0.95	49	3.4	20	0.46	24	0.84	20	0.26
9	19	0.77	30	1.2	53	3.5	26	1.7	20	0.65	19	0.23
10	18	0.73	53	1.9	42	3.1	34	1.1	15	0.49	17	0.20
11	17	0.70	41	1.4	42	3.2	1,190	1,100	19	0.56	15	0.17
12	33	1.3	42	1.5	37	2.5	801	224	21	0.62	14	0.15
13	22	0.87	53	2.0	32	2.4	99	10	20	0.59	27	0.28
14	16	0.61	46	1.6	54	4.3	42	2.7	19	0.56	32	0.33
15	22	0.85	42	1.5	47	3.3	35	2.0	19	0.56	28	0.32
16	25	0.97	47	1.6	80	11	33	1.7	19	0.56	27	0.27
17	46	2.1	53	2.3	69	8.2	31	1.4	23	0.73	32	0.32
18	53	2.2	154	18	45	3.1	29	1.3	35	1.0	30	0.30
19	78	3.0	135	10	43	2.5	28	1.2	31	0.70	20	0.18
20	633	59	100	6.4	42	2.3	25	0.94	25	0.28	29	0.26
21	272	31	121	6.9	40	2.1	132	5.9	19	0.18	26	0.22
22	72	5.4	484	54	37	1.6	1,350	378	13	0.13	28	0.23
23	49	3.1	482	206	33	1.4	460	56	20	0.23	29	0.23
24	40	2.4	264	131	30	1.2	55	3.6	20	0.28	29	0.24
25	34	2.0	404	258	28	1.0	36	1.5	15	0.06	30	0.23
26	29	1.5	300	102	26	0.88	38	1.4	29	0.11	30	0.24
27	27	1.3	230	45	24	0.79	28	0.98	38	0.15	29	0.24
28	44	2.2	179	24	26	0.87	25	0.81	71	5.2	30	0.23
29	33	1.5	155	19	27	0.82	24	0.78	53	1.7	26	0.21
30	48	2.1	143	21	37	1.1	26	0.77	33	0.90	27	0.22
31	---	---	131	17	---	---	28	1.3	15	0.38	---	---
TOTAL	---	142.54	---	941.06	---	116.36	---	1,806.43	---	77.46	---	7.25
YEAR	5,640.51											

05471040 SQUAW CREEK NEAR COLFAX, IA—Continued



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, 3.25 in., November 3, 2003.

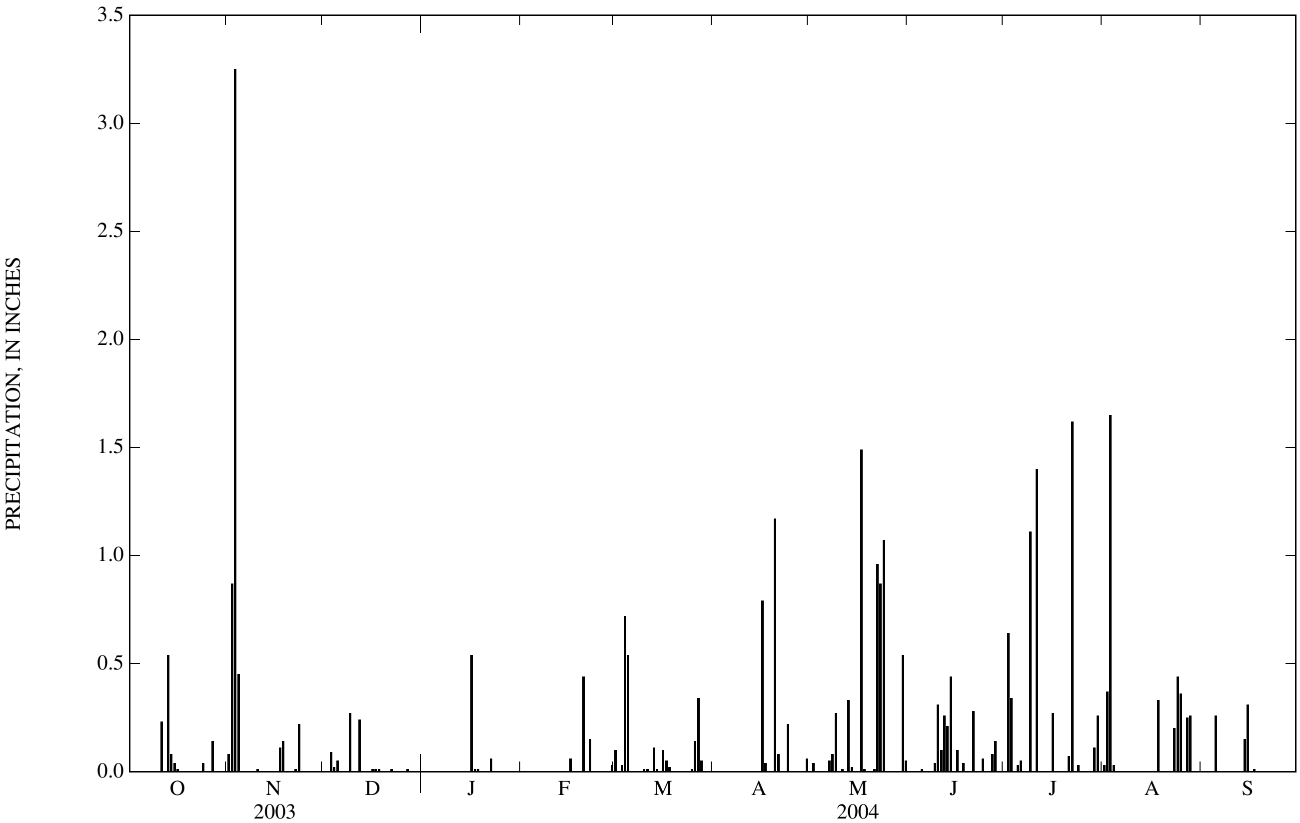
EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 3.25 in., November 3.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.08	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.03	0.00
2	0.00	0.87	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.64	0.37	0.00
3	0.00	3.25	0.09	0.00	0.00	0.03	0.00	0.00	0.00	0.34	1.65	0.00
4	0.00	0.45	0.02	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.03	0.00
5	0.00	0.00	0.05	0.00	0.00	0.54	0.00	0.00	0.01	0.03	0.00	0.26
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
9	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27	0.04	1.11	0.00	0.00
10	0.00	0.01	e0.00	0.00	0.00	0.01	0.00	0.00	0.31	0.00	0.00	0.00
11	0.23	0.00	e0.00	0.00	0.00	0.01	0.00	0.01	0.10	1.40	0.00	0.00
12	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00
13	0.54	0.00	0.00	0.00	0.00	0.11	0.00	0.33	0.21	0.00	0.00	0.00
14	0.08	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.44	0.00	0.00	0.15
15	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
16	0.01	0.00	0.01	0.54	0.06	0.10	0.79	0.00	0.10	0.27	0.00	0.00
17	0.00	0.11	0.01	0.01	0.00	0.05	0.04	1.49	0.00	0.00	0.00	0.01
18	0.00	0.14	0.01	0.01	0.00	0.02	0.00	0.01	0.04	0.00	0.33	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.44	0.00	1.17	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.28	0.07	0.00	0.00
22	0.00	0.01	0.01	0.06	0.15	0.00	0.00	0.96	0.00	1.62	0.00	0.00
23	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.20	0.00
24	0.04	0.00	0.00	0.00	0.00	0.00	0.22	1.07	0.06	0.03	0.44	0.00
25	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.36	0.00
26	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
27	0.14	0.00	0.01	0.00	0.00	0.34	0.00	0.00	0.08	0.00	0.25	0.00
28	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.14	0.00	0.26	0.00
29	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.11	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.06	0.54	0.00	0.26	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.05	---	0.00	0.00	---
TOTAL	1.08	5.14	0.72	0.62	0.68	2.24	2.36	5.80	2.07	5.93	3.92	0.73
MEAN	0.03	0.17	0.02	0.02	0.02	0.07	0.08	0.19	0.07	0.19	0.13	0.02
MAX	0.54	3.25	0.27	0.54	0.44	0.72	1.17	1.49	0.44	1.62	1.65	0.31
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

e Estimated

05471040 SQUAW CREEK NEAR COLFAX, IA—Continued



05471050 SOUTH SKUNK RIVER AT COLFAX, IA

LOCATION.--Lat 41°40'53"(revised), long 93°14'47", in NE$\frac{1}{4}$ NE$\frac{1}{4}$ SW$\frac{1}{4}$ 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 NGVD of 1929.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	38	89	e79	e63	1,430	905	543	2,740	683	275	189
2	32	50	86	e80	e69	1,440	806	504	2,130	685	305	157
3	32	174	92	e76	e76	1,150	732	474	1,760	1,050	387	135
4	31	825	91	e69	e72	912	670	450	1,510	1,030	614	121
5	31	514	95	e62	e76	1,360	624	431	1,350	941	868	108
6	31	356	90	e63	e80	2,490	590	411	1,250	1,190	780	402
7	31	286	91	e63	e80	1,870	561	390	1,160	1,130	574	424
8	30	245	90	e63	e76	1,320	531	366	1,050	907	468	274
9	31	222	e91	e65	e85	1,040	501	383	964	954	403	214
10	31	210	e79	e66	e86	882	472	413	929	893	356	171
11	32	198	e86	e64	e82	779	447	449	971	1,280	318	143
12	35	176	e76	e65	e78	676	429	410	1,100	2,650	288	124
13	35	158	e84	e67	e72	610	420	433	2,160	2,100	264	111
14	41	150	e83	e64	e83	607	408	632	2,360	1,350	243	102
15	38	144	e84	e60	e78	569	397	831	1,700	1,040	222	103
16	37	135	e75	e68	e82	556	390	677	1,350	881	204	95
17	37	132	e64	e58	e83	552	435	636	1,820	763	201	93
18	36	139	e66	e52	e105	591	421	879	3,250	675	215	93
19	36	137	e61	e42	e144	810	412	759	2,250	610	219	85
20	36	126	e64	e46	e840	902	470	709	1,620	564	190	75
21	35	120	e68	e41	e645	782	781	658	1,540	523	167	69
22	36	121	e70	e36	e838	686	728	735	2,090	569	146	68
23	36	128	e67	e48	1,220	642	649	5,520	2,070	515	131	65
24	37	111	e66	e42	1,390	611	590	8,290	1,480	468	139	63
25	37	117	e68	e46	1,130	582	650	8,280	1,240	426	128	64
26	36	112	e76	e53	817	567	759	7,820	1,140	394	134	70
27	36	105	e80	e48	918	553	835	5,900	1,030	367	259	72
28	39	98	e77	e45	1,320	905	746	4,060	917	340	483	e70
29	38	90	e79	e47	1,570	1,770	668	3,010	805	327	380	67
30	38	100	e78	e52	---	1,350	598	3,400	737	308	284	62
31	38	---	e78	e58	---	1,060	---	3,430	---	285	231	---
TOTAL	1,081	5,517	2,444	1,788	12,258	30,054	17,625	61,883	46,473	25,898	9,876	3,889
MEAN	34.9	184	78.8	57.7	423	969	588	1,996	1,549	835	319	130
MAX	41	825	95	80	1,570	2,490	905	8,290	3,250	2,650	868	424
MIN	30	38	61	36	63	552	390	366	737	285	128	62
AC-FT	2,140	10,940	4,850	3,550	24,310	59,610	34,960	122,700	92,180	51,370	19,590	7,710
CFSM	0.04	0.23	0.10	0.07	0.53	1.21	0.73	2.49	1.93	1.04	0.40	0.16
IN.	0.05	0.26	0.11	0.08	0.57	1.39	0.82	2.87	2.15	1.20	0.46	0.18

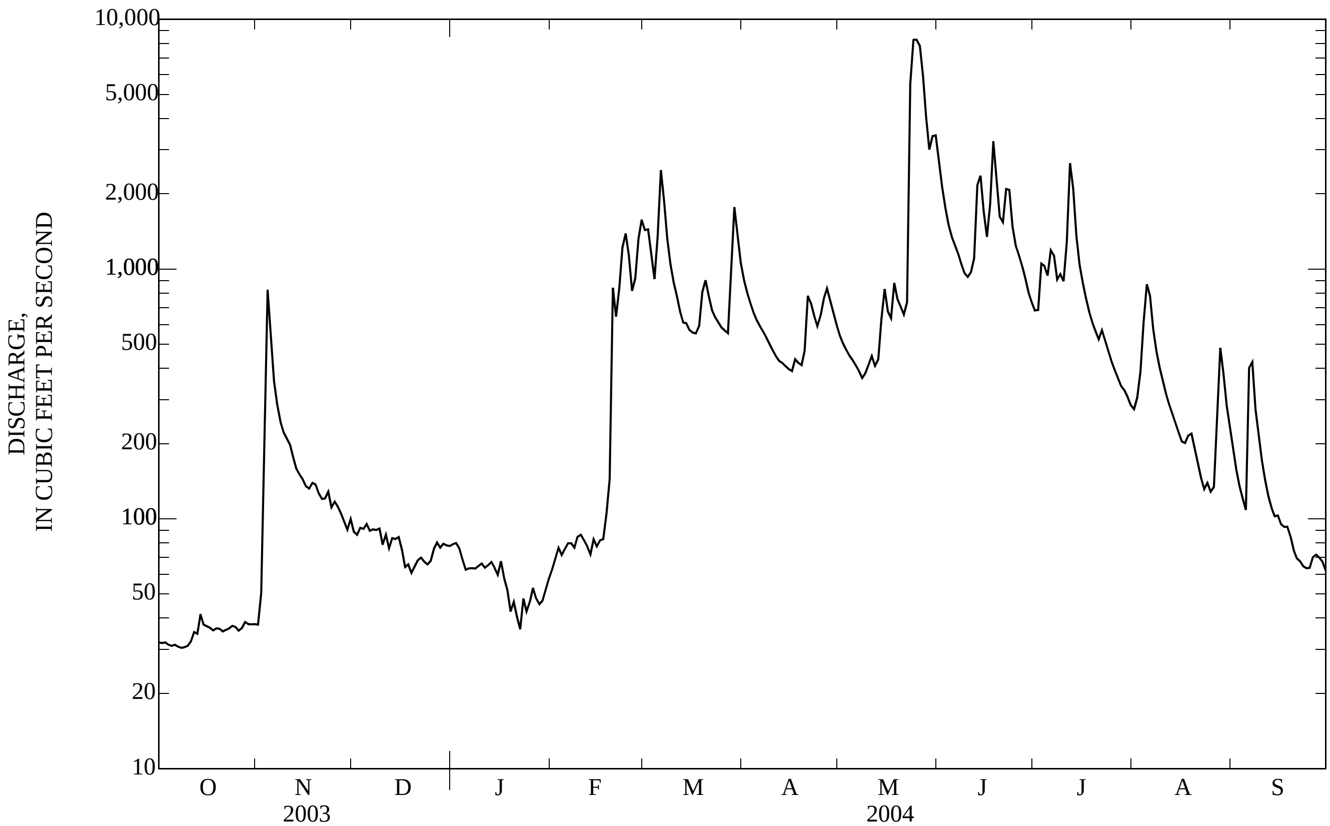
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	274	261	230	148	307	737	814	1,141	1,325	936	462	262
MAX	1,807	981	626	451	849	2,094	2,435	2,481	3,844	5,640	3,549	1,911
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1986 - 2004	
ANNUAL TOTAL	129,555		218,786			
ANNUAL MEAN	355		598		576	
HIGHEST ANNUAL MEAN					1,831	1993
LOWEST ANNUAL MEAN					69.6	1989
HIGHEST DAILY MEAN	4,750	Jul 10	8,290	May 24	13,100	Jul 12, 1993
LOWEST DAILY MEAN	21	Feb 25	30	Oct 8	1.4	Aug 18, 1988
ANNUAL SEVEN-DAY MINIMUM	26	Jan 21	31	Oct 4	3.2	Sep 8, 1988
MAXIMUM PEAK FLOW			8,470	May 24	14,200	Jul 12, 1993
MAXIMUM PEAK STAGE			18.38	May 24	21.53	Jul 12, 1993
INSTANTANEOUS LOW FLOW			29	Oct 7a	1.2	Aug 18, 1988b
ANNUAL RUNOFF (AC-FT)	257,000		434,000		417,200	
ANNUAL RUNOFF (CFSM)	0.442		0.744		0.717	
ANNUAL RUNOFF (INCHES)	6.00		10.14		9.74	
10 PERCENT EXCEEDS	910		1,350		1,400	
50 PERCENT EXCEEDS	95		280		241	
90 PERCENT EXCEEDS	32		44		36	

a Also Oct. 8, 9.
b Also Aug. 19, 1988.
e Estimated.



05471200 INDIAN CREEK NEAR MINGO, IA

LOCATION.--(revised) Lat 41°48'19", long 93°18'33", in NW1/4 NW1/4 sec.28, T.81 N., R.21 W., Jasper County, Hydrologic Unit 07080105, on left bank 20 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharge, which are poor. U.S. Geological Survey data collection platform with satellite telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	e19	e36	e44	e35	404	258	181	827	135	39	28
2	5.0	e24	e35	e45	e42	403	251	172	721	135	42	25
3	5.1	e44	33	e38	e49	343	213	165	568	388	40	23
4	5.3	e544	38	e32	e44	306	194	162	489	279	115	22
5	5.4	e248	36	e28	e46	802	182	157	442	288	89	24
6	5.8	146	34	e29	e51	812	173	154	406	838	77	352
7	6.1	126	e30	e29	e52	547	164	147	371	438	58	289
8	6.1	107	e31	e29	e48	422	155	144	331	320	46	158
9	6.5	88	e30	e31	e57	330	144	151	300	327	39	110
10	6.9	83	e27	e34	e58	290	136	146	295	285	32	85
11	7.8	80	e28	e33	e54	260	130	143	289	893	28	67
12	8.6	79	e26	e34	e47	223	124	144	289	1,080	25	55
13	10	73	e27	e36	e41	220	117	192	323	664	23	46
14	13	71	e29	e33	e54	207	113	231	287	462	21	41
15	9.8	66	e30	e30	e46	199	109	214	308	352	19	40
16	12	59	e24	e42	e51	198	105	205	296	290	17	35
17	11	56	e20	e30	e56	193	108	213	321	237	20	32
18	11	59	e23	e22	e71	248	102	337	303	198	25	30
19	11	56	e20	e17	e83	408	97	279	254	172	24	28
20	13	e52	e25	e21	e306	374	118	259	228	148	20	25
21	14	e50	e31	e19	e646	304	333	241	413	130	17	23
22	14	e49	e33	e14	1,010	271	252	351	407	131	e15	20
23	14	e51	e29	e26	894	246	225	8,680	336	109	15	19
24	14	e48	e26	e20	561	234	205	7,040	284	93	15	19
25	15	e50	e28	e23	340	219	238	5,270	250	82	15	18
26	15	e48	e36	e28	267	209	238	2,920	221	73	24	17
27	16	e49	e44	e22	356	205	230	1,670	200	64	312	16
28	16	e47	e42	e19	402	347	221	1,290	188	54	112	15
29	16	e48	e45	e19	387	394	204	1,080	166	55	67	14
30	19	e40	e44	e26	---	356	191	1,200	148	47	44	14
31	18	---	e42	e31	---	290	---	991	---	40	33	---
TOTAL	334.8	2,560	982	884	6,154	10,264	5,330	34,529	10,261	8,807	1,468	1,690
MEAN	10.8	85.3	31.7	28.5	212	331	178	1,114	342	284	47.4	56.3
MAX	19	544	45	45	1,010	812	333	8,680	827	1,080	312	352
MIN	4.4	19	20	14	35	193	97	143	148	40	15	14
AC-FT	664	5,080	1,950	1,750	12,210	20,360	10,570	68,490	20,350	17,470	2,910	3,350
CFSM	0.04	0.31	0.11	0.10	0.77	1.20	0.64	4.04	1.24	1.03	0.17	0.20
IN.	0.05	0.35	0.13	0.12	0.83	1.38	0.72	4.65	1.38	1.19	0.20	0.23

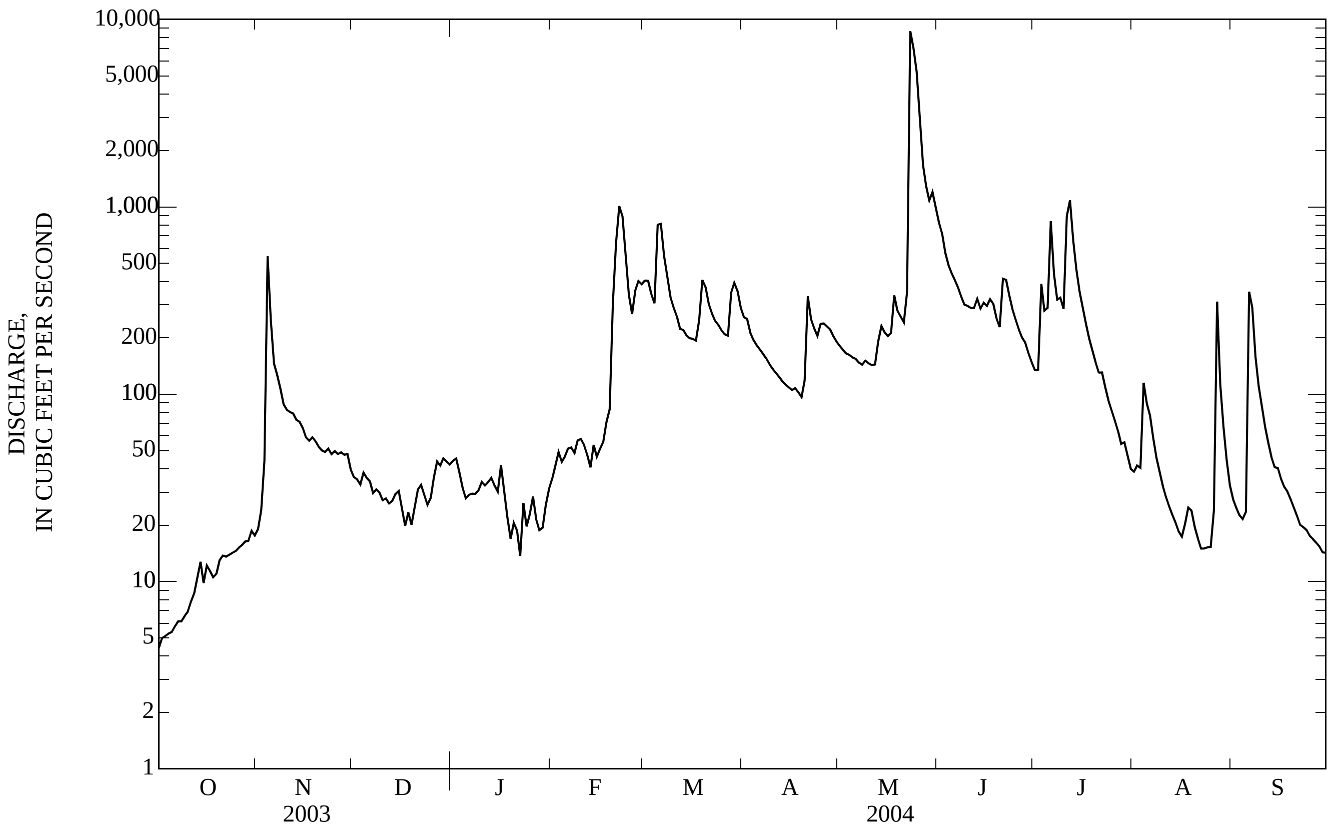
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	99.9	92.9	74.7	55.8	116	293	268	396	486	303	141	81.0
MAX	689	549	319	289	619	816	834	1,114	1,732	2,809	1,500	678
(WY)	(1987)	(1973)	(1973)	(1973)	(1971)	(1993)	(1965)	(2004)	(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	0.91
(WY)	(1972)	(1968)	(1990)	(1968)	(1967)	(1968)	(1989)	(1967)	(1989)	(1988)	(1988)	(1988)

05471200 INDIAN CREEK NEAR MINGO, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004	
ANNUAL TOTAL	37,103.6		83,263.8			
ANNUAL MEAN	102		227		201	
HIGHEST ANNUAL MEAN					751	1993
LOWEST ANNUAL MEAN					11.9	1989
HIGHEST DAILY MEAN	2,250	May 9	8,680	May 23	12,000	Jul 10, 1993
LOWEST DAILY MEAN	4.2	Jan 26	4.4	Oct 1	0.01	Aug 18, 1989
ANNUAL SEVEN-DAY MINIMUM	4.7	Sep 26	5.3	Oct 1	0.15	Aug 16, 1989
MAXIMUM PEAK FLOW			11,700	May 23	23,500	Jun 4, 1991
MAXIMUM PEAK STAGE			17.27	May 23	19.16	Jun 4, 1991
INSTANTANEOUS LOW FLOW			4.2	Oct 1		
ANNUAL RUNOFF (AC-FT)	73,590		165,200		145,600	
ANNUAL RUNOFF (CFSM)	0.368		0.824		0.728	
ANNUAL RUNOFF (INCHES)	5.00		11.22		9.89	
10 PERCENT EXCEEDS	248		396		470	
50 PERCENT EXCEEDS	29		66		68	
90 PERCENT EXCEEDS	6.9		16		5.0	

e Estimated



05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IA

LOCATION.--Lat 41°21'21", long 92°39'26"(revised), in NW1/4 SW1/4 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.

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 NGVD of 1929. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft downstream at same datum. Gage was moved to the left bank on downstream side of the Highway 63 bridge on May 3, 1995. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	72	252	414	e231	2,380	1,940	e1,170	7,400	1,250	601	503
2	79	96	236	420	e272	2,290	1,730	e1,120	6,030	1,190	733	442
3	80	382	231	429	e249	2,220	1,600	e1,080	4,980	1,380	665	402
4	79	2,940	241	e278	e240	1,960	1,470	e1,040	4,020	1,950	1,680	377
5	77	3,430	254	e201	e251	3,010	1,370	995	3,390	1,700	1,300	351
6	74	1,560	253	e188	e251	3,800	1,300	956	2,980	1,770	1,380	388
7	73	1,020	245	e213	e240	3,930	1,250	915	2,640	2,310	1,240	649
8	72	790	243	e229	e249	2,930	1,190	862	2,390	1,840	983	827
9	71	640	262	e221	e260	2,340	1,120	848	2,130	1,590	832	563
10	70	543	403	e227	e274	1,960	1,050	869	1,980	1,970	731	455
11	69	507	e337	e236	e274	1,720	976	861	2,010	2,350	642	398
12	68	457	e478	e248	e258	1,530	930	859	1,890	5,160	579	356
13	74	409	e567	e252	e251	1,390	894	825	2,090	4,690	528	320
14	89	379	e608	e243	e252	1,340	874	922	3,110	3,450	486	296
15	113	371	e568	e235	e242	1,300	845	1,190	2,950	2,580	453	276
16	100	357	e464	e250	e249	1,280	818	1,340	2,360	2,200	425	270
17	88	327	e374	e345	e249	1,270	895	1,200	2,880	1,880	405	257
18	88	322	e323	e395	e264	1,360	969	1,870	3,010	1,630	506	245
19	85	326	e341	e315	e279	1,910	871	2,020	3,560	1,470	488	242
20	84	306	e377	e291	e1,010	2,210	900	1,690	2,670	1,340	436	231
21	81	293	e402	e294	e2,420	2,040	1,510	1,530	2,210	1,240	395	217
22	77	283	e445	e274	e2,620	1,770	2,010	1,460	2,540	1,210	367	209
23	75	299	e399	e268	e3,330	1,600	1,670	3,810	2,840	1,270	341	203
24	75	296	e355	e268	e3,740	1,500	1,480	6,970	2,500	1,120	347	197
25	77	256	e299	e268	e3,380	1,420	1,400	8,990	2,050	1,010	380	192
26	75	271	404	e268	e2,510	1,380	e1,450	10,700	1,800	910	367	187
27	73	271	587	e253	1,690	1,370	e1,400	11,300	1,660	839	364	185
28	73	262	538	e237	1,780	1,490	e1,340	11,500	1,540	778	1,890	183
29	73	233	402	e228	2,190	2,140	e1,280	10,900	1,430	717	1,210	179
30	75	245	392	e215	---	2,700	e1,220	9,770	1,330	709	817	170
31	72	---	400	e210	---	2,270	---	8,880	---	669	615	---
TOTAL	2,440	17,943	11,680	8,413	29,505	61,810	37,752	108,442	84,370	54,172	22,186	9,770
MEAN	78.7	598	377	271	1,017	1,994	1,258	3,498	2,812	1,747	716	326
MAX	113	3,430	608	429	3,740	3,930	2,010	11,500	7,400	5,160	1,890	827
MIN	68	72	231	188	231	1,270	818	825	1,330	669	341	170
AC-FT	4,840	35,590	23,170	16,690	58,520	122,600	74,880	215,100	167,300	107,500	44,010	19,380
CFSM	0.05	0.37	0.23	0.17	0.62	1.22	0.77	2.14	1.72	1.07	0.44	0.20
IN.	0.06	0.41	0.27	0.19	0.67	1.41	0.86	2.47	1.92	1.23	0.50	0.22

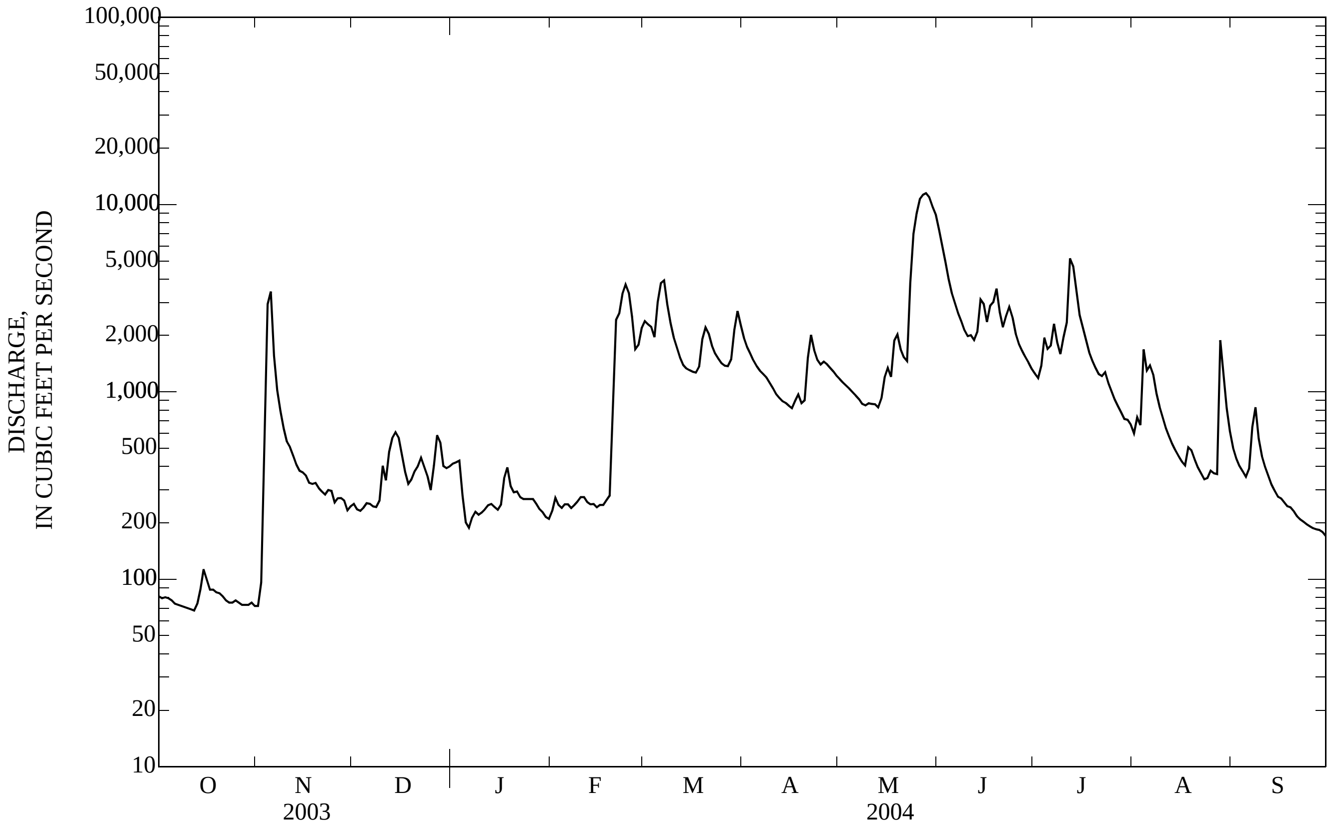
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	482	536	440	441	800	1,594	1,598	1,767	2,157	1,418	646	457
MAX	3,646	3,576	2,322	3,906	3,587	4,841	5,366	6,168	9,222	11,770	7,772	5,140
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	267,125		448,483			
ANNUAL MEAN	732		1,225		1,028	
HIGHEST ANNUAL MEAN					3,884	1993
LOWEST ANNUAL MEAN					40.1	1956
HIGHEST DAILY MEAN	7,810	May 10	11,500	May 28	20,400	Jul 15, 1993
LOWEST DAILY MEAN	41	Feb 16	68	Oct 12	1.8	Oct 11, 1956
ANNUAL SEVEN-DAY MINIMUM	48	Feb 12	71	Oct 6	2.0	Oct 7, 1956
MAXIMUM PEAK FLOW			11,500	May 28	20,700	Jul 15, 1993
MAXIMUM PEAK STAGE			22.57	May 28	24.78	Jul 15, 1993
ANNUAL RUNOFF (AC-FT)	529,800		889,600		744,700	
ANNUAL RUNOFF (CFSM)	0.448		0.749		0.629	
ANNUAL RUNOFF (INCHES)	6.08		10.20		8.54	
10 PERCENT EXCEEDS	2,060		2,630		2,550	
50 PERCENT EXCEEDS	254		641		440	
90 PERCENT EXCEEDS	74		184		58	

e Estimated



05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IA

LOCATION.--Lat 41°18'03", long 92°12'16", in NE¼ SE¼ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	23	109	212	e112	638	971	438	1,960	329	188	379
2	22	34	136	200	e141	616	868	424	1,380	298	261	298
3	25	88	112	189	e129	574	792	402	1,190	301	360	244
4	20	118	102	e153	e123	575	723	389	1,080	362	992	225
5	21	1,530	109	e122	e131	1,450	666	363	998	462	941	212
6	19	1,590	112	e111	e135	1,280	626	335	931	369	677	190
7	20	858	113	e131	e130	1,040	595	312	877	474	381	166
8	19	597	112	e153	e146	932	563	300	805	415	279	206
9	18	441	111	e140	e159	943	518	290	722	331	239	160
10	17	350	176	e150	e167	817	474	287	691	323	205	131
11	17	302	e159	e153	e167	699	441	285	706	532	180	118
12	17	272	e203	e157	e166	604	415	278	895	654	146	110
13	17	245	e252	e162	e152	573	398	270	719	837	133	104
14	19	214	e316	e145	e152	583	381	274	721	633	123	96
15	21	191	e247	e130	e146	579	366	289	673	450	112	93
16	25	180	e185	e130	e159	580	355	272	641	371	103	91
17	35	171	e154	e148	e154	596	350	253	670	333	96	86
18	42	165	e136	e237	e171	930	352	315	825	325	99	84
19	39	156	e130	e205	e172	1,490	377	834	702	291	212	80
20	34	160	e159	e181	e492	1,550	351	849	609	253	191	75
21	30	149	e190	e200	e1,050	1,310	811	680	565	232	138	72
22	26	136	e152	e161	e1,350	1,050	1,080	621	533	335	114	69
23	24	154	e127	e179	e1,520	900	993	859	816	280	101	64
24	22	153	e114	e156	e1,340	838	778	2,010	653	246	100	63
25	23	154	e115	e148	e1,070	795	677	2,800	556	230	114	60
26	22	132	e118	e151	e746	918	630	2,830	493	209	161	59
27	22	132	e135	e139	e431	880	586	3,020	437	180	135	59
28	23	137	e275	e130	e680	1,180	534	3,160	404	166	586	59
29	22	130	e222	e117	825	1,340	494	2,240	376	151	1,230	57
30	23	104	e201	e108	---	1,310	458	1,560	361	145	849	53
31	23	---	e241	e100	---	1,120	---	2,590	---	146	524	---
TOTAL	727	9,066	5,023	4,798	12,316	28,690	17,623	29,829	22,989	10,663	9,970	3,763
MEAN	23.5	302	162	155	425	925	587	962	766	344	322	125
MAX	42	1,590	316	237	1,520	1,550	1,080	3,160	1,960	837	1,230	379
MIN	17	23	102	100	112	573	350	253	361	145	96	53
AC-FT	1,440	17,980	9,960	9,520	24,430	56,910	34,960	59,170	45,600	21,150	19,780	7,460
CFSM	0.03	0.41	0.22	0.21	0.58	1.27	0.80	1.32	1.05	0.47	0.44	0.17
IN.	0.04	0.46	0.26	0.24	0.63	1.46	0.90	1.52	1.17	0.54	0.51	0.19

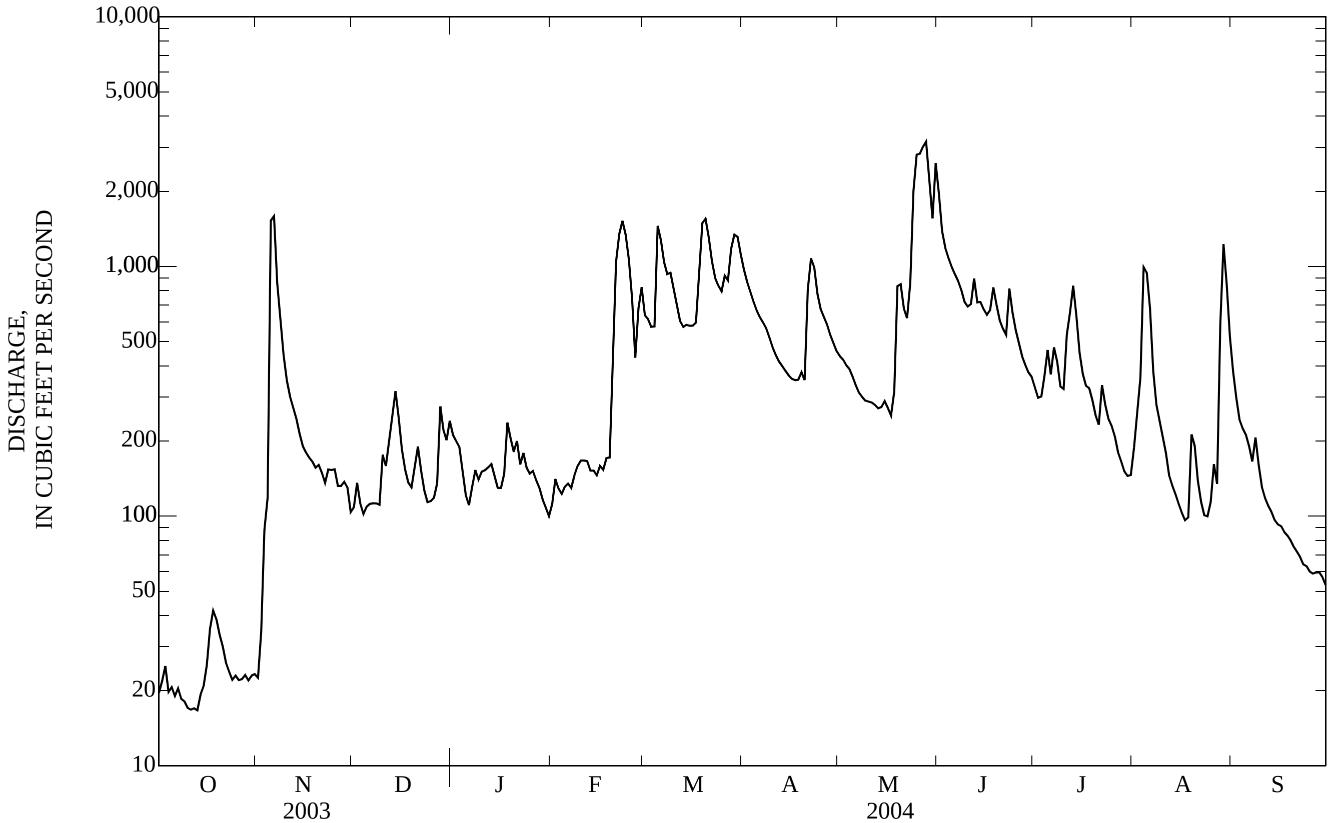
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	219	281	219	248	414	844	761	836	799	540	284	271
MAX	1,603	1,890	1,208	1,767	1,311	2,996	2,826	4,170	4,145	5,098	3,668	2,708
(WY)	(1987)	(1962)	(1983)	(1946)	(1973)	(1979)	(1993)	(1974)	(1947)	(1993)	(1993)	(1993)
MIN	0.13	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	92,709		155,457			
ANNUAL MEAN	254		425		476	
HIGHEST ANNUAL MEAN					2,041	1993
LOWEST ANNUAL MEAN					27.7	1956
HIGHEST DAILY MEAN	2,770	May 11	3,160	May 28	23,200	Mar 31, 1960
LOWEST DAILY MEAN	17	Oct 10	17	Oct 10 a	0.10	Oct 7, 1956
ANNUAL SEVEN-DAY MINIMUM	18	Oct 8	18	Oct 8	0.10	Oct 7, 1956
MAXIMUM PEAK FLOW			3,200	May 28	27,500	Mar 31, 1960
MAXIMUM PEAK STAGE			14.95	May 28	25.33	Mar 31, 1960
INSTANTANEOUS LOW FLOW			15	Oct 10		
ANNUAL RUNOFF (AC-FT)	183,900		308,300		345,100	
ANNUAL RUNOFF (CFSM)	0.348		0.582		0.653	
ANNUAL RUNOFF (INCHES)	4.72		7.92		8.87	
10 PERCENT EXCEEDS	614		951		1,170	
50 PERCENT EXCEEDS	111		240		166	
90 PERCENT EXCEEDS	26		59		20	

a Also Oct. 11-13.
e Estimated



05473400 CEDAR CREEK NEAR OAKLAND MILLS, IA

LOCATION.--(revised) Lat. 40°55'31", long 91°40'27", in SE$\frac{1}{4}$ NW$\frac{1}{4}$ sec.28, T.71 N., R.7 W., Henry County, Hydrologic Unit 07080107, on left bank 30 ft upstream from bridge on county highway H46, 3.0 mi west of Oakland Mills, 2.9 mi upstream from Wolf Creek, and 4.3 mi upstream from mouth.

DRAINAGE AREA.--530 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 565.07 ft above NGVD of 1929.

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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	3.2	14	72	e27	279	306	65	5,920	e71	34	166
2	2.8	3.3	13	56	e31	234	249	66	3,250	e66	32	107
3	2.5	44	12	50	e34	186	208	58	1,480	60	28	78
4	1.9	76	11	e35	e36	387	177	54	1,020	71	211	62
5	1.7	50	12	e26	e37	3,770	151	50	657	78	1,130	51
6	1.4	27	12	e28	e38	3,440	132	49	370	66	564	44
7	1.6	25	12	e23	e38	968	122	50	250	76	214	49
8	1.8	21	12	e19	e39	569	114	48	215	66	122	44
9	1.6	16	29	e16	e38	394	102	43	148	54	82	50
10	1.5	13	990	e16	e37	302	93	39	236	48	60	38
11	1.6	11	1,100	e18	e36	238	82	42	752	48	46	31
12	1.8	9.1	e163	e20	e34	199	75	42	903	285	38	28
13	1.7	7.0	e99	e20	e34	164	70	61	333	429	32	25
14	5.2	5.1	e80	e23	e34	178	69	57	1,440	201	29	22
15	6.6	4.3	e74	e25	e34	245	66	54	4,310	107	26	22
16	15	4.9	e79	e26	e32	238	65	51	3,620	73	24	23
17	13	5.6	e72	e92	e32	346	64	44	e800	60	24	27
18	8.2	6.4	e57	e159	e35	938	61	41	525	45	23	25
19	5.3	6.4	e43	e202	e55	1,140	56	45	376	39	25	24
20	3.5	7.6	e40	e141	e384	873	70	57	292	34	48	19
21	2.9	15	e39	e107	e638	523	176	71	235	30	80	17
22	2.8	12	e38	e79	e844	329	183	65	216	32	49	17
23	2.7	13	e36	e60	e825	255	129	101	e155	35	33	16
24	2.3	230	e29	e45	e684	228	96	321	137	46	34	16
25	2.3	195	e35	e35	e603	209	84	1,050	112	83	42	15
26	2.5	71	e40	e32	e542	221	79	1,700	97	54	112	15
27	2.7	40	e42	e39	515	690	80	614	e85	40	710	14
28	2.4	26	83	e34	434	536	71	400	e82	33	2,800	14
29	2.6	19	176	e29	298	654	60	315	e79	34	1,460	13
30	2.7	17	196	e26	---	592	62	1,010	e76	e33	558	13
31	2.7	---	108	e26	---	400	---	4,610	---	e33	291	---
TOTAL	109.9	983.9	3,746	1,579	6,448	19,725	3,352	11,273	28,171	2,430	8,961	1,085
MEAN	3.55	32.8	121	50.9	222	636	112	364	939	78.4	289	36.2
MAX	15	230	1,100	202	844	3,770	306	4,610	5,920	429	2,800	166
MIN	1.4	3.2	11	16	27	164	56	39	76	30	23	13
AC-FT	218	1,950	7,430	3,130	12,790	39,120	6,650	22,360	55,880	4,820	17,770	2,150
CFSM	0.01	0.06	0.23	0.10	0.42	1.19	0.21	0.68	1.76	0.15	0.54	0.07
IN.	0.01	0.07	0.26	0.11	0.45	1.38	0.23	0.79	1.97	0.17	0.63	0.08

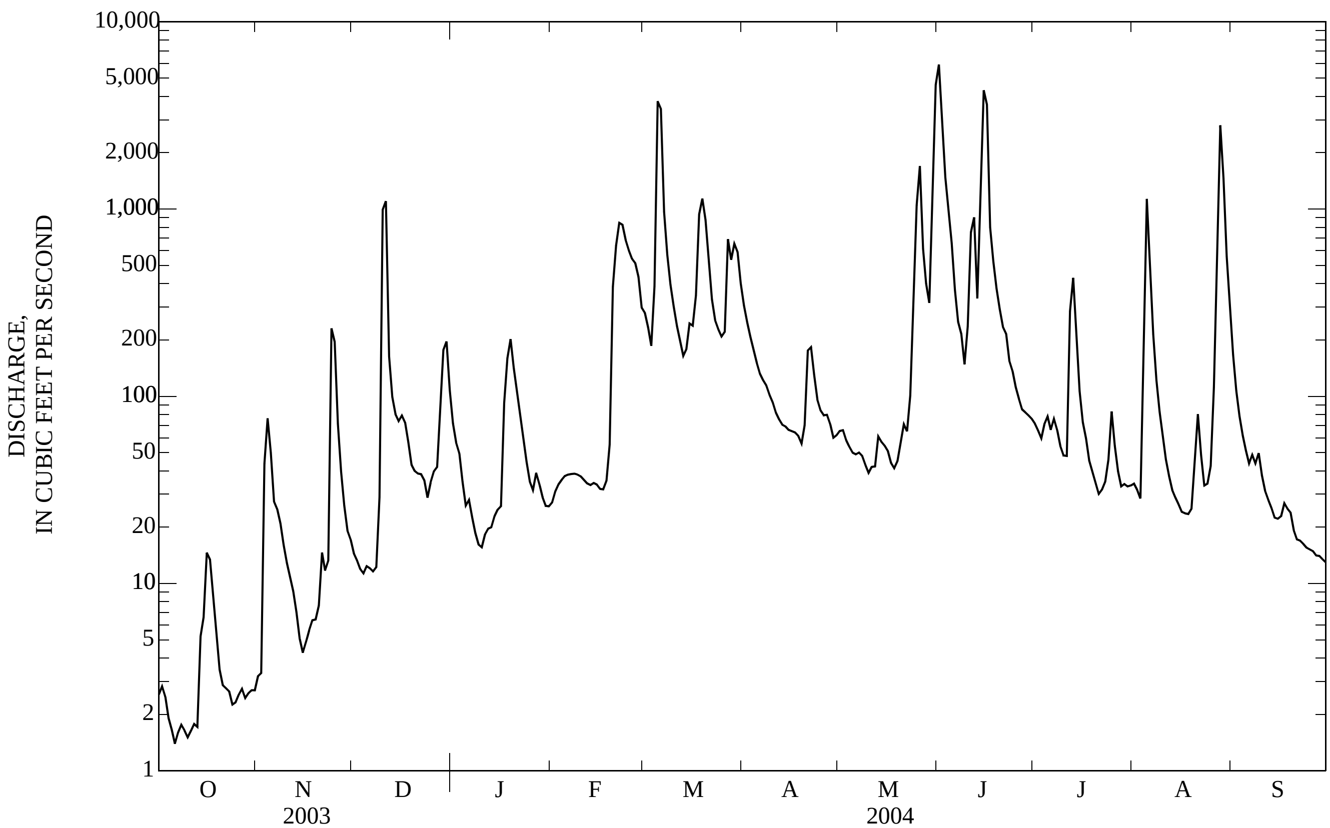
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	219	266	213	95.4	324	599	590	734	620	517	180	199
MAX	1,711	1,340	1,364	545	1,091	1,987	1,863	3,116	2,199	4,565	2,186	1,245
(WY)	(1987)	(1993)	(1983)	(1993)	(1985)	(1979)	(1983)	(1996)	(1990)	(1993)	(1993)	(1986)
MIN	3.55	5.45	4.43	7.25	6.36	25.6	34.3	21.6	14.6	3.52	4.23	4.63
(WY)	(2004)	(2003)	(1990)	(2003)	(1989)	(2000)	(2000)	(2000)	(1988)	(1988)	(2003)	(2002)

05473400 CEDAR CREEK NEAR OAKLAND MILLS, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1978 - 2004	
ANNUAL TOTAL	20,441.25		87,863.8			
ANNUAL MEAN	56.0		240		380	
HIGHEST ANNUAL MEAN					1,424	1993
LOWEST ANNUAL MEAN					44.5	2003
HIGHEST DAILY MEAN	1,260	May 11	5,920	Jun 1	11,500	May 28, 1996
LOWEST DAILY MEAN	0.87	Sep 12	1.4	Oct 6	0.42	Sep 17, 1988
ANNUAL SEVEN-DAY MINIMUM	1.6	Oct 5	1.6	Oct 5	0.55	Sep 14, 1988
MAXIMUM PEAK FLOW			6,300	Jun 1	12,300	May 28, 1996
MAXIMUM PEAK STAGE			17.48	Jun 1	21.27	Jul 9, 1993
INSTANTANEOUS LOW FLOW			1.4	Oct 6 a		
ANNUAL RUNOFF (AC-FT)	40,550		174,300		275,100	
ANNUAL RUNOFF (CFSM)	0.105		0.450		0.712	
ANNUAL RUNOFF (INCHES)	1.43		6.13		9.68	
10 PERCENT EXCEEDS	110		576		869	
50 PERCENT EXCEEDS	14		51		72	
90 PERCENT EXCEEDS	2.7		6.9		7.3	

a Also Oct. 10, 11.
e Estimated.



05473450 BIG CREEK NEAR MT. PLEASANT, IA

LOCATION.--Lat. 45°00'26", long 91°33'05", in NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec.28, T.72 N., R.6 W., Henry County, Hydrologic Unit 07080107, on right bank 20 ft upstream from bridge on old U.S. highway 218 (Mt. Pleasant business route) about 2 miles north of Mt. Pleasant, 1.6 miles upstream from Brandy Wine Creek, and 2.3 miles upstream from Lynn Creek.

DRAINAGE AREA.--58 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1957 to 1977. Oct. 1, 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 643.00 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.10	0.24	0.53	14	e6.0	35	67	19	79	7.4	1.9	4.0
2	0.09	0.34	0.51	15	e10	32	55	17	53	7.4	2.0	2.8
3	0.10	8.2	0.48	15	e13	24	47	16	38	43	1.9	2.3
4	0.10	3.3	0.47	11	e9.0	79	39	15	32	42	9.8	2.0
5	0.11	1.5	0.65	e8.1	e10	473	34	16	30	26	3.0	1.8
6	0.10	0.88	0.90	e5.2	e14	200	32	14	28	67	2.4	1.9
7	0.09	0.68	0.73	e4.6	e13	130	31	13	24	40	1.9	1.7
8	0.10	0.56	0.73	e4.4	e12	92	28	11	20	22	1.6	1.4
9	0.12	0.47	9.6	e4.4	e13	73	23	12	17	16	1.6	1.3
10	0.13	0.41	210	e4.6	e12	56	21	12	44	13	1.6	1.4
11	0.14	0.44	117	e7.0	e12	48	19	12	166	30	1.4	1.3
12	0.20	0.46	e44	e9.1	e10	34	19	11	84	100	1.4	1.2
13	0.21	0.50	e32	e9.2	e9.4	31	18	196	52	40	1.3	1.3
14	0.89	0.44	22	e8.3	e10	42	18	178	172	23	1.4	1.4
15	0.36	0.53	19	e6.8	e9.9	44	17	97	121	15	1.2	1.8
16	0.24	0.55	23	e9.7	e9.9	47	17	70	68	12	1.2	2.2
17	0.16	0.60	e20	e26	e12	76	16	55	52	11	3.9	1.5
18	0.19	0.99	e17	e40	e13	148	14	50	38	7.6	2.7	1.3
19	0.17	1.0	e14	e25	e34	116	15	52	30	6.2	5.1	1.3
20	0.15	0.74	e13	e20	e128	88	19	47	26	5.5	2.6	1.3
21	0.18	0.76	e14	e19	e103	57	46	38	25	4.8	2.3	1.3
22	0.18	0.77	18	e12	e58	47	42	37	22	11	1.8	1.4
23	0.18	1.5	21	e12	e49	44	30	44	17	10	1.5	1.4
24	0.18	1.0	e15	e14	e40	41	26	49	15	9.0	18	1.5
25	0.22	0.70	e19	e11	e35	35	29	126	13	5.7	18	1.4
26	0.27	0.70	e12	e11	e29	175	24	109	12	4.3	10	1.2
27	0.25	0.70	12	e9.8	e29	180	20	75	11	3.5	16	1.2
28	0.29	0.65	38	e6.3	26	131	19	53	11	3.2	37	1.2
29	0.27	0.59	37	e4.1	28	137	20	39	9.1	2.8	33	1.2
30	0.25	0.58	23	e4.0	---	105	19	94	8.0	2.5	15	1.2
31	0.25	---	18	e4.1	---	81	---	130	---	2.2	7.3	---
TOTAL	6.27	30.78	772.60	354.7	757.2	2,901	824	1,707	1,317.1	593.1	209.8	48.2
MEAN	0.20	1.03	24.9	11.4	26.1	93.6	27.5	55.1	43.9	19.1	6.77	1.61
MAX	0.89	8.2	210	40	128	473	67	196	172	100	37	4.0
MIN	0.09	0.24	0.47	4.0	6.0	24	14	11	8.0	2.2	1.2	1.2
AC-FT	12	61	1,530	704	1,500	5,750	1,630	3,390	2,610	1,180	416	96
CFSM	0.00	0.02	0.43	0.20	0.45	1.61	0.47	0.95	0.76	0.33	0.12	0.03
IN.	0.00	0.02	0.50	0.23	0.49	1.86	0.53	1.09	0.84	0.38	0.13	0.03

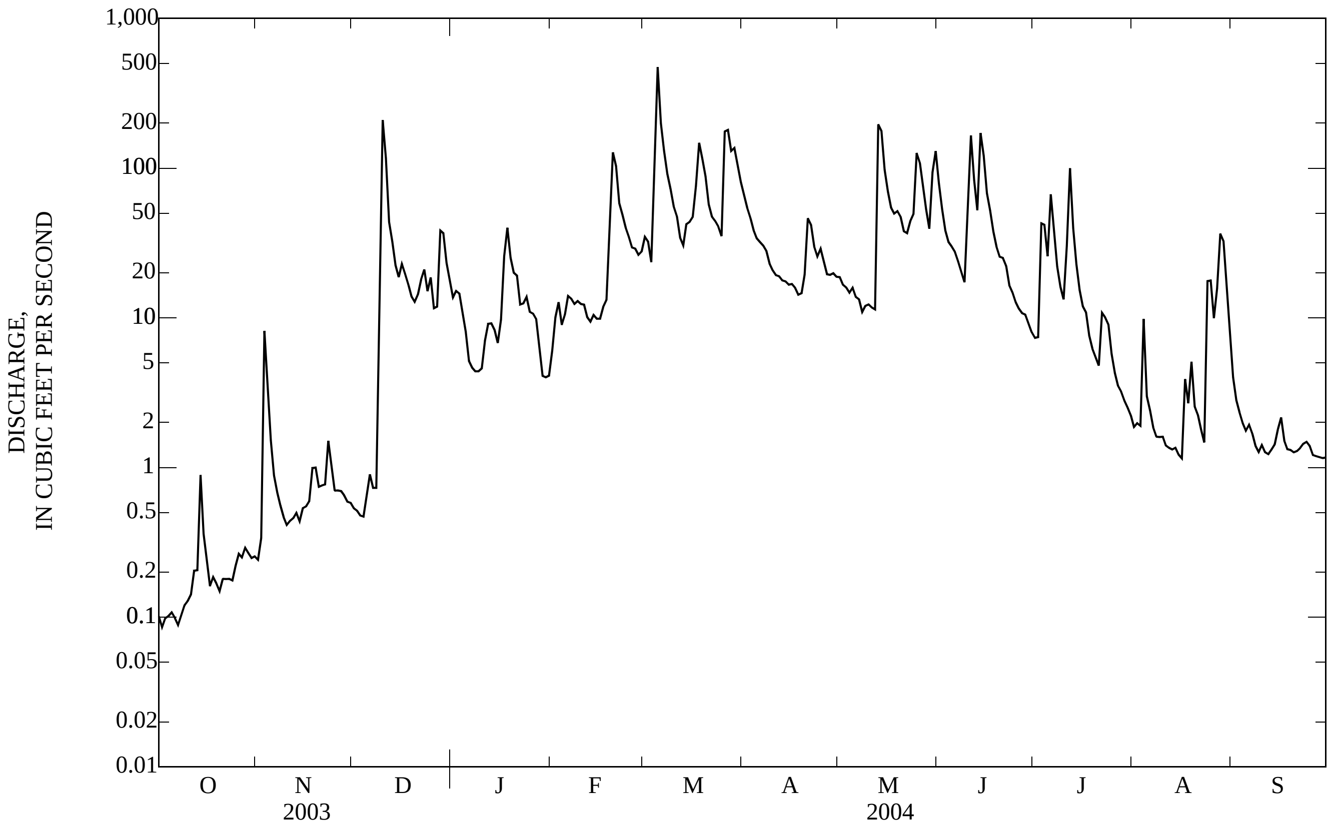
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

MEAN	19.8	14.5	10.4	19.0	67.1	69.0	75.5	91.9	78.6	17.0	3.47	2.32
MAX	110	78.6	25.6	83.0	215	176	201	221	141	49.1	8.61	8.41
(WY)	(1999)	(1999)	(1999)	(1998)	(2001)	(1998)	(1998)	(2001)	(2002)	(2000)	(1998)	(1998)
MIN	0.20	0.63	0.68	0.50	3.91	6.40	5.81	26.2	22.1	2.67	0.23	0.13
(WY)	(2004)	(2003)	(2000)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(1999)	(2003)	(2002)

05473450 BIG CREEK NEAR MT. PLEASANT, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	5,163.16		9,521.75			
ANNUAL MEAN	14.1		26.0		38.8	
HIGHEST ANNUAL MEAN					68.1	1998
LOWEST ANNUAL MEAN					12.1	2003
HIGHEST DAILY MEAN	370	May 5	473	Mar 5	1,600	Mar 31, 1998
LOWEST DAILY MEAN	0.00	Aug 23	0.09	Oct 2 a	0.00	Aug 23, 2003 b
ANNUAL SEVEN-DAY MINIMUM	0.02	Aug 19	0.10	Oct 1	0.02	Aug 19, 2003
MAXIMUM PEAK FLOW			556	Mar 5	2,450	Jun 1, 2002
MAXIMUM PEAK STAGE			6.92	Mar 5	14.29	Feb 9, 2001
INSTANTANEOUS LOW FLOW			0.08	Oct 2 c	0.00	Aug 22, 2003
ANNUAL RUNOFF (AC-FT)	10,240		18,890		28,110	
ANNUAL RUNOFF (CFSM)	0.244		0.449		0.669	
ANNUAL RUNOFF (INCHES)	3.31		6.11		9.09	
10 PERCENT EXCEEDS	31		67		91	
50 PERCENT EXCEEDS	1.5		12		8.5	
90 PERCENT EXCEEDS	0.14		0.47		0.44	

a Also Oct. 7.
b Also Aug. 24, 25.
c Also Oct. 6, 7.
e Estimated



05474000 SKUNK RIVER AT AUGUSTA, IA

LOCATION.--Lat 40°45'13", long 91°16'37"(revised), in NE1/4 NE1/4 sec.26, T.69 N., R.4 W., Des Moines County, Hydrologic Unit 07080107, on left bank 300 ft upstream from bridge on State Highway 394 at Augusta, 2.0 mi upstream from Long Creek, and at mile 12.5.

DRAINAGE AREA.--4,303 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 of 1929. 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 data collection platform with satellite telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	134	514	996	e438	e3,580	5,320	2,580	21,600	2,620	1,070	2,330
2	152	150	467	899	e475	4,100	4,840	2,400	22,100	2,390	1,050	1,660
3	141	424	441	898	e500	4,140	4,240	2,260	18,100	2,400	1,050	1,310
4	140	451	457	881	e495	3,840	3,780	2,120	15,300	3,470	1,290	1,070
5	137	415	493	600	e471	11,200	3,440	2,010	13,100	2,990	2,080	915
6	136	645	478	234	e459	14,200	3,160	1,930	10,800	3,180	4,460	811
7	135	4,050	451	e215	e454	10,800	2,930	1,850	8,970	3,240	3,190	741
8	131	3,440	454	e230	e451	8,310	2,740	1,760	7,840	2,960	2,390	681
9	130	2,100	515	e243	450	6,890	2,580	1,680	6,840	3,190	2,090	660
10	132	1,550	3,310	e270	448	5,890	2,430	1,620	6,030	3,090	1,740	786
11	133	1,250	3,850	381	444	4,790	2,270	1,590	6,100	2,770	1,440	978
12	135	1,060	2,230	441	432	4,000	2,140	1,700	6,920	3,230	1,240	822
13	130	913	1,080	441	434	3,480	2,050	2,020	5,650	e3,940	1,090	706
14	155	839	641	422	436	3,190	1,880	2,010	6,750	4,800	988	635
15	177	796	701	408	428	3,050	1,830	1,880	8,980	4,970	907	591
16	164	743	734	432	410	3,030	1,790	1,800	9,660	4,830	842	580
17	152	682	852	492	407	3,040	1,750	1,800	7,070	4,320	800	530
18	161	681	809	625	395	4,130	1,700	2,040	5,390	3,440	866	494
19	160	664	e784	685	401	5,840	1,650	2,110	5,100	2,880	819	e481
20	174	629	e829	846	823	6,770	1,750	2,260	5,180	2,480	892	473
21	185	590	e1,090	954	2,200	5,840	2,190	3,480	5,330	2,190	984	452
22	176	581	900	922	4,240	5,250	2,200	3,260	5,250	2,000	974	432
23	164	586	874	788	e5,440	4,590	2,780	3,510	4,890	2,000	828	419
24	157	740	820	678	e6,290	4,060	3,500	4,370	4,710	2,650	783	406
25	158	1,350	654	559	e6,390	3,700	3,390	6,680	4,870	2,180	880	384
26	151	958	741	534	e5,790	3,940	3,020	9,940	4,690	1,910	869	365
27	140	735	690	503	e4,660	6,540	2,700	9,320	4,200	1,650	1,710	349
28	136	632	920	e492	e3,530	6,360	2,630	8,730	3,720	1,470	3,070	335
29	135	545	953	e462	e3,310	5,150	2,610	8,930	3,300	1,330	4,520	321
30	130	524	1,420	e437	---	5,310	2,640	10,700	2,930	1,220	2,780	313
31	136	---	1,290	e421	---	5,180	---	18,400	---	1,140	3,360	---
TOTAL	4,607	28,857	30,442	17,389	51,101	170,190	81,930	126,740	241,370	86,930	51,052	21,030
MEAN	149	962	982	561	1,762	5,490	2,731	4,088	8,046	2,804	1,647	701
MAX	185	4,050	3,850	996	6,390	14,200	5,320	18,400	22,100	4,970	4,520	2,330
MIN	130	134	441	215	395	3,030	1,650	1,590	2,930	1,140	783	313
AC-FT	9,140	57,240	60,380	34,490	101,400	337,600	162,500	251,400	478,800	172,400	101,300	41,710
CFSM	0.03	0.22	0.23	0.13	0.41	1.27	0.63	0.95	1.87	0.65	0.38	0.16
IN.	0.04	0.25	0.26	0.15	0.44	1.47	0.71	1.09	2.08	0.75	0.44	0.18

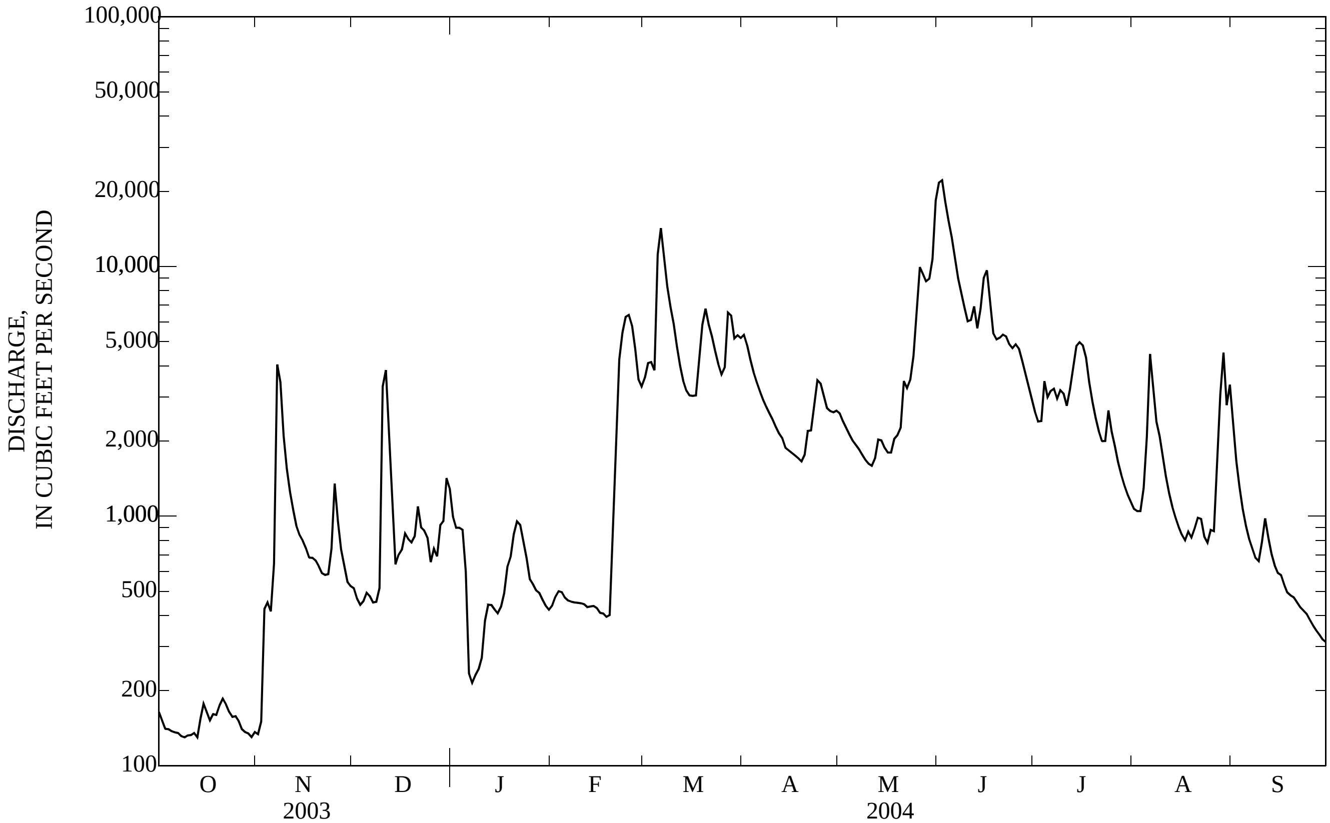
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1,343	1,519	1,248	1,270	2,332	4,323	4,101	4,177	4,435	2,837	1,650	1,567
MAX	11,560	10,020	8,387	8,090	7,306	16,560	18,770	16,780	19,800	26,860	18,550	15,460
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1915 - 2004	
ANNUAL TOTAL	472,473		911,638			
ANNUAL MEAN	1,294		2,491		2,565	
HIGHEST ANNUAL MEAN					10,200	1993
LOWEST ANNUAL MEAN					152	1934
HIGHEST DAILY MEAN	11,000	May 11	22,100	Jun 2	62,600	Apr 23, 1973
LOWEST DAILY MEAN	47	Feb 16	130	Oct 9 a	7.0	Aug 27, 1934
ANNUAL SEVEN-DAY MINIMUM	54	Feb 13	132	Oct 7	7.4	Aug 26, 1934
MAXIMUM PEAK FLOW			22,600	Jun 2	66,800	Apr 23, 1973
MAXIMUM PEAK STAGE			16.40	Jun 2	27.05	Apr 23, 1973
INSTANTANEOUS LOW FLOW			122	Oct 30	7.0	Aug 7, 1934
ANNUAL RUNOFF (AC-FT)	937,200		1,808,000		1,858,000	
ANNUAL RUNOFF (CFSM)	0.300		0.578		0.595	
ANNUAL RUNOFF (INCHES)	4.08		7.86		8.08	
10 PERCENT EXCEEDS	3,700		5,800		6,740	
50 PERCENT EXCEEDS	570		1,320		1,060	
90 PERCENT EXCEEDS	130		240		150	

a Also Oct. 13, and 30.
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, 0.93 tons Feb. 11, 2003.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 692 microsiemens Feb. 4; minimum daily, 262 microsiemens May 31.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 3, Sept. 5; minimum daily, 0.0°C many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,270 mg/L Mar. 6; minimum daily mean, 5.0 mg/L Feb. 7.
SEDIMENT LOADS: Maximum daily, 126,000 tons Mar. 6; minimum daily, 5.8 tons Feb. 7.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Temperature, water, deg C (00010)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
NOV						
13...	0955	911	4.1	99	105	258
DEC						
15...	1310	639	--	99	60	104
MAY						
12...	1355	1,560	--	94	98	413
JUN						
09...	1045	6,580	--	89	311	5,530
JUL						
20...	1330	2,470	--	98	233	1,550
AUG						
31...	0940	3,470	--	97	476	4,460

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Bed sediment, dry svd sve dia percent <.063mm (80164)	Bed sediment, dry svd sve dia percent <.125mm (80165)	Bed sediment, dry svd sve dia percent <.25mm (80166)	Bed sediment, dry svd sve dia percent <.5 mm (80167)	Bed sediment, dry svd sve dia percent <1 mm (80168)	Bed sediment, dry svd sve dia percent <2 mm (80169)	Bed sediment, dry svd sve dia percent <4 mm (80170)	Bed sediment, dry svd sve dia percent <8 mm (80171)	Bed sediment, dry svd sve dia percent <16 mm (80172)	Number of sampling points, count (00063)
MAR											
16...	1120	.0	.0	10	68	90	96	98	99	100	2
MAY											
12...	1400	.0	.0	12	84	98	99	100	100	--	2
JUN											
09...	1115	.0	.0	9	82	95	98	99	99	100	2
JUL											
20...	1400	.0	.0	3	65	96	98	99	99	100	3
AUG											
31...	1000	4	7	25	63	87	95	98	100	--	2

05474000 SKUNK RIVER AT AUGUSTA, IA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	594	639	602	514	690	382	550	607	301	644	549	346
2	603	638	607	529	690	412	562	624	351	644	534	410
3	617	537	622	557	655	418	586	631	419	632	538	458
4	614	---	610	571	692	304	600	629	462	519	568	508
5	605	556	597	582	639	338	601	637	486	540	586	535
6	604	619	612	---	---	330	609	608	513	554	405	536
7	569	409	628	---	655	344	610	627	522	564	352	484
8	597	305	618	---	616	449	607	---	534	538	432	471
9	621	376	---	648	634	476	605	614	543	566	485	445
10	622	430	326	654	616	488	606	608	558	590	544	443
11	623	465	392	630	640	514	606	582	546	521	556	489
12	597	496	431	658	586	539	554	590	546	533	581	518
13	606	511	446	594	---	553	594	598	476	600	610	502
14	580	540	467	672	616	562	575	592	504	495	596	486
15	612	557	495	687	628	570	553	583	384	406	565	489
16	648	545	534	658	612	573	553	565	361	478	498	447
17	638	553	556	690	643	565	540	544	471	529	491	450
18	616	569	---	---	650	521	524	587	513	580	469	460
19	614	569	---	633	635	462	533	618	564	---	465	474
20	601	575	636	614	594	438	539	599	545	613	458	440
21	609	582	649	610	524	448	592	582	554	644	479	439
22	619	596	664	613	400	514	567	537	488	534	492	451
23	628	576	662	617	327	545	578	558	548	533	471	449
24	635	599	651	605	319	565	546	352	577	601	483	451
25	633	572	644	578	292	573	537	505	608	548	500	445
26	642	461	636	606	304	579	532	372	547	554	495	459
27	649	489	498	625	338	477	581	333	561	611	342	457
28	634	514	625	633	356	435	596	341	594	572	392	472
29	654	556	600	667	368	503	619	352	626	617	284	469
30	657	582	581	687	---	524	599	354	633	554	393	488
31	666	---	547	678	---	517	---	262	---	552	419	---

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
(Large Rivers Mass Contaminents Station)

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
MAR													
17...	1430	3,020	310	57	--	12.8	--	8.2	527	4.4	177	216	--
APR													
15...	1345	1,830	275	30	--	16.5	--	8.7	503	14.2	175	189	12
MAY													
18...	0730	1,990	260	28	748	10.7	123	8.4	508	21.2	166	195	4
JUN													
16...	0900	9,710	--	460	749	5.3	63	7.6	355	22.6	107	130	--
JUL													
20...	0800	2,540	330	100	740	7.4	94	8.2	577	25.9	209	255	--
AUG													
16...	1615	830	250	30	--	22.8	--	8.7	477	23.9	153	174	6
SEP													
13...	1530	693	250	41	--	16.2	--	8.8	491	25.3	182	190	16

05474000 SKUNK RIVER AT AUGUSTA, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chlor-ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Partic-ulate nitro-gen, susp, water, mg/L (49570)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Total nitro-gen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
17...	24.9	13.5	42.7	.06	8.13	.018	E.35	.132	.147	.31	8.36	9.12	2.6
APR													
15...	27.0	2.2	41.5	<.04	7.20	.015	.74	.010	.019	.20	7.47	8.61	6.2
MAY													
18...	27.4	5.3	31.3	E.02	8.81	.032	--	.008	.017	.23	8.62	9.99	--
JUN													
16...	12.4	12.7	15.7	<.04	6.77	.052	.95	.167	.175	1.07	7.39	8.88	8.2
JUL													
20...	22.2	18.8	30.8	<.04	9.57	.009	.41	.207	.22	.44	10.1	8.79	3.5
AUG													
16...	22.4	12.1	41.0	<.04	4.66	.015	.97	.006	.024	.197	4.66	5.96	7.4
SEP													
13...	24.5	12.2	42.5	<.04	2.08	.015	.65	.050	.052	.23	2.41	3.26	5.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inor-ganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheo-phytin a, phyto-plank-ton, ug/L (62360)	Chloro-phyll a phyto-plank-ton, fluoro, ug/L (70953)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atra-zine, water, fltrd, ug/L (39632)	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)
MAR													
17...	.7	1.9	3.5	1.6	2.1	<.006	E.037	.019	<.005	<.005	.099	<.050	<.010
APR													
15...	<.1	6.2	2.7	38.0	99.1	<.006	E.038	.013	<.005	<.005	.093	<.050	<.010
MAY													
18...	--	--	--	55.4	91.5	<.006	E.113	.549	.006	<.005	2.56	<.050	<.010
JUN													
16...	.1	8.1	6.0	9.1	7.8	<.006	E.433	.279	.011	<.005	2.53	<.050	<.010
JUL													
20...	<.1	3.5	3.1	5.1	9.1	<.006	E.079	.021	<.005	<.005	.363	<.050	<.010
AUG													
16...	<.1	7.3	3.0	44.7	139	<.006	E.056	.017	<.005	<.005	.244	<.050	<.010
SEP													
13...	<.1	5.3	3.0	31.9	69.6	<.006	E.051	.011	<.005	<.005	.150	<.050	<.010

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulf-inyl fipro-nil, water, fltrd, ug/L (62170)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)
MAR													
17...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
15...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
18...	<.004	<.041	<.020	<.010	<.006	E.007	<.003	<.012	<.005	<.009	<.02	<.004	<.009
JUN													
16...	<.004	<.041	<.020	<.005	<.006	E.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
JUL													
20...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
16...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP													
13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009

05474000 SKUNK RIVER AT AUGUSTA, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinylfipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
17...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.228	<.006	<.003
APR													
15...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.085	<.006	<.003
MAY													
18...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	1.19	<.006	<.003
JUN													
16...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.930	.009	<.003
JUL													
20...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.126	<.006	<.003
AUG													
16...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.085	<.006	<.003
SEP													
13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.067	<.006	<.003

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)
MAR													
17...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02
APR													
15...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02
MAY													
18...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.011	<.02
JUN													
16...	<.007	<.003	<.010	<.004	<.022	<.011	.04	<.004	<.025	<.011	<.02	.018	<.02
JUL													
20...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02
AUG													
16...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.012	<.02
SEP													
13...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.010	<.02

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Number of sampling points, count (00063)
MAR							
17...	<.034	<.02	<.010	<.002	<.009	252	11
APR							
15...	<.034	<.02	<.010	<.002	<.009	103	11
MAY							
18...	<.034	<.02	<.010	<.002	<.009	108	12
JUN							
16...	<.034	<.02	<.010	<.002	E.005	949	10
JUL							
20...	<.034	<.02	<.010	<.002	<.009	286	11
AUG							
16...	<.034	<.02	<.010	<.002	<.009	63	10
SEP							
13...	<.034	<.02	<.010	<.002	<.009	92	10

05474000 SKUNK RIVER AT AUGUSTA, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	10.0	5.0	2.0	0.0	4.0	12.0	18.0	23.0	27.0	28.0	25.0
2	13.0	11.0	2.0	6.0	1.0	3.0	13.0	15.0	20.0	28.0	28.0	25.0
3	13.0	11.0	4.0	1.0	0.0	4.0	11.0	18.0	22.0	27.0	30.0	27.0
4	14.0	---	2.0	0.0	2.0	5.0	14.0	17.0	20.0	25.0	27.0	28.0
5	12.0	11.0	3.0	0.0	2.0	5.0	15.0	20.0	24.0	27.0	28.0	30.0
6	19.0	11.0	2.0	---	---	5.0	17.0	24.0	24.0	25.0	26.0	29.0
7	20.0	6.0	4.0	---	0.0	6.0	17.0	21.0	25.0	24.0	25.0	26.0
8	21.0	5.0	5.0	---	0.0	7.0	15.0	23.0	27.0	23.0	27.0	25.0
9	18.0	4.0	---	1.0	2.0	6.0	13.0	24.0	24.3	25.0	28.0	27.0
10	22.0	5.0	1.0	0.0	1.0	6.0	14.0	22.0	24.0	26.0	24.0	27.0
11	21.0	7.0	0.0	3.0	1.0	4.0	14.0	24.0	26.0	25.0	23.0	27.0
12	17.0	6.0	0.0	0.0	2.0	6.0	12.0	23.0	25.0	27.0	22.0	26.0
13	18.0	3.0	0.0	1.0	---	5.0	13.0	21.0	28.0	28.0	22.0	28.0
14	17.0	5.0	0.0	1.0	0.0	6.0	13.0	19.0	25.0	27.0	22.0	28.0
15	16.0	5.0	1.0	1.0	0.0	4.0	17.0	20.0	24.0	27.0	24.0	28.0
16	13.0	6.0	1.0	0.0	0.0	4.0	18.0	21.0	24.0	27.0	25.0	24.0
17	14.0	7.0	0.0	---	0.0	5.0	19.0	23.0	25.0	27.0	26.0	26.0
18	12.0	8.0	---	---	2.0	5.0	21.0	21.0	24.0	28.0	26.0	24.0
19	20.0	10.0	---	0.0	4.0	8.0	21.0	23.0	24.0	---	29.0	27.0
20	21.0	10.0	0.0	0.0	5.0	8.0	17.0	26.0	23.0	27.0	25.0	25.0
21	19.0	9.0	3.0	0.0	3.0	5.0	18.0	26.0	23.0	29.0	24.0	25.0
22	17.0	7.0	1.0	0.0	4.0	8.0	17.0	25.0	24.0	28.0	27.0	24.0
23	18.0	9.0	0.0	2.0	1.0	8.0	17.0	25.0	25.0	25.0	26.0	25.0
24	17.0	3.0	1.0	0.0	0.0	11.0	9.0	24.0	23.0	23.0	25.0	25.0
25	14.0	4.0	0.0	0.0	2.0	12.0	15.0	23.0	23.0	25.0	24.0	24.0
26	8.0	5.0	1.0	0.0	3.0	13.0	18.0	20.0	23.0	24.0	27.0	22.0
27	10.0	5.0	3.0	2.0	2.0	18.0	18.0	21.0	21.0	26.0	24.0	25.0
28	11.0	2.0	5.0	2.0	4.0	13.0	19.0	21.0	23.0	26.0	23.0	22.0
29	9.0	1.0	1.0	0.0	6.0	15.0	18.0	22.0	24.0	26.0	25.0	20.0
30	14.0	3.0	2.0	0.0	---	11.0	---	22.0	25.0	25.0	25.0	21.0
31	12.0	---	2.0	0.0	---	10.0	---	22.0	---	28.0	26.0	---

05474000 SKUNK RIVER AT AUGUSTA, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Day	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	28	12	31	11	26	36	87	235	12	14	669	6,470
2	28	12	40	17	18	22	57	138	8	11	883	9,830
3	31	12	120	149	18	21	33	81	13	18	930	10,400
4	38	14	129	158	13	16	25	60	8	11	1,000	10,600
5	57	21	95	108	13	17	16	27	7	9.4	3,160	100,000
6	59	22	137	400	14	18	12	7.8	6	7.9	3,270	126,000
7	47	17	1,050	11,800	13	16	12	7.0	5	5.8	2,290	67,400
8	46	16	1,040	9,790	47	58	11	6.8	8	9.4	1,830	41,200
9	41	15	594	3,440	572	833	10	6.6	8	9.5	1,570	29,200
10	57	20	323	1,370	1,200	11,100	15	11	13	16	1,320	21,000
11	46	17	163	554	897	9,380	20	20	13	16	1,060	13,800
12	49	18	127	362	494	3,110	21	25	27	31	694	7,540
13	53	19	94	232	242	740	71	85	25	29	537	5,050
14	49	20	67	153	102	180	39	43	17	20	435	3,750
15	39	18	75	161	66	125	79	87	15	18	297	2,440
16	95	42	51	102	52	102	44	51	11	12	211	1,730
17	70	29	53	97	45	103	27	36	16	18	200	1,650
18	41	18	76	140	42	92	78	135	13	14	464	5,290
19	36	16	64	114	38	80	136	253	14	16	809	13,000
20	39	18	61	103	34	76	61	137	31	74	1,080	19,800
21	49	24	66	106	26	77	81	211	48	295	837	13,200
22	59	28	46	72	20	49	49	122	122	1,500	693	9,830
23	50	22	36	56	24	56	24	50	468	6,870	627	7,780
24	74	31	45	94	19	43	18	33	780	13,200	496	5,450
25	61	26	108	392	28	49	18	28	1,000	17,300	369	3,690
26	37	15	212	542	20	40	14	21	850	13,300	389	4,320
27	34	13	148	297	19	36	12	16	1,130	14,200	1,240	22,200
28	41	15	80	137	25	63	10	13	1,000	9,530	1,520	26,100
29	27	9.9	56	83	30	78	8	10	800	7,150	824	11,500
30	28	10	36	51	65	251	10	12	---	---	532	7,630
31	36	13	---	---	85	296	12	14	---	---	519	7,260
TOTAL	---	582.9	---	31,091	---	27,163	---	1,982.2	---	83,705.0	---	615,110

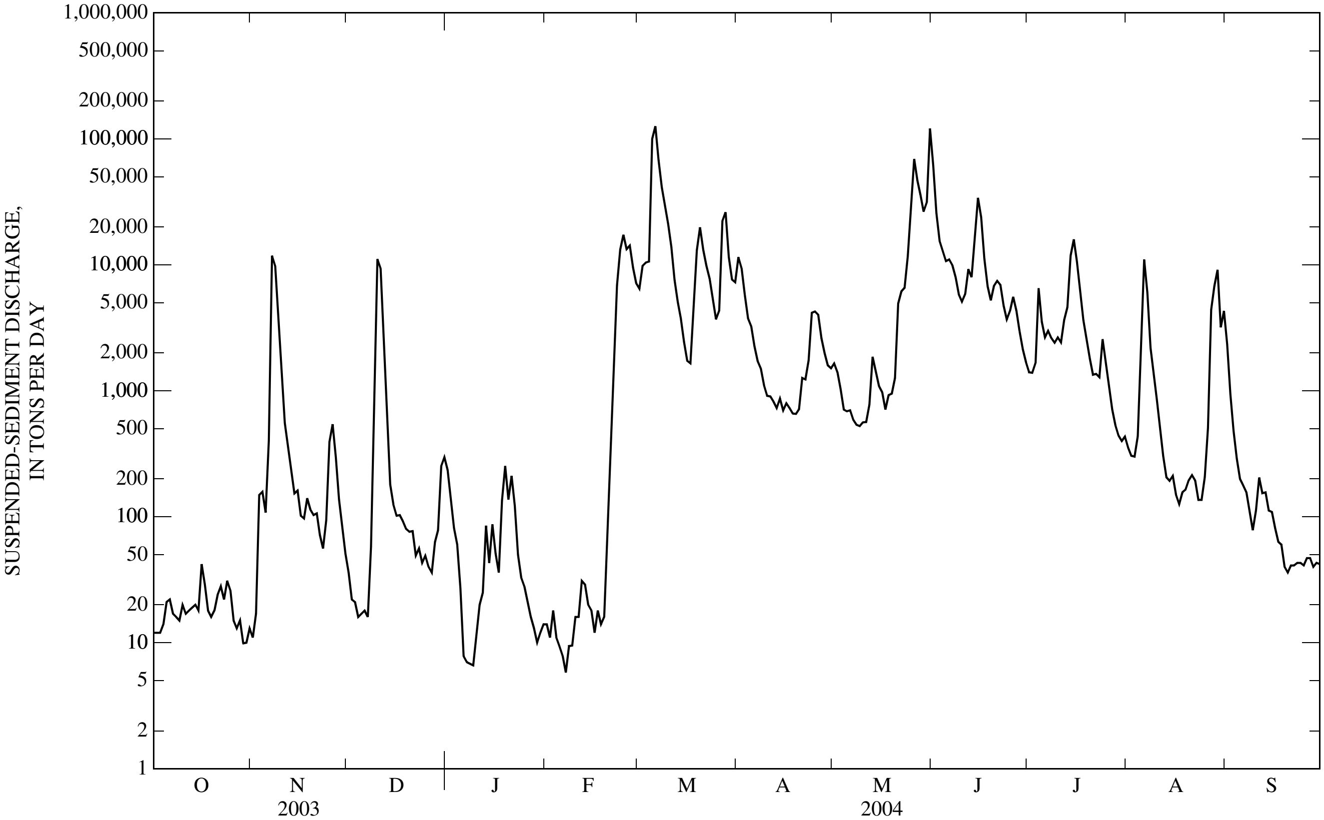
05474000 SKUNK RIVER AT AUGUSTA, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	801	11,500	238	1,650	1,070	61,800	198	1,400	123	354	364	2,340
2	718	9,410	218	1,410	429	25,700	215	1,390	108	305	207	942
3	502	5,770	169	1,030	315	15,500	254	1,660	106	300	135	480
4	368	3,770	124	709	311	12,800	685	6,520	123	435	100	290
5	351	3,260	127	687	304	10,700	434	3,530	275	1,670	81	200
6	265	2,270	134	699	380	11,000	309	2,650	910	11,000	81	178
7	218	1,730	117	586	408	9,900	342	2,990	681	6,010	79	157
8	205	1,510	113	536	377	7,990	328	2,620	335	2,180	60	111
9	159	1,110	116	524	316	5,840	280	2,410	233	1,320	44	78
10	139	912	128	561	314	5,100	318	2,650	177	836	52	112
11	147	902	131	564	355	5,850	324	2,420	127	497	78	205
12	141	818	161	774	494	9,240	420	3,660	90	303	69	154
13	131	728	343	1,860	524	7,980	432	4,600	70	206	82	156
14	171	866	266	1,440	840	15,900	911	11,800	72	193	65	112
15	141	698	214	1,090	1,400	34,000	1,180	15,900	86	211	68	109
16	165	796	201	976	910	23,700	804	10,500	66	150	52	81
17	154	729	146	709	571	11,100	528	6,190	58	126	44	63
18	143	660	166	924	465	6,780	387	3,620	67	156	45	60
19	147	655	166	947	378	5,220	334	2,600	74	164	31	40
20	150	713	202	1,260	486	6,810	269	1,810	81	195	28	36
21	213	1,260	516	4,920	517	7,450	226	1,340	81	214	33	41
22	207	1,230	700	6,150	489	6,940	253	1,360	74	194	35	41
23	229	1,740	690	6,550	360	4,760	237	1,280	61	136	38	43
24	438	4,160	986	11,700	290	3,680	360	2,570	64	136	39	43
25	463	4,250	1,640	30,400	326	4,290	271	1,610	87	206	39	41
26	491	4,010	2,560	69,100	440	5,570	204	1,050	214	509	48	47
27	359	2,620	1,850	46,800	381	4,330	160	714	914	4,390	50	47
28	280	1,990	1,530	36,100	294	2,960	135	534	834	6,800	45	40
29	226	1,590	1,100	26,400	240	2,140	123	441	743	9,140	50	43
30	212	1,510	1,050	31,200	213	1,690	121	399	429	3,190	49	42
31	---	---	2,420	121,000	---	---	141	433	478	4,310	---	---
TOTAL	---	73,167	---	409,256	---	336,720	---	102,651	---	55,836	---	6,332

YEAR 1,743,596.1

05474000 SKUNK RIVER AT AUGUSTA, IA—Continued



05474500 MISSISSIPPI RIVER AT KEOKUK, IA

LOCATION.--Lat 40°23'37", long 91°22'27", in SE$\frac{1}{4}$ SW$\frac{1}{4}$ 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 NGVD of 1929 (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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17,100	20,900	33,800	42,600	22,900	55,500	118,800	86,700	252,300	146,700	46,600	49,600
2	22,800	23,900	33,400	40,100	22,900	61,800	119,300	88,100	261,300	134,500	48,200	44,900
3	21,900	33,800	31,400	35,000	24,900	68,400	125,700	86,300	262,000	125,800	44,600	41,600
4	20,100	40,100	29,700	35,000	25,500	79,200	123,900	81,600	257,500	110,800	49,800	37,500
5	15,800	43,600	29,700	34,300	25,000	104,400	124,700	79,100	246,100	92,700	51,300	35,700
6	17,600	50,800	29,000	21,100	27,500	114,100	130,900	69,400	236,300	89,300	54,200	32,400
7	24,500	54,800	30,300	16,800	27,100	128,100	130,200	67,900	226,000	90,100	58,900	32,500
8	23,300	52,000	32,800	18,200	27,800	137,600	131,600	63,700	215,800	87,500	61,300	34,000
9	22,000	41,500	35,500	20,500	27,600	130,900	134,600	60,900	204,300	91,000	54,700	36,500
10	21,100	39,400	65,000	22,200	27,500	107,500	134,800	55,200	200,300	97,900	48,400	35,500
11	20,900	38,700	61,300	23,900	27,800	103,500	129,200	53,700	191,100	102,900	46,700	35,000
12	21,700	38,100	59,400	30,500	28,500	98,600	123,600	56,100	192,800	108,700	46,300	36,200
13	21,900	32,300	44,200	36,100	28,700	84,600	112,400	65,200	192,400	109,300	44,800	37,100
14	23,600	30,300	37,700	33,900	28,600	75,400	95,100	71,400	191,100	110,400	44,400	36,300
15	23,100	26,500	36,500	30,100	28,300	68,800	84,600	70,800	193,900	110,600	43,600	41,000
16	29,900	32,200	33,300	29,400	28,400	74,600	79,300	72,100	196,000	106,100	43,300	39,900
17	32,800	33,500	31,000	32,500	27,400	71,500	78,500	68,500	201,400	100,600	40,400	41,400
18	22,500	37,200	29,800	32,000	26,000	75,000	69,400	74,700	201,000	93,600	41,300	56,600
19	16,700	38,100	30,300	25,000	28,600	74,900	70,200	88,000	201,100	92,400	42,300	56,500
20	18,400	35,400	33,800	24,000	30,600	82,600	65,700	97,100	207,000	89,800	45,600	54,400
21	20,300	37,600	33,400	26,800	34,100	79,400	66,000	98,100	214,600	84,100	46,200	61,000
22	22,400	38,300	34,700	24,300	40,500	74,700	71,100	98,000	217,300	84,900	40,400	73,400
23	23,200	37,200	37,900	23,400	44,500	70,900	76,200	99,600	217,900	83,700	35,500	74,700
24	24,000	34,300	38,100	23,700	53,400	68,100	75,600	122,300	221,500	81,500	37,400	80,300
25	24,300	33,000	37,900	24,300	65,300	73,100	73,000	153,900	218,200	78,300	37,700	79,100
26	25,600	40,100	36,700	25,700	62,200	82,200	78,200	177,100	211,900	69,600	38,900	75,800
27	25,300	39,300	36,500	22,700	63,000	97,900	87,200	190,400	204,600	57,800	48,200	72,400
28	22,600	37,900	36,700	21,200	57,800	109,000	82,900	202,300	192,700	55,500	53,300	68,800
29	21,300	37,000	36,900	22,000	52,400	103,900	82,400	206,700	177,200	51,300	54,100	64,800
30	20,400	33,700	38,400	23,000	---	108,100	88,800	212,100	161,900	45,700	58,100	60,900
31	20,800	---	42,700	22,800	---	112,700	---	230,000	---	41,200	56,200	---
TOTAL	687,900	1,111,500	1,157,800	843,100	1,014,800	2,777,000	2,963,900	3,247,000	6,367,500	2,824,300	1,462,700	1,525,800
MEAN	22,190	37,050	37,350	27,200	34,990	89,580	98,800	104,700	212,200	91,110	47,180	50,860
MAX	32,800	54,800	65,000	42,600	65,300	138,000	135,000	230,000	262,000	147,000	61,300	80,300
MIN	15,800	20,900	29,000	16,800	22,900	55,500	65,700	53,700	162,000	41,200	35,500	32,400
AC-FT	1,364,000	2,205,000	2,296,000	1,672,000	2,013,000	5,508,000	5,879,000	6,440,000	12,630,000	5,602,000	2,901,000	3,026,000
CFSM	0.19	0.31	0.31	0.23	0.29	0.75	0.83	0.88	1.78	0.77	0.40	0.43
IN.	0.22	0.35	0.36	0.26	0.32	0.87	0.93	1.02	1.99	0.88	0.46	0.48

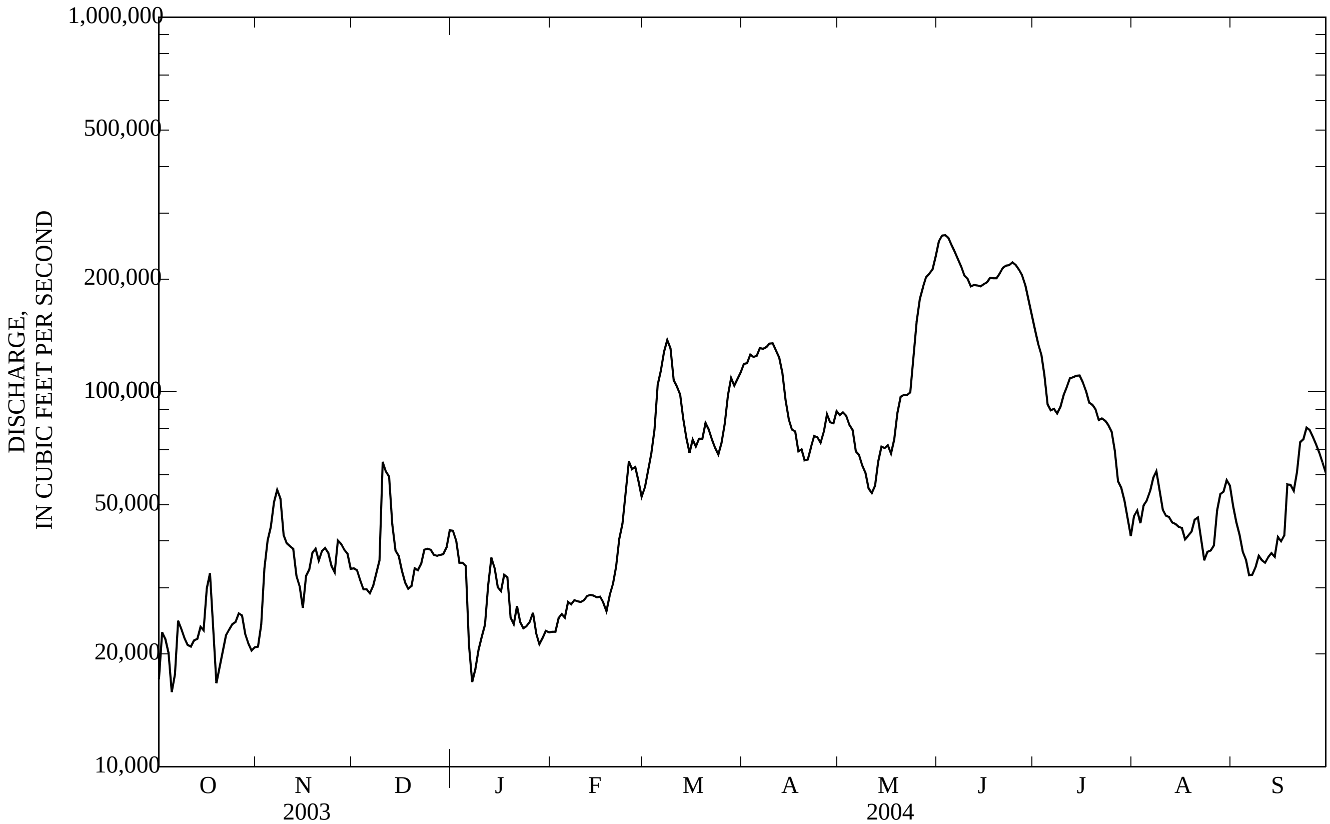
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1879 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	50,900	51,100	38,710	36,030	42,740	80,390	119,600	109,600	95,450	75,210	49,780	47,390
MAX	221,100	211,300	125,600	101,600	95,620	185,400	250,100	260,700	227,300	385,800	223,000	163,300
(WY)	(1882)	(1882)	(1983)	(1973)	(1984)	(1973)	(1993)	(1888)	(1892)	(1993)	(1993)	(1993)
MIN	16,060	16,020	13,450	14,650	15,790	21,780	32,930	27,600	17,400	16,280	13,030	15,530
(WY)	(1934)	(1934)	(1934)	(1940)	(1899)	(1934)	(1895)	(1934)	(1934)	(1988)	(1936)	(1976)

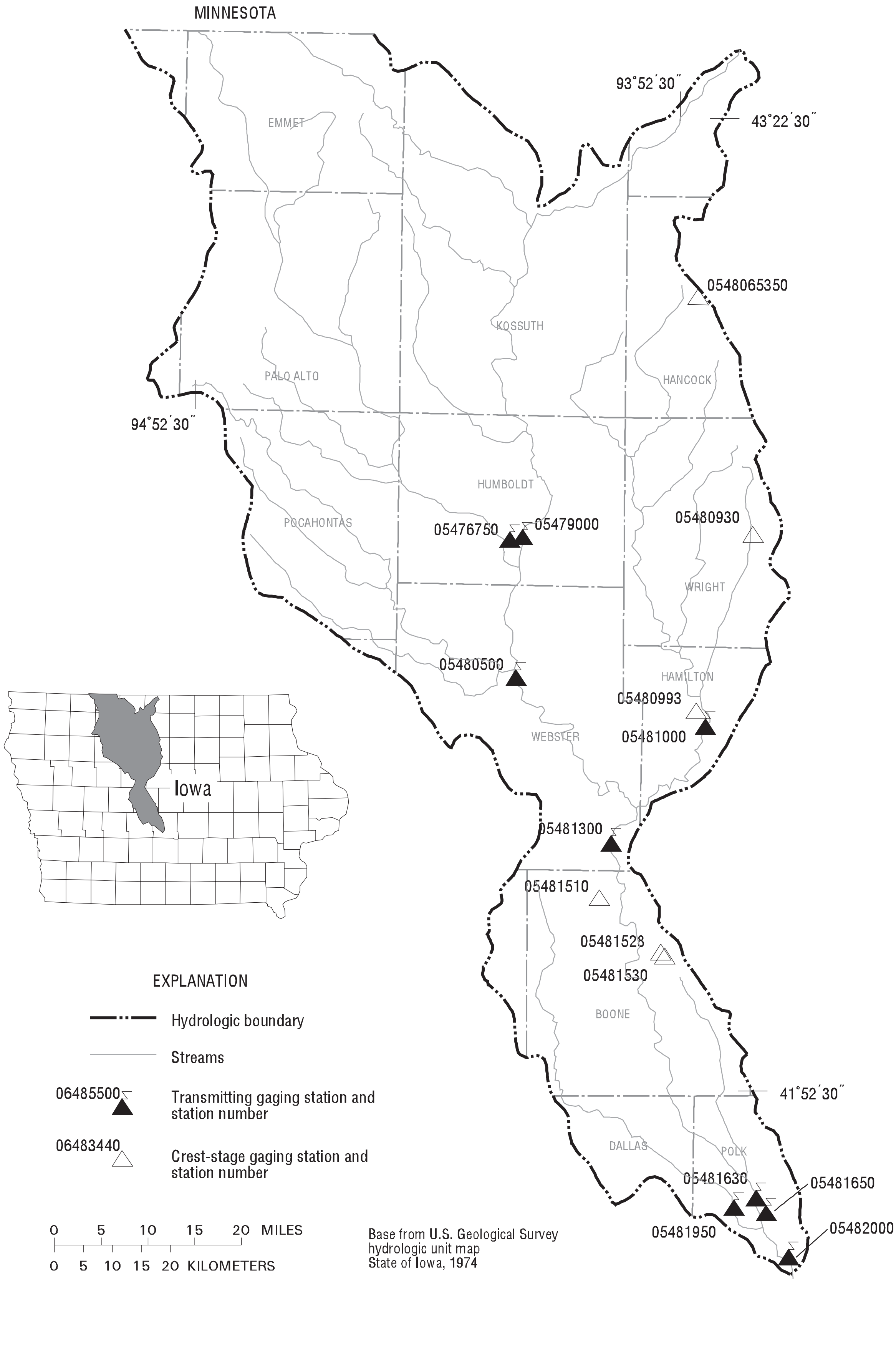
05474500 MISSISSIPPI RIVER AT KEOKUK, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1879 - 2004	
ANNUAL TOTAL	19,713,400		25,983,300			
ANNUAL MEAN	54,010		70,990		66,460	
HIGHEST ANNUAL MEAN					162,500	1993
LOWEST ANNUAL MEAN					21,540	1934
HIGHEST DAILY MEAN	181,000	May 25	262,000	Jun 3	434,000	Jul 10, 1993
LOWEST DAILY MEAN	13,500	Sep 10	15,800	Oct 5	5,000	Dec 27, 1933
ANNUAL SEVEN-DAY MINIMUM	15,500	Sep 6	20,000	Oct 1	8,270	Dec 25, 1933
MAXIMUM PEAK FLOW					446,000	Jul 10, 1993
MAXIMUM PEAK STAGE					27.58	Jul 10, 1993 a
ANNUAL RUNOFF (AC-FT)	39,100,000		51,540,000		48,150,000	
ANNUAL RUNOFF (CFSM)	0.454		0.597		0.558	
ANNUAL RUNOFF (INCHES)	6.16		8.12		7.59	
10 PERCENT EXCEEDS	116,000		156,000		134,000	
50 PERCENT EXCEEDS	36,900		51,300		51,000	
90 PERCENT EXCEEDS	21,800		23,400		23,000	

a From floodmark.



05474500 MISSISSIPPI RIVER AT KEOKUK, IA—Continued


MINNESOTA
93°52´30˝
43°22´30˝
94°52´30˝
41°52´30˝
EMMET
KOSSUTH
PALO ALTO
HANCOCK
HUMBOLDT
POCAHONTAS
WRIGHT
HAMILTON
WEBSTER
BOONE
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POLK
Iowa
0548065350
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05476750
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05481300
05481510
05481528
05481530
05481630
05481650
05481950
05482000
EXPLANATION
Hydrologic boundary
Streams
06485500
Transmitting gaging station and station number
06483440
Crest-stage gaging station and station number
0 5 10 15 20 MILES
0 5 10 15 20 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

05476750 Des Moines River at Humboldt, IA 264
05479000 East Fork Des Moines River at Dakota City, IA 266
05480500 Des Moines River at Fort Dodge, IA 268
05481000 Boone River near Webster City, IA 270
05481300 Des Moines River near Stratford, IA 272
05481630 Saylorville Lake near Saylorville, IA 274
05481650 Des Moines River near Saylorville, IA 276
05481950 Beaver Creek near Grimes, IA 283
05482000 Des Moines River at Second Avenue at Des Moines, IA 285

Crest Stage Gaging Stations

0548065350 Drainage Ditch 97 Tributary near Britt, IA 490
05480930 White Fox Creek at Clarion, IA 490
05480993 Brewers Creek Tributary near Webster City, IA 490
05481510 Bluff Creek at Pilot Mound, IA 491
05481528 Peas Creek Tributary at Boone, IA 491
05481530 Peas Creek at Boone, IA 491

05476750 DES MOINES RIVER AT HUMBOLDT, IA

LOCATION.--(revised) Lat 42°43'10", long 94°13'13", in SE¼ SW¼ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	97	81	87	56	332	835	549	2,340	2,260	1,110	275
2	98	97	87	92	57	e420	768	527	2,280	2,070	1,040	264
3	103	112	71	81	55	e479	736	488	2,230	2,090	976	256
4	100	120	71	94	54	538	e711	475	2,200	2,090	945	246
5	101	105	79	86	55	586	e676	467	2,210	1,980	1,010	244
6	101	118	102	77	53	789	e632	438	2,300	2,100	1,040	234
7	99	129	109	71	50	882	e586	400	2,380	2,790	962	219
8	101	91	114	67	53	842	e563	338	2,450	3,100	902	213
9	99	82	113	64	53	765	e519	397	2,510	2,990	853	197
10	97	104	52	64	52	e679	469	373	2,590	2,600	811	183
11	103	106	67	67	52	e668	434	355	2,710	2,360	765	182
12	100	105	78	70	51	547	408	362	3,130	2,280	726	175
13	97	92	77	70	52	601	403	352	3,540	2,520	693	168
14	101	99	80	70	52	668	388	337	3,430	2,820	656	236
15	94	105	81	69	50	660	376	326	3,130	3,020	638	346
16	90	96	79	78	53	742	367	322	2,940	3,060	619	2,190
17	93	103	78	80	54	684	350	304	2,760	2,830	603	3,370
18	96	105	76	106	58	685	353	288	2,600	2,460	609	4,260
19	97	98	75	74	61	665	364	273	2,480	2,180	630	4,900
20	102	96	75	63	62	688	363	301	2,370	2,010	595	4,900
21	92	87	76	67	60	664	404	423	2,330	1,930	562	4,080
22	92	88	76	90	65	640	434	1,340	2,280	1,920	495	3,280
23	93	94	77	67	66	593	401	3,710	2,310	1,920	460	3,090
24	98	58	75	63	68	537	416	4,620	2,370	1,820	436	3,380
25	99	67	75	63	73	527	539	5,140	2,520	1,710	416	3,500
26	95	84	76	61	80	598	697	4,490	2,660	1,590	406	3,310
27	97	90	84	63	107	675	735	3,550	2,710	1,480	370	2,910
28	102	86	92	54	174	839	701	2,890	2,720	1,400	320	2,500
29	92	73	93	54	249	1,150	649	2,520	2,640	1,330	297	2,280
30	102	101	87	48	---	1,050	585	2,520	2,460	1,240	284	2,100
31	99	---	85	51	---	938	---	2,480	---	1,170	280	---
TOTAL	3,032	2,888	2,541	2,211	2,025	21,131	15,862	41,355	77,580	67,120	20,509	53,488
MEAN	97.8	96.3	82.0	71.3	69.8	682	529	1,334	2,586	2,165	662	1,783
MAX	103	129	114	106	249	1,150	835	5,140	3,540	3,100	1,110	4,900
MIN	90	58	52	48	50	332	350	273	2,200	1,170	280	168
AC-FT	6,010	5,730	5,040	4,390	4,020	41,910	31,460	82,030	153,900	133,100	40,680	106,100
CFSM	0.04	0.04	0.04	0.03	0.03	0.30	0.23	0.59	1.15	0.96	0.29	0.79
IN.	0.05	0.05	0.04	0.04	0.03	0.35	0.26	0.68	1.28	1.11	0.34	0.88

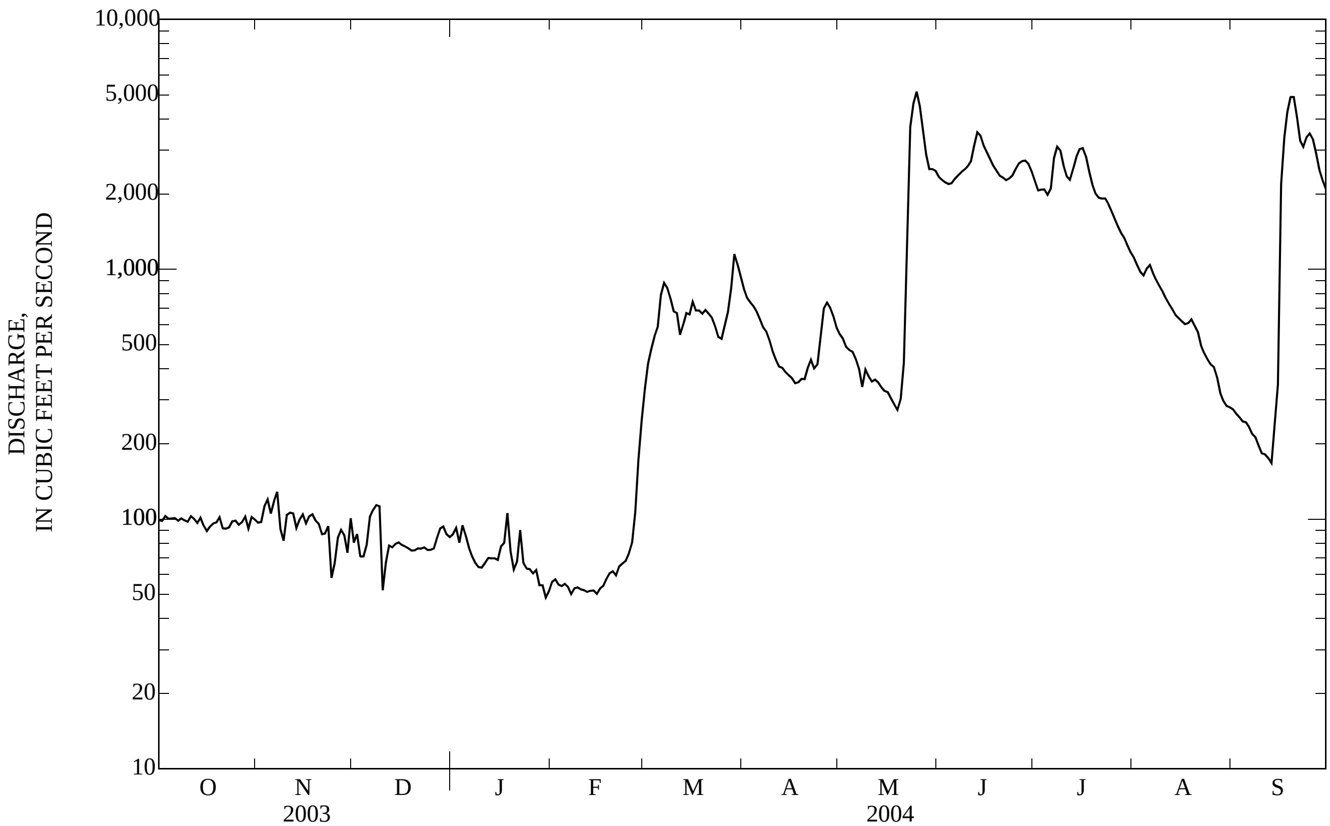
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	592	619	398	225	317	1,223	2,644	1,987	1,986	1,573	682	530
MAX	3,768	2,656	1,675	1,078	1,570	5,110	8,454	6,428	9,126	11,540	4,477	3,097
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1965 - 2004	
ANNUAL TOTAL	232,368		309,742			
ANNUAL MEAN	637		846		1,066	
HIGHEST ANNUAL MEAN					4,136	1993
LOWEST ANNUAL MEAN					74.3	1977
HIGHEST DAILY MEAN	4,420	Jun 27	5,140	May 25	17,800	Apr 14, 1969
LOWEST DAILY MEAN	52	Dec 10	48	Jan 30	13	Nov 12, 1976
ANNUAL SEVEN-DAY MINIMUM	73	Dec 10	52	Feb 9	13	Jan 12, 1977
MAXIMUM PEAK FLOW			5,310	May 24	19,000	Jul 13, 1993
MAXIMUM PEAK STAGE			8.36	May 24	15.40	Apr 14, 1969
INSTANTANEOUS LOW FLOW					13	Jan 12, 1977
ANNUAL RUNOFF (AC-FT)	460,900		614,400		772,400	
ANNUAL RUNOFF (CFSM)	0.282		0.375		0.473	
ANNUAL RUNOFF (INCHES)	3.83		5.11		6.42	
10 PERCENT EXCEEDS	2,060		2,600		2,840	
50 PERCENT EXCEEDS	136		354		432	
90 PERCENT EXCEEDS	80		67		68	

e Estimated



05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IA

LOCATION.--(revised) Lat 42°43'25", long 94°11'36", in NW$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	33	27	e29	e33	e192	398	392	3,060	546	333	93
2	26	33	35	e29	e34	e256	344	349	2,710	506	312	90
3	27	41	24	27	e33	e314	304	313	2,420	575	279	85
4	25	46	37	22	e33	e379	273	288	2,220	750	262	79
5	25	43	34	e23	e31	e441	248	267	2,040	754	300	77
6	26	40	34	e22	e31	e475	229	248	1,830	703	319	76
7	25	39	31	e18	e29	571	216	224	1,570	927	355	72
8	25	37	e30	e19	e32	424	205	217	1,340	1,250	352	69
9	25	33	30	e19	e33	445	185	217	1,180	1,430	316	68
10	25	39	18	e19	e33	434	167	208	1,080	1,450	279	69
11	28	36	e23	e19	e32	382	155	198	1,110	1,410	249	64
12	30	36	e22	e23	e31	251	150	198	1,460	1,490	224	60
13	28	36	25	e25	e32	310	145	236	1,880	1,340	206	61
14	30	36	29	e27	e31	275	138	271	2,150	1,250	191	76
15	30	36	30	e26	e31	243	131	299	2,650	1,190	181	126
16	30	32	29	e27	e31	213	128	315	3,220	1,060	168	503
17	30	39	26	35	e31	202	116	313	3,440	905	156	1,130
18	28	45	26	e45	e31	171	111	289	2,950	759	146	1,390
19	28	45	26	30	e30	167	127	260	2,490	654	136	1,760
20	31	43	24	25	e36	160	137	248	2,180	570	129	2,590
21	31	42	25	27	e32	150	159	341	2,090	561	123	3,620
22	32	39	27	27	e33	138	196	2,140	1,890	1,050	113	3,850
23	33	38	28	27	e35	136	194	4,930	1,580	1,210	118	3,490
24	33	29	24	27	e37	132	193	5,990	1,310	1,120	109	3,080
25	35	37	23	26	e39	136	e377	5,850	1,110	914	104	2,710
26	30	37	25	29	e45	167	e808	6,690	965	732	113	2,380
27	31	32	30	e25	e55	289	735	6,090	844	607	125	2,130
28	33	31	e32	e24	e85	472	658	5,030	751	516	116	1,940
29	34	29	e31	e23	e145	591	546	4,230	666	454	e108	1,790
30	32	37	30	e27	---	546	450	3,720	601	412	e100	1,680
31	33	---	30	e29	---	464	---	3,410	---	372	95	---
TOTAL	906	1,119	865	800	1,144	9,526	8,223	53,771	54,787	27,467	6,117	35,208
MEAN	29.2	37.3	27.9	25.8	39.4	307	274	1,735	1,826	886	197	1,174
MAX	35	46	37	45	145	591	808	6,690	3,440	1,490	355	3,850
MIN	25	29	18	18	29	132	111	198	601	372	95	60
AC-FT	1,800	2,220	1,720	1,590	2,270	18,890	16,310	106,700	108,700	54,480	12,130	69,840
CFSM	0.02	0.03	0.02	0.02	0.03	0.23	0.21	1.33	1.40	0.68	0.15	0.90
IN.	0.03	0.03	0.02	0.02	0.03	0.27	0.23	1.53	1.56	0.78	0.17	1.00

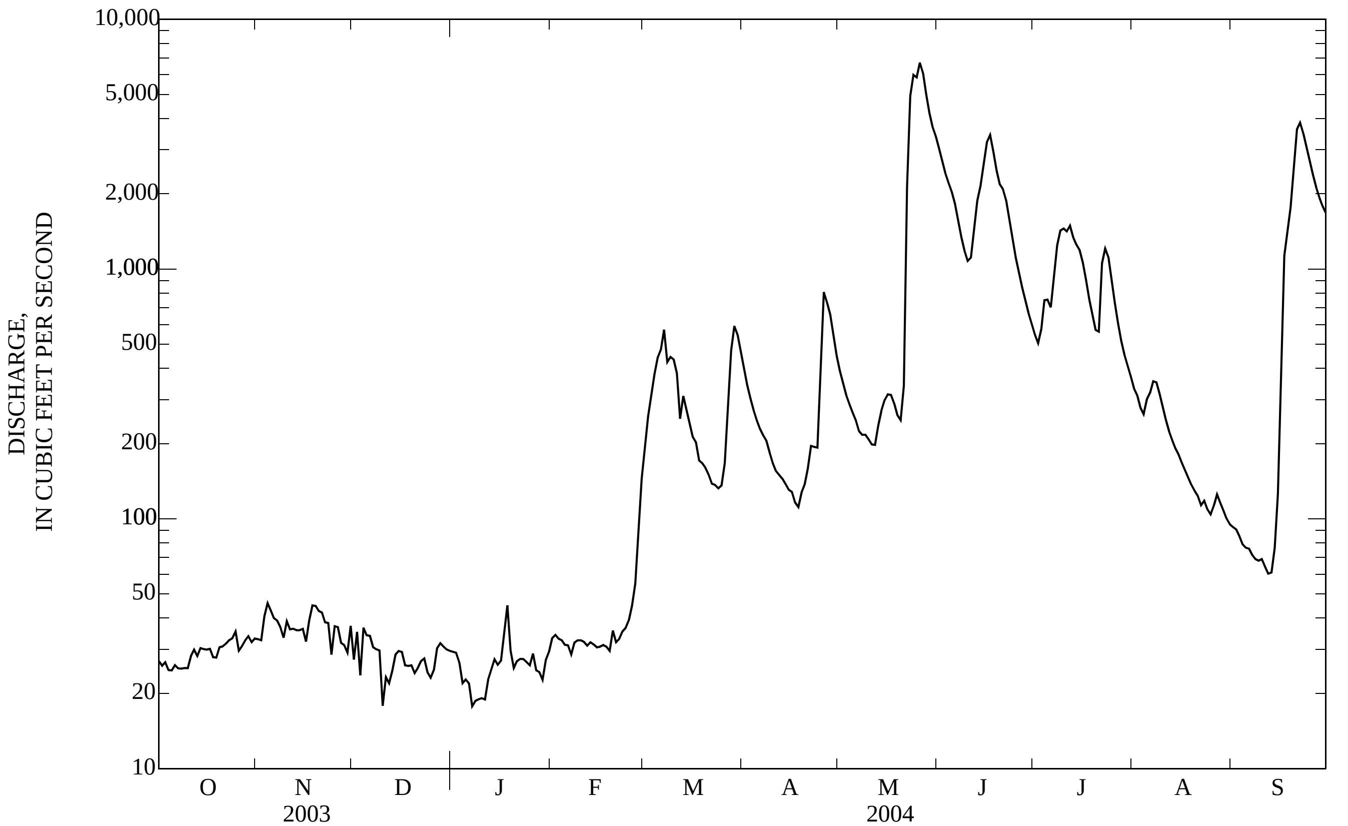
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	306	312	214	122	228	887	1,560	1,231	1,397	906	394	329
MAX	1,713	2,042	1,340	836	1,602	4,033	14,300	12,850	8,143	6,777	4,114	2,666
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	183,303		199,933			
ANNUAL MEAN	502		546		658	
HIGHEST ANNUAL MEAN					3,559	2001
LOWEST ANNUAL MEAN					29.7	1977
HIGHEST DAILY MEAN	4,400	Jul 10	6,690	May 26	21,000	May 4, 2001
LOWEST DAILY MEAN	18	Dec 10	18	Dec 10 a	4.8	Jan 11, 1977
ANNUAL SEVEN-DAY MINIMUM	25	Oct 4	20	Jan 5	4.8	Jan 8, 1977
MAXIMUM PEAK FLOW			6,790	May 26	18,800	Jun 21, 1954
MAXIMUM PEAK STAGE			16.64	May 26	24.02	Jun 21, 1954
INSTANTANEOUS LOW FLOW			9.7	Dec 10	4.8	Jan 11, 1977 b
ANNUAL RUNOFF (AC-FT)	363,600		396,600		476,600	
ANNUAL RUNOFF (CFSM)	0.384		0.418		0.503	
ANNUAL RUNOFF (INCHES)	5.21		5.69		6.83	
10 PERCENT EXCEEDS	1,830		1,770		1,730	
50 PERCENT EXCEEDS	76		132		210	
90 PERCENT EXCEEDS	29		26		24	

a Also Jan. 7.
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 NW$^1/_4$ SW$^1/_4$ sec.19, T.89 N., R.28 W., Webster County, Hydrologic Unit 07100004, on right bank 400 ft upstream from Soldier Creek, 1,800 ft downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft downstream from Lizard Creek, and at mile 314.6.

DRAINAGE AREA.--4,190 mi^2.

PERIOD OF RECORD.--April 1905 to July 1906 (no winter records), October 1913 to September 1927 (published as "at Kalo"), October 1946 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1924, 1925 (M).

GAGE.--Water-stage recorder. Datum of gage is 969.38 ft above NGVD of 1929. 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 data collection platform with satellite telemetry and City of Fort Dodge gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	147	165	142	e101	e763	1,480	1,300	6,790	3,210	1,670	489
2	139	148	143	e146	e97	e885	1,330	1,210	6,060	2,940	1,540	470
3	139	188	134	e146	e92	e953	1,230	1,120	5,440	3,090	1,490	451
4	139	227	156	e143	e99	1,060	1,160	1,060	4,890	3,350	1,440	438
5	136	196	154	e136	e102	e1,280	1,100	1,010	4,660	3,190	1,400	425
6	135	177	152	e140	e99	e1,690	1,040	974	4,470	3,070	1,500	433
7	134	196	189	e141	e91	e1,850	969	923	4,210	3,850	1,470	393
8	130	193	195	e139	e89	1,690	929	872	4,010	4,690	1,440	378
9	127	149	195	e133	e92	1,470	893	900	4,030	4,940	1,360	375
10	127	145	115	e125	e93	1,380	844	929	4,140	4,570	1,270	356
11	126	172	101	e116	e96	1,300	799	879	4,600	4,350	1,200	345
12	137	170	145	e118	e93	870	763	872	5,930	4,440	1,130	334
13	134	163	136	e122	e89	1,070	745	926	6,690	4,300	1,070	316
14	138	150	140	e119	e90	1,010	729	916	6,860	4,410	1,030	360
15	137	164	147	e111	e92	996	694	938	6,870	4,540	988	452
16	134	169	e127	e117	e93	1,010	683	949	8,610	4,460	944	1,650
17	142	182	e92	e114	e90	977	657	961	11,200	4,060	913	3,870
18	139	213	e132	e109	e95	960	635	947	8,980	3,510	889	5,640
19	136	184	e131	e104	e95	957	675	894	7,590	3,060	904	6,950
20	134	174	e136	e108	e130	976	705	895	6,490	2,750	889	7,830
21	135	170	133	e104	e126	951	789	975	5,860	2,660	840	8,120
22	129	164	136	e101	e158	909	919	3,760	5,330	2,890	792	7,620
23	131	168	e133	e104	199	877	900	12,500	4,760	3,200	725	6,910
24	133	122	e130	e100	201	860	879	14,400	4,410	3,050	693	6,620
25	143	129	e133	104	195	816	1,360	14,400	4,270	2,750	666	6,470
26	141	150	134	107	201	869	2,070	13,800	4,130	2,460	640	5,970
27	136	160	e147	e103	343	1,060	1,960	11,600	4,020	2,240	650	5,110
28	148	153	e146	e98	e563	1,560	1,780	9,240	3,950	2,050	584	4,360
29	152	131	e149	e96	e690	2,080	1,600	8,970	3,790	1,940	550	3,910
30	143	167	e146	e96	---	1,890	1,420	8,120	3,510	1,820	520	3,580
31	148	---	e143	e99	---	1,650	---	7,560	---	1,710	498	---
TOTAL	4,244	5,021	4,415	3,641	4,594	36,669	31,737	124,800	166,550	103,550	31,695	90,625
MEAN	137	167	142	117	158	1,183	1,058	4,026	5,552	3,340	1,022	3,021
MAX	152	227	195	146	690	2,080	2,070	14,400	11,200	4,940	1,670	8,120
MIN	126	122	92	96	89	763	635	872	3,510	1,710	498	316
AC-FT	8,420	9,960	8,760	7,220	9,110	72,730	62,950	247,500	330,400	205,400	62,870	179,800
CFSM	0.03	0.04	0.03	0.03	0.04	0.28	0.25	0.96	1.32	0.80	0.24	0.72
IN.	0.04	0.04	0.04	0.03	0.04	0.33	0.28	1.11	1.48	0.92	0.28	0.80

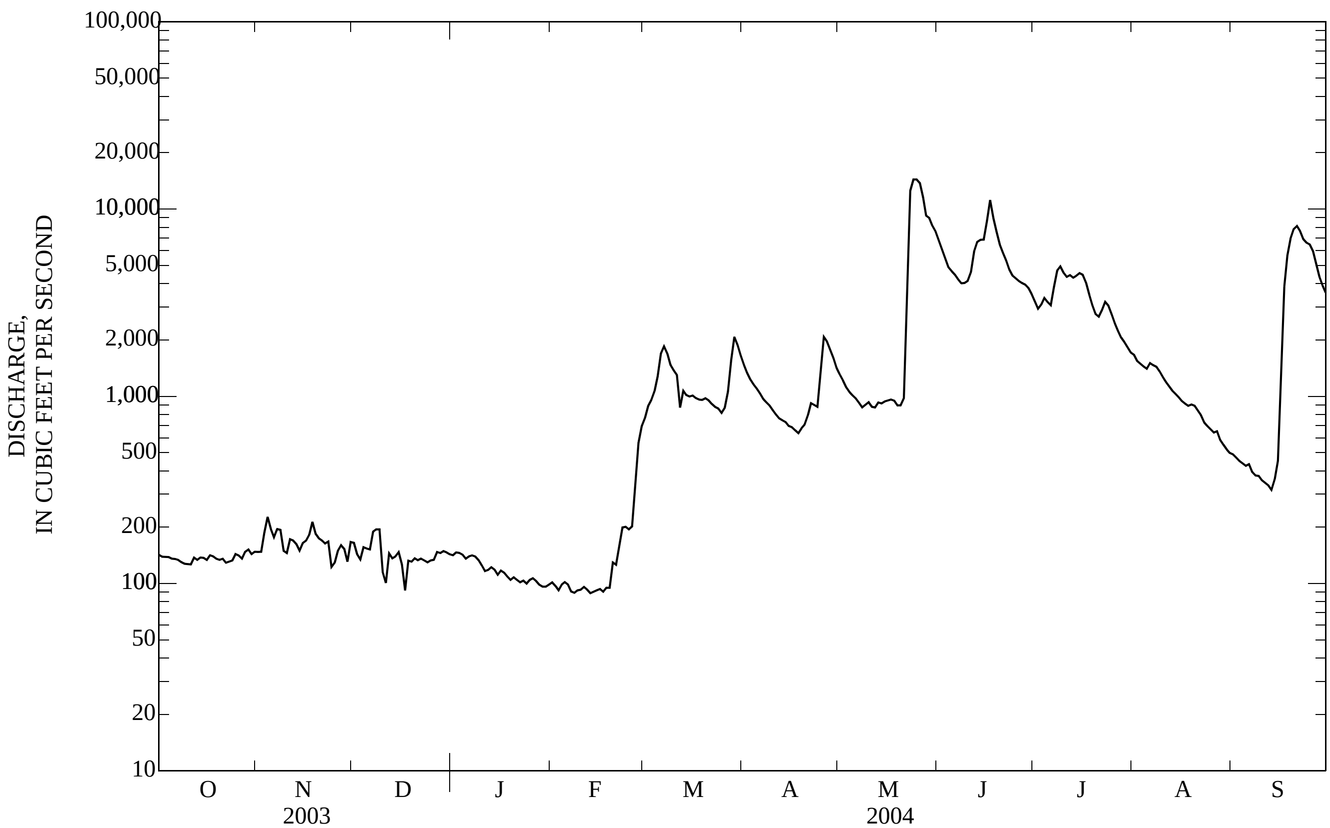
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	889	855	598	381	776	2,506	4,113	3,124	3,511	2,425	1,095	905
MAX	6,120	4,447	3,698	2,257	4,352	11,070	17,530	12,490	16,150	21,530	9,264	6,206
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	568,176		607,541			
ANNUAL MEAN	1,557		1,660		1,766	
HIGHEST ANNUAL MEAN					7,882	1993
LOWEST ANNUAL MEAN					143	1977
HIGHEST DAILY MEAN	12,800	Jun 27	14,400	May 24 a	35,100	Apr 8, 1965
LOWEST DAILY MEAN	92	Dec 17	89	Feb 8	14	Nov 3, 1955
ANNUAL SEVEN-DAY MINIMUM	127	Dec 16	92	Feb 8	23	Jan 13, 1977
MAXIMUM PEAK FLOW			15,000	May 24	35,600	Apr 8, 1965
MAXIMUM PEAK STAGE			10.05	May 24	19.62	Jun 23, 1947
INSTANTANEOUS LOW FLOW					14	Nov 3, 1955
ANNUAL RUNOFF (AC-FT)	1,127,000		1,205,000		1,279,000	
ANNUAL RUNOFF (CFSM)	0.372		0.396		0.421	
ANNUAL RUNOFF (INCHES)	5.04		5.39		5.73	
10 PERCENT EXCEEDS	5,110		4,710		4,730	
50 PERCENT EXCEEDS	277		737		650	
90 PERCENT EXCEEDS	136		113		106	

a Also May 25.
e Estimated.



05481000 BOONE RIVER NEAR WEBSTER CITY, IA

LOCATION.--(revised) Lat 42°25'57", long 93°48'20", in NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec.18, T.88 N., R.25 W., Hamilton County, Hydrologic Unit 07100005, on right bank 100 ft upstream from bridge on State Highway 17, 2.5 mi south of Webster City, and 3.2 mi downstream from Brewers Creek.

DRAINAGE AREA.--844 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1940 (M), WSP 1708: 1956.

GAGE.--Water-stage recorder. Datum of gage is 989.57 ft above NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	20	e25	e34	e24	e1,320	725	712	2,860	583	176	61
2	16	20	26	e36	e22	1,210	663	682	2,470	550	198	56
3	17	36	e32	e32	e15	851	503	527	2,070	678	197	50
4	17	60	e30	e25	e17	592	436	477	1,760	761	318	48
5	16	61	e32	e17	e19	906	387	441	1,570	754	206	47
6	15	47	e32	e20	e14	1,340	358	408	1,400	894	173	59
7	16	40	e25	e19	e11	1,210	332	363	e1,300	1,070	152	51
8	17	33	e28	e18	e9.8	899	302	343	e1,020	1,110	169	47
9	21	30	e27	e19	e12	613	273	345	1,050	916	202	46
10	20	31	e24	e23	e13	490	249	334	1,210	788	147	44
11	22	28	e22	e22	e18	382	228	311	1,250	1,040	125	41
12	21	25	e21	e24	e16	240	217	294	2,790	1,120	111	36
13	23	24	e22	e26	e15	217	206	541	2,480	1,050	100	33
14	29	23	e25	e24	e12	223	196	639	2,370	857	91	56
15	24	23	e26	e22	e10	213	189	712	2,270	683	84	51
16	22	23	e19	e34	e10	177	186	693	2,110	568	81	51
17	22	29	e15	e24	e11	161	180	634	3,090	468	130	99
18	20	38	e19	e15	e13	163	169	605	3,500	391	120	205
19	19	44	e16	e12	e15	167	175	565	3,170	338	92	131
20	20	40	e20	e16	e43	167	195	532	2,530	300	81	99
21	21	34	e26	e14	e41	153	238	567	1,960	633	73	85
22	21	36	e27	e10	e86	146	294	3,130	1,850	685	66	77
23	19	37	e23	e22	e190	138	325	6,980	1,650	675	62	67
24	19	e31	e17	e16	e185	179	331	10,300	1,400	723	62	62
25	19	e35	e19	e22	e165	178	505	12,700	1,240	547	67	55
26	19	e33	e24	e24	e157	209	1,320	9,800	1,070	411	90	49
27	18	e35	e32	e18	e230	706	1,580	6,480	939	334	204	48
28	21	e26	e31	e15	e510	1,390	1,310	4,450	834	284	111	50
29	22	e25	e35	e14	e811	1,540	993	4,430	726	250	90	48
30	23	26	e32	e15	---	1,190	795	3,700	647	216	78	46
31	21	---	e29	e19	---	858	---	3,210	---	193	65	---
TOTAL	616	993	781	651	2,694.8	18,228	13,860	75,905	54,586	19,870	3,921	1,898
MEAN	19.9	33.1	25.2	21.0	92.9	588	462	2,449	1,820	641	126	63.3
MAX	29	61	35	36	811	1,540	1,580	12,700	3,500	1,120	318	205
MIN	15	20	15	10	9.8	138	169	294	647	193	62	33
MED	20	32	25	20	17	382	313	634	1,700	675	111	51
AC-FT	1,220	1,970	1,550	1,290	5,350	36,160	27,490	150,600	108,300	39,410	7,780	3,760
CFSM	0.02	0.04	0.03	0.02	0.11	0.70	0.55	2.90	2.16	0.76	0.15	0.07
IN.	0.03	0.04	0.03	0.03	0.12	0.80	0.61	3.35	2.41	0.88	0.17	0.08

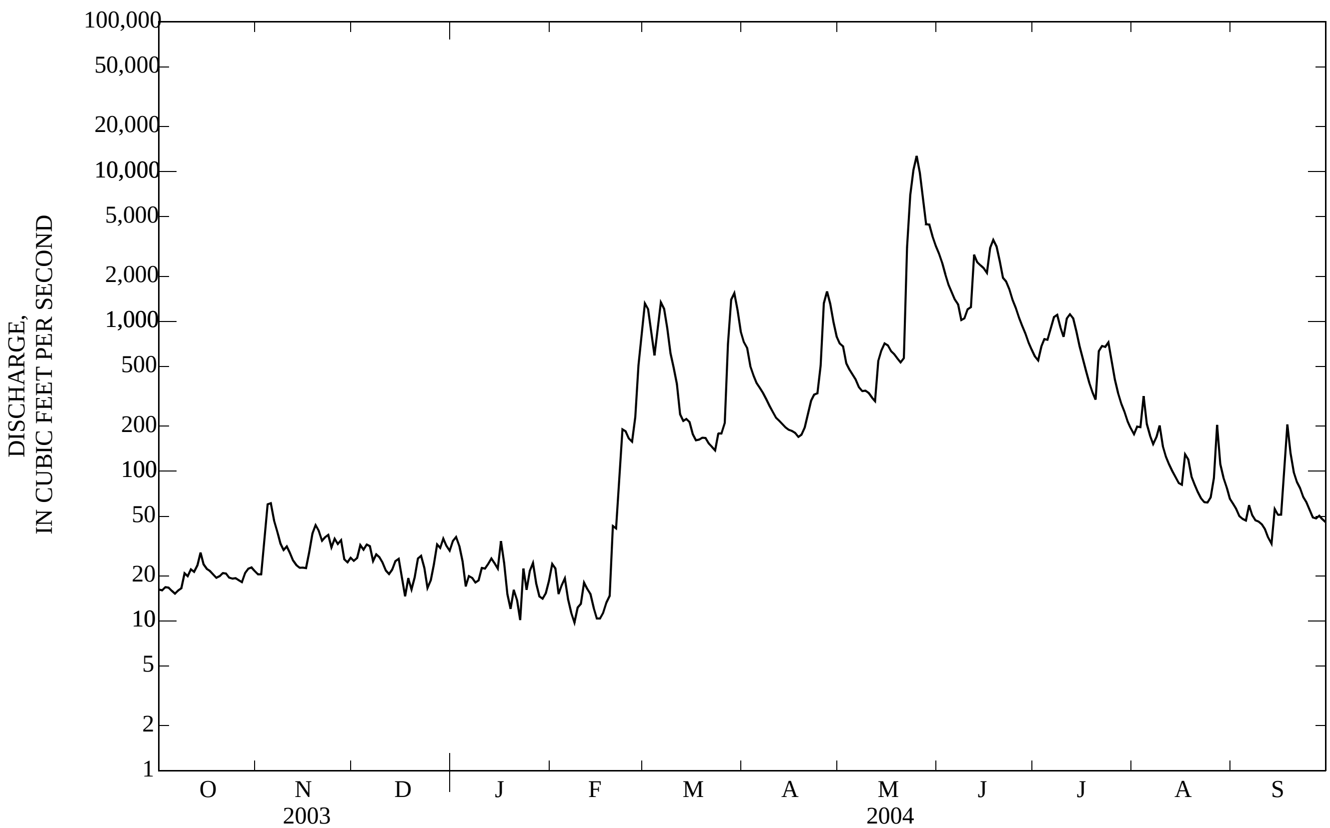
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	239	215	144	96.4	243	788	935	888	1,085	598	258	204
MAX	1,771	1,395	1,181	568	1,847	2,826	4,307	4,315	4,239	4,715	2,942	2,501
(WY)	(1987)	(1993)	(1983)	(1983)	(1984)	(1973)	(1965)	(1991)	(1984)	(1993)	(1993)	(1965)
MIN	6.66	11.0	4.62	0.32	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	185,703		194,003.8			
ANNUAL MEAN	509		530		475	
HIGHEST ANNUAL MEAN					1,861	1993
LOWEST ANNUAL MEAN					36.1	1956
HIGHEST DAILY MEAN	7,750	Jul 10	12,700	May 25	19,500	Jun 22, 1954
LOWEST DAILY MEAN	15	Oct 6	9.8	Feb 8 a	0.00	Feb 7, 1977
ANNUAL SEVEN-DAY MINIMUM	16	Oct 1	12	Feb 13	0.01	Feb 1, 1977
MAXIMUM PEAK FLOW			13,400	May 25	20,300	Jun 22, 1954
MAXIMUM PEAK STAGE			15.55	May 25	18.55	Jun 22, 1954
INSTANTANEOUS LOW FLOW					0.00	Feb 7, 1977
ANNUAL RUNOFF (AC-FT)	368,300		384,800		343,900	
ANNUAL RUNOFF (CFSM)	0.603		0.628		0.562	
ANNUAL RUNOFF (INCHES)	8.19		8.55		7.64	
10 PERCENT EXCEEDS	1,430		1,300		1,220	
50 PERCENT EXCEEDS	71		90		139	
90 PERCENT EXCEEDS	21		18		17	

a Ice affected.
e Estimated.



05481300 DES MOINES RIVER NEAR STRATFORD, IA

LOCATION.--(revised) Lat 42°15'07", long 93°59'48", in NW$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929.

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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/ WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	178	e179	e161	e113	e2,360	2,830	2,310	11,700	3,990	1,900	554
2	170	180	e174	e160	e109	e2,320	2,450	2,060	10,000	3,680	1,750	537
3	166	210	e139	e162	e106	e2,180	2,160	1,890	8,680	3,760	1,660	513
4	164	301	e165	e164	e109	2,010	1,960	1,720	7,680	4,620	2,060	492
5	167	329	e163	e157	e110	2,410	1,810	1,600	7,000	4,410	1,760	482
6	163	274	e157	e154	e109	e3,250	1,680	1,510	6,560	4,230	1,630	510
7	161	241	e194	e152	e104	e3,440	1,560	1,400	6,090	4,440	1,590	482
8	161	235	e199	e152	e103	3,430	1,450	1,300	5,630	5,390	1,500	437
9	162	234	e199	e149	e102	2,660	1,350	1,260	5,280	5,760	1,550	422
10	162	214	e141	e141	e108	2,280	1,270	1,260	6,040	5,520	1,420	417
11	167	197	e130	e133	e112	2,090	1,180	1,250	5,710	5,290	1,280	399
12	166	207	e150	e135	e106	1,710	1,110	1,160	8,780	6,160	1,190	385
13	172	207	e146	e138	e105	1,370	1,060	1,350	9,420	5,790	1,110	372
14	185	203	e150	e140	e106	1,510	1,020	1,670	9,370	5,480	1,040	371
15	187	192	e154	e134	e109	1,450	979	1,620	8,970	5,290	987	437
16	177	193	e131	e138	e112	1,410	951	1,680	9,680	5,170	938	484
17	174	217	e96	e134	e109	1,400	962	1,630	15,700	4,830	946	2,190
18	174	274	e149	e131	e115	1,370	915	1,660	15,500	4,270	961	4,410
19	173	292	e145	e125	e118	1,390	864	1,560	12,500	3,710	915	6,020
20	169	252	e150	e127	e147	1,380	910	1,470	10,100	3,300	896	7,200
21	162	228	e147	e126	e147	1,360	1,020	1,430	8,580	3,230	853	7,980
22	164	217	e153	e124	e173	1,300	1,100	3,810	7,590	3,570	808	7,960
23	164	215	e150	e127	e262	1,260	1,240	15,400	6,880	3,770	751	7,210
24	162	188	e147	e119	e279	1,260	1,230	24,500	6,190	3,870	705	6,700
25	161	e194	e150	e121	e266	1,230	1,550	27,900	5,790	3,550	689	6,500
26	166	206	e152	e127	e342	1,190	2,840	26,800	5,440	3,060	680	6,180
27	175	209	e159	e118	e562	1,500	4,030	23,400	5,170	2,700	883	5,560
28	172	e172	e159	e115	e1,190	3,000	3,700	18,700	4,910	2,420	832	4,870
29	178	e172	e167	e111	e1,740	4,130	3,160	16,600	4,650	2,220	690	4,280
30	183	e196	e166	e109	---	4,130	2,680	16,000	4,350	2,040	623	3,910
31	176	---	e162	e112	---	3,390	---	13,500	---	1,880	584	---
TOTAL	5,256	6,627	4,823	4,196	7,173	65,170	51,021	219,400	239,940	127,400	35,181	88,264
MEAN	170	221	156	135	247	2,102	1,701	7,077	7,998	4,110	1,135	2,942
MAX	187	329	199	164	1,740	4,130	4,030	27,900	15,700	6,160	2,060	7,980
MIN	161	172	96	109	102	1,190	864	1,160	4,350	1,880	584	371
AC-FT	10,430	13,140	9,570	8,320	14,230	129,300	101,200	435,200	475,900	252,700	69,780	175,100
CFSM	0.03	0.04	0.03	0.02	0.05	0.39	0.31	1.30	1.47	0.75	0.21	0.54
IN.	0.04	0.05	0.03	0.03	0.05	0.44	0.35	1.50	1.64	0.87	0.24	0.60

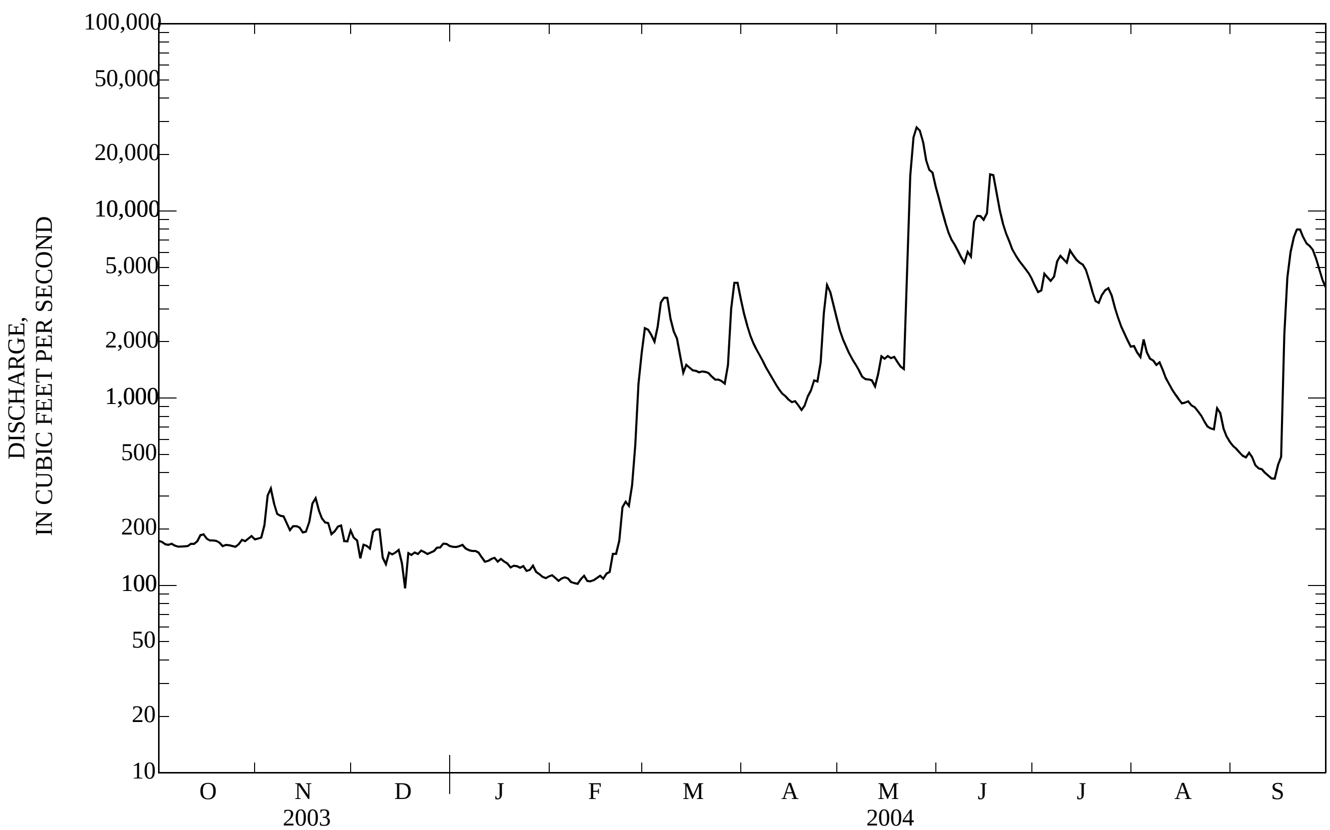
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1,570	1,613	1,184	718	1,202	4,096	6,403	5,787	6,093	4,367	1,938	1,312
MAX	8,763	5,745	5,267	3,267	7,061	13,920	22,020	17,120	21,310	27,250	13,500	7,546
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1968 - 2004	
ANNUAL TOTAL	821,415		854,451			
ANNUAL MEAN	2,250		2,335		3,028	
HIGHEST ANNUAL MEAN					10,400	1993
LOWEST ANNUAL MEAN					254	1977
HIGHEST DAILY MEAN	20,900	Jul 10	27,900	May 25	41,400	Apr 2, 1993
LOWEST DAILY MEAN	96	Dec 17	96	Dec 17 a	13	Jan 23, 1977 b
ANNUAL SEVEN-DAY MINIMUM	137	Dec 11	106	Feb 7	14	Jan 22, 1977
MAXIMUM PEAK FLOW			28,600	May 25	423,000	Apr 2, 1993
MAXIMUM PEAK STAGE			21.21	May 25	25.68	Apr 2, 1993
INSTANTANEOUS LOW FLOW					13	Jan 23, 1977
ANNUAL RUNOFF (AC-FT)	1,629,000		1,695,000		2,194,000	
ANNUAL RUNOFF (CFSM)	0.413		0.428		0.555	
ANNUAL RUNOFF (INCHES)	5.60		5.83		7.55	
10 PERCENT EXCEEDS	6,830		6,110		8,290	
50 PERCENT EXCEEDS	457		942		1,280	
90 PERCENT EXCEEDS	164		132		185	

a Ice affected.
b Also Jan. 24, 1977.
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 NGVD 0f 1929 (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.

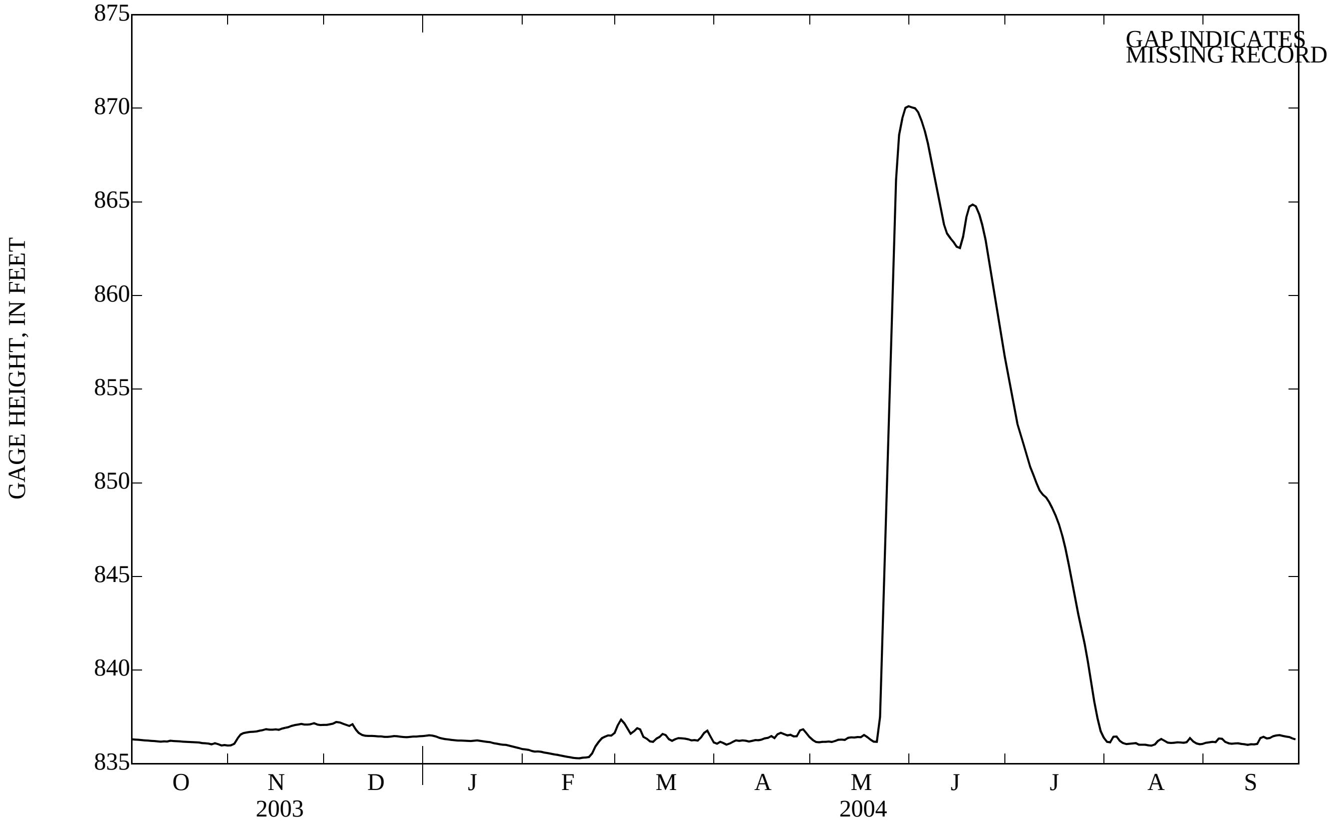
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 892.03 ft July 13, 1993; minimum elevation, 832.61 ft Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 870.16 ft on May 31; minimum elevation, 835.28 ft on Feb. 18, 19.

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	836.31	835.95	837.07	836.47	835.76	836.68	836.06	836.36	870.09	856.48	836.32	836.06
2	836.29	835.98	837.06	836.49	835.76	837.17	836.06	836.22	870.03	855.55	836.10	836.12
3	836.27	836.07	837.11	836.52	835.72	837.41	836.19	836.13	870.00	854.69	836.14	836.14
4	836.27	836.41	837.14	836.48	835.66	837.08	836.06	836.14	869.71	853.78	836.53	836.16
5	836.25	836.59	837.25	836.44	835.63	836.80	835.99	836.16	869.24	852.95	836.41	836.14
6	836.23	836.64	837.18	836.36	835.65	836.52	836.09	836.16	868.68	852.45	836.14	836.40
7	836.23	836.67	837.11	836.33	835.62	836.78	836.18	836.18	867.94	851.88	836.08	836.29
8	836.20	836.70	837.05	836.30	835.58	836.92	836.26	836.14	867.13	851.27	836.03	836.10
9	836.20	836.70	836.99	836.28	835.55	836.78	836.19	836.22	866.27	850.72	836.06	836.08
10	836.18	836.72	837.14	836.26	835.52	836.30	836.25	836.29	865.34	850.34	836.08	836.05
11	836.16	836.77	836.72	836.24	835.48	836.34	836.21	836.28	864.48	849.86	836.09	836.08
12	836.19	836.79	836.60	836.22	835.46	836.13	836.17	836.25	863.60	849.48	835.98	836.08
13	836.17	836.85	836.50	836.23	835.42	836.17	836.22	836.41	863.20	849.31	836.01	836.04
14	836.23	836.80	836.48	836.22	835.39	836.37	836.26	836.39	863.02	849.18	836.00	836.03
15	836.19	836.81	836.47	836.21	835.36	836.42	836.24	836.39	862.80	848.87	835.96	835.99
16	836.20	836.83	836.48	836.20	835.33	836.63	836.29	836.42	862.54	848.52	835.95	836.04
17	836.18	836.79	836.46	836.22	835.30	836.48	836.37	836.40	862.53	848.14	836.04	836.02
18	836.16	836.89	836.45	836.24	835.28	836.24	836.37	836.57	863.34	847.66	836.27	836.06
19	836.16	836.92	836.45	836.20	835.28	836.20	836.50	836.36	864.43	847.05	836.33	836.45
20	836.15	836.95	836.42	836.18	835.32	836.33	836.31	836.25	864.87	846.32	836.18	836.41
21	836.14	837.04	836.43	836.15	835.32	836.37	836.65	836.14	864.86	845.45	836.09	836.32
22	836.13	837.06	836.45	836.14	835.36	836.34	836.63	836.16	864.73	844.52	836.10	836.38
23	836.12	837.09	836.47	836.08	835.60	836.33	836.55	837.93	864.24	843.65	836.11	836.49
24	836.08	837.12	836.45	836.06	836.01	836.29	836.49	842.33	863.60	842.78	836.14	836.50
25	836.08	837.07	836.43	836.02	836.20	836.22	836.55	848.68	862.78	842.02	836.12	836.52
26	836.06	837.09	836.41	836.00	836.40	836.26	836.42	856.02	861.86	841.20	836.10	836.46
27	836.01	837.10	836.41	836.00	836.44	836.22	836.47	862.70	860.86	840.21	836.16	836.44
28	836.11	837.17	836.43	835.94	836.52	836.45	836.86	867.35	859.85	839.08	836.42	836.41
29	836.00	837.05	836.45	835.90	836.48	836.70	836.82	868.99	858.71	838.07	836.10	836.31
30	835.95	837.06	836.44	835.86	---	836.78	836.56	869.60	857.52	837.23	836.06	836.28
31	836.00	---	836.46	835.81	---	836.32	---	870.16	---	836.58	836.02	---
MEAN	836.16	836.79	836.68	836.20	835.67	836.52	836.34	842.64	864.61	847.27	836.13	836.23
MAX	836.31	837.17	837.25	836.52	836.52	837.41	836.86	870.16	870.09	856.48	836.53	836.52
MIN	835.95	835.95	836.41	835.81	835.28	836.13	835.99	836.13	857.52	836.58	835.95	835.99

05481630 SAYLORVILLE LAKE NEAR SAYLORVILLE, IA—Continued



05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°40'50", long 93°40'05", SW$\frac{1}{4}$ NE$\frac{1}{4}$ NE$\frac{1}{4}$ 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 of 1929 (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 data collection platform with satellite telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	201	199	264	e287	2,750	3,690	3,280	14,700	9,150	2,820	675
2	198	201	200	265	e269	3,680	2,970	2,870	11,900	8,600	2,370	669
3	199	247	202	e276	257	4,470	2,690	2,550	11,300	8,670	2,170	655
4	200	295	202	e264	230	4,540	2,510	2,290	11,200	8,520	2,660	654
5	202	206	201	e268	209	4,310	2,140	2,180	11,100	7,950	3,140	669
6	203	201	e225	e285	208	4,300	1,890	2,080	11,200	7,490	2,560	999
7	204	199	e362	e272	207	4,940	1,870	2,040	11,300	7,390	2,080	1,200
8	204	197	e387	e245	207	5,370	1,850	1,980	11,200	7,740	1,920	882
9	204	198	e438	224	208	5,040	1,720	1,940	11,100	8,130	1,820	640
10	206	198	e482	219	208	3,800	1,640	1,930	11,200	8,150	1,810	562
11	204	199	e414	222	208	3,060	1,640	1,940	11,300	8,300	1,800	476
12	203	196	e405	234	208	2,360	1,510	1,940	11,300	7,760	1,610	472
13	204	193	e350	243	208	1,850	1,410	1,930	11,400	7,250	1,480	466
14	204	195	231	246	207	1,680	1,410	2,040	11,400	7,200	1,470	460
15	202	196	236	244	208	1,670	1,410	2,150	11,400	7,160	1,340	453
16	201	196	e240	245	207	2,030	1,410	2,240	11,400	7,100	1,200	440
17	203	196	e230	e247	206	2,290	1,420	2,320	11,300	7,070	1,150	431
18	207	197	e235	e245	207	2,030	1,430	2,650	11,400	7,020	1,350	1,430
19	207	195	e232	e239	208	1,820	1,410	2,700	11,500	6,970	1,690	3,970
20	208	197	228	e228	231	1,780	1,360	2,530	11,500	6,910	1,570	5,690
21	205	196	206	e230	236	1,770	1,470	2,250	11,500	6,850	1,280	6,540
22	205	196	204	e234	286	1,770	1,650	e2,430	11,600	6,770	1,160	6,790
23	204	197	e213	e230	284	1,760	1,770	e2,490	11,600	6,670	1,140	6,830
24	204	193	e239	e235	453	1,760	1,790	e3,190	11,500	6,590	1,150	6,420
25	204	196	e253	e242	621	1,680	2,060	e3,180	11,300	6,510	1,130	5,970
26	202	197	e259	e240	790	1,630	2,250	e2,050	11,200	6,420	1,130	5,830
27	207	198	e264	e238	1,200	1,630	2,620	e2,780	11,100	6,330	1,200	5,500
28	216	197	268	e255	1,610	2,140	3,630	8,300	11,000	5,890	1,820	5,010
29	219	197	263	e256	2,050	3,330	4,140	14,200	10,800	5,180	1,680	4,390
30	204	199	265	e256	---	4,890	3,820	14,800	10,200	4,400	1,170	3,810
31	203	---	264	e264	---	4,770	---	15,300	---	3,370	916	---
TOTAL	6,334	6,069	8,397	7,655	11,918	90,900	62,580	116,550	341,900	219,510	51,786	78,983
MEAN	204	202	271	247	411	2,932	2,086	3,760	11,400	7,081	1,671	2,633
MAX	219	295	482	285	2,050	5,370	4,140	15,300	14,700	9,150	3,140	6,830
MIN	198	193	199	219	206	1,630	1,360	1,930	10,200	3,370	916	431
AC-FT	12,560	12,040	16,660	15,180	23,640	180,300	124,100	231,200	678,200	435,400	102,700	156,700
CFSM	0.03	0.03	0.05	0.04	0.07	0.50	0.36	0.64	1.95	1.21	0.29	0.45
IN.	0.04	0.04	0.05	0.05	0.08	0.58	0.40	0.74	2.18	1.40	0.33	0.50

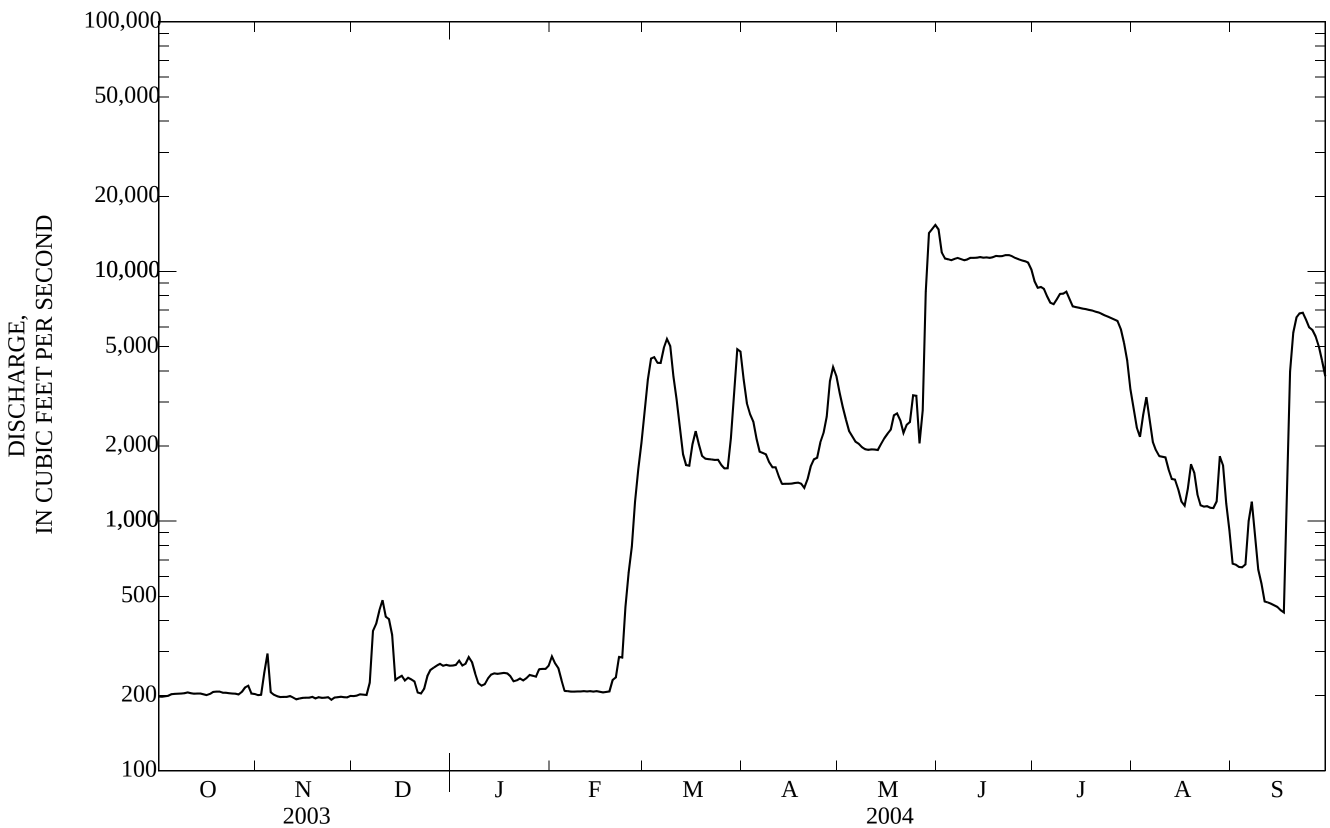
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1,685	1,914	1,586	879	1,437	4,130	6,597	6,527	7,267	6,499	2,978	1,957
MAX	7,161	6,210	5,345	3,605	6,591	13,800	17,790	18,170	19,540	32,820	15,440	13,450
(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	199
(WY)	(1990)	(1990)	(1990)	(1991)	(2000)	(1981)	(2000)	(2000)	(1988)	(1988)	(1989)	(2003)

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1978 - 2004 a	
ANNUAL TOTAL	865,768		1,002,582			
ANNUAL MEAN	2,372		2,739		3,629	
HIGHEST ANNUAL MEAN					11,320	1993
LOWEST ANNUAL MEAN					487	1989
HIGHEST DAILY MEAN	12,800	Jun 30	15,300	May 31	44,300	Jul 21, 1993
LOWEST DAILY MEAN	193	Nov 13	193	Nov 13 b	144	Nov 29, 1977
ANNUAL SEVEN-DAY MINIMUM	195	Nov 13	195	Nov 13	165	Mar 5, 1978
MAXIMUM PEAK FLOW			15,500	May 31	45,700	Jul 21, 1993
MAXIMUM PEAK STAGE			13.98	May 31	24.22	Jul 21, 1993
ANNUAL RUNOFF (AC-FT)	1,717,000		1,989,000		2,629,000	
ANNUAL RUNOFF (CFSM)	0.406		0.469		0.621	
ANNUAL RUNOFF (INCHES)	5.51		6.39		8.44	
10 PERCENT EXCEEDS	8,160		8,540		10,900	
50 PERCENT EXCEEDS	390		1,410		1,770	
90 PERCENT EXCEEDS	198		202		228	

a Post regulation
b Also Nov. 24.
e Estimated.



05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD: October 1961 to September 30, 2004 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1967 to September 30, 2004 (discontinued).
WATER TEMPERATURES: October 1961 to September 30, 2004 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: October 1961 to September 30, 2004 (discontinued).

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, 831 microsiemens Feb. 21; minimum daily, 414 microsiemens May 29.
WATER TEMPERATURES: Maximum daily, 28°C Aug. 3; minimum daily, 0.0°C many days during water period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 149 mg/L May 23; minimum daily mean, 9.0 mg/L Nov.18, Dec. 20, 31, Jan 1, July 3.
SEDIMENT LOADS: Maximum daily, 2,150 tons May 29; minimum daily, 4.6 tons Nov. 18.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Temperature, water, deg C (00010)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
OCT						
15...	1105	203	14.5	99	25	14
NOV						
18...	1500	200	--	93	10	5.4
DEC						
16...	1445	240	--	95	21	14
MAR						
23...	1255	1,760	--	97	24	114
MAY						
07...	1350	2,040	--	98	28	154
JUN						
08...	0830	11,200	--	90	17	514
JUL						
21...	1325	6,870	--	75	71	1,320
SEP						
17...	1130	433	--	97	21	25

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time
OCT	
15...	1105
NOV	
18...	1500
DEC	
16...	1445
MAR	
23...	1255
MAY	
07...	1350
JUN	
08...	0830
JUL	
21...	1325
SEP	
17...	1130

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	606	---	643	680	---	746	617	620	471	---	---	617
2	620	---	648	674	---	706	654	614	471	---	618	627
3	---	---	---	646	---	691	646	618	467	---	644	615
4	---	510	---	---	---	654	617	627	467	607	---	---
5	612	---	---	---	---	571	635	638	472	602	---	---
6	621	638	---	---	---	599	665	646	485	586	667	607
7	618	---	638	---	---	545	643	---	522	604	629	619
8	641	---	640	658	---	534	642	---	546	619	---	617
9	---	---	648	---	689	561	668	---	524	621	---	627
10	---	635	---	683	---	547	627	---	548	636	640	613
11	639	625	---	664	---	553	618	---	594	---	662	---
12	---	633	---	667	---	503	640	---	576	---	673	---
13	624	630	---	675	---	---	636	---	552	654	672	608
14	637	629	---	675	---	---	643	---	574	646	636	610
15	616	632	---	665	---	---	626	---	592	640	---	574
16	640	---	641	679	---	---	632	---	589	634	656	612
17	621	---	647	692	---	533	614	---	614	619	649	611
18	---	626	---	---	713	510	629	---	619	---	651	---
19	---	---	697	---	698	---	629	---	622	604	662	---
20	614	629	657	---	748	505	606	---	619	617	637	---
21	629	628	652	692	831	517	---	---	613	618	650	536
22	652	634	661	---	---	---	613	---	591	662	651	539
23	629	---	641	724	768	524	616	573	581	629	652	225
24	---	625	---	668	804	---	614	587	594	---	634	504
25	---	650	631	---	768	569	618	552	584	---	641	515
26	---	---	684	---	774	554	608	527	594	644	637	---
27	---	---	---	---	659	578	608	437	592	606	634	---
28	620	641	---	---	774	569	606	436	611	604	631	505
29	640	654	---	---	722	581	601	414	608	667	---	505
30	636	632	675	---	---	590	612	434	---	684	629	522
31	629	---	671	---	---	---	---	447	---	---	627	---

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	---	---	0.0	---	9.5	10.0	12.0	18.0	---	---	23.0
2	12.0	---	---	4.0	---	3.0	11.0	13.0	17.0	---	23.0	24.0
3	---	---	---	0.0	---	3.0	9.0	11.5	18.0	---	28.0	24.0
4	---	---	---	---	---	3.0	9.0	13.5	19.0	22.0	---	---
5	19.0	---	---	---	---	2.0	10.0	12.0	18.0	21.5	---	---
6	17.0	---	---	---	---	3.0	14.0	17.0	20.0	22.0	23.0	19.5
7	17.0	---	---	---	---	3.0	11.0	---	20.0	20.0	23.0	19.5
8	16.0	---	---	0.0	---	2.5	14.0	---	19.5	20.5	---	19.0
9	---	---	---	---	0.0	4.0	11.0	---	20.0	21.5	---	23.0
10	---	---	---	0.0	---	5.0	11.0	---	19.0	22.0	20.0	25.0
11	18.5	---	---	3.0	---	0.0	10.0	---	21.5	---	20.5	---
12	---	---	---	0.0	---	1.0	10.5	---	20.5	---	20.0	---
13	15.5	---	---	0.0	---	---	9.0	---	21.0	22.5	19.5	22.0
14	15.0	---	---	0.0	---	---	10.0	---	23.0	23.0	19.0	20.0
15	14.5	---	---	1.5	---	---	11.0	---	21.0	24.5	---	21.0
16	13.5	---	1.0	0.0	---	---	13.0	---	21.0	25.0	20.0	21.0
17	13.0	---	---	0.0	---	2.0	18.0	---	22.5	23.5	23.0	22.0
18	---	9.0	---	---	1.5	3.0	15.5	---	21.0	---	20.5	---
19	---	---	---	---	2.5	---	12.0	---	20.5	23.0	19.0	---
20	16.5	---	---	---	1.0	5.0	14.0	---	20.0	25.0	18.0	---
21	14.5	---	---	3.0	2.0	5.0	---	---	20.0	25.0	19.0	---
22	14.0	---	---	---	---	---	12.0	---	22.0	25.0	24.0	---
23	13.5	---	0.5	0.0	0.5	6.0	12.0	18.0	20.5	25.0	21.0	---
24	---	---	---	0.0	0.0	---	12.0	15.5	20.0	---	22.0	---
25	---	---	0.0	---	0.5	8.0	10.5	17.0	20.5	---	22.5	---
26	---	---	0.0	---	0.0	10.0	14.0	15.0	21.0	23.0	23.0	---
27	---	---	---	---	3.5	8.0	10.0	17.0	21.5	23.5	23.0	---
28	---	---	---	---	4.0	8.0	14.0	17.0	21.0	23.0	20.5	---
29	---	---	---	---	6.0	7.5	14.0	17.0	19.0	23.0	---	---
30	---	---	1.0	---	---	7.0	12.0	18.0	---	25.0	25.0	---
31	---	---	2.0	---	---	---	---	18.0	---	---	22.0	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	9.8	33	18	46	24	9	6.6	44	34	24	179
2	17	9.2	34	18	20	11	11	8.1	31	23	33	329
3	17	9.3	74	60	13	7.0	20	15	34	24	32	388
4	18	9.5	123	108	14	7.5	31	22	41	25	29	351
5	18	9.9	36	20	15	8.1	23	17	45	25	39	448
6	20	11	72	39	16	9.7	31	24	45	26	30	344
7	25	14	52	28	17	17	31	23	46	26	37	505
8	23	13	42	22	16	17	21	14	46	26	40	574
9	24	13	32	17	17	20	18	11	45	25	35	472
10	25	14	27	14	17	22	20	12	35	20	40	402
11	26	14	19	10	17	19	10	6.2	38	21	45	371
12	27	15	83	44	18	20	28	17	38	21	56	353
13	38	21	61	32	18	17	11	6.9	38	21	56	281
14	41	23	18	9.6	17	11	51	34	38	21	56	251
15	28	15	15	7.8	17	11	46	30	38	21	55	247
16	22	12	13	6.9	16	10	38	25	38	21	49	268
17	19	10	11	5.6	21	13	44	29	46	26	37	228
18	21	12	9	4.6	21	13	44	29	54	30	36	200
19	24	13	10	5.0	16	10	38	25	44	25	34	169
20	25	14	11	5.8	9	5.8	33	20	45	28	34	163
21	22	12	11	6.1	13	7.2	34	21	30	19	35	166
22	19	10	14	7.3	12	6.7	23	15	49	38	30	144
23	20	11	14	7.4	13	7.5	17	11	36	28	26	122
24	19	11	15	7.7	14	9.0	26	16	19	20	28	131
25	19	10	20	11	19	13	34	22	11	19	30	136
26	18	10	20	11	11	7.7	34	22	20	48	30	130
27	15	8.3	21	11	11	7.8	35	22	27	88	42	184
28	13	7.8	19	10	10	7.6	36	25	29	125	45	259
29	12	7.1	16	8.6	10	7.3	40	28	30	165	37	327
30	23	12	40	22	10	7.1	37	26	---	---	44	593
31	28	15	---	---	9	6.5	36	26	---	---	44	576
TOTAL	---	375.9	---	577.4	---	360.5	---	608.8	---	1,039	---	9,291

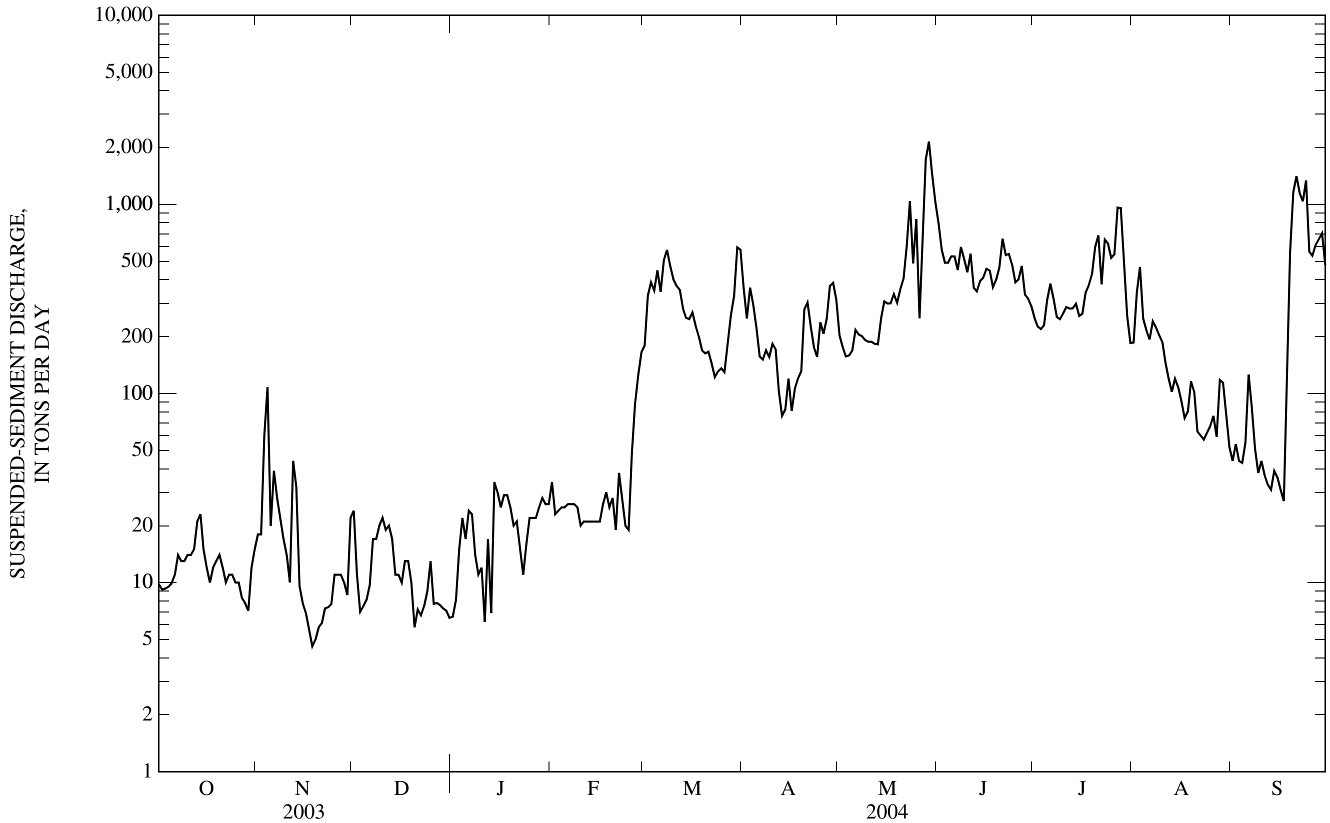
05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	36	360	23	203	20	794	10	251	25	186	24	44
2	31	249	23	176	18	575	10	226	54	341	30	54
3	50	363	23	157	16	492	9	219	80	467	25	44
4	43	294	26	159	16	492	10	229	36	249	24	43
5	38	222	29	169	18	532	15	313	25	216	30	55
6	31	157	39	217	18	531	19	381	28	193	49	126
7	30	151	37	205	15	450	16	316	43	241	26	84
8	34	169	38	201	20	595	12	254	43	224	21	51
9	34	156	37	192	17	514	11	247	42	204	22	38
10	41	183	36	188	15	438	12	265	38	187	29	44
11	38	171	36	188	18	549	13	286	30	146	28	37
12	25	102	35	183	12	363	13	281	28	120	26	33
13	20	76	35	182	11	347	14	282	26	102	25	31
14	21	82	45	250	13	393	15	298	30	120	32	39
15	32	120	53	307	13	410	13	257	30	108	30	36
16	21	81	50	299	15	457	14	264	28	91	26	31
17	28	106	48	300	15	447	18	341	24	74	24	27
18	31	120	47	336	12	364	20	373	22	80	26	105
19	34	131	42	303	13	399	23	427	25	116	48	556
20	77	278	52	355	15	464	32	596	24	102	75	1,160
21	78	303	67	403	21	659	37	686	18	63	80	1,410
22	51	227	91	601	17	539	21	378	19	60	63	1,150
23	37	176	149	1,040	17	546	36	653	19	57	56	1,040
24	32	156	55	488	15	480	35	621	20	62	77	1,340
25	43	238	95	836	13	387	30	521	22	67	35	564
26	34	207	44	250	13	402	31	544	25	76	34	535
27	35	248	73	597	16	473	56	961	18	59	41	611
28	37	371	77	1,730	11	334	60	957	23	118	49	655
29	34	385	56	2,150	11	318	36	503	25	114	59	704
30	30	313	36	1,440	11	290	21	256	24	76	46	477
31	---	---	25	1,030	---	---	20	185	21	52	---	---
TOTAL	---	6,195	---	15,135	---	14,034	---	12,371	---	4,371	---	11,124

YEAR 75,482.6

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA—Continued



05481950 BEAVER CREEK NEAR GRIMES, IA

LOCATION.--Lat 41°41'18", long 93°44'06", in SW1/4 SW1/4 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	0.85	21	e42	e22	1,210	433	247	1,130	e288	58	85
2	0.86	3.0	18	e46	e24	e819	373	233	869	e289	54	74
3	0.78	38	13	e45	e22	e635	332	222	705	e454	119	65
4	1.2	113	e16	e36	e23	e499	302	214	607	e403	163	57
5	0.68	80	e13	e28	e24	e594	280	206	548	e380	183	55
6	0.67	65	e10	e26	e22	e846	267	198	513	e438	233	132
7	0.60	52	e10	e23	e21	e776	253	189	465	e370	171	79
8	0.51	41	e11	e28	e23	e561	239	180	414	e320	135	63
9	0.51	35	e13	e27	e24	e440	227	200	373	381	114	56
10	0.57	33	e10	e31	e23	e384	210	218	376	e447	97	50
11	0.94	32	e4.2	e36	e26	e338	199	232	370	e396	89	42
12	1.1	29	e6.1	e38	e24	e298	192	220	355	323	79	36
13	1.1	22	e10	e37	e27	e273	186	231	423	285	71	31
14	3.7	19	e11	e36	e25	e256	180	298	548	262	64	27
15	1.4	17	14	e30	e24	e242	176	356	521	211	58	27
16	0.97	15	e19	e42	e30	e232	173	333	459	184	53	23
17	0.74	15	e18	e38	e43	218	192	327	434	162	49	21
18	0.77	18	e10	e18	e40	231	184	531	500	144	62	20
19	0.69	24	e16	e9.7	e43	321	181	483	513	130	135	18
20	0.83	27	e25	e12	e61	417	201	407	441	125	125	16
21	2.8	38	e30	e22	e87	378	436	351	426	120	99	15
22	2.2	34	e31	e8.2	e181	321	320	389	680	111	83	14
23	1.1	33	e30	e26	e472	293	282	3,580	732	103	73	14
24	0.89	24	e25	e22	e675	274	267	6,410	594	95	69	14
25	0.87	34	e25	e28	e755	256	305	4,770	487	89	65	13
26	0.70	26	e30	e29	e446	239	333	3,950	e430	82	64	13
27	0.73	e22	e38	e20	e331	237	329	3,080	e389	e75	66	12
28	1.00	e19	e42	e19	e425	516	317	2,220	e359	e69	142	11
29	1.1	22	e40	e18	e602	850	293	1,480	e326	e63	173	11
30	1.2	29	e38	e19	---	704	265	1,240	e304	e56	122	10
31	1.3	---	e39	e21	---	529	---	1,290	---	54	100	---
TOTAL	33.61	959.85	636.3	860.9	4,545	14,187	7,927	34,285	15,291	6,909	3,168	1,104
MEAN	1.08	32.0	20.5	27.8	157	458	264	1,106	510	223	102	36.8
MAX	3.7	113	42	46	755	1,210	436	6,410	1,130	454	233	132
MIN	0.51	0.85	4.2	8.2	21	218	173	180	304	54	49	10
AC-FT	67	1,900	1,260	1,710	9,020	28,140	15,720	68,000	30,330	13,700	6,280	2,190
CFSM	0.00	0.09	0.06	0.08	0.44	1.28	0.74	3.09	1.42	0.62	0.29	0.10
IN.	0.00	0.10	0.07	0.09	0.47	1.47	0.82	3.56	1.59	0.72	0.33	0.11

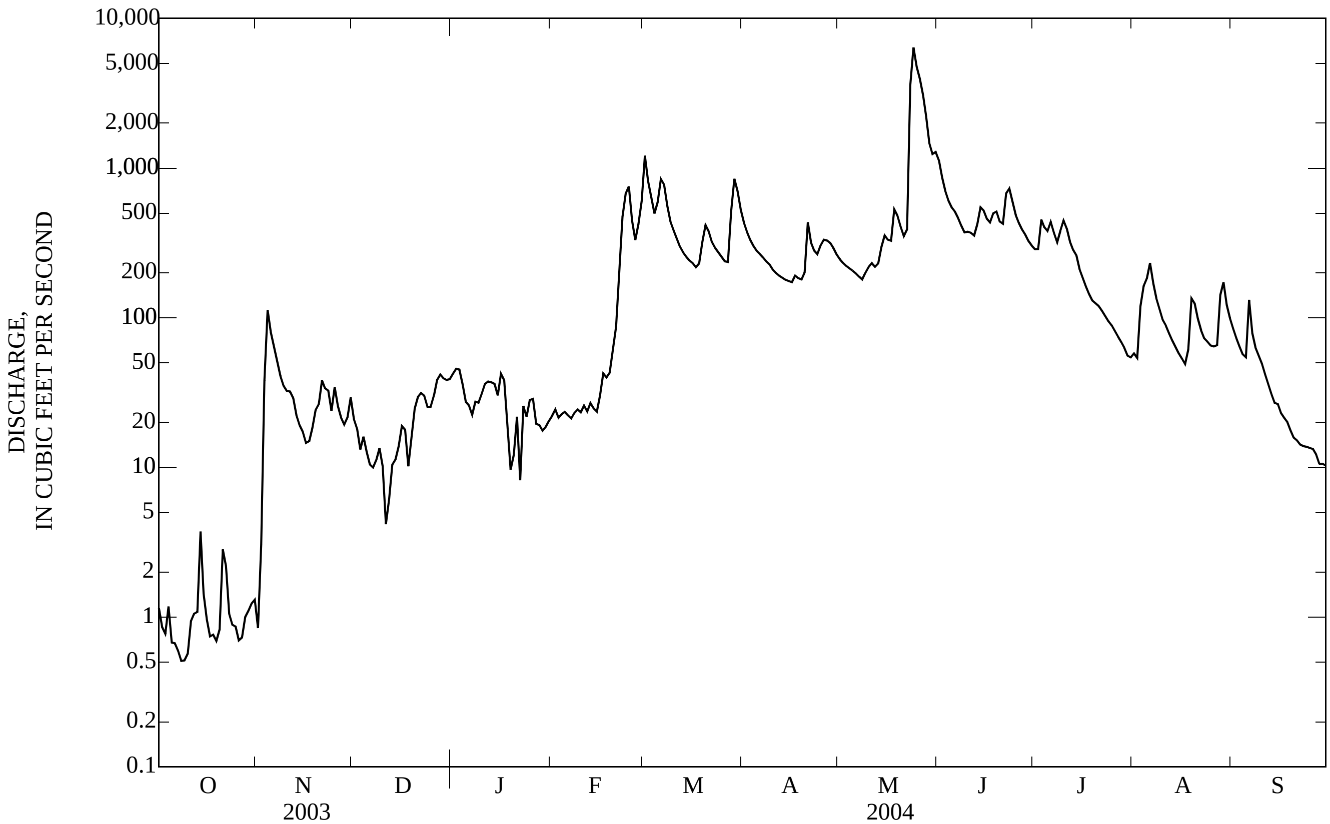
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	92.7	111	92.4	57.5	118	340	366	446	464	281	104	67.6
MAX	724	655	486	305	526	1,171	1,275	1,419	1,434	2,160	695	654
(WY)	(1974)	(1973)	(1983)	(1974)	(1973)	(1979)	(1965)	(1974)	(1998)	(1993)	(1993)	(1993)
MIN	0.06	0.63	0.77	0.00	0.35	3.98	3.26	1.11	1.41	0.24	0.73	0.26
(WY)	(1989)	(1967)	(1977)	(1977)	(1977)	(1981)	(1981)	(1981)	(1977)	(1977)	(1988)	(1988)

05481950 BEAVER CREEK NEAR GRIMES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1961 - 2004	
ANNUAL TOTAL	57,835.87		89,906.66			
ANNUAL MEAN	158		246		212	
HIGHEST ANNUAL MEAN					575	1993
LOWEST ANNUAL MEAN					17.3	1981
HIGHEST DAILY MEAN	2,780	May 6	6,410	May 24	11,500	Jul 10, 1993
LOWEST DAILY MEAN	0.49	Sep 10	0.51	Oct 8 a	0.00	Sep 8, 1970 b
ANNUAL SEVEN-DAY MINIMUM	0.64	Oct 5	0.64	Oct 5	0.00	Oct 7, 1971
MAXIMUM PEAK FLOW			7,300	May 24	14,300	Jul 10, 1993
MAXIMUM PEAK STAGE			14.59	May 24	16.58	Jul 10, 1993
INSTANTANEOUS LOW FLOW			0.45	Oct 6 c		
ANNUAL RUNOFF (AC-FT)	114,700		178,300		153,500	
ANNUAL RUNOFF (CFSM)	0.443		0.686		0.592	
ANNUAL RUNOFF (INCHES)	6.01		9.34		8.04	
10 PERCENT EXCEEDS	386		504		542	
50 PERCENT EXCEEDS	27		72		67	
90 PERCENT EXCEEDS	1.6		9.2		2.2	

a Also Oct. 9.
b Also Oct. 8, 9 and 20.
c 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$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929 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, U.S. Geological Survey data collection platform with satellite telemetry, 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212	e204	203	e275	e313	3,700	e4,480	e3,950	17,000	10,100	2,690	1,160
2	212	234	218	e282	e299	4,390	4,080	3,430	13,800	9,410	2,270	1,120
3	211	543	223	294	285	e5,310	3,510	2,970	12,800	9,710	2,420	1,100
4	209	765	218	278	277	5,380	3,290	2,560	12,600	9,360	2,670	1,090
5	e209	296	212	281	256	5,300	2,740	2,430	12,400	8,810	3,060	1,230
6	e210	253	235	299	243	5,370	2,210	2,200	12,500	8,230	2,640	1,640
7	e210	237	369	288	228	5,830	2,180	2,110	12,700	8,030	2,000	1,750
8	e210	237	e395	261	224	6,270	2,140	2,050	12,600	8,280	e1,940	1,470
9	e211	229	e447	247	224	5,990	2,000	2,100	12,400	8,840	e1,870	1,110
10	e212	226	e491	246	224	4,820	1,790	1,930	12,500	8,870	e1,870	1,060
11	e211	225	e422	252	225	3,870	1,780	1,970	12,600	9,210	e1,900	946
12	210	217	413	258	223	2,930	1,630	1,950	12,600	8,560	e1,660	941
13	e210	212	353	265	222	2,180	1,420	2,000	12,700	7,790	e1,500	933
14	e211	221	243	265	233	1,850	1,420	2,140	12,800	7,720	e1,550	935
15	209	222	242	e255	234	1,830	1,420	2,450	12,700	7,610	e1,400	954
16	214	212	246	e257	229	2,240	1,400	2,550	12,900	7,520	e1,240	929
17	217	225	234	e258	225	2,770	1,480	2,770	12,700	7,430	e1,340	931
18	217	227	242	258	235	2,500	1,460	3,410	12,700	7,350	e1,800	1,860
19	217	215	238	260	260	2,200	1,430	3,400	12,900	7,260	2,270	4,870
20	214	220	232	258	357	2,230	1,580	3,080	12,900	7,150	2,210	6,460
21	210	218	211	253	307	2,210	1,810	2,620	12,900	7,110	1,860	7,260
22	e210	224	211	249	386	2,170	1,960	2,910	13,100	7,030	1,640	7,260
23	e209	234	219	252	553	2,130	2,090	5,790	13,100	6,890	1,630	7,330
24	e208	210	244	254	713	2,110	2,100	e9,540	12,800	6,820	1,780	7,000
25	e207	223	258	254	1,010	1,980	2,470	e8,380	12,600	6,740	1,660	6,370
26	e205	224	262	253	948	1,830	2,780	7,140	12,400	6,660	1,640	6,260
27	e210	221	265	252	1,280	1,860	3,150	6,330	12,300	6,580	1,700	5,980
28	e219	213	272	273	1,760	2,760	e4,120	10,500	12,200	6,190	2,460	5,530
29	e222	210	265	e285	2,470	e4,140	e4,660	16,500	12,000	5,440	2,670	5,030
30	e208	205	270	e290	---	e5,560	e4,430	16,800	11,300	4,570	1,790	4,480
31	e206	---	e275	e299	---	e5,390	---	17,300	---	3,340	1,510	---
TOTAL	6,550	7,602	8,628	8,251	14,443	109,100	73,010	155,260	383,500	234,610	60,640	94,989
MEAN	211	253	278	266	498	3,519	2,434	5,008	12,780	7,568	1,956	3,166
MAX	222	765	491	299	2,470	6,270	4,660	17,300	17,000	10,100	3,060	7,330
MIN	205	204	203	246	222	1,830	1,400	1,930	11,300	3,340	1,240	929
AC-FT	12,990	15,080	17,110	16,370	28,650	216,400	144,800	308,000	760,700	465,300	120,300	188,400
CFSM	0.03	0.04	0.04	0.04	0.08	0.56	0.39	0.80	2.05	1.21	0.31	0.51
IN.	0.04	0.05	0.05	0.05	0.09	0.65	0.43	0.92	2.28	1.40	0.36	0.57

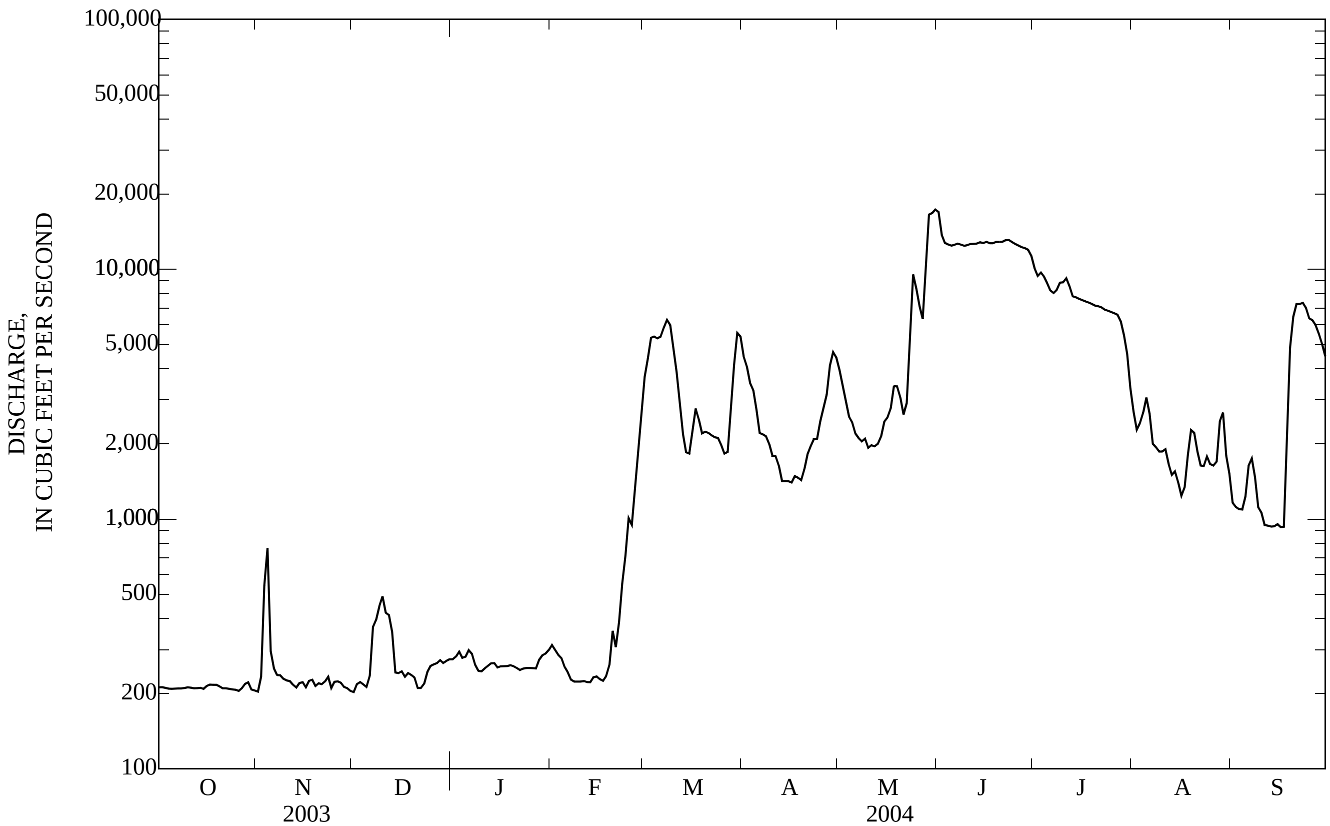
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	701	1,078	1,077	532	1,228	3,489	6,847	7,712	8,131	6,545	2,019	780
MAX	2,613	2,871	2,696	1,231	2,775	9,385	15,940	15,050	13,760	9,524	3,549	3,166
(WY)	(2003)	(1997)	(1997)	(1997)	(1997)	(1997)	(2001)	(2001)	(2001)	(2003)	(2002)	(2004)
MIN	208	212	226	245	217	492	413	797	3,142	922	685	213
(WY)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2002)	(2002)	(2003)	(2003)

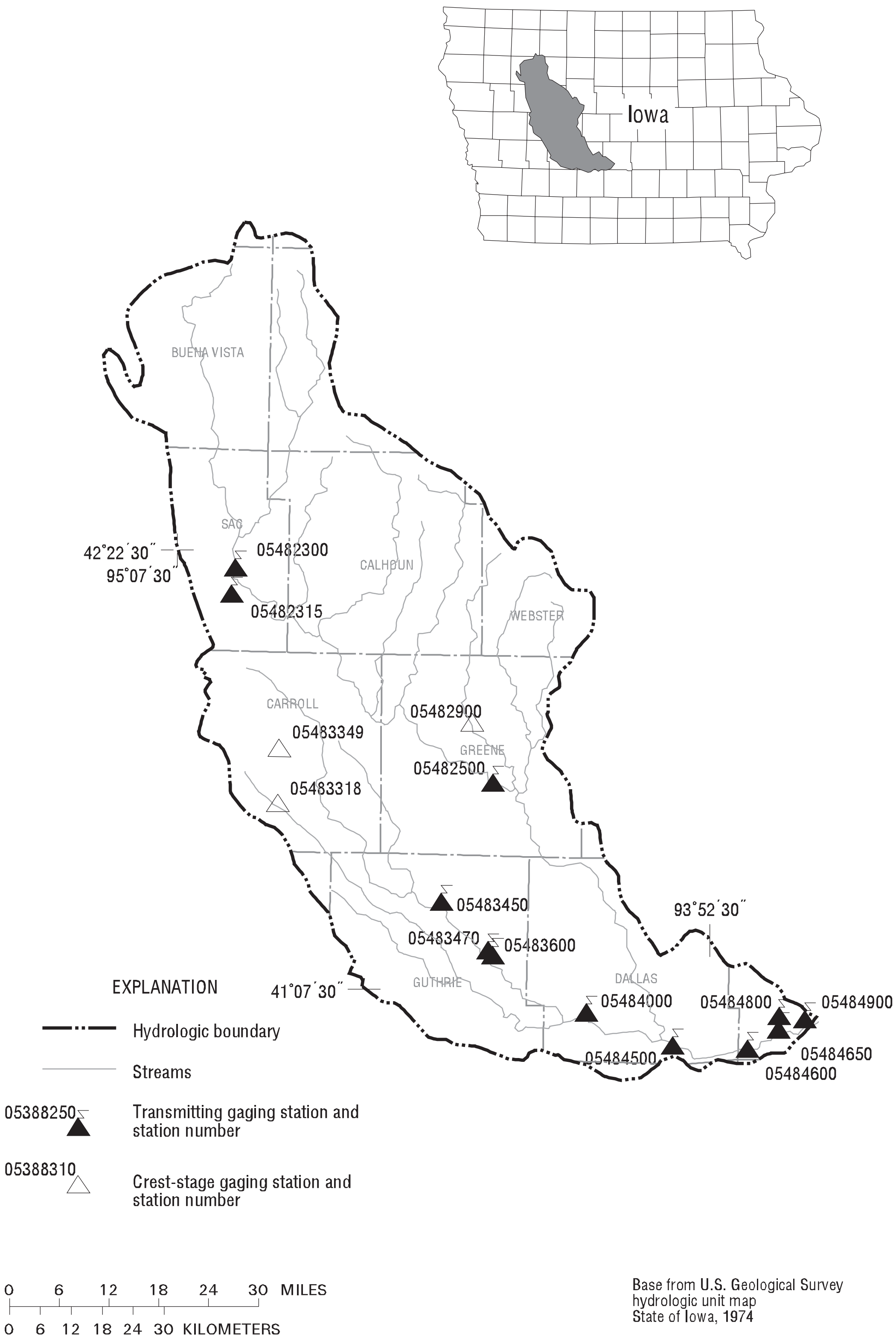
05482000 DES MOINES RIVER AT SECOND AVENUE AT DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	973,538		1,156,583			
ANNUAL MEAN	2,667		3,160		3,351	
HIGHEST ANNUAL MEAN					5,301	2001
LOWEST ANNUAL MEAN					948	2000
HIGHEST DAILY MEAN	15,300	May 12	17,300	May 31	18,300	Apr 16, 2001
LOWEST DAILY MEAN	196	Sep 10	203	Dec 1	160	Sep 18, 2000
ANNUAL SEVEN-DAY MINIMUM	205	Sep 24	208	Oct 21	190	Dec 17, 1999
MAXIMUM PEAK FLOW			17,400	May 31	18,500	Apr 17, 2001
MAXIMUM PEAK STAGE			20.06	May 31	20.41	Apr 17, 2001
INSTANTANEOUS LOW FLOW					160	Sep 18, 2000
ANNUAL RUNOFF (AC-FT)	1,931,000		2,294,000		2,428,000	
ANNUAL RUNOFF (CFSM)	0.427		0.506		0.537	
ANNUAL RUNOFF (INCHES)	5.80		6.89		7.29	
10 PERCENT EXCEEDS	9,450		9,590		11,600	
50 PERCENT EXCEEDS	419		1,640		1,230	
90 PERCENT EXCEEDS	210		214		220	

e Estimated



05482000 DES MOINES RIVER AT SECOND AVENUE AT DES MOINES, IA—Continued


Iowa
BUENA VISTA
SAC
CALHOUN
WEBSTER
CARROLL
GREENE
GUTHRIE
DALLAS
42°22´30˝
95°07´30˝
93°52´30˝
41°07´30˝
05482300
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05483318
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05483470
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05484000
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05484650
05484600
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

05482300 North Raccoon River near Sac City, IA 290
05482315 Black Hawk Lake at Lake View, IA 292
05482500 North Raccoon River near Jefferson, IA 294
05483450 Middle Raccoon River near Bayard, IA 296
05483470 Lake Panorama at Panora, IA 298
05483600 Middle Raccoon River at Panora, IA 300
05484000 South Raccoon River at Redfield, IA 302
05484500 Raccoon River at Van Meter, IA 304
05484600 Raccoon River near West Des Moines, IA 306
05484650 Raccoon River at 63rd Street, Des Moines, IA 308
05484800 Walnut Creek at Des Moines, IA 310
05484900 Raccoon River at Fleur Drive, Des Moines, IA 312

Crest Stage Gaging Stations

05482900 Hardin Creek near Farlin, IA 491
05483318 Brushy Creek near Templeton, IA 491
05483349 Middle Raccoon River Tributary at Carroll, IA 491

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA

LOCATION.--Lat 42°21'16", long 94°59'26", in NW$^1/_4$ NW$^1/_4$ sec.13, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on right bank 5 ft downstream from bridge on county highway, 2.1 mi upstream from Indian Creek, 0.3 mi upstream from Drainage Ditch 73, 4.6 mi south of Sac City, 167.1 miles upstream of mouth of Raccoon River, and at mile 367.6 upstream from mouth of Des Moines River.

DRAINAGE AREA.--700 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,146.03 ft above NGVD of 1929. 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	26	e20	e28	e21	1,900	664	428	1,550	325	75	30
2	21	25	26	e27	e20	1,530	551	387	1,270	295	75	29
3	22	36	23	e25	e16	1,140	468	352	1,080	412	74	28
4	23	40	24	e21	e16	775	417	336	944	457	78	27
5	23	38	21	e17	e17	1,280	377	312	860	366	65	27
6	24	34	e20	e17	e19	1,880	354	300	784	395	59	30
7	24	30	26	e18	e18	1,550	318	275	705	393	55	29
8	22	27	23	e24	e16	1,100	298	263	631	318	53	31
9	23	28	e20	e21	e21	831	278	267	571	306	51	29
10	28	25	e14	e21	e28	609	256	266	606	280	48	27
11	34	25	e12	e26	e32	438	245	253	1,130	356	46	26
12	37	24	e12	e24	e25	280	237	251	1,440	919	45	25
13	36	25	e14	e24	e25	253	228	249	1,170	676	44	25
14	35	23	17	e22	e24	216	219	232	940	467	43	28
15	36	23	20	e20	e22	191	215	220	769	348	41	34
16	38	24	e19	e27	e28	175	210	215	2,350	280	40	210
17	31	26	e17	e23	e28	164	199	221	5,100	235	39	279
18	30	27	e21	e20	e32	168	189	219	2,680	201	41	201
19	31	29	e20	e15	e35	206	223	204	1,950	178	40	228
20	29	29	e20	e18	e30	221	253	208	1,600	158	37	209
21	28	26	27	e21	e28	179	392	225	1,350	142	35	157
22	27	23	29	e17	e31	160	499	1,150	1,170	132	33	128
23	27	e22	e27	e22	e60	152	416	3,170	973	118	32	141
24	25	e16	e23	e21	e49	144	378	3,300	848	107	34	142
25	27	18	e24	e19	e38	138	510	3,310	827	99	39	132
26	26	18	28	e16	e34	162	1,080	2,640	684	93	34	116
27	27	21	30	e15	234	244	941	1,920	575	87	34	102
28	28	e19	34	e12	876	1,660	729	1,470	495	82	30	93
29	29	e18	e30	e13	1,940	1,730	603	1,890	427	80	31	82
30	28	21	e24	e15	---	1,170	488	2,230	370	75	29	75
31	26	---	e22	e17	---	841	---	1,940	---	70	29	---
TOTAL	866	766	687	626	3,763	21,487	12,235	28,703	35,849	8,450	1,409	2,720
MEAN	27.9	25.5	22.2	20.2	130	693	408	926	1,195	273	45.5	90.7
MAX	38	40	34	28	1,940	1,900	1,080	3,310	5,100	919	78	279
MIN	21	16	12	12	16	138	189	204	370	70	29	25
AC-FT	1,720	1,520	1,360	1,240	7,460	42,620	24,270	56,930	71,110	16,760	2,790	5,400
CFSM	0.04	0.04	0.03	0.03	0.19	0.99	0.58	1.32	1.71	0.39	0.06	0.13
IN.	0.05	0.04	0.04	0.03	0.20	1.14	0.65	1.53	1.91	0.45	0.07	0.14

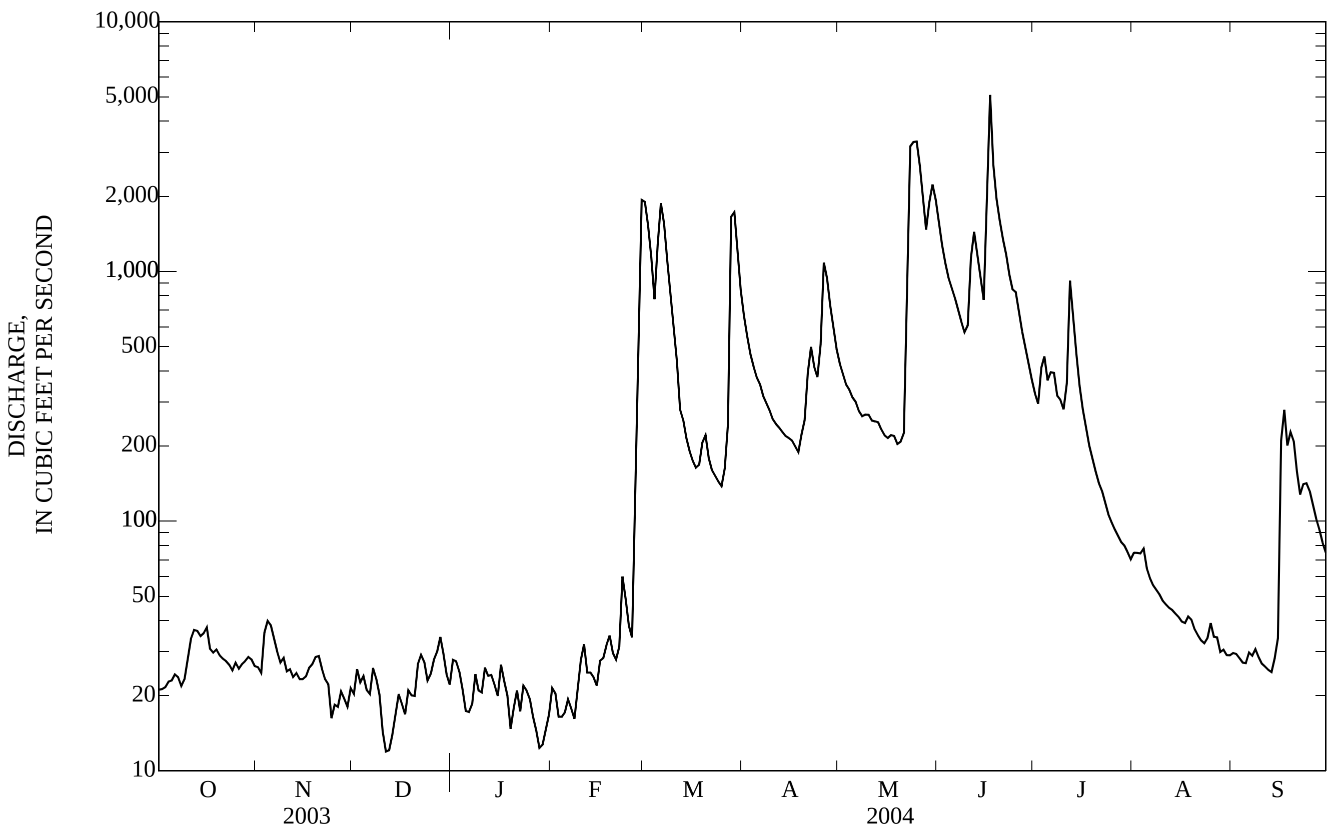
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	229	206	132	90.1	173	624	769	675	849	504	236	216
MAX	1,782	1,005	641	498	1,038	2,723	2,726	2,077	3,344	3,096	1,188	1,966
(WY)	(1983)	(1984)	(1983)	(1983)	(1984)	(1983)	(1983)	(1991)	(1984)	(1993)	(1993)	(1962)
MIN	6.39	9.44	4.39	0.87	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004	
ANNUAL TOTAL	150,951		117,561			
ANNUAL MEAN	414		321		392	
HIGHEST ANNUAL MEAN					1,331	1983
LOWEST ANNUAL MEAN					25.3	1977
HIGHEST DAILY MEAN	6,550	Jul 10	5,100	Jun 17	12,400	Mar 23, 1979
LOWEST DAILY MEAN	12	Dec 11	12	Dec 11	0.00	Jan 30, 1977
ANNUAL SEVEN-DAY MINIMUM	15	Dec 10	15	Jan 25	0.01	Jan 29, 1977
MAXIMUM PEAK FLOW			5,510	Jun 17	13,100	Mar 23, 1979
MAXIMUM PEAK STAGE			16.95	Jun 17	20.14	Jun 17, 1990
ANNUAL RUNOFF (AC-FT)	299,400		233,200		284,200	
ANNUAL RUNOFF (CFSM)	0.591		0.459		0.560	
ANNUAL RUNOFF (INCHES)	8.02		6.25		7.61	
10 PERCENT EXCEEDS	1,120		953		1,010	
50 PERCENT EXCEEDS	71		47		132	
90 PERCENT EXCEEDS	23		20		17	

a Also Dec. 12 & Jan. 28.
b Also Jan. 31 to Feb. 4, 1977.
e Estimated.



05482315 BLACK HAWK LAKE AT LAKE VIEW, IA

LOCATION.--Lat 42°18'15", long 95°02'30", in NW¼ SE¼ 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 NGVD of 1929 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 data collection platform with satellite telemetry at station.

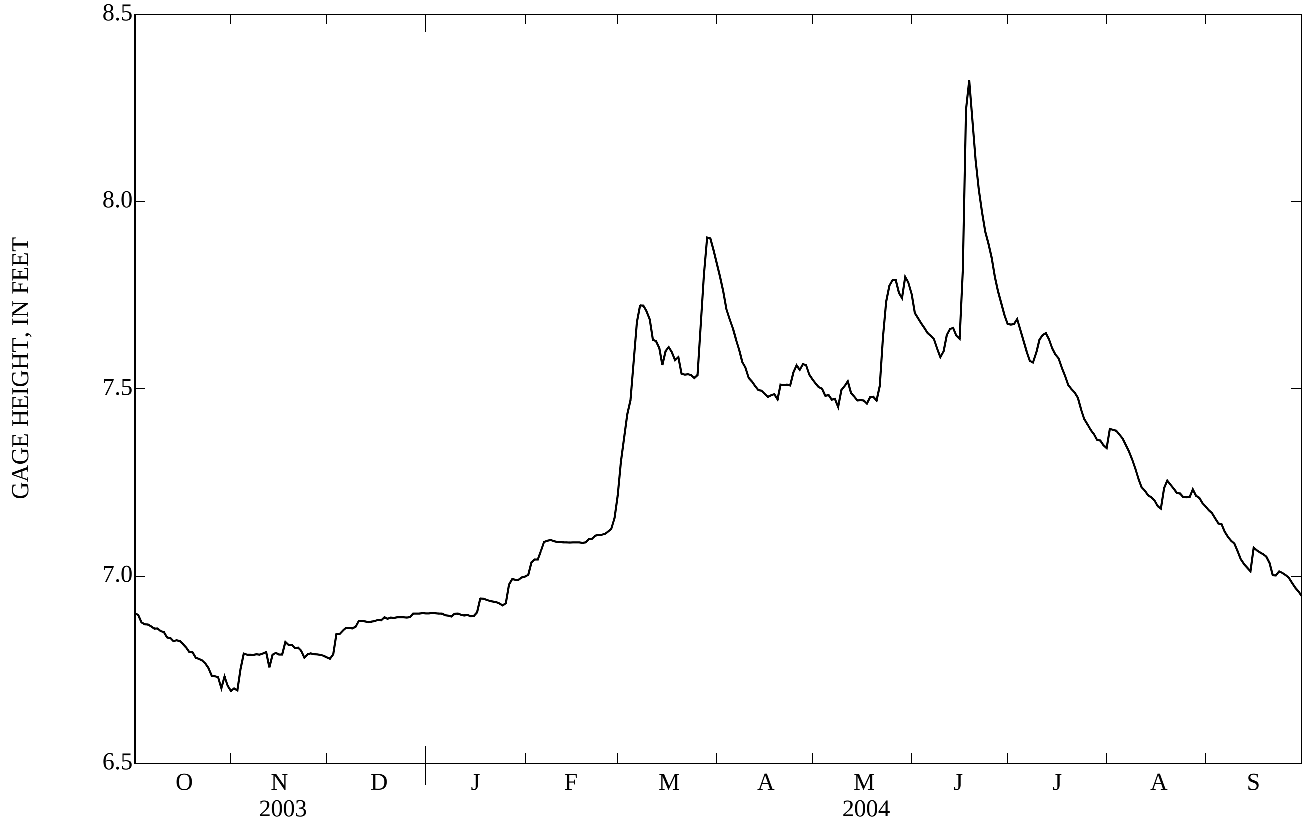
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.34 ft June 22, 1996, datum then in use; minimum, 4.91 ft Jan. 25, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 8.35 ft on June 18; minimum, 6.64 ft on Nov. 12.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.90	6.70	6.78	6.90	7.00	7.30	7.80	7.51	7.70	7.67	7.39	7.18
2	6.90	6.69	6.79	6.90	7.04	7.37	7.76	7.50	7.69	7.67	7.39	7.17
3	6.88	6.75	6.85	6.90	7.04	7.43	7.71	7.50	7.67	7.69	7.39	7.15
4	6.87	6.79	6.84	6.90	7.04	7.47	7.69	7.48	7.66	7.66	7.38	7.14
5	6.87	6.79	6.85	6.90	7.07	7.58	7.66	7.48	7.65	7.63	7.37	7.14
6	6.87	6.79	6.86	6.90	7.09	7.68	7.63	7.47	7.64	7.60	7.35	7.12
7	6.86	6.79	6.86	6.89	7.09	7.72	7.61	7.47	7.63	7.57	7.33	7.10
8	6.86	6.79	6.86	6.89	7.10	7.72	7.57	7.45	7.61	7.57	7.31	7.09
9	6.85	6.79	6.86	6.90	7.09	7.71	7.56	7.50	7.58	7.60	7.29	7.09
10	6.85	6.79	6.88	6.90	7.09	7.69	7.53	7.51	7.60	7.63	7.26	7.07
11	6.84	6.80	6.88	6.90	7.09	7.63	7.52	7.52	7.64	7.64	7.24	7.04
12	6.83	6.76	6.88	6.89	7.09	7.63	7.51	7.49	7.66	7.65	7.23	7.03
13	6.83	6.79	6.88	6.90	7.09	7.61	7.50	7.48	7.66	7.63	7.22	7.02
14	6.83	6.79	6.88	6.89	7.09	7.56	7.49	7.47	7.64	7.61	7.21	7.01
15	6.83	6.79	6.88	6.89	7.09	7.60	7.49	7.47	7.63	7.59	7.20	7.08
16	6.82	6.79	6.88	6.90	7.09	7.61	7.48	7.47	7.82	7.58	7.19	7.07
17	6.81	6.82	6.88	6.94	7.09	7.60	7.48	7.46	8.25	7.56	7.18	7.06
18	6.80	6.82	6.89	6.94	7.09	7.58	7.49	7.48	8.32	7.54	7.23	7.06
19	6.80	6.82	6.89	6.94	7.09	7.59	7.47	7.48	8.22	7.51	7.26	7.05
20	6.78	6.81	6.89	6.93	7.10	7.54	7.51	7.47	8.11	7.50	7.24	7.04
21	6.78	6.81	6.89	6.93	7.10	7.54	7.51	7.51	8.03	7.49	7.23	7.00
22	6.77	6.80	6.89	6.93	7.11	7.54	7.51	7.64	7.97	7.48	7.22	7.00
23	6.77	6.78	6.89	6.93	7.11	7.54	7.51	7.73	7.92	7.45	7.22	7.01
24	6.75	6.79	6.89	6.92	7.11	7.53	7.54	7.78	7.89	7.42	7.21	7.01
25	6.73	6.79	6.89	6.93	7.11	7.54	7.56	7.79	7.85	7.41	7.21	7.00
26	6.73	6.79	6.89	6.98	7.12	7.68	7.55	7.79	7.80	7.39	7.21	7.00
27	6.73	6.79	6.90	6.99	7.13	7.81	7.57	7.76	7.76	7.38	7.23	6.98
28	6.70	6.79	6.90	6.99	7.15	7.90	7.56	7.74	7.73	7.36	7.21	6.97
29	6.73	6.79	6.90	6.99	7.21	7.90	7.54	7.80	7.70	7.36	7.21	6.96
30	6.71	6.78	6.90	7.00	---	7.87	7.52	7.78	7.67	7.35	7.19	6.95
31	6.69	---	6.90	7.00	---	7.84	---	7.75	---	7.34	7.19	---
MEAN	6.81	6.79	6.87	6.93	7.09	7.62	7.56	7.57	7.79	7.53	7.26	7.05
MAX	6.90	6.82	6.90	7.00	7.21	7.90	7.80	7.80	8.32	7.69	7.39	7.18
MIN	6.69	6.69	6.78	6.89	7.00	7.30	7.47	7.45	7.58	7.34	7.18	6.95

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 SW¼ NW¼ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	44	73	e70	e49	3,170	1,690	1,120	6,510	1,440	320	111
2	55	50	68	e69	55	2,980	1,400	993	4,610	1,320	324	105
3	60	90	70	e49	51	2,390	1,200	931	3,340	1,670	320	99
4	59	112	70	e31	51	1,790	1,060	875	2,720	1,650	436	96
5	59	121	69	e27	48	1,970	963	836	2,370	1,800	686	104
6	59	127	60	e27	45	3,470	891	799	2,170	1,740	534	100
7	60	117	74	e40	49	3,830	834	742	1,980	1,580	415	91
8	62	95	e72	e58	54	2,760	766	802	1,750	1,480	353	89
9	66	79	e55	e55	59	1,980	706	908	1,570	1,490	304	89
10	62	78	e30	54	63	1,520	652	774	1,520	1,580	268	86
11	61	73	e28	53	e67	1,230	603	738	1,850	1,510	235	85
12	57	66	e29	55	e64	983	576	695	2,110	1,450	213	81
13	65	52	e38	57	e64	790	547	759	2,980	2,100	197	78
14	80	52	47	59	e63	728	534	709	2,730	1,870	188	76
15	78	49	48	60	e63	677	519	667	2,270	1,480	178	76
16	75	48	46	62	e68	615	514	639	2,050	1,250	169	72
17	68	69	51	e62	e69	551	512	625	4,910	1,060	163	73
18	73	118	60	e56	e73	524	512	656	e7,000	910	190	172
19	81	109	62	e50	e74	592	461	664	e8,900	813	199	318
20	95	105	61	e52	e76	728	474	657	e11,000	742	179	268
21	76	91	66	e57	e74	748	583	642	e9,050	677	160	281
22	67	91	69	e53	e84	689	740	731	e6,600	625	153	275
23	61	85	65	55	e132	620	900	3,970	3,680	566	146	226
24	58	e65	52	53	e132	591	886	6,250	2,990	506	137	193
25	49	68	53	e50	e128	561	952	8,570	2,610	462	136	189
26	42	64	61	e48	e125	531	1,390	7,660	2,460	424	150	194
27	47	73	72	e45	426	670	1,790	5,860	2,220	394	161	184
28	56	68	84	e43	886	1,200	1,810	4,020	1,990	367	140	171
29	53	47	e77	e45	2,130	2,830	1,490	3,140	1,770	346	127	152
30	59	73	e71	e48	---	2,910	1,280	4,860	1,590	330	121	142
31	53	---	e66	e50	---	2,160	---	6,830	---	314	112	---
TOTAL	1,953	2,379	1,847	1,593	5,322	46,788	27,235	68,122	109,300	33,946	7,414	4,276
MEAN	63.0	79.3	59.6	51.4	184	1,509	908	2,197	3,643	1,095	239	143
MAX	95	127	84	70	2,130	3,830	1,810	8,570	11,000	2,100	686	318
MIN	42	44	28	27	45	524	461	625	1,520	314	112	72
AC-FT	3,870	4,720	3,660	3,160	10,560	92,800	54,020	135,100	216,800	67,330	14,710	8,480
CFSM	0.04	0.05	0.04	0.03	0.11	0.93	0.56	1.36	2.25	0.68	0.15	0.09
IN.	0.04	0.05	0.04	0.04	0.12	1.08	0.63	1.57	2.51	0.78	0.17	0.10

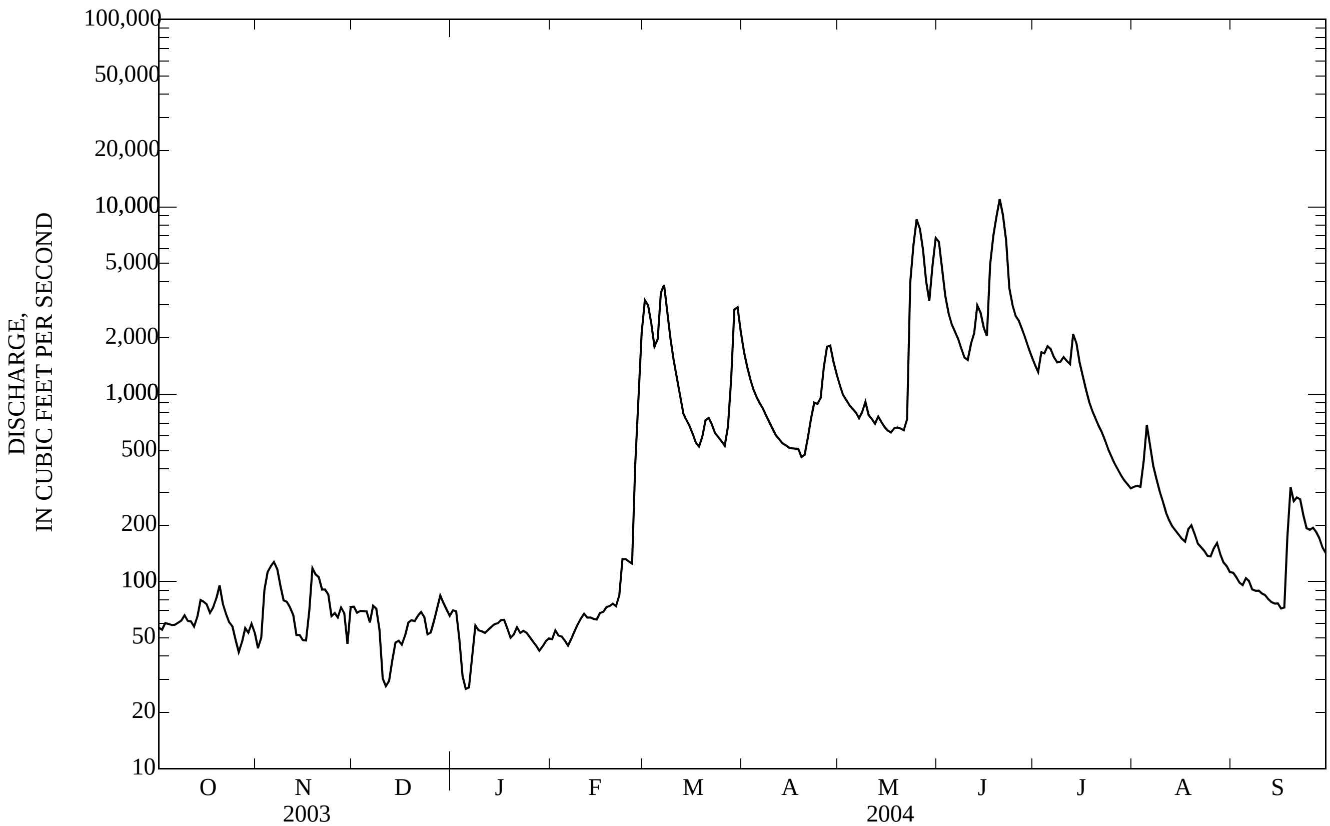
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	418	376	267	197	399	1,260	1,495	1,482	1,879	1,066	502	378
MAX	3,654	2,011	1,228	1,045	2,407	4,990	5,650	4,702	6,831	7,584	3,007	2,823
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	336,694		310,175			
ANNUAL MEAN	922		847		811	
HIGHEST ANNUAL MEAN					2,615	1993
LOWEST ANNUAL MEAN					32.8	1956
HIGHEST DAILY MEAN	12,200	Jul 12	11,000	Jun 20	23,200	Jun 24, 1947
LOWEST DAILY MEAN	28	Dec 11	27	Jan 5 a	0.60	Oct 5, 1956
ANNUAL SEVEN-DAY MINIMUM	38	Dec 10	38	Dec 10	0.91	Oct 4, 1956
MAXIMUM PEAK FLOW			11,500	Jun 20 e	29,100	Jun 23, 1947
MAXIMUM PEAK STAGE					22.30	Jun 23, 1947
ANNUAL RUNOFF (AC-FT)	667,800		615,200		587,200	
ANNUAL RUNOFF (CFSM)	0.570		0.523		0.501	
ANNUAL RUNOFF (INCHES)	7.74		7.13		6.80	
10 PERCENT EXCEEDS	2,460		2,180		2,050	
50 PERCENT EXCEEDS	188		175		289	
90 PERCENT EXCEEDS	61		52		43	

a Also Jan. 6.
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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/ WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	30	44	e49	e39	1,200	402	263	1,180	266	96	46
2	30	32	46	e47	e38	796	340	246	819	254	117	43
3	30	52	49	e43	e30	475	292	234	678	275	129	41
4	30	106	49	e32	e32	356	267	230	591	334	253	39
5	30	87	48	e22	e33	1,080	251	215	537	323	173	38
6	29	58	42	e23	e35	1,310	241	206	495	335	117	51
7	28	49	44	e27	e31	659	226	188	449	291	103	45
8	28	44	e43	e38	e32	472	216	316	401	262	92	39
9	28	40	e32	e32	e43	387	195	1,200	366	381	84	37
10	28	45	e22	e32	e51	321	182	499	358	588	76	36
11	28	44	e19	e42	e55	274	170	370	365	377	71	35
12	30	42	e18	e40	e48	225	170	312	331	321	68	33
13	33	40	e23	e40	e48	207	163	456	447	281	65	32
14	38	38	e35	e38	e46	192	156	372	479	253	62	32
15	44	38	e38	e35	e42	180	151	318	422	231	58	32
16	37	38	e32	e44	e56	179	149	289	377	220	55	33
17	34	41	e27	e39	e58	179	147	291	501	201	53	31
18	31	75	e45	e31	e67	189	141	361	412	179	57	32
19	31	78	e40	e28	e74	276	137	298	359	153	72	34
20	29	52	e41	e36	e73	361	143	290	335	142	65	31
21	29	46	e57	e46	e73	308	230	267	966	132	56	29
22	29	44	e54	e31	e111	265	222	475	1,140	126	53	29
23	29	44	e47	e53	e214	247	208	5,590	891	120	51	29
24	29	43	e41	e46	e194	231	202	3,260	589	113	61	31
25	29	63	e47	e46	e148	215	374	4,760	445	109	62	33
26	32	50	e55	e40	e113	198	533	2,630	383	103	66	30
27	31	46	e68	e34	e248	223	417	1,650	345	96	64	30
28	31	37	e62	e29	e557	733	363	1,080	324	92	57	29
29	32	e39	e57	e28	e1,550	702	325	836	298	88	52	29
30	31	e46	e50	e29	---	516	284	1,140	280	82	54	29
31	30	---	e45	e34	---	441	---	1,650	---	78	51	---
TOTAL	958	1,487	1,320	1,134	4,139	13,397	7,297	30,292	15,563	6,806	2,493	1,038
MEAN	30.9	49.6	42.6	36.6	143	432	243	977	519	220	80.4	34.6
MAX	44	106	68	53	1,550	1,310	533	5,590	1,180	588	253	51
MIN	28	30	18	22	30	179	137	188	280	78	51	29
AC-FT	1,900	2,950	2,620	2,250	8,210	26,570	14,470	60,080	30,870	13,500	4,940	2,060
CFSM	0.08	0.13	0.11	0.10	0.38	1.15	0.65	2.61	1.38	0.59	0.21	0.09
IN.	0.10	0.15	0.13	0.11	0.41	1.33	0.72	3.00	1.54	0.68	0.25	0.10

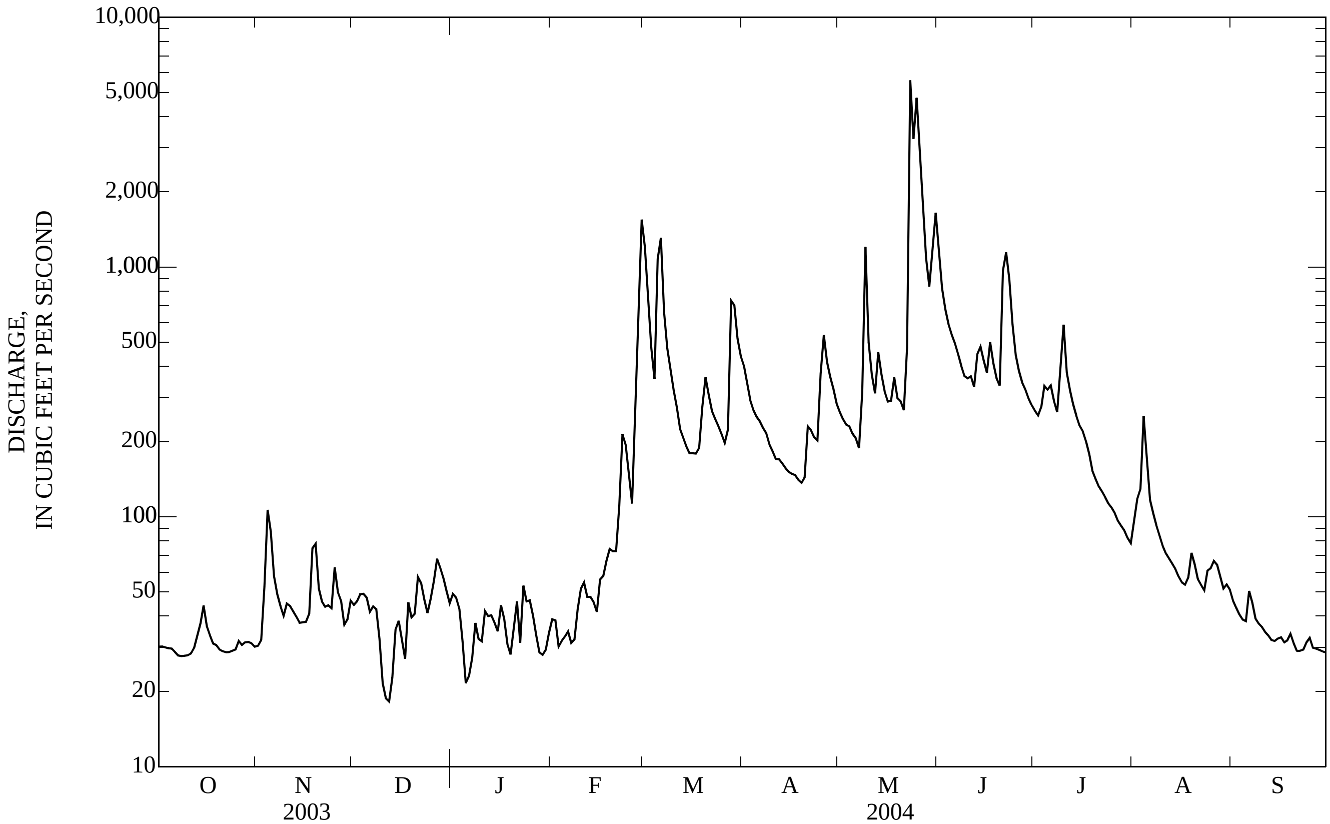
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	109	112	110	82.6	178	286	368	488	523	400	175	100
MAX	587	376	347	175	645	907	1,035	993	1,667	2,653	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1980 - 2004	
ANNUAL TOTAL	68,370		85,924			
ANNUAL MEAN	187		235		244	
HIGHEST ANNUAL MEAN					677	1993
LOWEST ANNUAL MEAN					54.1	1981
HIGHEST DAILY MEAN	3,130	Jul 10	5,590	May 23	18,100	Jul 9, 1993
LOWEST DAILY MEAN	18	Jan 10	18	Dec 12	5.5	Jun 13, 1981
ANNUAL SEVEN-DAY MINIMUM	27	Dec 9	27	Dec 9	7.3	Jun 8, 1981
MAXIMUM PEAK FLOW			6,880	May 23	27,500	Jul 9, 1993
MAXIMUM PEAK STAGE			21.85	May 23	29.02	Jul 9, 1993
ANNUAL RUNOFF (AC-FT)	135,600		170,400		177,100	
ANNUAL RUNOFF (CFSM)	0.500		0.626		0.652	
ANNUAL RUNOFF (INCHES)	6.78		8.52		8.86	
10 PERCENT EXCEEDS	378		475		550	
50 PERCENT EXCEEDS	67		66		107	
90 PERCENT EXCEEDS	30		30		32	

e Estimated



05483470 LAKE PANORAMA AT PANORA, IOWA

LOCATION.--Lat 41°41'44", long 94°22'53", in SW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.31, T.80 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, in gate control building of dam on Middle Raccoon River, 0.5 mi upstream from State Highway 44, 1.0 mi west of Panora, 4.4 mi upstream from Bay Branch, 67.7 mi. upstream from mouth of Raccoon River, and at mile 268.8 upstream from mouth of Des Moines River.

DRAINAGE AREA.--433 mi^2.

PERIOD OF RECORD.--May 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft above NGVD of 1929.

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 satellite and telephone modem telemetry at station.

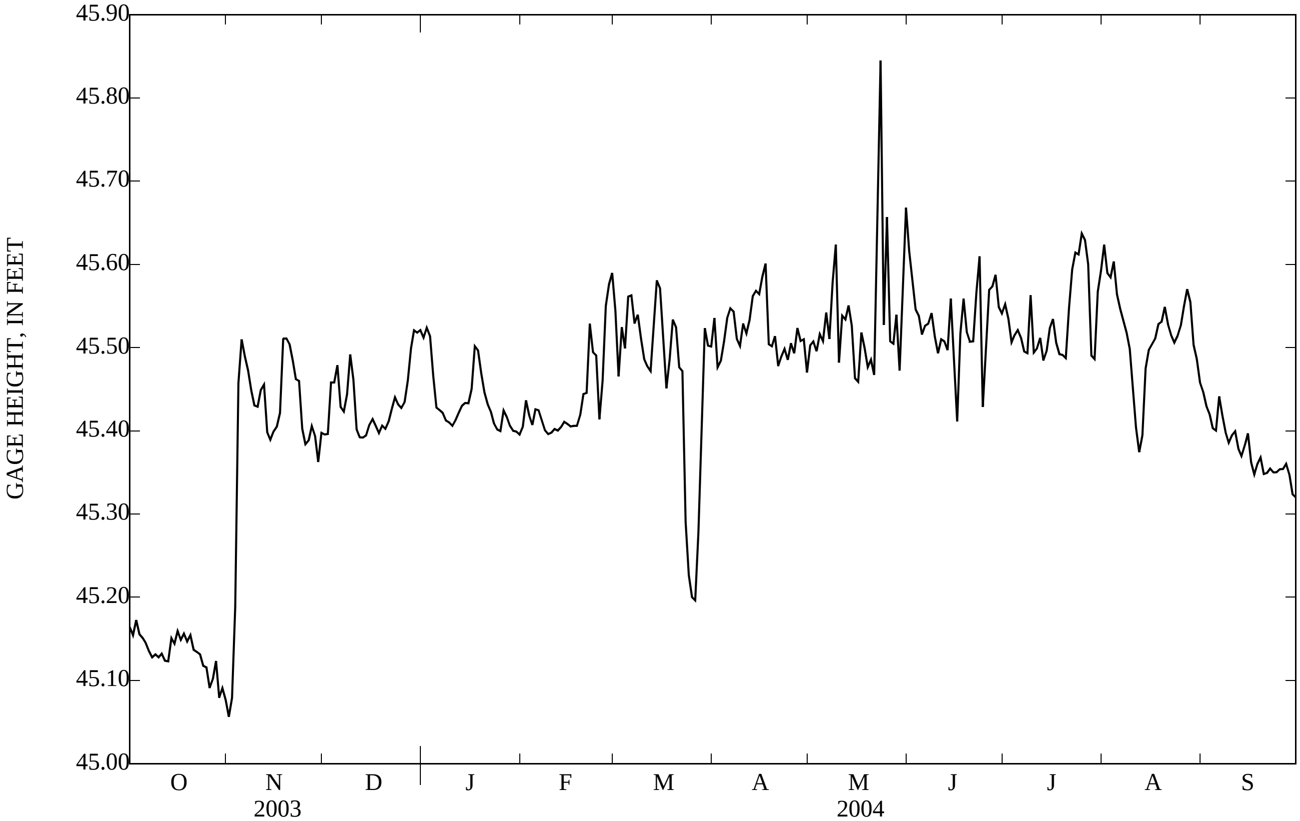
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height,50.68 ft July 9, 1993; minimum, 41.53 ft Oct. 20-21, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 46.83 ft on May 23; minimum recorded, 45.00 ft on Oct 29.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45.16	45.06	45.40	45.51	45.40	45.54	45.54	45.50	45.62	45.55	45.62	45.45
2	45.15	45.08	45.40	45.52	45.44	45.47	45.48	45.51	45.58	45.53	45.59	45.43
3	45.17	45.19	45.46	45.51	45.42	45.52	45.48	45.50	45.55	45.51	45.58	45.42
4	45.16	45.46	45.46	45.47	45.41	45.50	45.51	45.52	45.54	45.52	45.60	45.40
5	45.15	45.51	45.48	45.43	45.43	45.56	45.54	45.51	45.52	45.52	45.56	45.40
6	45.14	45.49	45.43	45.42	45.42	45.56	45.55	45.54	45.53	45.51	45.55	45.44
7	45.14	45.47	45.42	45.42	45.41	45.53	45.54	45.51	45.53	45.50	45.53	45.42
8	45.13	45.45	45.44	45.41	45.40	45.54	45.51	45.58	45.54	45.49	45.52	45.40
9	45.13	45.43	45.49	45.41	45.40	45.51	45.50	45.62	45.51	45.56	45.50	45.39
10	45.13	45.43	45.46	45.41	45.40	45.49	45.53	45.48	45.49	45.49	45.45	45.39
11	45.13	45.45	45.40	45.41	45.40	45.48	45.52	45.54	45.51	45.50	45.40	45.40
12	45.12	45.46	45.39	45.42	45.40	45.47	45.53	45.53	45.51	45.51	45.37	45.38
13	45.12	45.40	45.39	45.43	45.40	45.53	45.56	45.55	45.50	45.48	45.39	45.37
14	45.15	45.39	45.39	45.43	45.41	45.58	45.57	45.53	45.56	45.50	45.47	45.38
15	45.14	45.40	45.41	45.43	45.41	45.57	45.56	45.46	45.49	45.52	45.50	45.40
16	45.16	45.40	45.41	45.45	45.41	45.50	45.59	45.46	45.41	45.53	45.50	45.36
17	45.15	45.42	45.41	45.50	45.41	45.45	45.60	45.52	45.52	45.51	45.51	45.35
18	45.16	45.51	45.40	45.50	45.41	45.49	45.50	45.50	45.56	45.49	45.53	45.36
19	45.15	45.51	45.41	45.47	45.42	45.53	45.50	45.48	45.52	45.49	45.53	45.37
20	45.15	45.50	45.40	45.45	45.44	45.52	45.51	45.49	45.51	45.49	45.55	45.35
21	45.14	45.48	45.41	45.43	45.45	45.48	45.48	45.47	45.51	45.55	45.53	45.35
22	45.13	45.46	45.43	45.42	45.53	45.47	45.49	45.61	45.57	45.59	45.51	45.35
23	45.13	45.46	45.44	45.41	45.49	45.29	45.50	45.84	45.61	45.61	45.51	45.35
24	45.12	45.40	45.43	45.40	45.49	45.23	45.49	45.53	45.43	45.61	45.51	45.35
25	45.12	45.38	45.43	45.40	45.41	45.20	45.51	45.66	45.50	45.64	45.53	45.35
26	45.09	45.39	45.43	45.42	45.46	45.20	45.49	45.51	45.57	45.63	45.55	45.35
27	45.10	45.41	45.46	45.42	45.55	45.28	45.52	45.50	45.57	45.60	45.57	45.36
28	45.12	45.39	45.50	45.41	45.58	45.42	45.51	45.54	45.59	45.49	45.55	45.35
29	45.08	45.36	45.52	45.40	45.59	45.52	45.51	45.47	45.55	45.49	45.50	45.32
30	45.09	45.40	45.52	45.40	---	45.50	45.47	45.58	45.54	45.57	45.49	45.32
31	45.08	---	45.52	45.40	---	45.50	---	45.67	---	45.59	45.46	---
MEAN	45.13	45.40	45.44	45.44	45.44	45.47	45.52	45.54	45.53	45.53	45.51	45.38
MAX	45.17	45.51	45.52	45.52	45.59	45.58	45.60	45.84	45.62	45.64	45.62	45.45
MIN	45.08	45.06	45.39	45.40	45.40	45.20	45.47	45.46	45.41	45.48	45.37	45.32

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$\frac{1}{4}$ NW$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good. 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/ WaterControl/datamining2.cfm. 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	30	37	68	41	1,410	397	247	1,290	279	151	60
2	24	36	38	68	e41	821	366	248	859	281	173	58
3	31	44	52	68	e36	472	291	223	722	350	207	60
4	37	81	52	e55	41	420	247	224	639	329	428	57
5	32	80	e47	e36	47	1,050	241	209	584	351	206	58
6	29	68	48	e36	49	1,440	243	202	529	370	133	67
7	29	56	44	e39	43	689	237	200	486	300	106	62
8	31	50	47	41	40	489	222	620	446	250	103	54
9	30	45	e45	40	38	417	190	1,880	432	413	98	51
10	33	41	e37	40	39	355	185	657	407	660	91	48
11	43	43	e31	40	39	308	174	362	408	410	85	55
12	39	49	e30	41	39	234	160	346	413	354	78	54
13	36	38	e35	44	40	208	164	612	512	298	56	39
14	43	34	40	46	40	224	163	424	599	228	47	35
15	40	35	41	47	40	256	164	352	549	216	55	41
16	42	36	43	50	40	271	170	278	455	222	57	39
17	40	38	42	e51	40	217	222	441	460	205	61	39
18	39	66	43	e44	40	212	189	472	475	182	67	40
19	39	79	43	e39	42	313	152	336	416	156	70	41
20	35	59	43	e46	58	432	223	305	362	144	74	38
21	32	54	44	48	74	329	243	272	970	133	71	34
22	29	52	46	45	214	348	224	993	1,110	133	70	34
23	29	e44	e43	42	487	349	218	6,410	964	133	64	39
24	32	e36	e41	43	441	257	221	3,480	697	133	68	41
25	35	33	47	44	336	250	399	4,100	402	136	74	43
26	30	34	52	e41	219	219	530	2,690	389	145	79	47
27	27	41	56	e38	406	322	386	1,650	376	143	81	49
28	35	e32	68	e36	990	777	369	1,090	361	113	78	49
29	31	31	72	e37	1,480	715	338	859	329	90	74	41
30	35	38	68	e39	---	547	291	1,120	288	94	71	36
31	36	---	69	41	---	421	---	1,560	---	101	60	---
TOTAL	1,048	1,403	1,444	1,393	5,480	14,772	7,619	32,862	16,929	7,352	3,136	1,409
MEAN	33.8	46.8	46.6	44.9	189	477	254	1,060	564	237	101	47.0
MAX	43	81	72	68	1,480	1,440	530	6,410	1,290	660	428	67
MIN	24	30	30	36	36	208	152	200	288	90	47	34
AC-FT	2,080	2,780	2,860	2,760	10,870	29,300	15,110	65,180	33,580	14,580	6,220	2,790
CFSM	0.08	0.11	0.11	0.10	0.43	1.08	0.58	2.41	1.28	0.54	0.23	0.11
IN.	0.09	0.12	0.12	0.12	0.46	1.25	0.64	2.78	1.43	0.62	0.27	0.12

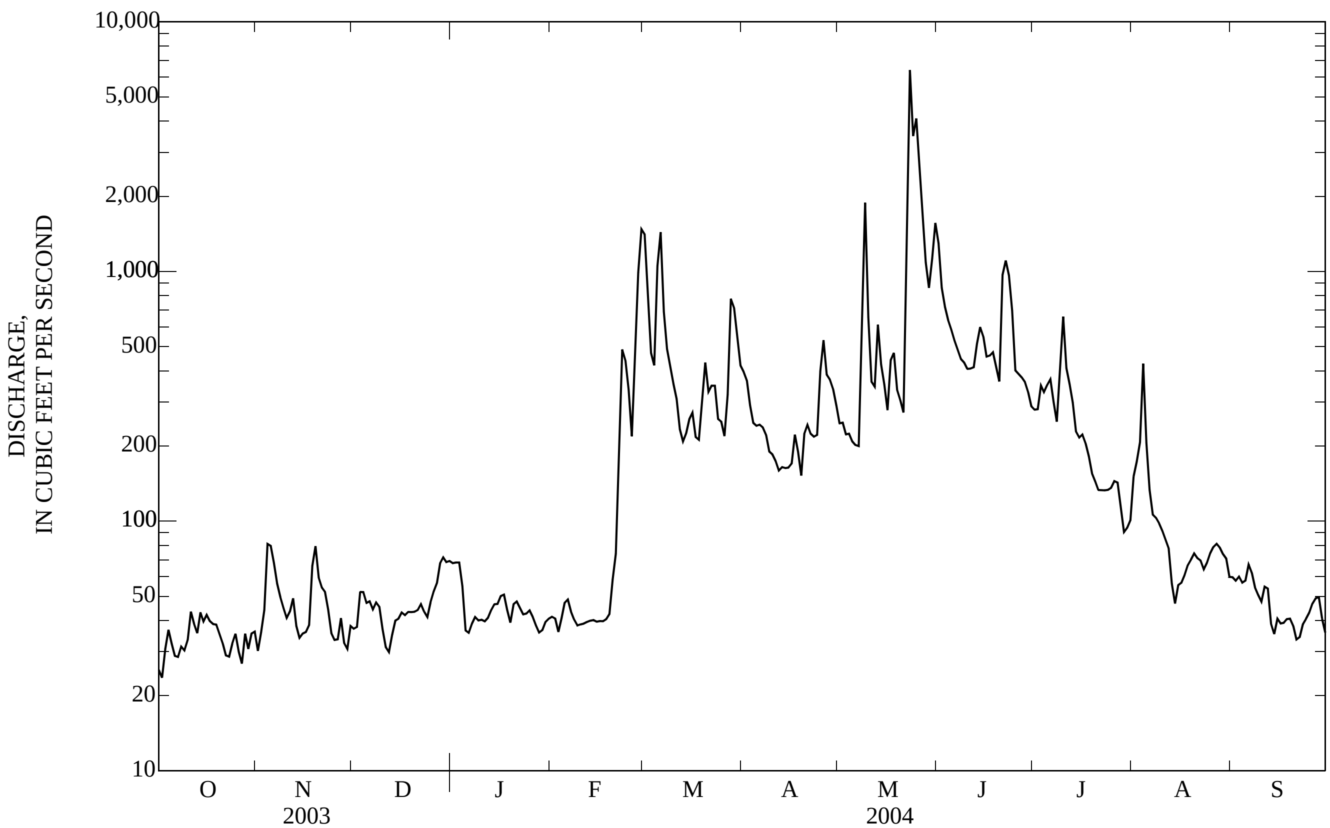
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	122	136	118	95.7	208	363	373	514	488	381	164	129
MAX	670	588	356	439	838	1,479	1,222	1,458	1,646	2,731	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1971 - 2004 a	
ANNUAL TOTAL	68,639		94,847			
ANNUAL MEAN	188		259		258	
HIGHEST ANNUAL MEAN					701	1973
LOWEST ANNUAL MEAN					38.6	1977
HIGHEST DAILY MEAN	3,310	Jul 10	6,410	May 23	17,500	Jul 10, 1993
LOWEST DAILY MEAN	18	Sep 8	24	Oct 2	0.00	Jun 9, 1977 b
ANNUAL SEVEN-DAY MINIMUM	24	Sep 2	30	Oct 1	3.1	Jul 8, 1977
MAXIMUM PEAK FLOW			9,970	May 23	22,400	Jul 9, 1993
MAXIMUM PEAK STAGE			13.25	May 23	20.04	Jul 9, 1993
ANNUAL RUNOFF (AC-FT)	136,100		188,100		186,800	
ANNUAL RUNOFF (CFSM)	0.427		0.589		0.586	
ANNUAL RUNOFF (INCHES)	5.80		8.02		7.96	
10 PERCENT EXCEEDS	387		535		571	
50 PERCENT EXCEEDS	64		73		104	
90 PERCENT EXCEEDS	33		36		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 SW1/4 NE1/4 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	80	125	129	e83	2,480	910	597	3,300	584	247	165
2	65	83	113	131	e83	1,800	872	581	e2,300	578	334	159
3	67	128	114	135	e71	982	723	557	1,660	722	345	153
4	70	304	131	e89	e73	738	639	534	1,390	745	1,910	149
5	74	214	129	e75	e74	1,660	601	526	1,250	672	800	246
6	69	151	123	e76	e77	2,630	593	495	1,150	733	423	381
7	67	122	112	e79	e71	1,450	573	501	1,030	623	304	220
8	66	102	115	e87	e74	919	554	496	917	549	269	164
9	69	94	125	e77	e79	770	510	4,080	853	1,310	254	151
10	68	96	102	e76	e92	629	482	2,400	839	1,410	234	148
11	73	97	118	e84	e96	555	469	1,490	811	1,090	214	146
12	80	96	124	e81	e89	466	453	1,070	770	1,060	206	147
13	78	95	104	e81	e89	402	438	1,520	1,000	782	199	141
14	84	83	95	e77	e87	411	438	1,450	1,940	620	e170	134
15	88	83	98	e74	e82	418	434	1,130	1,520	537	e168	135
16	84	85	100	e82	e96	479	432	913	1,070	522	e170	138
17	81	87	98	e79	e97	445	496	1,060	893	492	174	133
18	79	113	94	e71	e107	450	487	2,980	913	e420	181	136
19	79	155	102	e68	e114	647	444	1,480	795	e375	184	139
20	79	136	97	e75	e113	882	458	1,140	703	334	177	135
21	76	111	94	e86	e143	726	852	993	786	313	177	130
22	74	101	103	e71	e309	551	659	1,710	2,050	312	172	129
23	72	104	111	e94	e582	623	577	21,500	1,490	298	176	132
24	73	102	110	e85	e532	530	559	11,400	1,260	292	177	133
25	75	107	99	e86	e431	482	738	12,500	861	293	198	134
26	77	100	99	e81	e341	449	1,040	6,960	771	293	216	134
27	76	109	122	e77	e690	625	860	4,360	744	292	210	139
28	79	107	143	e73	1,890	2,210	799	2,950	736	274	200	137
29	82	103	149	e73	2,590	1,750	713	2,650	687	249	181	133
30	80	118	141	e74	---	1,330	682	3,100	617	239	185	130
31	82	---	127	e78	---	1,070	---	3,390	---	239	176	---
TOTAL	2,332	3,466	3,517	2,604	9,255	29,559	18,485	96,513	35,106	17,252	9,031	4,651
MEAN	75.2	116	113	84.0	319	954	616	3,113	1,170	557	291	155
MAX	88	304	149	135	2,590	2,630	1,040	21,500	3,300	1,410	1,910	381
MIN	65	80	94	68	71	402	432	495	617	239	168	129
AC-FT	4,630	6,870	6,980	5,170	18,360	58,630	36,660	191,400	69,630	34,220	17,910	9,230
CFSM	0.08	0.12	0.11	0.08	0.32	0.96	0.62	3.13	1.18	0.56	0.29	0.16
IN.	0.09	0.13	0.13	0.10	0.35	1.11	0.69	3.61	1.31	0.65	0.34	0.17

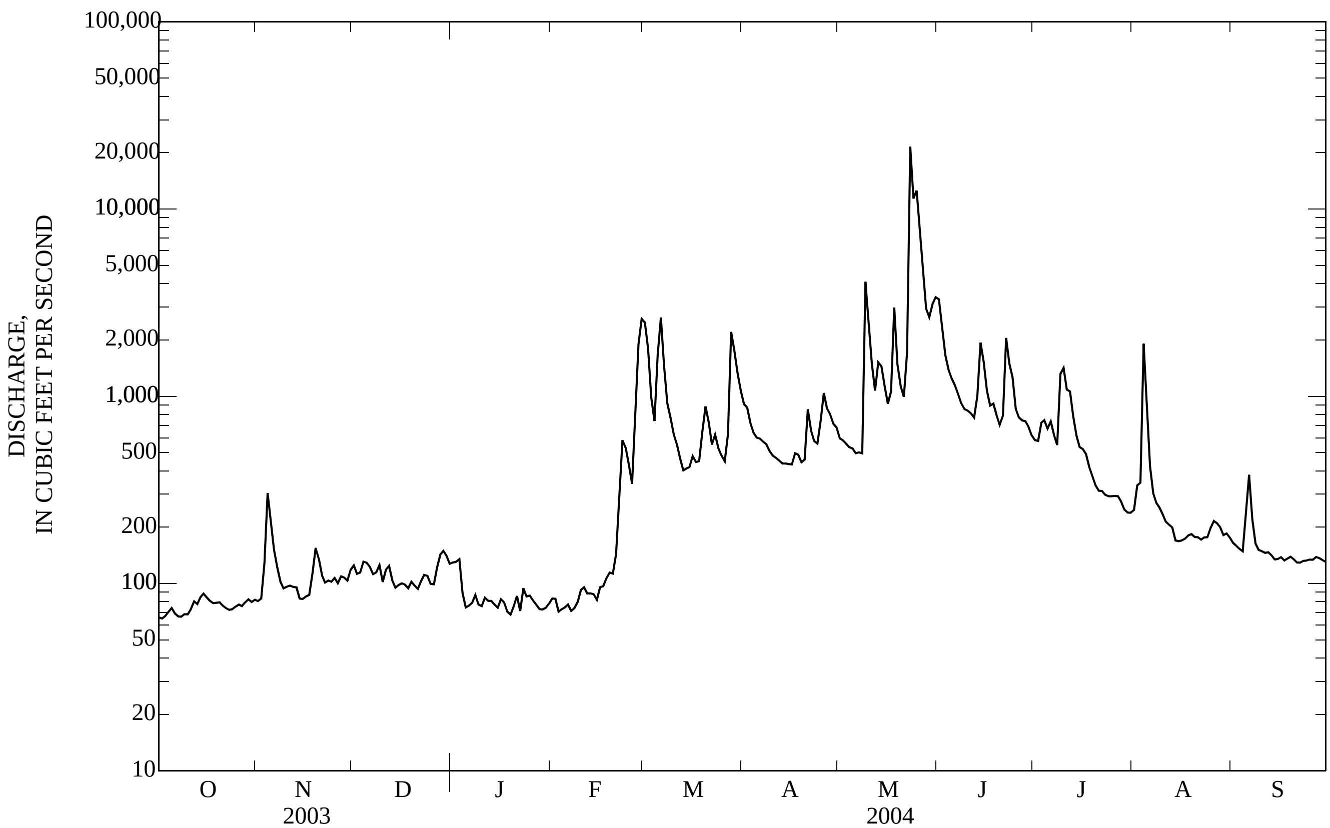
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	230	231	190	171	386	816	750	927	1,031	645	366	276
MAX	1,501	1,162	826	565	1,785	3,112	2,474	3,113	5,017	5,494	2,745	1,385
(WY)	(1987)	(1973)	(1993)	(1983)	(1971)	(1979)	(1984)	(2004)	(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	147,681		231,771			
ANNUAL MEAN	405		633		502	
HIGHEST ANNUAL MEAN					1,632	1993
LOWEST ANNUAL MEAN					91.4	1968
HIGHEST DAILY MEAN	7,220	May 5	21,500	May 23	33,600	Jul 10, 1993
LOWEST DAILY MEAN	65	Sep 30	65	Oct 2	17	Aug 4, 1977
ANNUAL SEVEN-DAY MINIMUM	68	Sep 28	68	Oct 1	20	Jan 24, 1954
MAXIMUM PEAK FLOW			28,300	May 23	44,000	Jul 10, 1993
MAXIMUM PEAK STAGE			22.40	May 23	29.04	Jul 2, 1958
INSTANTANEOUS LOW FLOW			63	Oct 1 a		
ANNUAL RUNOFF (AC-FT)	292,900		459,700		363,400	
ANNUAL RUNOFF (CFSM)	0.407		0.637		0.505	
ANNUAL RUNOFF (INCHES)	5.53		8.67		6.86	
10 PERCENT EXCEEDS	795		1,350		1,110	
50 PERCENT EXCEEDS	149		192		202	
90 PERCENT EXCEEDS	79		77		60	

a Also Oct. 2.
e Estimated.



05484500 RACCOON RIVER AT VAN METER, IA

LOCATION.--Lat 41°32'02", long 93°56'59", in SW¼ SW¼ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169	162	240	e273	e115	e5,860	4,190	2,390	11,300	e3,010	e846	487
2	163	178	239	e302	e119	e6,650	3,490	2,110	10,700	e2,890	889	448
3	164	256	237	e226	e119	e5,520	2,900	1,920	8,610	2,800	1,100	427
4	163	619	e225	e84	e128	e4,410	2,500	1,750	6,900	3,710	3,720	400
5	173	491	e239	e68	e133	e4,400	2,220	1,640	5,890	3,760	3,310	e390
6	170	356	e228	e113	e128	e6,340	2,040	1,550	5,170	3,600	3,620	827
7	165	301	e205	e155	e138	e7,060	1,900	1,480	4,520	3,410	2,540	542
8	160	265	e203	e208	e147	e6,250	1,760	1,440	3,970	3,000	1,710	460
9	160	243	e213	e199	e147	e4,730	1,620	5,720	3,520	e3,310	1,390	404
10	158	233	e176	e213	e150	e2,500	1,500	5,140	3,270	e3,960	1,250	e355
11	162	230	e141	e253	e165	e1,960	1,410	3,330	3,170	e3,920	1,120	e330
12	169	222	e183	e249	e162	e1,640	1,340	2,450	3,600	e3,960	994	e312
13	171	206	e203	e235	e171	e2,000	1,270	2,710	4,290	e3,380	893	e306
14	181	195	e188	e236	e175	e1,770	1,230	3,670	6,520	e3,370	812	309
15	184	199	e201	e235	e171	e1,670	1,200	3,130	6,340	e3,270	724	298
16	196	199	e206	e231	e175	e1,690	1,160	2,620	4,760	e2,900	680	293
17	187	203	e207	e221	e188	e1,590	1,190	2,330	4,150	e2,420	644	289
18	184	230	e195	e185	e225	1,540	1,220	6,220	7,480	e2,050	626	287
19	179	283	e202	e175	e277	1,870	1,180	3,670	9,150	e1,790	650	285
20	178	330	e212	e191	e288	2,270	1,170	2,820	11,400	1,700	659	371
21	173	293	e210	e213	e338	2,290	1,730	2,480	14,200	1,590	628	433
22	176	277	e213	e184	e526	2,030	1,630	2,510	13,400	1,470	603	415
23	165	267	e226	e228	e1,200	1,980	1,640	22,900	9,720	1,380	e560	441
24	161	253	e252	e209	e1,600	1,800	1,740	27,500	7,160	1,320	551	423
25	159	201	e257	e211	e1,270	1,630	2,030	24,000	5,870	1,260	528	394
26	159	216	e235	e197	e929	1,530	2,400	17,800	5,220	1,180	e540	373
27	160	225	e226	e163	e1,060	1,550	2,890	15,500	4,710	1,110	e570	378
28	164	218	e246	e129	e1,960	4,380	3,200	12,500	4,240	1,040	e610	372
29	158	203	e247	e104	e3,870	4,950	3,110	9,130	3,950	995	e700	360
30	161	225	e242	e95	---	5,710	2,730	8,460	e3,520	931	e640	349
31	155	---	e269	e106	---	5,310	---	10,200	---	e865	542	---
TOTAL	5,227	7,779	6,766	5,891	16,074	104,880	59,590	211,070	196,700	75,351	34,649	11,758
MEAN	169	259	218	190	554	3,383	1,986	6,809	6,557	2,431	1,118	392
MAX	196	619	269	302	3,870	7,060	4,190	27,500	14,200	3,960	3,720	827
MIN	155	162	141	68	115	1,530	1,160	1,440	3,170	865	528	285
AC-FT	10,370	15,430	13,420	11,680	31,880	208,000	118,200	418,700	390,200	149,500	68,730	23,320
CFSM	0.05	0.08	0.06	0.06	0.16	0.98	0.58	1.98	1.91	0.71	0.32	0.11
IN.	0.06	0.08	0.07	0.06	0.17	1.13	0.64	2.28	2.13	0.81	0.37	0.13

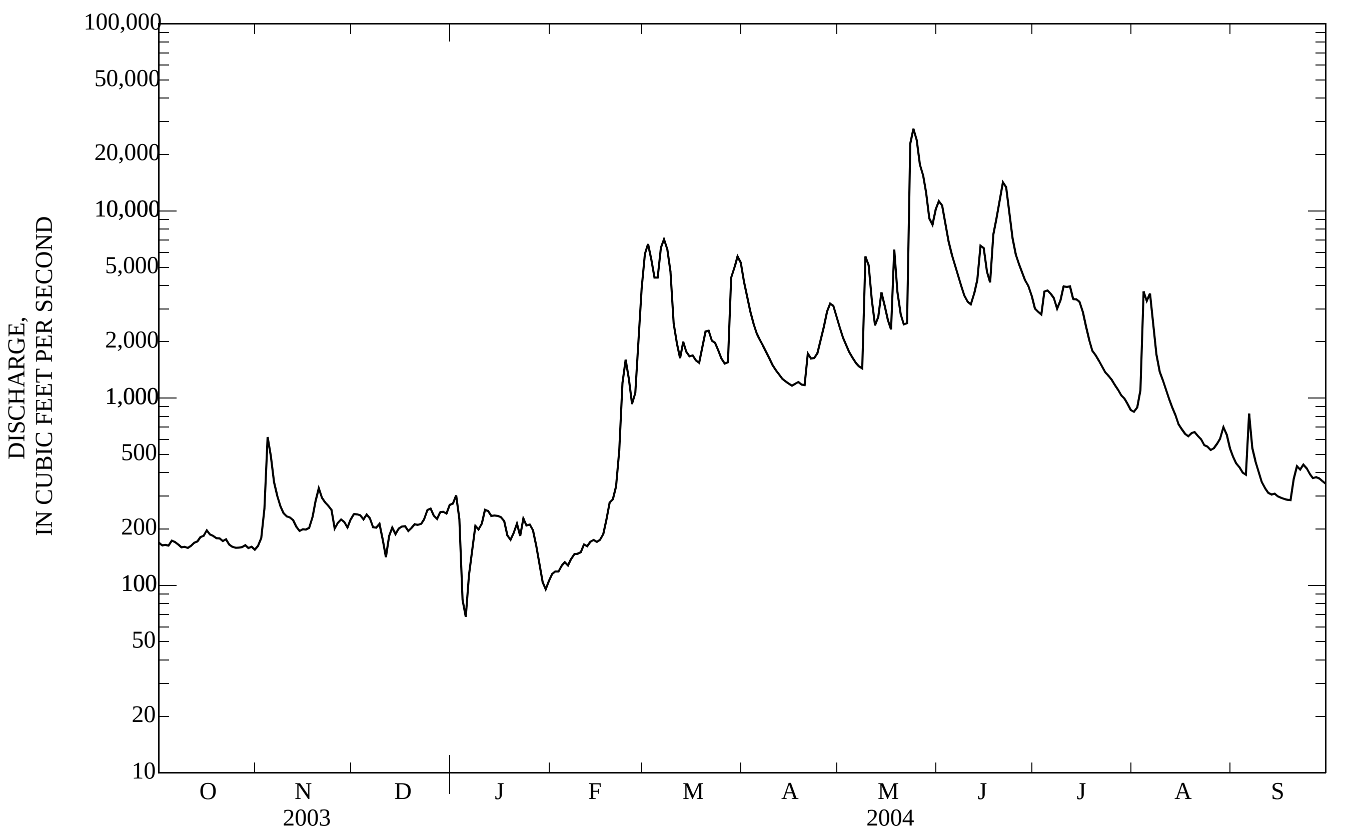
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	808	758	562	481	972	2,589	2,612	2,756	3,335	1,927	997	845
MAX	6,840	4,774	3,085	3,461	5,438	10,480	10,630	9,257	13,970	17,260	7,414	7,222
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1916 - 2004	
ANNUAL TOTAL	591,203		735,735			
ANNUAL MEAN	1,620		2,010		1,554	
HIGHEST ANNUAL MEAN					5,717	1993
LOWEST ANNUAL MEAN					166	1956
HIGHEST DAILY MEAN	18,000	May 9	27,500	May 24	57,500	Jul 10, 1993
LOWEST DAILY MEAN	93	Feb 25	68	Jan 5 a	10	Jan 22, 1940 b
ANNUAL SEVEN-DAY MINIMUM	159	Oct 25	112	Jan 29	10	Jan 22, 1940
MAXIMUM PEAK FLOW			36,900	May 23	70,100	Jul 10, 1993
MAXIMUM PEAK STAGE			21.59	May 23	26.34	Jul 10, 1993
INSTANTANEOUS LOW FLOW					10	Jan 22, 1940
ANNUAL RUNOFF (AC-FT)	1,173,000		1,459,000		1,126,000	
ANNUAL RUNOFF (CFSM)	0.471		0.584		0.452	
ANNUAL RUNOFF (INCHES)	6.39		7.95		6.14	
10 PERCENT EXCEEDS	4,490		5,150		3,950	
50 PERCENT EXCEEDS	367		627		600	
90 PERCENT EXCEEDS	184		164		118	

a Ice affected.
b 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 NGVD of 1929.

REMARKS.--Records good. Discharge not published, low-flow use only. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 38.80 ft. May 9, 2003; minimum gage height, 26.14 ft. Dec. 5,2000.

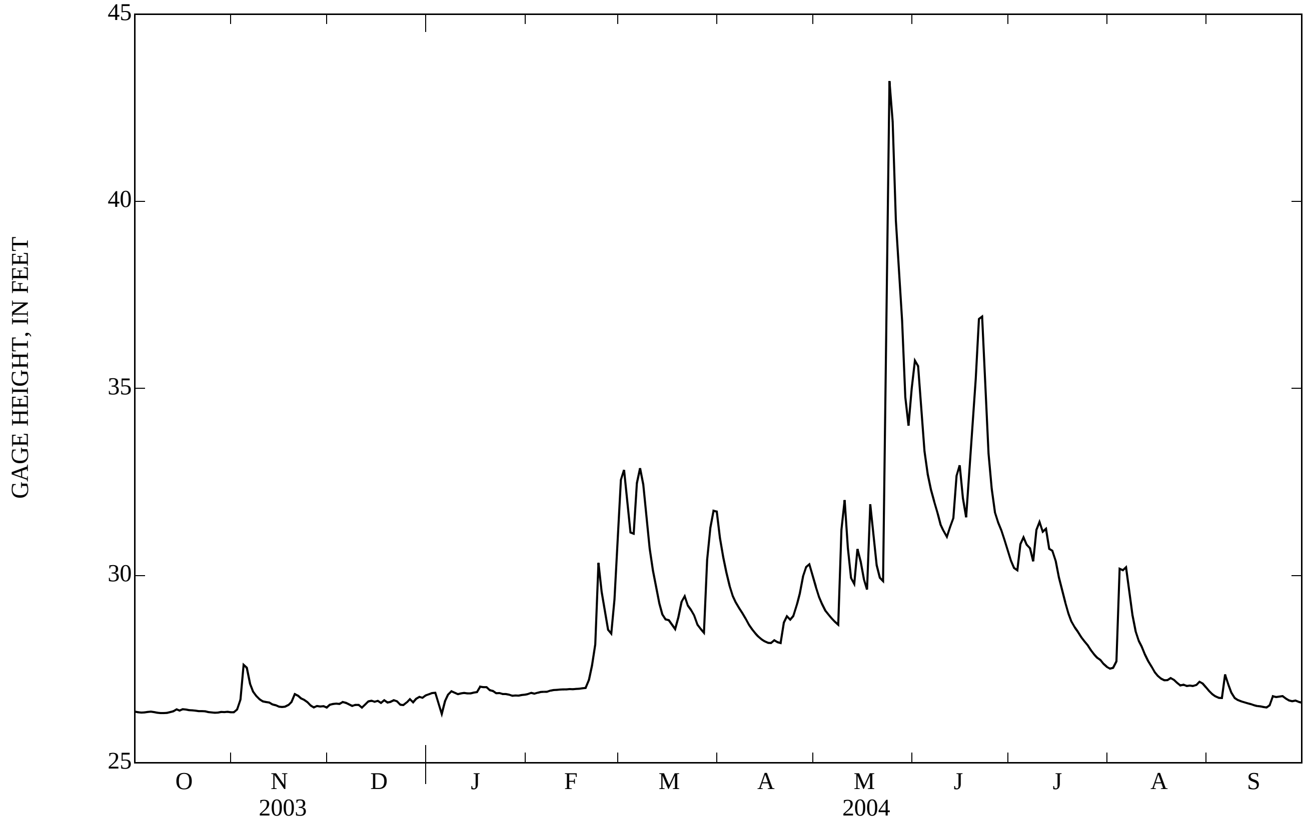
EXTREMES FOR CURRENT YEAR.--Maximum gage height, 44.19 ft on May 24; minimum gage height, 26.17 ft on Jan. 5.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.36	26.34	26.54	26.82	26.83	32.55	31.00	29.70	35.74	e30.40	27.51	26.91
2	26.34	26.42	26.57	26.86	26.86	32.82	30.50	29.43	35.60	e30.20	27.53	26.83
3	26.33	26.67	26.58	26.87	26.84	31.95	30.08	29.23	34.54	e30.14	27.70	26.77
4	26.34	27.61	26.57	26.58	26.87	31.15	29.73	29.06	33.31	30.83	30.18	26.73
5	26.35	27.53	26.62	26.30	26.89	31.11	29.46	28.95	32.71	31.02	30.14	26.72
6	26.36	27.11	26.60	26.64	26.89	32.47	29.27	28.85	32.30	e30.82	e30.22	27.35
7	26.35	26.89	26.55	26.82	26.89	32.86	29.13	28.76	31.99	e30.73	29.58	27.09
8	26.33	26.78	26.51	26.90	26.92	32.43	28.99	28.68	31.69	e30.38	28.95	26.86
9	26.32	26.69	26.54	26.87	26.94	31.50	28.85	31.22	31.37	31.21	28.51	26.73
10	26.32	26.63	26.54	26.83	26.94	30.72	28.69	32.02	31.18	31.43	28.25	26.67
11	26.33	26.62	26.47	26.85	26.95	30.14	28.56	30.74	31.03	e31.17	28.09	26.63
12	26.35	26.60	26.55	26.86	26.96	29.70	28.46	29.93	31.29	31.25	27.88	26.61
13	26.37	26.56	26.64	26.85	26.95	29.26	28.36	29.77	31.52	30.71	27.71	26.59
14	26.42	26.53	26.65	26.85	26.96	28.96	28.29	30.71	32.65	30.66	27.57	26.56
15	26.39	26.49	26.62	26.87	26.96	28.83	28.24	30.37	32.94	e30.40	27.42	26.53
16	26.43	26.49	26.65	26.88	26.97	28.81	28.20	29.91	32.06	e29.96	27.32	26.51
17	26.42	26.49	26.59	27.03	26.97	28.69	28.19	29.62	31.55	e29.62	27.24	26.50
18	26.40	26.54	26.67	27.02	26.99	28.57	28.27	31.90	32.92	e29.29	27.20	26.48
19	26.40	26.62	26.60	27.02	26.99	28.88	28.22	31.04	34.15	e28.99	27.21	26.47
20	26.39	26.83	26.62	26.94	27.20	29.29	28.19	30.28	35.25	e28.76	27.26	26.53
21	26.38	26.78	26.66	26.91	27.60	29.45	28.73	e29.94	36.85	e28.61	27.21	26.77
22	26.37	26.71	26.64	26.85	28.16	29.19	28.91	e29.85	36.92	e28.49	27.13	26.75
23	26.37	26.68	26.55	26.86	30.34	29.07	28.82	37.67	34.93	28.35	27.06	26.76
24	26.35	26.62	26.54	26.83	29.56	28.92	28.92	43.21	33.26	28.24	27.08	26.78
25	26.34	26.52	26.60	26.83	29.04	28.68	29.19	e42.13	32.31	28.14	27.05	26.71
26	26.33	26.47	26.69	26.82	28.55	28.57	29.52	39.49	e31.69	28.01	27.06	26.66
27	26.34	26.51	26.61	26.78	28.45	28.47	29.97	38.18	e31.42	27.90	27.05	26.64
28	26.35	26.50	26.71	26.79	29.36	30.42	30.23	36.81	e31.21	27.80	27.07	26.66
29	26.35	26.51	26.76	26.79	31.10	31.27	30.30	34.77	e30.95	27.74	27.16	26.62
30	26.36	26.47	26.73	26.81	---	31.73	30.00	34.01	e30.67	27.64	27.11	26.60
31	26.34	---	26.79	26.82	---	31.71	---	e35.00	---	27.56	27.01	---
MEAN	26.36	26.67	26.61	26.83	27.62	30.26	29.11	32.30	32.87	29.56	27.79	26.70
MAX	26.43	27.61	26.79	27.03	31.10	32.86	31.00	43.21	36.92	31.43	30.22	27.35
MIN	26.32	26.34	26.47	26.30	26.83	28.47	28.19	28.68	30.67	27.56	27.01	26.47

e Estimated

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 NGVD of 1929.

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 data collection platform with satellite telelmetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	165	221	312	e130	6,120	4,380	2,730	11,400	3,120	856	448
2	172	192	233	364	e132	6,850	3,760	2,470	11,100	2,980	872	407
3	166	392	241	e290	e126	5,610	3,350	2,290	9,100	2,950	1,060	370
4	156	1,040	234	e98	e132	4,540	3,010	2,130	6,940	3,300	3,380	348
5	158	788	e253	e89	e140	4,500	2,750	2,020	6,010	3,640	3,250	387
6	165	518	e237	e134	e138	6,410	2,590	1,920	5,470	3,550	3,330	784
7	163	391	e222	e187	e148	7,290	2,450	1,780	5,030	3,470	2,910	596
8	164	336	e214	e228	e159	6,620	2,320	1,670	4,660	3,120	2,180	426
9	165	300	e224	e219	e159	5,240	2,190	4,140	4,310	3,380	1,820	351
10	166	279	e200	e230	e168	4,190	2,040	5,350	4,130	4,040	1,530	317
11	169	278	e153	e263	e172	3,570	1,920	3,650	3,930	3,950	1,370	291
12	169	269	e200	e259	e168	3,170	1,760	2,810	4,230	4,010	1,160	274
13	173	244	e218	e245	e174	2,790	1,620	2,590	4,610	3,440	995	263
14	198	237	e196	e248	e180	2,530	1,500	3,430	5,920	3,430	877	252
15	180	228	199	e241	e174	2,380	1,420	3,210	6,480	3,290	757	247
16	185	223	205	e241	e181	2,350	1,350	2,760	5,250	2,920	675	234
17	188	232	e213	e230	e193	2,280	1,310	2,500	4,600	2,640	605	230
18	184	249	e199	e194	e239	2,190	1,380	4,910	6,130	2,420	572	224
19	181	268	e211	e181	e262	2,350	1,310	4,000	8,040	2,220	564	222
20	178	344	223	e203	e321	2,650	1,340	3,060	9,940	2,060	602	233
21	175	333	216	e221	e450	2,800	1,750	2,730	13,200	1,950	571	362
22	173	304	217	e194	e590	2,600	2,040	2,620	14,200	1,820	531	361
23	173	301	231	e232	e1,470	2,470	1,940	13,800	10,300	1,650	494	368
24	169	264	e261	e210	e1,980	2,380	2,010	29,500	7,000	1,520	525	385
25	167	238	276	e216	e1,770	2,180	2,220	28,200	5,420	1,420	511	351
26	160	216	244	e205	e1,620	2,070	2,470	24,100	4,590	1,290	501	323
27	165	225	233	e169	e1,590	1,980	2,890	19,100	4,240	1,190	510	309
28	168	221	267	e142	e2,130	3,600	3,170	15,500	3,980	1,100	521	314
29	167	189	e262	e119	e3,950	4,720	3,300	11,000	3,640	1,050	566	297
30	171	204	e251	e110	---	5,250	3,010	8,840	3,340	968	563	291
31	170	---	e284	e125	---	5,330	---	10,400	---	883	501	---
TOTAL	5,314	9,468	7,038	6,399	19,046	119,010	68,550	225,210	197,190	78,771	35,159	10,265
MEAN	171	316	227	206	657	3,839	2,285	7,265	6,573	2,541	1,134	342
MAX	198	1,040	284	364	3,950	7,290	4,380	29,500	14,200	4,040	3,380	784
MIN	156	165	153	89	126	1,980	1,310	1,670	3,340	883	494	222
AC-FT	10,540	18,780	13,960	12,690	37,780	236,100	136,000	446,700	391,100	156,200	69,740	20,360
CFSM	0.05	0.09	0.06	0.06	0.19	1.09	0.65	2.06	1.86	0.72	0.32	0.10
IN.	0.06	0.10	0.07	0.07	0.20	1.25	0.72	2.37	2.08	0.83	0.37	0.11

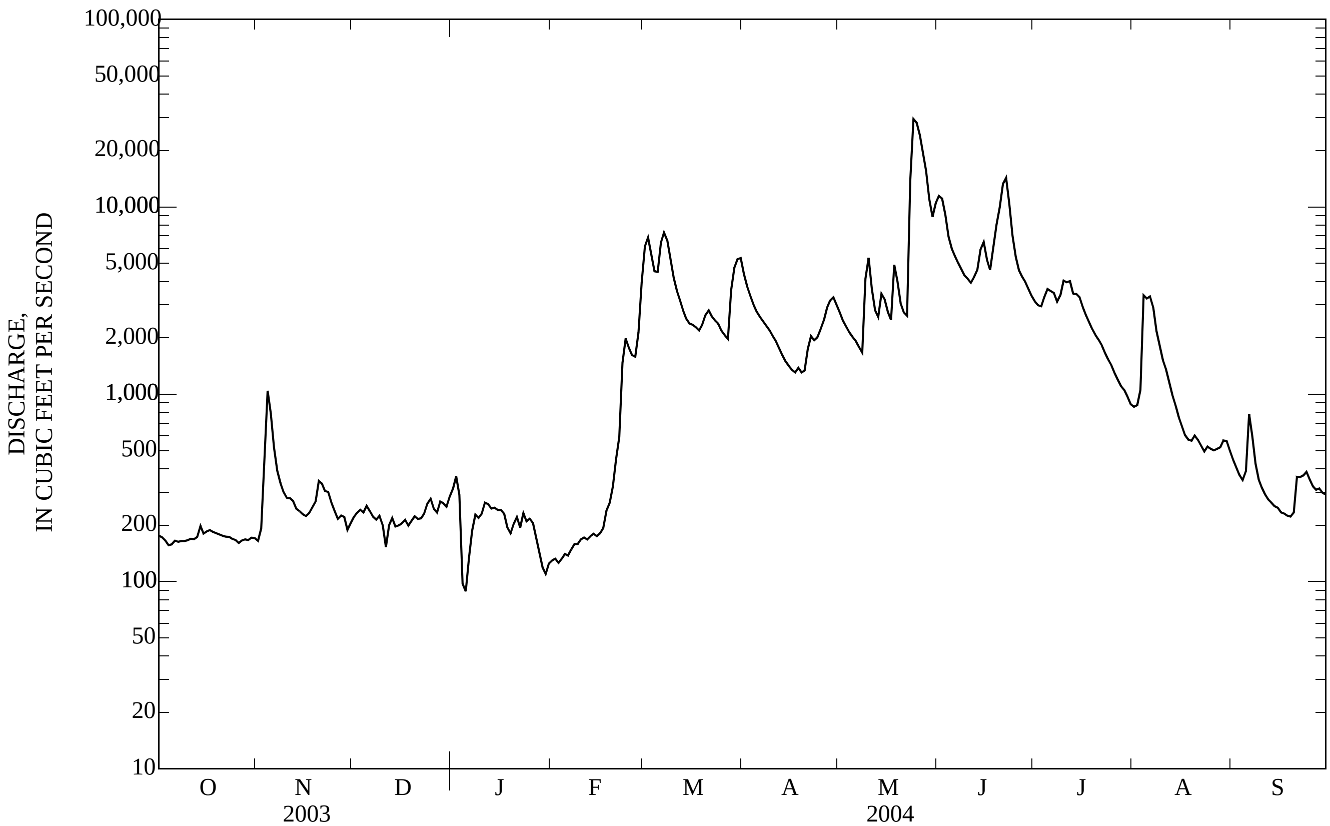
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	555	737	593	437	1,031	2,308	3,512	5,100	5,078	3,107	1,121	406
MAX	1,286	2,484	1,873	1,236	3,205	4,914	9,591	7,830	12,460	7,560	2,220	694
(WY)	(2003)	(1997)	(1997)	(1997)	(1997)	(2001)	(1999)	(1999)	(1998)	(1998)	(1998)	(1998)
MIN	124	246	148	200	211	407	281	334	603	714	339	164
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2000)	(2000)	(2000)	(2000)	(2002)	(2000)	(2000)

05484650 RACCOON RIVER AT 63RD STREET, DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	662,792		781,420			
ANNUAL MEAN	1,816		2,135		2,001	
HIGHEST ANNUAL MEAN					3,352	1998
LOWEST ANNUAL MEAN					375	2000
HIGHEST DAILY MEAN	18,400	May 9	29,500	May 24	36,300	Jun 16, 1998
LOWEST DAILY MEAN	153	Dec 11	89	Jan 5 a	80	Dec 25, 2000
ANNUAL SEVEN-DAY MINIMUM	162	Oct 3	125	Jan 29	94	Dec 20, 2000
MAXIMUM PEAK FLOW			30,800	May 24	40,300	Jun 16, 1998
MAXIMUM PEAK STAGE			38.22	May 24	40.77	Jul 11, 1993
ANNUAL RUNOFF (AC-FT)	1,315,000		1,550,000		1,450,000	
ANNUAL RUNOFF (CFSM)	0.515		0.605		0.567	
ANNUAL RUNOFF (INCHES)	6.99		8.24		7.71	
10 PERCENT EXCEEDS	4,620		5,090		5,180	
50 PERCENT EXCEEDS	440		581		700	
90 PERCENT EXCEEDS	193		169		221	

a Ice affected.
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 NGVD of 1929 (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 satellite and telephone modem telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.94	6.3	17	11	e4.9	75	84	83	139	35	36	5.0
2	1.4	69	16	9.8	e5.1	65	78	80	112	39	72	4.4
3	0.91	564	e15	e6.9	e4.8	53	75	79	99	91	285	4.2
4	1.0	467	e16	e5.9	e5.2	112	71	78	91	44	423	3.6
5	1.2	100	e18	e4.1	e5.6	219	70	77	86	51	53	140
6	1.2	70	e14	e2.4	e5.5	109	69	77	83	48	34	71
7	1.3	59	e12	e3.0	e4.8	80	68	75	76	41	26	21
8	1.5	53	e17	e4.8	e5.0	66	66	76	70	37	22	13
9	1.8	48	e15	e4.0	e5.2	60	63	175	66	70	19	8.1
10	1.9	45	e9.6	e4.9	e4.8	56	62	89	124	65	17	10
11	14	45	e2.6	e7.1	e5.1	52	61	81	84	231	15	6.3
12	9.1	42	e2.0	e6.5	e4.3	47	62	80	72	90	14	3.5
13	16	40	e2.6	e6.1	e4.2	53	61	107	135	55	12	2.7
14	52	37	e3.9	e6.9	e4.4	58	62	100	178	44	12	5.5
15	13	36	e7.9	e8.2	e4.0	54	62	88	113	37	9.4	12
16	7.0	35	e11	69	e4.4	71	63	85	196	33	8.1	4.3
17	5.1	47	e7.7	105	e4.2	78	79	159	83	29	7.8	1.9
18	4.5	56	11	101	e13	97	65	332	68	27	18	1.5
19	4.3	37	11	46	e34	106	64	191	62	24	14	1.1
20	4.2	32	9.0	37	e167	94	188	141	58	23	9.1	0.80
21	4.1	29	e8.0	33	e142	75	259	118	59	34	7.8	0.72
22	4.3	26	12	e24	e254	70	163	184	54	34	6.5	0.65
23	4.3	e21	e9.3	e20	193	67	122	1,220	50	25	5.9	0.63
24	4.4	e14	e8.9	e12	75	66	155	745	49	23	92	0.75
25	4.3	e20	9.5	e13	52	65	147	1,690	46	20	33	0.73
26	4.3	e19	9.0	e8.2	48	63	115	324	43	18	20	0.96
27	9.5	e19	11	e5.3	55	95	102	204	42	17	23	1.6
28	20	e14	15	e4.7	59	184	97	157	60	16	17	2.6
29	8.5	e15	15	e4.3	60	120	89	131	40	29	11	2.3
30	6.6	e16	15	e3.9	---	100	86	260	36	18	14	2.7
31	5.5	---	15	e4.4	---	90	---	202	---	15	7.6	---
TOTAL	218.15	2,081.3	346.0	582.4	1,233.5	2,600	2,808	7,488	2,474	1,363	1,344.2	333.54
MEAN	7.04	69.4	11.2	18.8	42.5	83.9	93.6	242	82.5	44.0	43.4	11.1
MAX	52	564	18	105	254	219	259	1,690	196	231	423	140
MIN	0.91	6.3	2.0	2.4	4.0	47	61	75	36	15	5.9	0.63
AC-FT	433	4,130	686	1,160	2,450	5,160	5,570	14,850	4,910	2,700	2,670	662
CFSM	0.09	0.88	0.14	0.24	0.54	1.07	1.19	3.08	1.05	0.56	0.55	0.14
IN.	0.10	0.99	0.16	0.28	0.59	1.23	1.33	3.55	1.17	0.65	0.64	0.16

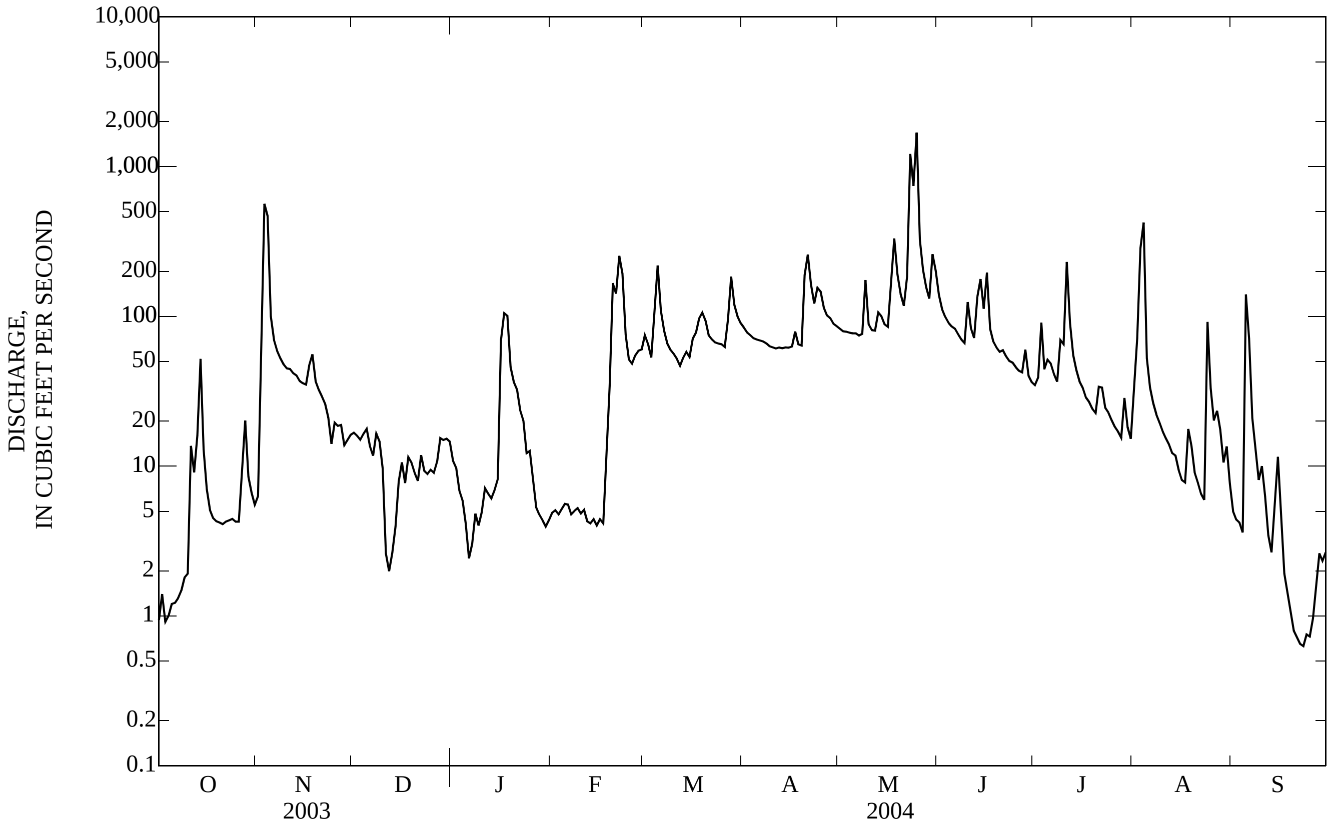
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	29.6	36.0	28.0	20.8	41.6	70.7	96.1	127	117	78.2	44.4	28.6
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	0.88	0.17	0.00	0.48	3.17	2.72	6.36	7.62	2.96	2.10	0.57
(WY)	(1972)	(1977)	(1977)	(1977)	(1977)	(1981)	(1981)	(1977)	(1977)	(1985)	(2003)	(1976)

05484800 WALNUT CREEK AT DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1972 - 2004	
ANNUAL TOTAL	14,754.86		22,872.09			
ANNUAL MEAN	40.4		62.5		59.8	
HIGHEST ANNUAL MEAN					158	1993
LOWEST ANNUAL MEAN					10.3	1989
HIGHEST DAILY MEAN	1,680	May 4	1,690	May 25	4,520	Jul 1, 1973
LOWEST DAILY MEAN	0.23	Jan 23	0.63	Sep 23	0.00	Jan 3, 1977 a
ANNUAL SEVEN-DAY MINIMUM	0.47	Sep 4	0.75	Sep 20	0.00	Jan 3, 1977
MAXIMUM PEAK FLOW			3,370	May 25	12,500	May 10, 1986
MAXIMUM PEAK STAGE			13.57	May 25	18.32	May 10, 1986
INSTANTANEOUS LOW FLOW			0.50	Sep 22		
ANNUAL RUNOFF (AC-FT)	29,270		45,370		43,320	
ANNUAL RUNOFF (CFSM)	0.516		0.797		0.763	
ANNUAL RUNOFF (INCHES)	7.00		10.85		10.36	
10 PERCENT EXCEEDS	71		126		140	
50 PERCENT EXCEEDS	9.5		34		22	
90 PERCENT EXCEEDS	0.97		4.1		2.4	

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$\frac{1}{4}$ NE$\frac{1}{4}$ sec.8, T.78 N., R.24 W., Polk County, Hydrologic Unit 07100006, on downstream side of Fleur Drive bridge(SW 18th St.) attached to handrail 465 ft. from right edge of bridge, 3.0 miles downstream from Walnut Creek, 2.6 miles upstream from mouth, and at mile 204.1 above mouth of Des Moines River.

DRAINAGE AREA.-- 3,625 mi^2.

PERIOD OF RECORD.-- June 1984 to current year; June 1984 to September 1996 gage-height record only.

GAGE.--Water-stage recorder. Datum of gage is 780.70 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Discharges are affected by withdrawal by Des Moines Water Works. U.S. Geological Survey data collection platform with satellite telemetry and U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	165	198	e307	e159	6,150	4,440	2,620	11,600	3,300	899	516
2	143	409	e216	e339	e167	6,950	3,820	2,350	11,500	3,080	965	468
3	137	1,020	228	e276	e155	5,690	3,380	2,170	9,300	3,180	1,150	431
4	136	1,480	217	e112	e167	4,770	2,990	1,990	6,900	3,390	3,820	416
5	138	791	260	e83	e192	4,770	2,690	1,870	5,770	3,880	3,330	e472
6	147	569	247	e132	e167	5,970	2,470	1,800	5,320	3,730	3,310	e897
7	143	400	223	e186	e188	7,000	2,310	1,700	4,930	3,620	2,950	e676
8	140	345	212	e230	e182	6,290	2,160	1,660	4,580	3,220	2,070	544
9	130	330	e240	e217	e187	5,150	2,020	3,560	4,260	3,370	1,630	432
10	130	289	e235	e227	e190	4,230	1,860	5,260	4,170	4,270	1,380	374
11	141	262	e180	e262	e195	3,550	1,740	3,720	3,920	4,330	1,260	353
12	151	e248	e208	e257	e198	3,110	1,640	2,830	4,120	4,320	1,100	333
13	155	e230	e224	e244	e206	2,700	1,550	2,570	4,450	3,630	957	320
14	249	e219	e204	e245	e204	2,410	1,480	3,390	5,690	3,570	835	313
15	185	e210	e210	e247	e201	2,260	1,430	3,300	6,520	3,470	733	313
16	167	e200	e215	e241	e209	2,250	1,390	2,800	5,350	3,030	664	284
17	174	e216	e221	e237	e227	2,220	1,370	2,550	4,580	2,690	601	270
18	168	247	e212	e208	e275	2,170	1,410	4,840	5,770	2,420	563	264
19	170	230	e219	e186	e308	2,340	1,360	4,280	8,090	2,180	547	259
20	161	352	e225	e204	e370	2,650	1,550	3,180	9,930	1,960	568	261
21	159	367	e220	e224	e498	2,840	1,830	2,770	13,700	1,790	540	403
22	155	305	e221	e182	e654	2,630	2,030	2,710	15,200	1,690	497	407
23	148	349	e231	e216	e1,660	2,450	1,830	11,700	10,900	1,550	447	391
24	142	249	e256	e189	e2,150	2,370	1,940	30,400	7,520	1,440	603	413
25	153	e218	e263	e204	e1,930	2,140	2,180	e29,000	5,730	1,370	512	380
26	155	e199	e232	e179	e1,720	2,000	2,380	e25,100	4,930	1,260	471	345
27	159	e217	e228	e135	e1,670	1,930	2,780	19,300	4,560	1,180	500	323
28	184	e201	e253	e126	e2,220	3,460	3,050	15,600	4,320	1,090	554	330
29	172	e177	e267	e138	e4,130	4,660	3,170	10,800	3,940	1,070	540	318
30	172	e184	e251	e138	---	5,020	2,900	8,610	3,610	972	601	307
31	170	---	e279	e147	---	5,200	---	10,100	---	890	563	---
TOTAL	4,877	10,678	7,095	6,318	20,779	117,330	67,150	224,530	201,160	80,942	35,160	11,813
MEAN	157	356	229	204	717	3,785	2,238	7,243	6,705	2,611	1,134	394
MAX	249	1,480	279	339	4,130	7,000	4,440	30,400	15,200	4,330	3,820	897
MIN	130	165	180	83	155	1,930	1,360	1,660	3,610	890	447	259
AC-FT	9,670	21,180	14,070	12,530	41,220	232,700	133,200	445,400	399,000	160,500	69,740	23,430
CFSM	0.04	0.10	0.06	0.06	0.20	1.04	0.62	2.00	1.85	0.72	0.31	0.11
IN.	0.05	0.11	0.07	0.06	0.21	1.20	0.69	2.30	2.06	0.83	0.36	0.12

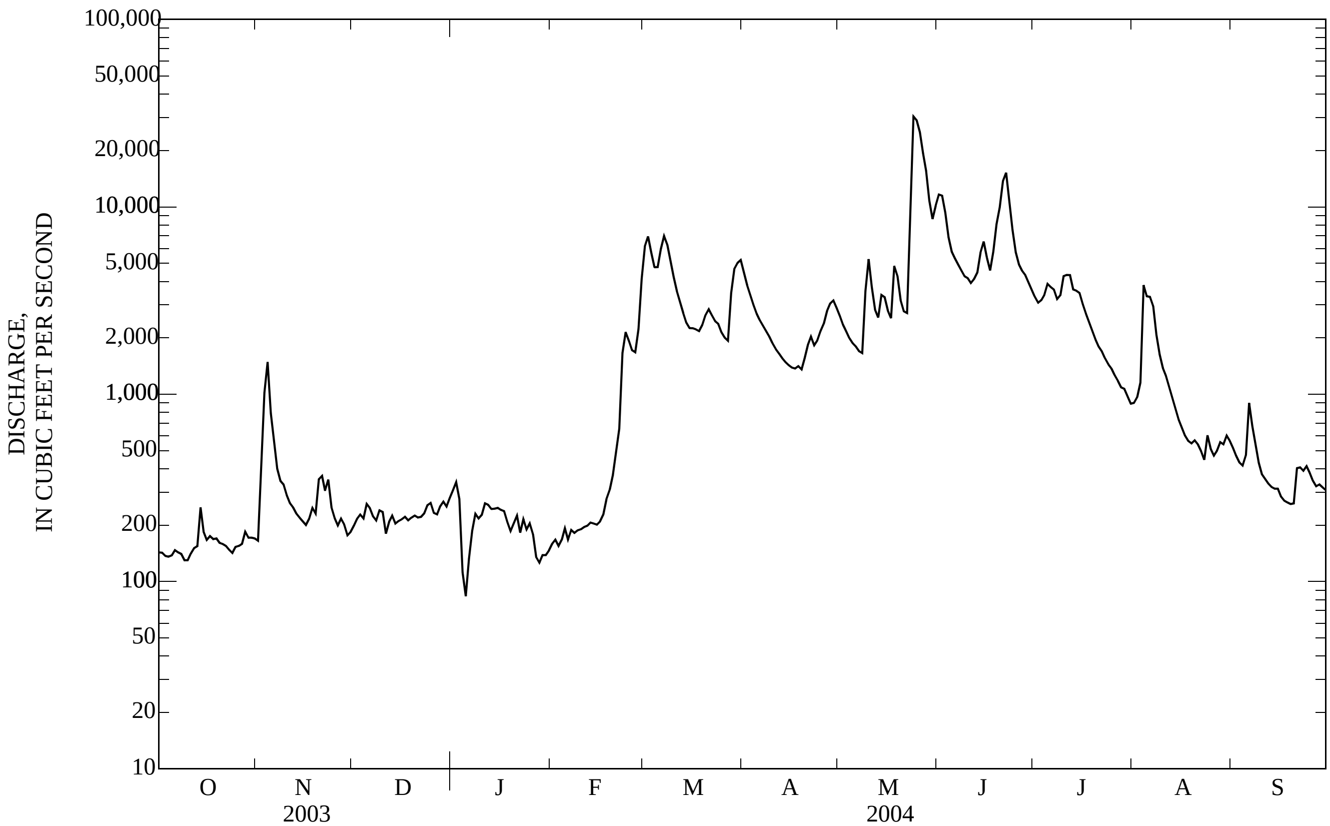
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

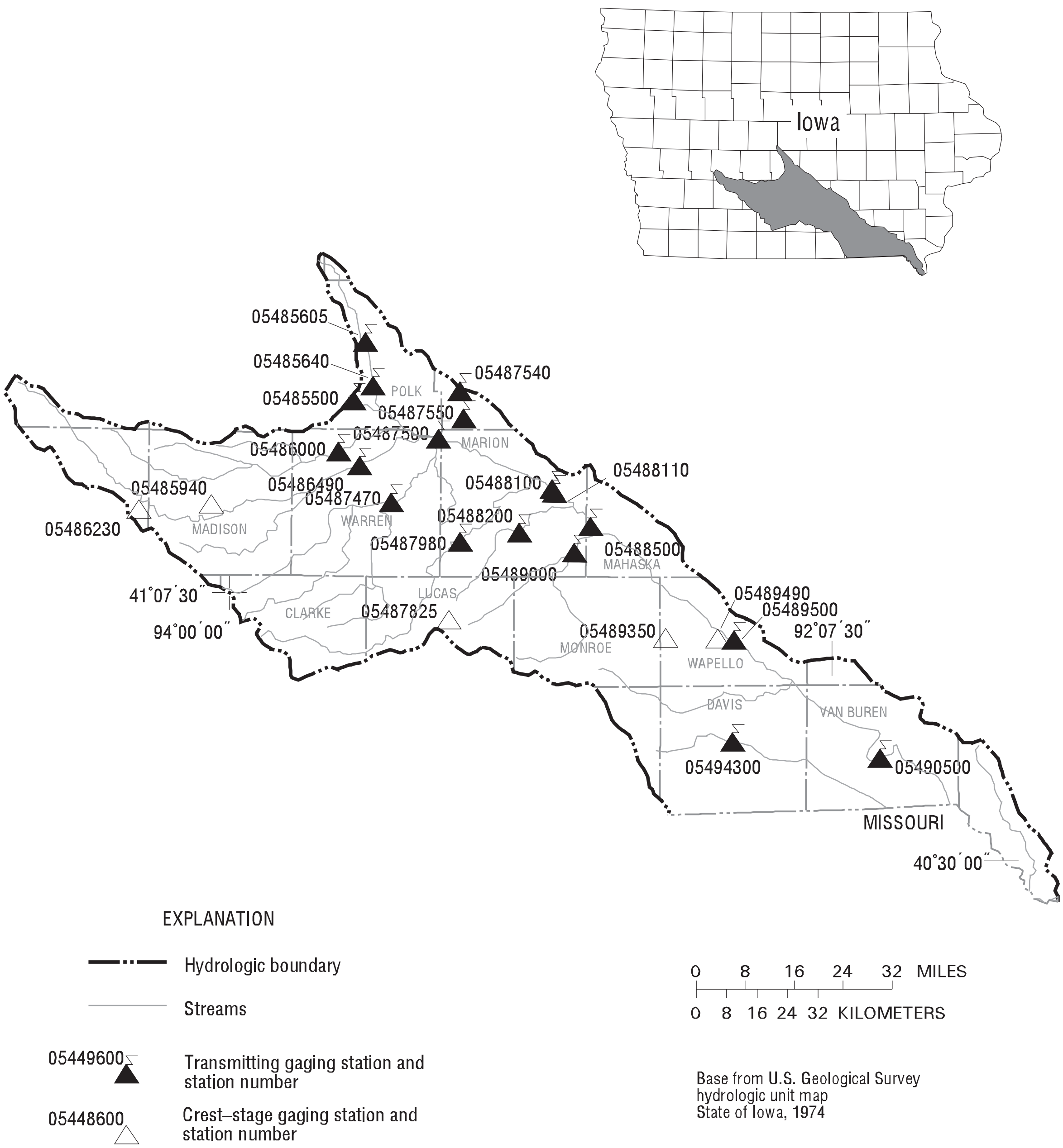
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	527	729	553	403	1,028	2,293	3,598	5,194	5,121	3,108	1,105	388
MAX	1,156	2,527	1,873	1,235	3,280	4,877	9,905	7,915	12,570	7,266	2,252	664
(WY)	(2003)	(1997)	(1997)	(1997)	(1997)	(2001)	(1999)	(1999)	(1998)	(1998)	(1998)	(1998)
MIN	120	265	177	169	180	349	277	370	671	670	334	124
(WY)	(2001)	(2000)	(2001)	(2000)	(2003)	(2000)	(2000)	(2000)	(2000)	(2002)	(2000)	(2000)

05484900 RACCOON RIVER AT FLEUR DRIVE, DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	646,121		787,832			
ANNUAL MEAN	1,770		2,153		2,006	
HIGHEST ANNUAL MEAN					3,350	1998
LOWEST ANNUAL MEAN					381	2000
HIGHEST DAILY MEAN	18,600	May 9	30,400	May 24	40,100	Jun 16, 1998
LOWEST DAILY MEAN	43	Feb 25	83	Jan 5 a	43	Feb 25, 2003
ANNUAL SEVEN-DAY MINIMUM	138	Oct 4	138	Oct 4	85	Sep 28, 2000
MAXIMUM PEAK FLOW			38,400	May 24	45,000	Jun 16, 1998
MAXIMUM PEAK STAGE			19.45	May 24	26.80	Jul 11, 1993
ANNUAL RUNOFF (AC-FT)	1,282,000		1,563,000		1,454,000	
ANNUAL RUNOFF (CFSM)	0.488		0.594		0.553	
ANNUAL RUNOFF (INCHES)	6.63		8.08		7.52	
10 PERCENT EXCEEDS	5,000		4,960		5,200	
50 PERCENT EXCEEDS	336		602		675	
90 PERCENT EXCEEDS	163		168		200	

a Ice affected.
e Estimated.

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MISSOURI
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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

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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 NGVD of 1929. Prior to Oct. 1, 1951, and Oct. 1, 1953 to Sept. 30, 1959, water-stage recorder upstream of Scott Street Dam, 0.8 mi upstream at datum 11.16 ft higher. Oct. 1, 1951 to Sept. 30, 1953, Oct. 1, 1959 to April 24, 1997 water-stage recorder .3 mi downstream at current datum, and Oct. 1, 1959 to Sept. 30, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 mi upstream from station. At times, water is pumped from Raccoon River into recharge basins or into Waterworks Reservoir, capacity 4,800 acre-ft. Effluent from sewage treatment plant enters the river 2.3 mi downstream from station. Net effect of diversions not known. Flow regulated by Saylorville Lake (station 05481630) 12.7 mi upstream, since Apr. 12, 1977. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station., U.S. National Weather Service Limited Automatic Remote Collector (LARC), and U.S. Geological Survey data logger at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320	315	411	543	e350	9,780	9,410	6,420	25,500	12,700	3,950	1,150
2	314	480	440	599	e325	11,800	7,580	5,540	23,500	11,800	3,650	1,060
3	310	1,580	473	592	e345	11,300	6,650	4,940	21,300	12,200	3,980	984
4	304	2,760	458	397	e315	10,300	6,020	4,400	19,000	12,100	6,990	953
5	300	1,190	476	e386	e305	10,100	5,260	4,140	17,800	12,400	6,870	1,150
6	301	823	484	e386	e295	11,500	4,590	3,890	17,200	11,600	6,430	2,130
7	301	641	670	e405	e300	13,200	4,410	3,700	16,800	11,300	5,440	1,980
8	300	565	e679	e372	e300	13,100	4,220	3,610	16,200	11,100	4,270	1,500
9	310	509	e724	e357	e310	11,300	3,960	5,580	15,600	11,800	3,670	973
10	310	486	e766	350	e311	8,790	3,640	7,670	15,600	12,900	3,380	882
11	342	474	e626	331	e317	7,080	3,500	5,760	15,400	13,300	3,210	758
12	347	442	641	308	e322	5,790	3,270	4,710	15,600	12,900	2,900	733
13	358	431	605	302	e344	4,730	2,990	4,470	16,100	11,200	2,550	719
14	514	429	421	293	e338	4,150	2,900	5,330	17,600	11,000	2,430	716
15	376	427	409	310	e333	3,980	2,850	5,580	18,500	10,800	2,240	731
16	355	410	415	341	e333	4,280	2,800	5,130	17,400	10,200	1,990	695
17	365	444	469	e398	e338	4,700	2,870	5,110	16,400	9,710	2,060	665
18	355	495	391	e356	e384	4,450	2,840	8,170	17,400	9,320	1,560	1,350
19	348	459	379	e338	e452	4,310	2,810	7,760	19,700	8,980	2,350	4,080
20	340	523	373	e347	e527	4,690	3,150	6,110	21,300	8,690	2,360	6,120
21	336	552	367	e347	e665	4,880	3,590	5,320	23,900	8,510	2,040	7,440
22	882	521	373	e319	e994	4,600	3,960	5,610	25,200	8,360	1,800	7,880
23	294	550	362	e329	e2,220	4,370	3,860	16,000	22,500	8,090	1,730	7,920
24	146	463	354	e315	e2,690	4,280	3,940	31,900	19,300	7,910	2,040	7,680
25	296	443	412	e342	e2,410	3,960	4,450	36,800	17,400	7,750	1,840	7,060
26	295	429	464	e315	e2,380	3,700	4,960	30,000	16,200	7,570	1,760	6,910
27	311	419	468	e296	2,800	3,660	5,650	24,200	15,600	7,410	1,820	6,590
28	343	413	500	e320	3,700	5,920	7,070	24,200	15,400	6,980	2,380	6,100
29	341	340	524	e315	6,240	9,300	8,110	24,800	14,800	6,360	2,630	5,480
30	328	397	467	e320	---	11,800	7,480	23,200	14,000	5,550	1,930	4,830
31	313	---	548	e324	---	12,000	---	24,700	---	4,510	1,600	---
TOTAL	10,655	18,410	15,149	11,253	30,943	227,800	138,790	354,750	548,200	305,000	93,850	97,219
MEAN	344	614	489	363	1,067	7,348	4,626	11,440	18,270	9,839	3,027	3,241
MAX	882	2,760	766	599	6,240	13,200	9,410	36,800	25,500	13,300	6,990	7,920
MIN	146	315	354	293	295	3,660	2,800	3,610	14,000	4,510	1,560	665
AC-FT	21,130	36,520	30,050	22,320	61,380	451,800	275,300	703,600	1,087,000	605,000	186,200	192,800
CFSM	0.03	0.06	0.05	0.04	0.11	0.74	0.47	1.16	1.85	1.00	0.31	0.33
IN.	0.04	0.07	0.06	0.04	0.12	0.86	0.52	1.34	2.06	1.15	0.35	0.37

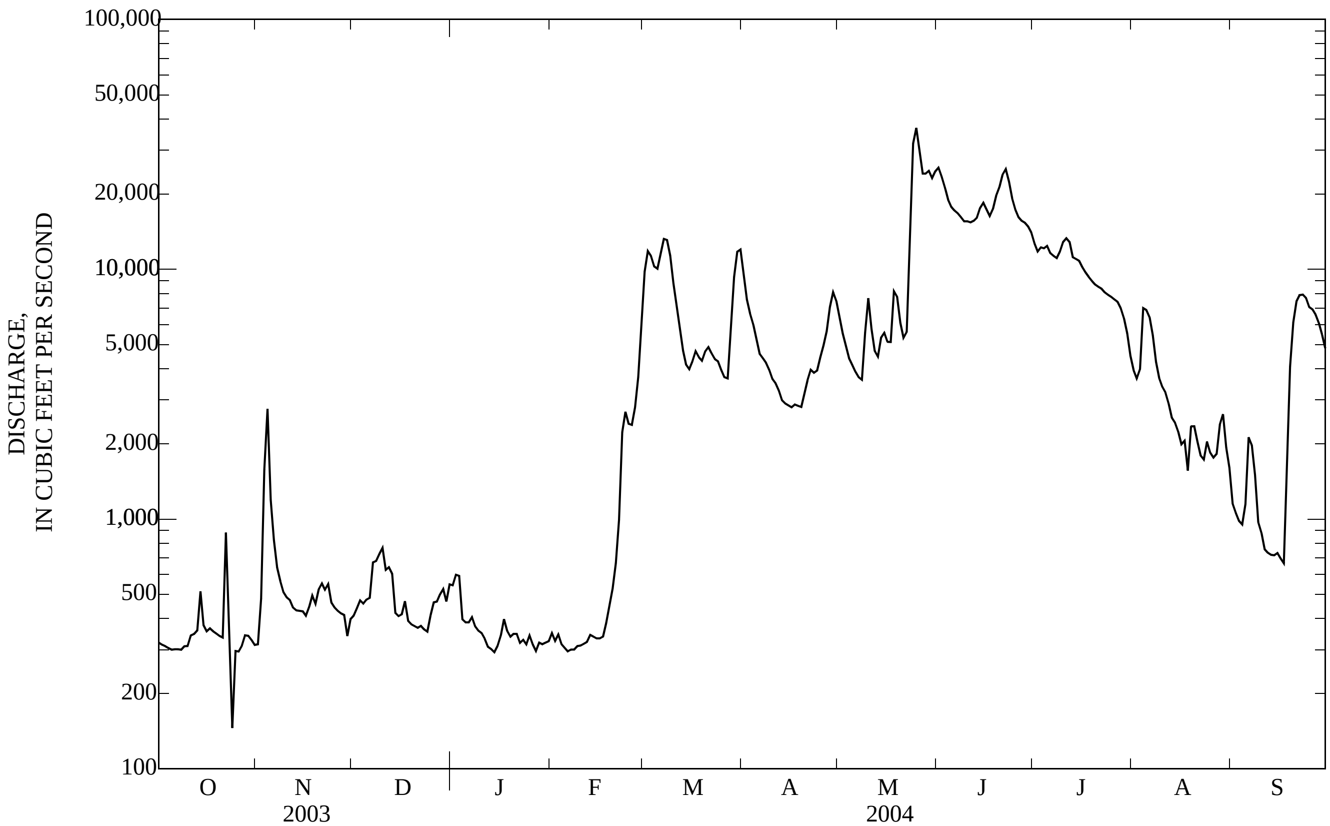
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2,866	3,179	2,738	1,666	2,920	7,730	11,210	11,980	12,950	10,830	4,894	3,236
MAX	15,060	10,610	9,045	6,439	12,400	23,530	27,620	28,190	35,250	55,960	26,050	21,430
(WY)	(1987)	(1993)	(1983)	(1983)	(1984)	(1983)	(1993)	(1993)	(1984)	(1993)	(1993)	(1993)
MIN	293	363	342	310	343	560	627	1,159	1,716	739	441	388
(WY)	(2001)	(1990)	(1990)	(1981)	(1978)	(1981)	(2000)	(2000)	(1988)	(1988)	(1988)	(2003)

05485500 DES MOINES RIVER BELOW RACCOON RIVER AT DES MOINES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1978 - 2004 a	
ANNUAL TOTAL	1,606,671		1,852,019			
ANNUAL MEAN	4,402		5,060		6,362	
HIGHEST ANNUAL MEAN					19,180	1993
LOWEST ANNUAL MEAN					1,036	1989
HIGHEST DAILY MEAN	28,400	May 9	36,800	May 25	113,000	Jul 11, 1993
LOWEST DAILY MEAN	146	Oct 24	146	Oct 24	146	Oct 24, 2003
ANNUAL SEVEN-DAY MINIMUM	289	Oct 23	289	Oct 23	236	Mar 7, 1978
MAXIMUM PEAK FLOW			39,400	May 25	116,000	Jul 11, 1993
MAXIMUM PEAK STAGE			27.71	May 25	34.29	Jul 11, 1993
ANNUAL RUNOFF (AC-FT)	3,187,000		3,673,000		4,609,000	
ANNUAL RUNOFF (CFSM)	0.446		0.512		0.644	
ANNUAL RUNOFF (INCHES)	6.05		6.97		8.75	
10 PERCENT EXCEEDS	15,000		15,400		17,900	
50 PERCENT EXCEEDS	807		2,590		3,140	
90 PERCENT EXCEEDS	356		321		520	

a Post regulation.
e Estimated.



05485605 FOURMILE CREEK NEAR ANKENY, IA

LOCATION.--Lat 41°43'03", long 93°34'12", in NW$\frac{1}{4}$ NW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.30, T.80 N., R.23 W., Polk County, Hydrologic Unit 07100008, on right bank at bridge on N.E. 86th Ave., 1.4 mi downstream from Deer Creek, 6.0 mi upstream from Muchakinock Creek, and 1.0 mi SE of Ankeny.

DRAINAGE AREA.--62.0 mi^2.

PERIOD OF RECORD.--June 3, 2003 to current year.

GAGE.--Water-stage recorder. Datum of gage is 882.0 ft above NGVD of 1929.

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

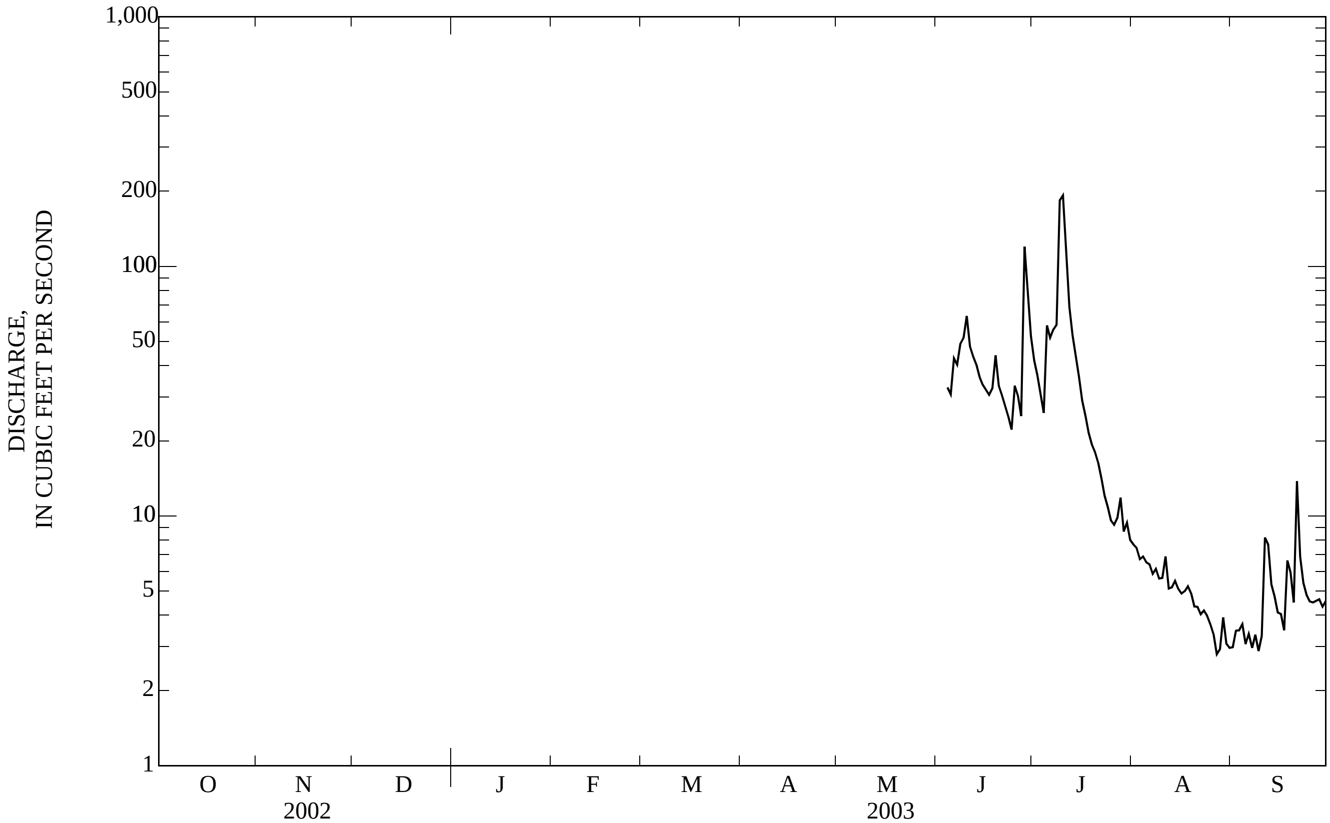
DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	42	7.7	3.0
2	---	---	---	---	---	---	---	---	---	37	7.5	3.5
3	---	---	---	---	---	---	---	---	---	31	6.7	3.5
4	---	---	---	---	---	---	---	---	33	26	6.9	3.7
5	---	---	---	---	---	---	---	---	31	58	6.5	3.1
6	---	---	---	---	---	---	---	---	43	52	6.4	3.4
7	---	---	---	---	---	---	---	---	40	56	5.9	3.0
8	---	---	---	---	---	---	---	---	49	58	6.1	3.3
9	---	---	---	---	---	---	---	---	52	184	5.6	2.9
10	---	---	---	---	---	---	---	---	63	192	5.6	3.3
11	---	---	---	---	---	---	---	---	48	108	6.9	8.2
12	---	---	---	---	---	---	---	---	44	69	5.1	7.7
13	---	---	---	---	---	---	---	---	40	53	5.2	5.3
14	---	---	---	---	---	---	---	---	36	43	5.5	4.8
15	---	---	---	---	---	---	---	---	34	36	5.1	4.1
16	---	---	---	---	---	---	---	---	32	29	4.9	4.0
17	---	---	---	---	---	---	---	---	31	25	5.0	3.5
18	---	---	---	---	---	---	---	---	32	22	5.2	6.6
19	---	---	---	---	---	---	---	---	44	19	4.9	5.9
20	---	---	---	---	---	---	---	---	33	18	4.3	4.5
21	---	---	---	---	---	---	---	---	30	16	4.3	14
22	---	---	---	---	---	---	---	---	28	14	4.0	6.9
23	---	---	---	---	---	---	---	---	25	12	4.2	5.4
24	---	---	---	---	---	---	---	---	22	11	4.0	4.8
25	---	---	---	---	---	---	---	---	33	9.6	3.7	4.5
26	---	---	---	---	---	---	---	---	30	9.2	3.4	4.5
27	---	---	---	---	---	---	---	---	25	9.8	2.8	4.6
28	---	---	---	---	---	---	---	---	120	12	2.9	4.6
29	---	---	---	---	---	---	---	---	82	8.7	3.9	4.3
30	---	---	---	---	---	---	---	---	52	9.4	3.1	4.6
31	---	---	---	---	---	---	---	---	---	8.0	3.0	---
TOTAL	---	---	---	---	---	---	---	---	---	1,277.7	156.3	145.5
MEAN	---	---	---	---	---	---	---	---	---	41.2	5.04	4.85
MAX	---	---	---	---	---	---	---	---	192	7.7	14	
MIN	---	---	---	---	---	---	---	---	8.0	2.8	2.9	
AC-FT	---	---	---	---	---	---	---	---	---	2,530	310	289
CFSM	---	---	---	---	---	---	---	---	---	0.66	0.08	0.08
IN.	---	---	---	---	---	---	---	---	---	0.77	0.09	0.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2003, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	---	---	41.2	5.04	4.85
MAX	---	---	---	---	---	---	---	---	---	41.2	5.04	4.85
(WY)	---	---	---	---	---	---	---	---	---	(2003)	(2003)	(2003)
MIN	---	---	---	---	---	---	---	---	---	41.2	5.04	4.85
(WY)	---	---	---	---	---	---	---	---	---	(2003)	(2003)	(2003)

05485605 FOURMILE CREEK NEAR ANKENY, IA—Continued



05485605 FOURMILE CREEK NEAR ANKENY, IA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.5	8.1	10	6.7	89	66	40	219	46	38	14
2	4.0	20	7.7	10	6.6	81	59	37	184	49	38	12
3	3.8	165	9.0	8.8	6.4	65	55	34	162	93	160	11
4	4.5	185	8.5	7.8	6.4	89	51	32	148	67	159	9.1
5	4.6	48	9.2	8.9	6.5	258	49	28	134	85	78	36
6	4.3	26	8.7	6.9	6.7	164	47	26	121	127	58	149
7	3.4	19	8.4	6.6	6.8	107	44	22	e106	89	44	96
8	4.2	15	9.9	7.2	6.8	81	43	22	e91	69	40	62
9	4.6	13	15	7.7	6.6	68	38	31	e88	290	35	46
10	4.8	12	11	7.9	6.5	60	37	21	e103	170	29	35
11	7.1	11	10	6.6	6.8	53	35	19	e95	e605	25	27
12	5.7	11	8.7	11	6.4	46	34	20	e84	e539	23	21
13	6.9	9.9	8.5	9.0	6.5	46	32	38	e99	253	19	19
14	14	9.4	8.8	8.3	6.7	44	31	27	90	157	16	16
15	5.4	9.5	9.1	7.9	6.4	45	30	24	76	116	15	16
16	6.7	9.9	8.9	14	6.2	48	29	23	88	93	13	14
17	5.4	14	8.0	17	6.2	53	45	143	99	77	12	12
18	4.5	12	8.8	10	6.9	73	29	193	81	66	31	12
19	4.5	9.3	8.3	7.7	11	128	26	110	73	61	27	12
20	4.6	8.7	8.3	7.8	41	100	74	84	70	55	20	9.5
21	3.4	8.0	9.1	8.0	53	71	315	67	86	52	16	9.1
22	4.1	7.7	10	7.7	155	64	139	163	101	50	14	8.6
23	4.3	11	9.8	7.4	201	59	95	e1,440	81	46	12	8.5
24	3.8	8.4	9.6	7.9	97	54	88	e817	72	42	17	9.2
25	4.8	8.5	8.8	7.8	62	50	98	e1,100	65	39	19	9.0
26	4.8	8.4	9.4	7.2	57	48	81	e512	62	35	15	8.7
27	6.2	7.8	11	7.0	68	59	66	e397	59	32	47	7.7
28	7.6	7.4	20	6.6	80	151	61	328	62	27	45	8.2
29	5.0	7.6	15	6.6	78	117	50	285	54	25	32	7.2
30	4.3	8.0	13	6.4	---	88	44	271	49	25	22	7.4
31	4.6	---	11	6.7	---	74	---	269	---	21	16	---
TOTAL	160.2	696.0	309.6	260.4	1,021.1	2,533	1,891	6,623	2,902	3,501	1,135	712.2
MEAN	5.17	23.2	9.99	8.40	35.2	81.7	63.0	214	96.7	113	36.6	23.7
MAX	14	185	20	17	201	258	315	1,440	219	605	160	149
MIN	3.4	5.5	7.7	6.4	6.2	44	26	19	49	21	12	7.2
AC-FT	318	1,380	614	517	2,030	5,020	3,750	13,140	5,760	6,940	2,250	1,410
CFSM	0.08	0.37	0.16	0.14	0.57	1.32	1.02	3.45	1.56	1.82	0.59	0.38
IN.	0.10	0.42	0.19	0.16	0.61	1.52	1.13	3.97	1.74	2.10	0.68	0.43

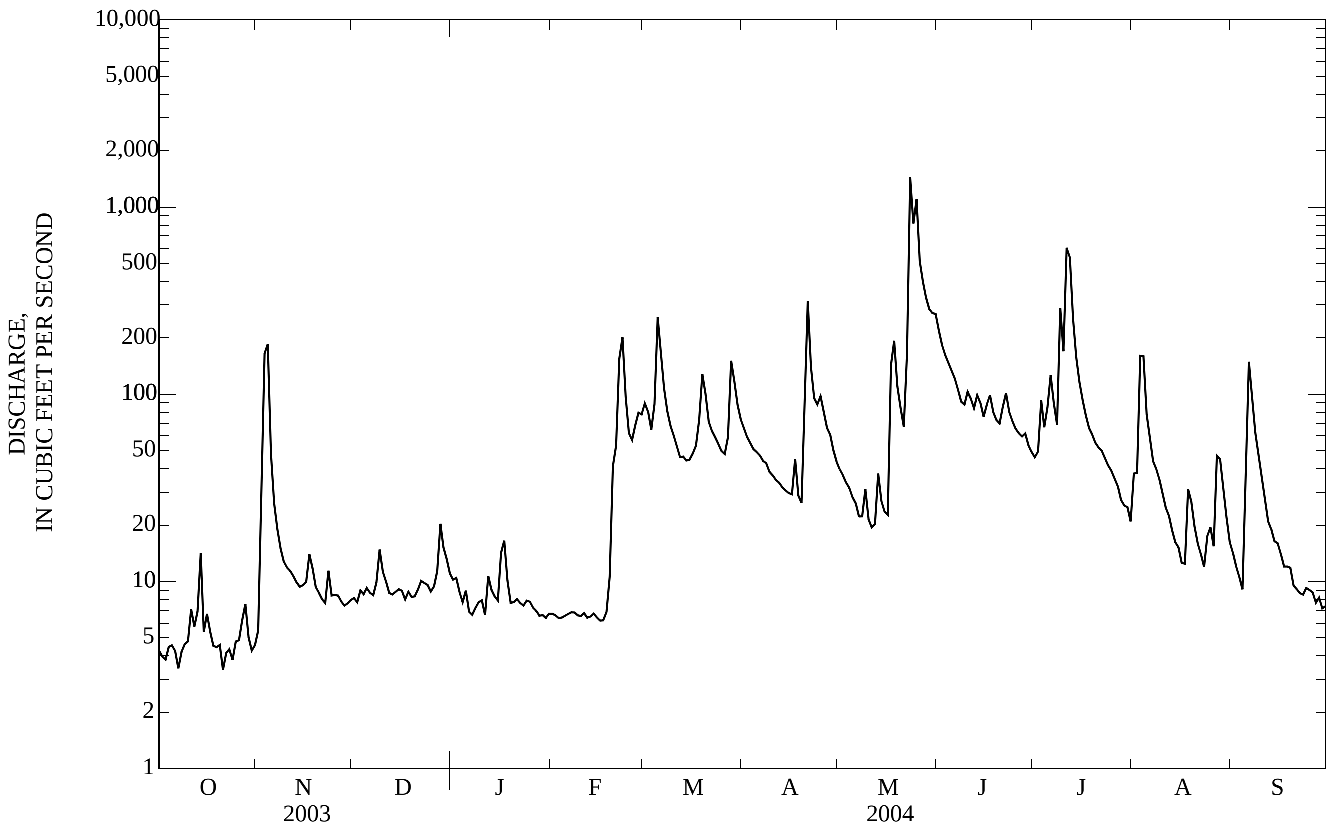
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5.17	23.2	9.99	8.40	35.2	81.7	63.0	214	96.7	77.1	20.8	14.3
MAX	5.17	23.2	9.99	8.40	35.2	81.7	63.0	214	96.7	113	36.6	23.7
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)
MIN	5.17	23.2	9.99	8.40	35.2	81.7	63.0	214	96.7	41.2	5.04	4.85
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)

05485605 FOURMILE CREEK NEAR ANKENY, IA—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 2003 - 2004	
ANNUAL TOTAL	21,744.5			
ANNUAL MEAN	59.4		59.4	
HIGHEST ANNUAL MEAN			59.4	2004
LOWEST ANNUAL MEAN			59.4	2004
HIGHEST DAILY MEAN	1,440	May 23	1,440	May 23, 2004
LOWEST DAILY MEAN	3.4	Oct 7 a	2.8	Aug 27, 2003
ANNUAL SEVEN-DAY MINIMUM	4.1	Oct 2	3.2	Aug 26, 2003
MAXIMUM PEAK FLOW	1,720	May 23	1,720	May 23, 2004
MAXIMUM PEAK STAGE	10.60	May 23	10.60	May 23, 2004
ANNUAL RUNOFF (AC-FT)	43,130		43,040	
ANNUAL RUNOFF (CFSM)	0.958		0.958	
ANNUAL RUNOFF (INCHES)	13.05		13.02	
10 PERCENT EXCEEDS	127		127	
50 PERCENT EXCEEDS	24		24	
90 PERCENT EXCEEDS	6.5		6.5	

a Also Oct. 21.
e Estimated.



05485640 FOURMILE CREEK AT DES MOINES, IA

LOCATION.--Lat 41°36'50", long 93°32'43", in NE1/4 NE1/4 sec.32, T.79 N., R.23 W., Polk County, Hydrologic Unit 07100008, on right bank 20 ft downstream from bridge on Easton Blvd., 4.4 mi downstream from Muchikinock Creek, and 5.0 mi upstream from Des Moines River.

DRAINAGE AREA.--92.7 mi^2.

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974 (P).

GAGE.--Water-stage recorder. Datum of gage is 795.87 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry and U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.3	e8.5	e6.3	e9.6	138	55	56	259	52	47	27
2	3.3	21	e9.0	e6.8	e9.3	131	46	53	207	55	58	21
3	3.1	240	10	e5.8	e9.0	101	40	50	176	205	476	16
4	3.0	512	11	e5.1	e9.1	127	38	50	159	119	423	15
5	3.3	67	11	e8.5	e9.7	452	34	47	143	153	147	31
6	3.3	30	11	e6.8	e10	293	31	49	131	251	91	213
7	2.9	19	9.9	e7.9	e11	190	28	46	113	162	70	123
8	2.3	15	13	e8.5	e10	138	26	49	97	108	59	69
9	2.8	14	22	e9.3	e10	108	23	98	92	438	51	49
10	2.8	15	e13	e9.3	e11	94	22	e60	112	322	41	35
11	4.1	16	e14	e8.8	e11	78	21	e60	101	680	38	29
12	5.5	15	e10	e11	e11	64	20	40	88	895	e37	24
13	8.2	13	e8.8	e11	e12	61	19	82	103	414	e37	21
14	20	12	e9.6	e9.9	e12	65	19	47	139	249	e36	19
15	6.1	12	e10	e9.3	e12	58	18	38	92	173	e40	20
16	5.2	12	e8.9	e16	e12	67	21	36	183	132	30	18
17	5.2	16	e8.4	e19	e14	77	60	97	186	103	20	16
18	4.5	22	e9.1	e13	e19	119	27	496	118	87	34	15
19	3.9	14	e7.7	e9.9	e30	191	24	170	89	78	32	15
20	3.6	12	e8.9	e9.3	e265	158	134	110	81	69	27	13
21	3.2	12	e10	e9.8	e244	107	402	82	87	69	23	11
22	2.9	e15	e11	e9.4	561	90	201	179	136	85	22	11
23	3.2	19	e6.6	e9.0	788	82	120	3,100	104	61	21	11
24	3.4	14	e6.4	e9.7	332	75	104	1,390	89	53	38	11
25	2.9	13	e8.2	e9.6	121	68	146	1,940	80	47	32	11
26	3.4	12	13	e9.3	93	66	108	734	74	41	32	10
27	4.5	11	15	e9.0	106	67	85	550	68	37	43	11
28	2.4	e13	23	e8.5	122	234	76	428	81	34	71	9.9
29	e4.0	15	24	e9.0	119	179	66	352	60	33	44	9.2
30	3.3	e9.5	e8.9	e8.7	---	e140	58	343	56	32	35	8.4
31	2.6	---	e7.0	e9.5	---	e60	---	327	---	28	28	---
TOTAL	132.1	1,213.8	346.9	293.0	2,982.7	3,878	2,072	11,159	3,504	5,265	2,183	892.5
MEAN	4.26	40.5	11.2	9.45	103	125	69.1	360	117	170	70.4	29.8
MAX	20	512	24	19	788	452	402	3,100	259	895	476	213
MIN	2.3	3.3	6.4	5.1	9.0	58	18	36	56	28	20	8.4
AC-FT	262	2,410	688	581	5,920	7,690	4,110	22,130	6,950	10,440	4,330	1,770
CFSM	0.05	0.44	0.12	0.10	1.11	1.35	0.75	3.88	1.26	1.83	0.76	0.32
IN.	0.05	0.49	0.14	0.12	1.20	1.56	0.83	4.48	1.41	2.11	0.88	0.36

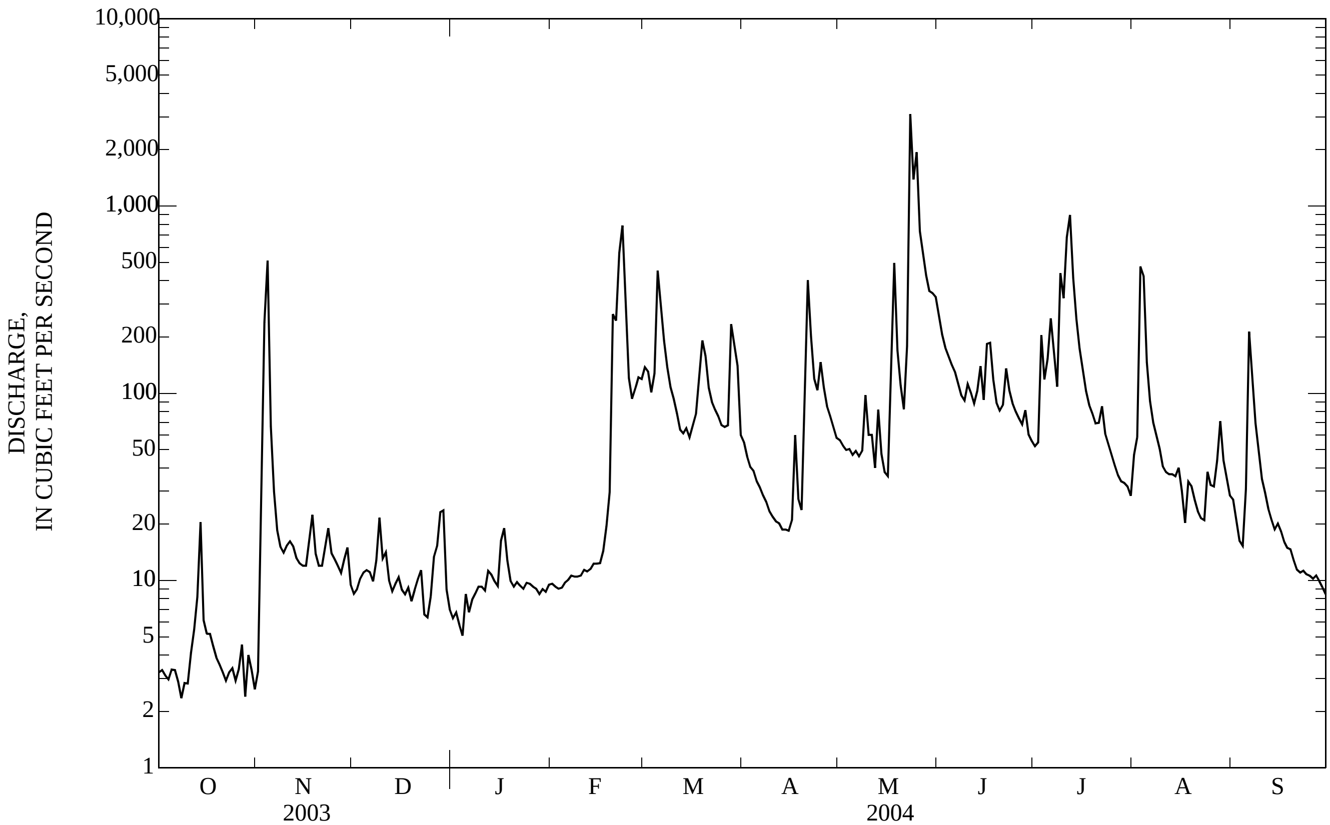
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	36.6	42.0	31.6	22.1	48.1	96.8	116	153	154	99.5	46.5	34.0
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	0.25	0.00	0.55	4.04	3.67	6.67	0.73	0.07	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1972 - 2004	
ANNUAL TOTAL	16,978.5		33,922.0			
ANNUAL MEAN	46.5		92.7		73.3	
HIGHEST ANNUAL MEAN					204	1993
LOWEST ANNUAL MEAN					7.97	1981
HIGHEST DAILY MEAN	1,220	May 9	3,100	May 23	3,570	Jun 9, 1974
LOWEST DAILY MEAN	1.0	Jan 17	2.3	Oct 8	0.00	Jan 2, 1977
ANNUAL SEVEN-DAY MINIMUM	2.1	Jan 9	2.9	Oct 4	0.00	Jan 2, 1977
MAXIMUM PEAK FLOW			4,960	May 23	5,600	Jun 18, 1998
MAXIMUM PEAK STAGE			14.57	May 23	15.00	Jun 18, 1998
INSTANTANEOUS LOW FLOW			2.0	Oct 8 a	0.00	Jan 2, 1977
ANNUAL RUNOFF (AC-FT)	33,680		67,280		53,140	
ANNUAL RUNOFF (CFSM)	0.502		1.000		0.791	
ANNUAL RUNOFF (INCHES)	6.81		13.61		10.75	
10 PERCENT EXCEEDS	79		190		172	
50 PERCENT EXCEEDS	10		30		25	
90 PERCENT EXCEEDS	3.3		6.8		3.2	

a Also Oct. 11.
e Estimated.



05486000 NORTH RIVER NEAR NORWALK, IA

LOCATION.--(revised) Lat 41°27'29", long 93°39'17", in NW$\frac{1}{4}$ SW$\frac{1}{4}$ 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 NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.83	2.4	3.8	28	e14	e321	354	126	685	109	90	41
2	0.59	2.6	4.4	20	e16	320	312	117	506	104	84	33
3	0.53	12	4.5	e19	e14	269	278	110	428	164	107	28
4	0.41	234	5.2	e13	e16	211	250	103	388	215	1,290	23
5	0.35	419	6.3	e5.3	e17	569	223	95	352	173	934	19
6	0.21	174	7.7	e3.6	e17	745	206	91	331	148	385	80
7	0.09	62	7.8	e4.1	e16	453	190	84	317	201	247	238
8	0.17	30	7.9	e4.4	e17	315	173	79	282	163	184	162
9	0.28	17	9.5	e3.9	e19	243	156	787	251	130	143	73
10	0.41	13	e7.3	e4.4	e18	204	141	1,990	245	583	118	50
11	0.53	11	e6.9	e5.4	e19	178	130	2,370	265	e1,230	99	38
12	0.58	9.7	e6.6	e5.7	e16	150	121	914	253	e1,570	86	31
13	0.54	8.7	e6.9	e5.8	e17	127	116	576	257	e1,010	79	25
14	1.6	6.4	7.9	e6.6	e15	121	111	699	606	501	73	21
15	1.4	5.4	7.8	e6.9	e6.6	121	107	559	1,150	342	66	19
16	1.2	3.9	8.7	e8.6	e8.8	121	102	489	684	270	60	18
17	1.1	3.8	e8.6	e27	e9.3	144	99	424	433	229	56	19
18	1.1	4.8	8.4	e40	e10	198	94	1,500	346	200	51	16
19	1.2	5.4	e7.1	e57	e12	451	91	1,940	298	168	51	14
20	1.3	7.2	11	e48	e125	521	101	2,030	265	151	47	14
21	1.3	8.2	8.0	e36	e234	478	161	888	248	140	44	12
22	1.4	6.8	9.2	e26	e402	338	213	629	245	151	39	10
23	1.4	8.6	e7.5	e18	e569	280	252	1,360	225	172	35	10
24	1.4	7.7	e11	e16	e704	255	186	1,830	189	163	35	9.6
25	1.4	7.0	e7.6	e15	e420	238	192	2,560	172	139	52	8.8
26	1.4	6.0	10	e16	e245	220	213	6,060	164	128	109	8.0
27	1.5	5.8	12	e11	e223	201	214	3,340	149	112	85	7.8
28	1.7	4.9	15	e12	e241	476	176	1,820	139	100	74	7.8
29	1.9	4.1	12	e12	e289	977	152	650	133	91	73	7.7
30	2.2	3.9	40	e12	---	550	141	657	121	91	53	7.8
31	2.3	---	50	e13	---	424	---	927	---	100	46	---
TOTAL	32.32	1,095.3	326.6	503.7	3,729.7	10,219	5,255	35,804	10,127	9,048	4,895	1,051.5
MEAN	1.04	36.5	10.5	16.2	129	330	175	1,155	338	292	158	35.0
MAX	2.3	419	50	57	704	977	354	6,060	1,150	1,570	1,290	238
MIN	0.09	2.4	3.8	3.6	6.6	121	91	79	121	91	35	7.7
AC-FT	64	2,170	648	999	7,400	20,270	10,420	71,020	20,090	17,950	9,710	2,090
CFSM	0.00	0.10	0.03	0.05	0.37	0.94	0.50	3.31	0.97	0.84	0.45	0.10
IN.	0.00	0.12	0.03	0.05	0.40	1.09	0.56	3.82	1.08	0.96	0.52	0.11

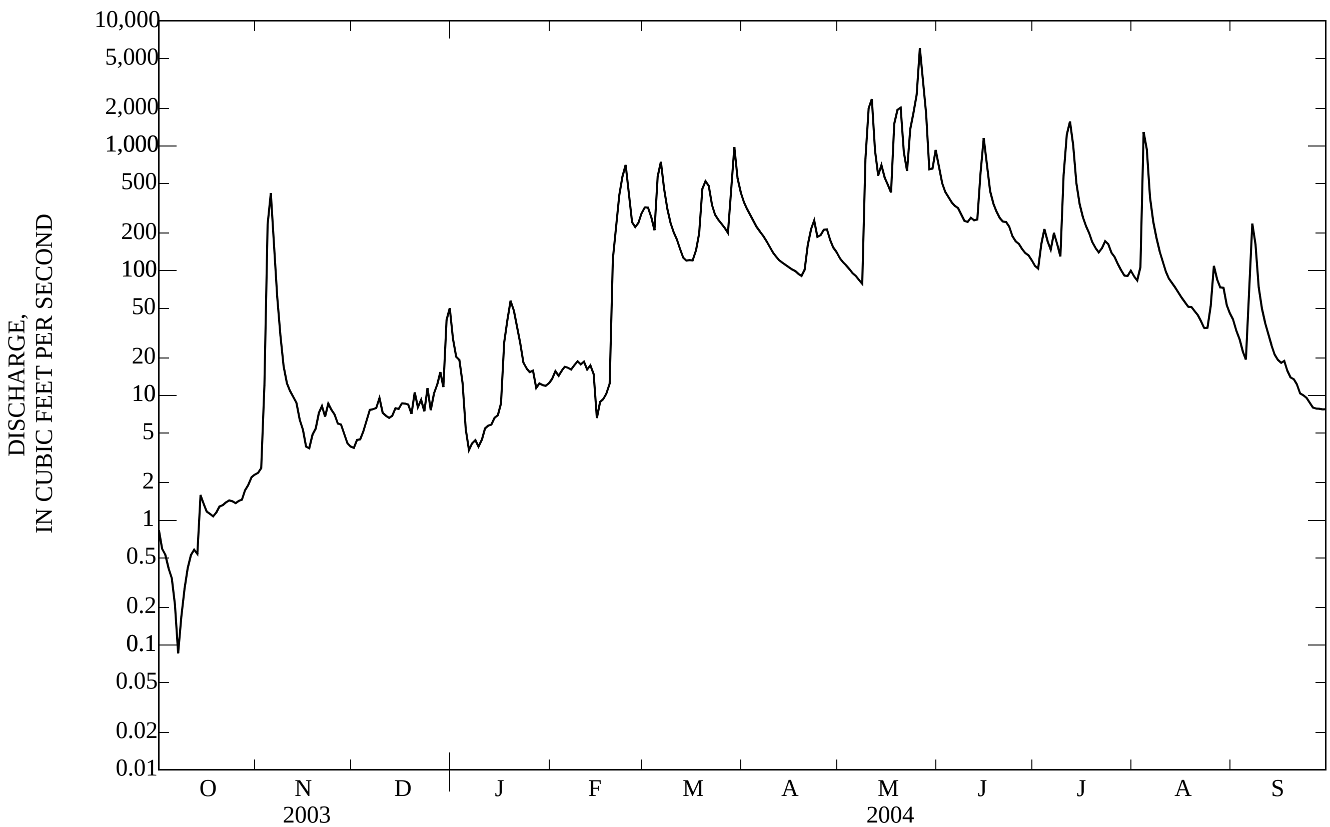
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	73.5	96.7	71.0	73.8	154	327	339	371	373	190	108	87.4
MAX	593	747	567	739	911	1,041	1,401	1,699	3,260	1,722	1,185	1,007
(WY)	(1987)	(1973)	(1993)	(1973)	(1973)	(1965)	(1973)	(1996)	(1947)	(1993)	(1993)	(1993)
MIN	0.20	0.37	0.36	0.38	3.21	3.90	1.22	3.71	1.58	1.10	0.21	0.26
(WY)	(1950)	(1956)	(1956)	(1954)	(1956)	(1954)	(1956)	(1967)	(1977)	(1977)	(1968)	(1957)

05486000 NORTH RIVER NEAR NORWALK, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	29,139.02		82,087.12			
ANNUAL MEAN	79.8		224		189	
HIGHEST ANNUAL MEAN					709	1993
LOWEST ANNUAL MEAN					8.08	1968
HIGHEST DAILY MEAN	1,750	May 6	6,060	May 26	21,600	Jun 13, 1947
LOWEST DAILY MEAN	0.09	Oct 7	0.09	Oct 7	0.00	Jul 20, 1954 a
ANNUAL SEVEN-DAY MINIMUM	0.27	Oct 4	0.27	Oct 4	0.00	Jul 25, 1954
MAXIMUM PEAK FLOW			7,770	May 26	32,000	Jun 13, 1947 b
MAXIMUM PEAK STAGE			23.05	May 26	25.30	Jun 13, 1947 c
INSTANTANEOUS LOW FLOW			0.00	Oct 7	0.00	Jul 20, 1954
ANNUAL RUNOFF (AC-FT)	57,800		162,800		136,600	
ANNUAL RUNOFF (CFSM)	0.229		0.643		0.540	
ANNUAL RUNOFF (INCHES)	3.11		8.75		7.34	
10 PERCENT EXCEEDS	188		553		432	
50 PERCENT EXCEEDS	7.8		79		42	
90 PERCENT EXCEEDS	1.5		3.9		2.5	

a Many days 1954-58, Oct. 7-9, 2001.
b From rating curve extended above 9,000 ft^3/s on basis of velocity-area studies.
c From floodmark.
e Estimated.



05487470 SOUTH RIVER NEAR ACKWORTH, IA

LOCATION.--Lat 41°20'14", long 93°29'10", in SE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	3.6	4.6	9.3	e17	223	172	97	224	25	35	e68
2	3.9	13	4.6	8.8	e19	200	146	96	150	26	33	49
3	3.5	134	5.7	e7.0	e15	154	126	88	120	140	169	39
4	3.6	484	7.0	e3.7	e17	227	113	83	102	129	6,300	32
5	4.0	176	7.5	e2.5	e18	2,720	103	78	91	52	995	28
6	3.5	65	8.2	e4.4	e17	851	95	75	85	45	300	758
7	3.5	34	7.1	e5.4	e16	359	89	65	77	36	e170	226
8	3.5	19	6.9	e7.4	e17	248	81	61	66	30	e119	103
9	3.4	12	e7.8	e7.0	e19	194	74	118	57	1,360	e90	69
10	3.5	9.4	e5.9	e8.2	e17	149	67	89	159	1,000	e72	53
11	4.0	8.3	e2.8	e10	e20	127	64	74	529	1,870	e59	42
12	4.3	6.2	e6.4	e9.3	e18	105	62	61	153	3,780	e50	36
13	4.3	5.6	e11	e11	e20	102	59	77	156	510	e42	30
14	8.5	5.2	e14	e16	e17	109	56	138	2,200	236	e33	27
15	5.1	5.0	e17	20	e15	107	54	101	1,090	150	e27	31
16	4.2	4.8	18	27	e19	118	53	72	302	109	e24	32
17	4.1	5.1	e17	195	e26	173	48	93	222	86	23	30
18	4.0	6.0	e14	e102	e40	729	44	324	144	73	23	26
19	4.3	5.4	e15	e30	e50	1,580	41	166	113	62	22	23
20	3.4	5.0	e12	e12	e970	587	113	145	92	55	18	20
21	3.5	4.7	e12	e30	e798	286	570	128	83	49	16	18
22	3.4	4.8	12	e11	e612	216	214	303	74	532	13	15
23	3.3	5.8	e11	e25	e570	192	133	2,790	61	294	12	15
24	3.5	6.8	e6.6	e19	e228	178	113	1,500	53	120	20	14
25	3.5	5.2	e8.5	e17	e154	158	189	4,360	50	91	118	13
26	3.4	5.1	10	e15	e126	149	175	830	44	69	158	13
27	3.6	5.1	13	e14	e145	145	123	372	39	57	115	13
28	4.1	5.4	15	e14	e187	776	105	270	36	46	1,160	12
29	3.9	4.8	10	e12	e206	574	92	214	31	42	498	11
30	3.9	4.7	e7.5	e13	---	268	87	381	28	40	e148	11
31	3.5	---	e8.3	e15	---	205	---	467	---	49	e100	---
TOTAL	121.8	1,059.0	306.4	681.0	4,393	12,209	3,461	13,716	6,631	11,163	10,962	1,857
MEAN	3.93	35.3	9.88	22.0	151	394	115	442	221	360	354	61.9
MAX	8.5	484	18	195	970	2,720	570	4,360	2,200	3,780	6,300	758
MIN	3.3	3.6	2.8	2.5	15	102	41	61	28	25	12	11
AC-FT	242	2,100	608	1,350	8,710	24,220	6,860	27,210	13,150	22,140	21,740	3,680
CFSM	0.01	0.08	0.02	0.05	0.33	0.86	0.25	0.96	0.48	0.78	0.77	0.13
IN.	0.01	0.09	0.02	0.06	0.36	0.99	0.28	1.11	0.54	0.90	0.89	0.15

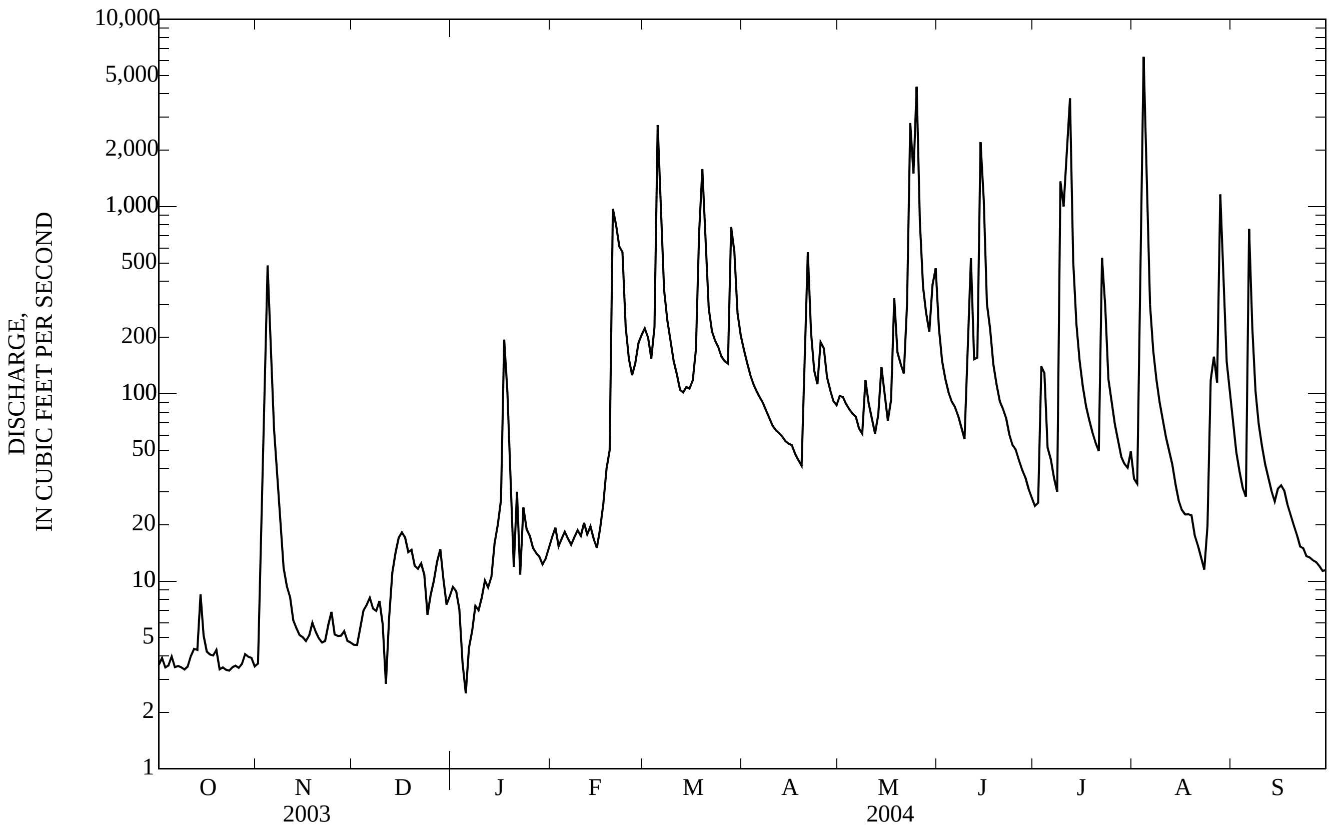
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	105	120	104	97.3	208	436	445	469	465	253	129	146
MAX	1,283	906	1,022	901	1,209	1,568	1,937	1,962	4,305	3,870	1,546	1,332
(WY)	(1974)	(1962)	(1983)	(1974)	(1973)	(1960)	(1973)	(1959)	(1947)	(1993)	(1993)	(1993)
MIN	0.35	1.05	0.88	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	24,925.8		66,560.2			
ANNUAL MEAN	68.3		182		248	
HIGHEST ANNUAL MEAN					966	1993
LOWEST ANNUAL MEAN					16.1	1989
HIGHEST DAILY MEAN	3,820	Jun 26	6,300	Aug 4	31,400	Jun 17, 1990
LOWEST DAILY MEAN	1.0	Jan 23	2.5	Jan 5 a	0.00	Sep 19, 1956 b
ANNUAL SEVEN-DAY MINIMUM	1.7	Jan 17	3.4	Oct 20	0.00	Sep 19, 1956
MAXIMUM PEAK FLOW			9,660	Aug 4	38,100	Jun 17, 1990
MAXIMUM PEAK STAGE			19.18	Aug 4	32.85	Jul 5, 1981
INSTANTANEOUS LOW FLOW					0.00	Sep 19, 1956 b
ANNUAL RUNOFF (AC-FT)	49,440		132,000		179,600	
ANNUAL RUNOFF (CFSM)	0.148		0.395		0.539	
ANNUAL RUNOFF (INCHES)	2.02		5.38		7.32	
10 PERCENT EXCEEDS	92		309		470	
50 PERCENT EXCEEDS	8.5		43		39	
90 PERCENT EXCEEDS	3.6		4.7		3.4	

a Ice affected.
b Also Sept. 30 to Oct. 13, 1956.
e Estimated.



05486490 MIDDLE RIVER NEAR INDIANOLA, IA

LOCATION.--Lat 41°25'27", long 93°35'14"(revised), in SW$\frac{1}{4}$ SE$\frac{1}{4}$ sec.35, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on right bank 10 ft downstream from bridge on county highway, 0.4 mi upstream from Cavitt Creek, 1.5 mi upstream from bridge on U.S. Highway 69, and 4.6 mi northwest of Indianola.

DRAINAGE AREA.--503 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1941, 1944, 1946, 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 776.15 ft above NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	13	31	e60	e30	e491	488	141	893	95	94	126
2	4.5	18	30	e53	e32	503	413	133	636	93	90	104
3	5.1	78	32	e41	e26	414	347	126	529	253	160	90
4	4.9	815	33	e21	e29	354	298	118	472	141	3,390	80
5	5.2	488	34	e14	e30	1,960	263	111	424	150	1,050	74
6	5.3	218	34	e17	e29	1,090	239	105	380	139	585	71
7	5.5	117	35	e20	e28	725	221	98	343	120	333	353
8	5.6	76	35	e24	e33	478	202	93	300	112	229	217
9	5.9	61	e34	e21	e35	350	182	727	256	144	181	122
10	6.2	52	e24	e26	e33	273	166	1,870	249	1,100	151	92
11	6.7	47	e17	e34	e35	232	156	775	257	1,580	131	77
12	7.9	42	e20	e30	e29	198	148	525	247	1,320	117	69
13	7.6	37	e26	e30	e33	180	141	476	300	850	107	62
14	11	35	e33	e31	e28	174	135	628	1,310	486	99	57
15	11	33	e36	e19	e24	179	130	587	1,200	337	92	54
16	9.2	33	e30	e29	e29	189	125	462	725	262	85	54
17	9.3	32	e27	e202	e36	211	117	521	477	216	79	52
18	9.7	34	e32	e188	e55	418	113	1,870	353	200	76	51
19	8.8	34	e34	e97	e83	1,340	109	2,360	280	169	72	48
20	8.6	32	e39	e58	e1,080	975	156	977	237	149	68	45
21	8.8	31	e44	e84	e829	678	379	702	219	137	65	44
22	9.0	35	e48	e72	e643	504	259	712	207	274	62	43
23	9.6	41	e42	e94	e711	390	281	2,770	188	467	59	40
24	10	38	e30	e65	e820	331	229	4,050	163	237	61	39
25	10	39	e39	e62	e458	290	288	8,040	147	176	259	37
26	11	36	e50	e46	e298	261	260	3,760	136	145	1,010	36
27	11	34	e55	e33	e239	244	228	1,400	127	127	396	35
28	13	34	e48	e27	e272	1,270	190	972	117	112	565	32
29	14	41	e38	e26	e416	1,460	162	750	108	102	521	32
30	13	35	e35	e25	---	816	150	876	102	97	223	30
31	13	---	e47	e27	---	595	---	1,400	---	94	166	---
TOTAL	265.1	2,659	1,092	1,576	6,423	17,573	6,575	38,135	11,382	9,884	10,576	2,266
MEAN	8.55	88.6	35.2	50.8	221	567	219	1,230	379	319	341	75.5
MAX	14	815	55	202	1,080	1,960	488	8,040	1,310	1,580	3,390	353
MIN	4.5	13	17	14	24	174	109	93	102	93	59	30
AC-FT	526	5,270	2,170	3,130	12,740	34,860	13,040	75,640	22,580	19,600	20,980	4,490
CFSM	0.02	0.18	0.07	0.10	0.44	1.13	0.44	2.45	0.75	0.63	0.68	0.15
IN.	0.02	0.20	0.08	0.12	0.48	1.30	0.49	2.82	0.84	0.73	0.78	0.17

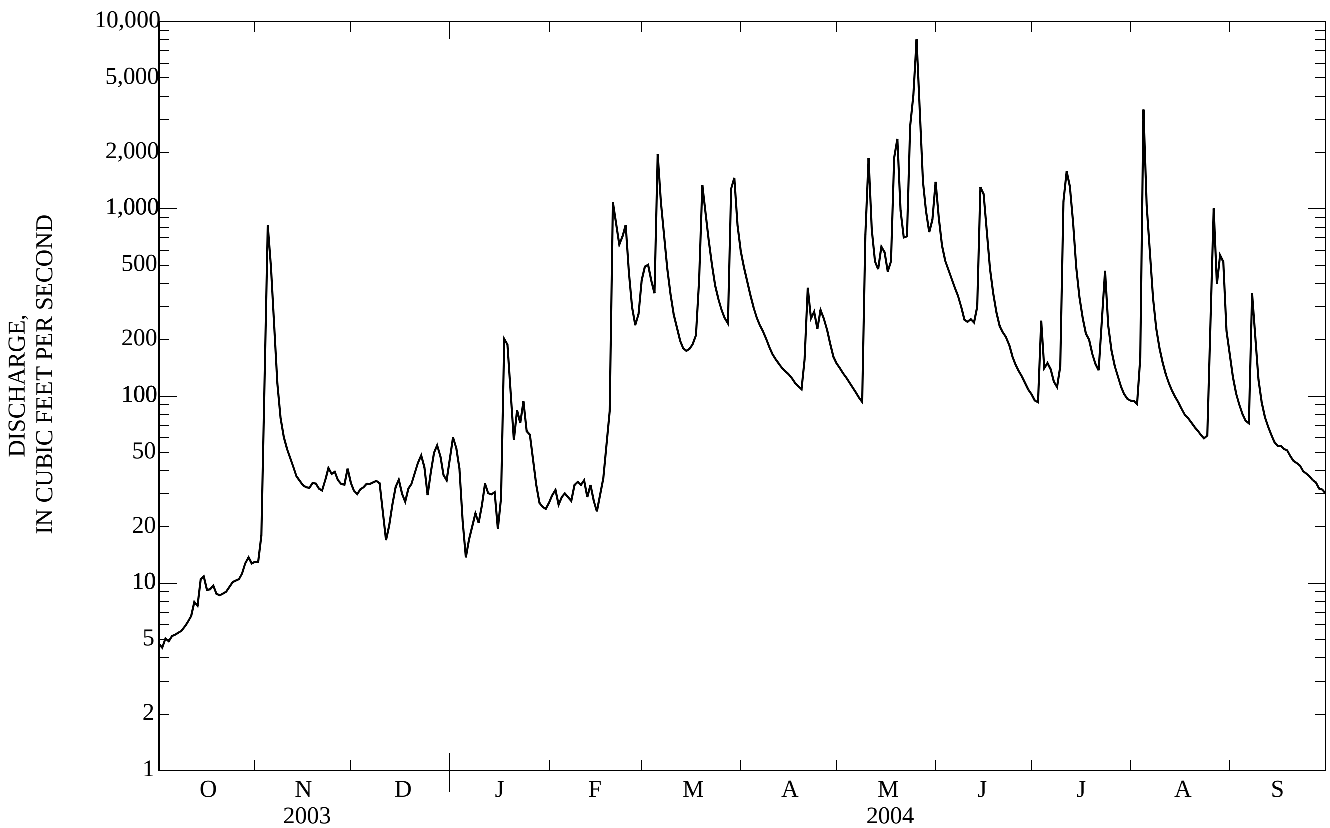
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	108	128	110	100	222	459	476	524	500	268	164	166
MAX	928	961	1,070	646	1,415	1,417	1,983	2,053	4,094	3,121	1,419	1,460
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	40,099.6		108,406.1			
ANNUAL MEAN	110		296		269	
HIGHEST ANNUAL MEAN					1,006	1993
LOWEST ANNUAL MEAN					17.8	1968
HIGHEST DAILY MEAN	2,950	May 5	8,040	May 25	21,400	Jun 13, 1947
LOWEST DAILY MEAN	1.4	Jan 24	4.5	Oct 2	0.11	Jul 2, 1977
ANNUAL SEVEN-DAY MINIMUM	3.3	Jan 21	5.0	Oct 1	0.51	Jun 29, 1977
MAXIMUM PEAK FLOW			9,990	May 25	34,000	Jun 13, 1947
MAXIMUM PEAK STAGE			21.03	May 25	28.27	Jun 13, 1947 a
INSTANTANEOUS LOW FLOW			4.3	Oct 2	0.11	Jul 2, 1977
ANNUAL RUNOFF (AC-FT)	79,540		215,000		194,600	
ANNUAL RUNOFF (CFSM)	0.218		0.589		0.534	
ANNUAL RUNOFF (INCHES)	2.97		8.02		7.26	
10 PERCENT EXCEEDS	185		726		600	
50 PERCENT EXCEEDS	33		104		68	
90 PERCENT EXCEEDS	6.7		19		9.0	

a From floodmark.
e Estimated.



05487500 DES MOINES RIVER NEAR RUNNELLS, IA

LOCATION.--Lat 41°29'19", long 93°20'17", in SE1/4 NW1/4 sec.12, T.77 N., R.22 W., Polk County, Hydrologic Unit 07100008, on left bank 10 ft downstream from bridge on State Highway 316, 0.2 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 NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	453	557	691	582	e476	e10,100	e10,300	7,100	e27,200	14,900	4,910	1,210
2	470	685	978	601	e494	e12,000	e8,220	6,750	e24,800	14,200	4,490	e1,100
3	362	1,660	991	587	e503	e11,600	7,260	5,990	22,400	13,400	5,730	e1,060
4	391	6,700	843	e542	e503	e10,600	7,070	5,250	21,700	12,800	e15,000	e1,060
5	440	4,590	719	e515	e494	12,800	6,720	4,790	20,600	e13,000	e10,000	e1,280
6	430	3,030	875	e495	e511	12,200	5,710	4,420	19,400	e12,400	7,810	e2,590
7	391	2,230	927	e495	e528	e13,700	5,250	4,120	18,400	e12,200	7,410	2,660
8	413	2,010	841	e489	e528	e13,500	4,940	3,910	17,300	e12,600	6,780	2,240
9	415	1,900	e765	e469	e578	e11,500	4,670	5,840	16,800	e13,700	5,320	e1,240
10	449	1,730	e847	e443	e528	e9,310	4,160	e9,670	16,600	e14,000	4,470	e976
11	408	1,560	693	e443	e536	7,370	3,880	e8,890	e17,100	e15,500	e4,200	e835
12	421	1,030	678	e409	e528	7,040	3,740	7,320	16,200	e16,900	e3,720	e810
13	406	1,180	e635	e409	e578	6,290	3,280	6,610	e17,000	e14,000	2,980	e804
14	475	1,200	441	e403	e609	5,300	3,090	6,750	e21,900	e11,800	2,680	e791
15	565	1,120	415	e476	e584	4,930	3,030	7,080	e20,200	e11,600	2,460	e795
16	515	999	445	e522	e660	4,870	2,910	6,900	e19,100	e10,800	2,060	e766
17	495	1,090	569	e630	e710	5,730	3,010	6,580	18,600	9,910	e2,160	e738
18	514	815	509	e598	e778	6,150	2,940	e10,200	e19,400	9,710	1,950	e1,410
19	532	836	428	e494	e870	7,400	2,830	11,600	e20,500	9,500	e2,530	e4,110
20	488	854	397	e485	e2,480	7,220	3,180	e9,540	e22,300	9,280	2,320	e6,110
21	494	915	385	e439	e2,190	7,040	5,240	7,530	e24,800	9,060	2,050	e7,410
22	503	840	371	e476	e2,050	6,660	5,410	7,210	e26,200	e9,090	e1,940	e7,890
23	932	557	e380	e458	e2,970	5,890	5,010	e19,900	e23,400	e9,050	e1,980	e7,920
24	567	579	e364	e494	e3,910	5,570	4,780	e34,400	e20,200	8,490	e2,290	e7,700
25	400	748	e451	e467	e3,300	5,190	5,320	40,900	18,600	8,250	e2,490	7,120
26	479	750	e489	e467	e3,190	4,680	6,000	40,400	18,000	8,030	e2,900	7,080
27	552	624	516	e476	e3,400	4,440	6,260	30,800	17,300	7,830	e2,450	6,890
28	e662	428	e527	e467	e5,330	e7,460	e7,370	25,600	16,500	7,640	3,440	6,430
29	696	767	e548	e503	6,780	e11,800	e8,540	e26,200	15,900	7,390	4,900	5,860
30	586	705	486	e458	---	e12,700	e7,740	e24,300	15,400	7,180	2,620	5,100
31	453	---	e576	e485	---	e13,000	---	e26,000	---	6,250	1,820	---
TOTAL	15,357	42,689	18,780	15,277	46,596	264,040	157,860	422,550	593,800	340,460	127,860	101,985
MEAN	495	1,423	606	493	1,607	8,517	5,262	13,630	19,790	10,980	4,125	3,400
MAX	932	6,700	991	630	6,780	13,700	10,300	40,900	27,200	16,900	15,000	7,920
MIN	362	428	364	403	476	4,440	2,830	3,910	15,400	6,250	1,820	738
AC-FT	30,460	84,670	37,250	30,300	92,420	523,700	313,100	838,100	1,178,000	675,300	253,600	202,300
CFSM	0.04	0.12	0.05	0.04	0.14	0.73	0.45	1.17	1.70	0.94	0.35	0.29
IN.	0.05	0.14	0.06	0.05	0.15	0.84	0.50	1.35	1.90	1.09	0.41	0.33

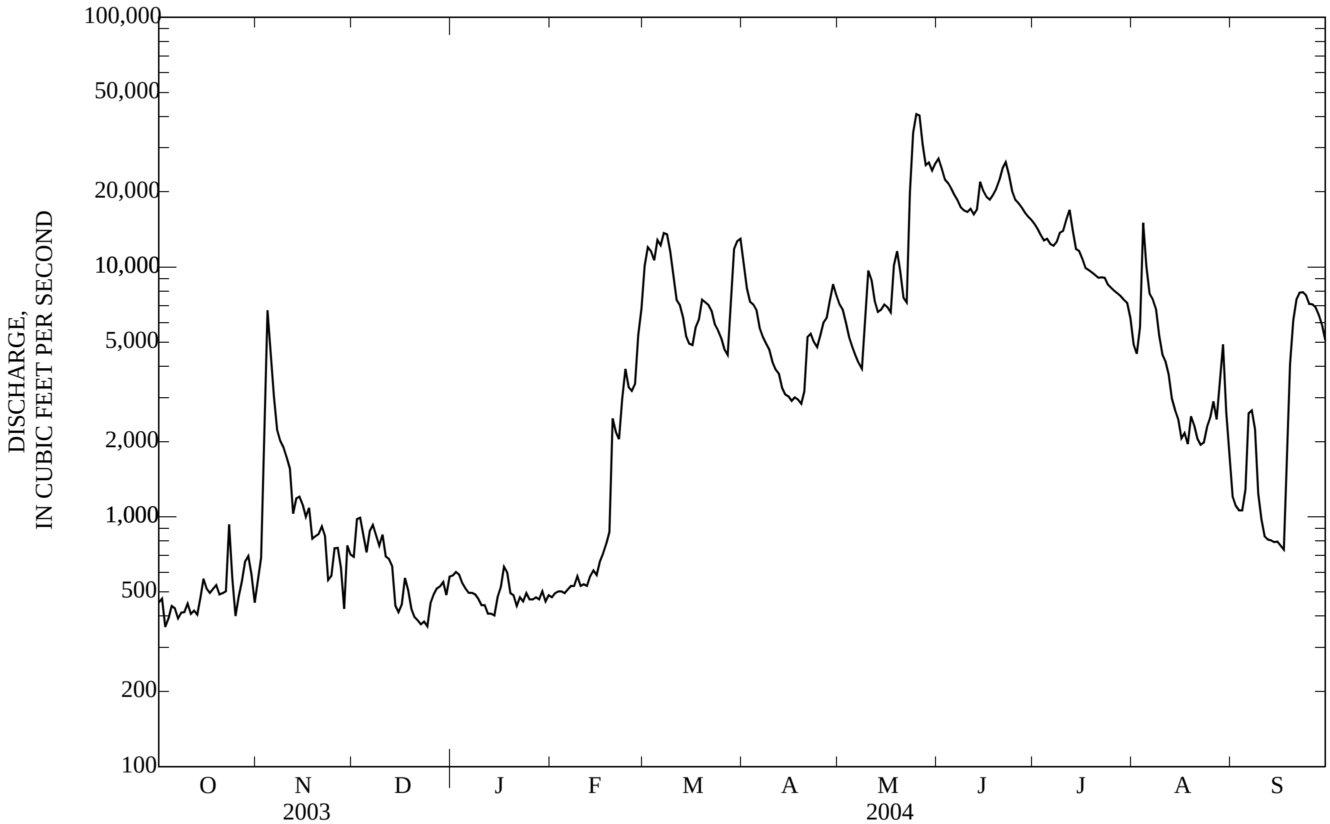
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3,306	3,489	3,158	1,795	3,065	8,655	12,490	14,950	15,830	13,610	6,238	3,631
MAX	18,040	12,660	10,000	6,237	8,557	18,390	30,380	32,740	40,530	68,140	32,990	26,320
(WY)	(1987)	(1993)	(1992)	(1992)	(1997)	(1993)	(1993)	(1993)	(1991)	(1993)	(1993)	(1993)
MIN	352	524	473	450	500	1,136	773	1,272	1,777	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1986 - 2004	
ANNUAL TOTAL	1,797,755		2,147,254			
ANNUAL MEAN	4,925		5,867		7,536	
HIGHEST ANNUAL MEAN					22,980	1993
LOWEST ANNUAL MEAN					1,200	1989
HIGHEST DAILY MEAN	29,900	May 9	40,900	May 25	133,000	Jul 11, 1993
LOWEST DAILY MEAN	321	Sep 9	362	Oct 3	297	Sep 17, 2000
ANNUAL SEVEN-DAY MINIMUM	370	Sep 5	397	Dec 19	319	Oct 16, 2000
MAXIMUM PEAK FLOW			45,300	May 26	134,000	Jul 11, 1993
MAXIMUM PEAK STAGE			60.65	Jun 24	82.88	Jul 11, 1993
ANNUAL RUNOFF (AC-FT)	3,566,000		4,259,000		5,460,000	
ANNUAL RUNOFF (CFSM)	0.423		0.503		0.647	
ANNUAL RUNOFF (INCHES)	5.74		6.85		8.79	
10 PERCENT EXCEEDS	16,500		16,500		20,500	
50 PERCENT EXCEEDS	1,090		3,030		3,620	
90 PERCENT EXCEEDS	473		468		604	

e Estimated



05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA

LOCATION.--(revised) Lat 41°36'03", long 93°16'26", in NE$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharge, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.10	0.14	1.3	1.8	e0.80	e4.3	5.8	5.5	13	2.9	3.5	2.4
2	0.10	0.58	1.4	1.9	e1.0	4.3	5.4	5.3	12	3.2	3.5	2.2
3	0.10	23	1.6	1.7	e0.92	4.2	5.2	5.0	11	7.8	15	2.2
4	0.11	50	1.4	e1.2	e1.0	10	5.0	4.9	9.9	4.9	23	2.1
5	0.09	9.7	1.5	e1.6	1.1	31	4.8	4.5	9.5	4.1	9.5	2.0
6	0.09	5.9	1.4	e1.5	1.1	15	4.6	4.4	9.0	3.9	6.9	2.0
7	0.08	4.6	1.5	e1.5	1.1	11	4.4	4.3	8.3	3.6	6.0	1.7
8	0.08	3.8	1.7	e1.6	1.3	9.3	4.1	4.2	7.5	3.4	5.3	1.7
9	0.08	3.5	2.9	e1.6	1.1	7.8	3.9	5.9	7.2	3.9	4.7	1.7
10	0.08	3.3	5.5	1.4	1.1	7.3	3.9	4.9	7.9	3.5	4.3	1.6
11	0.76	3.0	2.8	1.6	1.0	6.4	3.8	4.7	7.4	55	4.1	1.5
12	0.17	2.5	2.5	1.6	1.00	5.9	3.7	4.6	6.8	23	3.9	1.4
13	0.16	2.2	2.4	1.5	1.0	5.8	3.6	4.9	7.2	13	3.6	1.4
14	0.51	2.2	2.4	1.5	1.00	5.5	3.5	4.6	8.0	10	3.4	1.4
15	0.21	2.2	2.4	1.4	0.93	5.3	3.5	4.4	7.3	8.5	3.2	1.5
16	0.16	2.0	2.3	3.6	0.94	5.7	3.3	4.2	6.8	7.6	3.2	1.3
17	0.24	2.0	2.3	3.8	0.93	6.2	4.1	5.6	6.2	6.6	3.1	1.3
18	0.18	2.1	2.0	3.3	1.3	13	3.5	14	5.9	6.0	3.3	1.3
19	0.16	1.8	1.9	2.2	e1.9	15	3.3	10	5.4	5.5	3.1	1.2
20	0.15	1.7	1.8	2.0	e52	11	14	8.5	5.4	5.0	3.0	1.1
21	0.14	1.6	2.1	1.8	e15	9.3	14	7.5	5.5	4.9	2.8	1.1
22	0.13	1.6	2.3	1.8	e19	8.4	10	17	5.1	12	2.6	1.1
23	0.12	2.0	2.2	1.7	9.1	7.7	8.6	46	4.7	8.3	2.6	1.1
24	0.13	1.6	2.0	1.5	e4.6	6.9	8.3	45	4.6	6.3	2.9	1.1
25	0.14	1.7	1.9	1.5	e3.7	6.3	8.2	55	4.5	5.6	2.8	0.97
26	0.13	1.6	2.0	e1.3	e3.8	6.0	7.3	22	4.0	5.0	2.8	0.94
27	0.15	1.6	2.5	e1.1	e3.7	6.1	6.8	17	3.3	4.6	3.5	0.94
28	0.17	1.5	2.4	e0.97	e3.7	7.9	6.5	14	3.2	4.3	11	0.88
29	0.14	1.6	2.0	e0.77	e4.2	7.0	5.9	13	3.0	4.2	4.3	0.82
30	0.16	1.4	1.9	e0.77	---	6.6	5.9	15	3.0	4.0	3.1	0.84
31	0.13	---	1.8	e0.82	---	6.3	---	14	---	3.7	2.6	---
TOTAL	5.15	142.42	66.1	52.33	139.32	262.5	174.9	379.9	202.6	244.3	156.6	42.79
MEAN	0.17	4.75	2.13	1.69	4.80	8.47	5.83	12.3	6.75	7.88	5.05	1.43
MAX	0.76	50	5.5	3.8	52	31	14	55	13	55	23	2.4
MIN	0.08	0.14	1.3	0.77	0.80	4.2	3.3	4.2	3.0	2.9	2.6	0.82
AC-FT	10	282	131	104	276	521	347	754	402	485	311	85
CFSM	0.02	0.70	0.31	0.25	0.71	1.25	0.86	1.81	1.00	1.16	0.75	0.21
IN.	0.03	0.78	0.36	0.29	0.76	1.44	0.96	2.08	1.11	1.34	0.86	0.23

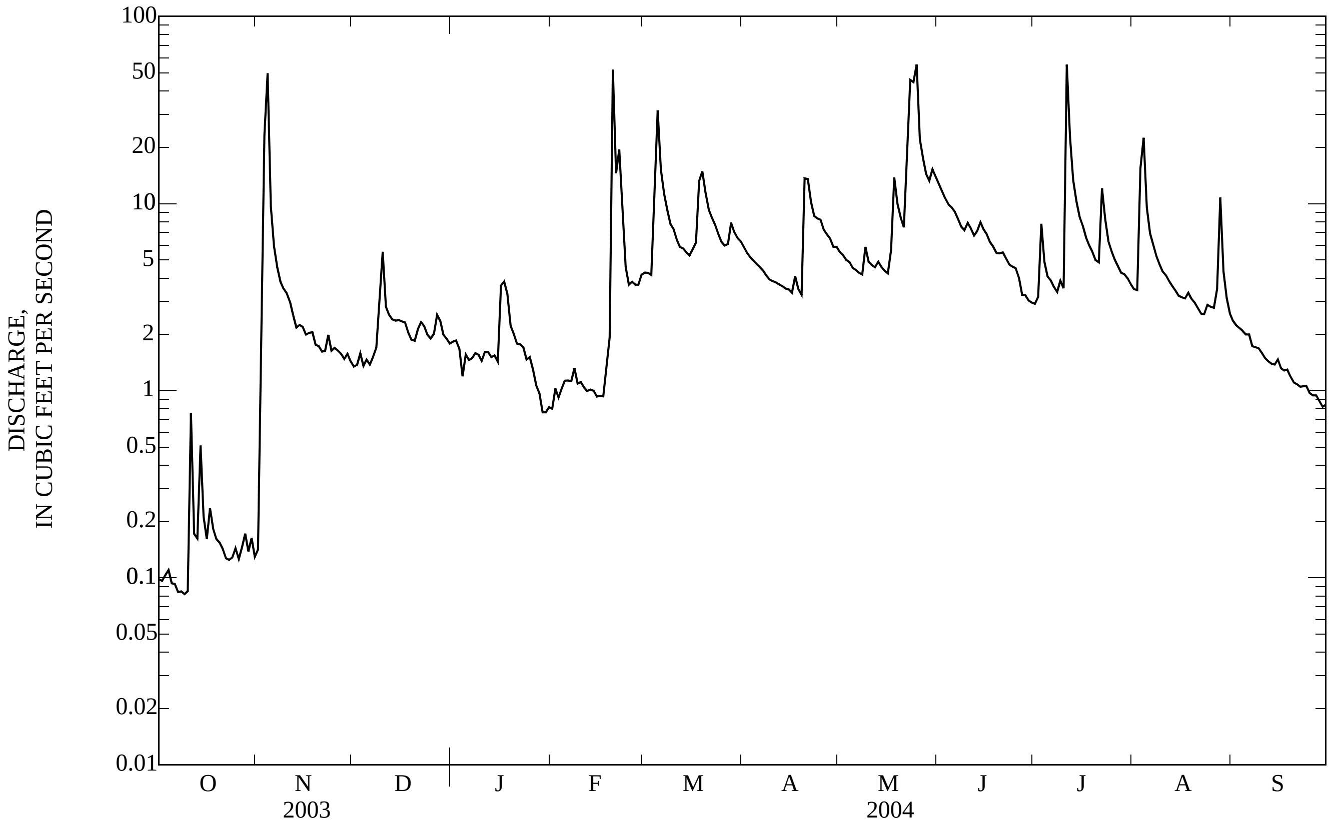
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.15	1.95	1.24	1.22	5.54	5.95	4.93	12.4	12.9	6.59	3.29	0.89
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	0.17	0.36	0.12	0.28	0.87	1.29	1.41	3.95	6.61	2.67	1.07	0.22
(WY)	(2004)	(2001)	(2001)	(2002)	(2002)	(2000)	(1996)	(2001)	(1997)	(2001)	(2001)	(2003)

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	1,598.10		1,868.91			
ANNUAL MEAN	4.38		5.11		4.83	
HIGHEST ANNUAL MEAN					9.24	1998
LOWEST ANNUAL MEAN					2.68	2002
HIGHEST DAILY MEAN	69	May 9	55	May 25 a	210	May 24, 1996
LOWEST DAILY MEAN	0.04	Sep 8	0.08	Oct 7 b	0.04	Jan 7, 1996 c
ANNUAL SEVEN-DAY MINIMUM	0.06	Sep 4	0.09	Oct 4	0.06	Sep 4, 2003
MAXIMUM PEAK FLOW			281	Jul 11	1,350	Jun 18, 1998
MAXIMUM PEAK STAGE			6.16	Jul 11	9.66	Jun 18, 1998
INSTANTANEOUS LOW FLOW			0.07	Oct 7 b	0.00	Nov 10, 1995
ANNUAL RUNOFF (AC-FT)	3,170		3,710		3,500	
ANNUAL RUNOFF (CFSM)	0.646		0.753		0.713	
ANNUAL RUNOFF (INCHES)	8.77		10.25		9.68	
10 PERCENT EXCEEDS	11		10		11	
50 PERCENT EXCEEDS	1.7		3.3		2.0	
90 PERCENT EXCEEDS	0.14		0.81		0.30	

a Also July 11.
b Also Oct. 8, 9, 10.
c Also Sept. 8-10, 2003.
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, 1 mg/L Feb. 9, 2003.
SEDIMENT LOADS: Maximum daily, 1,080 tons May 24, 1996; minimum daily, 0.00 tons Feb. 1-3, 9, 10, 14-19, Feb. 28 to Mar. 2, Mar. 10, Sept. 6-10, 24, Sept. 29, 30, 2003, and Oct. 1, 7-9, 2003.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 604 microsiemens Oct. 12; minimum daily, 204 microsiemens Feb. 20.
WATER TEMPERATURES: Maximum daily, 24.7°C Aug. 2; minimum daily, 0.8°C Feb. 20.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 467 mg/L Feb. 20; minimum daily mean, 4 mg/L Nov. 27, 28.
SEDIMENT LOADS: Maximum daily, 66 tons Feb. 20; minimum daily, 0.00 tons Oct. 1, 7-9.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	492	---	---	557	---	520	500
2	472	486	539	---	---	---	---	---	560	---	557	---
3	---	417	---	---	---	---	---	---	---	556	479	531
4	---	447	---	---	491	---	527	---	552	---	537	529
5	452	526	552	---	---	496	---	---	---	475	550	573
6	---	---	---	---	---	---	---	---	557	507	557	545
7	---	---	546	---	---	---	---	---	---	---	556	513
8	---	542	568	---	---	519	545	---	559	---	476	477
9	---	546	---	---	---	523	---	---	557	546	555	---
10	---	---	---	---	---	526	---	545	---	---	536	560
11	---	---	---	456	---	---	---	552	558	---	---	528
12	604	543	546	---	---	522	---	551	564	516	449	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	560	---	536	---	---	---	---	547	544	---	574	---
15	---	---	---	---	---	---	---	544	561	555	491	---
16	---	544	536	---	---	---	---	---	568	---	---	---
17	---	---	---	---	---	---	---	536	---	509	538	---
18	---	546	---	---	---	---	---	558	564	---	548	---
19	475	550	---	---	---	525	---	552	563	---	---	---
20	---	546	---	---	204	528	---	554	---	---	---	---
21	---	549	---	487	---	524	---	559	553	---	---	---
22	---	---	537	---	---	526	542	474	---	---	478	519
23	---	---	---	---	441	---	541	485	---	---	---	523
24	---	---	---	---	486	521	---	544	---	---	557	586
25	---	---	---	---	504	---	---	511	---	---	562	---
26	---	---	462	451	---	---	---	538	---	486	570	535
27	---	---	---	---	---	---	546	---	---	534	583	532
28	---	546	---	---	---	---	---	552	---	545	---	571
29	472	536	521	---	---	---	---	544	---	553	539	---
30	---	---	---	---	---	---	---	551	---	---	565	---
31	---	---	---	---	---	---	---	---	---	---	522	---

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	6.7	---	---	14.0	---	20.1	---
2	---	6.6	---	---	---	---	---	---	16.1	---	24.7	---
3	---	8.0	---	---	---	---	---	---	---	20.2	22.7	---
4	---	10.5	---	---	2.8	---	12.4	---	20.4	---	20.5	---
5	13.4	8.5	5.4	---	---	5.2	---	---	---	21.7	20.5	---
6	---	---	---	---	---	---	---	---	21.6	18.6	20.8	---
7	---	---	3.5	---	---	---	---	---	---	---	21.4	---
8	---	6.4	6.8	---	---	9.5	6.5	---	19.4	---	22.9	---
9	---	7.6	---	---	---	---	---	---	21.7	---	23.2	---
10	---	---	---	---	---	---	---	18.3	---	---	18.6	---
11	---	---	---	3.1	---	---	---	23.1	23.9	---	---	---
12	14.4	8.2	---	---	---	8.7	---	18.3	21.3	19.9	14.8	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	14.5	---	1.8	---	---	---	---	16.4	21.8	---	17.1	---
15	---	---	---	---	---	---	---	17.7	20.0	24.0	21.7	---
16	---	11.8	1.5	---	---	---	---	---	19.9	---	---	---
17	---	---	---	---	---	---	---	20.3	---	22.5	23.0	---
18	---	11.7	---	---	---	---	---	16.3	17.9	---	19.7	---
19	---	10.8	---	---	---	8.7	---	18.2	20.3	---	---	---
20	---	11.9	---	---	0.8	9.9	---	19.7	---	---	---	---
21	---	6.4	---	4.1	---	7.8	---	23.6	---	---	---	---
22	---	---	5.9	---	---	9.1	---	19.6	19.2	---	21.4	---
23	---	---	---	---	2.7	---	10.3	14.8	21.2	---	---	---
24	---	---	---	---	3.2	16.5	---	17.3	---	---	23.2	---
25	---	---	---	---	---	---	---	16.0	20.5	---	20.6	---
26	---	---	5.2	2.9	---	---	---	15.6	---	21.1	23.1	---
27	---	---	---	---	---	---	7.0	---	---	21.5	22.5	---
28	---	3.6	---	---	---	---	---	17.6	---	23.5	---	---
29	8.5	4.4	2.9	---	---	---	---	20.4	21.9	20.8	21.6	---
30	---	---	---	---	---	---	---	17.7	---	---	20.2	---
31	---	---	---	---	---	---	---	---	---	---	22.2	---

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

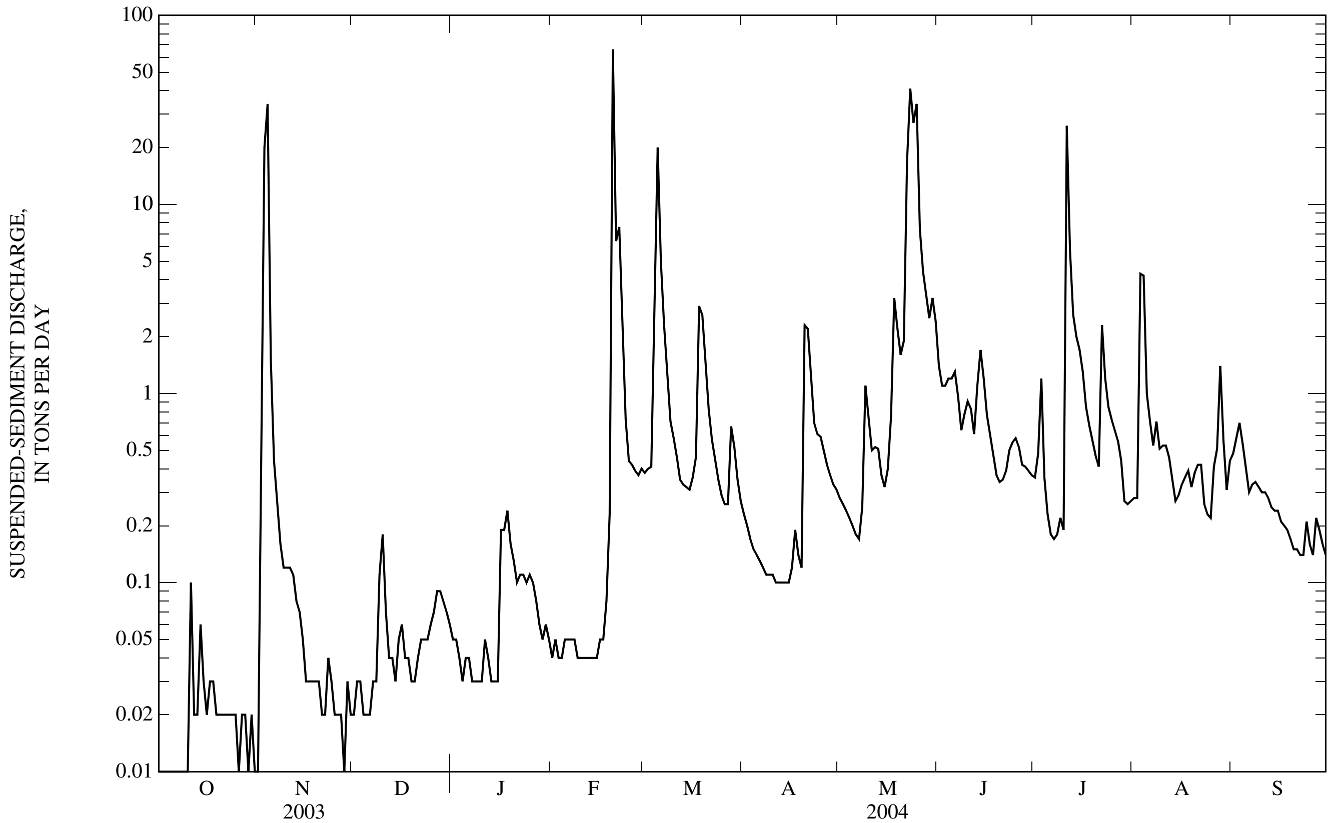
Day	Mean concen- tration (mg/l)	Load (tons/ day)	Mean concen- tration (mg/l)	Load (tons/ day)	Mean concen- tration (mg/l)	Load (tons/ day)	Mean concen- tration (mg/l)	Load (tons/ day)	Mean concen- tration (mg/l)	Load (tons/ day)	Mean concen- tration (mg/l)	Load (tons/ day)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	37	0.00	35	0.01	6	0.02	11	0.05	20	0.04	33	0.38
2	45	0.01	87	0.17	8	0.03	10	0.05	19	0.05	35	0.40
3	41	0.01	318	20	7	0.03	9	0.04	17	0.04	36	0.41
4	42	0.01	210	34	6	0.02	8	0.03	16	0.04	107	4.4
5	43	0.01	52	1.5	4	0.02	9	0.04	16	0.05	225	20
6	43	0.01	28	0.44	5	0.02	10	0.04	15	0.05	119	5.0
7	43	0.00	21	0.27	7	0.03	8	0.03	15	0.05	74	2.3
8	43	0.00	16	0.16	7	0.03	8	0.03	15	0.05	54	1.3
9	44	0.00	13	0.12	12	0.11	8	0.03	14	0.04	34	0.71
10	45	0.01	13	0.12	13	0.18	8	0.03	13	0.04	29	0.58
11	47	0.10	14	0.12	9	0.07	11	0.05	13	0.04	26	0.46
12	49	0.02	16	0.11	6	0.04	10	0.04	14	0.04	22	0.35
13	47	0.02	14	0.08	6	0.04	8	0.03	15	0.04	21	0.33
14	45	0.06	11	0.07	5	0.03	8	0.03	16	0.04	22	0.32
15	47	0.03	8	0.05	8	0.05	8	0.03	17	0.04	22	0.31
16	48	0.02	6	0.03	9	0.06	14	0.19	19	0.05	23	0.36
17	50	0.03	5	0.03	7	0.04	17	0.19	20	0.05	27	0.46
18	52	0.03	5	0.03	7	0.04	27	0.24	21	0.08	72	2.9
19	54	0.02	6	0.03	6	0.03	26	0.16	44	0.23	65	2.6
20	53	0.02	6	0.03	7	0.03	24	0.13	467	66	47	1.4
21	51	0.02	5	0.02	7	0.04	22	0.10	157	6.4	32	0.82
22	50	0.02	6	0.02	7	0.05	22	0.11	148	7.6	25	0.57
23	48	0.02	8	0.04	8	0.05	24	0.11	121	3.1	22	0.45
24	47	0.02	6	0.03	10	0.05	25	0.10	59	0.73	19	0.35
25	45	0.02	5	0.02	11	0.06	26	0.11	44	0.44	17	0.29
26	44	0.01	5	0.02	13	0.07	28	0.10	41	0.42	16	0.26
27	42	0.02	4	0.02	14	0.09	26	0.08	39	0.39	16	0.26
28	41	0.02	4	0.01	14	0.09	24	0.06	37	0.37	32	0.67
29	39	0.01	7	0.03	15	0.08	25	0.05	35	0.40	27	0.52
30	38	0.02	5	0.02	14	0.07	29	0.06	---	---	20	0.35
31	37	0.01	---	---	12	0.06	22	0.05	---	---	16	0.27
TOTAL	---	0.60	---	57.60	---	1.63	---	2.39	---	86.91	---	49.78

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	15	0.23	19	0.28	42	1.4	46	0.36	29	0.28	75	0.48
2	13	0.20	18	0.26	35	1.1	55	0.48	30	0.28	97	0.58
3	12	0.17	18	0.24	38	1.1	55	1.2	96	4.3	120	0.70
4	11	0.15	17	0.22	43	1.2	27	0.36	60	4.2	95	0.54
5	11	0.14	16	0.20	48	1.2	21	0.23	40	1.0	75	0.40
6	10	0.13	15	0.18	52	1.3	17	0.18	38	0.71	56	0.30
7	10	0.12	14	0.17	43	0.96	17	0.17	33	0.53	72	0.33
8	10	0.11	23	0.25	31	0.64	20	0.18	50	0.71	73	0.34
9	10	0.11	66	1.1	40	0.78	21	0.22	39	0.51	71	0.32
10	10	0.11	56	0.74	43	0.91	20	0.19	45	0.53	70	0.30
11	10	0.10	40	0.50	42	0.83	137	26	48	0.53	75	0.30
12	10	0.10	42	0.52	34	0.61	88	5.7	44	0.46	73	0.28
13	10	0.10	39	0.51	56	1.1	72	2.6	36	0.35	67	0.25
14	10	0.10	30	0.37	79	1.7	72	2.0	29	0.27	64	0.24
15	10	0.10	27	0.32	58	1.2	72	1.7	34	0.29	61	0.24
16	13	0.12	35	0.40	42	0.77	61	1.3	38	0.33	59	0.21
17	17	0.19	47	0.76	35	0.60	47	0.85	43	0.36	57	0.20
18	14	0.14	88	3.2	30	0.47	42	0.68	43	0.39	55	0.19
19	13	0.12	81	2.2	25	0.37	38	0.57	38	0.32	53	0.17
20	43	2.3	69	1.6	23	0.34	35	0.47	47	0.38	51	0.15
21	60	2.2	96	1.9	23	0.35	32	0.41	56	0.42	50	0.15
22	45	1.2	346	17	28	0.39	59	2.3	61	0.42	48	0.14
23	30	0.70	316	41	40	0.50	53	1.2	38	0.26	50	0.14
24	27	0.61	184	27	45	0.55	50	0.85	29	0.23	72	0.21
25	26	0.59	210	34	47	0.58	49	0.73	29	0.22	62	0.16
26	26	0.50	123	7.4	48	0.52	47	0.64	55	0.41	54	0.14
27	23	0.42	94	4.4	48	0.42	45	0.56	55	0.51	84	0.22
28	21	0.37	84	3.3	47	0.41	38	0.44	49	1.4	82	0.19
29	21	0.33	71	2.5	47	0.39	24	0.27	48	0.56	74	0.16
30	20	0.31	78	3.2	46	0.37	24	0.26	37	0.31	63	0.14
31	---	---	65	2.4	---	---	27	0.27	64	0.44	---	---
TOTAL	---	12.07	---	158.12	---	23.06	---	53.37	---	21.91	---	8.17
YEAR	475.61											

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued



05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Tipping bucket rain gage.

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

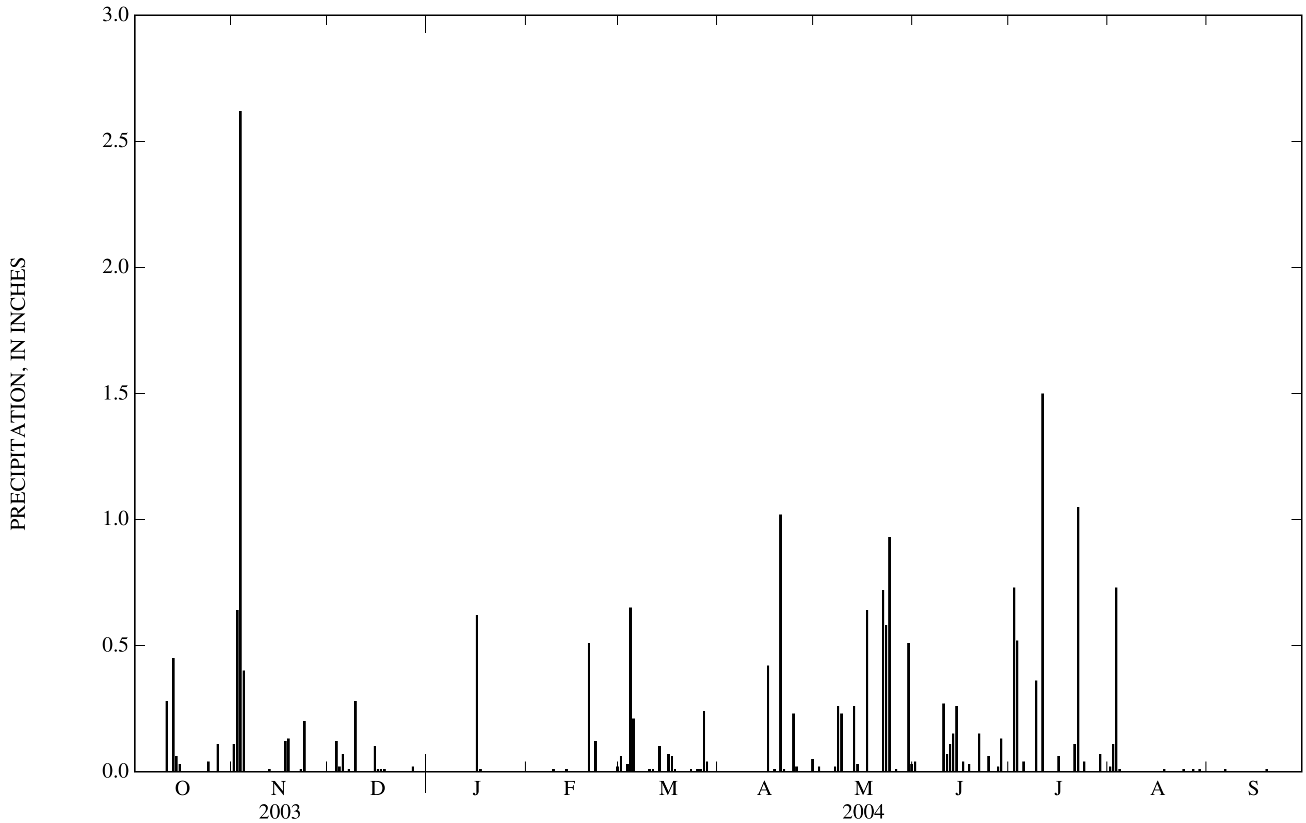
EXTREMES FOR PERIOD OF RECORD.--Maximum daily accumulation, 2.62 in., November 3, 2003.

EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 2.62 in., November 3.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.11	0.00	0.00	0.00	0.06	0.00	0.00	0.04	0.00	0.02	0.00
2	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.73	0.11	0.00
3	0.00	2.62	0.12	0.00	0.00	0.03	0.00	0.00	0.00	0.52	0.73	0.00
4	0.00	0.40	0.02	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.01	0.00
5	0.00	0.00	0.07	0.00	0.00	0.21	0.00	0.00	0.00	0.04	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
7	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
9	0.00	0.00	0.28	0.00	0.01	0.00	0.00	0.23	0.00	0.36	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.27	0.00	0.00	0.00
11	0.28	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.07	1.50	0.00	0.00
12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00
13	0.45	0.00	0.00	0.00	0.01	0.10	0.00	0.26	0.15	0.00	0.00	0.00
14	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.26	0.00	0.00	0.00
15	0.03	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.01	0.62	0.00	0.07	0.42	0.00	0.04	0.06	0.00	0.00
17	0.00	0.12	0.01	0.01	0.00	0.06	0.00	0.64	0.00	0.00	0.00	0.00
18	0.00	0.13	0.01	0.00	0.00	0.01	0.01	0.00	0.03	0.00	0.01	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
20	0.00	0.00	0.00	0.00	0.51	0.00	1.02	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.15	0.11	0.00	0.00
22	0.00	0.01	0.00	0.00	0.12	0.00	0.00	0.72	0.00	1.05	0.00	0.00
23	0.00	0.20	0.00	0.00	0.00	0.01	0.00	0.58	0.00	0.00	0.00	0.00
24	0.04	0.00	0.00	0.00	0.00	0.00	0.23	0.93	0.06	0.04	0.01	0.00
25	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
27	0.11	0.00	0.02	0.00	0.00	0.24	0.00	0.00	0.02	0.00	0.01	0.00
28	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.13	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.07	0.01	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.05	0.51	0.00	0.00	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.03	---	0.00	0.00	---
TOTAL	0.97	4.24	0.65	0.63	0.67	1.52	1.76	4.24	1.33	4.48	0.91	0.02
MEAN	0.03	0.14	0.02	0.02	0.02	0.05	0.06	0.14	0.04	0.14	0.03	0.00
MAX	0.45	2.62	0.28	0.62	0.51	0.65	1.02	0.93	0.27	1.50	0.73	0.01
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

05487540 WALNUT CREEK NEAR PRAIRIE CITY, IA—Continued



05487550 WALNUT CREEK NEAR VANDALIA, IA

LOCATION.--Lat 41°32'13", long 93°15'32", in NW$\frac{1}{4}$ NE$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharge, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.15	e0.71	6.3	7.7	e3.3	e13	21	16	38	9.5	7.2	7.8
2	0.14	e2.8	6.3	7.0	5.6	12	20	15	31	10	7.3	6.9
3	0.16	e63	7.3	6.6	5.5	11	19	15	28	29	74	6.5
4	0.14	216	6.8	e6.5	5.1	31	18	14	25	13	98	6.0
5	0.15	34	6.9	e4.9	5.3	118	17	13	24	11	24	5.9
6	0.15	24	6.5	e5.1	7.1	39	17	13	22	11	14	6.3
7	0.15	18	6.8	e5.0	5.0	29	17	12	20	10	12	5.4
8	0.14	15	8.2	e5.8	5.5	23	16	12	18	9.9	11	4.9
9	0.12	13	13	e5.6	5.2	18	16	28	17	11	10	4.7
10	0.23	13	19	5.7	5.4	18	15	17	19	9.9	9.3	4.3
11	0.21	12	13	6.5	5.4	14	15	15	17	137	8.8	4.1
12	1.0	11	11	6.8	5.3	13	15	15	16	65	8.3	4.0
13	0.26	9.6	9.9	6.1	7.1	12	14	16	18	26	8.0	3.8
14	1.7	9.8	10	5.9	8.0	12	14	15	21	17	7.5	3.8
15	0.89	9.8	9.8	5.3	7.6	11	14	14	16	13	7.2	4.1
16	0.43	9.1	8.9	12	12	12	14	13	15	12	6.9	3.9
17	0.32	9.1	8.5	26	10	16	16	18	14	11	6.7	3.6
18	0.32	9.8	8.3	8.9	9.8	64	14	58	14	10	7.6	3.4
19	0.26	8.6	7.4	7.6	e24	61	13	26	13	9.5	7.5	3.1
20	0.27	8.2	7.9	7.0	e127	42	57	22	13	8.9	6.7	3.0
21	0.23	7.6	8.2	6.9	e34	30	50	19	13	8.7	6.2	2.8
22	0.20	7.6	8.8	6.2	e37	27	27	50	12	28	5.9	2.5
23	0.19	9.8	8.3	7.1	e22	25	23	135	11	16	5.7	2.3
24	0.19	8.1	7.3	6.9	15	22	23	139	11	11	7.3	2.4
25	0.20	7.7	7.5	6.7	e11	21	24	225	11	9.5	6.9	2.1
26	0.20	7.3	7.3	6.9	e9.8	20	21	89	10	8.8	6.9	2.4
27	0.20	7.2	8.4	5.8	e10	20	18	61	10	8.6	15	2.4
28	0.26	6.3	9.0	e5.1	e11	34	18	51	11	8.1	65	2.2
29	0.28	7.2	7.5	e5.1	e11	24	17	47	10	7.8	13	2.3
30	0.23	7.1	6.9	e2.5	---	24	17	59	10	7.5	10	2.5
31	0.22	---	6.9	e1.6	---	23	---	48	---	7.4	8.5	---
TOTAL	9.59	572.41	267.9	212.8	430.0	839	600	1,290	508	555.1	492.4	119.4
MEAN	0.31	19.1	8.64	6.86	14.8	27.1	20.0	41.6	16.9	17.9	15.9	3.98
MAX	1.7	216	19	26	127	118	57	225	38	137	98	7.8
MIN	0.12	0.71	6.3	1.6	3.3	11	13	12	10	7.4	5.7	2.1
AC-FT	19	1,140	531	422	853	1,660	1,190	2,560	1,010	1,100	977	237
CFSM	0.02	0.94	0.43	0.34	0.73	1.33	0.99	2.05	0.83	0.88	0.78	0.20
IN.	0.02	1.05	0.49	0.39	0.79	1.54	1.10	2.36	0.93	1.02	0.90	0.22

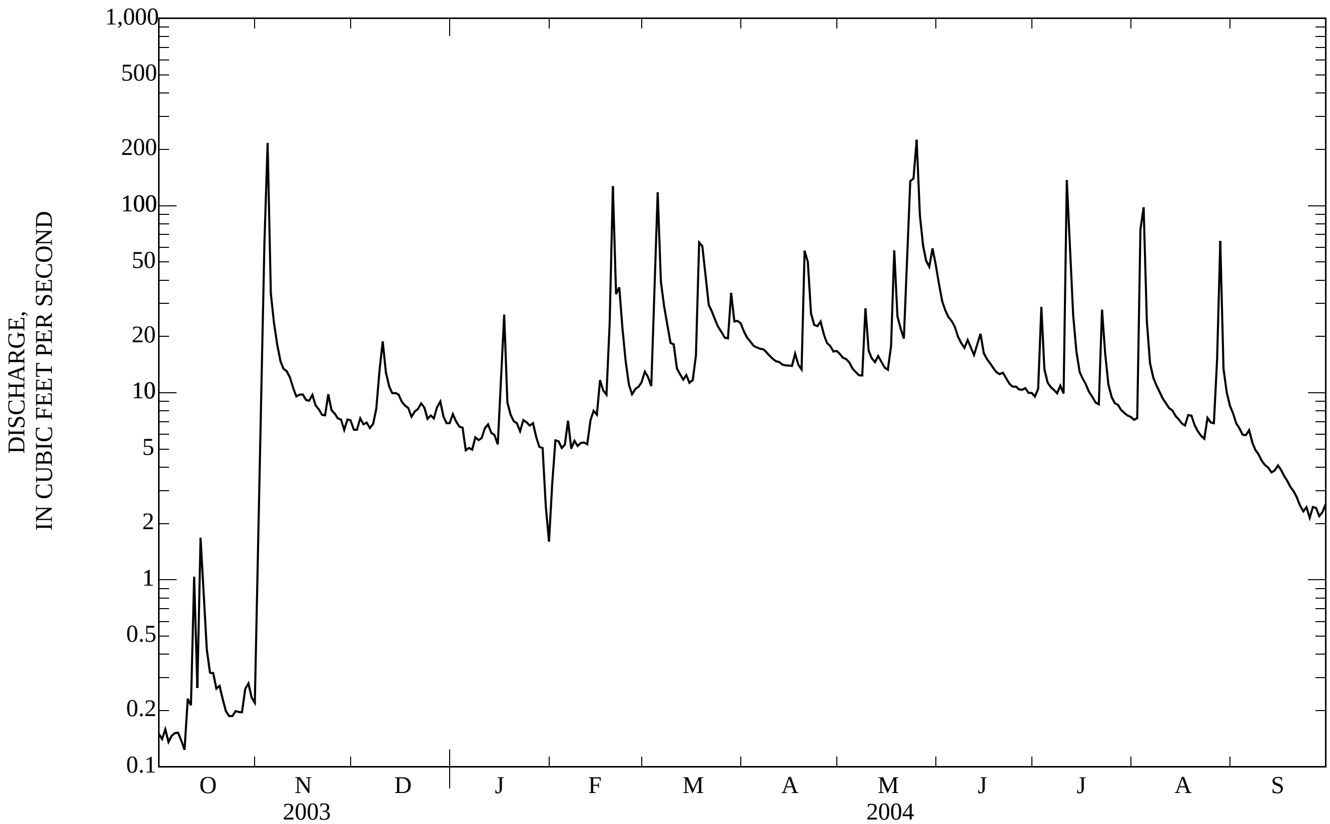
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.43	5.63	3.53	3.40	17.2	18.1	19.0	44.0	31.6	19.2	8.47	2.45
MAX	8.36	19.1	8.64	10.3	58.8	66.3	47.4	86.1	97.8	42.4	31.2	7.02
(WY)	(2003)	(2004)	(2004)	(1998)	(1996)	(2001)	(1995)	(1996)	(1998)	(1998)	(1999)	(1999)
MIN	0.21	0.49	0.27	0.79	1.32	3.82	5.62	14.3	15.2	6.40	2.44	0.62
(WY)	(1995)	(1995)	(2001)	(2003)	(2003)	(2000)	(1996)	(2002)	(1995)	(2001)	(1997)	(2003)

05487550 WALNUT CREEK NEAR VANDALIA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	5,321.39		5,896.60			
ANNUAL MEAN	14.6		16.1		14.6	
HIGHEST ANNUAL MEAN					27.5	1998
LOWEST ANNUAL MEAN					7.13	2002
HIGHEST DAILY MEAN	329	Jul 8	225	May 25	573	May 24, 1996
LOWEST DAILY MEAN	0.04	Sep 8 a	0.12	Oct 9	0.04	Sep 8, 2003 a
ANNUAL SEVEN-DAY MINIMUM	0.06	Sep 4	0.14	Oct 3	0.06	Sep 4, 2003
MAXIMUM PEAK FLOW			672	May 24	1,380	Jun 14, 1998
MAXIMUM PEAK STAGE			9.52	Feb 20 b	10.85	Jun 14, 1998
INSTANTANEOUS LOW FLOW			0.10	Oct 4 c	0.01	Jan 8, 1996
ANNUAL RUNOFF (AC-FT)	10,550		11,700		10,610	
ANNUAL RUNOFF (CFSM)	0.718		0.794		0.721	
ANNUAL RUNOFF (INCHES)	9.75		10.81		9.80	
10 PERCENT EXCEEDS	24		28		31	
50 PERCENT EXCEEDS	5.1		9.9		5.9	
90 PERCENT EXCEEDS	0.23		2.3		0.69	

a Also Sept. 9, 10.
b Ice affected.
c Also Oct. 8, 9.
e Estimated.



05487550 WALNUT CREEK NEAR 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, 0.00 tons Sept. 4-10, 2003 and Oct. 9, 2003.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 582 microsiemens Oct. 12; minimum daily, 291 microsiemens Nov. 3.
WATER TEMPERATURES: Maximum daily, 26.6°C Aug. 2; minimum daily, 0.5°C Jan. 21.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,400 mg/L May 23; minimum daily mean, 6.0 mg/L Dec. 5, 6..
SEDIMENT LOADS: Maximum daily, 527 tons May 23; minimum daily, 0.00 tons Oct. 9.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	463	---	---	---	---	421	---	---	500	---	522	474
2	---	442	---	---	---	---	---	---	503	476	492	509
3	---	291	---	---	---	---	---	---	507	479	360	526
4	---	329	---	---	414	---	---	---	---	---	436	522
5	444	---	461	---	---	405	---	---	506	518	495	453
6	---	460	---	---	---	---	---	---	511	514	502	503
7	---	469	438	---	---	---	---	---	---	---	---	469
8	472	472	---	---	---	464	484	---	515	520	507	430
9	---	472	---	---	---	460	---	---	517	---	472	---
10	---	---	---	---	---	464	---	511	---	---	486	489
11	---	---	---	377	---	---	---	---	521	---	473	---
12	582	480	482	---	---	480	---	516	520	474	---	---
13	---	---	---	---	---	---	---	484	---	---	---	---
14	549	---	462	---	---	467	---	510	480	---	481	---
15	---	---	---	---	---	---	---	471	517	514	488	---
16	---	476	465	---	---	---	---	---	521	---	464	---
17	---	480	---	---	---	523	---	504	---	519	489	---
18	---	470	---	---	---	---	---	490	527	---	498	---
19	491	472	---	---	---	---	---	494	526	525	478	---
20	---	475	---	---	---	460	---	504	---	---	456	---
21	---	477	---	394	---	466	---	511	528	---	---	---
22	---	---	465	---	---	467	---	405	471	---	498	546
23	---	---	418	---	381	---	485	381	467	---	---	549
24	---	482	---	---	429	468	475	490	424	---	496	507
25	---	---	---	---	443	---	---	437	465	---	489	---
26	---	468	---	423	---	---	---	471	---	502	525	545
27	---	---	---	---	---	---	490	---	---	486	513	551
28	---	466	---	---	---	---	---	---	---	538	---	510
29	470	482	452	---	---	---	---	494	509	---	501	---
30	---	---	---	---	---	---	---	---	---	---	512	---
31	---	---	---	---	---	---	---	496	---	---	507	---

05487550 WALNUT CREEK NEAR VANDALIA, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	6.5	---	---	17.1	---	22.5	---
2	---	6.8	---	---	---	---	---	---	16.4	24.6	26.6	---
3	---	7.6	---	---	---	---	---	---	17.9	21.9	25.1	---
4	---	9.5	---	---	3.4	---	---	---	---	---	20.7	---
5	12.7	---	3.4	---	---	4.9	---	---	17.6	21.0	23.9	---
6	---	8.3	---	---	---	---	---	---	17.6	22.0	22.4	---
7	---	6.9	1.9	---	---	---	---	---	---	---	---	---
8	16.5	4.4	---	---	---	9.0	9.2	---	20.7	---	24.0	---
9	---	5.9	---	---	---	---	---	---	23.1	---	24.8	---
10	---	---	---	---	---	---	---	21.0	---	---	20.8	---
11	---	---	---	2.3	---	---	---	---	23.9	---	17.3	---
12	13.7	7.7	---	---	---	7.6	---	20.8	22.4	21.6	---	---
13	---	---	---	---	---	---	---	14.0	---	---	---	---
14	15.5	---	3.8	---	---	8.8	---	12.9	24.5	---	20.2	---
15	---	---	---	---	---	---	---	17.5	21.8	25.1	21.5	---
16	---	10.7	1.5	---	---	---	---	---	22.1	---	19.2	---
17	---	6.8	---	---	---	8.3	---	21.7	---	23.6	19.3	---
18	---	11.4	---	---	---	---	---	17.6	18.1	---	20.4	---
19	---	10.7	---	---	---	---	---	18.8	19.1	26.1	17.0	---
20	---	11.9	---	---	---	10.2	---	20.1	---	---	17.5	---
21	---	6.7	---	0.5	---	6.8	---	24.2	---	---	---	---
22	---	---	4.9	---	---	9.0	---	21.1	22.0	---	23.6	---
23	---	---	1.8	---	2.2	---	16.1	16.4	21.6	---	---	---
24	---	1.5	---	---	2.9	15.8	12.4	17.6	15.8	---	23.7	---
25	---	---	---	---	---	---	---	17.2	20.6	---	21.9	---
26	---	---	---	4.3	---	---	---	16.5	---	23.2	25.9	---
27	---	---	---	---	---	---	9.5	---	---	---	25.0	---
28	---	3.4	---	---	---	---	---	---	---	24.6	---	15.0
29	8.8	2.7	1.2	---	---	---	---	19.1	20.8	---	21.5	---
30	---	---	---	---	---	---	---	---	---	---	18.6	---
31	---	---	---	---	---	---	---	17.0	---	---	23.5	---

05487550 WALNUT CREEK NEAR VANDALIA, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	0.02	45	0.09	12	0.20	10	0.22	12	0.11	77	2.7
2	47	0.02	62	0.47	10	0.17	10	0.19	14	0.21	72	2.4
3	44	0.02	540	92	8	0.17	10	0.18	14	0.20	67	2.0
4	43	0.02	639	433	7	0.13	10	0.18	13	0.18	113	20
5	41	0.02	346	32	6	0.10	10	0.13	17	0.24	488	163
6	37	0.02	148	9.6	6	0.11	11	0.15	21	0.40	230	25
7	33	0.01	54	2.7	8	0.15	11	0.15	26	0.35	159	12
8	30	0.01	35	1.4	10	0.22	11	0.17	30	0.45	114	7.2
9	30	0.00	29	1.1	16	0.66	11	0.17	33	0.46	78	3.9
10	31	0.02	28	0.97	26	1.3	12	0.18	28	0.40	61	3.0
11	35	0.02	27	0.89	24	0.84	12	0.21	21	0.31	68	2.5
12	38	0.11	27	0.77	24	0.72	12	0.23	15	0.22	80	2.7
13	42	0.03	23	0.59	21	0.55	13	0.21	14	0.28	64	2.0
14	48	0.22	18	0.48	16	0.43	13	0.21	14	0.31	41	1.4
15	49	0.12	13	0.36	14	0.37	14	0.20	15	0.31	29	0.88
16	48	0.05	9	0.23	14	0.33	30	1.2	16	0.51	22	0.68
17	47	0.04	12	0.30	14	0.32	34	2.6	15	0.42	20	1.0
18	45	0.04	15	0.38	13	0.30	21	0.50	17	0.44	118	23
19	44	0.03	15	0.35	13	0.26	16	0.32	112	7.3	132	22
20	40	0.03	15	0.32	13	0.27	14	0.27	789	271	100	11
21	36	0.02	11	0.22	12	0.27	14	0.25	426	39	72	5.8
22	35	0.02	12	0.25	12	0.29	16	0.26	355	35	58	4.3
23	34	0.02	16	0.43	12	0.27	14	0.27	347	21	49	3.3
24	33	0.02	19	0.41	12	0.23	13	0.25	170	7.0	40	2.4
25	33	0.02	14	0.29	12	0.24	12	0.22	103	3.1	37	2.1
26	32	0.02	8	0.16	12	0.23	11	0.21	95	2.5	35	1.9
27	31	0.02	8	0.15	11	0.26	11	0.17	91	2.5	33	1.7
28	31	0.02	10	0.16	11	0.27	11	0.15	86	2.6	32	2.9
29	30	0.02	14	0.28	11	0.22	11	0.15	82	2.4	30	1.9
30	31	0.02	13	0.26	11	0.20	11	0.07	---	---	28	1.8
31	33	0.02	---	---	11	0.20	12	0.05	---	---	26	1.7
TOTAL	---	1.07	---	580.61	---	10.28	---	9.72	---	399.20	---	338.16

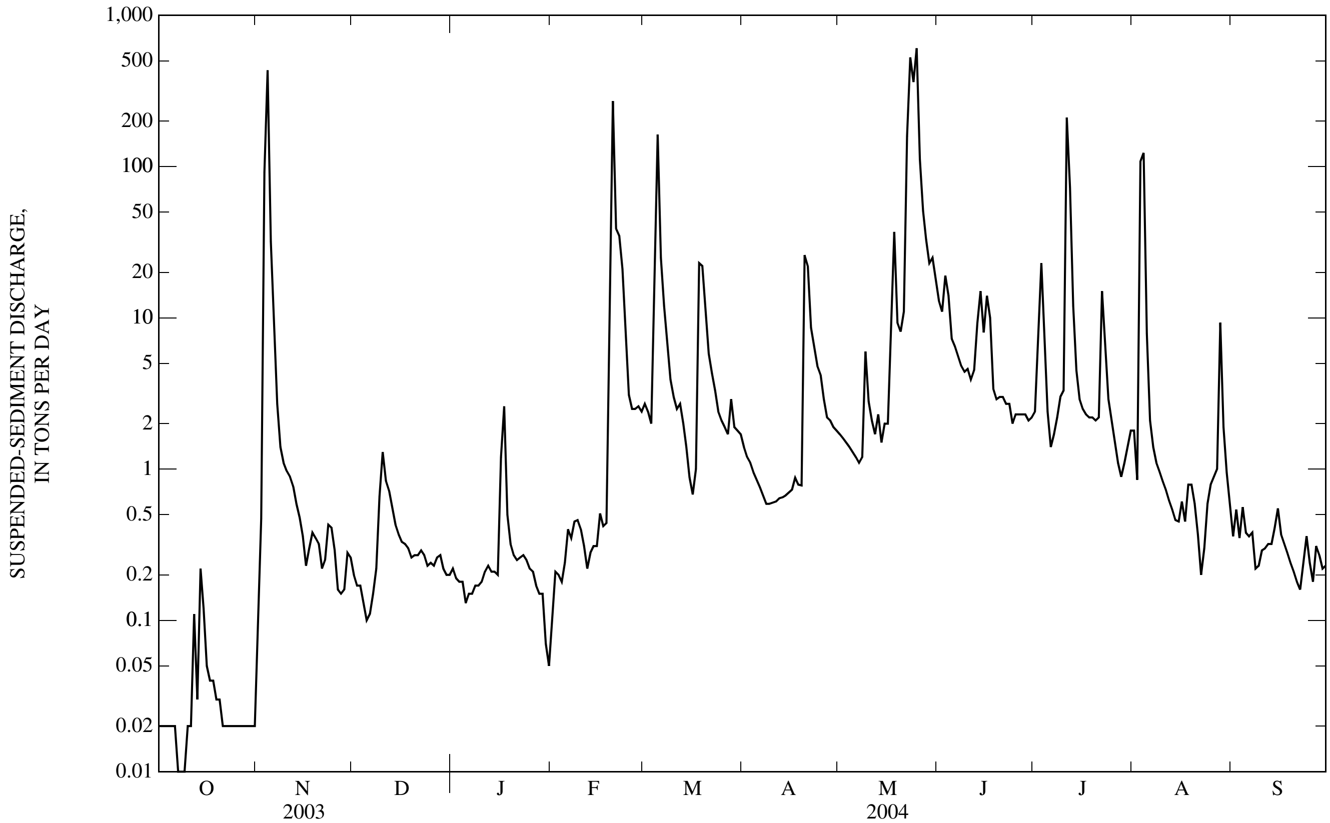
05487550 WALNUT CREEK NEAR VANDALIA, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	25	1.4	40	1.7	121	13	92	2.4	94	1.8	17	0.36
2	23	1.2	38	1.6	131	11	245	7.1	43	0.85	29	0.54
3	21	1.1	37	1.5	258	19	287	23	405	108	20	0.35
4	20	0.95	36	1.4	204	14	186	6.8	381	123	35	0.56
5	18	0.85	35	1.3	111	7.3	77	2.4	110	7.9	24	0.38
6	16	0.76	34	1.2	107	6.5	48	1.4	53	2.1	21	0.36
7	15	0.67	33	1.1	104	5.6	61	1.7	43	1.4	26	0.38
8	13	0.59	35	1.2	97	4.8	82	2.2	37	1.1	16	0.22
9	14	0.59	77	6.0	94	4.4	100	3.0	35	0.96	18	0.23
10	15	0.60	62	2.8	88	4.6	125	3.3	33	0.83	25	0.29
11	15	0.61	51	2.1	84	3.9	465	211	31	0.73	27	0.30
12	16	0.64	43	1.7	106	4.5	387	73	28	0.62	30	0.32
13	17	0.65	55	2.3	191	9.2	166	12	25	0.54	32	0.32
14	18	0.67	39	1.5	273	15	99	4.5	22	0.46	39	0.41
15	19	0.70	54	2.0	181	8.0	83	2.9	23	0.45	50	0.55
16	19	0.73	55	2.0	343	14	77	2.5	33	0.61	35	0.37
17	20	0.88	82	6.4	268	10	76	2.3	25	0.45	33	0.32
18	21	0.79	225	37	93	3.4	80	2.2	38	0.79	31	0.28
19	22	0.78	134	9.3	85	2.9	85	2.2	39	0.79	29	0.24
20	127	26	136	8.1	88	3.0	90	2.1	32	0.59	27	0.21
21	158	22	220	11	88	3.0	94	2.2	22	0.37	25	0.18
22	120	8.6	1,070	159	85	2.7	173	15	13	0.20	23	0.16
23	103	6.4	1,400	527	88	2.7	138	6.3	19	0.30	38	0.24
24	79	4.8	716	362	69	2.0	98	2.9	30	0.59	55	0.36
25	64	4.2	928	606	79	2.3	81	2.1	42	0.79	41	0.24
26	53	2.9	450	112	83	2.3	63	1.5	48	0.89	27	0.18
27	44	2.2	306	51	81	2.3	49	1.1	26	1.0	49	0.31
28	43	2.1	241	33	79	2.3	41	0.89	55	9.3	45	0.27
29	42	1.9	181	23	78	2.1	53	1.1	51	1.9	35	0.22
30	41	1.8	157	25	82	2.2	70	1.4	35	0.95	33	0.23
31	---	---	139	18	---	---	88	1.8	25	0.57	---	---
TOTAL	---	98.06	---	2,019.2	---	188.0	---	404.29	---	270.83	---	9.38

YEAR 4,328.80

05487550 WALNUT CREEK NEAR VANDALIA, IA—Continued



05487550 WALNUT CREEK NEAR 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.

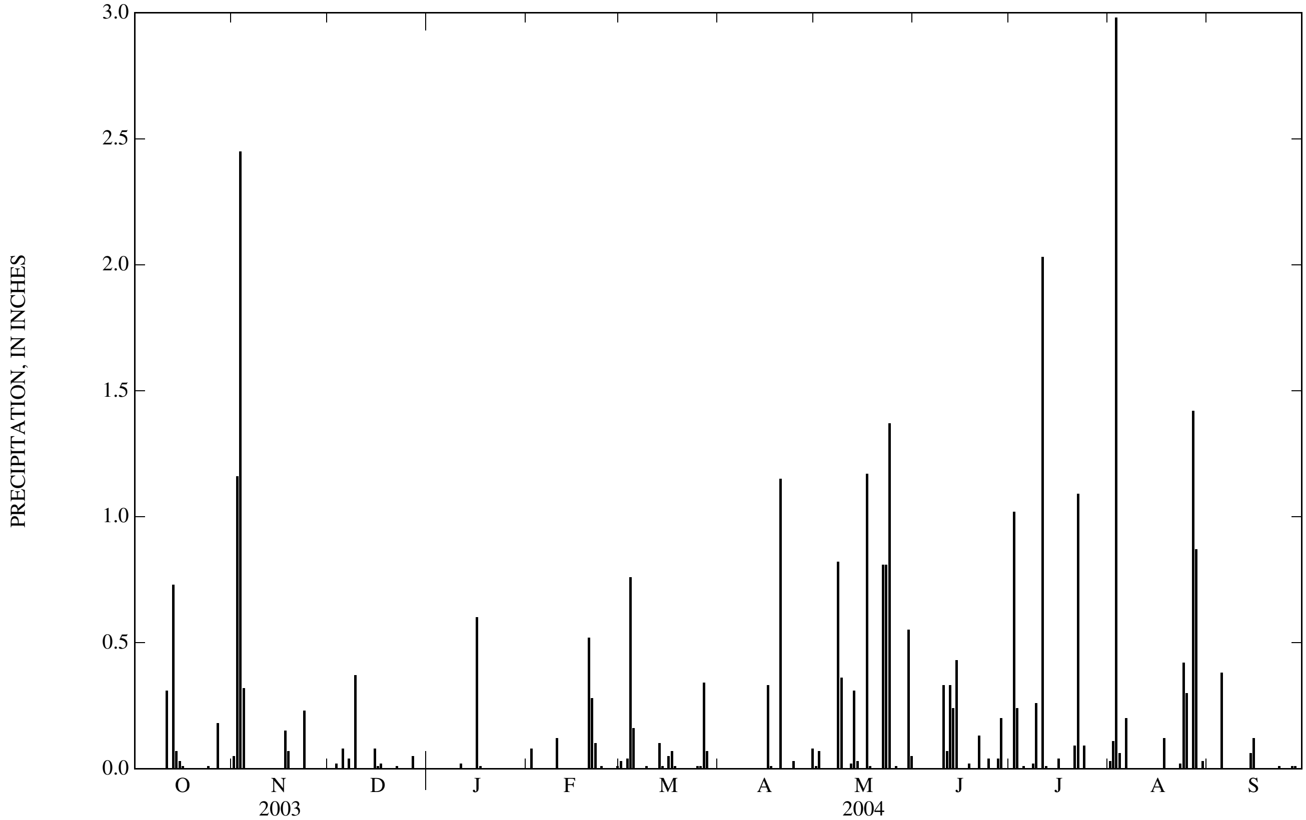
EXTREMES FOR CURRENT YEAR.--Maximum daily accumulation, 2.98 in., August 3.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.05	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.03	0.00
2	0.00	1.16	0.00	0.00	0.08	0.00	0.00	0.07	0.00	1.02	0.11	0.00
3	0.00	2.45	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.24	2.98	0.00
4	0.00	0.32	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.06	0.00
5	0.00	0.00	0.08	0.00	0.00	0.16	0.00	0.00	0.00	0.01	0.00	0.38
6	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
7	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.82	0.00	0.02	0.00	0.00
9	0.00	0.00	0.37	0.00	e0.00	0.01	0.00	0.36	0.00	0.26	0.00	0.00
10	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.33	0.00	0.00	0.00
11	0.31	0.00	0.00	0.02	e0.00	0.00	0.00	0.00	0.07	2.03	0.00	0.00
12	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.02	0.33	0.01	0.00	0.00
13	0.73	0.00	0.00	0.00	e0.00	0.10	0.00	0.31	0.24	0.00	0.00	0.00
14	0.07	0.00	0.00	0.00	e0.00	0.01	0.00	0.03	0.43	0.00	0.00	0.06
15	0.03	0.00	0.08	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
16	0.01	0.00	0.01	0.60	e0.00	0.05	0.33	0.00	0.00	0.04	0.00	0.00
17	0.00	0.15	0.02	0.01	e0.00	0.07	0.01	1.17	0.00	0.00	0.00	0.00
18	0.00	0.07	0.00	0.00	e0.00	0.01	0.00	0.01	0.02	0.00	0.12	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.52	0.00	1.15	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.13	0.09	0.00	0.00
22	0.00	0.00	0.01	0.00	0.10	0.00	0.00	0.81	0.00	1.09	0.00	0.00
23	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.02	0.01
24	0.01	0.00	0.00	0.00	0.01	0.00	0.03	1.37	0.04	0.09	0.42	0.00
25	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.30	0.00
26	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
27	0.18	0.00	0.05	0.00	0.00	0.34	0.00	0.00	0.04	0.00	1.42	0.01
28	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.20	0.00	0.87	0.01
29	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.08	0.55	0.00	0.00	0.03	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.05	---	0.00	0.00	---
TOTAL	1.34	4.43	0.68	0.63	1.12	1.67	1.60	6.40	1.83	4.90	6.56	0.59
MEAN	0.04	0.15	0.02	0.02	0.04	0.05	0.05	0.21	0.06	0.16	0.21	0.02
MAX	0.73	2.45	0.37	0.60	0.52	0.76	1.15	1.37	0.43	2.03	2.98	0.38
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

e Estimated

05487550 WALNUT CREEK NEAR VANDALIA, IA—Continued



05487980 WHITE BREAST CREEK NEAR DALLAS, IA

LOCATION.--(revised) Lat 41°14'49", long 93°15'57", in NW1/4 NW1/4 sec.3, T.74 N., R.21 W., Marion County, Hydrologic Unit 07100008, on left bank 15 ft downstream from bridge on county highway, 0.5 mi downstream from Kirk Branch, and 1.7 mi northwest of Dallas.

DRAINAGE AREA.--342 mi^2.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 759.21 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.6	6.3	14	e7.1	202	185	43	355	23	18	224
2	1.6	12	5.9	12	e13	162	150	41	178	26	20	172
3	1.5	361	6.4	13	e11	110	131	41	123	62	163	138
4	2.6	432	7.5	e9.9	e11	219	113	36	99	63	1,810	116
5	2.7	199	11	e8.4	e12	3,510	99	32	84	39	926	101
6	2.1	103	11	e8.6	e10	1,280	89	30	70	39	221	241
7	1.9	57	12	e7.6	e7.7	457	88	28	60	31	101	483
8	1.7	34	11	e9.2	e8.7	259	82	26	56	26	e59	195
9	1.6	22	28	e7.8	e11	183	74	38	38	209	e43	124
10	1.5	17	158	e7.4	e10	161	66	31	179	112	34	103
11	1.5	16	e60	e6.7	e8.7	127	49	28	752	429	29	90
12	2.0	14	e41	e6.5	e7.1	100	47	27	137	1,710	24	73
13	1.6	9.6	e33	e7.5	e6.1	98	46	39	147	288	22	59
14	3.9	8.3	e24	e9.9	e8.2	101	44	52	1,780	109	19	49
15	2.8	7.6	e23	e9.6	e8.2	93	42	50	1,860	56	17	44
16	3.8	8.5	e24	e31	e8.3	113	41	40	576	43	15	46
17	2.0	6.8	e24	e51	e8.2	147	39	35	846	39	14	39
18	1.6	8.1	e22	e35	e11	769	36	81	308	31	14	36
19	2.2	12	e19	e24	e38	1,090	34	89	186	29	126	33
20	2.6	9.9	e20	e19	e339	541	67	93	128	26	164	26
21	2.1	8.5	e23	e21	e548	271	333	75	106	35	53	18
22	1.9	7.9	e23	e15	e406	181	246	271	89	337	32	14
23	1.8	9.3	e18	e12	e318	159	118	1,830	81	150	24	12
24	1.9	e8.3	e14	e11	e239	151	78	1,800	58	57	42	12
25	2.0	e7.5	e13	e11	183	142	69	4,100	47	43	935	11
26	2.0	e7.8	e12	e10	130	147	61	949	47	32	1,420	11
27	2.1	e7.3	18	e9.8	e124	147	60	333	38	27	2,240	10
28	2.5	e6.4	24	e9.3	170	1,070	48	201	32	22	4,440	11
29	2.5	e6.1	18	e7.1	193	897	41	154	24	19	2,430	12
30	2.5	6.0	15	e6.1	---	392	38	2,470	22	21	616	12
31	2.6	---	14	e5.9	---	248	---	1,100	---	21	327	---
TOTAL	66.8	1,415.5	739.1	416.3	2,855.3	13,527	2,614	14,163	8,506	4,154	16,398	2,515
MEAN	2.15	47.2	23.8	13.4	98.5	436	87.1	457	284	134	529	83.8
MAX	3.9	432	158	51	548	3,510	333	4,100	1,860	1,710	4,440	483
MIN	1.5	2.6	5.9	5.9	6.1	93	34	26	22	19	14	10
AC-FT	132	2,810	1,470	826	5,660	26,830	5,180	28,090	16,870	8,240	32,530	4,990
CFSM	0.01	0.14	0.07	0.04	0.29	1.28	0.25	1.34	0.83	0.39	1.55	0.25
IN.	0.01	0.15	0.08	0.05	0.31	1.47	0.28	1.54	0.93	0.45	1.78	0.27

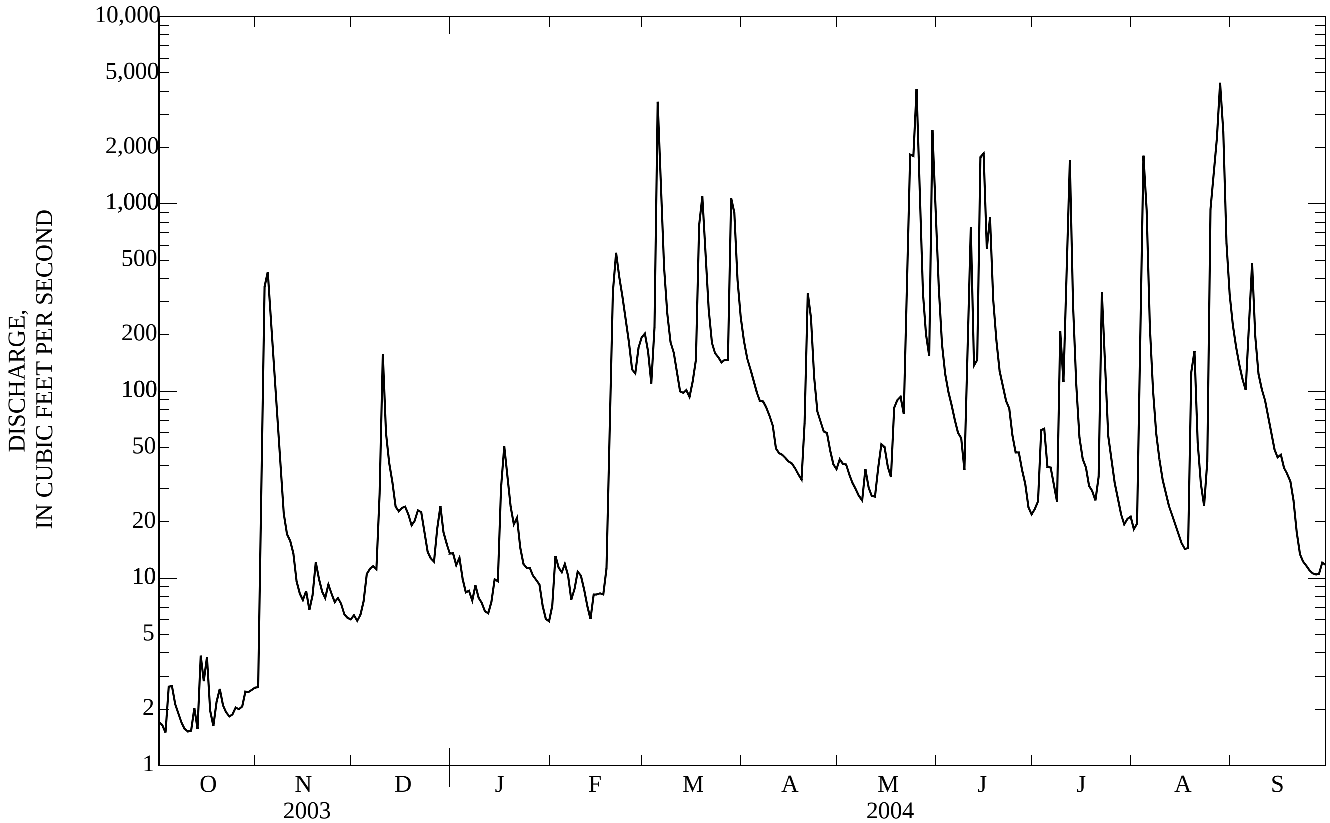
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	106	100	60.2	161	341	428	403	289	268	123	172
MAX	1,153	756	718	601	718	1,056	1,592	1,823	1,146	3,641	1,202	1,902
(WY)	(1974)	(1984)	(1983)	(1974)	(1973)	(1998)	(1991)	(1996)	(1967)	(1993)	(1993)	(1992)
MIN	1.16	1.35	0.80	0.49	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1963 - 2004	
ANNUAL TOTAL	24,194.9		67,370.0			
ANNUAL MEAN	66.3		184		214	
HIGHEST ANNUAL MEAN					816	1993
LOWEST ANNUAL MEAN					17.1	1989
HIGHEST DAILY MEAN	2,560	May 4	4,440	Aug 28	24,700	Sep 16, 1992
LOWEST DAILY MEAN	1.3	Aug 27	1.5	Oct 3 a	0.02	Oct 14, 1989
ANNUAL SEVEN-DAY MINIMUM	1.5	Aug 24	1.7	Oct 7	0.05	Aug 9, 1989
MAXIMUM PEAK FLOW			7,580	May 25	37,300	Jul 16, 1982
MAXIMUM PEAK STAGE			20.21	May 25	33.45	Jul 16, 1982
INSTANTANEOUS LOW FLOW			1.2	Oct 13		
ANNUAL RUNOFF (AC-FT)	47,990		133,600		154,700	
ANNUAL RUNOFF (CFSM)	0.194		0.538		0.625	
ANNUAL RUNOFF (INCHES)	2.63		7.33		8.49	
10 PERCENT EXCEEDS	115		344		420	
50 PERCENT EXCEEDS	11		36		34	
90 PERCENT EXCEEDS	1.9		6.1		2.7	

a Also Oct. 10, 11.
e Estimated.



05488100 LAKE RED ROCK NEAR PELLA, IA

LOCATION.--Lat 41°22'11", long 92°58'48", in NE$\frac{1}{4}$ NW$\frac{1}{4}$ sec.19, T.76 N., R.18 W., Marion County, Hydrologic Unit O7100008, 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 NGVD 0f 1929 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.

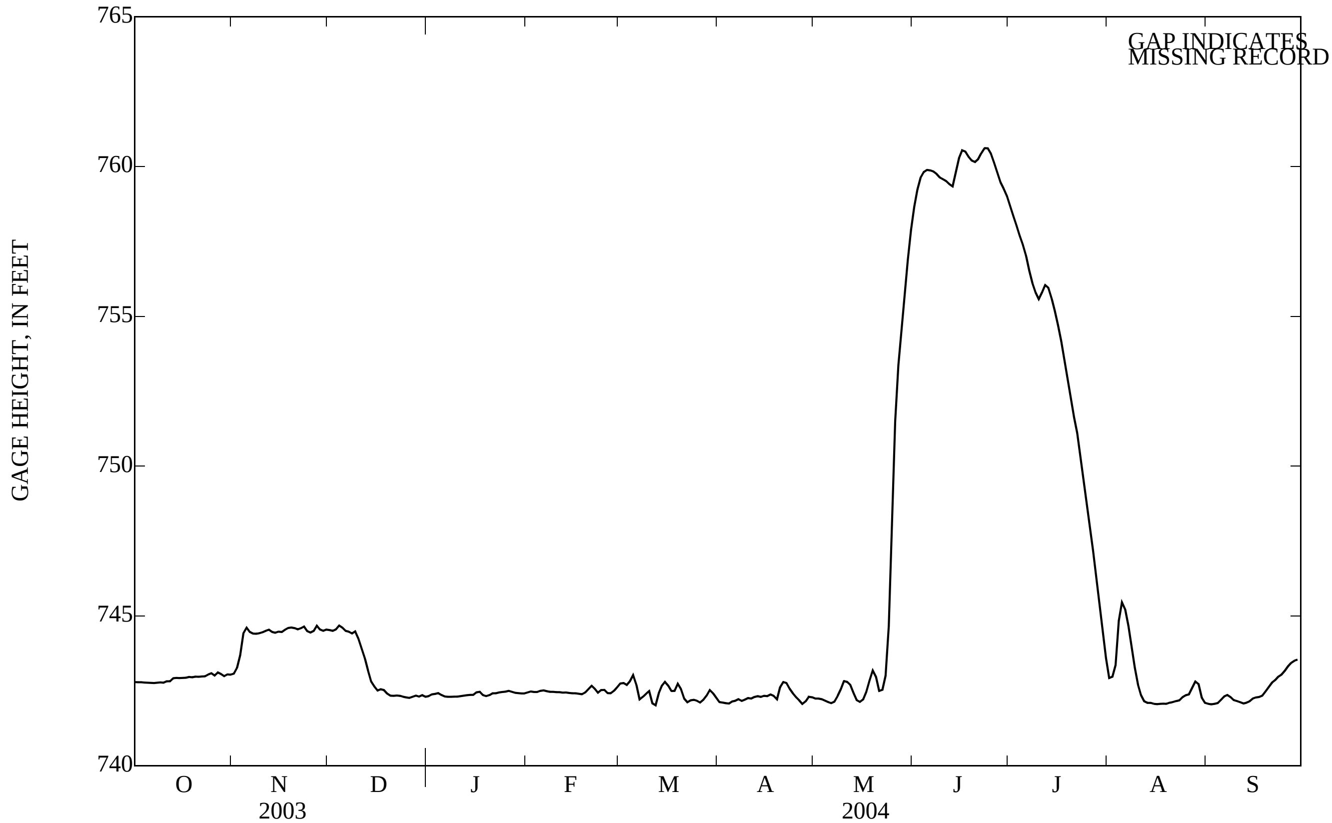
EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 782.67 ft July 13, 1993; minimum elevation, 719.68 ft Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 756.28 ft May 18; minimum elevation, 742.04 ft July 30.

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY OBSERVATION AT 0600 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	742.81	743.02	744.55	742.27	742.41	742.64	742.23	742.26	758.10	758.95	743.40	742.08
2	742.78	743.08	744.51	742.33	742.45	742.77	742.08	742.23	758.83	758.60	742.76	742.05
3	742.78	743.32	744.49	742.39	742.48	742.75	742.11	742.24	759.36	758.26	743.03	742.04
4	742.78	743.81	744.56	742.39	742.45	742.67	742.07	742.21	759.72	757.95	743.46	742.07
5	742.77	744.62	744.71	742.43	742.46	742.86	742.07	742.15	759.85	757.62	745.28	742.09
6	742.76	744.60	744.57	742.33	742.50	743.07	742.16	742.11	759.90	757.32	745.51	742.23
7	742.76	744.41	744.47	742.30	742.51	742.57	742.16	742.07	759.86	756.93	745.12	742.33
8	742.75	744.40	744.47	742.29	742.47	742.08	742.23	742.15	759.82	756.40	744.52	742.36
9	742.77	744.40	744.39	742.30	742.46	742.36	742.13	742.37	759.73	756.01	743.77	742.26
10	742.78	744.42	744.51	742.30	742.46	742.40	742.22	742.60	759.60	755.72	743.11	742.16
11	742.76	744.46	744.15	742.30	742.45	742.51	742.26	742.89	759.57	755.52	742.57	742.15
12	742.83	744.51	743.84	742.32	742.45	741.93	742.23	742.76	759.49	755.88	742.28	742.10
13	742.81	744.54	743.50	742.34	742.43	742.04	742.31	742.67	759.38	756.09	742.10	742.06
14	742.95	744.43	743.07	742.35	742.44	742.54	742.32	742.34	759.32	755.90	742.09	742.11
15	742.92	744.43	742.71	742.36	742.42	742.70	742.28	742.13	759.95	755.50	742.09	742.16
16	742.92	744.48	742.61	742.36	742.41	742.82	742.34	742.12	760.38	755.07	742.05	742.26
17	742.93	744.45	742.47	742.47	742.41	742.62	742.31	742.23	760.59	754.58	742.05	742.28
18	742.93	744.56	742.57	742.46	742.39	742.44	742.39	742.54	760.46	754.04	742.06	742.29
19	742.96	744.60	742.50	742.31	742.38	742.51	742.30	742.93	760.28	753.43	742.07	742.35
20	742.94	744.61	742.37	742.32	742.46	742.80	742.18	743.25	760.17	752.81	742.06	742.51
21	742.98	744.58	742.32	742.36	742.58	742.47	742.75	742.87	760.14	752.14	742.11	742.65
22	742.96	744.53	742.33	742.43	742.69	742.16	742.80	742.36	760.28	751.47	742.12	742.80
23	742.98	744.60	742.34	742.41	742.52	742.10	742.74	742.58	760.50	750.98	742.16	742.87
24	742.98	744.65	742.32	742.45	742.40	742.20	742.50	743.14	760.65	750.24	742.18	743.00
25	743.06	744.43	742.29	742.46	742.56	742.19	742.38	745.16	760.59	749.47	742.32	743.05
26	743.09	744.44	742.27	742.47	742.51	742.15	742.25	749.37	760.37	748.65	742.36	743.20
27	742.98	744.51	742.25	742.50	742.39	742.09	742.15	752.20	760.04	747.77	742.38	743.35
28	743.15	744.72	742.31	742.45	742.42	742.23	742.02	753.76	759.71	746.93	742.66	743.45
29	743.02	744.48	742.34	742.42	742.52	742.37	742.18	754.74	759.39	745.85	742.85	743.51
30	742.97	744.50	742.29	742.42	---	742.57	742.33	755.91	759.21	744.94	742.67	743.54
31	743.07	---	742.37	742.40	---	742.36	---	757.21	---	744.14	742.13	---
MEAN	742.90	744.35	743.24	742.38	742.46	742.45	742.28	744.76	759.84	753.39	742.82	742.51
MAX	743.15	744.72	744.71	742.50	742.69	743.07	742.80	757.21	760.65	758.95	745.51	743.54
MIN	742.75	743.02	742.25	742.27	742.38	741.93	742.02	742.07	758.10	744.14	742.05	742.04

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 SW1/4 SW1/4 SE1/4 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 NGVD of 1929.

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 data collection platform with satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	355	391	378	876	435	8,870	13,300	8,270	16,500	17,900	10,300	2,500
2	366	399	635	873	535	11,300	10,500	6,840	18,000	17,900	7,870	2,080
3	369	401	386	862	633	12,700	8,480	6,220	18,000	17,900	6,830	1,450
4	377	812	506	885	649	12,900	7,580	6,000	18,100	17,800	6,500	1,350
5	403	3,370	846	e882	661	15,800	6,550	5,620	18,100	17,800	9,520	1,360
6	555	4,170	1,060	e874	646	19,900	5,990	5,010	18,100	17,900	13,100	2,000
7	344	2,380	1,180	e850	637	18,400	5,650	4,130	18,100	18,000	13,100	3,020
8	352	935	1,680	e826	666	14,200	5,410	3,530	18,100	17,900	13,000	3,530
9	355	918	2,520	750	636	12,400	4,630	4,880	18,100	17,900	11,700	2,940
10	367	896	3,260	712	633	12,400	4,090	7,910	18,100	17,800	9,250	2,090
11	363	871	3,350	675	633	11,600	4,120	10,500	18,100	18,100	6,970	1,780
12	362	808	3,830	653	637	7,280	3,890	10,800	18,000	18,200	5,660	1,500
13	368	815	4,830	641	649	4,000	3,710	9,180	18,000	18,200	3,940	952
14	355	677	4,510	625	640	3,280	3,710	8,120	16,100	18,100	3,150	688
15	364	376	3,150	647	647	4,620	3,470	7,670	14,900	18,100	3,170	688
16	369	371	1,650	654	653	6,540	3,280	6,550	17,200	18,000	2,800	667
17	371	385	984	e1,130	648	7,210	3,290	6,040	19,300	18,000	2,520	657
18	372	363	988	2,090	654	7,210	3,300	7,950	20,600	18,000	2,520	667
19	376	503	e983	e1,100	653	8,180	3,250	11,000	21,400	18,100	2,520	1,500
20	373	746	e975	659	2,400	10,200	3,290	13,400	21,600	18,000	2,650	3,760
21	375	969	964	639	5,490	10,100	4,320	13,100	21,700	17,900	2,610	5,540
22	380	1,050	866	653	7,160	7,880	6,020	10,700	21,800	18,100	2,180	6,590
23	378	1,030	857	642	7,300	6,090	6,900	12,900	21,900	18,200	1,890	7,190
24	387	1,040	e895	647	6,140	5,920	6,770	16,700	21,900	18,000	2,080	7,190
25	375	782	887	671	6,320	6,090	6,750	15,500	21,900	17,900	2,780	6,310
26	378	525	877	646	6,560	5,710	6,960	16,200	21,800	17,900	3,930	5,810
27	394	370	886	769	5,410	5,490	7,010	17,700	21,700	16,600	4,510	5,790
28	371	349	870	768	5,150	6,130	6,570	17,900	20,900	18,600	6,070	5,790
29	399	387	864	652	6,340	9,540	7,170	18,100	18,600	17,000	8,010	5,470
30	392	380	878	666	---	13,400	8,590	15,300	18,000	14,600	8,070	5,200
31	380	---	867	540	---	14,100	---	14,600	---	12,500	4,830	---
TOTAL	11,725	27,469	47,412	24,557	70,215	299,440	174,550	318,320	574,600	546,900	184,030	96,059
MEAN	378	916	1,529	792	2,421	9,659	5,818	10,270	19,150	17,640	5,936	3,202
MAX	555	4,170	4,830	2,090	7,300	19,900	13,300	18,100	21,900	18,600	13,100	7,190
MIN	344	349	378	540	435	3,280	3,250	3,530	14,900	12,500	1,890	657
AC-FT	23,260	54,480	94,040	48,710	139,300	593,900	346,200	631,400	1,140,000	1,085,000	365,000	190,500
CFSM	0.03	0.07	0.12	0.06	0.20	0.78	0.47	0.83	1.55	1.43	0.48	0.26
IN.	0.04	0.08	0.14	0.07	0.21	0.90	0.53	0.96	1.73	1.65	0.56	0.29

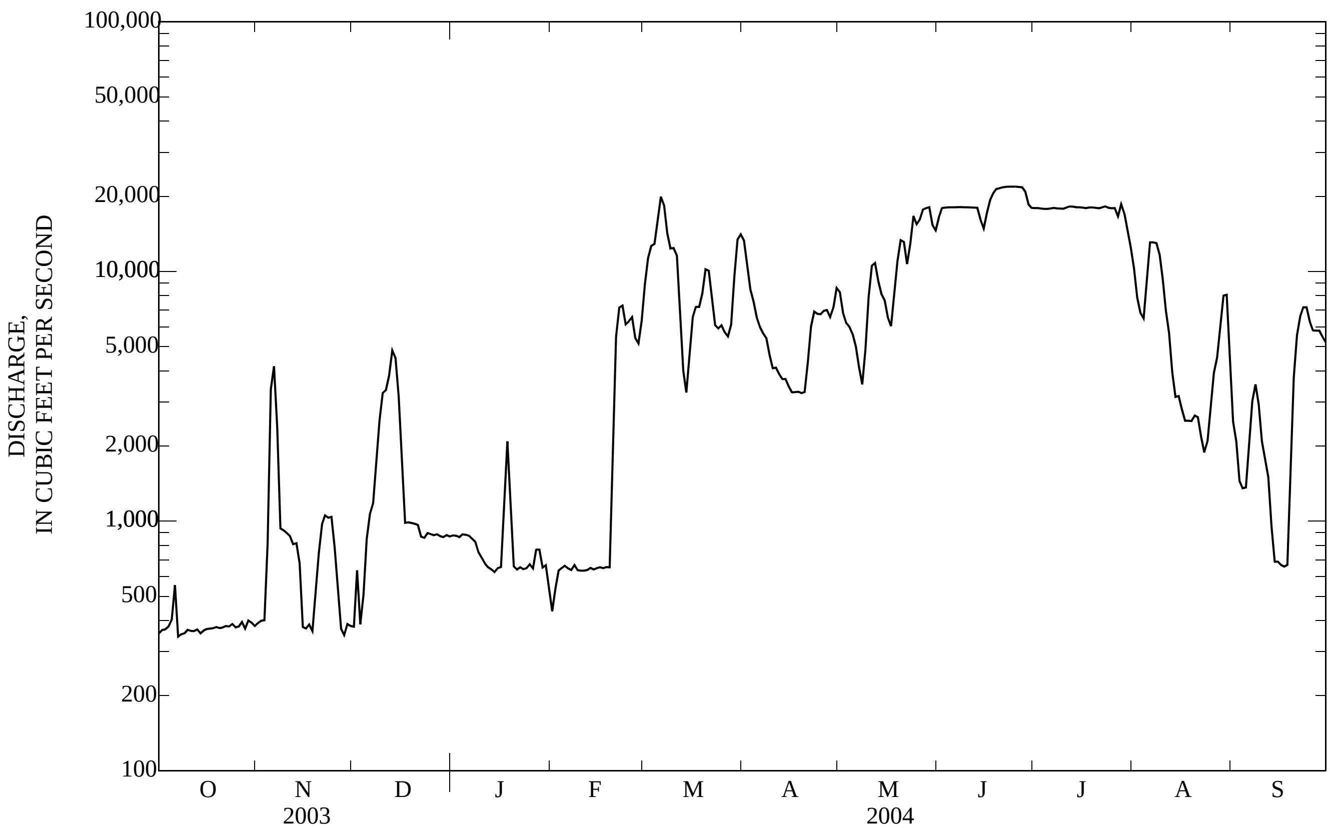
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2,775	3,152	3,521	1,704	3,486	8,357	11,430	13,920	15,950	19,570	8,299	4,041
MAX	11,150	11,990	12,380	3,997	8,246	17,480	22,040	28,520	27,950	79,340	44,600	33,490
(WY)	(1994)	(1993)	(1993)	(1993)	(1997)	(1993)	(1998)	(1993)	(1993)	(1993)	(1993)	(1993)
MIN	285	327	654	642	824	930	916	1,105	5,516	2,323	1,498	351
(WY)	(2001)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2000)	(2002)	(2000)	(2003)

05488110 DES MOINES RIVER NEAR PELLA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1993 - 2004	
ANNUAL TOTAL	1,828,298		2,375,277			
ANNUAL MEAN	5,009		6,490		8,044	
HIGHEST ANNUAL MEAN					24,360	1993
LOWEST ANNUAL MEAN					1,731	2000
HIGHEST DAILY MEAN	18,500	May 16	21,900	Jun 23 a	104,000	Jul 12, 1993
LOWEST DAILY MEAN	263	Sep 14	344	Oct 7	248	Oct 15, 2000
ANNUAL SEVEN-DAY MINIMUM	271	Sep 14	359	Oct 7	254	Oct 9, 2000
MAXIMUM PEAK FLOW			22,100	Jun 23 b	105,000	Jul 12, 1993
MAXIMUM PEAK STAGE			94.53	Jun 25	109.71	Jul 12, 1993
ANNUAL RUNOFF (AC-FT)	3,626,000		4,711,000		5,827,000	
ANNUAL RUNOFF (CFSM)	0.406		0.526		0.652	
ANNUAL RUNOFF (INCHES)	5.52		7.17		8.86	
10 PERCENT EXCEEDS	17,800		18,000		20,800	
50 PERCENT EXCEEDS	1,280		3,910		3,770	
90 PERCENT EXCEEDS	370		390		612	

a Also June 24, 25.
b Also June 25.
e Estimated



05488200 ENGLISH CREEK NEAR KNOXVILLE, IA

LOCATION.--Lat 41°18'02", long 93°02'43", in NE$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.23	0.79	2.1	4.2	e3.2	104	57	14	104	5.9	4.5	10
2	0.25	8.4	2.3	4.3	e8.9	79	46	14	56	6.3	4.6	7.7
3	0.27	196	3.2	4.9	e7.4	53	40	13	39	7.5	393	6.3
4	0.28	137	3.3	e2.9	e6.7	117	34	12	30	21	1,730	5.3
5	0.29	59	3.5	e2.3	e7.5	1,130	30	12	25	9.4	804	4.5
6	0.24	23	3.8	e2.4	e7.1	328	28	11	23	8.3	54	5.9
7	0.24	12	4.0	e2.8	e5.4	119	26	10	21	8.6	32	6.9
8	0.24	8.1	4.5	e2.3	e5.8	79	23	9.5	18	7.3	24	4.3
9	0.37	5.8	9.2	e2.4	e8.0	62	21	14	16	17	18	3.3
10	0.49	5.4	95	e3.7	e7.1	47	19	15	16	47	14	2.7
11	0.42	4.7	e31	e4.2	e6.3	39	17	11	19	21	12	2.6
12	0.64	4.0	e16	e4.6	e4.1	29	16	9.2	16	87	11	2.3
13	0.95	2.9	e9.8	e3.9	e3.8	27	15	12	24	23	10	2.2
14	2.3	2.6	e7.8	e3.4	e4.4	29	14	21	274	12	9.2	1.8
15	1.2	3.2	e7.5	e3.6	e4.4	28	15	14	320	9.3	8.2	2.1
16	0.73	2.9	e6.7	e3.6	e4.6	27	14	10	49	7.8	7.5	2.5
17	0.54	3.1	e4.8	e20	e4.7	55	13	13	198	8.9	6.8	e2.4
18	0.45	3.0	e3.7	e10	e7.8	233	12	73	54	7.2	6.8	e2.1
19	0.47	3.2	e2.9	e6.9	e22	480	11	42	27	5.9	6.5	e1.8
20	0.56	2.7	e3.1	e6.0	e199	173	21	26	19	5.3	6.2	e1.6
21	0.33	3.1	e3.3	e8.3	e346	91	81	19	16	5.0	6.0	1.2
22	0.42	2.6	e3.1	e5.2	e236	71	31	89	15	228	5.5	1.1
23	0.39	5.5	e2.6	e5.8	e184	63	20	569	12	103	5.2	1.1
24	0.38	4.6	e2.6	e5.7	e146	58	17	245	11	19	5.7	1.0
25	0.53	3.9	e2.9	e7.3	e116	52	20	1,370	9.4	14	8.4	0.97
26	0.54	4.3	e3.1	e6.7	e93	75	18	327	8.7	10	16	0.90
27	0.64	3.9	5.7	e5.6	e83	81	14	97	8.0	8.0	176	0.90
28	0.80	3.3	8.4	e4.9	e88	327	14	65	7.4	6.5	608	0.90
29	0.82	2.8	8.1	e3.7	137	179	13	44	6.9	5.8	102	0.78
30	0.83	2.5	6.0	e2.7	---	97	13	1,090	6.3	5.1	26	0.77
31	0.68	---	4.4	e2.5	---	73	---	994	---	4.8	16	---
TOTAL	17.52	524.29	274.4	156.8	1,757.2	4,405	713	5,264.7	1,448.7	734.9	4,137.1	87.92
MEAN	0.57	17.5	8.85	5.06	60.6	142	23.8	170	48.3	23.7	133	2.93
MAX	2.3	196	95	20	346	1,130	81	1,370	320	228	1,730	10
MIN	0.23	0.79	2.1	2.3	3.2	27	11	9.2	6.3	4.8	4.5	0.77
AC-FT	35	1,040	544	311	3,490	8,740	1,410	10,440	2,870	1,460	8,210	174
CFSM	0.01	0.19	0.10	0.06	0.67	1.58	0.26	1.88	0.54	0.26	1.48	0.03
IN.	0.01	0.22	0.11	0.06	0.73	1.82	0.29	2.17	0.60	0.30	1.71	0.04

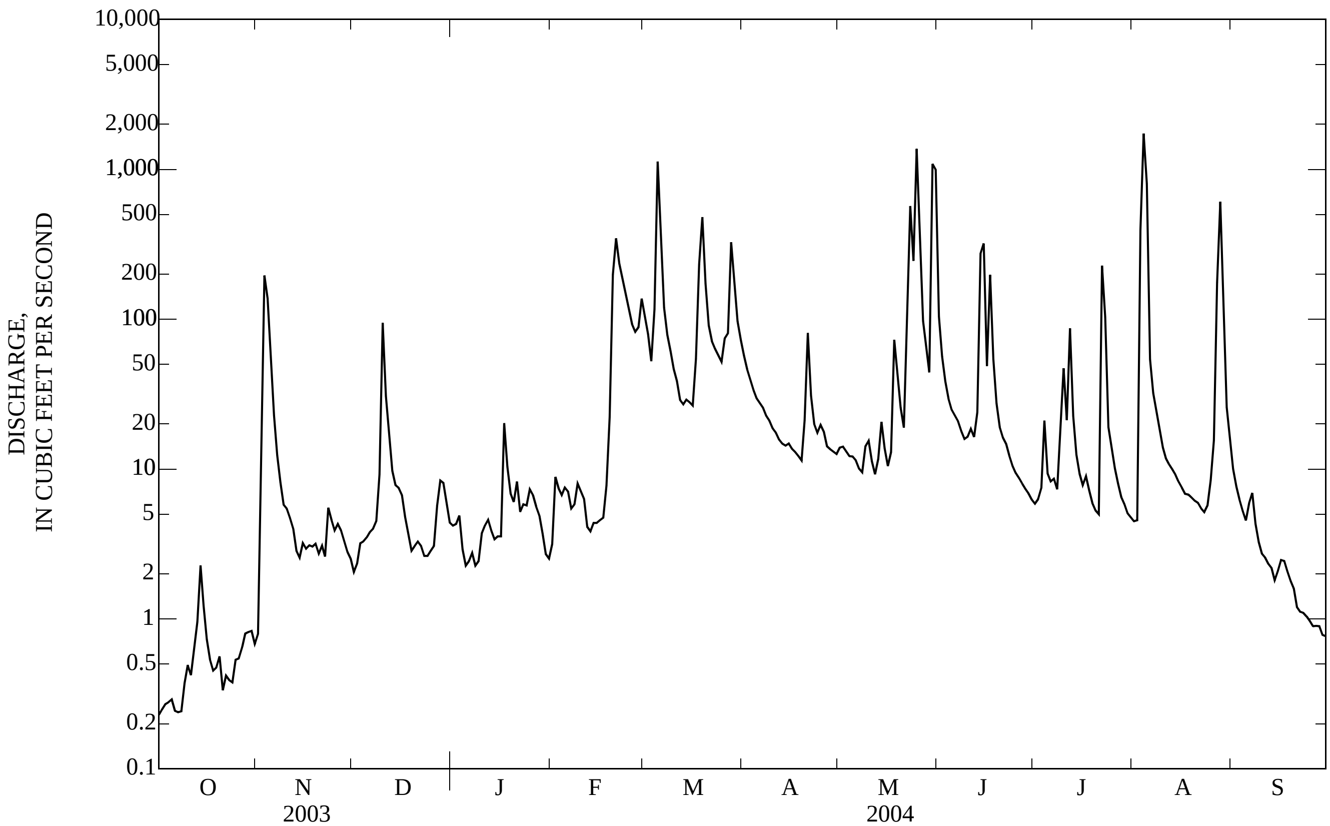
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.3	20.8	20.8	12.9	47.7	100	107	140	97.7	82.5	33.2	29.9
MAX	161	100	112	51.8	183	335	476	514	260	1,039	285	159
(WY)	(1987)	(1993)	(1993)	(1998)	(2001)	(1993)	(1991)	(1996)	(2000)	(1993)	(1993)	(1992)
MIN	0.48	0.76	0.31	0.66	0.50	2.05	1.03	1.99	2.27	0.18	0.17	0.03
(WY)	(1995)	(1989)	(1989)	(1989)	(1989)	(1989)	(1989)	(2000)	(1992)	(1988)	(1988)	(1991)

05488200 ENGLISH CREEK NEAR KNOXVILLE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1985 - 2004	
ANNUAL TOTAL	11,071.65		19,521.53			
ANNUAL MEAN	30.3		53.3		60.2	
HIGHEST ANNUAL MEAN					214	1993
LOWEST ANNUAL MEAN					6.71	1989
HIGHEST DAILY MEAN	2,220	Jun 26	1,730	Aug 4	8,610	Jul 5, 1993
LOWEST DAILY MEAN	0.21	Sep 29	0.23	Oct 1	0.00	Sep 12, 1988
ANNUAL SEVEN-DAY MINIMUM	0.24	Sep 28	0.26	Oct 1	0.00	Sep 25, 1991
MAXIMUM PEAK FLOW			2,220	Aug 5	18,900	Jul 5, 1993
MAXIMUM PEAK STAGE			20.72	Aug 5	27.88	Jul 5, 1993
INSTANTANEOUS LOW FLOW			0.18	Oct 6		
ANNUAL RUNOFF (AC-FT)	21,960		38,720		43,580	
ANNUAL RUNOFF (CFSM)	0.337		0.592		0.668	
ANNUAL RUNOFF (INCHES)	4.57		8.06		9.07	
10 PERCENT EXCEEDS	56		102		101	
50 PERCENT EXCEEDS	3.2		8.1		8.7	
90 PERCENT EXCEEDS	0.50		0.99		0.45	

e Estimated



05488500 DES MOINES RIVER NEAR TRACY, IA

LOCATION.--Lat 41°16'53", long 92°51'41"(revised), in NW$\frac{1}{4}$ SE$\frac{1}{4}$ 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 NGVD of 1929. Prior to June 26, l940 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 rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	395	487	508	920	e568	8,390	14,700	8,620	17,700	19,100	10,600	2,390
2	400	557	677	919	e663	11,200	11,600	7,130	19,500	19,000	8,100	2,130
3	407	839	570	920	e935	13,000	9,070	6,180	19,600	19,000	6,990	1,460
4	413	1,060	577	e922	e857	13,600	7,840	6,040	19,600	19,000	9,100	1,300
5	413	2,680	866	e914	e804	18,200	6,870	5,670	19,600	18,900	9,550	1,300
6	508	3,940	1,140	e907	e785	22,300	6,040	5,120	19,700	18,900	13,500	1,670
7	430	2,960	1,180	e899	e754	20,500	5,800	4,460	19,700	19,000	13,400	2,570
8	400	1,080	1,540	e834	e732	16,200	5,490	3,730	19,700	18,900	13,300	3,220
9	400	1,030	2,170	e760	e685	13,400	4,980	4,560	19,700	18,800	12,300	2,880
10	410	1,010	3,220	e682	e663	13,400	4,310	7,380	19,700	18,900	9,600	2,030
11	417	996	3,240	e630	e663	12,900	4,310	10,400	19,700	19,100	7,130	1,630
12	418	979	3,470	e613	e666	8,530	4,160	11,400	19,700	19,300	5,490	1,490
13	431	945	4,260	e610	e669	4,650	3,930	9,700	19,700	19,200	4,140	1,090
14	452	923	4,470	e595	e663	3,570	3,920	8,270	18,900	19,000	3,050	681
15	437	532	2,990	e618	e663	4,500	3,770	7,880	17,100	19,000	3,050	676
16	438	501	2,150	e622	e663	6,360	3,540	6,770	18,600	18,900	2,840	667
17	444	497	1,370	e1,060	e663	7,390	3,530	6,060	21,200	18,800	2,470	663
18	450	497	1,020	e2,080	e666	7,560	3,540	7,630	22,400	18,800	2,470	662
19	451	555	e1,020	e1,190	e672	8,970	3,550	11,000	23,300	18,800	2,460	1,080
20	453	798	e1,010	e859	1,810	10,600	3,590	13,800	23,400	18,800	2,530	2,830
21	450	1,000	e984	e735	5,290	11,100	4,210	14,200	23,600	18,600	2,560	4,900
22	458	1,120	933	e782	6,850	8,560	5,890	11,700	23,700	18,900	2,240	5,860
23	462	1,170	932	e743	7,540	6,470	6,800	13,200	23,700	19,300	1,880	6,690
24	467	1,150	e945	757	6,220	5,950	6,930	18,000	23,800	18,800	1,960	6,700
25	476	1,020	e953	750	5,790	6,180	6,720	18,700	23,700	18,600	2,520	6,030
26	474	740	926	772	6,480	5,920	7,050	17,600	23,700	18,600	3,420	5,240
27	485	528	920	853	5,210	5,600	7,030	19,200	23,700	17,100	4,370	5,240
28	494	509	922	e861	4,840	6,340	6,680	19,400	22,900	19,200	6,210	5,240
29	486	503	920	e759	5,670	9,280	6,920	19,500	20,200	18,000	8,020	5,020
30	494	508	e938	e761	---	14,000	8,500	18,400	19,100	15,200	8,050	4,660
31	486	---	922	e665	---	15,200	---	16,800	---	13,000	5,540	---
TOTAL	13,799	31,114	47,743	25,992	69,134	319,820	181,270	338,500	626,600	574,500	188,840	87,999
MEAN	445	1,037	1,540	838	2,384	10,320	6,042	10,920	20,890	18,530	6,092	2,933
MAX	508	3,940	4,470	2,080	7,540	22,300	14,700	19,500	23,800	19,300	13,500	6,700
MIN	395	487	508	595	568	3,570	3,530	3,730	17,100	13,000	1,880	662
AC-FT	27,370	61,710	94,700	51,560	137,100	634,400	359,500	671,400	1,243,000	1,140,000	374,600	174,500
CFSM	0.04	0.08	0.12	0.07	0.19	0.83	0.48	0.88	1.67	1.49	0.49	0.24
IN.	0.04	0.09	0.14	0.08	0.21	0.95	0.54	1.01	1.87	1.71	0.56	0.26

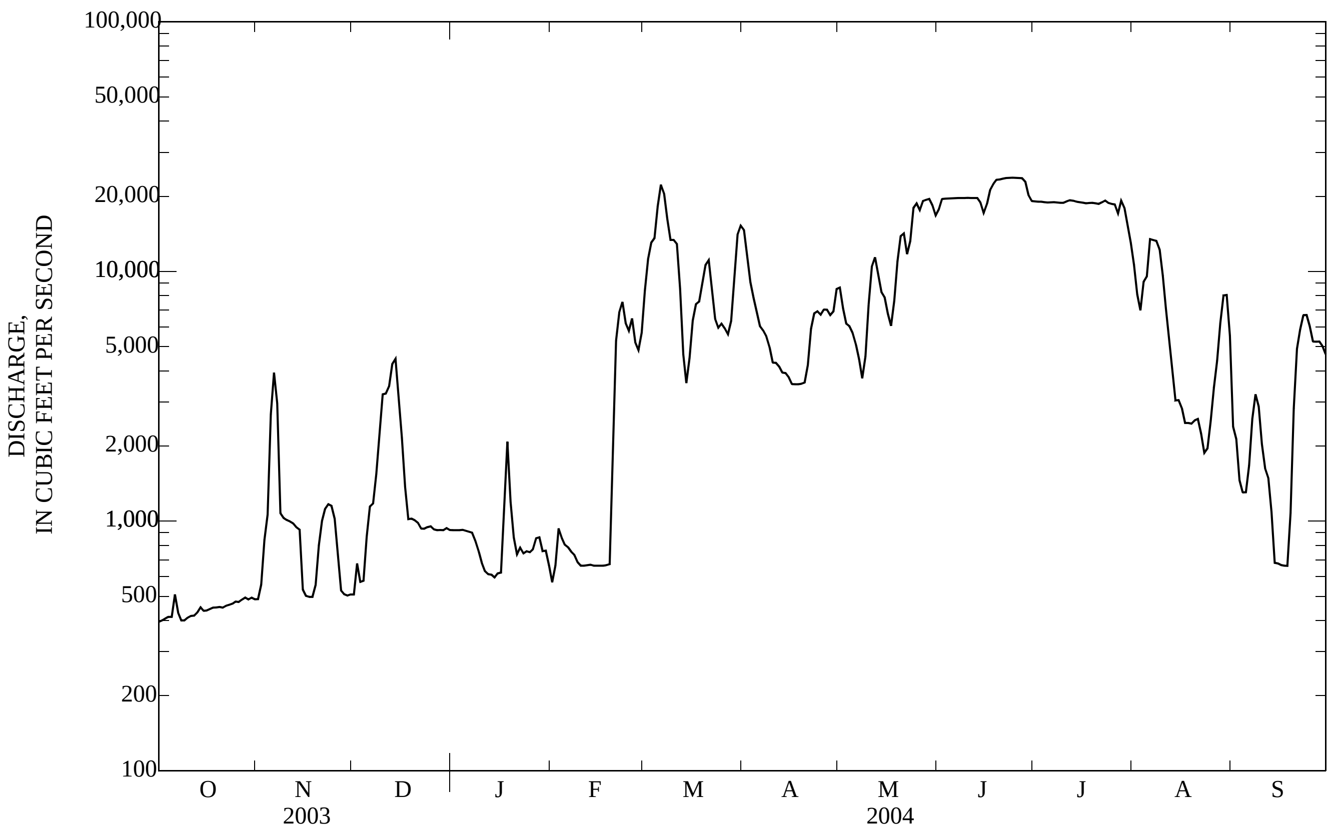
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3,366	4,262	3,683	2,402	4,153	8,993	11,460	12,150	13,520	13,910	7,577	3,971
MAX	17,190	19,160	12,540	11,510	15,560	21,520	24,370	28,280	30,260	80,800	45,240	33,670
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	1,923,912		2,505,311			
ANNUAL MEAN	5,271		6,845		7,470	
HIGHEST ANNUAL MEAN					24,450	1993
LOWEST ANNUAL MEAN					898	1977
HIGHEST DAILY MEAN	20,100	May 16	23,800	Jun 24	107,000	Jul 12, 1993
LOWEST DAILY MEAN	326	Sep 29	395	Oct 1	165	Feb 20, 1977
ANNUAL SEVEN-DAY MINIMUM	352	Sep 24	415	Oct 7	210	Oct 9, 1980
MAXIMUM PEAK FLOW			23,800	Jun 23 b	109,000	Jul 12, 1993
MAXIMUM PEAK STAGE			10.89	Jun 24	24.16	Jul 12, 1993
ANNUAL RUNOFF (AC-FT)	3,816,000		4,969,000		5,411,000	
ANNUAL RUNOFF (CFSM)	0.422		0.549		0.599	
ANNUAL RUNOFF (INCHES)	5.74		7.47		8.13	
10 PERCENT EXCEEDS	18,500		19,100		19,200	
50 PERCENT EXCEEDS	1,370		3,940		3,770	
90 PERCENT EXCEEDS	451		508		550	

a Post regulation.
b Also June 24, 25.
e Estimated.



05489000 CEDAR CREEK NEAR BUSSEY, IA

LOCATION.--(revised) Lat 41°13'08", long 92°54'30", 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 NGVD of 1929 (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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	1.0	8.9	26	e9.9	328	240	36	272	25	16	232
2	1.8	12	7.6	27	e17	270	196	40	146	23	26	197
3	1.8	507	7.5	28	e15	195	162	32	95	49	906	181
4	1.7	388	7.7	17	e13	340	136	29	70	146	5,090	170
5	1.7	159	8.9	e11	e14	5,330	119	28	57	57	725	154
6	1.8	66	9.0	e10	e12	1,610	108	27	49	37	242	178
7	2.0	39	10	e6.8	e8.5	624	97	27	46	33	139	175
8	2.2	24	10	e6.5	e9.2	399	92	25	39	25	91	e110
9	2.3	17	15	e7.4	e11	307	71	37	31	37	64	e80
10	2.2	14	280	e7.7	e11	244	63	e25	38	74	49	e62
11	2.7	13	e117	11	e9.4	203	57	e17	99	44	42	e57
12	3.8	12	e64	12	e8.4	154	53	13	80	296	37	e51
13	3.8	10	e42	13	e7.7	139	50	16	108	157	33	e45
14	6.1	10	e32	16	e9.5	156	47	38	2,050	57	30	e37
15	6.9	9.6	e27	18	e9.0	156	46	36	2,660	33	27	35
16	2.8	10	e28	21	e9.0	133	45	22	485	23	24	34
17	2.2	10	e29	60	e9.0	218	43	20	1,340	41	23	35
18	1.2	11	e25	204	e9.3	746	40	123	474	31	26	28
19	1.0	13	e22	e92	e16	1,440	37	139	259	17	105	24
20	0.85	14	e23	e64	e406	642	44	80	177	13	92	21
21	0.86	15	e26	e52	e1,160	325	110	54	139	11	45	19
22	0.99	12	e26	e38	e787	227	71	46	116	272	37	17
23	1.1	21	e24	e31	e576	195	44	342	85	135	40	17
24	0.96	60	e19	e26	e409	177	40	331	66	50	40	17
25	0.75	39	e18	e25	e307	158	44	1,520	56	34	94	16
26	0.72	23	e17	e24	e231	194	44	477	49	22	476	15
27	0.77	17	24	e19	e326	276	34	197	43	15	2,670	13
28	1.1	13	45	e15	537	1,380	30	131	38	12	4,740	14
29	1.1	9.6	95	e9.7	333	1,100	29	88	33	9.9	1,410	12
30	1.4	10	42	e8.5	---	476	28	1,300	28	10	540	12
31	1.3	---	33	e8.0	---	311	---	952	---	13	346	---
TOTAL	61.70	1,559.2	1,142.6	914.6	5,279.9	18,453	2,220	6,248	9,228	1,801.9	18,225	2,058
MEAN	1.99	52.0	36.9	29.5	182	595	74.0	202	308	58.1	588	68.6
MAX	6.9	507	280	204	1,160	5,330	240	1,520	2,660	296	5,090	232
MIN	0.72	1.0	7.5	6.5	7.7	133	28	13	28	9.9	16	12
AC-FT	122	3,090	2,270	1,810	10,470	36,600	4,400	12,390	18,300	3,570	36,150	4,080
CFSM	0.01	0.14	0.10	0.08	0.49	1.59	0.20	0.54	0.82	0.16	1.57	0.18
IN.	0.01	0.16	0.11	0.09	0.53	1.84	0.22	0.62	0.92	0.18	1.81	0.20

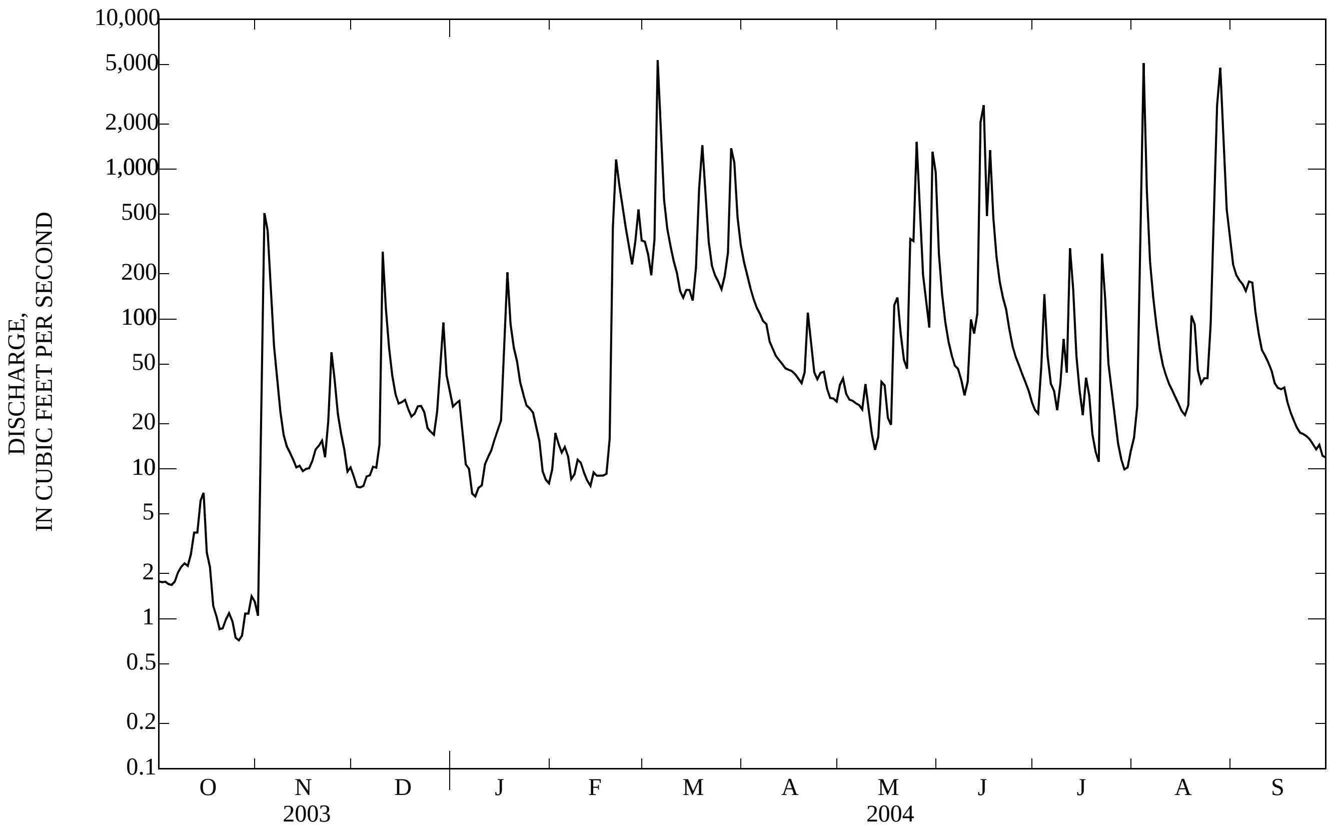
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2004, BY WATER YEAR (WY)

MEAN	108	124	86.5	82.0	225	408	404	422	315	271	112	145
MAX	950	1,331	844	894	952	1,371	1,552	1,797	1,258	3,846	1,070	1,384
(WY)	(1974)	(1962)	(1983)	(1974)	(1949)	(1960)	(1973)	(1996)	(1967)	(1982)	(1993)	(1992)
MIN	0.18	0.33	0.39	0.20	2.29	3.78	0.79	7.19	2.74	2.26	2.51	0.60
(WY)	(1957)	(1956)	(1956)	(1956)	(1954)	(1954)	(1956)	(1956)	(1977)	(1988)	(1953)	(1953)

05489000 CEDAR CREEK NEAR BUSSEY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1948 - 2004	
ANNUAL TOTAL	20,684.70		67,191.90			
ANNUAL MEAN	56.7		184		225	
HIGHEST ANNUAL MEAN					768	1993
LOWEST ANNUAL MEAN					29.4	1989
HIGHEST DAILY MEAN	2,400	May 5	5,330	Mar 5	42,000	Jul 3, 1982
LOWEST DAILY MEAN	0.72	Oct 26	0.72	Oct 26	0.00	Sep 6, 1955 a
ANNUAL SEVEN-DAY MINIMUM	0.88	Oct 21	0.88	Oct 21	0.00	Sep 6, 1955
MAXIMUM PEAK FLOW			6,100	Aug 4	96,000	Jul 3, 1982
MAXIMUM PEAK STAGE			18.19	Aug 4	34.61	Jul 3, 1982
INSTANTANEOUS LOW FLOW			0.69	Oct 25 b		
ANNUAL RUNOFF (AC-FT)	41,030		133,300		162,900	
ANNUAL RUNOFF (CFSM)	0.152		0.491		0.601	
ANNUAL RUNOFF (INCHES)	2.06		6.68		8.17	
10 PERCENT EXCEEDS	107		343		400	
50 PERCENT EXCEEDS	10		36		36	
90 PERCENT EXCEEDS	2.1		7.6		2.7	

a Also Sept. 7-20, 1955, Oct. 11, 12, 1956, Aug. 12, 13, 1989.
b Also Oct. 26, 27.
e Estimated.



05489500 DES MOINES RIVER AT OTTUMWA, IA

LOCATION.--Lat 41°00'39", long 92°24'40", in SE¼ NE¼ 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 NGVD of 1929. 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 ½ 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320	236	334	745	e780	6,670	14,800	8,810	17,700	19,500	12,500	3,660
2	451	381	292	735	e1,040	9,310	12,900	7,700	19,000	19,500	12,100	2,620
3	310	851	640	734	e859	e11,800	9,850	6,230	19,400	19,400	10,300	2,170
4	328	1,470	310	690	e820	e14,000	8,170	6,070	19,400	19,500	20,400	1,660
5	564	1,560	549	430	e694	e17,600	7,480	5,770	19,500	19,300	12,200	1,540
6	315	3,030	727	582	e918	22,900	6,220	5,320	19,600	19,300	12,800	1,670
7	334	3,420	876	864	e918	20,900	6,000	4,800	19,600	19,400	13,100	2,230
8	551	1,650	1,070	745	e754	e17,500	5,560	3,850	19,600	19,400	13,000	3,070
9	356	785	1,530	720	e984	e16,100	5,430	3,650	19,600	19,400	12,700	3,300
10	332	798	2,650	685	e964	14,000	4,420	5,460	19,900	19,300	10,500	2,600
11	406	755	3,250	533	e971	12,000	4,240	8,880	19,700	19,600	8,040	2,070
12	340	771	3,460	659	e1,100	10,100	4,240	11,100	19,600	20,500	5,870	1,730
13	285	704	3,660	385	823	5,400	3,940	10,200	19,800	20,000	5,030	1,430
14	499	728	4,550	692	757	3,310	3,870	8,520	22,500	19,700	3,420	1,090
15	399	659	3,460	529	827	3,340	3,840	8,020	20,800	19,500	3,230	793
16	250	253	2,690	683	710	4,870	3,660	7,320	18,600	19,400	2,970	779
17	427	423	1,100	727	779	6,620	3,550	6,060	20,600	19,300	2,660	778
18	364	449	917	1,270	687	7,980	3,440	6,360	22,200	19,200	2,790	662
19	395	416	914	1,940	676	10,800	3,520	9,350	22,500	19,300	2,980	757
20	218	474	1,030	1,440	1,420	10,000	3,440	12,300	22,700	19,300	2,700	1,500
21	212	572	1,160	792	4,790	11,200	3,740	14,200	22,800	19,100	2,930	3,640
22	316	754	926	1,020	7,790	9,110	5,110	12,800	23,000	19,500	2,550	5,050
23	347	1,080	748	630	8,590	6,830	6,230	11,100	23,000	20,200	2,160	6,090
24	439	1,120	533	680	7,000	5,460	7,080	17,000	22,900	19,400	2,140	6,280
25	216	859	795	691	5,460	5,650	6,480	22,000	22,900	19,200	3,040	6,290
26	369	830	834	e859	6,150	6,000	6,890	18,100	22,900	19,100	4,070	5,200
27	216	550	787	e694	5,690	5,590	6,920	19,100	22,900	18,600	11,200	4,990
28	244	347	974	e714	4,870	7,330	6,830	19,200	22,800	18,400	11,700	5,090
29	309	364	790	e681	4,860	9,230	6,260	19,400	21,300	19,500	11,000	5,050
30	276	390	751	e582	---	12,600	7,570	21,000	19,500	16,900	8,880	4,790
31	400	---	889	e688	---	14,900	---	18,900	---	14,900	7,590	---
TOTAL	10,788	26,679	43,196	23,819	72,681	319,100	181,680	338,570	626,300	594,600	236,550	88,579
MEAN	348	889	1,393	768	2,506	10,290	6,056	10,920	20,880	19,180	7,631	2,953
MAX	564	3,420	4,550	1,940	8,590	22,900	14,800	22,000	23,000	20,500	20,400	6,290
MIN	212	236	292	385	676	3,310	3,440	3,650	17,700	14,900	2,140	662
AC-FT	21,400	52,920	85,680	47,240	144,200	632,900	360,400	671,600	1,242,000	1,179,000	469,200	175,700
CFSM	0.03	0.07	0.10	0.06	0.19	0.77	0.45	0.82	1.56	1.43	0.57	0.22
IN.	0.03	0.07	0.12	0.07	0.20	0.89	0.51	0.94	1.74	1.65	0.66	0.25

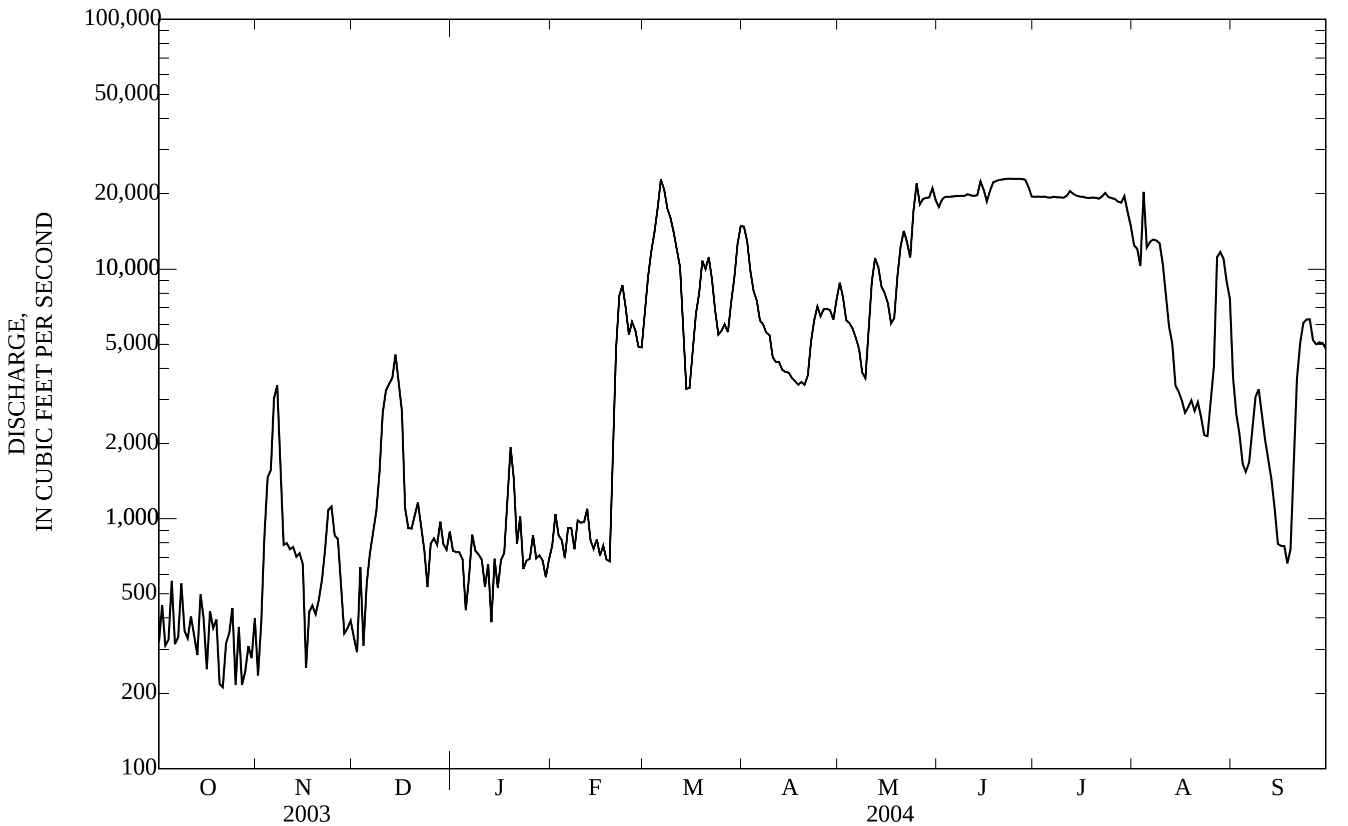
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3,718	4,617	4,073	2,716	4,564	9,771	12,240	13,130	14,220	14,620	7,999	4,338
MAX	18,390	19,250	13,980	12,380	16,470	21,750	25,330	29,770	31,980	85,570	47,380	34,790
(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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	1,919,481		2,562,542			
ANNUAL MEAN	5,259		7,001		8,017	
HIGHEST ANNUAL MEAN					26,350	1993
LOWEST ANNUAL MEAN					1,120	1977
HIGHEST DAILY MEAN	20,900	May 9	23,000	Jun 22 b	110,000	Jul 12, 1993
LOWEST DAILY MEAN	212	Oct 21	212	Oct 21	26	Oct 25, 1990 c
ANNUAL SEVEN-DAY MINIMUM	290	Oct 25	290	Oct 25	182	Jul 7, 1977
MAXIMUM PEAK FLOW			25,400	Jun 14	112,000	Jul 12, 1993
MAXIMUM PEAK STAGE			8.93	Mar 6	22.15	Jul 12, 1993
ANNUAL RUNOFF (AC-FT)	3,807,000		5,083,000		5,808,000	
ANNUAL RUNOFF (CFSM)	0.393		0.524		0.599	
ANNUAL RUNOFF (INCHES)	5.34		7.13		8.14	
10 PERCENT EXCEEDS	17,800		19,500		20,100	
50 PERCENT EXCEEDS	1,470		3,700		4,200	
90 PERCENT EXCEEDS	397		421		630	

a Post regulation.
b Also June 23.
c Gates at dam in Ottumwa closed.
e Estimated.



05490500 DES MOINES RIVER AT KEOSAUQUA, IA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE¼ SW¼ 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1903 to July 1906, April to December 1910, August 1911 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1913-20. WSP 1438: Drainage area. WSP 1508: 1903, 1905-6, 1915- 18 (M), 1922 (M), 1924-26 (M), 1932-34 (M), 1937, 1942 (M).

GAGE.--Water-stage recorder. Datum of gage is 547.36 ft above NGVD of 1929. 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	451	546	1,140	e788	6,270	15,000	8,340	18,900	19,400	14,000	7,040
2	353	461	470	964	e1,380	8,790	14,200	8,470	18,400	19,400	12,600	3,460
3	373	429	440	928	e1,100	11,200	11,600	7,310	19,500	19,500	14,200	3,090
4	518	1,140	631	912	e1,010	13,600	9,590	6,360	19,400	19,600	19,800	2,460
5	396	1,870	692	e582	e954	27,600	8,420	6,240	19,400	19,500	17,800	1,840
6	541	2,070	616	e594	e1,160	25,300	7,560	5,910	19,400	19,400	11,700	1,850
7	463	3,950	805	e629	e1,170	22,800	6,690	5,440	19,400	19,300	13,400	2,000
8	378	3,830	1,010	e998	e977	19,900	6,450	4,900	19,500	19,300	13,000	2,660
9	607	1,790	1,390	1,280	e1,300	15,700	6,000	4,060	19,400	19,200	12,800	3,690
10	455	1,000	3,690	1,160	1,270	13,400	5,680	4,150	19,700	19,200	11,700	3,700
11	445	1,010	4,060	1,120	1,250	13,300	4,760	6,960	20,600	19,500	9,620	2,760
12	520	991	3,710	987	1,390	12,700	4,660	9,820	20,000	20,800	7,610	2,220
13	410	977	3,490	902	1,250	9,390	4,530	10,700	20,000	20,500	6,100	1,980
14	498	891	4,260	885	1,240	6,190	4,210	9,340	23,000	19,800	5,190	1,530
15	575	913	5,190	805	1,350	4,730	4,180	8,060	25,300	19,500	3,730	1,360
16	539	927	3,570	897	1,110	5,350	4,100	7,720	20,100	19,400	3,680	987
17	420	492	2,990	e1,240	1,260	7,340	3,940	6,830	20,100	19,300	3,400	850
18	410	663	1,440	e1,730	1,210	9,900	3,750	6,310	22,700	19,200	3,020	849
19	488	545	1,180	e2,440	1,210	11,900	3,740	7,690	22,900	19,200	3,520	820
20	539	568	980	e2,980	1,750	12,200	3,890	10,600	23,300	19,200	3,300	762
21	404	508	1,400	e2,310	4,330	11,900	4,080	12,900	23,300	19,200	3,100	1,750
22	305	735	1,510	e1,720	e8,460	11,600	4,360	13,100	23,500	19,400	3,310	4,870
23	346	1,220	1,160	e1,240	e10,600	9,450	5,980	11,300	23,400	20,400	2,830	5,790
24	430	1,900	880	e1,060	e8,220	7,730	6,840	13,500	23,400	19,800	2,660	6,760
25	416	1,480	1,070	e1,090	7,260	6,950	7,140	20,000	23,400	19,300	3,200	6,770
26	543	1,180	997	e916	6,420	7,530	6,840	19,500	23,300	19,100	5,740	6,450
27	377	1,120	1,170	e750	6,990	7,850	7,130	17,600	23,300	19,000	12,600	5,560
28	432	809	1,110	e670	6,030	8,270	7,010	18,600	23,200	17,800	16,300	5,580
29	332	584	1,630	e758	5,630	10,700	6,830	18,800	22,300	19,500	13,500	5,560
30	346	570	1,140	e667	---	11,800	6,900	27,600	20,200	18,300	10,200	5,480
31	449	---	1,040	e758	---	14,600	---	27,500	---	15,900	8,850	---
TOTAL	13,671	35,074	54,267	35,112	88,069	365,940	196,060	345,610	640,300	597,900	272,460	100,478
MEAN	441	1,169	1,751	1,133	3,037	11,800	6,535	11,150	21,340	19,290	8,789	3,349
MAX	607	3,950	5,190	2,980	10,600	27,600	15,000	27,600	25,300	20,800	19,800	7,040
MIN	305	429	440	582	788	4,730	3,740	4,060	18,400	15,900	2,660	762
AC-FT	27,120	69,570	107,600	69,640	174,700	725,800	388,900	685,500	1,270,000	1,186,000	540,400	199,300
CFSM	0.03	0.08	0.12	0.08	0.22	0.84	0.47	0.79	1.52	1.37	0.63	0.24
IN.	0.04	0.09	0.14	0.09	0.23	0.97	0.52	0.92	1.70	1.58	0.72	0.27

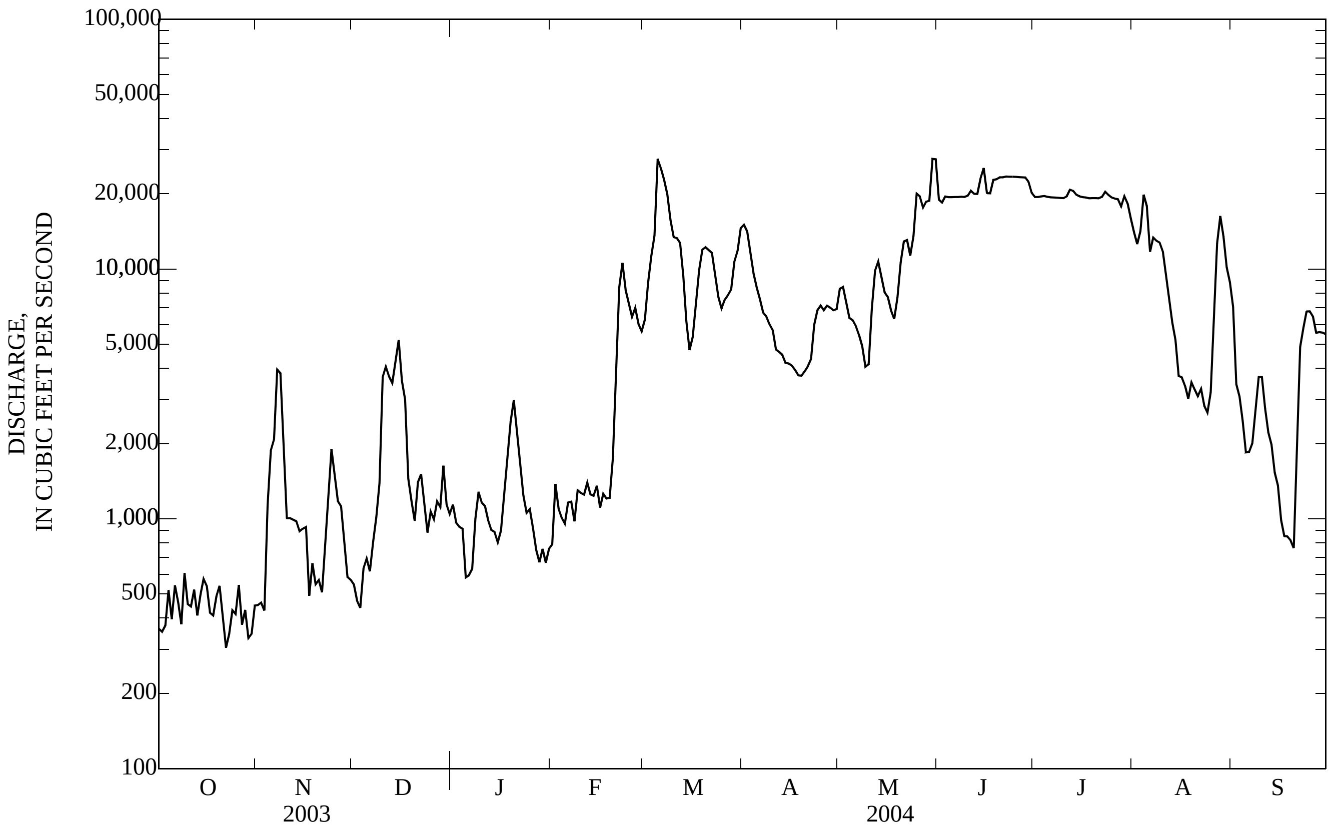
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3,932	4,767	4,291	2,888	4,877	10,280	12,870	13,890	14,620	15,110	8,265	4,713
MAX	19,850	19,320	14,510	13,120	17,370	22,200	30,030	31,260	30,900	86,150	47,320	35,210
(WY)	(1974)	(1987)	(1983)	(1973)	(1973)	(1983)	(1973)	(1993)	(1984)	(1993)	(1993)	(1993)
MIN	383	332	385	291	331	1,170	1,224	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 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	2,019,903		2,744,941			
ANNUAL MEAN	5,534		7,500		8,391	
HIGHEST ANNUAL MEAN					26,920	1993
LOWEST ANNUAL MEAN					1,303	1977
HIGHEST DAILY MEAN	20,700	May 9	27,600	Mar 5 b	108,000	Jul 13, 1993
LOWEST DAILY MEAN	305	Oct 22	305	Oct 22	115	Oct 27, 1990 c
ANNUAL SEVEN-DAY MINIMUM	403	Oct 21	403	Oct 21	204	Jul 3, 1977
MAXIMUM PEAK FLOW			35,700	May 30	111,000	Jul 12, 1993
MAXIMUM PEAK STAGE			19.99	May 30	32.66	Jul 13, 1993
ANNUAL RUNOFF (AC-FT)	4,006,000		5,445,000		6,079,000	
ANNUAL RUNOFF (CFSM)	0.394		0.534		0.598	
ANNUAL RUNOFF (INCHES)	5.35		7.27		8.12	
10 PERCENT EXCEEDS	17,900		19,500		21,000	
50 PERCENT EXCEEDS	1,790		4,300		4,560	
90 PERCENT EXCEEDS	507		544		694	

a Post regulation.
b Also May 30.
c Gates at dam in Ottumwa closed.
e Estimated.



05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

(Large river mass contaminents station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30,2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
MAR													
18...	1230	9,990	590	120	--	12.3	--	7.9	477	5.8	--	166	--
APR													
22...	0910	4,170	550	31	745	16.2	165	8.6	571	15.0	179	206	6
MAY													
17...	1400	6,800	590	38	739	12.2	139	9.0	525	20.0	183	179	22
JUN													
14...	1400	22,100	--	40	--	--	--	--	--	--	135	164	--
JUL													
19...	1600	19,200	600	25	--	9.0	--	8.3	542	26.0	164	200	--
AUG													
16...	1330	4,140	470	25	--	11.6	--	8.6	515	23.7	168	188	8
SEP													
13...	1330	1,920	570	11	--	13.9	--	9.0	499	24.9	168	168	18

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat flt by analysis, mg/L (62854)	Total nitrogen, wat unf by analysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
18...	24.1	11.0	50.4	.32	4.23	.037	.45	.202	.23	.48	4.91	5.53	3.5
APR													
22...	31.1	7.9	58.7	<.04	6.57	.016	.74	.146	.165	.29	6.86	7.20	4.3
MAY													
17...	32.9	3.2	50.2	<.04	7.56	.019	.78	.071	.091	.19	7.63	7.97	4.5
JUN													
14...	17.1	14.9	22.9	<.04	8.79	.089	.18	.162	.169	.26	9.75	9.21	1.5
JUL													
19...	22.0	18.2	40.9	<.04	8.83	.070	.32	.079	.098	.29	9.56	7.92	1.8
AUG													
16...	22.9	13.0	55.0	<.04	4.74	<.008	.31	.099	.117	.18	4.97	5.34	2.1
SEP													
13...	27.5	10.0	60.1	<.04	2.64	.008	.49	.063	.074	.142	3.06	3.37	2.9

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
18...	<.1	3.4	6.6	4.2	5.0	<.006	E.025	.049	<.007	<.005	.124	<.050	<.010
APR													
22...	<.1	4.3	4.3	22.9	40.0	<.006	E.028	.049	<.005	<.005	.147	<.050	<.010
MAY													
17...	<.1	4.5	3.8	33.1	53.6	<.006	E.071	.422	.020	<.005	2.30	<.050	<.010
JUN													
14...	<.1	1.4	4.1	1.8	2.6	<.006	E.199	.776	.017	<.005	2.61	<.050	<.010
JUL													
19...	<.1	1.8	4.0	12.8	26.5	<.006	E.126	.148	<.005	<.005	1.44	<.050	<.010
AUG													
16...	<.1	2.0	3.8	13.0	30.9	<.006	E.067	.018	<.005	<.005	.488	<.050	<.010
SEP													
13...	<.1	2.9	3.7	14.8	40.3	<.006	E.059	.012	<.005	<.005	.313	<.050	<.010

05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)
MAR													
18...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
22...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
17...	<.004	<.041	<.020	<.007	<.006	E.008	<.003	E.004	<.005	<.009	<.02	<.007	<.009
JUN													
14...	<.004	<.041	<.040	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
JUL													
19...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
16...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP													
13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
18...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.953	<.006	<.003
APR													
22...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.337	<.006	<.003
MAY													
17...	<.005	<.029	<.013	<.024	E.004	<.003	<.004	<.035	<.027	<.015	.612	<.006	<.003
JUN													
14...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.704	.012	<.003
JUL													
19...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.199	<.006	<.003
AUG													
16...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.074	<.006	<.003
SEP													
13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.064	<.006	<.003

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)
MAR													
18...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.022	<.02
APR													
22...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.010	<.02
MAY													
17...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.024	<.02
JUN													
14...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.015	<.02
JUL													
19...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.012	<.02
AUG													
16...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.009	<.02
SEP													
13...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.012	<.02

05490500 DES MOINES RIVER AT KEOSAUQUA, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Number of sampling points, count (00063)
MAR							
18...	<.034	<.02	<.010	<.002	<.009	328	11
APR							
22...	<.034	<.02	<.010	<.002	<.009	41	12
MAY							
17...	<.034	<.02	<.010	<.002	<.009	73	12
JUN							
14...	<.034	<.02	<.010	<.002	E.004	265	--
JUL							
19...	<.034	<.02	<.010	<.002	<.009	709	10
AUG							
16...	<.034	<.02	<.010	<.002	<.009	33	11
SEP							
13...	<.034	<.02	<.010	<.002	<.009	21	11

05494300 FOX RIVER AT BLOOMFIELD, IA

LOCATION.--Lat 40°46'10", long 92°25'07"(revised), in SW$\frac{1}{4}$ SE$\frac{1}{4}$ sec.13, T.69 N., R.14 W., Davis County, Hydrologic Unit 07110001, 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 NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry 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 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.0	e3.2	e0.97	e8.5	e4.6	23	32	13	100	2.3	5.5	15
2	e2.3	e3.4	e0.96	e6.0	e7.3	16	25	11	52	4.8	734	11
3	e2.5	e5.4	e0.96	e7.1	e4.8	11	e24	12	35	14	128	8.2
4	e2.5	e3.5	e0.96	e4.2	e4.7	638	e22	9.3	28	8.5	952	6.6
5	e2.4	e3.6	e1.1	e7.9	e6.5	1,530	e20	9.2	23	5.4	87	5.8
6	e2.6	e2.6	e1.1	e4.5	e7.8	e223	e18	8.4	20	3.9	24	9.0
7	e3.1	e2.6	e1.1	e2.7	e6.9	e99	15	7.4	18	3.6	9.9	7.1
8	e3.1	e3.7	e0.99	e2.1	e8.0	63	13	7.0	15	3.2	5.7	4.3
9	e3.5	e3.4	e41	e1.3	e9.1	45	11	6.7	14	3.4	4.1	3.9
10	e3.5	e2.6	e252	e1.8	e8.7	34	11	6.2	20	3.0	2.4	3.3
11	e4.1	e2.6	e30	e7.0	e7.6	28	10	6.1	60	456	1.8	2.9
12	e4.4	e2.9	e16	e9.6	e6.8	22	10	6.3	26	435	1.5	2.5
13	e4.7	e3.1	e11	e9.8	e5.8	23	9.9	11	82	58	1.4	2.3
14	e5.1	e2.3	e8.6	e7.1	e6.5	e40	9.5	11	98	24	1.2	2.1
15	e5.4	e2.3	e11	e6.3	e7.1	e37	10	8.2	99	14	1.1	3.0
16	e5.0	e2.4	e13	e39	e8.0	e41	e11	7.5	29	10	1.1	2.8
17	e4.9	e2.5	e8.6	e63	e8.9	156	e11	6.7	115	7.1	1.5	2.4
18	e4.7	e4.0	e5.3	e40	e14	294	e8.9	10	26	5.9	1.5	2.1
19	e4.5	e3.5	e3.0	e19	e83	107	8.3	13	16	5.2	1.7	1.9
20	e4.3	e3.0	e3.0	e21	e313	55	17	11	12	4.4	1.4	1.8
21	e4.1	e2.2	e6.7	e15	e124	33	25	8.4	10	4.2	1.3	1.8
22	e3.9	e2.1	e5.7	e11	e66	27	16	9.3	9.4	5.2	1.7	1.8
23	e3.9	e217	e4.9	e12	e47	25	13	11	7.1	4.5	2.5	2.0
24	e3.8	e19	e3.1	e12	e28	24	12	25	e6.3	3.5	41	1.9
25	e4.2	e3.1	e4.7	e11	e17	21	13	358	e4.9	3.2	277	1.5
26	e3.6	e1.6	e6.5	e8.1	e6.6	183	12	55	e4.4	3.0	65	1.5
27	e3.4	e1.3	e8.2	e6.3	19	103	9.4	27	e4.0	3.0	3,440	1.8
28	e3.8	e1.1	e91	e4.6	18	468	8.7	20	e3.1	3.4	478	1.9
29	e3.5	e1.1	e36	e3.0	18	e250	8.0	15	2.7	3.5	145	1.8
30	e3.5	e1.1	e18	e2.2	---	e99	9.3	2,380	2.4	4.3	50	2.2
31	e3.4	---	e9.0	e3.2	---	47	---	336	---	5.3	24	---
TOTAL	115.7	312.2	604.44	356.3	872.7	4,765	423.0	3,425.7	942.3	1,114.8	6,492.3	116.2
MEAN	3.73	10.4	19.5	11.5	30.1	154	14.1	111	31.4	36.0	209	3.87
MAX	5.4	217	252	63	313	1,530	32	2,380	115	456	3,440	15
MIN	2.0	1.1	0.96	1.3	4.6	11	8.0	6.1	2.4	2.3	1.1	1.5
AC-FT	229	619	1,200	707	1,730	9,450	839	6,790	1,870	2,210	12,880	230
CFSM	0.04	0.12	0.22	0.13	0.34	1.75	0.16	1.26	0.36	0.41	2.39	0.04
IN.	0.05	0.13	0.26	0.15	0.37	2.02	0.18	1.45	0.40	0.47	2.75	0.05

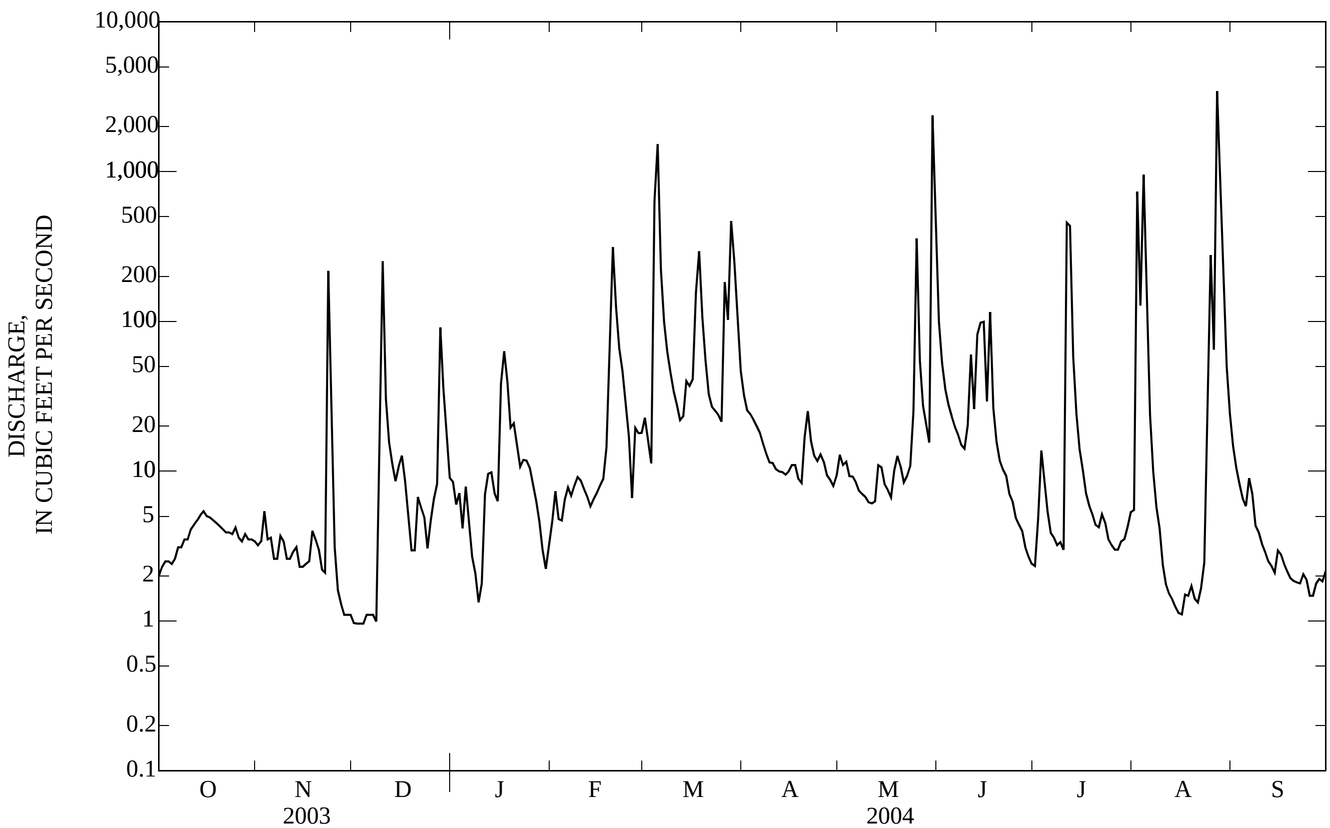
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.1	22.7	19.8	27.6	56.5	103	94.4	87.4	43.2	26.4	36.4	37.0
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	0.21	0.53	0.32	0.59	0.67	1.07	1.17	0.69	0.73	1.09	0.20	0.27
(WY)	(1964)	(1965)	(1964)	(1964)	(1964)	(1964)	(2000)	(2000)	(1963)	(1972)	(1961)	(1999)

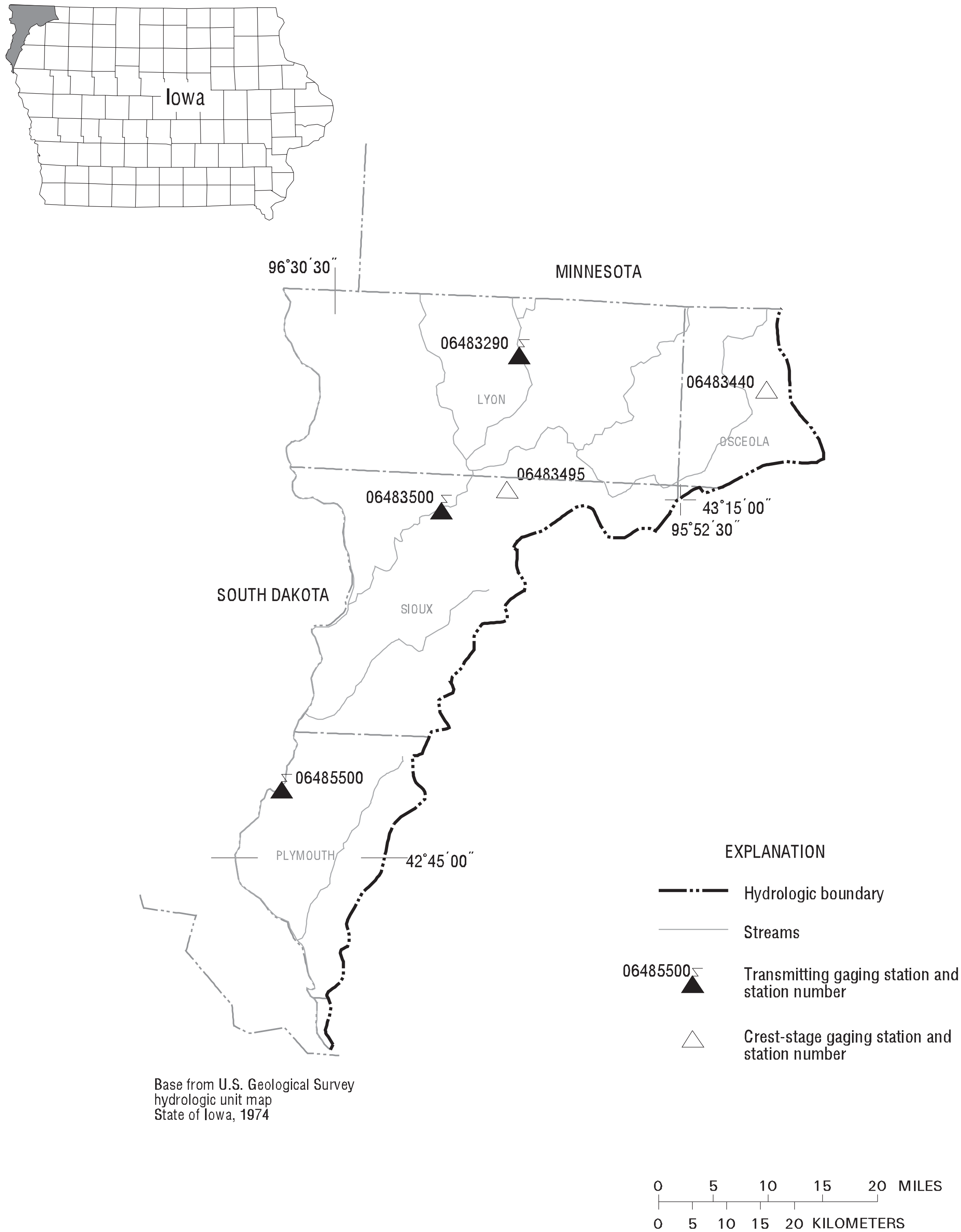
05494300 FOX RIVER AT BLOOMFIELD, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1958 - 2004	
ANNUAL TOTAL	4,934.30		19,540.64			
ANNUAL MEAN	13.5		53.4		49.2	
HIGHEST ANNUAL MEAN					117	1973
LOWEST ANNUAL MEAN					8.40	1964
HIGHEST DAILY MEAN	1,060	May 10	3,440	Aug 27	4,370	May 6, 1960
LOWEST DAILY MEAN	0.11	Jan 18	0.96	Dec 2 a	0.00	Oct 1, 1957
ANNUAL SEVEN-DAY MINIMUM	0.27	Jan 17	1.0	Nov 28	0.00	Oct 1, 1957
MAXIMUM PEAK FLOW			6,880	Aug 27	8,600	May 6, 1960
MAXIMUM PEAK STAGE			21.63	Aug 27	24.02	May 6, 1960
INSTANTANEOUS LOW FLOW					0.00	Oct 1, 1957
ANNUAL RUNOFF (AC-FT)	9,790		38,760		35,610	
ANNUAL RUNOFF (CFSM)	0.154		0.609		0.560	
ANNUAL RUNOFF (INCHES)	2.09		8.29		7.61	
10 PERCENT EXCEEDS	19		71		74	
50 PERCENT EXCEEDS	3.0		7.4		5.2	
90 PERCENT EXCEEDS	0.50		1.9		0.50	

a Also Dec. 3, 4; Estimated due to backwater from beaver dam.
e Estimated.



05494300 FOX RIVER AT BLOOMFIELD, IA—Continued


Iowa
96°30´30´´
MINNESOTA
06483290
LYON
06483440
OSCEOLA
06483495
06483500
43°15´00´´
95°52´30´´
SOUTH DAKOTA
SIOUX
06485500
PLYMOUTH
42°45´00´´
EXPLANATION
Hydrologic boundary
Streams
06485500
Transmitting gaging station and station number
Crest-stage gaging station and station number
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974
0 5 10 15 20 MILES
0 5 10 15 20 KILOMETERS

Gaging Stations

06483290 Rock River below Tom Creek at Rock Rapids, IA 374
06483500 Rock River near Rock Valley, IA 376
06485500 Big Sioux River at Akron, IA 378

Crest Stage Gaging Stations

06483440 Dawson Creek near Sibley, IA 492
06483495 Burr Oak Creek near Perkins, IA 492

06483290 ROCK RIVER BELOW TOM CREEK AT ROCK RAPIDS, IA

LOCATION.--Lat 43°25'23", long 96°09'52", in SW$\frac{1}{4}$ NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 4, T.99 N., R.45 W., Lyon County, Hydrologic Unit 10170204, on right bank 5 ft downstream from bridge on gravel road in Campbell Park, near waterworks lift station, 200 ft east of Tama St and 8th Ave, 1.1 mi downstream of mouth of Tom Creek, and at mile 41.4.

DRAINAGE AREA.--853 mi^2.

PERIOD OF RECORD.--May 1, 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,308.57 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 8, 1969 reached a stage of 10.23 ft, discharge 29,000 ft^3/s, at discontinued gaging station 1.4 mile upstream and above Tom Creek.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	50	e39	e58	e41	e976	473	191	1,780	271	257	78
2	48	50	e42	e57	e36	2,110	417	180	1,210	252	308	74
3	48	51	e40	e51	e28	1,910	367	173	959	347	310	70
4	48	53	e39	e44	e29	1,270	331	166	820	457	582	68
5	47	51	e32	e33	e25	1,150	307	157	703	587	1,010	73
6	46	42	e30	e32	e30	1,170	289	149	611	1,030	758	87
7	47	42	e38	e39	e27	976	271	138	523	1,240	514	80
8	49	38	e39	e46	e22	1,010	250	133	449	965	394	78
9	48	e44	e32	e39	e32	1,070	233	132	405	755	318	73
10	47	e57	e24	e38	e35	1,090	221	135	449	600	266	68
11	53	e56	e23	e46	e49	754	209	120	565	520	228	64
12	56	e54	e22	e41	e33	505	202	110	698	500	206	61
13	55	52	e32	e41	e33	607	195	107	797	765	185	63
14	54	56	e45	e38	e23	549	187	103	706	892	168	109
15	54	55	e47	e35	e19	459	179	98	589	684	155	606
16	52	58	e42	e44	e29	392	174	101	567	525	145	999
17	53	59	e36	e40	e25	360	168	133	1,420	481	135	1,040
18	52	57	e48	e32	e29	332	167	158	2,580	437	127	852
19	52	58	e44	e27	e33	327	172	199	1,870	377	118	691
20	52	56	e46	e35	e27	312	188	204	1,180	326	110	491
21	53	54	e56	e43	e26	306	228	217	965	290	102	389
22	53	46	e55	e30	e35	287	270	378	829	289	97	377
23	51	29	e52	e54	e61	277	274	650	691	319	100	429
24	51	27	e49	e43	e24	260	260	695	577	270	96	454
25	49	e37	e52	e43	e25	254	276	722	488	231	94	404
26	48	e36	e58	e33	e14	255	294	699	433	206	91	349
27	50	e38	e66	e32	e81	300	292	740	394	185	88	302
28	51	e34	e60	e30	e91	468	273	811	358	168	85	268
29	52	e37	e53	e29	e133	624	237	724	327	162	82	244
30	51	e42	e48	e30	---	616	211	1,060	296	233	79	226
31	49	---	e47	e37	---	541	---	1,820	---	282	82	---
TOTAL	1,569	1,419	1,336	1,220	1,095	21,517	7,615	11,403	24,239	14,646	7,290	9,167
MEAN	50.6	47.3	43.1	39.4	37.8	694	254	368	808	472	235	306
MAX	56	59	66	58	133	2,110	473	1,820	2,580	1,240	1,010	1,040
MIN	46	27	22	27	14	254	167	98	296	162	79	61
AC-FT	3,110	2,810	2,650	2,420	2,170	42,680	15,100	22,620	48,080	29,050	14,460	18,180
CFSM	0.06	0.06	0.05	0.05	0.04	0.81	0.30	0.43	0.95	0.55	0.28	0.36
IN.	0.07	0.06	0.06	0.05	0.05	0.94	0.33	0.50	1.06	0.64	0.32	0.40

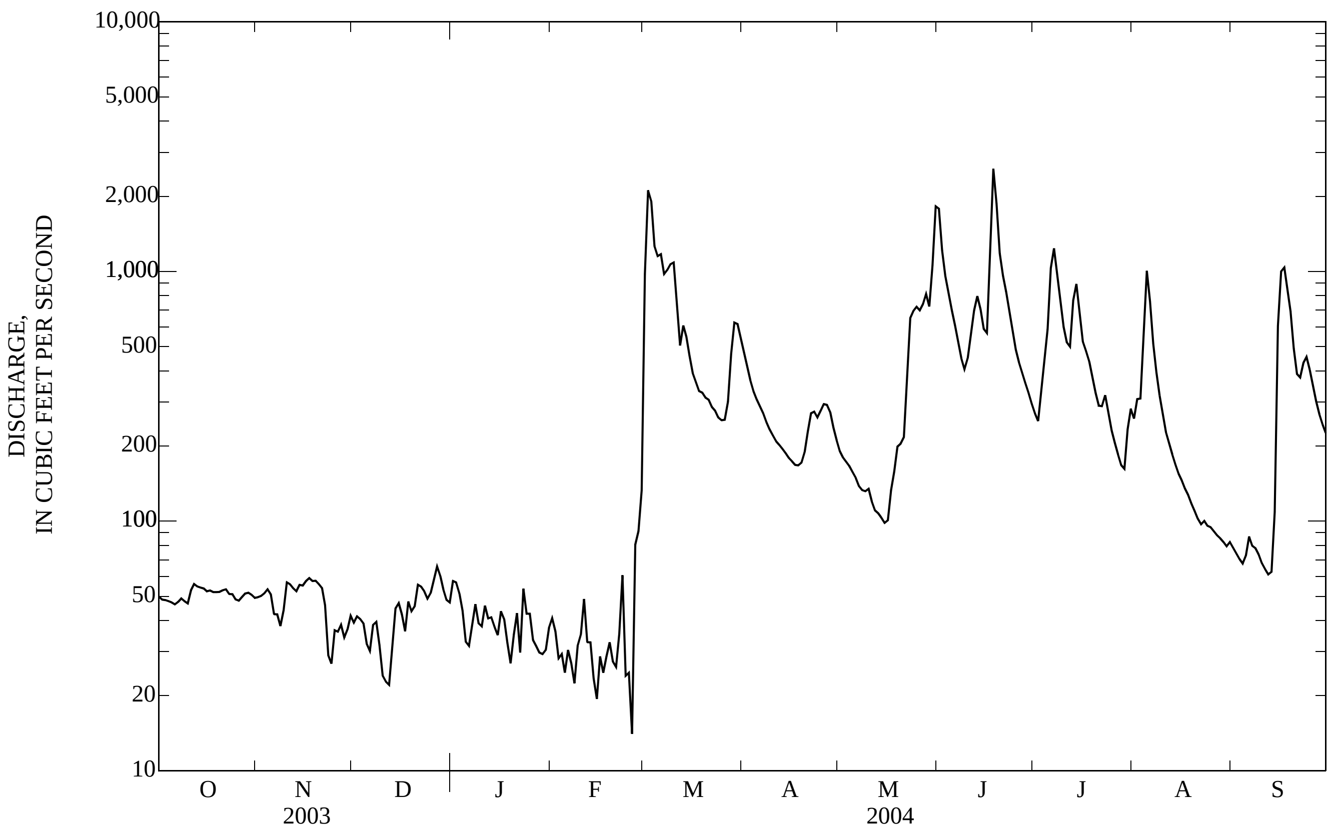
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	77.2	85.7	117	57.5	61.2	342	277	574	636	304	149	130
MAX	127	107	237	89.9	115	694	291	1,216	1,295	561	235	306
(WY)	(2003)	(2003)	(2002)	(2002)	(2002)	(2004)	(2003)	(2001)	(2001)	(2001)	(2004)	(2004)
MIN	50.6	47.3	43.1	39.4	31.4	138	254	310	174	48.2	31.7	46.3
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2004)	(2002)	(2002)	(2002)	(2003)	(2002)

06483290 ROCK RIVER BELOW TOM CREEK AT ROCK RAPIDS, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2001 - 2004	
ANNUAL TOTAL	48,370		102,516			
ANNUAL MEAN	133		280		193	
HIGHEST ANNUAL MEAN					280	2004
LOWEST ANNUAL MEAN					146	2003
HIGHEST DAILY MEAN	866	Apr 21	2,580	Jun 18	8,870	Jun 13, 2001
LOWEST DAILY MEAN	12	Jan 26	14	Feb 26 a	12	Jan 26, 2003
ANNUAL SEVEN-DAY MINIMUM	18	Jan 22	26	Feb 14	18	Jan 22, 2003
MAXIMUM PEAK FLOW			3,440	Mar 1	12,000	Jun 13, 2001
MAXIMUM PEAK STAGE			14.85	Mar 1 b	19.30	Jun 13, 2001
ANNUAL RUNOFF (AC-FT)	95,940		203,300		140,000	
ANNUAL RUNOFF (CFSM)	0.155		0.328		0.227	
ANNUAL RUNOFF (INCHES)	2.11		4.47		3.08	
10 PERCENT EXCEEDS	345		744		448	
50 PERCENT EXCEEDS	54		119		98	
90 PERCENT EXCEEDS	26		33		32	

a Ice affected.
b Backwater from ice jam.
e Estimated.



06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW¼ SW¼ sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on left bank 15 ft upstream from bridge on county highway K30, 0.3 mi north of Rock Valley, and at mile 19.1.

DRAINAGE AREA.--1,592 mi^2.

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1439: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,222.54 ft above NGVD of 1929. Prior to Aug. 13, 1952, nonrecording gage with supplementary water-stage recorder operating above 6.2 ft gage height. June 4, 1949 to Aug. 12, 1952 and Aug. 13, 1952 to May 4, 1976, water-stage recorder, at site 3.2 mi downstream at datum 10.73 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of 17.0 ft, former site and datum, discharge not determined, from information by State Highway Commission.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	72	e63	e82	e55	e2,010	759	409	3,020	479	378	139
2	74	71	e66	e81	e50	6,820	680	388	2,390	448	410	131
3	74	74	e65	e75	e41	3,890	613	371	1,830	526	452	123
4	73	76	e63	e64	e42	2,630	556	363	1,510	628	525	117
5	71	76	e57	e51	e36	2,670	515	354	1,300	955	928	119
6	69	74	e55	e50	e44	2,870	481	343	1,160	1,830	1,070	146
7	69	72	e62	e56	e40	2,150	451	321	1,040	2,730	800	134
8	68	e71	e63	e63	e34	1,750	419	312	929	2,740	647	125
9	67	e76	e54	e54	e44	1,830	393	309	847	2,110	548	124
10	66	e83	e28	e53	e46	1,700	374	328	810	1,660	473	115
11	71	e81	e40	e63	e60	1,390	355	345	925	1,380	417	110
12	75	78	e37	e57	e44	835	341	351	1,020	1,190	376	108
13	74	76	e49	e57	e44	905	328	330	1,100	1,340	346	104
14	73	76	e65	e53	e34	864	318	314	1,070	1,690	317	138
15	73	76	e68	e50	e28	745	305	273	960	1,450	293	627
16	72	77	e63	e59	e40	670	296	242	1,010	1,160	274	1,420
17	72	77	e57	e55	e36	601	287	244	1,200	1,010	258	1,860
18	72	77	e72	e46	e40	567	318	298	2,770	907	243	1,780
19	70	77	e68	e39	e44	535	357	324	2,920	803	223	1,490
20	69	76	e70	e49	e42	516	368	366	1,760	704	211	1,200
21	69	75	e89	e60	e40	493	429	423	1,360	651	195	982
22	70	74	e87	e43	e46	478	486	540	1,130	573	183	971
23	71	e62	e81	e70	e74	455	520	1,340	974	557	188	1,190
24	70	e53	e79	e60	e46	437	492	1,590	864	526	184	1,310
25	70	e63	e88	e60	e41	422	519	1,670	772	465	176	1,210
26	69	e60	e103	e53	e32	413	523	1,570	699	425	172	1,050
27	71	e62	e113	e48	e122	442	545	1,450	647	390	159	913
28	75	e58	e102	e46	e198	606	531	1,470	602	356	153	808
29	74	e60	e90	e45	e314	811	488	1,410	558	319	146	727
30	73	e66	e81	e46	---	923	444	1,670	519	321	140	666
31	72	---	e77	e50	---	851	---	2,470	---	402	138	---
TOTAL	2,212	2,149	2,155	1,738	1,757	42,279	13,491	22,188	37,696	30,725	11,023	19,937
MEAN	71.4	71.6	69.5	56.1	60.6	1,364	450	716	1,257	991	356	665
MAX	76	83	113	82	314	6,820	759	2,470	3,020	2,740	1,070	1,860
MIN	66	53	28	39	28	413	287	242	519	319	138	104
AC-FT	4,390	4,260	4,270	3,450	3,490	83,860	26,760	44,010	74,770	60,940	21,860	39,550
CFSM	0.04	0.04	0.04	0.04	0.04	0.86	0.28	0.45	0.79	0.62	0.22	0.42
IN.	0.05	0.05	0.05	0.04	0.04	0.99	0.32	0.52	0.88	0.72	0.26	0.47

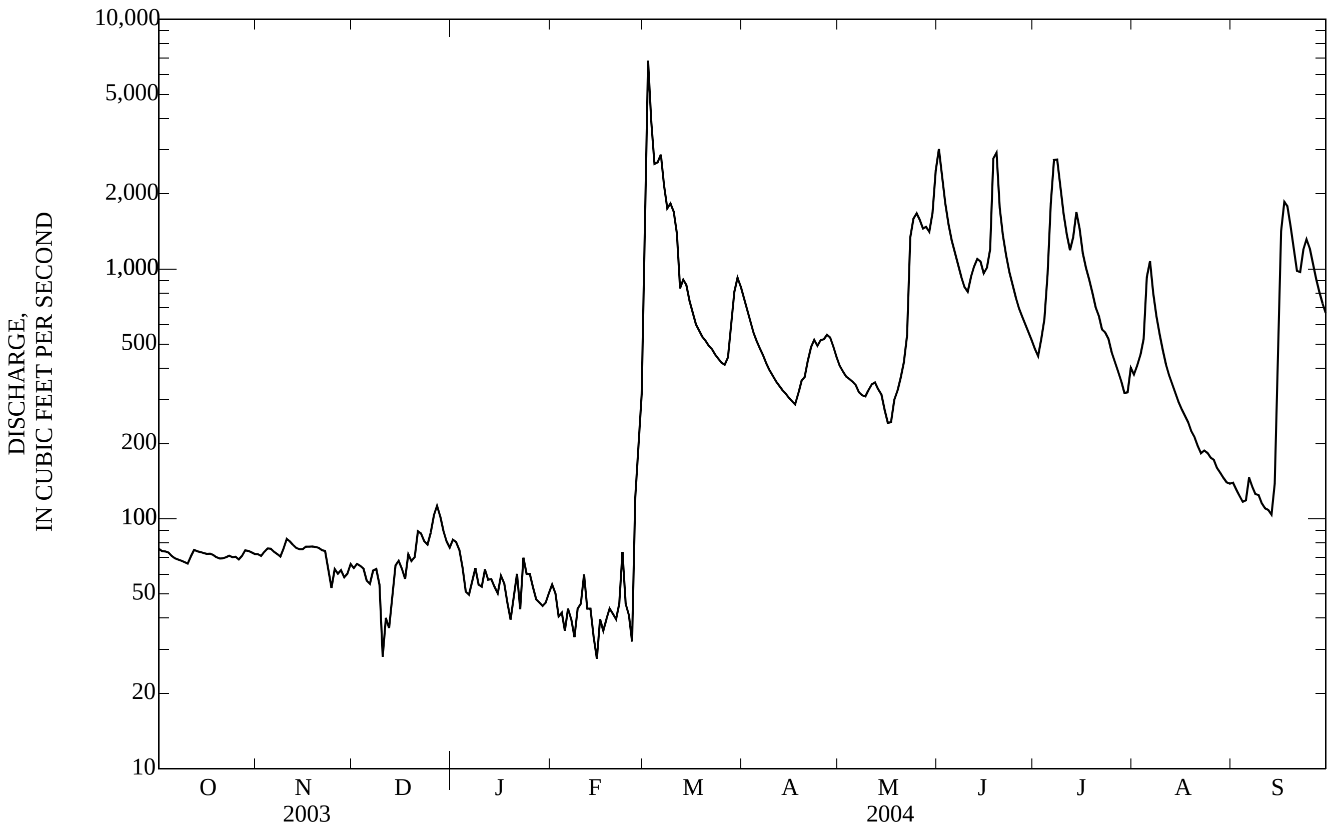
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	228	255	147	81.3	215	1,000	1,304	714	965	607	269	238
MAX	1,232	2,039	676	434	1,059	4,646	6,507	3,728	6,495	9,088	2,251	2,135
(WY)	(1993)	(1980)	(1983)	(1996)	(1966)	(1997)	(1969)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	2.39	9.70	3.22	0.04	0.30	35.1	35.9	44.4	46.3	21.9	6.79	3.26
(WY)	(1959)	(1959)	(1959)	(1977)	(1959)	(1959)	(1959)	(1968)	(1964)	(1976)	(1976)	(1955)

06483500 ROCK RIVER NEAR ROCK VALLEY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1949 - 2004	
ANNUAL TOTAL	78,192		187,350			
ANNUAL MEAN	214		512		502	
HIGHEST ANNUAL MEAN					2,656	1993
LOWEST ANNUAL MEAN					31.0	1968
HIGHEST DAILY MEAN	1,200	May 13	6,820	Mar 2	35,400	Apr 7, 1969
LOWEST DAILY MEAN	26	Jan 26	28	Dec 10 a	0.00	Feb 20, 1959 b
ANNUAL SEVEN-DAY MINIMUM	34	Jan 23	38	Feb 14	0.00	Feb 27, 1959
MAXIMUM PEAK FLOW			8,380	Mar 2	40,400	Apr 7, 1969
MAXIMUM PEAK STAGE			12.24	Mar 2	17.32	Apr 7, 1969 c
ANNUAL RUNOFF (AC-FT)	155,100		371,600		363,600	
ANNUAL RUNOFF (CFSM)	0.135		0.322		0.315	
ANNUAL RUNOFF (INCHES)	1.83		4.38		4.28	
10 PERCENT EXCEEDS	558		1,400		1,140	
50 PERCENT EXCEEDS	83		274		137	
90 PERCENT EXCEEDS	48		50		17	

a Also Feb. 15.
b Many days during winter periods in 1959 and 1977.
c At location and datum then in use.
e Estimated.



06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°50'14", long 96°33'41", in SW$\frac{1}{4}$ SE$\frac{1}{4}$ SW$\frac{1}{4}$ sec.30, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank 15 ft downstream from Iowa Highway 403 bridge, 0.5 mi northwest of Akron, and 2.9 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi^2, of which 1,487 mi^2 usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi^2 of the usually noncontributing area).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area. WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,118.90 ft above NGVD of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 0.5 mi downstream at same datum. From Dec. 3, 1934, to Oct. 31, 1985, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	272	279	e250	e245	e170	e2,000	1,960	895	7,890	1,620	945	448
2	268	275	e245	e250	e169	e5,000	1,780	840	10,200	1,530	928	456
3	265	283	e240	e245	e168	8,920	1,630	793	8,570	1,550	954	521
4	262	285	e200	e240	e167	7,220	1,490	764	5,360	1,630	1,030	444
5	259	291	e240	e220	e165	5,410	1,350	730	4,390	1,690	1,250	422
6	257	284	e235	e210	e162	5,350	1,240	700	3,790	2,370	2,000	447
7	253	283	e230	e220	e160	4,980	1,170	664	3,380	3,100	2,030	428
8	249	268	e230	e230	e162	4,160	1,110	633	3,030	3,700	1,760	485
9	244	255	e225	e230	e162	3,450	1,050	615	2,710	3,640	1,510	467
10	240	293	e200	e225	e162	3,370	1,000	614	2,480	3,150	1,180	419
11	251	324	e220	e215	e162	3,230	955	600	2,420	2,730	1,050	398
12	261	314	e230	e220	e160	2,820	920	585	2,620	2,410	948	381
13	266	300	e240	e215	e159	2,130	885	573	3,080	2,210	875	365
14	288	302	e250	e205	e157	2,140	848	586	3,050	2,360	808	469
15	295	301	e245	e200	e155	2,150	822	615	2,940	2,750	777	854
16	275	299	e245	e205	e153	1,970	794	588	2,920	2,670	713	1,770
17	268	302	e245	e210	e150	1,800	756	584	4,050	2,430	669	2,440
18	269	300	e245	e200	e150	1,680	734	593	6,170	2,260	656	2,630
19	264	290	e245	e190	e150	1,610	839	679	5,810	2,080	625	2,440
20	259	298	e245	e190	e155	1,590	847	729	5,350	1,920	593	2,130
21	255	297	e250	e185	e165	1,490	853	819	4,480	1,770	562	1,880
22	255	296	e250	e180	e175	1,410	906	1,060	3,930	1,650	539	1,680
23	254	297	e250	e180	e185	1,360	973	1,780	3,360	1,470	563	1,660
24	248	e285	e250	e185	e195	1,290	996	2,850	2,930	1,490	540	1,790
25	244	e280	e250	e185	e200	1,240	1,020	3,160	2,600	1,540	555	1,960
26	246	e275	e250	e185	e205	1,180	1,050	3,130	2,340	1,410	553	1,950
27	255	e270	e250	e180	e215	1,180	1,100	2,880	2,140	1,250	513	1,810
28	262	e265	e245	e175	e260	1,350	1,090	2,590	2,000	1,110	494	1,720
29	262	e260	e245	e175	e700	1,630	1,040	3,280	1,860	1,020	482	1,660
30	265	e255	e245	e170	---	2,000	969	4,000	1,720	964	467	1,610
31	272	---	e245	e175	---	2,070	---	5,170	---	914	457	---
TOTAL	8,083	8,606	7,435	6,340	5,498	87,180	32,177	44,099	117,570	62,388	27,026	36,134
MEAN	261	287	240	205	190	2,812	1,073	1,423	3,919	2,013	872	1,204
MAX	295	324	250	250	700	8,920	1,960	5,170	10,200	3,700	2,030	2,630
MIN	240	255	200	170	150	1,180	734	573	1,720	914	457	365
AC-FT	16,030	17,070	14,750	12,580	10,910	172,900	63,820	87,470	233,200	123,700	53,610	71,670

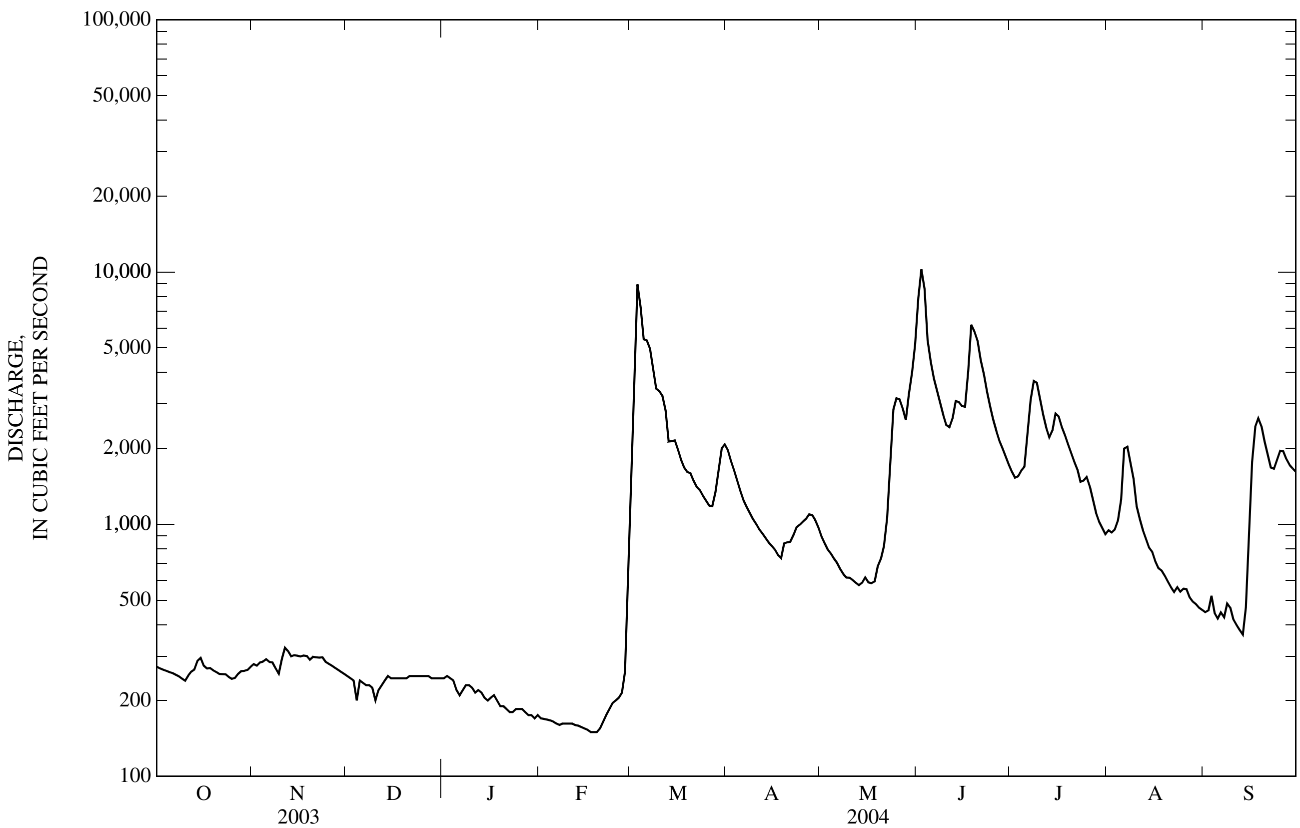
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	529	526	364	219	506	2,349	3,346	1,874	2,207	1,497	766	673
MAX	4,039	3,022	1,987	920	2,399	8,866	20,690	9,499	15,820	21,740	6,200	7,313
(WY)	(1987)	(1980)	(1999)	(1996)	(1966)	(1983)	(1969)	(1993)	(1984)	(1993)	(1993)	(1986)
MIN	32.9	47.9	32.1	6.68	12.1	124	139	73.3	100	50.7	45.2	36.4
(WY)	(1959)	(1959)	(1977)	(1977)	(1936)	(1931)	(1931)	(1934)	(1933)	(1931)	(1976)	(1976)

06485500 BIG SIOUX RIVER AT AKRON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	250,797		442,536			
ANNUAL MEAN	687		1,209		[a]1,239	
HIGHEST ANNUAL MEAN					6,271	1993
LOWEST ANNUAL MEAN					120	1931
HIGHEST DAILY MEAN	2,900	Jun 28	10,200	Jun 2	77,500	Apr 9, 1969
LOWEST DAILY MEAN	145	Sep 8	150	Feb 17	4.0	Jan 17, 1977
ANNUAL SEVEN-DAY MINIMUM	153	Sep 3	153	Feb 14	4.4	Jan 15, 1977
MAXIMUM PEAK FLOW			11,000	Jun 2	[b]80,800	Apr 9, 1969
MAXIMUM PEAK STAGE			17.87	Jun 2	[c]23.38	Apr 26, 2001
ANNUAL RUNOFF (AC-FT)	497,500		877,800		897,300	
10 PERCENT EXCEEDS	1,720		2,970		2,910	
50 PERCENT EXCEEDS	315		596		410	
90 PERCENT EXCEEDS	200		194		73	

a Median of annual mean discharges, 860 ft^3/s.
b Gage height, 22.99 ft.
c Discharge, 40,400 ft^3/s.
e Estimated.



06485500 BIG SIOUX RIVER AT AKRON, IA—Continued

(Large River Mass Contaminents Station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
MAR													
09...	1200	3,410	230	150	738	11.4	88	7.9	612	3.4	149	182	--
APR													
13...	0930	886	175	22	732	13.3	117	8.5	912	8.0	231	247	17
MAY													
12...	1030	585	175	42	723	8.4	97	8.2	837	19.6	--	--	--
26...	1300	3,110	225	160	724	--	--	8.0	867	14.0	205	250	--
JUN													
02...	1215	10,400	280	160	733	5.9	63	7.6	473	16.5	140	171	--
JUL													
14...	1030	2,300	215	110	734	7.7	100	8.2	869	26.7	242	285	5
AUG													
11...	0940	1,060	188	85	734	8.9	103	8.5	801	20.5	230	260	11
SEP													
08...	0730	466	185	28	735	8.3	94	8.1	727	19.4	146	178	--
17...	1230	2,500	220	240	739	5.3	60	7.6	642	19.0	154	188	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat flt by anal ysis, mg/L (62854)	Total nitrogen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
09...	29.5	14.6	84.1	.84	7.25	.137	1.25	.435	.51	1.04	9.54	10.5	13.6
APR													
13...	45.7	4.4	189	<.04	4.10	.018	1.00	.037	.007	.28	4.33	5.53	6.1
MAY													
12...	47.6	1.5	187	E.02	3.06	.039	1.36	E.005	.019	.32	3.43	4.93	10.0
26...	30.1	13.8	169	.10	9.26	.077	1.36	.206	.24	.78	9.67	10.9	15.2
JUN													
02...	14.2	13.4	85.7	.20	4.48	.089	.94	.133	.155	.62	5.13	5.28	10.5
JUL													
14...	31.1	14.3	142	E.02	8.66	.026	1.59	.074	.092	.49	8.90	7.73	15.3
AUG													
11...	31.4	13.6	147	<.04	4.45	.015	1.41	.070	.084	.41	4.91	6.29	12.3
SEP													
08...	44.4	6.4	175	<.04	1.18	.026	.97	E.004	.030	.28	1.58	3.37	6.4
17...	--	--	--	.85	2.10	.088	2.74	.576	.63	1.43	3.97	6.83	33.2

06485500 BIG SIOUX RIVER AT AKRON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
09...	.4	13.2	16.8	11.5	10.7	<.006	E.042	.500	<.005	<.005	.173	<.050	<.010
APR													
13...	<.1	6.1	4.1	33.3	90.0	<.006	E.015	.020	<.005	<.005	.045	<.050	<.010
MAY													
12...	1.0	8.9	4.2	58.0	171	<.006	E.030	.063	.008	<.005	.140	<.050	<.010
26...	2.2	13.0	6.2	21.3	26.3	<.006	E.060	.911	.015	<.005	.759	<.050	<.010
JUN													
02...	.3	10.3	7.4	13.3	8.7	<.006	E.109	1.32	.057	<.005	1.80	<.050	<.010
JUL													
14...	2.0	13.3	4.6	65.7	112	<.006	E.045	.017	<.005	<.005	.696	<.050	<.010
AUG													
11...	2.1	10.2	5.1	39.4	173	<.006	E.037	.012	<.005	<.005	.214	<.050	<.010
SEP													
08...	.2	6.1	4.1	80.5	90.8	<.006	E.015	.006	<.005	<.005	.092	<.050	<.010
17...	6.9	26.2	8.5	55.4	34.5	<.006	E.024	.015	<.005	<.005	.104	<.050	<.010

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)
MAR													
09...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
12...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	E.003	<.005	<.009	<.02	E.003	<.009
26...	<.004	E.008	<.020	E.005	<.006	E.010	<.003	E.004	.006	<.009	<.02	E.003	<.009
JUN													
02...	<.004	E.016	E.005	.005	<.006	E.018	<.003	E.003	<.005	<.009	<.02	.008	<.009
JUL													
14...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
11...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP													
08...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	E.003	E.002	<.009	<.02	<.004	<.009
17...	<.004	E.011	<.020	E.004	<.006	<.018	E.002	E.003	E.004	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
09...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	1.65	<.006	<.003
APR													
13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.111	<.006	<.003
MAY													
12...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.079	<.006	<.003
26...	<.005	<.029	<.013	<.024	E.014	<.003	<.004	<.035	<.027	<.015	.387	.012	<.003
JUN													
02...	<.005	<.029	<.013	E.005	E.019	<.003	<.004	<.035	<.027	<.015	.662	<.007	<.003
JUL													
14...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.046	<.006	<.003
AUG													
11...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.045	<.006	<.003
SEP													
08...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.035	<.006	<.003
17...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.049	<.006	<.003

06485500 BIG SIOUX RIVER AT AKRON, IA—Continued

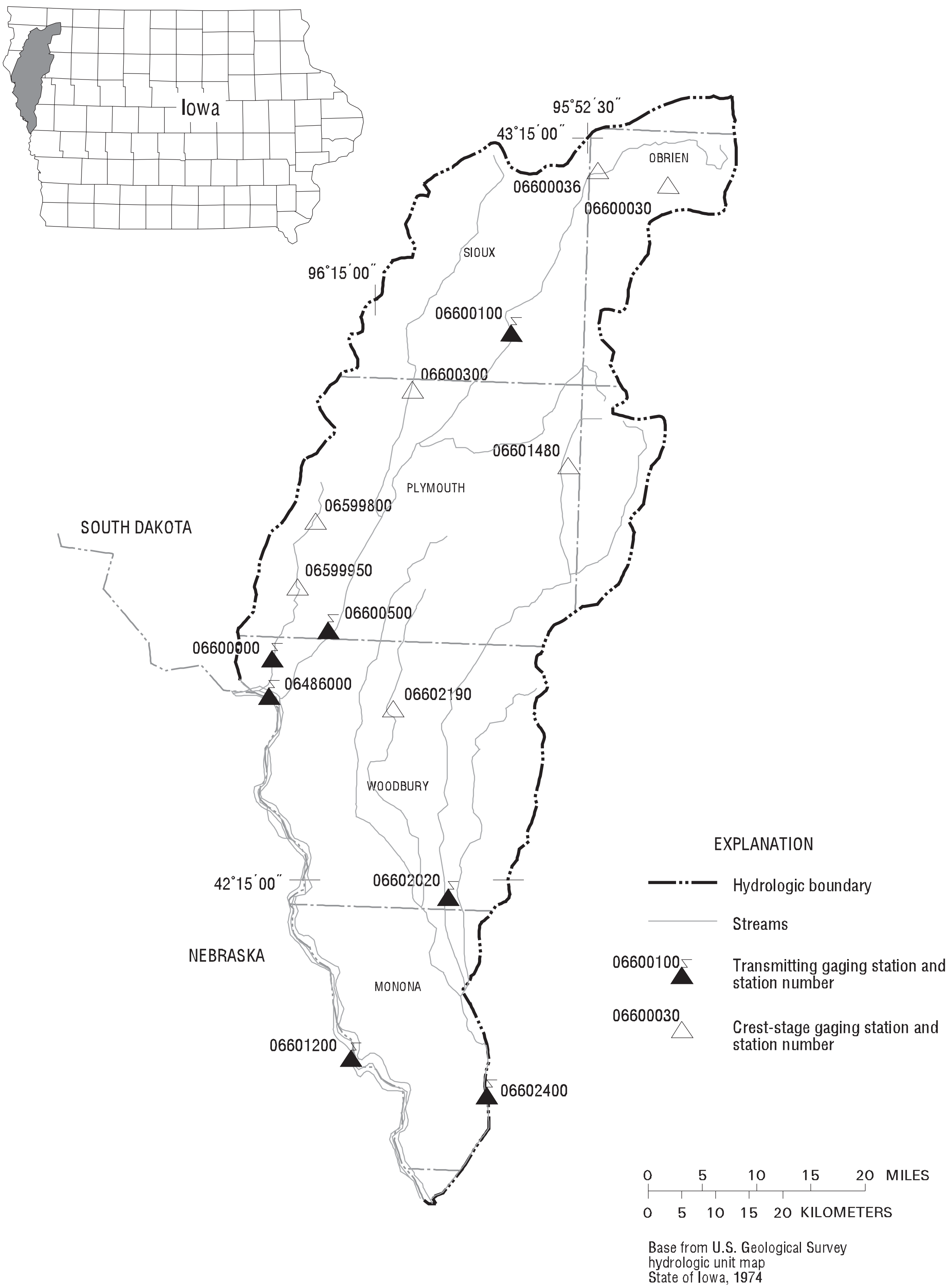
WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propy-zamide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)
MAR													
09...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02
APR													
13...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
MAY													
12...	<.007	<.003	<.010	<.004	E.006	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
26...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.007	<.02
JUN													
02...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.010	<.02
JUL													
14...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.005	<.02
AUG													
11...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
SEP													
08...	<.007	<.003	<.010	<.004	<.022	<.011	.03	<.010	<.025	<.011	<.02	<.005	<.02
17...	<.007	<.005	<.010	<.004	<.022	<.011	.02	<.007	<.025	<.011	<.02	<.005	<.02

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Number of sam-pling points, count (00063)
MAR							
09...	<.034	<.02	<.010	<.002	<.009	531	11
APR							
13...	<.034	<.02	<.010	<.002	<.009	62	12
MAY							
12...	<.034	<.02	<.010	<.002	<.009	109	11
26...	<.034	<.02	<.010	<.002	E.009	360	11
JUN							
02...	<.034	<.02	<.010	<.002	E.007	482	7
JUL							
14...	<.034	<.02	<.010	<.002	<.009	443	11
AUG							
11...	<.034	<.02	<.010	<.002	<.009	202	12
SEP							
08...	<.034	<.02	<.010	<.002	<.009	85	11
17...	<.034	<.02	<.010	<.002	<.009	1,030	11

06485500 BIG SIOUX RIVER AT AKRON, IA—Continued


Iowa
95°52´30˝
43°15´00˝
OBRIEN
06600036
06600030
SIOUX
96°15´00˝
06600100
06600300
06601480
PLYMOUTH
06599800
SOUTH DAKOTA
06599950
06600500
06600000
06486000
06602190
WOODBURY
EXPLANATION
Hydrologic boundary
Streams
06600100
Transmitting gaging station and station number
06600030
Crest-stage gaging station and station number
42°15´00˝
06602020
NEBRASKA
MONONA
06601200
06602400
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

06486000 Missouri River at Sioux City, IA 386
06600000 Perry Creek at 38th Street, Sioux City, IA 393
06600100 Floyd River at Alton, IA 395
06600500 Floyd River at James, IA 397
06601200 Missouri River at Decatur, NE 399
06602020 West Fork Ditch at Hornick, IA 401
06602400 Monona-Harrison Ditch near Turin, IA 403

Crest Stage Gaging Stations

06599800 Perry Creek near Merrill, IA 492
06599950 Perry Creek near Hinton, IA 492
06600030 Little Floyd River near Sanborn, IA 492
06600036 Sweeney Creek Tributary near Sheldon, IA 492
06600300 West Branch Floyd River near Struble, IA 492
06601480 Big Whiskey Slough near Remsen, IA 492
06602190 Elliott Creek at Lawton, IA 493

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat. 42°29'09", long 96°24'49", in NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec.16, T.29 N., R.9 E., sixth prinicipal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.2.

DRAINAGE.--314,600 mi^2, approximately. The 3,959 mi^2 in Great Divide basin are not included.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to current year in reports of the U.S. Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, published in WSP 1310. January 1879 to December 1890, monthly discharges only, in House Document 238, 73rd Congress, 2d session, Missouri River. Gage height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft above NGVD of 1929. Sept. 2, 1878 to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906 to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935 to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969 to Sept. 30, 1970 at datum 20.00 ft higher. Oct. 1, 1970 to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft^3/s Apr. 14, 1952, gage height, 24.28 ft, datum then in use; minimum, 2,500 ft^3/s Dec. 29, 1941; minimum gage height, 7.02 ft Jan. 19, 1996.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27,800	28,600	13,800	15,700	16,200	16,000	21,100	24,200	33,700	29,600	26,600	26,800
2	27,900	29,400	13,700	15,900	17,600	16,700	20,600	27,000	37,500	29,900	26,700	27,200
3	28,000	29,700	13,700	15,800	17,600	17,900	20,500	28,100	36,200	31,900	26,800	27,500
4	28,000	29,800	13,600	14,800	15,900	18,700	21,100	27,900	35,200	31,600	27,200	27,900
5	28,100	29,400	13,400	14,600	15,200	19,100	21,200	27,900	37,200	31,700	27,100	28,300
6	28,100	29,100	13,100	12,700	16,400	17,100	21,300	28,100	37,900	31,600	27,200	28,300
7	28,000	28,800	13,000	14,100	15,400	16,300	22,400	27,900	36,900	32,400	28,200	27,700
8	28,000	28,800	13,100	15,100	14,600	15,500	23,200	28,100	36,200	33,100	28,300	27,800
9	28,700	29,000	13,600	16,300	15,400	14,400	22,800	30,600	35,400	33,900	28,100	28,500
10	28,900	29,000	13,000	15,900	16,000	13,200	23,000	30,600	34,800	33,400	27,900	28,700
11	29,200	29,200	12,500	15,800	15,700	12,800	23,700	29,400	34,900	32,200	27,800	28,800
12	29,100	29,400	14,000	16,200	15,100	12,300	23,700	30,500	34,400	31,400	27,600	29,000
13	28,400	29,000	15,200	16,200	13,900	12,000	23,500	29,900	34,100	31,000	27,500	29,000
14	28,400	28,900	15,900	15,100	15,200	13,000	23,300	27,700	34,700	30,700	27,200	31,800
15	28,300	29,200	16,100	14,600	14,900	13,300	23,500	30,400	34,500	30,300	26,900	33,400
16	27,800	29,100	16,000	13,800	13,800	13,300	23,900	28,700	34,800	29,200	26,900	33,400
17	27,800	29,200	15,500	13,800	13,800	12,900	23,800	27,300	34,200	28,800	26,800	31,700
18	27,800	29,000	16,500	14,700	13,700	12,700	24,200	30,400	34,100	28,500	27,200	29,500
19	28,200	25,800	15,900	14,300	13,800	12,700	25,000	28,300	35,800	28,300	27,000	27,600
20	28,500	22,100	14,500	14,700	13,600	14,100	24,700	26,600	35,600	28,100	26,600	26,400
21	28,500	20,200	14,300	15,500	12,900	17,100	25,500	31,000	34,300	28,200	26,600	25,700
22	28,400	17,600	13,500	15,400	13,200	18,800	25,300	34,000	32,900	28,200	26,500	24,500
23	28,400	15,500	13,400	16,800	13,300	20,200	25,500	32,300	31,900	27,700	26,800	24,700
24	28,400	14,000	13,200	18,100	12,400	20,200	25,400	35,800	31,400	27,300	27,100	24,700
25	28,400	13,600	13,300	16,400	11,900	21,000	25,300	34,100	30,900	27,300	27,100	24,800
26	28,300	13,700	13,600	16,900	11,500	22,700	24,700	30,800	30,200	27,300	27,000	24,800
27	28,400	13,800	15,400	14,500	11,700	23,400	23,400	33,900	29,900	27,200	26,900	24,100
28	28,700	13,600	16,000	11,800	12,900	24,400	21,900	31,300	29,700	27,200	27,000	23,400
29	28,300	13,400	15,700	14,300	14,100	24,300	22,600	29,200	29,500	27,200	26,700	23,100
30	28,300	13,800	15,500	15,400	---	23,800	22,800	35,400	29,500	27,000	26,800	23,000
31	28,400	---	15,600	15,700	---	22,200	---	35,900	---	26,700	26,600	---
TOTAL	877,500	721,700	445,600	470,900	417,700	532,100	698,900	933,300	1,018,300	918,900	840,700	822,100
MEAN	28,310	24,060	14,370	15,190	14,400	17,160	23,300	30,110	33,940	29,640	27,120	27,400
MAX	29,200	29,800	16,500	18,100	17,600	24,400	25,500	35,900	37,900	33,900	28,300	33,400
MIN	27,800	13,400	12,500	11,800	11,500	12,000	20,500	24,200	29,500	26,700	26,500	23,000
AC-FT	1,741,000	1,431,000	883,800	934,000	828,500	1,055,000	1,386,000	1,851,000	2,020,000	1,823,000	1,668,000	1,631,000
CFSM	0.09	0.08	0.05	0.05	0.05	0.05	0.07	0.10	0.11	0.09	0.09	0.09
IN.	0.10	0.09	0.05	0.06	0.05	0.06	0.08	0.11	0.12	0.11	0.10	0.10

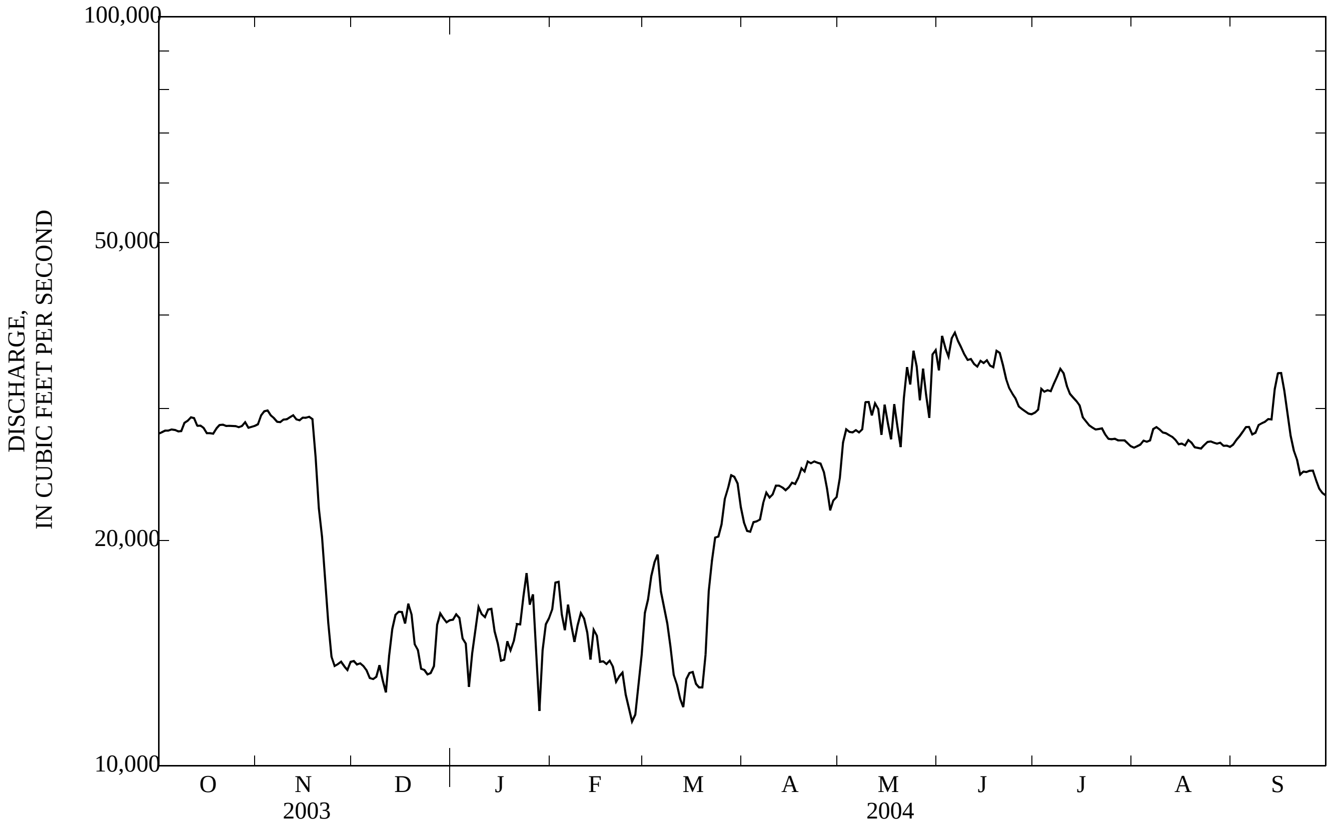
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	35,920	31,120	18,740	16,090	17,160	23,090	33,060	33,730	35,380	35,810	36,070	36,390
MAX	69,300	71,600	39,880	27,720	31,120	47,020	88,040	78,720	66,400	65,550	65,360	66,400
(WY)	(1998)	(1998)	(1998)	(1987)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)
MIN	14,350	6,951	8,271	7,316	6,293	9,135	17,450	23,820	23,270	26,380	24,270	25,790
(WY)	(1962)	(1962)	(1962)	(1964)	(1963)	(1957)	(1957)	(1962)	(1960)	(2002)	(1993)	(1962)

06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004 a	
ANNUAL TOTAL	8,568,800		8,697,700			
ANNUAL MEAN	23,480		23,760		29,420	
HIGHEST ANNUAL MEAN					55,890	1997
LOWEST ANNUAL MEAN					19,770	1957
HIGHEST DAILY MEAN	35,000	Sep 11	37,900	Jun 6	105,000	Jun 25, 1953
LOWEST DAILY MEAN	10,100	Feb 25	11,500	Feb 26	3,000	Dec 11, 1961
ANNUAL SEVEN-DAY MINIMUM	12,800	Mar 5	12,400	Feb 21	5,430	Feb 22, 1963
MAXIMUM PEAK FLOW			39,200	May 30 b	101,000	Apr 3, 1960
MAXIMUM PEAK STAGE			18.30	Jun 2	30.65	Feb 19, 1971
INSTANTANEOUS LOW FLOW			10,700	Jan 28		
ANNUAL RUNOFF (AC-FT)	17,000,000		17,250,000		21,310,000	
ANNUAL RUNOFF (CFSM)	0.075		0.076		0.094	
ANNUAL RUNOFF (INCHES)	1.01		1.03		1.27	
10 PERCENT EXCEEDS	29,600		32,000		46,000	
50 PERCENT EXCEEDS	26,300		26,700		29,800	
90 PERCENT EXCEEDS	13,700		13,600		12,200	

a Post regulation.
b Also June 2.



06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected from U.S. Highway 20 and 77 bridge in South Sioux City.

PERIOD OF RECORD.--October 1971 to September 30, 2000; October 1, 2003 to September 30, 2004. Daily sediment loads for October 1954 to September 1971 are in reports of U.S. Army Corps of Engineers.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1972 to September 1976, November 1977 to September 1981, October 1991 to September 30, 2000, October 1, 2003 to September 30, 2004.
WATER TEMPERATURES: October 1971 to September 1976, November 1977 to September 1981, October 1991 to September 30, 2000, October 1, 2003 to September 30, 2004.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976, October 1991 to September 30, 2000, October 1, 2003 to September 30, 2004.

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, 985 microsiemens Apr. 19, 1999; minimum daily, 410 microsiemens Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 28.0°C July 30, 1976, Aug. 7, 1979, July 28, 1997, and July 22, 2004; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,420 mg/L May 18, 2000; minimum daily mean, 41 mg/L Dec. 6, 7, 2003.
SEDIMENT LOADS: Maximum daily, 370,000 tons July 17, 1996; minimum daily, 1,440 tons Dec. 7, 2003.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 799 microsiemens Nov. 24; minimum daily, 648 microsiemens Mar. 22.
WATER TEMPERATURES: Maximum daily, 28.0°C July 22; minimum daily, 1.0°C Dec. 15, Jan. 12.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 906 mg/L Mar. 3; minimum daily mean, 41 mg/L Dec. 6, 7.
SEDIMENT LOADS: Maximum daily, 54,600 tons May 27; minimum daily, 1,440 tons Dec. 7.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Bed sediment, dry svd sve dia percent <.063mm (80164)	Bed sediment, dry svd sve dia percent <.125mm (80165)	Bed sediment, dry svd sve dia percent <.25mm (80166)	Bed sediment, dry svd sve dia percent <.5 mm (80167)	Bed sediment, dry svd sve dia percent <1 mm (80168)	Bed sediment, dry svd sve dia percent <2 mm (80169)	Bed sediment, dry svd sve dia percent <4 mm (80170)	Bed sediment, dry svd sve dia percent <8 mm (80171)	Bed sediment, dry svd sve dia percent <16 mm (80172)	Number of sampling points, count (00063)
OCT											
10...	1320	.0	.0	9	70	97	99	100	100	--	3
NOV											
14...	1230	.0	.0	12	77	97	100	100	--	--	3
DEC											
22...	1040	.0	.0	12	67	89	95	99	100	--	3
JAN											
12...	1120	.0	.0	9	69	93	97	98	100	100	3
FEB											
18...	1130	.0	.0	4	67	95	98	99	99	100	3
MAR											
02...	1210	.0	.0	2	60	93	99	100	100	--	3
APR											
05...	1110	.0	.0	12	87	100	100	--	--	--	3
MAY											
03...	1040	.0	.0	14	81	99	100	100	--	--	3
JUN											
03...	1210	.0	.0	6	74	97	99	99	100	100	3
JUL											
09...	1000	.0	.0	12	78	97	99	100	100	--	3
AUG											
06...	1005	.0	.0	14	80	97	99	100	100	--	3

06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	769	---	---	---	---	---	---	714	---	742
2	---	---	---	---	---	724	746	---	---	---	747	---
3	---	730	---	---	---	---	---	736	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	747	732	---	---	---	---
6	725	---	---	---	---	---	---	---	---	725	748	---
7	---	740	---	---	---	---	---	---	741	---	---	721
8	---	---	---	---	---	697	747	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	757	---	724
10	736	737	---	---	---	---	---	739	753	---	760	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	719	---	---	---	---	---	751	---	---
13	---	---	---	---	---	---	728	739	---	---	742	726
14	735	721	---	---	---	---	---	---	754	---	---	---
15	---	---	761	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	745	---	---	767	735	710
17	739	737	---	---	---	---	---	730	765	---	---	---
18	---	---	---	---	741	714	---	---	---	---	---	---
19	---	---	---	---	---	---	730	---	---	760	---	---
20	---	---	---	---	---	---	---	---	---	---	748	731
21	735	758	---	---	---	---	---	734	741	---	---	---
22	---	---	753	---	---	648	---	---	---	733	---	---
23	---	---	---	---	770	---	---	---	---	---	---	730
24	735	799	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	762	---	---	---
26	---	---	---	---	---	662	768	770	---	760	---	---
27	728	---	---	---	---	---	---	---	---	---	738	730
28	---	---	---	---	---	---	---	---	721	---	---	---
29	---	---	---	---	---	714	---	---	---	745	---	---
30	---	---	769	---	---	---	747	---	---	---	743	---
31	738	---	---	---	---	---	---	---	---	---	---	---

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	4.6	---	---	---	---	---	---	24.0	---	24.0
2	---	---	---	---	---	1.5	12.0	---	---	---	27.0	---
3	---	8.0	---	---	---	---	---	12.5	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	11.0	16.0	---	---	---	---
6	16.0	---	---	---	---	---	---	---	---	23.0	24.5	---
7	---	5.5	---	---	---	---	---	---	22.5	---	---	22.0
8	---	---	---	---	---	4.5	12.5	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	22.0	---	21.5
10	18.0	5.7	---	---	---	---	---	19.5	22.0	---	23.0	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	1.0	---	---	---	---	---	26.0	---	---
13	---	---	---	---	---	---	10.5	20.0	---	---	22.0	22.5
14	16.0	6.0	---	---	---	---	---	---	24.0	---	---	---
15	---	---	1.0	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	13.0	---	---	27.0	21.0	21.0
17	14.0	7.5	---	---	---	---	---	16.5	23.0	---	---	---
18	---	---	---	---	1.5	6.5	---	---	---	---	---	---
19	---	---	---	---	---	---	16.0	---	---	27.0	---	---
20	---	---	---	---	---	---	---	---	---	---	22.5	21.0
21	15.5	7.2	---	---	---	---	---	18.5	22.0	---	---	---
22	---	---	2.0	---	---	7.0	---	---	---	28.0	---	---
23	---	---	---	---	1.5	---	---	---	---	---	---	20.5
24	14.0	4.0	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	21.0	---	---	---
26	---	---	---	---	---	11.0	14.0	17.0	---	25.0	---	---
27	11.5	---	---	---	---	---	---	---	---	---	23.5	20.0
28	---	---	---	---	---	---	---	---	21.0	---	---	---
29	---	---	---	---	---	9.0	---	---	---	24.0	---	---
30	---	---	1.5	---	---	---	13.0	---	---	---	24.0	---
31	9.5	---	---	---	---	---	---	---	---	---	---	---

06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	396	29,700	213	16,400	80	2,970	59	2,520	101	4,410	564	24,500
2	438	33,000	225	17,900	73	2,680	62	2,680	114	5,400	857	38,600
3	464	35,100	184	14,800	65	2,390	65	2,760	122	5,780	906	43,800
4	489	37,000	210	16,900	57	2,080	62	2,460	111	4,770	881	44,400
5	515	39,100	213	16,900	49	1,770	55	2,180	99	4,060	790	40,800
6	522	39,500	193	15,200	41	1,470	55	1,910	97	4,300	614	28,400
7	436	32,900	175	13,600	41	1,440	67	2,570	98	4,080	430	18,900
8	339	25,600	162	12,600	42	1,490	87	3,580	99	3,920	263	11,000
9	241	18,700	160	12,600	57	2,120	131	5,740	104	4,330	202	7,870
10	157	12,300	165	12,900	56	1,990	129	5,540	112	4,840	164	5,860
11	173	13,600	188	14,800	44	1,490	128	5,470	115	4,900	140	4,850
12	188	14,800	305	24,200	47	1,790	121	5,290	108	4,400	117	3,880
13	144	11,000	357	28,000	51	2,080	112	4,910	102	3,840	109	3,530
14	139	10,700	608	47,500	54	2,310	101	4,130	106	4,350	136	4,800
15	139	10,600	556	43,800	56	2,440	84	3,330	110	4,420	140	5,050
16	138	10,400	446	35,100	54	2,350	68	2,530	105	3,910	139	5,020
17	138	10,400	370	29,200	55	2,290	71	2,670	99	3,690	122	4,220
18	139	10,400	425	33,300	96	4,280	82	3,250	97	3,580	107	3,690
19	191	14,600	358	25,000	105	4,520	92	3,540	116	4,350	110	3,760
20	285	21,900	274	16,400	95	3,740	94	3,710	129	4,740	122	4,640
21	353	27,200	196	10,700	117	4,520	93	3,880	120	4,190	144	6,670
22	293	22,500	163	7,800	95	3,460	93	3,860	123	4,380	167	8,470
23	217	16,600	143	5,980	81	2,920	112	5,110	128	4,610	192	10,500
24	148	11,300	123	4,640	67	2,390	135	6,590	112	3,770	193	10,600
25	134	10,300	108	3,980	62	2,240	114	5,080	93	3,000	182	10,300
26	133	10,100	95	3,510	65	2,400	89	4,050	96	2,980	171	10,500
27	143	11,000	83	3,090	96	3,990	65	2,600	109	3,450	167	10,600
28	208	16,200	81	2,980	108	4,640	54	1,740	201	7,000	164	10,800
29	167	12,800	81	2,940	80	3,420	65	2,500	372	14,100	160	10,500
30	187	14,300	81	3,010	57	2,400	76	3,170	---	---	153	9,850
31	203	15,600	---	---	57	2,400	88	3,730	---	---	145	8,710
TOTAL	---	599,200	---	495,730	---	82,470	---	113,080	---	135,550	---	415,070

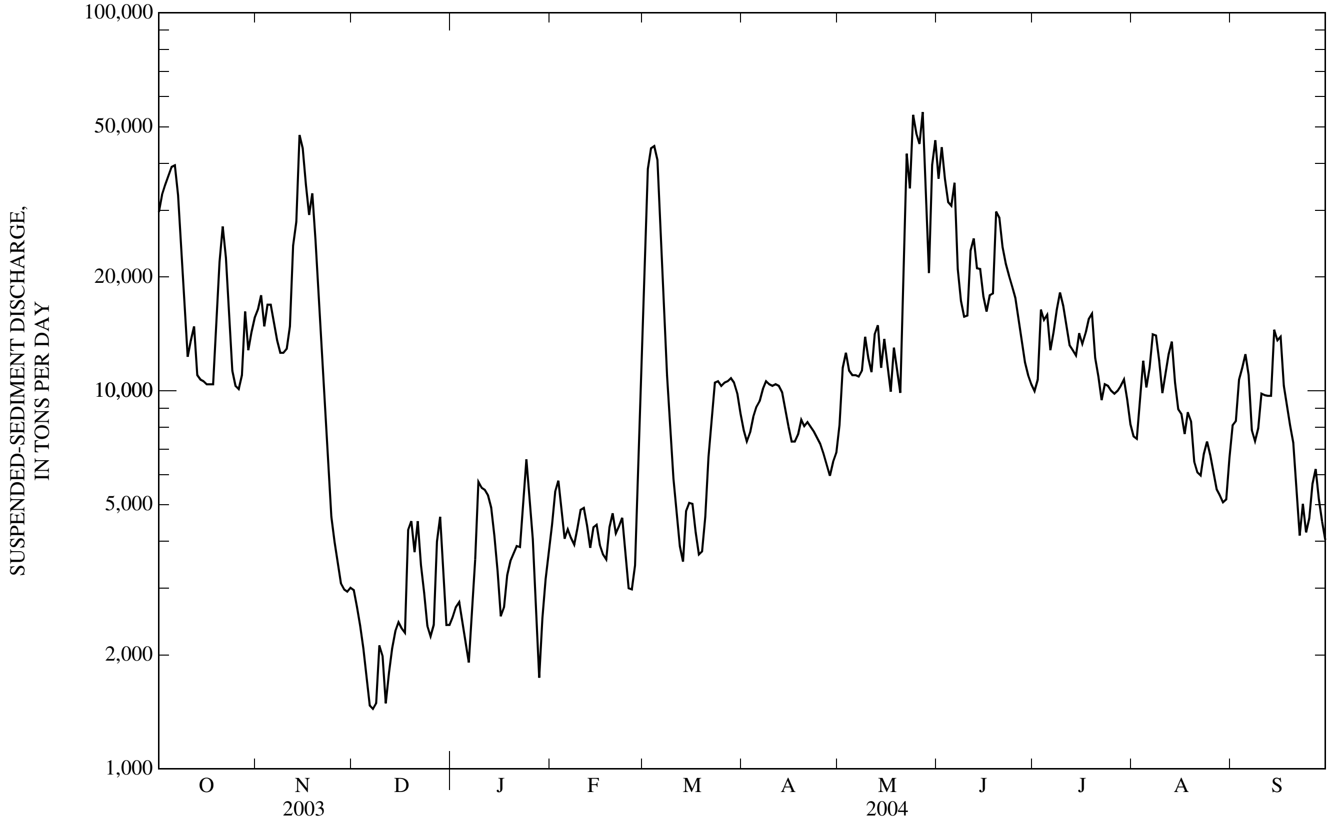
06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	138	7,870	124	8,120	400	36,400	125	9,990	105	7,570	112	8,100
2	132	7,340	157	11,500	435	44,100	132	10,700	103	7,460	113	8,310
3	140	7,740	165	12,600	371	36,300	190	16,400	132	9,560	143	10,700
4	149	8,520	149	11,300	333	31,600	181	15,400	164	12,000	152	11,500
5	159	9,070	146	11,000	308	30,900	185	15,900	140	10,200	164	12,500
6	163	9,390	145	11,000	347	35,500	150	12,800	156	11,500	144	11,000
7	167	10,100	145	10,900	211	21,000	163	14,300	186	14,100	105	7,870
8	170	10,600	149	11,300	177	17,300	184	16,400	183	14,000	98	7,360
9	168	10,400	168	13,900	164	15,700	198	18,200	158	12,000	103	7,960
10	166	10,300	148	12,200	168	15,800	186	16,800	131	9,860	127	9,820
11	163	10,400	141	11,200	249	23,500	170	14,800	146	11,000	125	9,740
12	161	10,300	171	14,100	272	25,300	156	13,200	168	12,500	124	9,700
13	156	9,920	185	14,900	229	21,100	153	12,800	182	13,500	124	9,700
14	142	8,950	154	11,500	224	21,000	150	12,400	143	10,500	168	14,500
15	127	8,040	167	13,700	191	17,800	173	14,200	123	8,940	151	13,600
16	114	7,340	152	11,800	172	16,200	168	13,300	119	8,680	153	13,900
17	114	7,340	135	9,950	193	17,900	182	14,200	106	7,680	121	10,300
18	117	7,660	158	13,000	196	18,100	202	15,500	119	8,770	115	9,130
19	124	8,380	147	11,300	308	29,800	209	16,000	114	8,310	109	8,100
20	121	8,060	137	9,870	298	28,700	160	12,200	90	6,500	102	7,280
21	120	8,260	227	19,500	259	24,000	143	10,900	85	6,080	81	5,630
22	117	8,020	460	42,400	245	21,700	124	9,450	83	5,970	63	4,140
23	113	7,800	392	34,300	234	20,200	139	10,400	94	6,810	75	5,020
24	110	7,510	554	53,700	224	18,900	140	10,300	100	7,340	63	4,220
25	106	7,230	517	48,000	211	17,600	136	10,000	92	6,760	69	4,600
26	102	6,820	543	45,000	190	15,500	133	9,820	84	6,100	85	5,670
27	101	6,370	598	54,600	168	13,600	136	10,000	76	5,490	96	6,210
28	101	5,960	394	33,600	148	11,900	140	10,300	73	5,290	82	5,160
29	106	6,480	261	20,500	138	11,000	146	10,700	70	5,070	72	4,510
30	111	6,850	408	39,600	130	10,400	130	9,480	71	5,160	65	4,030
31	---	---	473	46,000	---	---	113	8,160	92	6,640	---	---
TOTAL	---	249,020	---	672,340	---	668,800	---	395,000	---	271,340	---	250,260

YEAR 4,347,860

06486000 MISSOURI RIVER AT SIOUX CITY, IA—Continued



06600000 PERRY CREEK AT 38th STREET, SIOUX CITY, IA

LOCATION.--(revised) Lat 42°32'06", long 96°24'38", in SE$\frac{1}{4}$ SE$\frac{1}{4}$ sec.8, T.89 N., R.47 W., Woodbury County, Hydrologic Unit 10230001, on left bank at downstream side of bridge on 38th Street in Sioux City, 1.9 mi downstream from West Branch, and 4.2 mi. upstream from mouth.

DRAINAGE AREA.--65.1 mi^2.

PERIOD OF RECORD.--October 1945 to September 1969, June 1981 to current year.

REVISED RECORDS.--WSP 1440: Drainage area. WDR IA-95-1: River mile.

GAGE.--Water-stage recorder. Datum of gage is 1,112.04 ft above NGVD of 1929 (City of Sioux City benchmark). Prior to May 20, 1954, nonrecording gage with supplementary water-stage recorder in operation above 5.0 ft gage height and May 20, 1954 to Sept. 30, 1969, water-stage recorder at present site at datum 5.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 7, 1944 reached a stage of about 30.5 ft from floodmarks, present datum, discharge, 9,600 ft^3/s, on basis of contracted-opening measurement of peak flow by U.S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	15	6.3	e7.3	8.1	389	3.6	3.0	11	3.2	18	16
2	6.3	15	6.9	e6.4	e7.4	46	3.2	3.2	8.5	48	18	15
3	6.7	14	7.6	e5.2	e4.0	9.7	2.8	3.2	7.2	113	18	15
4	7.1	11	7.2	e4.2	e7.1	7.2	2.8	3.2	6.5	11	19	15
5	7.2	8.9	6.8	e3.1	8.5	387	2.9	2.6	8.0	20	18	25
6	7.1	7.6	7.1	e3.6	8.7	29	2.6	2.1	6.8	28	16	23
7	6.9	7.9	7.7	e4.7	e7.3	11	2.4	1.8	6.2	8.7	16	18
8	7.1	7.4	7.9	e7.3	e4.9	8.1	2.1	2.0	10	7.1	16	18
9	8.5	8.3	7.4	e6.9	e8.3	7.4	2.1	13	10	6.5	16	19
10	8.1	8.6	6.0	e5.9	e9.0	5.7	2.1	3.9	17	5.8	15	20
11	11	7.7	e5.1	e7.0	9.1	4.5	2.0	2.4	35	5.4	16	20
12	7.4	7.1	e4.2	e6.1	e7.2	4.4	1.9	2.2	7.7	4.9	17	21
13	6.0	6.4	e5.7	e5.6	e6.5	4.5	1.9	2.7	5.8	4.1	17	23
14	6.1	6.0	7.4	e5.3	e6.5	3.7	1.8	2.3	5.5	3.3	17	122
15	6.0	7.2	7.7	e5.2	e4.5	3.8	1.7	2.1	4.7	3.3	17	183
16	6.1	5.9	7.1	e6.1	e6.5	4.1	1.6	2.7	220	3.2	17	52
17	6.4	6.4	6.6	e5.5	e6.6	4.6	1.4	6.0	44	3.0	17	36
18	6.8	6.5	7.5	e3.8	8.7	5.0	4.4	3.4	12	2.9	27	31
19	7.0	6.2	7.3	e3.0	8.5	5.7	8.3	2.5	9.3	2.8	19	28
20	7.6	6.6	7.4	e5.4	8.9	7.1	3.7	9.6	8.7	2.7	17	25
21	8.6	6.5	7.9	e5.9	9.5	4.2	3.6	157	7.6	2.7	17	30
22	10	7.1	8.1	e5.2	12	3.5	2.8	441	5.9	2.5	17	38
23	9.9	e4.7	e7.0	e6.5	15	3.3	2.4	343	5.2	2.2	37	30
24	10	e3.3	e5.9	7.1	14	3.1	3.4	78	7.3	2.1	19	28
25	11	7.2	e6.9	6.3	12	3.0	11	54	5.5	2.1	16	25
26	11	7.4	8.4	e4.3	12	4.5	5.7	12	4.6	2.1	16	25
27	13	7.2	e9.2	e2.8	39	10	4.1	9.2	4.4	2.3	15	25
28	13	6.2	e9.3	e3.0	174	12	3.6	9.0	4.1	3.4	15	25
29	14	6.8	e8.3	e3.4	253	6.2	3.0	15	3.7	2.5	16	25
30	15	6.9	e7.0	e4.0	---	4.6	2.9	53	3.4	2.0	16	25
31	16	---	e5.6	e6.2	---	4.0	---	32	---	1.9	16	---
TOTAL	272.2	233.0	220.5	162.3	686.8	1,005.9	97.8	1,277.1	495.6	312.7	551	1,001
MEAN	8.78	7.77	7.11	5.24	23.7	32.4	3.26	41.2	16.5	10.1	17.8	33.4
MAX	16	15	9.3	7.3	253	389	11	441	220	113	37	183
MIN	5.3	3.3	4.2	2.8	4.0	3.0	1.4	1.8	3.4	1.9	15	15
AC-FT	540	462	437	322	1,360	2,000	194	2,530	983	620	1,090	1,990
CFSM	0.13	0.12	0.11	0.08	0.36	0.50	0.05	0.63	0.25	0.15	0.27	0.51
IN.	0.16	0.13	0.13	0.09	0.39	0.57	0.06	0.73	0.28	0.18	0.31	0.57

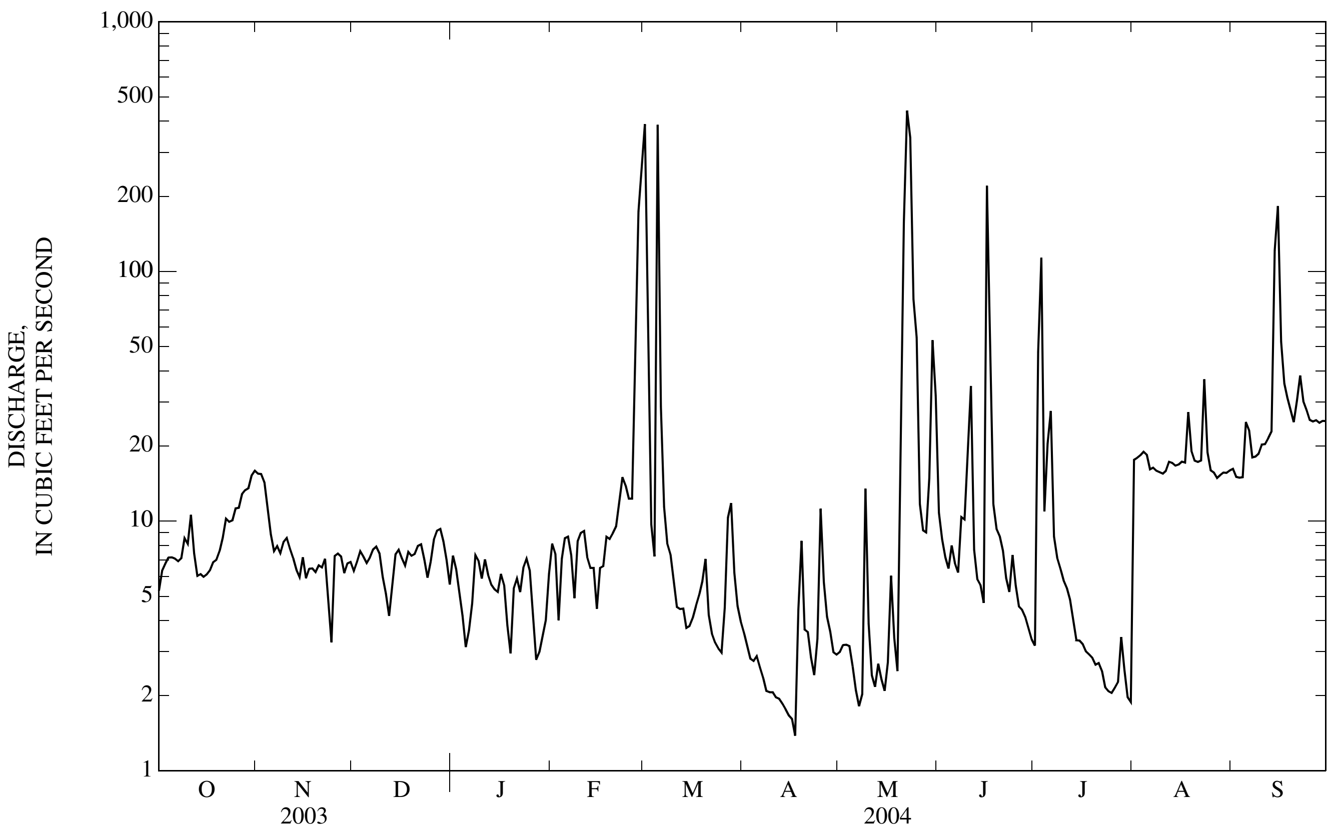
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.62	8.74	7.16	7.41	20.1	43.5	25.2	25.2	31.2	22.0	13.9	13.2
MAX	29.5	31.9	22.6	47.5	78.4	188	123	140	125	99.6	85.5	147
(WY)	(1993)	(1997)	(1999)	(1952)	(1948)	(1962)	(1985)	(1990)	(1984)	(1952)	(1951)	(1949)
MIN	0.38	0.81	0.48	0.33	1.31	2.62	2.30	2.91	0.94	0.35	0.30	0.08
(WY)	(1959)	(1982)	(1959)	(1982)	(1959)	(1964)	(1959)	(1968)	(1956)	(1946)	(1965)	(1958)

06600000 PERRY CREEK AT 38th STREET, SIOUX CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004	
ANNUAL TOTAL	6,166.1		6,315.9			
ANNUAL MEAN	16.9		17.3		18.9	
HIGHEST ANNUAL MEAN					38.6	1984
LOWEST ANNUAL MEAN					2.38	1968
HIGHEST DAILY MEAN	390	Feb 20	441	May 22	2,260	May 19, 1990
LOWEST DAILY MEAN	2.7	Jan 23	1.4	Apr 17	0.00	Jul 14, 1946a
ANNUAL SEVEN-DAY MINIMUM	4.2	Sep 20	1.8	Apr 11	0.00	Sep 24, 1958
MAXIMUM PEAK FLOW			1,890	May 22	8,670	May 19, 1990b
MAXIMUM PEAK STAGE			14.18	May 22	28.54	May 19, 1990
ANNUAL RUNOFF (AC-FT)	12,230		12,530		13,700	
ANNUAL RUNOFF (CFSM)	0.259		0.265		0.290	
ANNUAL RUNOFF (INCHES)	3.52		3.61		3.95	
10 PERCENT EXCEEDS	25		25		32	
50 PERCENT EXCEEDS	9.4		7.1		7.5	
90 PERCENT EXCEEDS	6.1		2.8		1.0	

a Many days 1946, 1958-1960.
b From rating curve extened above 1,700 ft^3/s on basis of slope-area measurements of peak flow.
e Estimated.



06600100 FLOYD RIVER AT ALTON, IA

LOCATION.--Lat 42°58'55", long 96°00'03", in NE¼ NE¼ sec.11, T.94 N., R.44 W., Sioux County, Hydrologic Unit 10230002, on right bank, 15 ft downstream from road on South County Road at east edge of Alton, 34.3 mi upstream from West Branch Floyd River, and at mile 58.1.

DRAINAGE AREA.--268 mi^2.

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

REVISED RECORDS.--WDR IA-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,269.55 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a discharge of about 45,500 ft^3/s, from information by U. S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	6.8	4.0	e6.4	e10	e453	82	89	305	49	61	9.8
2	5.9	8.1	4.4	e5.9	e11	e854	72	83	262	48	80	9.1
3	6.4	10	3.6	e4.6	e3.5	e595	63	77	232	68	69	7.4
4	6.9	10	3.8	e3.8	e8.2	341	59	74	215	152	72	6.8
5	6.8	10	3.4	e2.5	e9.7	459	55	68	201	185	71	7.8
6	6.7	9.1	3.7	e2.8	e10	550	53	65	184	300	59	14
7	6.1	8.3	3.4	e3.4	e7.4	336	48	58	169	395	48	13
8	6.4	8.0	13	e6.2	e4.3	194	44	62	156	277	41	8.7
9	7.6	9.7	9.3	e5.7	e11	150	41	61	162	226	36	7.1
10	7.3	13	e7.8	e4.7	e13	117	39	57	152	191	32	6.4
11	10	12	e3.8	e5.3	e14	92	37	52	162	163	27	5.6
12	11	10	e2.5	e4.0	e11	93	36	51	155	140	24	5.6
13	11	8.3	e3.1	e4.0	e12	89	33	49	142	185	21	5.9
14	8.1	8.3	e4.4	e3.7	e10	67	32	47	132	317	18	73
15	7.5	8.0	e4.9	e2.8	e5.3	60	31	44	114	257	18	459
16	6.8	7.6	e3.6	e4.0	e11	55	32	43	109	198	17	658
17	6.6	8.1	e2.9	e3.8	e10	54	30	50	104	162	15	711
18	6.7	8.2	e6.2	e2.6	e13	53	30	47	99	134	15	935
19	7.1	7.6	e4.4	e2.0	e20	53	37	42	92	116	13	794
20	7.0	6.7	e4.9	e6.3	e17	54	48	43	90	103	12	532
21	7.4	6.4	e7.0	e7.7	e12	49	69	83	87	103	11	425
22	7.3	5.8	e6.5	e5.7	e15	46	103	178	80	88	10	692
23	7.4	4.5	e5.1	e9.5	e8.3	45	78	411	73	78	12	865
24	7.4	e2.8	e4.2	e7.4	e7.1	44	70	636	68	70	13	772
25	7.9	4.6	e4.6	e7.1	e6.4	42	142	481	66	64	23	584
26	7.6	5.4	e5.7	e5.1	e5.6	39	172	364	62	60	16	429
27	8.1	5.1	e7.2	e2.0	e14	59	162	302	59	57	12	356
28	8.9	4.2	e6.7	e2.0	e29	96	136	256	59	54	11	309
29	9.5	4.1	e5.4	e2.5	e119	120	115	310	56	52	10	274
30	6.1	4.2	e4.9	e3.2	---	111	98	375	52	49	9.6	250
31	6.0	---	e3.9	e5.7	---	95	---	364	---	47	9.6	---
TOTAL	231.4	224.9	158.3	142.4	427.8	5,465	2,047	4,922	3,899	4,388	886.2	9,225.2
MEAN	7.46	7.50	5.11	4.59	14.8	176	68.2	159	130	142	28.6	308
MAX	11	13	13	9.5	119	854	172	636	305	395	80	935
MIN	5.9	2.8	2.5	2.0	3.5	39	30	42	52	47	9.6	5.6
AC-FT	459	446	314	282	849	10,840	4,060	9,760	7,730	8,700	1,760	18,300
CFSM	0.03	0.03	0.02	0.02	0.06	0.66	0.25	0.59	0.48	0.53	0.11	1.15
IN.	0.03	0.03	0.02	0.02	0.06	0.76	0.28	0.68	0.54	0.61	0.12	1.28

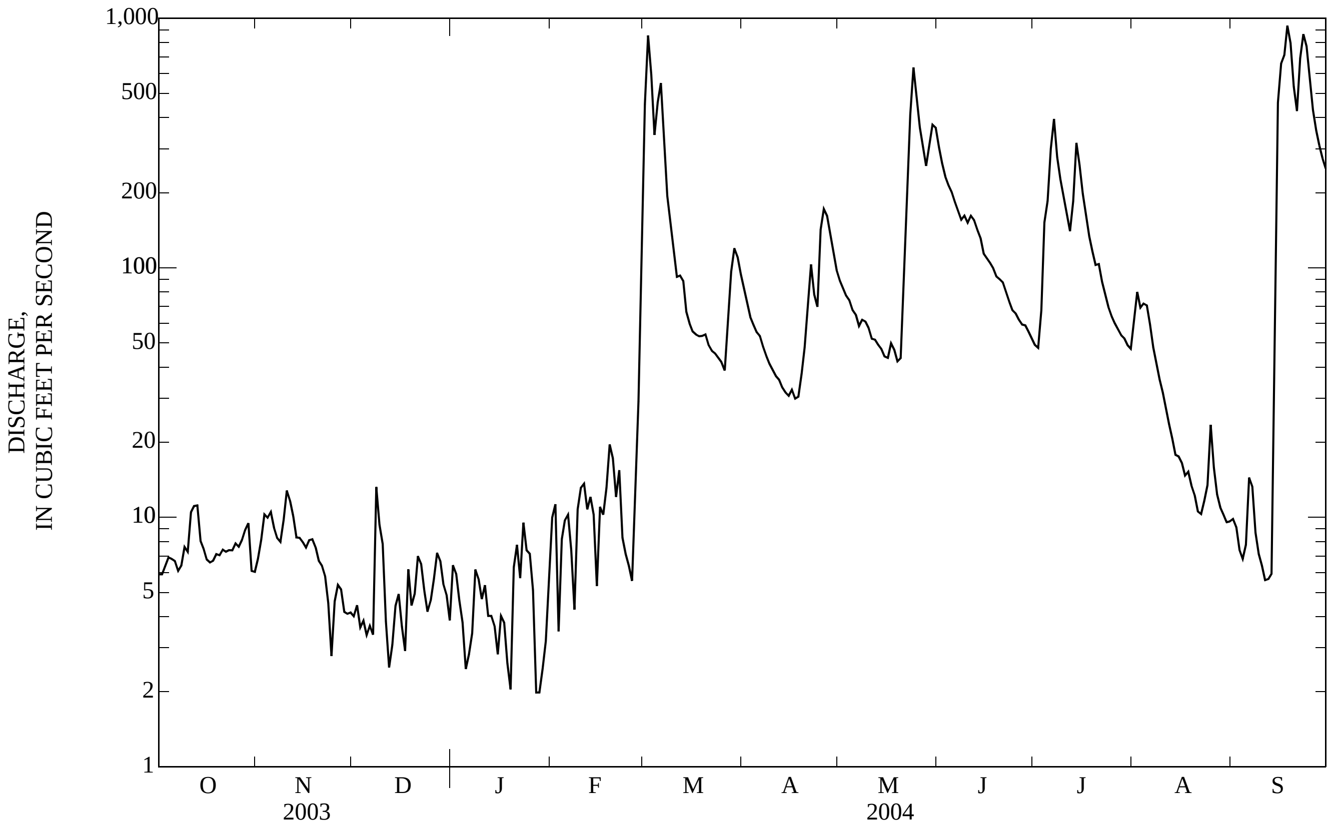
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	40.1	39.9	26.4	17.8	43.1	166	178	122	178	93.7	43.2	34.9
MAX	234	287	128	109	252	605	906	454	973	878	369	308
(WY)	(1993)	(1980)	(1983)	(1973)	(1971)	(1979)	(1969)	(1995)	(1984)	(1993)	(1995)	(2004)
MIN	0.06	0.30	0.07	0.05	0.15	1.77	3.67	2.92	2.36	3.29	0.37	0.08
(WY)	(1957)	(1959)	(1959)	(1959)	(1977)	(1959)	(1959)	(1968)	(1968)	(1958)	(1968)	(1958)

06600100 FLOYD RIVER AT ALTON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1956 - 2004	
ANNUAL TOTAL	17,410.9		32,017.2			
ANNUAL MEAN	47.7		87.5		81.9	
HIGHEST ANNUAL MEAN					323	1993
LOWEST ANNUAL MEAN					2.66	1968
HIGHEST DAILY MEAN	1,290	Jul 10	935	Sep 18	7,160	Apr 4, 1969
LOWEST DAILY MEAN	1.7	Jan 26	2.0	Jan 19 ab	0.00	Oct 14, 1956 c
ANNUAL SEVEN-DAY MINIMUM	2.8	Jan 23	3.3	Jan 13	0.00	Oct 27, 1956
MAXIMUM PEAK FLOW			1,280	Sep 17	16,300	Jun 20, 1983 d
MAXIMUM PEAK STAGE			12.27	Mar 2 b	18.54	Jun 20, 1983 f
ANNUAL RUNOFF (AC-FT)	34,530		63,510		59,350	
ANNUAL RUNOFF (CFSM)	0.178		0.326		0.306	
ANNUAL RUNOFF (INCHES)	2.42		4.44		4.15	
10 PERCENT EXCEEDS	115		258		190	
50 PERCENT EXCEEDS	11		26		21	
90 PERCENT EXCEEDS	4.6		4.4		1.5	

a Also Jan. 27, 28.
b Ice affected.
c No flow at times in 1956, 1958-59, 1965, 1968, 1977.
d From rating curve extended above 8,500 ft^3/s.
f From floodmark.
e Estimated.



06600500 FLOYD RIVER AT JAMES, IA

LOCATION.--Lat 42°34'36", long 96°18'40"(revised), in SE¼ SE¼ sec.30, T.90 N., R.46 W., Plymouth County, Hydrologic Unit 10230002, on left bank at upstream side of bridge on county highway C70, 0.2 mi east of James, 14.3 mi downstream from West Branch Floyd River, and at mile 7.5.

DRAINAGE AREA.--886 mi^2.

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

REVISED RECORDS.--WSP 1240: 1935 (M), 1936, 1937-38 (M), 1942, 1945. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,092.59 ft above NGVD of 1929. Prior to Sept. 11, 1938, June 9 to Nov. 5, 1953, and Oct. 1, 1955, to May 22, 1957, nonrecording gage and May 23, 1957, to Sept. 30, 1970, water-stage recorder at same site at datum 10.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage and discharge since 1892, that of June 8, 1953, from information by U. S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	58	e65	e82	e52	e1,990	310	372	1,320	343	242	119
2	59	58	e69	e79	e51	e1,800	285	354	1,090	348	236	113
3	61	69	e67	e72	e38	e1,270	263	336	964	1,290	239	110
4	59	75	e67	e60	e40	892	241	322	878	937	225	107
5	58	70	e62	e48	e42	1,620	232	310	825	676	211	110
6	58	65	e60	e47	e43	1,620	220	295	781	1,250	213	126
7	59	65	e67	e53	e38	1,030	211	278	724	1,230	205	120
8	58	63	e71	e61	e35	749	199	264	671	1,060	196	112
9	57	67	e64	e52	e44	580	190	335	694	876	188	108
10	57	74	e57	e51	e53	501	186	300	707	768	178	103
11	63	72	e48	e60	e54	423	179	277	712	713	171	99
12	69	69	e46	e55	e45	339	173	255	675	653	169	96
13	64	64	e54	e56	e49	329	169	247	605	618	165	94
14	62	65	e67	e52	e43	319	164	236	573	650	159	282
15	60	67	e71	e48	e38	286	160	225	556	734	155	2,890
16	60	65	e66	e58	e51	266	157	223	781	659	152	3,030
17	61	66	e60	e53	e51	246	155	248	684	577	148	1,590
18	60	67	e74	e43	e57	241	160	252	554	528	160	1,820
19	59	67	e69	e37	e64	239	196	235	519	492	155	1,750
20	59	65	e71	e46	e62	247	192	286	498	462	143	1,340
21	59	62	e88	e57	e56	229	243	964	485	440	136	1,110
22	58	62	e86	e43	e65	218	294	3,440	464	418	135	1,210
23	58	e63	e80	e64	e63	209	297	3,870	441	385	226	1,460
24	58	e49	e77	e55	e61	204	277	2,720	438	355	180	1,470
25	56	e64	e87	e56	e57	197	430	2,080	414	333	144	1,310
26	56	e61	e102	e50	e55	212	583	1,520	393	317	138	1,110
27	59	e63	e112	e47	e75	223	541	1,270	384	300	136	950
28	61	e60	e101	e42	e233	318	499	1,090	377	292	129	835
29	60	e61	e88	e43	e861	389	450	1,150	368	284	125	752
30	59	e67	e79	e44	---	365	404	2,100	359	267	126	695
31	59	---	e74	e49	---	336	---	1,780	---	254	123	---
TOTAL	1,845	1,943	2,249	1,663	2,476	17,887	8,060	27,634	18,934	18,509	5,308	25,021
MEAN	59.5	64.8	72.5	53.6	85.4	577	269	891	631	597	171	834
MAX	69	75	112	82	861	1,990	583	3,870	1,320	1,290	242	3,030
MIN	56	49	46	37	35	197	155	223	359	254	123	94
MED	59	65	69	52	52	329	226	322	589	528	160	724
AC-FT	3,660	3,850	4,460	3,300	4,910	35,480	15,990	54,810	37,560	36,710	10,530	49,630
CFSM	0.07	0.07	0.08	0.06	0.10	0.65	0.30	1.01	0.71	0.67	0.19	0.94
IN.	0.08	0.08	0.09	0.07	0.10	0.75	0.34	1.16	0.79	0.78	0.22	1.05

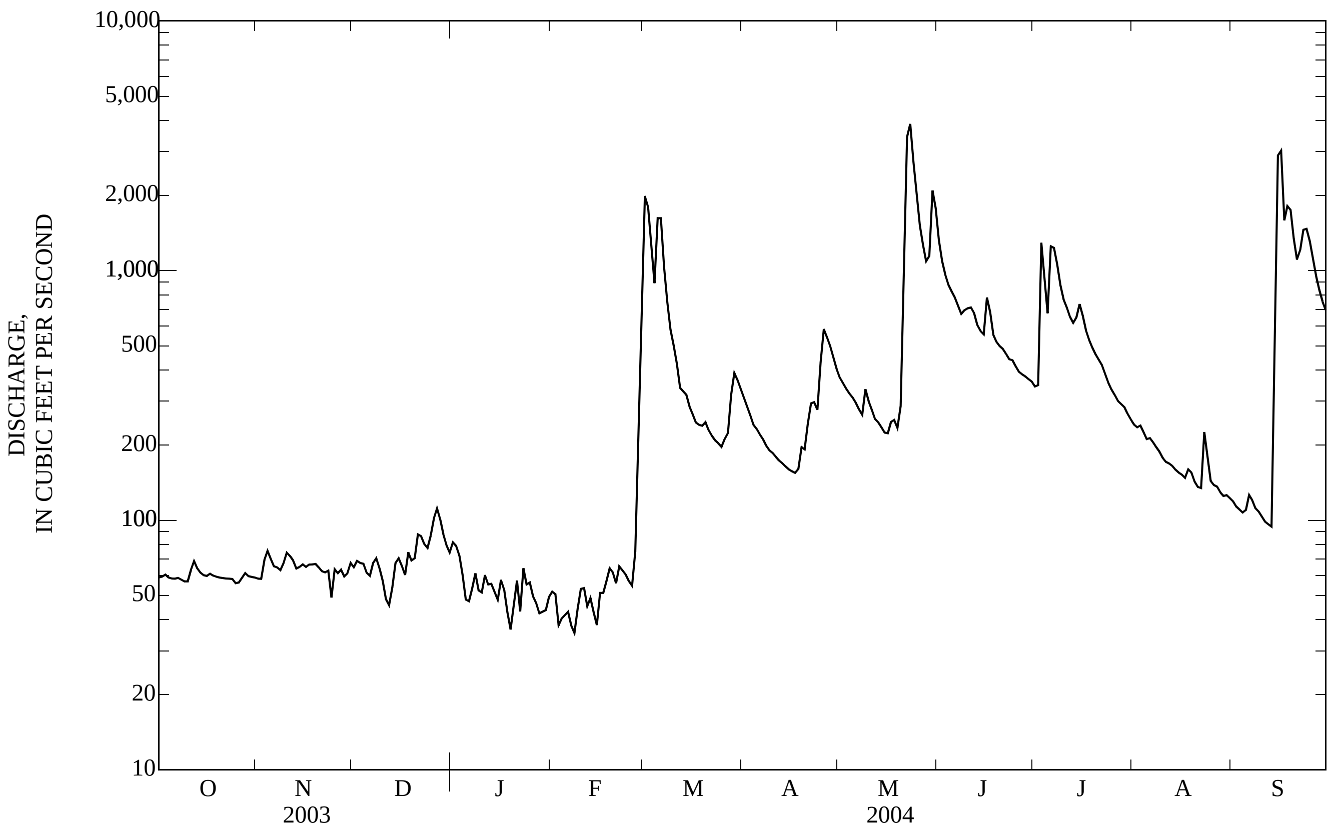
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	111	109	82.6	59.9	166	528	442	345	526	314	164	145
MAX	617	804	366	359	970	2,080	2,715	1,393	2,897	2,196	1,151	1,353
(WY)	(1993)	(1980)	(1980)	(1973)	(1952)	(1979)	(1969)	(1984)	(1984)	(1993)	(1951)	(1951)
MIN	4.55	4.54	3.05	1.13	1.62	21.5	18.7	15.1	14.4	7.32	6.12	3.40
(WY)	(1959)	(1959)	(1959)	(1977)	(1959)	(1964)	(1959)	(1968)	(1968)	(1936)	(1958)	(1958)

06600500 FLOYD RIVER AT JAMES, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1936 - 2004	
ANNUAL TOTAL	74,691		131,529			
ANNUAL MEAN	205		359		249	
HIGHEST ANNUAL MEAN					958	1983
LOWEST ANNUAL MEAN					19.9	1956
HIGHEST DAILY MEAN	2,730	Jul 10	3,870	May 23	32,400	Jun 8, 1953
LOWEST DAILY MEAN	29	Mar 5	35	Feb 8 a	0.90	Jan 10, 1977 b
ANNUAL SEVEN-DAY MINIMUM	40	Mar 4	40	Feb 3	0.90	Jan 10, 1977
MAXIMUM PEAK FLOW			5,190	May 23	71,500	Jun 8, 1953 c
MAXIMUM PEAK STAGE			18.37	May 23	35.30	Jun 8, 1953 d
ANNUAL RUNOFF (AC-FT)	148,100		260,900		180,700	
ANNUAL RUNOFF (CFSM)	0.231		0.406		0.282	
ANNUAL RUNOFF (INCHES)	3.14		5.52		3.83	
10 PERCENT EXCEEDS	464		954		550	
50 PERCENT EXCEEDS	93		162		86	
90 PERCENT EXCEEDS	57		53		13	

a Ice affected.
b Also Jan. 11-22, 1977.
c From rating curve extended above 16,000 ft^3/s on basis of contracted opening and flow-over-embankment measurement of peak flow.
d From floodmarks, current datum.
e Estimated.



06601200 MISSOURI RIVER AT DECATUR, NE

LOCATION.--Lat 42°00'26", long 96°14'29", in NE$\frac{1}{4}$ SW$\frac{1}{4}$ sec.36, T.24 N., R.10 E., Burt County, Hydrologic Unit 10230001, on right bank 0.1 mi upstream from Iowa Highway 175 bridge at Decatur, and at mile 691.0.

DRAINAGE AREA.--316,200 mi^2, approximately. The 3,959 mi^2 in Great Divide basin are not included.

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,010.00 ft above NGVD of 1929, supplementary adjustment of 1954.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28,300	29,200	14,800	16,000	16,500	17,600	22,900	25,100	34,800	30,100	27,200	27,100
2	28,600	29,900	14,700	16,100	17,400	20,200	22,300	27,000	35,700	30,400	27,200	27,200
3	28,700	30,600	14,700	16,200	18,100	20,200	22,000	29,300	39,000	32,200	27,400	27,800
4	28,800	30,800	14,700	15,800	17,700	20,900	22,100	29,300	36,500	33,800	27,500	28,000
5	28,700	30,500	14,600	15,100	16,400	21,200	22,500	29,000	37,200	33,100	27,700	28,400
6	28,800	30,100	14,400	14,300	16,400	20,900	22,400	29,000	39,800	32,900	27,500	28,900
7	28,800	29,800	14,200	14,300	17,100	18,300	22,800	28,700	38,700	33,600	28,000	28,400
8	28,700	29,500	14,300	14,900	16,200	17,300	23,900	28,500	37,600	34,300	28,600	28,300
9	29,200	29,600	14,400	16,200	15,700	16,000	24,000	29,500	37,000	34,900	28,400	28,400
10	29,800	29,700	14,700	16,300	16,700	e15,500	23,900	31,200	36,600	35,200	28,200	29,100
11	30,000	29,800	13,900	16,500	16,900	14,200	24,300	30,100	37,700	33,800	28,000	29,000
12	30,400	29,900	14,100	16,700	16,400	13,700	24,600	29,400	36,500	33,000	28,000	29,200
13	29,900	29,900	15,400	17,300	15,800	13,100	24,600	31,100	35,400	32,200	27,900	29,100
14	29,700	29,600	16,200	16,900	15,300	13,300	24,500	28,700	35,800	31,800	27,700	30,000
15	29,800	29,600	16,600	16,200	16,100	14,100	24,400	28,700	36,100	31,600	27,500	32,200
16	29,100	29,800	16,800	15,600	15,500	14,200	24,800	30,700	36,500	31,100	27,400	34,400
17	28,900	29,800	16,400	15,200	14,800	14,000	24,900	27,800	38,200	30,100	27,500	32,300
18	28,800	29,900	16,500	15,500	14,900	13,600	24,900	28,500	35,700	29,600	27,400	30,600
19	28,800	28,000	17,000	15,800	14,900	13,700	25,600	30,900	36,800	29,300	27,800	29,200
20	29,100	24,900	16,000	15,600	15,000	14,200	25,600	27,500	35,900	29,100	27,200	28,000
21	29,100	22,600	15,300	16,100	14,400	16,500	25,900	28,600	34,800	28,700	27,000	27,400
22	29,100	20,500	14,900	16,700	14,400	19,200	26,200	37,700	34,000	28,800	26,900	26,900
23	29,100	18,000	14,500	16,600	15,000	20,700	26,200	36,700	33,100	28,400	26,700	26,400
24	29,100	16,100	14,400	18,400	14,500	21,500	26,400	36,800	32,000	27,900	27,000	26,700
25	29,100	14,900	14,300	18,200	13,800	21,600	26,500	38,900	31,500	27,800	27,100	26,600
26	29,000	14,700	14,300	17,100	13,400	22,800	26,200	33,600	30,800	27,700	27,100	26,600
27	29,100	14,700	15,000	17,600	13,500	24,000	25,500	33,400	30,300	27,600	27,100	26,400
28	29,300	14,800	16,200	14,000	14,700	24,900	24,200	34,900	30,000	27,600	27,100	25,600
29	29,300	14,600	16,400	14,400	15,900	25,200	24,100	30,100	30,000	27,800	27,200	25,200
30	29,000	14,700	16,100	15,900	---	25,000	24,600	31,700	29,900	27,700	27,100	24,900
31	29,300	---	16,000	16,800	---	24,100	---	38,400	---	27,400	27,000	---
TOTAL	903,400	756,500	471,800	498,300	453,400	571,700	732,800	960,800	1,053,900	949,500	851,400	848,300
MEAN	29,140	25,220	15,220	16,070	15,630	18,440	24,430	30,990	35,130	30,630	27,460	28,280
MAX	30,400	30,800	17,000	18,400	18,100	25,200	26,500	38,900	39,800	35,200	28,600	34,400
MIN	28,300	14,600	13,900	14,000	13,400	13,100	22,000	25,100	29,900	27,400	26,700	24,900
AC-FT	1,792,000	1,501,000	935,800	988,400	899,300	1,134,000	1,454,000	1,906,000	2,090,000	1,883,000	1,689,000	1,683,000
CFSM	0.09	0.08	0.05	0.05	0.05	0.06	0.08	0.10	0.11	0.10	0.09	0.09
IN.	0.11	0.09	0.06	0.06	0.05	0.07	0.09	0.11	0.12	0.11	0.10	0.10

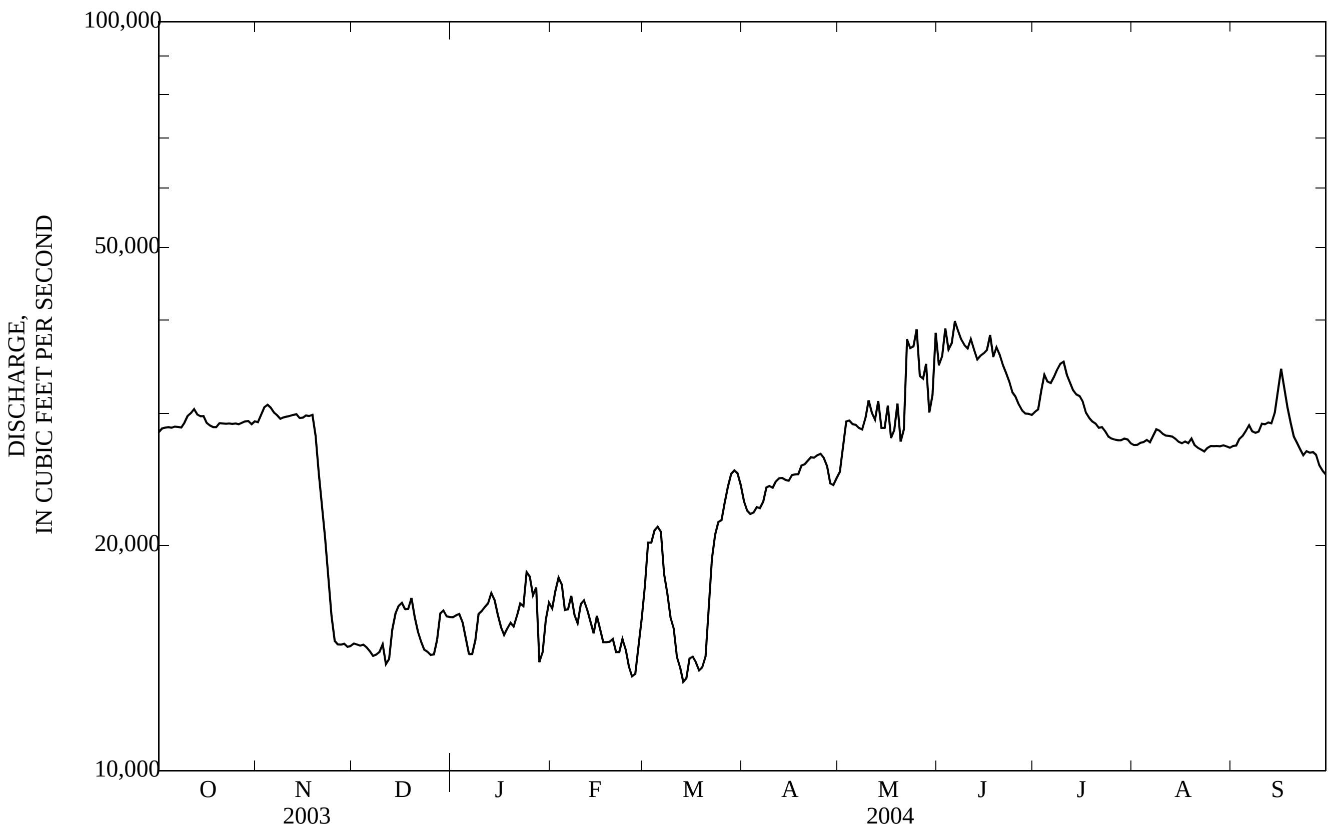
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	37,060	32,370	21,170	18,650	19,690	24,620	35,270	36,850	37,700	37,510	35,530	37,160
MAX	70,150	72,350	41,350	26,850	32,380	49,450	90,050	80,690	67,970	66,520	66,170	67,290
(WY)	(1998)	(1998)	(1998)	(1998)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)
MIN	24,250	10,470	12,070	12,360	12,210	11,580	24,410	26,080	27,010	26,620	25,680	26,750
(WY)	(1993)	(1991)	(1991)	(1990)	(1991)	(1991)	(1991)	(2002)	(2002)	(2002)	(2003)	(1993)

06601200 MISSOURI RIVER AT DECATUR, NE—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1988 - 2004	
ANNUAL TOTAL	8,865,300		9,051,800			
ANNUAL MEAN	24,290		24,730		31,170	
HIGHEST ANNUAL MEAN					57,440	1997
LOWEST ANNUAL MEAN					21,450	1991
HIGHEST DAILY MEAN	36,500	Sep 12	39,800	Jun 6	99,900	Apr 15, 1997
LOWEST DAILY MEAN	10,900	Feb 26	13,100	Mar 13	7,130	Dec 22, 1990
ANNUAL SEVEN-DAY MINIMUM	13,900	Mar 5	13,700	Mar 12	9,660	Dec 12, 1990
MAXIMUM PEAK FLOW			42,700	May 23	100,000	Apr 15, 1997
MAXIMUM PEAK STAGE			25.01	Jun 3	32.31	Jul 18, 1996
INSTANTANEOUS LOW FLOW			12,800	Jan 28 a		
ANNUAL RUNOFF (AC-FT)	17,580,000		17,950,000		22,580,000	
ANNUAL RUNOFF (CFSM)	0.077		0.078		0.099	
ANNUAL RUNOFF (INCHES)	1.04		1.06		1.34	
10 PERCENT EXCEEDS	30,500		33,500		50,000	
50 PERCENT EXCEEDS	27,000		27,100		29,500	
90 PERCENT EXCEEDS	14,700		14,700		14,800	

a Also March 14.
e Estimated.



06602020 WEST FORK DITCH AT HORNICK, IA

LOCATION.--Lat 42°13'37", long 96°04'40", in SW¼ SW¼ sec.27, T.86 N., R.45 W., Woodbury County, Hydrologic Unit 10230004, on left bank at upstream side of State Highway 141 bridge, 1.0 mi east of Hornick, 9.2 mi upstream from Wolf Creek, and 13.5 mi north of Onawa.

DRAINAGE AREA.--403 mi^2.

PERIOD OF RECORD.-- April 1939 to September 1969 (published as "Holly Springs"), July 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,045.82 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. West Fork ditch is a dredged channel which diverts flow of West Fork Little Sioux River at Hornick 5.5 mi south, then southeast 6.5 mi to a point 1.2 mi west of Kennebec, where Wolf Creek enters from left. From this point, ditch roughly parallels the Little Sioux River and is known as Monona-Harrison ditch. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/ WaterControl/ datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	45	e49	58	e49	1,160	128	161	462	246	132	84
2	50	45	53	56	e47	896	120	156	409	313	137	82
3	49	51	52	47	e37	342	113	151	377	1,190	135	79
4	49	59	47	e39	e39	202	108	145	351	749	127	77
5	48	55	e43	e25	e39	849	106	144	336	446	121	77
6	48	50	e45	e26	e40	1,070	102	136	332	590	116	107
7	47	48	50	e30	e37	397	100	131	312	513	112	101
8	47	45	e48	e40	e34	246	96	128	288	408	110	85
9	45	46	e47	e34	e46	197	94	381	426	364	104	81
10	46	53	e42	e32	e52	173	93	229	925	331	100	80
11	47	50	e40	e42	e55	148	93	164	981	313	98	75
12	52	47	e37	e40	e47	128	92	146	745	312	98	74
13	50	51	e42	e41	e48	128	90	144	458	284	97	74
14	48	58	e54	e39	e45	121	90	159	398	268	94	75
15	48	58	e57	e36	e40	118	87	132	360	253	92	563
16	48	58	e53	e44	e46	116	84	124	877	245	89	754
17	49	58	e50	e41	e46	111	82	120	1,620	229	87	370
18	48	58	e60	e33	e53	109	88	121	620	218	93	249
19	48	55	e52	e30	e56	117	91	115	489	209	99	231
20	46	55	e55	e38	e50	122	105	114	438	202	89	201
21	45	52	e68	e46	e44	120	144	221	424	195	85	191
22	45	52	e67	e38	e64	111	177	904	385	188	82	287
23	44	e49	e61	e51	e62	105	140	2,340	349	177	87	403
24	45	e42	e56	e48	e56	102	128	1,740	333	168	348	371
25	45	e48	e58	e48	e49	100	210	1,400	335	160	133	315
26	44	e44	e64	e46	e43	97	282	818	303	156	109	273
27	46	e45	68	e41	e63	108	247	596	289	151	99	250
28	47	e41	62	e37	e149	156	213	503	277	148	92	231
29	46	e43	e55	e37	561	184	192	502	265	152	89	212
30	45	e52	52	e39	---	161	172	716	254	145	107	202
31	44	---	50	e44	---	140	---	594	---	138	89	---
TOTAL	1,458	1,513	1,637	1,246	1,997	8,134	3,867	13,435	14,418	9,461	3,450	6,254
MEAN	47.0	50.4	52.8	40.2	68.9	262	129	433	481	305	111	208
MAX	52	59	68	58	561	1,160	282	2,340	1,620	1,190	348	754
MIN	44	41	37	25	34	97	82	114	254	138	82	74
AC-FT	2,890	3,000	3,250	2,470	3,960	16,130	7,670	26,650	28,600	18,770	6,840	12,400
CFSM	0.12	0.13	0.13	0.10	0.17	0.65	0.32	1.08	1.19	0.76	0.28	0.52
IN.	0.13	0.14	0.15	0.12	0.18	0.75	0.36	1.24	1.33	0.87	0.32	0.58

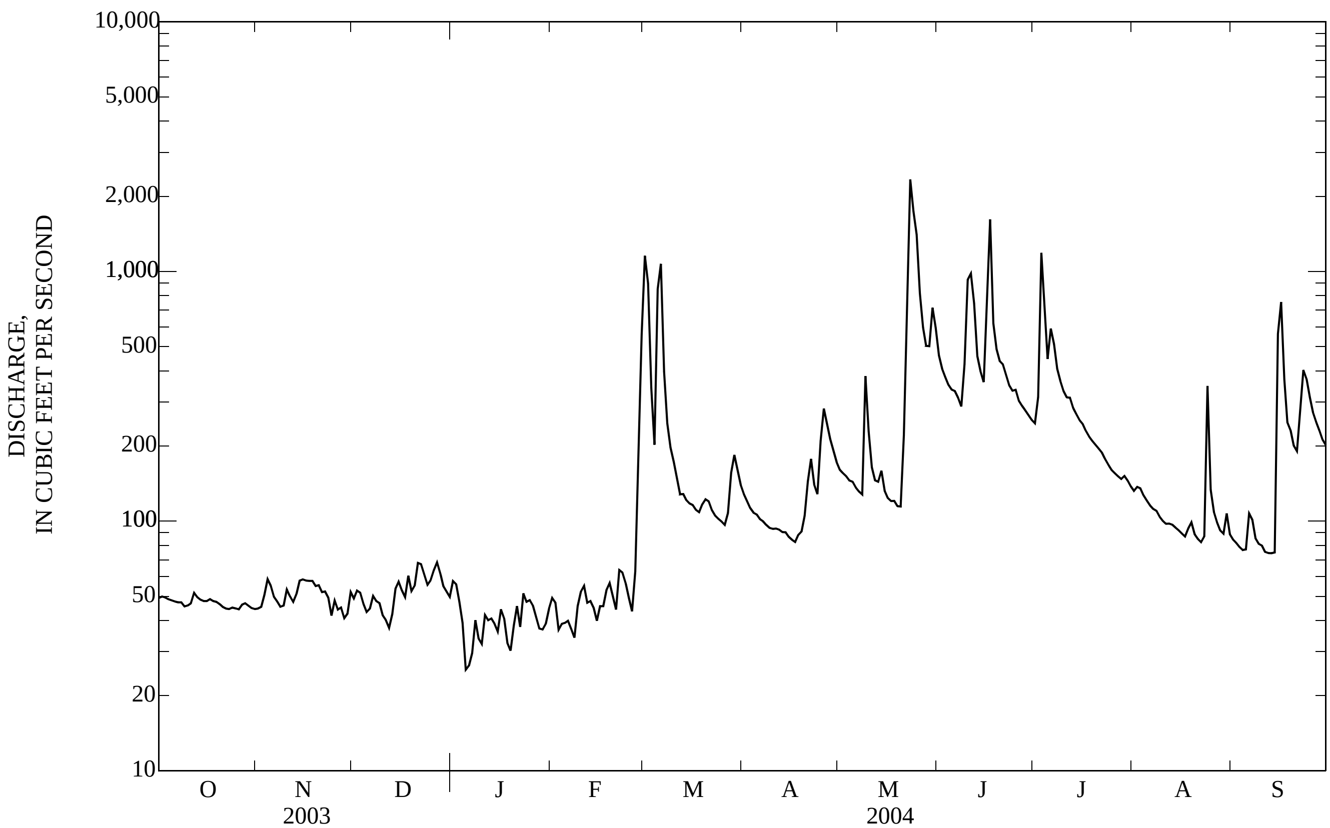
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	61.7	56.0	46.2	37.4	106	222	177	163	283	154	104	72.6
MAX	369	281	199	127	522	813	837	585	2,131	561	605	422
(WY)	(1993)	(1980)	(1985)	(1952)	(1994)	(1962)	(1969)	(1983)	(1984)	(1993)	(1951)	(1951)
MIN	2.08	4.06	2.60	2.26	2.41	8.41	9.80	11.5	7.71	11.5	2.92	2.23
(WY)	(1957)	(1959)	(1959)	(1959)	(1940)	(1957)	(1957)	(1943)	(1956)	(1956)	(1956)	(1956)

06602020 WEST FORK DITCH AT HORNICK, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1940 - 2004	
ANNUAL TOTAL	49,278		66,870			
ANNUAL MEAN	135		183		124	
HIGHEST ANNUAL MEAN					367	1984
LOWEST ANNUAL MEAN					9.28	1956
HIGHEST DAILY MEAN	1,500	Jun 24	2,340	May 23	9,000	Mar 28, 1962
LOWEST DAILY MEAN	23	Mar 9	25	Jan 5 a	0.20	Jul 30, 1956 b
ANNUAL SEVEN-DAY MINIMUM	38	Mar 5	32	Jan 4	0.53	Aug 23, 1956
MAXIMUM PEAK FLOW			3,210	May 23	12,400	Mar 28, 1962
MAXIMUM PEAK STAGE			18.97	May 23	25.87	Jun 22, 1996
ANNUAL RUNOFF (AC-FT)	97,740		132,600		89,570	
ANNUAL RUNOFF (CFSM)	0.335		0.453		0.307	
ANNUAL RUNOFF (INCHES)	4.55		6.17		4.17	
10 PERCENT EXCEEDS	294		404		250	
50 PERCENT EXCEEDS	74		94		50	
90 PERCENT EXCEEDS	45		43		11	

a Ice affected.
b Also Aug. 17, 1956.
e Estimated.



06602400 MONONA-HARRISON DITCH NEAR TURIN, IA

LOCATION.--Lat 41°57'52", long 95°59'30", in NW1/4 NE1/4 sec.32, T.83 N., R.44 W., Monona County, Hydrologic Unit 10230004, on left bank at upstream side of bridge on county highway E54, 1.0 mi west of gaging station on Little Sioux River near Turin, 4 mi southwest of Turin, 5.2 mi northeast of Blencoe, and 12.5 mi upstream from mouth.

DRAINAGE AREA.--900 mi^2.

PERIOD OF RECORD.--May 1942 to current year. Records for May 1942 to January 1958 not equivalent owing to diversion from Little Sioux River through equalizer ditch 1.5 mi upstream. Records prior to 1950 not equivalent owing to diversion to Little Sioux River through diversion ditch 10.2 mi upstream. REVISED RECORDS: WSP 1440: Drainage area. WSP 1560: Drainage area. WDR IA-95-1: Period of record.

GAGE.--Water-stage recorder. Datum of gage is 1,015.00 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). May 7, 1942 to Oct. 13, 1953, nonrecording gage and Oct. 14, 1953 to Sept. 30, 1975, recording gage at same site at datum 5.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Monona-Harrison ditch is a dug channel and is a continuation of West Fork ditch, paralleling the Little Sioux River, and discharging into the Missouri River 1.5 mi upstream from the mouth of the Little Sioux River.U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	93	e96	95	90	1,360	255	301	876	520	290	163
2	88	94	99	e94	90	1,570	243	289	725	525	274	160
3	92	102	96	87	e82	551	229	286	670	2,420	275	157
4	90	120	93	e81	e83	326	220	276	634	2,920	268	155
5	88	118	83	69	e85	706	217	270	609	1,970	256	157
6	89	105	91	e69	e87	1,910	211	257	610	1,620	246	170
7	89	100	92	e73	e85	666	206	247	592	1,170	238	181
8	88	92	100	80	e83	430	198	245	560	841	231	160
9	88	94	95	e77	e86	357	194	293	567	752	221	156
10	87	106	80	e77	91	316	189	483	833	683	211	156
11	90	104	e77	84	93	274	187	290	1,510	621	204	150
12	96	98	e74	e82	e88	242	186	272	1,710	593	200	147
13	96	94	e79	e81	e88	242	184	260	966	559	197	148
14	91	95	e88	e81	e86	237	183	286	720	525	192	146
15	90	96	e91	e78	e82	231	184	275	656	504	187	264
16	89	97	91	e87	88	225	180	268	734	488	183	674
17	89	98	86	e84	90	222	176	272	3,870	465	176	386
18	90	96	87	e75	92	223	184	273	2,010	445	173	277
19	90	95	e85	e66	94	239	193	265	1,370	427	187	254
20	91	94	e88	e71	94	269	212	258	1,080	413	176	241
21	92	91	93	74	96	256	235	277	986	398	167	232
22	90	90	e93	e67	100	229	285	840	870	387	165	286
23	91	89	e88	80	121	220	251	3,700	725	369	163	364
24	91	66	e82	e73	187	224	229	4,270	656	358	294	370
25	91	82	88	e71	175	214	591	3,600	651	353	212	349
26	90	e82	100	67	148	209	757	2,150	611	349	182	327
27	91	e83	112	e66	170	226	461	1,140	587	340	173	308
28	95	e77	118	e64	395	493	388	915	572	335	165	287
29	96	e83	e109	e66	820	402	348	806	552	333	164	278
30	93	e95	93	e74	---	317	318	923	536	322	182	266
31	92	---	e88	e81	---	276	---	1,020	---	304	177	---
TOTAL	2,810	2,829	2,835	2,374	3,969	13,662	7,894	25,307	28,048	22,309	6,429	7,369
MEAN	90.6	94.3	91.5	76.6	137	441	263	816	935	720	207	246
MAX	96	120	118	95	820	1,910	757	4,270	3,870	2,920	294	674
MIN	87	66	74	64	82	209	176	245	536	304	163	146
AC-FT	5,570	5,610	5,620	4,710	7,870	27,100	15,660	50,200	55,630	44,250	12,750	14,620
CFSM	0.10	0.10	0.10	0.09	0.15	0.49	0.29	0.91	1.04	0.80	0.23	0.27
IN.	0.12	0.12	0.12	0.10	0.16	0.56	0.33	1.05	1.16	0.92	0.27	0.30

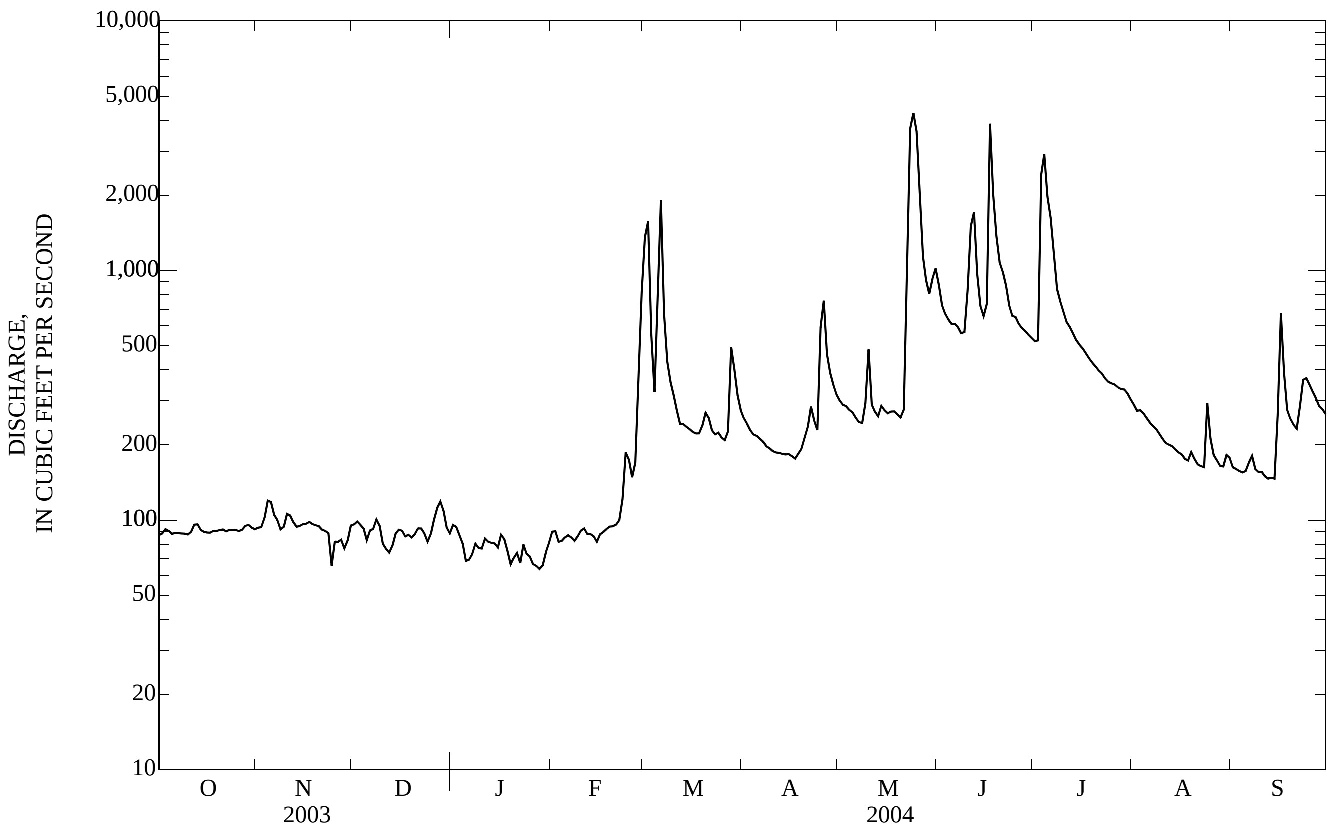
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	150	136	115	94.9	220	474	432	403	597	362	193	146
MAX	831	415	421	398	1,963	1,707	1,588	1,157	3,833	2,107	883	576
(WY)	(1993)	(1980)	(1985)	(1973)	(1971)	(1962)	(1965)	(1995)	(1984)	(1993)	(1996)	(1993)
MIN	16.0	18.0	11.4	10.5	13.9	46.9	41.1	43.7	71.8	46.1	30.6	30.8
(WY)	(1959)	(1959)	(1959)	(1959)	(1959)	(1968)	(1968)	(1968)	(1989)	(1976)	(1976)	(1981)

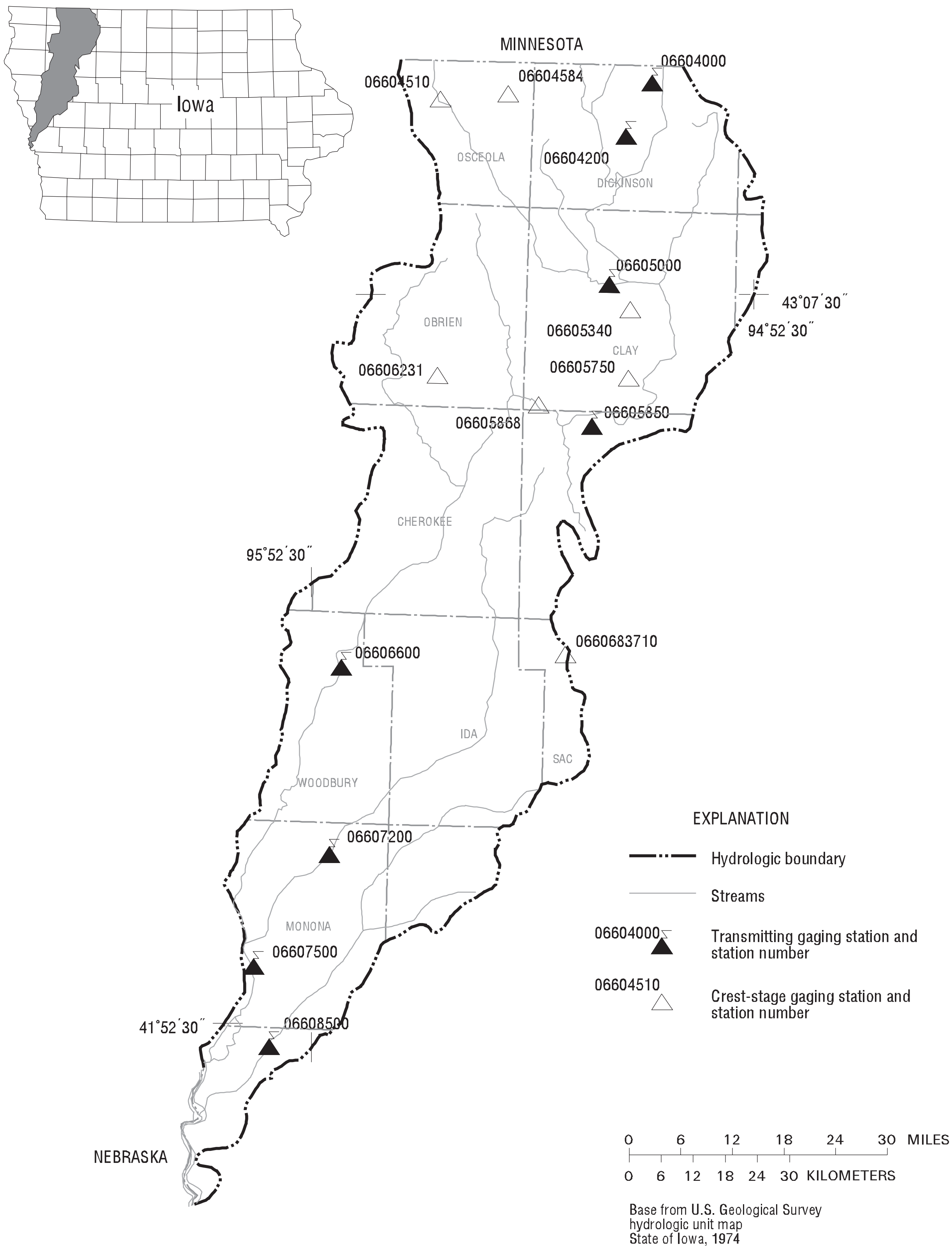
06602400 MONONA-HARRISON DITCH NEAR TURIN, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004 a	
ANNUAL TOTAL	92,143		125,835			
ANNUAL MEAN	252		344		277	
HIGHEST ANNUAL MEAN					798	1993
LOWEST ANNUAL MEAN					55.5	1968
HIGHEST DAILY MEAN	2,860	Jul 6	4,270	May 24	18,000	Feb 19, 1971
LOWEST DAILY MEAN	66	Nov 24	64	Jan 28 b	8.5	Jan 3, 1959 c
ANNUAL SEVEN-DAY MINIMUM	80	Nov 23	69	Jan 24	8.5	Jan 3, 1959
MAXIMUM PEAK FLOW			5,070	May 24	19,900	Feb 19, 1971
MAXIMUM PEAK STAGE			17.77	May 24	28.03	Feb 19, 1971
INSTANTANEOUS LOW FLOW			44	Nov 24		
ANNUAL RUNOFF (AC-FT)	182,800		249,600		200,400	
ANNUAL RUNOFF (CFSM)	0.280		0.382		0.307	
ANNUAL RUNOFF (INCHES)	3.81		5.20		4.18	
10 PERCENT EXCEEDS	462		722		512	
50 PERCENT EXCEEDS	150		186		133	
90 PERCENT EXCEEDS	90		83		40	

a Post closure of diversion from Little Sioux River.
b Ice affected.
c Also Jan. 4-11, 1959.
e Estimated.



06602400 MONONA-HARRISON DITCH NEAR TURIN, IA—Continued


Iowa
MINNESOTA
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06604584
06604510
06604200
OSCEOLA
DICKINSON
06605000
43°07´30˝
94°52´30˝
OBRIEN
06605340
CLAY
06605750
06606231
06605868
06605850
CHEROKEE
95°52´30˝
0660683710
06606600
IDA
SAC
WOODBURY
06607200
MONONA
06607500
41°52´30˝
06608500
NEBRASKA
EXPLANATION
Hydrologic boundary
Streams
06604000
Transmitting gaging station and station number
06604510
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

06604000 Spirit Lake near Orleans, IA 408
06604200 West Okoboji Lake at Lakeside Lab near Milford, IA 410
06605000 Ocheyedan River near Spencer, IA 412
06605850 Little Sioux River at Linn Grove, IA 414
06606600 Little Sioux River at Correctionville, IA 416
06607200 Maple River at Mapleton, IA 418
06607500 Little Sioux River near Turin, IA 420
06608500 Soldier River at Pisgah, IA 425

Crest Stage Gaging Stations

06604510 Ocheyedan River near Ocheyedan, IA 493
06604584 Dry Run Creek near Harris, IA 493
06605340 Prairie Creek near Spencer, IA 493
06605750 Willow Creek near Cornell, IA 493
06605868 Little Sioux River Tributary near Peterson, IA 493
06606231 Willow Creek near Calumet, IA 493
0660683710 Halfway Creek at Schaller, IA 493

06604000 SPIRIT LAKE NEAR ORLEANS, IA

LOCATION.--Lat 43°28'11", long 95°07'25", in NE1/4 NW1/4 sec.20, T.100N., R.36W., Dickinson County, Hydrologic Unit 10230003, 2.3 mi upstream from lake outlet, and 2.3 mi northwest of Orleans.

DRAINAGE AREA.--75.6 mi^2.

PERIOD OF RECORD.--May 1933 to September 1975 (fragmentary prior to 1951), April 1990 to current year. Prior to October 1949, published as "at Orleans".

GAGE.--Water-stage recorder. Datum of gage is 1,387.25 ft above NGVD of 1929, 90.0 ft above Iowa Lake Survey datum, and 14.2 ft below crest of spillway. Prior to July 6, 1950, non-recording gage or water-stage recorder at various sites near outlet, all at present datum.

REMARKS.--A reliable record of stage was obtained for the year. Lake formed by concrete dam with ungated spillway at elevation 1,401.4 ft. above sea level. Dam constructed in 1969. A previous outlet works had been constructed in 1944. Lake is used for conservation and recreation. U.S. Geological Survey data collection platform with satellite telemetry at station.

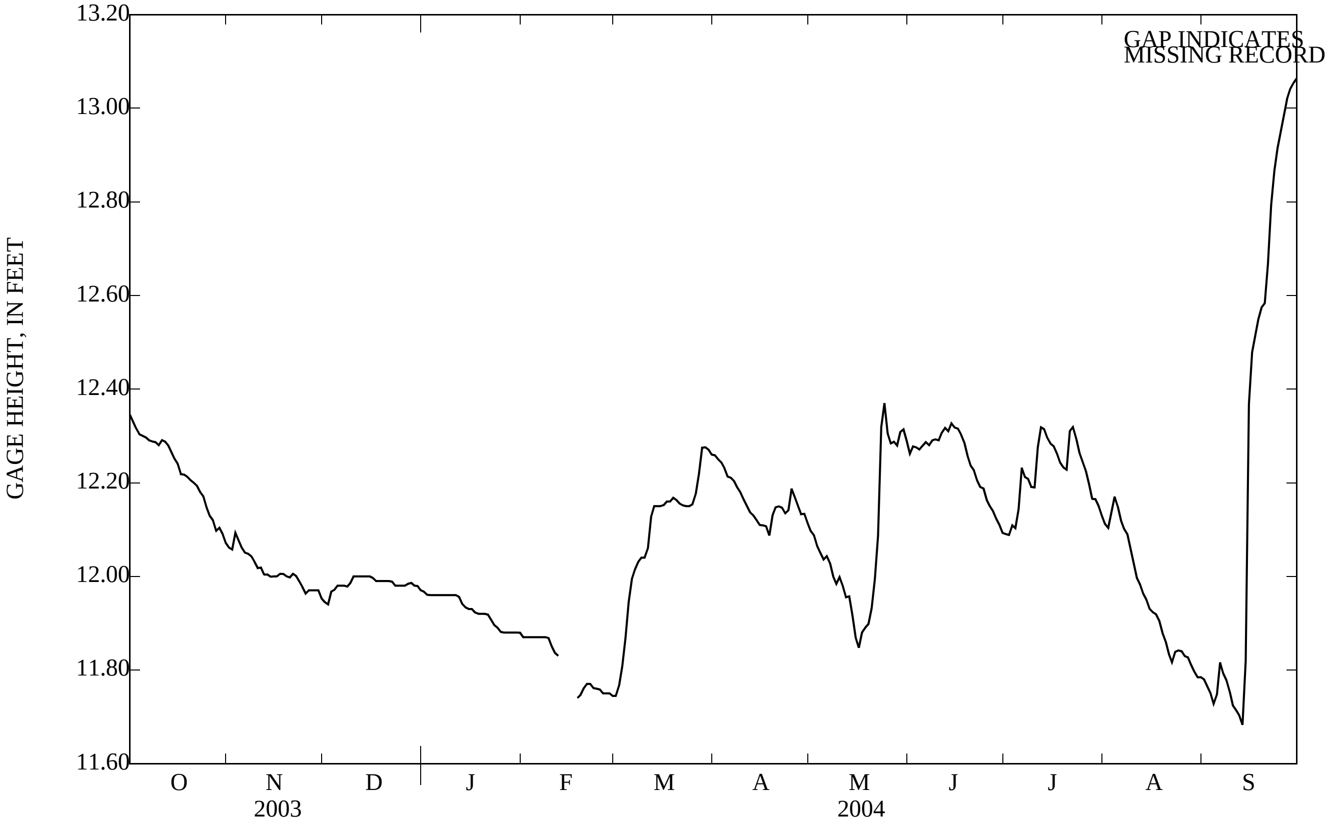
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 18.79 ft. July 17-20, 1993; minimum observed, 6.75 ft. Oct. 20, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 13.07 ft. Sept. 30; minimum, 11.67 ft. Sept. 13.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.35	12.06	11.94	11.97	11.87	11.74	12.26	12.10	12.26	12.09	12.11	11.78
2	12.33	12.06	11.94	11.96	11.87	11.77	12.25	12.09	12.28	12.09	12.10	11.77
3	12.32	12.09	11.97	11.96	11.87	11.81	12.24	12.06	12.28	12.11	12.14	11.75
4	12.30	12.08	11.97	11.96	11.87	11.87	12.23	12.05	12.27	12.10	12.17	11.73
5	12.30	12.06	11.98	11.96	11.87	11.94	12.21	12.04	12.28	12.14	12.15	11.75
6	12.30	12.05	11.98	11.96	11.87	11.99	12.21	12.04	12.29	12.23	12.12	11.82
7	12.29	12.05	11.98	11.96	11.87	12.01	12.20	12.03	12.28	12.21	12.10	11.79
8	12.29	12.04	11.98	11.96	11.87	12.03	12.19	12.00	12.29	12.21	12.09	11.78
9	12.29	12.03	11.99	11.96	11.87	12.04	12.18	11.98	12.29	12.19	12.06	11.75
10	12.28	12.02	12.00	11.96	11.85	12.04	12.16	12.00	12.29	12.19	12.03	11.72
11	12.29	12.02	12.00	11.96	11.84	12.06	12.15	11.98	12.31	12.28	12.00	11.71
12	12.29	12.00	12.00	11.96	11.83	12.13	12.14	11.96	12.32	12.32	11.98	11.70
13	12.28	12.00	12.00	11.94	---	12.15	12.13	11.96	12.31	12.31	11.96	11.68
14	12.27	12.00	12.00	11.93	---	12.15	12.12	11.92	12.33	12.30	11.95	11.82
15	12.25	12.00	12.00	11.93	---	12.15	12.11	11.87	12.32	12.28	11.93	12.37
16	12.24	12.00	12.00	11.93	---	12.15	12.11	11.85	12.32	12.28	11.92	12.48
17	12.22	12.01	11.99	11.92	---	12.16	12.11	11.88	12.30	12.26	11.92	12.52
18	12.22	12.00	11.99	11.92	11.74	12.16	12.09	11.89	12.29	12.24	11.90	12.55
19	12.21	12.00	11.99	11.92	11.75	12.17	12.13	11.90	12.26	12.23	11.88	12.57
20	12.21	12.00	11.99	11.92	11.76	12.16	12.15	11.93	12.24	12.23	11.86	12.58
21	12.20	12.01	11.99	11.92	11.77	12.16	12.15	11.99	12.23	12.31	11.83	12.67
22	12.19	12.00	11.99	11.91	11.77	12.15	12.15	12.09	12.20	12.32	11.82	12.79
23	12.18	11.99	11.98	11.90	11.76	12.15	12.13	12.32	12.19	12.29	11.84	12.87
24	12.17	11.98	11.98	11.89	11.76	12.15	12.14	12.37	12.19	12.26	11.84	12.92
25	12.15	11.96	11.98	11.88	11.76	12.15	12.19	12.31	12.16	12.24	11.84	12.95
26	12.13	11.97	11.98	11.88	11.75	12.18	12.17	12.28	12.15	12.23	11.83	12.98
27	12.12	11.97	11.98	11.88	11.75	12.22	12.15	12.29	12.14	12.20	11.83	13.02
28	12.10	11.97	11.99	11.88	11.75	12.27	12.13	12.28	12.12	12.17	11.81	13.04
29	12.10	11.97	11.98	11.88	11.74	12.28	12.13	12.31	12.11	12.16	11.80	13.05
30	12.09	11.95	11.98	11.88	---	12.27	12.11	12.31	12.09	12.15	11.78	13.06
31	12.07	---	11.97	11.88	---	12.26	---	12.29	---	12.13	11.78	---
MEAN	12.23	12.01	11.98	11.93	---	12.09	12.16	12.08	12.25	12.22	11.95	12.30
MAX	12.35	12.09	12.00	11.97	---	12.28	12.26	12.37	12.33	12.32	12.17	13.06
MIN	12.07	11.95	11.94	11.88	---	11.74	12.09	11.85	12.09	12.09	11.78	11.68

06604000 SPIRIT LAKE NEAR ORLEANS, IA—Continued



06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IA

LOCATION.--Lat 43°22'43", long 95°10'52", in NE¼ SW¼ sec.23, T.99 N., R.37 W., Dickinson County, Hydrologic Unit 10230003, at pumping station of Lakeside Laboratory on west shore, 2.3 mi upstream from lake outlet, and 3.8 mi northwest of Milford.

DRAINAGE AREA.--125 mi^2.

PERIOD OF RECORD.--May 1933 to current year. Published as "Okoboji Lake at Arnold's Park" 1933-37 and as "Okoboji Lake at Lakeside Laboratory near Milford" 1937-66.

GAGE.--Water-stage recorder. Datum of gage is 1,391.76 ft above NGVD of 1929, 94.51 ft above Iowa Lake Survey datum. Prior to June 17, 1938, nonrecording gage at State Pier at Arnolds Park at same datum.

REMARKS.--A reliable record of stage was obtained for the year. Lake formed by concrete dam with ungated spillway at elevation 1,395.8 ft above sea level. Lake is used for conservation and recreation. Area of lake is approximately 3,900 acres. U.S. Geological Survey data collection platform with satellite telemetry at station.

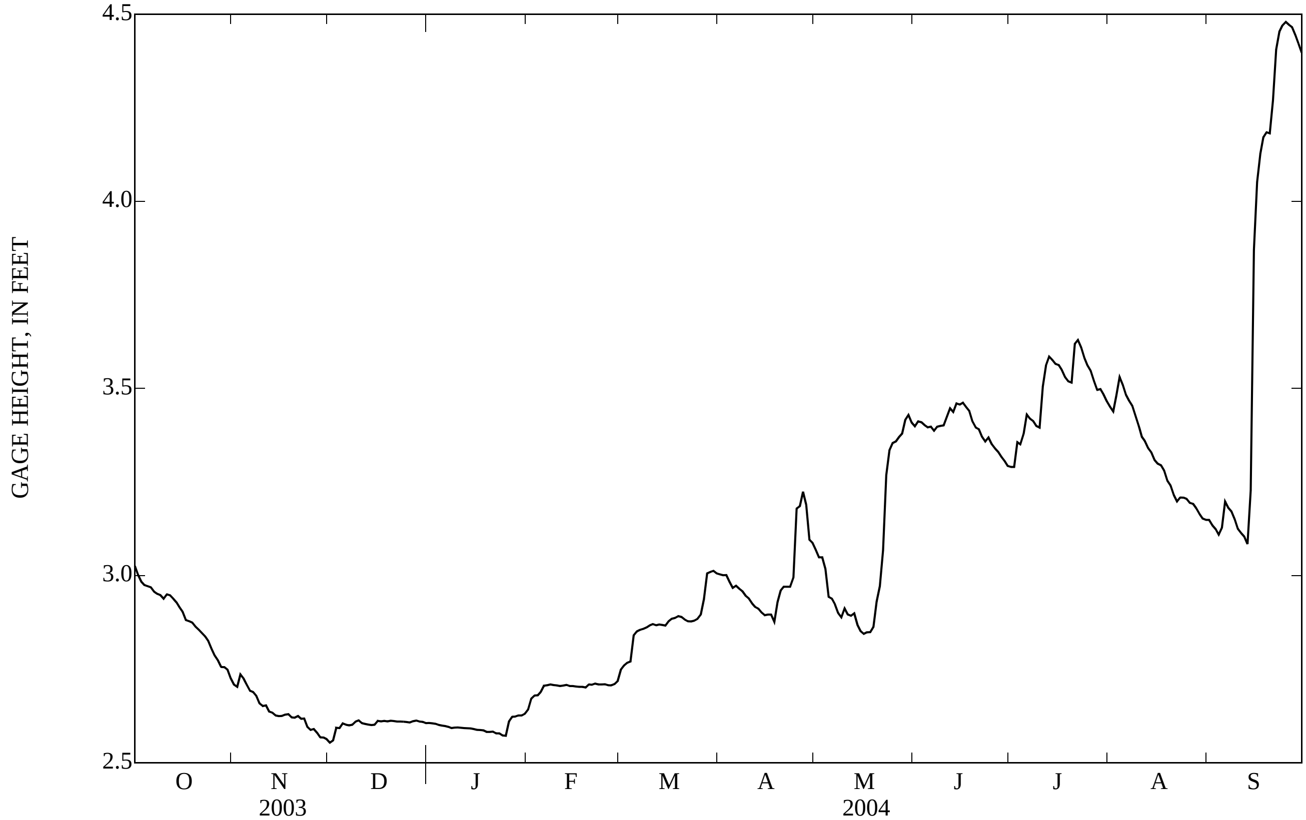
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 8.70 ft July 17, 1993; minimum observed, 0.20 ft Sept. 20, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 4.48 ft on Sept. 23,24,25,26; minimum, 2.53 ft on Dec. 1.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.03	2.71	2.55	2.61	2.64	2.75	3.00	3.07	3.40	3.29	3.45	3.15
2	3.00	2.70	2.56	2.60	2.67	2.76	3.00	3.05	3.41	3.29	3.44	3.13
3	2.98	2.74	2.59	2.60	2.68	2.77	3.00	3.05	3.41	3.36	3.48	3.12
4	2.97	2.72	2.59	2.60	2.68	2.77	2.98	3.02	3.40	3.35	3.53	3.11
5	2.97	2.71	2.60	2.60	2.69	2.84	2.97	2.94	3.40	3.38	3.51	3.13
6	2.97	2.69	2.60	2.60	2.71	2.85	2.97	2.94	3.40	3.43	3.48	3.20
7	2.96	2.69	2.60	2.60	2.71	2.85	2.96	2.92	3.39	3.42	3.47	3.18
8	2.95	2.68	2.60	2.59	2.71	2.86	2.96	2.90	3.40	3.41	3.45	3.17
9	2.95	2.66	2.61	2.59	2.71	2.86	2.95	2.89	3.40	3.40	3.43	3.15
10	2.94	2.65	2.61	2.59	2.71	2.87	2.94	2.91	3.40	3.40	3.40	3.12
11	2.95	2.65	2.61	2.59	2.70	2.87	2.93	2.90	3.42	3.50	3.37	3.11
12	2.95	2.64	2.60	2.59	2.71	2.87	2.92	2.89	3.45	3.56	3.36	3.10
13	2.94	2.63	2.60	2.59	2.71	2.87	2.91	2.90	3.44	3.58	3.34	3.08
14	2.93	2.63	2.60	2.59	2.70	2.87	2.90	2.87	3.46	3.58	3.33	3.23
15	2.91	2.62	2.60	2.59	2.70	2.87	2.89	2.85	3.46	3.57	3.31	3.87
16	2.90	2.62	2.61	2.59	2.70	2.88	2.90	2.84	3.46	3.56	3.30	4.05
17	2.88	2.63	2.61	2.59	2.70	2.88	2.90	2.85	3.45	3.55	3.29	4.13
18	2.88	2.63	2.61	2.59	2.70	2.89	2.88	2.85	3.44	3.53	3.28	4.17
19	2.87	2.62	2.61	2.58	2.70	2.89	2.93	2.86	3.41	3.52	3.25	4.18
20	2.86	2.62	2.61	2.58	2.71	2.89	2.96	2.93	3.40	3.52	3.24	4.18
21	2.85	2.62	2.61	2.58	2.71	2.88	2.97	2.97	3.39	3.62	3.21	4.27
22	2.85	2.62	2.61	2.58	2.71	2.88	2.97	3.07	3.37	3.63	3.20	4.41
23	2.84	2.62	2.61	2.58	2.71	2.88	2.97	3.27	3.36	3.61	3.21	4.45
24	2.82	2.60	2.61	2.57	2.71	2.88	2.99	3.33	3.37	3.58	3.21	4.47
25	2.80	2.59	2.61	2.57	2.71	2.88	3.18	3.35	3.35	3.56	3.20	4.48
26	2.79	2.59	2.61	2.61	2.71	2.90	3.18	3.36	3.34	3.55	3.19	4.47
27	2.77	2.58	2.61	2.62	2.71	2.94	3.22	3.37	3.33	3.52	3.19	4.47
28	2.76	2.57	2.61	2.62	2.71	3.01	3.19	3.38	3.32	3.50	3.18	4.44
29	2.75	2.57	2.61	2.63	2.72	3.01	3.10	3.42	3.31	3.50	3.16	4.42
30	2.75	2.56	2.61	2.63	---	3.01	3.09	3.43	3.29	3.48	3.15	4.40
31	2.72	---	2.61	2.63	---	3.01	---	3.41	---	3.47	3.15	---
MEAN	2.89	2.64	2.60	2.60	2.70	2.88	2.99	3.06	3.39	3.49	3.31	3.76
MAX	3.03	2.74	2.61	2.63	2.72	3.01	3.22	3.43	3.46	3.63	3.53	4.48
MIN	2.72	2.56	2.55	2.57	2.64	2.75	2.88	2.84	3.29	3.29	3.15	3.08

06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IA—Continued



06605000 OCHEYEDAN RIVER NEAR SPENCER, IA

LOCATION.--(revised) Lat 43°07'41", long 95°12'38", in SW¼ SW¼ sec.15, T.96N., R.37W., Clay County, Hydrologic Unit 10230003, on right bank 5 ft downstream from bridge on county highway M38, 3.4 mi west by southwest of Spencer, and at mile 4.1.

DRAINAGE AREA.--426 mi^2.

PERIOD OF RECORD.--October 1977 to current year. Occasional low-flow measurements, water years 1957-61, 1964, 1966-68, 1970, 1971, 1974-77.

GAGE.--Water-stage recorder. Datum of gage is 1,311.66 ft above NGVD of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 8, 1953 reached a stage of 12.89 ft, discharge, 26,000 ft^3/s on basis of contracted-opening measurement of peak flow.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	8.1	e7.2	e13	e13	e97	83	69	299	61	134	26
2	7.7	8.4	e8.7	e12	e11	e230	75	65	267	58	139	24
3	8.1	9.7	e5.0	e8.8	e9.1	e212	69	61	239	71	130	23
4	8.2	10	e5.0	e5.4	e11	e317	63	59	226	82	148	22
5	7.9	8.9	e7.4	e2.5	e13	e295	62	55	221	103	164	24
6	8.0	8.8	e8.3	e3.3	e9.9	e340	60	55	216	566	149	27
7	8.1	e8.3	e9.6	e4.1	e7.9	397	57	52	209	882	134	23
8	8.3	e8.1	e13	e7.4	e7.0	271	54	53	193	586	119	22
9	8.4	e9.6	e9.5	e7.0	e7.9	218	52	50	181	415	104	22
10	8.5	10	e8.0	e5.3	e7.9	192	51	50	172	331	91	21
11	9.5	9.4	e4.7	e5.9	e7.9	139	49	46	181	348	80	21
12	9.5	8.7	e5.3	e6.4	e5.3	120	48	44	238	486	72	20
13	8.9	9.4	e4.0	e6.2	e4.4	142	46	44	227	382	67	20
14	9.0	8.4	e5.3	e4.5	e4.8	103	44	43	209	311	61	37
15	8.6	8.2	e5.7	e3.2	e3.0	94	43	41	198	278	56	1,040
16	8.6	8.2	e7.0	e8.0	e5.6	88	43	40	183	264	52	2,020
17	8.5	8.5	e4.3	e6.7	e4.0	80	42	41	169	254	48	1,630
18	8.7	8.5	e6.7	e3.4	e5.8	75	40	41	155	245	45	2,210
19	8.3	8.4	e4.7	e2.8	e5.2	70	46	39	143	230	40	1,790
20	8.2	8.4	e5.7	e4.7	e5.8	72	48	42	135	218	38	1,090
21	8.1	8.4	e7.6	e4.3	e2.7	67	58	68	134	220	35	928
22	8.1	8.4	e8.1	e3.8	e5.5	64	61	398	123	210	32	1,770
23	7.9	7.8	e6.5	e6.9	e4.8	60	58	580	108	196	32	2,430
24	8.1	e6.9	e4.3	e5.8	e5.1	58	57	1,120	101	186	30	2,010
25	7.9	e7.2	e6.0	e6.5	e4.8	57	103	790	93	176	30	1,460
26	7.8	e7.6	e11	e5.3	e5.3	61	156	584	85	169	29	1,110
27	8.1	e8.9	e16	e3.3	e12	66	133	462	80	162	29	898
28	9.0	e7.4	e13	e2.4	e24	118	112	370	74	156	28	743
29	8.6	e7.4	e9.6	e3.0	e49	141	93	329	69	149	26	635
30	8.6	e8.6	e9.1	e4.7	---	117	77	305	65	141	25	568
31	8.7	---	e7.0	e8.2	---	96	---	306	---	134	26	---
TOTAL	259.5	254.6	233.3	174.8	262.7	4,457	1,983	6,302	4,993	8,070	2,193	22,664
MEAN	8.37	8.49	7.53	5.64	9.06	144	66.1	203	166	260	70.7	755
MAX	9.5	10	16	13	49	397	156	1,120	299	882	164	2,430
MIN	7.6	6.9	4.0	2.4	2.7	57	40	39	65	58	25	20
AC-FT	515	505	463	347	521	8,840	3,930	12,500	9,900	16,010	4,350	44,950
CFSM	0.02	0.02	0.02	0.01	0.02	0.34	0.16	0.48	0.39	0.61	0.17	1.77
IN.	0.02	0.02	0.02	0.02	0.02	0.39	0.17	0.55	0.44	0.70	0.19	1.98

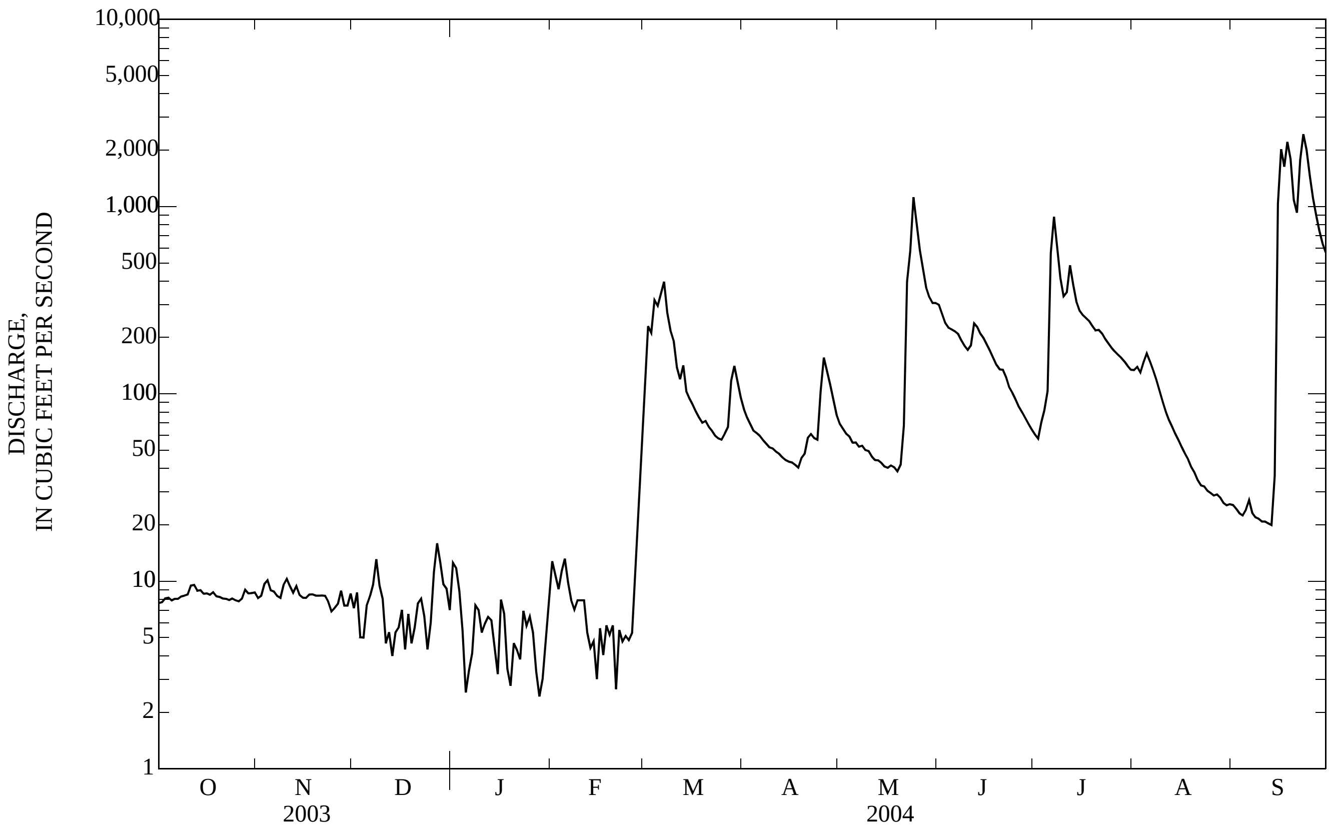
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	110	124	70.2	39.9	74.0	309	455	366	464	298	128	141
MAX	492	796	305	180	402	1,019	1,462	912	1,973	2,243	706	755
(WY)	(1983)	(1980)	(1983)	(1983)	(1983)	(1983)	(1983)	(1993)	(1993)	(1993)	(1993)	(2004)
MIN	8.12	8.11	1.91	0.51	0.00	14.0	19.7	54.9	33.8	33.4	15.3	9.85
(WY)	(2001)	(1990)	(1990)	(1979)	(1979)	(1990)	(2000)	(1981)	(1989)	(1989)	(1989)	(2000)

06605000 OCHEYEDAN RIVER NEAR SPENCER, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1978 - 2004	
ANNUAL TOTAL	27,195.5		51,846.9			
ANNUAL MEAN	74.5		142		215	
HIGHEST ANNUAL MEAN					763	1993
LOWEST ANNUAL MEAN					33.4	1989
HIGHEST DAILY MEAN	679	Jun 26	2,430	Sep 23	5,620	Jul 1, 1993
LOWEST DAILY MEAN	3.0	Mar 5	2.4	Jan 28 a	0.00	Jan 24, 1979 b
ANNUAL SEVEN-DAY MINIMUM	4.0	Jan 23	4.4	Jan 24	0.00	Jan 24, 1979
MAXIMUM PEAK FLOW			2,560	Sep 23	6,450	Jun 21, 1983
MAXIMUM PEAK STAGE			10.07	Sep 18 c	11.28	Jul 1, 1993
ANNUAL RUNOFF (AC-FT)	53,940		102,800		155,900	
ANNUAL RUNOFF (CFSM)	0.175		0.333		0.505	
ANNUAL RUNOFF (INCHES)	2.37		4.53		6.86	
10 PERCENT EXCEEDS	227		308		529	
50 PERCENT EXCEEDS	18		41		80	
90 PERCENT EXCEEDS	7.0		5.4		11	

a Ice affected.
b Also Jan. 25 to Mar. 9, 1979, Dec. 22, 1989 to Jan. 5, 1990.
c Peak affected by backwater.
e Estimated.



06605850 LITTLE SIOUX RIVER AT LINN GROVE, IA

LOCATION.--Lat 42°53'45", long 95°14'35", in SW$^1/_4$ SE$^1/_4$ SW$^1/_4$ sec.5, T.93 N., R.37 W., Buena Vista County, Hydrologic Unit 10230003, on right bank 500 ft upstream of concrete dam, 1300 ft upstream of bridge on County Highway M36, in Linn Grove, and at mile 122.5.

DRAINAGE AREA.--1,548 mi^2.

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR IA-80-1: 1978-79.

GAGE.--Water-stage recorder. Datum of gage is 1,223.60 ft above NGVD of 1929. Oct. 1, 1972 to Nov. 17, 1999, water-stage recorder, 0.25 mi downstream, below concrete dam, at current 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1953, gage height 20.96 ft; discharge, 22,500 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	41	43	54	23	184	460	394	1,230	202	243	82
2	36	40	50	52	23	349	392	363	1,110	190	222	78
3	36	46	33	e52	e16	333	351	336	984	203	217	73
4	38	50	34	e47	22	542	312	314	864	214	221	67
5	37	56	40	e25	19	625	279	292	783	221	243	67
6	38	52	e43	e26	18	574	257	274	726	410	263	72
7	38	44	e46	e28	e12	572	234	250	674	712	252	84
8	40	30	e49	31	e11	662	219	234	620	1,190	242	88
9	41	e15	53	27	21	801	202	244	704	1,200	244	77
10	38	42	32	26	20	862	185	234	757	1,050	239	70
11	40	49	30	28	20	678	175	217	738	1,050	224	66
12	40	48	e19	30	e12	375	172	203	822	1,240	209	63
13	44	44	30	33	e12	432	167	194	824	1,430	192	60
14	48	38	26	36	e12	500	161	189	770	1,410	179	195
15	48	35	27	39	e8.2	423	152	188	692	1,240	164	2,230
16	48	37	29	40	e15	363	145	181	638	1,100	159	2,910
17	48	38	e19	41	e14	326	139	182	615	1,020	174	4,020
18	46	39	30	e42	22	306	141	185	579	941	165	5,170
19	45	39	32	e31	22	286	159	183	517	852	137	8,820
20	42	38	32	30	23	275	171	165	471	762	124	8,610
21	41	37	33	27	22	259	198	213	446	693	117	7,230
22	39	36	36	26	23	236	222	1,340	423	658	110	6,120
23	39	e27	39	24	25	236	221	2,400	385	600	114	5,690
24	38	e22	40	24	26	229	221	3,000	349	542	116	5,820
25	38	37	37	24	27	226	336	3,020	326	466	113	6,140
26	39	37	36	e17	29	223	610	2,940	303	409	108	5,970
27	41	40	41	e11	34	263	648	2,880	279	366	101	5,310
28	44	e29	50	e10	42	451	586	2,550	260	330	95	4,540
29	44	38	54	e12	69	628	518	1,910	241	306	89	3,900
30	42	47	56	e15	---	592	444	1,530	220	279	86	3,370
31	42	---	57	e18	---	525	---	1,400	---	259	85	---
TOTAL	1,274	1,171	1,176	926	642.2	13,336	8,477	28,005	18,350	21,545	5,247	86,992
MEAN	41.1	39.0	37.9	29.9	22.1	430	283	903	612	695	169	2,900
MAX	48	56	57	54	69	862	648	3,020	1,230	1,430	263	8,820
MIN	36	15	19	10	8.2	184	139	165	220	190	85	60
AC-FT	2,530	2,320	2,330	1,840	1,270	26,450	16,810	55,550	36,400	42,730	10,410	172,500
CFSM	0.03	0.03	0.02	0.02	0.01	0.28	0.18	0.58	0.40	0.45	0.11	1.87
IN.	0.03	0.03	0.03	0.02	0.02	0.32	0.20	0.67	0.44	0.52	0.13	2.09

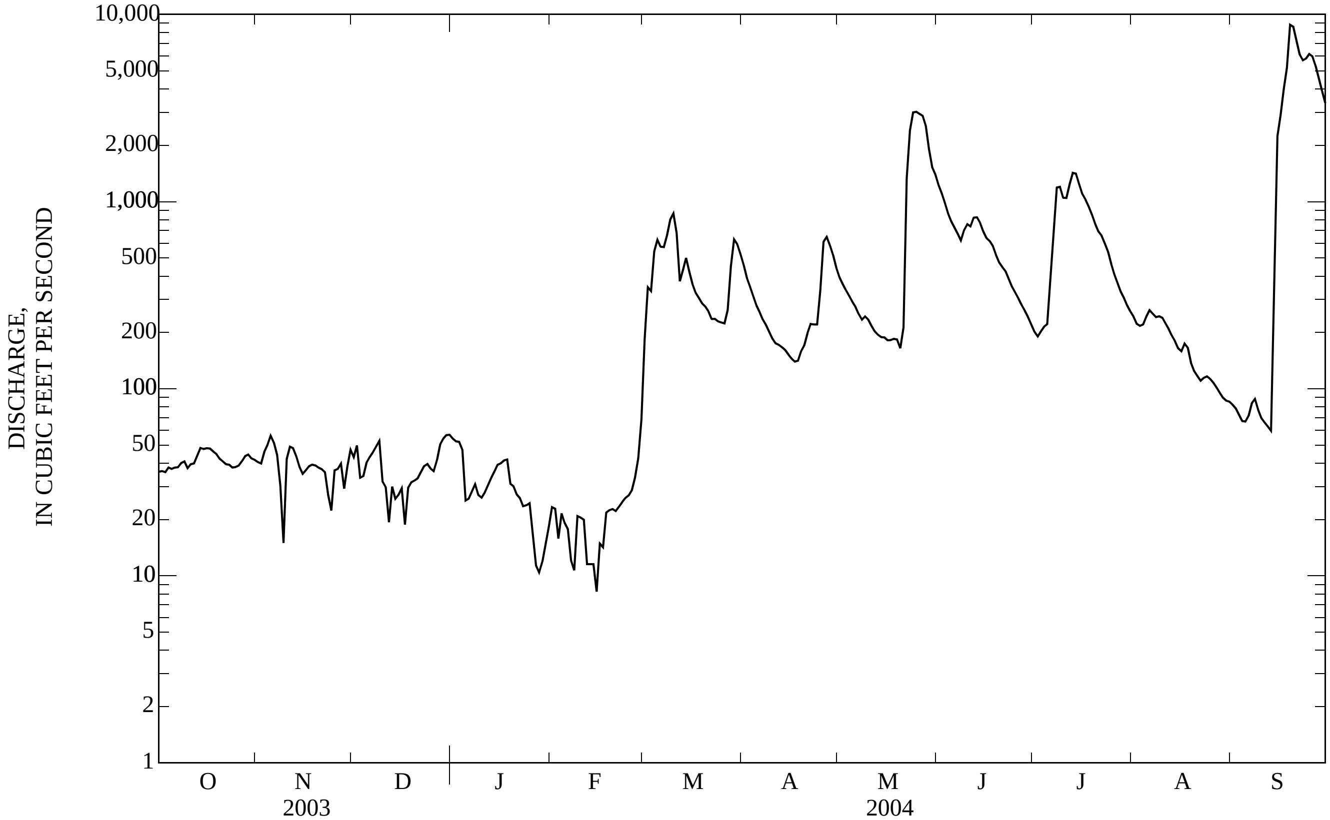
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	373	406	253	165	265	1,015	1,561	1,279	1,481	1,015	445	451
MAX	2,070	2,050	1,122	859	1,161	3,894	4,952	3,233	6,898	7,905	2,906	2,900
(WY)	(1983)	(1980)	(1983)	(1983)	(1983)	(1983)	(1983)	(1993)	(1993)	(1993)	(1993)	(2004)
MIN	21.3	22.0	6.08	3.12	5.92	75.9	74.9	69.4	60.3	36.3	26.4	22.7
(WY)	(1977)	(1977)	(1990)	(1977)	(1977)	(1990)	(2000)	(1977)	(1977)	(1977)	(1976)	(1976)

06605850 LITTLE SIOUX RIVER AT LINN GROVE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1973 - 2004	
ANNUAL TOTAL	120,987		187,141.2			
ANNUAL MEAN	331		511		727	
HIGHEST ANNUAL MEAN					2,763	1993
LOWEST ANNUAL MEAN					56.3	1977
HIGHEST DAILY MEAN	3,180	Jun 27	8,820	Sep 19	15,000	Jul 2, 1993
LOWEST DAILY MEAN	12	Jan 26	8.2	Feb 15 a	0.70	Feb 4, 1977
ANNUAL SEVEN-DAY MINIMUM	15	Jan 25	13	Feb 11	1.1	Jan 31, 1977
MAXIMUM PEAK FLOW			9,570	Sep 19	16,100	Jul 2, 1993
MAXIMUM PEAK STAGE			20.94	Sep 19	20.63	Jul 2, 1993
ANNUAL RUNOFF (AC-FT)	240,000		371,200		526,400	
ANNUAL RUNOFF (CFSM)	0.214		0.330		0.469	
ANNUAL RUNOFF (INCHES)	2.91		4.50		6.38	
10 PERCENT EXCEEDS	1,030		1,050		1,930	
50 PERCENT EXCEEDS	56		159		288	
90 PERCENT EXCEEDS	30		25		40	

a Ice affected.
e Estimated.



06606600 LITTLE SIOUX RIVER AT CORRECTIONVILLE, IA

LOCATION.--(revised) Lat 42°28'14", long 95°47'50", in NE1/4 NW1/4 sec.1, T.88 N., R.43 W., Woodbury County, Hydrologic Unit 10230003 on right bank 50 ft upstream from bridge on State Highway 31, 0.3 mi upstream from Bacon Creek, 0.5 mi west of Correctionville, 0.8 mi downstream from Pierson Creek, and at mile 56.0.

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

PERIOD OF RECORD.--May 1918 to July 1925, October 1928 to July 1932, June 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 856: 1919. WSP 1240: 1924-25, 1931, 1932 (M), 1937, 1945 (M), 1947 (M), 1949 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,096.49 ft above NGVD of 1929. May 28, 1918, to July 1, 1925 and Oct. 29, 1928 to July 15, 1929, nonrecording gage 0.2 mi downstream at datum 1.25 ft lower. July 16, 1929, to July 2, 1932, and June 15, 1936, to Nov. 7, 1938, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23 or 24, 1891, reached a stage of 29.34 ft, present datum, from levels to floodmark by U.S. Soil Conservation Service (discharge not determined).

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	138	121	143	e75	e1,400	853	916	2,480	739	639	227
2	119	139	136	140	e76	e1,250	776	843	2,220	822	755	217
3	120	158	131	115	e67	e1,200	700	790	2,020	1,020	670	202
4	120	178	107	e108	e68	1,060	627	747	1,840	878	591	187
5	120	174	e119	e80	e67	1,120	581	707	1,690	858	568	184
6	117	164	e124	e83	e70	1,350	540	675	1,570	1,090	554	191
7	117	155	130	e84	e68	1,670	502	629	1,480	1,540	544	190
8	116	144	146	e95	e67	1,200	474	584	1,390	1,610	531	184
9	118	135	126	e90	e73	1,070	442	654	1,340	1,720	504	173
10	116	142	e103	e87	e79	1,150	422	605	1,720	1,820	482	174
11	123	153	e98	e100	e82	1,100	402	563	2,160	1,740	464	169
12	131	142	e95	e95	e80	873	383	524	1,730	1,650	450	160
13	130	133	e99	e93	e80	831	375	502	1,590	1,720	429	150
14	131	137	e104	e92	e79	764	373	492	1,530	3,510	411	188
15	129	140	e108	e91	e77	711	366	472	1,470	2,830	390	1,680
16	127	140	e102	97	e82	716	362	463	2,610	2,240	373	5,870
17	129	138	e100	e95	e82	638	347	465	2,360	1,920	356	7,000
18	132	137	108	e88	e86	592	339	472	1,610	1,730	365	6,050
19	133	134	e106	e90	e93	584	390	470	1,460	1,610	357	6,940
20	134	134	e108	96	e93	574	468	465	1,350	1,490	340	7,410
21	132	130	113	94	e91	533	579	470	1,410	1,380	309	7,700
22	131	129	117	e87	e104	500	548	1,290	1,240	e1,270	288	8,840
23	130	e126	116	91	e128	471	559	3,720	1,130	e1,180	534	10,000
24	130	e105	112	92	e120	451	570	5,060	1,100	e1,070	384	10,900
25	126	117	110	e84	e119	442	731	5,430	1,040	e979	303	10,600
26	125	118	110	e79	e116	431	842	4,700	959	e929	282	9,300
27	128	127	138	e69	203	463	1,060	4,340	910	845	271	8,460
28	133	112	154	e68	409	693	1,170	4,040	868	778	254	8,170
29	138	e124	149	e67	642	769	1,100	3,980	822	731	244	7,730
30	139	133	146	e67	---	906	1,000	3,330	777	682	236	6,850
31	138	---	133	e69	---	922	---	2,780	---	643	228	---
TOTAL	3,929	4,136	3,669	2,829	3,476	26,434	17,881	51,178	45,876	43,024	13,106	126,096
MEAN	127	138	118	91.3	120	853	596	1,651	1,529	1,388	423	4,203
MAX	139	178	154	143	642	1,670	1,170	5,430	2,610	3,510	755	10,900
MIN	116	105	95	67	67	431	339	463	777	643	228	150
AC-FT	7,790	8,200	7,280	5,610	6,890	52,430	35,470	101,500	91,000	85,340	26,000	250,100
CFSM	0.05	0.06	0.05	0.04	0.05	0.34	0.24	0.66	0.61	0.56	0.17	1.68
IN.	0.06	0.06	0.05	0.04	0.05	0.39	0.27	0.76	0.68	0.64	0.20	1.88

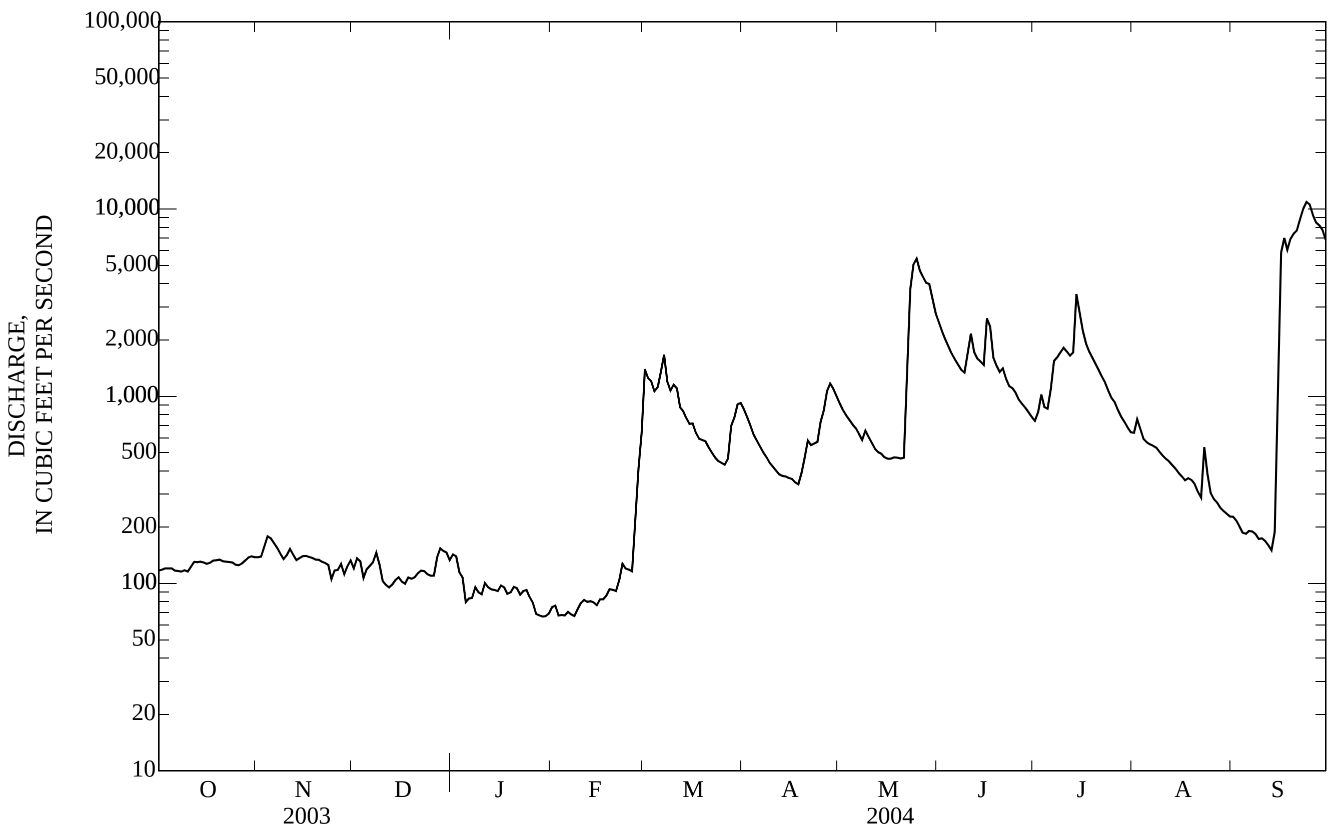
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	423	422	293	212	451	1,430	1,883	1,432	1,805	1,241	597	542
MAX	2,994	3,079	1,698	1,323	2,708	7,328	8,677	5,002	10,110	11,600	4,469	4,203
(WY)	(1983)	(1980)	(1983)	(1983)	(1971)	(1983)	(1983)	(1993)	(1993)	(1993)	(1993)	(2004)
MIN	8.33	25.3	15.1	8.31	7.08	53.5	61.9	57.3	58.1	43.4	15.0	14.4
(WY)	(1957)	(1959)	(1959)	(1959)	(1959)	(1931)	(1931)	(1931)	(1956)	(1956)	(1931)	(1958)

06606600 LITTLE SIOUX RIVER AT CORRECTIONVILLE, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	279,870		341,634			
ANNUAL MEAN	767		933		906	
HIGHEST ANNUAL MEAN					4,304	1993
LOWEST ANNUAL MEAN					53.7	1931
HIGHEST DAILY MEAN	7,770	Jul 10	10,900	Sep 24	27,900	Apr 7, 1965
LOWEST DAILY MEAN	73	Jan 26	67	Jan 29 a	2.6	Jul 17, 1936 b
ANNUAL SEVEN-DAY MINIMUM	78	Jan 23	69	Feb 3	4.6	Oct 4, 1956
MAXIMUM PEAK FLOW			11,100	Sep 24	29,800	Apr 7, 1965
MAXIMUM PEAK STAGE			17.94	Sep 24	25.86	Apr 7, 1965
ANNUAL RUNOFF (AC-FT)	555,100		677,600		656,200	
ANNUAL RUNOFF (CFSM)	0.307		0.373		0.362	
ANNUAL RUNOFF (INCHES)	4.16		5.08		4.92	
10 PERCENT EXCEEDS	1,770		1,760		2,240	
50 PERCENT EXCEEDS	198		374		376	
90 PERCENT EXCEEDS	108		92		56	

a Ice affected.
b Also July 25, 1956, caused by construction of dam upstream.
e Estimated.



06607200 MAPLE RIVER AT MAPLETON, IA

LOCATION.--Lat 42°09'25", long 95°48'35", in SE¼ SE¼ sec.23, T.85 N., R.43 W., Monona County, Hydrologic Unit 10230005, on right bank at downstream side of bridge on State Highway 175, 1.0 mi downstream from Simmons Creek, 1.1 mi southwest of intersection of State Highways 175 and 141 in Mapleton, 2.1 mi upstream from McCleery Creek, and 16.0 mi upstream from mouth.

DRAINAGE AREA.--669 mi^2.

PERIOD OF RECORD.--October 1941 to current year.

REVISED RECORDS.--WSP 1310: 1942 (M), 1946 (M), 1948 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,080.86 ft above NGVD of 1929. See WSP 1730 for history of changes prior to Sept. 20, 1956; Prior to Apr. 27, 2000, at datum 5.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	75	78	87	e61	1,300	425	363	716	724	261	126
2	88	77	82	89	e58	924	380	343	629	705	273	122
3	89	100	78	72	e51	601	348	327	577	920	253	118
4	87	119	74	53	e52	453	319	308	535	782	251	114
5	86	103	e68	e38	e54	484	303	284	514	704	239	119
6	85	93	e63	e39	e55	776	289	265	499	666	226	140
7	85	90	e74	e43	e51	688	275	253	475	663	219	126
8	84	87	e84	e53	e50	543	259	239	448	625	212	117
9	83	86	e72	e45	e58	436	242	246	427	549	206	115
10	85	91	e40	e44	e70	391	229	284	459	529	197	113
11	94	94	e34	e55	e73	336	215	255	972	493	192	110
12	98	87	e31	e51	e65	279	209	240	1,110	539	186	108
13	96	84	e40	e52	e65	269	203	234	709	495	184	105
14	94	81	e56	e50	e61	268	202	234	613	458	181	111
15	90	77	e64	e47	e55	251	199	225	552	440	179	170
16	89	76	e58	e55	e79	237	190	220	1,730	423	177	260
17	90	77	e56	e53	e79	226	184	231	8,370	402	175	418
18	90	78	e70	e46	e89	225	180	239	2,120	386	169	417
19	89	77	e62	e44	e99	231	189	e233	1,550	376	189	312
20	86	74	e68	e54	e98	243	231	225	1,330	362	169	279
21	82	71	e82	e61	e96	242	284	223	1,460	349	158	272
22	81	71	e80	e48	e125	212	302	463	1,330	340	153	296
23	80	e66	e72	e67	e240	202	286	2,000	1,080	326	151	315
24	79	e43	e65	e64	e225	196	277	1,560	981	315	153	414
25	77	e67	e68	e63	e178	191	319	2,020	957	302	157	372
26	77	e66	77	e58	e147	195	433	1,220	894	288	147	320
27	80	e70	96	e53	313	304	532	962	851	281	143	283
28	82	e60	102	e50	844	700	482	812	818	276	136	256
29	82	e68	100	e50	1,430	778	434	823	781	278	131	235
30	79	e76	85	e53	---	601	394	949	749	264	161	218
31	76	---	84	e56	---	491	---	802	---	256	133	---
TOTAL	2,651	2,384	2,163	1,693	4,921	13,273	8,814	17,082	34,236	14,516	5,761	6,481
MEAN	85.5	79.5	69.8	54.6	170	428	294	551	1,141	468	186	216
MAX	98	119	102	89	1,430	1,300	532	2,020	8,370	920	273	418
MIN	76	43	31	38	50	191	180	220	427	256	131	105
AC-FT	5,260	4,730	4,290	3,360	9,760	26,330	17,480	33,880	67,910	28,790	11,430	12,860
CFSM	0.13	0.12	0.10	0.08	0.25	0.64	0.44	0.82	1.71	0.70	0.28	0.32
IN.	0.15	0.13	0.12	0.09	0.27	0.74	0.49	0.95	1.90	0.81	0.32	0.36

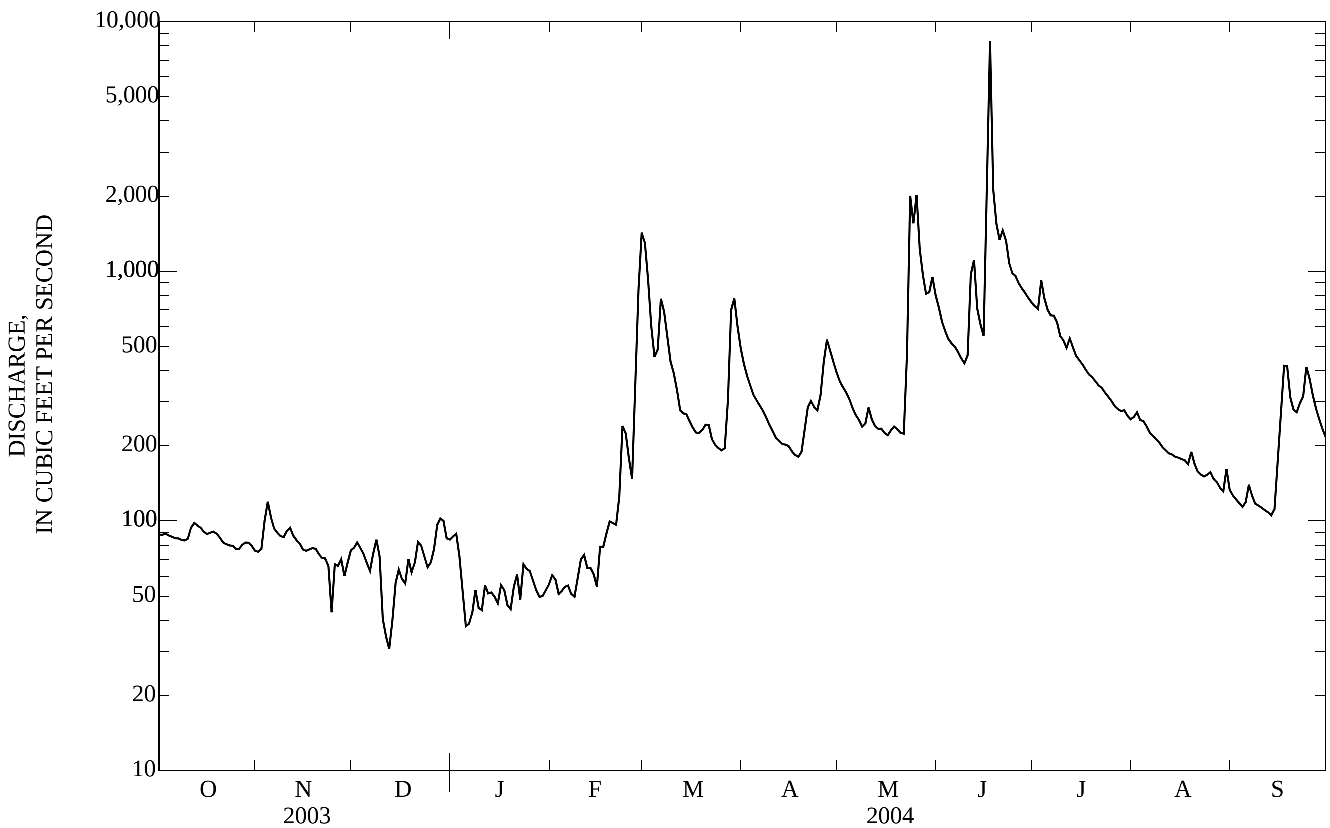
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	156	144	115	95.4	222	476	404	405	640	379	253	178
MAX	634	506	548	330	1,016	1,588	1,889	1,345	2,856	1,588	1,230	1,034
(WY)	(1983)	(1993)	(1985)	(1983)	(1971)	(1983)	(1983)	(1984)	(1984)	(1993)	(1951)	(1951)
MIN	9.36	14.6	5.74	3.25	3.64	25.6	19.9	35.9	48.5	33.3	12.6	5.48
(WY)	(1957)	(1959)	(1959)	(1959)	(1959)	(1957)	(1957)	(1968)	(1955)	(1956)	(1956)	(1956)

06607200 MAPLE RIVER AT MAPLETON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1942 - 2004	
ANNUAL TOTAL	118,429		113,975			
ANNUAL MEAN	324		311		289	
HIGHEST ANNUAL MEAN					983	1983
LOWEST ANNUAL MEAN					24.5	1956
HIGHEST DAILY MEAN	6,740	Jul 10	8,370	Jun 17	14,400	Jun 21, 1983
LOWEST DAILY MEAN	31	Dec 12	31	Dec 12 a	0.00	Sep 21, 1945 b
ANNUAL SEVEN-DAY MINIMUM	46	Dec 10	45	Jan 4	2.6	Feb 14, 1959
MAXIMUM PEAK FLOW			11,100	Jun 17	20,800	Sep 12, 1978
MAXIMUM PEAK STAGE			17.91	Jun 17	22.10	Jun 12, 1950
ANNUAL RUNOFF (AC-FT)	234,900		226,100		209,400	
ANNUAL RUNOFF (CFSM)	0.485		0.465		0.432	
ANNUAL RUNOFF (INCHES)	6.59		6.34		5.87	
10 PERCENT EXCEEDS	734		711		613	
50 PERCENT EXCEEDS	125		188		140	
90 PERCENT EXCEEDS	72		56		30	

a Ice affected.
b Also Sept. 22, 1945, caused by temporary dam upstream.
e Estimated.



06607500 LITTLE SIOUX RIVER NEAR TURIN, IA

LOCATION.--Lat 41°57'52", long 95°58'21", in NW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.33, T.83 N., R.44 W., Monona County, Hydrologic Unit 10230003, on left bank on downstream side of bridge on county highway E54, 1.0 mi east of gaging station on Monona-Harrison Ditch near Turin, 2.5 mi downstream from Maple River, 3.8 mi south of Turin, 6.2 mi northeast of Blencoe, and at mile 13.5.

DRAINAGE AREA.--3,526 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1942 to September 1957, January 1958 to current year. June 1942 to January 1958 at site 1,200 ft east on old river channel; records not equivalent owing to diversion into Monona-Harrison Ditch through equalizer ditch 1.5 mi upstream 1923 to 1958, and diversion with Monona-Harrison Ditch through diversion ditch 8.3 miles upstream since 1958.
REVISED RECORDS: WSP 1440: Drainage area. WSP 1560: Drainage area. WDR IA-95-1: Period of record.

GAGE.--Water-stage recorder. Datum of gage is 1,019.85 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to July 15, 1958, nonrecording gages near present site at different datums. July 15 to Sept. 3, 1958, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	246	242	e266	e230	e173	2,130	1,670	1,520	3,590	1,830	979	429
2	240	249	e287	e235	e180	2,050	1,480	1,420	3,230	1,790	1,020	421
3	247	286	e286	e235	e190	1,970	1,300	1,350	2,970	2,080	1,190	417
4	257	330	e218	e226	e179	1,960	1,170	1,270	2,760	2,230	1,050	399
5	257	326	224	e211	e177	1,800	1,090	1,210	2,580	1,980	895	386
6	248	311	261	e197	e178	2,070	994	1,120	2,450	1,970	830	369
7	251	300	312	e201	e173	2,360	903	1,040	2,300	2,160	804	373
8	248	287	345	e206	e170	2,350	839	1,000	2,190	2,470	794	366
9	243	290	316	e201	e173	1,900	795	951	2,130	2,530	788	366
10	243	292	e242	e197	e179	1,800	747	1,110	2,160	2,620	748	374
11	253	293	e212	e211	e185	1,750	726	1,080	3,020	2,640	719	359
12	248	286	e201	e204	e181	1,620	700	997	3,910	2,560	709	336
13	260	285	e205	e202	e178	1,370	675	892	2,790	2,500	682	345
14	263	289	e222	e202	e176	1,230	666	874	2,560	2,820	650	334
15	256	286	e227	e198	e169	1,190	648	845	2,430	3,970	659	402
16	253	284	e219	e203	e172	1,120	610	826	2,520	3,240	654	2,780
17	253	298	e213	e202	e187	1,080	588	813	11,400	2,810	608	6,410
18	258	288	e216	e197	e192	979	630	793	5,440	2,540	595	6,820
19	255	282	e213	e198	e206	1,110	623	781	3,550	2,360	640	6,230
20	253	280	e214	e203	e205	986	662	768	3,110	2,240	629	7,210
21	245	268	e222	e203	e203	997	811	798	3,010	2,120	577	7,390
22	246	259	e229	e190	e230	964	916	940	3,310	2,000	554	7,970
23	240	247	e224	e200	e397	907	884	4,290	2,640	1,860	516	8,980
24	231	e216	e219	e193	e647	856	877	6,370	2,430	1,700	719	10,300
25	227	e257	e219	e197	e527	816	986	8,070	2,350	1,580	644	11,100
26	227	e255	e227	e190	e407	772	1,190	6,790	2,230	1,460	538	10,100
27	233	e270	e243	e180	e506	862	1,490	5,720	2,110	1,350	495	8,860
28	237	e258	e250	e160	e1,140	1,380	1,800	5,120	2,040	1,270	474	8,260
29	242	e263	e243	e159	e1,920	1,950	1,800	4,750	1,960	1,220	464	8,020
30	242	e278	e236	e160	---	1,810	1,650	4,960	1,890	1,160	495	7,430
31	241	---	e230	e170	---	1,800	---	4,060	---	1,040	465	---
TOTAL	7,643	8,355	7,441	6,161	9,600	45,939	29,920	72,528	91,060	66,100	21,584	123,536
MEAN	247	278	240	199	331	1,482	997	2,340	3,035	2,132	696	4,118
MAX	263	330	345	235	1,920	2,360	1,800	8,070	11,400	3,970	1,190	11,100
MIN	227	216	201	159	169	772	588	768	1,890	1,040	464	334
AC-FT	15,160	16,570	14,760	12,220	19,040	91,120	59,350	143,900	180,600	131,100	42,810	245,000
CFSM	0.07	0.08	0.07	0.06	0.09	0.42	0.28	0.66	0.86	0.60	0.20	1.17
IN.	0.08	0.09	0.08	0.06	0.10	0.48	0.32	0.77	0.96	0.70	0.23	1.30

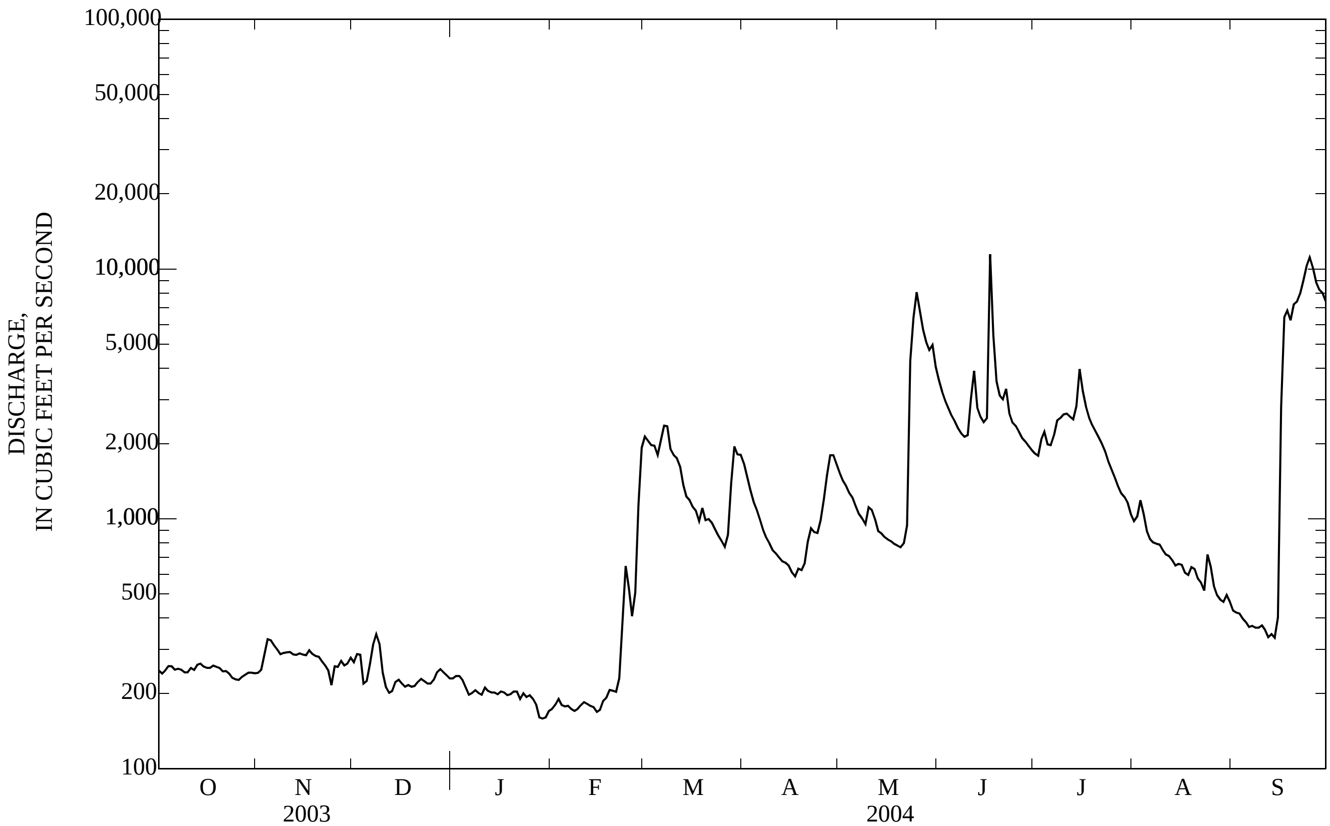
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	779	788	632	464	808	2,264	3,056	2,416	2,958	2,071	1,035	897
MAX	3,625	3,612	2,424	2,250	3,353	9,054	10,790	7,938	15,080	13,110	5,181	4,118
(WY)	(1983)	(1980)	(1983)	(1992)	(1971)	(1983)	(1965)	(1986)	(1984)	(1993)	(1993)	(2004)
MIN	37.5	48.0	31.2	18.5	25.1	171	157	118	315	181	140	90.2
(WY)	(1959)	(1959)	(1959)	(1977)	(1959)	(1964)	(1968)	(1968)	(1968)	(1968)	(1976)	(1976)

06607500 LITTLE SIOUX RIVER NEAR TURIN, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004 a	
ANNUAL TOTAL	422,555		489,867			
ANNUAL MEAN	1,158		1,338		1,515	
HIGHEST ANNUAL MEAN					5,261	1993
LOWEST ANNUAL MEAN					167	1968
HIGHEST DAILY MEAN	13,200	Jul 11	11,400	Jun 17	28,700	Jun 22, 1996
LOWEST DAILY MEAN	201	Dec 12	159	Jan 29 b	17	Jan 18, 1977 c
ANNUAL SEVEN-DAY MINIMUM	214	Dec 11	169	Jan 27	17	Jan 27, 1977
MAXIMUM PEAK FLOW			13,900	Jun 17	32,000	Jun 22, 1996
MAXIMUM PEAK STAGE			20.57	Jun 17	27.44	Feb 19, 1971 b
ANNUAL RUNOFF (AC-FT)	838,100		971,700		1,097,000	
ANNUAL RUNOFF (CFSM)	0.328		0.380		0.430	
ANNUAL RUNOFF (INCHES)	4.46		5.17		5.84	
10 PERCENT EXCEEDS	2,680		2,860		3,650	
50 PERCENT EXCEEDS	419		648		754	
90 PERCENT EXCEEDS	243		202		155	

a Post closure of diversion to Monona-Harrison Ditch.
b Ice affected.
c Also Jan. 19, 20, Jan. 28 to Feb. 1, 1977.
e Estimated.



06607500 LITTLE SIOUX RIVER NEAR TURIN, IA—Continued

(Large river mass contaminents station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instan-taneous dis-charge, cfs (00061)	Stream width, feet (00004)	Turbid-ity, wat unf lab, Hach 2100AN NTU (99872)	Baro-metric pres-sure, mm Hg (00025)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Alka-linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicar-bonate, wat flt incrm. titr., field, mg/L (00453)	Carbon-ate, wat flt incrm. titr., field, mg/L (00452)
MAR													
10...	0830	1,810	150	160	726	11.7	95	8.1	495	4.3	168	205	--
APR													
13...	1400	679	140	28	--	16.5	--	8.7	610	11.7	182	223	--
MAY													
11...	1020	1,020	145	190	730	7.6	89	8.2	590	20.7	181	221	--
24...	1100	6,280	200	2,200	732	--	--	7.6	340	17.5	106	129	--
JUN													
08...	0850	2,220	145	140	730	7.5	92	8.2	730	23.4	224	273	--
17...	1230	13,200	220	--	737	5.9	66	7.7	257	19.0	76	93	--
JUL													
13...	1000	2,510	145	200	734	7.5	97	8.0	718	26.7	219	267	--
AUG													
10...	0900	766	147	78	--	11.2	--	8.3	168	21.1	176	205	5
SEP													
08...	1100	369	150	28	758	11.9	129	8.5	565	19.1	--	200	5
20...	1145	7,260	205	330	733	7.5	83	7.2	363	18.5	131	160	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chlor-ide, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Partic-ulate nitro-gen, susp, water, mg/L (49570)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, wat flt by anal ysis, mg/L (62854)	Total nitro-gen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
10...	16.3	13.6	45.6	.42	6.80	.050	1.54	.210	.24	1.05	7.66	9.51	19.0
APR													
13...	25.1	2.9	84.0	<.04	4.74	.012	1.02	<.006	<.04	.174	5.04	6.05	7.5
MAY													
11...	21.8	5.7	67.9	E.02	6.38	.043	1.57	.051	.064	.58	6.73	8.21	14.3
24...	9.50	8.8	26.1	.27	4.86	.097	10.4	.091	.115	5.16	5.71	8.61	113
JUN													
08...	25.5	15.6	67.1	.01	11.7	.014	1.20	.117	.130	.598	12.3	6.83	12.6
17...	5.17	6.7	13.6	.09	2.98	.042	9.11	.087	.112	.199	3.46	11.2	87.6
JUL													
13...	24.6	18.1	64.6	<.04	12.3	.024	1.40	.138	.151	.63	12.0	12.7	15.9
AUG													
10...	22.5	9.2	79.9	<.04	3.73	.017	1.64	<.006	.008	.28	4.03	5.72	11.0
SEP													
08...	26.3	6.3	89.2	<.04	1.47	.014	1.13	<.006	.013	.150	1.73	2.78	7.5
20...	--	--	--	E.04	4.15	.027	1.56	.186	.19	1.10	4.65	5.85	19.4

06607500 LITTLE SIOUX RIVER NEAR TURIN, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
10...	2.4	16.7	8.4	20.7	20.4	<.006	E.032	.020	<.005	<.005	.109	<.050	<.010
APR													
13...	<.1	7.5	3.1	21.2	62.3	<.006	E.017	.019	<.005	<.005	.048	<.050	<.010
MAY													
11...	.4	13.8	4.0	112	303	<.006	E.093	.493	.031	<.005	2.25	<.050	<.010
24...	4.9	108	5.9	52.0	48.2	<.006	E.229	1.46	.016	<.005	4.78	<.050	<.010
JUN													
08...	.4	12.2	3.2	10.8	28.0	<.006	E.048	.086	.005	<.005	.370	<.050	<.010
17...	2.9	84.7	4.2	14.5	7.7	<.006	E.245	.118	E.005	<.005	10.2	<.050	<.010
JUL													
13...	.7	15.2	3.5	13.5	13.3	<.006	E.042	.026	<.005	<.005	.568	<.050	<.010
AUG													
10...	1.0	10.0	2.8	44.4	85.8	<.006	E.027	.009	<.005	<.005	.180	<.050	<.010
SEP													
08...	<.1	7.4	2.9	53.8	55.7	<.006	E.016	<.006	<.005	<.005	.094	<.050	<.010
20...	<.1	19.3	5.0	7.0	2.9	<.006	E.057	.035	<.005	<.005	.182	<.050	<.010

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)
MAR													
10...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
11...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
24...	<.004	<.041	<.020	.011	<.006	E.012	<.003	<.012	<.005	<.009	<.02	E.003	<.009
JUN													
08...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
17...	<.004	<.041	E.049	.007	<.006	.026	<.003	E.003	<.005	<.009	<.02	<.004	<.009
JUL													
13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
10...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.008	<.009
SEP													
08...	<.004	<.041	<.020	E.004	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
20...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
10...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.472	<.006	<.003
APR													
13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.071	<.006	<.003
MAY													
11...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.451	.015	<.003
24...	<.005	<.029	<.013	<.024	E.009	<.003	<.004	<.035	<.027	<.015	1.20	.019	<.003
JUN													
08...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.113	E.005	<.003
17...	<.005	<.029	E.003	E.006	E.014	<.003	<.004	<.035	<.027	<.015	.470	.007	<.003
JUL													
13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.070	<.006	<.003
AUG													
10...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.023	<.006	<.003
SEP													
08...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.020	<.006	<.003
20...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.081	<.006	<.003

06607500 LITTLE SIOUX RIVER NEAR TURIN, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propy-zamide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)
MAR													
10...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02
APR													
13...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
MAY													
11...	<.007	<.003	<.010	<.004	E.013	<.011	<.01	<.004	<.025	<.011	<.02	.015	<.02
24...	<.007	<.003	<.010	<.004	.032	<.011	.01	<.004	<.025	<.011	<.02	.067	<.02
JUN													
08...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.018	E.01
17...	<.007	<.015	<.010	<.004	.030	<.011	.01	<.004	E.004	<.011	<.02	.040	<.02
JUL													
13...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.007	<.02
AUG													
10...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02
SEP													
08...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
20...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Number of sam-pling points, count (00063)
MAR							
10...	<.034	<.02	<.010	<.002	<.009	--	10
APR							
13...	<.034	<.02	<.010	<.002	<.009	80	10
MAY							
11...	<.034	<.02	<.010	<.002	<.009	358	12
24...	<.034	<.02	<.010	<.002	.021	4,900	8
JUN							
08...	<.034	<.02	<.010	<.002	<.009	527	10
17...	<.034	<.02	<.010	<.002	.020	3,300	9
JUL							
13...	<.034	<.02	<.010	<.002	<.009	697	10
AUG							
10...	<.034	<.02	<.010	<.002	<.009	176	13
SEP							
08...	<.034	<.02	<.010	<.002	<.009	62	10
20...	<.034	<.02	<.010	<.002	<.009	1,580	9

06608500 SOLDIER RIVER AT PISGAH, IA

LOCATION.--Lat 41°49'50", long 95°55'52", in NW1/4 NE1/4 sec.14, T.81 N., R.44 W., Harrison County, Hydrologic Unit 10230001, on right bank at upstream side of bridge on county highway F20, at west edge of Pisgah, 0.4 mi downstream from Cobb Creek, 0.5 mi upstream from Mogger Ditch, and 13.1 mi upstream from mouth.

DRAINAGE AREA.--407 mi^2.

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 956: 1940 (M). WSP 1240: 1940, 1941 (M), 1947. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,036.53 ft above NGVD of 1929. Prior to Oct. 11, 1954, nonrecording gage at same site and datum with supplementary water-stage recorder operating above 8.2 ft gage height Mar. 2, 1946 to Sept. 24, 1953. Prior to Feb. 1954, on left bank at downstream side of bridge. Prior to June 21, 1989, at site 100 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 data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	39	44	56	e46	972	163	87	163	131	83	46
2	41	42	47	56	e45	458	150	86	123	140	114	40
3	42	59	46	e50	e35	256	137	87	113	222	106	39
4	42	84	46	e39	e36	204	127	84	106	330	138	38
5	40	72	e43	e26	e37	349	124	81	100	173	99	44
6	39	55	e42	e27	e39	501	117	76	100	154	83	84
7	38	51	46	e30	e35	409	111	71	96	144	77	64
8	36	49	45	e41	e34	237	102	72	88	138	73	45
9	34	49	e38	e35	e44	197	100	107	83	366	67	43
10	33	52	e27	e34	e54	173	92	80	87	204	61	41
11	37	52	e24	e44	e57	154	92	79	110	179	59	39
12	42	48	e21	e42	e49	129	92	71	118	152	61	37
13	42	44	e30	e42	e50	128	89	70	127	143	62	36
14	42	46	e45	e40	e47	117	88	75	120	132	61	57
15	40	47	e49	e37	e43	121	86	73	157	123	60	521
16	40	46	e44	e46	e58	117	87	70	99	122	59	137
17	40	47	e42	e42	e60	119	95	80	548	114	58	76
18	39	50	e61	e34	e68	124	92	105	228	110	58	63
19	37	48	e54	e31	e75	143	91	83	188	108	63	58
20	35	43	e55	e39	e73	154	102	77	175	106	63	48
21	34	36	e71	e49	e73	128	115	202	634	99	56	59
22	35	36	e69	e34	e108	116	98	246	453	94	55	103
23	34	e33	e63	e57	e219	113	88	521	236	91	53	72
24	35	e28	e60	e49	e203	112	95	309	196	94	51	58
25	36	e41	e69	e49	e153	110	155	593	180	89	51	51
26	37	e38	e79	e45	e125	108	140	244	167	86	51	46
27	39	e40	91	e40	e269	167	108	188	160	84	49	44
28	40	e36	80	e35	e573	496	100	164	157	88	49	42
29	40	e37	e67	e35	e1,500	292	91	147	151	101	49	42
30	40	e45	60	e37	---	211	85	152	141	92	47	39
31	40	---	e52	e41	---	180	---	152	---	85	73	---
TOTAL	1,189	1,393	1,610	1,262	4,208	7,095	3,212	4,532	5,404	4,294	2,089	2,112
MEAN	38.4	46.4	51.9	40.7	145	229	107	146	180	139	67.4	70.4
MAX	42	84	91	57	1,500	972	163	593	634	366	138	521
MIN	33	28	21	26	34	108	85	70	83	84	47	36
AC-FT	2,360	2,760	3,190	2,500	8,350	14,070	6,370	8,990	10,720	8,520	4,140	4,190
CFSM	0.09	0.11	0.13	0.10	0.36	0.56	0.26	0.36	0.44	0.34	0.17	0.17
IN.	0.11	0.13	0.15	0.12	0.38	0.65	0.29	0.41	0.49	0.39	0.19	0.19

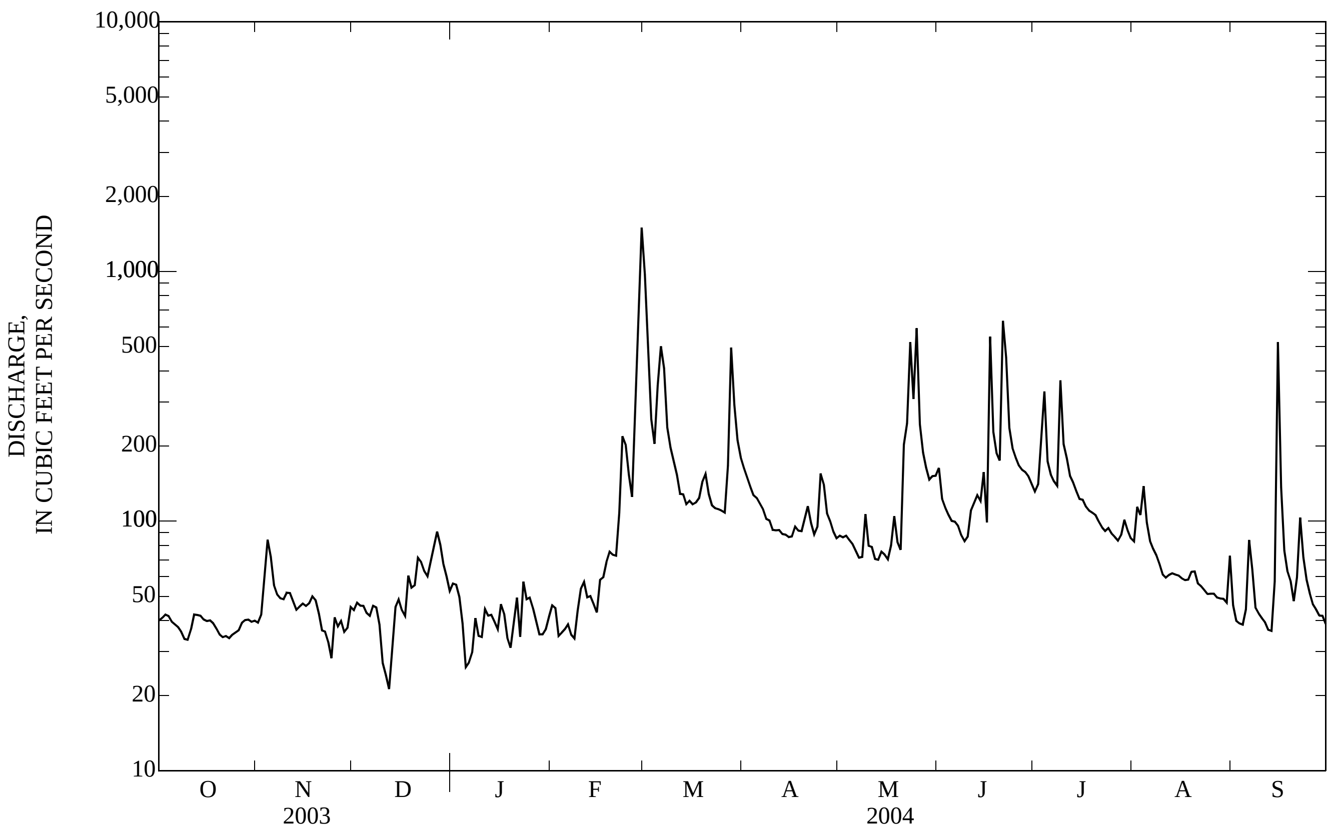
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	80.8	75.1	66.9	65.9	154	262	165	199	306	200	141	109
MAX	330	274	281	431	653	897	623	555	1,233	1,607	632	482
(WY)	(1994)	(1994)	(1985)	(1952)	(1971)	(1993)	(1983)	(1984)	(1991)	(1993)	(1993)	(1978)
MIN	9.61	12.8	6.05	3.29	9.43	27.8	12.5	13.6	22.1	22.8	14.4	6.70
(WY)	(1957)	(1959)	(1959)	(1959)	(1956)	(1957)	(1957)	(1957)	(1956)	(1970)	(1971)	(1956)

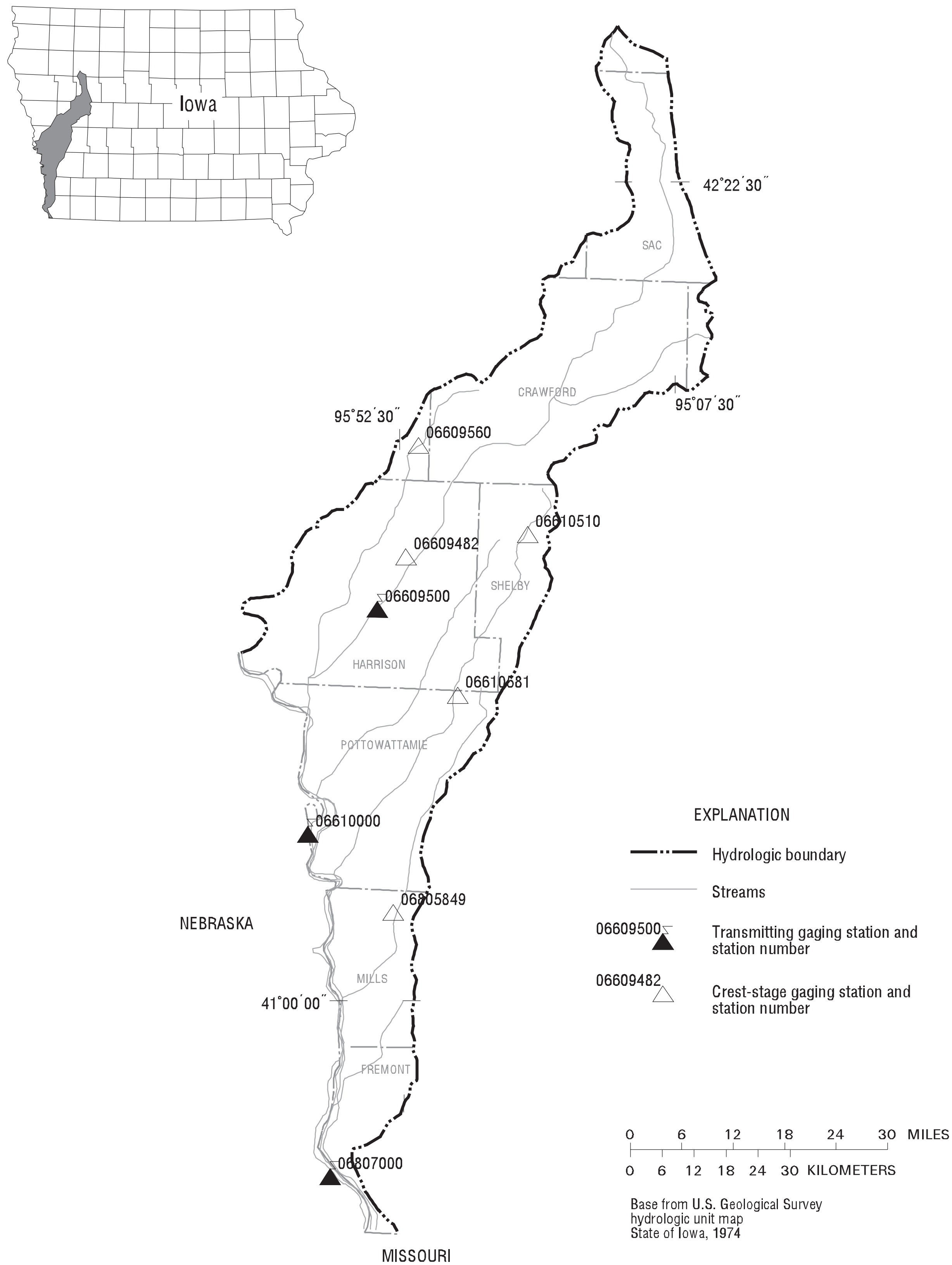
06608500 SOLDIER RIVER AT PISGAH, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941 - 2004	
ANNUAL TOTAL	37,718		38,400			
ANNUAL MEAN	103		105		152	
HIGHEST ANNUAL MEAN					487	1993
LOWEST ANNUAL MEAN					27.3	1956
HIGHEST DAILY MEAN	1,730	Jul 6	1,500	Feb 29 a	20,700	Jul 17, 1996
LOWEST DAILY MEAN	18	Jan 11	21	Dec 12 a	2.0	Jan 2, 1945 b
ANNUAL SEVEN-DAY MINIMUM	30	Feb 6	33	Dec 8	2.0	Jan 2, 1945
MAXIMUM PEAK FLOW			2,500	Feb 29	34,700	Jul 17, 1996
MAXIMUM PEAK STAGE			9.87	Feb 29	28.87	Jul 17, 1996
ANNUAL RUNOFF (AC-FT)	74,810		76,170		110,000	
ANNUAL RUNOFF (CFSM)	0.254		0.258		0.373	
ANNUAL RUNOFF (INCHES)	3.45		3.51		5.07	
10 PERCENT EXCEEDS	187		182		280	
50 PERCENT EXCEEDS	63		70		73	
90 PERCENT EXCEEDS	36		37		17	

a Ice affected.
b Also Jan. 3-10, 1945.
e Estimated.



06608500 SOLDIER RIVER AT PISGAH, IA—Continued


Iowa
42°22´30˝
SAC
CRAWFORD
95°52´30˝
95°07´30˝
06609560
06610510
06609482
SHELBY
06609500
HARRISON
06610581
POTTOWATTAMIE
06610000
06805849
NEBRASKA
MILLS
41°00´00˝
FREMONT
06807000
MISSOURI
EXPLANATION
Hydrologic boundary
Streams
06609500
Transmitting gaging station and station number
06609482
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

06609500 Boyer River at Logan, IA 430
06610000 Missouri River at Omaha, NE 435
06807000 Missouri River at Nebraska City, NE 440

Crest Stage Gaging Stations

06609560 Willow Creek near Soldier, IA 494
06610510 Moser Creek near Earling, IA 494
06610581 Mosquito Creek Tributary near Neola, IA 494
06805849 Keg Creek Tributary near Mineola, IA 494

06609500 BOYER RIVER AT LOGAN, IA

LOCATION.--Lat 41°38'30", long 95°46'57", in SE$\frac{1}{4}$ NW$\frac{1}{4}$ sec.19, T.79 N., R.42 W., Harrison County, Hydrologic Unit 10230007, on left bank downstream side of county bridge on Eight Street in Logan, 0.5 mi downstream from Elk Grove Creek, 10.4 mi upstream from Willow Creek, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--871 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1918 to November 1924, February 1925 to July 1925, November 1937 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 956: 1938-39. WSP 1240: 1918-19, 1920 (M), 1921, 1922 (M), 1924-25, 1938 (M), 1945. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,009.38 ft above NGVD of 1929 (Chicago and Northwestern Railway Company bench mark). See WSP 1918 for history of changes prior to Oct. 18, 1960.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	84	104	135	e57	2,120	613	310	845	478	245	126
2	78	86	101	132	e57	1,440	543	303	691	481	e300	117
3	81	110	107	128	e46	1,020	482	293	631	564	e290	113
4	80	183	108	e76	e49	645	440	289	596	778	e420	109
5	79	166	101	e54	e53	932	414	276	578	553	306	103
6	78	125	91	e54	e54	2,190	405	271	564	495	253	108
7	77	106	100	e56	e50	1,150	385	246	534	534	229	110
8	75	96	e94	e66	e50	776	363	236	498	520	209	99
9	72	89	e84	e56	e63	592	341	254	468	557	201	101
10	75	95	e71	e52	e73	511	322	255	462	886	191	99
11	86	104	e61	e66	e78	447	312	245	609	594	184	91
12	92	97	e58	e60	e69	385	305	237	813	505	182	84
13	98	87	e63	e59	e68	360	299	232	849	614	183	81
14	113	85	e73	e58	e64	362	287	243	914	481	187	87
15	108	89	e77	e55	e59	357	276	229	673	418	180	110
16	98	87	e75	e70	e89	353	267	219	575	392	175	179
17	91	90	e72	e64	e87	347	268	238	3,780	386	171	123
18	92	105	e92	e57	e97	345	254	344	3,320	353	165	118
19	88	101	e82	e52	e106	359	262	283	1,390	350	171	112
20	87	97	e83	e64	e102	393	274	251	1,010	333	186	99
21	85	91	e105	e74	e100	384	319	240	1,000	322	167	102
22	84	88	e99	e56	e122	334	306	603	1,180	328	158	96
23	80	e82	e93	e70	e238	322	297	1,990	827	315	150	97
24	79	e75	e87	e66	e225	311	295	2,160	731	297	152	105
25	84	e85	e106	e61	e185	303	363	2,190	674	300	146	102
26	84	e82	e120	e57	e154	297	401	1,260	647	294	149	92
27	88	e86	158	e46	e556	476	393	941	609	277	146	88
28	92	e84	150	e43	e1,220	1,330	380	790	577	262	145	87
29	90	e88	e145	e44	e2,560	1,260	354	686	542	278	135	83
30	89	e95	e139	e44	---	904	326	875	508	272	121	82
31	86	---	140	e50	---	717	---	825	---	253	145	---
TOTAL	2,667	2,938	3,039	2,025	6,731	21,722	10,546	17,814	27,095	13,470	6,042	3,103
MEAN	86.0	97.9	98.0	65.3	232	701	352	575	903	435	195	103
MAX	113	183	158	135	2,560	2,190	613	2,190	3,780	886	420	179
MIN	72	75	58	43	46	297	254	219	462	253	121	81
AC-FT	5,290	5,830	6,030	4,020	13,350	43,090	20,920	35,330	53,740	26,720	11,980	6,150
CFSM	0.10	0.11	0.11	0.07	0.27	0.80	0.40	0.66	1.04	0.50	0.22	0.12
IN.	0.11	0.13	0.13	0.09	0.29	0.93	0.45	0.76	1.16	0.58	0.26	0.13

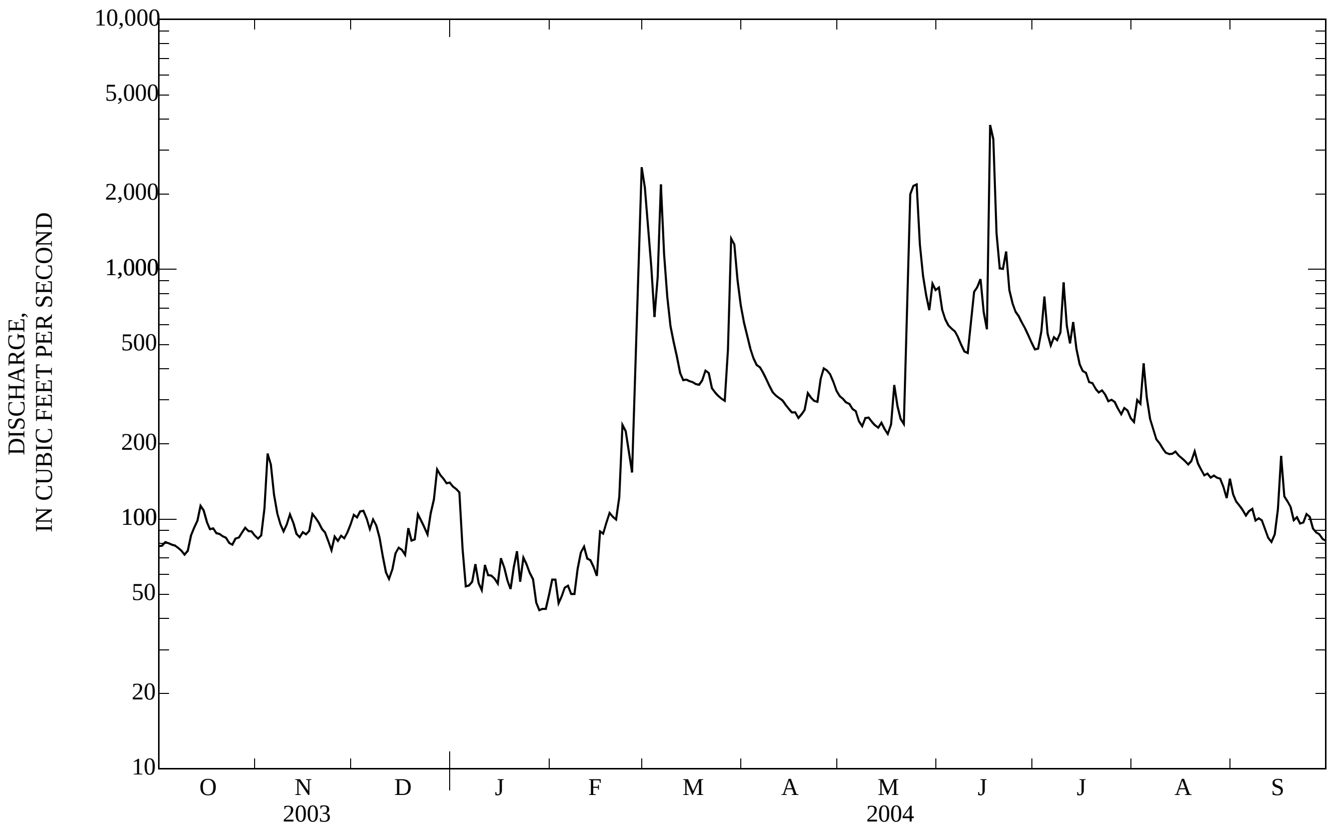
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	183	167	137	127	311	592	441	519	756	468	304	249
MAX	796	558	565	692	1,209	2,619	1,988	1,698	2,541	3,022	1,636	1,288
(WY)	(1974)	(1974)	(1973)	(1973)	(1971)	(1979)	(1983)	(1984)	(1990)	(1993)	(1951)	(1978)
MIN	11.1	8.33	6.68	3.06	3.55	40.4	23.3	39.9	33.3	51.0	34.5	11.6
(WY)	(1957)	(1940)	(1938)	(1940)	(1940)	(1981)	(1957)	(1968)	(1956)	(1977)	(1976)	(1939)

06609500 BOYER RIVER AT LOGAN, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	115,186		117,192			
ANNUAL MEAN	316		320		358	
HIGHEST ANNUAL MEAN					1,018	1993
LOWEST ANNUAL MEAN					58.7	1956
HIGHEST DAILY MEAN	4,170	Jul 11	3,780	Jun 17	24,600	Jul 9, 1993
LOWEST DAILY MEAN	58	Dec 12	43	Jan 28 a	1.5	Jul 16, 1938
ANNUAL SEVEN-DAY MINIMUM	68	Feb 6	49	Jan 26	2.0	Jan 13, 1940
MAXIMUM PEAK FLOW			4,820	Jun 17	30,800	Jun 17, 1990
MAXIMUM PEAK STAGE			10.67	Jun 17	25.22	Mar 1, 1965 a
ANNUAL RUNOFF (AC-FT)	228,500		232,500		259,200	
ANNUAL RUNOFF (CFSM)	0.362		0.368		0.411	
ANNUAL RUNOFF (INCHES)	4.92		5.01		5.58	
10 PERCENT EXCEEDS	629		688		754	
50 PERCENT EXCEEDS	165		162		166	
90 PERCENT EXCEEDS	78		66		35	

a Ice affected.
e Estimated.



06609500 BOYER RIVER AT LOGAN, IA—Continued

(Large river mass contaminents station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
MAR													
12...	0930	382	90.0	79	737	13.2	96	8.5	612	1.0	236	287	--
APR													
14...	0730	293	90.0	28	733	11.1	100	8.3	637	9.1	238	290	--
MAY													
11...	1300	242	90.0	42	730	8.0	97	8.4	630	22.5	237	289	--
23...	1015	1,820	--	2,600	723	4.8	56	7.4	429	20.0	145	177	--
JUN													
08...	1130	497	95.0	98	735	7.8	97	8.3	661	24.1	230	281	--
17...	1000	4,740	110	E3,700	738	4.7	54	7.6	260	20.0	88	108	--
JUL													
13...	1230	651	92.0	170	733	8.1	107	8.1	686	27.8	238	265	12
AUG													
10...	1130	190	90.0	42	--	10.3	--	8.4	198	21.9	256	300	6
SEP													
07...	1530	110	80.0	11	--	10.1	--	8.6	664	25.3	254	307	1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat flt by analysis, mg/L (62854)	Total nitrogen, wat unf by analysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)
MAR													
12...	19.0	15.7	45.0	.12	8.55	.016	.37	.372	.39	.60	8.68	9.26	3.3
APR													
14...	22.5	11.3	44.9	<.04	8.98	.008	.23	.303	.30	.39	8.94	9.60	1.6
MAY													
11...	20.1	9.5	43.2	<.04	7.83	.019	.47	.246	.26	.43	7.62	8.29	4.5
23...	13.3	9.5	25.1	.20	6.04	.114	E1.29	.195	.22	6.83	6.79	9.14	E12.9
JUN													
08...	18.8	16.2	38.6	<.04	12.0	.010	1.34	.292	.31	.62	13.0	8.11	9.1
17...	5.97	8.0	12.6	.05	4.63	.052	13.0	.143	.172	7.77	4.99	16.1	125
JUL													
13...	19.2	16.6	38.4	<.04	13.2	.009	1.03	.291	.33	.76	13.3	12.9	10.0
AUG													
10...	22.5	15.8	45.8	<.04	8.60	.011	.31	.530	.51	.75	9.39	9.36	4.1
SEP													
07...	27.1	13.1	51.3	<.04	5.45	.032	.15	.702	.023	.78	5.71	5.74	.9

06609500 BOYER RIVER AT LOGAN, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)
MAR													
12...	<.1	3.2	3.3	1.4	1.6	<.006	E.027	.008	<.005	<.005	.084	<.050	<.010
APR													
14...	<.1	1.6	2.4	1.9	2.7	<.006	E.019	.023	<.005	<.005	.070	<.050	<.010
MAY													
11...	.1	4.3	2.7	7.6	16.4	<.006	E.045	.111	.007	<.005	.566	<.050	<.010
23...	E.2	E12.7	7.1	37.4	27.1	<.006	E.668	5.23	.039	<.005	26.9	<.050	<.010
JUN													
08...	.1	9.0	4.1	4.1	6.6	<.006	E.042	.038	<.005	<.005	.428	<.050	<.010
17...	3.7	121	4.6	37.7	17.9	<.006	E.418	.390	E.005	<.005	17.7	<.050	<.010
JUL													
13...	.1	9.9	2.4	9.5	12.8	<.006	E.028	.016	<.005	<.005	.258	<.050	<.010
AUG													
10...	<.1	4.1	2.1	2.6	7.5	<.006	E.029	.009	<.005	<.005	.175	<.050	<.010
SEP													
07...	<.1	.9	2.5	5.5	6.5	<.006	E.016	1.03	<.005	<.005	.239	<.050	<.010

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)
MAR													
12...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
APR													
14...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
MAY													
11...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
23...	<.004	E.007	<.020	.012	<.006	.029	<.003	<.012	<.005	<.009	<.02	E.003	<.009
JUN													
08...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
17...	<.004	<.041	E.736	.006	<.006	E.015	<.003	E.003	<.005	<.009	<.02	<.004	<.009
JUL													
13...	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
AUG													
10...	<.004	<.041	<.020	E.004	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009
SEP													
07...	<.004	<.041	<.020	<.005	<.006	E.007	<.003	<.012	<.005	<.009	<.02	<.004	<.009

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Desulfinylfipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)
MAR													
12...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.205	<.006	<.003
APR													
14...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.042	<.006	<.003
MAY													
11...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.333	.007	<.003
23...	<.005	<.029	<.013	<.024	E.006	<.003	<.004	<.035	<.027	<.015	3.91	.139	<.003
JUN													
08...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.146	E.004	<.003
17...	<.005	<.029	<.013	E.005	E.010	<.003	<.004	<.035	<.027	<.015	.650	.008	<.003
JUL													
13...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.053	<.006	<.003
AUG													
10...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.035	<.006	<.003
SEP													
07...	<.005	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.111	<.006	<.003

06609500 BOYER RIVER AT LOGAN, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propy-zamide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)
MAR													
12...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	<.005	<.02
APR													
14...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
MAY													
11...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02
23...	<.007	<.003	<.010	<.004	E.021	<.011	.01	<.004	<.025	<.011	<.02	.092	<.02
JUN													
08...	<.007	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	E.005	<.02
17...	<.007	<.015	<.010	<.004	E.016	<.011	.01	<.004	<.025	<.011	<.02	.076	<.02
JUL													
13...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.149	<.02
AUG													
10...	<.007	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	E.004	<.02
SEP													
07...	<.007	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terba-cil, water, fltrd 0.7u GF ug/L (82665)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Number of sam-pling points, count (00063)
MAR							
12...	<.034	<.02	<.010	<.002	<.009	189	9
APR							
14...	<.034	<.02	<.010	<.002	<.009	77	10
MAY							
11...	<.034	<.02	<.010	<.002	<.009	156	12
23...	<.034	<.02	<.010	<.002	.015	6,330	10
JUN							
08...	<.034	<.02	<.010	<.002	<.009	253	11
17...	<.034	<.02	<.010	<.002	.016	7,600	8
JUL							
13...	<.034	<.02	<.010	<.002	<.009	677	9
AUG							
10...	E.031	<.02	<.010	<.002	<.009	332	12
SEP							
07...	<.034	<.02	<.010	<.002	<.009	33	10

06610000 MISSOURI RIVER AT OMAHA, NE
(National stream-quality accounting network station)

LOCATION.--Lat 41°15'32", long 95°55'20", in SE$\frac{1}{4}$ NW$\frac{1}{4}$ sec.23, T.15 N., R.13 E., Douglas County, Hydrologic Unit 10230006, on right bank on left side of concrete floodwall, at foot of Douglas Street, 275 ft downstream from Interstate 480 Highway bridge in Omaha, and at mile 615.9.

DRAINAGE AREA.--322,800 mi^2, approximately. The 3,959 mi^2 in Great Divide basin are not included.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. April 1872 to December 1899 (gage heights only) in reports of the Missouri River Commission and since January 1875, (gage heights only) in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 948.24 ft above NGVD of 1929. See WSP 1730 for history of changes prior to Sept. 30, 1936. Oct. 1, 1936 to Sept. 30, 1982 at datum 10.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 396,000 ft^3/s Apr. 18, 1952, gage height, 40.20 ft, present datum; minimum, about 2,200 ft^3/s Jan. 6, 1937; minimum gage height, 6.85 ft, present datum, Feb. 5, 1989, result of freeze-up.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28,800	30,100	15,300	16,900	16,800	24,100	26,100	25,900	42,200	34,200	30,100	28,000
2	28,800	30,200	15,300	17,000	16,900	25,600	24,800	26,100	39,200	34,300	30,000	28,100
3	29,100	31,500	15,400	17,000	17,500	26,300	24,000	27,800	40,000	35,200	30,800	28,100
4	29,100	32,400	15,300	16,800	18,400	24,500	23,700	29,800	42,100	40,200	32,700	28,500
5	29,200	32,300	15,300	16,200	18,300	25,100	23,700	30,200	39,200	41,600	31,100	29,100
6	29,200	31,900	15,100	15,500	17,100	26,900	23,800	30,000	39,400	38,500	30,600	29,400
7	29,100	31,300	14,900	15,000	16,800	27,900	23,700	30,000	40,900	37,500	30,200	29,700
8	29,100	31,000	14,800	14,500	17,400	23,700	24,000	30,100	39,200	37,800	30,600	29,200
9	29,100	30,700	15,000	15,100	16,600	21,500	25,000	30,400	38,300	40,000	31,200	29,000
10	29,500	30,800	14,800	16,200	16,100	19,400	25,200	31,900	37,700	40,000	30,900	28,900
11	30,300	31,000	15,000	17,000	16,900	17,900	24,900	34,000	38,300	38,900	30,500	29,400
12	30,600	31,000	14,500	17,100	17,200	17,000	25,300	32,500	42,000	37,000	30,400	29,400
13	31,000	31,000	14,600	17,300	16,800	16,300	25,600	31,900	42,200	36,200	30,200	29,400
14	30,800	31,200	15,800	17,700	16,200	15,400	25,500	32,900	38,600	34,700	29,900	29,200
15	30,300	30,800	16,800	17,600	15,700	15,500	25,200	30,600	38,900	34,300	29,500	30,500
16	30,200	30,800	17,400	17,000	16,500	16,200	25,300	30,400	38,300	35,700	29,100	33,700
17	29,700	31,200	17,800	16,500	16,100	16,100	25,700	31,900	41,700	33,500	28,700	39,000
18	29,300	31,300	17,900	16,000	15,500	15,900	25,800	29,700	51,300	32,700	28,900	40,400
19	29,300	31,200	17,800	16,100	15,600	15,500	25,800	30,200	44,200	32,700	28,700	37,900
20	29,200	29,500	18,300	16,400	15,700	15,500	26,600	32,100	43,900	32,400	29,100	35,500
21	29,500	26,400	17,500	16,200	15,800	15,800	26,800	29,200	44,100	32,300	28,600	35,700
22	29,600	23,900	16,700	16,600	15,600	17,300	27,300	31,000	44,400	32,700	28,200	35,600
23	29,700	21,700	16,300	17,200	16,600	19,700	27,700	46,600	41,500	31,600	28,100	35,500
24	29,800	19,000	15,800	17,300	18,300	21,200	27,800	51,600	39,400	31,000	28,300	35,900
25	29,800	17,000	15,600	18,700	17,300	22,000	28,100	50,300	38,300	30,600	29,100	37,400
26	29,900	15,900	15,500	19,100	15,800	22,000	28,900	48,700	37,700	30,400	28,800	37,400
27	30,100	15,600	15,500	17,900	15,200	24,000	28,600	39,500	36,900	30,300	28,500	36,000
28	30,200	15,400	16,100	17,700	16,900	26,200	27,500	37,900	35,800	30,200	28,300	34,000
29	30,200	15,300	17,200	15,500	20,800	28,500	26,100	38,500	35,400	30,400	28,200	32,700
30	30,100	15,200	17,400	14,600	---	27,900	25,700	34,700	34,900	30,600	28,100	32,000
31	29,900	---	17,100	16,000	---	27,100	---	37,500	---	30,400	28,100	---
TOTAL	920,500	806,600	497,800	515,700	486,400	658,000	774,200	1,053,900	1,206,000	1,067,900	915,500	974,600
MEAN	29,690	26,890	16,060	16,640	16,770	21,230	25,810	34,000	40,200	34,450	29,530	32,490
MAX	31,000	32,400	18,300	19,100	20,800	28,500	28,900	51,600	51,300	41,600	32,700	40,400
MIN	28,800	15,200	14,500	14,500	15,200	15,400	23,700	25,900	34,900	30,200	28,100	28,000
AC-FT	1,826,000	1,600,000	987,400	1,023,000	964,800	1,305,000	1,536,000	2,090,000	2,392,000	2,118,000	1,816,000	1,933,000
CFSM	0.09	0.08	0.05	0.05	0.05	0.07	0.08	0.11	0.12	0.11	0.09	0.10
IN.	0.11	0.09	0.06	0.06	0.06	0.08	0.09	0.12	0.14	0.12	0.11	0.11

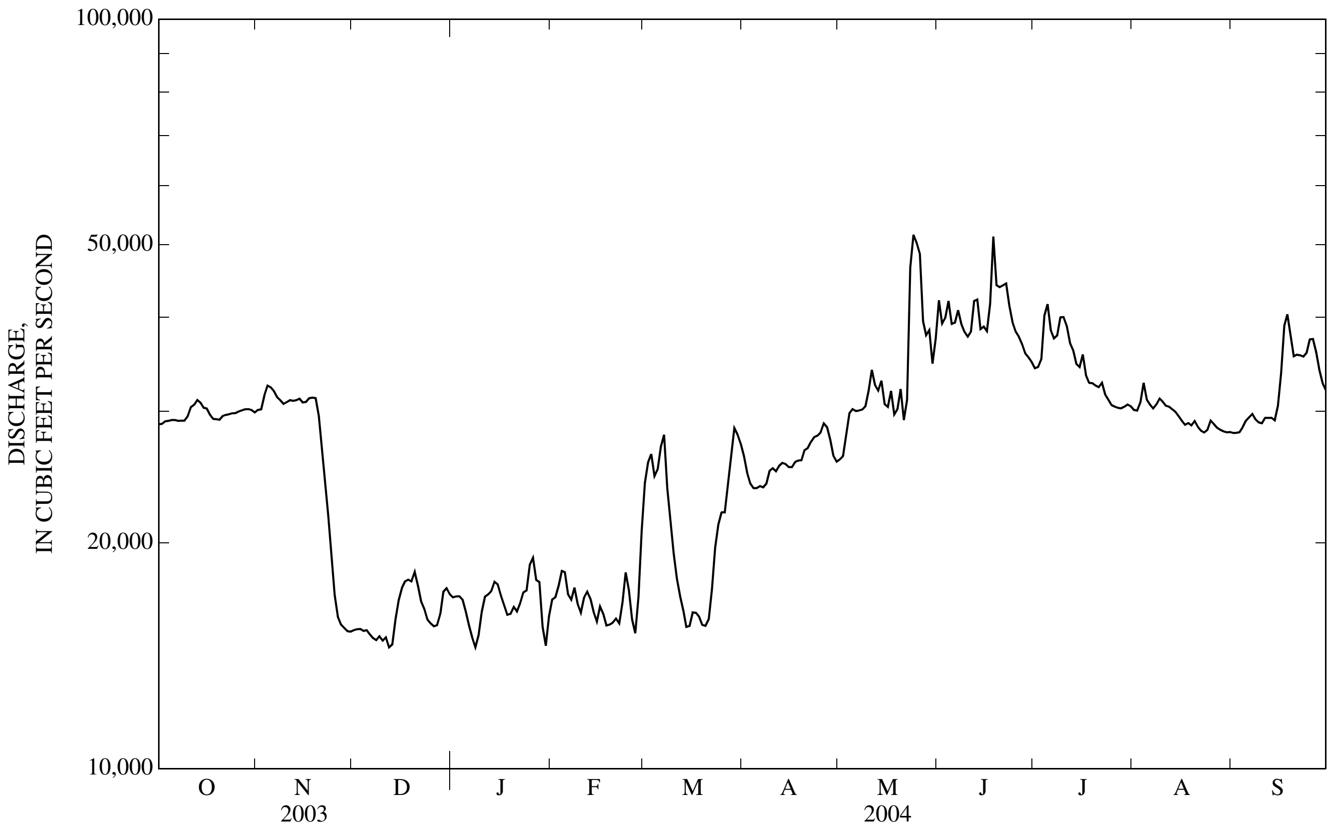
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	38,240	33,960	20,900	17,720	19,710	27,730	38,400	38,460	41,670	40,210	38,580	38,670
MAX	74,070	75,040	44,260	33,250	40,410	54,660	93,840	87,620	76,120	78,560	68,890	69,770
(WY)	(1998)	(1998)	(1998)	(1987)	(1997)	(1997)	(1997)	(1997)	(1997)	(1993)	(1997)	(1997)
MIN	16,920	8,324	8,296	8,425	8,162	10,170	16,480	26,450	26,890	27,150	26,780	28,290
(WY)	(1962)	(1962)	(1962)	(1964)	(1963)	(1957)	(1957)	(1961)	(1961)	(1958)	(2003)	(1958)

06610000 MISSOURI RIVER AT OMAHA, NE—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004 a	
ANNUAL TOTAL	9,556,400		9,877,100			
ANNUAL MEAN	26,180		26,990		32,890	
HIGHEST ANNUAL MEAN					62,150	1997
LOWEST ANNUAL MEAN					20,490	1957
HIGHEST DAILY MEAN	54,500	Jul 11	51,600	May 24	116,000	Apr 4, 1960
LOWEST DAILY MEAN	12,700	Mar 11	14,500	Dec 12 b	2,440	Dec 14, 1961
ANNUAL SEVEN-DAY MINIMUM	14,200	Mar 6	14,800	Dec 7	4,300	Nov 28, 1955
MAXIMUM PEAK FLOW			53,400	Jun 18	120,000	Apr 1, 1960
MAXIMUM PEAK STAGE			22.57	Jun 18	30.26	Jul 10, 1993
INSTANTANEOUS LOW FLOW			14,100	Jan 29 c		
ANNUAL RUNOFF (AC-FT)	18,960,000		19,590,000		23,830,000	
ANNUAL RUNOFF (CFSM)	0.081		0.084		0.102	
ANNUAL RUNOFF (INCHES)	1.10		1.14		1.38	
10 PERCENT EXCEEDS	34,400		38,300		52,100	
50 PERCENT EXCEEDS	28,700		28,900		32,200	
90 PERCENT EXCEEDS	15,400		15,800		14,300	

a Post regulation.
b Also Jan. 8.
c Also Jan. 30.



06610000 MISSOURI RIVER AT OMAHA, NE—Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instan- taneous dis- charge, cfs (00061)	Stream width, feet (00004)	Turbid- ity, wat unf lab, Hach 2100AN NTU (99872)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Alka- linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicar- bonate, wat flt incrm. titr., field, mg/L (00453)	Chlor- ide, water, fltrd, mg/L (00940)
MAR													
11...	1030	1,180	225	200	744	11.9	96	8.3	490	5.2	172	210	16.9
29...	1230	4,180	260	E1,100	740	8.2	78	7.7	440	12.0	151	184	18.3
APR													
12...	1300	1,210	235	63	--	11.3	--	8.2	533	10.3	174	213	17.5
MAY													
10...	1230	4,630	260	E4,200	737	3.5	40	7.5	387	20.6	121	147	11.2
25...	1045	15,800	310	2,300	732	5.3	58	7.2	238	17.5	80	97	6.35
JUN													
07...	1245	3,580	250	200	733	7.6	89	8.0	510	21.3	176	214	13.8
JUL													
12...	1230	2,670	240	520	741	7.4	92	7.9	454	24.4	148	181	11.8
AUG													
09...	1230	1,480	210	58	742	8.2	97	8.1	502	22.0	194	236	14.9
SEP													
07...	1230	823	200	93	743	8.6	99	8.3	542	21.2	198	242	15.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Partic- ulate nitro- gen, susp, water, mg/L (49570)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Total nitro- gen, wat flt by anal ysis, mg/L (62854)	Total nitro- gen, wat unf by anal ysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inor- ganic carbon, suspnd sedimnt total, mg/L (00688)
MAR													
11...	14.0	31.7	.18	7.85	.025	.70	.177	.192	.72	8.55	8.76	7.1	<.1
29...	12.7	27.8	.18	7.37	.063	4.03	.158	.190	3.09	7.93	11.7	47.2	.2
APR													
12...	11.4	30.4	<.04	7.75	.011	.32	.155	.176	.37	8.15	8.61	2.7	<.1
MAY													
10...	8.9	21.1	.22	6.45	.164	15.1	.101	.123	9.41	6.98	16.9	145	8.1
25...	9.2	12.9	.16	5.89	.071	.72	.076	.101	6.02	6.39	10.4	7.1	.2
JUN													
07...	16.2	27.0	<.04	11.5	.024	.98	.157	.162	.76	11.5	6.61	9.6	.2
JUL													
12...	14.2	21.8	<.04	8.01	.038	2.81	.154	.172	1.16	8.24	10.1	27.6	.4
AUG													
09...	16.5	28.4	<.04	7.24	.011	.85	.206	.22	.63	7.64	8.38	8.2	<.1
SEP													
07...	13.5	28.8	<.04	4.30	.016	.53	.180	.17	.42	4.59	5.02	4.1	<.1

06610000 MISSOURI RIVER AT OMAHA, NE—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)
MAR													
11...	7.0	3.3	3.8	4.7	<.006	E.024	.009	<.005	<.005	.078	<.050	<.010	<.004
29...	47.0	6.0	26.2	24.6	<.006	E.028	.026	<.005	<.005	.160	<.050	<.010	<.004
APR													
12...	2.7	2.2	2.5	6.2	<.006	E.023	.017	<.005	<.005	.070	<.050	<.010	<.004
MAY													
10...	137	5.1	6.6	3.2	<.006	E.441	2.28	.240	<.005	E41.7	<.050	<.010	<.004
25...	6.9	5.4	18.2	8.8	<.006	E.469	.884	.051	<.005	8.69	<.050	<.010	<.004
JUN													
07...	9.4	3.5	3.1	2.5	<.006	E.076	.051	.006	<.005	.781	<.050	<.010	<.004
JUL													
12...	27.2	3.2	5.7	3.9	<.006	E.068	.032	<.005	<.005	.681	<.050	<.010	<.004
AUG													
09...	8.1	2.4	5.5	10.9	<.006	E.036	.015	<.005	<.005	.239	<.050	<.010	<.004
SEP													
07...	4.1	2.7	9.4	13.6	<.006	E.025	.025	<.005	<.005	.273	<.050	<.010	<.004

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
MAR													
11...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
29...	<.041	<.020	.006	<.006	E.012	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
APR													
12...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
MAY													
10...	E.007	<.020	.008	<.006	.019	<.003	<.012	<.005	E.006	<.02	<.004	<.009	<.005
25...	E.007	<.020	.027	<.006	.516	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
JUN													
07...	<.041	<.020	<.005	<.006	E.008	<.003	<.012	<.005	E.003	<.02	<.004	<.009	<.005
JUL													
12...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
AUG													
09...	<.041	<.020	E.004	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
SEP													
07...	<.041	<.020	<.005	<.006	E.016	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Desulfinyl-fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
MAR													
11...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.027	<.006	<.003	<.007
29...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.066	<.006	<.003	<.007
APR													
12...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.032	<.006	<.003	<.007
MAY													
10...	<.029	<.013	E.006	E.009	<.003	<.004	<.035	<.027	<.015	.925	.053	<.003	<.007
25...	<.029	<.013	E.008	E.031	.024	<.004	<.035	<.027	<.015	3.06	.075	<.003	<.007
JUN													
07...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.131	.006	<.003	<.007
JUL													
12...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.121	E.005	<.003	<.007
AUG													
09...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.041	<.006	<.003	<.007
SEP													
07...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.098	<.006	<.003	<.007

06610000 MISSOURI RIVER AT OMAHA, NE—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Propy-zamide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)
MAR													
11...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
29...	<.003	<.010	<.004	E.007	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
APR													
12...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
MAY													
10...	<.003	<.010	<.004	E.017	<.011	.01	<.004	<.025	<.011	<.02	.098	<.02	<.034
25...	<.003	<.010	<.004	.028	<.011	.01	<.004	<.025	<.011	<.02	.042	<.02	<.034
JUN													
07...	<.003	<.010	<.004	E.009	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02	<.034
JUL													
12...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.009	<.02	<.034
AUG													
09...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
SEP													
07...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.011	<.02	<.034

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Thio-bencarb water fltrd 0.7u GF ug/L (82681)	Tri-allate, water, fltrd 0.7u GF ug/L (82678)	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)	Sus-pended sedi-ment concen-tration mg/L (80154)	Number of sam-pling points, count (00063)
MAR						
11...	<.02	<.010	<.002	<.009	553	11
29...	<.02	<.010	<.002	E.004	3,210	10
APR						
12...	<.02	<.010	<.002	<.009	200	12
MAY						
10...	<.02	<.010	<.002	.035	8,700	14
25...	<.02	<.010	<.002	.034	5,340	8
JUN						
07...	<.02	<.010	<.002	<.009	633	10
JUL						
12...	<.02	<.010	<.002	<.009	1,500	10
AUG						
09...	<.02	<.010	<.002	<.009	861	14
SEP						
07...	<.02	<.010	<.002	<.009	228	11

06807000 MISSOURI RIVER AT NEBRASKA CITY, NE

LOCATION.--Lat 40°40'55", long 95°50'48", in NW¼ NE¼ sec.9, T.8 N., R.14 E., Otoe County, Hydrologic Unit 10240001, on right bank 1.0 mi upstream from Highway 2 Bridge at Nebraska City, and at mile 562.6.

DRAINAGE AREA.--410,000 mi^2, approximately. The 3,959 mi^2 in Great Divide basin are not included.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1929 to current year. Gage-height records collected in this vicinity from August 1878 to December 1899 are contained in reports of Missouri River Commission.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 905.36 ft above NGVD of 1929, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 414,000 ft^3/s Apr. 19, 1952; maximum gage height, 27.66 ft Apr. 18, 1952; minimum discharge, 1,600 ft^3/s Dec. 31, 1946 (discharge measurement); minimum gage height observed, -0.28 ft Dec. 24, 1960, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30,000	32,600	17,000	20,200	17,900	37,100	33,600	30,600	48,900	39,300	33,600	29,400
2	30,000	32,800	18,200	19,800	18,800	41,100	31,500	30,300	49,800	39,100	33,200	29,000
3	30,400	33,400	19,200	19,800	18,600	39,900	30,100	30,700	47,900	42,100	33,300	28,900
4	30,100	36,400	19,700	20,200	19,800	37,200	29,100	32,300	48,900	42,700	38,100	29,000
5	29,700	35,800	19,300	18,500	20,800	36,900	28,500	33,500	47,600	46,200	36,200	29,400
6	29,800	34,800	18,400	16,600	20,600	37,500	28,000	33,200	46,100	45,500	34,000	30,800
7	30,400	34,800	17,700	15,300	19,200	38,000	28,400	33,400	46,900	45,000	33,600	30,100
8	30,200	34,300	16,900	15,000	19,100	34,600	28,500	33,500	46,900	45,200	33,100	29,700
9	30,400	33,900	17,400	15,400	19,700	31,500	28,600	33,600	45,800	47,300	33,100	29,200
10	30,600	33,900	18,000	16,800	19,100	29,100	29,100	34,400	44,700	49,200	33,100	29,100
11	31,600	34,000	16,100	18,300	19,200	27,300	28,900	36,600	43,800	51,900	32,700	29,300
12	32,100	33,500	16,000	19,000	20,400	25,300	29,600	36,500	44,700	49,500	32,400	29,800
13	32,200	33,400	15,500	19,300	20,800	23,800	30,100	35,600	53,300	46,400	32,600	29,900
14	33,300	33,300	16,500	20,100	20,300	22,200	30,100	35,800	48,400	45,300	32,300	29,800
15	32,500	33,200	18,600	21,200	19,300	21,400	29,800	35,500	47,300	42,800	32,200	30,100
16	32,000	33,000	20,100	20,500	18,800	22,400	29,300	33,400	46,300	43,000	32,000	32,500
17	32,200	33,500	20,700	21,300	19,500	22,700	29,200	34,700	45,800	42,400	31,700	36,100
18	31,600	34,600	20,700	21,900	18,600	23,100	29,800	35,000	54,700	40,000	31,400	39,600
19	31,500	33,600	20,400	21,200	18,500	22,100	29,400	34,000	54,600	38,300	31,200	39,500
20	31,400	32,900	20,300	19,900	19,300	21,300	29,700	36,000	51,000	37,400	31,200	37,500
21	31,700	30,800	21,100	20,200	20,100	21,400	30,300	35,900	50,700	36,500	30,900	37,900
22	32,000	28,200	20,700	20,500	20,700	22,200	30,300	34,700	50,700	39,000	29,900	40,900
23	31,700	26,200	19,700	21,100	22,200	24,700	31,000	53,700	49,000	37,900	29,400	39,000
24	31,700	23,800	19,400	21,400	25,900	27,000	31,500	73,800	46,300	36,200	29,500	38,500
25	31,700	21,100	19,100	21,800	27,100	28,300	33,100	80,000	45,100	35,200	30,600	38,900
26	31,400	18,200	18,700	22,900	25,900	28,300	33,300	71,700	43,500	34,600	31,700	41,500
27	31,400	16,700	19,000	21,700	26,500	29,700	33,500	61,600	42,500	33,900	30,300	40,900
28	31,600	17,600	20,000	19,900	27,400	34,200	32,700	54,000	41,300	33,600	29,700	39,000
29	31,800	17,100	21,600	19,000	33,400	35,000	32,200	51,700	40,200	33,600	29,700	37,400
30	32,000	16,500	22,000	16,300	---	35,800	30,900	53,200	39,900	33,800	29,600	36,400
31	32,600	---	21,300	16,100	---	34,900	---	48,100	---	34,000	29,300	---
TOTAL	971,600	893,900	589,300	601,200	617,500	916,000	910,100	1,297,000	1,412,600	1,266,900	991,600	1,019,100
MEAN	31,340	29,800	19,010	19,390	21,290	29,550	30,340	41,840	47,090	40,870	31,990	33,970
MAX	33,300	36,400	22,000	22,900	33,400	41,100	33,600	80,000	54,700	51,900	38,100	41,500
MIN	29,700	16,500	15,500	15,000	17,900	21,300	28,000	30,300	39,900	33,600	29,300	28,900
AC-FT	1,927,000	1,773,000	1,169,000	1,192,000	1,225,000	1,817,000	1,805,000	2,573,000	2,802,000	2,513,000	1,967,000	2,021,000
CFSM	0.08	0.07	0.05	0.05	0.05	0.07	0.07	0.10	0.11	0.10	0.08	0.08
IN.	0.09	0.08	0.05	0.05	0.06	0.08	0.08	0.12	0.13	0.11	0.09	0.09

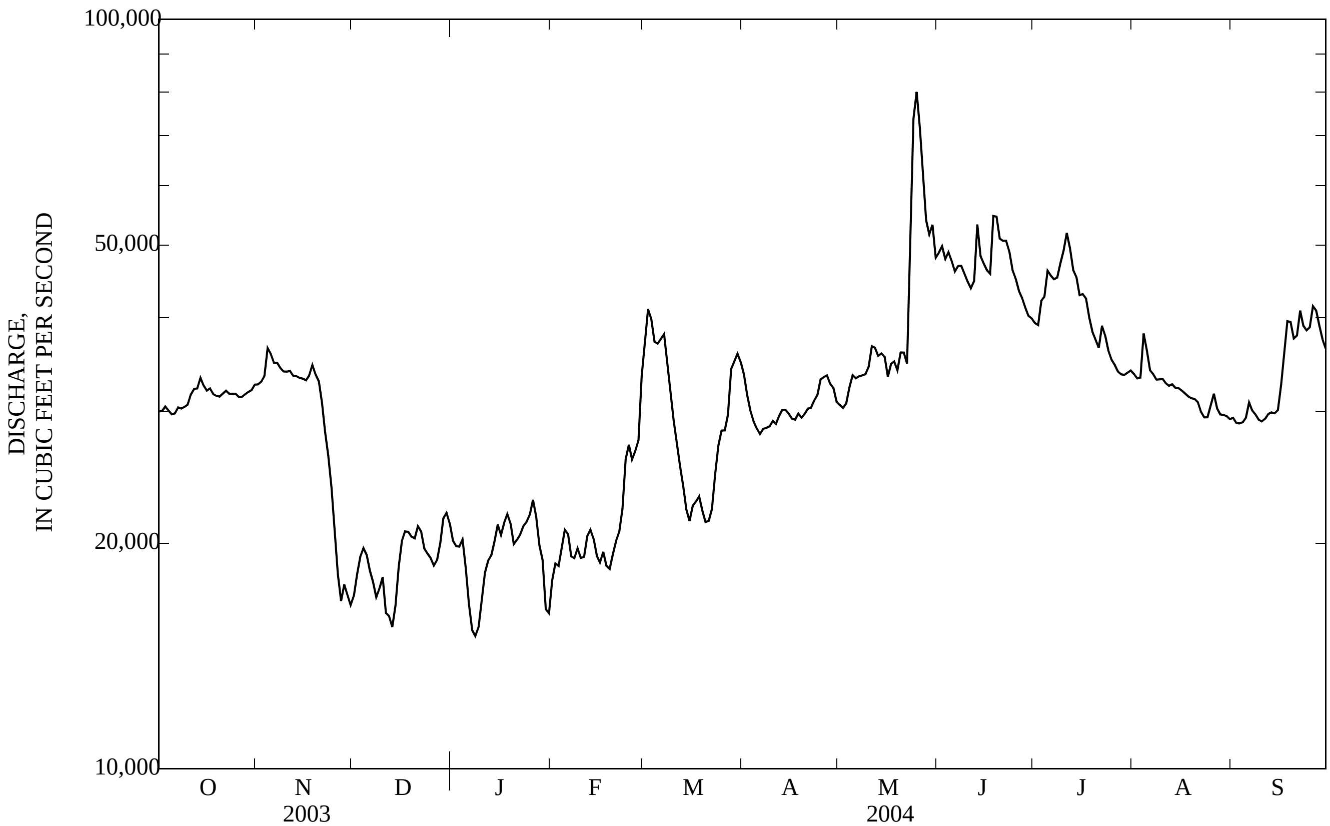
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	42,480	38,730	25,390	21,440	26,370	37,500	47,210	47,490	51,820	46,000	42,160	42,160
MAX	76,760	79,410	52,410	39,970	48,630	66,730	98,960	90,280	117,500	116,700	71,540	73,410
(WY)	(1998)	(1998)	(1987)	(1987)	(1983)	(1983)	(1997)	(1997)	(1984)	(1993)	(1996)	(1997)
MIN	22,420	14,380	10,510	10,160	12,780	15,310	21,850	32,470	33,530	28,830	28,040	32,150
(WY)	(1962)	(1962)	(1956)	(1957)	(1957)	(1957)	(1957)	(1955)	(1958)	(2002)	(2003)	(2003)

06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004 a	
ANNUAL TOTAL	10,972,200		11,486,800			
ANNUAL MEAN	30,060		31,380		39,090	
HIGHEST ANNUAL MEAN					66,450	1997
LOWEST ANNUAL MEAN					25,370	1957
HIGHEST DAILY MEAN	62,900	May 6	80,000	May 25	188,000	Jul 25, 1993
LOWEST DAILY MEAN	15,500	Jan 18	15,000	Jan 8	4,320	Jan 11, 1957
ANNUAL SEVEN-DAY MINIMUM	16,400	Jan 13	16,600	Jan 5	5,590	Nov 29, 1955
MAXIMUM PEAK FLOW			82,000	May 25	196,000	Jul 23, 1993
MAXIMUM PEAK STAGE			16.73	May 25	27.19	Jul 23, 1993
INSTANTANEOUS LOW FLOW			14,600	Jan 8		
ANNUAL RUNOFF (AC-FT)	21,760,000		22,780,000		28,320,000	
ANNUAL RUNOFF (CFSM)	0.073		0.077		0.095	
ANNUAL RUNOFF (INCHES)	1.00		1.04		1.30	
10 PERCENT EXCEEDS	42,000		45,600		61,200	
50 PERCENT EXCEEDS	31,000		31,400		36,800	
90 PERCENT EXCEEDS	18,600		19,100		18,000	

a Post regulation.



06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued

WATER-QUALITY RECORDS

LOCATION.--Water quality samples were collected by boat, 0.5 miles upstream of gage.

PERIOD OF RECORD.--May 1951 to current year. Daily sediment loads August 1957 to September 1971 in reports of U.S. Army Corps of Engineers.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1951 to December 1977, October 1991 to current year.
WATER TEMPERATURES: May 1951 to December 1977, October 1991 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976, 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, 994 microsiemens Dec. 17, 1962; minimum daily, 273 microsiemens June 17, 1964.
WATER TEMPERATURES: Maximum daily, 31.0°C July 26, 1977, and July 25, 1997; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,420 mg/L Aug. 7, 1996; minimum daily mean, 80 mg/L Aug. 3, 2002.
SEDIMENT LOADS: Maximum daily, 3,120,000 tons June 24, 1996; minimum daily, 3,920 tons Dec. 13, 2003.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 806 microsiemens Jan. 12; minimum daily, 492 microsiemens May 25.
WATER TEMPERATURES: Maximum daily, 29.0°C July 23; minimum daily, 2.0°C Dec. 18, Feb. 12.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,250 mg/L May 25; minimum daily, 87 mg/L Feb. 2.
SEDIMENT LOADS: Maximum daily, 919,000 tons May 25; minimum daily, 3,920 tons Dec. 13.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Bed sediment, dry svd sve dia percent <.063mm (80164)	Bed sediment, dry svd sve dia percent <.125mm (80165)	Bed sediment, dry svd sve dia percent <.25mm (80166)	Bed sediment, dry svd sve dia percent <.5 mm (80167)	Bed sediment, dry svd sve dia percent <1 mm (80168)	Bed sediment, dry svd sve dia percent <2 mm (80169)	Bed sediment, dry svd sve dia percent <4 mm (80170)	Bed sediment, dry svd sve dia percent <8 mm (80171)	Bed sediment, dry svd sve dia percent <16 mm (80172)	Number of sampling points, count (00063)
OCT											
06...	1100	.0	.0	26	64	75	88	97	100	--	3
NOV											
07...	1345	.0	.0	16	47	69	84	94	99	100	3
JAN											
12...	1415	.0	.0	21	76	90	95	96	98	100	3
FEB											
12...	1445	.0	.0	17	63	82	95	99	100	100	3
MAR											
02...	1330	.0	.0	16	58	74	84	95	100	--	3
APR											
08...	1220	.0	.0	18	76	92	98	99	100	--	3
12...	1445	.0	.0	6	48	71	85	96	99	100	3
MAY											
02...	1415	.0	.0	16	61	73	82	93	99	100	3
JUN											
01...	1440	.0	.0	9	40	74	91	98	100	--	3
JUL											
12...	1430	.0	.0	10	44	69	90	97	100	--	3
AUG											
11...	1420	.0	.0	16	56	74	86	97	100	--	3
SEP											
07...	1350	.0	.0	15	61	81	94	98	100	--	3

06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, LABORATORY, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	707	764	---	---
2	764	---	---	---	---	547	732	---	---	---	---	710
3	---	752	---	---	---	---	---	754	---	---	759	---
4	---	---	758	---	---	---	---	---	728	---	653	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	768	---	---	---	---	---	753	740	---	661	---	---
7	---	722	---	---	---	---	---	---	---	---	---	709
8	---	---	---	---	---	562	745	---	---	---	---	767
9	766	---	---	---	---	---	---	---	750	699	---	---
10	---	744	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	730	---	---	764	---
12	---	---	---	806	800	---	---	---	---	660	---	---
13	---	---	---	---	---	---	726	---	---	---	756	700
14	738	755	---	---	---	---	---	---	675	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	749	738	---	---	749	---	752
17	750	756	---	---	---	---	---	---	---	---	750	---
18	---	---	801	---	---	---	---	742	754	---	---	---
19	---	---	---	---	788	683	---	---	---	750	---	---
20	---	---	---	---	---	599	742	---	---	---	758	672
21	752	765	---	---	---	---	---	711	712	---	---	---
22	---	---	748	---	---	---	---	---	---	---	---	---
23	---	---	---	---	755	---	742	---	---	737	---	674
24	742	774	---	---	---	---	---	---	716	---	---	---
25	---	---	---	---	---	---	---	492	---	---	712	---
26	---	---	---	---	---	673	769	---	---	766	---	---
27	762	---	---	---	---	---	---	---	---	---	753	645
28	---	---	---	---	---	---	---	681	---	---	---	---
29	---	---	736	---	---	664	---	---	708	766	---	---
30	---	---	---	---	---	---	758	---	---	---	706	---
31	762	---	---	---	---	---	---	---	---	---	---	---

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	22.0	24.5	---	---
2	15.5	---	---	---	---	4.5	12.5	---	---	---	---	26.0
3	---	9.5	---	---	---	---	---	15.0	---	---	28.0	---
4	---	---	4.5	---	---	---	---	---	20.5	---	28.0	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	17.0	---	---	---	---	---	14.5	18.0	---	26.0	---	---
7	---	7.5	---	---	---	---	---	---	---	---	---	25.5
8	---	---	---	---	---	5.5	15.5	---	---	---	---	23.5
9	20.0	---	---	---	---	---	---	---	24.0	23.5	---	---
10	---	6.5	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	21.0	---	---	25.0	---
12	---	---	---	3.0	2.0	---	---	---	---	27.5	---	---
13	---	---	---	---	---	---	12.0	---	---	---	23.5	24.5
14	17.5	7.5	---	---	---	---	---	---	24.5	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	6.5	18.0	---	---	28.0	---	24.5
17	16.0	8.5	---	---	---	---	---	---	---	---	24.0	---
18	---	---	2.0	---	---	---	---	19.5	25.0	---	---	---
19	---	---	---	---	3.0	7.5	---	---	---	28.5	---	---
20	---	---	---	---	---	10.0	18.0	---	---	---	24.5	23.5
21	17.5	9.5	---	---	---	---	---	21.5	23.0	---	---	---
22	---	---	3.0	---	---	---	---	---	---	---	---	---
23	---	---	---	---	4.5	---	16.5	---	---	29.0	---	23.0
24	17.0	6.0	---	---	---	---	---	---	24.0	---	---	---
25	---	---	---	---	---	---	---	19.5	---	---	25.5	---
26	---	---	---	---	---	13.0	16.0	---	---	26.5	---	---
27	14.0	---	---	---	---	---	---	---	---	---	26.5	21.5
28	---	---	---	---	---	---	---	21.5	---	---	---	---
29	---	---	4.5	---	---	14.0	---	---	24.0	26.0	---	---
30	---	---	---	---	---	---	16.5	---	---	---	25.5	---
31	12.0	---	---	---	---	---	---	---	---	---	---	---

06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

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	200	16,200	182	16,000	151	6,960	214	11,700	91	4,370	1,740	175,000
2	207	16,800	196	17,400	151	7,420	203	10,800	87	4,420	2,270	252,000
3	206	16,900	226	20,500	169	8,770	174	9,320	121	6,110	2,030	218,000
4	195	15,900	327	32,200	176	9,360	189	10,400	165	8,810	1,700	171,000
5	182	14,600	295	28,500	153	7,980	154	7,700	229	12,900	1,560	156,000
6	181	14,600	254	23,800	145	7,180	110	4,930	212	11,800	1,500	152,000
7	185	15,100	247	23,200	143	6,870	97	4,020	194	10,100	1,470	151,000
8	194	15,900	235	21,800	142	6,490	98	3,970	179	9,230	1,090	102,000
9	202	16,600	230	21,100	133	6,260	107	4,470	164	8,700	930	79,300
10	194	16,000	230	21,100	120	5,850	120	5,460	150	7,760	818	64,400
11	196	16,700	229	21,000	111	4,860	135	6,640	148	7,680	708	52,100
12	196	17,000	224	20,200	100	4,310	131	6,720	183	10,100	604	41,400
13	196	17,000	225	20,300	94	3,920	136	7,060	200	11,300	499	32,200
14	194	17,500	228	20,500	120	5,380	159	8,650	204	11,200	370	22,200
15	185	16,200	204	18,300	165	8,300	218	12,500	181	9,420	307	17,700
16	165	14,300	169	15,100	204	11,100	178	9,900	160	8,110	356	21,600
17	156	13,600	182	16,500	219	12,200	213	12,300	143	7,530	333	20,400
18	164	14,000	239	22,300	217	12,100	231	13,700	127	6,380	322	20,100
19	170	14,500	220	20,000	187	10,300	205	11,800	130	6,510	261	15,600
20	170	14,400	221	19,600	174	9,550	107	5,750	192	10,000	219	12,700
21	178	15,200	232	19,300	220	12,500	113	6,170	260	14,100	228	13,200
22	175	15,100	210	16,000	167	9,380	129	7,160	332	18,600	230	13,800
23	164	14,100	192	13,500	136	7,230	145	8,250	460	27,800	246	16,500
24	158	13,500	169	10,800	128	6,670	159	9,150	720	50,500	263	19,200
25	161	13,700	156	8,880	126	6,500	224	13,200	829	60,600	277	21,200
26	164	13,900	145	7,130	131	6,590	388	24,000	724	50,600	270	20,600
27	168	14,200	137	6,190	162	8,330	322	18,900	778	55,800	344	27,800
28	170	14,500	146	6,940	199	10,800	174	9,340	853	63,500	530	48,900
29	174	14,900	148	6,840	273	16,000	140	7,180	1,410	127,000	537	50,700
30	167	14,500	146	6,520	321	19,100	102	4,520	---	---	587	56,800
31	169	14,800	---	---	231	13,200	95	4,130	---	---	544	51,300
TOTAL	---	472,200	---	521,500	---	271,460	---	279,790	---	640,930	---	2,116,700

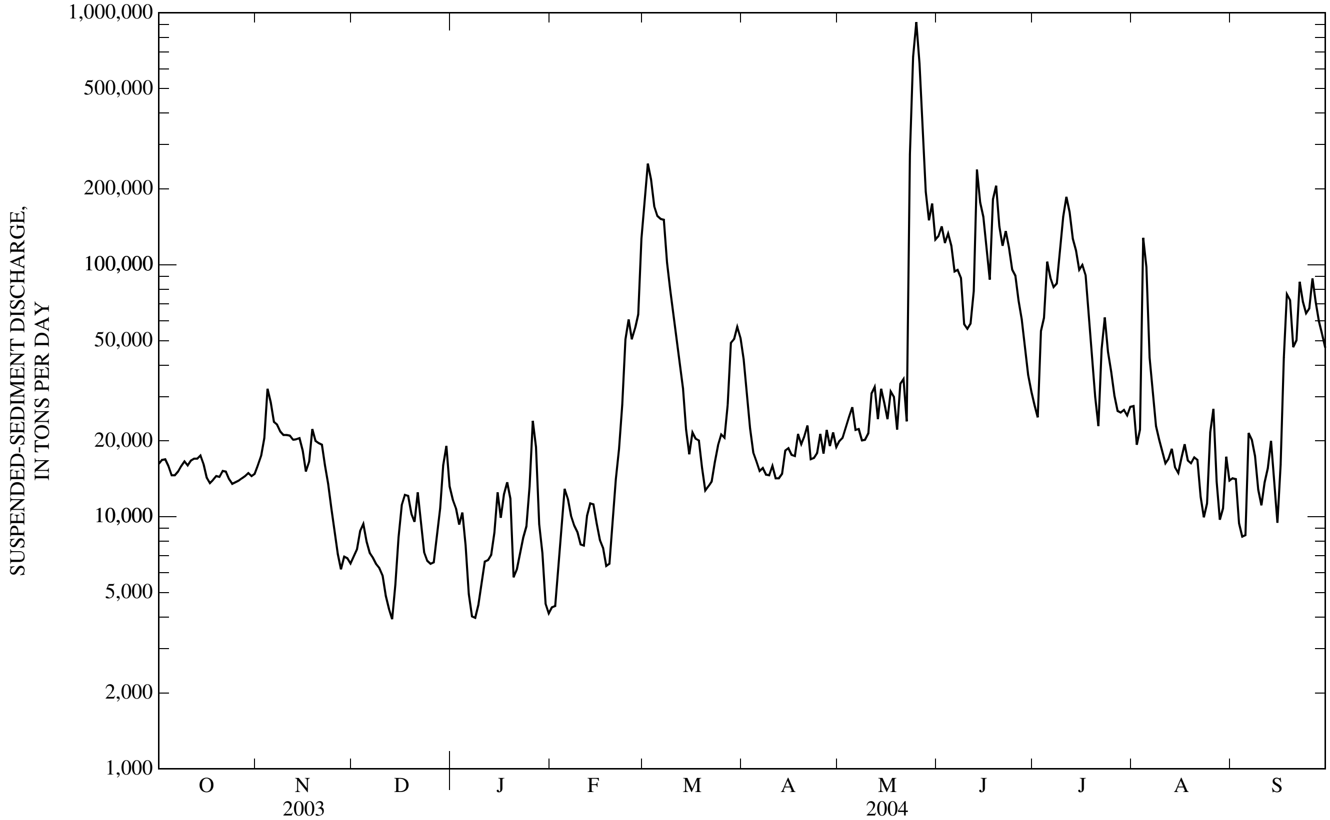
06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued

SUSPENDED-SEDIMENT—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

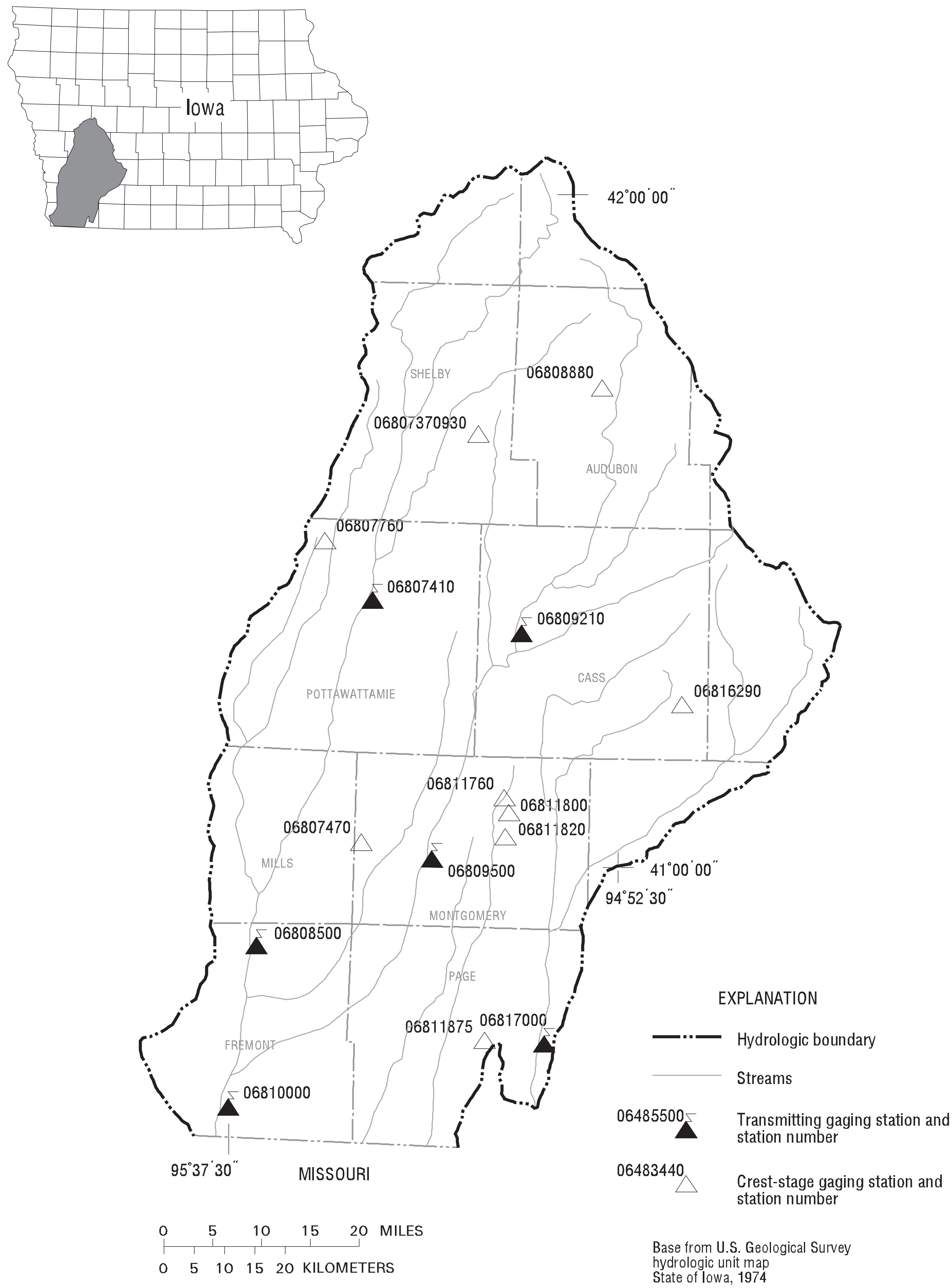
Day	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)	Mean concen-tration (mg/l)	Load (tons/day)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	464	42,100	242	20,000	988	130,000	261	27,700	302	27,500	179	14,200
2	361	30,800	252	20,600	1,060	142,000	235	24,800	216	19,300	181	14,100
3	276	22,400	273	22,600	947	122,000	479	54,600	247	22,200	121	9,430
4	229	18,000	286	24,900	1,000	133,000	533	61,600	1,220	128,000	106	8,340
5	216	16,600	300	27,200	928	119,000	821	103,000	999	98,100	106	8,450
6	202	15,200	246	22,100	755	94,000	723	88,900	465	42,800	257	21,500
7	204	15,600	247	22,300	753	95,400	671	81,600	346	31,400	249	20,200
8	191	14,700	222	20,100	701	88,800	690	84,300	256	22,900	216	17,400
9	188	14,600	222	20,200	470	58,100	889	114,000	226	20,200	163	12,800
10	202	15,900	231	21,400	462	55,700	1,170	155,000	202	18,100	141	11,100
11	182	14,200	310	30,800	494	58,500	1,330	186,000	185	16,300	173	13,700
12	177	14,200	332	32,700	647	78,700	1,220	162,000	194	17,000	194	15,600
13	182	14,800	254	24,400	1,650	239,000	1,010	127,000	211	18,600	248	20,000
14	225	18,300	332	32,200	1,360	177,000	929	114,000	180	15,700	178	14,300
15	233	18,700	296	28,300	1,220	155,000	826	95,600	171	14,900	116	9,460
16	222	17,600	270	24,400	928	116,000	861	100,000	199	17,100	182	16,100
17	221	17,400	334	31,400	707	87,400	793	91,000	227	19,400	435	42,800
18	265	21,300	316	29,900	1,210	182,000	558	60,400	196	16,700	714	76,400
19	244	19,400	242	22,200	1,390	206,000	402	41,600	194	16,300	679	72,400
20	259	20,800	345	33,700	1,030	142,000	296	29,900	204	17,200	464	47,100
21	281	23,000	361	35,200	873	119,000	233	22,900	202	16,800	488	50,100
22	206	16,900	254	23,900	994	136,000	414	46,200	149	12,000	775	85,600
23	204	17,100	1,720	275,000	886	117,000	598	61,800	125	9,950	678	71,400
24	210	17,900	3,360	670,000	766	95,800	462	45,100	142	11,300	618	64,200
25	239	21,300	4,250	919,000	745	90,700	396	37,600	260	21,600	639	67,100
26	198	17,800	3,240	629,000	614	72,100	324	30,300	313	26,800	786	88,300
27	244	22,100	2,250	375,000	528	60,600	288	26,300	168	13,800	643	71,200
28	217	19,100	1,330	195,000	418	46,500	286	25,900	121	9,730	567	59,800
29	248	21,600	1,070	150,000	336	36,500	292	26,500	135	10,800	526	53,100
30	227	18,900	1,210	175,000	291	31,400	276	25,200	217	17,300	477	46,900
31	---	---	972	126,000	---	---	297	27,300	176	13,900	---	---
TOTAL	---	578,300	---	4,084,500	---	3,285,200	---	2,178,100	---	763,680	---	1,123,080

YEAR 16,315,440

06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued



06807000 MISSOURI RIVER AT NEBRASKA CITY, NE—Continued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06807760
06807410
06809210
CASS
POTTAWATTAMIE
06816290
06811760
06811800
06807470
06811820
MILLS
06809500
41°00′00″
94°52′30″
MONTGOMERY
06808500
PAGE
EXPLANATION
06811875
06817000
Hydrologic boundary
FREMONT
Streams
06810000
06485500
Transmitting gaging station and station number
95°37′30″
MISSOURI
06483440
Crest-stage gaging station and station number
0 5 10 15 20 MILES
0 5 10 15 20 KILOMETERS
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974

Gaging Stations

06807410 West Nishnabotna River at Hancock, IA 449
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0680737930 Elm Creek near Jacksonville, IA 494
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06811760 Tarkio River near Elliott, IA 494
06811800 East Tarkio Creek near Stanton, IA 494
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06807410 WEST NISHNABOTNA RIVER AT HANCOCK, IA

LOCATION.--Lat 41°23'24",long 95°22'17",in NW$^1/_4$ NE$^1/_4$ sec.18, T.76 N., R.39 W., Pottawattamie County, Hydrologic Unit 10240002, on right bank at upstream side of bridge on county highway G30, 0.6 mi west of Hancock school, 3.0 mi downstream from Jim Creek, 59.6 mi upstream from confluence with East Nishnabotna River, and at mile 75.1 mi upstream from mouth of Nishnabotna River.

DRAINAGE AREA.--609 mi^2.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,085.83 ft above NGVD of 1929. Prior to Sept. 15, 1980, on downstream end of right pier at same 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 with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	55	e75	e53	e46	e1,050	506	307	1,290	436	235	135
2	56	58	84	e54	e45	e536	462	299	1,110	444	232	130
3	58	74	83	e45	e37	e306	424	292	1,020	528	244	126
4	57	133	82	e35	e37	e270	398	286	946	539	748	122
5	55	112	74	e24	e38	e522	380	277	897	459	402	125
6	54	81	70	e25	e38	e1,150	364	269	869	434	280	156
7	54	70	70	e28	e36	662	350	260	810	412	246	136
8	55	65	74	e39	e35	507	332	257	755	394	228	120
9	54	62	73	e33	e44	440	313	966	715	697	216	116
10	54	69	e51	e33	e54	394	302	504	690	582	205	114
11	59	69	e28	e42	e58	359	291	394	692	460	199	112
12	62	64	e23	e40	e51	318	286	360	650	488	195	108
13	64	60	e31	e40	e51	312	281	391	849	408	193	105
14	75	60	e45	e38	e47	298	276	386	1,610	380	188	104
15	81	62	e49	e35	e43	294	270	347	1,030	361	183	105
16	67	62	e46	e45	e59	283	264	335	867	363	178	101
17	61	73	e42	e41	e60	289	256	334	748	345	174	98
18	62	131	e61	e32	e69	283	253	714	699	325	173	112
19	60	100	e54	e30	e76	305	248	466	673	316	171	108
20	59	81	e55	e37	e75	383	261	418	632	308	166	e97
21	56	71	e71	e48	e75	366	317	391	641	302	162	e92
22	56	67	e68	e33	e110	316	276	555	733	313	157	e89
23	56	e65	e63	e55	e217	301	262	7,490	611	291	153	92
24	56	e61	e60	e47	e204	290	266	3,240	570	281	162	96
25	56	e71	e68	e47	e152	278	401	7,650	545	281	165	93
26	55	e70	e78	e43	e129	268	437	2,080	517	271	173	90
27	56	e71	e90	e38	e279	380	379	1,610	503	263	162	90
28	59	e67	e81	e33	e590	1,200	359	1,350	495	255	149	90
29	58	e69	e67	e33	e1,540	918	337	1,200	471	253	143	89
30	58	e76	e60	e35	---	681	317	2,250	449	250	140	89
31	54	---	e51	e40	---	569	---	1,490	---	243	140	---
TOTAL	1,822	2,229	1,927	1,201	4,295	14,528	9,868	37,168	23,087	11,682	6,562	3,240
MEAN	58.8	74.3	62.2	38.7	148	469	329	1,199	770	377	212	108
MAX	81	133	90	55	1,540	1,200	506	7,650	1,610	697	748	156
MIN	54	55	23	24	35	268	248	257	449	243	140	89
AC-FT	3,610	4,420	3,820	2,380	8,520	28,820	19,570	73,720	45,790	23,170	13,020	6,430
CFSM	0.10	0.12	0.10	0.06	0.24	0.77	0.54	1.97	1.26	0.62	0.35	0.18
IN.	0.11	0.14	0.12	0.07	0.26	0.89	0.60	2.27	1.41	0.71	0.40	0.20

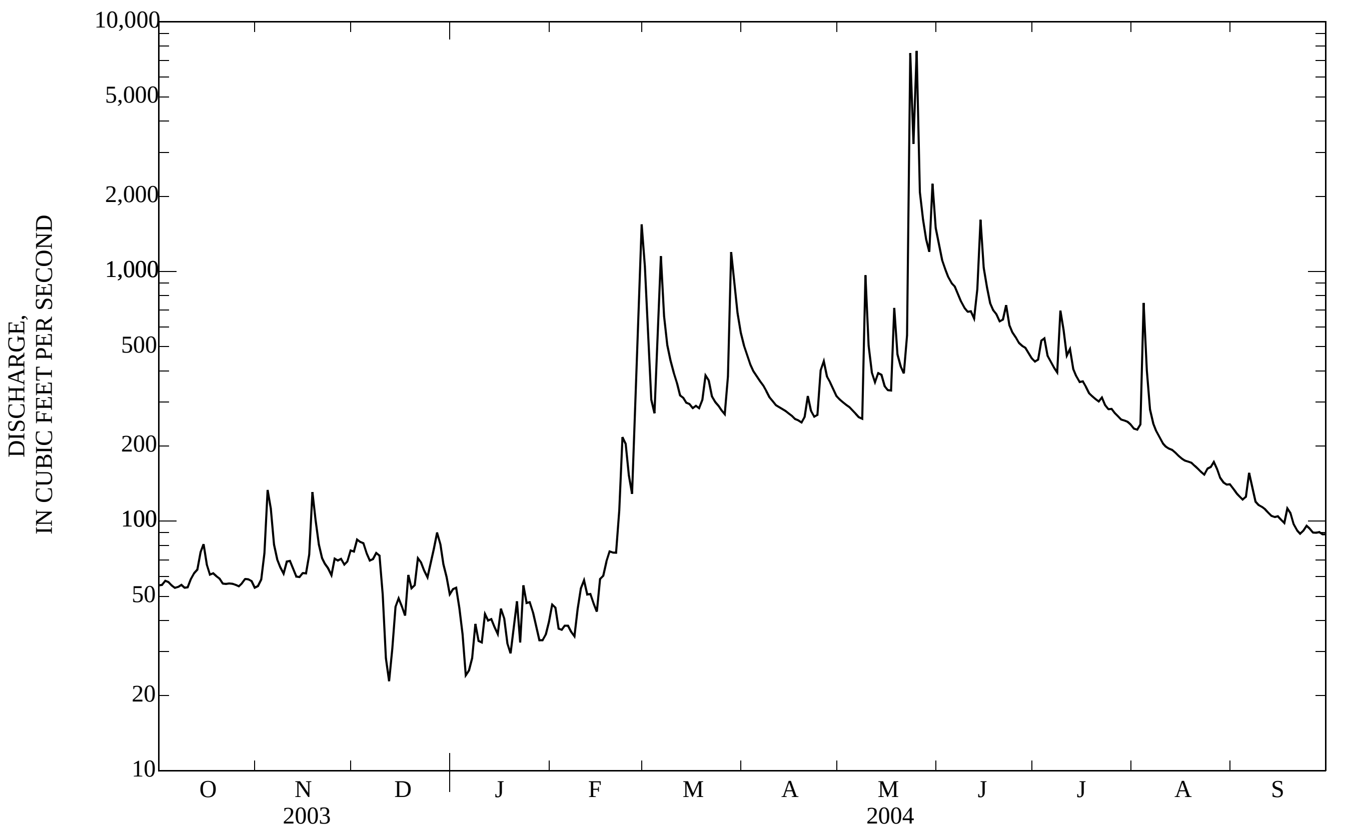
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2004, BY WATER YEAR (WY)

MEAN	185	175	151	119	265	507	417	523	596	416	239	279
MAX	998	910	628	625	993	1,946	1,295	1,586	2,228	2,925	1,073	2,412
(WY)	(1987)	(1973)	(1973)	(1973)	(1983)	(1979)	(1983)	(1973)	(1998)	(1993)	(1996)	(1972)
MIN	30.2	32.1	17.9	4.58	27.2	40.3	45.6	30.1	26.7	38.4	26.4	14.7
(WY)	(2001)	(1971)	(1971)	(1971)	(1967)	(1968)	(1968)	(1967)	(1977)	(1970)	(1968)	(1971)

06807410 WEST NISHNABOTNA RIVER AT HANCOCK, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1960 - 2004	
ANNUAL TOTAL	69,075		117,609			
ANNUAL MEAN	189		321		323	
HIGHEST ANNUAL MEAN					966	1993
LOWEST ANNUAL MEAN					42.4	1968
HIGHEST DAILY MEAN	2,940	May 5	7,650	May 25	23,300	Sep 12, 1972
LOWEST DAILY MEAN	23	Dec 12	23	Dec 12 a	2.2	Feb 8, 1971 b
ANNUAL SEVEN-DAY MINIMUM	38	Dec 11	31	Jan 4 a	2.5	Feb 4, 1971
MAXIMUM PEAK FLOW			14,400	May 25	30,100	Jul 10, 1993
MAXIMUM PEAK STAGE			17.19	May 25	23.52	Jul 10, 1993
ANNUAL RUNOFF (AC-FT)	137,000		233,300		233,700	
ANNUAL RUNOFF (CFSM)	0.311		0.528		0.530	
ANNUAL RUNOFF (INCHES)	4.22		7.18		7.20	
10 PERCENT EXCEEDS	392		684		712	
50 PERCENT EXCEEDS	85		160		158	
90 PERCENT EXCEEDS	55		45		36	

a Ice affected.
b Also Feb. 9, 1971.
e Estimated.



06808500 WEST NISHNABOTNA RIVER AT RANDOLPH, IA

LOCATION.--Lat 40°52'23", long 95°34'48", in NE¼ NE¼ sec.17, T.70 N., R.41 W., Fremont County, Hydrologic Unit 10240002, on right bank at upstream side of bridge on State Highway 184, 0.3 mi downstream from Deer Creek, 0.5 mi west of Randolph, and 16.0 mi upstream from confluence with East Nishnabotna River, and at mile 31.5 upstream from mouth of Nishnabotna River.

DRAINAGE AREA.--1,326 mi^2.

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1440: Drainage area. WDR IA-74-1: 1973 (M). WDR IA-76-1: 1975 (P).

GAGE.--Water-stage recorder. Datum of gage is 932.99 ft above NGVD of 1929, unadjusted. Prior to Aug. 26, 1955, nonrecording gage with supplementary water-stage recorder operating above 8.4 ft. June 30, 1949 to Aug. 25, 1955 at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey rain gage and data collection platform with satellite and telephone modem telemetry at station. Precipitation records are not published, but are available.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 24 ft, discharge not determined, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	99	135	e110	e93	e1,600	1,090	655	2,680	974	680	413
2	94	128	144	e109	e90	e1,090	986	634	2,360	984	663	402
3	93	154	156	e100	e82	e709	908	622	2,130	1,240	648	388
4	90	208	152	e90	e84	e551	845	613	1,980	1,190	3,420	377
5	91	245	144	e77	e85	e694	806	605	1,860	1,170	1,750	378
6	88	213	139	e77	e86	e1,510	778	592	1,800	1,020	1,060	435
7	88	163	129	e79	e82	e1,100	744	575	1,720	962	844	423
8	86	140	128	e89	e81	918	704	564	1,600	960	754	383
9	87	132	e107	e82	e90	731	671	1,230	1,510	3,860	702	357
10	86	126	e90	e81	e101	637	646	1,610	1,470	2,310	656	344
11	93	124	e80	e91	e104	587	624	1,020	1,420	1,480	629	335
12	106	127	e76	e88	e98	544	613	865	1,420	1,290	609	327
13	106	120	e85	e89	e95	511	600	1,040	2,020	1,260	590	319
14	111	117	e101	e87	e94	496	590	1,050	1,800	1,120	570	309
15	110	115	e104	e84	e91	496	581	942	2,530	1,040	551	308
16	121	114	e100	e92	e106	514	577	870	1,760	1,120	535	302
17	120	126	e97	e89	e106	493	572	848	1,550	1,000	524	295
18	109	191	e116	e81	e116	492	557	1,010	1,420	912	515	290
19	103	264	e109	e78	e125	493	549	1,290	1,370	868	499	291
20	100	208	e111	e86	e124	526	543	1,040	1,320	836	485	294
21	96	162	e127	e95	e120	598	575	948	1,680	813	478	277
22	92	144	e124	e81	e167	586	609	903	1,480	1,220	465	269
23	94	137	e119	e104	e273	532	572	6,340	1,380	1,290	455	269
24	95	112	e116	e95	e260	520	573	6,540	1,230	890	475	273
25	94	116	e124	e96	e209	514	709	10,500	1,190	830	610	270
26	93	124	e133	e92	e215	497	806	4,930	1,140	796	691	266
27	97	120	e146	e85	e573	600	817	3,190	1,100	761	641	261
28	100	125	e136	e82	e1,090	1,680	745	2,580	1,070	734	512	257
29	102	102	e122	e82	e1,860	2,070	707	2,320	1,040	727	457	254
30	103	127	e116	e83	---	1,550	676	5,520	1,000	717	439	254
31	99	---	e107	e88	---	1,250	---	3,900	---	729	423	---
TOTAL	3,043	4,383	3,673	2,742	6,700	25,089	20,773	65,346	48,030	35,103	22,330	9,620
MEAN	98.2	146	118	88.5	231	809	692	2,108	1,601	1,132	720	321
MAX	121	264	156	110	1,860	2,070	1,090	10,500	2,680	3,860	3,420	435
MIN	86	99	76	77	81	492	543	564	1,000	717	423	254
AC-FT	6,040	8,690	7,290	5,440	13,290	49,760	41,200	129,600	95,270	69,630	44,290	19,080
CFSM	0.07	0.11	0.09	0.07	0.17	0.61	0.52	1.59	1.21	0.85	0.54	0.24
IN.	0.09	0.12	0.10	0.08	0.19	0.70	0.58	1.83	1.35	0.98	0.63	0.27

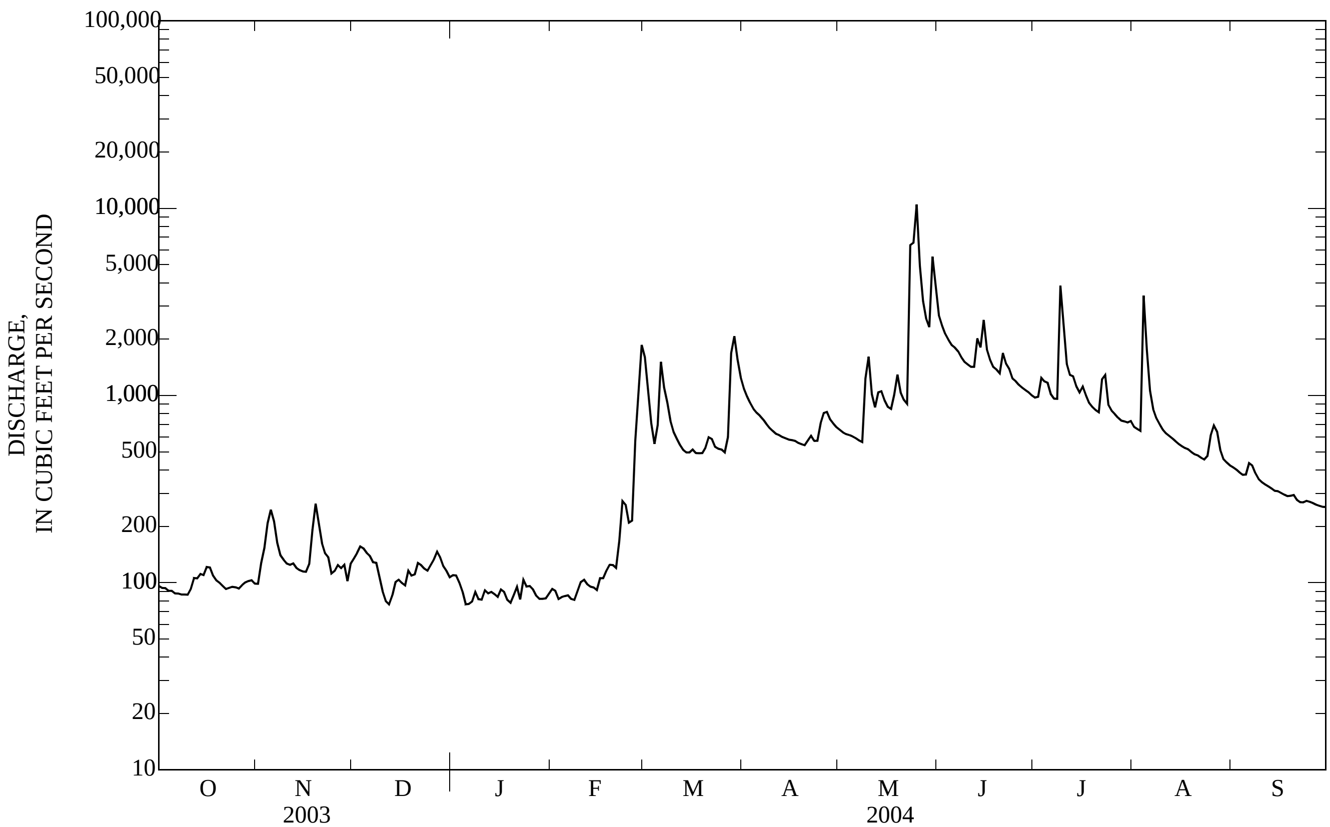
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	372	344	296	262	527	935	793	1,069	1,249	879	586	512
MAX	2,002	1,277	1,140	1,201	1,777	3,877	2,867	3,227	5,031	6,357	2,610	2,531
(WY)	(1987)	(1973)	(1973)	(1973)	(1973)	(1979)	(1973)	(1973)	(1998)	(1993)	(1993)	(1972)
MIN	27.1	33.6	20.6	17.4	19.4	67.8	42.7	97.3	65.6	71.2	30.1	41.0
(WY)	(1956)	(1956)	(1956)	(1956)	(1956)	(1956)	(1956)	(1967)	(1956)	(1954)	(1955)	(1955)

06808500 WEST NISHNABOTNA RIVER AT RANDOLPH, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1949 - 2004	
ANNUAL TOTAL	119,558		246,832			
ANNUAL MEAN	328		674		652	
HIGHEST ANNUAL MEAN					1,985	1993
LOWEST ANNUAL MEAN					111	1968
HIGHEST DAILY MEAN	3,980	May 5	10,500	May 25	25,800	Jun 15, 1998
LOWEST DAILY MEAN	76	Dec 12	76	Dec 12	10	Dec 17, 1955 a
ANNUAL SEVEN-DAY MINIMUM	88	Oct 4	82	Jan 4 b	11	Dec 16, 1955
MAXIMUM PEAK FLOW			16,600	May 25	40,800	May 26, 1987
MAXIMUM PEAK STAGE			20.93	May 25	24.80	Mar 5, 1949 c
INSTANTANEOUS LOW FLOW			51	Nov 29		
ANNUAL RUNOFF (AC-FT)	237,100		489,600		472,400	
ANNUAL RUNOFF (CFSM)	0.247		0.509		0.492	
ANNUAL RUNOFF (INCHES)	3.35		6.92		6.68	
10 PERCENT EXCEEDS	692		1,480		1,410	
50 PERCENT EXCEEDS	180		461		340	
90 PERCENT EXCEEDS	102		90		92	

a Also Dec. 18-21, 1955.
b Ice affected.
c From graph based on gage readings, backwater from ice.
e Estimated.



06809210 EAST NISHNABOTNA RIVER NEAR ATLANTIC, IA

LOCATION.--Lat 41°20'46", long 95°04'36", in NW1/4 NW1/4 sec.35, T.76 N., R.37 W., Cass County, Hydrologic Unit 10240003, on left bank at downstream side of bridge on county highway, 1.6 mi upstream from Turkey Creek, 5.2 mi southwest of junction of U.S. Highway 6 and State Highway 83 in Atlantic, 69.1 mi upstream from confluence with West Nishnabotna River, and at mile 84.6 upstream from mouth of Nishnabotna River.

DRAINAGE AREA.--436 mi^2.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,105.83 ft above NGVD of 1929. Prior to Oct. 1, 1970, at site 2.2 mi upstream at datum 5.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 2, 1958 reached a stage of 22.49 ft, from floodmark, discharge, 34,200 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	20	36	47	e41	599	312	193	971	351	151	95
2	22	22	33	48	e40	432	278	179	833	361	153	93
3	23	44	37	46	e29	272	246	164	765	431	152	90
4	22	121	36	25	e31	223	224	159	717	428	1,820	88
5	22	93	33	e22	e31	484	212	148	683	351	562	93
6	21	52	33	e22	e33	591	199	142	662	357	336	141
7	21	40	30	e25	e27	333	185	136	616	317	255	116
8	21	34	33	e35	e25	251	172	133	566	301	214	97
9	21	33	33	e29	e31	220	158	2,130	533	1,580	188	92
10	20	33	33	e28	e34	195	149	779	527	827	165	86
11	22	33	e22	e39	e26	180	141	522	544	645	152	69
12	23	31	e16	e37	e23	155	139	428	503	909	149	67
13	25	28	e18	e37	e26	157	132	459	739	488	147	66
14	28	29	e29	e33	e23	147	128	507	1,650	391	139	64
15	27	29	e32	e31	e21	146	121	427	1,330	318	132	64
16	25	28	e22	e41	e43	137	119	380	963	316	126	63
17	24	32	e19	e38	e44	156	114	382	714	289	122	62
18	24	54	e38	e29	e54	148	113	1,310	630	268	121	68
19	23	66	e31	e26	e62	184	110	611	596	257	120	66
20	22	47	e33	e34	e61	304	119	512	558	241	116	61
21	21	38	e48	e44	e62	260	189	456	554	244	111	59
22	21	35	e45	e30	e95	222	179	588	562	243	105	57
23	21	35	e40	e52	e205	207	188	12,600	483	213	102	53
24	20	30	e37	e43	e189	181	176	3,380	455	197	107	52
25	20	34	e46	e44	e142	164	311	6,870	429	189	121	51
26	21	36	e47	e40	e113	153	354	2,030	407	181	130	51
27	21	34	e51	e34	e249	200	258	1,410	394	171	136	51
28	21	32	52	e30	937	851	239	1,100	404	162	123	51
29	21	33	67	e30	698	650	217	949	378	198	106	51
30	21	35	60	e32	---	466	199	2,020	365	166	102	48
31	20	---	47	e37	---	362	---	1,240	---	152	100	---
TOTAL	687	1,211	1,137	1,088	3,395	9,030	5,681	42,344	19,531	11,542	6,563	2,165
MEAN	22.2	40.4	36.7	35.1	117	291	189	1,366	651	372	212	72.2
MAX	28	121	67	52	937	851	354	12,600	1,650	1,580	1,820	141
MIN	20	20	16	22	21	137	110	133	365	152	100	48
AC-FT	1,360	2,400	2,260	2,160	6,730	17,910	11,270	83,990	38,740	22,890	13,020	4,290
CFSM	0.05	0.09	0.08	0.08	0.27	0.67	0.43	3.13	1.49	0.85	0.49	0.17
IN.	0.06	0.10	0.10	0.09	0.29	0.77	0.48	3.61	1.67	0.98	0.56	0.18

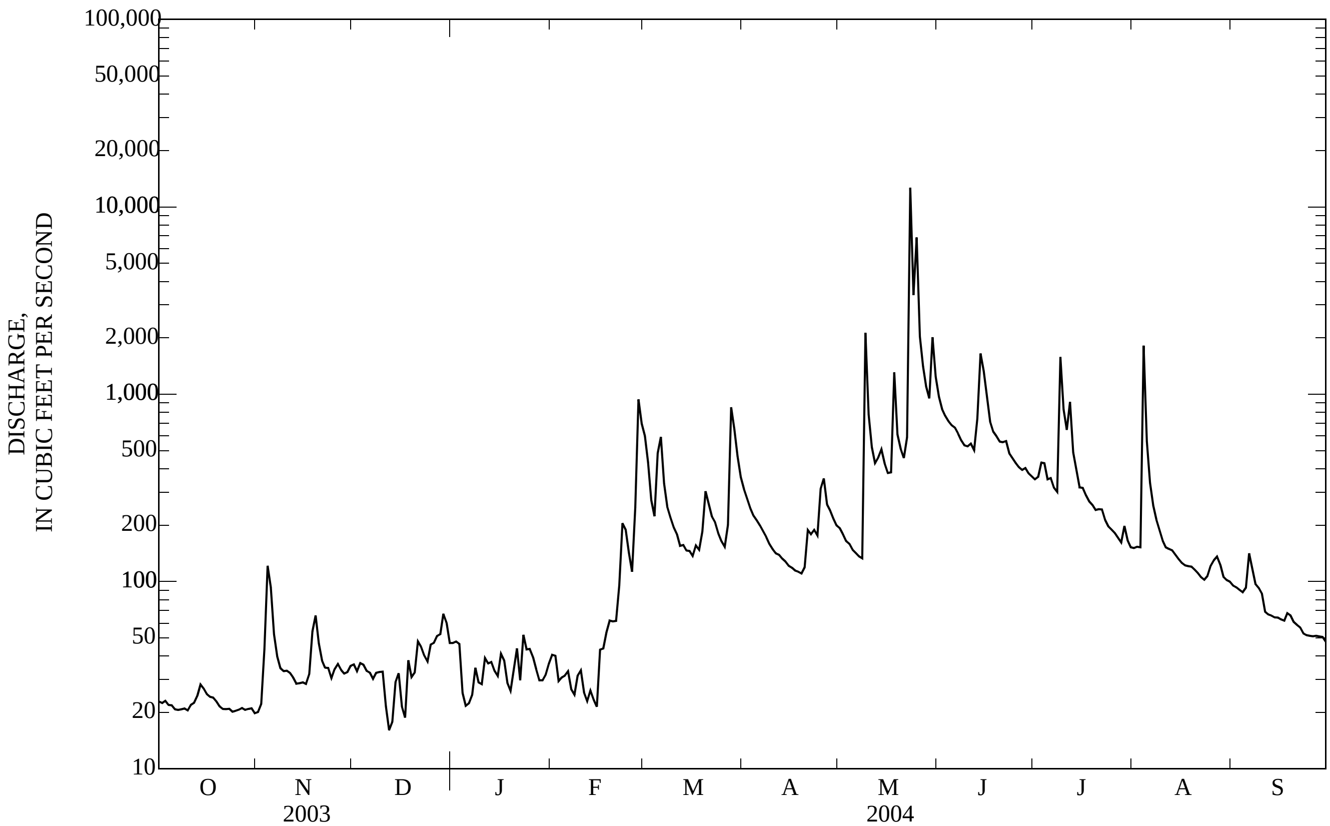
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	134	129	105	87.3	194	393	357	442	504	340	174	199
MAX	1,069	757	529	529	812	1,378	1,138	1,366	3,125	2,747	1,394	1,855
(WY)	(1987)	(1973)	(1993)	(1973)	(1971)	(1965)	(1973)	(2004)	(1998)	(1993)	(1993)	(1972)
MIN	21.0	20.3	10.6	7.68	18.7	28.4	27.9	15.0	23.4	15.6	13.4	14.8
(WY)	(1967)	(1969)	(1964)	(1971)	(1968)	(1968)	(1981)	(1967)	(1977)	(1968)	(1968)	(1971)

06809210 EAST NISHNABOTNA RIVER NEAR ATLANTIC, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1961 - 2004	
ANNUAL TOTAL	46,493		104,374			
ANNUAL MEAN	127		285		255	
HIGHEST ANNUAL MEAN					842	1993
LOWEST ANNUAL MEAN					23.7	1968
HIGHEST DAILY MEAN	3,160	May 5	12,600	May 23	32,300	Jun 15, 1998
LOWEST DAILY MEAN	16	Dec 12	16	Dec 12 a	2.5	Jul 10, 1977
ANNUAL SEVEN-DAY MINIMUM	21	Oct 21	21	Oct 21	7.0	Dec 17, 1963
MAXIMUM PEAK FLOW			17,600	May 23	41,400	Jun 15, 1998
MAXIMUM PEAK STAGE			17.10	May 23	22.81	Sep 12, 1972
ANNUAL RUNOFF (AC-FT)	92,220		207,000		184,600	
ANNUAL RUNOFF (CFSM)	0.292		0.654		0.585	
ANNUAL RUNOFF (INCHES)	3.97		8.91		7.94	
10 PERCENT EXCEEDS	261		597		564	
50 PERCENT EXCEEDS	52		115		101	
90 PERCENT EXCEEDS	22		23		24	

a Ice affected.
e Estimated.



06809500 EAST NISHNABOTNA RIVER AT RED OAK, IA

LOCATION.--Lat 41°00'31", long 95°14'29", in NW¼ SE¼ sec.29, T.72 N., R.38 W., Montgomery County, Hydrologic Unit 10240003, on downstream side of Coolbaugh Street bridge in Red Oak, 0.2 mi upstream from Red Oak Creek, 38.0 mi upstream from confluence with West Nishnabotna River, and at mile 53.6 upstream from mouth of Nishnabotna River.

DRAINAGE AREA.--894 mi^2.

PERIOD OF RECORD.--May 1918 to November 1924, February 1925 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1921, 1922-23 (M), 1924, 1942 (M), 1944 (M), 1946. WSP 1440: Drainage area. WSP 1710: 1957.

GAGE.--Water-stage recorder. Datum of gage is 1,005.45 ft above NGVD of 1929. Prior to July 5, 1925, nonrecording gage at present site at datum 4.60 ft higher. May 29, 1936 to Nov. 13, 1952, nonrecording gage with supplementary water-stage recorder in operation above 3.2 ft gage height. July 30, 1939 to Nov. 13, 1952, and Nov. 14, 1952 to June 13, 1966, water-stage recorder, all at site 0.5 mi upstream at datum 5.00 ft higher. June 14, 1966 to Sept. 30, 1969, at present site at datum 5.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	49	69	84	e60	e1,350	684	392	1,970	512	301	168
2	51	60	69	81	e60	925	617	378	1,610	510	285	157
3	51	83	70	e76	e49	597	562	366	1,420	598	304	155
4	51	117	70	e54	e49	472	520	359	1,290	627	1,620	149
5	50	187	69	e42	e52	537	487	347	1,200	601	1,480	159
6	50	134	66	e40	e53	1,100	470	327	1,140	519	641	166
7	49	92	64	e42	e48	686	451	309	1,060	516	487	199
8	48	73	64	e54	e46	523	429	301	971	490	425	170
9	47	67	e53	e47	e59	448	407	1,830	893	827	391	151
10	47	64	e41	e47	e69	412	390	1,670	856	2,060	366	145
11	49	66	e38	e58	e70	377	374	882	856	904	350	145
12	50	63	e34	e55	e64	353	366	701	825	1,200	336	136
13	51	60	e43	e55	e65	322	361	683	995	885	321	134
14	54	58	e58	e52	e61	313	351	853	1,280	688	304	131
15	56	59	e61	e50	e56	307	344	709	2,390	600	284	127
16	57	58	e57	e59	e70	313	338	639	1,840	577	266	128
17	55	59	e55	e55	e74	304	325	636	1,180	540	257	125
18	53	67	e73	e47	e83	354	309	1,260	1,010	495	251	123
19	52	113	e67	e44	e90	355	300	1,380	926	474	242	129
20	52	110	e68	e52	e90	444	305	881	848	454	230	126
21	51	84	e84	e62	e88	554	351	762	855	430	220	121
22	50	73	e82	e47	e122	435	406	696	837	485	208	117
23	50	69	e75	e71	e234	403	378	10,200	748	472	197	119
24	50	62	e73	e61	e221	391	376	6,940	680	404	205	120
25	50	67	e76	e62	e169	387	438	8,980	643	382	314	120
26	48	67	e76	e58	e146	374	595	3,470	612	370	299	119
27	48	66	81	e53	e226	425	505	2,540	583	359	255	117
28	50	68	87	e48	e767	1,200	458	2,030	566	348	233	116
29	49	55	91	e49	e1,540	1,570	438	1,710	561	345	198	114
30	50	64	101	e51	---	1,010	411	2,930	526	363	178	115
31	49	---	90	e57	---	791	---	3,180	---	332	171	---
TOTAL	1,571	2,314	2,105	1,713	4,781	18,032	12,746	58,341	31,171	18,367	11,619	4,101
MEAN	50.7	77.1	67.9	55.3	165	582	425	1,882	1,039	592	375	137
MAX	57	187	101	84	1,540	1,570	684	10,200	2,390	2,060	1,620	199
MIN	47	49	34	40	46	304	300	301	526	332	171	114
AC-FT	3,120	4,590	4,180	3,400	9,480	35,770	25,280	115,700	61,830	36,430	23,050	8,130
CFSM	0.06	0.09	0.08	0.06	0.18	0.65	0.48	2.11	1.16	0.66	0.42	0.15
IN.	0.07	0.10	0.09	0.07	0.20	0.75	0.53	2.43	1.30	0.76	0.48	0.17

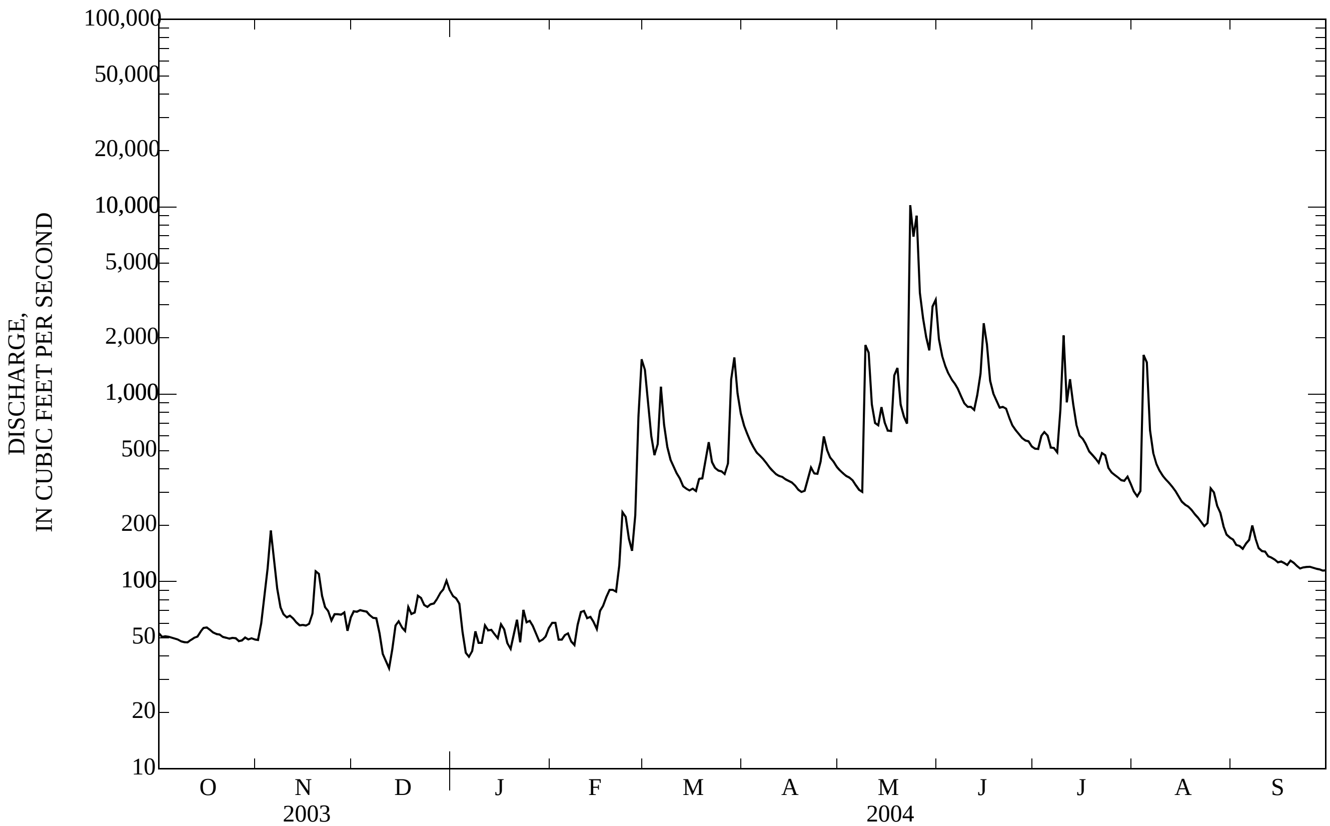
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

MEAN	221	210	166	155	356	669	572	743	905	562	353	348
MAX	1,816	1,335	1,038	1,078	1,438	2,596	2,194	2,538	5,330	6,971	2,821	3,074
(WY)	(1987)	(1973)	(1993)	(1973)	(1973)	(1965)	(1973)	(1999)	(1998)	(1993)	(1993)	(1972)
MIN	16.5	19.9	14.6	12.3	17.2	32.3	30.4	35.2	40.5	24.5	17.0	14.9
(WY)	(1938)	(1940)	(1938)	(1940)	(1940)	(1938)	(1956)	(1939)	(1968)	(1936)	(1936)	(1937)

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	78,988		166,861			
ANNUAL MEAN	216		456		442	
HIGHEST ANNUAL MEAN					1,842	1993
LOWEST ANNUAL MEAN					54.9	1968
HIGHEST DAILY MEAN	3,340	May 5	10,200	May 23	45,100	Jun 15, 1998
LOWEST DAILY MEAN	31	Jan 10	34	Dec 12 a	6.0	Aug 18, 1936
ANNUAL SEVEN-DAY MINIMUM	41	Feb 6	47	Jan 4 a	8.1	Dec 15, 1937
MAXIMUM PEAK FLOW			16,600	May 23	60,500	Jun 15, 1998
MAXIMUM PEAK STAGE			19.99	May 23	29.39	Jun 15, 1998
ANNUAL RUNOFF (AC-FT)	156,700		331,000		320,200	
ANNUAL RUNOFF (CFSM)	0.242		0.510		0.494	
ANNUAL RUNOFF (INCHES)	3.29		6.94		6.72	
10 PERCENT EXCEEDS	491		978		964	
50 PERCENT EXCEEDS	87		214		180	
90 PERCENT EXCEEDS	50		50		44	

a Ice affected.
e Estimated.



06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA

LOCATION.--Lat 40°37'57", long 95°37'32", in SW1/4 SE1/4 sec.11, T.67 N., R.42 W., Fremont County, Hydrologic Unit 10240004, on left bank 1.7 mi downstream from confluence of East Nishnabotna and West Nishnabotna Rivers, 2 mi northeast of Hamburg, and at mile 13.8.

DRAINAGE AREA.--2,806 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1922 to September 1923, October 1928 to current year. Monthly discharge only for some periods published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1923, 1929-37, 1938-40 (M), 1943 (M). WSP 1440: Drainage area. WDR IA-74-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 894.17 ft above NGVD of 1929. See WSP 1730 for history of changes prior to Nov. 16, 1950.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	144	237	319	e208	e3,210	2,490	1,120	6,460	1,810	1,170	759
2	158	172	252	323	e196	e2,550	2,220	1,070	5,320	1,800	1,110	732
3	156	285	281	291	e178	e1,830	2,040	1,040	4,640	2,150	1,080	684
4	155	551	284	183	e182	e1,450	1,880	1,020	4,210	2,150	3,380	650
5	156	516	266	e166	e186	1,680	1,750	1,010	3,900	2,200	4,540	666
6	157	507	257	e162	e187	2,460	1,660	983	3,750	2,020	2,780	986
7	156	397	248	e168	e173	3,060	1,580	952	3,580	1,760	1,960	820
8	153	306	251	e193	e166	1,920	1,490	924	3,310	1,770	1,650	730
9	156	260	e215	e175	e191	1,500	1,410	1,260	3,050	4,150	1,480	657
10	153	244	e185	e175	e210	1,290	1,340	3,710	2,910	5,390	1,360	576
11	152	241	e174	e194	e216	1,170	1,260	2,700	2,800	3,650	1,270	540
12	164	234	e163	e184	e199	1,080	1,220	1,950	2,760	2,700	1,210	513
13	165	217	e182	e183	e190	1,020	1,180	2,000	3,830	2,910	1,170	491
14	176	216	e208	e179	e188	964	1,150	2,160	3,660	2,420	1,130	463
15	180	210	e211	e177	e183	961	1,120	2,120	4,520	2,160	1,090	471
16	184	204	e207	e190	e202	990	1,100	1,880	4,320	2,280	1,030	481
17	192	220	e197	e183	e198	965	1,070	1,750	3,840	2,120	982	462
18	184	241	e238	e169	e214	939	1,040	2,340	3,050	1,830	961	450
19	181	377	e218	e163	e229	963	999	3,170	2,820	1,680	934	440
20	183	421	e218	e181	e231	971	982	2,780	2,670	1,590	906	444
21	175	364	e247	e191	e226	1,130	990	2,240	3,130	1,540	890	436
22	174	294	e230	e168	e319	1,270	1,040	2,040	3,210	1,620	867	413
23	161	260	e224	e199	e527	1,110	1,080	6,290	2,680	2,460	848	411
24	140	209	e224	e197	e501	1,050	1,040	16,600	2,430	1,740	889	412
25	141	198	e226	e208	e405	1,020	1,200	19,700	2,260	1,520	1,100	412
26	140	229	e252	e196	e384	1,010	1,340	18,100	2,170	1,400	1,670	411
27	144	228	e332	e188	e827	1,080	1,520	7,810	2,090	1,320	1,410	409
28	148	208	e359	e177	e1,750	2,400	1,360	6,340	2,020	1,260	1,090	400
29	149	201	e328	e176	e3,520	3,980	1,250	5,080	1,950	1,230	933	387
30	149	214	320	e182	---	3,770	1,180	11,100	1,900	1,210	861	382
31	141	---	323	e198	---	2,910	---	9,870	---	1,250	809	---
TOTAL	4,989	8,368	7,557	6,038	12,386	51,703	40,981	141,109	99,240	65,090	42,560	16,088
MEAN	161	279	244	195	427	1,668	1,366	4,552	3,308	2,100	1,373	536
MAX	192	551	359	323	3,520	3,980	2,490	19,700	6,460	5,390	4,540	986
MIN	140	144	163	162	166	939	982	924	1,900	1,210	809	382
AC-FT	9,900	16,600	14,990	11,980	24,570	102,600	81,290	279,900	196,800	129,100	84,420	31,910
CFSM	0.06	0.10	0.09	0.07	0.15	0.59	0.49	1.62	1.18	0.75	0.49	0.19
IN.	0.07	0.11	0.10	0.08	0.16	0.69	0.54	1.87	1.32	0.86	0.56	0.21

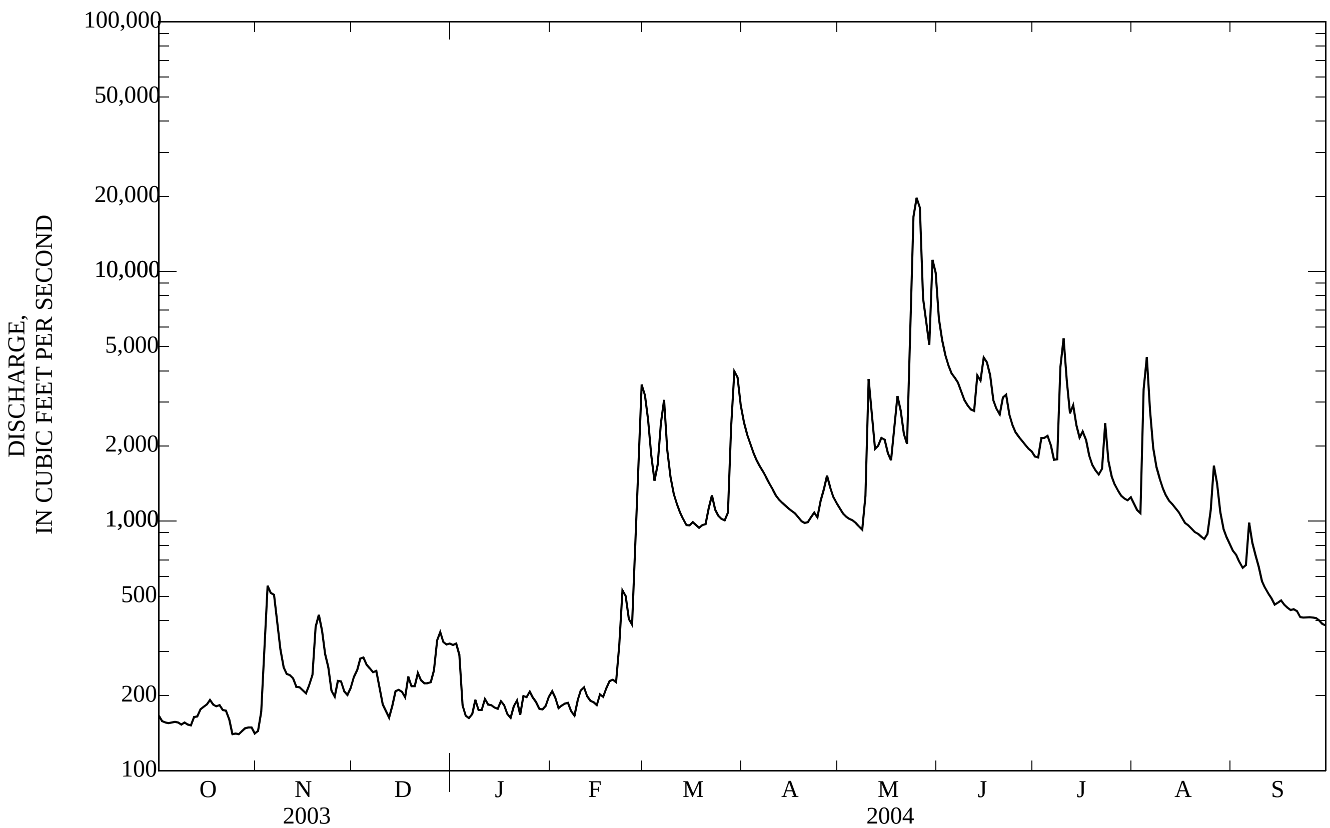
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	659	659	551	550	1,016	1,802	1,497	1,948	2,569	1,679	1,091	975
MAX	5,004	3,083	2,557	3,585	4,720	7,229	5,866	6,621	16,430	17,780	6,266	7,385
(WY)	(1987)	(1973)	(1973)	(1973)	(1973)	(1979)	(1973)	(1995)	(1947)	(1993)	(1993)	(1993)
MIN	39.5	42.9	27.1	21.3	30.3	115	89.7	68.2	151	52.8	16.8	44.1
(WY)	(1938)	(1938)	(1938)	(1940)	(1940)	(1931)	(1956)	(1934)	(1956)	(1936)	(1934)	(1937)

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1922 - 2004	
ANNUAL TOTAL	222,506		496,109			
ANNUAL MEAN	610		1,355		1,252	
HIGHEST ANNUAL MEAN					5,062	1993
LOWEST ANNUAL MEAN					170	1934
HIGHEST DAILY MEAN	6,150	May 6	19,700	May 25	53,700	Jun 17, 1998
LOWEST DAILY MEAN	140	Oct 24	140	Oct 24 a	4.5	Aug 30, 1934
ANNUAL SEVEN-DAY MINIMUM	144	Oct 24	144	Oct 24	9.9	Aug 24, 1934
MAXIMUM PEAK FLOW			26,500	May 26	65,100	Jun 17, 1998
MAXIMUM PEAK STAGE			28.04	May 26	33.18	Jun 17, 1998
INSTANTANEOUS LOW FLOW			131	Oct 31		
ANNUAL RUNOFF (AC-FT)	441,300		984,000		907,300	
ANNUAL RUNOFF (CFSM)	0.217		0.483		0.446	
ANNUAL RUNOFF (INCHES)	2.95		6.58		6.06	
10 PERCENT EXCEEDS	1,350		3,050		2,880	
50 PERCENT EXCEEDS	331		878		589	
90 PERCENT EXCEEDS	175		175		124	

a Also Oct. 26.
e Estimated.



06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA—Continued

(Large river mass contaminents station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)
MAR													
11...	1030	1,180	225	200	744	11.9	96	8.3	490	5.2	172	210	16.9
29...	1230	4,180	260	E1,100	740	8.2	78	7.7	440	12.0	151	184	18.3
APR													
12...	1300	1,210	235	63	--	11.3	--	8.2	533	10.3	174	213	17.5
MAY													
10...	1230	4,630	260	E4,200	737	3.5	40	7.5	387	20.6	121	147	11.2
25...	1045	15,800	310	2,300	732	5.3	58	7.2	238	17.5	80	97	6.35
JUN													
07...	1245	3,580	250	200	733	7.6	89	8.0	510	21.3	176	214	13.8
JUL													
12...	1230	2,670	240	520	741	7.4	92	7.9	454	24.4	148	181	11.8
AUG													
09...	1230	1,480	210	58	742	8.2	97	8.1	502	22.0	194	236	14.9
SEP													
07...	1230	823	200	93	743	8.6	99	8.3	542	21.2	198	242	15.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat flt by analysis, mg/L (62854)	Total nitrogen, wat unf by analysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)
MAR													
11...	14.0	31.7	.18	7.85	.025	.70	.177	.192	.72	8.55	8.76	7.1	<.1
29...	12.7	27.8	.18	7.37	.063	4.03	.158	.190	3.09	7.93	11.7	47.2	.2
APR													
12...	11.4	30.4	<.04	7.75	.011	.32	.155	.176	.37	8.15	8.61	2.7	<.1
MAY													
10...	8.9	21.1	.22	6.45	.164	15.1	.101	.123	9.41	6.98	16.9	145	8.1
25...	9.2	12.9	.16	5.89	.071	.72	.076	.101	6.02	6.39	10.4	7.1	.2
JUN													
07...	16.2	27.0	<.04	11.5	.024	.98	.157	.162	.76	11.5	6.61	9.6	.2
JUL													
12...	14.2	21.8	<.04	8.01	.038	2.81	.154	.172	1.16	8.24	10.1	27.6	.4
AUG													
09...	16.5	28.4	<.04	7.24	.011	.85	.206	.22	.63	7.64	8.38	8.2	<.1
SEP													
07...	13.5	28.8	<.04	4.30	.016	.53	.180	.17	.42	4.59	5.02	4.1	<.1

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)
MAR													
11...	7.0	3.3	3.8	4.7	<.006	E.024	.009	<.005	<.005	.078	<.050	<.010	<.004
29...	47.0	6.0	26.2	24.6	<.006	E.028	.026	<.005	<.005	.160	<.050	<.010	<.004
APR													
12...	2.7	2.2	2.5	6.2	<.006	E.023	.017	<.005	<.005	.070	<.050	<.010	<.004
MAY													
10...	137	5.1	6.6	3.2	<.006	E.441	2.28	.240	<.005	E41.7	<.050	<.010	<.004
25...	6.9	5.4	18.2	8.8	<.006	E.469	.884	.051	<.005	8.69	<.050	<.010	<.004
JUN													
07...	9.4	3.5	3.1	2.5	<.006	E.076	.051	.006	<.005	.781	<.050	<.010	<.004
JUL													
12...	27.2	3.2	5.7	3.9	<.006	E.068	.032	<.005	<.005	.681	<.050	<.010	<.004
AUG													
09...	8.1	2.4	5.5	10.9	<.006	E.036	.015	<.005	<.005	.239	<.050	<.010	<.004
SEP													
07...	4.1	2.7	9.4	13.6	<.006	E.025	.025	<.005	<.005	.273	<.050	<.010	<.004

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
MAR													
11...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
29...	<.041	<.020	.006	<.006	E.012	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
APR													
12...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
MAY													
10...	E.007	<.020	.008	<.006	.019	<.003	<.012	<.005	E.006	<.02	<.004	<.009	<.005
25...	E.007	<.020	.027	<.006	.516	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
JUN													
07...	<.041	<.020	<.005	<.006	E.008	<.003	<.012	<.005	E.003	<.02	<.004	<.009	<.005
JUL													
12...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
AUG													
09...	<.041	<.020	E.004	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
SEP													
07...	<.041	<.020	<.005	<.006	E.016	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Desulfinyl fipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
MAR													
11...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.027	<.006	<.003	<.007
29...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.066	<.006	<.003	<.007
APR													
12...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.032	<.006	<.003	<.007
MAY													
10...	<.029	<.013	E.006	E.009	<.003	<.004	<.035	<.027	<.015	.925	.053	<.003	<.007
25...	<.029	<.013	E.008	E.031	.024	<.004	<.035	<.027	<.015	3.06	.075	<.003	<.007
JUN													
07...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.131	.006	<.003	<.007
JUL													
12...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.121	E.005	<.003	<.007
AUG													
09...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.041	<.006	<.003	<.007
SEP													
07...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.098	<.006	<.003	<.007

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Para- thion, water, fltrd, ug/L (39542)	Peb- ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi- meth- alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome- ton, water, fltrd, ug/L (04037)	Propy- zamide, water, fltrd 0.7u GF ug/L (82676)	Propa- chlor, water, fltrd, ug/L (04024)	Pro- panil, water, fltrd 0.7u GF ug/L (82679)	Propar- gite, water, fltrd 0.7u GF ug/L (82685)	Sima- zine, water, fltrd, ug/L (04035)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)	Terba- cil, water, fltrd 0.7u GF ug/L (82665)
MAR													
11...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
29...	<.003	<.010	<.004	E.007	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
APR													
12...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
MAY													
10...	<.003	<.010	<.004	E.017	<.011	.01	<.004	<.025	<.011	<.02	.098	<.02	<.034
25...	<.003	<.010	<.004	.028	<.011	.01	<.004	<.025	<.011	<.02	.042	<.02	<.034
JUN													
07...	<.003	<.010	<.004	E.009	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02	<.034
JUL													
12...	<.003	<.010	<.004	<.022	<.011	.02	<.004	<.025	<.011	<.02	.009	<.02	<.034
AUG													
09...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034
SEP													
07...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.011	<.02	<.034

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Sus- pended sedi- ment concen- tration mg/L (80154)	Number of sam- pling points, count (00063)
MAR						
11...	<.02	<.010	<.002	<.009	553	11
29...	<.02	<.010	<.002	E.004	3,210	10
APR						
12...	<.02	<.010	<.002	<.009	200	12
MAY						
10...	<.02	<.010	<.002	.035	8,700	14
25...	<.02	<.010	<.002	.034	5,340	8
JUN						
07...	<.02	<.010	<.002	<.009	633	10
JUL						
12...	<.02	<.010	<.002	<.009	1,500	10
AUG						
09...	<.02	<.010	<.002	<.009	861	14
SEP						
07...	<.02	<.010	<.002	<.009	228	11

06813500 MISSOURI RIVER AT RULO, NE

LOCATION.--Lat 40°03'13", long 95°25'19", in NW¼ NW¼ sec.17, T.1 N., R.18 E., Richardson County, Hydrologic Unit 10240005, on right bank at downstream side of bridge on U.S. Highway 159 at Rulo, 3.2 mi upstream from Big Nemaha River, and at mile 498.0.

DRAINAGE AREA.--414,900 mi^2, approximately. The 3,959 mi^2 in Great Divide basin are not included.

PERIOD OF RECORD.--October 1949 to current year in reports of U.S. Geological Survey. Gage- height record collected at site 80 ft upstream January 1886 to December 1899 published in reports of Missouri River Commission; September 1929 to September 1950 in files of Kansas City office of U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft above NGVD of 1929. Oct. 1949 to Sept. 12, 1950, nonrecording gage at site 80 ft upstream and Sept. 13, 1950 to Apr. 19, 1983, recording gage on downstream end of middle pier, all at same datum.

REMARKS.--Records good, except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers data collection platform with satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358,000 ft^3/s Apr. 22, 1952, gage height, 25.60 ft; minimum daily discharge, 4,420 ft^3/s Jan. 13, 1957; minimum gage height, -0.19 ft Dec. 25, 1990, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1881 reached a stage of 22.9 ft, from floodmark, discharge not determined.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31,000	33,200	18,800	21,900	17,600	38,900	37,800	32,800	58,900	42,700	36,800	30,400
2	30,900	33,500	19,000	21,000	18,800	43,800	36,000	32,600	56,500	42,200	36,200	30,300
3	31,100	35,600	20,000	20,800	19,400	43,400	34,300	32,400	54,100	42,900	35,900	29,700
4	31,300	39,600	20,600	20,700	19,300	41,900	32,900	33,200	52,200	45,400	36,400	29,700
5	30,700	39,400	20,900	20,400	20,200	46,600	32,100	34,700	52,300	46,800	43,100	29,700
6	30,600	37,100	20,600	19,000	21,000	44,900	31,600	35,400	50,000	49,200	40,200	30,300
7	30,900	36,300	19,900	17,300	20,600	42,600	31,600	35,000	49,300	47,400	37,300	31,500
8	31,300	35,900	19,500	16,400	19,700	40,500	31,500	35,200	50,300	46,600	36,500	30,700
9	30,900	35,000	19,100	16,100	19,600	35,700	31,500	35,200	49,000	47,500	36,000	30,300
10	30,900	34,400	19,300	16,500	19,900	32,900	31,500	36,100	47,700	54,500	35,800	29,700
11	31,200	34,200	19,300	17,600	19,500	30,500	31,500	38,800	46,900	54,500	35,700	29,500
12	32,200	33,900	17,700	19,100	19,600	28,600	31,300	39,300	46,900	55,800	35,100	29,700
13	32,600	33,700	17,100	20,000	20,500	26,800	31,800	38,200	58,300	50,200	34,800	29,900
14	32,900	33,600	16,900	20,300	20,800	25,400	32,100	38,500	58,800	48,000	34,500	30,200
15	33,600	33,600	17,900	21,000	20,300	24,000	32,100	38,900	51,500	46,600	34,200	30,400
16	32,800	33,500	19,700	21,800	19,500	23,600	31,600	37,700	52,200	45,800	33,900	31,300
17	32,600	33,700	21,100	21,500	19,300	24,400	31,300	36,300	49,900	46,500	33,400	34,200
18	32,500	34,400	21,700	22,100	19,600	24,700	31,200	39,200	52,400	44,400	32,900	38,000
19	32,000	34,700	21,700	22,500	19,000	24,600	31,700	42,200	61,900	42,500	32,700	40,400
20	32,000	34,200	21,500	21,900	19,000	23,600	31,500	39,800	57,200	41,200	32,500	39,700
21	31,900	33,000	21,500	21,000	21,200	22,800	32,000	40,300	55,000	40,200	32,500	38,100
22	32,200	31,000	22,100	21,000	22,100	23,000	32,300	38,800	56,600	39,200	32,000	39,900
23	32,300	28,900	21,700	21,300	22,700	24,100	32,500	46,900	54,400	42,600	31,400	41,000
24	32,100	27,000	20,800	21,800	24,600	26,100	33,400	90,800	51,400	39,900	31,700	39,200
25	32,200	24,800	20,500	22,000	29,300	28,300	34,400	98,000	48,900	38,700	32,300	38,800
26	32,400	22,500	20,300	22,500	30,800	29,400	35,300	94,300	47,500	37,700	34,400	39,500
27	32,300	20,400	20,200	23,200	29,100	30,000	35,600	80,000	45,900	37,300	34,500	41,900
28	32,400	19,300	20,500	22,100	29,300	34,700	35,400	70,300	44,900	36,700	32,400	40,000
29	32,600	19,600	21,300	20,700	32,500	39,700	34,700	62,100	43,800	37,000	31,400	38,400
30	32,700	19,200	22,500	19,500	---	40,000	33,700	91,600	43,200	36,700	31,100	37,100
31	32,600	---	22,500	17,900	---	39,100	---	80,300	---	36,900	30,700	---
TOTAL	989,700	945,200	626,200	630,900	634,800	1,004,600	986,200	1,524,900	1,547,900	1,363,600	1,068,300	1,029,500
MEAN	31,930	31,510	20,200	20,350	21,890	32,410	32,870	49,190	51,600	43,990	34,460	34,320
MAX	33,600	39,600	22,500	23,200	32,500	46,600	37,800	98,000	61,900	55,800	43,100	41,900
MIN	30,600	19,200	16,900	16,100	17,600	22,800	31,200	32,400	43,200	36,700	30,700	29,500
AC-FT	1,963,000	1,875,000	1,242,000	1,251,000	1,259,000	1,993,000	1,956,000	3,025,000	3,070,000	2,705,000	2,119,000	2,042,000
CFSM	0.08	0.08	0.05	0.05	0.05	0.08	0.08	0.12	0.12	0.11	0.08	0.08
IN.	0.09	0.08	0.06	0.06	0.06	0.09	0.09	0.14	0.14	0.12	0.10	0.09

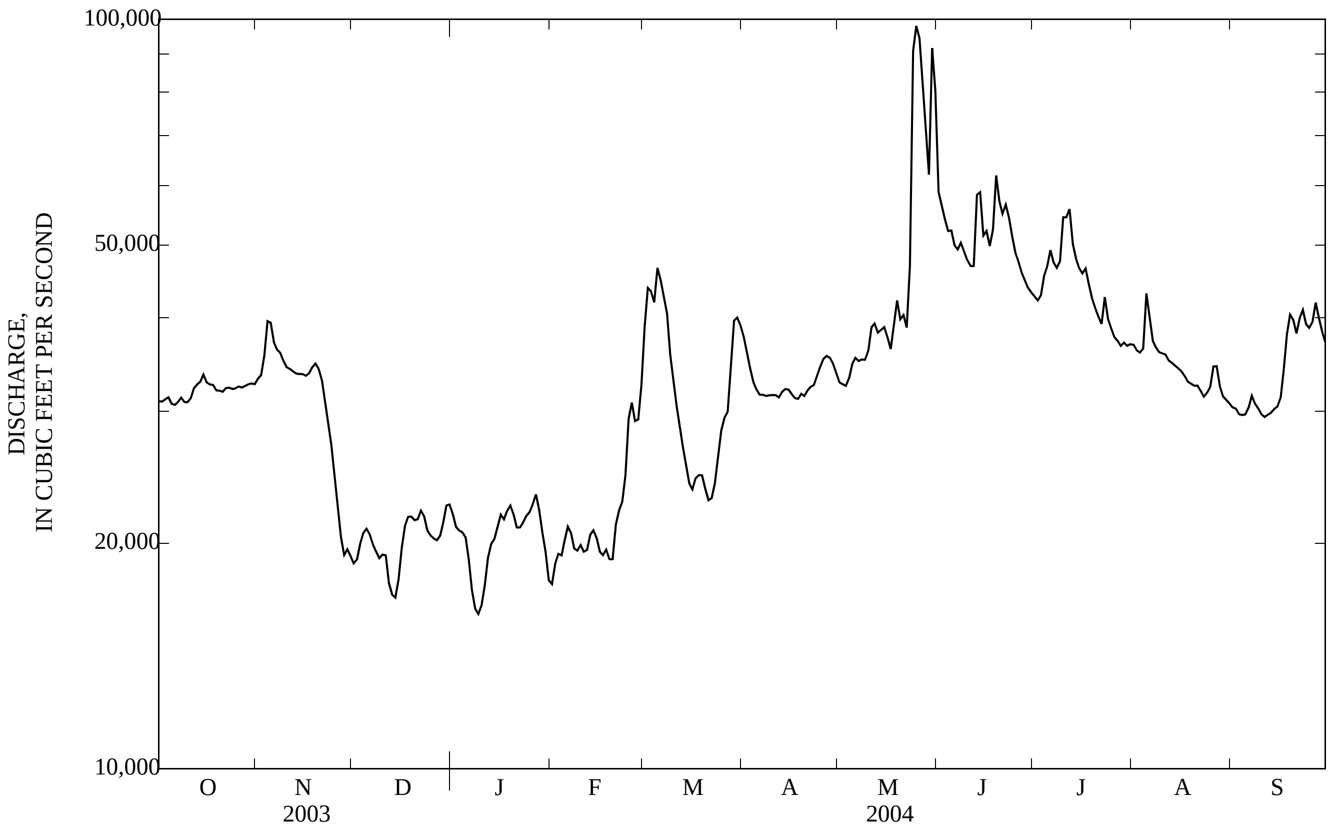
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	44,390	40,770	27,080	22,750	28,340	40,720	50,690	51,740	56,330	50,400	44,390	44,610
MAX	80,050	83,880	57,380	42,280	53,140	79,590	106,100	97,280	130,600	164,800	78,730	76,410
(WY)	(1998)	(1998)	(1998)	(1973)	(1997)	(1979)	(1997)	(1997)	(1984)	(1993)	(1996)	(1997)
MIN	25,580	17,000	9,953	10,800	13,220	15,380	21,820	33,790	33,710	29,650	29,320	32,270
(WY)	(1962)	(1962)	(1956)	(1957)	(1957)	(1957)	(1957)	(1956)	(1956)	(2002)	(2003)	(2003)

06813500 MISSOURI RIVER AT RULO, NE—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004 a	
ANNUAL TOTAL	11,421,100		12,351,800			
ANNUAL MEAN	31,290		33,750		41,880	
HIGHEST ANNUAL MEAN					71,880	1997
LOWEST ANNUAL MEAN					26,340	1957
HIGHEST DAILY MEAN	62,800	Jun 13	98,000	May 25	289,000	Jul 24, 1993
LOWEST DAILY MEAN	16,000	Jan 19	16,100	Jan 9	4,420	Jan 13, 1957
ANNUAL SEVEN-DAY MINIMUM	16,900	Jan 15	17,400	Jan 6	5,560	Nov 30, 1955
MAXIMUM PEAK FLOW			109,000	May 30	307,000	Jul 24, 1993
MAXIMUM PEAK STAGE			19.42	May 30	25.37	Jul 24, 1993
INSTANTANEOUS LOW FLOW			16,000	Jan 9		
ANNUAL RUNOFF (AC-FT)	22,650,000		24,500,000		30,340,000	
ANNUAL RUNOFF (CFSM)	0.075		0.081		0.101	
ANNUAL RUNOFF (INCHES)	1.02		1.11		1.37	
10 PERCENT EXCEEDS	44,400		47,800		66,300	
50 PERCENT EXCEEDS	31,900		32,500		38,400	
90 PERCENT EXCEEDS	19,600		19,800		19,100	

a Post regulation.



06817000 NODAWAY RIVER AT CLARINDA, IA

LOCATION.--Lat 40°44'22"(revised), long 95°00'47", in SW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.32, T.69 N., R.36 W., Page County, Hydrologic Unit 10240009, near left abutment on downstream side of bridge on State Highway 2 (city route), 0.5 mi downstream from North Branch, 1.2 mi east of city square of Clarinda, and 7.5 mi upstream from East Nodaway River.

DRAINAGE AREA.--762 mi^2.

PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310. No winter records 1918-1925.

REVISED RECORDS.--WSP 1240: 1918-20 (M), 1921, 1922-25 (M), 1936-38, 1942, 1943-45 (M), 1948. WSP 1440: Drainage area. WSP 1710: 1958, 1959 (P).

GAGE.--Water-stage recorder. Datum of gage is 955.36 ft above NGVD of 1929. Prior to July 5, 1925, and May 28, 1936 to Mar. 26, 1957, nonrecording gage at same site, and prior to Oct. 1, 1987, at datum 5.00 ft. higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Clarinda municipal water supply is taken from Nodaway River, 500 ft upstream from station. Average daily pumpage was 1.61 ft^3/s. U.S. Geological Survey data collection platform with satellite telemetry at station.

COOPERATION.--Average pumpage provided by City of Clarinda water works.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1903 reached a stage of 25.4 ft, from floodmarks, discharge not determined.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	21	41	e42	e36	e703	708	156	1,430	208	113	101
2	19	30	39	e42	e31	e514	615	145	1,060	209	106	92
3	20	54	46	e36	e19	e361	540	136	908	229	105	86
4	20	379	46	e23	e21	e321	494	139	799	259	2,830	81
5	19	524	45	e15	e24	e491	446	142	722	297	1,370	86
6	18	149	46	e14	e22	1,210	426	142	675	219	528	438
7	16	83	43	e23	e20	549	395	127	633	180	334	495
8	18	62	42	e30	e20	424	352	122	581	175	245	171
9	19	53	39	e24	e29	354	315	166	519	449	198	122
10	19	48	e29	e26	e40	322	287	623	504	1,970	156	105
11	20	44	e27	e32	e43	294	265	337	511	617	131	96
12	21	42	e26	e30	e36	263	253	250	497	470	118	87
13	19	39	e32	e29	e37	238	244	355	1,420	388	114	80
14	21	38	41	e26	e33	246	238	482	1,270	274	108	76
15	22	38	41	e25	e32	224	235	406	903	227	95	74
16	22	37	e34	e34	e45	244	232	345	709	246	86	69
17	22	38	e32	e29	e45	246	223	313	608	225	82	65
18	22	44	45	e20	e54	320	207	2,340	549	180	79	106
19	21	47	e37	e17	e64	359	189	1,420	501	155	72	300
20	20	53	e40	e29	e117	511	183	807	474	147	69	112
21	19	48	49	e37	e186	578	237	640	532	143	64	78
22	18	43	53	e22	e357	386	279	546	490	395	63	67
23	20	43	53	e46	e756	349	229	2,870	400	784	59	63
24	21	32	48	e40	e312	338	206	2,520	326	372	68	64
25	20	37	55	e38	e240	316	238	5,110	333	224	286	62
26	20	43	60	e33	e213	299	252	1,940	306	182	591	58
27	19	41	68	e26	e298	546	202	1,430	284	149	639	55
28	20	36	65	e21	e572	4,190	198	1,140	266	134	227	53
29	19	34	e51	e19	e869	1,960	182	867	234	128	147	49
30	18	41	e45	e24	---	1,180	159	5,450	214	127	125	52
31	20	---	e41	e29	---	862	---	3,010	---	128	106	---
TOTAL	610	2,221	1,359	881	4,571	19,198	9,029	34,476	18,658	9,890	9,314	3,443
MEAN	19.7	74.0	43.8	28.4	158	619	301	1,112	622	319	300	115
MAX	22	524	68	46	869	4,190	708	5,450	1,430	1,970	2,830	495
MIN	16	21	26	14	19	224	159	122	214	127	59	49
AC-FT	1,210	4,410	2,700	1,750	9,070	38,080	17,910	68,380	37,010	19,620	18,470	6,830
CFSM	0.03	0.10	0.06	0.04	0.21	0.81	0.39	1.46	0.82	0.42	0.39	0.15
IN.	0.03	0.11	0.07	0.04	0.22	0.94	0.44	1.68	0.91	0.48	0.45	0.17

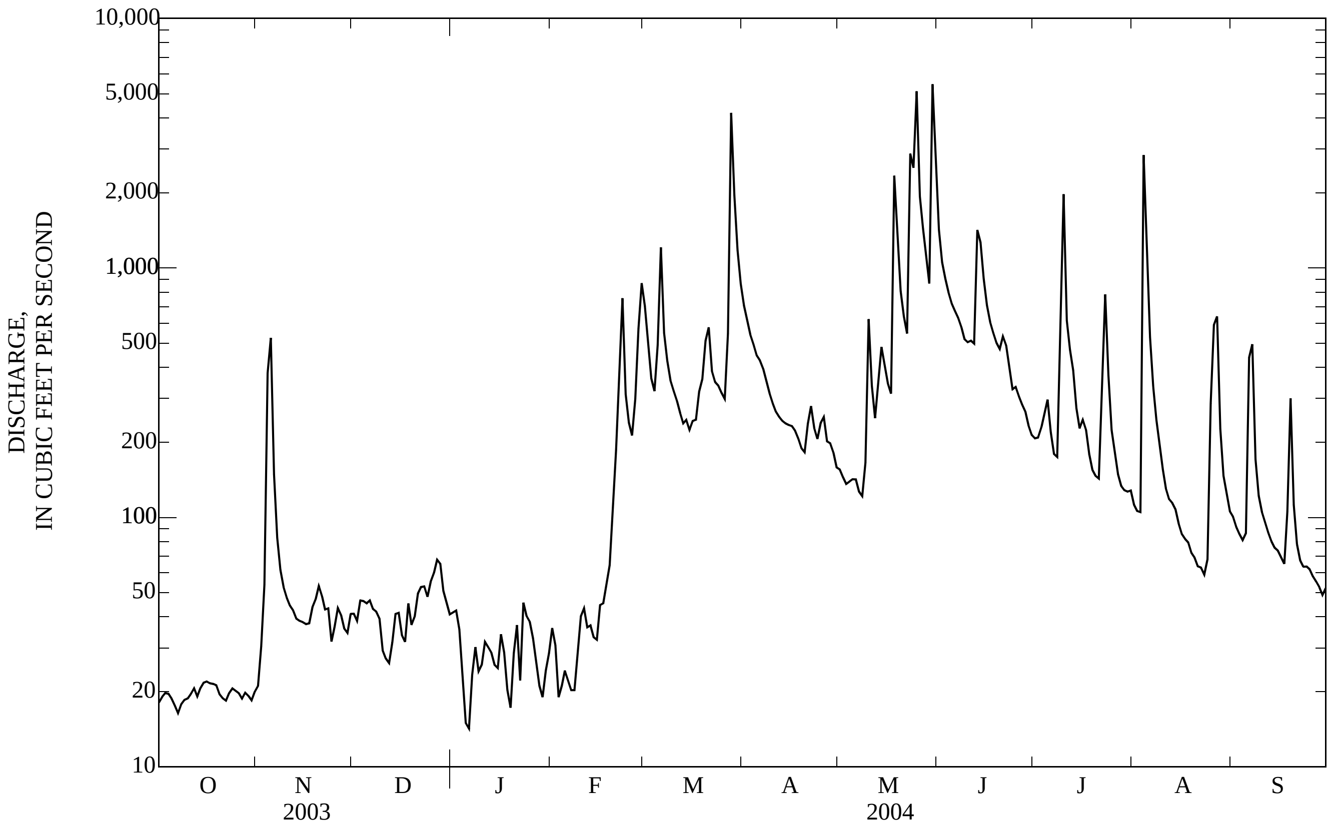
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	168	168	133	126	307	565	554	712	757	428	228	304
MAX	1,658	1,602	1,090	853	1,857	2,456	2,450	2,489	4,779	6,778	1,953	3,019
(WY)	(1974)	(1973)	(1993)	(1974)	(1973)	(1979)	(1973)	(1996)	(1947)	(1993)	(1987)	(1972)
MIN	7.52	8.27	2.10	6.00	11.3	14.0	14.4	10.3	20.0	17.3	9.81	6.83
(WY)	(1938)	(1938)	(1924)	(1924)	(1940)	(1938)	(1956)	(1939)	(1968)	(1954)	(1936)	(1937)

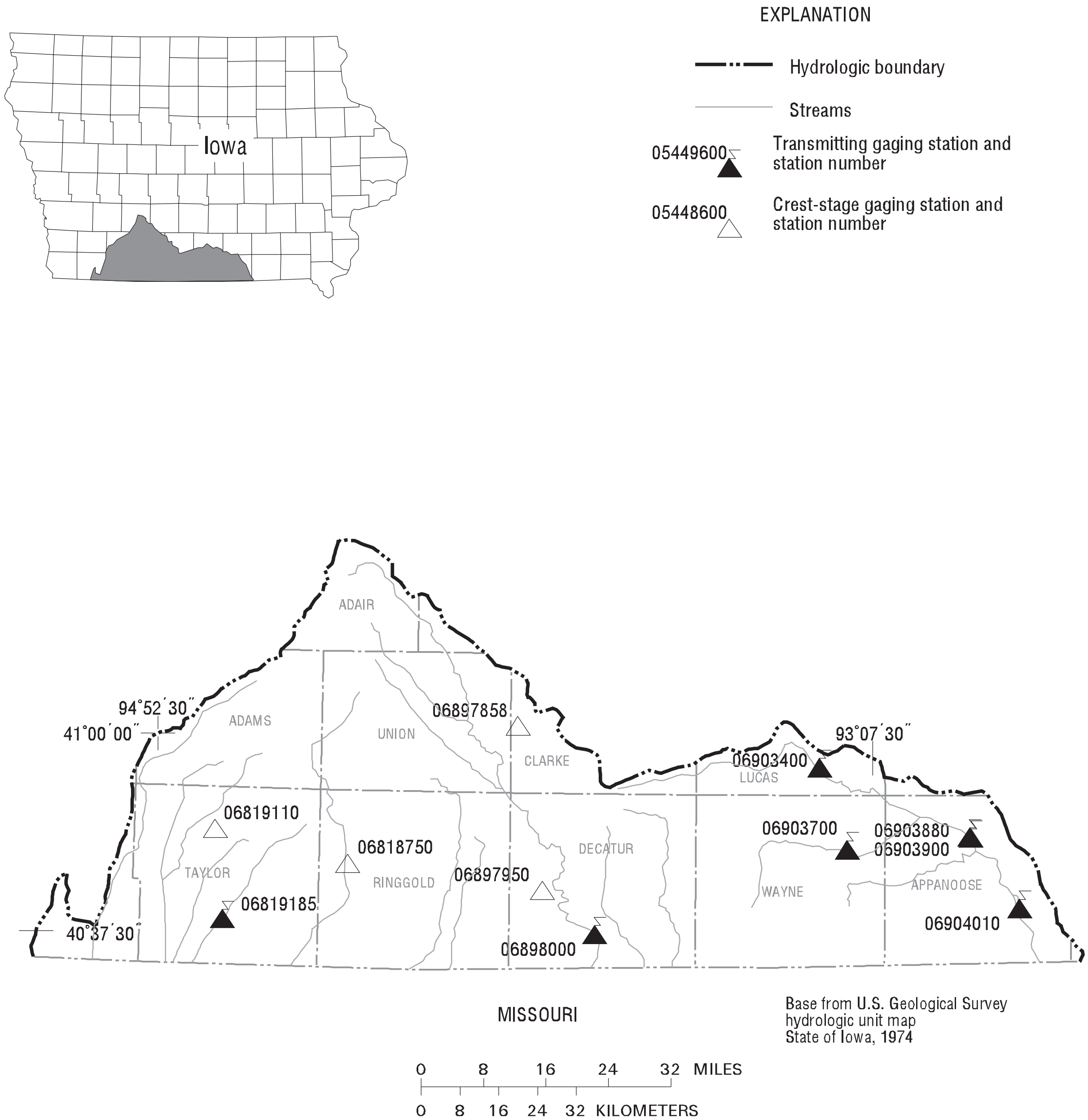
06817000 NODAWAY RIVER AT CLARINDA, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	54,864		113,650			
ANNUAL MEAN	150		311		376	
HIGHEST ANNUAL MEAN					1,577	1993
LOWEST ANNUAL MEAN					36.8	1968
HIGHEST DAILY MEAN	5,480	May 9	5,450	May 30	25,500	Sep 13, 1972
LOWEST DAILY MEAN	10	Feb 7	14	Jan 6 a	1.0	Dec 9, 1923 b
ANNUAL SEVEN-DAY MINIMUM	15	Feb 6	18	Oct 4	1.3	Dec 25, 1923
MAXIMUM PEAK FLOW			9,000	May 30	31,100	Jun 13, 1947c
MAXIMUM PEAK STAGE			14.02	May 30	25.30	Jun 13, 1947d
ANNUAL RUNOFF (AC-FT)	108,800		225,400		272,600	
ANNUAL RUNOFF (CFSM)	0.197		0.408		0.494	
ANNUAL RUNOFF (INCHES)	2.68		5.55		6.71	
10 PERCENT EXCEEDS	327		639		826	
50 PERCENT EXCEEDS	45		122		101	
90 PERCENT EXCEEDS	20		21		20	

a Ice affected.
b Also Dec. 27-31, 1923.
c From rating curve extended above 15,000 ft^3/s on basis of an overflow profile and extended channel rating.
d From floodmark.
e Estimated.



06817000 NODAWAY RIVER AT CLARINDA, IA—Continued


Iowa
EXPLANATION
Hydrologic boundary
Streams
05449600
Transmitting gaging station and station number
05448600
Crest-stage gaging station and station number
ADAIR
ADAMS
UNION
CLARKE
LUCAS
TAYLOR
RINGGOLD
DECATUR
WAYNE
APPANOOSE
94°52´30˝
41°00´00˝
93°07´30˝
40°37´30˝
06897858
06903400
06819110
06818750
06897950
06819185
06898000
06903700
06903880
06903900
06904010
MISSOURI
Base from U.S. Geological Survey hydrologic unit map State of Iowa, 1974
0 8 16 24 32 MILES
0 8 16 24 32 KILOMETERS

Gaging Stations

06819185 East Fork 102 River at Bedford, IA 469
06898000 Thompson River at Davis City, IA 471
06903400 Chariton River near Chariton, IA 473
06903700 South Fork Chariton River near Promise City, IA 475
06903880 Rathbun Lake near Rathbun, IA 477
06903900 Chariton River near Rathbun, IA 479
06904010 Chariton River near Moulton, IA 481

Crest Stage Gaging Stations

06818750 Platte River near Diagonal, IA 495
06819110 Middle Branch 102 River near Gravity, IA 495
06897858 Sevenmile Creek near Thayer, IA 495
06897950 Elk Creek near Decatur City, IA 495

06819185 EAST FORK ONE HUNDRED AND TWO RIVER AT BEDFORD, IA

LOCATION.--Lat 40°39'38", long 94°42'59", in NE¼ sec.35, T.68 N., R.34 W., Taylor County, Hydrologic Unit 10240013, on left bank at downstream side of bridge of County Highway N44, 0.1 mi south of Bedford, 0.4 mi upstream from concrete stablization dam, and 3.0 mi upstream from Daugherty Creek.

DRAINAGE AREA.--85.4 mi^2.

PERIOD OF RECORD.--October 1983 to current year. September 1959 to September 1983, at site 2 mi downstream published as "near Bedford" (station 06819190) not equivalent because of difference in drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,069.16 ft above NGVD of 1929.

REMARKS.--Records are fair, except those for estimated daily discharges, which are poor. Slight regulation at low flow by low dam used for water supply in Bedford. U.S. Geolocial Survey data collection platform with satellite telemetry and a U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.03	0.24	0.26	2.2	e2.7	38	60	7.4	39	8.0	6.9	1.6
2	0.02	12	0.23	2.1	e1.4	35	50	6.2	21	10	4.5	1.6
3	0.01	16	0.34	2.7	e0.53	13	43	5.7	20	9.3	5.1	7.1
4	0.00	133	0.15	2.9	e1.3	436	37	5.6	18	14	1,520	6.7
5	0.01	30	0.22	2.9	e2.9	732	35	6.2	18	17	47	5.6
6	0.01	0.28	0.30	2.0	e1.9	106	33	5.9	18	15	29	7.0
7	0.01	0.14	0.34	1.2	e1.2	76	28	5.1	18	9.8	26	5.8
8	0.05	0.14	0.27	1.4	e0.84	41	23	4.5	18	9.0	24	3.8
9	0.08	0.14	0.87	1.8	e1.3	29	16	28	17	753	23	3.4
10	0.09	0.15	27	1.2	1.9	19	16	47	18	56	13	2.8
11	0.28	0.18	14	1.5	1.9	17	13	16	20	663	7.9	2.0
12	0.16	0.20	5.5	2.1	1.9	11	13	7.7	57	228	6.2	1.7
13	0.44	0.15	3.3	2.3	1.6	13	12	121	188	33	5.4	1.3
14	0.36	0.14	2.8	2.6	1.7	17	11	57	142	28	3.9	1.2
15	0.12	0.15	3.0	2.8	e1.0	14	12	34	37	27	3.1	1.4
16	0.17	0.15	3.1	3.4	1.2	26	12	19	20	763	2.5	3.2
17	0.21	0.17	2.9	3.3	1.2	85	10	13	19	49	2.4	1.2
18	0.18	0.14	2.9	3.0	1.8	197	9.7	382	18	30	2.5	916
19	0.13	0.16	2.9	e1.6	2.5	107	12	107	18	27	2.5	29
20	0.27	0.17	2.7	e1.6	162	81	17	52	18	25	1.0	23
21	0.35	0.28	2.7	e2.1	176	42	34	35	19	24	1.0	15
22	0.28	0.19	3.4	e0.92	107	36	16	25	18	24	1.0	8.8
23	0.25	0.27	4.2	e1.9	77	38	11	805	17	27	1.0	6.7
24	0.21	0.15	3.3	e2.0	8.7	38	13	545	17	25	1.0	6.2
25	0.20	0.15	2.6	e2.5	2.7	39	20	504	17	24	69	5.1
26	0.20	0.15	2.5	e1.7	3.8	55	12	49	17	20	113	4.5
27	0.25	0.19	2.9	e0.77	6.4	944	7.3	272	16	17	942	3.5
28	0.31	0.23	5.9	e0.84	7.8	976	6.4	114	14	12	14	3.6
29	0.25	0.26	5.4	e1.2	10	174	7.0	27	11	12	3.9	3.4
30	0.28	0.29	2.7	e1.6	---	104	7.2	1,000	9.0	9.8	2.7	3.8
31	0.24	---	2.3	e2.3	---	74	---	103	---	7.7	2.1	---
TOTAL	5.45	195.86	110.98	62.43	592.17	4,613	596.6	4,409.3	897.0	2,976.6	2,886.6	1,086.0
MEAN	0.18	6.53	3.58	2.01	20.4	149	19.9	142	29.9	96.0	93.1	36.2
MAX	0.44	133	27	3.4	176	976	60	1,000	188	763	1,520	916
MIN	0.00	0.14	0.15	0.77	0.53	11	6.4	4.5	9.0	7.7	1.0	1.2
AC-FT	11	388	220	124	1,170	9,150	1,180	8,750	1,780	5,900	5,730	2,150
CFSM	0.00	0.08	0.04	0.02	0.24	1.74	0.23	1.67	0.35	1.12	1.09	0.42
IN.	0.00	0.09	0.05	0.03	0.26	2.01	0.26	1.92	0.39	1.30	1.26	0.47

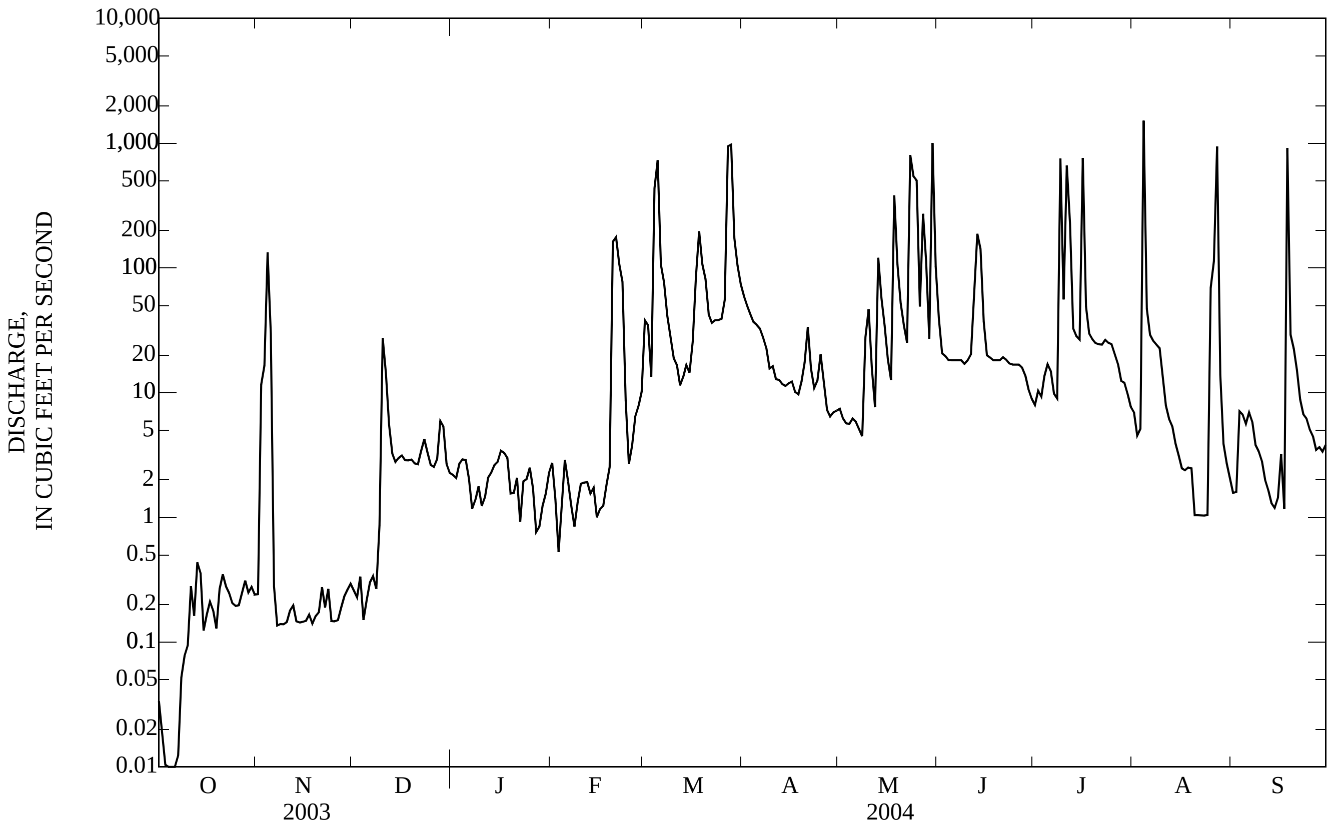
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	20.2	25.5	23.5	9.65	39.6	77.3	89.7	139	98.3	103	23.6	43.9
MAX	159	202	181	50.2	149	276	289	488	255	889	173	260
(WY)	(1987)	(1993)	(1993)	(1998)	(1997)	(1998)	(1984)	(1995)	(1995)	(1993)	(1987)	(1993)
MIN	0.18	0.28	0.31	0.22	0.17	2.13	0.82	0.67	1.90	0.39	0.41	0.19
(WY)	(2004)	(2003)	(2003)	(2003)	(1989)	(1989)	(1989)	(1989)	(1988)	(2003)	(2003)	(2003)

06819185 EAST FORK ONE HUNDRED AND TWO RIVER AT BEDFORD, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1984 - 2004	
ANNUAL TOTAL	2,580.97		18,431.99			
ANNUAL MEAN	7.07		50.4		57.8	
HIGHEST ANNUAL MEAN					200	1993
LOWEST ANNUAL MEAN					6.30	2003
HIGHEST DAILY MEAN	146	May 9	1,520	Aug 4	7,600	Jul 5, 1993
LOWEST DAILY MEAN	0.00	Oct 4	0.00	Oct 4	0.00	Jul 6, 1989 a
ANNUAL SEVEN-DAY MINIMUM	0.01	Oct 1	0.01	Oct 1	0.00	Aug 3, 1989 b
MAXIMUM PEAK FLOW			5,910	Aug 4	9,570	Jul 14, 1986
MAXIMUM PEAK STAGE			22.24	Aug 4	23.85	Jul 5, 1993
INSTANTANEOUS LOW FLOW			0.00	Oct 4 c		
ANNUAL RUNOFF (AC-FT)	5,120		36,560		41,870	
ANNUAL RUNOFF (CFSM)	0.083		0.590		0.677	
ANNUAL RUNOFF (INCHES)	1.12		8.03		9.19	
10 PERCENT EXCEEDS	25		76		92	
50 PERCENT EXCEEDS	0.41		6.2		6.7	
90 PERCENT EXCEEDS	0.12		0.20		0.54	

a Many days between July 6 to Dec. 24, 1989.
b Also Sept. 20, 2002.
c Also Oct. 5-7.
e Estimated.



06898000 THOMPSON RIVER AT DAVIS CITY, IA

LOCATION.--Lat 40°38'25", long 93°48'29", in SE¼ SE¼ sec.35, T.68 N., R.26 W., Decatur County, Hydrologic Unit 10280102, on left bank 15 ft downstream from bridge on U.S. Highway 69 at Davis City, 3.1 mi. upstream from Dickersons Branch, and 5.8 mi. upstream from Iowa-Missouri State line. On Aug. 13, gage moved 15 ft downstream of bridge on left bank.

DRAINAGE AREA.--701 mi^2.

PERIOD OF RECORD.--May 1918 to July 1925, July 1941 to current year. Monthly discharge only for some periods, published in WSP 1310. No winter records 1921-25. Prior to October 1918, published as "Grand River".

REVISED RECORDS.--WSP 1240: 1918, 1920-21 (M), 1922-24, 1925 (M), 1946-47 (M). WSP 1440: Drainage area. WSP 1710: 1957.

GAGE.--Water-stage recorder. Datum of gage is 874.04 ft above NGVD of 1929. May 14, 1918 to July 2, 1925, July 14, 1941 to Feb. 24, 1942, nonrecording gage, and Feb. 25, 1942 to Feb. 8, 1967, water-stage recorder at same site at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry and U.S. National Weather Service Limited Automatic Remote Collector (LARC) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 8, 1885, reached a stage of 22.8 ft, datum in use prior to Feb. 9, 1967, from floodmark, discharge, 30,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	3.2	13	24	e19	366	539	110	942	146	54	539
2	2.0	8.9	14	33	e13	293	446	131	553	147	56	429
3	2.2	413	16	27	e5.9	245	385	115	426	144	57	361
4	2.4	222	15	14	e17	289	344	110	355	148	1,830	310
5	2.8	263	16	e2.4	e24	1,960	306	112	307	173	2,200	268
6	3.3	312	17	e4.5	e18	1,760	277	115	273	169	848	1,070
7	3.5	122	18	e6.6	e12	859	252	111	254	151	393	598
8	3.3	60	18	14	e7.8	475	232	102	239	132	264	317
9	3.6	39	e17	13	e9.9	343	206	93	217	129	200	251
10	3.7	30	e10	11	e12	267	189	94	218	291	153	179
11	3.7	26	e7.4	12	e10	225	171	209	240	442	120	145
12	3.7	22	e5.5	13	e8.2	188	159	243	247	2,010	101	112
13	e3.7	18	e10	13	e6.9	167	149	182	368	631	89	91
14	e3.0	16	e23	13	e6.7	160	146	716	637	334	79	78
15	2.6	15	25	13	e5.7	161	145	367	847	228	72	71
16	2.9	14	22	14	e23	165	143	301	653	177	67	70
17	2.8	15	20	e13	e21	205	140	250	693	141	64	72
18	3.0	15	23	e11	e36	432	134	234	353	119	59	64
19	3.2	14	22	e6.3	e40	702	123	736	284	100	55	60
20	3.2	14	20	e17	e89	787	150	619	243	84	67	57
21	3.1	14	22	e16	e274	558	416	399	223	74	53	53
22	3.3	e13	23	e9.9	e701	423	381	339	211	70	48	65
23	3.4	e12	18	e17	e456	322	239	1,800	204	71	48	50
24	3.1	e9.9	e13	e17	e385	284	178	2,570	193	80	2,640	48
25	2.7	16	17	e19	e313	259	163	2,660	173	149	3,210	48
26	2.4	15	21	e12	e261	262	214	2,480	164	105	3,690	49
27	3.2	15	26	e2.1	e203	271	179	1,690	157	82	8,850	49
28	4.1	13	27	e4.0	260	1,400	155	1,570	151	73	9,340	47
29	3.8	12	25	e6.3	341	e2,070	131	699	143	64	3,560	44
30	4.3	14	18	e9.0	---	e918	112	1,770	143	60	1,150	41
31	3.4	---	e16	e13	---	698	---	1,150	---	55	719	---
TOTAL	97.8	1,776.0	557.9	400.1	3,579.1	17,514	6,804	22,077	10,111	6,779	40,136	5,636
MEAN	3.15	59.2	18.0	12.9	123	565	227	712	337	219	1,295	188
MAX	4.3	413	27	33	701	2,070	539	2,660	942	2,010	9,340	1,070
MIN	2.0	3.2	5.5	2.1	5.7	160	112	93	143	55	48	41
AC-FT	194	3,520	1,110	794	7,100	34,740	13,500	43,790	20,060	13,450	79,610	11,180
CFSM	0.00	0.08	0.03	0.02	0.18	0.81	0.32	1.02	0.48	0.31	1.85	0.27
IN.	0.01	0.09	0.03	0.02	0.19	0.93	0.36	1.17	0.54	0.36	2.13	0.30

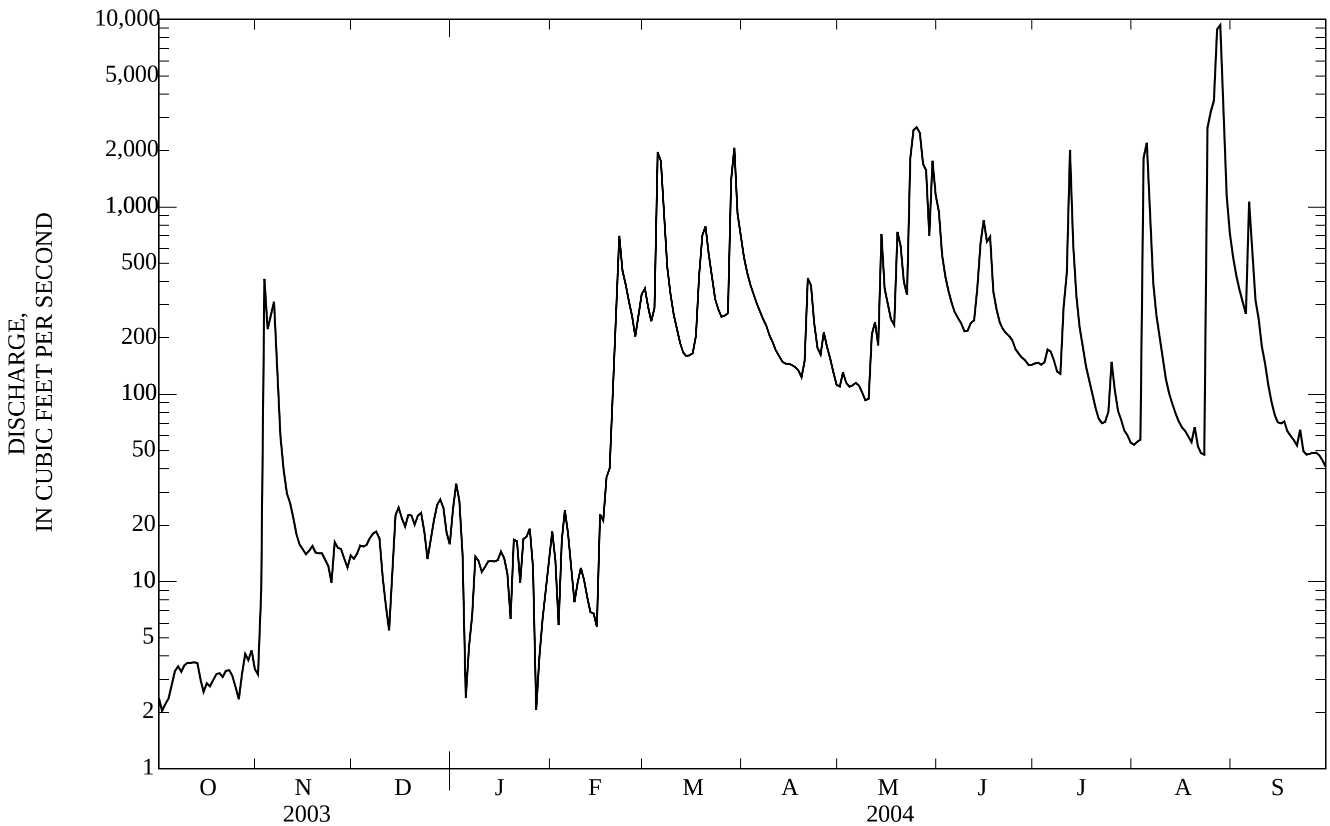
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	179	207	143	148	327	639	678	698	643	411	195	321
MAX	2,138	1,462	1,299	1,292	1,849	2,375	2,586	3,364	4,750	7,239	2,255	5,178
(WY)	(1974)	(1962)	(1983)	(1960)	(1973)	(1979)	(1973)	(1996)	(1947)	(1993)	(1987)	(1992)
MIN	1.41	2.07	0.94	0.62	1.14	10.7	2.55	1.19	3.08	1.98	6.16	3.87
(WY)	(1957)	(1956)	(1956)	(1956)	(1956)	(1954)	(1956)	(1956)	(1956)	(1977)	(2003)	(2003)

06898000 THOMPSON RIVER AT DAVIS CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1919 - 2004	
ANNUAL TOTAL	29,771.1		115,467.9			
ANNUAL MEAN	81.6		315		385	
HIGHEST ANNUAL MEAN					1,469	1993
LOWEST ANNUAL MEAN					28.6	2000
HIGHEST DAILY MEAN	1,850	May 9	9,340	Aug 28	52,900	Sep 16, 1992
LOWEST DAILY MEAN	1.4	Sep 10	2.0	Oct 2	0.10	Jun 25, 1956
ANNUAL SEVEN-DAY MINIMUM	2.1	Aug 24	2.7	Oct 1	0.36	Jun 19, 1956
MAXIMUM PEAK FLOW			11,100	Aug 27	57,000	Sep 16, 1992
MAXIMUM PEAK STAGE			10.92	Aug 27	24.29	Sep 16, 1992
INSTANTANEOUS LOW FLOW			1.5	Oct 2		
ANNUAL RUNOFF (AC-FT)	59,050		229,000		278,800	
ANNUAL RUNOFF (CFSM)	0.116		0.450		0.549	
ANNUAL RUNOFF (INCHES)	1.58		6.13		7.46	
10 PERCENT EXCEEDS	175		694		830	
50 PERCENT EXCEEDS	17		100		80	
90 PERCENT EXCEEDS	3.1		5.2		9.0	

e Estimated



06903400 CHARITON RIVER NEAR CHARITON, IA

LOCATION.--(revised) Lat 40°57'07", long 93°15'35", in SW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.15, T.71 N., R.21 W., Lucas County, Hydrologic Unit 10280201, on right bank 15 ft downstream from bridge on County Highway S43, 0.1 mi downstream from Wolf Creek, and 5.0 mi southeast of Chariton.

DRAINAGE AREA.--182 mi^2.

PERIOD OF RECORD.--October 1965 to current year. Occasional low-flow measurements, water years 1958-60, 1962, 1964.

GAGE.--Water stage recorder. Datum of gage is 917.90 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good, except estimated daily discharges, which are poor. Beaver activity in September. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1960 reached a stage of about 23 ft, discharge, about 15,000 ft^3/s and flood of June 5, 1947 reached a stage of 21.65 ft, from floodmark, discharge, 11,000 ft^3/s. A discharge of 0.08 ft^3/s was measured on Oct. 30, 1963.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.39	0.60	6.9	e3.5	e3.1	e121	71	e6.2	890	3.9	1.4	213
2	0.38	3.0	6.8	e4.8	e5.1	e134	55	e6.3	533	3.6	1.1	91
3	0.37	920	7.7	e3.8	e3.3	e117	44	e7.7	105	6.1	1.6	61
4	0.37	652	7.7	e3.8	e2.5	e292	36	e8.2	55	5.7	986	46
5	0.34	469	9.7	e3.3	e4.3	2,440	32	8.3	36	29	918	37
6	0.31	143	12	e4.4	e7.3	1,320	29	7.7	27	57	722	39
7	0.30	64	12	e3.1	e5.9	1,030	25	6.4	22	22	165	37
8	0.29	35	12	e3.3	e7.4	367	22	5.5	17	13	54	29
9	0.29	21	15	e2.6	e8.6	139	19	7.1	13	13	32	23
10	0.30	15	195	e3.3	e7.1	95	17	5.5	27	13	21	20
11	0.32	11	128	e3.8	e5.6	74	15	4.7	377	85	14	18
12	0.33	9.8	92	e5.7	e5.1	59	14	4.0	119	396	11	15
13	0.32	9.2	e43	e6.5	e3.8	52	16	4.0	202	261	8.8	13
14	0.38	7.6	e22	e6.5	e5.5	52	14	4.9	1,060	89	7.0	10
15	0.39	6.4	e17	e4.3	e6.3	52	14	5.0	1,950	36	5.6	8.5
16	0.44	5.5	e16	e5.3	e7.1	57	13	7.8	721	22	4.9	9.6
17	0.46	4.7	e14	e17	e6.9	93	12	13	431	14	4.4	9.7
18	0.50	6.8	e6.6	e34	e7.8	364	12	13	227	9.4	5.0	7.6
19	0.52	7.2	e6.2	e16	e9.2	377	11	16	96	6.5	29	6.1
20	0.52	7.8	e4.2	e11	e119	200	15	15	57	4.7	74	5.2
21	0.53	7.7	e4.7	e11	e263	104	30	38	43	3.5	41	4.3
22	0.51	7.1	e4.5	e6.7	e380	68	67	23	33	4.7	17	4.0
23	0.49	9.7	e4.4	e3.6	e542	54	43	39	24	15	10	4.0
24	0.47	14	e5.6	e4.9	e320	47	25	263	17	9.5	8.3	4.2
25	0.50	12	e4.7	e5.7	e235	43	22	912	13	6.0	149	3.1
26	0.48	10	e3.3	e6.5	e179	51	20	523	11	4.4	626	2.3
27	0.47	9.2	e3.8	e6.5	e123	64	16	146	8.6	3.2	2,390	1.9
28	0.56	8.2	e6.0	e5.3	e113	545	e12	67	6.8	2.2	2,970	2.2
29	0.60	7.4	e6.1	e3.7	e117	659	e9.1	57	5.6	1.8	2,560	e1.6
30	0.62	7.3	e5.6	e2.0	---	228	e6.6	1,330	4.7	1.7	2,430	1.4
31	0.59	---	e4.8	e2.8	---	107	---	1,460	---	2.1	1,660	---
TOTAL	13.34	2,491.20	687.3	204.7	2,502.9	9,405	736.7	5,014.3	7,131.7	1,144.0	15,927.1	727.7
MEAN	0.43	83.0	22.2	6.60	86.3	303	24.6	162	238	36.9	514	24.3
MAX	0.62	920	195	34	542	2,440	71	1,460	1,950	396	2,970	213
MIN	0.29	0.60	3.3	2.0	2.5	43	6.6	4.0	4.7	1.7	1.1	1.4
CFSM	0.00	0.46	0.12	0.04	0.47	1.67	0.13	0.89	1.31	0.20	2.82	0.13
IN.	0.00	0.51	0.14	0.04	0.51	1.92	0.15	1.02	1.46	0.23	3.26	0.15

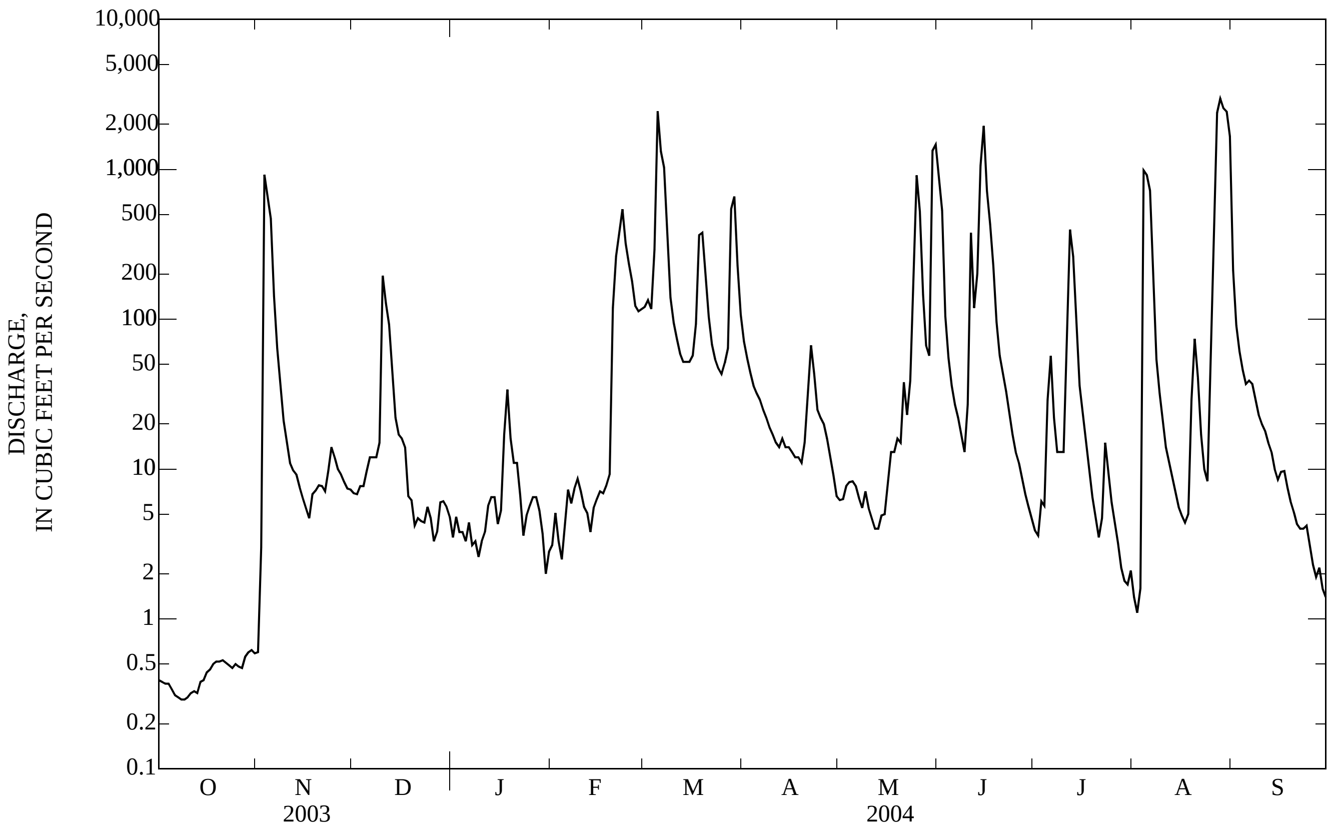
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	74.2	56.0	56.0	33.1	82.9	180	230	232	165	149	76.4	114
MAX	568	294	408	340	403	761	1,093	1,097	856	1,711	618	1,704
(WY)	(1974)	(1993)	(1983)	(1974)	(1997)	(1979)	(1991)	(1995)	(1967)	(1993)	(1987)	(1992)
MIN	0.01	0.00	0.00	0.01	0.22	1.22	0.07	2.12	0.38	0.00	0.04	0.09
(WY)	(1990)	(1990)	(1990)	(2003)	(1989)	(2000)	(1989)	(2000)	(1988)	(1988)	(2003)	(1991)

06903400 CHARITON RIVER NEAR CHARITON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004	
ANNUAL TOTAL	7,094.77		45,985.94			
ANNUAL MEAN	19.4		126		121	
HIGHEST ANNUAL MEAN					345	1993
LOWEST ANNUAL MEAN					9.71	1989
HIGHEST DAILY MEAN	920	Nov 3	2,970	Aug 28	24,600	Sep 15, 1992
LOWEST DAILY MEAN	0.00	Jan 16	0.29	Oct 8 a	0.00	Aug 1, 1977 b
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 22	0.31	Oct 6	0.00	Jun 21, 1988
MAXIMUM PEAK FLOW			3,050	Aug 28	37,700	Sep 15, 1992
MAXIMUM PEAK STAGE			17.78	Aug 28	29.32	Sep 15, 1992
ANNUAL RUNOFF (CFSM)	0.107		0.690		0.663	
ANNUAL RUNOFF (INCHES)	1.45		9.40		9.01	
10 PERCENT EXCEEDS	27		272		260	
50 PERCENT EXCEEDS	2.5		11		12	
90 PERCENT EXCEEDS	0.00		1.6		0.50	

a Also Oct. 9.
b Many days in 1977, 1978, 1988-92, 2003.
e Estimated.



06903700 SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IA

LOCATION.--Lat 40°48'02", long 93°11'32", in SW1/4 SW1/4 sec.5, T.69 N., R.20 W., Wayne County, Hydrologic Unit 10280201, on right bank 20 ft downstream from bridge on County Highway S50, 1.3 mi downstream from Jordan Creek, and 4.3 mi northwest of Promise City.

DRAINAGE AREA.--168 mi^2.

PERIOD OF RECORD.--October 1967 to current year. Occasional low-flow measurements, water years 1958-66, published as "near Bethlehem". Monthly discharge measurements for March 1965 to September 1967 available in files of Iowa City District Office.

GAGE.--Water-stage recorder. Datum of gage is 913.70 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 21, 1965, reached a stage of 25.5 ft, from floodmarks, discharge, about 18,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.87	2.3	3.5	e5.8	e5.4	137	64	7.9	111	9.9	4.3	47
2	1.0	3.9	3.1	e7.0	e7.4	113	49	7.9	53	11	11	33
3	1.1	966	3.3	e6.3	e5.9	86	41	7.8	34	16	11	25
4	1.0	203	3.5	e5.7	e5.3	662	36	7.5	25	19	5,290	20
5	0.99	94	4.5	e5.7	e6.9	3,770	31	7.7	19	17	751	16
6	0.97	34	4.8	e7.6	e9.4	405	29	7.6	16	15	144	31
7	0.92	17	5.2	e6.2	e8.6	176	26	6.8	14	14	73	24
8	1.0	10	4.8	e5.1	e10	101	e21	5.3	11	14	56	15
9	1.0	7.0	33	e4.4	e12	67	e19	4.8	9.6	17	e40	12
10	1.1	5.1	e208	e4.4	e11	52	e17	4.0	21	16	e29	10
11	1.3	4.5	e76	e5.8	e10	43	e15	3.9	100	273	e23	8.8
12	1.5	3.8	e41	e7.4	e8.4	34	e15	3.6	48	1,040	e17	7.7
13	1.6	3.2	e26	e8.6	e7.7	31	e14	4.4	257	110	e14	6.6
14	2.8	4.7	e20	e8.9	e9.0	46	14	7.6	2,370	42	e11	7.3
15	3.2	3.4	e18	e7.4	e9.6	47	14	7.0	1,270	23	e8.9	6.7
16	4.0	2.8	e19	e13	e11	54	13	4.5	176	17	e7.4	6.2
17	3.5	2.9	e18	e50	e11	161	14	3.5	112	17	e6.7	5.7
18	2.9	3.3	e8.9	e42	e15	350	13	6.7	68	11	e6.1	5.3
19	2.6	3.1	e4.2	e28	e48	130	12	26	58	8.2	e5.8	4.5
20	3.6	3.4	e4.7	e9.0	e834	73	14	17	40	6.5	e5.3	3.8
21	1.6	3.4	e6.8	e5.7	e488	46	27	8.0	37	5.8	e4.8	3.6
22	1.3	2.9	e6.6	e5.0	e362	34	20	6.7	40	105	e4.2	3.4
23	1.4	12	e6.8	e5.4	e274	31	13	40	26	116	4.2	3.4
24	1.5	38	e4.9	e6.6	e220	30	11	68	21	50	7.5	3.5
25	1.7	17	e6.7	e7.7	e176	28	13	623	18	23	96	3.2
26	1.9	9.6	e5.2	e8.3	e145	42	12	109	16	14	256	3.1
27	2.4	6.2	e6.1	e8.6	e133	46	9.7	45	14	9.3	6,360	3.1
28	2.6	4.5	e7.8	e6.6	e124	1,050	8.4	171	13	6.8	5,620	2.9
29	2.7	4.3	e9.4	e5.7	130	317	6.8	59	11	5.6	839	2.8
30	2.6	4.6	e8.4	e5.4	---	137	6.5	1,960	10	5.1	175	2.7
31	2.3	---	e7.0	e4.7	---	88	---	703	---	4.6	81	---
TOTAL	58.95	1,479.9	585.2	308.0	3,097.6	8,387	598.4	3,944.2	5,018.6	2,041.8	19,962.2	327.3
MEAN	1.90	49.3	18.9	9.94	107	271	19.9	127	167	65.9	644	10.9
MAX	4.0	966	208	50	834	3,770	64	1,960	2,370	1,040	6,360	47
MIN	0.87	2.3	3.1	4.4	5.3	28	6.5	3.5	9.6	4.6	4.2	2.7
AC-FT	117	2,940	1,160	611	6,140	16,640	1,190	7,820	9,950	4,050	39,600	649
CFSM	0.01	0.29	0.11	0.06	0.64	1.61	0.12	0.76	1.00	0.39	3.83	0.06
IN.	0.01	0.33	0.13	0.07	0.69	1.86	0.13	0.87	1.11	0.45	4.42	0.07

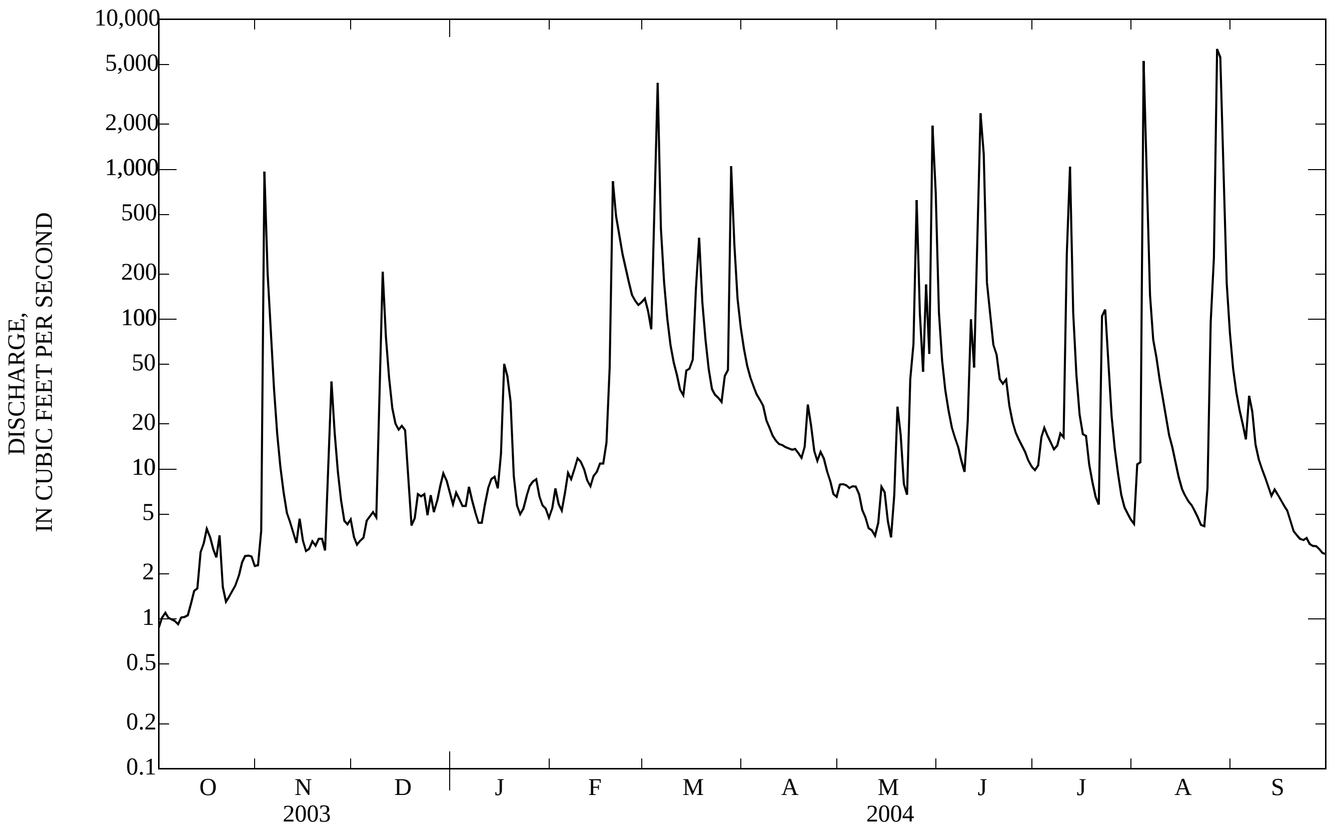
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	90.2	55.0	57.7	34.0	98.5	182	224	232	161	169	60.6	127
MAX	498	357	440	335	534	853	730	1,043	625	2,351	644	2,227
(WY)	(1978)	(1993)	(1983)	(1974)	(2001)	(1979)	(1991)	(1995)	(2001)	(1993)	(2004)	(1992)
MIN	0.15	0.39	0.40	0.19	0.88	2.74	1.21	1.89	1.18	0.24	0.52	0.45
(WY)	(1989)	(1990)	(1977)	(1977)	(1989)	(2000)	(1989)	(2000)	(1988)	(1977)	(2003)	(2000)

06903700 SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1968 - 2004	
ANNUAL TOTAL	5,729.03		45,809.15			
ANNUAL MEAN	15.7		125		124	
HIGHEST ANNUAL MEAN					446	1993
LOWEST ANNUAL MEAN					10.1	2003
HIGHEST DAILY MEAN	966	Nov 3	6,360	Aug 27	34,700	Sep 15, 1992
LOWEST DAILY MEAN	0.04	Feb 9	0.87	Oct 1	0.00	Jul 6, 1977 a
ANNUAL SEVEN-DAY MINIMUM	0.10	Feb 6	0.98	Oct 1	0.00	Aug 16, 1989
MAXIMUM PEAK FLOW			8,350	Aug 28	70,600	Sep 15, 1992
MAXIMUM PEAK STAGE			20.89	Aug 28	34.84	Sep 15, 1992
ANNUAL RUNOFF (AC-FT)	11,360		90,860		90,030	
ANNUAL RUNOFF (CFSM)	0.093		0.745		0.740	
ANNUAL RUNOFF (INCHES)	1.27		10.14		10.05	
10 PERCENT EXCEEDS	21		139		195	
50 PERCENT EXCEEDS	2.2		11		13	
90 PERCENT EXCEEDS	0.49		3.1		0.88	

a Also July 7, 21-24, 28 to Aug. 1, 1977, July 9, 10, and Aug. 14, 18-22, 1989.
e Estimated.



06903880 RATHBUN LAKE NEAR RATHBUN, IA

LOCATION.--Lat 40°49'30", long 92°53'33", in NW$\frac{1}{4}$ NE$\frac{1}{4}$ sec.35, T.70 N., R.18 W., Appanoose County, Hydrologic Unit 10280201, at control tower of Rathbun Dam, 1.8 mi north of Rathbun, 3.9 mi upstream from Walnut Creek, and at mile 142.3.

DRAINAGE AREA.--549 mi^2.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929.

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in November 1969. Release is controlled by two hydraulically controlled slide gages, 6 ft wide and 12 ft high, into forechamber of an 11-ft diameter horseshoe conduit through the dam. No dead storage. Maximum design discharge through gates is 5,000 ft^3/s. Uncontrolled notch spillway is concrete overflow section 500 ft in length, located about 3,000 ft west of the right abutment of the dam and provides emergency discharge into the adjacent drainage area of Little Walnut Creek. Uncontrolled notch spillway is at elevation 926 ft, contents 545,621 acre-ft, surface area, 20,974 acres. Conservation pool level is at elevation 904.0 ft, contents 199,830 acre-ft, surface area, 10,989 acres. Reservoir is used for flood control, low-flow augumentation, conservation and recreation. Prior to October 1, 2000 published as mean daily contents in acre feet, and as mean daily elevation in feet NGVD thereafter. U.S. Geological Survey data collection platform with satellite telemetry at station.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 927.16 ft July 28, 1993; minimum elevation, 855.40 ft Oct. 6-10, 1969.

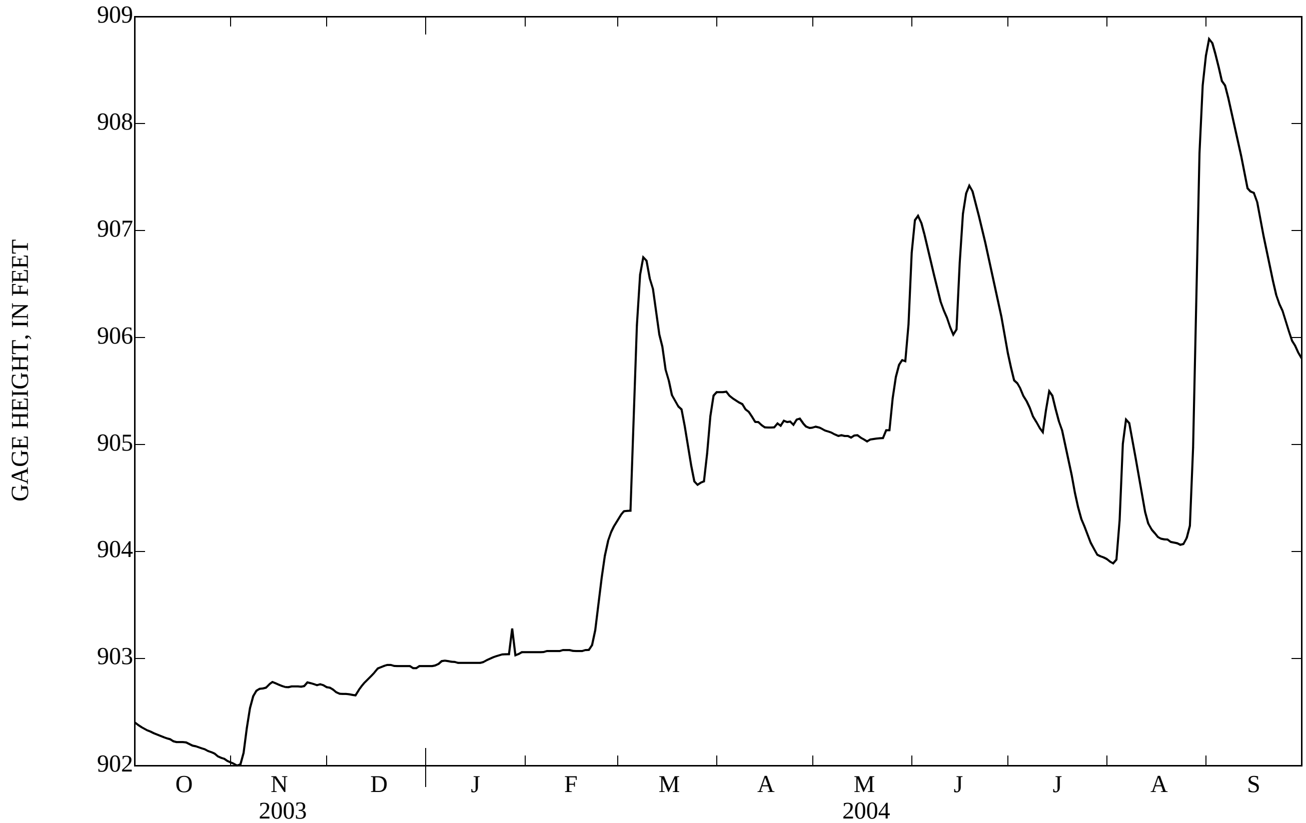
EXTREMES FOR CURRENT YEAR.--Maximum elevation 908.81 ft on Sept. 1; minimum elevation, 902.00 ft on Nov. 2, 3.

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	902.40	902.02	902.73	902.93	903.06	904.34	905.49	905.17	907.10	905.72	903.91	908.79
2	902.38	902.00	902.71	902.93	903.06	904.38	905.49	905.16	907.14	905.60	903.89	908.75
3	902.36	902.01	902.68	902.94	903.06	904.38	905.49	905.15	907.07	905.57	903.92	908.65
4	902.34	902.12	902.67	902.95	903.06	904.38	905.46	905.13	906.96	905.52	904.29	908.53
5	902.33	902.35	902.67	902.98	903.06	905.26	905.43	905.12	906.84	905.45	905.01	908.40
6	902.31	902.54	902.67	902.98	903.06	906.11	905.41	905.11	906.72	905.40	905.23	908.36
7	902.30	902.65	902.67	902.98	903.07	906.59	905.39	905.09	906.58	905.34	905.20	908.24
8	902.29	902.70	902.66	902.97	903.07	906.75	905.38	905.08	906.46	905.26	905.04	908.09
9	902.28	902.72	902.66	902.97	903.07	906.72	905.33	905.09	906.34	905.21	904.87	907.96
10	902.26	902.72	902.70	902.96	903.07	906.56	905.31	905.08	906.26	905.16	904.69	907.83
11	902.25	902.73	902.75	902.96	903.07	906.46	905.26	905.08	906.19	905.12	904.53	907.70
12	902.25	902.76	e902.78	902.96	903.08	906.25	905.21	905.07	906.10	905.32	904.37	907.54
13	902.23	902.78	e902.81	902.96	903.08	906.03	905.21	905.09	906.03	905.50	904.26	907.40
14	902.22	902.77	e902.84	902.96	903.08	905.92	905.18	905.09	906.08	905.46	904.21	907.36
15	902.22	902.75	902.87	902.96	903.07	905.70	905.16	905.07	906.70	905.33	904.17	907.35
16	902.22	902.74	902.91	902.96	903.07	905.60	905.16	905.05	907.16	905.22	904.14	907.27
17	902.22	902.73	902.92	902.96	903.07	905.46	905.16	905.03	907.35	905.14	904.12	907.11
18	902.20	902.73	902.93	902.97	903.07	905.41	905.16	905.05	907.42	905.00	904.11	906.96
19	902.19	902.74	902.94	902.98	903.08	905.36	905.20	905.05	907.37	904.86	904.11	906.82
20	902.18	902.74	902.94	903.00	903.08	905.33	905.18	905.06	907.25	904.72	904.09	906.67
21	902.17	902.74	902.93	903.01	903.13	905.17	905.22	905.06	907.14	904.55	904.08	906.53
22	902.16	902.74	902.93	903.02	903.27	904.98	905.21	905.06	907.01	904.42	904.08	906.40
23	902.15	902.74	902.93	903.03	903.50	904.81	905.22	905.13	906.89	904.31	904.06	906.32
24	902.13	902.78	e902.93	903.04	903.75	904.66	905.19	905.13	906.74	904.24	904.07	906.25
25	902.12	902.77	e902.93	903.04	903.96	904.62	905.23	905.43	906.61	904.16	904.13	906.16
26	902.11	902.76	e902.93	903.04	904.10	904.64	905.24	905.63	906.47	904.08	904.24	906.06
27	902.08	902.75	e902.91	e903.28	904.18	904.66	905.20	905.75	906.34	904.02	904.97	905.97
28	902.07	902.76	e902.91	e903.03	904.24	904.92	905.17	905.79	906.20	903.97	906.38	905.92
29	902.06	902.75	e902.93	903.04	904.29	905.26	905.16	905.78	906.02	903.96	907.73	905.85
30	902.04	902.73	902.93	903.06	---	905.46	905.16	906.12	905.86	903.95	908.36	905.80
31	902.03	---	902.93	903.06	---	905.49	---	906.79	---	903.93	908.63	---
MEAN	902.21	902.63	902.83	903.00	903.30	905.41	905.27	905.27	906.68	904.89	904.80	907.23
MAX	902.40	902.78	902.94	903.28	904.29	906.75	905.49	906.79	907.42	905.72	908.63	908.79
MIN	902.03	902.00	902.66	902.93	903.06	904.34	905.16	905.03	905.86	903.93	903.89	905.80

e Estimated

06903880 RATHBUN LAKE NEAR RATHBUN, IA—Continued



06903900 CHARITON RIVER NEAR RATHBUN, IA

LOCATION.--(revised) Lat 40°49'19", long 92°53'28", in SE$\frac{1}{4}$ NE$\frac{1}{4}$ sec.35, T.70 N., R.18 W., Appanoose County, Hydrologic Unit 10280201, on left bank 600 ft downstream from outlet of Rathbun Dam, 1.8 mi north of Rathbun, 3.7 mi upstream from Walnut Creek, and at mile 142.1.

DRAINAGE AREA.--549 mi^2.

PERIOD OF RECORD.--October 1956 to current year. Monthly discharge only for some periods, published in WSP 1730.

REVISED RECORDS.--WSP 1560: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 847.92 ft above NGVD of 1929. Prior to Nov. 16, 1960, nonrecording gage and Nov. 17, 1960 to Sept. 30, 1969, recording gage, at site 3.1 mi downstream at datum 4.65 ft lower.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,800 ft^3/s Mar. 31, 1960, gage height, 25.3 ft from floodmark, site and datum then in use.

REMARKS.--Records good except for those periods of estimated daily discharge, which are poor. U.S. Geological Survey data collection platform with satellite and telephone modem telemetry at station. Flow regulated by Rathbun Lake (station 06903880) since Nov. 21, 1969. Records of discharge include diversions of: Oct. 1-17, 11 ft^3/s; Oct. 18 to Oct. 31, 5.0 ft^3/s; Nov. 1 to Dec 1, 2.0 ft^3/s; Dec 2 to Apr. 22, 4.0 ft^3/s; Apr. 23 to Apr. 27, 10 ft^3/s; Apr. 28 to Jun 4, 4.0 ft^3/s; Jun 5 to Jun 17, 6.0 ft^3/s; Jun 18 to to Jun 30, 5.0 ft^3/s; July 1 to July 6, 7.0 ft^3/s; July 7 to Aug. 23, 8.0 ft^3/s; Aug 24, to Sept. 30, 10 ft^3/s. The flow is diverted from the reservoir for fish ponds downstream from dam. Diverted flow returns to stream 0.1 mi downstream from gage. Rathbun Regional Water Association permit No. 0400900 allows withdrawal from Rathbun Dam dischargeimmediately downstream from gage for maximum rate of 4,200 gpm (9.36 ft^3/s). In the 2003 water year, 1.90 billion gallons were withdrawn from the river.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	16	16	e22	22	199	161	22	221	753	23	743
2	26	15	18	e23	22	471	162	21	838	555	23	735
3	26	15	18	e23	22	462	161	20	842	353	24	732
4	26	16	18	e24	22	408	160	21	835	350	25	733
5	26	16	18	e24	22	411	161	22	832	350	190	735
6	26	16	18	e25	22	25	162	22	830	352	830	764
7	26	16	18	e26	22	21	162	21	828	356	1,110	757
8	26	16	18	27	22	476	161	20	828	354	1,110	754
9	26	16	19	26	22	1,110	160	20	825	353	1,100	751
10	26	16	19	27	22	1,110	158	20	832	350	825	749
11	26	16	18	26	22	1,110	157	19	829	198	524	746
12	26	16	18	25	22	1,090	77	19	827	44	526	744
13	26	16	18	24	22	1,060	20	19	831	346	328	349
14	26	16	18	23	22	1,060	19	18	630	748	76	23
15	26	16	18	23	22	1,060	18	17	210	745	75	287
16	26	16	18	23	22	1,060	19	16	108	745	45	734
17	26	16	18	24	22	1,070	19	16	83	742	25	729
18	20	16	19	23	21	1,080	19	16	446	735	26	728
19	20	16	21	23	22	1,060	19	16	780	733	27	728
20	20	17	21	23	22	1,050	20	16	782	729	27	728
21	20	16	22	23	22	1,040	20	16	780	724	27	728
22	19	17	21	23	22	1,040	20	17	776	719	28	555
23	19	17	21	22	21	1,040	27	17	774	496	29	368
24	20	17	21	22	21	635	27	17	772	340	30	368
25	19	17	21	23	22	159	27	17	765	339	29	367
26	e19	17	21	22	22	159	27	17	760	259	28	366
27	e19	16	21	22	22	160	27	18	756	146	801	221
28	19	16	22	22	22	182	22	81	752	77	230	162
29	19	16	22	24	22	164	22	182	748	22	32	123
30	19	16	22	26	---	161	22	944	750	22	389	77
31	19	---	e22	26	---	161	---	433	---	23	739	---
TOTAL	713	484	603	739	635	20,294	2,236	2,140	20,870	13,058	9,301	16,584
MEAN	23.0	16.1	19.5	23.8	21.9	655	74.5	69.0	696	421	300	553
MAX	26	17	22	27	22	1,110	162	944	842	753	1,110	764
MIN	19	15	16	22	21	21	18	16	83	22	23	23
AC-FT	1,410	960	1,200	1,470	1,260	40,250	4,440	4,240	41,400	25,900	18,450	32,890

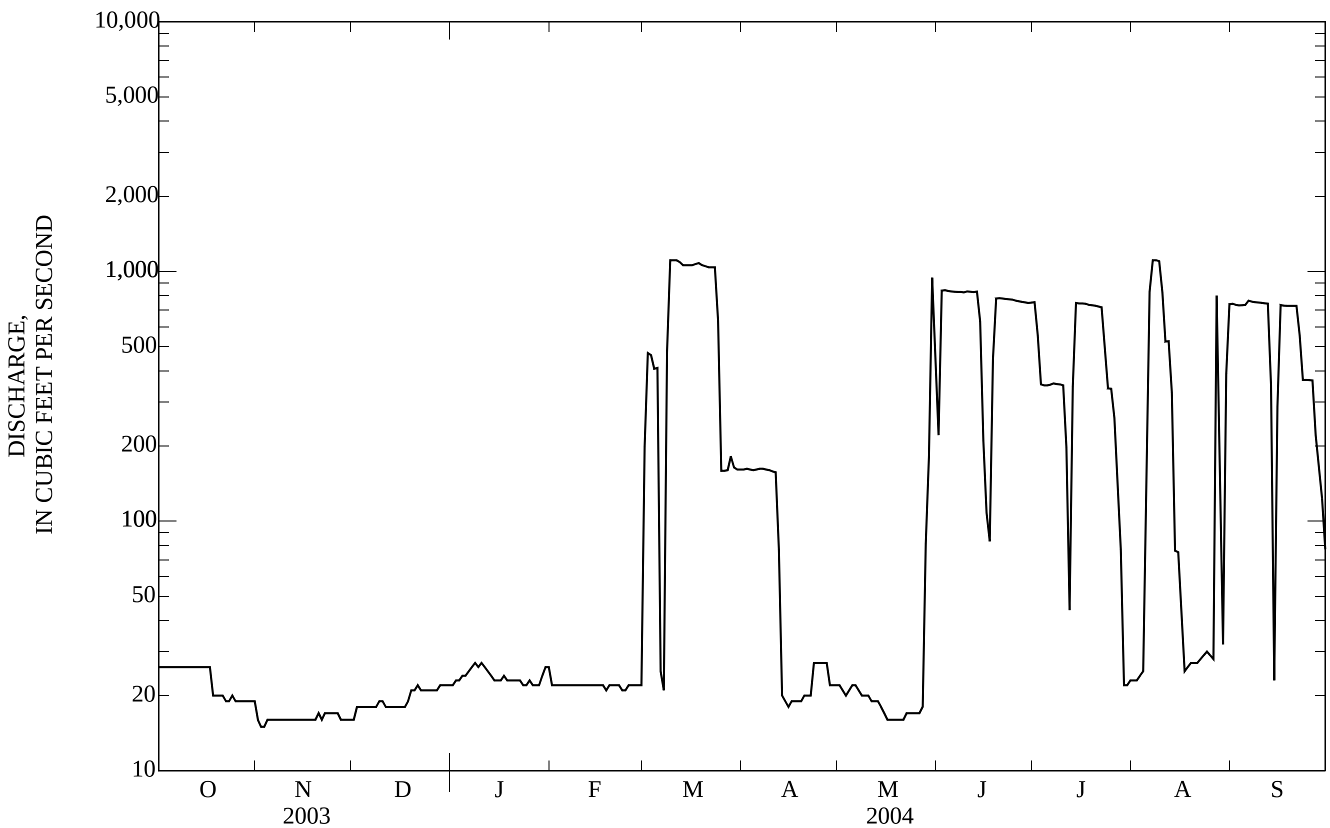
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	252	261	387	224	295	442	348	425	482	556	456	302
MAX	1,790	1,828	1,364	1,546	1,550	1,271	1,480	1,281	1,573	1,377	1,826	1,707
(WY)	(1994)	(1994)	(1993)	(1993)	(1993)	(1993)	(2001)	(1973)	(1973)	(2001)	(1993)	(1993)
MIN	11.5	9.97	5.54	8.98	5.60	9.40	6.74	19.3	16.6	6.53	9.10	11.0
(WY)	(1975)	(1975)	(1970)	(1970)	(1970)	(1970)	(1970)	(1977)	(1988)	(1970)	(1970)	(1974)

06903900 CHARITON RIVER NEAR RATHBUN, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1970 - 2004 a	
ANNUAL TOTAL	7,958		87,657			
ANNUAL MEAN	21.8		240		370	
HIGHEST ANNUAL MEAN					1,164	1993
LOWEST ANNUAL MEAN					20.4	1989
HIGHEST DAILY MEAN	31	Jul 25	1,110	Mar 9 b	1,950	Oct 17, 1993
LOWEST DAILY MEAN	15	Nov 2	15	Nov 2 c	0.00	Oct 26, 1977
ANNUAL SEVEN-DAY MINIMUM	16	Nov 1	16	Nov 1	1.0	Apr 1, 1970
MAXIMUM PEAK FLOW			1,470	May 30	2,780	Dec 14, 1993
MAXIMUM PEAK STAGE			10.65	May 30	14.94	Dec 14, 1993
INSTANTANEOUS LOW FLOW					0.00	Oct 26, 1977
ANNUAL RUNOFF (AC-FT)	15,780		173,900		268,000	
10 PERCENT EXCEEDS	26		780		1,190	
50 PERCENT EXCEEDS	21		26		39	
90 PERCENT EXCEEDS	18		17		16	

a Post regulation.
b Also March 10-11.
c Also Nov 3.
e Estimated.



06904010 CHARITON RIVER NEAR MOULTON, IA

LOCATION.--(revised) Lat 40°41'33", long 92°46'20", in SE$\frac{1}{4}$ NE$\frac{1}{4}$ sec.14, T.68 N., R.17 W., Appanoose County, Hydrologic Unit 10280201, on right bank 6 ft downstream from bridge on County Highway J45 (543rd St.), 0.7 mi downstream from Hickory Creek, 5.0 mi west of Moulton, 8.0 mi upstream from Iowa-Missouri border, 20.8 mi downstream from Rathbun Dam, and at mile 121.5.

DRAINAGE AREA.--740 mi^2.

PERIOD OF RECORD--August 1979 to current year.

WATER-DISCHARGE RECORDS

GAGE--Water stage recorder. Datum of gage is 800.00 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Rathbun Reservoir (station 06903880) 20.8 mi upstream. U.S. Geological data collection platform with satellite and telephone modem telemetry and U.S. Army Corps of Engineers rain gage at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: www2.mvr.usace.army.mil/WaterControl/datamining2.cfm.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 45 ft, discharge unknown, from information by U.S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	29	28	71	e33	97	330	47	1,410	799	53	e807
2	29	31	29	64	e37	418	306	42	885	786	69	818
3	28	101	34	59	e34	522	289	40	937	469	79	803
4	33	89	35	e55	e39	953	278	39	895	443	658	e794
5	34	61	36	e53	e39	3,740	272	40	867	429	680	e786
6	34	44	36	e57	e43	1,670	267	40	852	425	646	e796
7	35	36	37	e51	e40	441	264	38	845	389	1,110	e788
8	34	32	35	e46	e42	247	257	37	839	377	1,110	e786
9	35	30	69	e42	e44	1,200	250	36	838	379	1,100	e776
10	35	29	e108	e44	e46	1,280	239	34	1,010	373	1,060	e767
11	36	29	e69	e46	e46	1,260	235	34	1,110	519	621	e750
12	37	30	e50	e48	e50	1,240	226	34	918	1,390	578	e738
13	37	29	e38	e47	e51	1,230	90	36	1,130	339	563	e502
14	51	30	e36	e45	e50	1,250	56	40	1,200	763	211	135
15	47	31	e39	e39	e47	1,240	54	32	1,220	802	132	66
16	39	30	e42	e67	e48	1,250	53	26	583	790	128	651
17	37	29	e42	e94	e48	1,360	50	20	780	810	73	763
18	35	42	e38	e72	e52	1,620	49	35	223	796	58	761
19	35	44	e34	e63	e106	1,430	46	49	804	778	58	762
20	34	36	e33	e51	e455	1,300	55	41	821	771	56	759
21	35	33	e34	e52	e674	1,250	70	36	815	765	53	758
22	36	31	e39	e45	e475	1,240	60	33	812	767	51	734
23	38	143	e37	e43	e309	1,230	53	41	803	720	48	439
24	37	124	e30	e43	e222	1,170	51	62	796	423	59	412
25	34	63	e34	e41	e143	364	53	975	789	405	122	410
26	33	47	e41	e41	e122	374	50	443	780	401	299	407
27	35	39	e54	e43	e95	369	47	147	773	264	3,520	386
28	36	34	e123	e42	e76	1,440	45	91	780	225	3,430	219
29	36	44	e104	e41	92	1,140	41	215	788	91	1,500	233
30	37	30	e88	e40	---	520	41	4,230	790	58	e460	139
31	32	---	e78	e35	---	383	---	4,180	---	55	e764	---
TOTAL	1,109	1,400	1,530	1,580	3,558	33,228	4,177	11,193	26,093	16,801	19,349	17,945
MEAN	35.8	46.7	49.4	51.0	123	1,072	139	361	870	542	624	598
MAX	51	143	123	94	674	3,740	330	4,230	1,410	1,390	3,520	818
MIN	28	29	28	35	33	97	41	20	223	55	48	66
AC-FT	2,200	2,780	3,030	3,130	7,060	65,910	8,290	22,200	51,760	33,320	38,380	35,590
CFSM	0.05	0.06	0.07	0.07	0.17	1.45	0.19	0.49	1.18	0.73	0.84	0.81
IN.	0.06	0.07	0.08	0.08	0.18	1.67	0.21	0.56	1.31	0.84	0.97	0.90

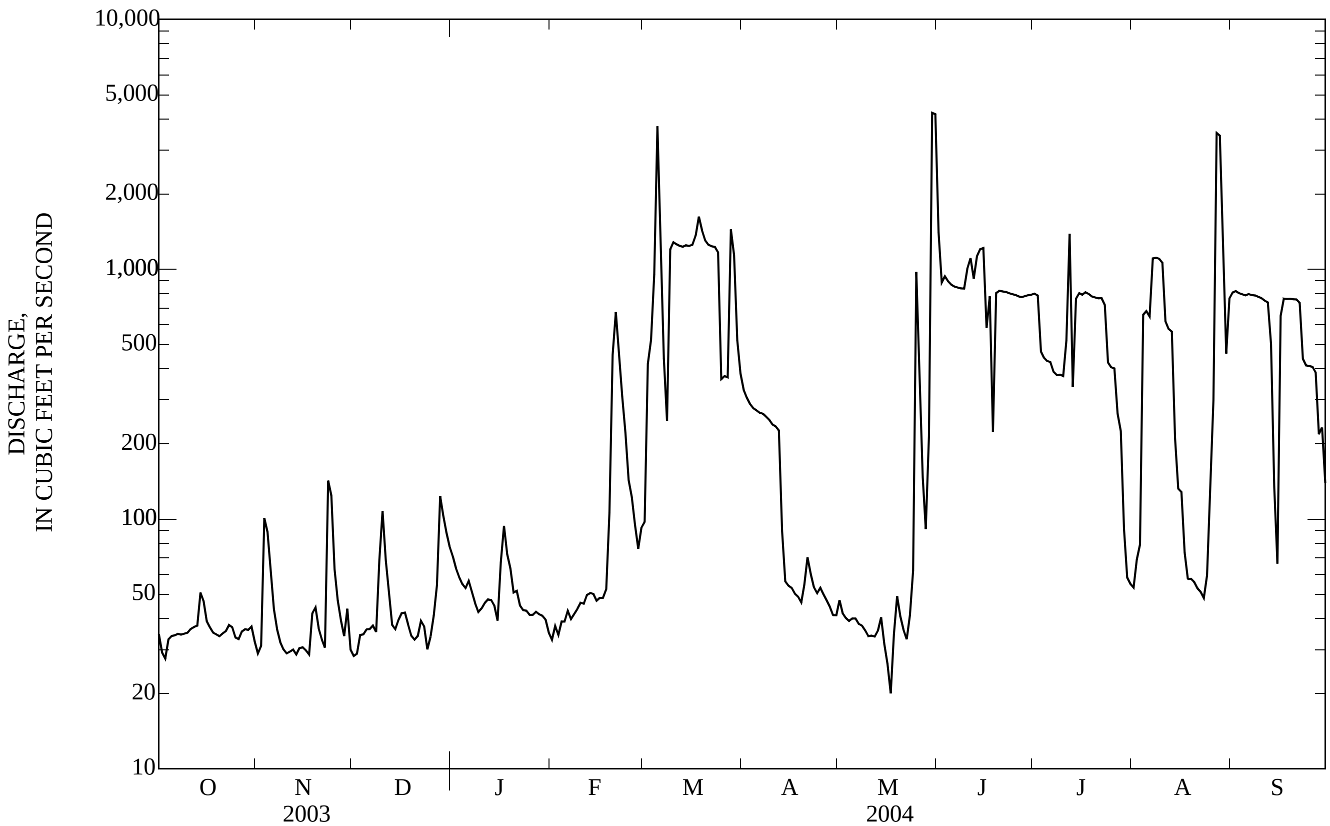
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2004, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	365	357	473	285	410	685	608	699	691	858	608	437
MAX	1,874	1,931	1,557	1,696	1,772	1,831	1,731	1,421	1,593	2,849	2,004	1,976
(WY)	(1994)	(1994)	(1983)	(1993)	(1983)	(1993)	(2001)	(1995)	(2001)	(1982)	(1993)	(1993)
MIN	24.2	23.0	20.1	22.2	20.6	24.3	22.7	32.2	20.3	17.9	21.0	26.6
(WY)	(1989)	(1989)	(1990)	(1989)	(1989)	(1989)	(1989)	(2000)	(1988)	(1988)	(1988)	(1988)

06904010 CHARITON RIVER NEAR MOULTON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1980 - 2004	
ANNUAL TOTAL	22,481		137,963			
ANNUAL MEAN	61.6		377		541	
HIGHEST ANNUAL MEAN					1,555	1993
LOWEST ANNUAL MEAN					43.6	1989
HIGHEST DAILY MEAN	1,730	Jun 26	4,230	May 30	8,720	Jul 17, 1982
LOWEST DAILY MEAN	24	Jan 5	20	May 17	14	Jun 22, 1988 a
ANNUAL SEVEN-DAY MINIMUM	25	Jan 1	30	Nov 9	15	Jun 22, 1988
MAXIMUM PEAK FLOW			5,760	May 30	11,200	Jul 16, 1982
MAXIMUM PEAK STAGE			34.35	May 30	36.83	Jul 16, 1982
ANNUAL RUNOFF (AC-FT)	44,590		273,600		391,900	
ANNUAL RUNOFF (CFSM)	0.083		0.509		0.731	
ANNUAL RUNOFF (INCHES)	1.13		6.94		9.93	
10 PERCENT EXCEEDS	89		986		1,360	
50 PERCENT EXCEEDS	38		72		192	
90 PERCENT EXCEEDS	30		34		27	

a Also June 23, 27, and July 9, 1988.
e Estimated.



06904010 CHARITON RIVER NEAR MOULTON, IA—Continued

(Large river mass contaminents station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 2003 to September 30, 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Stream width, feet (00004)	Turbidity, wat unf lab, Hach 2100AN NTU (99872)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)
MAR													
18...	0900	1,660	110	100	735	12.6	100	7.9	304	4.4	100	122	9.73
APR													
22...	1320	60	76.0	15	738	17.1	177	8.3	470	15.4	156	190	14.1
MAY													
17...	1100	29	73.0	14	739	10.0	113	8.0	388	19.8	135	164	12.8
JUN													
14...	1050	1,100	100	--	738	6.7	79	7.6	280	22.3	--	--	8.70
JUL													
19...	1230	776	100	59	737	7.4	90	7.8	272	23.8	89	109	8.24
AUG													
16...	1030	130	80.0	22	--	8.4	--	7.9	283	20.6	97	118	8.35
SEP													
13...	1030	745	105	38	739	7.8	92	7.7	240	21.7	86	105	7.42

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat flt by analysis, mg/L (62854)	Total nitrogen, wat unf by analysis, mg/L (62855)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)
MAR													
18...	4.2	34.3	E.03	.66	E.006	.40	.019	.034	.28	1.12	1.61	3.4	.1
APR													
22...	2.6	78.9	<.04	.45	.010	.27	.020	.034	.114	.88	1.10	1.6	<.1
MAY													
17...	3.3	60.0	.04	.52	.023	.15	.027	.043	.082	.98	1.13	.9	<.1
JUN													
14...	4.3	21.9	E.03	1.30	.032	.32	.033	.050	.33	1.89	1.77	2.5	<.1
JUL													
19...	2.7	24.1	<.04	.56	.008	.38	.007	.023	.21	1.11	1.37	2.9	<.1
AUG													
16...	2.6	27.5	<.04	.24	E.004	.23	.018	.031	.116	.69	.97	1.6	<.1
SEP													
13...	2.8	19.5	<.04	.27	.010	.21	.022	.032	.119	.74	.84	1.4	<.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Pheophytin a, phytoplankton, ug/L (62360)	Chlorophyll a phytoplankton, fluoro, ug/L (70953)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)
MAR													
18...	3.3	6.3	3.4	6.1	<.006	E.222	.011	.006	<.005	.657	<.050	<.010	<.004
APR													
22...	1.6	6.1	7.1	13.8	<.006	E.107	.022	<.005	<.005	.493	<.050	<.010	<.004
MAY													
17...	.9	6.1	4.7	5.7	<.006	E.158	.065	<.005	<.005	.555	<.050	<.010	<.004
JUN													
14...	2.4	6.6	8.1	11.7	<.006	E.343	.206	<.005	<.005	1.30	<.050	<.010	<.004
JUL													
19...	2.8	5.7	9.2	8.2	<.006	E.270	.083	<.005	<.005	1.14	<.050	<.010	<.004
AUG													
16...	1.5	5.6	5.0	11.0	<.006	E.235	.047	<.005	<.005	1.07	<.050	<.010	<.004
SEP													
13...	1.4	5.4	2.7	4.6	<.006	E.223	.036	<.005	<.005	.853	<.050	<.010	<.004

06904010 CHARITON RIVER NEAR MOULTON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Desulfinyl fipronil, water, fltrd, ug/L (62170)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
MAR 18...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
APR 22...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
MAY 17...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
JUN 14...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
JUL 19...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
AUG 16...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005
SEP 13...	<.041	<.020	<.005	<.006	<.018	<.003	<.012	<.005	<.009	<.02	<.004	<.009	<.005

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Desulfinylfipronil amide, wat flt ug/L (62169)	Fipronil sulfide water, fltrd, ug/L (62167)	Fipronil sulfone water, fltrd, ug/L (62168)	Fipronil, water, fltrd, ug/L (62166)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
MAR 18...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.123	<.006	<.003	<.007
APR 22...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.079	<.006	<.003	<.007
MAY 17...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.102	<.006	<.003	<.007
JUN 14...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.193	<.006	<.003	<.007
JUL 19...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.301	<.006	<.003	<.007
AUG 16...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.222	<.006	<.003	<.007
SEP 13...	<.029	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015	.228	<.006	<.003	<.007

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Propyzamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
MAR 18...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.043	<.02	<.034
APR 22...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.031	<.02	<.034
MAY 17...	<.003	<.010	<.004	<.022	<.011	.04	<.004	<.025	<.011	<.02	.037	E.01	<.034
JUN 14...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.041	<.02	<.034
JUL 19...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	.035	<.02	<.034
AUG 16...	<.003	<.010	<.004	<.022	<.011	.01	<.004	<.025	<.011	<.02	.033	<.02	<.034
SEP 13...	<.003	<.010	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	.032	<.02	<.034

06904010 CHARITON RIVER NEAR MOULTON, IA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—CONTINUED

Date	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Number of sampling points, count (00063)
MAR						
18...	<.02	<.010	<.002	<.009	409	11
APR						
22...	<.02	<.010	<.002	<.009	25	11
MAY						
17...	<.02	<.010	<.002	<.009	21	11
JUN						
14...	<.02	<.010	<.002	<.009	152	10
JUL						
19...	<.02	<.010	<.002	<.009	620	10
AUG						
16...	<.02	<.010	<.002	<.009	54	12
SEP						
13...	<.02	<.010	<.002	<.009	95	10

Crest-stage partial-record stations

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 2004 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	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-	05-22-04	19.45	2,850	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 43.6 mi^2.	1966-	03-05-04	11.04	2,620	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-	05-23-04 Revised Record: 03-11-95	13.13 12.86	250 220	03-31-93	13.13	d250
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-	05-23-04	20.23	3,300	05-23-04	20.23	3,300
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-	03-05-04	8.71	1,770	6-4-02	15.93	7,700
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-	05-30-04	17.99	3,910	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-	05-30-04	10.38	2,880	08-02-72	14.02	7,180

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

[+--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 2004 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Discharge (ft^3/s)
LITTLE MAQUOKETA RIVER BASIN -- continued								
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-	05-23-04	17.48	508	06-15-91	19.27	[d]692
MAQUOKETA RIVER 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-	05-23-04	(+)	(+)	06-01-00	20.13	[d]635
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-	05-23-04	11.80	860	06-04-02	19.31	[d]4,290
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 Y7, 2.1 mi north of County Highway E63, 5 mi southwest of Charlotte. Drainage area 1.77 mi^2.	1990-	05-23-04	7.89	(+)	05-29-96	13.02	[d]990
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-	07-06-04	6.52	[d]7,500	07-06-04	6.52	[d]7,500
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-	05-23-04	91.08	7,190	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-	05-23-04	90.70	2,240	05-17-99	91.02	[d]5,600
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-	05-22-04	7.61	218	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-	05-22-04	6.31	74	07-17-68	7.26	570

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

[+--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 2004 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								
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-	05-23-04	86.23	412	05-17-74	89.77	[d]4,820
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-	05-22-04	83.08	193	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-	05-22-04	3.96	29	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-	08-03-04	96.06	55	05-10-95	100.14	[d]510
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-	05-23-04	74.85	1,280	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-	08-27-04	87.16	3,480	06-17-90	88.80	5,080
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-	06-14-04	12.76	148	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-	03-05-04	46.37	84	06-17-90	48.76	[d]291
North English River near Montezuma, IA (05455140)	Lat 41°38’51”, long 92°34’16”, in SW1/4, sec.14, T.79 N., R.15 W., Poweshiek County, Hydrologic Unit 07080209, at bridge on county highway, 5.0 mi northwest of Montezuma. Drainage area 31.0 mi^2.	1972-	2004	(a)	<1,020	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-	2004	(a)	<2,440	06-15-82	87.43	7,460

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

[+--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 2004 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Discharge (ft^3/s)
			IOWA RIVER BASIN -- continued					
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-	2004	(a)	<856	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-	03-04-04	85.56	472	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-	07-06-04	85.75	4,150	07-06-04	85.75	4,150
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-	07-06-04	100.11	(+)	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-	05-22-04	91.15	5,340	05-22-04	91.15	5,340
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-	05-22-04	92.21	1,270	05-22-04	92.21	1,270
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-	05-22-04	(+)	(+)	05-22-04	(+)	(+)
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-	05-30-04	(a)	<170	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-	05-30-04	15.58	433	08-16-93	16.12	[d]540
North Fork Long Creek at Ainsworth, IA (05465150)	Lat 41°16’51”, long 91°32’16”, Long Creek at in SW1/4, sec.22, T.75 N., R.6 W., Washington County, Hydrologic Unit 07080209, at bridge on U.S. Highway 218, 1 mi southeast of Ainsworth. Drainage area 30.2 mi^2.	1951, 1965-	05-30-04	89.38	1,490	05-10-96	93.40	(+)

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

[+--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 2004 maximum: Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum: Date	Gage height (ft)	Discharge (ft^3/s)
YELLOW SPRING CREEK BASIN								
Haight Creek at Kingston, IA (05469350)	Lat 40°58’14”, long 91°02’30”, in NW1/4, sec.12, T.71 N., R.2 W., Des Moines County, Hydrologic Unit 07080104, at culvert on State Highway 99, 0.5 mi south of Kingston. Drainage area 2.67 mi^2.	1990-	06-14-04	11.55	410	06-16-90	15.18	[d]1,460
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-	05-22-04	87.68	1,110	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-	05-22-04	90.68	(+)	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-	2004	(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-	05-22-04	15.96	228	06-17-90	17.39	[d]360
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-	2004	(a)	<94	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 0.18 mi^2.	1990-	03-05-04	13.58	17.1	03-16-01	17.08	[d]120
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-	05-22-04	99.24	(+)	05-22-04	99.24	(+)
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-	05-22-04	91.39	572	07-09-93 07-09-03	93.59 93.77	1,400 1,120
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-	05-22-04	96.68	108	06-04-91	99.25	[d]544

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

[+--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 2004 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-	05-22-04	85.31	264	07-09-93	89.25	1,120
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.	1990-2004	2004	(+)	(+)	06-17-90	95.19	[d]239
Peas Creek at Boone, IA (05481530)	Lat 42°02'04", long 93°51'25", in SE1/4, sec.34, T.84 N., R.26 W., Boone County, Hydrologic Unit 07100004, at culvert on U.S. Highway 30, at the southeast side of Boone city limits. Drainage area 1.69 mi^2.	1990-	05-23-04	99.41	106	06-15-98	103.05	[d]410
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-	06-16-04	11.27	1,190	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-	05-23-04	75.46	2,650	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-	05-23-04	22.77	512	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-	05-23-04	97.53	336	05-24-96	98.58	[d]447
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-	05-23-04	91.45	(+)	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-	08-27-04	18.26	40	08-19-93	18.93	[d]56.2
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-	08-27-04	84.69	5,270	07-03-82	90.20	(+)

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

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Station name and number	Location and drainage area	Period of record	Water year 2004 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								
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-	08-27-04	90.35	3,000	09-21-65	92.80	4,000
BIG SIOUX RIVER BASIN								
Dawson Creek near Sibley, IA (06483440)	Lat 43°23'23", long 95°42'53", near NW corner sec.20, T.99 N., R.41 W., Osceola County, Hydrologic Unit 10170204, at culvert on County Highway A30, 2 mi southeast of Sibley. Drainage area 4.35 mi^2.	1952-	03-02-04	5.52	(+)	06-13-01	9.78	(+)
Burr Oak Creek near Perkins, IA (06483495)	Lat 43°14'43", long 96°10'38", in SE1/4, sec.5, T.97 N., R.45 W., Sioux County, Hydrologic Unit 10170204, at bridge on U.S. Highway 75, 4 mi north of Perkins. Drainage area 30.9 mi^2.	1966-	05-23-04	85.23	583	06-20-83	88.37	^{d}6,400
PERRY CREEK BASIN								
Perry Creek near Merrill, IA (06599800)	Lat 42°43'15", long 96°20'33", in NW1/4, sec.12, T.91, N., R.47 W., Plymouth County, Hydrologic Unit 10230001, at bridge on County Highway C44, 5 mi west of Merrill. Drainage area 8.17 mi^2.	1953-	05-21-04	10.89	3,970	03-27-62	12.22	(+)
Perry Creek near Hinton, IA (06599950)	Lat 42°37'11", long 96°22'20", in NE1/4, sec.15, T.90 N., R.47 W., Plymouth County, Hydrologic Unit 10230001, at bridge on county highway, 4 mi west of Hinton. Drainage area 33.1 mi^2.	1953-	05-22-04	29.32	2,950	06-14-81	38.68	^{d}5,500
FLOYD RIVER BASIN								
Little Floyd River near Sanborn, IA (06600030)	Lat 43°11'10", long 95°43'30", in NE1/4, sec.31, T.97 N., R.41 W., O'Brien County, Hydrologic Unit 10230002, at bridge on U.S. Highway 18, 3.5 mi west of Sanborn. Drainage area 8.44 mi^2.	1966-	2004	(a)	<104	03-02-70	89.04	(+)
Sweeney Creek tributary near Sheldon, IA (06600036)	Lat 43°11'10", long 95°44'38", in SW1/4, sec.25, T.97 N., R.42 W., O'Brien County, Hydrologic Unit 10230002, at culvert on U.S. Highway 18, 4.8 mi east of Sheldon. Drainage area 0.62 mi^2.	1991-	05-23-04	(a)	<104	07-14-93	99.27	^{d}270
West Branch Floyd River near Struble, IA (06600300)	Lat 42°55'26", long 96°10'36", in SE1/4, sec.29, T.94 N., R.45 W., Sioux County, Hydrologic Unit 10230002, at bridge on county highway B62, 0.1 mi west of U.S. Highway 75, 2.2 mi northeast of Struble. Drainage area 180 mi^2	1996-	05-23-04	10.71	1,300	03-04-94	15.86	8,920
MONONA-HARRISON DITCH BASIN								
Big Whiskey Slough near Remsen, IA (06601480)	Lat 42°48'28", long 95°53'21", in NW1/4, sec.11, T.92 N., R.43 W., Plymouth County, Hydrologic Unit 10230004, at bridge on State Highway 3, 4.2 mi east of Remsen. Drainage area 12.9 mi^2.	1966-	05-23-04	87.97	(+)	03-22-79	94.87	(+)

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

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Station name and number	Location and drainage area	Period of record	Water year 2004 maximum Date	Gage height (ft)	Dis-charge (ft^3/s)	Period of record maximum Date	Gage height (ft)	Dis-charge (ft^3/s)
			MONONA-HARRISON DITCH BASIN -- continued					
Elliott Creek at Lawton, IA (06602190)	Lat 42°28'30", long 96°11'22", in NW1/4, sec.3, T.88 N., R.46 W. Woodbury County, Hydrologic Unit 10230004, at bridge on U.S. Highway 20, at west edge of Lawton. Drainage area 34.8 mi^2.	1966-	05-23-04	79.68	1,440	06-12-84	86.14	3,150
			LITTLE SIOUX RIVER BASIN					
Ocheyedan River near Ocheyedan, IA (06604510)	Lat 43°25'58", long 95°36'41", in NE1/4, sec.6, T.99 N., R.40 W., Osceola County, Hydrologic Unit 10230003, at bridge on State Highway 9, 4 mi northwest of Ocheyedan. Drainage area 73.5 mi^2.	1966-	05-23-04	83.06	849	06-29-93	86.79	2,200
Dry Run Creek near Harris, IA (06604584)	Lat 43°26'42", long 95°27'21", in NE1/4, sec.33, T.100 N., R.39 W., Osceola County, Hydrologic Unit 10230003, at culvert on county highway M12, 1 mi west of Harris. Drainage area 4.30 mi^2.	1990-	03-02-04	14.34	[d]280	06-29-93	16.58	390
			Revised	Record:		03-13-95	13.04	565
			06-16-90	11.03	(+)			
			04-15-91	12.24	366			
			04-19-92	10.87	222			
			06-29-93	16.58	391			
			04-12-94	(a)	<218			
			03-13-95	13.04	565			
			03-31-96	12.02	(+)			
			03-20-97	15.18	111			
			07-05-98	(a)	<235			
			02-15-99	13.60	(+)			
			05-18-00	11.30	(+)			
			04-12-01	12.12	246			
			06-11-02	11.51	38			
			03-17-03	11.14	258			
Prairie Creek near Spencer, IA (06605340)	Lat 43°05'16", long 95°09'40", in SE1/4, sec.36, T.96 N., R.37 W., Clay County, Hydrologic Unit 10230003, at bridge on U.S. Highway 71, 4 mi south of Spencer. Drainage area 22.3 mi^2.	1966-	05-24-04	90.79	811	07-04-71	90.77	2,200
						06-13-94	91.05	1,640
Willow Creek near Cornell, IA (06605750)	Lat 42°58'21", long 95°09'40", in SE1/4, sec.12, T.94 N., R.37 W., Clay County, Hydrologic Unit 10230003, at bridge on U.S. Highway 71, 2 mi northwest of Cornell. Drainage area 78.6 mi^2.	1966-	09-16-04	90.68	1,460	03-22-79	91.49	4,200
Little Sioux River tributary near Peterson, IA (06605868)	Lat 42°55'25", long 95°21'55", in NW1/4, sec.32, T.94 N., R.38 W., Clay County, Hydrologic Unit, 10230003, at culvert on State Highway 10, 1.2 mi northwest of Peterson. Drainage area 0.29 mi^2.	1991-	05-23-04	85.86	(+)	05-31-93	91.81	(+)
Willow Creek near Calumet, IA (06606231)	Lat 42°58'05", long 95°32'56" in NE1/4, sec. 15, T.94 N., R.40 W., O'Brian County, Hydrologic Unit 10230003, at culvert on State Highway 10, 1.2 mi north of Calumet. Drainage area 4.13 mi^2.	1991-	09-15-04	98.70	573	07-14-93	100.92	[d]1,180
Halfway Creek at Schaller, IA (0660683710)	Lat 42°30'18", long 95°17'19", in SW1/4, sec.24, T.89 N., R.38 W., Sac County, Hydrologic Unit 10230005, at culvert on State Highway 110, 0.1 mi north of Schaller. Drainage area 1.74 mi^2.	1990-	02-29-04	93.34	(+)	07-14-92	94.11	(+)

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

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Station name and number	Location and drainage area	Period of record	Water year 2004 maximum: Date	Water year 2004 maximum: Gage height (ft)	Water year 2004 maximum: Discharge (ft^3/s)	Period of record maximum: Date	Period of record maximum: Gage height (ft)	Period of record maximum: Discharge (ft^3/s)
BOYER RIVER BASIN								
Willow Creek near Soldier, IA (06609560)	Lat 41°55’17”, long 95°42’05”, near S1/4 corner sec.11, T.82 N., R.42 W., Monona County, Hydrologic Unit 10230001, at bridge on State Highway 37, 6 mi southeast of Soldier. Drainage area 29.1 mi^2.	1966-	05-25-04	71.47	679	07-09-93	84.66	6,840
MOSQUITO CREEK BASIN								
Moser Creek near Earling, IA (06610510)	Lat 41°46’35”, long 95°26’55”, in NE1/4, sec.1, T.80 N., R.40 W., Shelby County, Hydrologic Unit 10230006, at bridge on State Highway 37, 1.5 mi west of Earling. Drainage area 21.6 mi^2.	1966-	05-22-04	77.16	2,190	06-15-84	87.89	(+)
Mosquito Creek tributary near Neola, IA (06610581)	Lat 41°30’06”, long 95°35’44”, in NE1/4, sec.6, T.77 N., R.41 W., Pottawattamie County, Hydrologic Unit 10230006, at culvert on State Highway 191, 3.8 mi north of Neola. Drainage area 3.22 mi^2.	1991-	05-22-04	87.50	1,960	05-22-04	87.50	1,960
Keg Creek tributary near Mineola, IA (06805849)	Lat 41°07’53”, long 95°43’31”, in SW1/4, sec.7, T.73 N., R.42 W., Mills County, Hydrologic Unit 10240001, at culvert on county highway H12, 2.4 mi southwest of Mineola. Drainage area 2.01 mi^2.	1991-	05-23-04	77.74	98	07-10-99	82.97	[d]600
NISHNABOTNA RIVER BASIN								
Elm Creek near Jacksonville, IA (0680737930)	Lat 41°38’44”, long 95°12’18”, in SW1/4, sec.18, T.79 N., R.37 W., Shelby County, Hydrologic Unit 10240002, at culvert on State Highway 44, 2.8 mi west of Jacksonville. Drainage area 9.43 mi^2.	1990-	05-23-04	98.47	3,140	05-23-04	98.47	3,140
Indian Creek near Emerson, IA (06807470)	Lat 41°01’50”, long 95°22’51”, in NW1/4, sec.19, T.72 N., R.39 W., Montgomery County, Hydrologic Unit 10240002, at bridge on U.S. State Highway 34, 1 mi east of Emerson. Drainage area 37.3 mi^2.	1966-	07-15-04	83.15	680	06-15-82 08-07-99	92.63 94.32	15,800 (+)
Bluegrass Creek at Audubon, IA (06808880)	Lat 41°42’46”, long 94°44’46”, in NW1/4, sec.28, T.80 N., R.35 W., Audubon County, Hydrologic Unit 10240003, at bridge on U.S. Highway 71, near south edge of Audubon. Drainage area 15.4 mi^2.	1966-	05-23-04	86.16	2,570	07-09-93	88.55	(+)
TARKIO RIVER BASIN								
Tarkio River near Elliott, IA (06811760)	Lat 41°06’06”, long, 95°06’09”, near NE corner sec.28, T.73 N., R.37 W., Montgomery County, Hydrologic Unit 10240005, at bridge on county highway, 4.5 mi southeast of Elliott. Drainage area 10.7 mi^2.	1952-	2004	(a)	<374	08-29-93	12.98	4,640
East Tarkio Creek near Stanton, IA (06811800)	Lat 41°04’48”, long 95°05’34”, in W1/2 sec.34, T.73 N., R.37 W., Montgomery County, Hydrologic Unit 10240005, at bridge on county highway H24, 7 mi north of Stanton. Drainage area 4.66 mi^2.	1952-	05-23-04	5.19	218	06-09-67	13.74	4,790

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS—Continued

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Station name and number	Location and drainage area	Period of record	Water year 2004 maximum: Date	Gage height (ft)	Discharge (ft^3/s)	Period of record maximum: Date	Gage height (ft)	Discharge (ft^3/s)
TARKIO RIVER BASIN -- continued								
Tarkio River tributary near Stanton, IA (06811820)	Lat 41°02'38", long 95°05'55", in NE1/4 sec.16, T.72 N., R.37 W., Montgomery County, Hydrologic Unit 10240005, at box culvert on county highway H63, 4 mi north of Stanton. Drainage area 0.67 mi^2.	1952-	2004	94.54	(+)	06-23-99	5.56	1,070
Snake Creek near Yorktown, IA (06811875)	Lat 40°44'33", long 95°07'46", in NW1/4, sec.32, T.69 N., R.37 W., Page County, Hydrologic Unit 10240005, at bridge on State Highway 2, 1.5 mi northeast of Yorktown. Drainage area 9.10 mi^2.	1966-1991 1997-	05-30-04	85.35	(+)	07-09-87	95.24	3,080
NODAWAY RIVER BASIN								
West Nodaway River at Massena, IA (06816290)	Lat 41°14'44", long 94°45'27", in SE1/4, sec.33, T.75 N., R.34 W., Cass County, Hydrologic Unit 10240009, at bridge on State Highway 148, at southeast corner of Massena. Drainage area 23.4 mi^2.	1966-	08-04-04	76.19	1,270	02-01-73	82.39	d4,700
PLATTE RIVER BASIN								
Platte River near Diagonal, IA (06818750)	Lat 40°46'02", long 94°24'46", in NW1/4, sec. 22, T.69 N., R.31 W., Ringgold County, Hydrologic Unit 10240012, at bridge on county highway, 2.2 mi upstream from Turkey Creek, 4.6 mi. southwest of Diagonal, and 4.9 mi downstream from Gard Creek. Drainage area 217 mi^2.	1968-1991 1997-	08-04-04	16.57	3,400	09-09-89	23.60	8,630
Middle Branch 102 River near Gravity, IA (06819110)	Lat 40°49'40", long 94°44'18", in SE1/4, sec.27, T.70 N., R.34 W., Taylor County, Hydrologic Unit 10240013, at bridge on State Highway 148, 4.8 mi north of Gravity. Drainage area 34.5 mi^2.	1966-	08-04-04	64.80	1,200	02-01-73 07-05-93	c83.65 82.30	(+) 6,250
GRAND RIVER BASIN								
Sevenmile Creek, near Thayer, IA (06897858)	Lat 41°01'37", long 94°00'03", in SE1/4, sec.18, T.72 N., R.27 W., Clarke County, Hydrologic Unit 10280102, at culvert on U.S. Highway 34, 2.6 mi east of Thayer. Drainage area 6.61 mi^2.	1991-	08-27-04	16.50	(+)	09-15-92	24.92	d1,330
Elk Creek near Decatur City, IA (06897950)	Lat 40°43'18", long 93°56'12", in SE1/4, sec. 34, T.69 N., R.27 W., Decatur County, Hydrologic Unit 10280102, at bridge on county Highway, 1,000 ft. downstream from West Elk Creek, 5.8 mi. upstream from mouth, and 5.5 mi. (Revised) west of Decatur City. Drainage area 52.5 mi^2.	1968-	08-27-04	26.39	12,700	07-05-93	29.93	32,800

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Conversion Factors

Multiply	By	To obtain
Length		
inch (in.)	2.54×10^{1}	millimeter (mm)
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609×10^{0}	kilometer (km)
Area		
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-1}	square hectometer (hm^2)
	4.047×10^{-3}	square kilometer (km^2)
square mile (mi^2)	2.590×10^{0}	square kilometer (km^2)
Volume		
gallon (gal)	3.785×10^{0}	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
	3.785×10^{0}	cubic decimeter (dm^3)
million gallons (Mgal)	3.785×10^{3}	cubic meter (m^3)
	3.785×10^{-3}	cubic hectometer (hm^3)
cubic foot (ft^3)	2.832×10^{-2}	cubic meter (m^3)
	2.832×10^{1}	cubic decimeter (dm^3)
cubic-foot-per-second-per-day [(ft^3/s/d]	2.447×10^{3}	cubic meter (m^3)
	2.447×10^{-3}	cubic hectometer (hm^3)
acre-foot (acre-ft)	1.223×10^{3}	cubic meter (m^3)
	1.223×10^{-3}	cubic hectometer (hm^3)
	1.223×10^{-6}	cubic kilometer (km^3)
Flow rate		
cubic foot per second (ft^3/s)	2.832×10^{1}	liter (L/s)
	2.832×10^{-2}	cubic meter per second (m^3/s)
	2.832×10^{1}	cubic decimeter per second (dm^3/s)
gallon per minute (gal/min)	6.309×10^{-2}	liter per second (L/s)
	6.309×10^{-5}	cubic meter per second (m^3/s)
	6.309×10^{-2}	cubic decimeter per second (dm^3/s)
million gallons per day (Mgal/d)	4.381×10^{-2}	cubic meter per second
	4.381×10^{1}	cubic decimeter per second (dm^3/s)
Mass		
ton, short (2,000 lb)	9.072×10^{-1}	megagram (Mg) or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F = (1.8 \times °C) + 32$$