Water Resources Data for Iowa

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-79-1

WATER YEAR 1979

Prepared in cooperation with the Iowa Geological Survey and with other State and Federal agencies

CALENDAR FOR WATER YEAR 1979

1978

OCTOBER

S	M	T	W	T	F	S
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1979

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AUGUST

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SEPTEMBER

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Water Resources Data for Iowa

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT IA-79-1

WATER YEAR 1979

Prepared in cooperation with the Iowa Geological Survey and with other State and Federal agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

For information on the water program in Iowa write to
District Chief, Water Resources Division
U.S. Geological Survey
P.O. Box 1230
Iowa City, Iowa 52244

1980

Preface

This report was prepared by personnel of the Iowa district of the Water Resources Division of the U.S. Geological Survey under the supervision of D. K. Leifeste, District Chief, and Alfred Clebsch, Jr., Regional Hydrologist, Central Region. It was done in cooperation with the State of Iowa and with other agencies.

This report is one of a series issued by Iowa. General direction for the series is by Philip Cohen, Jr., Chief Hydrologist, U. S. Geological Survey, and S. M. Lang, Acting Assistant Chief Hydrologist for Scientific Publications and Data Management.

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Water resources data for the 1979 water year for Iowa consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels in wells. This report contains discharge records for 122 gaging stations; stage and contents for 6 lakes and reservoirs; water quality for 23 gaging stations; and water levels for 32 observation wells. Also included are 124 crest-stage partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements and analyses. The data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Iowa.

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ILLUSTRATIONS

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

WATER RESOURCES DATA FOR IOWA, 1979

INTRODUCTION

Water resources data for the 1978 water year for Iowa consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water-levels of ground-water wells. This report contains records for water discharge at 122 gaging stations; stage or contents at 6 lakes and reservoirs; water quality at 23 gaging stations, and water levels at 32 observation wells. Also included are data for 124 crest-stage partial-record stations. Additional water data were cc1lected at various sites, not involved in the systematic data-collection program and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Iowa.

Records of discharge and of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA. 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports of in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report IA-78-1." For archiving and general distribution, the reports for water years 1971-74 are also identified as water-data reports. These water-data reports are for sale, in paper copy or in microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA. 22161.

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

COOPERATION

The U.S. Geological Survey and organizations in the State of Iowa have had cooperative agreements for the systematic collection of streamflow records since 1914, for ground water levels since 1935, and for water-quality records since 1943. Organizations that assisted in collecting data through cooperative agreement with the Survey in 1976 are:

Iowa Geological Survey, Stanley C. Grant, director and state geologist

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

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

Iowa Natural Resources Council, James R. Webb, director

Iowa State University, Richard E. Hasbrook, contracts and grants officer, and Agricultural Experiment Station, Thamon Hazen, assistant director; Department of Agricultural Engineering, C. W. Bockhop, head; and Engineering Research Institute, Paul W. Peterson, director.

City of Cedar Rapids, Donald Canney, mayor

City of Des Moines, Leo L. Johnson, public works director

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

City of Harlan, D. D. Burger, mayor

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting flow records for 64 gaging stations, and by the Environmental Protection Agency in collecting records for seven water-quality stations published in this report. Assistance was also furnished by NOAA - National Weather Service, U.S. Department of Commerce.

The following organizations aided in collecting records:

Union Electric Co.; Des Moines Water Works; Hospers Rural Water System No. 1; Ottumwa Water Works; Waterloo Sewage Treatment Plant; University of Iowa; and cities of Ames, Charles City, Clear Lake, Denison, Iowa City, Marshalltown, Sioux City, and Waterloo.

Organizations that supplied data are acknowledged in station descriptions.

ACKNOWLEDGMENT

Iowa district personnel who contributed significantly to the collection and preparation of the data in this report were: I. L. Burmeister, chief, data section, assisted by O. J. Ramsvick, P. J. Soenksen, and W. J. Matthes.

HYDROLOGIC CONDITIONS

Annual runoff for the 1979 water year was well above normal throughout the State. Normal runoff varies from 2 inches in the Northwest to 8 inches in the Southeast. This year, runoff varied generally from 6 to 16 inches.

The water year began with streamflow in the excessive range throughout most of the State. Severe cold temperatures and a heavy accumulation of snowfall was the significant hydrologic factor of the year. In general, Iowa experienced the second coldest and snowiest winter of record. The flood potential from the heavy snow cover containing 3 1/2 to 7 1/2 inches of water content was serious. However, there was a moderate rate of snowmelt in March. Streamflow became excessive throughout the State for that month but only two stations recorded new maximum discharges of record. Streamflow remained above normal for the remainder of the year except in the Southwest which was normal.

DEFINITION OF TERMS

Terms related to streamflow, water-quality and other hydrologic data, as used in this report, are defined below. See also table for converting English Units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Milligrams of oxygen per area or volume per unit time [mg O_2/m^2.time) for periphyton and macrophytes and mg C/(mg O_2/(m^3.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

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

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

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

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

Substrate is the physical surface upon which an organism lived.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DOWNSTREAM ORDER AND STATION NUMBER

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

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

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

NUMBERING SYSTEM FOR WELLS

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

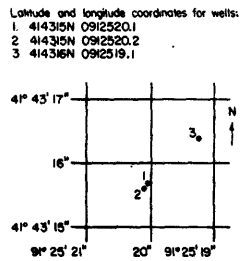

Figure 1. Latitude-longitude well number.

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

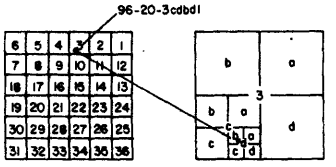

Figure 2. Local well numbering system for well 96-20-3cdbd1.

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

EXPLANATION OF STAGE AND WATER-DISCHARGE

Collection and computation of data

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

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

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

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

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

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

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

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

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

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

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum (NGVD) is explained in "DEFINITION OF TERMS" on page 4.

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

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

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

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

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

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

Accuracy of data

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

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

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

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

Other data available

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

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

Records of discharge collected by agencies other than the Geological Survey

Records of discharge not published by the Geological Survey were collected during water year 1978 at several sites in Iowa by the Corps of Engineers, U.S. Army. The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of such sites. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER QUALITY RECORDS

Collection and examination of data

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

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

Water analysis

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

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

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

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

Water temperature

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

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

Sediment

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

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

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

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

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

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

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

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

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

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

1-D1. *Water temperature--influential factors, field measurement, and data presentation,* by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents,* by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
2-D1. *Application of surface geophysics to ground-water investigations,* by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
3-A1. *General field and office procedures for indirect discharge measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
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5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.
5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.
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5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

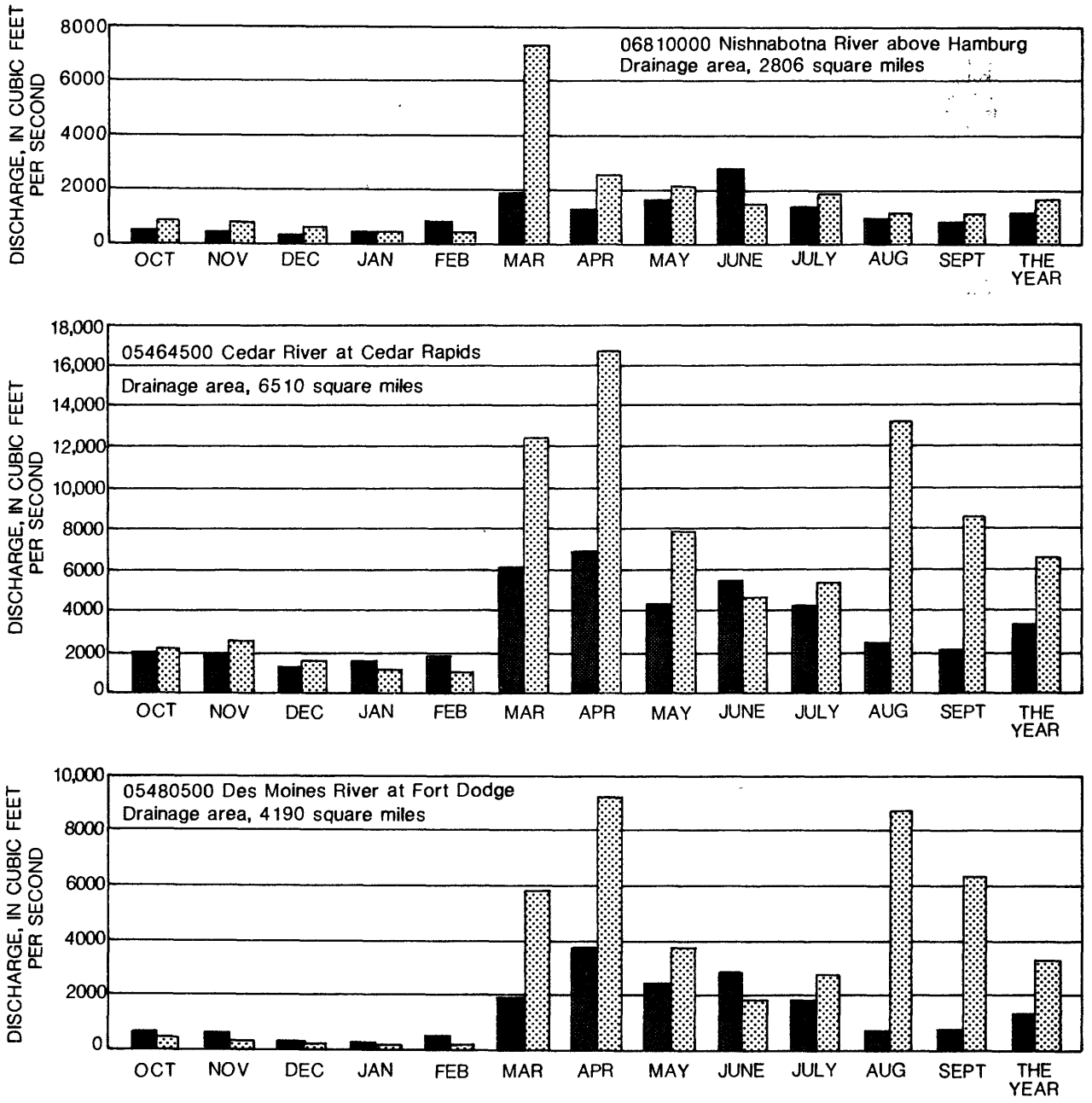

FIGURE 3.--RUNOFF DURING 1979 WATER YEAR COMPARED WITH MEAN RUNOFF FOR PERIOD 1941-70 FOR THREE REPRESENTATIVE GAGING STATIONS.

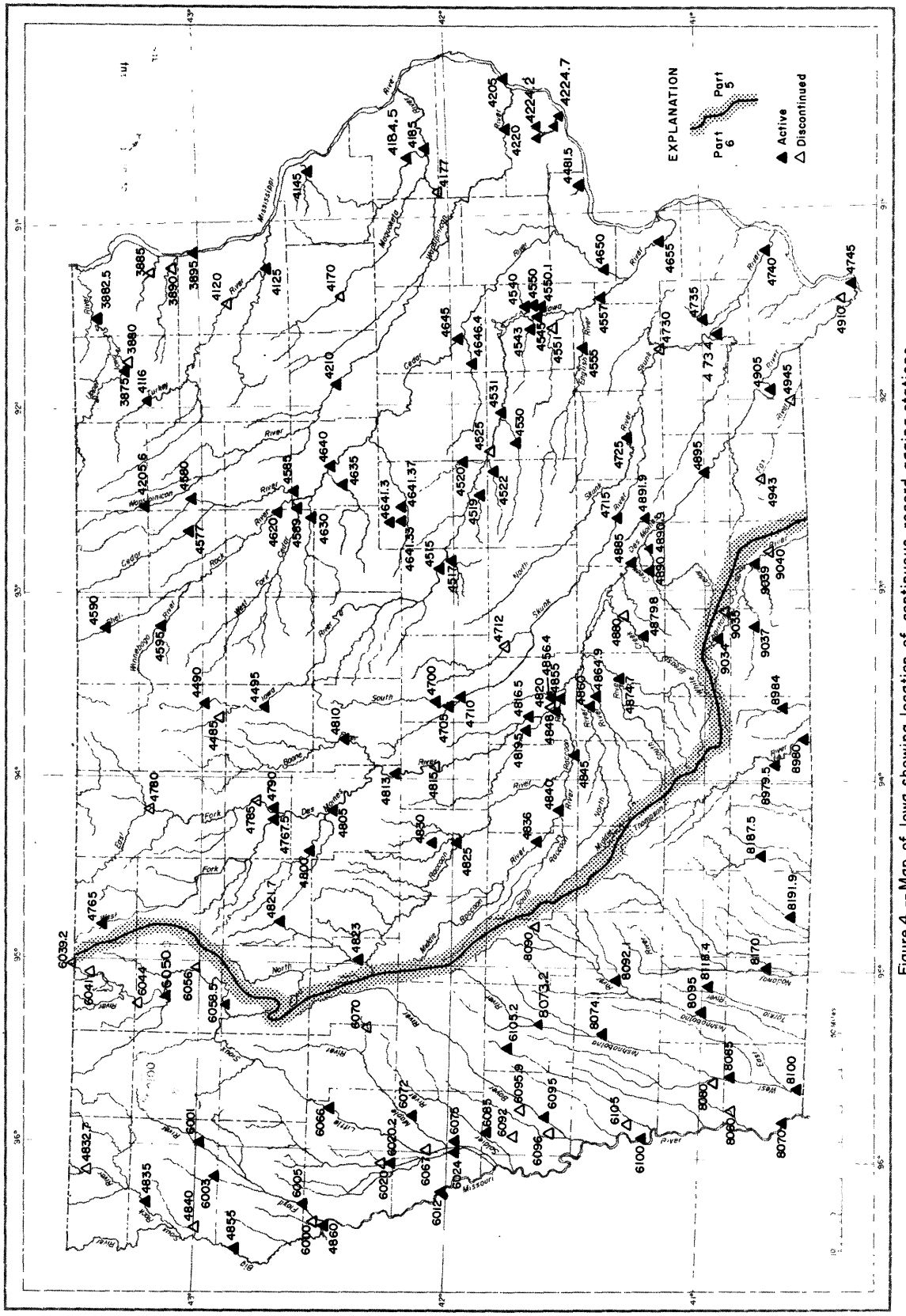

Figure 4.--Map of Iowa showing location of continuous-record gaging stations.

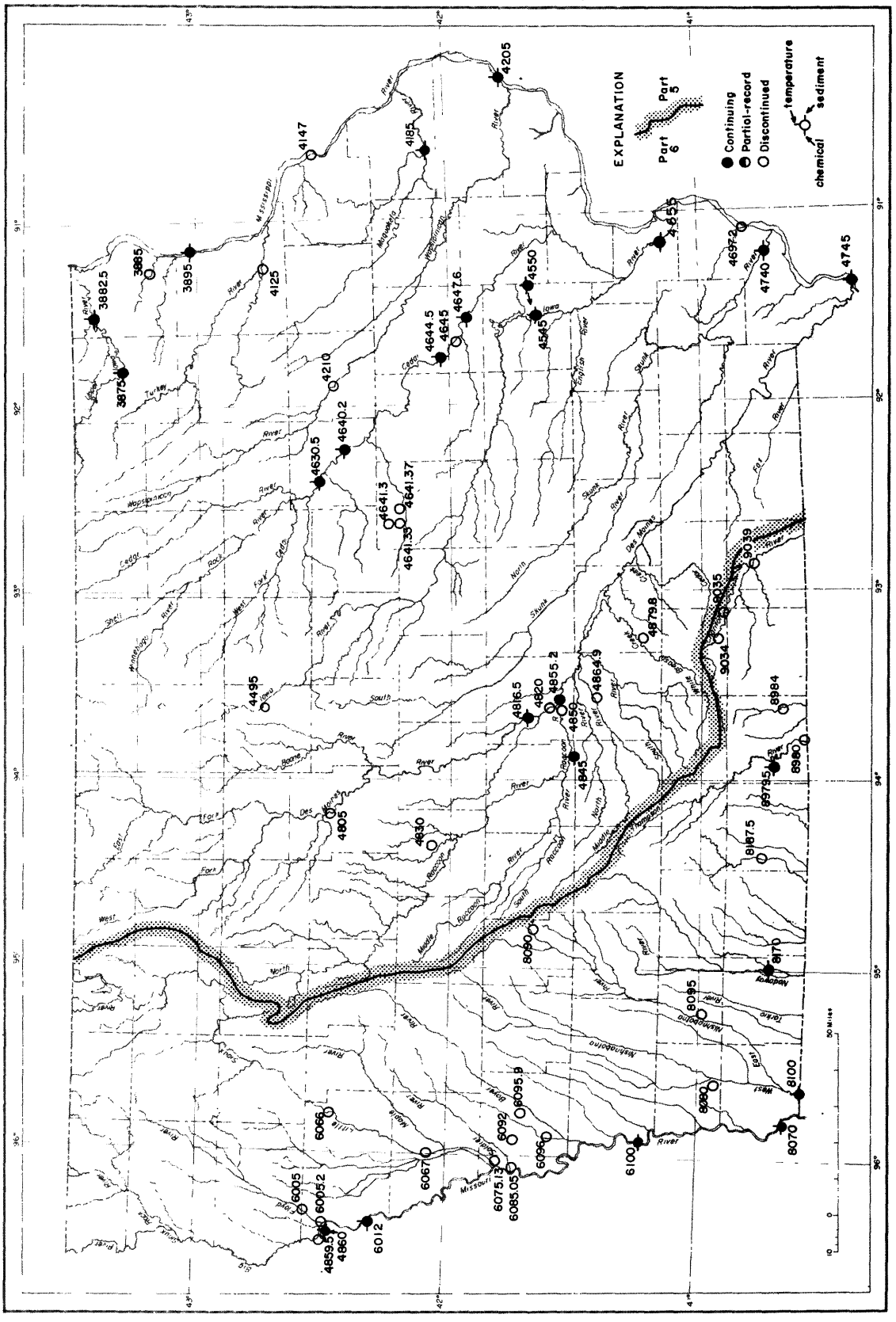

Figure 5.--Map of Iowa showing location of water-quality stations.

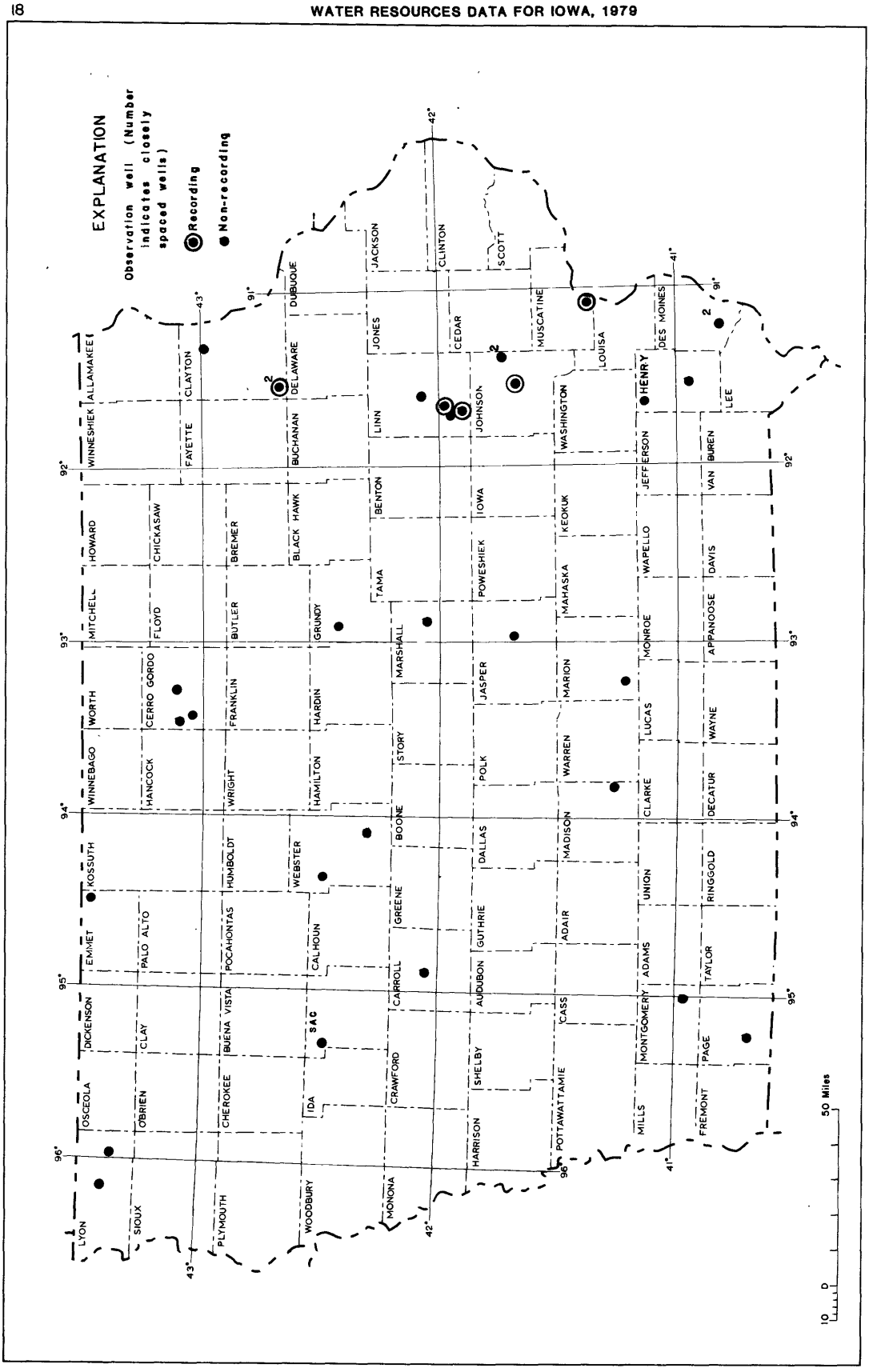

Figure 6.--Location of observation wells in Iowa.

DISCONTINUED GAGING STATIONS

The following stream-gaging stations have been discontinued in Iowa. Continuous daily streamflow records were collected and published for the period of record shown for each station.

Discontinued gaging stations

Station name	Station number	Drainage area (sq mi)	Period of record
Upper Iowa River near Decorah, Iowa.	05388000	568	1913-14; 1919-27; 1933-51.
Paint Creek at Waterville, Iowa.	05388500	42.8	1952-73.
Yellow River at Ion, Iowa.	05389000	221	1934-51.
Mississippi River at Clayton, Iowa.	05411500	79,200	1930-36.
Turkey River at Elkader, Iowa.	05412000	891	1932-42.
Maquoketa River near Manchester, Iowa.	05417000	305	1933-73.
Maquoketa River near Delhi, Iowa.	05417500	347	1933-40.
Bear Creek near Monmouth, Iowa.	05417700	61.3	1957-76.
Maquoketa River above North Fork Maquoketa River near Maquoketa, Iowa.	05418000	938	1913-14.
Wapsipinicon River at Stone City, Iowa.	05421500	1,324	1903-14.
West Branch (West Fork) Iowa River near Klemme, Iowa.	05448500	112	1948-58.
Iowa River near Iowa Falls, Iowa.	05450000	665	1911-14.
Upper Pine Lake at Eldora, Iowa.	05450500	14.9	1936-70.
Lower Pine Lake at Eldora, Iowa.	05451000	15.9	1936-70.
Iowa River near Belle Plaine, Iowa.	05452500	2,455	1939-59.
Lake Macbride near Solon, Iowa.	05453500	27.0	1936-71.
Old Mans Creek near Iowa City, Iowa.	05455100	201	1950-64.
Cedar River at Mitchell, Iowa.	05457500	826	1933-42.
Shell Rock River at Marble Rock (Greene), Iowa.	05460500	1,318	1933-53.
Shell Rock River at Greene, Iowa.	05461000	1,357	1933-42.
Shell Rock River near Clarksville, Iowa.	05461500	1,626	1915-27; 1932-34.
South Skunk River below Squaw Creek near Ames, Iowa.	05471000	556	1952-79.
Indian Creek near Mingo, Iowa.	05471200	276	1958-75.
Lake Keomah near Oskaloosa, Iowa.	05472000	3.06	1936-71.
Skunk River at Coppock, Iowa.	05473000	2,916	1913-44.
Big Creek near Mount Pleasant, Iowa.	05473500	106	1955-79.
East Fork Des Moines River near Burt, Iowa.	05478000	462	1971-74.
East Fork Des Moines River near Hardy, Iowa.	05478500	1,268	1940-54.
Des Moines River near Fort Dodge, Iowa.	05479500	3,753	1911-13.
Des Moines River near Boone, Iowa.	05481500	5,511	1920-68.
Des Moines River at Des Moines, Iowa.	05482000	6,245	1905-06; 1915-61.
Storm Lake at Storm Lake, Iowa.	05482140	28.3	1970-75.
Springbrook Lake near Guthrie Center, Iowa.	05483500	5.18	1936-71.
Raccoon River at Des Moines, Iowa.	05485000	3,590	1902-03.
Lake Ahquabi near Indianola, Iowa.	05487000	4.93	1936-71.
White Breast Creek near Knoxville, Iowa.	05488000	380	1945-62.
Lake Wapello near Drakesville, Iowa.	05490000	7.75	1936-71.
Sugar Creek near Keokuk, Iowa.	05491000	105	1922-31; 1958-73.
Muchakinock Creek near Eddyville, Iowa.	05489190	70.2	1975-79.
Fox River at Bloomfield, Iowa.	05494300	87.7	1957-73.
Fox River at Cantril, Iowa.	05494500	161	1940-51.
Rock River at Rock Rapids, Iowa.	06483270	788	1959-74.
Dry Creek at Hawarden, Iowa.	06484000	48.4	1948-69.
Perry Creek at 38th Street, Sioux City, Iowa.	06600000	65.1	1945-69.
West Fork ditch at Holly Springs, Iowa.	06602000	399	1939-69.
Loon Creek near Orleans, Iowa.	06603920	31	1971-74.
Spirit Lake outlet at Orleans, Iowa.	06604100	75.6	1971-74.
Milford Creek at Milford, Iowa.	06604400	146	1971-74.
Little Sioux River at Spencer, Iowa.	06605100	990	1936-42.
Little Sioux River at Gillett Grove, Iowa.	06605600	1,334	1958-73.
Little Sioux River near Kennebeck, Iowa.	06606700	2,738	1939-69.
Odebolt Creek near Arthur, Iowa.	06607000	39.3	1957-75.
Maple River at Turin, Iowa.	06607300	725	1939-41.
Little Sioux River near Blencoe (Turin), Iowa.	06607510	4,470	1939-42.
Steer Creek near Magnolai, Iowa.	06609200	9.26	1963-69.
Thompson Creek near Woodbine, Iowa.	06609590	6.97	1963-69.
Willow Creek near Logan, Iowa.	06609600	129	1972-75.
Indian Creek at Council Bluffs, Iowa.	06610500	7.99	1954-76.
Mosquito Creek near Earling, Iowa.	06610520	32.0	1965-79.
Waubonsie Creek near Bartlett, Iowa.	06806000	30.4	1946-69.
West Nishnabotna River at (near) White Cloud, Iowa.	06807500	967	1918-24.
Mule Creek near Malvern, Iowa.	06808000	10.6	1954-69.
Spring Valley Creek near Tabor, Iowa.	06808200	7.6	1955-64.
Davids Creek near Bamlin, Iowa.	06809000	26.0	1952-73.
Tarkio River (East Tarkio Creek) at Blanchard, Iowa.	06812000	200	1934-40.
West Nodaway River at Villisca, Iowa	06816500	342	1918-25.
Boney Creek near Russell, Iowa.	06903500	13.2	1952-62.
Chariton River near Centerville, Iowa.	06904000	708	1938-59.

DISCONTINUED WATER-QUALITY STATIONS

The following water-quality stations have been discontinued in Iowa. Continuous daily records of water temperature or sediment and monthly or periodic samples of chemical quality were collected and published for the period of record shown for each station. An asterisk (*) in the type of record column indicates that periodic data is available for that parameter subsequent to the period of daily record.

Discontinued water-quality stations

Station name	Station number	Drainage area (sq mi)	Type of Record	Period of record
Paint Creek at Waterville, Iowa.	05388500	42.8	Temp	1952-56
			Sed.	1952-57
Turkey River at Garber, Iowa.	05412500	1,545	Temp.	1957-62
			Sed.	1957-62
Mississippi River at Dubuque, Iowa.	05414700	81,600	Chem.	1969-73
Wapsipinicon River at Independence, Iowa.	05421000	1,048	Chem. *	1968-70
			Temp. *	1967-70
			Sed. *	1967-70
Iowa River near Rowan, Iowa.	05449500	429	Temp. *	1957-62
			Sed. *	1957-62
Cedar River at Cedar Falls, Iowa.	05463050	4,734	Chem.	1975-79
Cedar River at Gilbertville, Iowa.	05464020	5,234	Chem.	1971; 1975-79
Fourmile Creek near Lincoln, Iowa.	05464130	13.78	Chem.	1969-74
			Temp.	1969-74
			Sed.	1969-74
Half Mile Creek near Gladbrook, Iowa.	05464133	1.33	Chem.	1969-74
			Temp.	1969-74
			Sed.	1969-74
Fourmile Creek near Traer, Iowa.	05464137	19.51	Chem.	1969-74
			Temp.	1969-74
			Sed.	1969-74
Cedar River near Palo, Iowa.	05464450	6,380	Chem.	1975-79
Cedar River at Cedar Rapids, Iowa.	05464500	6,640	Chem. *	1906-07; 1944-54
			Temp. *	1944-54
			Sed.	1943-54
Cedar River near Bertram, Iowa.	05464760	6,955	Chem.	1975-79
Mississippi River at Burlington, Iowa.	05469720	114,000	Chem.	1969-73
Des Moines River at Fort Dodge, Iowa.	05480500	4,190	Chem.	1972-73
Des Moines River at Des Moines, Iowa.	05482000	6,245	Chem.	1954-55
			Temp.	1954-61
			Sed.	1954-61
E. Fork Hardin Creek near Churdan, Iowa.	05483000	24.0	Temp. *	1952-57
			Sed. *	1952-57
Raccoon River at Van Meter, Iowa.	05484500	3,441	Chem.	1969-73; 1974-79
Raccoon River at Des Moines, Iowa.	05485000	3,590	Chem.	1945-47
			Temp.	1945-47
Des Moines River below Raccoon River at Des Moines, Iowa.	05485500	9,770	Chem. *	1944-45
			Temp. *	1944-47
			Sed.	1944-47
Des Moines River below Des Moines, Iowa.	05485520	9,901	Chem.	1971; 1975-79
Middle River near Indianola, Iowa.	05486490	503	Temp. *	1962-67
			Sed.	1962-67
White Breast Creek near Dallas, Iowa.	05487980	342	Chem.	1968-73
			Temp.	1967-73
			Sed.	1967-73
Big Sioux River at Sioux City, Iowa.	06485950	9,410	Chem.	1969-73
Floyd River at James, Iowa.	06600500	882	Temp.	1968-73
			Sed.	1968-73
FLoyd River at Sioux City, Iowa.	06600520	921	Chem.	1969-73
Missouri River at Decatur, Nebraska.	06601200	316,160	Chem.	1974-79
Little Sioux River at Correctionville, Iowa.	06606600	2,500	Chem. *	1954-55
			Temp. *	1951-62
			Sed.	1950-62
Little Sioux River near Kennebec, Iowa.	06606700	2,738	Temp.	1950-55
			Sed.	1950-57
Little Sioux River at River Sioux, Iowa.	06607513	3,600	Chem.	1969-73
Soldier River near Mondamin, Iowa.	06608505	440	Chem.	1970-73
Steer Creek near Magnolia, Iowa.	06609200	9.26	Temp.	1963-69
			Sed.	1963-69
Thompson Creek near Woodbine, Iowa.	06609590	6.97	Temp.	1963-69
			Sed.	1963-69
Willow Creek near Logan, Iowa.	06609600	129	Chem.	1972-75
			Temp.	1972-75
			Sed.	1971-75
Missouri River at Nebraska City, Nebraska.	06807000	410,000	Chem.	1951-77
			Temp.	1951-77
			Sed.	1971-76
Mule Creek near Malvern, Iowa.	06808000	10.6	Temp.	1958-69
			Sed.	1954-69
Davids Creek near Hamlin, Iowa.	06809000	26.0	Temp. *	1952-53; 1965-68
			Sed. *	1952-68
East Nishnabotna River at Red Oak, Iowa.	06809500	894	Temp.	1962-73
			Sed.	1962-73
Platte River near Diagonal, Iowa.	06818750	217	Chem.	1969-73
Thompson River at Davis City, Iowa.	06898000	701	Chem.	1967-73
			Temp.	1968-73
			Sed.	1968-73
Weldon River near Leon, Iowa.	06898400	104	Chem.	1968-73
Chariton River near Chariton, Iowa.	06903400	182	Temp.	1969-73
			Sed.	1969-73
Honey Creek near Russell, Iowa.	06903500	13.2	Sed.	1952-62
Chariton River near Rathbun, Iowa.	06903900	551	Temp. *	1962-69
			Sed. *	1962-69

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

05387500 UPPER IOWA RIVER AT DECORAH, IA

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

DRAINAGE AREA.--511 mi² (1,323 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1438: Drainage area.

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

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

AVERAGE DISCHARGE.--28 years, 302 ft³/s (8.553 m³/s), 8.03 in/yr (204 mm/yr), 218,800 acre-ft/yr (270 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	2100	5,240	148	8.77	2.673
Mar. 31	1900	5,040	143	8.63	2.630
Aug. 23	1500	*5,260	149	*8.83	2.691

Minimum daily discharge, 54 ft³/s (1.53 m³/s) Jan. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	113	113	181	92	94	2940	690	466	318	244	547
2	148	110	119	172	87	97	1930	854	439	279	228	497
3	139	110	121	161	115	102	1630	1110	417	274	218	458
4	135	110	122	150	140	110	1500	1040	422	773	207	429
5	130	107	120	145	149	122	1410	902	565	1190	281	407
6	125	107	112	143	98	122	1220	795	355	687	225	594
7	125	105	110	159	110	129	1010	718	390	415	233	576
8	120	107	107	170	125	125	958	670	401	343	371	492
9	134	110	104	181	103	126	870	625	385	306	352	427
10	198	110	107	195	89	154	788	638	511	276	487	387
11	178	107	107	220	90	116	732	966	499	257	508	365
12	162	110	111	217	83	113	718	926	428	245	386	346
13	150	158	113	210	82	122	781	746	385	237	311	335
14	144	161	116	210	88	113	809	664	360	237	268	317
15	140	144	116	200	85	110	697	613	330	221	242	302
16	136	144	116	160	111	119	638	559	305	210	223	294
17	132	188	113	130	129	141	601	511	300	208	231	282
18	132	196	116	125	114	631	571	511	310	201	279	271
19	129	174	116	92	109	4390	547	1320	282	197	282	262
20	129	148	116	54	87	3720	664	1040	291	199	371	254
21	125	144	111	56	89	3430	809	878	264	200	2160	245
22	127	158	110	58	87	3170	816	760	259	214	3080	238
23	132	154	108	56	89	3850	697	683	246	219	5010	231
24	126	161	109	70	119	3690	571	625	234	301	1980	230
25	122	138	109	81	102	2000	613	589	214	320	1050	221
26	122	158	109	81	119	1440	607	553	206	286	809	213
27	119	161	105	84	110	1240	704	529	325	266	725	204
28	113	144	103	84	94	1160	690	499	569	258	690	197
29	113	129	100	89	---	1400	697	477	769	272	718	193
30	110	122	100	94	---	3720	677	472	370	281	692	197
31	113	---	172	99	---	4880	---	483	---	255	614	---
TOTAL	4173	4088	3511	4127	2895	40735	27895	22446	11297	9945	23475	10011
MEAN	135	136	113	133	103	1314	930	724	377	321	757	334
MAX	198	196	172	220	149	4880	2940	1320	769	1190	5010	594
MIN	110	105	100	54	82	94	547	472	206	197	207	193
CFSM	.26	.27	.22	.26	.20	2.57	1.82	1.42	.74	.63	1.48	.65
IN.	.30	.30	.26	.30	.21	2.97	2.03	1.63	.82	.72	1.71	.73
AC-FT	8280	8110	6960	8190	5740	80800	55330	44520	22410	19730	46560	19860

CAL YR 1978	TOTAL	106781	MEAN 293	MAX 5360	MIN 54	CFSM .57	IN 7.77	AC-FT 211800		
WTR YR 1979	TOTAL	164598	MEAN 451	MAX 5010	MIN 54	CFSM .88	IN 11.98	AC-FT 326500		

05387500 UPPER IOWA RIVER AT DECORAH, IA--Continued

WATER QUALITY RECORDS

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

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

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

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	15.0	11.0	9.5	6.5	1.5	1.5	.0	.0	.5	.0	.5	.0
2	13.5	13.0	10.0	6.5	1.5	1.5	.5	.0	.0	.0	.5	.0
3	14.0	12.0	11.5	8.0	1.5	1.5	.5	.0	.0	.0	.5	.0
4	13.5	12.0	11.5	9.0	1.0	1.0	.0	.0	.5	.0	.5	.0
5	13.5	11.5	11.0	9.5	1.0	1.0	.0	.0	.5	.5	.5	.0
6	12.0	10.5	9.5	7.0	1.0	1.0	.0	.0	.5	.0	.5	.0
7	10.5	9.5	8.0	5.5	1.0	1.0	.0	.0	.0	.0	.5	.0
8	11.5	8.0	8.5	5.0	1.0	1.0	.0	.0	.0	.0	1.0	.5
9	11.0	10.0	9.5	6.0	1.0	1.0	.0	.0	.5	.0	1.0	.5
10	11.0	13.0	10.0	8.0	1.0	1.0	.0	.0	.5	.5	.5	.0
11	14.5	13.0	9.5	6.5	1.0	1.0	.0	.0	.5	.0	1.0	.5
12	13.5	11.5	6.5	5.0	1.0	1.0	.0	.0	.0	.0	1.0	.5
13	11.5	9.0	8.0	5.0	.5	.5	.0	.0	.0	.0	1.0	.5
14	11.0	9.0	6.0	4.5	1.0	1.0	.0	.0	.0	.0	1.0	.0
15	10.0	9.0	4.5	3.0	1.0	1.0	.0	.0	.0	.0	1.0	.5
16	10.5	8.0	3.5	2.0	.5	.0	.0	.0	.5	.0	1.5	.5
17	10.0	8.0	3.5	3.0	.5	.0	.0	.0	.5	.5	.5	.5
18	10.0	8.0	4.0	3.0	.5	.5	.0	.0	.5	.0	1.0	.5
19	10.5	7.0	3.5	1.5	.5	.5	.0	.0	.5	.0	.5	.0
20	11.5	8.5	1.5	1.5	.5	.5	.0	.0	.0	.0	2.0	.5
21	13.0	10.0	1.5	1.5	.5	.0	.0	.0	.5	.0	2.0	1.5
22	13.0	10.5	1.5	1.5	.5	.5	.0	.0	.5	.0	2.0	1.5
23	10.5	8.5	1.5	1.5	.5	.5	.0	.0	.5	.5	2.0	1.0
24	10.5	7.0	2.0	1.5	.5	.5	.0	.0	.5	.0	1.0	.5
25	10.0	8.5	1.5	1.0	1.0	.5	.0	.0	.5	.0	3.0	1.0
26	9.0	7.0	1.5	1.5	.5	.5	.0	.0	.5	.0	3.5	2.0
27	9.5	6.5	2.0	1.5	1.0	.5	.0	.0	.5	.0	4.0	1.5
28	9.0	6.0	1.5	1.5	.5	.5	.0	.0	.5	.0	4.0	3.5
29	9.5	7.0	1.5	1.0	.5	.0	.0	.0	---	---	4.0	3.0
30	11.0	8.0	1.5	1.0	.0	.0	.0	.0	---	---	3.0	2.0
31	10.5	8.0	---	---	.0	.0	.0	.0	---	---	2.0	1.0
MONTH	15.0	6.0	11.5	1.0	1.5	.0	.5	.0	.5	.0	4.0	.0

05387500 UPPER IOWA RIVER AT DECORAH, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	3.0	1.0	9.5	8.0	18.0	13.5	23.5	19.5	23.5	20.0	23.0	21.0
2	4.5	3.0	9.5	9.0	19.5	15.5	25.0	20.0	23.5	19.5	22.0	20.0
3	5.0	3.5	11.0	8.0	20.5	16.0	26.0	21.5	25.5	20.0	21.5	19.0
4	5.5	4.0	10.0	8.5	21.0	18.0	23.5	20.5	27.0	22.0	22.0	18.5
5	5.5	3.0	11.0	8.5	19.5	15.5	22.0	20.0	25.5	23.5	23.5	19.5
6	4.0	1.0	14.5	10.0	21.0	17.0	21.5	19.5	25.5	21.5	22.0	20.0
7	5.5	3.0	14.0	13.0	20.5	19.5	20.5	18.5	26.5	23.5	20.0	16.5
8	5.5	4.0	13.5	11.5	20.0	18.0	21.0	18.5	25.5	21.5	17.0	15.5
9	5.0	3.5	15.5	11.0	18.0	16.5	23.0	19.0	22.0	20.0	19.0	15.5
10	6.5	4.0	16.5	14.5	18.0	15.5	24.5	20.5	22.0	20.0	20.5	18.0
11	6.0	5.5	16.0	10.5	19.5	15.5	25.5	21.0	21.0	18.0	21.0	18.5
12	9.0	5.5	12.0	9.0	21.0	18.5	26.5	22.0	20.5	18.0	21.0	19.0
13	9.0	7.0	14.5	11.0	22.0	18.5	25.5	23.0	19.0	18.0	19.5	17.0
14	7.0	6.0	14.5	11.5	24.0	19.5	26.0	21.0	19.0	15.5	17.0	14.5
15	9.5	5.5	15.5	11.0	24.5	21.0	26.5	22.0	18.0	15.5	16.5	13.0
16	10.5	8.0	15.5	12.0	24.0	21.5	25.5	21.5	16.5	15.5	17.0	13.5
17	11.5	8.5	18.5	14.0	22.0	19.5	25.5	21.5	19.0	16.0	18.5	14.5
18	12.0	10.0	18.0	15.5	19.5	17.0	24.5	20.0	22.0	18.5	19.0	15.0
19	11.0	10.0	15.5	13.0	21.0	16.0	24.5	20.0	21.5	20.0	19.0	14.5
20	10.5	10.0	16.0	13.5	21.5	19.0	25.5	20.5	22.0	20.0	19.0	14.5
21	12.0	9.0	15.5	12.0	24.0	19.0	24.5	21.0	21.5	20.0	17.0	14.0
22	13.5	10.0	15.0	12.0	23.0	19.5	25.5	20.0	20.0	19.0	15.5	12.0
23	14.5	11.0	13.5	12.0	20.0	18.0	25.0	22.0	19.0	18.0	14.5	12.0
24	14.0	13.0	14.5	11.0	21.5	17.0	24.5	22.0	19.0	18.0	15.0	12.0
25	13.0	11.0	15.5	11.5	22.0	18.0	24.5	21.0	19.0	17.0	16.5	13.0
26	12.0	9.0	15.0	13.5	24.0	19.0	25.5	20.5	19.5	18.0	18.0	14.0
27	11.5	9.0	16.0	12.0	24.0	19.0	24.5	22.0	19.0	18.0	18.5	14.5
28	9.5	8.0	18.0	13.5	21.0	19.0	25.0	20.5	19.5	17.0	19.5	16.0
29	9.0	8.5	19.5	15.5	20.5	18.5	23.5	20.5	20.5	18.0	18.0	16.5
30	8.5	6.5	21.0	18.0	23.0	18.5	25.5	20.0	21.5	19.0	18.5	15.5
31	---	---	20.0	16.0	---	---	24.5	21.5	23.0	20.0	---	---
MONTH	14.5	1.0	21.0	8.0	24.5	13.5	26.5	18.5	27.0	15.5	23.5	12.0
YEAR	27.0	.0										

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA

LOCATION.--Lat 43°25'16", long 91°30'31", in SW1/4 NW1/4 sec.1, T.99 N., R.6 W., Allamakee County, Hydrologic Unit 07060002, on right bank at upstream side of bridge on State Highway 76, 650 ft (198 m) upstream from Mineral Creek, 0.5 mi (0.8 km) upstream from Bear Creek, 3.5 mi (5.6 km) south of Dorchester, and 18.1 mi (29.1 km) upstream from mouth.

DRAINAGE AREA.--770 mi² (1,994 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 660.00 ft (201.168 m) NGVD. Prior to Jan. 6, 1938, nonrecording gage on old bridge at site 0.2 mi (0.3 km) upstream at datum 5.91 ft (1.801 m) higher. Jan. 6, 1938, to Apr. 26, 1948, nonrecording gage at datum 60.00 ft (18.288 m) lower, Apr. 27, 1948 to August 1963, nonrecording gage on old bridge and August 1963 to June 1975 nonrecording gage on new bridge at same datum.

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

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	2145	*9,140	259	*15.27	4.654	Apr. 1	0315	5,670	161	13.23	4.033
Mar. 24	0215	5,870	166	13.37	4.075	Aug. 23	2315	5,460	155	13.08	3.987

Minimum daily discharge, 95 ft³/s (2.69 m³/s) Feb. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320	184	220	132	130	160	4370	907	695	671	376	725
2	265	187	250	122	132	190	2600	995	677	588	388	665
3	250	190	240	127	124	240	2140	1660	641	530	450	611
4	238	190	220	132	126	245	1940	1600	629	935	430	566
5	231	190	210	135	120	260	1860	1490	1080	1210	566	535
6	224	187	220	137	110	230	1640	1340	739	1420	572	605
7	213	180	188	128	114	230	1480	1220	647	865	430	719
8	210	174	170	122	102	235	1380	1120	809	683	550	707
9	217	168	220	118	97	220	1270	1030	701	599	677	594
10	284	171	225	114	102	230	1160	980	907	535	713	540
11	312	166	240	115	110	210	1070	1320	851	530	802	500
12	276	168	230	109	115	225	1040	1280	865	515	774	485
13	257	220	260	115	128	255	1070	1180	753	495	629	465
14	246	280	195	117	132	310	1090	1030	695	470	540	430
15	238	250	190	115	140	315	1030	886	665	450	480	415
16	231	235	180	125	130	290	914	802	623	430	445	396
17	224	280	190	129	135	280	844	753	594	400	495	384
18	220	324	176	142	150	844	788	707	605	380	928	372
19	217	308	180	140	148	7750	746	1330	605	352	605	360
20	217	276	175	147	180	6630	809	1570	623	344	671	356
21	213	253	170	152	190	4030	1090	1360	617	340	1470	344
22	213	304	175	147	153	3950	1100	1190	572	364	2620	336
23	213	284	165	150	142	4250	1030	1100	572	388	4730	332
24	196	292	180	153	110	5170	928	1000	555	372	3850	328
25	213	320	220	150	95	3120	879	928	530	500	1910	324
26	206	296	236	142	135	2200	865	865	505	420	1420	316
27	200	269	230	145	149	1860	837	830	535	372	1180	312
28	196	288	210	140	151	1650	914	788	635	352	1030	308
29	196	261	168	142	---	1650	942	746	1480	348	942	300
30	193	228	165	145	---	4160	942	719	851	475	865	292
31	193	---	150	135	---	5150	---	701	---	415	788	---
TOTAL	7122	7123	6246	4122	3650	56539	38768	33427	21256	16748	32326	13622
MEAN	230	237	201	133	130	1824	1292	1078	709	540	1043	454
MAX	320	324	260	153	190	7750	4370	1660	1480	1420	4730	725
MIN	193	166	150	109	95	160	746	701	505	340	376	292
CFSM	.30	.31	.26	.17	.17	2.37	1.68	1.40	.92	.70	1.36	.59
IN.	.34	.34	.30	.20	.18	2.73	1.87	1.61	1.03	.81	1.56	.66
AC-FT	14130	14130	12390	8180	7240	112100	76900	66300	42160	33220	64120	27020

CAL YR 1978	TOTAL	168218	MEAN 461	MAX 6380	MIN 82	CFSM .60	IN 8.13	AC-FT 333700			
WTR YR 1979	TOTAL	240949	MEAN 660	MAX 7750	MIN 95	CFSM .86	IN 11.64	AC-FT 477900			

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--July 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1975 to current year.
WATER TEMPERATURES: October 1977 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1975 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 635 micromhos Aug. 5, 1975; minimum daily, 205 micromhos July 21, 1977.
WATER TEMPERATURES: Maximum daily, 26.0°C Aug. 1,4,5,7, 1979; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 10,000 mg/L July 17, 1978; minimum daily mean, 0 mg/L Jan. 28,29, 1979.
SEDIMENT LOADS: Maximum daily, 173,000 tons (157,000 tonnes) June 17, 1978; minimum daily, 0 tons (0 tonnes) Jan. 28, 29, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 585 micromhos Feb. 13; minimum daily, 240 micromhos Aug. 7,8,12.
WATER TEMPERATURES: Maximum daily, 26.0°C Aug. 1,4,5,7; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,920 mg/L Mar. 30; minimum daily mean, 0 mg/L Jan. 28, 29.
SEDIMENT LOADS: Maximum daily, 82,700 tons (75,000 tonnes) Mar. 19; minimum daily, 0 tons (0 tonnes) Jan. 28,29.

WATER QUALITY DATA, OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	520	480	---	580	560	390	460	360	500	405	420
2	440	400	540	405	---	---	---	430	360	500	430	420
3	360	370	560	---	580	555	475	470	380	360	420	420
4	380	370	---	420	---	---	---	410	380	390	410	440
5	380	460	570	---	580	555	---	520	480	390	270	440
6	465	500	560	420	---	---	495	500	440	480	260	440
7	440	500	---	---	580	535	480	480	480	430	240	420
8	400	460	---	430	---	---	520	520	460	440	240	430
9	365	380	570	---	580	530	495	520	460	420	420	440
10	400	380	---	470	---	---	495	460	460	420	440	440
11	410	440	570	---	580	525	420	445	500	400	260	440
12	400	460	---	420	---	---	415	430	500	400	240	420
13	390	480	440	---	585	520	475	435	460	400	260	420
14	395	500	---	440	---	520	475	475	460	400	270	420
15	415	490	415	---	580	525	465	380	440	450	270	480
16	400	520	---	440	---	525	475	390	440	400	270	420
17	445	520	420	---	570	525	490	580	400	400	270	380
18	380	510	---	500	---	505	485	580	400	400	290	380
19	360	420	440	---	580	305	500	440	400	420	260	360
20	380	450	---	570	---	290	485	420	400	440	250	380
21	380	400	450	---	545	340	485	430	400	480	260	380
22	380	380	---	575	---	295	425	440	400	480	320	380
23	460	390	460	---	555	280	415	420	380	400	270	390
24	435	410	---	575	---	355	415	370	370	390	260	390
25	380	420	440	---	555	440	420	360	380	400	400	390
26	390	440	---	580	---	475	380	360	375	390	420	450
27	370	390	---	---	560	---	380	360	410	400	405	440
28	380	450	440	575	---	520	390	350	420	400	400	450
29	380	425	430	---	---	505	370	360	410	400	410	440
30	500	440	---	580	---	420	400	360	420	420	420	460
31	510	---	410	---	---	365	---	360	---	430	420	---

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

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

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	92	79	14	7.0	19	11	14	5.0	1	.35	11	4.8
2	92	66	35	18	9	6.1	15	4.9	4	1.4	10	5.1
3	116	78	37	19	7	4.6	14	4.0	6	2.0	8	5.2
4	124	80	32	16	4	2.4	15	5.3	5	1.7	11	7.3
5	191	119	8	4.1	6	3.4	15	5.5	2	.65	14	9.8
6	107	66	9	4.5	12	7.1	15	5.6	1	.30	14	8.7
7	125	72	4	1.9	15	7.6	15	5.2	2	.62	13	8.1
8	110	62	18	8.5	15	5.9	15	4.9	10	2.8	12	7.8
9	102	60	13	5.9	17	10	15	4.0	15	3.9	13	7.7
10	107	143	12	5.5	14	5.5	15	4.6	10	2.8	13	8.1
11	136	115	6	2.7	10	6.5	15	4.7	3	.89	11	6.2
12	108	91	3	1.4	11	6.8	15	4.4	5	1.6	10	6.1
13	100	75	4	2.4	12	0.4	15	4.7	5	1.7	8	5.5
14	93	62	6	4.5	19	10	15	4.7	5	1.8	4	3.3
15	64	41	6	4.1	23	12	15	4.7	3	1.1	4	3.4
16	95	59	7	4.4	20	9.7	15	5.1	2	.70	5	3.9
17	40	24	7	5.3	17	8.7	15	5.2	1	.36	5	3.8
18	76	45	19	17	16	7.6	16	6.1	3	1.2	960	4810
19	60	35	46	38	15	7.3	16	6.0	4	1.6	4030	82700
20	55	33	22	16	17	8.0	15	6.0	5	2.4	2190	39200
21	92	53	39	27	15	6.9	12	4.9	6	3.1	2210	24000
22	53	36	38	31	10	4.7	10	4.0	5	2.1	1230	13100
23	39	22	34	26	5	2.2	7	2.8	5	1.9	2150	26300
24	27	14	31	24	7	3.4	4	1.7	5	1.5	2500	37400
25	26	15	26	22	10	6.9	3	1.2	4	1.0	330	2780
26	38	21	26	20	13	8.2	1	.38	3	1.1	123	731
27	30	15	27	20	12	7.5	1	.39	5	2.0	321	1610
28	31	15	17	13	11	6.2	0	.00	9	3.7	250	1110
29	23	12	16	11	12	5.4	0	.00	---	---	720	3210
30	8	4.7	24	16	13	5.0	1	.39	---	---	4920	55500
31	6	3.1	---	---	13	6.3	1	.36	---	---	2500	34800
TOTAL	---	1606.8	---	398.2	---	214.0	---	118.22	---	46.27	---	328355.5

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	950	11200	50	122	37	69	560	1010	226	229	94	184
2	440	3090	73	196	31	57	330	524	230	241	84	151
3	330	1910	133	596	38	66	830	1190	345	419	90	148
4	230	1200	86	372	56	95	2970	7500	265	308	98	150
5	115	578	87	350	1250	3830	2500	8170	505	772	94	136
6	50	221	118	427	1020	2040	430	1650	775	1200	107	175
7	184	735	121	399	600	1050	540	1260	705	819	112	217
8	458	1710	118	357	549	1200	161	297	715	1060	86	164
9	239	820	114	317	450	852	30	49	405	740	98	157
10	210	658	111	294	490	1200	47	68	520	1000	101	147
11	91	263	173	617	580	1330	61	87	625	1350	94	127
12	102	286	160	553	348	813	48	67	500	1040	74	97
13	63	182	202	644	281	571	58	78	440	747	46	58
14	61	180	187	520	163	306	41	52	390	569	27	31
15	56	156	133	318	222	399	78	95	358	464	38	43
16	70	173	154	333	118	198	52	60	320	384	44	47
17	82	187	91	185	71	114	57	62	380	508	81	84
18	70	149	79	151	76	124	59	61	835	2090	60	60
19	79	159	179	740	136	222	87	83	408	666	32	31
20	70	153	113	479	83	140	76	71	530	960	12	12
21	56	165	108	397	110	183	39	36	2970	11800	24	22
22	56	166	98	315	125	193	89	87	2000	14100	25	23
23	60	167	88	261	129	199	86	90	1330	17000	21	19
24	56	140	44	119	140	210	110	110	561	5830	29	26
25	46	109	57	143	133	190	154	208	260	1340	30	26
26	38	89	58	135	85	116	124	141	220	843	30	26
27	24	54	58	130	65	94	138	139	190	605	29	24
28	25	62	64	136	147	252	104	99	170	473	40	33
29	25	64	60	121	4090	15600	136	128	163	415	38	31
30	39	99	36	70	2770	6360	313	401	143	334	37	29
31	---	---	43	81	---	---	281	315	113	240	---	---
TOTAL	---	25125	---	9878	---	38073	---	24188	---	68546	---	2478

TOTAL LOAD FOR YEAR: 499024.09 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)
MAR								
19...	1600	5.0	9390	3360	85200	27	31	35
APR								
03...	1630	--	2320	233	1460	23	27	--
MAY								
14...	1630	18.5	1020	122	336	21	29	--
JUN								
06...	0700	18.0	788	1330	2830	--	--	--
26...	0900	20.0	539	98	143	--	--	--
AUG								
01...	1000	27.5	374	209	211	--	--	--
27...	1700	--	1170	179	565	--	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. FALL DIAM. % FINER THAN 2.00 MM (70347)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAR								
19...	44	85	87	91	98	100	100	--
APR								
03...	40	73	78	98	100	--	--	--
MAY								
14...	56	90	96	97	100	--	--	--
JUN								
06...	--	--	--	--	--	--	--	100
26...	--	--	--	--	--	--	--	78
AUG								
01...	--	--	--	--	--	--	--	90
27...	--	--	--	--	--	--	--	97

05388250 UPPER IOWA RIVER NEAR DORCHESTER, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
OCT							
02...	1455	276	8	0	2	6	44
24...	1645	211	8	1	1	4	33
MAR							
20...	0900	7880	10	2	2	4	7
APR							
03...	1630	2320	9	5	7	22	50
MAY							
14...	1630	1020	8	--	0	3	65
AUG							
01...	1000	374	3	15	16	20	61
27...	1700	1170	9	0	1	5	26
SEP							
25...	1300	325	10	1	2	9	38

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT						
02...	57	67	72	77	100	--
24...	51	61	70	76	100	--
MAR						
20...	17	27	34	45	67	93
APR						
03...	61	69	78	86	90	100
MAY						
14...	90	98	100	--	--	--
AUG						
01...	94	99	100	--	--	--
27...	61	77	83	88	94	100
SEP						
25...	61	72	80	85	97	100

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA

LOCATION.--Lat 43°01'29", long 91°10'21", in SE1/4 SE1/4 sec.22, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001, on right bank in city park at east end of Main Street in McGregor, 2.6 mi (4.2 km) upstream from Wisconsin River, 4.3 mi (6.9 km) downstream from Yellow River, and at mile 633.4 (1,019.1 km) upstream from Ohio River.

DRAINAGE AREA.--67,600 mi² (174,800 km²), approximately.

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 604.84 ft (184.355 m) NGVD. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder; June 1, 1937 to June 1, 1939, auxiliary nonrecording gage 14.1 mi (22.7 km) upstream in tailwater of dam 9, at datum 5.30 ft (1.615 m) lower.

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

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

AVERAGE DISCHARGE.--43 years, 33,780 ft³/s (956.6 m³/s), 6.80 in/yr (173 mm/yr), 24,470,000 acre-ft/yr (30,170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 276,000 ft³/s (7,820 m³/s) Apr. 24, 1965; maximum gage height, 25.38 ft (7.736 m) Apr. 24, 1965; minimum daily discharge, 6,200 ft³/s (176 m³/s) Dec. 9, 1936; minimum gage height, -0.86 ft (-0.262 m) Aug. 18, 1936.

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 133,000 ft³/s (3,770 m³/s) Apr. 30; maximum gage height, 16.26 ft (4.956 m) May 3; minimum daily discharge, 13,300 ft³/s (377 m³/s) Nov. 29; minimum gage height, 6.73 ft (2.051 m) Oct. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34500	22900	16500	17800	16800	20000	89200	132000	73100	57700	32400	51500
2	34600	23200	15100	17600	16600	22500	92200	131000	71800	58300	30900	54700
3	33900	22900	15000	17500	16600	22000	92700	129000	69900	58900	30900	55700
4	32600	23000	13500	16500	16600	22100	96000	126000	66600	61500	33200	54700
5	30000	23200	13700	16700	16500	22100	99800	121000	64000	63700	36600	53400
6	29800	22600	14000	14600	16500	24000	99200	120000	61800	65200	39600	51900
7	28600	23200	17900	14600	16300	25000	98800	116000	60300	65300	39700	49300
8	29300	23200	19800	14500	16400	25500	100000	114000	56900	65700	37600	47900
9	29700	21800	19500	14400	16500	26000	102000	111000	54100	66000	36300	47000
10	32200	22600	19500	14500	16400	26500	104000	108000	54500	65400	34800	46300
11	32900	21400	19300	14700	16400	26000	105000	105000	54600	64900	33900	45100
12	31500	21600	19300	14800	16300	26000	108000	101000	53200	62700	33600	45100
13	30300	19200	19500	14900	16300	26000	108000	101000	51600	59400	35700	43800
14	29600	20100	19500	15000	16400	26500	108000	97800	51800	55700	38500	42300
15	28000	23000	19100	15200	16400	26500	107000	97900	50600	51900	38000	39800
16	27500	24400	19100	15300	16400	27000	107000	99800	48200	50400	36700	36900
17	26200	21200	19000	15400	16500	28000	107000	101000	47400	48600	35100	33700
18	20700	20200	19000	15400	16400	30100	107000	105000	49100	46200	34300	30900
19	20100	25600	19300	15600	16300	33700	108000	107000	49400	43300	35300	30200
20	19000	27900	19500	16300	16300	46100	109000	108000	51000	40900	37500	30500
21	20700	26800	19400	16400	15400	50000	110000	108000	53200	39700	38800	31200
22	23500	25800	19600	16200	16500	52600	111000	106000	58000	40300	39400	32000
23	26700	24100	19700	16800	16600	57600	112000	104000	62700	40400	40500	30900
24	27900	21500	19700	17300	17500	62700	115000	102000	67700	40600	43100	29500
25	27200	19600	19800	17200	17600	65400	119000	98300	68700	39200	46000	28100
26	26700	17000	19900	17100	17600	70400	124000	97200	68400	38200	47300	24700
27	25300	15000	19500	17000	18200	77100	127000	93800	65700	36800	46800	21500
28	24200	14300	19700	17100	19100	83000	130000	91200	60300	36000	45800	18900
29	22800	13300	19500	17000	---	83700	132000	86300	58000	34900	44700	18300
30	22000	13600	19500	16900	---	84100	133000	81000	58000	34300	45800	19800
31	22300	---	18500	16900	---	87100	---	75900	---	33300	48400	---
TOTAL	850500	644200	572000	496200	468400	1305300	3260900	3274200	1760600	1565400	1197200	1146600
MEAN	27440	21470	18450	16010	16730	42110	108700	105600	58690	50500	38620	38220
MAX	34600	27900	19900	17800	19100	87100	133000	132000	73100	66000	48400	55700
MIN	19000	13300	13500	14400	16300	20000	89200	75900	47400	33300	30900	18300
CFSM	.41	.32	.27	.24	.25	.62	1.61	1.56	.87	.75	.57	.57
IN.	.47	.36	.32	.27	.26	.72	1.80	1.80	.97	.86	.66	.63
AC-FT	1687000	1278000	1135000	984200	929100	2589000	6468000	6494000	3492000	3105000	2375000	2274000

CAL YR 1978 TOTAL 14055800 MEAN 38510 MAX 104000 MIN 13300 CFSM .57 IN 7.75 AC-FT 27880000
WTR YR 1979 TOTAL 16541500 MEAN 45320 MAX 133000 MIN 13300 CFSM .67 IN 9.12 AC-FT 32810000

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples collected at bridge on U.S. Highway 18 1.2 mi (1.9 km) upstream from gage.

PERIOD OF RECORD.--July 1975 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 707 mg/L Mar. 31, 1979; minimum daily mean, 1 mg/L Dec. 23-25, 1976, Dec. 20, 28, 1977.
SEDIMENT LOADS: Maximum daily, 166,000 tons (151,000 tonnes) Mar. 31, 1979; minimum daily, 31 tons (28 tonnes) Dec. 25, 1976.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 707 mg/L Mar. 31; minimum daily mean, 5 mg/L Feb. 11, 22.
SEDIMENT LOADS: Maximum daily, 166,000 tons (151,000 tonnes) Mar. 31; minimum daily, 266 tons (241 tonnes) Feb. 22.

WATER QUALITY DATA, OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	320	---	380	---	---	---	---	---	---	---	440
3	280	---	---	---	---	---	---	---	---	375	---	---
4	---	320	---	---	---	---	280	305	---	---	---	---
5	---	---	---	---	390	400	---	---	---	---	380	---
6	305	---	---	---	---	---	400	---	---	---	---	---
7	---	---	---	390	---	---	---	---	350	360	---	450
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	320	280	---	370	---	500
10	300	---	---	---	---	---	---	---	---	---	370	---
11	---	---	---	---	390	385	---	---	---	---	---	---
12	---	---	---	---	---	---	---	325	---	---	---	---
13	300	---	---	---	---	---	---	---	360	390	---	---
14	---	---	---	380	---	---	360	---	---	---	---	480
15	---	---	---	---	---	---	---	320	---	---	400	---
16	---	---	---	---	---	---	370	350	350	---	---	500
17	---	---	---	---	390	---	---	---	---	---	410	---
18	300	360	---	---	---	380	370	---	---	---	---	---
19	---	---	---	---	---	330	---	360	---	---	---	---
20	300	---	---	390	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	500
22	---	360	---	---	405	---	---	335	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	520
24	---	---	---	---	---	380	335	---	---	---	---	---
25	300	---	---	390	---	---	---	340	---	400	---	---
26	---	---	---	---	---	---	---	---	---	---	---	520
27	300	---	385	---	---	---	360	---	---	---	---	---
28	---	---	---	---	400	---	---	---	---	---	440	520
29	---	360	---	---	---	360	---	350	---	---	440	---
30	---	---	---	---	---	---	340	---	---	---	---	---
31	---	---	---	390	---	340	---	365	---	415	440	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	10.5	---	.0	---	---	---	---	---	---	---	24.0
3	17.0	---	---	---	---	---	---	---	---	24.0	---	---
4	---	10.0	---	---	---	---	4.0	11.5	---	---	---	---
5	---	---	---	---	.0	.8	---	---	---	---	26.0	---
6	13.0	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	.0	---	---	---	---	23.0	23.5	---	20.0
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	2.5	15.5	---	24.5	---	20.0
10	13.0	---	---	---	---	---	---	---	---	---	25.0	---
11	---	---	---	---	.0	.0	---	---	---	---	---	---
12	---	---	---	---	---	---	---	14.5	---	---	---	---
13	12.0	---	---	---	---	---	---	---	21.5	27.0	---	---
14	---	---	---	.0	---	---	5.5	---	---	---	---	19.0
15	---	---	---	---	---	---	---	---	---	---	20.0	---
16	---	---	---	---	---	---	7.0	16.0	25.0	---	---	18.0
17	---	---	---	---	.0	---	---	---	---	---	20.5	---
18	10.5	5.0	---	---	---	.0	8.5	---	---	---	---	---
19	---	---	---	---	---	1.0	---	17.5	---	---	---	---
20	12.0	---	---	.0	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	18.0
22	---	.0	---	---	.0	---	---	17.0	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	16.5
24	---	---	---	---	---	2.0	12.5	---	---	---	---	---
25	10.5	---	---	.0	---	---	---	16.0	---	26.0	---	---
26	---	---	---	---	---	---	---	---	---	---	---	20.0
27	10.0	---	.0	---	---	---	10.5	---	---	---	---	---
28	---	---	---	---	.0	---	---	---	---	---	22.0	18.0
29	---	.0	---	---	---	2.0	---	18.5	---	---	23.5	---
30	---	---	---	---	---	---	10.0	---	---	---	---	---
31	---	---	---	.0	---	2.0	---	19.0	---	25.5	24.5	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	43	4010	58	3590	112	4990	25	1200	70	3180	27	1460
2	41	3830	57	3570	115	4690	27	1280	65	2910	29	1760
3	38	3480	55	3400	97	3930	28	1320	58	2600	34	2020
4	44	3870	54	3350	72	2620	30	1348	52	2330	41	2450
5	50	4050	53	3320	46	1780	30	1270	45	2008	45	2690
6	56	4510	52	3170	35	1320	27	1060	35	1688	45	2920
7	58	4480	50	3130	29	1400	24	945	30	1320	45	3040
8	58	4590	48	3010	25	1348	23	900	22	974	48	2750
9	55	4410	45	2650	24	1260	22	855	17	757	32	2250
10	48	4170	44	2680	23	1218	21	822	10	443	20	1430
11	43	3820	42	2430	22	1150	22	873	6	266	11	772
12	39	3330	40	2330	22	1150	21	839	7	308	10	702
13	35	2850	38	1970	25	1320	19	764	11	484	11	772
14	34	2720	38	2060	30	1580	16	646	18	797	17	1220
15	33	2490	36	2240	32	1668	17	598	21	930	20	1430
16	33	2460	35	2310	31	1508	17	702	23	1020	17	1240
17	34	2410	34	1950	29	1490	17	707	23	1020	15	1130
18	38	2120	34	1850	25	1280	17	707	24	1060	30	2440
19	43	2330	43	2970	24	1250	17	715	22	958	222	20200
20	48	2460	64	4820	24	1258	19	836	18	792	248	30900
21	49	2740	77	5570	27	1418	30	1330	12	831	212	28600
22	50	3170	67	4670	28	1480	44	1920	6	267	178	25300
23	54	3890	51	3320	29	1540	54	2450	8	359	147	22900
24	59	4440	47	2730	28	1490	53	2480	12	567	128	21700
25	61	4480	46	2430	29	1550	47	2180	18	855	164	29000
26	60	4330	43	1970	28	1480	44	2038	28	980	162	30800
27	56	3830	44	1780	27	1420	41	1888	22	1880	148	30800
28	55	3590	51	1970	26	1388	42	1940	23	1198	132	29608
29	57	3510	67	2410	26	1328	46	2110	---	---	143	32300
30	57	3390	88	3230	24	1258	68	2748	---	---	578	129000
31	59	3550	---	---	22	1186	72	3290	---	---	707	166000
TOTAL	---	109320	---	86880	---	53720	---	42833	---	31560	---	629576

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	498	120000	32	11400	68	13400	106	16500	30	2620	79	11000
2	280	69700	36	12700	70	13600	103	16200	28	2340	66	9750
3	92	23000	53	18500	73	13800	97	15400	30	2500	62	9320
4	43	11100	44	15000	76	13700	96	15900	33	2960	58	8570
5	43	11600	34	11100	78	13500	95	16300	35	3460	55	7930
6	76	20400	41	13300	78	13000	93	16400	60	6420	52	7290
7	65	17300	36	11300	79	12900	88	15500	90	9650	48	6390
8	55	14900	32	9850	78	12000	82	14500	89	9040	54	6980
9	46	12700	30	8990	78	11400	78	13900	80	7840	41	5200
10	65	18300	23	6710	88	12900	72	12700	64	6010	40	5000
11	67	19000	25	7090	103	15200	67	11700	46	4210	39	4850
12	65	19000	41	11200	120	17200	63	10700	37	3360	37	4510
13	63	18400	57	15500	138	19200	58	9300	40	3860	35	4140
14	62	18100	63	16600	156	21800	56	8420	51	5300	33	3770
15	57	16500	49	13000	169	23100	55	7710	38	3900	33	3550
16	53	15300	40	10800	154	20000	54	7350	30	2970	31	3090
17	49	14200	40	10900	128	16400	52	6820	31	2940	30	2730
18	45	13000	62	17600	113	15000	50	6240	30	2780	28	2340
19	40	11700	57	16500	120	16000	48	5610	33	3150	28	2280
20	37	10900	43	12500	134	18500	47	5190	47	4760	31	2550
21	37	11000	34	9910	142	20400	45	4820	53	5550	42	3540
22	41	12300	37	10600	144	22600	49	5330	56	5960	43	3720
23	45	13600	48	13500	143	24200	58	6330	61	6670	33	2750
24	47	14600	43	11800	140	25600	62	6800	62	7210	35	2790
25	52	16700	40	10600	135	25000	48	5080	59	7330	38	2880
26	55	18400	35	9190	128	23600	42	4330	53	6770	42	2800
27	60	20600	35	8860	122	21600	40	3970	45	5690	39	2260
28	61	21400	38	9360	118	19200	38	3690	41	5070	36	1840
29	53	18900	44	10100	114	17900	35	3300	35	4220	33	1630
30	38	13600	52	11400	110	17200	35	3240	43	5320	32	1710
31	---	---	65	13300	---	---	33	2970	80	10500	---	---
TOTAL	---	636200	---	369160	---	529900	---	282200	---	160360	---	137160

TOTAL LOAD FOR YEAR: 3068867 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. FALL DIAM. % FINER THAN .004 MM (80157)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)
OCT										
03...	1215	33700	6	--	4	6	39	90	99	--
APR										
11...	0900	104000	11	6	16	19	43	77	90	--
MAY										
15...	1600	101000	6	--	--	--	--	--	--	4
JUL										
03...	1100	56300	6	--	--	--	--	--	--	7
31...	1130	56300	6	--	--	--	--	--	--	3
AUG										
28...	1000	45300	6	--	--	--	--	--	--	3
SEP										
26...	1330	24700	6	--	--	--	--	--	--	3

DATE	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT									
03...	--	--	--	--	100	--	--	--	--
APR									
11...	--	--	--	--	92	94	100	--	--
MAY									
15...	8	35	87	95	98	99	100	--	--
JUL									
03...	13	42	86	93	97	99	100	--	--
31...	8	45	76	82	88	95	97	99	100
AUG									
28...	6	39	88	96	97	98	98	100	--
SEP									
26...	7	43	89	97	99	99	99	100	--

05411600 TURKEY RIVER AT SPILLVILLE, IOWA

LOCATION.--Lat 43°12'28", long 91°56'56", in SW1/4 NE1/4 sec.19, T.97 N., R.9 W., Winneshiek County, on right bank 60 ft (18 m) downstream from bridge on county highway W14 at north edge of Spillville, 150 ft (46 m) downstream from old mill dam, 0.6 mi (1.0 km) upstream from Wonder Creek and at mile 98.5 (158.5 km).

DRAINAGE AREA.--177 mi² (458 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 1,034.77 ft (315.40 m) NGVD.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 112 ft³/s (3.17 m³/s), 8.59 in/yr (218 mm/yr), 81,140 acre-ft/yr (100 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	1415	*3,540	100	*11.55	3.520	May 19	2230	1,300	36.8	8.36	2.548
Mar. 24	0015	2,260	64.0	9.87	3.008	Aug. 22	2315	1,550	43.9	8.86	2.701
Mar. 31	0300	2,870	81.3	10.92	3.328						

Minimum daily discharge, 20 ft³/s (0.57 m³/s) Jan. 13,14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	65	34	32	29	60	516	186	134	105	73	170
2	67	65	36	30	28	61	380	345	125	100	66	175
3	66	63	38	27	28	69	340	741	123	99	90	137
4	65	63	40	26	27	86	445	397	111	247	78	129
5	64	65	42	25	26	87	498	287	99	188	72	129
6	65	63	42	23	26	82	330	241	95	132	67	170
7	64	64	42	23	25	83	330	235	109	92	63	169
8	63	63	41	22	24	77	316	213	123	69	112	137
9	68	63	42	22	24	66	298	195	112	68	169	118
10	90	62	41	22	23	89	279	241	135	68	172	111
11	112	61	42	21	23	97	279	456	119	70	144	111
12	101	63	41	21	23	105	294	387	109	79	112	101
13	90	82	41	20	23	110	312	301	101	76	95	99
14	86	91	41	20	23	105	285	202	96	74	88	92
15	82	90	42	21	23	111	266	188	91	72	82	86
16	78	84	43	24	22	136	261	177	86	69	76	83
17	76	100	43	25	23	128	261	162	80	66	82	79
18	76	112	42	25	24	145	251	155	79	64	291	74
19	75	104	43	26	25	3000	247	976	77	69	255	71
20	78	109	43	27	26	3120	296	748	85	86	261	69
21	74	107	40	28	28	1410	776	413	77	79	335	67
22	73	115	43	29	31	1260	546	285	70	76	866	65
23	72	155	42	29	36	1660	342	239	66	72	866	64
24	72	120	42	30	41	1650	287	225	64	80	367	62
25	71	110	39	31	46	504	210	200	62	97	243	60
26	70	100	37	31	50	434	189	198	69	90	202	57
27	69	80	37	31	53	369	182	174	186	87	200	54
28	68	60	41	31	58	350	188	159	123	86	200	53
29	66	40	39	31	---	411	172	146	177	91	195	52
30	65	32	36	30	---	1420	179	147	118	87	177	62
31	66	---	34	30	---	1590	---	144	---	78	167	---
TOTAL	2302	2451	1249	813	838	18875	9555	9163	3100	2816	6266	2896
MEAN	74.3	81.7	40.3	26.2	29.9	609	319	296	103	90.8	202	96.5
MAX	112	155	43	32	58	3120	776	976	186	247	866	175
MIN	63	32	34	20	22	60	172	144	62	64	63	52
CFSM	.42	.46	.23	.15	.17	3.44	1.80	1.67	.58	.51	1.14	.55
IN.	.48	.52	.26	.17	.18	3.97	2.01	1.93	.65	.59	1.32	.61
AC-FT	4570	4860	2480	1610	1660	37440	18950	18170	6150	5590	12430	5740

CAL YR 1978	TOTAL	42416	MEAN 116	MAX 1150	MIN 19	CFSM .66	IN 8.91	AC-FT	84130	
WTR YR 1979	TOTAL	60324	MEAN 166	MAX 3120	MIN 20	CFSM .93	IN 12.68	AC-FT	119700	

05412500 TURKEY RIVER AT GARBER, IA

LOCATION.--Lat 42°44'24", long 91°15'42", in SE1/4 NW1/4 sec.36, T.92 N., R.4 W., Clayton County, Hydrologic Unit 07060004, on left bank 10 ft (3 m) downstream from bridge on county highway C43, 800 ft (244 m) upstream from Wayman Creek, 1,000 ft (305 m) southeast of Garber, 2,000 ft (610 m) downstream from Elk Creek, 1 mi (1.6 km) downstream from Volga River, and 19.8 mi (31.9 km) upstream from mouth.

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

PERIOD OF RECORD.--August 1913 to November 1916, May 1919 to September 1927, April 1929 to September 1930, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1922-25 (M), 1927 (M). WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 634.46 ft (193.383 m) NGVD. Prior to Feb. 7, 1935, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--59 years (1913-16, 1919-27, 1929-30, 1932-79), 912 ft³/s (25.83 m³/s), 8.02 in/yr (204 mm/yr), 660,700 acre-ft/yr (815 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	2245	*26,000	736	*25.59	7.800
Mar. 24	0200	10,300	292	17.00	5.182
Mar. 30	1500	16,300	462	20.70	6.309
May 3	2230	8,180	232	15.40	4.694
Aug. 18	1800	17,100	484	21.17	6.453
Aug. 24	0215	8,890	252	15.99	4.874

Minimum daily discharge, 190 ft³/s (5.38 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	384	364	521	270	250	265	7570	2350	1210	824	2040	2960
2	382	366	560	270	250	270	5030	2430	1150	746	1500	2560
3	429	365	540	280	240	275	4100	6120	1110	705	1350	2280
4	398	366	530	285	240	530	3730	6600	1100	903	1380	2060
5	375	366	510	265	225	830	3760	4260	1340	962	1320	1890
6	365	370	500	245	235	820	3420	3490	1110	848	1110	1880
7	355	372	470	225	235	720	2960	3060	1120	826	988	2180
8	351	372	470	210	230	660	2680	2630	1850	736	1110	2080
9	355	368	450	200	220	630	2510	2490	1560	685	2190	1840
10	464	364	440	195	220	530	2260	2350	1870	654	4260	1650
11	514	361	480	190	220	530	2070	2460	1700	624	3020	1520
12	537	361	510	200	225	600	2020	3410	1570	617	2180	1420
13	592	647	500	210	230	580	2020	2630	1650	745	1790	1370
14	534	1000	435	220	235	1000	2000	2280	1420	886	1570	1300
15	500	808	405	230	240	970	1860	1990	1300	1140	1380	1230
16	467	733	400	240	225	890	1740	1850	1170	789	1190	1170
17	442	899	395	245	220	970	1640	1720	1110	652	1400	1120
18	432	1270	385	250	225	6780	1530	1640	1360	591	15100	1060
19	422	1290	395	260	220	24100	1480	1770	1100	555	12200	1000
20	413	1090	385	270	220	22000	1590	3330	1110	523	12500	960
21	403	953	345	270	230	12900	3910	3540	1130	514	7600	930
22	405	839	340	270	230	8190	3470	2350	1060	812	5980	891
23	402	877	340	270	260	8130	2940	2020	976	782	7730	859
24	394	835	345	270	315	9780	2620	1800	925	643	7730	845
25	391	783	300	265	315	6870	2440	1650	875	1110	5440	820
26	390	721	315	270	300	4350	2630	1530	828	831	3900	797
27	385	712	275	275	270	3460	2680	1470	804	684	3270	774
28	384	709	295	280	260	3160	2420	1400	916	610	2900	753
29	375	604	325	270	---	3710	2350	1330	900	667	5080	725
30	368	602	320	265	---	14200	2350	1280	875	3790	6520	706
31	368	---	280	260	---	11100	---	1240	---	4570	3670	---
TOTAL	12976	19767	12761	7725	6785	149800	83780	78470	36199	29924	129398	41630
MEAN	419	659	412	249	242	4832	2793	2531	1207	965	4174	1388
MAX	592	1290	560	285	315	24100	7570	6600	1870	4570	16100	2960
MIN	351	361	275	190	220	265	1480	1240	804	514	988	706
CFSM	.27	.43	.27	.16	.16	3.13	1.81	1.64	.78	.63	2.70	.90
IN.	.31	.48	.31	.19	.16	3.61	2.02	1.89	.87	.72	3.12	1.00
AC-FT	25740	39210	25310	15320	13460	297100	166200	155600	71800	59350	256700	82570

CAL YR 1978	TOTAL	389127	MEAN	1066	MAX	6690	MIN 240	CFSM	.69	IN	9.37	AC-FT 771800
WTR YR 1979	TOTAL	609216	MEAN	1669	MAX	24100	MIN 190	CFSM	1.08	IN	14.67	AC-FT 1208000

05412500 TURKEY RIVER AT GARBER, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 1957 to September 1962, May 1978 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1957 to September 1962.
SUSPENDED-SEDIMENT DISCHARGE: October 1957 to September 1962.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 19, 1958; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 19,500 mg/L May 20, 1959; minimum daily mean, 5 mg/L Feb. 13, 1962.
SEDIMENT LOADS: Maximum daily, 294,000 tons (267,000 tonnes) June 26, 1959; minimum daily, 3 tons (2.7 tonnes) Feb. 7, 1961.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
MAY											
03...	1315	1270	88	302	31	32	37	74	86	97	100

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
MAR							
20...	1315	2.0	19800	1310	70000	30	33
APR							
03...	1130	5.0	4080	362	3990	25	28
AUG							
20...	1600	22.0	11800	1760	56100	24	27

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
MAR							
20...	37	44	73	74	78	95	100
APR							
03...	32	38	84	89	95	100	--
AUG							
20...	29	37	66	68	70	96	100

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR												
20...	1315	19800	8	0	2	52	84	91	94	96	100	--
APR												
03...	1130	4080	7	0	4	51	78	87	93	94	98	100
AUG												
20...	1600	11800	6	0	4	55	84	90	93	95	97	100

05414500 LITTLE MAQUOKETA RIVER NEAR DURANGO, IA

LOCATION.--Lat 42°33'18", long 90°44'46", in NW1/4 NE1/4 sec.5, T.89 N., R.2 E., Dubuque County, Hydrologic Unit 07060003, on left bank 10 ft (3 m) upstream from bridge on county highway, 300 ft (91 m) upstream from Cloie Branch, 1.7 mi (2.7 km) east of Durango, 5.6 mi (9.0 km) northwest of court house at Dubuque, and 6.4 mi (10.3 km) upstream from mouth.

DRAINAGE AREA.--130 mi² (337 km²).

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

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

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

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

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

AVERAGE DISCHARGE.--45 years, 85.6 ft³/s (2.424 m³/s), 8.94 in/yr (227 mm/yr), 62,020 acre-ft/yr (76.5 hm³/yr); median of yearly mean discharges, 74 ft³/s (2.10 m³/s), 7.7 in/yr (196 mm/yr), 53,600 acre-ft/yr (66.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s (1,130 m³/s) Aug. 2, 1972, gage height, 23.13 ft (7.050 m) in gage well, 23.8 ft (7.25 m), from floodmarks, on basis of slope-area measurement of peak flow; minimum daily, 5 ft³/s (142 dm³/s) July 12, 13, 1936.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	0330	3,580	101	11.60	3.536	July 13	1600	*8,870	251	*16.42	5.005
June 18	1315	3,030	85.8	10.83	3.301						

Minimum daily discharge, 17 ft³/s (0.48 m³/s) Dec. 10,28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	21	31	18	23	33	333	83	47	46	56	78
2	20	22	28	19	24	30	313	193	43	42	48	69
3	31	22	30	20	25	33	304	413	41	40	58	61
4	24	21	31	21	25	50	281	222	40	48	64	56
5	22	22	29	22	28	84	254	180	48	39	62	53
6	22	21	26	23	29	87	187	159	43	35	42	50
7	20	20	22	24	30	75	179	141	42	35	40	45
8	19	20	21	25	31	62	171	128	54	35	52	43
9	24	20	19	26	31	57	154	114	49	34	45	42
10	43	20	17	25	32	50	137	103	54	33	40	41
11	33	20	18	26	33	52	130	112	45	46	35	39
12	28	20	22	27	34	53	129	92	44	60	33	37
13	26	80	25	28	32	76	115	86	408	1510	32	39
14	23	40	22	28	29	177	106	83	62	232	33	37
15	23	25	23	28	27	99	97	77	50	100	31	36
16	22	22	22	29	24	87	91	71	44	66	29	34
17	22	160	21	30	23	141	86	67	41	55	246	33
18	21	82	20	30	24	1190	81	68	624	49	440	32
19	22	50	22	31	25	2960	77	123	159	45	134	31
20	22	40	23	31	25	812	96	80	125	42	521	32
21	22	36	25	29	25	529	127	67	83	45	159	31
22	21	35	21	29	24	464	91	63	64	216	215	30
23	21	38	19	28	26	558	83	63	57	69	108	29
24	21	36	20	28	27	470	82	59	53	68	87	33
25	21	31	19	27	31	295	89	55	49	98	72	38
26	23	33	18	27	39	235	110	55	48	51	64	31
27	21	33	18	28	38	195	90	57	46	45	61	30
28	21	30	17	26	35	205	86	52	46	42	61	29
29	20	31	18	24	---	509	83	50	114	39	480	29
30	20	26	20	23	---	1070	95	50	56	455	126	29
31	20	---	19	23	---	470	---	51	---	89	92	---
TOTAL	717	1077	686	803	799	11208	4257	3217	2679	3809	3566	1197
MEAN	23.1	35.9	22.1	25.9	28.5	362	142	104	89.3	123	115	39.9
MAX	43	160	31	31	39	2960	333	413	624	1510	521	78
MIN	19	20	17	18	23	30	77	50	40	33	29	29
CFSM	.18	.28	.17	.20	.22	2.79	1.09	.80	.69	.95	.89	.31
IN.	.21	.31	.20	.23	.23	3.21	1.22	.92	.77	1.09	1.02	.34
AC-FT	1420	2140	1360	1590	1580	22230	8440	6380	5310	7560	7070	2370

CAL YR 1978	TOTAL	26120	MEAN 71.6	MAX	3070	MIN 15	CFSM .55	IN 7.47	AC-FT	51810
WTR YR 1979	TOTAL	34015	MEAN 93.2	MAX	2960	MIN 17	CFSM .72	IN 9.73	AC-FT	67470

05418450 NORTH FORK MAQUOKETA RIVER AT FULTON, IA

LOCATION.--Lat 42°08'48", long 90°40'33" in N1/4 sec.25, T.85 N., R.2E, Jackson County, Hydrologic Unit 07060006, on right downstream bank at bridge on state Highway 61, 7.8 mi (12.6 km) upstream from mouth, and 5.5 mi (8.8 km) north of junction of Highway 64 and 61 and 0.5 mi (0.8 km) south of Fulton.

DRAINAGE AREA.--516 mi² (1,329 km²).

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

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

REMARKS.--Records are fair. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s (286 m³/s) March 20, 1979, gage height, 16.50 ft (5.029 m); minimum daily, 70 ft³/s (1.982 m³/s) July 11, 1977.

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	0100	*10,100	286	*16.50	5.029	Aug. 20	1600	3,420	96.9	9.13	2.783
Mar. 31	0030	3,320	94.0	8.97	2.734	Aug. 29	1100	7,600	215	13.78	4.200
June 18	2215	6,190	175	12.21	3.722						

Minimum daily discharge, 74 ft³/s (2.10 m³/s) Dec. 31, Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	134	141	74	108	287	1070	361	255	278	400	519
2	145	136	154	119	107	300	876	358	245	256	273	429
3	161	138	154	138	109	314	760	539	236	244	267	372
4	160	138	140	126	107	378	719	828	229	256	292	328
5	157	139	178	108	105	465	707	619	227	248	310	301
6	148	144	182	97	110	435	631	536	225	232	361	280
7	142	137	160	93	112	422	566	495	226	220	251	261
8	137	136	174	97	112	329	540	464	234	212	222	244
9	142	137	174	104	111	260	514	436	273	208	219	233
10	203	139	162	112	110	201	480	405	279	206	205	229
11	203	140	117	118	118	174	458	396	256	208	196	220
12	190	137	109	119	120	206	452	375	235	240	187	214
13	172	154	109	120	128	268	439	355	244	290	179	221
14	159	176	103	119	138	384	423	352	482	340	179	216
15	153	204	102	121	143	354	402	339	306	380	172	207
16	148	175	105	132	148	352	382	323	252	400	167	203
17	142	226	103	144	142	455	372	309	225	340	168	202
18	142	298	101	138	151	1870	363	309	1910	284	589	204
19	145	301	102	133	156	8640	360	333	4850	254	845	200
20	145	227	109	130	164	7060	382	347	1150	240	2090	194
21	146	202	105	144	177	2310	409	343	556	232	1420	192
22	144	191	100	143	190	1480	441	318	480	340	714	190
23	140	195	101	141	216	1600	411	311	364	430	600	192
24	134	195	106	137	238	1730	403	303	312	200	468	192
25	138	187	95	130	240	1060	417	289	288	217	397	199
26	141	176	90	126	249	792	449	285	270	201	352	210
27	142	178	79	123	256	648	382	285	260	194	800	207
28	138	178	97	120	265	576	378	284	260	335	376	205
29	136	168	93	119	---	768	368	277	280	252	5250	206
30	140	169	93	117	---	2240	372	268	292	746	1570	197
31	146	---	74	113	---	2200	---	262	---	565	711	---
TOTAL	4686	5255	3712	3755	4330	38558	14926	11704	15701	9048	20230	7267
MEAN	151	175	120	121	155	1244	498	378	523	292	653	242
MAX	203	301	182	144	265	8640	1070	828	4850	746	5250	519
MIN	134	134	74	74	105	174	360	262	225	194	167	190
CFSM	.29	.34	.23	.23	.30	2.41	.97	.73	1.01	.57	1.27	.47
IN.	.34	.38	.27	.27	.31	2.78	1.08	.84	1.13	.65	1.46	.52
AC-FT	9290	10420	7360	7450	8590	76480	29610	23210	31140	17950	40130	14410

CAL YR 1978 TOTAL 92380 MEAN 253 MAX 4740 MIN 74 CFSM .49 IN 6.66 AC-FT 183200
WTR YR 1979 TOTAL 139172 MEAN 381 MAX 8640 MIN 74 CFSM .74 IN 10.03 AC-FT 276000

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 625.96 ft (190.793 m) NGVD, Prior to July 14, 1924, nonrecording gage, and July 15, 1924 to Sept. 30, 1972, recording gage at same site at datum 10.00 ft (3.048 m) higher.

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

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

AVERAGE DISCHARGE.--66 years, 1,011 ft³/s (28.63 m³/s), 8.84 in/yr (225 mm/yr), 732,500 acre-ft/yr (903 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	1200	*24,600	697	*29.18	8.894	Aug. 29	1745	7,860	223	20.87	6.361
Mar. 31	0730	7,560	214	20.51	6.251						

Minimum daily discharge, 280 ft³/s (7.93 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	448	419	500	300	440	475	6570	1410	920	970	1170	3660
2	454	423	430	300	420	510	4070	1180	830	929	1070	2840
3	489	419	430	310	440	560	3690	1310	816	862	978	2210
4	483	405	406	315	420	670	3250	2360	816	866	902	1910
5	480	420	420	315	420	800	3050	2810	776	807	888	1680
6	473	418	410	310	420	880	2880	2120	816	785	898	1520
7	460	415	405	310	415	980	2560	1960	789	768	866	1380
8	448	405	360	300	410	1200	2170	1710	888	638	839	1220
9	429	406	460	295	405	1220	2160	1650	942	746	803	1170
10	517	414	560	290	405	1080	2060	1590	1180	705	742	1090
11	599	416	490	280	400	980	1970	1540	942	665	599	1040
12	664	417	460	290	395	1100	1860	1430	965	934	599	1000
13	673	407	460	300	390	1130	1760	1250	987	844	591	974
14	636	470	420	305	410	1150	2320	1250	1100	1220	572	933
15	552	526	400	310	420	1160	1890	1220	1080	1230	556	933
16	532	558	380	315	460	1170	1540	1130	888	1160	549	843
17	513	672	370	320	440	1500	1560	1130	834	1030	526	825
18	489	901	360	330	440	3550	1470	1080	1320	875	1430	794
19	487	911	340	340	440	11300	1310	1100	4660	812	2050	785
20	485	927	350	345	430	20200	1480	1160	4300	722	5100	751
21	483	982	350	350	460	16800	1480	1190	2760	681	3780	709
22	480	811	340	370	460	8220	1890	1200	2020	638	2910	610
23	459	774	310	400	480	6100	1980	1320	1680	764	2440	661
24	467	755	300	385	475	6370	1720	888	1400	742	2280	626
25	450	729	360	395	480	5490	1570	938	1230	755	1920	579
26	465	699	350	420	480	3850	1840	938	1180	622	1560	602
27	441	613	340	430	460	3180	1500	938	1120	653	2140	579
28	450	605	330	430	445	2900	1600	942	1060	916	1360	572
29	419	635	340	425	---	3510	1550	938	1180	812	6230	575
30	432	538	340	430	---	5100	1470	929	1190	1280	6950	591
31	425	---	300	430	---	7530	---	929	---	1180	5920	---
TOTAL	15282	17490	12071	10645	12160	120665	66220	41540	40669	26611	59218	33662
MEAN	493	583	389	343	434	3892	2207	1340	1356	858	1910	1122
MAX	673	982	560	430	480	20200	6570	2810	4660	1280	6950	3660
MIN	419	405	300	280	390	475	1310	888	776	622	526	572
CFSM	.32	.38	.25	.22	.28	2.51	1.42	.86	.87	.55	1.23	.72
IN.	.37	.42	.29	.25	.29	2.89	1.59	1.00	.97	.64	1.42	.81
AC-FT	30310	34690	23940	21110	24120	239300	131300	82390	80670	52780	117500	66770

CAL YR 1978	TOTAL	304544	MEAN	834	MAX	5370	MIN 244	CFSM .54	IN 7.29	AC-FT	604100
WTR YR 1979	TOTAL	456233	MEAN	1250	MAX	20200	MIN 280	CFSM .81	IN 10.93	AC-FT	904900

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER QUALITY RECORDS

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

PERIOD OF RECORD.--April 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to current year.
WATER TEMPERATURES: April 1978 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos June 7, 1978; minimum daily, 210 micromhos Mar. 21, 1979.
WATER TEMPERATURES: Maximum daily, 27.5°C Aug. 7, 1979; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,170 mg/L May 14, 1978; minimum daily mean, 74 mg/L May 6, 1978.
SEDIMENT LOADS: Maximum daily, 127,000 tons (115,000 tonnes) Mar. 20, 1979; minimum daily, 15 tons (14 tonnes) Jan. 18-20, 1979.

EXTREMES FOR CURRENT YEAR:
SPECIFIC CONDUCTANCE: Maximum daily, 560 micromhos Feb. 20; minimum daily, 210 micromhos Mar. 21.
WATER TEMPERATURES: Maximum daily, 27.5°C Aug. 7; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,300 mg/L Aug. 29; minimum daily mean, 15 mg/L Feb. 13.
SEDIMENT LOADS: Maximum daily, 127,000 tons (115,000 tonnes) Mar. 20; minimum daily, 15 tons (14 tonnes) Jan. 18-20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	470	---		---	---	530	380	---	520	530	---	360
2	430	470		---	---	---	425	520	520	---	480	---
3	450	---		---	---	---	460	---	500	500	---	---
4	440	440		---	---	---	480	540	480	510	---	---
5	440	---		540	---	---	500	530	440	440	---	---
6	420	460		---	395	---	520	540	---	440	---	---
7	420	440		---	---	495	520	---	---	---	510	---
8	---	420		490	---	---	535	540	480	420	---	---
9	---	420		---	---	---	535	540	500	430	540	500
10	445	440		470	---	---	535	540	440	430	---	---
11	---	---		---	545	---	505	540	500	---	---	460
12	---	---		505	---	---	---	---	480	---	550	480
13	---	450		---	---	530	520	---	480	---	560	440
14	430	460		---	515	---	520	460	460	380	---	---
15	---	---		---	---	---	---	480	490	400	510	---
16	420	510		---	---	480	510	470	500	---	---	---
17	440	520		---	---	---	530	440	---	---	510	---
18	410	---		---	---	420	---	---	500	---	---	---
19	440	---		---	---	260	520	---	340	470	380	450
20	420	---		---	560	220	515	---	380	460	340	---
21	440	---		---	---	210	---	---	380	---	350	420
22	440	---		---	---	305	---	---	440	440	370	---
23	---	---		---	---	380	525	480	---	---	390	440
24	---	---		---	---	395	515	480	---	---	440	420
25	430	---		---	520	---	520	500	520	470	---	---
26	405	---		---	---	---	---	480	---	---	---	---
27	420	---		---	---	490	---	---	490	---	---	---
28	430	---		---	---	500	---	---	---	---	---	---
29	---	---		---	---	470	550	480	510	---	270	---
30	440	550		---	---	460	---	---	---	440	300	---
31	460	---		---	---	400	---	460	---	400	---	---

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	---		---	---	.0	3.5	---	20.5	23.0	---	---
2	14.0	6.0		---	---	---	2.0	10.0	---	---	23.5	---
3	14.0	---		---	---	---	4.0	---	---	24.0	---	---
4	12.0	---		---	---	---	7.0	12.0	21.5	22.0	---	---
5	12.0	---		.0	---	---	5.0	13.0	20.5	21.0	---	---
6	11.5	---		---	.0	---	4.5	16.0	---	19.5	---	---
7	10.0	4.0		---	---	.5	5.0	---	---	---	27.5	---
8	---	4.5		.0	---	---	4.5	21.0	21.5	---	---	---
9	---	6.0		---	---	---	4.0	22.5	22.0	23.5	27.0	21.5
10	13.5	7.5		.0	---	---	5.5	23.0	---	23.5	---	---
11	---	---		---	.5	---	5.0	---	21.0	---	---	22.0
12	---	---		.0	---	---	---	---	21.5	---	22.0	21.0
13	---	8.0		---	---	3.0	8.0	---	22.0	---	20.0	19.0
14	10.5	4.0		---	---	---	9.0	16.0	22.0	23.5	---	---
15	---	---		---	---	---	---	16.0	22.0	24.0	22.5	---
16	9.0	2.0		---	---	3.0	12.0	16.0	24.0	---	---	---
17	10.0	2.5		---	---	---	13.5	20.0	---	---	23.0	---
18	8.5	---		---	---	3.0	---	---	18.0	---	---	---
19	9.0	---		---	---	3.5	12.5	---	---	24.0	---	19.5
20	9.5	---		---	.0	2.5	11.5	---	21.0	24.0	---	---
21	10.5	---		---	---	5.0	---	---	21.0	---	22.0	---
22	6.0	1.0		---	---	3.0	---	---	22.0	---	22.0	---
23	---	---		---	---	5.0	14.0	15.0	---	---	20.5	15.5
24	---	---		---	---	1.5	---	---	---	---	20.0	15.5
25	---	---		---	.0	---	13.0	16.0	22.0	23.5	---	---
26	---	---		---	---	---	---	15.0	---	---	---	---
27	9.5	---		---	---	3.0	---	---	---	---	---	---
28	---	---		---	---	5.5	---	---	---	---	---	---
29	---	---		---	---	4.5	10.0	---	22.5	22.5	20.5	---
30	8.5	---		---	---	5.5	---	---	---	---	22.0	---
31	8.5	---		---	---	5.5	---	21.5	---	25.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	191	231	78	88	73	99	24	19	21	25	23	29
2	171	210	73	83	58	67	29	23	20	23	24	33
3	157	207	58	66	51	59	31	26	18	21	25	38
4	110	143	48	52	45	49	31	26	20	23	52	94
5	123	159	58	66	40	45	30	26	22	25	170	367
6	85	109	72	81	35	39	29	24	25	28	320	760
7	66	82	51	57	31	34	28	23	26	29	477	1260
8	63	76	34	37	28	27	24	19	25	28	628	2030
9	97	112	47	52	25	31	26	21	25	27	755	2490
10	137	191	56	63	25	38	31	24	28	31	818	2390
11	141	228	57	64	31	41	32	24	28	30	793	2100
12	178	319	57	64	35	43	30	23	19	20	710	2110
13	203	369	61	67	38	47	29	23	15	16	610	1860
14	187	321	70	89	37	42	28	23	17	19	542	1680
15	175	261	60	85	36	39	24	20	21	24	510	1600
16	161	231	47	71	35	36	21	18	27	34	494	1560
17	98	136	165	339	33	33	19	16	29	34	610	2470
18	93	123	141	343	31	30	17	15	30	36	1340	12800
19	118	155	77	189	29	27	16	15	26	31	3320	101000
20	133	174	61	153	28	26	16	15	24	28	2320	127000
21	121	158	55	146	27	26	17	16	25	31	2300	104000
22	121	157	52	114	25	23	18	18	25	31	2420	53700
23	116	144	50	104	25	21	18	19	24	31	1120	18400
24	97	122	49	100	24	19	18	19	25	32	1130	19400
25	81	98	46	91	25	24	19	20	23	30	1040	15400
26	104	131	43	81	42	40	16	18	22	29	730	7590
27	128	152	42	70	50	46	16	19	22	27	400	3430
28	102	124	47	77	45	40	20	23	24	29	300	2350
29	91	103	62	106	36	33	23	26	---	---	1180	11200
30	88	103	79	115	29	27	22	26	---	---	2140	29500
31	84	96	---	---	22	18	20	23	---	---	2100	42700
TOTAL	---	5225	---	3113	---	1169	---	650	---	772	---	571341

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1330	23600	96	365	94	233	510	1340	665	2100	800	7910
2	660	7250	123	392	99	222	350	878	392	1130	419	3210
3	380	3790	130	460	102	225	217	505	284	750	261	1560
4	278	2440	128	816	132	291	300	701	273	665	236	1220
5	312	2570	260	1970	131	274	171	373	265	635	198	898
6	187	1450	221	1270	104	229	161	341	259	628	180	739
7	177	1220	171	905	112	239	97	201	252	589	167	622
8	152	891	133	614	143	343	42	72	246	557	160	527
9	136	793	110	490	462	1380	64	129	242	525	155	490
10	119	662	92	395	579	2190	120	228	218	437	151	444
11	121	644	90	374	220	560	130	233	175	283	146	410
12	152	763	97	375	230	599	1500	3780	140	226	141	381
13	152	722	94	317	235	626	610	1390	125	199	127	334
14	122	764	93	314	1110	3300	2370	7810	117	181	117	295
15	104	531	86	283	640	1870	1510	5010	115	173	111	280
16	102	424	71	217	320	767	680	2130	114	169	105	239
17	95	400	70	214	225	507	480	1330	127	180	98	218
18	88	349	73	213	1370	7340	280	661	1860	9670	91	195
19	84	297	72	214	3200	40300	181	397	3290	18200	86	182
20	118	472	70	219	2040	23700	165	322	2340	32200	89	180
21	167	667	69	222	1320	9840	158	291	1200	12200	113	216
22	184	939	71	230	600	3270	184	317	670	5260	103	170
23	170	909	432	432	360	1630	215	444	415	2730	54	96
24	134	622	350	839	290	1100	199	399	432	2660	93	157
25	95	403	168	425	220	731	165	336	294	1520	99	155
26	82	407	86	218	200	637	132	222	270	1140	98	159
27	81	328	77	195	190	575	124	219	1360	7860	97	152
28	76	328	75	191	180	515	425	1050	780	2860	96	148
29	72	301	73	185	780	2490	225	493	4300	73400	95	147
30	77	306	76	191	680	2180	957	4270	2880	54000	96	153
31	---	---	85	213	---	---	1170	3730	1830	29300	---	---
TOTAL	---	55242	---	13758	---	108163	---	39602	---	262427	---	21887

TOTAL LOAD FOR YEAR: 1083349 TONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
MAY							
16...	1130	16.0	1130	70	214	--	--
JUN							
20...	1300	21.0	1130	1430	4360	47	55
25...	1110	22.0	1380	203	756	42	66
JUL							
30...	1100	27.0	1190	709	2280	39	45
AUG							
21...	1100	23.0	4350	1190	14000	40	43
SEP							
24...	1200	15.5	603	99	161	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY							
16...	--	--	--	--	--	--	87
JUN							
20...	--	71	--	--	--	--	94
25...	--	77	--	--	--	--	90
JUL							
30...	46	62	--	--	--	--	98
AUG							
21...	51	65	91	92	97	100	--
SEP							
24...	--	--	--	--	--	--	78

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
MAR							
21...	1100	1440	10	2	3	12	43
APR							
04...	1600	3100	9	1	1	12	48
MAY							
16...	1600	1130	9	1	1	28	66
JUN							
25...	1110	1380	9	--	0	12	46
JUL							
30...	1100	1190	9	1	1	11	46
AUG							
21...	1100	4350	9	0	1	14	58
SEP							
24...	1500	603	8	0	1	16	43

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR						
21...	83	90	92	94	97	100
APR						
04...	73	82	87	92	96	100
MAY						
16...	90	97	100	--	--	--
JUN						
25...	78	88	94	99	100	--
JUL						
30...	63	76	88	96	100	--
AUG						
21...	84	91	95	97	98	100
SEP						
24...	56	64	71	80	87	100

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

LOCATION.--Lat 41°46'53", long 90°15'04", in NW1/4 sec.34, T.81 N., R.6 E., Clinton County, Hydrologic Unit 07080101, on right bank at foot of Seventh Avenue in Camanche, 5.0 mi (8.0 km) upstream from Wapsipinicon River, 6.4 mi (10.3 km) downstream from Clinton, 10.6 mi (17.1 km) downstream from dam 13, and at mile 511.8 (823.5 km) upstream from Ohio River. Prior to June 6, 1969, at site 400 ft (122 m) downstream.

DRAINAGE AREA.--85,600 mi² (221,700 km²), approximately, at Fulton-Lyons Bridge where discharge measurements are made.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June to August 1873 (fragmentary), October 1873 to current year (October 1932 to September 1939, published as "at Le Claire").

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

GAGE.--Water-stage recorder. Datum of gage is 562.68 ft (171.505 m) NGVD. Oct. 1, 1955, to June 5, 1969, water-stage recorder at site 400 ft (121 m) downstream at same datum. Auxiliary water-stage recorder at dam 13 since Oct. 1, 1958. See WSP 1728 for history of changes prior to Oct. 1, 1955.

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

COOPERATION.--One discharge measurement and discharge data at Lock and Dam No. 13 furnished by Corps of Engineers.

AVERAGE DISCHARGE.--106 years, 47,200 ft³/s (1,337 m³/s), 7.49 in/yr (190 mm/yr), 34,200,000 acre-ft/yr (42,170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 307,000 ft³/s (8,690 m³/s) Apr. 28, 1965; maximum gage height, 24.65 ft (7.513 m) Apr. 28, 1965; minimum daily discharge, 6,500 ft³/s (184 m³/s) Dec. 25-27, 1933.

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 153,000 ft³/s (4,330 m³/s) May 5,6; maximum gage height unknown; minimum daily discharge, 13,300 ft³/s (377 m³/s) Dec. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47000	29100	14600	20900	18700	23000	135000	148000	95200	77100	51600	73300
2	41600	29300	13300	20800	18700	25200	141000	150000	87100	72500	48400	73400
3	41900	29500	16000	18700	18700	25900	142000	152000	86400	71900	44600	74100
4	42800	29500	17200	18500	18700	27600	141000	152000	82500	74100	43700	69700
5	43900	30000	19600	17500	18900	28300	142000	153000	82400	75000	44000	69300
6	43300	29100	20000	16800	19100	30200	142000	153000	81300	74900	47300	71400
7	42000	29600	19500	16400	18900	30900	141000	151000	79900	74900	52700	70700
8	41900	30500	18000	16000	18900	32100	141000	149000	79200	75000	55800	68800
9	41600	29800	18500	15400	18800	32400	141000	148000	79600	75000	55400	61400
10	41600	29100	19400	15500	18700	32400	140000	146000	80900	76300	57200	59700
11	44700	29500	19800	15800	18700	32100	140000	146000	79800	78600	56400	59900
12	45500	29500	19900	16100	18800	31900	139000	142000	75000	76300	53400	60000
13	45300	31100	19800	16600	18800	32000	140000	138000	74800	75400	49100	60200
14	43600	34700	19800	16600	19000	32700	139000	132000	73700	76900	50000	59700
15	41200	35100	21800	16600	19100	32300	137000	127000	72300	76200	51600	56500
16	39200	34800	23900	16500	18800	32500	134000	122000	70700	67000	50100	52900
17	38900	34500	24200	16400	18600	32800	131000	120000	71900	63300	49000	49800
18	35800	34800	23600	16400	18600	34500	129000	121000	72300	62000	56400	48600
19	33200	37700	23000	17400	19000	49800	128000	123000	72300	60300	65300	40500
20	29300	40400	24000	17700	19100	77100	128000	124000	73700	57700	72000	34300
21	28300	41900	24800	17800	19500	111000	130000	123000	77100	52200	73600	37100
22	27600	41900	24700	17800	19400	121000	131000	124000	77400	51500	70400	39900
23	30400	40700	24500	19100	19600	119000	133000	126000	76600	50000	66600	40600
24	33600	40500	24300	19400	20100	108000	135000	125000	78200	51500	64100	40800
25	33700	37200	23900	19400	20200	99500	137000	124000	85200	51900	66400	40100
26	35100	36000	23500	19200	20200	101000	139000	122000	86200	51900	68500	39800
27	35400	32600	23200	19100	21900	97600	140000	120000	86300	52200	69800	30700
28	35200	21500	22400	19100	22300	93800	142000	116000	85300	51200	69800	24800
29	34400	17700	20800	19000	---	101000	144000	112000	84200	49100	73300	24200
30	33000	16800	20700	18900	---	112000	147000	106000	81100	51200	79300	24500
31	29100	---	21000	18700	---	136000	---	102000	---	51400	76100	---
TOTAL	1180100	964400	649700	550100	539800	1875700	4129000	4097000	2388600	2004500	1831900	1556700
MEAN	38070	32150	20960	17750	19280	60510	137600	132200	79620	64660	59090	51890
MAX	47000	41900	24800	20900	22300	136000	147000	153000	95200	78600	79300	74100
MIN	27600	16800	13300	15400	18600	23000	128000	102000	70700	49100	43700	24200
CFSM	.45	.38	.25	.21	.23	.71	1.61	1.54	.93	.76	.69	.61
IN.	.51	.42	.28	.24	.23	.82	1.79	1.78	1.04	.87	.80	.68
AC-FT	2341000	1913000	1289000	1091000	1071000	3720000	8190000	8126000	4738000	3976000	3634000	3088000

CAL YR 1978 TOTAL 17705300 MEAN 48510 MAX 128000 MIN 13300 CFSM .57 IN 7.69 AC-FT 35120000
WTR YR 1979 TOTAL 21767500 MEAN 59640 MAX 153000 MIN 13300 CFSM .70 IN 9.46 AC-FT 43180000

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

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on State Highway 136 in Clinton, 6.4 mi (10.3 km) upstream from discharge station.

PERIOD OF DAILY RECORD.--Water years 1974 to current year.
SPECIFIC CONDUCTANCE: October 1974 to September 1976; October 1978 to September 1979.
WATER TEMPERATURE: October 1974 to current year.

REMARKS.--Temperature data for 1979 water year were collected at Dam 13 (Sta. 05420400).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 520 micromhos Sept. 13-17, 1979; minimum daily, 220 micromhos, Apr. 19-20, 1976.
WATER TEMPERATURES: Maximum, 30.5° C July 15, 1977; minumum, 0.0° C on many days during winter periods each year.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 520 micromhos Sept. 13-17; minimum daily, 240 micromhoa, Nov. 24-25.
WATER TEMPERATURES: Maximum, 25.5° C Aug. 7-9; minimum, 0.0° C on many days during winter period.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290	300	300	360		340	300	340	340	320	380	480
2	290	300	300	360		340	300	320	320	320	380	480
3	290	300	300	360		340	300	320	340	340	380	480
4	300	310	310	360		340	310	320	340	360	380	480
5	300	310	310	360		340	300	300	360	360	380	480
6	300	300	310	360		350	290	300	360	380	380	480
7	300	310	310	360		340	280	300	360	380	380	500
8	300	310	310	360		340	280	300	360	380	380	500
9	300	300	310	360		350	290	280	360	380	380	500
10	310	300	310	360		350	280	280	340	400	380	500
11	310	310	310	360		340	270	280	340	380	380	500
12	300	310	320	360		340	270	280	340	380	380	500
13	300	310	320	---		340	270	280	340	400	400	520
14	300	300	320	---		340	260	300	340	400	400	520
15	300	290	320	---		340	260	300	320	400	400	520
16	310	280	320	---		340	270	300	320	400	400	520
17	310	280	320	---		340	270	320	320	400	400	520
18	310	270	320	---		340	280	320	320	400	420	500
19	310	270	330	---		340	290	320	300	380	420	500
20	300	260	330	---		340	290	320	300	380	420	500
21	300	260	330	---		340	300	320	300	380	440	500
22	300	260	330	---		340	320	320	300	380	460	500
23	310	250	330	---		340	320	320	300	380	460	500
24	300	240	330	---		340	320	320	300	380	460	500
25	300	240	340	---		330	320	320	320	380	480	500
26	300	260	340	---		330	310	300	300	380	480	500
27	310	260	340	---		330	300	300	320	400	480	500
28	310	280	350	---		330	300	300	340	400	480	500
29	310	300	350	---		330	320	320	360	400	480	500
30	310	300	350	---		330	340	320	380	400	480	500
31	310	---	360	---		320	---	320	---	400	480	---
TOTAL	9390	8570	10030	4320		10490	8810	9540	9940	11820	13000	14980
MEAN	303	286	324	360		338	294	308	331	381	419	499
MAX	310	310	360	360		350	340	340	380	400	480	520
MIN	290	240	300	360		320	260	280	300	320	380	480

WTR YR 1979 TOTAL 110890 MEAN 349 MAX 520 MIN 240

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0
2	16.5	16.5	---	---	.0	.0	.0	.0	.0	.0	.0	.0
3	16.5	16.0	---	---	.0	.0	.0	.0	.0	.0	.0	.0
4	16.0	15.0	---	---	.0	.0	.0	.0	.0	.0	.0	.0
5	16.0	14.5	---	---	.0	.0	.0	.0	.0	.0	.0	.0
6	14.5	14.0	---	---	.0	.0	.0	.0	.0	.0	.0	.0
7	14.0	13.0	10.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0
8	13.5	12.0	10.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0
9	13.0	12.5	9.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0
10	---	---	9.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0
11	---	---	9.5	8.5	.0	.0	.0	.0	.0	.0	.0	.0
12	---	---	8.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0
13	---	---	8.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0
14	---	---	8.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0
15	---	---	7.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0
16	---	---	6.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0
17	---	---	5.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0
18	---	---	5.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0
19	---	---	5.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0
20	---	---	2.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
21	---	---	2.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0
22	---	---	1.5	1.5	.0	.0	.0	.0	.0	.0	.0	.0
23	---	---	1.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
24	---	---	1.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
25	---	---	1.0	.5	.0	.0	.0	.0	.0	.0	.5	.0
26	---	---	1.0	.5	.0	.0	.0	.0	.0	.0	.5	.0
27	---	---	.5	.5	.0	.0	.0	.0	.0	.0	1.5	.0
28	---	---	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.5
29	---	---	.0	.0	.0	.0	.0	.0	---	---	2.0	1.5
30	---	---	.0	.0	.0	.0	.0	.0	---	---	4.5	2.0
31	---	---	---	---	.0	.0	.0	.0	---	---	4.5	3.0
MONTH	16.5	12.0	10.0	.0	.0	.0	.0	.0	.0	.0	4.5	.0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

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

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 26...	1230	35100	280	8.4	10.0	26	10.6	95	193	120	140
JAN 09...	1345	30700	400	8.0	.5	3	13.3	94	210	200	170
FEB 13...	1130	18800	340	7.8	.0	3	13.3	93	460	340	170
MAR 27...	1500	97600	310	8.0	1.5	33	12.4	90	250	--	130
APR 26...	0830	129000	335	7.9	12.5	36	9.0	86	--	--	130
MAY 17...	1330	118000	340	8.2	16.0	51	10.0	103	--	--	140
JUN 28...	1530	87200	280	7.9	25.5	38	--	--	K80	--	120
AUG 02...	1400	44700	380	7.7	26.0	14	6.8	85	300	K67	180
SEP 06...	1130	60350	440	8.0	23.0	26	5.6	66	2400	2400	210

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM+ POTAS-SIUM DIS-SOLVED (MG/L AS NA) (00933)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT 26...	36	33	13	6.6	9	.2	--	2.3	100	21	9.7
JAN 09...	16	40	16	9.5	11	.3	--	2.0	150	30	11
FEB 13...	25	42	17	11	12	.4	--	1.8	150	22	17
MAR 27...	22	33	12	7.5	11	.3	--	2.8	110	17	10
APR 26...	45	34	12	5.9	8	.2	--	3.3	89	36	17
MAY 17...	45	43	7.8	5.7	8	.2	8.7	3.0	95	38	9.2
JUN 28...	29	30	12	6.7	10	.3	9.0	2.3	95	29	9.1
AUG 02...	40	44	17	7.1	8	.2	9.7	2.6	140	36	9.8
SEP 06...	52	52	20	9.1	8	.3	12	3.2	160	45	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 26...	.1	8.0	178	154	.24	16900	.63	.02	--	1.6	1.6
JAN 09...	.1	10	227	209	.31	18800	1.4	.32	--	.49	.81
FEB 13...	.1	12	211	213	.29	10700	1.2	.37	--	.32	.69
MAR 27...	.2	11	176	160	.24	46400	2.1	.54	.65	.31	.85
APR 26...	.2	10	196	172	.27	68300	3.3	.02	.02	1.8	1.8
MAY 17...	.2	4.4	184	168	.25	58600	1.0	.05	.06	1.3	1.3
JUN 28...	.2	5.6	170	152	.23	40000	1.2	.03	.04	.69	.72
AUG 02...	.2	10	231	211	.31	27900	.66	.03	.04	.86	.89
SEP 06...	.3	12	275	262	.37	44800	2.4	.09	.11	1.1	1.2

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) (01076)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR									
27...	0	0	1	0	0	0	30	20	10
JUN									
28...	0	0	0	0	0	0	50	40	8

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO AUGUST 1979

DATE	MAR 27,79	AUG 2,79
TIME	1500	1400
TOTAL CELLS/ML	960	11000
DIVERSITY: DIVISION	1.5	1.2
.CLASS	1.5	1.2
..ORDER	2.0	1.3
...FAMILY	2.3	1.7
....GENUS	2.8	2.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...OOCYSTACEAE				
....DICHOTOMOCOCCUS	--	-	530	5
...CHARACIACEAE				
....SCHROEDERIA	--	-	*	0
...COELASTRACEAE				
....COELASTRUM	--	-	170	2
...MICRACTINIACEAE				
....GOLENKINIA	--	-	*	0
....MICRACTINIUM	--	-	85	1
...OOCYSTACEAE				
....ANKISTRODESMUS	100	10	85	1
....CHODATELLA	--	-	110	1
....DICTYOSPHAERIUM	--	-	190	2
....KIRCHNERIELLA	--	-	260	2
....OOCYSTIS	--	-	*	0
....TREUBARIA	--	-	*	0
...SCENEDESMACEAE				
....CRUCIGENIA	--	-	85	1
....SCENEDESMUS	--	-	720	7
....TETRASTRUM	57	6	150	1
..TETRASPORALES				
...PALMELLACEAE				
....SPHAEROCYSTIS	--	-	*	0
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	43	4	--	-
CHRYSOPHYTA				
.BACILLARIOPHYCEAE				
..CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	170#	18	470	4
....MELOSIRA	110	12	300	3
....STEPHANODISCUS	14	1	--	-
..PENNALES				
...FRAGILARIACEAE				
....ASTERIONELLA	57	6	--	-
....FRAGILARIA	--	-	*	0
...NAVICULACEAE				
....NAVICULA	14	1	--	-
...NITZSCHIACEAE				
....NITZSCHIA	14	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....AGMENELLUM	--	-	720	7
....ANACYSTIS	29	3	6500#	61
....COCCOCHLORIS	340#	36	--	-
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....TRACHELOMONAS	--	-	170	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 16%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05420500 MISSISSIPPI RIVER AT CLINTON, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)
OCT											
26...	.73	.87	2.2	9.9	.19	--	--	.07	12	--	--
JAN											
09...	.07	.74	2.2	9.8	.10	--	--	.07	7.6	--	--
FEB											
13...	.00	.72	1.9	8.4	.10	--	--	.09	8.3	--	--
MAR											
27...	.03	.82	3.0	13	.12	.37	.37	.08	--	9.5	1.3
APR											
26...	--	--	5.1	23	.16	.49	.49	.05	30	--	--
MAY											
17...	.65	.65	2.3	10	.19	.58	.58	.03	16	--	--
JUN											
28...	.34	.38	1.9	8.5	.19	.58	.58	.06	--	12	.2
AUG											
02...	.01	.88	1.6	6.9	.18	--	.55	.12	11	--	--
SEP											
06...	.20	1.0	3.6	16	.19	--	.58	.13	9.7	--	--

DATE	TIME	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
26...	1230	--	.787	.472	.430	.360	--	--	--	--
FEB										
13...	1130	--	--	--	--	--	--	2	102	100
MAR										
27...	1500	960	--	--	--	--	--	--	--	--
AUG										
02...	1400	11000	2.36	.470	13.3	13.3	142	31	3740	98
SEP										
06...	1130	--	--	--	--	--	--	46	7500	94

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAR										
27...	1500	2	1	100	10	90	25	23	2	10
JUN										
28...	1530	4	2	100	0	100	2	1	<1	10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE) (01044)
MAR										
27...	10	0	4	1	<3	8	5	3	2900	2800
JUN										
28...	0	10	3	0	<3	27	22	5	2500	2500

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)
MAR										
27...	110	230	230	4	220	190	30	.0	.0	.0
JUN										
28...	50	18	18	0	240	240	5	.4	.3	.1

05420560 WAPSIPINICON RIVER NEAR ELMA, IA

LOCATION.--Lat 43°14'34", long 92°31'48", in NW1/4 NW1/4 sec.8, T.97 N., R.14 W., Howard County, Hydrologic Unit 07080102, on right bank 10 ft (3 m) downstream from bridge on county highway B17, 0.2 mi (0.3 km) downstream from small left-bank tributary, 4.8 mi (7.7 km) west of Elma, and at mile 217.9 (350.6 km).

DRAINAGE AREA.--95.2 mi² (247 km²).

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

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

REMARKS.--Records good except those for periods of no gage height record, Aug. 21-23, backwater from beaver dam, Apr. 6 to June 8, which are fair, and backwater from beaver dam, Oct. 20 to Mar. 18, which are poor.

AVERAGE DISCHARGE.--21 years, 58.7 ft³/s (1.662 m³/s), 8.37 in/yr (213 mm/yr), 42,530 acre-ft/yr (54.4 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	Unknown	939	26.6	ice jam	---	July 5	1100	992	28.1	12.38	3.773
Mar. 31	0430	2,890	81.8	13.41	4.087	Aug. 9	1430	650	18.4	11.16	3.402
Apr. 20	0915	670	19.0	10.82	3.298	Aug. 22	Unknown	*6,420	182	*15.38	4.688

Minimum daily discharge, 5.4 ft³/s (0.15 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	7.1	9.6	9.0	6.2	9.4	394	106	48	49	28	93
2	12	7.0	9.2	8.6	6.3	9.6	208	177	41	38	21	84
3	13	6.8	9.0	8.4	6.4	9.8	187	214	35	35	26	74
4	12	6.7	9.0	8.4	6.6	10	174	132	31	472	23	66
5	13	6.6	9.0	7.8	6.7	10	172	101	28	799	21	75
6	13	6.5	9.0	7.2	6.8	10	122	85	26	150	19	438
7	13	6.4	9.0	6.8	6.9	10	107	73	25	92	20	168
8	16	6.3	8.5	6.2	7.0	11	96	63	43	71	106	102
9	20	6.3	8.0	5.9	7.1	11	83	57	78	57	544	85
10	27	6.2	8.0	5.6	7.2	11	70	56	118	47	282	74
11	20	6.1	8.0	5.4	7.3	12	68	134	84	40	145	66
12	15	6.1	8.6	5.6	7.4	12	87	90	65	38	96	58
13	13	21	8.8	5.9	7.4	11	112	71	55	34	74	54
14	12	23	9.0	5.8	7.8	11	94	60	47	30	60	50
15	11	17	9.4	5.8	8.2	11	72	53	41	25	49	46
16	9.8	14	9.6	5.8	8.4	11	65	47	37	21	40	43
17	9.4	16	10	6.0	8.5	12	60	42	37	19	47	40
18	9.2	18	10	6.4	8.5	80	54	50	34	17	182	37
19	9.0	13	10	6.6	8.5	220	52	251	31	16	150	34
20	8.4	13	10	6.5	8.4	800	415	129	40	15	323	32
21	8.1	14	10	6.0	8.5	740	244	86	41	16	1260	30
22	8.2	13	9.8	5.8	8.6	680	138	70	34	28	5180	29
23	8.3	12	9.6	5.8	8.6	630	105	60	30	76	2240	28
24	8.2	12	9.6	5.8	8.8	592	89	51	27	37	532	28
25	8.1	12	9.4	5.8	9.0	222	86	45	25	28	230	27
26	8.0	11	9.6	5.8	9.2	150	99	40	23	22	160	26
27	8.0	12	9.6	5.9	9.2	117	104	37	74	19	135	25
28	7.8	11	9.8	5.9	9.2	109	119	33	62	17	137	23
29	7.6	10	9.8	6.0	---	176	99	33	142	16	225	22
30	7.5	10	9.4	6.0	---	1210	110	63	75	24	138	23
31	7.4	---	9.4	6.1	---	2030	---	65	---	36	108	---
TOTAL	357.0	330.1	287.7	198.6	218.7	7937.8	3885	2574	1477	2384	12601	1980
MEAN	11.5	11.0	9.28	6.41	7.81	256	130	83.0	49.2	76.9	406	66.0
MAX	27	23	10	9.0	9.2	2030	415	251	142	799	5180	438
MIN	7.4	6.1	8.0	5.4	6.2	9.4	52	33	23	15	19	22
CFSM	.12	.12	.10	.07	.08	2.69	1.37	.87	.52	.81	4.27	.69
IN.	.14	.13	.11	.08	.09	3.10	1.52	1.01	.58	.93	4.92	.77
AC-FT	708	655	571	394	434	15740	7710	5110	2930	4730	24990	3930

CAL YR 1978 TOTAL 15697.9 MEAN 42.7 MAX 855 MIN 6.1 CFSM .45 IN 6.09 AC-FT 30940
WTR YR 1979 TOTAL 34230.9 MEAN 93.8 MAX 5180 MIN 5.4 CFSM .99 IN 13.38 AC-FT 67900

05421000 WAPSIPINICON RIVER AT INDEPENDENCE, IA

LOCATION.--Lat 42°27'49", long 91°53'42", in SE1/4 sec.4, T.88 N., R.9 W., Buchanan County, Hydrologic Unit 07080102, on right bank at Sixth Street in Independence, 1,800 ft (549 m) downstream from dam at abandoned hydroelectric plant, 4.9 mi (7.9 km) downstream from Otter Creek, 9.7 mi (15.6 km) upstream from Pine Creek, and at mile 142.5 (229.3 km).

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

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

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 882.85 ft (269.093 m) NGVD. Prior to May 24, 1941, nonrecording gage in tailrace of powerplant 1,800 ft (549 m) upstream at datum 80.00 ft (24.38 m) lower.

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

AVERAGE DISCHARGE.--46 years, 582 ft³/s (16.48 m³/s), 7.54 in/yr (192 mm/yr), 421,700 acre-ft/yr (520 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	1300	12,900	365	14.55	4.435	May 3	2015	4,900	139	9.00	2.743
Mar. 23	0600	9,340	264	12.29	3.746	July 31	2130	6,820	193	10.48	3.194
Mar. 31	1245	8,700	246	11.86	3.615	Aug. 24	0530	13,200	374	15.37	4.685
Apr. 21	1730	6,280	178	10.06	3.066	Aug. 30	0045	*16,300	462	*17.31	5.275

Minimum daily discharge, 107 ft³/s (3.03 m³/s) Jan. 19-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	360	208	414	183	123	137	6430	1630	627	591	5720	7140
2	360	202	430	192	124	137	5250	1750	693	519	3250	5060
3	375	202	438	233	126	165	4690	3990	582	482	1840	3650
4	352	197	422	240	124	188	4590	3880	570	452	1520	2680
5	345	197	489	226	124	229	4000	3280	530	405	2300	1890
6	309	197	466	203	125	253	3210	3050	493	357	1770	1460
7	287	185	391	161	125	292	2610	2980	486	346	1390	1310
8	260	186	360	148	126	297	2150	2560	683	428	1050	1230
9	294	185	338	139	125	304	1870	1940	754	495	874	1150
10	391	179	323	126	123	268	1630	1520	908	538	926	1160
11	523	179	309	122	121	254	1440	1340	1160	341	1220	1170
12	540	179	316	114	121	256	1360	1320	1190	341	1540	1100
13	631	414	316	116	121	294	1290	1670	1240	334	1650	920
14	506	790	302	109	121	443	1250	1800	1100	558	1600	800
15	472	790	302	109	121	506	1200	1940	950	757	1380	719
16	422	708	294	110	116	530	1160	1670	831	535	1090	654
17	383	980	280	110	120	752	1100	1280	727	427	870	600
18	358	1530	280	108	125	1990	1030	1110	1220	352	1360	557
19	338	1530	280	107	127	8190	968	1060	2210	294	3630	506
20	323	1380	287	107	*126	12400	1810	1010	1590	263	7920	414
21	315	1160	260	107	125	8260	5490	1030	1460	237	10500	414
22	309	980	273	107	123	7680	5870	1180	1190	211	9428	387
23	287	920	260	108	132	9180	4390	1420	1040	195	10400	368
24	273	820	254	109	133	8100	3660	1680	889	261	13500	371
25	280	726	227	110	135	5950	3710	1650	759	495	9140	360
26	260	663	227	111	134	5120	3840	1210	650	607	6690	345
27	254	645	208	111	137	4510	3330	966	600	437	5890	331
28	234	583	211	112	140	3720	2540	845	570	396	5090	324
29	221	548	212	112	---	3630	2080	765	619	371	10300	312
30	227	391	200	114	---	6410	1800	710	662	998	14700	301
31	214	---	191	119	---	8330	---	665	---	5180	11300	---
TOTAL	10614	17853	9549	4182	3522	98765	85638	52811	26893	18203	149829	37683
MEAN	342	595	308	135	126	3186	2855	1704	896	587	4833	1256
MAX	540	1530	488	240	140	12400	6430	3990	2210	5180	14700	7140
MIN	214	179	191	107	116	137	968	665	486	195	870	301
CFSM	.33	.57	.29	.13	.12	3.04	2.72	1.63	.86	.56	4.61	1.20
IN.	.38	.63	.34	.15	.13	3.51	3.04	1.87	.95	.65	5.32	1.34
AC-FT	21050	35410	18940	8290	6990	195900	169900	104800	53340	36110	297200	74740

CAL YR 1978	TOTAL	258020	MEAN	707	MAX	5260	MIN	72	CFSM	.68	IN	9.16	AC-FT	511800
WTR YR 1979	TOTAL	515542	MEAN	1412	MAX	14700	MIN	107	CFSM	1.35	IN	18.30	AC-FT	1023000

05422000 WAPSIPINICON RIVER NEAR DE WITT, IA

LOCATION.--Lat 41°46'01", long 90°32'05", in SW1/4 NE1/4 sec.6, T.80 N., R.4 E., Clinton County, Hydrologic Unit 07080103, on left bank 5 ft (2 m) upstream from bridge on U.S. Highway 61, 0.9 mi (1.4 km) downstream from Silver Creek, 4.0 mi (6.4 km) south of water tower in De Witt, 6.2 mi (10.0 km) upstream from Brophy Creek, and 18.2 mi (29.3 km) upstream from mouth.

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 598.81 ft (182.617 m) NGVD.

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

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

AVERAGE DISCHARGE.--45 years, 1,469 ft³/s (41.60 m³/s), 8.56 in/yr (217 mm/yr), 1,064,000 acre-ft/yr (1,312 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	2145	16,400	464	12.32	3.755
Apr. 28	0830	6,860	194	11.08	3.377
Aug. 21	1600	6,900	195	11.15	3.399
Aug. 31	0015	14,700	416	12.14	3.700
Sept. 5	1900	*20,400	578	*12.45	3.795

Minimum daily discharge, 365 ft³/s (10.1 m³/s) Feb. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	855	544	1200	800	385	580	8620	6090	1600	1240	840	14400
2	790	533	1170	760	390	620	8520	5380	1430	1180	876	11700
3	758	630	1490	740	385	680	9010	5168	1340	1150	1730	11000
4	726	526	1530	760	380	760	9620	5018	1270	1150	2960	13700
5	694	518	1490	760	385	850	9610	4940	1210	976	3840	19900
6	663	516	1490	720	380	1080	9160	5050	1170	989	3850	18700
7	637	505	1490	680	385	1360	8470	5478	1130	935	2830	13300
8	613	497	1390	650	380	1600	7940	5970	1160	890	2650	9360
9	595	492	1210	610	380	1670	7460	6138	1110	846	2990	5030
10	594	491	1230	590	375	1780	7000	6668	1620	809	2640	3140
11	649	485	1310	550	375	1820	6030	5400	1680	792	2000	2620
12	705	482	1400	520	375	1900	5060	4620	1450	795	1670	2310
13	758	499	1500	495	370	1880	4190	3630	1450	827	1480	2130
14	801	518	1490	475	370	2250	3620	3870	1720	1590	1500	2000
15	826	623	1410	465	370	2800	3250	2920	1930	1880	1690	1870
16	826	645	1310	440	370	2920	3010	2818	2010	1290	1860	1690
17	806	753	1210	425	365	3000	2820	2890	1848	1188	1920	1530
18	774	1130	1120	420	360	4070	2660	2990	1800	1150	2730	1390
19	749	1290	1080	410	360	8370	2540	2920	2110	1070	2570	1280
20	716	1490	1060	405	356	11400	2580	2650	1850	942	5760	1190
21	692	1850	1000	395	360	12400	3020	2430	2620	852	6820	1120
22	671	2010	980	390	365	11500	3160	2240	3120	785	5800	1040
23	648	2010	970	385	380	15000	3690	2060	2870	728	4790	971
24	625	1880	960	380	405	16500	4250	1960	2508	701	4840	906
25	613	1690	940	375	440	16900	4998	1960	2150	794	5240	866
26	603	1570	930	370	465	14600	5950	2070	1860	721	5750	831
27	589	1460	920	380	500	11800	6690	2260	1660	668	6500	798
28	577	1340	920	380	640	11000	6840	2368	1510	696	8080	775
29	570	1260	910	375	---	10800	6610	2120	1380	780	11100	741
30	560	1280	920	380	---	10500	6290	1840	1280	842	13800	709
31	552	---	880	386	---	9440	---	1680	---	822	14600	---
TOTAL	21233	29227	36910	15870	10960	190630	172390	111640	51760	30070	135705	146997
MEAN	685	974	1191	612	391	6149	5746	3601	1725	970	4378	4900
MAX	855	2010	1530	800	640	16600	9620	6130	3120	1880	14600	19900
MIN	662	482	880	370	356	580	2540	1680	1110	668	840	709
CFSM	.29	.42	.61	.22	.17	2.64	2.47	1.55	.74	.42	1.88	2.10
IN.	.34	.47	.59	.25	.17	3.04	2.75	1.78	.83	.48	2.17	2.35
AC-FT	42120	57970	73210	31480	21720	378100	341900	221400	102600	59640	269200	291600

CAL YR 1978 TOTAL 570515 MEAN 1563 MAX 8120 MIN 313 CFSM .67 IN 9.11 AC-FT 1132000
WTR YR 1979 TOTAL 953372 MEAN 2612 MAX 19900 MIN 355 CFSM 1.12 IN 15.22 AC-FT 1891008

05422000 WAPSIPINICON RIVER NEAR DEWITT, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 1978 to current year.

WATER QUALITY DATA, APRIL 1977 TO SEPTEMBER 1978

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
APR 13...	1550	10.5	6570	189	3350	36	40
JUN 22...	1630	--	2180	234	1380	55	58

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
APR 13...	--	50	72	79	89	99	100
JUN 22...	65	66	93	94	98	100	--

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)
JUN 22...	1630	2180	8	5	7	18	66	91	97	100

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
MAR 21...	1500	12200	538	17700	14	15	19	23	24	33	71	100
APR 26...	1000	5840	218	3440	22	24	38	66	70	87	100	--
AUG 22...	1015	6040	292	4760	34	40	55	75	78	86	100	--

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
MAR 21...	1500	12200	9	0	4	47	76	89	95	98	100
APR 26...	1000	5840	5	0	13	77	89	97	98	99	100
AUG 22...	1015	6040	7	0	7	45	79	91	97	99	100

05422420 CROW CREEK AT ELDRIDGE, IA

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

DRAINAGE AREA.--2.20 mi² (5.70 km²).

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

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 531 ft³/s (15.0 m³/s) Aug. 20, 1979, gage height, 12.63 ft (3.850 m); no flow for many days each year.

EXTREMES FOR CURRENT PERIOD.--Water year 1978: Maximum discharge, 56.9 ft³/s (1.61 m³/s) Oct. 7, gage height, 8.16 ft (2.487 m), no peak above base of 100 ft³/s (2.83 m³/s); no flow for many days.

Water year 1979: Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
July 14	0730	126	3.57	9.26	2.822	Aug. 20	0315	*531	15.0	*12.63	3.850
Aug. 18	0430	108	3.06	8.99	2.740	Aug. 27	0215	174	4.93	9.74	2.969

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	18	1.3	1.3	.40	.06	2.3	1.1	1.4	.42	.12	.00
2	6.8	20	1.3	1.1	.30	.06	1.8	1.1	1.3	.52	.07	.00
3	5.3	9.8	1.1	.94	.20	.05	1.8	1.1	1.3	.42	.07	.00
4	4.4	8.1	1.1	.94	.15	.05	2.0	1.1	1.3	.42	.07	.00
5	3.9	6.4	1.1	.94	.10	.05	1.8	1.1	1.1	.25	.07	.00
6	3.4	5.5	.94	.80	.08	.05	3.0	.95	1.1	.25	.07	.00
7	14	7.9	.94	.80	.06	.05	2.8	2.0	1.1	.42	.07	.00
8	18	7.4	.94	.90	.06	.05	2.3	3.8	1.0	.25	.07	.00
9	9.5	6.3	.65	.80	.06	.07	2.5	3.4	.90	.42	.05	.00
10	8.0	5.3	.94	.60	.06	.10	7.4	2.8	.80	.25	.07	.00
11	8.9	4.5	.94	.60	.06	.20	6.0	2.6	.79	.25	.07	.00
12	6.4	4.3	.94	.70	.07	.50	4.1	2.4	.66	.25	.07	.00
13	4.4	3.8	1.8	.70	.08	1.0	3.2	18	.65	.25	.07	.00
14	3.1	3.6	2.3	.60	.10	2.5	2.5	12	.54	.25	.03	.00
15	2.9	3.4	2.3	.50	.08	6.3	2.1	8.7	.64	.18	.03	.00
16	2.6	3.4	3.3	.40	.07	8.7	1.8	7.0	.58	.18	.03	.00
17	2.6	3.1	6.6	.40	.06	8.4	1.6	5.8	.52	.18	.03	.16
18	2.3	2.8	5.6	.40	.06	11	3.9	5.1	.52	.12	.02	2.5
19	2.1	2.3	4.7	.40	.06	12	3.1	4.4	.52	.12	.00	.00
20	2.0	2.5	3.8	.40	.06	8.0	2.4	4.2	.52	.12	.00	.00
21	2.0	2.1	3.3	.40	.06	6.6	2.0	3.5	.52	.12	.00	.00
22	1.7	1.8	3.0	.42	.06	5.3	1.8	3.3	.56	.33	.00	.00
23	2.7	1.8	2.8	.42	.10	4.1	1.9	2.9	.42	.07	.00	.00
24	8.2	1.6	2.5	.42	.21	2.8	1.7	2.6	.42	.12	.00	.00
25	23	1.6	2.0	.42	.30	2.5	1.8	2.4	.42	.18	.00	.00
26	8.6	1.4	1.8	.25	.20	2.5	1.5	2.1	.33	.18	.00	.00
27	6.4	1.4	1.6	.25	.10	2.3	1.3	2.1	.33	.18	.36	.00
28	4.5	1.3	1.6	.50	.07	3.0	1.2	2.7	.33	.18	.11	.00
29	3.9	1.3	1.6	1.0	---	3.0	1.3	2.8	.42	.12	.00	.00
30	3.5	1.3	1.4	1.0	---	3.0	1.2	2.5	.33	.12	.00	.00
31	3.7	---	1.3	.60	---	2.5	---	1.8	---	.12	.00	---
TOTAL	185.6	144.0	65.49	19.90	3.27	96.79	74.1	117.35	21.31	7.24	1.55	2.66
MEAN	5.99	4.80	2.11	.64	.12	3.12	2.47	3.79	.71	.23	.050	.089
MAX	23	20	6.6	1.3	.40	12	7.4	18	1.4	.52	.36	2.5
MIN	1.7	1.3	.65	.25	.06	.05	1.2	.95	.33	.07	.00	.00
CFSM	2.72	2.18	.96	.29	.06	1.42	1.12	1.72	.32	.11	.02	.04
IN.	3.14	2.43	1.11	.34	.06	1.64	1.25	1.98	.36	.12	.03	.04
AC-FT	368	286	130	39	6.5	192	147	233	42	14	3.1	5.3

WTR YR 1978 TOTAL 739.26 MEAN 2.03 MAX 23 MIN .00 CFSM .92 IN 12.49 AC-FT 1470

05422420 CROW CREEK AT ELDRIDGE, IA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.80	.42	.02	.15	5.9	2.6	.80	.55	.53	2.9
2	.00	.00	.65	1.1	.02	.20	9.3	4.3	.80	.37	.43	2.5
3	.00	.00	4.4	.06	.02	.30	5.8	6.6	.85	.55	1.0	1.9
4	.00	.00	2.3	.04	.02	3.0	5.0	4.4	.93	.55	.50	1.4
5	.00	.00	.94	.03	.02	30	4.4	3.7	.87	.37	.41	1.2
6	.00	.00	.65	.02	.02	20	3.6	3.4	.80	.30	.30	1.1
7	.00	.00	.42	.01	.02	13	3.2	3.0	.80	.30	.30	.94
8	.00	.00	.42	.00	.02	10	3.2	2.7	.73	.30	.28	.80
9	.00	.00	.33	.00	.02	8.0	2.8	2.4	1.0	.23	1.4	.78
10	.00	.00	.12	.00	.02	6.0	2.2	2.4	1.0	.37	.52	.66
11	.00	.00	.25	.00	.02	5.0	3.4	2.5	.84	1.9	.34	.61
12	.00	.00	.42	.00	.02	4.0	6.0	2.2	.93	.28	.30	.55
13	.00	.00	.42	.00	.02	15	4.0	2.2	.85	.71	.27	.55
14	.00	.00	.25	.00	.02	20	3.3	2.2	.77	24	.23	.45
15	.00	.00	.42	.00	.02	13	2.9	2.1	.59	5.9	.23	.45
16	.00	.00	.42	.00	.02	8.3	2.6	2.0	.49	3.3	.24	.45
17	.00	4.4	.18	.00	.02	12	2.4	2.0	.48	2.4	.22	.37
18	.00	.80	.33	.00	.02	37	2.2	1.7	15	1.7	26	.32
19	.00	.07	.33	.00	.03	61	2.3	1.7	4.4	1.2	9.9	.33
20	.00	.04	.25	.00	.03	17	4.6	1.4	2.8	1.1	108	.37
21	.00	.03	.25	.00	.03	7.9	5.2	1.3	1.9	.75	12	.37
22	.00	.02	.25	.00	.03	7.0	4.2	1.2	1.4	.47	14	.30
23	.00	.90	.12	.00	.03	6.0	3.8	.94	1.1	.60	8.0	.30
24	.00	.25	.12	.00	.04	5.0	3.5	.80	.85	1.1	5.9	.55
25	.00	.12	.12	.00	.05	4.5	3.6	.80	.80	.83	4.8	.37
26	.00	.12	.07	.01	.06	4.0	4.4	.80	.67	.59	3.7	.30
27	.00	.18	.00	.02	.08	3.5	3.5	.80	.67	.61	38	.30
28	.00	.07	.00	.02	.10	3.5	3.1	.74	.93	.68	8.9	.30
29	.00	.65	.18	.02	---	12	3.0	.67	.67	.47	6.1	.45
30	.00	.18	.17	.02	---	14	3.1	.67	.67	1.6	4.4	.30
31	.00	---	.79	.02	---	7.2	---	.86	---	.71	3.5	---
TOTAL	.00	7.83	16.37	1.79	.84	357.55	116.5	65.08	45.39	54.79	260.70	22.17
MEAN	.000	.26	.53	.058	.030	11.5	3.88	2.10	1.51	1.77	8.41	.74
MAX	.00	4.4	4.4	1.1	.10	61	9.3	6.6	15	24	108	2.9
MIN	.00	.00	.00	.00	.02	.15	2.2	.67	.48	.23	.22	.30
CFSM	.000	.12	.24	.03	.01	5.23	1.76	.96	.69	.81	3.82	.34
IN.	.00	.13	.28	.03	.01	6.04	1.97	1.10	.77	.93	4.41	.37
AC-FT	.00	16	32	3.6	1.7	709	231	129	90	109	517	44

CAL YR 1978 TOTAL 368.37 MEAN 1.01 MAX 18 MIN .00 CFSM .46 IN 6.23 AC-FT 731
WTR YR 1979 TOTAL 949.01 MEAN 2.60 MAX 108 MIN .00 CFSM 1.18 IN 16.04 AC-FT 1880

05422450 CROW CREEK AT MT. JOY, IA

LOCATION.--Lat 41°36'54", long 90°32'57", in NW 1/4 SW1/4 sec. 30, T.79 N., R.4 E., Scott County, Hydrologic Unit 07080101, on left bank 10 ft (3 m) downstream from bridge on county highway, 1.0 mi (1.6 km) east of Mt. Joy.

DRAINAGE AREA.--6.90 mi² (17.87 km²).

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

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

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

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

EXTREMES FOR CURRENT PERIOD.--Water year 1978: Maximum discharge, 129 ft³/s (3.65 m³/s) May 13, gage height, 9.08 ft (2.768 m), no peak above base of 200 ft³/s (5.66 m³/s); minimum, 0.06 ft³/s (0.002 m³/s) Sept. 4, 8, 27, 1978.

Water year 1979: Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	0200	239	6.77	10.22	3.115
June 18	1015	212	6.00	9.98	3.042
July 14	1000	278	7.87	10.49	3.197
July 27	2145	272	7.70	10.42	3.176
Aug. 20	unknown	*2,150	60.9	*16.47	5.020
Aug. 27	0215	697	19.7	12.91	3.935

Minimum daily discharge, 0.07 ft³/s (0.002 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	18	5.7	4.0	4.0	1.4	5.5	4.8	5.5	2.2	.37	.08
2	20	45	5.2	3.8	3.0	1.4	5.0	4.7	4.9	2.4	.37	.18
3	17	30	4.8	3.5	2.5	1.3	4.5	4.7	4.7	1.2	.37	.14
4	15	23	4.5	3.5	2.0	1.2	4.5	4.7	4.5	.99	.37	.06
5	13	20	4.3	3.5	1.8	1.2	4.5	5.2	4.2	.96	.32	.08
6	45	17	4.0	3.5	1.7	1.2	8.0	4.5	3.9	1.4	.32	.08
7	52	27	3.5	3.5	1.6	1.2	6.0	12	5.3	2.8	.24	.14
8	26	23	3.5	3.5	1.5	1.3	7.0	13	4.7	1.0	.24	.05
9	23	19	3.5	3.0	1.5	1.4	10	9.8	3.7	2.8	.24	.14
10	24	15	3.5	2.5	1.5	1.6	25	7.7	3.4	.93	.18	.14
11	18	14	4.0	2.4	1.5	2.0	15	8.1	3.4	.77	.18	.18
12	16	13	5.0	2.3	1.5	2.5	12	13	3.1	1.2	.18	.14
13	15	12	6.0	2.3	1.5	4.0	9.1	68	2.8	.90	.28	1.2
14	13	12	7.0	2.3	1.5	7.0	7.8	35	2.8	.67	.28	1.3
15	12	12	8.0	2.4	1.5	16	6.9	23	4.8	.68	.28	.11
16	12	9.8	10	2.4	1.3	19	6.0	19	3.3	.61	.24	.08
17	11	9.5	20	2.4	1.3	17	6.9	16	2.9	.56	.50	5.7
18	9.6	8.6	15	2.5	1.4	23	14	15	2.6	.54	.32	3.9
19	9.0	8.3	10	2.5	1.4	24	9.3	13	2.5	1.4	.24	.25
20	8.6	8.8	8.0	2.5	1.3	16	8.1	12	2.4	.83	.14	.65
21	8.2	7.8	6.0	2.6	1.2	14	7.3	11	2.2	.70	.10	.07
22	8.0	7.8	6.0	2.7	1.3	12	6.6	10	2.2	3.6	.14	.07
23	11	7.3	8.0	2.8	1.3	7.8	7.2	9.2	1.8	2.8	.10	.09
24	18	6.6	8.0	2.8	4.0	5.8	6.1	8.4	1.8	1.2	1.1	.10
25	78	6.5	7.0	2.8	2.5	5.1	6.1	7.8	1.8	.81	.18	.12
26	38	6.1	6.0	3.0	1.4	4.4	5.6	7.2	5.7	.60	.14	.09
27	25	6.1	5.6	3.5	1.4	4.0	5.3	9.0	1.5	.67	4.9	.06
28	21	5.4	5.2	4.0	1.4	8.0	5.3	12	1.5	.42	.43	.08
29	16	5.5	5.0	4.5	---	8.0	5.3	7.6	2.1	.33	.18	.08
30	12	5.7	4.7	5.0	---	7.0	5.1	6.6	1.3	.37	.14	.08
31	10	---	4.3	5.0	---	6.0	---	6.0	---	.52	.14	---
TOTAL	631.4	409.8	201.3	97.0	49.8	225.8	235.0	388.0	97.3	36.86	13.21	15.45
MEAN	20.4	13.7	6.49	3.13	1.78	7.28	7.83	12.5	3.24	1.19	.43	.52
MAX	78	45	20	5.0	4.0	24	25	68	5.7	3.6	4.9	5.7
MIN	8.0	5.4	3.5	2.3	1.2	1.2	4.5	4.5	1.3	.33	.10	.06
CFSM	2.96	1.99	.94	.45	.26	1.06	1.14	1.81	.47	.17	.05	.08
IN.	3.40	2.21	1.09	.52	.27	1.22	1.27	2.09	.52	.20	.07	.08
AC-FT	1250	813	399	192	99	448	466	770	193	73	26	31

WTR YR 1978 TOTAL 2400.93 MEAN 6.58 MAX 78 MIN .06 CFSM .95 IN 12.94 AC-FT 4760

05422450 CROW CREEK AT MT. JOY, IA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.11	.73	.60	.19	.60	20	8.6	2.7	1.4	1.6	8.6
2	1.8	.11	.76	.40	.18	.70	27	19	2.4	1.3	2.7	7.3
3	.23	.11	3.7	.30	.18	1.0	18	22	2.1	2.9	7.5	6.1
4	.56	.11	1.3	.20	.18	7.0	16	14	1.9	2.5	1.7	5.3
5	1.7	.33	.90	.15	.18	3.0	15	12	1.8	1.3	1.7	4.7
6	.26	.85	.70	.10	.18	2.0	13	12	1.9	1.1	1.4	4.1
7	.19	.11	.60	.10	.18	2.0	12	9.8	1.9	1.1	1.3	3.5
8	.18	.11	.60	.10	.20	2.0	12	9.1	2.5	1.1	1.2	3.1
9	.24	.11	1.5	.10	.17	2.0	10	8.0	5.2	1.2	3.9	2.9
10	.56	.11	.70	.10	.15	7.0	9.5	8.0	3.8	1.2	6.8	2.6
11	.41	.11	1.0	.10	.15	6.3	18	13	2.0	5.9	1.4	2.3
12	.25	.64	.90	.10	.17	5.3	20	7.0	4.3	1.7	1.4	2.2
13	.20	4.2	.70	.10	.20	15	14	6.7	2.2	3.3	1.3	2.2
14	.15	.42	.60	.10	.20	18	12	8.1	1.4	77	1.3	1.9
15	.11	.32	1.0	.10	.20	15	10	6.0	1.2	9.6	1.2	1.8
16	.12	1.2	.90	.10	.15	15	9.5	5.4	1.1	5.9	1.2	2.0
17	.16	12	.60	.10	.10	32	8.4	5.1	1.0	3.6	1.1	1.9
18	1.3	1.1	.45	.10	.10	107	7.8	4.9	31	3.0	100	1.8
19	.12	.56	.80	.10	.10	170	9.8	5.1	8.1	2.5	36	1.5
20	.11	.37	.70	.10	.10	50	18	4.9	4.6	2.1	350	1.4
21	.08	.19	.50	.10	.10	27	15	4.5	3.2	1.9	35	1.3
22	.08	.35	.40	.10	.10	22	12	4.4	2.7	1.6	40	1.2
23	.18	3.2	.30	.10	.15	20	12	4.2	2.3	1.5	21	1.1
24	.09	.79	.20	.10	.20	16	11	3.8	1.9	8.1	16	1.6
25	.69	.52	.15	.10	.30	14	12	3.5	1.8	2.2	13	1.2
26	.12	.51	.15	.15	1.0	12	13	3.4	1.6	1.6	11	1.0
27	.11	1.3	.20	.20	.80	12	11	3.3	1.7	14	175	1.1
28	.11	.44	.30	.30	.60	12	9.1	3.0	1.7	3.7	22	1.0
29	.11	.99	.40	.25	---	42	12	3.0	1.8	2.0	15	3.3
30	.11	.42	.50	.22	---	43	8.3	2.8	1.6	8.9	12	1.1
31	.11	---	.90	.20	---	21	---	4.4	---	2.2	11	---
TOTAL	10.51	31.69	23.14	4.97	6.51	701.90	395.4	229.0	103.4	177.4	895.7	81.1
MEAN	.34	1.06	.75	.16	.23	22.6	13.2	7.39	3.45	5.72	28.9	2.70
MAX	1.8	12	3.7	.60	1.0	170	27	22	31	77	350	8.6
MIN	.07	.11	.15	.10	.10	.60	7.8	2.8	1.0	1.1	1.1	1.0
CFSM	.05	.15	.11	.02	.03	3.28	1.91	1.07	.50	.83	4.19	.39
IN.	.06	.17	.12	.03	.04	3.78	2.13	1.23	.56	.96	4.83	.44
AC-FT	21	63	46	9.9	13	1390	784	454	205	352	1780	161

CAL YR 1978 TOTAL 1223.77 MEAN 3.35 MAX 68 MIN .06 CFSM .49 IN 6.60 AC-FT 2430
WTR YR 1979 TOTAL 2660.72 MEAN 7.29 MAX 350 MIN .07 CFSM 1.06 IN 14.34 AC-FT 5280

05422470 CROW CREEK AT BETTENDORF, IA

LOCATION.--Lat 41°33'03", long 90°27'15", in NW1/4 NW1/4 sec. 24, T.78 N., R.4 E., Scott County, Hydrologic Unit 07080101, on left bank 200 ft (61 m) upstream from bridge on old U.S. Highway 67, 3.5 mi (5.6 km) east of U.S. Highway 6, and 0.7 mi (1.1 km) upstream from mouth.

DRAINAGE AREA.--17.8 mi² (46.0 km²).

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

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,460 ft³/s (69.7 m³/s) Aug. 20, 1979, gage height, 10.20 ft (3.109 m); minimum, 0.023 ft³/s (0.007 m³/s) Sept. 10, 11, 26-28, 1978.

EXTREMES FOR CURRENT PERIOD.--Water year 1978: Maximum discharge, 284 ft³/s (8.04 m³/s) May 13, gage height, 5.22 ft (1.591 m) at 1900 hours, no other peak above base of 250 ft³/s (7.08 m³/s); minimum, 0.023 ft³/s (0.007 m³/s) Sept. 10, 11, 26-28.

Water year 1979: Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 18	2100	371	10.5	5.57	1.698	Aug. 20	0530	*2,460	69.7	*10.20	3.109
June 18	1245	272	7.70	5.17	1.576	Aug. 27	0515	412	11.7	5.71	1.740
Aug. 18	0415	999	28.3	7.40	2.256						

Minimum daily discharge, 0.30 ft³/s (0.008 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	140	17	13	9.0	3.0	11	12	10	3.6	1.7	.53
2	58	100	14	12	7.0	2.9	9.3	10	9.9	5.3	1.4	.45
3	45	80	13	11	6.0	2.7	9.9	9.9	9.3	4.3	1.2	.38
4	37	60	13	10	5.0	2.5	9.3	8.3	8.8	3.4	1.1	.45
5	33	45	13	10	4.0	2.5	8.8	8.8	8.3	3.3	.92	.45
6	28	40	11	10	3.9	2.5	18	7.4	7.8	3.1	.92	.45
7	71	70	10	10	3.8	2.5	12	18	7.8	5.6	.60	.30
8	103	60	9.0	9.0	3.7	2.6	12	37	8.8	3.4	.45	.30
9	63	50	9.0	8.0	3.6	2.8	12	22	6.9	5.3	.40	.30
10	55	40	9.0	7.0	3.5	3.0	55	19	6.5	3.1	.30	.23
11	60	35	10	6.6	3.4	4.0	39	19	5.9	2.8	.30	.23
12	50	32	12	6.4	3.3	6.0	28	51	5.6	2.9	.30	.38
13	40	30	13	6.2	3.3	8.0	20	163	5.0	3.4	1.0	.45
14	37	28	15	6.0	3.2	15	18	105	5.0	2.5	.80	.67
15	33	26	19	6.0	3.2	73	18	71	7.8	2.5	.60	.67
16	30	24	24	6.0	3.1	63	14	47	5.9	2.3	.50	.38
17	27	23	58	6.0	3.1	43	14	37	5.6	2.2	.45	3.3
18	24	22	43	6.0	3.0	47	35	30	5.0	2.2	.60	6.5
19	22	21	35	6.0	3.0	58	24	27	4.5	3.1	.75	1.5
20	20	20	30	6.0	3.0	45	22	22	4.8	2.3	.53	.83
21	19	19	25	6.0	3.0	40	19	20	4.3	2.1	.53	.75
22	18	18	25	6.0	3.0	33	16	19	4.3	5.3	.45	.53
23	25	19	30	6.0	3.0	27	16	19	4.3	2.3	.38	.30
24	40	18	30	6.0	5.0	19	13	18	4.0	1.9	.60	.30
25	150	16	25	6.2	5.0	17	10	16	3.8	1.9	.83	.30
26	80	25	20	6.2	3.5	14	11	14	9.9	1.9	.67	.23
27	60	17	18	6.4	3.0	18	9.3	14	4.0	1.9	4.0	.23
28	45	16	17	7.0	3.0	17	8.3	22	3.6	1.7	1.8	.23
29	40	15	16	8.0	---	14	8.3	15	4.8	1.4	.92	.30
30	36	16	15	10	---	13	9.9	12	4.0	1.4	.75	.30
31	44	---	14	10	---	13	---	11	---	1.4	.67	---
TOTAL	1530	1125	612.0	239.0	109.6	614.0	510.1	904.4	186.2	89.8	26.42	22.22
MEAN	49.4	37.5	19.7	7.71	3.91	19.8	17.0	29.2	6.21	2.90	.85	.74
MAX	150	140	58	13	9.0	73	55	163	10	5.6	4.0	6.5
MIN	18	15	9.0	6.0	3.0	2.5	8.3	7.4	3.6	1.4	.30	.23
CFSM	2.78	2.11	1.11	.43	.22	1.11	.96	1.64	.35	.16	.05	.04
IN.	3.20	2.35	1.28	.50	.23	1.28	1.07	1.89	.39	.19	.06	.05
AC-FT	3030	2230	1210	474	217	1220	1010	1790	369	178	52	44

WTR YR 1978 TOTAL 5968.74 MEAN 16.4 MAX 163 MIN .23 CFSM .92 IN 12.47 AC-FT 11840

05422470 CROW CREEK AT BETTENDORF, IA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	1.5	4.0	2.0	1.5	4.0	55	18	6.2	5.0	4.8	25
2	.53	1.4	3.1	1.4	1.5	4.5	87	27	5.9	4.8	4.3	19
3	2.3	1.3	20	1.0	1.5	10	55	58	5.6	5.6	53	14
4	1.2	1.3	8.3	1.0	1.5	40	47	37	5.6	11	7.8	10
5	2.5	1.3	3.6	1.0	1.5	20	40	30	5.3	4.8	5.6	9.3
6	1.3	1.9	3.4	1.0	1.5	18	33	27	5.0	4.5	4.8	8.3
7	.92	1.8	3.5	1.0	1.5	20	30	22	5.5	4.3	4.5	7.8
8	1.0	1.3	3.5	1.0	1.5	19	28	21	6.2	4.0	4.3	6.9
9	1.0	1.3	4.0	1.0	1.5	18	24	19	20	3.8	9.3	6.2
10	1.4	1.2	4.5	1.0	1.5	30	21	18	16	3.8	20	6.2
11	1.4	1.2	5.0	1.0	1.5	50	33	39	7.4	5.0	5.3	5.9
12	1.3	1.2	4.5	1.0	1.5	30	61	20	7.4	7.4	4.3	5.6
13	1.3	5.9	4.0	1.0	1.5	45	42	18	14	4.0	4.0	5.6
14	1.1	2.2	3.5	1.0	1.6	55	30	20	6.9	103	3.5	5.3
15	1.2	1.4	3.0	1.0	1.6	42	25	16	5.9	24	3.4	5.0
16	1.8	1.3	2.7	1.0	1.6	39	22	13	5.0	12	3.3	5.0
17	1.7	21	2.5	1.0	1.6	91	21	12	4.5	8.3	3.3	4.8
18	1.2	4.3	2.8	1.0	1.6	198	18	12	51	6.9	308	4.5
19	1.9	2.3	3.0	1.0	1.6	219	20	12	15	6.2	103	4.3
20	1.5	1.8	3.3	1.0	1.6	113	32	12	12	5.3	910	3.8
21	1.2	1.7	3.5	1.0	1.7	73	37	9.3	10	5.0	73	3.6
22	1.3	1.7	3.0	1.0	1.8	60	25	8.8	8.3	3.6	95	3.4
23	1.3	5.0	2.5	1.0	2.0	56	22	8.8	7.4	3.6	58	3.3
24	1.5	3.1	2.0	1.0	2.5	42	22	8.3	9.3	6.9	47	3.3
25	1.9	2.3	1.7	1.0	3.0	30	24	8.3	7.4	5.2	40	3.6
26	2.3	2.3	1.5	1.5	5.0	24	32	8.3	6.2	5.0	37	3.3
27	2.1	2.6	1.5	2.0	4.5	21	21	7.8	6.2	4.5	137	2.9
28	1.8	3.4	2.0	2.0	4.0	30	19	6.9	5.9	27	58	2.9
29	1.7	2.6	2.5	1.7	---	93	22	6.2	5.9	5.6	51	5.6
30	1.5	4.0	3.0	1.5	---	118	20	6.5	5.9	32	42	3.1
31	1.5	---	2.5	1.5	---	79	---	8.8	---	6.9	37	---
TOTAL	44.95	85.6	117.9	36.6	55.2	1691.5	968	539.0	283.0	340.0	2141.6	197.5
MEAN	1.45	2.85	3.80	1.18	1.97	54.6	32.3	17.4	9.43	11.0	69.1	6.58
MAX	2.5	21	20	2.0	5.0	219	87	58	51	103	910	25
MIN	.30	1.2	1.5	1.0	1.5	4.0	18	6.2	4.5	3.6	3.3	2.9
CFSM	.08	.16	.21	.07	.11	3.07	1.82	.98	.53	.62	3.88	.37
IN.	.09	.18	.25	.08	.12	3.53	2.02	1.13	.59	.71	4.48	.41
AC-FT	89	170	234	73	109	3360	1920	1070	561	674	4250	392

CAL YR 1978	TOTAL	2950.19	MEAN	8.08	MAX 163	MIN .23	CFSM .45	IN 6.17	AC-FT 5850			
WTR YR 1979	TOTAL	6500.85	MEAN	17.8	MAX 910	MIN .30	CFSM 1.00	IN 13.59	AC-FT 12890			

05422470 CROW CREEK AT BETTENDORF, IA--Continued

WATER QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1978 to current year.
WATER TEMPERATURES: April 1978 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1978 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, 1,300 micromhos Feb. 26, 1979; minimum daily, 220 micromhos Aug. 27, 1979.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 5, 1979; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,450 mg/L Aug. 20, 1979; minimum daily mean, 5 mg/L Apr. 30, 1978, May 23, 1979.
SEDIMENT LOADS: Maximum daily, 18,300 tons (16,600 tonnes) Aug. 20, 1979; minimum daily, 0.02 tons (0.019 tonnes) Aug. 7, Sept. 28-30.

EXTREMES FOR CURRENT PERIOD: April to September 1978:
SPECIFIC CONDUCTANCE: Maximum daily, 690 micromhos May 8; minimum daily, 310 micromhos Sept. 18.
WATER TEMPERATURES: Maximum daily, 31.0°C June 17; minimum daily, 6.0°C Apr. 20.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,840 mg/L May 13; minimum daily mean, 5 mg/L Apr. 30.
SEDIMENT LOADS: Maximum daily, 810 tons (735 tonnes) May 13; minimum daily, 0.02 tons (0.019 tonnes) Aug. 7, Sept. 28-30.

Water year 1979:
SPECIFIC CONDUCTANCE: Maximum daily, 1,300 micromhos Feb. 26; minimum daily, 220 micromhos Aug. 27.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 5; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,450 mg/L Aug. 20; minimum daily mean, 5 mg/L May 23.
SEDIMENT LOADS: Maximum daily, 18,300 tons (16,600 tonnes) Aug. 20; minimum daily, 0.03 tons (0.027 tonnes) Jan. 3-5, 22, 23, Feb. 12.

WATER QUALITY DATA, APRIL 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	540	440	470	470	470	425
2						---	500	490	460	520	460	430
3						---	500	470	480	500	460	435
4						---	520	480	490	470	460	440
5						---	540	470	460	480	460	440
6						---	550	480	470	460	460	440
7						---	625	530	500	500	460	440
8						---	540	690	530	460	460	450
9						---	520	600	560	520	470	480
10						---	580	530	480	440	460	475
11						---	640	530	480	500	470	480
12						---	550	580	480	470	460	470
13						---	560	450	500	460	460	475
14						---	510	570	480	460	460	470
15						---	510	600	490	480	460	460
16						---	500	540	500	480	460	455
17						---	470	490	540	480	460	390
18						---	540	490	520	460	470	310
19						---	620	470	500	490	460	410
20						---	590	470	500	480	475	470
21						550	500	470	500	530	470	480
22						400	470	460	490	530	475	450
23						460	490	460	460	490	480	440
24						520	550	500	450	510	475	440
25						540	490	490	470	540	470	450
26						600	490	480	440	510	460	450
27						600	480	480	490	500	425	550
28						560	490	550	530	490	420	550
29						580	500	490	500	460	460	540
30						500	460	480	490	460	420	480
31						500	---	490	---	450	425	---
TOTAL						5810	15925	15720	14710	15050	14235	13665
MEAN						528	531	507	490	485	459	456
MAX						600	650	690	560	540	480	550
MIN						400	460	440	440	440	420	310

WTR YR 1978 TOTAL 95115 MEAN 490 MAX 690 MIN 310

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

05422470 CROW CREEK AT BETTENDORF, IA--Continued

WATER QUALITY RECORDS

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	470	500	610	640	705	640	620	645	520	500	530	520
2	460	510	650	650	740	760	550	580	560	510	500	520
3	460	510	620	650	730	645	620	600	560	500	420	500
4	460	500	690	670	760	555	620	640	540	580	520	500
5	470	510	750	655	740	605	620	570	580	500	520	500
6	480	500	695	660	750	545	605	550	560	540	500	490
7	500	500	640	630	665	570	590	560	600	500	540	480
8	530	500	670	640	710	635	550	540	590	500	520	480
9	540	500	630	670	690	620	560	540	500	490	370	500
10	550	500	590	620	690	670	540	540	620	480	350	480
11	460	500	625	610	670	695	550	700	620	500	480	500
12	460	500	660	590	680	730	560	700	650	440	500	480
13	460	570	730	610	680	580	620	560	620	580	500	480
14	530	570	780	590	660	605	590	540	620	300	500	490
15	520	510	790	610	680	610	555	540	580	580	490	480
16	530	510	640	600	710	630	560	540	560	570	500	500
17	500	370	780	605	700	660	560	540	580	530	500	480
18	500	370	800	595	740	450	555	540	340	520	420	540
19	510	560	810	580	750	340	545	540	640	500	420	510
20	500	600	890	580	700	470	610	540	660	520	300	500
21	500	630	770	570	820	540	610	520	640	510	540	500
22	500	670	740	590	545	590	640	520	660	500	560	510
23	520	700	830	570	650	595	590	520	620	510	540	500
24	500	740	780	600	700	635	635	520	560	510	510	540
25	510	550	840	650	1200	640	640	520	590	340	510	500
26	520	500	650	680	1300	640	550	520	560	620	510	510
27	510	480	700	660	1000	645	560	520	580	560	220	510
28	540	540	650	690	1000	580	590	520	580	350	500	530
29	510	590	630	680	---	570	630	520	580	560	500	530
30	500	---	640	680	---	600	620	520	510	440	500	540
31	500	---	640	680	---	600	---	540	---	560	500	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	16.0	8.0	19.0	24.0	22.5	23.0
2						---	7.0	9.0	16.5	26.0	27.0	21.0
3						---	16.5	12.0	16.0	22.0	23.5	19.5
4						---	11.5	9.0	16.0	27.5	26.0	25.5
5						---	9.0	7.0	22.0	23.0	19.0	20.5
6						---	11.0	10.0	18.5	25.5	25.0	22.0
7						---	16.5	9.0	24.0	26.5	26.5	23.0
8						---	11.0	14.0	18.5	22.0	21.5	26.0
9						---	17.5	11.0	15.0	27.0	24.5	28.5
						---	9.5	11.0	21.0	21.0	22.5	28.5
						---	10.0	15.0	24.5	23.5	22.0	29.0
						---	12.0	18.0	22.5	20.0	26.5	26.0
						---	10.0	11.0	18.0	25.0	25.0	27.0
						---	7.0	10.0	19.5	24.5	24.0	27.0
						---	11.0	11.0	22.0	29.0	25.0	24.0
						---	13.0	9.5	20.5	27.5	22.5	22.0
						---	7.0	12.0	31.0	26.0	25.5	20.5
						---	13.0	12.5	24.5	25.0	24.0	25.0
						---	9.0	13.5	25.0	30.0	23.0	24.0
						---	6.0	18.0	20.5	26.0	21.0	22.0
						8.0	14.0	17.0	18.0	26.5	20.0	17.0
						6.0	9.0	12.0	18.0	27.0	21.0	21.0
						8.5	16.0	14.5	20.0	22.5	25.0	22.0
						1.5	10.0	14.0	28.0	22.5	23.5	22.5
						.5	11.0	16.5	24.5	21.0	22.5	15.0
						4.0	12.0	18.0	29.5	24.5	23.0	16.5
						9.5	10.0	20.5	24.5	26.5	22.0	16.5
						7.5	11.0	22.0	24.5	25.0	23.0	14.5
						12.0	17.0	22.0	23.0	25.0	21.0	19.0
						14.0	15.0	18.5	24.0	22.0	20.5	18.0
						17.5	---	19.0	---	22.0	23.5	---

05422470 CROW CREEK AT BETTENDORF, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	8.0	.0	.0	.0	.0	4.0	8.0	17.0	23.0	21.5	22.0
2	15.0	13.0	.0	.0	.0	.0	3.0	11.0	24.0	28.0	28.0	25.0
3	14.0	11.0	.5	.0	.0	.0	6.0	12.0	18.0	21.0	26.0	23.5
4	14.5	10.0	.0	.0	.0	.0	6.0	9.0	20.5	24.0	24.0	20.0
5	13.0	11.0	3.0	.0	.0	.0	6.0	16.5	21.5	19.0	34.0	20.0
6	11.0	9.0	2.0	.0	.0	.0	6.0	15.0	20.0	22.0	29.0	20.5
7	12.5	4.0	.0	.0	.0	.0	9.0	17.5	22.0	24.0	23.5	21.0
8	14.0	5.0	.0	.0	.0	.0	3.0	19.0	24.0	21.0	24.0	19.0
9	12.0	12.0	.0	.0	.0	.0	4.0	25.0	22.0	20.5	29.0	19.5
10	14.0	11.0	.0	.0	.0	.0	5.0	19.5	16.0	26.5	27.0	19.0
11	13.0	9.0	.0	.0	.0	.0	6.0	11.0	17.0	20.0	24.0	20.0
12	13.0	8.0	.0	.0	.0	.0	11.0	12.0	19.5	26.0	23.0	22.0
13	12.0	9.0	.0	.0	.0	.0	12.0	13.0	16.0	25.5	22.0	21.0
14	12.5	4.0	.0	.0	.0	1.0	8.5	17.5	26.0	20.0	19.0	18.0
15	12.0	5.0	.0	.0	.0	.0	6.0	16.0	28.5	24.0	22.0	18.0
16	11.0	3.0	.0	.0	.0	.0	9.0	16.0	26.0	20.0	22.0	20.0
17	7.5	6.0	.0	.0	.0	3.5	9.5	20.0	25.0	26.0	21.0	18.5
18	10.0	5.0	.0	.0	.0	4.5	12.0	22.0	17.0	24.0	23.5	16.0
19	6.5	4.0	.0	.0	.0	5.0	10.0	22.0	23.0	22.0	21.0	21.0
20	14.0	.0	.0	.0	.0	5.0	10.0	22.0	25.0	22.5	23.0	19.0
21	15.5	.0	.0	.0	.0	4.0	11.0	20.0	20.0	24.0	24.0	20.0
22	14.5	.0	.0	.0	.0	9.0	11.5	15.5	27.0	25.0	23.0	17.0
23	12.0	2.0	.0	.0	.0	9.0	12.0	16.0	19.0	23.5	20.0	16.0
24	7.5	3.5	.0	.0	.0	6.0	13.0	15.0	17.0	26.0	22.0	13.5
25	9.0	2.0	.0	.0	.0	2.0	14.5	13.0	24.0	23.0	21.0	14.5
26	8.5	2.0	.0	.0	.0	3.0	11.0	14.0	20.0	23.5	20.0	14.0
27	6.0	1.0	.0	.0	.0	5.0	8.0	12.0	20.0	24.5	19.0	15.0
28	5.0	.0	.0	.0	.0	5.0	10.0	21.5	21.0	24.0	19.0	15.0
29	12.0	1.0	.0	.0	---	5.0	9.0	17.5	20.0	26.0	20.0	16.0
30	9.0	.0	.0	.0	---	8.0	10.0	27.0	27.0	24.5	21.5	15.5
31	9.5	---	.0	.0	---	6.0	---	20.0	---	26.5	23.5	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	14	.42	10	.32	44	1.2	143	1.4	43	.20	76	.11
2	14	.35	20	.54	42	1.1	221	3.2	21	.08	77	.09
3	15	.40	14	.37	21	.53	143	1.7	36	.12	54	.06
4	14	.35	12	.27	14	.33	98	.90	33	.10	53	.06
5	13	.31	8	.19	10	.22	105	.94	39	.10	54	.07
6	56	2.7	6	.12	24	.51	94	.79	29	.07	55	.07
7	89	2.9	97	4.7	67	1.4	122	1.8	14	.02	54	.04
8	33	1.1	140	14	65	1.5	46	.42	45	.05	43	.03
9	29	.94	34	2.0	42	.78	113	1.6	33	.04	61	.05
10	698	150	24	1.2	47	.82	72	.60	31	.03	54	.03
11	135	14	83	18	39	.62	85	.64	55	.04	51	.03
12	70	5.3	519	113	56	.85	68	.53	61	.05	51	.05
13	40	2.2	1840	810	74	1.0	46	.42	46	.12	57	.07
14	28	1.4	1410	400	73	.99	39	.26	34	.07	90	.16
15	20	.97	370	71	62	1.3	63	.43	35	.06	89	.16
16	10	.38	195	25	32	.51	83	.52	27	.04	101	.10
17	25	.95	151	15	41	.62	72	.43	67	.08	540	22
18	214	20	182	15	32	.43	61	.36	70	.11	965	41
19	51	3.3	138	10	32	.39	50	.42	32	.06	168	.68
20	26	1.5	145	8.6	53	.69	50	.31	34	.05	61	.14
21	17	.87	105	5.7	41	.48	116	.66	31	.04	76	.15
22	16	.69	71	3.6	41	.48	123	1.8	49	.06	66	.09
23	12	.52	43	2.2	61	.71	52	.32	42	.04	47	.04
24	28	.98	83	4.0	47	.51	60	.26	34	.06	47	.04
25	30	.81	63	2.7	63	.65	107	.55	39	.09	67	.05
26	20	.59	71	2.7	110	2.9	74	.38	27	.05	62	.04
27	23	.58	85	3.2	108	1.2	26	.13	78	.84	49	.03
28	10	.22	90	5.3	158	1.5	23	.11	36	.17	32	.02
29	7	.16	81	3.3	197	2.6	34	.13	21	.05	26	.02
30	5	.13	78	2.5	132	1.4	33	.12	47	.10	23	.02
31	---	---	68	2.0	---	---	32	.12	62	.11	---	---
TOTAL	---	215.02	---	1546.51	---	28.22	---	22.25	---	3.10	---	55.50

TOTAL LOAD FOR YEAR: 1880.60 TONS.

05422470 CROW CREEK AT BETTENDORF, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	51	.04	28	.11	94	1.0	39	.21	17	.07	84	.91
2	74	.11	28	.11	70	.59	18	.07	14	.06	103	1.3
3	116	.72	28	.10	73	3.9	10	.03	12	.05	153	4.1
4	62	.20	19	.07	33	.74	11	.03	15	.06	150	16
5	70	.47	45	.16	51	.50	12	.03	33	.13	112	6.0
6	37	.13	57	.29	87	.80	21	.06	60	.24	198	9.6
7	48	.12	40	.19	103	.97	73	.20	45	.18	195	11
8	82	.22	42	.15	95	.90	45	.12	14	.06	106	5.4
9	64	.17	33	.12	98	1.1	33	.09	10	.04	104	5.1
10	68	.26	18	.06	100	1.2	36	.10	21	.09	113	9.2
11	64	.24	30	.10	98	1.3	24	.06	12	.05	102	14
12	45	.16	35	.11	91	1.1	38	.10	8	.03	54	4.4
13	27	.09	95	1.5	65	.70	24	.06	10	.04	462	56
14	57	.17	35	.21	77	.73	21	.06	15	.06	222	33
15	65	.21	20	.08	95	.77	20	.05	21	.09	176	20
16	87	.42	13	.05	102	.74	22	.06	9	.04	79	8.3
17	44	.20	258	15	66	.45	28	.08	11	.05	720	177
18	54	.17	260	3.0	66	.50	18	.05	18	.08	2420	1290
19	66	.34	94	.58	66	.53	19	.05	13	.06	2020	1190
20	45	.18	39	.19	83	.74	18	.05	17	.07	420	128
21	29	.09	34	.16	76	.72	16	.04	21	.10	212	42
22	33	.12	35	.16	67	.54	12	.03	99	.48	98	16
23	35	.12	137	1.8	61	.41	11	.03	120	.65	85	13
24	30	.12	142	1.2	56	.30	22	.06	127	.86	46	5.2
25	40	.21	82	.51	92	.42	45	.12	126	1.0	34	2.8
26	38	.24	112	.70	132	.53	59	.24	108	1.5	32	2.1
27	34	.19	130	.91	116	.47	105	.57	120	1.5	35	2.0
28	35	.17	142	1.3	114	.62	55	.30	124	1.3	58	4.7
29	48	.22	150	1.1	115	.78	25	.11	---	---	875	220
30	33	.13	132	1.4	113	.92	17	.07	---	---	698	222
31	30	.12	---	---	65	.44	19	.08	---	---	194	41
TOTAL	---	6.35	---	31.42	---	25.41	---	3.21	---	8.94	---	3560.11

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	69	10	34	1.7	23	.39	42	.57	135	1.7	36	2.4
2	174	41	110	8.0	56	.89	61	.79	105	1.2	44	2.3
3	62	9.2	230	36	56	.85	113	1.7	838	120	37	1.4
4	52	6.6	48	4.8	59	.89	132	3.9	122	2.6	36	.97
5	54	5.8	23	1.9	53	.76	113	1.5	61	.92	42	1.1
6	43	3.8	35	2.6	23	.31	102	1.2	50	.65	31	.69
7	33	2.7	20	1.2	57	.86	84	.98	97	1.2	25	.53
8	49	3.7	15	.85	98	1.6	102	1.1	58	.67	17	.32
9	35	2.3	14	.72	2310	125	71	.73	462	12	43	.72
10	23	1.3	10	.49	2600	112	50	.51	580	31	38	.64
11	44	3.9	31	3.3	212	4.2	69	.93	130	1.9	38	.61
12	107	18	16	.86	204	4.1	83	1.7	84	.98	28	.42
13	58	6.6	27	1.3	364	14	200	2.2	30	.32	27	.41
14	41	3.3	21	1.1	126	2.3	3600	1000	23	.22	28	.40
15	37	2.5	13	.56	137	2.2	1680	109	22	.20	22	.30
16	32	1.9	21	.74	142	1.9	187	6.1	17	.15	28	.38
17	23	1.3	34	1.1	134	1.6	153	3.4	22	.20	33	.43
18	26	1.3	27	.87	3300	454	98	1.8	3800	3160	44	.53
19	34	1.8	19	.62	830	34	81	1.4	1000	278	19	.22
20	97	8.4	17	.55	167	5.4	88	1.3	7450	18300	21	.22
21	86	8.6	8	.20	120	3.2	66	.89	600	118	42	.41
22	20	1.4	6	.14	96	2.2	56	.54	382	98	35	.32
23	32	1.9	5	.12	80	1.6	78	.76	170	27	36	.32
24	20	1.2	12	.27	70	1.8	195	3.6	158	20	31	.28
25	22	1.4	13	.29	54	1.1	279	4.7	138	15	84	.82
26	116	10	16	.36	53	.89	197	2.7	155	15	59	.53
27	26	1.5	23	.48	66	1.1	62	.75	1460	540	58	.45
28	17	.87	25	.47	78	1.2	290	21	200	31	52	.41
29	25	1.5	35	.59	55	.88	120	1.8	96	13	55	.83
30	21	1.1	27	.47	40	.64	685	59	89	10	63	.53
31	---	---	35	.86	---	---	145	2.7	74	7.4	---	---
TOTAL	---	164.87	---	73.51	---	781.86	---	1239.25	---	22808.31	---	19.89

TOTAL LOAD FOR YEAR: 28723.13 TONS.

05422470 CROW CREEK AT BETTENDORF, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, APRIL 1977 TO SEPTEMBER 1978

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
SEP										
17...	2040	20.0	33	4140	369	56	63	67	84	99

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUN										
18...	1735	17.0	161	4310	1870	58	67	80	88	99
AUG										
27...	0840	19.0	255	2330	1600	47	54	--	73	98

05448150 PINE CREEK NEAR MUSCATINE, IA

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

DRAINAGE AREA.--38.9 sq mi (100.8 km²).

PERIOD OF RECORD.--October 1975 to current year.

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,550 ft³/s (129 m³/s) July 20, 1976, gage height, 16.22 ft (4.944 m), from rating curve extended above 218 ft³/s (6.17 m³/s on basis of indirect measurement of peak flow over dam of 3,670 ft³/s (104 m³/s), gage height, 15.80 ft (4.82 m) Mar. 4, 1976; no flow Jan. 11-16, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.82 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 6	--	*2,300	65.1	*a10.61	3.234	Mar. 10	--	2,200	62.3	ice jam	---
Mar. 8	--	920	26.0	ice jam	---	Aug. 20	--	990	28.0	8.1	2.47

Minimum daily discharge, 1.7 ft³/s (0.048 m³/s) Dec. 28.

a Ice jam

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	4.1	2.9	4.1	5.5	14	56	33	12	5.7	9.0	9.0
2	5.4	3.8	5.6	5.2	5.6	13	74	49	11	5.4	7.4	8.5
3	11	3.8	21	6.4	5.8	30	52	77	10	7.4	23	7.9
4	9.0	4.0	16	6.7	6.1	76	48	49	9.4	9.0	13	7.7
5	13	4.9	11	6.6	6.6	53	41	41	10	6.4	8.6	7.7
6	7.9	7.7	9.5	6.3	7.3	180	33	38	9.0	6.4	6.4	6.4
7	5.3	6.2	7.2	6.0	7.3	155	33	34	8.2	6.0	5.4	6.4
8	4.8	5.4	6.8	5.4	7.2	90	33	31	9.0	5.1	4.0	7.2
9	4.1	4.9	5.0	4.5	6.2	72	30	28	21	4.2	3.5	7.7
10	3.9	4.5	4.4	4.2	5.8	215	28	27	23	4.2	54	7.4
11	4.5	4.5	4.3	3.8	5.5	127	47	46	14	5.1	15	7.7
12	4.1	3.8	6.1	2.8	5.0	64	73	30	12	8.6	11	7.4
13	4.2	17	7.5	3.5	4.6	142	45	27	43	6.4	11	7.2
14	4.8	9.1	5.6	3.4	3.6	128	39	26	18	35	11	6.9
15	4.0	5.9	5.8	4.2	3.7	216	33	26	14	16	11	6.7
16	3.8	5.4	5.4	4.7	3.8	82	32	23	12	9.0	11	6.4
17	3.4	19	4.2	5.2	4.1	162	29	22	10	6.0	4.2	6.2
18	3.2	11	4.2	5.9	5.2	203	27	21	13	5.1	179	6.0
19	3.5	7.0	4.8	6.5	6.2	163	30	22	12	4.8	36	5.7
20	3.0	5.4	6.0	5.6	6.5	93	59	20	10	4.5	760	5.5
21	3.1	4.0	5.6	5.6	5.6	68	65	17	8.2	4.5	210	5.2
22	3.2	4.4	4.8	5.6	5.3	57	45	17	7.4	4.5	19	5.2
23	3.2	12	4.0	5.7	6.2	64	39	16	6.7	4.5	17	5.0
24	3.2	9.2	4.5	6.0	8.8	49	38	16	7.4	4.5	15	4.8
25	3.5	6.9	3.2	6.0	15	39	39	14	6.4	9.8	12	4.6
26	4.1	6.8	2.9	6.2	20	35	60	13	6.0	13	11	4.3
27	3.8	7.9	2.0	6.4	18	32	41	14	5.7	9.4	158	4.1
28	3.8	4.0	1.7	5.6	15	32	37	13	5.7	32	19	3.9
29	3.7	6.4	2.5	5.6	---	122	41	13	5.7	9.4	14	3.6
30	3.4	5.1	3.3	5.5	---	103	38	13	6.0	8.2	11	3.4
31	3.6	---	3.9	5.5	---	65	---	13	---	8.6	9.8	---
TOTAL	146.9	204.1	181.7	164.7	205.5	2944	1285	829	345.8	268.7	1679.3	185.7
MEAN	4.74	6.80	5.86	5.31	7.34	95.0	42.8	26.7	11.5	8.67	54.2	6.19
MAX	13	19	21	6.7	20	216	74	77	43	35	760	9.0
MIN	3.0	3.8	1.7	2.8	3.6	13	27	13	5.7	4.2	3.5	3.4
CFSM	.12	.18	.15	.14	.19	2.44	1.10	.69	.30	.22	1.39	.16
IN.	.14	.20	.17	.16	.20	2.82	1.23	.79	.33	.26	1.61	.18
AC-FT	291	405	360	327	408	5840	2550	1640	686	533	3330	368

CAL YR 1978	TOTAL	8018.2	MEAN 22.0	MAX 250	MIN 1.6	CFSM .57	IN 7.67	AC-FT	15900	
WTR YR 1979	TOTAL	8440.4	MEAN 23.1	MAX 760	MIN 1.7	CFSM .59	IN 8.07	AC-FT	16740	

IOWA RIVER BASIN

05449000 EAST BRANCH IOWA RIVER NEAR KLEMME, IA

LOCATION.--Lat 43°00'31", long 93°37'42", in NE1/4 NW1/4 sec.36, T.95 N., R.24 W., Hancock County, Hydrologic Unit 07080207, on left bank 15 ft (5 m) downstream from bridge on county highway B55, 1.2 mi (1.9 km) west of Chicago, Rock Island and Pacific Railroad crossing in Klemme, 1.5 mi (2.4 km) upstream from Drainage ditch 9, 18.2 mi (29.3 km) upstream from confluence with West Branch Iowa River.

DRAINAGE AREA.--133 mi² (344 km²).

PERIOD OF RECORD.--April 1948 to September 1976, June 1977 to current year. Prior to October 1958, published as East Fork Iowa River near Klemme.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,179.33 ft (359.46 m) NGVD. Apr. 1, 1948, to Sept. 30, 1955, nonrecording gage at site 0.6 mi (1.0 km) upstream at datum 0.80 ft (0.24 m) higher. Oct. 1, 1955, to Sept. 30, 1969, at present site at datum 0.31 ft (0.09 m) lower.

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

AVERAGE DISCHARGE.--30 years, 58.3 ft³/s (1.651 m³/s), 5.95 in/yr (151 mm/yr), 42,240 acre-ft/yr (52.1 hm³/yr); median of yearly mean discharges, 44 ft³/s (1.25 m³/s), 4.5 in/yr (114 mm/yr), 31,900 acre-ft/yr (39.3 hm³/yr).

EXTREMEMES FOR PERIOD OF RECORD.--Maximum discharge, 5,960 ft³/s (169 m³/s) June 19, 1954, gage height, 11.2 ft (3.41 m), from floodmark, site and datum then in use; maximum gage height, 10.67 ft (3.252 m) Sept. 6, 1965, backwater from ice; *minimum* daily discharge, 0.2 ft³/s (0.006 m³/s) Feb. 22-26, 1959.

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 30	2200	839	23.8	8.20	2.499
Aug. 10	1315	990	28.0	8.54	2.603
Aug. 22	2015	*2,690	76.2	*9.98	3.042

Minimum daily discharge, 3.8 ft³/s (0.108 m³/s) Feb. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	19	15	6.2	3.9	5.6	747	97	51	114	416	376
2	40	19	15	6.0	3.9	5.6	685	104	47	84	285	298
3	37	19	15	5.7	3.9	5.6	534	129	45	67	191	244
4	38	.21	14	5.5	3.8	6.1	462	127	45	60	176	209
5	33	21	14	5.3	3.8	6.2	414	117	43	49	245	183
6	29	17	14	5.1	3.9	6.4	404	108	40	41	178	252
7	28	16	14	4.9	3.9	6.5	315	99	38	36	123	237
8	28	17	14	4.8	3.9	6.9	293	92	33	34	196	195
9	31	18	13	4.6	3.9	7.0	238	84	35	32	604	168
10	32	18	13	4.5	4.0	7.1	222	78	35	27	1000	146
11	33	15	13	4.4	4.1	7.4	218	73	32	25	848	125
12	32	16	13	4.3	4.3	7.7	258	69	31	24	613	116
13	27	23	14	4.2	4.3	7.9	281	69	38	22	445	111
14	25	22	14	4.1	4.4	8.2	243	67	36	57	328	102
15	26	21	14	4.0	4.5	9.4	222	62	35	38	249	93
16	25	24	15	3.9	4.8	13	194	60	31	32	201	89
17	24	27	15	3.9	4.8	18	175	62	29	27	377	82
18	27	32	15	3.9	5.0	58	162	67	31	22	695	76
19	25	15	15	4.0	5.0	170	152	82	28	20	682	69
20	23	16	15	4.2	5.0	500	166	93	30	21	653	69
21	24	16	14	4.4	5.0	440	214	85	27	27	896	62
22	23	16	13	4.4	5.2	400	194	84	23	33	2480	58
23	22	16	12	4.4	5.4	400	163	75	21	147	2180	57
24	22	17	10	4.4	5.4	570	144	66	22	133	1380	58
25	27	17	9.8	4.2	5.4	480	132	65	19	89	945	51
26	26	17	9.4	4.2	5.4	420	135	66	21	64	752	49
27	24	16	8.6	4.1	5.6	410	131	84	205	89	729	49
28	20	16	7.8	4.1	5.6	410	119	69	197	83	715	48
29	21	16	7.3	4.1	---	520	110	66	278	68	666	45
30	22	16	6.8	4.0	---	760	103	64	185	266	612	43
31	19	---	6.5	3.9	---	812	---	57	---	607	483	---
TOTAL	853	559	389.2	139.7	128.1	6484.6	7830	2520	1731	2338	20343	3760
MEAN	27.5	18.6	12.6	4.51	4.58	209	261	81.3	57.7	75.4	656	125
MAX	40	32	15	6.2	5.6	812	747	129	278	507	2480	376
MIN	19	15	6.5	3.9	3.8	5.6	103	57	19	20	123	43
CFSM	.21	.14	.10	.03	.03	1.57	1.96	.61	.43	.57	4.93	.94
IN.	.24	.16	.11	.04	.04	1.81	2.19	.70	.48	.65	5.69	1.05
AC-FT	1690	1110	772	277	254	12860	15530	5000	3430	4640	40350	7460

CAL YR 1978	TOTAL	15590.9	MEAN	42.7	MAX	860	MIN 1.4	CFSM .32	IN 4.36	AC-FT	30920	
WTR YR 1979	TOTAL	47075.6	MEAN	129	MAX	2480	MIN 3.8	CFSM .97	IN 13.17	AC-FT	93370	

05449500 IOWA RIVER NEAR ROWAN, IA

LOCATION.--Lat 42°45'36", long 93°37'23", in NW1/4 NE1/4 sec.25, T.92 N., R.24 W., Wright County, Hydrologic Unit 07080207, on left bank 10 ft (3 m) downstream from bridge on county highway C38, 0.9 mi (1.4 km) downstream from Drainage ditch 123, 3.8 mi (6.1 km) northwest of Rowan, 10.7 mi (17.2 km) downstream from confluence of East and West Branches, and at mile 316.4 (509.1 km).

DRAINAGE AREA.--429 mi² (1,111 km²).

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

REVISED RECORDS.--WSP 1308: 1942-43 (M). WSP 1438: Drainage area.

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

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

AVERAGE DISCHARGE.--38 years, 193 ft³/s (5.466 m³/s), 6.11 in/yr (155 mm/yr), 139,800 acre-ft/yr (172 hm³/yr); median of yearly mean discharges, 180 ft³/s (5.10 m³/s), 5.7 in/yr (145 mm/yr), 130,000 acre-ft/yr (160 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	----	2,410	68.3	ice jam	---
Mar. 24	0900	2,430	68.8	10.66	3.249
Mar. 31	1445	2,360	66.8	10.59	3.228
Aug. 12	1045	2,250	63.7	10.51	3.203
Aug. 24	1915	*3,920	111	*11.88	3.621

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Jan. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	53	50	23	18	20	2280	344	170	565	829	1890
2	95	52	48	22	18	21	2080	359	160	373	827	1670
3	93	53	46	21	18	22	1920	466	153	269	832	1360
4	95	53	48	20	18	24	1700	488	148	216	579	1050
5	96	52	48	19	18	27	1480	440	144	176	434	847
6	88	53	45	19	18	27	1230	396	140	149	475	814
7	81	50	43	19	18	29	1160	546	136	131	419	807
8	80	47	41	19	18	31	1120	317	134	119	313	738
9	81	48	39	19	18	32	1040	290	128	110	1070	596
10	84	49	38	18	18	33	922	271	134	100	2110	493
11	85	48	39	18	18	35	790	255	130	99	2230	440
12	86	48	40	18	17	36	740	241	125	94	2230	391
13	80	55	41	18	17	38	811	229	122	89	2100	352
14	73	61	42	18	17	41	856	225	125	756	1760	324
15	68	61	43	17	18	45	770	217	122	871	1350	295
16	69	59	43	17	18	58	680	206	118	500	979	267
17	66	67	42	17	18	84	609	194	112	312	767	248
18	62	70	42	17	18	340	570	204	106	230	906	236
19	64	52	42	17	18	1500	539	371	107	181	1260	221
20	62	58	44	17	18	2250	565	423	105	152	1590	207
21	60	60	43	16	18	2100	695	371	104	131	1700	198
22	61	62	42	16	18	1990	752	320	97	143	1960	184
23	63	62	40	16	19	1930	675	288	91	380	2900	174
24	60	61	37	17	19	2200	661	255	88	590	3810	167
25	57	60	37	17	19	1820	495	239	86	528	3770	154
26	65	56	35	17	19	1480	475	225	83	364	3200	155
27	63	52	33	17	19	1260	460	217	141	308	2820	146
28	60	49	31	17	20	1200	432	217	438	315	2500	143
29	57	52	29	18	---	1230	398	198	565	279	2300	139
30	54	52	26	18	---	1890	366	186	672	298	2160	132
31	54	---	25	18	---	2330	---	180	---	609	2030	---
TOTAL	2266	1655	1242	560	508	24023	27171	9178	4984	9437	52210	14848
MEAN	73.1	55.2	40.1	18.1	18.1	775	906	296	166	304	1684	495
MAX	104	70	50	23	20	2330	2280	546	672	871	3810	1890
MIN	54	47	25	16	17	20	366	180	83	89	313	132
CFSM	.17	.13	.09	.04	.04	1.81	2.11	.69	.39	.71	3.93	1.15
IN.	.20	.14	.11	.05	.04	2.08	2.36	.80	.43	.82	4.53	1.29
AC-FT	4490	3280	2460	1110	1010	47650	53890	18200	9890	18720	103600	29450

CAL YR 1978 TOTAL 44220.5 MEAN 121 MAX 1740 MIN 7.2 CFSM .28 IN 3.83 AC-FT 87710
WTR YR 1979 TOTAL 148082.0 MEAN 406 MAX 3810 MIN 16 CFSM .95 IN 12.84 AC-FT 293700

05451500 IOWA RIVER AT MARSHALLTOWN, IA

LOCATION.--Lat 42°03'57", long 92°54'27", in SE1/4 SE1/4 sec.23, T.84N., R.18 W., Marshall County, Hydrologic Unit 07080208, on right bank 10 ft (3 m) downstream from State Highway 14 bridge, 1,500 ft (457 m) upstream from Burnett Creek, 2.2 mi (3.5 km) upstream from Linn Creek, and at mile 222.8 (358.5 km).

DRAINAGE AREA.--1,564 mi² (4,050 km²), including that of Burnett Creek.

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

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

GAGE.--Water-stage recorder. Datum of gage is 853.10 ft (260.025 m) NGVD. See WSP 1728 for history of changes prior to Sept. 21, 1934.

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

AVERAGE DISCHARGE.--61 years (1902-3, 1914-27, 1932-79), 775 ft³/s (21.95 m³/s), 6.73 in/yr (171 mm/yr), 561,500 acre-ft/yr (692 hm³/yr); median of yearly mean discharges, 690 ft³/s (19.5 m³/s), 6.0 in/yr (152 mm/yr), 500,000 acre-ft/yr (616 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	1100	*20,900	592	*19.77	6.026	Mar. 31	0200	9,060	257	17.19	5.240
Mar. 24	1245	7,740	219	16.55	5.044	Aug. 22	1400	5,300	150	15.25	4.648

Minimum daily discharge, 155 ft³/s (4.39 m³/s) Feb. 15-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	943	426	522	275	165	200	5880	1720	1140	1230	1210	3000
2	910	426	434	270	165	220	5500	1940	1300	1210	1060	2690
3	888	430	412	265	165	250	5340	3890	1090	1240	1070	2440
4	834	426	534	250	160	300	4960	3240	981	1680	1110	2250
5	763	423	600	230	160	420	4510	2740	949	1520	1110	2070
6	729	412	622	225	160	470	4070	2430	915	1160	1060	2070
7	686	395	650	205	160	510	3540	2160	882	984	893	1960
8	659	392	670	200	160	530	3160	1920	904	949	752	1690
9	649	395	700	195	160	550	2850	1760	1120	949	750	1540
10	645	392	730	185	160	540	2580	1630	1330	950	729	1380
11	640	381	740	180	160	530	2420	1930	1440	972	689	1270
12	729	372	720	175	160	550	2430	1680	1280	1100	899	1100
13	604	654	680	175	160	1050	2320	1560	2100	949	1170	994
14	587	899	620	165	160	3050	2110	1480	1640	1090	1500	914
15	566	719	600	160	155	2800	1970	1370	1310	1460	1770	835
16	583	663	570	160	155	2550	1890	1260	1120	1630	1870	774
17	575	904	540	160	155	3700	1870	1190	1030	1740	1830	715
18	532	1130	490	160	155	6650	1770	1140	1480	1690	1670	653
19	480	1030	460	160	160	17900	1740	1440	2000	1300	1790	646
20	502	882	440	165	165	9840	2590	1610	2020	768	3180	559
21	510	768	410	165	170	6900	4260	1940	1810	649	2910	567
22	530	724	390	165	170	6440	3220	1890	1410	613	4640	513
23	514	758	380	170	175	6610	2790	1710	1180	595	4020	495
24	502	748	350	170	180	7430	2530	1480	1040	591	3460	482
25	502	710	325	170	180	6190	2380	1320	990	767	3130	456
26	490	677	320	165	180	5040	2870	1260	893	854	3160	446
27	463	663	310	165	190	4470	2700	1230	938	870	3750	428
28	448	587	310	165	190	4180	2290	1140	955	820	4040	408
29	448	562	290	165	---	5290	2050	1060	921	718	4210	380
30	444	518	280	165	---	8000	1890	1020	1130	1030	4240	356
31	434	---	280	165	---	8040	---	1010	---	1550	3560	---
TOTAL	18789	18466	15379	5790	4635	121230	90480	53150	37309	33638	67232	34091
MEAN	606	616	496	187	166	3911	3016	1715	1244	1085	2169	1136
MAX	943	1130	740	275	190	17900	5880	3890	2100	1740	4640	3000
MIN	434	372	280	160	155	200	1740	1010	882	591	689	356
CFSM	.39	.39	.32	.12	.11	2.50	1.93	1.10	.80	.69	1.39	.73
IN.	.45	.44	.37	.14	.11	2.88	2.15	1.26	.89	.80	1.60	.81
AC-FT	37270	36630	30500	11480	9190	240500	179500	105400	74000	66720	133400	67620

CAL YR 1978 TOTAL 272695 MEAN 747 MAX 5830 MIN 94 CFSM .48 IN 6.49 AC-FT 540900
WTR YR 1979 TOTAL 500189 MEAN 1370 MAX 17900 MIN 155 CFSM .88 IN 11.90 AC-FT 992100

05451700 TIMBER CREEK NEAR MARSHALLTOWN, IA

LOCATION.--Lat 42°00'25", long 92°51'15", in SE1/4 SW1/4 sec.8, T.83 N., R.17 W., Marshall County, Hydrologic Unit 07080208, on left bank 20 ft (6 m) downstream from bridge on U.S. Highway 30, 3.5 mi (5.6 km) upstream from mouth, and 4.1 mi (6.6 km) southeast of court house in Marshalltown.

DRAINAGE AREA.--118 mi² (306 km²).

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

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

GAGE.--Water-stage recorder. Datum of gage is 849.44 ft (258.909 m) NGVD.

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

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

AVERAGE DISCHARGE.--30 years, 69.3 ft³/s (1.963 m³/s), 7.98 in/yr (203 mm/yr), 50,210 acre-ft/yr (61.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Aug. 16, 1977, gage height, 17.69 ft (5.392 m), no flow for a few days in 1956 and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of 15.8 ft (5.12 m), discharge, 5,700 ft³/s (161 m³/s).

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 14	----	1,600	45.3	ice jam	---
Mar. 19	0145	*4,760	135	*15.63	4.764
Mar. 23	2300	1,000	28.3	9.70	2.957
Mar. 30	0415	1,080	30.6	10.06	3.066
Aug. 19	2345	2,200	62.3	13.10	3.993
Aug. 22	0245	1,260	35.7	10.74	3.274
Aug. 27	0815	1,360	38.5	11.06	3.371

Minimum daily discharge, 19 ft³/s (0.54 m³/s), Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	44	84	40	33	27	342	185	81	67	33	64
2	67	43	82	46	33	28	297	203	79	64	32	59
3	85	43	122	45	34	50	288	288	77	84	31	52
4	84	42	132	44	33	430	270	236	75	121	30	48
5	73	41	110	44	32	350	270	218	74	71	28	48
6	62	41	89	43	31	230	222	203	71	66	26	47
7	58	40	72	43	32	200	212	189	77	63	23	41
8	56	41	82	42	32	180	207	181	213	61	23	41
9	70	40	75	40	32	150	190	164	127	58	25	35
10	84	39	71	40	30	130	177	154	174	57	48	34
11	72	38	72	38	31	120	169	175	131	59	28	34
12	68	39	72	37	31	150	242	161	114	55	24	34
13	64	151	68	36	31	700	197	158	170	53	24	32
14	64	104	66	31	32	1350	179	148	134	60	27	30
15	62	86	68	33	32	1050	165	141	119	57	22	30
16	61	82	66	35	29	1200	159	131	109	51	21	28
17	59	317	61	36	29	1960	154	128	102	47	21	26
18	59	225	66	36	29	2220	146	125	98	45	21	25
19	57	175	65	36	30	2820	149	142	95	44	243	24
20	57	150	63	36	31	564	322	127	99	43	720	25
21	54	132	50	38	33	352	481	116	92	41	195	25
22	52	123	55	37	34	288	322	113	83	41	558	21
23	52	121	56	36	33	590	270	107	81	39	135	22
24	50	108	50	35	34	488	250	103	80	39	88	23
25	52	104	50	36	32	357	250	100	76	39	72	25
26	50	99	50	36	29	253	305	98	74	36	75	23
27	47	95	50	35	29	206	251	98	128	35	652	19
28	46	87	53	34	29	232	223	91	86	34	143	20
29	45	90	53	35	---	564	211	88	77	35	101	23
30	44	84	41	34	---	829	198	85	70	45	79	20
31	44	---	45	33	---	445	---	83	---	33	69	---
TOTAL	1866	2824	2139	1170	880	18513	7118	4539	3066	1643	3617	978
MEAN	60.2	94.1	69.0	37.7	31.4	597	237	146	102	53.0	117	32.6
MAX	85	317	132	46	34	2820	481	288	213	121	720	64
MIN	44	38	41	31	29	27	146	83	70	33	21	19
CFSM	.51	.80	.59	.32	.27	5.06	2.01	1.24	.86	.45	.99	.28
IN.	.59	.89	.67	.37	.28	5.84	2.24	1.43	.97	.52	1.14	.31
AC-FT	3700	5600	4240	2320	1750	36720	14120	9000	6080	3260	7170	1940

CAL YR 1978 TOTAL 35196 MEAN 96.4 MAX 1500 MIN 16 CFSM .82 IN 11.10 AC-FT 69810
WTR YR 1979 TOTAL 48353 MEAN 132 MAX 2820 MIN 19 CFSM 1.12 IN 15.24 AC-FT 95910

05451900 RICHLAND CREEK NEAR HAVEN, IA

LOCATION.--Lat 41°53'58", long 92°28'27", in SE1/4 NE1/4 sec.21, T.82 N., R.14 W., Tama County, Hydrologic Unit 07080208, on right bank 5 ft (1 m) upstream from bridge on county highway, 0.6 mi (1.0 km) northeast of Haven, and 2.8 mi (4.5 km) upstream from mouth.

DRAINAGE AREA.--56.1 mi² (145 km²).

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

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

GAGE.--Water-stage recorder. Datum of gage is 788.69 ft (240.393 m) NGVD. Prior to Oct. 1, 1971, at datum 10 ft (3.05 m) higher.

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

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

AVERAGE DISCHARGE.--30 years, 34.5 ft³/s (0.977 m³/s), 8.35 in/yr (212 mm/yr), 25,000 acre-ft/yr (30.8 hm³/yr); median of yearly mean discharges, 31 ft³/s (0.88 m³/s), 7.5 in/yr (190 mm/yr), 22,500 acre-ft/yr (27.7 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	0230	*2,710	76.7	*20.52	6.254	July 14	0330	2,280	64.6	19.65	5.989
Mar. 29	1745	1,350	38.2	17.75	5.410	Aug. 20	0600	1,590	45.0	18.34	5.590
Apr. 20	1730	1,010	28.6	16.61	5.063	Aug. 27	0500	1,040	29.5	16.73	5.099

Minimum daily discharge, 6.9 ft³/s (0.20 m³/s) Dec. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	24	41	10	12	14	129	85	37	44	17	38
2	45	23	38	11	12	13	135	130	36	40	17	35
3	54	22	38	11	12	58	139	158	34	208	17	32
4	44	21	43	12	12	330	147	112	33	138	15	30
5	40	22	35	11	13	250	145	101	33	49	14	28
6	37	20	27	12	14	150	103	93	32	39	14	28
7	35	19	33	12	14	94	99	85	31	36	13	24
8	34	19	37	12	14	74	92	81	38	33	11	23
9	63	19	31	12	14	56	79	75	42	31	12	22
10	67	18	30	12	15	54	73	74	45	30	17	21
11	71	17	30	12	15	56	73	72	38	30	11	20
12	56	17	28	12	16	70	80	66	37	28	10	19
13	51	48	25	13	16	240	68	67	45	27	10	19
14	47	28	23	15	16	315	63	64	39	460	9.8	18
15	45	26	21	15	16	125	59	61	37	45	9.3	17
16	41	27	18	16	16	203	59	57	35	35	8.5	17
17	39	231	16	16	16	738	56	54	33	32	7.9	16
18	37	109	14	17	16	1580	55	53	35	30	7.2	15
19	33	75	11	17	17	1390	82	55	34	27	116	15
20	35	63	9.6	16	18	212	389	50	35	26	866	15
21	33	58	8.0	16	21	127	224	47	30	25	117	14
22	31	54	8.4	15	19	113	143	47	29	24	360	14
23	31	54	9.6	14	28	247	120	45	29	23	66	13
24	31	48	7.6	15	34	149	109	42	29	23	47	14
25	31	47	7.8	19	23	131	136	41	27	22	39	14
26	28	45	8.2	18	19	101	165	42	27	20	107	12
27	28	44	8.6	17	17	97	119	41	229	20	411	12
28	26	41	8.8	16	15	138	103	38	66	19	73	11
29	26	42	8.4	14	---	634	100	93	55	19	55	11
30	25	42	6.9	13	---	430	90	44	48	32	45	11
31	24	---	9.0	12	---	175	---	39	---	19	41	---
TOTAL	1225	1323	639.9	433	470	8364	3434	2112	1298	1634	2563.7	578
MEAN	39.5	44.1	20.6	14.0	16.8	270	114	68.1	43.3	52.7	82.7	19.3
MAX	71	231	43	19	34	1580	389	158	229	460	866	38
MIN	24	17	6.9	10	12	13	55	38	27	19	7.2	11
CFSM	.70	.79	.37	.25	.30	4.81	2.03	1.21	.77	.94	1.47	.34
IN.	.81	.88	.42	.29	.31	5.55	2.28	1.40	.86	1.08	1.70	.38
AC-FT	2430	2620	1270	859	932	16590	6810	4190	2570	3240	5090	1150

CAL YR 1978	TOTAL	18630.9	MEAN 51.0	MAX 952	MIN 4.2	CFSM .91	IN 12.35	AC-FT 36950
WTR YR 1979	TOTAL	24074.6	MEAN 66.0	MAX 1580	MIN 6.9	CFSM 1.18	IN 15.96	AC-FT 47750

05452000 SALT CREEK NEAR ELBERON, IA

LOCATION.--Lat 41°57'51", long 92°18'47", in NW1/4 NW1/4 sec.36, T.83 N., R.13 W., Tama County, Hydrologic Unit 07080208, near center of span on downstream side of bridge on U.S. Highway 30, 2.0 mi (3.2 km) upstream from Hog Run, 3.0 mi (4.8 km) south of Elberon, and 9.0 mi (14.5 km) upstream from mouth.

DRAINAGE AREA.--201 mi² (521 km²).

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946.

GAGE.--Water-stage recorder. Datum of gage is 781.58 ft (238.226 m) NGVD (Iowa Highway Commission bench mark). Prior to Oct. 15, 1945, and June 14, 1947, to Feb. 10, 1949, nonrecording gage on upstream side of bridge at present datum.

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

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

AVERAGE DISCHARGE.--34 years, 126 ft³/s (3.568 m³/s), 8.51 in/yr (216 mm/yr), 91,290 acre-ft/yr (113 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.12 m³/s), 7.4 in/yr (188 mm/yr), 79,700 acre-ft/yr (98.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 35,000 ft³/s (991 m³/s) June 13, 1947, gage height, 17.6 ft (5.36 m) from rating curve extended above 17,000 ft³/s (481 m³/s); maximum gage height, 17.78 ft (5.419 m) July 18, 1969; minimum daily discharge, 0.85 ft³/s (.024 m³/s) Jan. 31, 1977.

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	0400	*4,980	141	*17.14	5.224
Mar. 30	0830	2,300	65.1	15.32	4.670
Apr. 21	0330	2,030	57.5	15.00	4.572
June 27	1015	1,560	44.2	14.24	4.340
July 4	0830	1,710	48.4	14.53	4.429
July 15	0030	4,260	121	16.79	5.118
Aug. 20	0900	1,970	55.8	14.92	4.548

Minimum daily discharge, 30 ft³/s (0.85 m³/s) Jan. 2-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	44	95	38	35	63	493	284	133	124	99	146
2	66	45	62	30	36	56	454	405	128	111	91	134
3	87	44	78	30	37	67	463	770	125	721	84	117
4	72	43	89	34	37	460	457	472	122	1160	76	108
5	66	44	98	34	37	650	466	391	185	281	69	100
6	60	42	73	34	39	600	354	345	127	207	63	104
7	55	40	78	35	39	440	333	307	117	178	59	86
8	53	42	77	34	40	330	323	293	119	160	54	81
9	73	43	73	33	40	270	282	270	126	146	179	77
10	134	40	66	32	42	234	263	256	145	138	113	74
11	108	37	66	32	41	218	259	270	124	147	64	67
12	94	38	66	32	40	214	269	236	146	134	57	64
13	82	145	61	38	44	420	244	237	669	124	57	66
14	74	116	53	38	45	1350	226	224	204	1830	61	61
15	74	79	56	37	44	710	211	207	163	2120	62	58
16	69	71	51	36	44	510	206	198	145	362	60	56
17	64	472	44	35	44	1600	200	193	135	258	58	54
18	65	404	49	36	42	2600	194	192	146	220	58	52
19	61	259	50	40	41	3450	246	214	139	197	704	49
20	61	206	50	44	45	1650	1350	190	139	179	1880	49
21	60	179	42	44	46	495	1670	177	121	165	812	47
22	56	163	44	45	48	401	596	173	105	152	1210	45
23	53	164	42	45	53	746	461	168	101	141	551	44
24	53	140	36	42	58	524	404	158	99	134	269	44
25	58	130	42	36	64	410	461	154	92	127	209	46
26	53	125	40	37	68	364	677	156	87	115	193	45
27	50	123	38	40	69	295	460	157	986	182	568	43
28	47	104	31	41	67	350	368	145	245	170	205	41
29	47	107	31	40	---	1200	343	145	183	105	166	40
30	47	95	31	38	---	2150	309	147	137	248	142	39
31	45	---	40	37	---	939	---	138	---	120	132	---
TOTAL	2050	3584	1751	1147	1285	23766	13042	7672	5473	10456	8405	2037
MEAN	66.1	119	56.5	37.0	45.9	767	435	247	182	337	271	67.9
MAX	134	472	98	45	69	3450	1670	770	986	2120	1880	146
MIN	45	37	31	30	35	56	194	138	87	105	64	39
CFSM	.33	.59	.28	.18	.23	3.82	2.16	1.23	.91	1.68	1.35	.34
IN.	.38	.66	.32	.21	.24	4.40	2.41	1.42	1.01	1.94	1.56	.38
AC-FT	4070	7110	3470	2280	2550	47140	25870	15220	10860	20740	16670	4040

CAL YR 1978 TOTAL 55902 MEAN 153 MAX 2880 MIN 22 CFSM .76 IN 10.35 AC-FT 110900
WTR YR 1979 TOTAL 80668 MEAN 221 MAX 3450 MIN 30 CFSM 1.10 IN 14.93 AC-FT 160000

05452200 WALNUT CREEK NEAR HARTWICK, IA

LOCATION.--Lat 41°50'06", long 92°23'10", in SE1/4 SW1/4 sec.8, T.81 N., R.13 W., Poweshiek County, Hydrologic Unit 07080208, on left bank 5 ft (2 m) upstream from bridge on county highway V21, 1.2 mi (1.9 km) downstream from North Walnut Creek, 4.0 mi (6.4 km) northwest of Hartwick, and 6.5 mi (10.5 km) upstream from mouth.

DRAINAGE AREA.--70.9 mi² (184 km²).

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

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

GAGE.--Water-stage recorder. Datum of gage is 786.59 ft (239.753 m) NGVD.

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

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

AVERAGE DISCHARGE.--30 years, 43.1 ft³/s (1.221 m³/s), 8.26 in/yr (210 mm/yr), 31,230 acre-ft/yr (38.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,800 ft³/s (193 m³/s) Aug. 16, 1977, gage height, 16.30 ft (4.968 m), from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of contracted-opening and flow-over-embankment measurement of peak flow; no flow at times for most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of 17.7 ft (5.39 m), from information by local residents, discharge not determined.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	0200	*5,850	166	*16.00	4.877
Mar. 29	1430	1,470	41.6	12.03	3.667
Apr. 20	1530	4,050	115	15.34	4.676
June 27	0400	1,620	45.9	12.40	3.780
July 14	0600	2,240	63.4	13.70	4.176
Aug. 20	0200	1,180	33.4	11.18	3.408
Aug. 22	0015	3,000	85.0	14.60	4.450
Aug. 26	2330	3,460	98.0	15.04	4.584

Minimum daily discharge, 8.5 ft³/s (0.24 m³/s) Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	34	56	13	23	23	208	116	43	44	18	42
2	41	34	53	15	23	23	248	178	42	43	17	33
3	86	33	52	24	23	42	242	243	40	44	16	28
4	63	32	49	22	23	235	232	177	39	41	16	25
5	53	32	50	16	23	260	209	153	39	37	15	23
6	49	30	47	15	22	235	154	136	39	33	14	22
7	42	30	45	12	22	165	146	122	38	31	13	19
8	42	30	52	13	22	86	133	112	42	30	12	18
9	41	29	60	13	22	100	112	102	103	29	12	17
10	126	27	57	13	22	86	102	100	86	27	15	17
11	108	26	54	13	21	56	103	106	60	44	14	16
12	90	27	56	13	20	74	105	88	67	25	12	15
13	79	103	55	13	19	125	89	88	82	26	12	15
14	72	49	54	13	18	190	81	86	64	696	10	13
15	67	41	54	15	17	110	76	80	58	77	9.2	13
16	63	39	49	19	17	120	74	74	51	45	9.3	12
17	56	308	43	20	17	370	72	71	41	38	8.5	12
18	53	166	32	23	18	1430	69	94	50	33	8.6	11
19	50	117	25	26	19	1800	161	99	45	29	55	11
20	49	96	21	27	18	334	724	75	49	27	403	10
21	47	84	22	27	18	201	328	68	35	25	369	10
22	44	78	21	26	18	196	220	65	33	23	583	9.8
23	41	79	20	26	20	350	178	60	32	23	98	9.8
24	41	69	17	25	20	217	165	56	32	24	45	9.4
25	42	66	18	25	22	171	225	54	32	21	35	9.4
26	38	63	18	24	23	139	235	56	31	20	776	9.0
27	37	60	18	23	24	125	156	55	358	19	431	9.0
28	35	54	18	23	23	215	144	50	78	18	132	8.7
29	36	58	17	23	---	701	139	52	71	24	38	8.7
30	35	56	17	23	---	568	123	49	52	51	35	8.7
31	34	---	15	23	---	276	---	46	---	23	38	---
TOTAL	1699	1950	1165	606	577	9023	5253	2911	1832	1670	3269.6	464.5
MEAN	54.8	65.0	37.6	19.5	20.6	291	175	93.9	61.1	53.9	105	15.5
MAX	126	308	60	27	24	1800	724	243	358	696	776	42
MIN	34	26	15	12	17	23	69	46	31	18	8.5	8.7
CFSM	.77	.92	.53	.28	.29	4.10	2.47	1.32	.86	.76	1.48	.22
IN.	.89	1.02	.61	.32	.30	4.73	2.76	1.53	.96	.88	1.72	.24
AC-FT	3370	3870	2310	1200	1140	17900	10420	5770	3630	3310	6490	921

CAL YR 1978	TOTAL	25552.3	MEAN 70.0	MAX 1580	MIN 9.1	CFSM .99	IN 13.41	AC-FT	50680
WTR YR 1979	TOTAL	30420.1	MEAN 83.3	MAX 1800	MIN 8.5	CFSM 1.18	IN 15.96	AC-FT	60340

05453000 BIG BEAR CREEK AT LADORA, IA

LOCATION.--Lat 41°44'58", long 92°10'55", in SW1/4 SW1/4 sec.7, T.80 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on left bank 10 ft (3 m) downstream from bridge on county highway V52, 0.4 mi (0.6 km) south of Ladora, 1.2 mi (1.9 km) downstream from Coats Creek, 2.8 mi (4.5 km) upstream from Little Bear Creek, and 8.1 mi (13.0 km) upstream from mouth.

DRAINAGE AREA.--189 mi² (490 km²).

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

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

GAGE.--Water-stage recorder. Datum of gage is 754.94 ft (230.106 m) NGVD. Prior to June 26, 1946, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--34 years, 121 ft³/s (3.427 m³/s), 8.69 in/yr (221 mm/yr), 87,660 acre-ft/yr (108 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 14	----	2,900	82.1	ice jam	---	Apr. 20	2030	2,040	57.8	8.92	2.719
Mar. 19	0945	*5,600	159	*13.95	4.252	Aug. 20	0530	2,950	83.5	10.77	3.283
Mar. 29	2100	3,480	98.6	11.67	3.557	Aug. 22	0530	3,600	102	11.83	3.606

Minimum daily discharge, 23 ft³/s (0.65 m³/s) Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	99	188	64	58	68	581	308	123	121	61	110
2	206	97	175	66	57	70	573	407	120	112	56	97
3	406	95	170	68	55	94	607	721	116	106	58	85
4	282	94	155	67	54	570	539	464	113	219	44	80
5	234	94	150	66	53	490	529	400	113	132	40	72
6	200	89	145	64	52	330	420	361	106	102	36	68
7	181	81	145	63	51	290	393	333	101	95	32	61
8	171	82	170	61	50	260	374	310	109	91	30	57
9	175	82	165	60	49	230	369	270	114	86	31	53
10	358	79	140	60	48	220	354	264	277	82	36	52
11	579	74	135	59	48	210	342	284	144	80	43	50
12	333	72	130	59	48	260	347	240	125	77	36	48
13	284	279	125	60	48	720	342	229	183	74	29	45
14	247	185	120	59	48	2000	296	224	145	407	26	43
15	224	131	125	59	48	1140	270	219	121	127	27	43
16	203	121	120	58	47	491	257	202	112	90	27	40
17	183	877	115	60	45	1880	252	195	112	77	27	35
18	177	581	110	61	46	3490	240	206	109	71	25	33
19	166	389	110	61	46	4510	269	306	105	66	36	30
20	162	317	105	60	46	1170	1550	237	105	64	1640	29
21	156	275	96	60	46	721	965	208	91	61	360	29
22	150	250	85	60	47	591	573	189	86	59	1870	29
23	138	250	84	60	48	859	474	174	86	56	374	29
24	137	222	82	60	55	755	422	163	85	56	244	24
25	140	211	66	60	66	571	419	157	80	68	195	31
26	125	202	70	60	70	476	595	159	76	65	175	26
27	118	197	68	60	65	413	449	159	406	53	410	25
28	112	178	68	60	64	517	383	143	232	48	206	23
29	109	183	70	60	---	1960	361	140	160	48	161	23
30	106	192	66	60	---	1610	338	134	132	312	143	23
31	101	---	62	58	---	788	---	130	---	90	116	---
TOTAL	6346	6078	3615	1893	1458	27744	13883	7936	3987	3195	6594	1393
MEAN	205	203	117	61.1	52.1	895	463	256	133	103	213	46.4
MAX	579	877	188	68	70	4510	1550	721	406	407	1870	110
MIN	101	72	62	58	45	68	240	130	76	48	25	23
CFSM	1.09	1.07	.62	.32	.28	4.74	2.45	1.35	.70	.55	1.13	.25
IN.	1.25	1.20	.71	.37	.29	5.46	2.73	1.56	.78	.63	1.30	.27
AC-FT	12590	12060	7170	3750	2890	55030	27540	15740	7910	6340	13080	2760

CAL YR 1978	TOTAL	75121	MEAN 206	MAX 4080	MIN 22	CFSM 1.09	IN 14.79	AC-FT	149000
WTR YR 1979	TOTAL	84122	MEAN 230	MAX 4510	MIN 23	CFSM 1.22	IN 16.56	AC-FT	166900

05453100 IOWA RIVER AT MARENGO, IA

LOCATION.--Lat 41°48'41", long 92°03'42", in SW1/4 NE1/4 sec.24, T.81 N., R.11 W., Iowa County, Hydrologic Unit 07080208, on right bank 10 ft (3 m) downstream from abandoned highway bridge, 0.7 mi (1.1 km) downstream from Big Bear Creek, 0.8 mi (1.3 km) north of Marengo, 4.9 mi (7.9 km) upstream from Hilton Creek, and at mile 139.4 (224.3 km).

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

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

REVISED RECORDS.--WSP 1558: 1957.

GAGE.--Water-stage recorder. Datum of gage is 720.52 ft (219.614 m) NGVD.

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

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

AVERAGE DISCHARGE.--23 years, 1,718 ft³/s (48.65 m³/s), 8.35 in/yr (212 mm/yr), 1,245,000 acre-ft/yr (1,540 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	2030	*22,300	632	*19.40	5.913
Apr. 21	0715	7,550	214	15.58	4.749
Aug. 22	1215	11,200	317	16.39	4.996

Minimum daily discharge, 400 ft³/s (11.3 m³/s) Jan. 2-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1980	1040	1560	410	470	760	11400	4210	1770	1600	1480	4860
2	1870	1030	1490	400	470	780	11600	4090	1720	1630	1630	4530
3	2180	1020	1400	400	480	810	12500	5140	1820	1680	1570	3970
4	2080	1010	1650	410	480	1900	10900	5080	1830	2810	1410	3420
5	1900	1000	1800	420	480	3000	9530	5190	1730	2920	1360	3060
6	1760	993	1800	420	480	2900	8430	5220	1660	2350	1360	2810
7	1650	965	1600	430	470	2800	7670	4900	1540	2010	1320	2600
8	1570	953	1400	420	480	2700	7150	4410	1490	1720	1270	2500
9	1570	943	1350	420	460	2500	6610	3990	1680	1520	1170	2350
10	2090	932	1300	420	450	2300	6180	3580	2070	1360	1280	2140
11	2230	917	1200	410	450	2100	5620	3360	2000	1250	1220	1970
12	1970	902	1300	420	460	2100	5080	3260	2060	1220	1120	1820
13	1820	1140	1250	420	450	2700	4740	3260	2350	1500	1040	1700
14	1770	1350	1250	420	450	5100	4520	3010	2730	3380	1150	1530
15	1640	1510	1150	420	450	5600	4190	2830	2760	4570	1350	1410
16	1560	1520	1050	420	460	6300	3840	2620	2320	4850	1580	1320
17	1470	2570	980	420	470	7400	3580	2450	2050	3170	1770	1230
18	1430	3540	900	430	480	13700	3390	2360	1880	2410	1870	1160
19	1380	3050	850	430	500	19700	3330	2670	1820	2290	2030	1090
20	1330	2630	820	440	500	20700	5620	2460	2110	2070	6520	1080
21	1280	2330	760	450	530	18800	7330	2520	2310	1710	6090	1070
22	1270	2110	700	460	560	19100	7380	2620	2370	1400	9930	1040
23	1240	2010	660	460	580	16400	6810	2740	2100	1260	9230	1000
24	1200	1930	640	470	620	14200	6310	2610	1850	1160	8300	977
25	1200	1870	600	460	700	11700	6180	2420	1660	1090	7010	965
26	1170	1800	550	470	760	10700	5730	2260	1510	1050	6080	961
27	1150	1750	520	460	760	10700	5700	2160	2070	1130	6070	915
28	1120	1670	500	470	740	10400	5390	2080	2600	1550	6360	874
29	1090	1630	480	470	---	11200	5050	1990	1890	1280	6180	839
30	1070	1590	460	470	---	13600	4620	2000	1690	1580	5700	799
31	1050	---	430	480	---	12400	---	1870	---	1470	5200	---
TOTAL	48090	47705	32400	13500	14640	255050	196380	99360	59440	60990	109650	56980
MEAN	1551	1590	1045	435	523	8227	6546	3205	1981	1967	3537	1866
MAX	2230	3540	1800	480	760	20700	12500	5220	2760	4850	9930	4860
MIN	1050	902	430	400	450	760	3330	1870	1490	1050	1040	799
CFSM	.56	.57	.37	.16	.19	2.95	2.34	1.15	.71	.70	1.27	.67
IN.	.64	.64	.43	.18	.19	3.40	2.61	1.32	.79	.81	1.46	.76
AC-FT	95390	94620	64270	26780	29040	505900	389500	197100	117900	121000	217500	111000

CAL YR 1978 TOTAL 671737 MEAN 1840 MAX 12600 MIN 318 CFSM .66 IN 8.94 AC-FT 1332000
WTR YR 1979 TOTAL 993185 MEAN 2721 MAX 20700 MIN 400 CFSM .97 IN 13.22 AC-FT 1970000

05453510 CORALVILLE LAKE NEAR CORALVILLE, IA

LOCATION.--Lat 41°43'29", long 91°31'40", in SW1/4 NE1/4 sec.22, T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080208, at outlet works at left end of Coralville Dam on Iowa River, 2.3 mi (3.7 km) upstream from Rapid Creek, 4.3 mi (6.9 km) northeast of Coralville Post Office and at mile 83.3 (134.0 km).

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

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

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

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

COOPERATION.--Records furnished by Corps of Engineers.

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

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 395,000 acre-ft (487 hm³) Apr. 5,6; maximum elevation, 709.18 ft (216.158 m) Apr. 5; minimum daily contents, 17,900 acre-ft (22.1 hm³) Mar. 1; minimum elevation, 670.06 ft (204.234 m) Mar. 13.

Capacity table (elevation, in feet, and contents, in acre-ft)

665	5,000	683	55,000	700	232,000
670	10,600	685	69,000	705	327,000
675	21,000	690	108,000	710	427,000
680	40,300	695	162,000	712	469,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71100	62300	63700	47700	46200	17900	379000	212000	89900	39700	41400	152000
2	69000	62200	62900	47400	43300	18100	383000	207000	85200	40600	41600	158000
3	67800	62200	62400	47300	40400	18600	386000	205000	81200	41000	41900	156000
4	66600	62100	62300	47200	37500	18900	392000	204000	77800	41000	41900	156000
5	64400	62300	62700	47200	34600	20900	395000	203000	74100	41800	40900	153000
6	63100	62500	63400	47400	32000	24400	395000	202000	70100	41700	40300	149000
7	62700	62600	64200	47700	29500	24600	393000	201000	66200	40200	40200	144000
8	62600	62800	64300	48000	28100	22900	390000	199000	62300	39200	40600	138000
9	62900	62900	63800	48200	27200	21200	386000	197000	58500	39200	41700	133000
10	63100	63100	62600	48200	26600	19700	381000	194000	54800	39300	41700	127000
11	63100	63200	61100	48100	25900	19100	375000	189000	51900	39500	41800	120000
12	62500	63200	58900	48100	25200	18000	367000	184000	51100	40000	41500	114000
13	62300	64100	56700	48100	24400	19500	359000	179000	49600	40700	41300	107000
14	62500	64100	54500	47800	23600	22500	349000	174000	48000	42100	40900	101000
15	62800	64100	52500	47700	22800	21900	338000	168000	46300	43800	41100	97200
16	62900	64400	50200	47700	22200	21400	326000	162000	44500	45700	41200	92900
17	62800	67100	48700	47700	21800	26800	313000	156000	41600	46900	41900	88400
18	62400	71200	48000	47700	21400	52300	300000	151000	39900	45300	43400	84000
19	62200	72800	47500	47800	21000	96900	288000	145000	39500	42700	46600	79700
20	62200	72600	47200	47900	20500	146000	281000	139000	39600	41700	52400	76900
21	62200	71400	47200	48000	20100	193000	274000	133000	39400	41400	61500	72300
22	62200	69600	47300	48100	19600	232000	270000	128000	39400	40800	67200	69500
23	62100	67600	47400	48200	18800	280000	266000	123000	39400	40300	70000	66700
24	62000	66700	47400	48100	18800	312000	262000	120000	39700	40500	73800	64100
25	62900	66300	47300	47800	18700	328000	258000	117000	38500	41000	81000	62400
26	64200	65900	47100	47800	18800	336000	253000	113000	38700	41400	91300	61400
27	63800	65500	47200	47900	18900	338000	246000	110000	38700	41600	102000	60800
28	63100	65000	47400	47900	18500	341000	237000	106000	39900	41800	113000	60400
29	62400	64400	47700	47800	---	350000	229000	102000	39600	42500	125000	60100
30	62100	63700	47800	47800	---	366000	220000	98200	39000	42100	137000	59800
31	62200	---	48000	47800	---	367000	---	94100	---	42000	144000	---
MAX	71100	72800	64300	48200	46200	367000	395000	212000	89900	46900	144000	158000
MIN	62000	62100	47100	47200	18500	17900	220000	94100	38500	39200	40200	59800

WTR YR 1979 MAX 395000 MIN 17900

05454000 RAPID CREEK NEAR IOWA CITY, IA

LOCATION.--Lat 41°41'19", long 91°29'15", in NE1/4 NE1/4 sec.36. T.80 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on left bank 80 ft (24 m) upstream from bridge on State Highway 1, 3.5 mi (5.6 km) northeast of Iowa City, and 4.7 mi (7.6 km) upstream from mouth.

DRAINAGE AREA.--25.3 mi² (65.5 km²).

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1558: 1941 (M), 1943 (P), 1944 (M); 1946. WSP 1708: 1951 (P), 1952, WDR IOWA 1967: Drainage area.

GAGE.--Water-stage recorder and concrete control with sharp-crested weir. Datum of gage is 673.72 ft (205.350 m) NGVD.

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

AVERAGE DISCHARGE.--42 years, 15.5 ft³/s (0.439 m³/s), 8.32 in/yr (211 mm/yr), 11,230 acre-ft/yr (13.8 hm³/yr); median of yearly discharges, 14 ft³/s (0.396 m³/s), 7.5 in/yr (190 mm/yr), 10,100 acre-ft/yr (12.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,100 ft³/s (173 m³/s) May 23, 1965, gage height, 14.10 ft (4.298 m), from contracted-opening measurement of peak flow; maximum gage height, 14.93 ft (4.551 m) July 17, 1972; no flow at times most years.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 18	2200	1,180	33.4	10.20	3.109	Aug. 20	0315	*2,270	64.3	*12.04	3.670

Minimum daily discharge, 1.20 ft³/s (0.034 m³/s) Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	2.6	9.4	2.6	2.2	11	63	26	7.3	2.3	3.1	12
2	4.4	2.6	9.8	2.5	2.3	10	81	41	6.8	2.0	2.9	11
3	5.5	2.5	10	2.4	2.3	90	62	65	6.5	18	64	8.7
4	3.7	2.5	10	2.5	2.3	190	59	45	6.3	9.9	13	7.8
5	2.9	2.8	9.6	2.3	2.3	100	51	39	6.5	5.3	6.7	7.1
6	2.4	3.1	8.4	2.2	2.3	63	44	35	5.9	4.2	4.8	6.2
7	2.1	2.4	8.0	2.0	2.4	52	42	31	6.3	3.7	3.8	5.3
8	1.9	2.4	7.8	2.0	2.2	40	39	28	6.8	3.3	2.9	4.7
9	5.8	2.5	8.0	1.9	2.1	37	35	25	6.9	3.0	3.7	4.6
10	21	2.4	8.2	1.8	3.0	36	33	23	7.3	2.7	3.5	4.0
11	12	2.2	8.4	1.8	3.4	38	37	22	5.8	2.7	2.4	3.5
12	9.0	2.2	8.1	1.8	3.8	39	40	20	17	2.5	1.9	3.2
13	7.0	14	7.7	1.7	3.6	127	33	19	20	2.4	1.8	3.0
14	6.1	6.1	6.9	1.7	3.9	124	30	20	9.8	13	1.8	2.9
15	5.6	4.7	6.7	1.7	3.9	81	28	17	7.2	6.0	1.5	2.7
16	4.9	4.4	6.3	1.7	2.8	79	24	16	5.7	3.5	1.3	2.7
17	4.2	36	5.8	1.7	2.2	193	24	15	5.2	2.7	1.2	2.4
18	4.3	23	6.0	1.8	2.2	564	27	15	5.2	2.4	82	2.1
19	4.1	16	6.2	1.8	2.5	470	41	17	5.3	2.2	129	2.0
20	4.0	13	6.0	1.8	2.7	130	52	14	7.4	2.0	678	1.9
21	3.8	12	5.9	1.9	3.1	84	48	12	4.4	1.8	53	1.8
22	3.4	11	5.7	1.9	3.6	71	42	12	3.7	1.7	35	1.5
23	3.1	13	5.4	1.9	10	99	37	11	3.6	1.4	27	1.5
24	2.9	11	5.1	2.0	53	87	35	10	3.8	1.9	21	2.5
25	3.8	9.8	4.3	2.0	42	57	39	10	3.4	6.2	17	2.7
26	3.5	9.7	4.0	2.1	28	48	38	10	3.1	4.9	17	1.8
27	2.9	9.8	3.9	2.2	18	41	34	9.9	3.2	6.1	132	1.5
28	2.7	8.0	4.1	2.1	13	40	31	8.6	3.3	6.0	32	1.4
29	2.5	8.6	4.0	2.1	---	117	32	8.0	3.3	3.5	22	1.3
30	2.4	9.0	3.6	2.1	---	104	28	7.8	2.9	13	16	1.4
31	2.5	---	3.3	2.2	---	68	---	7.4	---	5.0	13	---
TOTAL	147.4	249.3	206.6	62.2	225.1	3290	1209	639.7	189.9	145.3	1394.3	115.2
MEAN	4.75	8.31	6.66	2.01	8.04	106	40.3	20.6	6.33	4.69	45.0	3.84
MAX	21	36	10	2.6	53	564	81	65	20	18	678	12
MIN	1.9	2.2	3.3	1.7	2.1	10	24	7.4	2.9	1.4	1.2	1.3
CFSM	.19	.33	.26	.08	.32	4.19	1.59	.81	.25	.19	1.78	.15
IN.	.22	.37	.30	.09	.33	4.84	1.78	.94	.28	.21	2.06	.17
AC-FT	292	494	410	123	446	6530	2400	1270	377	288	2770	228

CAL YR 1978 TOTAL 5268.81 MEAN 14.4 MAX 156 MIN .28 CFSM .57 IN 7.75 AC-FT 10450
WTR YR 1979 TOTAL 7874.00 MEAN 21.6 MAX 678 MIN 1.2 CFSM .85 IN 11.58 AC-FT 15620

05454300 CLEAR CREEK NEAR CORALVILLE, IA

LOCATION.--Lat 41°40'36", long 91°35'55", in NE1/4 SE1/4 sec.1, T.79 N., R.7 W., Johnson County, Hydrologic Unit 07080209, on left bank about 50 ft (15 m) upstream from bridge on county highway, 1.1 mi (1.8 km) west of post office in Coralville, 1.5 mi (2.4 km) downstream from Deer Creek and 2.7 mi (4.3 km) upstream from mouth.

DRAINAGE AREA.--98.1 mi² (254.1 km²).

PERIOD OF RECORD.--October 1952 to current year. Monthly discharge only for some periods, published in WSP 1728.

GAGE.--Water-stage recorder. Datum of gage is 647.48 ft (197.352 m) NGVD (levels by Corps of Engineers). Prior to Jan. 7, 1957, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--27 years, 64.7 ft³/s (1.832 m³/s), 8.96 in/yr (228 mm/yr), 46,880 acre-ft/yr (57.8 hm³/yr); median of yearly mean discharges, 50 ft³/s (1.42 m³/s), 6.9 in/yr (175 mm/yr), 36,200 acre-ft/yr (44.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,630 ft³/s (188 m³/s) May 17, 1974, gage height, 13.93 ft (4.246 m); no flow Jan. 18 to Feb. 4, 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	1600	*2,590	73.3	*12.41	3.783	Aug. 20	0915	1,570	44.5	10.71	3.264

Minimum daily discharge, 6.0 ft³/s (0.17 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	25	80	34	29	46	282	123	47	20	14	37
2	32	25	84	36	28	49	321	153	43	18	12	34
3	68	25	83	38	28	76	285	488	43	18	301	31
4	51	25	80	36	27	150	250	243	40	20	59	27
5	43	25	82	33	26	195	224	170	40	17	34	25
6	37	26	75	32	26	190	181	149	38	17	20	22
7	33	25	72	32	26	175	177	145	37	17	16	20
8	31	24	78	31	25	162	169	135	38	16	12	17
9	49	24	75	30	23	158	153	123	42	16	13	16
10	107	23	70	30	23	150	136	120	47	15	51	13
11	75	22	65	29	24	155	135	121	40	15	25	11
12	58	21	61	31	25	150	222	109	40	14	14	10
13	49	109	60	32	25	205	163	103	67	32	12	10
14	44	64	57	31	25	350	142	100	42	51	12	9.9
15	43	42	56	30	26	280	126	96	38	31	12	9.0
16	39	47	54	31	24	250	116	86	34	18	10	9.4
17	36	381	51	33	21	696	110	81	31	16	9.9	8.5
18	36	223	50	37	22	1460	104	79	30	15	11	8.1
19	34	163	50	37	23	2410	117	111	30	14	37	7.2
20	33	133	46	39	25	888	242	90	63	14	1230	6.9
21	32	114	41	38	27	381	285	79	33	13	304	6.6
22	31	101	38	36	28	301	199	75	27	13	80	6.0
23	30	99	36	35	31	430	181	71	25	12	50	6.3
24	29	95	32	34	32	434	172	67	26	12	40	7.6
25	29	84	30	33	35	300	169	61	25	13	35	8.1
26	30	79	34	32	39	253	183	61	23	12	30	6.9
27	28	78	33	32	41	222	164	62	24	18	362	6.6
28	27	70	36	31	44	256	145	56	25	32	114	6.3
29	26	71	36	30	---	609	134	55	25	22	72	6.3
30	25	79	33	29	---	705	132	51	23	59	53	6.0
31	26	---	28	29	---	373	---	50	---	25	45	---
TOTAL	1243	2322	1706	1021	778	12459	5419	3513	1086	625	3089.9	398.7
MEAN	40.1	77.4	55.0	32.9	27.8	402	181	113	36.2	20.2	99.7	13.3
MAX	107	381	84	39	44	2410	321	488	67	59	1230	37
MIN	25	21	28	29	21	46	104	50	23	12	9.9	6.0
CFSM	.41	.79	.56	.34	.28	4.10	1.85	1.15	.37	.21	1.02	.14
IN.	.47	.88	.65	.39	.30	4.72	2.05	1.33	.41	.24	1.17	.15
AC-FT	2470	4610	3380	2030	1540	24710	10750	6970	2150	1240	6130	791

CAL YR 1978 TOTAL 35009.7 MEAN 95.9 MAX 1840 MIN 7.8 CFSM .98 IN 13.28 AC-FT 69440
WTR YR 1979 TOTAL 33660.6 MEAN 92.2 MAX 2410 MIN 6.0 CFSM .94 IN 12.76 AC-FT 66770

05454500 IOWA RIVER AT IOWA CITY, IA

LOCATION.--Lat 41°39'24", long 91°32'27", in SE1/4 SE1/4 sec.9, T.79 N., R.6 W., Johnson County, Hydrologic Unit 07080209, on right bank 25 ft (8 m) downstream from Hydraulics Laboratory of University of Iowa in Iowa City, 175 ft (53 m) downstream from University Dam, 0.8 mi (1.3 km) upstream from Ralston Creek, 3.6 mi (5.8 km) downstream from Clear Creek, and at mile 74.2 (119.4 km).

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1903 to current year. Monthly discharge only for some periods, published in WSP 1308.

GAGE.--Water-stage recorder. Datum of gage is 29.00 ft (8.839 m) above Iowa City datum, and 617.27 ft (188.144 m) NGVD. Oct. 1, 1934 to Sept. 30, 1972, at datum 10.00 ft (3.05 m) higher. See WSP 1708 for history of changes prior to Oct. 1, 1934.

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

AVERAGE DISCHARGE.--76 years, 1,655 ft³/s (46.87 m³/s), 6.87 in/yr (174 mm/yr), 1,199,000 acre-ft/yr (1,480 hm³/yr); median of yearly mean discharges, 1,460 ft³/s (41.3 m³/s), 6.1 in/yr (155 mm/yr), 1,060,000 acre-ft/yr (1,310 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 ft³/s (1,204 m³/s) June 8, 1918, gage height, 19.6 ft (5.974 m) from graph based on gage readings, site and datum then in use; minimum daily, 29 ft³/s (0.82 m³/s) Oct. 21, 22, 1916, regulated.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,700 ft³/s (303 m³/s) Mar. 29, gage height, 21.64 ft (6.596 m); minimum daily, 414 ft³/s (11.7 m³/s) Oct. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3900	1080	2050	1010	1110	924	6890	9230	4300	1750	1950	1490
2	3490	1080	1910	1060	1960	774	9200	8620	4460	1620	1750	1930
3	2830	1080	1730	840	1900	945	10200	8200	4100	1780	2340	3850
4	2800	1080	1320	804	1890	1570	10100	7060	3710	2150	2230	5130
5	3000	1020	1060	798	1890	1860	10100	6440	3670	2740	2150	5130
6	3040	924	1020	708	1720	2210	10100	6400	3650	3100	1890	5110
7	2020	917	987	582	1530	3180	10100	6370	3640	3100	1560	5090
8	1790	917	1240	582	1250	3940	10100	6350	3590	2720	1280	5000
9	1850	917	1340	672	1010	3600	10000	6320	3560	2020	1200	5000
10	2140	917	1460	750	987	3240	9970	6290	3540	1750	1360	5000
11	2560	917	1720	750	973	2890	9980	6270	3500	1610	1410	4950
12	2750	917	2160	762	966	2730	10100	6230	3520	1180	1390	4910
13	2380	1120	2390	828	945	2660	9970	6190	3850	1370	1390	4870
14	2010	1360	2380	896	924	2850	9900	6180	3980	1870	1300	4530
15	1840	1490	2370	804	910	3690	9910	6140	3930	2960	1170	3950
16	1720	1490	2350	642	847	4870	9840	6090	3910	3550	1340	3640
17	1710	2140	1990	618	714	5370	9760	6060	3860	3990	1540	3600
18	1710	2600	1540	606	708	5570	9690	6030	3130	4320	1980	3370
19	1610	2800	1520	624	702	5020	9730	6050	2430	3900	2410	3170
20	1510	3280	1420	606	702	2940	9840	5960	2590	3000	5230	2890
21	1450	3440	1340	600	696	2060	9850	5910	2700	2370	3580	2560
22	1370	3420	1220	594	750	1970	9670	5870	2680	2270	3600	2210
23	1360	3430	1200	594	854	2500	9710	5410	2680	1940	4980	2200
24	1350	2920	1210	708	654	3750	9850	4760	2680	1540	5390	2100
25	966	2380	1190	810	642	6100	9880	4390	2260	1240	5190	1750
26	414	2370	1160	648	780	7970	9860	4380	1900	1230	4390	1340
27	1380	2370	987	570	780	9090	9760	4340	1900	1280	3460	1160
28	1450	2320	868	636	896	9850	9670	4310	2050	1500	1600	1040
29	1450	2160	868	636	---	10000	9630	4280	2770	1610	1510	924
30	1340	2160	917	630	---	7710	9550	4250	2680	1830	1490	924
31	1190	---	945	630	---	5420	---	4220	---	2050	1500	---
TOTAL	60380	55016	45882	21998	29690	127253	292910	184600	97220	69340	73570	98818
MEAN	1948	1834	1480	710	1060	4105	9764	5955	3241	2237	2373	3294
MAX	3900	3440	2390	1060	1960	10000	10200	9230	4460	4320	5390	5130
MIN	414	917	868	570	642	774	6890	4220	1900	1180	1170	924
AC-FT	119800	109100	91010	43630	58890	252400	581000	366200	192800	137500	145900	196000

CAL YR 1978 TOTAL 780753 MEAN 2139 MAX 9490 MIN 236 AC-FT 1549000
WTR YR 1979 TOTAL 1156677 MEAN 3169 MAX 10200 MIN 414 AC-FT 2294000

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples collected at Benton Street bridge at Iowa City, 0.5 mi (0.8 km) downstream from gaging station.

PERIOD OF RECORD.--September 1906 to September 1907, water years 1944 to current year.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSIS: September 1906 to September 1907, October 1943 to September 1954.
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: January 1944 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1943 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at times of analysis. During periods of partial ice cover, sediment samples are collected in open water channel.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 750 micromhos Feb. 25, 1972, Mar. 2, 7, 1977; minimum daily, 150 micromhos May 17, 1974.
WATER TEMPERATURES: Maximum daily, 32.0°C July 19, 1957, Aug. 24, 25, 1959, June 27, 1971; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,800 mg/L June 13, 1953; minimum daily mean, 1 mg/L Feb. 4,1979.
SEDIMENT LOADS: Maximum daily, 177,000 tons (161,000 tonnes) May 23, 1944; minimum daily, 0.82 ton (0.74 tonne) Jan. 21, 22, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 675 micromhos Feb. 2; minimum daily, 235 micromhos Mar. 28.
WATER TEMPERATURES: Maximum daily, 29.0°C July 23, Aug. 6; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 955 mg/L Mar. 19; minimum daily mean, 1 mg/L Feb. 4.
SEDIMENT LOADS: Maximum daily, 14,700 tons (13,300 tonnes) Apr. 3; minimum daily, 5.1 tons (4.6 tonnes) Feb.4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	610	600	530	645	560	---	520	550	---	560	---
2	560	600	---	---	675	500	240	510	---	520	---	---
3	600	580	---	---	---	---	---	---	---	500	480	---
4	600	---	660	545	---	---	---	500	575	---	---	380
5	600	---	630	530	640	520	270	---	575	500	---	410
6	520	600	600	---	600	---	---	---	585	540	560	440
7	---	620	590	---	610	500	---	520	---	---	540	440
8	---	610	---	520	610	395	---	520	575	---	---	---
9	560	620	---	---	630	400	365	530	---	540	---	---
10	560	610	---	---	---	---	---	---	---	570	---	480
11	560	---	---	---	---	---	---	540	535	550	---	490
12	540	---	500	---	460	425	375	---	575	520	---	---
13	550	610	520	---	---	440	375	---	585	510	550	520
14	---	620	620	---	---	---	---	575	590	---	520	540
15	---	600	580	---	---	430	---	555	590	---	---	---
16	540	605	---	560	440	390	380	555	---	540	530	---
17	560	580	---	570	---	---	395	550	---	530	520	530
18	550	---	---	580	---	---	400	555	570	520	---	500
19	550	---	520	560	---	280	---	---	540	380	---	520
20	530	610	520	---	475	310	---	---	540	---	400	520
21	---	590	570	---	500	330	---	555	540	---	550	500
22	---	570	570	560	490	325	---	560	540	---	580	---
23	580	---	---	---	485	325	435	555	---	420	550	---
24	580	---	---	---	---	---	460	555	---	---	510	480
25	590	---	---	---	---	---	485	565	540	---	---	510
26	600	---	560	615	---	---	500	---	530	500	---	500
27	560	530	660	---	475	245	515	---	500	---	330	510
28	---	540	520	---	460	235	---	---	520	---	---	---
29	---	540	580	610	---	240	---	565	520	---	340	---
30	570	590	---	640	---	---	525	560	---	---	360	---
31	590	---	---	640	---	---	---	---	---	550	340	---

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.0	1.0	---	.0	1.5	---	12.0	23.0	---	27.0	---
2	17.0	10.0	---	.0	.0	3.0	---	16.0	---	23.0	---	---
3	16.0	10.0	---	.0	---	---	---	---	---	24.0	26.5	---
4	16.0	---	.0	.0	---	---	---	---	24.0	---	---	21.5
5	15.5	---	---	.0	.0	---	10.0	---	22.0	22.0	---	24.0
6	15.0	10.0	2.0	---	.0	---	---	---	25.0	25.0	29.0	26.0
7	---	10.0	1.0	---	.0	1.0	---	---	---	---	---	---
8	---	9.5	---	.0	.0	1.0	---	---	23.5	---	---	---
9	15.5	12.0	---	---	.5	3.0	5.0	18.0	---	24.0	---	---
10	14.0	10.0	---	---	---	---	---	---	---	23.0	---	---
11	14.0	---	---	---	---	---	---	15.0	21.0	23.5	---	27.0
12	14.0	---	---	---	1.0	3.0	10.0	---	26.0	23.0	---	---
13	12.5	10.5	---	---	---	4.0	---	---	24.0	25.0	26.0	24.0
14	---	7.5	3.0	---	---	.0	---	17.0	25.0	---	---	22.5
15	---	10.0	2.0	---	---	2.0	---	---	26.0	---	21.0	---
16	10.0	9.0	---	.0	.0	4.0	---	19.0	---	25.0	23.0	---
17	10.0	7.0	---	.0	---	---	11.0	17.0	---	26.0	22.0	24.0
18	10.5	---	---	.5	---	---	11.0	20.0	23.0	24.5	---	23.0
19	10.0	---	1.0	1.0	---	4.5	---	---	26.0	---	---	24.0
20	11.5	5.0	1.0	---	2.0	4.0	---	---	22.0	28.0	24.0	23.0
21	---	4.0	.0	---	1.0	3.0	---	20.0	23.0	---	25.0	21.0
22	---	4.0	.0	1.0	1.0	5.0	---	21.0	23.0	---	24.0	---
23	10.0	---	---	---	1.0	4.0	13.0	19.5	---	29.0	23.0	---
24	12.5	---	---	---	---	---	13.0	20.0	---	---	22.0	19.0
25	11.5	---	---	---	---	---	12.0	20.0	22.0	---	---	22.0
26	11.0	---	.0	1.0	---	---	13.0	---	21.0	---	---	23.0
27	10.5	1.0	---	---	3.0	4.0	12.0	---	22.0	---	24.0	22.0
28	---	.5	.0	---	2.0	8.0	---	---	22.0	---	28.0	---
29	---	2.5	.0	1.0	---	---	---	22.0	23.0	---	---	---
30	9.5	2.0	---	1.0	---	---	13.0	23.0	---	---	27.0	---
31	11.5	---	---	.0	---	---	---	---	---	---	26.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	50	526	24	70	35	194	25	68	8	24	8	20
2	59	556	26	76	36	186	19	54	4	21	15	31
3	84	642	44	128	31	145	11	25	2	10	31	79
4	51	386	48	140	24	86	8	17	1	5.1	43	182
5	50	405	44	121	14	40	25	54	2	10	53	266
6	72	591	35	87	24	66	42	80	7	33	84	501
7	71	387	27	67	18	48	46	72	5	21	140	1200
8	83	401	26	64	17	57	47	74	4	13	165	1760
9	98	490	32	79	17	62	48	87	2	5.5	149	1450
10	97	560	35	87	17	67	46	93	2	5.3	124	1080
11	84	581	39	97	16	74	42	85	4	11	95	741
12	61	453	38	94	17	100	36	74	9	23	66	486
13	51	328	36	109	16	103	31	69	11	28	97	697
14	53	288	46	169	6	39	29	70	12	30	467	3590
15	57	283	24	97	10	64	27	59	11	27	400	3990
16	50	232	23	93	15	95	22	38	21	48	202	2660
17	34	157	237	1550	17	91	14	23	22	42	145	2100
18	44	203	279	1960	20	83	18	29	20	38	780	8440
19	39	170	112	847	23	94	15	25	17	32	955	12900
20	35	143	50	443	27	104	9	15	12	23	520	4130
21	31	121	52	483	15	54	12	19	14	26	220	1220
22	27	100	32	295	14	46	21	34	20	40	128	681
23	24	88	25	232	24	78	24	38	27	62	222	1500
24	29	106	24	189	29	95	22	42	15	26	560	5670
25	30	78	24	154	30	96	19	42	30	52	509	8380
26	28	31	22	141	29	91	16	28	47	99	451	9710
27	38	142	20	128	6	16	15	23	28	59	376	9230
28	45	176	17	106	11	26	16	27	14	34	270	7180
29	43	168	15	87	25	59	16	27	---	---	414	11200
30	42	152	18	105	29	72	13	22	---	---	430	8950
31	45	145	---	---	28	71	9	15	---	---	361	5280
TOTAL	---	9089	---	8298	---	2502	---	1428	---	847.9	---	115304

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	554	10300	42	1050	37	430	138	652	38	200	69	278
2	571	14200	49	1140	35	421	110	481	33	157	67	349
3	532	14700	125	2770	30	332	96	461	505	3490	91	946
4	522	14200	110	2100	26	260	78	453	282	1700	65	900
5	508	13900	75	1300	32	317	68	503	108	627	47	651
6	443	12100	53	916	42	414	84	703	81	413	40	552
7	346	9440	37	636	49	482	78	553	61	257	32	440
8	230	6270	26	446	48	465	66	485	52	180	34	459
9	116	3130	33	563	52	500	54	295	47	152	37	499
10	78	2100	43	730	63	602	48	227	66	242	45	607
11	75	2020	32	542	78	737	54	235	60	228	49	655
12	88	2400	32	538	84	798	53	169	53	199	47	623
13	106	2850	36	602	133	1380	60	222	52	195	32	421
14	103	2750	42	701	127	1360	93	470	71	249	37	453
15	122	3260	45	746	129	1370	114	911	111	351	79	843
16	117	3110	33	543	127	1340	71	681	97	351	78	767
17	78	2060	34	556	117	1220	93	1000	97	403	60	583
18	82	2150	36	586	115	972	79	921	242	1290	54	491
19	112	2940	34	555	103	676	82	863	460	2990	54	462
20	124	3290	35	563	88	615	93	753	760	10700	53	414
21	127	3380	35	558	68	496	113	723	220	2130	55	380
22	95	2480	33	523	64	463	97	595	144	1400	52	310
23	64	1680	35	511	71	514	75	393	98	1320	53	315
24	67	1780	42	540	80	579	64	266	87	1270	68	386
25	62	1650	41	486	89	543	65	218	82	1150	62	293
26	72	1920	34	402	94	482	52	173	158	1870	54	195
27	61	1610	32	375	88	451	41	142	504	4710	48	150
28	54	1410	33	384	78	432	58	235	207	894	48	135
29	57	1480	33	381	102	763	55	239	90	367	56	140
30	59	1520	35	402	163	1180	75	371	65	261	53	132
31	---	---	37	422	---	---	61	338	73	296	---	---
TOTAL	---	146080	---	22567	---	20594	---	14831	---	40042	---	13829

TOTAL LOAD FOR YEAR: 395411.9 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY						
08...	1400	--	5910	33	527	83
JUN						
11...	0900	21.0	3480	83	780	81
JUL						
12...	1000	23.0	1100	54	160	99
AUG						
07...	0900	--	1770	54	258	98
SEP						
14...	1030	22.5	4760	34	437	90

05454500 IOWA RIVER AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
MAY							
08...	1400	5910	8	1	2	26	77
JUN							
11...	0900	3480	9	1	2	12	57
JUL							
12...	1000	1100	10	0	1	17	57
AUG							
07...	0900	1770	10	--	0	11	69
SEP							
14...	1030	4760	10	--	0	6	48

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAY						
08...	88	92	93	95	100	--
JUN						
11...	77	85	88	93	100	--
JUL						
12...	80	87	91	93	100	--
AUG						
07...	93	98	99	100	--	--
SEP						
14...	81	92	96	98	99	100

05455000 RALSTON CREEK AT IOWA CITY, IA

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

DRAINAGE AREA.--3.01 mi² (7.80 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1924 to current year.

REVISED RECORDS.--WSP 1508: 1933, 1935-37, 1940-41 (M); 1942, 1943 (M), 1948-51, 1952 (P), 1953, 1954 (M), 1955. WDR IOWA 1967: 1965-66.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 663.27 ft (202.165 m) NGVD (University of Iowa bench mark).

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

AVERAGE DISCHARGE.--55 years, 2.91 ft³/s (0.082 m³/s), 7.71 in/yr (196 mm/yr), 1,240 acre-ft/yr (1.53 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,940 ft³/s (54.9 m³/s) Sept. 21, 1965, gage height, 6.90 ft (2.103 m); maximum gage height, 9.06 ft (2.761 m) July 18, 1956; no flow at times during most years.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 3	1955	225	6.37	4.30	1.311
July 11	1715	207	5.86	4.23	1.289
Aug. 20	0215	*268	7.59	*4.52	1.378

Minimum daily discharge, 0.03 ft³/s (0.001 m³/s Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.70	1.4	.22	.16	2.7	6.6	2.6	.63	.16	.38	.40
2	2.6	.70	1.4	.20	.16	1.9	9.1	9.1	.60	.21	.78	.36
3	2.1	.70	1.3	.19	.15	82	6.3	9.1	.60	.78	7.5	.28
4	2.0	.70	1.3	.18	.14	76	5.3	5.0	.60	.48	3.0	.26
5	1.7	.98	1.2	.17	.14	9.9	4.7	3.8	.60	.26	.92	.23
6	1.5	.92	1.1	.17	.15	7.5	5.3	3.2	.54	.23	.57	.21
7	1.4	.87	1.0	.16	.14	6.6	5.3	2.8	.87	.23	.40	.17
8	1.4	.78	.95	.16	.17	4.4	5.3	2.4	.92	.17	.24	.18
9	3.8	.70	.89	.15	.20	4.1	4.7	2.1	1.1	.11	.22	.15
10	3.4	.63	.81	.15	.23	3.6	4.1	1.9	1.2	.11	4.7	.14
11	1.7	.63	.77	.15	.26	2.4	6.0	1.9	.57	16	.51	.12
12	1.6	.82	.72	.15	.30	3.2	5.0	1.7	.98	.87	.36	.12
13	1.4	5.0	.69	.14	.39	28	3.4	1.7	2.8	.92	.36	.12
14	1.4	1.3	.65	.14	.43	15	3.0	2.0	.66	1.5	.26	.09
15	1.4	1.1	.61	.14	.36	9.5	2.4	1.6	.45	.42	.20	.09
16	1.4	1.1	.59	.14	.30	11	2.2	1.4	.40	.23	.18	.12
17	1.3	9.5	.59	.14	.81	37	2.0	1.3	.40	.19	.17	.06
18	1.6	3.0	.59	.14	.34	67	2.0	1.5	.40	.18	1.8	.05
19	1.4	2.0	.59	.14	.73	36	5.0	1.8	.40	.18	3.0	.05
20	1.3	1.7	.58	.14	.67	13	5.3	1.3	.66	.15	33	.07
21	1.3	1.5	.57	.14	2.5	9.1	4.1	1.1	.30	.12	2.1	.08
22	.98	1.4	.50	.15	1.3	7.5	3.2	1.1	.22	.11	1.3	.09
23	.98	1.4	.50	.15	11	12	3.0	1.1	.21	.08	1.1	.05
24	.92	1.5	.47	.15	33	10	4.7	.92	.24	.34	.74	.23
25	.92	1.5	.43	.15	13	6.6	6.3	.82	.21	.24	.54	.10
26	.82	1.4	.35	.15	5.8	5.3	5.6	.92	.19	.18	1.4	.05
27	.74	1.3	.33	.16	5.0	4.4	3.8	.92	.21	1.6	9.5	.04
28	.74	1.2	.32	.16	3.7	4.4	3.4	.74	.20	.92	1.3	.03
29	.70	1.3	.31	.16	---	24	4.1	.70	.19	2.0	.87	.04
30	.70	1.3	.30	.15	---	13	2.8	.66	.17	4.1	.60	.10
31	.66	---	.28	.16	---	6.6	---	.63	---	.74	.51	---
TOTAL	45.26	47.63	22.09	4.84	81.53	523.7	134.0	67.81	17.52	33.81	78.51	4.08
MEAN	1.46	1.59	.71	.16	2.91	16.9	4.47	2.19	.58	1.09	2.53	.14
MAX	3.8	9.5	1.4	.22	33	82	9.1	9.1	2.8	16	33	.40
MIN	.66	.63	.28	.14	.14	1.9	2.0	.63	.17	.08	.17	.03
CFSM	.49	.53	.24	.05	.97	5.62	1.49	.73	.19	.36	.84	.05
IN.	.56	.59	.27	.06	1.01	6.47	1.66	.84	.22	.42	.97	.05
AC-FT	90	94	44	9.6	162	1040	266	135	35	67	156	8.1

CAL YR 1978 TOTAL 997.09 MEAN 2.73 MAX 41 MIN .05 CFSM .91 IN 12.32 AC-FT 1980
WTR YR 1979 TOTAL 1060.78 MEAN 2.91 MAX 82 MIN .03 CFSM .97 IN 13.11 AC-FT 2100

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--April 1952 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,000 micromhos Dec. 24, 1973; minimum daily, 120 micromhos May 19, 20, 1977.
WATER TEMPERATURES: Maximum daily, 31.0°C July 21, 1968; minimum daily, 0.0°C on many days each year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 9,300 mg/L Aug. 20, 1975; minimum daily mean, 0 mg/L on many days in 1953-59, 1963-68, 1971, 1975, 1976, 1977.
SEDIMENT LOADS: Maximum daily, 4,300 tons (3,900 tonnes) May 23, 1966; minimum daily, 0 ton (0 tonne) on many days most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,000 micromhos Dec. 5, Mar. 2; minimum daily, 300 micromhos July 11.
WATER TEMPERATURES: Maximum daily, 27.0°C Aug. 7, 12; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,930 mg/L Mar. 17; minimum daily mean, 7 mg/L On Jan. 17.
SEDIMENT LOADS: Maximum daily, 307 tons (279 tonnes) July 11; minimum daily, 0 ton (0 tonne) Jan. 4, 16-18, Feb. 1-3, Sept. 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	445	480	480	570	460	685	525	440	450	460	460	440
2	500	490	1400	480	455	700	535	440	460	440	470	430
3	545	510	1400	470	450	555	450	500	460	520	440	480
4	510	500	1250	460	455	510	450	450	490	550	310	440
5	495	540	2000	460	455	515	450	440	490	470	460	440
6	490	550	800	480	455	620	440	460	480	460	460	430
7	470	520	500	480	450	605	435	440	520	460	440	430
8	450	540	400	480	450	525	450	440	220	460	440	420
9	560	520	400	470	450	540	435	440	460	460	440	440
10	480	530	400	490	445	---	455	440	470	460	410	430
11	500	510	400	480	455	550	460	450	460	300	470	440
12	490	500	680	480	460	550	495	450	440	530	450	460
13	500	460	540	460	460	480	480	460	520	500	450	470
14	490	560	630	500	480	470	485	450	540	520	450	460
15	490	560	---	480	580	565	465	450	480	470	420	470
16	490	555	540	470	505	545	440	440	460	460	420	460
17	480	430	510	480	480	400	440	460	440	470	420	460
18	490	520	530	460	465	420	440	460	440	440	370	470
19	480	495	520	470	470	425	540	460	450	440	340	450
20	485	520	560	520	460	530	550	470	480	450	400	480
21	490	480	530	500	1300	500	500	460	480	450	440	460
22	480	520	500	440	1100	465	465	450	450	500	440	460
23	480	620	480	450	1200	545	460	450	440	490	460	460
24	510	500	480	470	860	560	515	460	440	490	440	510
25	515	470	480	460	720	480	480	450	440	490	430	500
26	500	460	470	450	620	460	495	450	440	480	430	610
27	510	760	465	480	570	450	455	440	440	460	330	540
28	480	600	460	460	560	450	475	440	450	570	440	520
29	490	610	670	460	---	470	475	440	460	490	430	510
30	500	500	540	455	---	470	450	460	460	460	440	510
31	490	---	560	450	---	455	---	460	---	480	520	---

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	10.0	.0	.0	.0	2.0	4.0	10.0	19.0	18.0	21.0	21.0
2	13.0	11.0	.0	.0	.0	2.0	3.0	11.0	20.0	23.0	22.0	23.0
3	12.0	12.0	.0	.0	.0	2.0	5.0	12.0	15.0	23.0	23.0	20.0
4	13.0	13.0	.0	.0	.0	1.0	5.0	16.0	15.0	21.0	25.0	22.0
5	12.0	9.0	.0	.0	.0	2.0	5.0	11.0	18.0	17.0	26.0	23.0
6	10.0	10.0	.0	.0	.5	3.0	5.0	17.0	23.0	18.0	25.0	24.0
7	10.0	8.0	.0	3.0	.0	2.0	3.0	20.0	19.0	18.0	27.0	20.0
8	8.0	8.0	.0	1.0	.5	2.0	4.0	20.0	21.0	20.0	25.0	17.0
9	12.0	10.0	.0	.5	.0	4.0	4.0	23.0	19.0	22.0	26.0	15.0
10	12.0	9.0	.0	.0	.5	.0	5.0	19.0	19.0	23.0	21.5	20.0
11	13.0	10.0	.0	.0	1.5	.0	5.0	12.0	15.0	22.0	19.0	17.0
12	12.0	6.0	2.0	.0	1.0	1.0	13.0	10.0	18.0	22.0	16.0	21.0
13	10.0	8.0	.0	.0	2.0	1.0	7.0	12.0	18.0	22.0	18.0	19.0
14	10.0	6.0	1.0	.0	2.0	.0	6.0	19.0	19.0	23.0	17.0	16.0
15	8.0	3.0	.0	.0	1.0	.0	14.0	17.0	23.0	20.0	17.0	14.0
16	8.0	3.0	.0	.0	1.0	4.0	12.0	15.0	21.0	22.0	21.0	14.0
17	8.0	5.0	2.0	.0	.0	2.0	15.0	17.0	21.0	21.0	25.0	13.0
18	9.0	6.0	3.0	.0	.0	1.0	13.0	18.0	18.0	19.0	24.0	15.0
19	10.0	3.0	2.0	2.0	.5	1.0	10.0	19.0	17.0	18.0	20.0	16.0
20	13.0	3.0	2.0	.0	1.5	2.0	15.0	16.0	17.0	22.0	22.0	13.0
21	10.0	2.0	.0	.0	2.0	5.0	9.0	17.0	18.0	22.0	27.0	16.0
22	10.0	3.0	.0	.0	3.0	7.0	18.0	17.0	17.0	22.0	20.0	12.0
23	10.0	3.0	.0	.0	2.0	7.0	14.0	15.0	17.0	21.0	19.0	10.0
24	8.0	4.0	.0	.0	.0	1.0	14.0	16.0	16.0	22.0	20.0	14.0
25	10.0	3.0	.0	.0	.0	6.0	13.0	17.0	20.0	21.0	17.0	17.0
26	9.0	3.0	.0	.0	.0	4.0	10.0	13.0	15.0	21.0	22.0	17.0
27	9.0	3.0	.0	1.0	2.0	2.0	9.0	15.0	19.0	24.0	19.0	15.0
28	9.0	1.0	.0	.0	1.0	7.0	7.0	20.0	18.0	23.0	18.0	19.0
29	10.0	4.0	.0	.0	---	7.0	10.0	17.0	20.0	23.0	23.0	18.0
30	11.0	2.0	.0	.0	---	6.0	10.0	17.0	19.0	24.0	20.0	14.0
31	10.0	---	.0	.0	---	6.0	---	18.0	---	23.0	26.0	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	53	.20	53	.10	86	.33	22	.01	10	.00	20	.15
2	117	1.3	51	.10	87	.33	15	.01	11	.00	15	.08
3	122	.69	78	.15	78	.27	12	.01	11	.00	418	93
4	76	.41	45	.09	65	.23	10	.00	18	.01	454	93
5	42	.19	136	.36	63	.20	12	.01	19	.01	170	4.5
6	46	.19	57	.14	55	.16	17	.01	26	.01	72	1.5
7	34	.13	128	.30	38	.10	18	.01	15	.01	44	.78
8	39	.15	74	.16	24	.06	18	.01	36	.02	62	.74
9	461	8.7	48	.09	19	.05	18	.01	32	.02	49	.54
10	340	3.1	33	.06	13	.03	17	.01	20	.01	48	.47
11	49	.22	30	.05	37	.08	20	.01	13	.01	46	.30
12	67	.29	83	.18	81	.16	21	.01	12	.01	94	.81
13	58	.22	395	6.8	71	.13	21	.01	30	.03	1280	97
14	56	.21	62	.22	72	.13	18	.01	40	.05	500	20
15	82	.31	68	.20	74	.12	14	.01	42	.04	175	4.5
16	65	.25	68	.20	84	.13	8	.00	28	.02	750	22
17	67	.24	448	14	94	.15	7	.00	21	.05	1930	193
18	59	.25	82	.66	118	.19	10	.00	17	.02	1650	298
19	43	.16	74	.40	92	.15	19	.01	18	.04	530	52
20	63	.22	38	.17	78	.12	22	.01	27	.05	234	8.2
21	51	.18	18	.07	54	.08	17	.01	63	.43	100	2.5
22	61	.16	149	.56	70	.09	17	.01	25	.09	107	2.2
23	71	.19	314	1.2	70	.09	15	.01	20	.59	187	6.1
24	55	.14	53	.21	42	.05	15	.01	17	1.5	78	2.1
25	55	.14	64	.26	34	.04	15	.01	20	.70	85	1.5
26	61	.14	66	.25	37	.03	15	.01	22	.34	86	1.2
27	47	.09	86	.30	37	.03	14	.01	25	.34	84	1.0
28	58	.12	76	.25	25	.02	14	.01	30	.30	77	.91
29	62	.12	87	.31	51	.04	15	.01	---	---	81	5.2
30	44	.08	82	.29	65	.05	15	.01	---	---	64	2.2
31	66	.12	---	---	48	.04	14	.01	---	---	75	1.3
TOTAL	---	18.91	---	28.13	---	3.68	---	0.27	---	4.70	---	916.78

05455000 RALSTON CREEK AT IOWA CITY, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	82	1.5	68	.48	90	.15	113	.05	125	.13	56	.06
2	69	1.7	443	21	86	.14	74	.04	230	.48	41	.04
3	67	1.1	41	1.0	120	.19	90	.19	930	19	84	.06
4	60	.86	55	.74	70	.11	58	.08	855	6.9	84	.06
5	48	.61	71	.73	97	.16	58	.04	250	.62	64	.04
6	50	.72	87	.75	101	.15	43	.03	99	.15	57	.03
7	41	.59	62	.47	120	.28	83	.05	116	.13	48	.02
8	54	.77	41	.27	127	.32	119	.05	138	.09	57	.03
9	37	.47	45	.26	160	.48	90	.03	129	.08	62	.03
10	46	.51	98	.50	129	.42	78	.02	625	7.9	60	.02
11	38	.62	80	.41	86	.13	1190	307	138	.19	91	.03
12	36	.49	82	.38	146	.39	198	.47	156	.15	86	.03
13	46	.42	77	.35	157	1.2	320	.79	162	.16	81	.03
14	76	.62	122	.66	125	.22	338	1.4	143	.10	97	.02
15	65	.42	70	.30	95	.12	208	.24	96	.05	74	.02
16	34	.20	47	.18	85	.09	195	.12	92	.04	75	.02
17	37	.20	45	.16	82	.09	182	.09	114	.05	102	.02
18	32	.17	58	.23	98	.11	157	.08	580	2.8	122	.02
19	108	1.5	44	.21	101	.11	132	.06	620	5.0	104	.01
20	143	2.0	46	.16	149	.27	96	.04	790	70	102	.02
21	62	.69	65	.19	149	.12	120	.04	98	.56	108	.02
22	43	.37	76	.23	90	.05	118	.04	85	.30	122	.03
23	37	.30	110	.33	93	.05	100	.02	80	.24	97	.01
24	87	1.1	110	.27	94	.06	235	.22	116	.23	102	.06
25	242	5.6	86	.19	86	.05	190	.12	122	.18	72	.02
26	98	1.5	106	.26	139	.07	152	.07	255	.96	50	.01
27	80	.82	82	.20	110	.06	570	2.5	700	18	44	.00
28	98	.90	92	.18	112	.06	490	1.2	121	.42	79	.01
29	62	.69	82	.15	119	.06	530	2.9	53	.12	85	.01
30	54	.41	85	.15	123	.06	710	7.9	38	.06	106	.03
31	---	---	78	.13	---	---	163	.33	77	.11	---	---
TOTAL	---	27.85	---	31.52	---	5.77	---	326.21	---	135.20	---	0.81

TOTAL LOAD FOR YEAR: 1499.83 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
JUL 11...	1810	--	135	6050	2210	36	41
AUG 04...	1800	25.0	5.6	1140	17	80	87

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUL 11...	55	73	97	98	99	100	--
AUG 04...	--	98	--	--	--	--	100

05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IA

LOCATION.--Lat 41°39'05", long 91°30'27", in SW1/4 NE1/4 sec. 14, T.79N., R.6 W., Johnson County, Hydrologic Unit 07080209, on right bank 60 ft (18 m) downstream from bridge on Muscatine Avenue in Iowa City, and 1.2 mi (1.9 km) upstream from mouth.

DRAINAGE AREA.--2.94 mi² (7.61 km²).

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR IOWA 1966: Drainage area.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 678.03 ft (206.664 m) NGVD.

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

AVERAGE DISCHARGE.--16 years, 2.53 ft³/s (0.072 m³/s), 11.69 in/yr (297 mm/yr), 1,830 acre-ft/yr (2.26 hm³/yr), median of yearly mean discharges, 2.2 ft³/s (0.06 m³/s), 10.2 in/yr (259 mm/yr), 1,590 acre-ft/yr (1.96 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 530 ft³/s (15.0 m³/s) July 11, gage height, 7.49 ft (2.283 m) at 1710 hours, no other peak above base of 200 ft³/s (5.66 m³/s); minimum daily, 0.09 ft³/s (0.003 m³/s) July 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.84	.58	1.4	.19	.15	1.5	6.7	2.6	.61	.11	.58	.47
2	4.8	.79	1.3	.18	.15	1.9	8.0	10	.58	.09	.58	.42
3	1.6	.52	1.2	.17	.15	32	4.8	9.0	.55	6.4	5.1	.40
4	1.0	.55	1.1	.16	.12	14	4.1	5.7	.58	.52	.94	.38
5	.79	1.6	1.1	.16	.12	9.3	3.8	4.8	.40	.23	.61	.36
6	.61	.50	.97	.15	.14	7.0	3.8	3.8	.36	.18	.47	.30
7	.58	.42	.88	.16	.13	5.4	3.5	3.2	1.0	.16	.42	.27
8	.52	.50	.80	.14	.12	3.8	3.5	2.6	.84	.14	.45	.24
9	7.0	.47	.74	.14	.16	3.5	2.6	2.1	.71	.11	.71	.26
10	4.8	.36	.70	.14	.20	3.0	2.4	2.9	.58	.12	12	.24
11	2.1	.38	.67	.13	.22	3.5	5.7	2.1	.52	28	.68	.24
12	1.8	1.8	.64	.13	.29	5.4	4.5	1.9	3.8	.52	.58	.23
13	1.2	6.4	.61	.13	.64	17	2.6	1.9	1.1	2.9	.47	.32
14	1.2	.88	.58	.13	1.3	12	2.4	2.9	.71	3.5	.42	.29
15	.94	.71	.53	.13	.23	12	1.9	1.4	.79	.68	.38	.23
16	.88	1.5	.50	.13	.11	9.7	1.8	1.4	.71	.50	.34	.21
17	.84	14	.48	.13	.14	26	1.6	1.2	.64	.42	.30	.17
18	.88	3.8	.49	.13	.25	49	1.4	3.5	.58	.38	1.9	.16
19	.79	2.4	.50	.13	.21	20	5.7	1.8	2.6	.34	3.5	.17
20	.88	1.8	.48	.13	.74	8.4	6.1	1.1	1.0	.30	27	.15
21	.84	1.4	.47	.13	2.0	5.7	3.5	.94	.58	.27	3.8	.14
22	.64	1.2	.44	.13	1.9	5.1	2.8	.94	.58	.24	1.8	.14
23	.64	1.3	.43	.14	4.2	9.7	2.4	.88	.55	.21	1.1	.13
24	.68	1.4	.39	.14	2.1	6.4	7.4	.84	.58	2.4	.84	.61
25	1.6	1.4	.35	.14	2.0	4.1	8.4	.88	.52	1.9	.64	.19
26	.64	1.3	.29	.14	2.0	2.9	6.7	.79	.47	.40	1.4	.18
27	.58	1.2	.29	.15	2.3	2.1	3.8	.75	.61	.58	2.6	.19
28	1.0	1.1	.28	.15	2.5	2.1	3.2	.71	.21	1.2	.58	.13
29	.58	1.2	.28	.14	---	20	4.1	.61	.15	1.5	.50	.12
30	.64	1.4	.27	.14	---	9.0	2.9	.58	.13	5.1	.47	.11
31	.58	---	.26	.15	---	5.1	---	.61	---	.75	.45	---
TOTAL	42.47	52.86	19.42	4.44	24.57	316.6	122.1	74.43	23.04	60.15	71.61	7.45
MEAN	1.37	1.76	.63	.14	.88	10.2	4.07	2.40	.77	1.94	2.31	.25
MAX	7.0	14	1.4	.19	4.2	49	8.4	10	3.8	28	27	.61
MIN	.52	.36	.26	.13	.11	1.5	1.4	.58	.13	.09	.30	.11
CFSM	.47	.60	.21	.05	.30	3.47	1.38	.82	.26	.66	.79	.09
IN.	.54	.67	.25	.06	.31	4.00	1.54	.94	.29	.76	.91	.09
AC-FT	84	105	39	8.8	49	628	242	148	46	119	142	15

CAL YR 1978 TOTAL 1290.37 MEAN 3.54 MAX 68 MIN .05 CFSM 1.20 IN 16.32 AC-FT 2560
WTR YR 1979 TOTAL 819.14 MEAN 2.24 MAX 49 MIN .09 CFSM .76 IN 10.36 AC-FT 1620

IOWA RIVER BASIN

05455500 ENGLISH RIVER AT KALONA, IA

LOCATION.--Lat 41°27'59", long 91°42'56", in SE1/4 SE1/4 sec.13, T.77 N., R.8 W., Washington County, Hydrologic Unit 07080209, on right bank 30 ft (9 m) upstream from bridge on State Highway 1, 0.8 mi (1.3 km) south of Kalona, 1.1 mi (1.8 km) upstream from Camp Creek, 4.5 mi (7.2 km) downstream from Smith Creek, and 14.5 mi (23.3 km) upstream from mouth.

DRAINAGE AREA.--573 mi² (1,484 km²).

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

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1940 (M), 1941, WSP 1708: 1956, 1957 (P), 1958 (P).

GAGE.--Water-stage recorder. Datum of gage is 633.45 ft (193.076 m) NGVD (levels by Corps of Engineers). Prior to Dec. 27, 1939, nonrecording gage 30 ft (9 m) downstream at same datum.

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

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

AVERAGE DISCHARGE.--40 years, 371 ft³/s (10.51 m³/s), 8.79 in/yr (223 mm/yr), 268,800 acre-ft/yr (331 hm³/yr); median of yearly mean discharges, 330 ft³/s (9.35 m³/s), 7.8 in/yr (198 mm/yr), 239,000 acre-ft/yr (295 hm³/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 19.9 ft (6.07 m) from floodmark, from information by local residents, discharge, 18,500 ft³/s (524 m³/s).

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	0645	*12,100	343	*18.59	5.666
Mar. 30	0145	5,930	168	15.49	4.721
Apr. 22	0015	4,570	129	13.81	4.209

Minimum daily discharge, 5.2 ft³/s (0.15 m³/s) Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	209	120	370	220	130	210	2400	785	214	154	28	93
2	198	119	358	235	130	200	1910	826	199	181	26	81
3	307	118	359	250	130	320	1950	3730	187	196	27	79
4	444	116	370	235	125	960	1550	3280	185	275	28	62
5	326	116	370	195	125	1300	1460	1480	177	202	30	54
6	271	119	390	170	120	1350	1180	1090	169	157	32	47
7	232	117	350	155	120	1200	965	921	163	142	34	39
8	209	109	400	150	120	1100	888	820	155	132	33	33
9	218	108	520	140	120	1000	809	752	178	120	26	30
10	433	106	700	130	115	930	703	638	198	108	30	28
11	462	102	630	125	115	870	683	593	253	97	39	26
12	470	98	440	130	115	960	959	601	190	90	42	36
13	345	232	360	130	115	1600	792	524	176	89	22	53
14	293	424	310	130	115	2900	643	498	217	378	11	56
15	265	265	265	120	115	2900	567	493	192	1280	7.0	56
16	242	201	270	120	110	2460	512	458	155	285	5.6	58
17	220	1220	250	120	110	4300	491	431	131	159	5.2	61
18	207	2310	205	120	110	7260	466	413	115	102	7.6	59
19	201	1070	210	125	110	11800	487	654	292	58	12	56
20	192	677	225	135	110	10400	1940	781	305	47	1330	56
21	184	540	265	140	110	6310	4280	533	304	37	1310	55
22	176	468	235	145	120	2500	3770	454	179	28	649	43
23	163	482	220	145	130	2780	1560	423	143	28	1030	40
24	155	498	185	145	150	3790	1150	388	140	27	421	37
25	157	432	190	145	170	2500	1120	339	127	25	213	35
26	158	402	160	140	185	1720	1720	305	123	24	153	32
27	149	392	170	140	200	1380	1420	313	120	24	374	29
28	136	362	175	135	190	1570	1030	292	597	24	465	27
29	129	341	150	135	---	3870	892	256	462	25	204	25
30	126	380	170	135	---	6050	874	241	241	25	140	22
31	124	---	185	130	---	5180	---	227	---	26	111	---
TOTAL	7401	12044	9457	4670	3615	91670	39171	23540	6287	4545	6845.4	1409
MEAN	239	401	305	151	129	2957	1306	759	210	147	221	47.0
MAX	470	2310	700	250	200	11800	4280	3730	597	1280	1330	93
MIN	124	98	150	120	110	200	466	227	115	24	5.2	22
CFSM	.42	.70	.53	.26	.23	5.16	2.28	1.33	.37	.26	.39	.08
IN.	.48	.78	.61	.30	.23	5.95	2.54	1.53	.41	.30	.44	.09
AC-FT	14680	23890	18760	9260	7170	181800	77700	46690	12470	9020	13580	2790

CAL YR 1978	TOTAL	196786.0	MEAN 539	MAX 6140	MIN 27	CFSM .94	IN 12.78	AC-FT 390300
WTR YR 1979	TOTAL	210654.4	MEAN 577	MAX 11800	MIN 5.2	CFSM 1.01	IN 13.68	AC-FT 417800

05455700 IOWA RIVER NEAR LONE TREE, IA

LOCATION.--Lat 41°25'15", long 91°28'25", in NW1/4 NE1/4 sec.6, T.76 N., R.5 W., Louisa County, Hydrologic Unit 07080209, on left bank 10 ft (3 m) downstream from bridge on county highway W66, 5 mi (8.0 km) southwest of Lone Tree, 6.2 mi (10.0 km) downstream from English River, and at mile 47.2 (75.9 km).

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

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

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

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

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

AVERAGE DISCHARGE.--23 years, 2,781 ft³/s (78.76 m³/s), 8.80 in/yr (224 mm/yr), 2,015,000 acre-ft/yr (2,480 hm³/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,200 ft³/s (629 m³/s) Mar. 20, gage height, 17.01 ft (5.185 m); minimum daily, 780 ft³/s (22.1 m³/s) Oct. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4830	1320	3020	1320	960	1200	12900	11200	4640	2410	2330	1740
2	3990	1260	2790	1500	1300	1200	11600	11000	4810	1960	1940	1710
3	3640	1250	2670	1600	2300	1350	12500	12000	4750	1910	4500	2750
4	3530	1250	2260	1500	2300	2400	13400	13500	4200	2170	3550	4770
5	3540	1260	2040	1420	2250	3250	13100	10700	4100	2600	2480	5020
6	3570	1170	1900	1320	2150	3400	12800	8580	4070	3180	2210	5030
7	2820	1120	1850	1220	1850	3300	12300	8000	4070	3220	1800	5000
8	2320	1100	1810	1170	1500	3700	12000	7730	4040	3160	1520	4960
9	2220	1110	2000	1100	1200	3900	11900	7530	4030	2520	1290	4930
10	2750	1110	2200	1060	1100	3900	11700	7380	4070	1970	1420	4910
11	3270	1100	2600	1000	1100	3900	11600	7290	4010	1890	1570	4880
12	3370	1100	2750	940	1100	4100	11900	7210	3990	1640	1470	4840
13	3370	1400	3000	880	1100	5700	12100	7090	4180	1470	1420	4790
14	2740	1880	3000	880	1100	8000	11700	7020	4410	1640	1390	4700
15	2490	2200	2800	870	1100	5600	11400	6960	4370	3020	1220	4180
16	2280	2050	2600	870	1050	7100	11300	6840	4290	3630	1170	3750
17	2180	2940	2480	870	1000	8400	11200	6730	4210	3800	1410	3650
18	2130	6240	1950	870	970	11500	11100	6660	4060	4140	1640	3580
19	2090	4930	1850	870	970	16900	11100	6700	2900	4160	2050	3260
20	1930	4500	1800	880	970	21300	11500	7100	3010	3530	4200	3170
21	1880	4490	1770	880	990	17200	13600	6730	3170	2620	7150	2770
22	1610	4360	1700	880	1000	9840	15100	6530	3070	2420	4250	2400
23	1420	4430	1600	880	1100	6710	14400	6340	2940	2220	5590	2240
24	1360	4330	1550	890	1150	8910	12400	5610	2930	1900	5790	2220
25	1250	3400	1500	940	1000	9720	12000	5070	2840	1490	5580	1980
26	780	3240	1470	970	1100	10200	12500	4960	2210	1400	5060	1640
27	1070	3200	1420	900	1150	10700	12700	4930	2140	1350	4480	1300
28	1600	3130	1300	920	1200	11300	12000	4870	2200	1490	3520	1200
29	1610	2930	1280	940	---	12700	11600	4790	3060	1610	2150	1020
30	1610	2980	1220	940	---	16700	11400	4740	3460	1860	1900	979
31	1420	---	1300	940	---	16400	---	4690	---	2160	1800	---
TOTAL	74670	76780	63480	32220	36060	250480	366800	226480	110230	74540	87850	99369
MEAN	2409	2559	2048	1039	1288	8080	12230	7306	3674	2405	2834	3312
MAX	4830	6240	3020	1600	2300	21300	15100	13500	4810	4160	7150	5030
MIN	780	1100	1220	870	960	1200	11100	4690	2140	1350	1170	979
AC-FT	148100	152300	125900	63910	71520	496800	727500	449200	218600	147900	174300	197100

CAL YR 1978 TOTAL 1143151 MEAN 3132 MAX 11100 MIN 591 AC-FT 2267000
WTR YR 1979 TOTAL 1498959 MEAN 4107 MAX 21300 MIN 780 AC-FT 2973000

05457700 CEDAR RIVER AT CHARLES CITY, IA

LOCATION.--Lat 43°03'45", long 92°40'23", in SE1/4 NE1/4, sec.12, T.95 N., R.16 W., Floyd County, Hydrologic Unit 07080201, on right bank 800 ft (244 m) downstream from bridge on U.S. Highway 18 (Brantingham Street) in Charles City, 10.6 mi (17.1 km) upstream from Gizzard Creek, and at mile 252.9 (406.9 km) upstream from mouth of Iowa River.

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

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

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

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

AVERAGE DISCHARGE.--15 years, 650 ft³/s (18.41 m³/s), 8.37 in/yr (213 mm/yr), 470,900 acre-ft/yr (581 hm³/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 27, 1961, reached a stage of 21.5 ft (5.58 m), from floodmarks, discharge, 29,200 ft³/s (827 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	1715	5,830	165	9.01	2.746	Aug. 23	0330	6,820	193	9.91	3.021
Mar. 31	1500	*13,400	379	*14.93	4.551	Aug. 29	0545	3,850	109	6.94	2.115

Minimum daily discharge, 110 ft³/s (3.12 m³/s) Dec. 26, Jan. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	222	140	128	170	178	9560	1010	541	570	413	1870
2	280	224	150	125	170	180	6020	1150	513	430	350	1370
3	277	220	160	120	172	180	4550	1430	492	441	326	1290
4	277	220	170	117	172	180	3900	1660	469	1140	436	1090
5	272	222	180	113	168	180	3720	1380	456	603	475	958
6	267	223	185	110	168	174	3480	1140	440	494	434	1160
7	259	214	180	110	168	158	3460	1010	494	405	505	937
8	255	210	175	112	172	162	3180	915	546	364	1100	805
9	280	211	170	115	170	160	2710	1320	496	337	1860	730
10	297	209	165	120	170	160	2070	1720	564	316	1520	677
11	299	210	160	130	170	166	1700	1380	488	319	1230	630
12	302	217	180	140	172	170	1700	1190	457	299	1000	587
13	305	255	185	150	172	174	2010	999	441	314	799	559
14	298	260	190	150	172	176	2300	880	427	348	643	530
15	290	283	175	154	170	180	1910	810	412	296	540	502
16	279	273	170	154	168	190	1520	747	397	275	477	480
17	267	296	170	160	160	200	1370	688	381	258	528	455
18	264	290	165	165	160	500	1260	714	371	246	631	434
19	260	250	160	170	160	1600	1200	1100	373	238	1240	412
20	257	170	180	170	170	3500	1400	943	392	235	984	398
21	252	180	200	170	178	3660	1470	824	385	254	2760	386
22	255	200	170	170	178	3790	1450	749	378	472	5310	373
23	255	210	140	166	178	4710	1360	702	358	314	6000	361
24	251	230	125	166	170	5580	1210	652	346	277	4940	357
25	246	210	140	170	174	4290	1070	618	327	268	3730	350
26	243	215	110	174	172	3080	1030	597	464	256	2220	342
27	238	215	122	180	176	2370	1040	585	983	248	1880	335
28	235	190	112	180	176	2140	1100	572	1110	243	1850	331
29	229	170	112	178	---	2140	1120	663	965	243	3230	326
30	229	130	120	172	---	5550	1030	575	992	1090	1910	320
31	226	---	133	170	---	12500	---	590	---	509	2220	---
TOTAL	8226	6629	4894	4609	4776	58388	70900	29313	15458	12102	51541	19355
MEAN	265	221	158	149	171	1883	2363	946	515	390	1663	645
MAX	305	296	200	180	178	12500	9560	1720	1110	1140	6000	1870
MIN	226	130	110	110	160	160	1030	572	327	235	326	320
CFSM	.25	.21	.15	.14	.16	1.79	2.24	.90	.49	.37	1.58	.61
IN.	.29	.23	.17	.16	.17	2.06	2.50	1.03	.55	.43	1.82	.68
AC-FT	16320	13150	9710	9140	9470	115800	140600	58140	30660	24000	102200	38390

CAL YR 1978 TOTAL 212244 MEAN 581 MAX 9440 MIN 60 CFSM .55 IN 7.49 AC-FT 421000
WTR YR 1979 TOTAL 286191 MEAN 784 MAX 12500 MIN 110 CFSM .74 IN 10.10 AC-FT 567700

05458000 LITTLE CEDAR RIVER NEAR IONIA, IA

LOCATION.--Lat 43°02'05", long 92°30'05", in SW1/4 NE1/4 sec.21, T.95 N., R.14 W., Chickasaw County, Hydrologic Unit 07080201, on left bank 12 ft (4 m) downstream from bridge on county highway B57, 2.4 mi (3.9 km) west of Ionia, 6.4 mi (10.3 km) upstream from mouth, and 7.6 mi (12.2 km) downstream from Beaver Creek.

DRAINAGE AREA.--306 mi² (793 km²).

PERIOD OF RECORD.--October 1954 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1708: 1959.

GAGE.--Water-stage recorder. Datum of gage is 973.35 ft (296.677 m) NGVD.

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

AVERAGE DISCHARGE.--25 years, 153 ft³/s (4.333 m³/s), 6.79 in/yr (172 mm/yr), 110,800 acre-ft/yr (137 hm³/yr); median of yearly mean discharges, 130 ft³/s (3.68 m³/s), 5.8 in/yr (147 mm/yr), 94,200 acre-ft/yr (116 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	1000	3,480	98.6	10.02	3.054	Aug. 23	2030	*3,830	108	*10.60	3.231
Mar. 31	1615	3,730	106	10.30	3.139	Aug. 29	0445	2,200	62.3	8.48	2.585
Aug. 19	1430	1,350	38.2	7.05	2.149						

Minimum daily discharge, 10 ft³/s (0.28 m³/s) Feb. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL.	AUG	SEP
1	41	33	39	24	11	11	2610	251	204	242	111	353
2	41	33	37	23	11	12	1000	455	162	175	92	297
3	40	33	34	22	11	12	781	629	133	140	122	259
4	39	32	34	21	11	13	695	481	115	345	148	227
5	39	32	34	20	11	13	658	370	104	960	105	257
6	37	32	33	19	11	14	481	293	98	584	94	770
7	36	31	30	18	11	14	399	257	217	280	95	520
8	36	31	29	17	11	14	385	235	243	216	181	294
9	42	31	28	15	11	14	334	210	193	183	863	242
10	57	31	27	14	11	14	296	188	289	153	656	209
11	65	30	27	14	11	14	271	440	235	133	431	183
12	56	32	28	12	11	15	286	340	186	139	310	165
13	51	47	29	12	11	15	319	250	167	122	245	154
14	47	52	29	12	11	15	328	189	144	111	200	142
15	44	53	30	12	10	16	285	177	134	92	169	131
16	41	49	31	12	10	16	247	162	123	80	151	123
17	39	56	31	13	11	18	221	150	118	70	181	115
18	38	59	30	12	11	126	207	156	118	65	295	108
19	37	37	31	12	12	1240	201	928	111	59	818	101
20	37	31	31	11	11	2200	692	518	120	58	505	98
21	37	43	32	11	11	3300	790	336	106	60	1010	94
22	37	50	32	11	11	2400	453	259	98	80	2600	90
23	37	45	31	11	11	1990	344	225	95	77	3560	86
24	36	49	30	11	11	2000	286	194	86	70	3160	85
25	36	43	31	11	11	1170	261	169	78	64	1170	82
26	35	47	30	12	11	686	265	155	75	58	625	80
27	35	48	30	11	11	579	258	144	282	53	513	77
28	34	31	29	11	11	492	266	131	365	51	521	74
29	33	41	27	11	---	626	259	133	257	50	1650	73
30	33	33	24	11	---	2100	255	140	344	342	795	72
31	33	---	24	11	---	3340	---	240	---	158	458	---
TOTAL	1249	1195	942	437	307	22489	14133	8805	5000	5270	21834	5561
MEAN	40.3	39.8	30.4	14.1	11.0	725	471	284	167	170	704	185
MAX	65	59	39	24	12	3340	2610	928	365	960	3560	770
MIN	33	30	24	11	10	11	201	131	75	50	92	72
CFSM	.13	.13	.10	.05	.04	2.37	1.54	.93	.55	.56	2.30	.61
IN.	.15	.15	.11	.05	.04	2.73	1.72	1.07	.61	.64	2.65	.68
AC-FT	2480	2370	1870	867	609	44610	28030	17460	9920	10450	43310	11030

CAL YR 1978 TOTAL 44608 MEAN 122 MAX 1320 MIN 23 CFSM .40 IN 5.42 AC-FT 88480
WTR YR 1979 TOTAL 87222 MEAN 239 MAX 3560 MIN 10 CFSM .78 IN 10.60 AC-FT 173000

05458500 CEDAR RIVER AT JANESVILLE, IA .

LOCATION.--Lat 42°38'54", long 92°27'54", in NE1/4 SW1/4 sec.35, T.91 N., R.14 W., Bremer County, Hydrologic Unit 07080201, on left bank 300 ft (91 m) downstream from bridge on county highway at Janesville, 3.6 mi (5.8 km) upstream from West Fork Cedar River, and at mile 207.7 (334.2 km) upstream from mouth of Iowa River.

DRAINAGE AREA.--1,661 mi² (4,301 km²).

PERIOD OF RECORD.--October 1904 to Sept. 1906, October 1914 to September 1927, October 1932 to September 1942, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as Red Cedar River at Janesville, 1905-6.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1906 (M), 1915-16 (M), 1917, 1918-19 (M), 1920-27, 1933-37 (M), 1940-42 (M).

GAGE.--Water-stage recorder. Datum of gage is 868.26 ft (264.646 m) NGVD. Prior to July 26, 1919, nonrecording gage at site 1,000 ft (305 m) downstream at datum 4.0 ft (1.2 m) lower. July 26, 1919, to Sept. 30, 1927, Nov. 14, 1932, to Sept. 30, 1942, and Apr. 26, 1946, to Nov. 10, 1949, nonrecording gage at county bridge 300 ft (91 m) upstream at same datum.

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

AVERAGE DISCHARGE.--59 years (1904-6, 1914-27, 1932-42, 1945-79), 787 ft³/s (22.29 m³/s), 6.43 in/yr (163 mm/yr), 570,200 acre-ft/yr (703 hm³/yr); median of yearly mean discharges, 700 ft³/s (19.8 m³/s), 5.7 in/yr (145 mm/yr) 507,000 acre-ft/yr (625 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 18	1730	6,140	174	6.35	1.935
Mar. 22	2245	7,790	221	7.55	2.301
Apr. 2	0300	*15,700	445	*11.24	3.426
Aug. 10	1100	5,270	149	5.69	1.734
Aug. 18	1745	7,250	205	7.28	2.219
Aug. 24	1715	12,100	343	9.94	3.030
Aug. 29	1430	11,700	331	9.78	2.981

Minimum daily discharge, 220 ft³/s (5.66 m³/s) Feb. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	468	371	419	420	230	230	12600	2100	1210	1690	1400	4100
2	457	369	560	370	230	225	14200	2320	1140	1370	974	3720
3	457	369	620	320	230	230	9020	2500	1040	1050	811	2900
4	445	359	520	310	230	230	6740	2800	960	998	1030	2330
5	433	368	450	300	230	215	5760	3100	924	1380	1200	2050
6	442	376	500	290	230	220	5280	2800	882	1830	957	2040
7	428	360	520	290	230	260	4780	2450	934	1460	883	2550
8	420	354	540	290	230	280	4000	2150	1150	1050	873	2230
9	390	352	500	290	230	290	3520	1900	1340	902	2050	1790
10	438	350	475	290	235	250	3330	2020	1270	795	4970	1580
11	475	373	450	280	230	260	3150	3310	1330	738	3770	1450
12	480	348	440	270	230	300	2830	2910	1180	692	2610	1340
13	481	460	430	270	230	330	2700	2350	1080	675	2070	1260
14	475	487	411	270	230	320	2840	2010	1000	839	1720	1170
15	440	459	407	260	230	330	3150	1740	939	739	1440	1120
16	408	463	402	260	200	410	2990	1410	882	665	1190	1060
17	483	589	385	250	230	420	2560	1380	872	601	1240	1010
18	470	671	380	250	230	3120	2250	1360	1050	565	5820	966
19	462	608	354	250	230	5340	2080	1590	928	530	4250	919
20	456	536	340	240	230	5130	3050	2740	1120	523	5460	876
21	362	527	350	235	235	5720	4440	2260	1040	503	4370	887
22	404	441	320	230	240	7210	3540	1820	911	522	4590	789
23	407	448	300	235	240	7440	2860	1560	838	750	8530	784
24	391	459	290	240	225	7350	2580	1460	800	723	11700	783
25	390	448	300	250	235	7680	2320	1340	743	668	10700	760
26	399	456	310	250	230	7200	2290	1270	781	570	7930	760
27	384	462	290	240	235	5700	2100	1200	1240	519	5290	746
28	373	456	275	240	235	4720	1970	1140	1730	525	3940	732
29	393	462	240	230	---	3930	1950	1390	1650	495	10000	741
30	357	383	250	230	---	6480	1970	1220	1670	2340	8430	717
31	365	---	410	230	---	7120	---	1190	---	1950	5550	---
TOTAL	13233	13164	12438	8380	6450	88940	122850	60790	32614	28657	125748	44160
MEAN	427	439	401	270	230	2869	4095	1961	1087	924	4056	1472
MAX	483	671	620	420	240	7680	14200	3310	1730	2340	11700	4100
MIN	357	348	240	230	200	215	1950	1140	743	495	811	717
CFSM	.26	.26	.24	.16	.14	1.73	2.47	1.18	.65	.56	2.44	.89
IN.	.30	.29	.28	.19	.14	1.99	2.75	1.36	.73	.64	2.82	.99
AC-FT	26250	26110	24670	16620	12790	176400	243700	120600	64690	56840	249400	87590

CAL YR 1978 TOTAL 347611 MEAN 952 MAX 8490 MIN 155 CFSM .57 IN 7.79 AC-FT 689500
WTR YR 1979 TOTAL 557424 MEAN 1527 MAX 14200 MIN 200 CFSM .92 IN 12.48 AC-FT 1106000

05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IA

LOCATION.--Lat 42°37'50", long 92°32'24", in SW1/4 SE1/4 sec.6, T.90 N., R.14 W., Black Hawk County, Hydrologic Unit 07080204, on left bank 100 ft (30 m) downstream from bridge on county highway C55 at Finchford, 3.2 mi (5.1 km) upstream from Shell Rock River, and 5.0 mi (8.0 km) upstream from mouth.

DRAINAGE AREA.--846 mi² (2,191 km²).

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1955, published as West Fork Shell Rock River at Finchford.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946 (M), 1947.

GAGE.--Water-stage recorder. Datum of gage is 867.54 ft (264.426 m) NGVD. Prior to June 10, 1955, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. An authorized diversion is made into Big Marsh, 16 mi (25.7 km) upstream from gage, of 2,100 acre-ft each year between September 1 and November 15. Net effect on daily flows at gage is unknown. Several observations of water temperature were made during the year. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--34 years, 456 ft³/s (12.91 m³/s), 7.32 in/yr (186 mm/yr), 330,400 acre-ft/yr (407 hm³/yr); median of yearly mean discharges, 360 ft³/s (10.2 m³/s), 5.8 in/yr (147 mm/yr), 261,000 acre-ft/yr (322 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 21	0400	*10,600	300	*14.29	4.356	Aug. 26	1000	6,800	193	12.96	3.950
Mar. 30	0915	5,610	159	12.62	3.847	Sept. 9	1315	4,210	119	11.66	3.554

Minimum daily discharge, 86 ft³/s (2.44 m³/s) Jan. 18,22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	382	211	450	140	96	96	4300	1010	765	580	883	2190
2	368	207	390	140	97	98	4420	1060	742	506	1050	1590
3	356	205	360	130	97	100	3610	1570	689	482	1020	1310
4	347	206	320	130	99	100	2980	1600	644	884	769	1130
5	334	203	375	125	100	100	2540	1670	611	1010	680	1020
6	320	199	370	120	100	98	2210	1530	580	1000	660	1130
7	314	194	350	115	100	105	2070	1330	598	704	623	1600
8	300	190	335	115	100	98	1960	1180	614	573	532	2720
9	296	187	370	110	100	105	1780	1060	606	497	496	4060
10	319	184	380	110	100	88	1660	1030	680	444	725	3240
11	349	180	350	110	97	115	1530	1090	733	413	1080	1850
12	388	181	300	105	100	140	1480	1230	698	532	1230	1340
13	399	234	295	105	100	165	1530	1100	639	530	1270	1130
14	375	287	285	100	100	175	1580	958	605	820	980	989
15	349	329	265	100	100	200	1540	866	566	1010	746	843
16	336	332	250	96	98	300	1380	787	529	1480	630	757
17	322	390	240	93	98	450	1250	722	498	1500	578	691
18	280	469	230	86	100	1200	1160	690	615	1000	672	628
19	247	486	220	88	100	3450	1100	888	570	741	1040	576
20	243	445	210	88	100	5590	1350	1310	750	605	1500	488
21	242	413	200	87	100	9680	1930	1580	636	537	1740	464
22	240	398	190	86	100	7330	1750	1560	560	486	2150	458
23	235	404	180	88	100	5640	1690	1310	496	445	2690	447
24	235	401	180	90	100	4760	1510	1130	459	414	3280	430
25	237	380	175	90	98	4100	1380	986	428	387	4300	409
26	237	362	170	90	97	4000	1410	894	402	364	6540	391
27	238	374	165	92	96	4000	1360	863	578	347	5580	378
28	233	410	160	93	97	3320	1290	861	656	345	4380	364
29	224	370	150	93	---	2910	1180	851	684	326	3650	355
30	218	480	140	93	---	5110	1090	819	610	968	3720	342
31	214	---	140	94	---	4150	---	764	---	686	3000	---
TOTAL	9177	9311	8195	3202	2770	67773	56020	34299	18241	20616	58194	33320
MEAN	296	310	264	103	98.9	2186	1867	1106	608	665	1877	1111
MAX	399	486	450	140	100	9680	4420	1670	765	1500	6540	4060
MIN	214	180	140	86	96	88	1090	690	402	326	496	342
CFSM	.35	.37	.31	.12	.12	2.58	2.21	1.31	.72	.79	2.22	1.31
IN.	.40	.41	.36	.14	.12	2.98	2.46	1.51	.80	.91	2.56	1.47
AC-FT	18200	18470	16250	6350	5490	134400	111100	68030	36180	40890	115400	66090

CAL YR 1978	TOTAL	219608	MEAN 602	MAX 7150	MIN 84	CFSM .71	IN 9.66	AC-FT 435600		
WTR YR 1979	TOTAL	321118	MEAN 880	MAX 9680	MIN 86	CFSM 1.04	IN 14.12	AC-FT 636900		

05459000 SHELL ROCK RIVER NEAR NORTHWOOD, IA

LOCATION.--Lat 43°24'51", long 93°13'14", in NW1/4 NW1/4 sec.9, T.99 N., R.20 W., Worth County, Hydrologic Unit 07080202, on right bank 50 ft (15 m) downstream from bridge on county highway A27, 1.3 mi (2.1 km) downstream from Drainage ditch 2, 2.0 mi (3.2 km) south of Northwood, 3.7 mi (6.0 km) upstream from Elk Creek, and 84.5 mi (136.0 km) upstream from mouth.

DRAINAGE AREA.--300 mi² (777 km²).

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

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

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

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

AVERAGE DISCHARGE.--34 years, 141 ft³/s (3.993 m³/s), 6.38 in/yr (162 mm/yr), 102,200 acre-ft/yr (126 hm³/yr); median of yearly mean discharges, 130 ft³/s (3.68 m³/s), 5.9 in/yr (150 mm/yr), 94,200 acre-ft/yr (116 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 30	1545	ice jam	----	a*9.63	2.935
Apr. 2	1300	*1,990	56.4	9.19	2.801
Aug. 26	0845	976	27.6	7.45	2.271

a Probably higher sometime during Mar. 25-30.

Minimum daily discharge, 20 ft³/s (0.57 m³/s) Jan. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	30	58	25	24	26	900	347	132	52	119	636
2	42	30	60	25	24	26	1700	353	122	46	93	549
3	41	30	62	25	24	26	1830	371	113	43	82	478
4	44	30	60	24	24	26	1660	356	103	42	77	410
5	43	29	60	24	24	27	1550	321	97	40	74	354
6	46	30	56	23	24	27	1440	307	86	37	69	343
7	46	32	58	23	24	27	1300	275	85	37	62	306
8	40	30	56	23	24	27	1190	320	85	34	151	267
9	42	30	54	23	24	26	1080	416	83	32	290	230
10	53	30	53	23	24	26	1040	394	81	32	293	204
11	56	28	52	23	24	27	869	360	86	41	232	190
12	53	35	49	23	24	29	857	334	73	38	188	179
13	52	45	48	22	25	29	846	301	73	33	158	173
14	50	42	44	22	25	30	784	284	70	34	140	167
15	45	41	42	21	25	30	725	274	60	32	123	156
16	49	41	39	20	25	30	672	258	60	29	111	138
17	44	42	38	20	25	32	618	228	62	28	115	125
18	37	45	36	21	25	37	561	211	68	26	119	115
19	37	48	35	22	25	56	518	230	70	24	125	113
20	37	54	33	22	25	82	497	222	69	23	132	103
21	35	64	32	22	25	93	500	208	71	28	245	99
22	36	68	31	22	26	100	479	190	75	32	626	91
23	40	68	31	22	26	110	442	175	72	32	801	86
24	39	67	30	23	26	100	412	169	64	32	901	80
25	35	66	30	23	26	110	395	153	59	33	917	78
26	37	63	30	24	26	117	409	149	55	32	959	75
27	36	60	28	24	26	120	416	153	55	32	929	72
28	34	64	27	24	26	120	405	145	56	35	873	67
29	36	60	26	24	---	120	374	139	59	38	897	70
30	30	60	26	24	---	150	363	132	60	101	829	69
31	29	---	25	24	---	330	---	136	---	151	724	---
TOTAL	1289	1362	1309	710	695	2116	24832	7911	2304	1249	11454	6023
MEAN	41.6	45.4	42.2	22.9	24.8	68.3	828	255	76.8	40.3	369	201
MAX	56	68	62	25	26	330	1830	416	132	151	959	636
MIN	29	28	25	20	24	26	363	132	55	23	62	67
CFSM	.14	.15	.14	.08	.08	.23	2.76	.85	.26	.13	1.23	.67
IN.	.16	.17	.16	.09	.09	.26	3.08	.98	.29	.15	1.42	.75
AC-FT	2560	2700	2600	1410	1380	4200	49250	15690	4570	2480	22720	11950

CAL YR 1978	TOTAL	52036	MEAN 143	MAX 1210	MIN 11	CFSM .48	IN 6.45	AC-FT	103200	
WTR YR 1979	TOTAL	61254	MEAN 168	MAX 1830	MIN 20	CFSM .56	IN 7.60	AC-FT	121500	

05459500 WINNEBAGO RIVER AT MASON CITY, IA

LOCATION.--Lat 43°09'54", long 93°11'33", in NE1/4 NW1/4 sec.3, T.96 N., R.20 W., Cerro Gordo County, Hydrologic Unit 07080203, on right bank 550 ft (198 m) upstream from Thirteenth Street Bridge in Mason City, 0.1 mi (0.2 km) downstream from Calmus Creek, and 1.0 mi (1.6 km) upstream from Willow Creek.

DRAINAGE AREA.--526 mi² (1,362 km²).

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

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,069.59 ft (326.011 m) NGVD. Prior to Oct. 15, 1934, nonrecording gage at datum 6.47 ft (1.97 m) lower. Oct. 15 to Nov. 6, 1934, nonrecording gage at different datum, and Nov. 7, 1934, to Mar. 22, 1935, nonrecording gage at present datum.

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

AVERAGE DISCHARGE.--47 years, 238 ft³/s (6.740 m³/s), 6.14 in/yr (156 mm/yr), 172,400 acre-ft/yr (213 hmΔ/yr); median of yearly mean discharges, 200 ft³/s (5.66 m³/s), 5.2 in/yr (132 mm/yr), 145,000 acre-ft/yr (179 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	1445	2,750	77.9	7.76	2.365	Aug. 23	1430	*5,930	168	*11.33	3.453
Mar. 30	1145	2,960	83.8	8.02	2.444	Aug. 29	1245	5,100	144	10.45	3.185

Minimum daily discharge, 17 ft³/s (0.48 m³/s) Jan. 18-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	40	42	27	20	18	2740	567	170	145	1390	2680
2	44	39	41	27	20	18	2220	563	158	107	1320	2110
3	49	41	40	27	20	19	1800	594	147	93	1070	1730
4	48	42	40	26	20	20	1600	550	136	89	940	1500
5	46	42	40	26	20	20	1510	503	130	93	848	1340
6	44	41	38	25	20	19	1260	467	126	76	724	1230
7	44	40	36	24	20	18	1310	435	123	63	615	1100
8	44	39	34	24	20	18	1300	386	158	59	914	991
9	50	39	34	23	20	18	1220	498	151	54	1500	895
10	58	43	35	23	20	19	1160	596	151	49	1830	804
11	57	41	35	22	20	20	1070	550	136	43	1690	728
12	56	46	36	21	20	20	1110	473	126	39	1500	674
13	57	74	36	20	20	21	1130	418	122	37	1360	631
14	54	73	37	19	20	21	1040	386	116	38	1200	587
15	51	65	37	19	20	22	953	344	109	35	1030	546
16	49	59	37	18	21	24	873	302	103	27	920	507
17	45	71	36	18	21	26	818	303	100	25	874	472
18	44	78	37	17	22	55	750	302	103	24	920	441
19	44	51	39	17	22	454	716	343	106	21	940	412
20	42	56	40	17	23	1780	867	345	116	32	959	394
21	42	58	34	17	23	1660	981	305	112	39	2370	372
22	45	58	31	17	22	1700	921	299	100	58	5160	349
23	47	58	30	17	21	2030	825	278	91	80	5820	331
24	46	56	29	18	20	1670	739	257	86	158	5130	314
25	49	54	29	18	19	1470	705	241	77	122	3740	296
26	47	56	29	18	19	1450	677	233	72	92	2850	278
27	46	56	29	19	19	1330	671	241	71	80	2420	264
28	45	39	28	19	18	1310	656	225	103	95	2370	249
29	43	52	28	20	---	1390	606	209	163	98	4470	241
30	44	44	27	20	---	2650	605	189	200	554	3540	231
31	42	---	27	20	---	2530	---	177	---	1300	3270	---
TOTAL	1465	1551	1071	643	570	21820	32833	11579	3662	3825	63684	22697
MEAN	47.3	51.7	34.5	20.7	20.4	704	1094	374	122	123	2054	757
MAX	58	78	42	27	23	2650	2740	596	200	1300	5820	2680
MIN	42	39	27	17	18	18	605	177	71	21	615	231
CFSM	.09	.10	.07	.04	.04	1.34	2.08	.71	.23	.23	3.91	1.44
IN.	.10	.11	.08	.05	.04	1.54	2.32	.82	.26	.27	4.50	1.61
AC-FT	2910	3080	2120	1280	1130	43280	65120	22970	7260	7590	126300	45020

CAL YR 1978 TOTAL 59165.3 MEAN 162 MAX 1940 MIN 9.8 CFSM .31 IN 4.18 AC-FT 117400
WTR YR 1979 TOTAL 165400.0 MEAN 453 MAX 5820 MIN 17 CFSM .86 IN 11.70 AC-FT 328100

05460000 CLEAR LAKE AT CLEAR LAKE, IA

LOCATION.--Lat 43°08'01", long 93°22'57", in SE1/4 NE1/4 sec.13, T.96 N., R.22 W., Cerro Gordo County, Hydrologic Unit 07080203, at the public bathing beach in the town of Clear Lake near dam across Clear Creek.

DRAINAGE AREA.--22.6 mi² (58.5 km²).

PERIOD OF RECORD.--May 1933 to current year. No winter records 1933-52. Record fragmentary November 1952 to June 1959.

GAGE.--Water-stage recorder. Datum of gage is 1,222.24 ft (372.539 m) NGVD, and 4.60 ft (1.402 m) below crest of spillway of dam at outlet. See WSP 1708 for history of changes prior to June 25, 1959.

REMARKS.--Lake is formed by concrete dam on Clear Creek with ungated overflow spillway 50 ft (15 m) long at elevation 1,226.84 ft (373.941 m) NGVD. Dam constructed in 1903. A previous outlet works had been constructed in 1887. Lake is used for conservation and recreation. Area of lake is approximately 3,600 acres (1,460 hm²).

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

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.56 ft (1.695 m) Aug. 28; minimum, 2.36 ft (0.719 m) Nov. 11.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.62	2.45	2.55	2.59	2.70	2.71	3.51	3.97	3.95	3.71	3.96	5.26
2	2.62	2.48	2.55	2.59	2.70	2.70	3.55	4.00	3.94	3.70	4.01	5.21
3	2.64	2.44	2.57	2.59	2.70	2.73	3.57	4.02	3.94	3.70	3.99	5.15
4	2.63	2.43	2.58	2.59	2.70	2.77	3.59	4.01	3.95	3.70	4.11	5.15
5	2.63	2.45	2.58	2.59	2.70	2.77	3.62	4.06	3.85	3.68	4.19	5.14
6	2.61	2.43	2.57	2.59	2.71	2.78	3.63	4.03	3.90	3.66	4.18	5.12
7	2.59	2.45	2.57	2.59	2.71	2.78	3.64	4.03	3.88	3.64	4.23	5.05
8	2.58	2.46	2.57	2.58	2.70	2.77	3.66	3.99	3.80	3.63	4.31	5.03
9	2.58	2.42	2.57	2.58	2.70	2.77	3.66	4.00	3.81	3.60	4.40	5.04
10	2.58	2.39	2.57	2.58	2.70	2.77	3.67	4.01	3.87	3.60	4.57	5.00
11	2.59	2.37	2.57	2.58	2.70	2.79	3.68	4.05	3.84	3.59	4.58	4.95
12	2.60	2.38	2.57	2.59	2.70	2.79	3.73	4.00	3.78	3.59	4.66	4.93
13	2.59	2.51	2.57	2.61	2.71	2.81	3.75	4.01	3.78	3.58	4.68	4.93
14	2.58	2.52	2.57	2.63	2.71	2.78	3.76	4.00	3.82	3.59	4.64	4.90
15	2.59	2.45	2.57	2.63	2.72	2.77	3.76	3.98	3.80	3.58	4.62	4.91
16	2.57	2.44	2.57	2.63	2.71	---	3.77	3.98	3.81	3.54	4.62	4.91
17	2.54	2.52	2.57	2.64	2.71	---	3.78	4.08	3.74	3.52	4.73	4.93
18	2.52	2.53	2.57	2.64	2.71	---	3.78	3.98	3.70	3.48	4.76	4.85
19	2.51	2.51	2.56	2.65	2.71	---	3.80	4.05	3.73	3.47	4.80	4.82
20	2.50	2.51	2.57	2.67	2.70	3.01	3.86	4.05	3.85	3.46	4.83	4.83
21	2.50	2.51	2.57	2.68	2.71	3.01	3.89	4.01	3.77	3.50	5.01	4.77
22	2.50	2.51	2.57	2.68	2.71	3.01	3.90	4.04	3.70	3.53	5.21	4.76
23	2.51	2.54	2.57	2.69	2.72	3.18	3.91	3.99	3.69	3.56	5.24	4.75
24	2.56	2.54	2.58	2.69	2.72	3.22	3.92	3.98	3.70	3.53	5.23	4.74
25	2.52	2.54	2.58	2.69	2.72	3.24	3.94	3.97	3.69	3.52	5.20	4.72
26	2.51	2.54	2.58	2.69	2.72	3.25	3.98	3.98	3.70	3.52	5.20	4.76
27	2.50	2.54	2.57	2.69	2.72	3.28	3.98	3.99	3.73	3.55	5.24	4.75
28	2.47	2.54	2.57	2.70	2.72	3.30	3.96	4.00	3.72	3.54	5.28	4.72
29	2.48	2.54	2.58	2.70	---	3.36	3.97	4.00	3.78	3.58	5.32	4.68
30	2.50	2.54	2.60	2.70	---	3.40	3.98	4.01	3.73	4.01	5.28	4.67
31	2.45	---	2.59	2.70	---	3.48	---	3.97	---	3.96	5.27	---
MEAN	2.55	2.48	2.57	2.64	2.71	---	3.77	4.01	3.80	3.61	4.72	4.91
MAX	2.64	2.54	2.60	2.70	2.72	---	3.98	4.08	3.95	4.01	5.32	5.26
MIN	2.45	2.37	2.55	2.58	2.70	---	3.51	3.97	3.69	3.46	3.96	4.67

05462000 SHELL ROCK RIVER AT SHELL ROCK, IA

LOCATION.--Lat 42°39'10", long 92°35'46", in NE1/4 NW1/4 sec.11, T.91 N., R.15 W., Butler County, Hydrologic Unit 07080202, on right bank 400 ft (122 m) upstream from bridge on county highway C45 in Shell Rock, 2.2 mi (3.5 km) downstream from Curry Creek, and 10.4 mi (16.7 km) upstream from mouth.

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

PERIOD OF RECORD.--June 1953 to current year. Prior to July 1953, monthly discharge only, published in WSP 1728.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Rockfill dam since Oct. 19, 1957. Datum of gage is 885.34 ft (269.852 m) above mean sea level.

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

AVERAGE DISCHARGE.--26 years, 863 ft³/s (24.44 m³/s), 6.71 in/yr (170 mm/yr), 625,200 acre-ft/yr (771 hm³/yr); median of yearly mean discharges, 720 ft³/s (20.4 m³/s), 5.6 in/yr (142 mm/yr), 522,000 acre-ft/yr (644 hm³/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1856 reached a stage of 17.7 ft (5.39 m) at bridge 400 ft (122 m) downstream, from information furnished by Corps of Engineers, discharge, about 45,000 ft³/s (1,270 m³/s).

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 21	0730	6,060	172	11.11	3.386	Aug. 10	1400	8,560	242	11.56	3.523
Mar. 24	1615	6,580	186	11.17	3.405	Aug. 24	0630	*21,100	598	*15.01	4.575
Mar. 31	1215	10,100	286	12.08	3.682	Aug. 30	1830	11,200	317	12.68	3.865

Minimum daily discharge, 183 ft³/s (5.18 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	377	329	310	220	217	220	8460	1850	1070	749	2650	7100
2	362	323	300	225	220	220	7200	2020	1020	695	2380	5760
3	361	321	280	220	223	233	6470	2620	970	645	2160	4720
4	356	319	290	215	222	241	5750	2400	930	1250	2180	3960
5	357	322	330	210	215	236	5240	2160	896	1040	2600	3480
6	352	322	320	205	216	230	4780	1970	874	810	1990	5180
7	342	310	288	200	217	235	3890	1830	959	708	1660	5330
8	332	308	277	195	214	232	3900	1700	962	647	1800	3450
9	352	312	285	190	216	232	3660	1610	1020	609	4880	2870
10	392	307	279	185	210	206	3320	1750	1080	567	8060	2540
11	416	303	300	183	210	207	3060	1950	1050	750	6180	2290
12	423	302	308	187	208	185	3020	1850	952	586	4270	2100
13	405	364	302	191	214	190	3200	1700	915	516	3330	1970
14	391	402	301	192	216	191	3100	1590	864	846	2870	1840
15	392	412	311	193	217	193	2820	1490	821	672	2490	1730
16	382	396	305	190	211	208	2610	1410	778	533	2180	1640
17	368	441	298	193	193	267	2450	1330	741	469	2240	1550
18	370	457	303	193	196	1220	2290	1290	742	434	3590	1460
19	367	441	301	194	196	3540	2180	1810	727	413	3210	1380
20	357	371	300	196	206	5150	2730	2030	792	410	4580	1330
21	360	344	289	198	216	5730	3140	1790	753	419	4000	1270
22	359	371	300	200	219	4700	2970	1610	703	469	6940	1210
23	359	412	293	203	220	5050	2660	1500	665	659	13900	1160
24	359	409	269	202	218	6300	2410	1370	646	541	19800	1120
25	364	392	266	198	215	5100	2270	1290	622	536	13700	1090
26	363	412	272	201	218	4220	2220	1230	595	535	9460	1050
27	357	412	261	213	216	3780	2160	1230	816	490	6940	1020
28	345	321	250	216	219	3500	2100	1180	712	460	5910	993
29	340	340	230	218	---	3960	2010	1280	848	443	8290	953
30	337	262	217	216	---	6670	1910	1160	797	864	10800	927
31	336	---	220	217	---	9370	---	1130	---	2800	9720	---
TOTAL	11333	10737	8855	6259	5978	72016	103980	51130	25320	21565	174760	72473
MEAN	366	358	286	202	214	2323	3466	1649	844	696	5637	2416
MAX	423	457	330	225	223	9370	8460	2620	1080	2800	19800	7100
MIN	332	262	217	183	193	185	1910	1130	595	410	1660	927
CFSM	.21	.21	.16	.12	.12	1.33	1.99	.94	.48	.40	3.23	1.38
IN.	.24	.23	.19	.13	.13	1.53	2.22	1.09	.54	.46	3.72	1.54
AC-FT	22480	21300	17560	12410	11860	142800	206200	101400	50220	42770	346600	143800

CAL YR 1978	TOTAL	278547	MEAN	763	MAX	8730	MIN 156	CFSM .44	IN 5.93	AC-FT	552500	
WTR YR 1979	TOTAL	564406	MEAN	1546	MAX	19800	MIN 183	CFSM .89	IN 12.03	AC-FT	1119000	

05463000 BEAVER CREEK AT NEW HARTFORD, IA

LOCATION.--Lat 42°30'50", long 92°37'55", in SE1/4 SE1/4 sec.28, T.90 N., R.15 W., Butler County, Hydrologic Unit 07080205, on downstream side of center bridge pier of bridge on county highway T55, 0.2 mi (0.3 km) north of New Hartford, and 8 mi (12.9 km) upstream from mouth.

DRAINAGE AREA.--347 mi² (899 km²).

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

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1948-49. WSP 1708: 1947 (M).

GAGE.--Water-stage recorder. Datum of gage is 882.44 ft (268.968 m) NGVD. Prior to July 14, 1959, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--34 years, 188 ft³/s (5.324 m³/s), 7.36 in/yr (187 mm/yr), 136,200 acre-ft/yr (168 hm³/yr).

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	1545	8,860	251	*12.23	3.728	July 4	1445	1,410	39.9	8.01	2.441
Mar. 24	0245	1,880	53.2	8.62	2.627	July 15	0500	3,410	96.6	9.76	2.975
Mar. 30	1145	*9,450	268	12.10	3.688	July 31	1015	2,330	66.0	9.00	2.743
June 20	2130	1,510	42.8	8.09	2.466	Aug. 21	1945	2,290	64.9	8.97	2.734

Minimum daily discharge, 23 ft³/s (0.65 m³/s) Jan. 20-22, Feb. 27-Mar.2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	62	140	44	25	23	1130	357	236	367	759	350
2	98	62	130	42	25	23	804	482	224	304	406	302
3	97	61	120	41	26	30	742	1320	214	468	329	265
4	95	60	115	39	26	30	661	1050	205	1300	274	238
5	92	60	97	38	26	29	652	710	199	1120	238	228
6	88	59	78	37	26	28	526	576	192	537	210	325
7	83	59	85	36	26	30	506	488	223	395	191	399
8	81	59	90	35	27	32	454	427	354	327	174	288
9	83	59	94	33	27	31	411	384	310	285	177	245
10	97	57	97	32	27	33	366	367	477	255	298	220
11	97	56	96	31	27	46	345	493	475	256	278	201
12	92	57	94	30	27	60	460	466	384	236	202	185
13	85	101	93	29	28	80	523	407	337	428	180	178
14	81	150	90	28	28	270	446	370	301	2170	172	168
15	81	126	87	27	28	360	377	337	275	2970	159	161
16	79	114	84	26	28	490	337	310	254	1260	149	153
17	76	162	82	26	28	870	311	295	236	573	147	143
18	74	233	79	25	28	2500	291	283	724	428	151	137
19	73	204	78	24	27	7190	287	391	1360	346	277	129
20	72	175	78	23	27	3850	564	494	1310	297	1020	124
21	70	170	70	23	26	1200	1200	418	1120	264	2120	119
22	70	160	66	23	26	710	835	362	574	233	1750	115
23	70	150	64	24	28	1050	602	328	439	210	1940	115
24	69	140	63	24	27	1570	495	297	370	203	1610	113
25	70	132	60	24	25	551	471	276	321	197	869	113
26	70	131	58	24	24	657	699	267	287	182	566	111
27	69	124	56	24	23	554	645	284	577	177	492	110
28	67	155	52	24	23	535	513	259	644	192	439	109
29	65	140	50	25	---	1320	436	244	832	167	534	106
30	64	120	47	25	---	7050	395	233	502	1440	628	105
31	62	---	45	25	---	3080	---	235	---	2200	427	---
TOTAL	2473	3398	2538	911	739	34282	15484	13210	13956	19787	17165	5555
MEAN	79.8	113	81.9	29.4	26.4	1106	549	426	465	638	554	185
MAX	103	233	140	44	28	7190	1200	1320	1360	2970	2120	399
MIN	62	56	45	23	23	23	287	233	192	167	147	105
CFSM	.23	.33	.24	.09	.08	3.19	1.58	1.23	1.34	1.84	1.60	.53
IN.	.27	.36	.27	.10	.08	3.68	1.77	1.42	1.50	2.12	1.84	.60
AC-FT	4910	6740	5030	1810	1470	68000	32700	26200	27680	39250	34050	11020

CAL YR 1978	TOTAL	66970	MEAN 183	MAX 2360	MIN 34	CFSM .53	IN 7.18	AC-FT 132800				
WTR YR 1979	TOTAL	130499	MEAN 358	MAX 7190	MIN 23	CFSM 1.03	IN 13.99	AC-FT 258800				

05463050 CEDAR RIVER AT CEDAR FALLS, IA

WATER-QUALITY RECORDS

LOCATION.--Lat 42°32'20", long 92°26'58", in NW1/4 NE1/4 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 (1.8 km) upstream from Dry Run, and at mile 196.0 (315.4 km) above mouth of Iowa River.

DRAINAGE AREA.--4,734 mi² (12,261 km²).

PERIOD OF RECORD.--Water years 1975 to current year (discontinued).

REMARKS.--Water discharge estimated on basis of records at gaging station 8.1 mi (13.0 km) downstream at Waterloo. No significant inflow between gaging station and sampling site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
OCT												
13...	0930	1750	570	8.4	11.0	2	8.7	80	130	320	73	23
DEC												
14...	1200	1220	650	8.1	.0		14.0	99	33	220	70	25
JAN												
25...	1015	676	630	7.8	.0	1	11.2	78	17	1820	72	22
FEB												
28...	1130	780	590	8.1	.0		--	--	7	--	78	21
APR												
30...	1200	6310	580	8.4	8.5	14	12.3	98	30	520	73	23
MAY												
09...	1100	5940	620	8.5	18.0	19	7.6	100	23	280	73	22
JUN												
14...	1100	3680	560	8.3	23.0	24	8.0	94	17	480	73	22
JUL												
11...	1030	2770	600	7.8	24.0	30	7.7	92	19	680	72	20
AUG												
09...	1100	4920	575	7.9	25.0	52	6.3	77	--	5400	79	22
SEP												
13...	1030	5560	600	8.0	17.0	17	7.9	83	15	670	74	20

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT											
13...	11	2.6	270	1	220	1.7 e	47	24	363	.49	1720
DEC											
14...	13	2.5	--	--	252	--	50	30	393	.53	1300
JAN											
25...	14	2.4	--	--	230	--	48	25	358	.49	653
FEB											
28...	15	2.0	--	--	220	--	46	24	340	.46	716
APR											
30...	8.5	1.7	230	--	190	1.5	51	23	381	.52	6490
MAY											
09...	8.1	2.3	230	0	190	1.2	51	24	360	.49	5770
JUN											
14...	7.6	2.1	--	--	200	--	42	21	379	.52	3770
JUL											
11...	7.3	2.2	--	--	200	--	39	21	358	.49	2680
AUG											
09...	7.4	3.6	--	--	210	--	52	21	394	.54	5230
SEP											
13...	6.9	3.0	--	--	230	--	44	20	385	.52	5780

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
13...	395	4.5	.00	--	2.9	2.9	7.4	33	.16	--	--
DEC											
14...	422	4.6	.06	--	.94	1.0	6.6	25	.19	--	--
JAN											
25...	388	4.0	.55	--	.38	.93	4.9	22	.29	--	--
FEB											
28...	377	3.9	.53	--	.29	.82	4.7	21	.30	--	--
APR											
30...	447	8.4	.02	.02	1.6	1.6	10	44	.11	.34	.34
MAY											
09...	448	8.9	.01	.01	1.5	1.5	10	46	.13	.40	.40
JUN											
14...	464	7.9	.07	.08	1.2	1.3	9.2	41	.25	.77	.77
JUL											
11...	432	3.5	.01	.01	.90	.91	4.4	20	.15	--	.46
AUG											
09...	615	8.0	.05	.06	2.1	2.1	10	45	.00	--	.00
SEP											
13...	454	6.2	.06	.07	1.1	1.2	7.4	33	.26	--	.80

05463500 BLACK HAWK CREEK AT HUDSON, IA

LOCATION.--Lat 42°24'28", long 92°27'47", in SW1/4 NE1/4 sec.27, T.88 N., R.14 W., Black Hawk County, Hydrologic Unit 07080205, on left bank 35 ft (11 m) downstream from bridge on State Highway 58, 0.2 mi (0.3 km) northwest of Chicago Great Western Railway tracks at the west edge of Hudson, 4.5 mi (7.2 km) upstream from Prescotts Creek, and 9.6 mi (15.4 km) upstream from mouth.

DRAINAGE AREA.--303 mi² (785 km²).

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 865.03 ft (263.661 m) NGVD.

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

AVERAGE DISCHARGE.--27 years, 162 ft³/s (4.588 m³/s), 7.26 in/yr (184 mm/yr), 117,400 acre-ft/yr (145 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 6.3 in/yr (160 mm/yr), 101,000 acre-ft/yr (125 hm³/yr).

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

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

		Discharge		Gage Height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Mar. 19	0915	*7,950	225	*16.59	5.057
Mar. 24	0800	1,400	39.6	12.28	3.743
Mar. 30	1230	5,520	156	16.07	4.898
Apr. 21	0600	2,070	58.6	13.85	4.221
July 4	2400	2,500	70.8	14.40	4.389
July 11	2400	3,050	86.4	15.00	4.572
July 15	0915	3,510	99.4	15.28	4.657

Minimum daily discharge, 42 ft³/s (1.19 m³/s) Feb. 24-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	101	170	80	47	47	874	418	190	300	543	231
2	242	102	165	75	47	49	638	484	183	253	324	198
3	248	101	140	72	46	52	620	885	177	362	272	170
4	248	99	190	70	46	58	586	776	170	1130	223	151
5	239	98	230	67	46	64	562	627	338	1280	193	140
6	229	94	180	66	46	76	456	547	180	563	169	189
7	219	90	240	64	46	96	456	488	165	456	152	174
8	210	92	240	64	45	110	420	447	159	392	137	145
9	203	93	240	63	44	115	382	412	164	342	176	128
10	198	89	220	60	44	110	351	386	291	303	163	116
11	200	84	200	60	44	115	334	427	274	1350	136	105
12	198	84	175	58	44	130	361	410	247	1160	122	96
13	191	237	170	56	43	220	440	384	376	436	114	90
14	179	351	165	56	44	670	392	360	242	1690	110	85
15	169	249	160	54	44	870	342	332	218	3570	103	81
16	161	208	160	51	43	1000	311	311	196	1410	98	77
17	153	408	160	49	43	1140	292	298	182	564	95	72
18	143	614	160	48	43	2410	276	287	516	457	91	69
19	136	516	160	48	43	6110	271	308	862	389	271	65
20	135	416	160	50	43	2450	880	304	765	343	379	64
21	132	360	125	49	44	795	1960	277	745	304	524	62
22	128	323	120	48	43	577	1230	262	438	270	661	59
23	123	308	125	50	43	836	746	251	355	239	817	57
24	122	274	125	50	42	1090	616	231	311	273	726	56
25	128	244	110	49	42	474	581	222	271	307	424	58
26	120	229	105	48	42	573	736	221	242	245	321	56
27	115	221	100	48	42	495	669	225	560	215	270	53
28	110	198	98	48	44	507	556	206	530	212	234	53
29	107	185	96	48	---	1200	498	262	483	192	446	52
30	107	175	90	47	---	4490	456	210	372	403	478	50
31	103	---	84	47	---	2470	---	201	---	978	296	---
TOTAL	5235	6643	4863	1743	1233	29399	17292	11459	10202	20388	9068	3002
MEAN	169	221	157	56.2	44.0	948	576	370	340	658	293	100
MAX	248	614	240	80	47	6110	1960	885	862	3570	817	231
MIN	103	84	84	47	42	47	271	201	159	192	91	50
CFSM	.56	.73	.52	.19	.15	3.13	1.90	1.22	1.12	2.17	.97	.33
IN.	.64	.82	.60	.21	.15	3.61	2.12	1.41	1.25	2.60	1.11	.37
AC-FT	10380	13180	9650	3460	2450	58310	34300	22730	20240	40440	17990	5950

CAL YR 1978 TOTAL 73858 MEAN 202 MAX 2200 MIN 22 CFSM .67 IN 9.07 AC-FT 146500
WTR YR 1979 TOTAL 120527 MEAN 330 MAX 6110 MIN 42 CFSM 1.09 IN 14.80 AC-FT 239100

05464000 CEDAR RIVER AT WATERLOO, IA

LOCATION.--Lat 42°29'44", long 92°20'03", in NW1/4 NW1/4 sec.25, T.89 N., R.13 W., Black Hawk County, Hydrologic Unit 07080205, on left bank at foot of East Seventh Street, 0.3 mi (0.5 km) upstream from Eleventh Avenue Bridge in Waterloo, 1.1 mi (1.8 km) downstream from Black Hawk Creek, and at mile 187.9 (302.3 km) above mouth of Iowa River.

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

PERIOD OF RECORD.--October 1940 to current year. Prior to April 1941, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1950.

GAGE.--Water-stage recorder. Datum of gage is 824.14 ft (251.198 m) NGVD.

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

AVERAGE DISCHARGE.--39 years, 2,774 ft³/s (78.56 m³/s), 7.32 in/yr (186 mm/yr), 2,010,000 acre-ft/yr (2,480 hm³/yr).

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

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

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 20	0515	24,400	691	12.76	3.889
Mar. 31	0530	29,400	833	14.16	4.316
Apr. 21	2145	13,400	379	9.29	2.832
Aug. 25	1000	*32,500	920	*15.12	4.609
Aug. 30	1700	22,100	626	12.19	3.716

Minimum daily discharge, 713 ft³/s (20.2 m³/s) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1820	1180	1270	886	767	786	24800	6140	4110	4310	8490	17500
2	1800	1190	1250	880	787	786	27600	6530	3970	3940	6350	13900
3	1770	1180	1200	870	769	896	24900	8750	3740	3600	5800	11400
4	1710	1180	1100	860	743	896	19100	10200	3520	5460	5170	9450
5	1700	1170	1200	857	748	896	15800	9040	3500	6970	5680	8160
6	1610	1420	1350	835	777	896	14000	8230	3290	5850	5170	7900
7	1570	1190	1200	814	771	960	12800	7320	3230	4690	4480	10000
8	1520	1160	1130	790	769	977	11500	6480	3540	3790	3970	10100
9	1570	1130	1150	794	760	1030	10500	5930	3960	3140	5270	9150
10	1590	1130	1150	776	765	878	9750	5550	4210	2920	9510	8840
11	1700	1120	1170	755	745	887	9190	6830	4380	3060	12400	7500
12	1760	1120	1260	726	743	1070	8670	7580	4200	3850	10700	6080
13	1740	1580	1270	720	757	1210	8600	6680	3970	3170	8390	5520
14	1680	1790	1230	720	750	1530	8670	6050	3680	6150	7100	5030
15	1620	1770	1230	725	740	1920	8620	5580	3450	7590	6080	4730
16	1500	1700	1240	729	730	2430	8310	5050	3240	8440	5360	4460
17	1540	2240	1190	713	725	3260	7570	4610	3090	5310	4760	4210
18	1510	2700	1190	724	727	7310	6910	4450	4630	3620	7060	4010
19	1460	2610	1220	729	729	20600	6460	4790	4990	3090	10700	3800
20	1450	2230	1220	723	738	23400	9970	6430	5390	2770	10200	3620
21	1330	1930	1090	761	747	21200	12500	6980	5420	2570	12900	3360
22	1330	1850	1120	767	758	21300	12400	6340	4380	2400	12800	3260
23	1330	1900	1100	772	772	20400	9970	5790	3610	2540	16900	3150
24	1310	1870	1000	728	758	20000	8730	5240	3180	2890	25200	3070
25	1310	1780	983	740	758	18800	8080	4860	3060	2700	31900	2920
26	1290	1720	980	763	772	17800	8060	4560	2930	2520	27300	2860
27	1300	1750	988	744	772	15200	7890	4430	4240	2350	21800	2770
28	1250	1670	985	737	786	13100	7290	4270	4980	2370	16800	2690
29	1210	1520	980	729	---	12700	6800	5470	4880	2180	16700	2650
30	1250	1390	940	745	---	18500	6430	4630	4900	5940	21600	2580
31	1200	---	881	754	---	27500	---	4220	---	9030	21100	---
TOTAL	46730	48170	35267	23856	21163	279118	341870	189010	119670	129210	367640	184670
MEAN	1507	1606	1138	770	756	9004	11400	6097	3989	4168	11860	6156
MAX	1820	2700	1350	886	787	27500	27600	10200	5420	9030	31900	17500
MIN	1200	1120	881	713	725	786	6430	4220	2930	2180	3970	2580
CFSM	.29	.31	.22	.15	.15	1.75	2.22	1.19	.78	.81	2.31	1.20
IN.	.34	.35	.25	.17	.15	2.02	2.47	1.37	.87	.93	2.66	1.33
AC-FT	92690	95550	69950	47320	41980	553600	678100	374900	237400	256300	729200	366300

CAL YR 1978	TOTAL	1056332	MEAN	2894	MAX	17800	MIN	625	CFSM	.56	IN.	7.64	AC-FT	2095000
WTR YR 1979	TOTAL	1786374	MEAN	4894	MAX	31900	MIN	713	CFSM	.95	IN.	12.91	AC-FT	3543000

05464020 CEDAR RIVER NEAR GILBERTVILLE, IA

WATER-QUALITY RECORDS

LOCATION.--Lat 42°24'54", long 92°13'00", in SW1/4 SW1/4 sec.23, T.88 N., R.12 W., Black Hawk County, Hydrologic Unit 07080205, at bridge on county highway D38 at Gilbertville, 1.4 mi (2.2 km) upstream from Indian Creek, and at mile 176.5 (284.0 km) above mouth of Iowa River.

DRAINAGE AREA.--5,234 mi² (13,556 km²).

PERIOD OF RECORD.--Water years 1971, 1975 to current year.

REMARKS.--Water discharge estimated on basis of records at gaging station 11.4 mi (18.3 km) upstream at Waterloo. No significant inflow between gaging station and sampling site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
OCT												
13...	1200	1750	340	8.7	11.0	5	7.4	67	140	2350	28	11
DEC												
14...	1330	1220	660	8.2	.0		13.8	97	12	940	68	25
JAN												
25...	1530	676	650	8.0	.0		10.6	74	21	7700	71	22
FEB												
28...	1400	780	600	8.0	.0		--	--	8	--	79	20
APR												
30...	1600	6310	600	8.4	9.0	14	--	--	30	740	73	23
MAY												
10...	1400	5200	570	8.5	19.0	18	8.4	112	21	150	71	22
JUN												
14...	1300	3680	560	8.3	22.0	95	7.1	83	29	1340	68	20
JUL												
11...	1300	2770	630	7.9	26.0	33	5.6	80	21	3900	74	20
AUG												
09...	1330	4920	550	7.9	27.0	31	7.9	100	--	K200	78	20
SEP												
13...	1300	5560	550	8.1	19.0	13	8.9	98	29	550	74	21

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT											
13...	11	2.6	110	1	92	.4	44	10	180	.24	850
DEC											
14...	15	2.4	--	--	254	--	50	34	394	.54	1300
JAN											
25...	18	2.6	--	--	230	--	53	32	380	.52	694
FEB											
28...	18	2.0	--	--	220	--	49	29	354	.48	746
APR											
30...	8.9	1.6	230	0	190	1.5	50	23	381	.52	6490
MAY											
10...	9.2	2.4	210	9	190	1.2	55	26	370	.50	5200
JUN											
14...	9.9	2.7	--	--	190	--	41	23	351	.48	3490
JUL											
11...	9.1	4.2	--	--	210	--	38	22	341	.46	2550
AUG											
09...	8.7	2.8	--	--	210	--	48	21	360	.49	4780
SEP											
13...	7.0	3.0	--	--	230	--	45	21	377	.51	5660

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
13...	217	.00	.00	--	4.6	4.6	4.6	20	.14	--	--
DEC											
14...	432	5.0	.14	--	.85	.99	6.0	27	.27	--	--
JAN											
25...	402	4.7	1.0	--	.50	1.5	6.2	27	.50	--	--
FEB											
28...	389	4.1	.62	--	.35	.97	5.1	22	.38	--	--
APR											
30...	442	8.5	.02	.02	1.5	1.5	10	44	.15	.46	.46
MAY											
10...	438	8.8	.06	.07	1.3	1.4	10	45	.17	.52	.52
JUN											
14...	547	8.1	.19	.23	1.5	1.7	9.8	43	.29	.89	.89
JUL											
11...	456	7.1	.05	.06	1.3	1.3	8.4	37	.29	--	.89
AUG											
09...	508	7.0	.04	.05	2.0	2.0	9.0	40	.01	--	.03
SEP											
13...	466	6.0	.02	.02	1.2	1.2	7.2	32	.31	--	.95

05464130 FOURMILE CREEK NEAR LINCOLN, IA

LOCATION.--Lat 42°13'32", long 92°36'39", in SW1/4 SW1/4 sec.28, T.86 N., R.15 W., Tama County, Hydrologic Unit 07080205, on left bank 10 ft (3 m) downstream from bridge on county highway, 1.0 mi (1.6 km) upstream from Half Mile Creek and 4.7 mi (7.6 km) southeast of Lincoln.

DRAINAGE AREA.--13.78 mi² (35.7 km²).

PERIOD OF RECORD.--October 1962 to September 1967, October 1969 to September 1974, June 1976 to current year.

REVISED RECORDS.--WDR IA-78-1:1963-74.

GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir. Datum of gage is 931.26 ft (283.848 m) NGVD.

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

AVERAGE DISCHARGE.--13 years, (1963-67, 1970-74, 76-79), 9.02 ft³/s (0.255 m³/s), 8.89 in/yr (226 mm/yr), 6,530 acre-ft/yr (8.05 hm³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,450 ft³/s (41.1 m³/s) June 22, 1974, gage height, 13.98 ft (4.261 m); no flow Dec. 4 to Feb. 23, July 4, 5, 13, 14, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 350 ft³/s (9.91 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 18	2000	825	23.4	12.99	3.959
Mar. 29	1700	551	15.6	12.27	3.740
June 12	2030	844	23.9	13.03	3.972
June 27	0445	579	16.4	12.37	3.770
July 3	1015	*1,100	31.2	*13.51	4.118
July 14	0230	1,080	30.6	13.48	4.109
Aug. 21	2130	482	13.6	12.01	3.661

Minimum daily discharge, 1.2 ft³/s (0.034 m³/s) Sept. 21-23, 28-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	3.8	8.7	2.4	2.6	2.2	21	16	7.6	11	6.0	3.9
2	5.6	3.8	7.9	3.4	2.6	2.1	19	29	7.6	10	5.8	3.6
3	6.9	3.8	7.8	4.4	2.6	10	25	34	7.4	293	5.2	3.4
4	6.7	3.6	7.6	4.5	2.3	35	25	25	8.1	37	4.7	3.2
5	5.6	3.6	7.2	3.9	2.1	33	24	21	8.1	23	4.4	3.0
6	4.5	3.2	6.4	3.4	2.3	28	17	20	7.6	18	4.1	2.9
7	4.2	3.4	5.8	3.7	2.4	20	16	18	7.4	15	3.8	2.5
8	4.4	3.5	6.6	3.9	2.3	14	15	18	7.1	14	3.6	2.4
9	5.2	3.4	6.4	3.2	2.2	11	13	17	9.6	12	4.5	2.3
10	8.7	3.2	6.3	3.4	2.3	10	12	16	11	11	4.5	2.2
11	7.9	2.9	6.2	3.3	2.4	8.5	12	15	9.6	11	3.8	2.0
12	7.4	3.5	6.0	3.2	2.4	12	15	14	123	9.9	3.6	2.0
13	6.4	20	5.8	2.7	2.3	33	13	14	56	14	3.5	1.9
14	5.4	13	5.6	2.3	2.3	100	12	13	23	302	3.5	1.8
15	5.8	10	5.5	2.5	2.3	50	11	12	19	25	3.2	1.7
16	5.6	9.3	5.4	2.8	1.9	143	11	12	16	17	3.2	1.6
17	5.8	40	5.4	3.1	1.9	162	11	12	14	14	3.0	1.5
18	5.6	29	5.6	2.9	2.0	600	10	12	22	13	2.8	1.4
19	5.2	21	5.4	3.0	2.0	205	14	12	15	11	20	1.4
20	5.2	17	5.0	3.1	2.1	36	87	11	29	11	33	1.4
21	5.2	15	5.2	3.1	2.0	24	55	11	13	9.6	64	1.2
22	4.7	14	4.7	3.0	2.0	20	35	10	12	9.0	38	1.2
23	4.4	12	4.9	2.9	2.2	61	30	9.9	11	8.4	15	1.2
24	4.9	11	4.5	2.9	2.0	13	26	9.6	10	8.4	9.9	1.8
25	4.9	11	4.9	2.9	1.8	25	29	9.3	9.6	7.9	7.9	1.6
26	4.2	10	4.4	2.8	1.9	13	33	9.6	9.3	7.4	7.1	1.4
27	4.2	9.6	4.4	2.7	2.0	12	27	9.0	108	7.1	6.4	1.3
28	3.9	9.3	4.7	2.6	2.1	44	21	8.7	20	6.9	5.8	1.2
29	3.9	9.3	3.8	2.5	---	299	20	8.7	15	6.7	5.2	1.2
30	3.9	8.7	3.6	2.6	---	93	17	8.1	13	6.9	4.6	1.5
31	3.6	---	3.4	2.7	---	33	---	7.9	---	6.4	4.2	---
TOTAL	165.3	310.9	175.1	95.8	61.3	2151.8	676	442.8	629.0	956.6	294.2	69.7
MEAN	5.33	10.4	6.65	3.09	2.19	69.4	22.6	14.3	21.0	30.9	9.49	1.99
MAX	8.7	40	8.7	4.5	2.6	600	87	34	123	302	64	3.9
MIN	3.6	2.9	3.4	2.3	1.8	2.1	10	7.9	7.1	6.4	2.8	1.2
CFSM	.39	.76	.41	.22	.16	5.04	1.63	1.04	1.52	2.24	.69	.14
IN.	.45	.84	.47	.26	.17	5.81	1.82	1.20	1.70	2.58	.79	.16
AC-FT	328	617	347	190	122	4270	1340	878	1250	1900	584	118

CAL YR 1978	TOTAL	2941.01	MEAN	8.06	MAX	155	MIN	.38	CFSM	.59	IN	7.94	AC-FT	5830
WTR YR 1979	TOTAL	6018.50	MEAN	16.5	MAX	600	MIN	1.2	CFSM	1.20	IN	16.25	AC-FT	11940

05464133 HALF MILE CREEK NEAR GLADBROOK, IA

LOCATION.--Lat 42°12'40", long 92°36'39", in SW1/4, SW1/4 sec.33, T.86 N., R.15 W., Tama County, Hydrologic Unit 07080205, on right bank 10 ft (3 m) downstream from bridge on county highway, 0.8 mi (1.3 km) upstream from mouth, and 5.3 mi (8.5 km) northeast of Gladbrook.

DRAINAGE AREA.--1.33 mi² (3.44 km²).

PERIOD OF RECORD.--October 1962 to September 1967, October 1969 to September 1974, June 1976 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 948.16 ft (288.999 m) NGVD.

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

AVERAGE DISCHARGE.--13 years (1963-67, 1970-74, 76-79) 0.82 ft³/s (0.023 m³/s), 8.37 in/yr (213 mm/yr), 594 acre-ft/yr (0.732 hm³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 611 ft³/s (17.3 m³/s) June 12, 1979, gage height, 9.57 ft (2.917 m); no flow several days in 1964-67, 1971-72, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 90 ft³/s (2.55 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
June 12	1850	*611	17.3	*9.57	2.917	July 3	1000	608	17.2	9.56	2.914
June 27	0040	216	6.12	7.72	2.353	Aug. 21	--	364	10.3	8.57	2.612

Minimum daily discharge, 0.08 ft³/s (0.002 m³/s) Sept. 29-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.71	.57	.82	.25	.26	.23	2.5	2.0	.91	2.1	.56	.80
2	1.0	.57	.79	.35	.25	.23	2.6	4.2	.91	1.9	.54	.71
3	.91	.57	.79	.41	.25	2.0	2.9	3.0	.85	31	.52	.66
4	.85	.57	.76	.44	.25	8.0	3.0	2.3	2.7	3.0	.50	.62
5	.79	.57	.71	.38	.25	3.2	2.8	2.1	1.8	2.2	.49	.58
6	.73	.57	.66	.33	.25	1.1	2.4	2.1	1.2	1.9	.48	.56
7	.71	.57	.63	.36	.25	.90	2.3	2.0	1.1	1.6	.48	.53
8	.68	.57	.63	.38	.24	.80	2.1	2.1	1.1	1.4	.48	.51
9	.91	.57	.62	.31	.24	.70	1.9	2.0	1.6	1.3	.54	.46
10	.94	.57	.59	.33	.24	.62	1.8	2.0	1.5	1.2	.50	.44
11	.88	.57	.59	.32	.24	.60	1.8	1.9	1.3	1.0	.46	.41
12	.79	.55	.58	.30	.24	.80	2.0	1.8	3.1	.89	.42	.39
13	.73	.51	.57	.28	.24	3.0	1.7	1.7	2.1	.91	.39	.37
14	.71	.88	.56	.23	.24	10	1.5	1.7	2.1	12	.37	.36
15	.71	1.0	.55	.27	.23	2.1	1.4	1.5	1.1	3.1	.36	.34
16	.63	1.1	.54	.31	.22	7.7	1.3	1.5	1.1	2.0	.36	.31
17	.61	5.7	.51	.34	.21	8.0	1.3	1.4	1.1	1.7	.33	.30
18	.61	2.8	.52	.33	.21	25	1.2	1.4	1.1	1.4	.31	.28
19	.59	2.1	.52	.34	.22	8.5	2.8	1.8	1.1	1.2	1.7	.27
20	.59	1.8	.52	.33	.22	3.3	4.8	1.7	.91	1.0	4.0	.26
21	.57	1.6	.48	.33	.22	3.1	3.1	1.6	.71	.94	7.0	.24
22	.57	1.5	.46	.32	.21	2.9	3.1	1.5	.68	.86	3.0	.22
23	.57	1.3	.46	.31	.21	5.2	2.7	1.4	.82	.80	2.0	.21
24	.57	1.2	.45	.30	.20	5.8	2.5	1.7	.82	.76	1.9	.20
25	.59	1.1	.43	.29	.19	3.3	3.2	1.7	.82	.72	1.8	.20
26	.57	1.0	.40	.29	.20	2.1	3.0	1.8	.82	.68	1.6	.19
27	.59	.97	.39	.28	.21	2.0	2.5	1.1	9.8	.66	1.4	.18
28	.59	.91	.38	.28	.22	2.3	2.3	1.0	2.2	.64	1.2	.12
29	.59	.91	.36	.27	---	4.8	2.2	1.0	2.2	.62	1.1	.08
30	.59	.82	.32	.27	---	2.5	2.1	.97	2.2	.60	.97	.08
31	.59	---	.31	.27	---	2.5	---	.94	---	.58	.88	---
TOTAL	21.47	34.02	16.90	9.80	6.41	123.28	70.8	54.91	49.75	80.66	36.64	10.88
MEAN	.69	1.13	.55	.32	.23	3.98	2.36	1.77	1.66	2.60	1.18	.36
MAX	1.0	5.7	.82	.44	.26	25	4.8	4.2	9.8	31	7.0	.80
MIN	.57	.51	.31	.23	.19	.23	1.2	.94	.68	.58	.31	.08
CFSM	.52	.85	.41	.24	.17	2.99	1.77	1.33	1.25	1.96	.89	.27
IN.	.60	.95	.47	.27	.18	3.45	1.98	1.53	1.39	2.25	1.02	.30
AC-FT	43	67	34	19	13	245	140	109	99	160	73	22

CAL YR 1978 TOTAL 359.39 MEAN .98 MAX 15 MIN .01 CFSM .74 IN 10.04 AC-FT 713
WTR YR 1979 TOTAL 515.52 MEAN 1.41 MAX 31 MIN .08 CFSM 1.06 IN 14.41 AC-FT 1020

05464137 FOURMILE CREEK NEAR TRAER, IA

LOCATION.--Lat 42°12'07", long 92°33'44", NW1/4 SE1/4 sec.2, T.85 N., R.15 W., Tama County, Hydrologic Unit 07080205, on left bank 10 ft (3 m) downstream from bridge on county highway T69, 2.0 mi (3.2 km) upstream from mouth, and 5.0 mi (8.0 km) northwest of Traer.

DRAINAGE AREA.--19.51 mi² (50.53 km²).

PERIOD OF RECORD.--July 1962 to September 1974, October 1975 to current year.

REVISED RECORDS.--WDR IA-78-1:1963-74.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 905.87 ft (276.109 m) NGVD.

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

AVERAGE DISCHARGE.--16 years (water years 1963-74, 76-79), 11.9 ft³/s (0.337 m³/s), 8.28 in/yr (210 mm/yr), 8,620 acre-ft/yr (10.63 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,450 ft³/s (41.1 m³/s) Mar. 18, 1979, gage height, 11.93 ft (3.636 m); maximum gage height, 13.41 ft (4.087 m) Feb. 19, 1971, backwater from ice; no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	0815	*1,450	41.1	*11.93	3.636
Mar. 29	2030	516	14.6	9.71	2.960
June 12	2330	696	19.7	10.26	3.127
June 27	0200	414	11.7	9.39	2.862
July 3	1015	996	28.2	11.14	3.395
July 14	0545	954	27.0	11.02	3.359
Aug. 21	2100	484	13.7	9.61	2.929

Minimum daily discharge, 2.3 ft³/s (0.065 m³/s) Sept. 22-23, 27-30.

REVISIONS.--Revised peak discharges and annual maximum (*) discharges for water years 1976, 1977 and 1978 have been revised as shown in the following table. They supersede figures published in the reports for 1976, 1977 and 1978.

Water year	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
1976	Mar. 12	0645	*586	16.6	*9.92	3.024
1977	Sep. 17	2315	*249	7.05	*8.83	2.691
1978	Apr. 18	0230	*430	12.2	*9.44	2.877

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	5.5	12	3.0	4.1	4.7	41	29	12	16	8.1	6.0
2	9.7	5.7	11	4.0	4.3	4.6	37	43	12	15	7.7	5.6
3	11	5.5	12	5.1	4.2	5.4	36	60	12	378	7.2	5.1
4	10	5.5	11	6.2	3.9	15	36	46	15	62	6.7	4.9
5	9.7	5.7	10	5.6	3.4	50	36	42	15	31	6.1	4.7
6	8.6	5.2	9.6	4.8	4.2	47	51	38	12	23	5.8	4.8
7	8.1	5.2	8.9	5.4	4.2	40	26	35	12	18	5.3	4.1
8	8.1	5.3	8.9	5.6	3.9	29	25	35	12	14	5.5	4.0
9	8.9	5.2	8.7	4.5	3.7	20	21	32	15	12	7.6	3.8
10	13	5.0	8.6	5.1	4.0	17	20	26	17	9.5	6.5	3.7
11	12	4.7	8.5	5.2	4.0	16	19	24	14	7.8	5.6	3.4
12	11	5.2	8.4	5.6	3.9	15	24	23	57	6.7	5.2	3.3
13	9.7	27	8.0	5.2	3.8	40	22	22	104	19	5.1	3.4
14	9.2	20	8.0	4.0	4.2	140	20	20	31	375	5.1	3.2
15	9.2	15	7.8	4.2	3.9	71	19	20	24	35	4.7	3.1
16	8.4	14	7.4	4.4	3.6	146	18	19	19	26	4.6	3.0
17	8.1	51	6.9	4.8	3.7	281	17	19	18	22	4.4	2.8
18	7.9	37	7.4	5.0	3.7	1030	16	18	26	19	4.0	2.7
19	7.5	29	6.7	4.8	3.8	335	23	19	18	17	27	2.7
20	7.5	25	7.0	4.8	3.9	54	136	17	32	15	52	2.7
21	7.5	20	7.7	4.7	4.0	37	84	16	19	14	80	2.5
22	7.0	19	6.0	4.5	3.8	33	51	16	16	13	69	2.3
23	6.6	18	6.2	4.6	4.1	86	41	15	14	12	25	2.3
24	6.8	15	5.4	4.5	3.8	26	36	15	12	11	16	2.8
25	7.0	15	6.0	4.6	3.8	42	39	14	12	11	12	2.9
26	6.2	15	5.6	4.5	3.9	30	49	15	12	10	11	2.4
27	6.2	13	5.3	4.5	4.1	25	40	14	144	9.4	9.8	2.3
28	5.9	13	5.9	4.4	4.4	45	35	13	27	9.1	8.6	2.3
29	5.9	13	5.3	4.1	---	284	34	14	22	9.0	7.8	2.3
30	5.9	12	4.3	4.2	---	169	30	13	19	9.3	6.8	2.3
31	5.5	---	4.2	4.1	---	55	---	13	---	8.3	6.4	---
TOTAL	256.7	434.7	238.7	146.0	110.3	3192.7	1082	745	774	1238.1	436.6	101.4
MEAN	8.28	14.5	7.70	4.71	3.94	103	36.1	24.0	25.8	39.9	14.1	3.38
MAX	13	51	12	6.2	4.4	1030	136	60	144	378	80	6.0
MIN	5.5	4.7	4.2	3.0	3.4	4.6	16	13	12	6.7	4.0	2.3
CFSM	.42	.74	.40	.24	.20	5.28	1.85	1.23	1.32	2.05	.72	.17
IN.	.49	.83	.46	.28	.21	6.09	2.06	1.42	1.48	2.36	.83	.19
AC-FT	509	862	473	290	219	6330	2150	1480	1540	2460	866	201

CAL YR 1978	TOTAL	4062.48	MEAN 11.1	MAX 186	MIN .61	CFSM .57	IN 7.75	AC-FT 8060			
WTR YR 1979	TOTAL	8756.20	MEAN 24.0	MAX 1030	MIN 2.3	CFSM 1.23	IN 16.69	AC-FT 17370			

05464450 CEDAR RIVER NEAR PALO, IA

WATER-QUALITY RECORDS

LOCATION.--Lat 42°03'09", long 91°46'16", in NE1/4 NE1/4 sec.33, T.84 N., R.8 W., Linn County, Hydrologic Unit 07080205, at bridge on county highway E36, 1.2 mi (1.9 km) upstream from Otter Creek, 1.5 mi (2.4 km) southeast of Palo, 2.4 mi (3.9 km) downstream from Bear Creek, and at mile 124.2 (199.8 km) above mouth of Iowa River.

DRAINAGE AREA.--6,380 mi² (16,524 km²).

PERIOD OF RECORD.--Water years 1975 to current year (discontinued).

REMARKS.--Water discharge estimated on basis of records at gaging station 11.5 mi (18.5 km) downstream at Cedar Rapids. No significant inflow between gaging station and sampling site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
OCT												
11...	1330	2700	580	7.8	14.0	7.0	9.8	97	170	370	65	19
DEC												
13...	1200	1980	650	8.3	.0	--	--	--	29	880	67	24
JAN												
29...	1045	2280	620	7.8	.5	1.0	9.6	69	18	2850	58	20
FEB												
27...	0930	1400	560	7.9	.0	1.0	--	--	9	520	79	20
APR												
27...	1100	11900	550	8.0	11.5	45	9.8	91	0	2350	68	20
MAY												
09...	1000	9220	580	8.4	17.0	31	7.1	89	23	2800	90	21
JUN												
12...	1000	4840	520	8.3	20.5	72	8.3	98	28	600	67	20
JUL												
05...	1200	5980	380	8.1	22.0	390	6.2	72	120	6280	57	20
AUG												
08...	1015	4870	550	8.3	28.0	37	6.6	86	--	--	62	17
SEP												
12...	1030	9930	570	8.1	20.5	25	8.1	89	27	980	69	19

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT											
11...	11	2.1	260	0	210	6.6	40	22	344	.47	2510
DEC											
13...	13	2.0	--	--	265	--	54	33	422	.57	2260
JAN											
29...	14	2.0	--	--	210	--	49	26	352	.48	2170
FEB											
27...	21	2.1	--	--	210	--	49	35	354	.48	1340
APR											
27...	8.4	1.9	200	0	160	3.2	42	24	--	--	--
MAY											
09...	8.5	2.4	220	0	180	1.4	46	23	355	.48	8840
JUN											
12...	8.3	2.4	--	--	170	--	42	20	328	.45	4290
JUL											
05...	7.2	5.6	--	--	120	--	31	13	250	.34	4040
AUG											
08...	6.6	3.0	--	--	180	--	42	19	316	.43	4160
SEP											
12...	6.5	3.3	--	--	210	--	39	19	355	.48	9520

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
11...	396	5.6	.07	--	1.0	1.1	6.7	30	2.7	--	--
DEC											
13...	454	5.4	.08	--	1.3	1.4	6.8	30	.24	--	--
JAN											
29...	374	4.7	.62	--	.48	1.1	5.8	26	.32	--	--
FEB											
27...	392	4.3	.62	--	.88	1.5	5.8	26	.34	--	--
APR											
27...	--	9.0	.09	.11	1.2	1.3	10	46	.18	--	.55
MAY											
09...	442	9.4	.08	.10	1.2	1.3	11	47	.19	.58	.58
JUN											
12...	518	7.1	.12	.15	1.5	1.6	8.7	39	.24	.74	.74
JUL											
05...	1350	6.4	.10	.12	12	.12	18	81	.64	--	2.0
AUG											
08...	485	7.1	.03	.04	1.7	1.7	8.8	39	.04	--	.12
SEP											
12...	419	5.6	.06	.07	1.3	1.4	7.0	31	.24	--	.74

05464500 CEDAR RIVER AT CEDAR RAPIDS, IA

LOCATION.--Lat 41°58'14", long 91°40'01", in SE1/4 NW1/4 sec.28, T.83 N., R.7 W., Linn County, Hydrologic Unit 07080205, on right bank 400 ft (122 m) upstream from bridge on Eighth Avenue in Cedar Rapids, 2.7 mi (4.3 km) upstream from Prairie Creek, and at mile 112.7 (181.3 km) upstream from mouth of Iowa River.

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

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

REVISED RECORDS.--WSP 955: 1924. WSP 1308: 1904, 1906-13, 1915, 1917, 1919-24, 1928, 1930. WSP 1438: Drainage area. WSP 1558: 1915-18 (M), 1920 (M), 1922 (M), 1929, 1933, 1943.

GAGE.--Water-stage recorder. Datum of gage is 700.47 ft (213.503 m) NGVD. Prior to Aug. 20, 1920, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--77 years, 3,279 ft³/s (92.86 m³/s), 6.84 in/yr (174 mm/yr), 2,376,000 acre-ft/yr (2,930 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s (2,070 m³/s) Mar. 31, 1961, gage height, 19.66 ft (5.992 m); maximum gage height, 20.0 ft (6.10 m) Mar. 18, 1929; minimum discharge, 53 ft³/s (1.50 m³/s) Jan. 6, 1950, caused by construction operations upstream; minimum daily, 212 ft³/s (6.00 m³/s) Dec. 10, 1949.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1851 reached a stage of about 20 ft (6 m), discharge, 65,000 ft³/s (1,840 m³/s), estimated.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum (*):

		Discharge		Gage Height				Discharge		Gage Height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)	Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Mar. 20	0900	*37,600	1,060	*12.17	3.709	May 6	0715	13,300	377	6.92	2.109
Apr. 2	0915	35,000	991	11.58	3.530	Aug. 13	2130	12,200	346	6.50	1.981
Apr. 22	2100	21,200	600	8.92	2.719	Aug. 28	0900	34,400	974	11.70	3.566

Minimum daily discharge, 680 ft³/s (19.3 m³/s) Mar. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2630	1690	2080	1100	960	690	26500	8640	4960	5290	8520	22700
2	2550	1670	1760	1080	980	680	33200	8470	4780	4780	9310	24300
3	2550	1630	1510	1060	1050	760	32800	10100	4640	4590	8210	23100
4	2540	1620	1440	1100	1180	930	32700	11600	4420	4360	7030	19000
5	2460	1630	1240	1030	1280	1190	32200	12700	4240	6050	6460	14700
6	2360	1600	1350	1100	1100	1380	26200	13100	4120	8650	6230	11680
7	2280	1570	1400	1120	1100	1280	21600	11800	4120	7990	5980	9580
8	2180	1750	1450	1130	1120	1300	18600	10500	3900	5850	5110	9480
9	2240	1620	1500	1000	1100	1330	16900	9200	4160	4840	4950	10800
10	2820	1560	1520	920	1110	1500	15100	8210	4490	4160	5040	10960
11	2720	1530	1600	970	1120	1400	13800	7650	4790	3720	7350	10100
12	2630	1510	1540	1000	1000	1200	12600	7600	4860	3680	9980	9250
13	2600	1740	1990	1060	1060	1480	11800	8880	5210	4130	11700	7600
14	2520	2100	2330	1300	1010	2100	10900	8770	5290	5690	11300	6360
15	2440	2580	2290	1510	970	2900	10500	7840	5160	9240	8930	5780
16	2310	2640	2290	1550	1100	3300	10300	7100	4450	10800	7210	5270
17	2210	3180	2400	1360	1200	4200	9960	6360	4050	11700	6220	4900
18	2130	3980	2250	1200	1190	7300	9230	6000	3890	9640	5630	4680
19	2070	4470	2120	1150	1180	20300	8630	6120	4960	5760	6520	4390
20	2060	4220	2000	1000	1040	35400	9630	6000	6040	3980	10900	4240
21	2040	3810	2160	980	960	34500	15000	6760	6100	3660	14100	4010
22	2000	3340	1600	1060	830	33200	19800	7920	6170	3580	17100	3740
23	1880	3140	1540	980	780	28500	19500	7770	5480	3310	18100	3590
24	1850	3050	1560	1000	770	27800	17100	7050	4510	3200	18700	3490
25	1860	3050	1800	1020	860	26800	14000	6430	4060	3320	19600	3480
26	1650	2920	1200	930	840	25100	12500	5930	3720	3470	22500	3370
27	1910	2670	990	940	740	23600	11900	5490	3540	3180	30600	3110
28	1770	2680	850	980	720	22300	11300	5310	4350	2900	34400	3110
29	1750	2710	800	1040	---	21500	10300	5030	6080	2860	31200	3030
30	1690	2320	1100	960	---	23800	9310	6260	5660	3010	25500	2950
31	1670	---	1260	940	---	24800	---	6200	---	4820	22800	---
TOTAL	68370	73980	50960	33510	28350	382520	503860	246790	142200	162210	407180	252550
MEAN	2205	2466	1644	1081	1013	12340	16800	7961	4740	5233	13130	8418
MAX	2820	4470	2400	1550	1280	35400	33200	13100	6170	11700	34400	24300
MIN	1650	1510	800	920	720	680	8630	5030	3540	2860	4950	2950
CFSM	.34	.38	.25	.17	.16	1.90	2.58	1.22	.73	.80	2.02	1.29
IN.	.39	.42	.29	.19	.16	2.19	2.88	1.41	.81	.93	2.33	1.44
AC-FT	135600	146700	101100	66470	56230	758700	999400	489500	282100	321700	807600	500900

CAL YR 1978	TOTAL	1353930	MEAN	3709	MAX	17800	MIN	770	CFSM	.57	IN 7.74	AC-FT	2686000
WTR YR 1979	TOTAL	2352480	MEAN	6445	MAX	35400	MIN	680	CFSM	.99	IN 13.44	AC-FT	4666000

05464640 PRAIRIE CREEK AT FAIRFAX, IA

LOCATION.--Lat 41°55'22", long 91°47'02", in SE1/4 SW1/4 sec.9, T.82 N., R.8 W., Linn County, Hydrologic Unit 07080205, on right bank 12 ft (4 m) upstream from bridge on State Highway 149 at west side of Fairfax, and 10.7 mi (17.2 km) upstream from mouth.

DRAINAGE AREA.--178 mi² (461 km²).

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 737.00 ft (224.638 m) NGVD.

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

AVERAGE DISCHARGE.--13 years, 140 ft³/s (3.965 m³/s), 10.68 in/yr (271 mm/yr), 101,400 acre-ft/yr (125 hm³/yr); median of yearly mean discharges, 120 ft³/s (3.40 m³/s), 9.2 in/yr (234 mm/yr), 86,900 acre-ft/yr (107 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,140 ft³/s (231 m³/s) Mar. 19, 1979, gage height, 14.63 ft (4.459 m); no flow July 10-15, 30, Aug. 1, 3, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--An outstanding flood occurred in June 1944, stage and discharge unknown.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	0700	*8,140	231	*14.63	4.459
Mar. 30	1515	3,130	88.6	10.25	3.124
Apr. 24	1445	3,170	89.8	10.30	3.139
Aug. 21	0200	1,500	42.5	7.35	2.240
Aug. 22	2330	2,270	64.3	8.97	2.734

Minimum daily discharge, 27 ft³/s (0.76 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	67	135	50	47	64	697	306	139	44	69	157
2	79	67	128	49	46	61	620	396	136	42	59	139
3	140	67	123	49	45	65	706	879	134	69	51	116
4	134	67	125	48	44	160	620	569	123	344	57	103
5	115	67	127	48	44	680	578	461	116	155	49	98
6	99	64	120	48	44	750	447	399	111	96	45	90
7	88	57	115	48	43	650	422	358	107	81	40	77
8	83	59	116	48	43	530	402	322	103	73	38	75
9	116	62	119	48	43	440	355	296	111	65	107	67
10	637	62	117	48	43	370	328	272	228	57	90	63
11	360	58	113	48	44	320	320	262	169	51	59	61
12	264	55	109	48	44	280	349	236	143	44	63	57
13	212	119	104	49	45	340	325	233	172	43	57	51
14	182	158	100	49	45	771	301	226	157	340	53	55
15	168	106	95	50	45	623	280	206	146	400	53	49
16	147	96	89	51	45	458	269	194	136	160	51	47
17	131	503	85	51	46	928	262	191	120	80	47	42
18	127	590	79	52	46	2420	251	186	111	62	45	40
19	117	377	75	52	47	7230	304	290	114	47	322	37
20	112	281	71	53	49	3070	1100	269	107	67	1210	36
21	108	235	69	53	51	863	2520	236	96	83	838	35
22	101	209	66	54	53	617	976	218	90	94	1550	33
23	92	206	63	54	54	822	611	203	75	88	1470	32
24	90	178	61	53	56	803	484	177	77	77	464	30
25	96	165	60	52	59	513	438	181	71	67	304	33
26	87	157	58	52	62	453	666	172	63	63	226	30
27	80	154	56	52	65	358	546	177	63	55	724	32
28	76	136	55	51	67	424	430	157	61	103	413	30
29	72	135	54	50	---	954	380	143	57	65	293	29
30	72	139	52	49	---	2440	344	155	51	92	215	27
31	69	---	51	48	---	1340	---	153	---	118	181	---
TOTAL	4336	4696	2790	1555	1365	29797	16331	8523	3387	3225	9254	1771
MEAN	140	157	90.0	50.2	48.8	961	544	275	113	104	299	59.0
MAX	637	590	135	54	67	7230	2520	879	228	400	1550	157
MIN	69	55	51	48	43	61	251	143	51	42	38	27
CFSM	.79	.88	.51	.28	.27	5.40	3.06	1.55	.64	.58	1.68	.33
IN.	.91	.98	.58	.32	.29	6.23	3.41	1.78	.71	.67	1.93	.37
AC-FT	8600	9310	5530	3080	2710	59100	32390	16910	6720	6400	18350	3510

CAL YR 1978	TOTAL	64918	MEAN 178	MAX 3800	MIN 17	CFSM 1.00	IN 13.57	AC-FT	128800	
WTR YR 1979	TOTAL	87030	MEAN 238	MAX 7230	MIN 27	CFSM 1.34	IN 18.19	AC-FT	172600	

05464760 CEDAR RIVER NEAR BERTRAM, IA

WATER-QUALITY RECORDS

LOCATION.--Lat 41°56'02", long 91°32'54", in SE1/4 NW1/4 sec.9, T.82 N., R.6 W., Linn County, Hydrologic Unit 07080206, at bridge on U.S. Highway 30, 0.2 mi (0.3 km) downstream from Big Creek, 1.7 mi (2.7 km) southwest of Bertram, and at mile 103.1 (165.9 km) above mouth of Iowa River.

DRAINAGE AREA.--6,955 mi² (18,013 km²).

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

REMARKS.--Water discharge estimated on basis of records at gaging station 9.6 mi (15.4 km) upstream at Cedar Rapids. No significant inflow between gaging station and sampling site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
OCT												
11...	1030	2700	580	8.2	14.5	10	9.4	94	150	11500	71	21
DEC												
13...	1330	1980	680	8.2	.0	--	--	--	22	28000	76	26
JAN												
29...	1320	2280	600	7.9	1.0	1.0	12.8	92	19	8200	71	21
FEB												
27...	1430	1400	660	8.3	3.5	3.0	--	--	15	780	79	20
APR												
27...	1330	11900	540	8.1	12.0	48	8.6	80	0	3300	68	20
MAY												
09...	1300	9220	600	8.4	18.0	38	7.4	97	27	1480	110	21
JUN												
12...	1400	4840	560	8.6	23.0	32	8.2	96	21	K20000	65	20
JUL												
05...	1500	5980	520	8.2	24.0	100	6.6	79	46	17000	65	19
AUG												
08...	1230	4870	550	8.5	31.0	39	6.2	85	--	--	24	18
SEP												
12...	1330	9930	530	8.1	20.5	24	8.7	46	31	13800	66	19

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT											
11...	12	3.8	470	0	390	4.7	47	20	356	.48	2600
DEC											
13...	20	2.7	--	--	260	--	57	43	441	.60	2360
JAN											
29...	23	2.5	--	--	210	--	59	42	387	.53	2380
FEB											
27...	28	2.7	--	--	210	--	53	47	375	.51	1420
APR											
27...	8.4	1.9	200	0	160	2.5	43	26	356	.48	11400
MAY											
09...	9.2	1.3	220	0	180	1.4	48	25	352	.48	8760
JUN											
12...	9.8	2.3	--	--	180	--	43	23	335	.46	4380
JUL											
05...	10	3.0	--	--	160	--	40	21	336	.46	5430
AUG											
08...	7.4	3.1	--	--	170	--	45	21	319	.43	4200
SEP											
12...	7.3	3.6	--	--	200	--	38	22	349	.47	9360

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
11...	456	6.9	.41	--	1.5	1.9	8.8	39	.45	--	--
DEC											
13...	480	5.3	1.2	--	1.0	2.2	7.5	33	.41	--	--
JAN											
29...	422	5.1	2.2	--	.40	2.6	7.7	34	.55	--	--
FEB											
27...	432	4.3	1.8	--	.80	2.6	6.9	31	.53	--	--
APR											
27...	--	9.0	.23	.28	1.6	1.8	11	48	.19	--	.58
MAY											
09...	446	9.4	.22	.27	.98	1.2	11	47	.21	.64	.64
JUN											
12...	444	7.1	.30	.36	1.1	1.4	8.5	38	.42	1.3	1.3
JUL											
05...	603	8.1	.29	.35	1.8	2.1	10	45	.44	--	1.4
AUG											
08...	479	7.5	.15	.18	1.3	1.4	8.9	39	.01	--	.03
SEP											
12...	405	5.0	.11	.13	1.5	1.6	6.6	29	.04	--	.12

05465000 CEDAR RIVER NEAR CONESVILLE, IA

LOCATION.--Lat 41°24'36", long 91°17'06", in SW1/4 SW1/4 sec.2, T.76 N., R.4 W., Muscatine County, Hydrologic Unit 07080206, on right bank 10 ft (3 m) downstream from bridge on county highway G28, 3.4 mi (5.5 km) northeast of Conesville, 5.2 mi (8.4 km) downstream from Wapsinonoc Creek, 10.7 mi (17.2 km) upstream from mouth, and at mile 39.8 (64.0 km) upstream from mouth of Iowa River.

DRAINAGE AREA.--7,785 mi² (20,163 km²).

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

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

GAGE.--Water-stage recorder. Datum of gage is 581.95 ft (177.378 m) NGVD. Prior to Feb. 2, 1940, and Apr. 11, 1952, to July 1, 1954, nonrecording gage, Feb. 2, 1940, to Apr. 10, 1952, and July 2, 1954, to Sept. 16, 1953, water-stage recorder, at site 150 ft (46 m) downstream on left bank at same datum.

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

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

AVERAGE DISCHARGE.--40 years, 4,440 ft³/s (125.7 m³/s), 7.74 in/yr (197 mm/yr), 3,217,000 acre-ft/yr (3,970 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,800 ft³/s (2,010 m³/s) Apr. 2, 1961, gage height, 16.62 ft (5.066 m); maximum gage height, 16.85 ft (5.136 m) Apr. 12, 1965; minimum daily discharge, 250 ft³/s (7.08 m³/s) Nov. 28, 1955, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1929 reached a stage of 15.8 ft (4.82 m), from information by local residents to Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft³/s (340 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 22	0930	*37,900	1,070	*14.74	4.493
Apr. 25	0015	23,400	663	13.32	4.060
May 7	1100	16,700	473	12.13	3.697
July 18	2030	12,100	343	10.77	3.283
Aug. 31	0130	35,100	994	14.51	4.423

Minimum daily discharge, 1,200 ft³/s (34.0 m³/s) Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3400	2000	3280	2100	1550	1700	29100	17700	7740	6590	4440	30400
2	3260	1980	3050	1980	1550	1700	30000	13000	6910	6160	7850	26400
3	3150	1980	3020	1970	1550	1800	30600	13600	6490	6150	9370	24800
4	3090	1970	2410	1960	1550	2100	33400	15700	6280	6410	9090	25200
5	3080	1970	2160	2280	1550	2500	34000	15900	6070	5550	7830	24900
6	2980	1970	2150	2200	1520	2700	33600	16300	5810	6250	7440	21200
7	2890	1940	2050	2120	1540	2900	33000	16300	5660	8570	6880	15300
8	2780	1900	1970	2100	1550	3050	29700	16000	5810	8860	6680	12000
9	2720	1910	1980	2020	1550	2900	26100	14500	5530	7260	6060	11000
10	2820	1980	1910	2010	1580	2750	23000	13000	5890	6080	6150	11800
11	3230	1890	2100	2000	1600	2900	20600	12100	6270	5260	5770	12100
12	3750	1860	2000	1950	1600	3450	18800	11100	6420	4700	6850	11400
13	3440	2050	2300	1900	1600	3650	17500	10600	7630	4420	9080	10700
14	3260	2270	2950	1850	1600	4250	16200	11400	8440	5000	11100	9190
15	3130	2470	2900	1800	1600	5400	15100	11700	7160	8630	11500	7840
16	2980	2870	2900	1700	1600	6000	14800	10700	6860	9780	9710	7130
17	2870	3250	3100	1600	1600	6800	14100	9860	6060	11200	8040	6570
18	2750	3880	2600	1500	1550	11500	13700	9110	5390	11900	7910	6090
19	2680	4860	2000	1500	1550	19800	12900	8720	5220	11100	8350	5740
20	2620	5330	1800	1510	1550	25700	13200	8670	5580	7760	12200	5440
21	2440	5180	2200	1520	1550	33200	14400	8410	7330	5790	17600	5120
22	2430	4780	1480	1520	1560	37300	17500	8560	7460	5060	16800	4900
23	2400	4420	1400	1700	1600	35800	20700	9650	7250	4620	17200	4590
24	2310	4150	1200	1850	1640	34600	22800	9830	6760	4410	18700	4370
25	2240	3950	1500	1980	1680	32200	23000	9210	5860	4610	19700	4260
26	2230	3780	2100	2100	1680	31100	21400	8600	5110	4730	19800	4150
27	2200	3650	2850	1950	1650	30100	18400	8070	4740	4380	21400	4010
28	2050	3540	2500	1860	1700	28700	17200	7600	4490	4240	24200	3840
29	2140	3370	2500	1800	---	27700	16300	7230	4610	4020	28600	3690
30	2070	3300	2350	1700	---	27900	15200	6950	6300	3790	33800	3610
31	2050	---	2250	1550	---	28000	---	6940	---	4060	34300	---
TOTAL	85440	90450	70960	57580	44400	460150	646300	347010	187130	197340	414410	327740
MEAN	2756	3015	2289	1857	1586	14840	21540	11190	6238	6366	13370	10920
MAX	3750	5330	3280	2280	1700	37300	34000	17700	8440	11900	34300	30400
MIN	2050	1860	1200	1500	1520	1700	12900	6940	4490	3790	4440	3610
CFSM	.35	.39	.29	.24	.20	1.91	2.77	1.44	.80	.82	1.72	1.40
IN.	.41	.43	.34	.28	.21	2.20	3.09	1.66	.89	.94	1.98	1.57
AC-FT	169500	179400	140700	114200	88070	912700	1282000	688300	371200	391400	822000	650100

CAL YR 1978	TOTAL	1732550	MEAN	4747	MAX	18900	MIN	1200	CFSM	.61	IN	8.28	AC-FT	3437000
WTR YR 1979	TOTAL	2928910	MEAN	8024	MAX	37300	MIN	1200	CFSM	1.03	IN	14.00	AC-FT	5809000

05465500 IOWA RIVER AT WAPELLO, IA

LOCATION.--Lat 41°10'48", long 91°10'57", in NW1/4 SE1/4 sec.27, T.74 N., R.3 W., Louisa County, Hydrologic Unit 07080209, on right bank 30 ft (9 m) downstream from bridge on State Highway 99 at east edge of Wapello, 13.0 mi (20.9 km) downstream from Cedar River, and at mile 16.0 (25.7 km).

DRAINAGE AREA.--12,499 mi² (32,372 km²).

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: 1956.

GAGE.--Water-stage recorder. Datum of gage is 538.17 ft (164.034 m) NGVD; Oct. 1, 1914 to Apr. 15, 1934, non recording gage and Apr. 16, 1934 to Sept. 30, 1972, water-stage recorder at datum 10 ft (3.05 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by Coralville Lake (station 05453510) 67.3 mi (108.3 km) upstream, since Sept. 17, 1958. Several observations of water temperature were made during the year.

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

AVERAGE DISCHARGE.--65 years, 6,719 ft³/s (190.3 m³/s), 7.30 in/yr (185 mm/yr), 4,868,000 acre-ft/yr (6,002 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s (2,660 m³/s) June 18, 1947, gage height, 16.14 ft (4.919 m), datum then in use; maximum gage height, 28.63 ft (8.726 m) Apr. 22, 1973; minimum daily discharge, 300 ft³/s (8.50 m³/s) Nov. 28, 1955, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63,700 ft³/s (1,800 m³/s) Mar. 22, gage height, 25.30 ft (7.711 m); minimum daily, 2,500 ft³/s (70.8 m³/s) Feb. 20-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8890	4060	6910	3500	2700	3300	47300	23300	10700	9410	6320	32000
2	8300	3880	6440	3450	3000	3400	45200	21900	10600	8240	7880	28600
3	7670	3840	6530	3500	3700	3550	44100	22300	10100	7790	11900	25400
4	7210	3840	5880	3550	3800	5300	46100	24200	9670	8310	14100	25700
5	7290	3810	4940	3600	3800	6400	51700	25900	9060	8020	10700	27600
6	7150	3870	4750	3700	3500	7000	51200	23500	8810	8200	9660	27300
7	6860	3760	4650	3400	3300	7200	50200	22100	8790	10100	8760	23000
8	5960	3690	4470	3100	2950	7300	47400	21500	8830	11300	8190	17200
9	5490	3610	6000	2850	2850	7700	44800	20300	8880	10300	7510	14800
10	5670	3690	5900	2700	2750	7600	36800	18600	9050	8460	7150	14800
11	6830	3670	5600	2800	2700	7000	33700	17400	9250	7330	7230	15300
12	7760	3590	5800	2800	2700	6400	31700	16300	9400	6670	7290	14900
13	7840	3810	5500	2850	2700	8300	29300	15600	9760	5930	8900	14400
14	7150	4280	5400	2900	2700	12500	27300	15600	11700	6160	10600	13500
15	6450	4840	5300	3000	2700	17500	25200	16100	11000	8770	11500	12100
16	6060	5010	5200	2900	2700	16500	23600	15700	10600	12000	10900	10900
17	5740	5540	5100	2800	2700	21600	22800	14800	10100	13400	9420	10100
18	5570	8320	4900	2750	2650	25800	22200	14100	9580	14300	8570	9590
19	5440	11000	4300	2750	2550	34000	21800	13700	8710	14700	9910	9070
20	5240	10400	4200	2700	2500	45200	21400	13600	8020	12500	10800	8660
21	5060	10400	3900	2700	2500	55700	22600	13600	9260	9590	18700	8130
22	4930	10000	3700	2700	2550	62400	26100	13300	9790	7720	20000	7590
23	4780	9680	3600	2650	2700	58000	30300	13700	9680	7140	19000	7020
24	4660	9390	3800	2700	2950	52100	32800	13700	9550	6500	20400	6730
25	4540	8670	3400	2800	3100	49600	33900	12900	8950	6480	21500	6550
26	4360	7790	3600	3100	3100	45800	33800	12100	7910	6200	22000	6140
27	3680	7590	3700	2960	3100	44100	31600	11700	7010	5820	22000	5700
28	4060	7410	3900	2800	3150	42900	28400	11200	6710	5710	23000	5340
29	4380	7040	3800	2700	---	42800	26300	10800	6900	5690	23800	5030
30	4350	6820	4000	2600	---	46300	24700	10500	8390	5760	26900	4850
31	4250	---	3800	2600	---	47600	---	10300	---	6000	31100	---
TOTAL	183620	183300	146970	91850	82100	803650	1014300	510200	276760	264500	435690	418000
MEAN	5923	6110	4805	2963	2932	25830	33810	16460	9225	8532	14050	13930
MAX	8890	11000	6910	3700	3800	62400	51700	25900	11700	14700	31100	32000
MIN	3680	3590	3400	2600	2500	3300	21400	10300	6710	5690	6320	4850
AC-FT	364200	363600	295500	182200	162800	1588000	2012000	1012000	549000	524600	864200	829100

CAL YR 1978 TOTAL 3122500 MEAN 8555 MAX 26700 MIN 2240 AC-FT 6193000
WTR YR 1979 TOTAL 4410240 MEAN 12080 MAX 62400 MIN 2500 AC-FT 8748000

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1978 to current year.
WATER TEMPERATURES: January 1978 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1978 to current year.

REMARKS.--During periods of ice effect samples are collected in open water channel or through ice cover.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 810 micromhos Jan 23, 1978; minimum daily, 250 micromhos Sept. 18, 1978.
WATER TEMPERATURES: Maximum daily, 29.0°C Aug. 14, Sept. 10, 1978; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,920 mg/L June 28, 1978; minimum daily mean, 3 mg/L Jan. 30,31, Feb. 2-7, 11-13, 16, 1979.
SEDIMENT LOADS: Maximum daily, 183,000 tons (166,000 tonnes) June 29,1978; minimum daily, 21 tons (19 tonnes) Jan. 30, 31, 1979.

EXTREMES FOR CURRENT YEAR:
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos Oct. 8,9, Feb. 18-20; minimum daily, 300 micromhos Mar. 16.
WATER TEMPERATURES: Maximum daily, 28.0°C July 26-31; minimum daily, 0.0°C many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,360 mg/L Mar. 16; minimum daily mean, 3 mg/L Jan. 30, 31, Feb. 2-7, 11-13, 16.
SEDIMENT LOADS: Maximum daily 113,000 tons (103,000 tonnes) Mar. 28; minimum daily, 21 tons (19 tonnes) Jan. 30, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	550	510	510	---	---	350	480	550	---	450	---
2	500	540	520	500	---	---	350	500	540	---	450	---
3	500	530	520	490	---	---	---	490	560	---	460	---
4	510	520	530	490	---	---	---	500	---	---	460	---
5	570	520	530	490	---	---	355	---	---	---	450	---
6	580	510	520	480	---	---	360	500	560	---	450	---
7	590	520	500	---	---	---	410	---	560	---	470	520
8	600	530	480	---	---	---	415	520	---	---	470	520
9	600	530	460	---	---	---	420	540	520	---	470	---
10	580	530	470	---	---	---	460	540	---	---	470	---
11	540	---	480	650	---	---	455	540	---	---	480	---
12	530	---	500	---	---	---	460	550	530	---	560	510
13	460	520	520	---	---	---	465	540	570	---	560	500
14	490	520	500	---	---	---	365	540	---	450	450	---
15	510	520	480	---	590	320	460	540	550	450	450	---
16	550	540	490	---	---	300	475	550	570	450	450	---
17	530	540	480	---	580	310	480	540	---	420	---	---
18	550	480	480	---	600	320	480	540	570	440	---	560
19	590	480	490	---	600	---	430	530	570	440	---	---
20	570	500	500	---	600	---	300	540	570	440	510	---
21	570	520	600	---	580	---	---	540	560	450	440	---
22	580	520	---	---	580	220	---	520	560	460	440	500
23	580	550	---	---	---	---	---	550	570	480	440	500
24	---	540	---	---	---	---	420	---	560	490	420	500
25	580	540	480	---	---	---	450	550	570	440	400	510
26	570	520	490	---	---	355	460	560	570	440	380	510
27	560	520	500	---	---	350	470	560	570	440	380	520
28	570	520	530	---	---	---	480	560	---	450	---	510
29	570	530	520	---	---	329	500	560	---	450	370	520
30	570	530	520	---	---	300	520	540	---	450	---	520
31	570	---	510	---	---	320	---	540	---	450	---	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	12.0	1.0	.0	---	---	5.0	11.0	23.0	---	27.0	---
2	16.0	13.0	1.0	.0	---	---	4.0	12.0	23.0	---	26.0	---
3	16.0	13.0	1.0	.0	---	---	---	12.0	23.0	---	26.0	---
4	16.0	14.0	1.0	.0	---	---	---	13.0	---	---	26.0	---
5	14.0	11.0	1.0	.0	---	---	5.0	---	---	---	26.0	---
6	13.0	10.0	1.0	.0	---	---	5.0	15.0	24.0	---	26.0	---
7	13.0	9.0	1.0	---	---	---	5.0	---	25.0	---	25.0	22.0
8	13.0	9.0	.0	---	---	---	5.0	18.0	---	---	25.0	22.0
9	14.0	9.0	.0	---	---	---	6.0	19.0	22.0	---	24.0	---
10	15.0	11.0	.0	---	---	---	6.0	20.0	---	---	24.0	---
11	14.0	---	.0	---	---	---	6.0	20.0	---	---	24.0	---
12	13.0	---	.0	---	---	---	7.0	18.0	25.0	---	23.0	22.0
13	12.0	9.0	.0	---	---	---	7.0	17.0	23.0	---	23.0	22.0
14	11.0	7.0	.0	---	---	---	6.0	16.0	---	26.0	23.0	---
15	11.0	6.0	.0	---	.0	6.0	9.0	16.0	25.0	26.0	21.0	---
16	11.0	5.0	.0	---	.0	5.0	10.0	17.0	25.0	26.5	21.0	---
17	11.0	4.0	.0	---	.0	5.0	11.0	18.0	---	26.0	---	---
18	11.0	7.0	.0	---	.0	5.0	12.0	19.0	25.0	26.0	---	20.5
19	13.0	6.0	.0	---	.0	---	5.0	20.0	25.0	26.0	---	---
20	14.0	5.0	.5	---	.0	---	6.0	20.0	25.0	27.0	25.0	---
21	14.0	3.0	.5	---	.0	---	---	20.0	24.0	27.0	25.0	---
22	14.0	2.0	---	---	.0	6.0	---	19.0	24.0	27.0	24.0	22.0
23	11.5	2.0	---	---	---	---	---	20.0	25.0	27.0	23.0	22.0
24	10.5	2.0	---	---	---	---	13.5	---	25.0	27.0	23.0	21.0
25	11.0	2.0	.0	---	---	---	13.0	18.0	24.0	27.0	23.0	21.0
26	11.0	1.0	.0	---	---	---	13.0	17.0	24.0	28.0	23.0	21.0
27	11.0	1.0	.0	---	---	5.0	13.0	19.0	24.0	28.0	22.5	21.0
28	11.0	1.0	.0	---	---	5.0	11.0	20.0	---	28.0	---	22.0
29	11.0	1.0	.0	---	---	5.0	10.0	21.0	---	28.0	22.0	21.0
30	11.0	1.0	.0	---	---	6.0	10.0	21.0	---	28.0	---	20.0
31	11.0	---	.0	---	---	6.0	---	22.0	---	28.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	138	3310	70	767	61	1140	16	151	4	29	23	205
2	120	2690	68	712	57	991	15	140	3	24	20	184
3	152	3150	60	622	57	1000	13	123	3	30	19	182
4	121	2360	57	591	54	857	12	115	3	31	26	372
5	96	1890	61	628	46	614	11	107	3	31	39	674
6	120	2320	74	773	42	539	12	120	3	28	54	1020
7	99	1830	65	660	39	490	9	83	3	27	76	1480
8	75	1210	63	628	39	471	8	67	5	40	103	2030
9	76	1130	67	653	84	1360	7	54	5	38	134	2790
10	85	1300	62	618	97	1550	5	36	5	37	151	3100
11	232	4280	60	595	124	1870	5	38	3	22	198	3740
12	216	4530	70	679	153	2400	5	38	3	22	320	5530
13	135	2860	100	1030	145	2150	5	38	3	22	370	8290
14	100	1930	124	1430	125	1820	5	39	4	29	530	17900
15	109	1900	106	1390	105	1500	5	40	4	29	1160	54800
16	114	1870	140	1890	87	1220	5	39	3	22	1360	60600
17	75	1160	305	4560	73	1010	5	38	4	29	900	52500
18	64	962	635	14300	62	820	4	30	16	114	710	49500
19	58	852	816	24200	53	615	4	30	22	151	565	51900
20	58	821	260	7300	45	510	5	36	10	67	440	53700
21	55	751	119	3340	39	411	6	44	7	47	360	54100
22	60	799	118	3190	36	360	6	44	10	69	309	52100
23	57	736	110	2870	34	330	5	36	15	109	335	52500
24	50	629	84	2130	31	318	5	36	22	175	398	56000
25	65	797	83	1940	29	266	5	38	27	226	458	61300
26	77	906	76	1600	27	262	5	42	27	226	527	65200
27	101	1000	70	1430	24	240	5	39	25	209	870	104000
28	97	1060	66	1320	20	211	5	38	24	204	975	113000
29	65	769	59	1120	18	185	4	29	---	---	465	89900
30	60	705	53	976	17	184	3	21	---	---	342	42800
31	66	757	---	---	18	185	3	21	---	---	308	39600
TOTAL	---	51264	---	83942	---	25879	---	1750	---	2087	---	1100997

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	245	31300	196	12300	178	5140	327	8310	322	5490	209	18100
2	365	44500	245	14500	145	4150	289	6430	323	6870	203	15700
3	209	24900	234	14100	108	2950	260	5470	273	17900	197	13500
4	138	17200	241	15700	129	3370	288	6460	251	43800	227	15800
5	128	17900	249	17400	136	3330	278	6020	278	8030	241	18000
6	129	17800	242	15400	108	2570	284	6290	273	7120	237	17500
7	107	14500	218	13000	101	2400	418	11400	263	6220	218	13500
8	86	11000	156	9060	115	2740	600	18300	248	5480	258	12000
9	111	13400	115	6300	373	8940	592	16500	251	5090	287	11500
10	213	21200	117	5880	349	8530	570	13000	204	3940	275	11000
11	260	19100	116	5450	317	7920	552	10900	249	4860	249	10300
12	347	12500	116	5110	292	7410	543	9780	239	4700	212	8530
13	205	50100	115	4840	215	5670	550	8810	286	6870	183	7120
14	144	10600	115	4840	168	5310	667	11100	870	24900	164	5980
15	108	7350	115	5000	257	7630	720	37400	1110	34500	150	4900
16	94	5990	165	6990	303	8670	710	31200	410	12100	138	4060
17	113	6960	210	8390	274	7470	652	23600	224	5700	128	3490
18	117	7010	136	5180	248	6410	498	19200	215	4970	122	3160
19	152	8950	158	5840	231	5430	420	16700	478	12800	117	2870
20	80	4620	131	4810	221	4790	342	11500	597	17400	113	2640
21	67	4090	111	4080	247	6180	254	6580	684	34500	110	2410
22	123	8670	158	5670	329	8700	201	4190	570	6350	108	2210
23	184	15100	144	5330	381	9960	180	3470	337	44500	102	1930
24	214	19000	126	4660	346	8920	186	3260	288	15900	104	1890
25	200	18300	156	5430	316	7640	235	4110	224	13000	105	1860
26	162	14800	161	5260	261	5570	275	4600	229	13600	105	1740
27	207	17700	136	4300	232	4390	294	4620	263	15600	115	1770
28	256	19600	143	4320	226	4090	299	4610	298	18500	117	1690
29	155	11000	139	4050	233	4340	298	4580	253	16300	115	1560
30	118	7870	151	4280	297	6730	310	4820	222	16100	115	1510
31	---	---	172	4780	---	---	313	5070	215	18100	---	---
TOTAL	---	483010	---	232250	---	177350	---	328280	---	451190	---	218220

TOTAL LOAD FOR YEAR: 3156219 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80156)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
MAY							
22...	1730	19.0	13000	113	3970	4	11
JUN							
13...	1330	23.0	9420	207	5270	39	52
JUL							
17...	1500	26.0	13600	669	24600	36	37
AUG							
29...	1200	22.0	23100	214	13300	33	36
SEP							
18...	1400	19.0	9440	115	2930	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY							
22...	38	74	77	93	100	--	--
JUN							
13...	75	98	99	100	--	--	--
JUL							
17...	62	87	89	95	99	100	--
AUG							
29...	45	68	72	83	99	100	--
SEP							
18...	--	--	--	--	--	--	93

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
MAR							
22...	1230	61700	10	1	1	17	44
MAY							
08...	1300	23000	8	--	0	5	42
22...	1200	13000	8	0	1	30	46
JUN							
13...	1330	9420	7	1	3	25	56
JUL							
17...	1130	13600	7	0	1	11	44
AUG							
29...	1415	23100	9	--	0	8	54
SEP							
18...	1500	9440	9	--	0	3	41

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR						
22...	83	97	99	99	100	--
MAY						
08...	78	90	95	97	98	100
22...	73	81	88	93	98	100
JUN						
13...	87	97	100	--	--	--
JUL						
17...	77	94	99	100	--	--
AUG						
29...	76	88	96	100	--	--
SEP						
18...	80	96	100	--	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
24...	1120	4500	580	8.7	10.5	27	12.2	109	370	940	280
JAN											
11...	1130	2880	650	8.1	.0	5	10.8	76	390	210	320
FEB											
15...	0930	2440	590	7.7	.0	2	10.4	73	1400	340	290
MAR											
22...	1600	61700	240	7.9	6.5	99	10.0	82	360	2600	98
APR											
24...	1300	33000	380	7.8	13.5	74	8.8	85	--	--	170
MAY											
22...	1730	13000	530	8.8	19.0	27	9.6	106	1200	K110	260
JUN											
13...	1330	9420	570	8.5	23.0	84	7.9	93	K2800	K1380	270
JUL											
17...	1500	13600	380	7.8	26.0	200	6.8	85	K610	1450	180
AUG											
29...	1200	23100	350	7.9	22.0	36	6.4	74	2050	2750	160
SEP											
18...	1400	9440	610	8.5	19.0	28	9.6	105	320	K92	270

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	SODIUM+POTASSIUM DISSOLVED (MG/L AS NA) (00933)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT 24...	84	74	24	14	10	.4	--	2.7	200	49	30
JAN 11...	61	84	27	18	11	.4	--	2.7	260	57	32
FEB 15...	74	78	24	20	13	.5	--	2.1	220	51	28
MAR 22...	26	27	7.5	3.8	7	.2	--	4.6	72	19	8.8
APR 24...	53	46	14	6.6	8	.2	10	3.6	120	33	25
MAY 22...	84	71	21	8.7	7	.2	11	2.7	180	48	21
JUN 13...	80	70	23	10	7	.3	12	2.4	190	43	20
JUL 17...	53	50	14	7.3	8	.2	10	3.1	130	29	15
AUG 29...	44	46	12	5.2	9	.2	9.0	3.8	120	27	13
SEP 18...	51	72	22	9.1	10	.2	13	3.6	220	49	20

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 24...	.3	9.0	359	323	.49	4360	5.1	.03	--	1.7	1.7
JAN 11...	.2	15	459	392	.62	3570	6.6	.85	--	.85	1.7
FEB 15...	.2	14	363	350	.49	2390	4.6	.87	--	.43	1.3
MAR 22...	.2	7.9	139	123	.19	23200	3.5	.64	--	1.5	2.1
APR 24...	.2	12	255	213	.35	22700	6.7	.06	.07	1.4	1.5
MAY 22...	.3	6.1	329	287	.45	11500	7.2	.06	.07	1.9	2.0
JUN 13...	.2	6.9	341	290	.45	8670	6.8	.08	.10	1.6	1.7
JUL 17...	.3	9.5	240	206	.33	8810	7.0	.01	.01	1.6	1.6
AUG 29...	.2	13	210	192	.29	13100	3.9	.19	.23	1.0	1.2
SEP 18...	.3	14	378	341	.51	9630	4.1	.02	.02	1.6	1.6

DATE	NITROGEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN,* TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHATE, TOTAL (MG/L AS PO4) (00650)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 24...	.60	1.1	6.8	30	.29	--	--	.11	6.6	--	--
JAN 11...	.30	1.4	8.3	37	.26	--	--	.23	1.5	--	--
FEB 15...	.20	1.1	5.9	26	.26	--	--	.25	2.1	--	--
MAR 22...	2.1	.00	5.6	25	.27	--	--	.14	--	8.7	5.4
APR 24...	.68	.82	8.2	36	.37	1.1	1.1	.16	35	--	--
MAY 22...	1.1	.93	9.2	41	.22	.67	.67	.08	3.5	--	--
JUN 13...	1.1	.60	8.5	38	.25	.77	.77	.30	--	6.5	--
JUL 17...	.96	.64	8.6	38	.64	--	2.0	.19	31	--	--
AUG 29...	.38	.82	5.1	23	.07	--	.21	.29	12	--	--
SEP 18...	.30	1.3	5.7	25	.30	--	.92	.14	--	8.0	1.4

05465500 IOWA RIVER AT WAPELLO, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT 24...	1120	--	50	607	--	--
JAN 11...	1130	--	5	39	--	--
FEB 15...	0930	--	4	25	--	--
MAR 22...	1600	370	302	50300	--	--
APR 24...	1300	--	217	19300	--	--
MAY 22...	1730	45000	113	3970	--	74
JUN 13...	1330	--	207	5270	--	98
JUL 17...	1500	2300	669	24600	--	87
AUG 29...	1200	--	214	13300	--	68
SEP 18...	1400	--	115	2930	93	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) (01006)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 22...	1600	3	1	200	100	100	19	6	13	10
JUN 13...	1330	5	5	200	0	200	2	1	1	10
SEP 18...	1400	5	4	200	0	200	0	0	0	10

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE) (01044)
MAR 22...	10	0	3	3	0	14	0	14	7500	7400
JUN 13...	10	0	3	3	0	23	21	2	4200	4200
SEP 18...	0	10	0	0	0	13	11	2	190	190

DATE	IRON, DISSOLVED (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) (01050)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71895)	MERCURY DISSOLVED (UG/L AS HG) (71890)
MAR 22...	120	240	100	140	250	220	40	.7	.5	.2
JUN 13...	10	37	37	0	310	310	0	.2	.0	.2
SEP 18...	0	13	13	0	190	180	10	.1	.0	--

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) (01076)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 22...	0	0	1	0	0	0	50	30	20
JUN 13...	1	0	1	0	0	0	60	50	10
SEP 18...	1	0	1	0	0	0	20	10	10

IOWA RIVER BASIN

05465500 IOWA RIVER AT WAPELLO, IA

WATER QUALITY RECORDS

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO JULY 1979

DATE	MAR 22,79	MAY 22,79	JUL 17,79
TIME	1600	1730	1500
TOTAL CELLS/ML	370	45000	2300
DIVERSITY: DIVISION	1.0	1.6	1.5
.CLASS	1.0	1.6	1.5
..ORDER	1.2	1.8	2.2
...FAMILY	1.9	2.5	2.9
....GENUS	2.5	2.7	2.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....DICHOTOMOCOCCUS	27	7	--	-	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	1300	3	--	-
...MICRACTINIACEAE						
....GOLENKINIA	--	-	500	1	--	-
....MICRACTINIUM	--	-	6500	14	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	54	15	1000	2	83	4
....DICTYOSPHAERIUM	41	11	--	-	--	-
....TETRAEDRON	--	-	*	0	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	140#	37	11000#	24	420#	18
....TETRASTRUM	--	-	670	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	330	1	14	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	14	4	--	-	70	3
....MELOSIRA	68#	19	--	-	14	1
....STEPHANODISCUS	--	-	9400#	21	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	14	1
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	330	1	--	-
....SYNEDRA	--	-	--	-	70	3
...NAVICULACEAE						
....GYROSIGMA	14	4	--	-	28	1
....NAVICULA	--	-	*	0	83	4
...NITZSCHIACEAE						
....NITZSCHIA	--	-	2000	4	240	10
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	28	1
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	450#	19
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	12000#	26	700#	30
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	70	3
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	14	4	--	-	28	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05470000 SOUTH SKUNK RIVER NEAR AMES, IA

LOCATION.--Lat 42°04'05", long 93°37'02", in NW1/4 SW1/4 sec.23, T.84 N., R.24 W., Story County, Hydrologic Unit 07080105, on left bank 2.5 mi (4.0 km) north of Ames, 3.5 mi (5.6 km) downstream from Keigley Branch, 5.2 mi (8.4 km) upstream from Squaw Creek, and at mile 228.1 (367.0 km) upstream from mouth of Skunk River.

DRAINAGE AREA.--315 mi² (816 km²).

PERIOD OF RECORD.--July 1920 to September 1927, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308. Prior to October 1966, published as Skunk River near Ames.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1921, 1925-26, 1934-35 (M), 1937 (M), 1939 (M), 1947-50 (M), WDR Iowa. 1967: 1965, 1974: 1973 (P).

GAGE.--Water-stage recorder. Concrete control since July 21, 1934. Datum of gage is 893.61 ft (272.372 m) NGVD (Iowa Highway Commission benchmark). Prior to Aug. 25, 1921, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--54 years, 152 ft³/s (4.305 m³/s), 6.55 in/yr (166 mm/yr), 110,100 acre-ft/yr (136 hm³/yr); median of yearly mean discharges, 120 ft³/s (3.40 m³/s) 5.2 in/yr (132 mm/yr), 86,900 acre-ft/yr (107 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,530 ft³/s (244 m³/s) June 10, 1954, gage height, 13.66 ft (4.164 m); maximum gage height, 13.90 ft (4.237 m) May 20, 1944; no flow at times in 1934, 1937, 1953-57, 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	1745	*4,980	141	*9.13	2.783	July 11	1445	2,410	68.3	6.16	1.878
Mar. 23	2300	2,950	83.5	6.82	2.079	July 30	1500	1,660	47.0	5.39	1.643
Mar. 30	1430	3,490	98.8	7.48	2.280	Aug. 21	1930	1,800	51.0	5.53	1.686
June 13	0515	1,880	53.2	5.62	1.713						

Minimum daily discharge, 17 ft³/s (0.48 m³/s) Jan. 14, Feb. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	75	118	39	23	19	1260	310	272	278	550	186
2	223	77	46	37	23	20	1020	408	222	223	389	157
3	213	79	70	36	22	30	897	883	197	194	295	130
4	200	78	144	31	22	70	781	699	183	379	236	112
5	191	76	125	25	23	101	834	541	166	387	192	103
6	173	70	93	25	23	106	642	450	150	247	158	548
7	163	68	74	23	23	140	545	382	222	197	131	405
8	157	70	77	23	22	122	490	333	522	172	111	247
9	166	72	81	19	21	130	435	297	666	153	128	185
10	170	68	79	19	21	95	384	274	830	155	423	150
11	158	63	79	20	22	97	358	281	619	2160	195	122
12	166	64	81	20	22	189	371	256	521	1200	135	104
13	152	150	76	19	23	643	374	250	1400	766	111	97
14	140	192	70	17	23	710	342	242	813	593	99	86
15	141	152	76	18	21	577	304	224	543	452	88	77
16	134	144	75	18	18	671	285	212	421	351	80	71
17	126	243	65	19	19	1270	285	204	353	271	74	66
18	123	311	69	20	19	2360	272	214	595	219	67	60
19	116	268	76	20	19	4450	266	317	506	184	278	54
20	116	229	76	21	20	3210	569	451	698	159	766	51
21	114	206	59	22	20	1440	824	366	482	139	965	48
22	111	199	68	22	20	1150	649	318	364	121	854	44
23	102	196	68	23	19	2240	508	283	306	133	907	40
24	101	167	58	22	17	2270	429	246	267	265	678	54
25	110	152	57	22	18	1140	427	226	235	192	447	49
26	101	150	57	23	18	953	632	222	212	150	341	42
27	93	144	52	23	19	788	573	215	615	128	330	38
28	87	128	53	22	20	755	451	193	524	111	279	36
29	82	121	53	22	---	1300	388	181	377	148	420	35
30	84	116	42	22	---	3180	345	178	358	1260	328	33
31	79	---	40	22	---	1830	---	263	---	988	230	---
TOTAL	4336	4128	2257	714	580	32056	15940	9919	13639	12375	10285	3430
MEAN	140	138	72.8	23.0	20.7	1034	531	320	455	399	332	114
MAX	234	311	144	39	23	4450	1260	883	1400	2160	965	548
MIN	79	63	40	17	17	19	266	178	150	111	67	33
CFSM	.44	.44	.23	.07	.07	3.28	1.69	1.02	1.44	1.27	1.05	.36
IN.	.51	.49	.27	.08	.07	3.79	1.88	1.17	1.61	1.46	1.21	.41
AC-FT	8600	8190	4480	1420	1150	63580	31620	19670	27050	24550	20400	6800

CAL YR 1978 TOTAL 63381.1 MEAN 174 MAX 2050 MIN 8.4 CFSM .55 IN 7.48 AC-FT 125700
WTR YR 1979 TOTAL 109659.0 MEAN 300 MAX 4450 MIN 17 CFSM .95 IN 12.95 AC-FT 217500

05470500 SQUAW CREEK AT AMES, IA

LOCATION.--Lat 42°01'21", long 93°37'45", in NE1/4 NW1/4 sec.10, T.83 N., R.24 W., Story County, Hydrological Unit 07080105, on left bank 65 ft (20 m) downstream from Lincoln Way Bridge in Ames, 0.1 mi (0.2 km) downstream from College Creek, and 1.8 mi (2.9 km) upstream from mouth.

DRAINAGE AREA.--204 mi² (528 km²).

PERIOD OF RECORD.--May 1919 to April 1927, May 1965 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: Drainage area, 1920-22 (M), 1923, 1924-25 (M), 1926, 1927 (M), WDR Iowa. 1966: 1965, WDR Iowa. 1971: 1970 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 881.00 ft (268.529 m) NGVD (levels by Iowa State University). Prior to Mar. 11, 1925, nonrecording gage at site 0.6 mi (1.0 km) upstream at different datum. Mar. 11, 1925, to Apr. 30, 1927, nonrecording gage at site 65 ft (20 m) upstream at datum about 4 ft (1 m) higher.

REMARKS.--Records good except those for periods Dec. 1-31, Apr. 23 to May 9, which are fair and Jan. 1 to Feb. 28, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 122 ft³/s (3.455 m³/s), 8.12 in/yr (206 mm/yr), 88,390 acre-ft/yr (109 hm³/yr); median of yearly mean discharges, 98 ft³/s (2.78 m³/s), 6.5 in/yr (165 mm/yr), 71,000 acre-ft/yr (87.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s (320 m³/s) June 27, 1975, gage height, 14.00 ft (4.267 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1918, reached a stage of 14.5 ft (4.42 m), from flood marks, site and datum used 1919-25, discharge, 6,900 ft³/s (195 m³/s). Flood of Mar. 1, 1965, reached a stage of 10.7 ft (3.26 m), from graph based on gage readings, at present site and datum, discharge, 4,200 ft³/s (119 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	0545	*5,300	150	*11.81	3.600	July 11	0830	1,710	48.4	6.05	1.844
Mar. 23	1615	1,800	51.0	6.28	1.914	Aug. 10	0315	2,320	65.7	7.88	2.402
Mar. 30	0400	1,740	49.3	6.11	1.862	Aug. 20	0015	1,890	53.5	6.64	2.024

Minimim daily discharge, 12 ft³/s (0.34 m³/s) Jan. 12-14, Feb. 9, Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	52	70	33	15	22	636	219	210	214	219	77
2	143	56	54	31	15	24	529	352	160	167	174	64
3	139	57	52	29	15	56	534	694	139	194	129	53
4	133	57	129	27	14	87	485	485	129	386	104	48
5	129	57	90	25	14	90	568	424	116	174	79	54
6	116	53	70	23	15	89	512	370	106	135	66	60
7	108	51	64	20	15	103	452	296	171	114	56	48
8	104	54	58	18	14	97	406	238	495	106	44	42
9	114	57	54	16	12	98	364	210	401	94	250	38
10	113	55	51	15	13	89	310	192	496	157	1390	34
11	110	49	56	13	13	94	252	204	350	1240	403	30
12	107	63	58	12	13	241	267	181	297	436	217	28
13	95	145	58	12	14	766	262	174	540	262	146	28
14	87	156	54	12	15	824	257	169	392	198	113	25
15	90	122	58	13	15	578	224	156	278	145	93	24
16	85	117	58	13	14	613	210	145	218	111	81	22
17	78	242	48	13	14	1380	219	142	185	94	72	22
18	80	281	50	14	15	2560	167	168	585	80	55	18
19	76	238	57	14	15	4110	170	394	352	71	441	17
20	78	202	55	15	16	1790	685	446	449	64	890	17
21	79	180	52	15	16	1210	590	314	270	55	343	16
22	76	174	50	16	17	950	480	257	204	53	636	13
23	69	176	49	18	18	1540	400	217	171	66	400	12
24	69	144	47	18	16	1080	305	182	149	84	249	96
25	81	129	43	17	16	698	376	168	131	91	172	65
26	71	125	44	17	17	595	608	168	121	64	136	41
27	63	122	42	16	18	490	424	152	1070	55	117	29
28	59	101	44	16	20	485	340	137	701	46	105	25
29	57	94	46	15	---	937	301	128	423	91	106	21
30	57	86	40	15	---	1500	262	270	285	869	104	22
31	55	---	36	15	---	878	---	422	---	418	83	---
TOTAL	2869	3495	1737	546	424	24074	11595	8074	9594	6334	7473	1089
MEAN	92.5	117	56.0	17.6	15.1	777	387	260	320	204	241	36.3
MAX	148	281	129	33	20	4110	685	694	1070	1240	1390	96
MIN	55	49	36	12	12	22	167	128	106	46	44	12
CFSM	.45	.57	.28	.09	.07	3.81	1.90	1.28	1.57	1.00	1.18	.18
IN.	.52	.64	.32	.10	.08	4.39	2.11	1.47	1.75	1.16	1.36	.20
AC-FT	5690	6930	3450	1080	841	47750	23000	16010	19030	12560	14820	2160

CAL YR 1978	TOTAL	56228.3	MEAN 154	MAX 2040	MIN 3.1	CFSM .76	IN 10.25	AC-FT 111500				
WTR YR 1979	TOTAL	77304.0	MEAN 212	MAX 4110	MIN 12	CFSM 1.04	IN 14.10	AC-FT 153300				

05471000 SOUTH SKUNK RIVER BELOW SQUAW CREEK NEAR AMES, IA

LOCATION.--Lat 42°00'31", long 93°35'37", in NE1/4 NW1/4 sec.13, T.83 N., R.24 W., Story County, Hydrological Unit 07080105, on right bank 15 ft (5 m) downstream from bridge on county highway, 0.2 mi (0.3 km) downstream from Squaw Creek, 0.2 mi (0.3 km) upstream from bridge on U.S. Highway 30, 2 mi (3.2 km) southeast of Ames, and at mile 222.6 (358.2 km) upstream from mouth of Skunk River.

DRAINAGE AREA.--556 mi² (1,440 km²).

PERIOD OF RECORD.--October 1952 to current year (discontinued). Prior to October 1966, published as Skunk River below Squaw Creek near Ames.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 857.10 ft (261.244 m) NGVD. Prior to Oct. 1, 1973, at datum 10.00 ft higher.

REMARKS.--Records good except those for winter period, which are poor. Low flows are affected by pumpage by City of Ames from surficial aquifer and do not represent the natural flow of the stream. Several observations of water temperature were made during the year. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--27 years, 301 ft³/s (8.524 m³/s), 7.35 in/yr (187 mm/yr), 218,100 acre-ft/yr (269 hm³/yr); median of yearly mean discharges, 250 ft³/s (7.08 m³/s), 6.1 in/yr (155 mm/yr), 181,000 acre-ft/yr (223 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft³/s (416 m³/s) June 27, 1975, gage height, 25.57 ft (7.794 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1944, reached a stage of 13 ft (4 m), from floodmarks, discharge, 10,000 ft³/s (283 m³/s), datum then in use.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	1200	*9,430	267	*23.68	7.218	July 11	1315	4,500	127	19.48	5.938
Mar. 23	1800	5,160	146	20.17	6.148	July 30	1415	2,980	84.4	17.22	5.249
Mar. 30	1000	5,470	155	20.55	6.264	Aug. 10	0530	3,220	91.2	17.63	5.374
June 13	0730	2,760	78.2	16.86	5.139	Aug. 20	0215	4,330	123	19.24	5.864
June 27	0915	2,620	74.2	16.63	5.069						

Minimum daily discharge, 35 ft³/s (0.99 m³/s) Jan. 14, 15; Feb. 5-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	391	128	170	57	37	47	2190	603	573	554	862	314
2	370	136	145	54	36	52	1790	768	466	462	638	274
3	357	136	120	51	36	90	1580	1720	412	441	480	247
4	333	136	250	43	36	140	1420	1300	380	848	392	224
5	319	134	230	40	35	190	1560	1000	360	653	324	217
6	291	128	200	40	35	240	1220	842	336	464	280	557
7	272	109	162	39	35	285	1000	716	387	398	249	486
8	259	112	163	39	35	290	909	624	1060	363	221	321
9	274	112	164	39	35	280	805	553	1100	331	437	261
10	276	107	159	37	35	300	719	510	1480	348	2160	219
11	274	93	150	37	36	310	686	508	1080	3430	668	191
12	272	122	151	37	37	431	721	472	865	2050	430	168
13	247	299	147	36	38	1460	717	463	2090	1160	337	161
14	228	328	137	35	39	1730	662	452	1350	874	291	147
15	230	278	142	35	39	1250	596	426	919	664	263	135
16	224	261	140	36	38	1450	568	405	723	522	248	130
17	206	436	122	37	38	2870	560	397	614	428	233	125
18	211	525	120	36	37	5260	541	424	1220	366	215	118
19	197	468	128	36	38	8570	551	673	913	324	694	109
20	199	399	127	37	38	6200	1520	886	1250	298	2350	91
21	199	364	106	37	39	3170	1670	683	820	273	1480	88
22	197	347	107	37	39	2430	1280	587	629	266	1760	84
23	177	352	107	38	39	4370	1000	520	537	277	1450	78
24	172	309	90	38	38	3980	840	459	475	395	1040	176
25	191	289	90	39	39	2170	852	427	430	354	696	135
26	179	280	92	39	40	1770	1270	427	394	283	549	102
27	168	276	85	39	42	1440	1110	410	1970	251	492	84
28	158	232	81	38	44	1370	877	373	1300	225	434	80
29	152	213	88	38	---	2240	763	354	830	248	513	77
30	158	190	68	38	---	5160	669	487	686	2210	474	76
31	147	---	60	37	---	3250	---	828	---	1650	357	---
TOTAL	7328	7299	4101	1219	1053	62795	30646	19297	25649	21410	21017	5475
MEAN	236	243	132	39.3	37.6	2026	1022	622	855	691	678	183
MAX	391	525	250	57	44	8570	2190	1720	2090	3430	2350	557
MIN	147	93	60	35	35	47	541	354	336	225	215	76
CFSM	.42	.44	.24	.07	.07	3.64	1.84	1.12	1.54	1.24	1.22	.33
IN.	.49	.49	.27	.08	.07	4.20	2.05	1.29	1.72	1.43	1.41	.37
AC-FT	14540	14480	8130	2420	2090	124600	60790	38280	50870	42470	41690	10860

CAL YR 1978	TOTAL	128061	MEAN 351	MAX 4380	MIN 23	CFSM .63	IN 8.57	AC-FT	254000
WTR YR 1979	TOTAL	207289	MEAN 568	MAX 8570	MIN 35	CFSM 1.02	IN 13.87	AC-FT	411200

05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IA

LOCATION.--Lat 41°21'19", long 92°39'31", in NW1/4 SW1/4 sec.25, T.76 N., R.16 W., Mahaska County, Hydrologic Unit 07080105, on right bank 400 ft (122 m) upstream from bridge on U.S. Highway 63, 0.3 mi (0.5 km) downstream from Painter Creek, 4.0 mi (6.4 km) north of Oskaloosa, 53.7 mi (86.4 km) upstream from confluence with North Skunk River, and at mile 147.3 (237.0 km) upstream from mouth of Skunk River.

DRAINAGE AREA.--1,635 mi² (4,234 km²).

PERIOD OF RECORD.--October 1945 to current year. Prior to October 1966, published as Skunk River near Oskaloosa. Prior to October 1948, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 685.50 ft (208.940 m) NGVD. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft (122 m) downstream at same datum.

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

AVERAGE DISCHARGE.--34 years, 897 ft³/s (25.40 m³/s), 7.45 in/yr (189 mm/yr), 649,900 acre-ft/yr (801 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s (566 m³/s) June 15, 1947, gage height, 21.26 ft (6.480 m), from floodmarks; maximum gage height, 22.52 ft (6.864 m) Feb. 3, 1973, backwater from ice; minimum daily discharge, 1.8 ft³/s (0.051 m³/s) Oct. 11-13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 25.8 ft (7.86 m), from floodmarks, discharge, 37,000 ft³/s (1,050 m³/s), from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of velocity-area study.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 14	----	5,300	150	ice jam	----	Apr. 1	0545	7,760	220	18.37	5.599
Mar. 21	1045	*11,000	312	*20.38	6.212	Apr. 21	1745	5,770	163	16.46	5.017

Minimum daily discharge, 200 ft³/s (5.66 m³/s) Feb. 19,20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1240	505	938	210	248	215	7600	2280	1390	1740	1990	1090
2	1140	490	891	215	245	220	6450	2390	1320	1460	1360	898
3	1520	479	837	220	240	480	5500	3390	1190	1340	1060	798
4	1310	476	1600	230	240	1000	4690	3580	1100	1600	924	712
5	1170	468	1800	240	240	1200	4270	3620	1010	1510	791	644
6	1060	465	1400	235	240	1000	3690	3080	931	1360	701	595
7	989	444	1600	230	235	1020	3280	2650	881	1230	630	588
8	920	430	1300	220	230	1000	2810	2340	830	1130	571	756
9	873	423	1200	210	230	960	2530	2120	1160	1090	540	684
10	888	420	1100	210	230	940	2290	1950	1650	2310	544	584
11	949	416	1140	210	225	880	2140	1900	1980	1470	1910	519
12	934	397	1200	210	220	1200	2400	1920	1870	1880	1640	472
13	884	626	1100	220	220	3000	2190	1810	1620	2640	1070	430
14	834	866	900	210	220	5020	2040	1700	2550	1790	848	400
15	791	913	760	210	220	4900	1910	1570	2510	1510	729	376
16	753	848	700	210	215	4700	1790	1450	1890	1290	655	348
17	712	2110	650	210	210	6300	1740	1350	1590	1110	605	331
18	670	1950	580	210	205	8190	1660	1260	1450	989	571	312
19	634	1710	550	220	200	9190	1850	1200	1530	898	715	293
20	595	1540	520	225	200	10400	2700	1860	1680	837	1840	281
21	564	1370	480	225	210	10800	5360	2050	1840	777	3450	266
22	530	1240	450	225	210	10500	5070	1860	1690	729	3200	258
23	501	1220	420	230	230	9320	4060	1680	1430	684	3690	246
24	512	1180	400	230	245	8840	3300	1540	1260	666	2570	238
25	595	1090	350	240	250	8810	3320	1410	1140	695	1930	235
26	598	1030	320	245	230	8130	3780	1340	1060	739	1460	269
27	584	1000	300	250	220	6410	3300	1350	2120	688	1780	318
28	557	942	290	250	215	5220	3100	1280	4010	623	2460	261
29	537	913	280	250	---	5570	2740	1160	2980	591	1560	238
30	523	960	260	250	---	7070	2510	1050	2120	648	1260	219
31	508	---	230	250	---	7600	---	1170	---	993	1190	---
TOTAL	24875	26921	24546	7000	6323	150085	100070	59310	49782	37017	44244	13659
MEAN	802	897	792	226	226	4841	3336	1913	1659	1194	1427	455
MAX	1520	2110	1800	250	250	10800	7600	3620	4010	2640	3690	1090
MIN	501	397	230	210	200	215	1660	1050	830	591	540	219
CFSM	.49	.55	.48	.14	.14	2.96	2.04	1.17	1.02	.73	.87	.28
IN.	.57	.61	.56	.16	.14	3.41	2.28	1.35	1.13	.84	1.01	.31
AC-FT	49340	53400	48690	13880	12540	297700	198500	117600	98740	73420	87760	27090

CAL YR 1978 TOTAL 438694 MEAN 1202 MAX 8440 MIN 160 CFSM .74 IN 9.98 AC-FT 870100
WTR YR 1979 TOTAL 543832 MEAN 1490 MAX 10800 MIN 200 CFSM .91 IN 12.37 AC-FT 1079000

05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IA

LOCATION.--Lat 41°18'03", long 92°12'16", in NE1/4 SE1/4 sec.14, T.75 N., R.12 W., Keokuk County, Hydrologic Unit 07080106, on right bank 20 ft (6 m) downstream from bridge on State Highway 149, 1.2 mi (1.9 km) downstream from Cedar Creek, 2.2 mi (3.5 km) south of Sigourney, 4.0 mi (6.4 km) upstream from Bridge Creek, and 16.2 mi (26.1 km) upstream from confluence with South Skunk River.

DRAINAGE AREA.--730 mi² (1,890 km²).

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1558: 1946-47 (M).

GAGE.--Water-stage recorder. Datum of gage is 651.53 ft (198.586 m) NGVD. Prior to June 10, 1953, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--34 years, 436 ft³/s (12.35 m³/s), 8.11 in/yr (206 mm/yr), 315,900 acre-ft/yr (390 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s (779 m³/s) Mar. 31, 1960, gage height, 25.33 ft (7.721 m); minimum daily, 0.1 ft³/s (0.003 dm³/s) Oct. 7 to Nov. 15, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 22.8 ft (6.95 m), from floodmark, discharge, 14,500 ft³/s (411 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,800 ft³/s (108 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	0430	*11,300	320	*21.50	6.553	Apr. 1	1915	4,460	126	17.19	5.240

Minimum daily discharge, 58 ft³/s (1.64 m³/s) Aug. 18, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	287	155	602	220	180	260	4220	1100	337	441	174	228
2	274	149	492	280	180	240	3600	1400	317	366	131	369
3	288	147	481	290	180	310	2300	3370	299	327	126	250
4	639	147	459	280	175	680	1920	2770	281	323	102	183
5	490	145	529	255	170	1200	1860	1840	274	488	89	154
6	386	145	540	230	170	1400	1650	1280	272	358	81	140
7	323	146	540	220	160	1500	1350	1120	261	281	73	128
8	280	136	520	205	160	1500	1260	998	268	252	67	117
9	258	123	500	195	160	1300	1170	912	297	232	63	109
10	299	124	620	190	155	940	1050	845	337	215	70	100
11	672	126	680	180	155	780	1000	1010	410	200	81	96
12	582	119	640	180	150	820	1080	977	356	187	144	91
13	474	216	540	185	150	1650	1120	833	339	184	112	85
14	402	450	480	190	150	2600	1050	752	354	236	75	80
15	360	547	420	180	150	2900	910	716	495	183	64	78
16	323	364	400	180	150	4000	818	792	348	166	61	75
17	300	1010	370	175	150	5400	791	612	289	155	59	73
18	270	2100	335	175	140	6190	765	588	259	138	58	73
19	260	1930	320	180	130	8680	878	868	297	128	80	70
20	250	1080	350	180	130	11100	2220	788	414	122	670	69
21	236	824	350	190	140	9200	3210	651	332	116	1710	67
22	228	709	335	200	150	5630	2790	573	302	109	1490	64
23	216	688	285	200	165	3640	2750	529	281	103	1530	63
24	205	696	290	210	200	3120	1620	496	328	101	810	60
25	196	642	270	205	235	2730	1710	460	236	103	435	60
26	195	592	240	200	270	2060	2400	437	211	109	306	51
27	199	574	240	195	320	1660	2220	445	571	195	323	65
28	185	548	240	195	290	1690	1590	433	1820	451	555	67
29	172	507	220	195	---	2810	1290	399	909	119	581	61
30	164	597	210	190	---	3460	1190	382	568	217	353	58
31	158	---	205	190	---	3440	---	355	---	221	266	---
TOTAL	9571	15736	12703	6340	4915	92890	51782	28731	12062	6826	10739	3194
MEAN	309	525	410	205	176	2996	1726	927	402	220	346	106
MAX	672	2100	680	290	320	11100	4220	3370	1820	488	1710	369
MIN	158	119	205	175	130	240	765	355	211	101	58	58
CFSM	.42	.72	.56	.28	.24	4.10	2.36	1.27	.55	.30	.47	.15
IN.	.49	.80	.65	.32	.25	4.73	2.64	1.46	.61	.35	.55	.16
AC-FT	18980	31210	25200	12580	9750	184200	102700	56990	23920	13540	21300	6340

CAL YR 1978	TOTAL	210165	MEAN 575	MAX	6540	MIN 43	CFSM .79	IN 10.71	AC-FT	416900	
WTR YR 1979	TOTAL	255489	MEAN 700	MAX	11100	MIN 58	CFSM .96	IN 13.02	AC-FT	506800	

05473400 CEDAR CREEK NEAR OAKLAND MILLS, IA

LOCATION.--Lat. 40°55'20", long 91°40'10", in SE1/4 NW1/4 sec. 28, T.71 N., R.7 W., Henry County, Hydrologic Unit 07080107 on left bank 30 ft. (9.1 m) upstream from bridge on county highway H45, 3.0 mi. (4.8 km) west of Oakland Mills, 2.9 mi. (4.7 km) upstream from Wolf Creek, and 4.3 mi. (6.9 km) upstream from mouth.

DRAINAGE AREA.--530 mi.² (1,373 km²), revised.

PERIOD OF RECORD.--July 1977 to current year. October 1957 to July 1977 (operated as low-flow station only).

GAGE.--Water-stage recorder. Datum of gage is 565.07 (172.233 m) NGVD.

REMARKS.--Records good except for winter period, which are fair. Occasional high water measurements were made by Corps of Engineers in 1965, 1966, 1970 and 1974 and by U.S. Geological Survey in 1966 and 1967. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft³/s (195 m³/s) May 14, 1978, gage height, 18.15 ft (5.532 m); minimum daily, 1.0 ft³/s (0.028 m³/s) July 9, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 22, 1973 reached a stage of 24.09 ft (7.343 m), discharge not determined. Flood of June 1905 reached a stage approximately 2 feet higher from information by local resident.

EXTREMES FOR CURRENT PERIOD.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

		Discharge		Gage height	
Date	Time	(ft³/s)	(m³/s)	(ft)	(m)
Mar. 14	1415	*5,490	155	16.55	5.044
Mar. 19	1630	3,600	102	a*16.97	5.172
Mar. 30	0930	3,500	99.1	a16.20	4.938
Apr. 21	1515	3,190	90.3	12.78	3.895
May 4	0845	3,180	90.1	12.80	3.901

Minimum daily discharge, 3.2 ft³/s (0.091 m³/s) Sept. 27.

a Backwater from Skunk River.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	36	290	43	58	155	1610	285	65	52	20	238
2	73	39	274	42	57	150	1270	249	60	43	19	86
3	80	39	285	42	56	580	1070	1670	54	39	84	48
4	86	39	248	43	55	1600	871	2560	55	53	158	34
5	83	38	200	44	53	1700	809	688	57	114	113	27
6	76	44	220	45	52	1240	628	422	56	74	43	22
7	67	47	455	45	50	1180	421	346	55	49	23	17
8	58	59	330	52	50	1140	380	301	72	38	16	14
9	50	57	270	54	50	860	348	256	171	33	11	11
10	49	50	220	54	49	760	298	239	349	31	381	9.9
11	376	48	160	52	44	700	576	742	238	30	557	9.2
12	199	44	120	52	44	960	2460	341	132	33	121	7.6
13	138	98	115	53	45	2900	1120	203	111	105	57	6.5
14	109	198	120	53	48	5290	498	180	105	62	35	6.5
15	92	147	100	55	49	4430	365	160	86	77	24	6.5
16	79	98	92	64	50	2860	292	137	70	97	19	6.1
17	68	276	96	72	49	2700	252	122	61	46	15	5.6
18	62	1150	82	74	48	3100	238	120	54	35	14	5.8
19	54	430	77	74	45	3500	259	125	53	27	11	4.7
20	55	220	88	75	43	3350	761	160	46	22	15	4.1
21	52	161	90	78	52	2300	2780	142	57	20	21	4.7
22	49	137	84	77	66	1900	1340	125	97	18	318	4.1
23	50	150	68	78	145	2000	560	113	59	14	360	3.8
24	47	195	63	77	325	2300	417	108	52	38	183	4.3
25	47	165	58	74	355	1800	528	103	53	36	92	4.2
26	48	139	48	71	320	1340	2080	95	51	25	52	3.8
27	57	140	40	68	230	1200	1040	120	41	24	149	3.2
28	55	147	38	66	180	1100	467	130	38	41	272	3.8
29	50	145	36	64	---	2400	335	98	62	31	102	4.3
30	41	240	38	62	---	3400	344	80	66	33	58	5.3
31	37	---	42	62	---	2700	---	74	---	26	45	---
TOTAL	2466	4776	4447	1865	2668	61595	24417	10494	2526	1366	3388	611.0
MEAN	79.5	159	143	60.2	95.3	1987	814	339	84.2	44.1	109	20.4
MAX	376	1150	455	78	355	5290	2780	2560	349	114	557	238
MIN	37	36	36	42	43	150	238	74	38	14	11	3.2
CFSM	.15	.31	.27	.12	.18	3.81	1.56	.65	.16	.08	.21	.04
IN.	.18	.34	.32	.13	.19	4.39	1.74	.75	.18	.10	.24	.04
AC-FT	4890	9470	8820	3700	5290	122200	48430	20810	5010	2710	6720	1210

CAL YR 1978	TOTAL	168020.0	MEAN 460	MAX 6690	MIN 10	CFSM .88	IN 11.97	AC-FT 333300			
WTR YR 1979	TOTAL	120619.0	MEAN 330	MAX 5290	MIN 3.2	CFSM .63	IN 8.60	AC-FT 239200			

05473500 BIG CREEK NEAR MOUNT PLEASANT, IA

LOCATION.--Lat 41°00'52", long 91°34'49", in NW1/4 NW1/4 sec.29, T.72 N., R.6 W., Henry County, Hydrologic Unit 07080107, on left bank 12 ft (4 m) downstream from bridge on county highway, 100 ft (30 m) downstream from Lynn Creek, 0.7 mi (1.1 km) downstream from Brandywine Creek, and 3.7 mi (6.0 km) northwest of Court House at Mount Pleasant.

DRAINAGE AREA.--106 mi² (275 km²).

PERIOD OF RECORD.--October 1955 to current year (discontinued).

REVISED RECORDS.--WSP 1628: 1958 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 630.53 ft (192.186 m) NGVD.

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

AVERAGE DISCHARGE.--24 years, 66.2 ft³/s (1.875 m³/s), 8.48 in/yr (215 mm/yr), 47,960 acre-ft/yr (59.1 hm³/yr); median of yearly mean discharges, 54 ft³/s (1.53 m³/s), 6.9 in/yr (175 mm/yr), 39,100 acre-ft/yr (48.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s (297 m³/s) Apr. 22, 1973, gage height, 25.58 ft (7.797 m), on basis of contracted-opening measurement at gage at gage height 18.51 ft (5.642 m) and contracted-opening measurements of the 1973 peak flow at sites 2 mi (3 km) upstream [63 mi² (163 km²)] and 6 mi (10 km) downstream [115 mi² (298 km²)]; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 3, 1948, reached a stage of about 27 ft (8.2 m), from floodmarks established by local residents, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft³/s (25.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 3	--	1,300	36.8	ice jam	---	Mar. 18	2200	1,570	44.5	9.11	2.777
Mar. 13	2015	*2,080	58.9	*10.37	3.161	Mar. 29	1515	2,000	56.6	10.18	3.103

No flow Aug. 16-20, Sept. 15-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	7.3	54	6.5	13	94	298	67	16	8.0	6.8	3.4
2	12	6.3	46	7.1	14	100	321	84	15	6.8	3.0	3.0
3	18	8.9	130	9.0	14	680	243	184	15	6.4	41	2.6
4	13	8.4	100	12	14	1200	192	120	14	13	27	1.3
5	16	8.3	64	13	15	860	171	90	15	16	9.9	1.1
6	21	10	53	15	15	720	117	77	16	8.4	5.7	.93
7	15	9.9	58	15	15	580	106	66	13	6.8	5.3	.35
8	13	7.9	66	15	14	440	101	56	16	5.7	4.5	.20
9	12	7.7	45	16	14	320	84	48	32	5.7	3.4	.15
10	25	8.4	37	16	14	240	72	67	71	5.3	4.1	.12
11	29	8.4	36	15	14	220	184	225	39	4.9	4.1	.10
12	25	7.4	33	16	13	300	466	87	29	4.5	3.4	.08
13	19	27	29	18	12	1120	227	63	38	4.9	.35	.06
14	16	29	24	21	11	1200	148	57	34	6.8	.08	.03
15	14	18	28	19	12	457	103	46	27	7.2	.01	.00
16	13	15	28	18	10	393	84	40	23	5.7	.00	.00
17	11	61	23	18	8.6	858	73	39	21	3.8	.00	.00
18	8.9	70	25	16	9.9	1200	64	37	19	2.6	.00	.00
19	9.7	43	35	15	12	1180	66	35	19	2.6	.00	.00
20	8.8	33	42	16	13	516	79	32	17	1.8	.00	.00
21	8.7	28	32	16	18	332	80	28	15	1.8	.81	.00
22	8.5	26	29	14	24	272	71	27	13	1.5	28	.00
23	8.0	38	22	12	64	549	67	27	12	1.3	42	.00
24	7.5	37	19	11	130	373	70	23	13	4.5	8.0	.00
25	9.3	32	16	9.0	120	245	295	22	11	6.8	5.3	.00
26	14	31	13	9.9	110	212	380	25	9.9	3.8	3.4	.00
27	10	32	12	11	95	181	198	26	9.4	2.6	41	.00
28	7.9	28	11	12	90	232	125	21	10	3.4	5.7	.00
29	7.4	32	10	11	---	1370	103	19	9.9	4.5	4.1	.00
30	6.9	56	9.0	11	---	1480	82	19	9.4	10	4.1	.00
31	9.0	---	6.4	12	---	451	---	17	---	8.9	8.0	---
TOTAL	406.0	734.9	1135.4	425.5	908.5	18385	4670	1774	601.6	176.0	269.05	13.42
MEAN	13.1	24.5	36.6	13.7	32.4	593	156	57.2	20.1	5.68	8.68	.45
MAX	29	70	130	21	130	1480	466	225	71	16	42	3.4
MIN	6.9	6.3	6.4	6.5	8.6	94	64	17	9.4	1.3	.00	.00
CFSM	.12	.23	.35	.13	.31	5.59	1.47	.54	.19	.05	.08	.004
IN.	.14	.26	.40	.15	.32	6.45	1.64	.62	.21	.06	.09	.00
AC-FT	805	1460	2250	844	1800	36470	9260	3520	1190	349	534	27

CAL YR 1978 TOTAL 26485.83 MEAN 72.6 MAX 1570 MIN .28 CFSM .69 IN 9.29 AC-FT 52530
WTR YR 1979 TOTAL 29499.37 MEAN 80.8 MAX 1480 MIN .00 CFSM .76 IN 10.35 AC-FT 58510

05474000 SKUNK RIVER AT AUGUSTA, IA

LOCATION.--Lat 40°45'13", long 91°16'40", in NE1/4 NE1/4 sec.26, T.69 N., R.4 W., Des Moines County, Hydrologic Unit 07080107, on left bank 300 ft (91 m) upstream from bridge on State Highway 394 at Augusta, 2.0 mi (3.2 km) upstream from Long Creek, and at mile 12.5 (20.1 km).

DRAINAGE AREA.--4,303 mi² (11,144 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September to November 1913, October 1914 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1915 (M), 1919-27 (M), 1932-34 (M), 1936, 1937-38 (M), 1942 (M). WSP 1438: Drainage area. WDR Iowa 1971: 1966 (M).

GAGE.--Water-stage recorder. Datum of gage is 521.24 ft (158.874 m) NGVD. Prior to Nov. 15, 1913, nonrecording gage at site 400 ft (122 m) upstream at datum about 0.7 ft (0.2 m) higher. May 27, 1915, to Jan. 14, 1935, nonrecording gage at site 400 ft (122 m) upstream at present datum.

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

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

AVERAGE DISCHARGE.--65 years (1914-79), 2,371 ft³/s (67.15 m³/s), 7.48 in/yr (190 mm/yr), 1,718,000 acre-ft/yr (2,120 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft³/s (1,892 m³/s) Apr. 23, 1973, gage height, 27.05 ft (8.245 m); minimum daily, 7 ft³/s (0.20 m³/s) Aug. 27 to Sept. 1, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1903, reached a stage of about 21 ft (6 m), discharge, about 45,000 ft³/s (1,270 m³/s). Stage and discharge for flood of April 1973 are believed to be the greatest since 1851.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft³/s (425 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 13	--	18,000	510	ice jam	---
Mar. 21	2100	*29,500	835	*18.57	5.660
Mar. 30	2300	24,100	683	16.79	5.118

Minimum daily discharge, 388 ft³/s (11.0 m³/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2380	1030	2490	1000	740	1720	19600	6950	2070	4290	2010	2760
2	2210	1010	2600	850	720	1650	17100	6490	1970	3610	1460	2340
3	2240	979	2880	770	710	2900	15100	8220	1890	2900	3740	1970
4	2110	964	2860	780	710	8500	14500	11600	2030	2650	6510	1800
5	2270	951	2450	790	700	10000	14300	10500	1900	2950	3850	1570
6	2500	987	2280	800	680	9700	13000	9210	1740	2830	2220	1360
7	2150	972	2500	810	700	10400	11600	7700	1650	2750	1630	1210
8	1960	956	3350	840	710	11000	10400	6800	1890	2480	1360	1090
9	1810	955	3300	900	690	10800	9340	6200	2240	2150	1180	1010
10	1840	942	3300	900	710	10900	8480	5490	3460	1910	1150	992
11	2530	916	3300	990	680	10600	8520	6370	2930	1750	1770	1110
12	2680	907	3150	960	660	10000	11800	5390	2820	1650	1460	1040
13	2710	1080	3400	980	650	14000	10100	4970	3180	1550	1100	922
14	2350	1420	3650	970	620	19400	7620	4640	3280	1760	2090	829
15	2050	1640	3700	950	610	17000	6670	4220	2900	4940	1830	763
16	1880	1770	3500	910	620	14800	5960	3890	3000	3960	1430	708
17	1740	2290	3000	890	640	15200	5400	3630	3680	2640	1200	660
18	1650	3980	2550	880	640	19500	4970	3390	3040	2100	1080	623
19	1570	5450	2250	840	660	23100	4650	3200	2590	1800	969	587
20	1510	5260	2150	830	670	25300	4980	3160	2320	1690	965	552
21	1460	4290	2000	830	660	28700	9260	3400	2660	1440	1080	534
22	1420	3420	1980	820	680	28800	10700	3300	2990	1320	2170	600
23	1390	3130	1880	840	950	28000	9060	3350	2780	1230	5880	473
24	1320	3050	1900	860	1850	27400	8440	3210	2800	1200	5580	453
26	1290	2980	1650	840	2300	26700	8510	2990	2430	1500	5200	437
26	1270	2790	1480	830	2280	23500	11400	2810	2220	1210	4280	409
27	1230	2650	1280	820	2100	19700	10900	2690	1970	1360	3750	391
28	1210	2520	1240	810	1900	16700	9530	2580	1840	1270	3350	388
29	1170	2470	1220	800	---	20300	8370	2500	2760	1430	2910	402
30	1130	2460	1140	780	---	23800	7530	2380	4700	1780	3470	473
31	1080	---	1050	760	---	23200	---	2220	---	2090	3370	---
TOTAL	56110	64219	75480	26630	26240	513270	297770	153450	77620	67980	80025	28356
MEAN	1810	2141	2435	859	937	16560	9926	4950	2587	2193	2581	945
MAX	2710	5450	3700	1000	2300	28800	19600	11600	4700	4940	6610	2760
MIN	1080	907	1050	760	610	1650	4660	2220	1660	1200	966	388
CFSM	.42	.50	.57	.20	.22	3.85	2.31	1.15	.60	.61	.60	.22
IN.	.49	.56	.65	.23	.23	4.44	2.57	1.33	.67	.59	.69	.25
AC-FT	111300	127400	149700	52820	52050	1018000	590600	304400	154000	134800	158700	56240

CAL YR 1978	TOTAL	1260751	MEAN	3454	MAX	27700	MIN	414	CFSM	.80	IN	10.90	AC-FT	2501000
WTR YR 1979	TOTAL	1467150	MEAN	4020	MAX	28800	MIN	388	CFSM	.93	IN	12.68	AC-FT	2910000

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples collected at bridge on State Highway 394 300 ft (91 m) downstream from gage.

PERIOD OF RECORD.--October 1975 to September 1976.

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.--Records of specific conductance were obtained from suspended-sediment samples at time of analysis from Feb. 18 to Apr. 11 and on site for remainder of the period. During periods of ice effect, sediment samples are collected in open water channel.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 810 micromhos Jan. 13, 1977, Jan. 5, 1979; minimum daily, 190 micromhos Aug. 10, 1977.
WATER TEMPERATURES: Maximum daily, 33.0°C July 14, 15, 19, 20, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 7,010 mg/L July 21, 1976; minimum daily mean, 1 mg/L Mar. 8, 9, 12, 1978.
SEDIMENT LOADS: Maximum daily, 499,000 tons (453,000 tonnes) Mar. 21, 1978; minimum daily, 1.5 tons (1.4 tonnes) Feb. 8, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 770 micromhos Jan. 17, 19; minimum daily, 240 micromhos Mar. 19.
WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 8, 9; minimum daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,910 mg/L Apr. 12; minimum daily mean, 3 mg/L Jan. 7, 8, 31.
SEDIMENT LOADS: Maximum daily, 166,000 tons (151,000 tonnes) Mar. 30; minimum daily, 6.2 tons (5.6 tonnes) Jan. 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	660	700	610	670	650	540	350	580	590	420	390	400
2	690	700	610	650	640	550	380	580	560	460	380	500
3	660	700	660	740	660	440	410	500	610	540	490	600
4	650	650	580	650	650	330	415	360	625	530	280	625
5	650	550	600	700	650	310	455	410	625	540	380	540
6	650	650	580	700	650	340	475	480	530	530	370	600
7	590	640	600	710	600	350	490	540	630	600	480	580
8	610	675	560	750	650	330	510	590	620	520	530	570
9	650	650	625	750	640	350	535	620	580	560	580	625
10	640	670	700	660	645	365	545	600	460	540	540	600
11	600	650	700	665	670	390	540	480	540	600	425	590
12	520	625	725	700	650	420	430	540	625	610	390	600
13	600	670	650	710	700	370	460	590	650	610	480	580
14	550	650	740	750	650	270	540	560	625	620	540	550
15	500	600	750	710	640	270	560	530	540	480	360	600
16	600	580	700	750	650	290	570	570	610	340	380	620
17	650	570	700	770	625	300	580	600	650	410	460	620
18	650	500	720	710	615	260	600	620	490	520	520	560
19	675	500	670	700	600	240	600	600	580	550	560	520
20	700	400	640	670	595	250	590	600	625	580	560	460
21	710	440	690	650	605	250	400	580	540	690	560	425
22	650	540	650	725	595	260	360	560	560	600	500	420
23	670	605	660	670	580	270	400	600	580	600	250	440
24	670	675	610	650	505	285	430	580	560	560	290	430
25	650	650	600	700	460	305	500	600	610	460	360	440
26	650	650	650	600	455	330	470	600	610	580	380	450
27	650	640	650	650	465	365	410	650	600	500	480	460
28	625	650	660	640	540	390	460	650	625	540	500	460
29	680	690	700	640	---	380	500	650	650	530	540	470
30	680	670	640	630	---	320	540	610	460	580	600	490
31	645	---	660	670	---	335	---	580	---	380	400	---

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

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

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	300	1930	24	67	115	773	8	22	10	20	17	79
2	289	1720	23	63	88	618	6	14	8	16	15	67
3	295	1780	22	58	102	793	6	12	14	27	305	2390
4	270	1540	25	65	147	1140	7	15	8	15	704	16200
5	254	1560	26	67	239	1580	5	11	5	9.5	481	13000
6	323	2180	33	88	78	480	4	8.6	4	7.3	315	8250
7	321	1860	27	71	35	236	3	6.6	4	7.6	310	8700
8	280	1480	25	65	22	199	3	6.8	31	59	291	8640
9	217	1060	23	59	11	98	4	9.7	44	82	250	7290
10	183	909	16	41	12	107	4	9.7	17	33	209	6150
11	282	1930	14	35	20	178	37	99	9	17	156	4460
12	511	3700	15	37	25	213	58	150	15	27	185	4990
13	397	2900	78	227	22	202	83	220	13	23	425	16100
14	385	2440	105	403	23	227	63	165	5	8.4	1670	87500
15	368	2040	77	341	31	310	59	151	5	8.2	1460	67000
16	210	1070	79	378	36	340	50	123	9	15	1200	48000
17	159	747	205	1270	41	332	47	113	6	10	1130	46400
18	130	579	510	6560	27	186	33	78	7	12	1470	77400
19	88	373	1120	16500	20	121	28	64	9	16	1380	86100
20	91	371	1150	16300	17	99	25	56	10	18	1200	82000
21	92	363	815	9440	15	81	23	52	9	16	1060	82100
22	67	257	420	3880	15	80	14	31	*13	24	1000	77800
23	55	206	265	2240	16	81	14	32	35	90	830	62700
24	45	160	225	1850	17	87	11	26	79	395	975	72100
25	39	136	177	1420	14	62	11	25	89	553	800	57700
26	39	134	141	1060	10	40	16	36	60	369	860	54600
27	35	116	108	773	6	21	8	18	39	221	690	36700
28	32	105	113	769	8	27	8	17	30	154	690	31100
29	27	85	88	587	13	43	19	41	---	---	1530	83700
30	26	79	84	558	9	28	8	17	---	---	2580	166000
31	25	73	---	---	13	37	3	6.2	---	---	1610	101000
TOTAL	---	33883	---	65272	---	8819	---	1635.6	---	2253.0	---	1416216

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	APRIL MEAN CONCEN-TRATION (MG/L)	APRIL LOADS (T/DAY)	MAY MEAN CONCEN-TRATION (MG/L)	MAY LOADS (T/DAY)	JUNE MEAN CONCEN-TRATION (MG/L)	JUNE LOADS (T/DAY)	JULY MEAN CONCEN-TRATION (MG/L)	JULY LOADS (T/DAY)	AUGUST MEAN CONCEN-TRATION (MG/L)	AUGUST LOADS (T/DAY)	SEPTEMBER MEAN CONCEN-TRATION (MG/L)	SEPTEMBER LOADS (T/DAY)
1	760	40200	1880	35300	123	687	2490	28800	498	2700	832	6200
2	700	32300	1200	21000	120	638	1640	16000	318	1240	635	4010
3	2120	86400	720	16000	110	561	880	6890	1270	17900	380	2020
4	910	35600	1310	41000	138	756	570	4080	2410	43800	302	1470
5	740	28600	920	26100	123	631	750	5970	1430	14900	260	1100
6	585	20500	1800	44800	125	587	900	6880	690	4140	210	771
7	450	14100	1220	25400	120	535	1050	7800	327	1440	179	585
8	440	12400	542	9950	155	791	730	4890	190	698	138	406
9	400	10100	400	6700	227	1370	625	3630	127	405	108	295
10	370	8470	430	6370	1060	9900	495	2550	217	674	104	279
11	761	19100	1300	22400	625	4940	325	1540	372	1780	162	486
12	3910	125000	935	13600	282	2150	292	1300	275	1080	159	446
13	1760	50100	1000	13400	462	3970	244	1020	190	564	108	269
14	610	12600	785	9830	450	3990	215	1020	311	1750	94	210
15	525	9450	570	6490	340	2660	2650	35300	338	1670	93	192
16	430	6910	410	4310	420	3400	2860	30500	298	1150	92	176
17	375	5470	295	2890	510	4930	1360	9330	207	671	90	160
18	330	4430	247	2260	470	3860	500	2840	134	391	88	148
19	290	3640	234	2020	495	3460	336	1630	107	280	80	127
20	320	4300	226	1930	400	2510	276	1180	117	305	67	100
21	1380	34500	248	2280	380	2720	234	910	170	496	40	58
22	2020	58400	266	2370	942	7600	205	731	782	6350	34	46
23	1240	30300	285	2580	825	6190	175	581	2760	44500	39	50
24	1000	22800	253	2190	1060	8010	565	1830	2040	30700	44	54
25	700	16100	246	1990	670	4400	1320	5350	2160	30300	46	54
26	1540	47400	220	1670	440	2640	480	1570	1940	22400	47	52
27	1260	37100	192	1390	325	1730	274	1010	1130	11400	57	60
28	960	24700	183	1270	255	1270	222	761	785	7100	64	67
29	660	14900	155	1050	405	3020	242	934	678	5330	62	67
30	645	13100	116	745	2370	30100	285	1370	732	6860	63	80
31	---	---	100	599	---	---	548	3090	1050	9550	---	---
TOTAL	---	823970	---	329884	---	120006	---	191287	---	272524	---	20038

TOTAL LOAD FOR YEAR: 3290787.6 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)
NOV 07...	1440	11.5	956	23	59	--	--	--
APR 24...	1630	15.0	9150	1030	25400	52	54	62
MAY 23...	1300	18.5	3320	201	1800	35	43	--
JUN 06...	1500	26.5	1740	113	531	--	--	--
JUL 18...	1100	29.0	2080	424	2380	65	69	80
AUG 23...	1130	--	6260	2760	46700	48	52	61
SEP 19...	1100	18.5	576	70	109	--	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 07...	--	--	--	--	--	--	99
APR 24...	73	86	87	89	96	100	--
MAY 23...	76	98	99	100	--	--	--
JUN 06...	--	--	--	--	--	--	97
JUL 18...	91	--	--	--	--	--	100
AUG 23...	82	--	--	--	--	--	99
SEP 19...	--	--	--	--	--	--	99

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
MAR							
23...	1000	27900	8	2	2	19	57
APR							
24...	1430	9150	9	1	1	9	57
MAY							
23...	1300	3320	7	--	0	20	35
AUG							
23...	1130	6260	8	0	1	8	62
SEP							
19...	0900	576	10	2	2	9	51

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR						
23...	82	90	94	97	100	--
APR						
24...	81	91	96	98	100	--
MAY						
23...	74	86	91	94	98	100
AUG						
23...	82	85	88	92	97	100
SEP						
19...	80	91	98	100	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
NOV											
07...	1440	956	630	8.1	11.5	3	10.4	94	130	180	290
JAN											
10...	1530	898	700	7.8	.5	1	11.4	82	900	210	310
FEB											
14...	1430	615	610	7.9	.0	1	11.8	83	640	200	310
MAR											
23...	1300	3320	260	7.8	7.0	140	10.6	88	520	6000	120
APR											
24...	1630	9150	390	7.8	15.0	250	8.6	86	--	--	--
MAY											
23...	1300	3320	580	8.2	18.5	75	8.5	92	--	--	280
JUN											
06...	1500	1740	520	8.4	26.5	84	--	--	210	170	250
JUL											
18...	1100	2080	480	7.6	29.0	180	6.8	89	4100	880	240
AUG											
23...	1130	6260	380	7.6	23.0	400	--	--	--	--	150
SEP											
19...	1100	576	580	8.6	18.5	16	--	--	K140	<1	290

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	SODIUM+POTASSIUM DISSOLVED (MG/L AS NA) (00933)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
NOV 07...	50	75	25	22	14	.6	--	2.5	240	61	31
JAN 10...	61	80	27	15	9	.4	--	2.2	250	56	19
FEB 14...	82	82	26	20	12	.5	--	2.2	230	70	18
MAR 23...	39	33	9.3	4.3	7	.2	--	4.8	82	24	9.2
APR 24...	--	--	--	--	--	--	--	--	120	36	16
MAY 23...	82	75	23	9.5	7	.2	12	2.9	200	51	17
JUN 06...	59	65	21	9.5	8	.3	11	1.9	190	42	15
JUL 18...	71	65	19	7.4	9	.2	11	3.6	170	33	16
AUG 23...	27	39	12	8.9	16	.3	14	4.6	120	40	14
SEP 19...	93	71	28	13	14	.3	16	2.8	200	56	19

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 07...	.3	13	404	374	.55	1040	4.3	.08	--	.59	.67
JAN 10...	.2	16	428	366	.58	1040	6.0	.31	--	.49	.80
FEB 14...	.2	16	379	373	.52	629	4.1	.59	--	.41	1.0
MAR 23...	.1	6.7	162	141	.22	1450	3.6	.58	--	1.2	1.8
APR 24...	.2	10	245	134	.33	6050	5.8	.24	.29	2.5	2.7
MAY 23...	.4	10	345	309	.47	3090	7.7	.02	.02	1.7	1.7
JUN 06...	.3	10	320	279	.44	1500	7.3	.16	.19	1.0	1.2
JUL 18...	.4	15	313	262	.43	1760	8.1	.00	.00	1.3	1.3
AUG 23...	.3	9.0	230	200	.31	3890	2.7	.03	.04	2.0	2.0
SEP 19...	.3	16	328	336	.45	510	2.2	.32	.39	1.6	1.9

DATE	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHATE, TOTAL (MG/L AS PO4) (00650)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
NOV 07...	.16	.51	5.0	22	.17	--	--	.15	--	--	--
JAN 10...	.00	.85	6.8	30	.10	--	--	.08	2.5	--	--
FEB 14...	.20	.80	5.1	23	.15	--	--	.13	2.4	--	--
MAR 23...	.70	1.1	5.4	24	.46	--	--	.10	--	7.9	--
APR 24...	2.2	.53	8.5	38	.37	1.1	1.1	.12	25	--	--
MAY 23...	.72	.98	9.4	42	.22	.67	.67	.13	9.3	--	--
JUN 06...	.54	.66	8.5	38	.17	.52	.52	.14	--	8.4	.6
JUL 18...	.44	.86	9.4	42	.47	--	1.4	.20	17	--	--
AUG 23...	1.6	.44	4.7	21	1.7	--	5.2	.14	53	--	--
SEP 19...	1.2	.73	4.1	18	.25	--	.77	.06	--	5.9	1.9

05474000 SKUNK RIVER AT AUGUSTA, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
NOV 07...	1440	--	23	59	99	--
JAN 10...	1530	--	2	4.8	--	--
FEB 14...	1430	--	2	3.3	--	--
MAR 23...	1300	72	649	5820	--	--
APR 24...	1630	--	1030	25400	--	86
MAY 23...	1300	1900	201	1800	--	98
JUN 06...	1500	--	113	531	97	--
JUL 18...	1100	5100	424	2380	100	--
AUG 23...	1130	--	2760	46700	99	--
SEP 19...	1100	--	70	109	99	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) (01006)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 23...	1300	3	0	200	0	200	19	0	23	10
JUN 06...	1500	4	4	200	0	200	1	0	1	10
SEP 19...	1100	5	4	100	0	100	0	0	<1	10

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE) (01044)
MAR 23...	10	0	4	4	0	21	21	0	11000	11000
JUN 06...	0	10	2	2	0	13	10	3	4200	4200
SEP 19...	0	10	0	0	<3	2	1	1	660	650

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) (01050)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71895)	MERCURY DISSOLVED (UG/L AS HG) (71890)
MAR 23...	160	180	0	200	450	420	30	.3	.2	.1
JUN 06...	10	13	13	0	220	210	10	.2	.0	.2
SEP 19...	<10	8	8	0	120	120	3	.3	.2	.1

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) (01076)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 23...	0	0	1	0	0	0	60	30	30
JUN 06...	1	0	1	0	0	0	50	40	10
SEP 19...	1	0	1	0	0	0	10	7	<3

SKUNK RIVER BASIN

05474000 SKUNK RIVER AT AUGUSTA, IA

WATER QUALITY RECORDS

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO JULY 1979

DATE	MAR 23,79	MAY 23,79	JUL 18,79
TIME	1300	1300	1100
TOTAL CELLS/ML	72	1900	5100
DIVERSITY: DIVISION	1.0	1.5	0.9
.CLASS	1.0	1.5	0.9
..ORDER	1.0	1.9	1.0
...FAMILY	1.0	2.4	1.1
....GENUS	1.0	2.6	1.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	280	15	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	43#	60	26	1	110	2
....KIRCHNERIELLA	--	-	--	-	110	2
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	590#	30	--	-
....TETRASTRUM	--	-	52	3	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	52	3	110	2
...VOLVOCACEAE						
....GONIUM	--	-	--	-	460	9
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	13	1	--	-
....MELOSIRA	--	-	--	-	230	5
....STEPHANODISCUS	--	-	140	7	--	-
..PENNALES						
...NAVICULACEAE						
....NAVICULA	--	-	13	1	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	540#	28	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	13	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	210	11	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	4000#	80
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	29#	40	13	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05474500 MISSISSIPPI RIVER AT KEOKUK, IA
(National stream-quality accounting network station)

LOCATION.--Lat 40°23'37", long 91°22'27", in SE1/4 SW1/4 sec.30, T.65 N., R.4 W., Lee County, Hydrologic Unit 07080104, near right bank in tailwater of dam and powerplant of Union Electric Co. at Keokuk, 0.2 mi (0.3 km) upstream from bridge on U.S. Highway 136, 2.7 mi (4.3 km) upstream from Des Moines River, and at mile 364.2 (586.0 km) upstream from Ohio River.

DRAINAGE AREA.--119,000 mi^2 (308,000 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1878 to current year.

GAGE.--Water-stage recorder. Datum of gage is 477.41 ft (145.515 m) NGVD (levels by Corps of Engineers); Jan. 1, 1878, to May 1913, nonrecording gage at Galland (formerly Nashville), 8 mi (12.9 km) upstream; zero of gage was set to low-water mark of 1864, or 496.52 ft (151.339 m) NGVD.

REMARKS.--Discharge computed from records of operation of turbines in powerplant and spillway gates in dam. Minor flow regulation caused by powerplant since 1913 and navigation dams. Records for May 1913 to September 1937 adjusted for change in contents in Keokuk Reservoir, those after September 1937 unadjusted.

COOPERATION.--Records furnished by Union Electric Co.

AVERAGE DISCHARGE.--101 years, 62,610 ft^3/s (1,773 m^3/s), 7.15 in/yr (182 mm/yr), 45,360,000 acre-ft/yr (55,930 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 344,000 ft^3/s (9,740 m^3/s) Apr. 24, 1973; maximum gage height, 23.35 ft (7.117 m) Apr. 24, 1973; minimum daily discharge, 5,000 ft^3/s (142 m^3/s) Dec. 27, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1851, reached a stage of 21.0 ft (6.40 m), present site and datum, estimated as 13.5 ft (4.11 m) at Galland, discharge, 360,000 ft^3/s (10,200 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 257,000 ft^3/s (7,280 m^3/s) Apr. 6; minimum daily, 25,400 ft^3/s (719 m^3/s) Dec. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72500	39200	38100	31800	32800	40600	233000	209000	135000	99000	64300	127000
2	65500	36200	38900	29600	32400	43000	239000	211000	127000	96000	61300	129000
3	61400	39500	30700	32900	32600	45000	247000	217000	123000	88900	65800	122000
4	55500	38000	25400	35000	32700	57900	251000	219000	113000	93300	69600	117000
5	59500	39100	35100	35500	32800	64700	255000	220000	109000	90000	66300	115000
6	62000	39100	38300	33000	33300	67300	257000	220000	107000	87700	63900	110000
7	62500	39200	34700	31200	33300	70200	255000	218000	102000	88600	61200	111000
8	58000	36900	30400	31400	33200	72600	252000	214000	100000	90500	63800	111000
9	56000	37200	28500	31500	33800	76500	247000	210000	91800	90000	65900	104000
10	55800	37900	31300	29400	33800	76300	241000	205000	97500	89200	75600	95000
11	58000	38200	31000	30000	32300	74400	239000	207000	100000	88100	71000	84700
12	58900	39400	35200	29500	32600	71000	239000	202000	102000	87200	68000	84200
13	63200	40100	39500	28300	31700	77000	234000	196000	103000	87200	68500	83000
14	62800	42100	39800	32900	32500	91300	226000	193000	96400	85800	70500	77400
15	57800	43100	41000	28500	32500	92000	218000	187000	95100	90300	66200	77800
16	58700	43800	43500	30100	32700	100000	212000	180000	93500	93600	68100	74900
17	54800	45900	43400	30500	32000	111000	207000	173000	93200	93800	68200	67700
18	52400	47500	47000	29700	32100	134000	201000	166000	90600	85900	68200	66100
19	49900	55400	48100	30400	32400	135000	196000	161000	89300	82000	75000	65300
20	45300	59000	48300	30200	33900	146000	193000	156000	86200	77300	96600	55100
21	40600	59400	46200	30100	34600	171000	193000	155000	87800	74400	116000	50900
22	38800	59600	43700	30200	32700	195000	195000	155000	90000	70700	122000	45200
23	39000	61400	43500	30000	34600	226000	194000	155000	96700	63800	126000	47900
24	43100	60500	45900	30700	36000	244000	196000	155000	94800	60000	124000	51200
25	42900	58500	44500	32800	36900	249000	199000	155000	93500	70200	115000	53500
26	45200	52500	41500	31900	36600	244000	204000	154000	92900	66200	112000	52100
27	44900	52500	40200	32700	38500	233000	208000	153000	98500	60600	110000	48900
28	44900	49400	37400	32300	41000	223000	211000	150000	103000	62700	112000	42200
29	46500	44000	38600	32300	---	224000	210000	146000	101000	60100	112000	31500
30	44600	36800	38900	32100	---	230000	210000	143000	107000	62600	111000	29600
31	42500	---	38200	32600	---	229000	---	140000	---	63900	119000	---
TOTAL	1643700	1371400	1206900	969100	946400	4113800	6662000	5625000	3019800	2499600	2657000	2330200
MEAN	53020	45710	38930	31260	33800	132700	222100	181500	100700	80630	85710	77670
MAX	72500	61400	48300	35500	41000	249000	257000	220000	135000	99000	126000	129000
MIN	38800	36200	25400	28300	31700	40600	193000	140000	86200	60000	61200	29600
CFSM	.45	.38	.33	.26	.28	1.12	1.87	1.53	.85	.68	.72	.65
IN.	.51	.43	.38	.30	.30	1.29	2.08	1.76	.94	.78	.83	.73
AC-FT	3260000	2720000	2394000	1922000	1877000	8160000	13210000	11160000	5990000	4958000	5270000	4622000

CAL YR 1978	TOTAL	26954300	MEAN	73850	MAX	178000	MIN	25400	CFSM	.62	IN	8.43	AC-FT	53460000
WTR YR 1979	TOTAL	33044900	MEAN	90530	MAX	257000	MIN	25400	CFSM	.76	IN	10.33	AC-FT	65540000

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on U.S. Highway 136, 0.2 mi (0.3 km) downstream from discharge station.

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1977 to current year.
WATER TEMPERATURES: December 1977 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 563 micromhos Dec. 25, 1978; minimum daily, 312 micromhos Mar. 26, 1979.
WATER TEMPERATURES: Maximum daily, 27.0° C Aug. 11, Sept. 20-22, 1979; minimum daily, 0.0° C on many days during winter periods.

EXTREMES FOR CURRENT PERIOD.--
SPECIFIC CONDUCTANCE: Maximum daily, 563 micromhos Dec. 25; minumum daily, 312 micromhos Mar. 26.
WATER TEMPERATURES: Maximum daily, 27.0° C Aug. 11 and Sept. 20-22; minumum daily, 0.0° C on many days during winter period.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	361	417	469	505	513	522	361	457	440	427	438	443
2	363	420	492	494	498	531	355	462	442	436	430	459
3	366	404	476	501	500	539	400	472	420	434	424	422
4	364	409	489	526	502	510	409	460	426	398	425	449
5	365	405	492	521	521	502	406	466	425	399	432	452
6	382	418	511	508	504	490	392	453	422	408	436	451
7	387	411	527	506	506	431	392	449	430	413	438	451
8	399	416	502	517	499	422	396	450	461	434	432	452
9	408	407	496	505	513	439	403	443	447	430	442	452
10	394	405	525	510	512	447	398	453	449	443	451	451
11	391	414	506	509	538	452	439	472	451	452	452	452
12	393	415	523	504	532	464	434	460	465	441	453	453
13	402	414	542	508	537	448	431	463	462	446	441	452
14	406	415	547	522	508	476	429	437	463	451	463	451
15	410	411	532	526	505	437	442	442	466	458	465	453
16	417	406	519	523	491	417	428	440	462	455	468	453
17	418	407	535	542	501	429	441	440	465	451	466	454
18	406	419	538	538	503	402	463	443	463	432	471	455
19	404	432	543	551	501	420	466	443	465	436	451	456
20	405	434	530	518	512	404	448	442	467	427	458	457
21	419	426	560	492	502	382	462	440	463	433	471	456
22	411	438	547	547	490	343	468	440	480	431	446	457
23	416	442	548	549	509	332	465	442	461	429	413	467
24	426	449	551	539	505	323	440	442	460	436	431	480
25	421	459	563	548	499	319	441	443	462	442	417	482
26	419	487	530	516	519	312	436	442	442	441	388	520
27	428	477	541	507	522	314	442	440	444	440	403	520
28	433	471	542	553	520	372	447	442	445	435	444	523
29	441	475	544	540	---	389	452	444	430	452	464	540
30	420	470	529	531	---	367	450	442	437	456	453	424
31	427	---	532	525	---	362	---	442	---	455	450	---
TOTAL	12502	12873	16281	16181	14262	12997	12836	13906	13515	13521	13716	13887
MEAN	403	429	525	522	509	419	428	449	451	436	442	453
MAX	441	487	563	553	538	539	468	472	480	458	471	540
MIN	361	404	469	492	490	312	355	437	420	398	388	422

WTR YR 1979 TOTAL 166477 MEAN 456 MAX 563 MIN 312

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	11.0	1.0	.0	.0	.0	6.0	12.0	18.0	22.0	26.0	25.0
2	17.0	11.0	1.0	.0	.0	1.0	7.0	13.0	19.0	23.0	26.0	23.0
3	17.0	11.0	1.0	.0	.0	1.0	4.0	13.0	20.0	23.0	26.0	25.0
4	17.0	12.0	1.0	.0	.0	.0	4.0	13.0	20.0	23.0	26.0	24.0
5	17.0	12.0	1.0	.0	.0	.0	5.0	13.0	21.0	22.0	26.0	25.0
6	16.0	12.0	1.0	.0	.0	.0	5.0	13.0	21.0	22.0	26.0	25.0
7	15.0	12.0	.0	.0	.0	.0	5.0	13.0	21.0	22.0	26.0	25.0
8	14.0	10.0	.0	.0	.0	.0	6.0	15.0	22.0	22.0	26.0	25.0
9	13.0	10.0	.0	.0	.0	.0	6.0	18.0	22.0	22.0	26.0	25.0
10	15.0	10.0	.0	.0	.0	.0	5.0	18.0	22.0	22.0	26.0	25.0
11	15.0	10.0	.0	.0	.0	.0	5.0	17.0	21.0	24.0	27.0	25.0
12	15.0	10.0	.0	.0	.0	1.0	7.0	18.0	21.0	25.0	25.0	25.0
13	14.0	10.0	.0	.0	.0	1.0	6.0	18.0	21.0	25.0	26.0	25.0
14	13.0	10.0	.0	.0	.0	.0	7.0	17.0	21.0	25.0	23.0	25.0
15	13.0	8.0	.0	.0	.0	.0	7.0	17.0	22.0	25.0	21.0	26.0
16	12.0	8.0	1.0	.0	.0	.0	9.0	17.0	22.0	25.0	21.0	26.0
17	12.0	7.0	1.0	.0	.0	.0	9.0	17.0	22.0	25.0	21.0	26.0
18	12.0	6.5	1.0	.0	.0	1.0	9.0	17.0	22.0	25.0	22.0	26.0
19	12.0	5.0	.0	.0	.0	1.0	11.0	17.0	22.0	25.0	25.0	26.0
20	12.0	5.0	.0	.0	.0	1.0	11.0	17.0	23.0	25.0	23.0	27.0
21	12.0	6.0	.0	.0	.0	3.0	11.0	17.0	22.0	25.0	23.0	27.0
22	13.0	4.0	.0	.0	.0	4.0	11.0	17.0	22.0	26.0	23.0	27.0
23	12.0	3.0	1.0	.0	.0	5.0	12.0	17.0	23.0	26.0	23.0	23.0
24	12.0	3.0	.0	.0	.0	3.0	12.0	17.0	22.0	26.0	22.0	22.0
25	12.0	---	.0	.0	.0	4.0	13.0	17.0	22.0	26.0	23.0	20.0
26	12.0	2.0	.0	.0	.0	2.0	12.0	17.0	22.0	26.0	25.0	19.0
27	11.5	2.0	.0	.0	.0	4.0	12.0	17.0	22.0	26.0	24.0	19.0
28	11.0	2.0	.0	.0	.0	3.0	12.0	17.0	22.0	26.0	22.0	19.0
29	10.5	1.5	.0	.0	---	4.0	12.0	17.0	22.0	26.0	22.0	19.0
30	11.0	1.0	1.0	.0	---	7.0	12.0	17.0	21.0	26.0	23.0	21.0
31	11.0	---	.0	.0	---	6.0	---	17.0	---	26.0	23.0	---
TOTAL	417.0	215.0	11.0	0.0	0.0	52.0	253.0	500.0	643.0	757.0	747.0	720.0
MEAN	13.5	7.5	.5	.0	.0	1.5	8.5	16.0	21.5	24.5	24.0	24.0
MAX	18.0	12.0	1.0	.0	.0	7.0	13.0	18.0	23.0	26.0	27.0	27.0
MIN	10.5	1.0	.0	.0	.0	.0	4.0	12.0	18.0	22.0	21.0	19.0

WTR YR 1979 TOTAL 4315.0 MEAN 12.0 MAX 27.0 MIN .0

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
NOV											
07...	1630	51800	360	8.2	11.0	25	10.4	96	310	190	180
DEC											
07...	0900	22200	520	8.4	.0	5	--	--	100	350	220
JAN											
10...	0900	40700	440	8.0	.0	4	12.9	90	220	K80	190
FEB											
14...	0845	40700	420	7.9	.0	2	13.2	92	510	250	210
MAR											
28...	1400	219500	320	7.9	1.5	120	10.9	79	--	1130	150
APR											
25...	1000	196700	400	8.1	13.0	28	10.0	96	--	--	170
MAY											
24...	1000	154700	420	8.4	17.0	35	9.0	95	210	80	180
JUN											
07...	1000	103200	390	8.4	26.0	47	--	--	210	K20	110
JUL											
25...	1500	69800	440	8.2	27.5	13	--	--	--	--	180
AUG											
23...	0930	126200	360	7.9	20.0	84	--	--	--	--	170

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	SODIUM+POTASSIUM DISSOLVED (MG/L AS NA) (00933)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
NOV 07...	44	44	18	10	10	.3	--	2.8	140	31	19
DEC 07...	54	55	21	12	10	.4	--	2.9	170	40	19
JAN 10...	29	46	18	11	11	.3	--	2.2	160	29	16
FEB 14...	43	54	19	13	12	.4	--	2.0	170	35	19
MAR 28...	54	37	15	6.6	8	.2	10	3.4	100	30	13
APR 25...	55	42	17	7.7	9	.3	11	3.3	120	33	16
MAY 24...	46	44	16	6.8	8	.2	9.8	3.0	130	40	14
JUN 07...	68	52	19	8.1	8	.2	11	3.0	140	47	22
JUL 25...	39	42	18	8.7	9	.3	12	3.0	140	37	14
AUG 23...	--	40	16	7.5	14	.3	11	3.2	130	29	15

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 07...	.1	6.2	238	215	.32	33300	1.4	.11	--	.99	1.1
DEC 07...	.2	6.6	282	259	.38	16900	2.9	.09	--	1.4	1.5
JAN 10...	.1	9.6	263	228	.36	28900	2.0	.39	--	.61	1.0
FEB 14...	.1	12	256	256	.35	28100	1.9	.56	--	.32	.88
MAR 28...	.2	9.7	189	176	.26	112000	4.2	.59	.71	.51	1.1
APR 25...	.2	8.9	238	200	.32	126000	4.0	.02	.02	1.4	1.4
MAY 24...	.3	3.4	222	206	.30	92700	2.3	.08	.10	1.3	1.4
JUN 07...	.2	2.6	262	238	.36	73000	3.6	.15	.18	.85	1.0
JUL 25...	.1	9.2	246	216	.33	46400	2.0	.00	.00	.70	.70
AUG 23...	.2	8.6	210	198	.29	67500	1.9	.02	.02	.65	.67

DATE	NITROGEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHATE, TOTAL (MG/L AS PO4) (00650)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
NOV 07...	.42	.68	2.5	11	.32	--	--	.16	--	--	--
DEC 07...	.70	.80	4.4	19	.21	--	--	.10	--	8.7	1.5
JAN 10...	.14	.86	3.0	13	.16	--	--	.12	7.8	--	--
FEB 14...	.04	.84	2.8	12	.21	--	--	.19	7.2	--	--
MAR 28...	.14	.96	5.3	23	.45	1.4	1.4	.08	--	7.6	1.6
APR 25...	.68	.72	5.4	24	.19	.58	.58	.05	35	--	--
MAY 24...	.71	.69	3.7	16	.21	.64	.64	.06	12	--	--
JUN 07...	.00	1.0	4.6	20	.26	.80	.80	.18	--	11	2.9
JUL 25...	.56	.14	2.7	12	.19	--	.58	.14	9.0	--	--
AUG 23...	.24	.43	2.6	11	.47	--	1.4	.17	15	--	--

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 07...	1630	--	242	33800	67
FEB 14...	0845	--	2	220	--
MAR 28...	1400	420	--	--	--
MAY 24...	1000	6500	--	--	--
AUG 23...	0930	--	237	80800	100

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) (01006)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
DEC 07...	0900	1	1	100	30	70	3	0	3	10
MAR 28...	1400	1	1	200	0	200	150	81	69	10
JUN 07...	1000	4	4	200	200	0	2	1	1	0

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE) (01044)
DEC 07...	10	0	0	0	--	9	7	2	650	630
MAR 28...	10	0	7	4	<3	50	47	3	4000	3900
JUN 07...	0	0	2	2	0	37	32	5	2400	2400

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) (01050)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71896)	MERCURY DISSOLVED (UG/L AS HG) (71890)
DEC 07...	20	75	15	60	80	80	5	.0	.0	.0
MAR 28...	80	200	50	150	340	210	130	.3	.3	.0
JUN 07...	10	50	50	0	200	200	0	.2	.0	.2

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) (01076)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 07...	1	0	1	0	0	0	20	20	5
MAR 28...	1	0	1	0	0	0	70	50	20
JUN 07...	1	0	1	0	0	0	60	40	10

05474500 MISSISSIPPI RIVER AT KEOKUK, IA--Continued

WATER-QUALITY RECORDS

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO JULY 1979

DATE	MAR 28,79	MAY 24,79	JUL 25,79
TIME	1400	1000	0000
TOTAL CELLS/ML	420	6500	6300
DIVERSITY: DIVISION	1.0	1.0	1.3
.CLASS	1.0	1.0	1.3
..ORDER	1.5	1.5	1.5
...FAMILY	1.9	2.0	2.0
....GENUS	0.0	2.6	3.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	110	2
...MICRACTINIACEAE						
....GOLENKINIA	--	-	33	1	--	-
....MICRACTINIUM	--	-	200	3	170	3
...OOCYSTACEAE						
....ANKISTRODESMUS	120#	28	230	4	--	-
....DICTYOSPHAERIUM	--	-	67	1	300	5
....FRANCEIA	--	-	--	-	*	0
....KIRCHNERIELLA	--	-	--	-	240	4
....OOCYSTIS	14	3	--	-	160	2
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	57	1
....SCENEDESMUS	58	14	1900#	29	470	7
....TETRASTRUM	--	-	130	2	340	5
..VOLVOCALES						
...CHLAMYDOMONADACEAE	29	7	--	-	--	-
....CHLAMYDOMONAS	--	-	33	1	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	160#	38	--	-	240	4
....MELOSIRA	29	7	1100#	17	270	4
....STEPHANODISCUS	--	-	1900#	30	--	-
..PENNALES						
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	600	9	--	-
...NAVICULACEAE						
....NAVICULA	14	3	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	--	-	270	4	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	390	6
....ANACYSTIS	--	-	--	-	2700#	42
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	290	5
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....GOMPHOSPHAERIA	--	-	--	-	530	8
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	33	1	--	-
....TRACHELOMONAS	--	-	--	-	43	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

05476500 DES MOINES RIVER AT ESTHERVILLE, IA

LOCATION.--Lat 43°23'51", long 94°50'38", in SW1/4 SE1/4 sec.10, T.99 N., R.34 W., Emmet County, Hydrologic Unit 07100002, on right bank in city park, 1,200 ft (366 m) downstream from bridge on State Highway 9 at Estherville, 0.1 mi (0.2 km) upstream from School Creek, 2.3 mi (3.7 km) upstream from Brown Creek, and at mile 404.2 (650.4 km).

DRAINAGE AREA.--1,372 mi² (3,553 km²).

PERIOD OF RECORD.--October 1951 to current year. Prior to November 1951, monthly discharge only, published in WSP 1728.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,247.55 ft (380.253 m) NGVD.

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

AVERAGE DISCHARGE.--28 years, 300 ft³/s (8.496 m³/s), 2.97 in/yr (75 mm/yr), 217,400 acre-ft/yr (268 hm³/yr); median of yearly mean discharges, 220 ft³/s (6.23 m³/s), 2.2 in/yr (56 mm/yr), 159,000 acre-ft/yr (196 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) Apr. 12, 1959, gage height, 17.68 ft (5.389 m), from floodmark; no flow Jan. 16-18, 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 26	1530	2,700	76.5	8.78	2.676	Aug. 10	0415	3,070	86.9	9.62	2.932
Apr. 5	1145	3,980	113	10.83	3.301	Aug. 22	0430	2,790	79.0	9.10	2.774
Apr. 19	1115	3,320	94.0	9.84	2.999	Aug. 27	1730	*4,000	113	*10.99	3.350
May 12	2100	2,620	74.2	8.55	2.606	Sept. 13	1430	2,120	60.0	7.59	2.313

Minimum daily discharge, 2.8 ft³/s (0.079 m³/s) Jan. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	32	24	11	4.2	9.6	1980	1690	710	1130	972	2470
2	41	33	23	10	3.9	9.8	2270	1650	679	1070	866	2440
3	41	33	22	9.6	3.8	10	3060	1550	655	1020	797	2290
4	51	34	22	7.0	3.7	10	3690	1460	637	963	768	2180
5	47	33	21	5.8	3.5	10	3930	1380	612	918	800	2090
6	33	33	20	5.0	3.7	10	3640	1290	574	865	760	2130
7	40	31	19	5.0	3.6	10	3420	1210	548	806	714	1970
8	38	31	18	4.5	3.7	9.8	2970	1160	531	751	1270	1770
9	41	30	17	3.8	3.8	9.3	3030	1220	515	702	2490	1600
10	40	31	16	2.9	3.9	9.0	3120	1310	529	654	2860	1470
11	41	30	14	3.1	4.0	9.4	2930	1730	541	613	2060	1370
12	38	32	14	3.0	4.0	9.8	3030	2470	607	601	1620	1480
13	38	37	14	2.9	3.8	10	3120	2410	561	643	1470	2060
14	39	37	14	3.0	3.8	10	3130	2160	535	718	1440	1920
15	38	34	14	2.9	3.8	10	3070	2220	526	711	1450	1750
16	37	33	13	2.8	3.8	12	3020	2260	530	656	1470	1610
17	37	26	13	3.0	3.9	14	3180	2230	609	610	1510	1520
18	36	36	13	3.2	4.0	44	3300	2160	659	573	1480	1470
19	35	28	13	3.5	5.1	243	3330	2090	695	557	1500	1430
20	36	29	13	4.0	5.8	672	3240	1920	776	536	1590	1360
21	35	29	12	4.4	6.2	1070	3080	1710	851	604	2400	1270
22	34	29	14	4.8	6.2	1190	2920	1550	911	611	2680	1180
23	33	33	14	4.7	6.2	1670	2730	1410	943	661	2260	1100
24	33	33	13	4.4	6.6	1960	2570	1300	960	729	2090	1050
25	33	31	13	4.4	7.3	2100	2460	1170	978	803	2030	985
26	34	29	13	4.5	8.0	2530	2300	1080	1010	882	2310	930
27	35	28	13	4.6	9.2	2390	2150	1000	1050	1020	3800	888
28	33	26	13	4.6	9.4	2160	2000	927	1120	989	3550	853
29	32	25	13	4.5	---	2060	1880	857	1170	959	2950	810
30	32	23	12	4.5	---	2040	1760	797	1180	1110	2710	770
31	31	---	12	4.4	---	1920	---	752	---	1220	2540	---
TOTAL	1155	929	479	145.8	138.9	22211.7	86310	48123	22202	24685	57207	46217
MEAN	37.3	31.0	15.5	4.70	4.96	717	2877	1552	740	796	1845	1541
MAX	51	37	24	11	9.4	2530	3930	2470	1180	1220	3800	2470
MIN	31	23	12	2.8	3.5	9.0	1760	752	515	536	714	770
CFSM	.03	.02	.01	.003	.004	.52	2.10	1.13	.54	.58	1.35	1.12
IN.	.03	.03	.01	.00	.00	.60	2.34	1.30	.60	.67	1.55	1.25
AC-FT	2290	1840	950	289	276	44060	171200	95450	44040	48960	113500	91670

CAL YR 1978 TOTAL 103763.0 MEAN 284 MAX 1990 MIN 12 CFSM .21 IN 2.81 AC-FT 205800
WTR YR 1979 TOTAL 309803.4 MEAN 849 MAX 3930 MIN 2.8 CFSM .62 IN 8.40 AC-FT 614500

05476750 DES MOINES RIVER AT HUMBOLDT, IA

LOCATION.--Lat 42°43'12", long 94°13'06", in SE1/4 SW1/4 sec.1, T.91 N., R.29 W., Humboldt County, Hydrologic Unit 07100002, on left bank 5 ft (2 m) downstream from First Avenue bridge in city of Humboldt, about 700 ft (213 m) below dam, 3.2 mi (5.1 km) upstream from Indian Creek, 3.9 mi (6.3 km) upstream from East Fork Des Moines River, and at mile 334.3 (537.9 km).

DRAINAGE AREA.--2,256 mi² (5,843 km²).

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1970, published as West Fork Des Moines River at Humboldt.

GAGE.--Water-stage recorder. Datum of gage is 1,053.54 ft (321.119 m) NGVD. Prior to Oct. 3, 1966, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for winter period, which are poor. Daily nonrecording gage readings available in district office for period Mar. 7, 1940, to Sept. 30, 1964. Discharge not published for this period because of extreme regulation at dam 700 ft (213 m) upstream from gage. Power generation and streamflow regulation discontinued August 1964. Low flow discharges occasionally affected by minor regulation. Several observations of water temperature were made during the year.

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

AVERAGE DISCHARGE.--15 years, 757 ft³/s (21.44 m³/s), 4.56 in/yr (116 mm/yr), 548,400 acre-ft/yr (676 hm³/yr); median of yearly mean discharges, 600 ft³/s (17.0 m³/s) 3.6 in/yr (91 mm/yr), 435,000 acre-ft/yr (536 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s (510 m³/s) Apr. 14, 1969, gage height, 15.40 ft (4.694 m); minimum daily, 13 ft³/s (0.37 m³/s) Nov. 12, 1976, Jan. 12 to Feb. 2, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1947, reached a stage of 12.2 ft (3.72 m), discharge, 11,000 ft³/s (312 m³/s) at present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,800 ft³/s (79.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 31	0700	7,400	210	10.05	3.063	Aug. 26	1615	*7,640	216	*10.26	3.127
May 16	0700	3,160	89.5	6.82	2.079	Sept. 16	0630	3,040	86.1	6.76	2.060
Aug. 14	1130	3,000	85.0	6.81	2.076						

Minimum daily discharge, 45 ft³/s (1.27 m³/s) Jan. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	190	103	84	52	55	7000	3140	1280	1680	2460	5660
2	335	177	100	84	53	62	6390	3030	1220	1600	2280	5640
3	316	181	95	78	54	72	6060	2900	1100	1530	1840	5530
4	298	179	91	83	57	68	5640	2790	1050	1510	1560	5240
5	283	179	100	78	58	66	5310	2580	1000	1360	1350	4830
6	270	174	110	70	62	72	5160	2500	979	1260	1270	4590
7	276	169	103	63	70	67	5170	2370	958	1190	1190	4380
8	265	168	94	56	80	66	5360	2240	923	1140	1090	4050
9	258	168	88	55	73	65	5460	2300	916	1050	1230	3780
10	260	168	84	54	65	62	5530	2490	888	976	1870	3490
11	254	163	90	59	64	63	5460	2540	888	910	2260	3120
12	241	161	98	57	60	66	5270	2540	895	842	2550	2820
13	241	183	99	56	59	66	5030	2660	937	817	2810	2650
14	225	179	101	58	60	66	4830	2870	944	1800	2960	2680
15	220	169	99	56	65	58	4700	3100	874	2410	2720	2890
16	211	172	103	56	91	66	4610	3140	858	2160	2320	3000
17	210	162	101	55	55	86	4550	2980	838	1720	2210	2960
18	201	207	95	54	56	168	4490	2950	874	1400	2170	2740
19	198	136	101	54	57	671	4410	2640	962	1190	2360	2530
20	189	122	105	52	55	1590	4380	2900	1050	1070	2800	2380
21	188	117	105	51	55	2080	4400	2800	1270	991	3470	2300
22	185	120	100	50	54	2980	4490	2680	1310	940	4360	2150
23	177	124	100	49	55	3840	4460	2480	1330	1200	5630	2020
24	181	130	99	47	53	4410	4380	2250	1340	1160	6360	1900
25	210	129	92	45	52	5120	4240	2060	1340	1090	7040	1820
26	209	131	92	54	51	5500	4070	1920	1340	1090	7390	1740
27	241	122	90	55	54	5490	3950	1770	1850	1200	7260	1630
28	196	118	92	52	55	5750	3820	1660	2070	1590	7020	1540
29	187	110	86	51	---	6160	3630	1560	1900	1680	6610	1460
30	210	108	86	51	---	6970	3330	1440	1760	1760	6110	1380
31	188	---	85	51	---	7320	---	1350	---	2160	5780	---
TOTAL	7262	4616	2987	1818	1675	59175	145580	76630	34944	42476	108330	92900
MEAN	234	154	96.4	58.6	59.8	1909	4853	2472	1165	1370	3495	3097
MAX	339	207	110	84	91	7320	7000	3140	2070	2410	7390	5660
MIN	177	108	84	45	51	55	3330	1350	838	817	1090	1380
CFSM	.10	.07	.04	.03	.03	.85	2.15	1.10	.52	.61	1.55	1.37
IN.	.12	.08	.05	.03	.03	.98	2.40	1.26	.58	.70	1.79	1.53
AC-FT	14400	9160	5920	3610	3320	117400	288800	152000	69310	84250	214900	184300

CAL YR 1978	TOTAL	207072	MEAN	567	MAX	3490	MIN 80	CFSM .25	IN 3.41	AC-FT	410700
WTR YR 1979	TOTAL	578393	MEAN	1585	MAX	7390	MIN 45	CFSM .70	IN 9.54	AC-FT	1147000

05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IA

LOCATION.--Lat 42°43'26", long 94°11'30", in NW1/4 SE1/4 sec.6, T.91 N., R.28 W., Humboldt County, Hydrologic Unit 07100003, on right bank 50 ft (15 m) upstream from old mill dam, in city park at east edge of Dakota City, 500 ft (152 m) upstream from bridge on county highway P56, 0.6 mi (1.0 km) downstream from bridge on State Highway 3, 3.4 mi (5.5 km) upstream from confluence with Des Moines River, and at mile 333.8 (537.1 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,308 mi² (3,387 km²).

PERIOD OF RECORD.--March 1940 to current year. Prior to October 1954, published as "near Hardy".

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1944, 1945-47 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,038.71 ft (316.599 m) NGVD. Prior to Oct. 1, 1954, nonrecording gage at site 8 mi (12.9 km) upstream at different datum.

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

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

AVERAGE DISCHARGE.--39 years, 486 ft³/s (13.76 m³/s), 5.05 in/yr (128 mm/yr), 352,100 acre-ft/yr (434 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 ft³/s (532 m³/s) June 21, 1954, gage height, 16.95 ft (5.166 m), from floodmark, site and datum then in use; minimum daily, 4.8 ft³/s (0.14 m³/s) Jan. 11-14, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 24.02 ft (7.321 m), discharge, 17,400 ft³/s (493 m³/s) at present site. Flood of September 1938 reached a stage of 17.4 ft (5.30 m), discharge, about 22,000 ft³/s (623 m³/s) site and datum in use during the period 1940-54.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	----	4,600	130	ice jam	---
Mar. 31	2245	7,810	221	17.58	5.358
July 24	1515	3,270	92.6	13.26	4.042
Aug. 16	1400	2,960	83.8	12.86	3.920
Aug. 25	0430	*13,300	377	*21.71	6.617

Minimum daily discharge, 25 ft³/s (0.71 m³/s) Mar. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	69	47	37	27	27	7750	1180	369	484	1020	5770
2	144	69	48	33	27	27	7660	1180	351	537	1110	5440
3	139	72	47	32	27	27	6960	1160	335	503	1170	5040
4	132	72	45	32	27	28	6140	1090	325	407	1220	4560
5	123	71	42	32	26	27	5410	1020	310	327	1260	4140
6	116	71	42	32	27	25	4650	960	293	272	1240	3960
7	108	68	43	32	28	25	4090	908	284	242	1140	3850
8	102	66	44	32	27	25	3570	844	267	223	1090	3680
9	100	64	47	32	26	26	3330	864	257	198	1470	3500
10	105	66	49	32	28	27	3130	968	255	180	1500	3300
11	102	66	51	33	28	29	2860	1020	281	168	1460	3090
12	101	64	52	33	29	29	2730	1050	319	151	1560	2880
13	98	64	53	32	30	30	2680	1050	306	145	1790	2710
14	93	65	53	31	31	30	2570	1020	291	529	2200	2520
15	89	66	54	29	29	30	2450	955	281	1070	2690	2360
16	90	66	54	29	28	36	2340	877	269	725	2950	2210
17	87	66	54	29	28	44	2240	805	256	491	2880	2090
18	83	64	54	29	29	152	2110	768	250	364	2710	1970
19	82	62	54	30	28	1290	1990	747	240	280	2750	1880
20	81	59	54	31	30	2000	1910	699	250	229	3140	1800
21	82	61	52	30	29	2800	1900	646	302	193	4700	1700
22	84	59	52	29	26	3360	1860	610	298	183	6090	1580
23	83	59	54	29	27	4090	1800	581	306	1320	6860	1460
24	78	58	48	29	26	3640	1740	548	315	2940	11600	1370
25	81	62	44	29	26	3630	1630	519	307	2530	13000	1310
26	85	63	45	29	26	4840	1600	493	289	1590	11400	1240
27	80	58	47	29	27	4820	1430	481	274	1240	9570	1200
28	76	48	48	29	28	4620	1340	459	296	1090	8190	1150
29	73	48	49	28	---	4590	1280	441	284	984	7130	1130
30	70	48	47	28	---	5530	1230	419	373	943	6500	1100
31	71	---	42	28	---	7180	---	393	---	958	6140	---
TOTAL	2990	1894	1515	949	775	53034	92380	24755	8833	21496	127530	79990
MEAN	96.5	63.1	48.9	30.6	27.7	1711	3079	799	294	693	4114	2666
MAX	152	72	54	37	31	7180	7750	1180	373	2940	13000	5770
MIN	70	48	42	28	26	25	1230	393	240	145	1020	1100
CFSM	.07	.05	.04	.02	.02	1.31	2.35	.61	.23	.53	3.15	2.04
IN.	.09	.05	.04	.03	.02	1.51	2.63	.70	.25	.61	3.63	2.27
AC-FT	5930	3760	3010	1880	1540	105200	183200	49100	17520	42640	253000	158700

CAL YR 1978	TOTAL	95157	MEAN	261	MAX	2580	MIN 12	CFSM .20	IN 2.71	AC-FT	188700	
WTR YR 1979	TOTAL	416141	MEAN	1140	MAX	13000	MIN 25	CFSM .87	IN 11.84	AC-FT	825400	

05480000 LIZARD CREEK NEAR CLARE, IA

LOCATION.--Lat 42°32'35", long 94°20'45", in NE1/4 NE1/4 sec.11, T.89 N., R.30 W., Webster County, Hydrologic Unit 07100004, on right bank 20 ft (6 m) downstream from bridge on county highway, 2.3 mi (3.7 km) downstream from Drainage ditch 3, 3.0 mi (4.8 km) south of Clare, and 8.2 mi (13.2 km) upstream from South Lizard Creek.

DRAINAGE AREA.--257 mi² (666 km²).

PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1954, published as North Lizard Creek near Clare.

REVISED RECORDS.--.--WSP 1508: 1940, 1942, 1944-46 (M), 1947-48.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,079.30 ft (328.971 m) NGVD. Prior to May 6, 1953, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--39 years, 97.3 ft³/s (2.766 m³/s), 5.14 in/yr (131 mm/yr) 70,490 acre-ft/yr (86.9 hm³/yr); median of yearly mean discharges, 82 ft³/s (2.32 m³/s); 4.3 in/yr (109 mm/yr), 59,400 acre-ft/yr (73.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft³/s (283 m³/s) June 23, 1947, gage height, 16.0 ft (4.88 m), from floodmark, from rating curve extended above 5,300 ft³/s (150 m³/s); no flow on a few days in 1943, 1956 and 1968 and many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	----	876	24.8	ice jam	---	July 23	1100	1,620	45.9	7.39	2.252
Mar. 23	1100	2,580	73.1	8.46	2.579	July 30	0915	1,520	43.0	7.21	2.198
Mar. 30	2145	*3,400	96.3	*9.51	2.899	Aug. 23	1245	2,030	57.5	8.17	2.490
June 27	2115	2,070	58.6	8.23	2.508						

Minimum daily discharge, 5.4 ft³/s (0.15 m³/s) Feb. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	45	28	12	8.0	5.8	1770	247	85	390	731	230
2	102	45	27	12	7.9	6.2	1420	321	82	360	482	186
3	97	45	26	11	7.8	7.2	1210	412	80	330	380	160
4	93	45	26	11	7.7	7.4	1080	354	79	300	340	143
5	89	45	25	11	7.6	6.7	1010	314	76	270	310	134
6	84	43	24	10	7.1	6.4	843	286	72	250	290	159
7	75	40	23	10	6.8	6.8	711	257	72	224	270	214
8	71	41	22	9.6	6.8	6.4	701	229	68	210	240	252
9	73	42	21	9.2	6.8	6.0	612	214	68	190	212	230
10	74	43	20	8.6	6.7	6.0	527	211	72	175	190	188
11	70	39	20	8.2	6.7	6.8	486	195	68	192	175	154
12	69	38	20	8.0	6.7	8.4	518	179	73	160	160	160
13	64	41	20	7.5	6.5	11	544	169	74	148	150	123
14	60	44	20	7.3	6.4	13	476	159	67	180	140	118
15	60	37	20	7.1	6.3	12	421	148	65	250	130	113
16	60	37	20	7.2	6.1	15	395	135	64	390	122	106
17	55	36	20	7.5	6.0	31	415	134	61	350	112	99
18	56	36	19	7.7	5.8	136	390	151	63	290	108	93
19	54	36	19	7.9	5.6	650	356	193	73	252	100	86
20	53	35	19	8.1	5.5	840	385	166	93	234	250	82
21	55	35	19	8.2	5.4	1010	495	146	134	218	430	82
22	56	35	18	8.1	5.6	1580	461	139	129	202	1210	78
23	55	35	18	8.0	6.0	2530	396	129	107	756	1920	74
24	52	35	17	7.9	6.3	2080	355	117	93	390	1500	76
25	57	34	16	7.8	6.0	2110	332	112	81	245	970	80
26	57	34	15	8.0	5.8	2190	316	115	72	270	692	99
27	51	34	15	8.2	5.8	2020	307	115	1450	290	574	93
28	48	33	14	8.2	5.8	2080	282	106	1420	320	495	86
29	46	31	14	8.1	---	2300	273	99	767	380	437	80
30	46	29	13	8.1	---	3120	259	97	494	1140	340	76
31	47	---	12	8.1	---	2660	---	92	---	1020	270	---
TOTAL	2035	1147	610	269.6	181.5	25468.1	17746	5741	6202	10376	13730	3854
MEAN	65.6	38.2	19.7	8.70	6.48	822	592	185	207	335	443	128
MAX	106	45	28	12	8.0	3120	1770	412	1450	1140	1920	252
MIN	46	29	12	7.1	5.4	5.8	259	92	61	148	100	74
CFSM	.26	.15	.08	.03	.03	3.20	2.30	.72	.81	1.30	1.72	.50
IN.	.29	.17	.09	.04	.03	3.69	2.57	.83	.90	1.50	1.99	.56
AC-FT	4040	2280	1210	535	360	50520	35200	11390	12300	20580	27230	7640

CAL YR 1978 TOTAL 31453.5 MEAN 86.2 MAX 1710 MIN 1.2 CFSM .34 IN 4.55 AC-FT 62390
WTR YR 1979 TOTAL 87360.2 MEAN 239 MAX 3120 MIN 5.4 CFSM .93 IN 12.65 AC-FT 173300

05480500 DES MOINES RIVER AT FORT DODGE, IA

LOCATION.--Lat 42°30'22", long 94°12'04", in NW1/4 SW1/4 sec.19, T.89 N., R.28 W., Webster County, Hydrologic Unit 07100004, on right bank 400 ft (122 m) upstream from Soldier Creek, 1,800 ft (549 m) downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft (610 m) downstream from Lizard Creek, and at mile 314.6 (506.2 km).

DRAINAGE AREA.--4,190 mi² (10,852 km²).

PERIOD OF RECORD.--April 1905 to July 1906 (no winter records), October 1913 to September 1927 (published as "at Kalo"), October 1946 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1924, 1925 (M).

GAGE.--Water-stage recorder. Datum of gage is 969.38 ft (295.467 m) NGVD. See WSP 1728 for history of changes prior to Dec. 8, 1949.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation caused by dam 0.8 mi (1.3 km) upstream from gage. Several observations of water temperature were made during the year. Corps of Engineers rain gage and gage height telemeters at station.

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

AVERAGE DISCHARGE.--47 years (1913-27, 1946-79), 1,375 ft³/s (38.94 m³/s) 4.46 in/yr (113 mm/yr), 996,200 acre-ft/yr (1,230 hm³/yr); median of yearly mean discharges, 1,170 ft³/s (33.1 m³/s), 3.8 in/yr (97 mm/yr), 848,000 acre-ft/yr (1,050 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,600 ft³/s (1,010 m³/s) Apr. 8, 1965, gage height, 17.79 ft (5.422 m); maximum gage height, 19.62 ft (5.980 m), from floodmark, June 23, 1947, present site and datum; minimum daily discharge, 14 ft³/s (0.40 m³/s) Nov. 3, 1955.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	0200	12,300	348	9.07	2.765
Mar. 30	Unknown	20,000	566	11.92	3.633
July 24	0415	7,820	221	7.27	2.216
July 30	1100	6,230	176	6.61	2.015
Aug. 25	1315	*22,200	629	*12.69	3.868

Minimum daily discharge, 114 ft³/s (3.23 m³/s) Jan. 8, 11, 12, Feb. 8-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	697	362	200	130	124	124	18400	4700	1960	3030	5730	12800
2	669	367	190	126	124	124	16800	4810	1850	2810	5170	12500
3	642	358	188	124	122	124	15500	5060	1730	2610	4370	12000
4	611	363	188	122	120	124	14100	4710	1690	2520	3790	11100
5	594	365	196	119	120	124	12900	4360	1620	2170	3410	10200
6	556	355	190	118	118	124	11600	4080	1540	1900	3180	9720
7	532	341	180	116	116	124	10800	3810	1470	1740	2960	9470
8	509	334	172	114	114	124	10500	3560	1380	1640	2660	8920
9	509	339	170	116	114	124	10100	3480	1320	1500	2650	8230
10	527	345	168	116	114	128	9890	3690	1320	1380	3650	7580
11	511	333	230	114	114	130	9490	3800	1300	1530	4000	6830
12	502	326	266	114	114	132	9240	3810	1360	1250	4240	6110
13	483	348	262	116	116	138	8960	3870	1370	1110	4620	5610
14	470	365	244	118	116	146	8570	4050	1390	1410	5230	5320
15	455	344	248	119	118	168	8160	4210	1320	2620	5590	5250
16	437	344	252	120	118	212	7890	4270	1270	3390	5670	5270
17	434	385	228	121	118	290	7670	4110	1220	2880	5790	5060
18	423	385	216	122	118	1380	7390	4140	1220	2250	5560	4710
19	419	300	218	124	118	10500	7090	4390	1310	1810	5960	4380
20	409	238	208	126	118	9610	7090	4260	1520	1540	6800	4140
21	412	220	198	128	120	9510	7380	4000	1740	1360	8690	3930
22	426	230	178	130	120	11300	7400	3810	1850	1320	13100	3690
23	420	238	160	130	120	13800	7140	3570	1920	4600	17200	3430
24	401	240	140	130	120	12800	6900	3300	1920	7250	20400	3270
25	403	240	130	128	120	13100	6630	3070	1900	5630	22000	3070
26	413	238	132	126	120	14800	6270	2900	1850	3850	20900	3010
27	407	228	134	128	122	14600	5960	2730	4080	3270	18900	2840
28	417	218	136	128	124	14300	5660	2550	4880	3350	17100	2690
29	376	210	138	130	---	15000	5380	2400	3930	3980	15500	2590
30	356	208	138	128	---	19600	5030	2250	3340	5750	14200	2450
31	389	---	136	126	---	19500	---	2080	---	5800	13400	---
TOTAL	14819	9167	5834	3807	3320	182260	275890	115830	56570	87250	272420	186170
MEAN	478	306	188	123	119	5879	9196	3736	1886	2815	8788	6206
MAX	697	385	266	130	124	19600	18400	5060	4880	7250	22000	12800
MIN	366	208	130	114	114	124	5030	2080	1220	1110	2650	2450
CFSM	.11	.07	.05	.03	.03	1.40	2.20	.89	.45	.67	2.10	1.48
IN.	.13	.08	.05	.03	.03	1.62	2.45	1.03	.50	.77	2.42	1.65
AC-FT	29390	18180	11570	7550	6590	361500	547200	229700	112200	173100	540300	369300

CAL YR 1978	TOTAL	386032	MEAN	1058	MAX	8970	MIN	98	CFSM	.25	IN	3.43	AC-FT	765700
WTR YR 1979	TOTAL	1213337	MEAN	3324	MAX	22000	MIN	114	CFSM	.79	IN	10.77	AC-FT	2407000

05481000 BOONE RIVER NEAR WEBSTER CITY, IA

LOCATION.--Lat 42°26'01", long 93°48'12", in NW1/4 SE1/4 sec.18, T.88 N., R.25 W., Hamilton County, Hydrologic Unit 07100005, on right bank 100 ft (30 m) upstream from bridge on State Highway 17, 2.5 mi (4.0 km) south of Webster City, and 3.2 mi (5.1 km) downstream from Brewers Creek.

DRAINAGE AREA.--844 mi² (2,185 km²).

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1940 (M), WSP 1708: 1956.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 989.57 ft (301.621 m) NGVD. Prior to June 26, 1940, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--39 years, 375 ft³/s (10.62 m³/s), 6.03 in/yr (153 mm/yr), 271,700 acre-ft/yr (335 hm³/yr); median of yearly mean discharges, 280 ft³/s (7.93 m³/s), 4.5 in/yr (114 mm/yr), 203,000 acre-ft/yr (250 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft³/s (575 m³/s) June 22, 1954, gage height, 18.55 ft (5.654 m); no flow Feb. 7, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1896, 19.1 ft (5.82 m) about June 10, 1918, from flood-marks, from information by local resident, discharge, 21,500 ft³/s (609 m³/s). Flood of June 18, 1932, reached a stage of 16.0 ft (4.88 m), discharge, 15,000 ft³/s (425 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft³/s (62.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	2200	6,710	190	10.07	3.069	July 26	----	3,300	94.0	Unknown	---
Mar. 23	2030	6,180	175	9.63	2.935	Aug. 12	0345	3,270	92.6	6.89	2.100
Mar. 30	2145	7,110	201	10.38	3.164	Aug. 25	0715	*8,760	248	*11.57	3.527

Minimum daily discharge, 17 ft³/s (0.48 m³/s) Feb. 4, 17, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	73	49	27	20	24	5460	556	368	468	1310	1600
2	163	77	47	26	20	24	4760	608	353	489	1150	1290
3	162	76	46	25	19	31	3700	849	340	402	1030	1050
4	158	75	45	23	17	38	2950	1020	324	324	840	860
5	153	75	47	22	18	37	2520	950	311	248	666	728
6	135	71	45	21	20	35	2020	849	295	202	537	663
7	126	69	43	20	19	37	1680	754	281	172	443	773
8	122	70	42	20	19	33	1550	671	269	157	365	807
9	124	71	43	22	18	32	1350	594	262	143	335	718
10	129	67	41	21	18	31	1190	542	262	132	1410	613
11	133	63	45	23	18	36	1050	499	240	147	2870	528
12	128	66	49	22	18	68	1050	457	238	133	3100	463
13	115	102	43	20	19	110	1100	433	231	118	2190	415
14	108	94	41	19	20	138	1080	415	219	259	1520	382
15	110	80	40	19	20	132	978	391	209	969	1100	348
16	99	78	39	20	18	164	864	368	201	952	825	313
17	93	110	36	21	17	610	790	355	188	645	680	289
18	94	112	36	22	18	3400	726	449	187	445	615	268
19	90	86	37	24	18	6000	691	1380	187	315	1260	249
20	91	86	37	24	19	5390	829	1380	236	251	2150	231
21	99	89	35	22	20	4750	1210	1050	228	196	2300	218
22	101	82	34	21	20	5390	1240	877	201	206	3360	207
23	96	73	33	20	22	5960	1150	752	182	715	4900	192
24	99	67	34	20	19	5380	1000	654	168	1850	7510	193
25	106	62	34	20	17	4160	893	586	158	2440	8590	189
26	97	57	34	21	18	3180	878	548	148	3160	6520	180
27	88	54	34	23	22	2850	834	520	221	2960	4250	169
28	84	49	34	21	24	2670	743	478	192	2100	3110	163
29	82	49	32	19	---	3100	676	443	265	1660	2630	159
30	81	50	31	19	---	5460	612	421	426	1710	2340	156
31	75	---	28	19	---	5950	---	398	---	1620	1980	---
TOTAL	3509	2233	1214	666	535	65220	45574	20247	7390	25588	71886	14414
MEAN	113	74.4	39.2	21.5	19.1	2104	1519	653	246	825	2319	480
MAX	168	112	49	27	24	6000	5460	1380	426	3160	8590	1600
MIN	75	49	28	19	17	24	612	355	148	118	335	156
CFSM	.13	.09	.05	.03	.02	2.49	1.80	.77	.29	.98	2.75	.57
IN.	.15	.10	.05	.03	.02	2.87	2.01	.89	.33	1.13	3.17	.64
AC-FT	6960	4430	2410	1320	1060	129400	90400	40160	14660	50750	142600	28590

CAL YR 1978	TOTAL	75913	MEAN 208	MAX 3110	MIN 15	CFSM .25	IN 3.35	AC-FT	150600	
WTR YR 1979	TOTAL	258476	MEAN 708	MAX 8590	MIN 17	CFSM .84	IN 11.39	AC-FT	512700	

05481300 DES MOINES RIVER NEAR STRATFORD, IA

LOCATION.--Lat 42°15'04", long 93°59'52", in NW1/4 NE1/4 sec.21, T.86 N., R.27 W., Webster County, Hydrologic Unit 07100004, on right bank 6 ft (2 m) downstream from bridge on State Highway 175, 0.1 mi (0.2 km) downstream from Skillet Creek, 4.0 mi (6.4 km) southwest of Stratford, 7.3 mi (11.7 km) downstream from Boone River and at mile 276.7 (445.2 km).

DRAINAGE AREA.--5,452 mi² (14,120 km²).

PERIOD OF RECORD.--April 1920 to current year in reports of Geological Survey. Published as "near Boone" 1920-67. Monthly discharge only for some periods, published in WSP 1308. December 1904 to April 1920 (fragmentary gage heights during high-water periods only) in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1925-27, 1934. WSP 1708: 1955.

GAGE.--Water-stage recorder. Datum of gage is 894.00 ft (272.491 m) NGVD. Prior to May 1, 1920, nonrecording gage 16.6 mi (26.7 km) downstream at datum 23.49 ft (7.16 m) lower. Oct. 9, 1924, to Jan. 10, 1933, nonrecording gage 17.6 mi (28.3 km) downstream at datum 28.53 ft (8.70 m) lower. Jan. 11, 1933, to Sept. 30, 1934, nonrecording gage 17.9 mi (28.8 km) downstream at datum 22.25 ft (6.78 m) lower. Oct. 1, 1934 to Feb. 6, 1935, nonrecording gage and Feb. 7, 1935 to Sept. 30, 1967, water-stage recorder 17.9 mi (28.8 km) downstream at datum 21.84 ft (6.66 m) lower.

REMARKS.--Records good except those for winter period, which are poor. Occasional minor regulation caused by dam at Fort Dodge. Several observations of water temperature were made during the year. Corps of Engineers rain gage and gage height telemeters at station.

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

AVERAGE DISCHARGE.--59 years, 1,774 ft³/s (50.24 m³/s), 4.42 in/yr (112 mm/yr), 1,285,000 acre-ft/yr (1,580 hm³/yr); median of yearly mean discharges, 1,580 ft³/s (44.7 m³/s), 3.9 in/yr (99 mm/yr), 1,145,000 acre-ft/yr (1,410 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,400 ft³/s (1,630 m³/s) June 22, 1954, gage height, 25.35 ft (7.727 m), from graph based on hourly gage readings, site and datum then in use; no flow for a short time on Jan. 9, 25, 1938, caused by manipulation of gates in control dam, site then in use; minimum unregulated daily discharge, 13 ft³/s (0.37 m³/s) Jan. 23, 24, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1903, reached a stage of 25.4 ft (7.74 m), from high-water mark, site and datum then in use, discharge, 43,600 ft³/s (1,230 m³/s). Flood of June 22, 1954, reached a stage of 29.7 ft (9.05 m), from floodmark, present site and datum, discharge, 54,200 ft³/s (1,530 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,000 ft³/s (198 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 31	1045	28,000	793	21.59	6.581	July 31	0245	8,830	250	12.64	3.853
May 20	0015	7,220	204	11.53	3.514	Aug. 26	0430	*29,600	838	*23.22	7.077
July 24	2215	9,640	273	13.18	4.017						

Minimum daily discharge, 133 ft³/s (3.77 m³/s) Jan. 1, 7-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	495	285	133	188	190	26600	5840	2600	3880	7910	14800
2	1130	450	270	135	188	188	24700	5850	2440	3610	7090	13700
3	1080	455	255	143	188	188	22100	6550	2300	3340	6180	13000
4	1030	455	245	140	188	196	19200	6610	2160	3150	5270	12200
5	979	460	260	140	184	192	17200	6170	2100	2840	4580	11200
6	934	457	245	138	180	190	15500	5710	2000	2420	4080	10300
7	870	444	230	133	185	190	13900	5280	1870	2130	3730	9940
8	826	433	225	133	190	200	12900	4870	1880	1970	3360	9780
9	806	426	220	133	190	190	12300	4500	1770	1840	3070	9160
10	828	426	217	133	190	190	11700	4500	1770	1660	3760	8450
11	828	420	310	138	190	180	11200	4620	1680	1690	6120	7770
12	816	390	370	142	192	180	10900	4610	1700	1670	7110	7050
13	774	454	350	148	190	200	10600	4600	1900	1410	6980	6460
14	720	488	340	150	192	240	10200	4670	1770	1420	6670	6040
15	679	494	330	150	192	260	9710	4820	1700	3850	6580	5850
16	640	470	330	150	192	335	9240	4900	1590	5200	6430	5800
17	635	503	320	163	182	830	8920	4810	1520	4150	6340	5710
18	632	555	300	160	172	5350	8600	4910	1470	3190	6200	5450
19	624	501	310	168	185	12700	8260	6820	1500	2500	7380	5100
20	618	351	315	170	182	20200	8380	6990	1740	2070	8710	4790
21	608	296	300	172	185	17000	9420	6110	1840	1780	9830	4550
22	608	300	260	175	188	16800	9450	5530	1990	1580	13300	4300
23	613	320	265	178	190	19700	9060	5100	2050	2750	17800	4010
24	605	340	240	176	190	21100	8580	4640	2020	8340	22900	3780
25	613	300	195	176	190	18500	8210	4240	1990	9240	27800	3560
26	600	270	190	174	180	17600	7950	3980	1940	7920	29300	3390
27	590	270	190	182	176	18200	7520	3760	3380	6960	26800	3270
28	570	250	183	182	178	17500	7080	3460	5830	5970	23000	3090
29	500	250	172	185	---	17600	6700	3220	4990	5570	20100	2920
30	495	300	162	182	---	22200	6280	3020	4300	7520	17700	2770
31	490	---	140	185	---	27500	---	2810	---	8550	16000	---
TOTAL	22951	12023	8024	4867	5217	256089	352360	153500	67790	120170	342080	208190
MEAN	740	401	259	157	186	8261	11750	4952	2260	3876	11030	6940
MAX	1210	555	370	185	192	27500	26600	6990	5830	9240	29300	14800
MIN	490	250	140	133	172	180	6280	2810	1470	1410	3070	2770
CFSM	.14	.07	.05	.03	.03	1.52	2.15	.91	.42	.71	2.02	1.27
IN.	.16	.08	.05	.03	.04	1.75	2.40	1.05	.46	.82	2.33	1.42
AC-FT	45520	23850	15920	9650	10350	508000	698900	304500	134500	238400	678500	412900

CAL YR 1978	TOTAL	547607	MEAN	1500	MAX	10500	MIN	140	CFSM	.28	IN	3.74	AC-FT	1086000
WTR YR 1979	TOTAL	1553261	MEAN	4256	MAX	29300	MIN	133	CFSM	.78	IN	10.60	AC-FT	3081000

05481630 SAYLORVILLE LAKE NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°42'13", long 93°41'21", in SE 1/4, SW 1/4 Sec. 30, T.80 N., R.24 W., Polk County, Hydrologic Unit 07100004, in control tower of Saylorville Dam, 3.2 mi (5.1 km) northwest of Saylorville, 4.2 mi (6.8 k) upstream from Beaver Creek, and at mile 213.4 (343.4 km).

DRAINAGE AREA.--5,823 mi² (15,082 km²).

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

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

REMARKS.--Reservoir is formed by earthfill dam completed in 1976. Storage began in April 1977. Release controlled at intake structure to forechamber of 22 ft (6.71 m) diameter concrete conduit through dam. Ungated chute spillway 430 ft (131 m) in length at right end of dam at elevation 884 ft (269 m), contents 570,000 acre-ft (703 hm³). Conservation pool at elevation 833 ft (254 m), contents, 74,000 acre-ft (91 hm³), surface area, 5,400 acres (2,185 hm²). Flood pool elevation at 890 ft (271 m), contents, 676,000 acre-ft (834 hm³), surface area, 16,700 acres (6,758 hm). Reservoir is used for flood control, low-flow augmentation, conservation and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 561,000 acre-ft (692 hm³) Apr. 6,7, 1979; maximum elevation, 883.81 ft (269.385 m) Apr. 5, 1979; minimum daily contents, 71,500 acre-ft (88.2 hm³) Nov. 11, 1977; minimum elevation, 832.61 ft (253.780 m) Jan. 19, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 561,000 acre-ft (692 hm³) Apr. 6,7; maximum elevation, 883.67 ft (269.343 m) Apr. 5; minimum daily contents, 71,800 acre-ft (88.5 hm³) Jan. 17; minimum elevation, 832.61 ft (253.780 m) Jan. 18.

Capacity table (elevation, in feet, and contents, in acre-feet)

805	360	833	74,000	884	570,000
810	2,300	840	116,000	890	676,000
815	7,700	850	190,000	900	938,000
820	19,000	860	278,000	910	1,320,000
830	58,600	880	511,000	915	1,530,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85100	82900	83600	74600	73000	73000	486000	369000	225000	131000	82800	254000
2	84600	82900	83300	74400	73000	73200	513000	362000	221000	128000	83000	254000
3	84200	82900	83400	74100	73000	74300	539000	354000	218000	124000	81500	252000
4	84200	83000	83500	73900	72900	74900	555000	346000	215000	119000	78600	249000
5	84700	83100	83700	73800	72900	75000	560000	337000	213000	115000	75200	243000
6	85100	83100	83800	73800	72800	75600	561000	327000	211000	111000	74000	236000
7	85400	83100	83800	73800	72800	75500	561000	322000	210000	108000	74500	229000
8	85800	83100	83800	73700	72900	75100	558000	311000	208000	103000	74500	222000
9	86100	83200	82900	73600	72900	74600	553000	301000	206000	101000	75000	215000
10	86100	83400	83000	73400	72900	74500	546000	291000	205000	98500	76000	207000
11	85900	83400	81000	73300	72900	74500	540000	281000	203000	96900	75900	200000
12	85500	83600	78500	73200	72800	75200	533000	273000	202000	94600	77000	193000
13	84900	84200	75700	73100	72800	76300	525000	268000	200000	91800	78200	186000
14	84600	84000	73800	73000	72800	77200	516000	264000	198000	89900	78200	179000
15	84500	83600	73400	72900	72700	75900	505000	260000	196000	87300	77600	172000
16	84400	83400	73300	72800	72700	75800	494000	257000	193000	88500	76800	167000
17	84400	83000	73300	71800	72700	76200	480000	255000	191000	89100	75900	161000
18	84400	82800	73200	72500	72700	81500	468000	255000	188000	87800	75800	156000
19	84900	82500	73000	72500	72700	106000	455000	255000	186000	85300	76400	148000
20	85600	82200	73100	72500	72800	154000	445000	267000	181000	82800	78900	144000
21	85900	82100	73300	72500	72800	188000	438000	256000	173000	80500	80200	138000
22	85700	82300	73700	72600	72800	223000	435000	255000	165000	79100	83500	133000
23	85300	82500	74000	72600	72800	256000	429000	252000	158000	77900	91400	127000
24	84800	82600	74300	72700	72900	294000	424000	249000	151000	78300	104000	121000
25	84300	82800	74400	72800	72900	326000	420000	246000	145000	82500	129000	116000
26	83700	82900	74300	72900	73000	348000	414000	242000	138000	85500	159000	110000
27	83400	82600	74300	72900	73000	368000	407000	239000	135000	85200	193000	104000
28	83100	82700	74300	73000	73100	390000	398000	236000	134000	80700	220000	101000
29	83000	83300	74400	73000	---	409000	389000	233000	135000	79100	238000	97200
30	82900	83700	74600	73100	---	429000	379000	230000	133000	80000	248000	93500
31	82900	---	74700	73100	---	455000	---	228000	---	82100	252000	● ---
MAX	86100	84200	83800	74600	73100	455000	561000	369000	225000	131000	252000	254000
MIN	82900	82100	73000	71800	72700	73000	379000	228000	133000	77900	74000	93500

WTR YR 1979 MAX 561000 MIN 71800

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA

LOCATION.--Lat 41°40'80", long 93°40'07", near center of sec.5, T.79 N., R.24 W., Polk County, Hydrologic Unit 07100004, near center of span on downstream side of bridge on county highway F42, 2.0 mi (3.2 km) west of Saylorville, 2.1 mi (3.4 km) downstream from Rock Creek, 2.4 mi (3.9 km) upstream from Beaver Creek, and at mile 211.6 (340.5 km).

DRAINAGE AREA.--5,841 mi² (15,128 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 787.42 ft (240.006 m) NGVD (levels by Corps of Engineers). Prior to Aug. 6, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are fair. Several observations of water temperature were made during the year. Flow regulated by Saylorville Lake (Station 05481630) 2.1 mi (3.4 km) upstream since Apr. 12, 1977. Corps of Engineers gage height telemeter at station.

COOPERATION.--Twenty-seven discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--18 years, 2,488 ft³/s (70.46 m³/s), 5.79 in/yr (147 mm/yr), 1,803,000 acre-ft/yr (2,220 hm³/yr); median of yearly mean discharges, 2,050 ft³/s (58.1 m³/s) 4.8 in/yr (122 mm/yr), 1,490,000 acre-ft/yr (1,840 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s (1,340 m³/s) Apr. 10, 1965, gage height, 24.02 ft (7.321 m); minimum daily, 13 ft³/s (0.37 m³/s) Jan. 25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, 24.5 ft (7.47 m), present gage datum, June 24, 1954, from floodmarks, discharge, 60,000 ft³/s (1,700 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,800 ft³/s (532 m³/s) Apr. 6, gage height, 18.45 ft (5.624 m); minimum daily, 207 ft³/s (5.86 m³/s) Jan. 20, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1570	650	570	404	220	239	13600	11700	4820	6350	7680	14200
2	1470	638	570	388	219	244	14200	11100	4820	6300	7720	14200
3	1390	600	400	380	218	325	12300	11000	4850	6300	7690	14100
4	1090	565	350	348	218	555	13600	11600	4500	6300	7640	14000
5	781	560	430	286	219	649	16600	11500	4150	5500	7180	14000
6	767	555	540	280	219	656	18500	11400	3780	5000	5650	14000
7	767	555	560	273	221	728	16000	9190	3420	4900	3860	13100
8	769	525	560	273	237	779	15000	11000	3340	4500	3840	12400
9	761	500	560	273	227	710	15000	10900	3280	3800	3630	12200
10	864	505	1040	269	225	610	14800	10200	3210	3650	3810	12100
11	928	500	1640	268	225	545	14800	10100	3150	3620	4500	11400
12	1030	500	1890	273	225	540	14800	9030	3100	3600	5930	10700
13	1100	626	2020	275	228	740	14700	7820	3460	3500	6450	10100
14	918	764	1490	275	228	1200	15600	7290	3550	3300	6730	9460
15	774	794	820	273	224	1610	16400	6910	3550	3700	6980	9090
16	765	590	610	273	221	1340	16200	6540	3550	4300	6990	8670
17	766	752	610	273	219	1580	15400	6290	3550	4600	6990	8630
18	718	836	610	248	219	3700	15200	6130	3560	4660	6860	8490
19	480	824	600	209	225	3500	15100	6430	3550	4620	6560	8400
20	412	758	530	207	228	2600	15200	7180	5000	4070	7030	7930
21	580	615	360	207	228	2400	14800	7160	6400	3600	8780	7470
22	776	510	360	208	228	2300	13800	6990	6300	3300	10100	7370
23	836	510	388	210	228	3100	13000	6900	6220	3100	10500	7300
24	860	575	404	215	221	4200	12100	6710	6150	3640	10900	6720
25	983	575	400	210	228	6040	11500	6520	6100	6430	11300	6300
26	962	615	400	213	233	8460	12000	6390	6070	7090	12100	5860
27	788	782	360	213	236	9510	12000	5890	6050	7520	13000	5400
28	782	610	328	213	238	9580	12000	5480	6600	8490	13600	5000
29	776	364	332	219	---	9760	11800	5100	6500	7550	13800	4700
30	758	450	372	213	---	11100	11800	4730	6400	6420	14000	4660
31	716	---	408	224	---	13200	---	4790	---	7150	14200	---
TOTAL	26937	18203	20512	8093	6305	102500	427800	249970	138980	156860	256000	287950
MEAN	869	607	662	261	225	3306	14260	8064	4633	5060	8258	9598
MAX	1570	836	2020	404	238	13200	18500	11700	6600	8490	14200	14200
MIN	412	364	328	207	218	239	11500	4730	3100	3100	3630	4660
CFSM	.15	.10	.11	.05	.04	.57	2.44	1.38	.79	.87	1.41	1.64
IN.	.17	.12	.13	.05	.04	.65	2.72	1.59	.89	1.00	1.63	1.83
AC-FT	53430	36110	40690	16050	12510	203300	848500	495800	275700	311100	507800	571100

CAL YR 1978	TOTAL	626795	MEAN	1717	MAX	7770	MIN 164	CFSM .29	IN 3.99	AC-FT	1243000	
WTR YR 1979	TOTAL	1700110	MEAN	4658	MAX	18500	MIN 207	CFSM .80	IN 10.83	AC-FT	3372000	

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD: Water years 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1967 to September 1971, October 1971 to current year (partial record station).
WATER TEMPERATURES: October 1961 to September 1971, October 1971 to current year (partial record station).
SUSPENDED-SEDIMENT DISCHARGE: October 1961 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1967-71, 1977-79): Maximum daily, 1,400 micromhos Feb. 16, 1977; minimum daily, 90 micromhos Feb. 19, 1971.
WATER TEMPERATURES (1967-71, 1977-79): Maximum daily, 36.0°C June 29, 1971; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,400 mg/L May 14, 1970; minimum daily mean, 1 mg/L Jan. 8, 1965.
SEDIMENT LOADS: Maximum daily, 148,000 tons (134,000 tonnes) June 12, 1966; minimum daily, 1 ton (0.91 tonne) Jan. 8, 1965, Feb. 8-12, 23, 1967.

EXTREMES FOR CURRENT YEAR:
SEDIMENT CONCENTRATIONS: Maximum daily mean, 277 mg/L Apr. 5; minimum daily mean, 4 mg/L Dec. 18.
SEDIMENT LOADS: Maximum daily, 13,400 tons (12,200 tonnes) Apr.6; minimum daily, 3.6 tons (3.3 tonnes) Feb.15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	590	---	---	590	420
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	1000	---	425	---	590	---	---	---
4	550	---	---	---	---	---	---	---	---	---	---	---
5	---	590	---	---	---	720	---	---	---	---	---	---
6	---	590	---	---	---	710	455	610	590	---	---	---
7	---	---	---	---	---	695	---	635	---	---	---	---
8	---	585	---	800	---	700	---	---	---	---	---	---
9	---	---	660	---	---	700	---	640	---	---	---	---
10	560	600	---	865	---	---	440	---	---	---	540	---
11	---	---	680	820	---	---	---	650	---	620	---	460
12	---	---	700	---	---	720	440	660	660	---	---	---
13	---	630	---	---	---	705	---	660	---	---	---	---
14	---	---	750	850	---	705	---	---	---	---	580	480
15	---	600	---	820	1100	705	---	---	580	580	---	---
16	555	---	---	---	---	705	---	---	---	---	620	480
17	555	---	---	840	---	---	---	---	---	590	620	600
18	---	---	800	920	---	---	---	640	---	590	---	---
19	560	---	770	---	---	715	---	660	---	---	480	---
20	565	650	---	990	---	---	---	---	---	600	490	540
21	---	---	---	---	---	---	---	640	---	600	---	520
22	---	650	770	920	---	---	---	---	---	---	---	520
23	---	670	830	---	---	---	---	660	---	---	---	520
24	---	710	---	920	---	---	---	---	---	570	480	540
25	---	660	---	---	---	---	---	---	---	580	---	540
26	---	---	---	1100	---	425	---	630	---	580	---	540
27	---	---	800	---	---	420	---	660	---	580	---	560
28	570	600	810	1000	---	405	---	---	---	570	400	---
29	580	---	830	1000	---	410	---	---	---	---	380	---
30	---	---	---	---	---	---	585	---	---	---	---	---
31	---	---	---	1100	---	---	---	680	---	---	380	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	11.0	---	---	26.0	25.0
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	3.5	---	3.0	---	17.5	---	---	---
4	18.0	---	---	---	---	---	---	---	---	---	---	---
5	---	12.0	---	---	---	4.0	---	---	---	---	---	---
6	---	12.0	---	---	---	4.0	3.0	11.5	19.5	---	---	---
7	---	---	---	---	---	3.0	---	11.5	---	---	---	---
8	---	12.5	---	1.0	---	3.0	---	---	---	---	---	---
9	---	---	1.0	---	---	3.0	---	12.0	---	---	---	---
10	17.0	12.5	---	2.0	---	---	4.0	---	---	---	26.0	---
11	---	---	2.0	1.0	---	---	---	13.0	---	26.5	---	24.0
12	---	---	1.0	---	---	5.0	5.5	13.5	---	---	---	---
13	---	11.0	---	---	---	4.0	---	13.5	---	---	---	---
14	---	---	2.5	.5	---	5.0	---	---	---	---	23.0	21.5
15	---	8.0	---	1.0	2.0	4.0	---	---	---	25.6	---	---
16	14.0	---	---	---	---	4.0	---	---	---	---	22.5	22.0
17	14.0	---	---	4.0	---	---	---	---	---	27.5	24.0	22.5
18	---	---	3.0	3.0	---	---	---	15.0	---	26.5	---	---
19	17.0	---	2.5	---	---	5.0	---	15.5	---	---	24.0	---
20	11.0	4.0	---	2.0	---	---	---	---	---	27.0	24.0	21.0
21	---	---	---	---	---	---	---	15.5	---	27.5	---	21.5
22	---	4.0	2.5	2.0	---	---	---	---	---	---	---	21.0
23	---	4.0	2.5	---	---	---	---	16.0	---	---	---	20.0
24	---	4.0	---	1.0	---	---	---	---	---	27.0	23.5	20.0
25	---	4.0	---	---	---	---	---	16.0	---	26.5	---	21.0
26	---	---	---	1.0	---	3.0	---	---	---	28.0	---	---
27	---	---	2.5	---	---	3.0	---	15.5	---	28.0	---	19.0
28	12.0	3.0	1.5	1.5	---	3.5	---	---	---	26.5	21.5	---
29	12.0	---	.5	2.0	---	3.5	---	---	---	---	23.0	---
30	---	---	---	---	---	---	10.0	---	---	---	---	---
31	---	---	---	2.0	---	---	---	19.0	---	---	22.5	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	50	212	42	74	24	37	29	32	14	8.3	7	4.5
2	48	191	47	81	18	28	27	28	16	9.5	6	4.0
3	45	169	40	65	16	17	24	25	19	11	37	32
4	51	150	35	53	15	14	23	22	42	25	73	109
5	46	97	34	51	18	21	22	17	39	23	42	74
6	44	91	28	42	17	25	22	17	33	20	53	94
7	44	91	37	55	14	21	22	16	28	17	34	67
8	42	87	41	58	16	24	21	15	20	13	25	53
9	42	86	37	50	10	15	15	11	16	9.8	30	58
10	63	147	36	49	42	118	13	9.4	15	9.1	33	54
11	75	188	33	45	35	155	22	16	14	8.5	28	41
12	76	211	30	40	20	102	26	19	11	6.7	35	51
13	84	249	32	54	20	109	29	22	8	4.9	56	112
14	83	206	43	89	10	40	59	44	7	4.3	43	139
15	82	171	39	84	7	15	72	53	6	3.6	19	83
16	79	163	26	41	6	9.9	63	46	8	4.8	20	72
17	77	159	41	83	5	8.2	64	40	8	4.7	42	179
18	74	143	40	90	4	6.6	46	31	9	5.3	85	849
19	68	88	32	71	6	9.7	32	18	10	6.1	50	472
20	62	69	25	51	12	17	29	16	15	9.2	93	653
21	70	110	21	35	20	19	30	17	14	8.6	101	654
22	73	153	18	25	16	16	54	30	11	6.8	86	528
23	72	163	15	21	25	26	38	22	10	6.2	89	745
24	67	156	12	19	21	23	42	24	9	5.4	146	1660
25	105	279	15	23	19	21	27	15	8	4.9	195	3180
26	125	325	20	33	20	22	14	8.1	8	5.0	233	5320
27	94	200	44	93	42	41	14	8.1	8	5.1	256	6570
28	72	152	81	133	32	28	21	12	7	4.5	226	5850
29	51	107	52	51	27	24	28	17	---	---	204	5380
30	44	90	34	41	28	28	25	14	---	---	187	8600
31	42	81	---	---	30	33	14	8.5	---	---	181	6450
TOTAL	---	4784	---	1700	---	1073.4	---	673.1	---	250.3	---	45137.5

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	177	6500	20	632	33	429	70	1200	60	1240	178	6820
2	174	6670	61	1830	71	924	66	1120	54	1130	200	7670
3	170	5650	156	4630	73	956	62	1050	51	1060	210	7990
4	199	7310	167	5230	71	863	60	1020	49	1010	204	7710
5	277	12400	163	5060	79	885	58	861	51	989	195	7370
6	269	13400	154	4740	73	745	56	756	51	778	183	6920
7	217	9370	135	3350	93	859	52	688	55	573	183	6470
8	171	6930	109	3240	117	1060	45	547	40	415	182	6090
9	143	5790	90	2650	99	877	71	728	43	421	138	4550
10	125	4990	59	1620	80	693	79	779	113	1160	120	3920
11	130	5190	30	818	59	502	85	831	132	1600	115	3540
12	144	5750	32	780	41	343	138	1340	147	2350	115	3320
13	147	5830	24	507	39	364	132	1250	135	2350	96	2620
14	140	5900	25	492	38	364	127	1130	82	1490	84	2150
15	127	5620	25	466	37	355	109	1090	105	1980	82	2010
16	117	5120	24	424	35	335	81	940	65	1230	74	1730
17	108	4490	23	391	33	316	66	820	52	981	68	1580
18	97	3980	27	447	31	298	95	1200	55	1020	64	1470
19	90	3670	24	417	28	268	102	1270	51	903	59	1340
20	103	4230	22	426	62	837	94	1030	57	1080	66	1410
21	101	4040	40	773	170	2940	72	700	118	2800	68	1370
22	80	2980	36	679	177	3010	65	579	229	6240	57	1130
23	62	2180	25	466	129	2170	65	544	209	5930	51	1010
24	57	1860	28	507	102	1690	85	835	160	4710	56	1020
25	51	1580	31	546	89	1470	77	1340	142	4330	48	816
26	45	1460	32	552	80	1310	72	1380	153	5000	46	728
27	40	1300	35	557	143	2340	79	1600	164	5760	52	758
28	36	1170	37	547	122	2170	80	1830	173	6350	52	702
29	29	924	35	482	93	1630	77	1570	182	6780	64	812
30	22	701	41	524	78	1350	75	1300	176	6650	57	717
31	---	---	33	427	---	---	70	1350	167	6400	---	---
TOTAL	---	146985	---	44210	---	32353	---	32678	---	84710	---	95743

TOTAL LOAD FOR YEAR: 490297.3 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 30...	1600	9.5	11600	27	846	91
MAY 31...	1400	19.0	4710	22	280	79
JUN 12...	1140	20.5	3060	41	339	73
JUL 11...	1240	26.5	3620	56	547	81
AUG 14...	0850	23.0	6630	133	2380	95
SEP 17...	1625	22.5	9030	65	1590	88

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	NUMBER OF SAM-PLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
APR 30...	1600	11600	11	2	6	30	57
MAY 31...	1400	4710	3	6	6	15	36
JUN 12...	1140	3060	8	0	1	8	30
JUL 11...	1240	3620	5	0	1	5	33
AUG 14...	0850	6630	8	4	8	18	42
SEP 17...	1625	9030	7	0	1	7	25

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
APR 30...	82	96	98	99	100	--
MAY 31...	65	65	71	81	98	100
JUN 12...	61	81	92	100	--	--
JUL 11...	65	81	91	98	100	--
AUG 14...	60	75	88	98	100	--
SEP 17...	56	77	89	97	100	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
NOV 28...	1400	540	700	8.5	3.0	5	12.4	95	14	190	60	34
JAN 23...	1515	207	1000	8.0	.5	2	12.4	89	26	100	110	46
FEB 21...	0846	228	950	7.9	1.0	2	12.0	86	27	110	110	42
MAR 08...	1300	762	840	8.0	3.0	2	12.6	95	23	20	110	40
APR 30...	1400	600	600	8.6	9.5	6	9.0	82	29	K85	71	22
MAY 31...	1400	4710	700	8.1	19.0	6	7.8	88	30	15	85	28
JUN 12...	1310	3060	750	8.3	20.5	3	8.8	102	29	<5	82	33
JUL 11...	1400	3620	600	8.5	25.0	24	8.5	108	25	41	75	26
AUG 14...	0850	6630	710	9.0	23.0	14	--	--	20	--	84	28
SEP 17...	1600	9230	700	8.0	22.0	10	9.8	114	22	K8	2.9	5.7

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV 28...	16	3.3	260	0	210	1.3	88	36	450	.61	656
JAN 23...	32	3.6	--	--	330	--	120	55	649	.88	363
FEB 21...	32	3.6	--	--	320	--	160	52	627	.85	386
MAR 08...	28	3.8	--	--	280	--	130	53	571	.78	1180
APR 30...	7.5	3.4	190	0	160	.8	64	24	401	.55	650
MAY 31...	10	3.2	240	0	200	3.1	140	35	507	.69	6450
JUN 12...	11	3.1	--	--	200	--	110	32	498	.68	4110
JUL 11...	12	2.7	--	--	86	--	69	19	375	.51	3670
AUG 14...	9.1	3.0	--	--	220	--	92	28	463	.63	8290
SEP 17...	3.2	1.6	--	--	260	--	85	23	447	.61	11100

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IA--Continued

WATER QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
NOV											
28...	498	6.4	.10	--	1.4	1.5	7.9	35	.08	--	--
JAN											
23...	684	6.1	.96	--	.84	1.8	7.9	35	.22	--	--
FEB											
21...	658	5.1	1.1	--	.70	1.8	6.9	31	.27	--	--
MAR											
08...	585	5.3	.90	--	.50	1.4	6.7	30	.17	--	--
APR											
30...	451	9.7	.27	.33	1.2	1.5	11	50	.24	.74	.74
MAY											
31...	526	8.7	.16	.19	1.5	1.7	10	46	.08	.25	.25
JUN											
12...	551	8.1	.38	.46	.82	1.2	9.3	41	.05	.15	.15
JUL											
11...	571	5.9	.15	.18	.74	.89	6.8	30	.08	--	.25
AUG											
14...	576	9.3	.22	.27	1.7	1.9	11	50	.26	--	.80
SEP											
17...	513	4.8	.04	.05	1.1	1.1	5.9	26	.08	--	.25

05481950 BEAVER CREEK NEAR GRIMES, IA

LOCATION.--Lat 41°41'18", long 93°44'08", in SW1/4 SW1/4 sec.35, T.80 N., R.25 W., Polk County, Hydrologic Unit 07100004, on right bank 6 ft (2 m) upstream from bridge on Northwest 70th Avenue, 0.5 mi (0.8 km) downstream from Little Beaver Creek, 2.5 mi (4.0 km) east of Grimes and 6 mi (9.7 km) upstream from mouth.

DRAINAGE AREA.--358 mi² (927 km²).

PERIOD OF RECORD.--April 1960 to current year.

REVISED RECORDS.--WDR IA-77-1: 1974 (P).

GAGE.--Water-stage recorder and concrete and steel sheeting broad-crested control. Datum of gage is 806.98 ft (245.968 m) NGVD. Prior to Aug. 31, 1966, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--19 years, 201 ft³/s (5.692 m³/s), 7.62 in/yr (194 mm/yr), 145,600 acre-ft/yr (180 hm³/yr); median of yearly mean discharges, 200 ft³/s (5.66 m³/s) 7.6 in/yr (193 mm/yr), 145,000 acre-ft/yr (180 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,340 ft³/s (208 m³/s) May 19, 1974, gage height, 14.69 ft (4.478 m); no flow for several days in 1970 and 1971; many days in 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 20	1215	*4,700	133	*13.88	4.231	July 12	Unknown	1,520	43.0	8.40	2.560

Minimum daily discharge, 27 ft³/s (0.76 m³/s) Sept. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	84	131	39	32	50	709	431	215	491	188	172
2	235	82	145	38	32	64	661	442	210	360	148	148
3	230	90	160	37	31	78	649	861	188	300	130	124
4	210	93	150	36	31	100	751	1100	175	246	110	106
5	195	88	142	35	31	140	775	801	170	203	84	91
6	179	84	135	34	31	220	669	653	150	167	74	93
7	158	77	128	33	30	430	572	546	145	145	64	119
8	148	76	121	32	30	640	534	490	155	134	56	99
9	143	79	115	32	30	780	506	431	178	132	50	79
10	143	81	108	31	30	625	462	404	338	121	900	69
11	135	74	101	31	30	571	430	392	359	882	235	60
12	129	68	96	31	30	845	439	374	315	1260	137	54
13	121	142	92	31	30	1200	453	386	637	618	100	53
14	113	191	88	31	30	869	436	365	500	419	85	49
15	105	170	85	31	30	829	386	341	378	311	73	45
16	105	152	81	31	30	873	356	314	322	227	66	43
17	101	245	77	32	31	1040	344	311	278	175	61	40
18	97	347	74	32	31	2210	340	317	284	141	55	38
19	95	347	71	32	32	3650	338	424	274	130	89	36
20	103	311	67	32	32	4500	550	969	421	116	425	33
21	105	269	64	33	33	3540	867	825	310	100	313	31
22	105	262	62	33	33	2170	862	540	270	89	815	29
23	103	258	59	34	34	1770	679	431	241	128	1230	28
24	95	232	56	34	34	1980	568	362	213	113	847	27
25	99	205	54	34	35	1640	522	323	188	123	435	27
26	107	192	51	34	38	1130	657	311	164	126	338	43
27	95	182	49	34	41	843	793	299	590	107	583	49
28	88	158	47	33	45	717	665	287	514	91	443	38
29	82	148	45	33	---	849	550	275	869	107	339	33
30	84	155	43	33	---	1110	476	252	855	223	270	31
31	82	---	41	33	---	843	---	240	---	470	213	---
TOTAL	4043	4932	2738	1029	907	36306	16999	14497	9906	8255	8956	1887
MEAN	130	164	88.3	33.2	32.4	1171	567	468	330	266	289	62.9
MAX	253	347	160	39	45	4500	867	1100	869	1260	1230	172
MIN	82	68	41	31	30	50	338	240	145	89	50	27
CFSM	.36	.46	.25	.09	.09	3.27	1.58	1.31	.92	.74	.81	.18
IN.	.42	.51	.28	.11	.09	3.77	1.77	1.51	1.03	.86	.93	.20
AC-FT	8020	9780	5430	2040	1800	72010	33720	28750	19650	16370	17760	3740

CAL YR 1978	TOTAL	80213.83	MEAN 220	MAX 2730	MIN .73	CFSM .62	IN 8.34	AC-FT 159100
WTR YR 1979	TOTAL	110455.00	MEAN 303	MAX 4500	MIN 27	CFSM .85	IN 11.48	AC-FT 219100

05482170 BIG CEDAR CREEK NEAR VARINA, IA

LOCATION.--Lat 42°41'16", long 94°47'52", in NE1/4 NE1/4 sec.24, T.91 N., R.34 W., Pocahontas County, Hydrologic Unit 07100006, on left bank 5 ft (2 m) downstream from bridge on county highway N33, 2.0 mi (3.2 km) downstream from Drainage ditch 21, 3.5 mi (5.6 km) upstream from Drainage ditch 74, and 5.5 mi (8.8 km) northeast of Varina.

DRAINAGE AREA.--80.0 mi² (207 km²).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,225.12 ft (373.417 m) NGVD.

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

AVERAGE DISCHARGE.--20 years, 36.3 ft³/s (1.028 m³/s), 6.16 in/yr (156 mm/yr), 26,300 acre-ft/yr (32.4 hm³/yr); median of yearly mean discharges, 30 ft³/s (0.850 m³/s), 5.1 in/yr (130 mm/yr), 21,700 acre-ft/yr (26.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,080 ft³/s (58.9 m³/s) Aug. 31, 1962, gage height, 13.68 ft (4.170 m); maximum gage height, 16.29 ft (4.965 m) Mar. 24, 1979, backwater from ice; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	Unknown	*2,050	58.1	*a16.29	4.965
June 27	1315	509	14.4	8.06	2.457
July 30	1745	573	16.2	8.49	2.588
Aug. 20	1130	424	12.0	7.46	2.274
Aug. 21	1715	1,220	34.6	12.29	3.746

a Ice jam

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	17	13	4.1	.00	.03	597	61	21	74	230	93
2	41	18	12	3.8	.00	.04	505	67	21	56	145	79
3	38	18	11	3.8	.00	.04	461	63	21	47	94	64
4	37	18	12	3.4	.00	.06	413	59	21	37	65	55
5	34	18	13	3.0	.00	.08	386	59	19	29	46	47
6	30	15	13	2.5	.00	.10	322	56	18	25	36	79
7	29	15	12	2.1	.00	.14	300	53	18	23	27	91
8	29	17	12	1.8	.00	.16	295	53	15	23	21	72
9	30	17	11	1.5	.00	.40	247	63	16	19	18	57
10	29	15	11	1.0	.00	.90	214	55	17	18	15	46
11	28	13	10	.60	.00	1.7	203	51	15	16	12	37
12	27	15	10	.35	.00	3.5	241	47	24	14	9.9	35
13	24	19	9.8	.12	.00	6.6	225	48	24	12	8.8	41
14	24	16	9.5	.05	.00	15	192	46	19	117	8.2	38
15	25	13	9.0	.00	.00	30	170	41	17	124	7.1	34
16	23	13	8.6	.00	.00	60	166	41	16	57	6.8	31
17	23	14	8.1	.00	.00	116	176	42	17	36	8.1	28
18	22	13	7.8	.00	.00	200	151	40	21	27	6.6	26
19	21	10	7.4	.00	.00	670	132	39	23	22	28	24
20	22	12	7.1	.00	.00	1180	136	37	157	17	337	24
21	22	13	6.8	.00	.00	1210	158	35	102	14	737	21
22	22	14	6.5	.00	.00	1400	136	35	63	14	907	20
23	20	14	6.3	.00	.00	1900	112	31	47	17	655	19
24	23	14	5.9	.00	.00	2010	99	29	39	13	516	27
25	24	14	5.7	.00	.00	1800	92	30	33	11	387	57
26	20	13	5.4	.00	.01	1710	95	32	29	9.6	298	40
27	19	13	5.1	.00	.02	1600	88	29	326	29	259	35
28	17	14	4.9	.00	.02	1410	75	27	258	21	215	30
29	18	15	4.7	.00	---	999	71	27	164	122	172	27
30	18	14	4.5	.00	---	1010	64	25	107	495	135	25
31	16	---	4.2	.00	---	722	---	24	---	393	111	---
TOTAL	798	444	267.3	28.12	.05	18055.75	6521	1345	1688	1931.6	5521.5	1302
MEAN	25.7	14.8	8.62	.91	.002	582	217	43.4	56.3	62.3	178	43.4
MAX	43	19	13	4.1	.02	2010	597	67	326	495	907	93
MIN	16	10	4.2	.00	.00	.03	64	24	15	9.6	6.6	19
CFSM	.32	.19	.11	.01	.000	7.28	2.71	.54	.70	.78	2.23	.54
IN.	.37	.21	.12	.01	.00	8.40	3.03	.63	.78	.90	2.57	.61
AC-FT	1580	881	530	56	.10	35810	12930	2670	3350	3830	10950	2580

CAL YR 1978	TOTAL	12256.73	MEAN	33.6	MAX	691	MIN	.00	CFSM	.42	IN	5.70	AC-FT	24310
WTR YR 1979	TOTAL	37902.32	MEAN	104	MAX	2010	MIN	.00	CFSM	1.30	IN	17.62	AC-FT	75180

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IA

LOCATION.--Lat 42°20'28", long 94°59'05", in NE1/4 NW1/4 sec.24, T.87 N., R.35 W., Sac County, Hydrologic Unit 07100006, on right bank 15 ft (5 m) downstream from bridge on county highway, 0.2 mi (0.3 km) upstream from Indian Creek, 0.9 mi (1.4 km) downstream from Drainage ditch 73, 5.6 mi (9.0 km) south of Sac City, and at mile 365.9 (588.7 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--713 mi² (1,846 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 1,144.60 ft (348.874 m) NGVD (levels by Iowa Natural Resources Council).

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

AVERAGE DISCHARGE.--21 years, 296 ft³/s (8.383 m³/s), 5.64 in/yr (143 mm/yr), 214,500 acre-ft/yr (264 hm³/yr); median of yearly mean discharges, 270 ft³/s (7.65 m³/s), 5.1 in/yr (130 mm/yr), 196,000 acre-ft/yr (242 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 13,100 ft³/s (371 m³/s) Mar. 23, 1979, gage height, 18.02 ft (5.492 m); maximum gage height, 18.12 ft (5.523 m) Sept. 1, 1962; no flow Jan. 30 to Feb. 4, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1954, reached a stage of 15.61 ft (4.758 m), from floodmark, discharge, 7,000 ft³/s (198 m³/s).

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	Unknown	*13,100	371	*18.02	5.492	June 28	0400	5,930	168	15.43	4.703
Mar. 30	0215	7,760	219	16.64	5.072	Aug. 24	0830	3,980	113	13.22	4.029

Minimum daily discharge, 36 ft³/s (1.02 m³/s) Feb. 20, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429	154	130	71	45	37	4820	586	278	1230	1330	684
2	407	157	120	67	47	37	4260	783	270	980	887	601
3	383	161	108	62	46	39	3720	921	264	840	634	503
4	353	160	100	57	46	41	3320	783	266	696	485	431
5	341	160	116	55	46	43	2970	710	258	580	384	383
6	317	152	128	53	45	45	2560	666	251	495	299	633
7	292	139	118	51	44	46	2240	615	247	435	250	520
8	277	141	108	50	43	49	2160	565	232	400	207	420
9	277	147	106	45	42	53	1950	598	224	370	181	368
10	279	145	104	41	42	54	1720	626	240	365	169	343
11	264	134	102	41	41	59	1610	578	233	320	158	291
12	262	126	103	41	41	66	1640	538	223	280	142	254
13	242	142	104	40	41	78	1660	512	235	242	136	242
14	226	153	100	41	41	84	1480	500	232	287	136	300
15	224	155	96	41	40	93	1310	472	241	549	128	280
16	223	132	98	41	39	104	1200	442	211	478	121	260
17	206	168	96	40	38	138	1190	435	199	340	117	228
18	206	165	94	40	37	255	1100	445	208	276	111	206
19	196	158	96	41	37	2400	1000	472	242	230	269	184
20	192	150	99	42	36	3300	1030	438	632	197	683	168
21	196	142	91	43	36	4780	1150	450	1160	179	1610	162
22	197	132	84	44	37	6140	1080	388	752	173	3110	158
23	190	134	86	45	38	12400	961	380	550	208	3890	147
24	189	142	88	45	38	9300	874	354	454	383	3880	150
25	212	148	87	46	38	7630	825	338	390	250	3180	170
26	204	146	85	47	38	6630	805	344	347	189	2340	218
27	184	142	83	48	37	5440	779	358	3200	359	1700	186
28	174	136	81	47	37	4970	700	332	5110	398	1400	170
29	168	130	80	46	---	5360	656	322	2740	290	1140	155
30	170	130	79	46	---	6760	624	310	1860	1110	925	149
31	161	---	76	45	---	5490	---	298	---	1810	786	---
TOTAL	7641	4381	3046	1462	1136	81911	51394	15559	21749	14939	30288	8964
MEAN	246	146	98.3	47.2	40.6	2642	1713	502	725	482	977	299
MAX	429	168	130	71	47	12400	4820	921	5110	1810	3880	684
MIN	161	126	76	40	36	37	624	298	199	173	111	147
CFSM	.35	.21	.14	.07	.06	3.71	2.40	.70	1.02	.68	1.37	.42
IN.	.40	.23	.16	.08	.06	4.27	2.68	.81	1.13	.78	1.58	.47
AC-FT	15160	8690	6040	2900	2250	162500	101900	30860	43140	29630	60080	17780

CAL YR 1978	TOTAL	128068	MEAN 351	MAX 5640	MIN 11	CFSM .49	IN 6.68	AC-FT 254000			
WTR YR 1979	TOTAL	242470	MEAN 664	MAX 12400	MIN 36	CFSM .93	IN 12.65	AC-FT 480900			

05482315 BLACKHAWK LAKE AT LAKE VIEW, IA

LOCATION.--Lat 42°18'15", long 95°02'30", in NW1/4 SE1/4 sec. 33, T.87 N., R.36 W., Sac County, Hydrologic Unit 07100006, on south shore across from swimming beach at Lake View and 2 mi (3.2 km) upstream from lake outlet.

DRAINAGE AREA.--23.3 mi² (60.3 km²).

PERIOD OF RECORD.--April 1970 to September 1975, April 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,218.50 ft (371.399 m) NGVD and 2.00 ft (0.610 m) below crest of spillway of dam at outlet. Prior to June 25, 1970, non-recording gage at lake outlet.

REMARKS.--Lake is formed by concrete dam with ungated overflow spillway at elevation 1,200.50 ft (372.008 m) NGVD. Lake is used for conservation and recreation. Area of lake is approximately 957 acres (390 hm²).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 4.08 ft (1.244 m) Mar. 20, 1979; minimum, 0.05 ft (0.015 m) June 20, 1978.

EXTREMES FOR CURRENT PERIOD.--April to September 1978; Maximum gage height during period, 2.87 ft (0.875 m) Sept. 17; minimum, 0.05 ft (0.015 m) June 20.

Water year 1979: Maximum gage height, 4.08 ft (1.244 m) Mar. 20; minimum, 2.12 ft (0.646 m) July 22.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.41	2.22	2.25	2.24	2.20	2.20	3.30	---	---	2.38	2.35	2.33
2	2.39	2.22	2.25	2.24	2.21	2.19	3.17	---	---	2.37	2.34	2.30
3	2.37	2.23	2.29	2.23	2.21	2.20	3.05	2.57	---	2.35	2.34	2.29
4	2.36	2.24	2.27	2.22	2.20	2.27	2.95	2.60	---	2.33	2.33	2.28
5	2.33	2.22	2.29	2.22	2.20	2.27	2.89	2.59	2.29	2.32	2.30	2.26
6	2.32	2.21	2.27	2.22	2.20	2.26	2.81	2.59	2.29	2.30	2.29	2.43
7	2.31	2.21	2.27	2.21	2.20	2.24	2.76	2.56	2.28	2.30	2.25	2.40
8	2.31	2.20	2.27	2.21	2.20	2.22	2.70	2.55	2.25	2.29	2.24	2.38
9	2.31	2.20	2.26	2.20	2.21	2.21	2.67	2.54	2.26	2.28	2.23	2.35
10	2.32	2.20	2.26	2.20	2.21	2.20	2.65	2.51	2.26	2.27	2.19	2.33
11	2.31	2.20	2.25	2.20	2.21	2.20	2.63	2.48	2.26	2.27	2.19	2.32
12	2.30	2.24	2.25	2.21	2.21	2.19	2.62	2.48	2.27	2.28	2.17	2.32
13	2.31	2.23	2.25	2.23	2.21	2.18	2.60	2.46	2.28	2.25	2.15	2.33
14	2.30	2.22	2.25	2.22	2.22	2.18	2.57	2.46	2.27	2.26	2.15	2.32
15	2.28	2.23	2.24	2.21	2.21	2.17	2.58	2.46	2.24	2.25	2.15	2.31
16	2.28	2.23	2.24	2.20	2.21	2.17	2.58	2.48	2.23	2.22	2.14	2.30
17	2.27	2.26	2.24	2.20	2.21	2.17	2.58	2.41	2.22	2.20	2.13	2.29
18	2.26	2.26	2.24	2.20	2.21	2.40	2.57	2.45	2.24	2.19	2.13	2.29
19	2.25	2.27	2.23	2.21	2.21	3.62	2.55	2.54	2.30	2.17	2.28	2.28
20	2.25	2.26	2.24	2.21	2.21	3.96	2.55	2.52	2.30	2.16	2.30	2.26
21	2.25	2.25	2.24	2.20	2.21	3.63	2.55	2.52	2.30	2.15	2.38	2.25
22	2.28	2.26	2.24	2.20	2.21	3.50	2.53	2.48	2.32	2.14	2.42	2.24
23	2.29	2.27	2.24	2.20	2.21	3.71	2.53	2.45	2.33	2.15	2.42	2.22
24	2.27	2.27	2.25	2.19	2.21	3.58	2.52	2.45	2.33	2.15	2.41	2.23
25	2.25	2.27	2.25	2.18	2.21	3.38	2.51	2.44	2.32	2.15	2.40	2.21
26	2.25	2.27	2.24	2.19	2.20	3.21	2.50	---	2.32	2.15	2.40	2.21
27	2.25	2.28	2.24	2.22	2.20	3.05	2.45	---	2.41	2.20	2.39	2.20
28	2.26	2.28	2.24	2.22	2.20	2.95	2.46	---	2.40	2.25	2.38	2.18
29	2.25	2.27	2.24	2.21	---	2.99	2.45	---	2.39	2.25	2.36	2.18
30	2.24	2.25	2.24	2.21	---	3.37	2.44	---	2.38	2.34	2.35	2.17
31	2.23	---	2.24	2.19	---	3.46	---	---	---	2.34	2.34	---
MEAN	2.29	2.24	2.25	2.21	2.21	2.72	2.66	---	---	2.25	2.29	2.28
MAX	2.41	2.28	2.29	2.24	2.22	3.96	3.30	---	---	2.38	2.42	2.43
MIN	2.23	2.20	2.23	2.18	2.20	2.17	2.44	---	---	2.14	2.13	2.17

05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IA

LOCATION.--Lat 41°59'17", long 94°22'36", in SW1/4 NW1/4 sec.20, T.83 N., R.30 W., Greene County, Hydrologic Unit 07100006, on right bank 5 ft (2 m) downstream from bridge on State Highway 4, 0.1 mi (0.2 km) downstream from Drainage ditch 33, and 40, 1.9 mi (3.1 km) south of Jefferson, 4.2 mi (6.8 km) upstream from Hardin Creek, and at mile 292.5 (470.6 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,619 mi² (4,193 km²).

PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1955, published as Raccoon River near Jefferson.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1950-51.

GAGE.--Water-stage recorder. Datum of gage is 967.09 ft (294.769 m) NGVD. Prior to Apr. 22, 1946, nonrecording gage at site 4 mi (6.4 km) upstream at different datum. Apr. 22 to June 25, 1946, nonrecording gage, June 26, 1946 to Sept. 30, 1955, water-stage recorder, Oct. 1, 1955 to Apr. 30, 1958, nonrecording gage, at present site and datum.

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

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

AVERAGE DISCHARGE.--39 years, 673 ft³/s (19.06 m³/s), 5.64 in/yr (143 mm/yr), 487,600 acre-ft/yr (601 hm³/yr); median of yearly mean discharges, 600 ft³/s (17.0 m³/s), 5.0 in/yr (127 mm/yr), 435,000 acre-ft/yr (536 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,100 ft³/s (824 m³/s) June 23, 1947, gage height, 22.3 ft (6.80 m); minimum daily, 0.6 ft³/s (0.017 m³/s) Oct. 5, 1956.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	Unknown	12,300	348	16.56	5.047
Mar. 25	Unknown	*15,300	433	*17.84	5.438
Mar. 31	Unknown	14,500	411	17.5	5.33
June 30	2230	7,000	198	13.3	4.05
Aug. 26	0200	4,800	136	11.38	3.469

Minimum daily discharge, 100 ft³/s (2.83 m³/s) Jan. 17, 18, Mar. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	406	320	182	116	100	13500	1380	822	4650	3130	1190
2	961	392	280	174	118	102	10400	1620	771	2800	2830	1040
3	907	385	250	164	118	108	9160	2860	741	2230	2070	919
4	857	382	230	152	118	112	9220	3210	710	1750	1740	827
5	801	381	290	146	118	118	7400	2630	697	1520	1270	734
6	766	365	340	138	120	122	6600	2200	683	1300	1040	770
7	729	351	335	132	122	128	5690	1940	657	1140	850	1500
8	694	339	325	126	122	136	4740	1730	631	1010	728	1190
9	692	333	295	120	120	150	4240	1560	622	925	640	995
10	679	333	290	110	118	170	3770	1440	613	915	572	841
11	671	332	300	106	116	190	3330	1430	605	920	510	743
12	647	322	295	104	114	210	3000	1330	590	895	461	672
13	626	318	272	102	114	250	3030	1270	564	740	413	620
14	609	314	250	102	112	300	2910	1220	552	684	389	588
15	577	318	250	102	110	330	2580	1180	643	652	371	572
16	551	319	250	102	108	600	2290	1110	520	692	353	572
17	540	340	246	100	106	1000	2110	1060	501	850	344	544
18	525	350	240	100	104	2720	2040	1070	490	712	335	510
19	511	344	240	102	102	6000	1940	1330	601	620	536	479
20	506	340	240	106	102	11800	2100	1780	565	656	700	452
21	497	320	228	108	102	11400	2830	1660	710	520	1140	428
22	498	300	220	110	102	10900	2780	1430	1280	496	2300	407
23	505	320	224	114	104	10900	2480	1270	1180	728	3850	369
24	503	330	228	116	106	12300	2150	1170	911	1100	4620	371
25	496	340	220	120	108	14300	1970	1070	766	1620	4770	365
26	500	345	218	120	106	13700	2000	1030	673	1530	4730	380
27	502	340	212	120	104	11900	1880	1190	1880	1570	3650	431
28	479	330	210	118	102	11100	1720	1060	4360	1360	2470	422
29	449	310	208	118	---	9550	1570	973	5350	1330	2010	380
30	428	335	202	116	---	9170	1450	913	6540	1400	1680	359
31	412	---	198	116	---	13100	---	867	---	2170	1390	---
TOTAL	19168	10234	7906	3746	3112	152966	120880	45983	36028	39385	51892	19660
MEAN	618	341	255	121	111	4934	4029	1483	1201	1270	1674	655
MAX	1050	406	340	182	122	14300	13500	3210	6640	4650	4770	1500
MIN	412	300	198	100	102	100	1450	867	490	496	335	359
CFSM	.38	.21	.16	.08	.07	3.05	2.49	.92	.74	.78	1.03	.41
IN.	.44	.24	.18	.09	.07	3.51	2.78	1.06	.83	.90	1.19	.45
AC-FT	38020	20300	15680	7430	6170	303400	239800	91210	71460	78120	102900	39000

CAL YR 1978	TOTAL	247828	MEAN	679	MAX	8090	MIN	28	CFSM .42	IN 5.69	AC-FT	491600
WTR YR 1979	TOTAL	510960	MEAN	1400	MAX	14300	MIN	100	CFSM .87	IN 11.74	AC-FT	1013000

05483000 EAST FORK HARDIN CREEK NEAR CHURDAN, IA

LOCATION.--Lat 42°06'27", long 94°22'12", in SE1/4 SW1/4 sec.5, T.84 N., R.30 W., Greene County, Hydrologic Unit 07100006, on left bank 35 ft (11 m) upstream from bridge on county highway E26, 1.6 mi (2.6 km) upstream from small left-bank tributary, 4.4 mi (7.1 km) upstream from mouth, and 6.5 mi (10.5 km) southeast of Churdan.

DRAINAGE AREA.--24.0 mi² (62.2 km²).

PERIOD OF RECORD.--July 1952 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1708: 1954-55, 1957 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,050.90 ft (320.314 m) NGVD.

REMARKS.--Records good except those for winter period or those below 2.0 ft³/s (0.057 m³/s), which are poor. Small diversion for irrigation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--27 years, 9.57 ft³/s (0.271 m³/s), 5.42 in/yr (138 mm/yr), 6,930 acre-ft/yr (8.54 hmΔ/yr); median of yearly mean discharges, 7.7 ft³/s (0.218 m³/s), 4.4 in/yr (112 mm/yr), 5,600 acre-ft/yr (6.90 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 413 ft³/s (11.7 m³/s) May 5, 1960, gage height, 8.92 ft (2.719 m), from rating curve extended above 330 ft³/s (9.35 m³/s); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 376 ft³/s (10.6 m³/s) Mar. 19, gage height, 7.46 ft (2.274 m), at 0300 hours, from rating curve extended above 330 ft³/s (9.35 m³/s); maximum gage height, 7.54 ft (2.298 m) Mar. 18, backwater from ice; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	6.1	4.0	2.0	.00	.45	51	23	13	15	9.6	1.5
2	15	5.5	3.9	1.9	.00	.52	44	39	13	12	9.4	1.3
3	14	6.4	3.8	1.8	.00	.62	43	52	13	11	7.9	1.1
4	13	6.1	3.4	1.7	.00	.74	39	40	13	9.1	6.9	1.0
5	12	5.6	3.2	1.6	.00	.85	35	35	11	7.5	4.4	.92
6	11	5.3	3.7	1.5	.00	1.4	28	30	11	6.9	3.4	2.2
7	11	5.4	3.8	1.4	.00	2.3	26	26	9.7	6.5	2.7	2.1
8	10	6.3	3.5	1.3	.00	3.5	23	23	8.3	6.1	2.2	1.3
9	10	6.0	3.3	1.3	.00	5.4	20	20	8.6	5.4	1.8	1.1
10	9.4	5.3	2.8	1.2	.00	8.4	19	19	8.3	4.8	1.5	.91
11	9.4	4.2	3.2	.90	.00	13	19	18	8.3	4.2	1.2	.78
12	8.6	4.8	3.5	.58	.00	20	20	16	8.7	3.6	1.1	.74
13	7.7	6.0	3.2	.35	.00	28	20	17	7.5	3.1	.99	.74
14	7.7	4.4	3.6	.22	.00	43	18	15	7.0	2.5	.93	.71
15	8.1	4.1	3.1	.10	.00	78	16	14	6.3	1.8	.85	.66
16	7.1	4.4	2.7	.05	.00	100	16	14	5.9	1.4	.78	.62
17	7.4	4.6	2.5	.03	.00	170	16	15	5.2	1.2	.72	.60
18	6.8	4.5	2.5	.02	.00	270	14	23	5.3	1.2	.93	.55
19	6.8	4.1	2.5	.01	.00	327	14	60	6.1	1.0	15	.52
20	5.0	3.7	2.5	.00	.01	230	30	41	22	.91	10	.52
21	6.7	3.9	2.5	.00	.02	192	44	32	13	.80	7.2	.52
22	7.8	4.0	2.4	.00	.03	172	34	28	11	1.5	11	.50
23	5.8	4.1	2.4	.00	.04	173	29	24	9.1	3.0	11	.48
24	7.3	4.3	2.4	.00	.05	143	26	22	7.7	3.0	7.7	.98
25	5.0	4.4	2.3	.00	.10	124	28	20	7.0	2.9	5.6	1.9
26	6.4	4.4	2.3	.00	.17	111	41	20	6.4	2.0	4.5	1.4
27	7.7	4.4	2.3	.00	.27	91	34	18	54	1.7	4.0	1.2
28	5.4	4.3	2.2	.00	.40	76	28	17	33	1.3	3.5	1.1
29	5.9	4.2	2.2	.00	---	86	26	16	22	2.6	3.0	1.0
30	5.1	4.1	2.1	.00	---	91	22	15	18	24	2.1	.99
31	3.9	---	2.0	.00	---	73	---	14	---	14	1.6	---
TOTAL	263.0	144.9	89.8	17.96	1.09	2635.18	823	766	372.4	162.01	142.50	29.94
MEAN	8.48	4.83	2.90	.58	.039	85.0	27.4	24.7	12.4	5.23	4.60	1.00
MAX	16	6.4	4.0	2.0	.40	327	51	60	54	24	15	2.2
MIN	3.9	3.7	2.0	.00	.00	.45	14	14	5.2	.80	.72	.48
CFSM	.35	.20	.12	.02	.002	3.54	1.14	1.03	.52	.22	.19	.04
IN.	.41	.22	.14	.03	.00	4.08	1.28	1.19	.58	.25	.22	.05
AC-FT	522	287	178	36	2.2	5230	1630	1520	739	321	283	59

CAL YR 1978	TOTAL	3696.13	MEAN 10.1	MAX 201	MIN .10	CFSM .42	IN 5.73	AC-FT	7330	
WTR YR 1979	TOTAL	5447.78	MEAN 14.9	MAX 327	MIN .00	CFSM .62	IN 8.44	AC-FT	10810	

05483600 MIDDLE RACCOON RIVER AT PANORA, IA

LOCATION.--Lat 41°41'14", long 94°22'15", in NE1/4 NW1/4 sec.5, T.79 N., R.30 W., Guthrie County, Hydrologic Unit 07100007, on left bank 15 ft (5 m) downstream from bridge on county highway, 0.2 mi (0.3 km) southwest of Panora, 1.5 mi (2.4 km) upstream from Andy's Branch, 1.6 mi (2.6 km) downstream from Lake Panorama, 18.2 mi (29.3 km) upstream from mouth, and at mile 267.2 (429.9 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--440 mi² (1,139 km²).

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

REVISED RECORDS.--WDR IOWA 1974: 1973 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 991.20 ft (302.118 m) NGVD.

REMARKS.--Records good except those for winter period, which are poor. City of Panora diverts approximately 100 acre-ft/yr (0.123 hm³/yr) above station. Flow regulated by dam on Lake Panorama since August 1970. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years, 213 ft³/s (6.032 m³/s), 6.57 in/yr (167 mm/yr), 154,300 acre-ft/yr (190 hm³/yr); median of yearly mean discharges, 170 ft³/s (4.81 m³/s), 5.2 in/yr (132 mm/yr), 123,000 acre-ft/yr (152 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) May 19, 1974, gage height, 14.80 ft (4.611 m), from rating curve extended above 5,200 ft³/s (147 m³/s) by step-backwater analysis; no flow June 9, 10, 1977, result of gate operation at Lake Panorama; minimum daily discharge excluding regulation at Lake Panorama, 3.0 ft³/s (0.085 m³/s) Jul. 9, 14, 22-23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1953, reached a stage of 14.3 ft (4.36 m), from floodmark, discharge, about 14,000 ft³/s (396 m³/s).

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	Unknown	*10,700	303	*12.95	3.947	June 28	0915	3,630	103	8.53	2.600
Mar. 24	0100	2,730	77.3	7.78	2.371	July 23	1945	2,590	73.3	7.66	2.335
Mar. 30	2215	2,500	70.8	7.58	2.310						

Minimum daily discharge, 24 ft³/s (0.68 m³/s) Aug. 18, result of gate operation at Lake Panorama; minimum daily discharge excluding regulation at Lake Panorama, 34 ft³/s (0.963 m³/s) Jan. 8-11, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	749	91	44	47	53	692	179	181	491	328	130
2	161	659	85	41	46	57	653	234	177	328	303	120
3	159	197	60	39	45	160	588	937	175	276	128	110
4	149	99	70	37	46	184	490	579	171	311	74	98
5	146	96	82	36	45	178	346	424	96	299	100	85
6	135	89	79	35	44	168	473	416	87	271	112	80
7	127	84	80	35	43	190	460	430	112	211	115	78
8	120	81	76	34	44	190	450	518	336	192	111	76
9	104	82	71	34	44	176	300	423	290	176	108	74
10	102	83	69	34	44	154	355	347	228	198	228	72
11	111	85	68	34	42	148	357	165	92	292	78	70
12	116	80	68	36	44	220	395	144	32	246	78	68
13	117	96	68	39	43	551	390	204	60	190	79	65
14	114	90	67	37	42	956	368	233	84	165	79	62
15	116	85	66	36	44	1270	335	237	139	157	278	59
16	104	84	66	35	43	1210	223	839	183	129	358	56
17	99	107	66	34	44	1920	265	125	161	105	210	53
18	101	113	66	34	45	4640	276	32	149	99	24	50
19	60	113	68	36	45	9450	281	408	137	100	26	46
20	36	101	67	36	51	8040	924	593	143	101	36	45
21	42	86	66	36	60	3830	1000	438	149	98	174	45
22	59	84	65	38	58	1970	656	155	149	96	200	43
23	70	98	65	38	56	2160	562	124	143	1150	101	42
24	81	99	61	39	53	2010	437	252	142	1410	112	41
25	86	99	59	40	53	660	492	273	141	809	110	42
26	80	101	57	40	51	685	639	265	127	305	110	42
27	83	98	53	42	50	651	619	252	1140	35	110	41
28	79	86	53	42	50	587	279	236	3200	74	110	42
29	78	83	54	44	---	601	262	223	1420	175	120	41
30	104	87	52	44	---	1220	165	215	615	687	130	41
31	115	---	48	44	---	1550	---	203	---	565	142	---
TOTAL	3219	4094	2066	1173	1322	45839	13732	10103	10259	9741	4272	1917
MEAN	104	136	66.6	37.8	47.2	1479	458	326	342	314	138	63.9
MAX	165	749	91	44	60	9450	1000	937	3200	1410	358	130
MIN	36	80	48	34	42	53	165	32	32	35	24	41
CFSM	.24	.31	.15	.09	.11	3.36	1.04	.74	.78	.71	.31	.15
IN.	.27	.35	.17	.10	.11	3.88	1.16	.85	.87	.82	.36	.16
AC-FT	6380	8120	4100	2330	2620	90920	27240	20040	20350	19320	8470	3800

CAL YR 1978	TOTAL	60917	MEAN 167	MAX 3980	MIN 14	CFSM .38	IN 5.15	AC-FT	120800	
WTR YR 1979	TOTAL	107737	MEAN 295	MAX 9450	MIN 24	CFSM .67	IN 9.11	AC-FT	213700	

05484000 SOUTH RACCOON RIVER AT REDFIELD, IA

LOCATION.--Lat 41°34'48", long 94°10'58", in SW1/4 SW1/4 sec.3, T.78 N., R.29 W., Dallas County, Hydrologic Unit 07100007, on left bank 15 ft (5 m) downstream from bridge on county highway at Redfield, 0.8 mi (1.3 km) downstream from bridge on U.S. Highway 6, 1.0 mi (1.6 km) downstream from Middle Raccoon River, 16.4 mi (26.4 km) upstream from mouth, and at mile 248.0 (399.0 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--988 mi² (2,558 km²).

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940.

GAGE.--Water-stage recorder. Datum of gage is 896.43 ft (273.232 m) NGVD. Prior to June 12, 1946, nonrecording gage, and June 12, 1946, to Sept. 30, 1966, water-stage recorder at site 20 ft (6 m) upstream at same datum.

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

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

AVERAGE DISCHARGE.--39 years, 449 ft³/s (12.72 m³/s), 6.17 in/yr (157 mm/yr), 325,300 acre-ft/yr (401 hm³/yr); median of yearly mean discharges, 400 ft³/s (11.3 m³/s), 5.5 in/yr (140 mm/yr), 290,000 acre-ft/yr (358 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/s) July 2, 1958, gage height, 29.04 ft (8.851 m), from floodmark; minimum daily, 17 ft³/s (0.48 m³/s) Aug. 4, 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 13	2100	5,550	157	10.75	3.277
Mar. 19	0430	*20,400	578	*22.81	6.952
Aug. 10	0230	6,910	196	12.10	3.688

Minimum daily discharge, 67 ft³/s (1.90 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	362	536	176	95	108	146	1370	607	431	953	632	304
2	347	949	130	90	110	300	1280	705	410	823	602	282
3	342	468	128	80	108	870	1330	1870	402	594	464	242
4	322	210	146	72	106	1500	1240	1540	395	647	219	210
5	305	196	192	67	106	930	929	1060	359	665	238	188
6	292	186	202	68	104	940	1010	989	258	569	252	185
7	275	171	198	70	102	1280	995	966	280	507	254	212
8	263	164	192	70	106	1190	962	964	425	430	245	192
9	253	171	186	70	110	1160	841	1030	608	425	245	168
10	233	167	178	70	108	960	748	797	544	397	3400	156
11	237	167	180	73	108	1000	776	672	413	1220	469	147
12	237	166	178	76	108	1900	961	470	218	645	280	136
13	233	268	172	78	108	3900	885	551	265	475	226	143
14	228	227	169	78	106	3200	820	594	241	398	205	142
15	215	197	160	80	106	2440	793	572	234	382	286	132
16	205	188	158	80	102	2450	701	854	336	349	386	129
17	188	308	154	80	97	4080	781	843	315	293	562	123
18	186	350	150	80	102	12300	821	343	325	263	130	120
19	182	315	148	82	104	15800	780	694	304	256	377	117
20	118	254	144	85	106	9770	2580	1210	329	252	391	111
21	110	228	140	88	112	6570	2810	913	331	244	324	111
22	125	222	136	90	116	3830	1860	688	308	234	1270	109
23	154	230	132	94	126	4300	1440	417	292	744	901	100
24	151	251	130	94	124	3800	1130	496	291	2420	401	99
25	162	249	126	94	114	2030	1270	604	289	1760	301	102
26	181	256	122	97	118	1410	2000	591	275	872	294	102
27	177	239	118	102	122	1500	1580	600	1510	306	314	99
28	175	179	114	108	126	1290	1120	576	4130	232	285	99
29	165	200	108	108	---	1390	831	530	2680	347	421	99
30	166	209	104	106	---	1770	808	511	1390	1160	530	97
31	221	---	98	106	---	2470	---	484	---	1630	347	---
TOTAL	6808	7921	4669	2631	3073	96476	35452	23741	18588	20492	15241	4456
MEAN	220	264	151	84.9	110	3112	1182	766	620	661	492	149
MAX	362	949	202	108	126	15800	2810	1870	4130	2420	3400	304
MIN	110	164	98	67	97	146	701	343	218	232	130	97
CFSM	.22	.27	.15	.09	.11	3.15	1.20	.78	.63	.67	.50	.15
IN.	.26	.30	.18	.10	.12	3.63	1.33	.89	.70	.77	.57	.17
AC-FT	13500	15710	9260	5220	6100	191400	70320	47090	36870	40650	30230	8840

CAL YR 1978 TOTAL 164408 MEAN 450 MAX 7080 MIN 60 CFSM .46 IN 6.19 AC-FT 326100
WTR YR 1979 TOTAL 239548 MEAN 656 MAX 15800 MIN 67 CFSM .66 IN 9.02 AC-FT 475100

05484500 RACCOON RIVER AT VAN METER, IA

LOCATION.--Lat 41°32'02", long 93°56'59", in SW1/4 SW1/4 sec.22, T.78 N., R.27 W., Dallas County, Hydrologic Unit 07100007, on right bank 10 ft (3.0 m) downstream from bridge on county highway R16, 0.3 mi (0.5 km) northeast of Van Meter, 0.7 mi (1.1 km) upstream from small left bank tributary, 1.1 mi (1.8 km) downstream from confluence of North and South Raccoon River, 29.0 mi (46.7 km) upstream from mouth, and at mile 230.5 (370.9 km) upstream from mouth of Des Moines River.

DRAINAGE AREA.--3,441 mi² (8,912 km²).

PERIOD OF RECORD.--April 1915 to current year. Prior to October 1934, monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1927 (M). WSP 1438: Drainage area. WSP 1508: 1915 (M), 1916-17, 1918-23 (M), 1925 (M), 1926, 1933 (M), 1939 (M), 1947 (M), 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 841.16 ft (256.386 m) NGVD. See WSP 1308 for history of changes prior to Aug. 8, 1934.

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

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

AVERAGE DISCHARGE.--64 years, 1,318 ft³/s (37.33 m³/s), 5.20 in/yr (132 mm/yr), 954,900 acre-ft/yr (1,180 hm³/yr); median of yearly mean discharges, 1,120 ft³/s (31.7 m³/s), 4.4 in/yr (112 mm/yr), 811,000 acre-ft/yr (1,000 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,200 ft³/s (1,170 m³/s) June 13, 1947, gage height, 21.37 ft (6.514 m), from floodmark; maximum gage height, 21.77 ft (6.635 m) July 3, 1958; minimum daily discharge, 10 ft³/s (0.28 m³/s) Jan. 22-31, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,500 ft³/s (241 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 19	Unknown	*29,900	847	*20.39	6.215	June 29	0530	9,340	265	11.09	3.380
Apr. 2	2115	17,000	481	15.80	4.816	Aug. 10	0930	11,200	317	12.25	3.734

Minimum daily discharge, 250 ft³/s (7.08 m³/s) Jan. 16-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2310	855	673	350	280	580	12000	3190	1860	7000	2960	2330
2	2120	1750	522	340	280	700	15800	3280	1780	6600	3850	2040
3	2120	1280	357	328	278	1700	15600	4760	1700	3990	3560	1780
4	2010	827	500	310	272	6100	12400	6230	1650	3260	2820	1570
5	1890	755	600	300	270	4300	10500	5690	1640	2950	2280	1420
6	1810	717	680	288	268	3600	9240	4940	1490	2570	1890	1310
7	1710	673	670	280	264	4250	8390	4360	1470	2270	1610	1310
8	1630	653	660	270	264	3900	7270	3950	1490	1990	1430	1850
9	1560	651	610	266	268	3200	6180	3730	1820	1820	1250	1730
10	1480	646	580	264	270	3000	5430	3300	1920	1710	7030	1490
11	1420	640	600	264	270	3400	5080	3100	1720	3080	2280	1240
12	1400	638	580	264	270	4850	5010	2710	1480	2520	1410	1110
13	1350	839	560	262	270	6240	4790	2680	1790	1900	1180	1030
14	1300	784	545	260	272	5180	4600	2600	1520	1600	1070	928
15	1240	700	535	255	272	3750	4440	2450	1410	1480	1020	851
16	1190	686	520	250	272	3820	4060	2360	1410	1310	1020	807
17	1110	913	500	250	272	5690	3690	2880	1390	1210	1190	782
18	1060	1030	495	250	274	13100	3740	2070	1380	1290	1030	734
19	1040	1000	485	250	274	25400	3540	2410	1340	1200	1140	688
20	982	890	485	255	292	27200	5180	3620	1450	1080	1450	649
21	945	639	470	260	310	27600	6820	3850	1430	902	1820	612
22	927	591	470	264	340	23000	6310	3430	1510	854	3680	580
23	929	749	470	268	390	21100	5600	2770	1890	863	4960	551
24	928	794	460	270	430	19100	4920	2550	1980	3170	5080	524
25	934	833	455	268	455	16000	4580	2490	1710	2950	5310	514
26	944	873	450	270	475	16100	5640	2370	1570	2680	5430	551
27	942	844	440	280	490	16200	5330	2300	3050	2350	5800	599
28	927	669	370	282	530	15900	4600	2400	7330	2100	4690	577
29	921	629	390	284	---	14600	3880	2220	8420	2050	3770	585
30	853	696	380	284	---	12700	3670	2080	7050	2700	3450	561
31	863	---	364	280	---	12600	---	1980	---	3380	2740	---
TOTAL	40845	24244	15876	8566	8872	324860	198290	98750	67650	74829	88200	31303
MEAN	1318	808	512	276	317	10480	6610	3185	2255	2414	2845	1043
MAX	2310	1750	680	350	530	27600	15800	6230	8420	7000	7030	2330
MIN	853	591	357	250	264	580	3540	1980	1340	854	1020	514
CFSM	.38	.24	.15	.08	.09	3.05	1.92	.93	.66	.70	.83	.30
IN.	.44	.26	.17	.09	.10	3.51	2.14	1.07	.73	.81	.95	.34
AC-FT	81020	48090	31490	16990	17600	644400	393300	195900	134200	148400	174900	62090

CAL YR 1978 TOTAL 564646 MEAN 1547 MAX 12000 MIN 148 CFSM .45 IN 6.10 AC-FT 1120000
WTR YR 1979 TOTAL 982285 MEAN 2691 MAX 27600 MIN 250 CFSM .78 IN 10.62 AC-FT 1948000

05484500 RACCOON RIVER AT VAN METER, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-73, 1974 to current year (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
NOV												
29...	0930	621	740	8.4	3.5	--	12.0	92	--	220	--	--
JAN												
23...	1130	250	790	7.8	.0	8.0	8.1	57	18	K6100	97	36
FEB												
20...	1330	296	750	7.8	.0	4.0	9.6	67	8	K13000	96	32
MAR												
09...	0900	3200	480	7.8	1.0	23	12.4	89	51	1250	67	17
APR												
30...	0800	3740	760	8.6	9.0	29	8.0	71	27	620	96	32
MAY												
31...	0900	2110	700	8.1	20.0	13	7.4	84	22	500	80	31
JUN												
14...	1030	1580	680	8.2	24.0	60	8.9	109	39	K2600	83	30
JUL												
12...	1100	2590	520	8.2	25.0	390	7.2	89	110	K11200	83	25
AUG												
15...	1100	1030	550	8.3	19.0	20	--	--	40	--	57	29
SEP												
18...	1000	753	780	8.3	20.0	9.3	12.8	145	46	420	77	34

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV											
29...	--	--	--	--	--	--	--	--	--	--	--
JAN											
23...	18	2.8	--	--	150	--	67	30	361	.49	244
FEB											
20...	18	2.4	--	--	300	--	73	31	483	.66	386
MAR											
09...	10	7.3	--	--	170	--	39	24	307	.42	2650
APR											
30...	9.3	3.1	320	0	260	1.3	57	26	509	.69	5140
MAY											
31...	9.3	1.2	190	0	160	2.4	52	26	444	.60	2530
JUN											
14...	9.5	2.4	--	--	230	--	50	25	416	.57	1770
JUL											
12...	6.5	3.6	--	--	130	--	37	19	278	.38	1940
AUG											
15...	10	2.9	--	--	170	--	59	24	317	.43	882
SEP											
18...	12	3.0	--	--	170	--	170	26	426	.58	866

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
NOV											
29...	--	--	--	--	--	--	--	--	--	--	--
JAN											
23...	567	8.4	.64	--	.56	1.2	9.6	43	.21	--	--
FEB											
20...	525	6.9	.46	--	.54	1.0	7.9	35	.19	--	--
MAR											
09...	373	4.9	1.3	--	1.3	2.6	7.5	33	.41	--	--
APR											
30...	578	14	.04	.05	1.1	1.1	15	67	.17	.52	.52
MAY											
31...	570	13	.03	.04	2.6	2.6	16	69	.08	.25	.25
JUN											
14...	663	12	.23	.28	1.9	2.1	14	62	.24	.74	.74
JUL											
12...	1610	9.5	.04	.05	2.3	2.3	12	52	.83	--	2.5
AUG											
15...	463	5.5	.09	.11	2.1	2.2	7.7	34	.18	--	.55
SEP											
18...	574	6.7	.06	.07	.94	1.0	7.7	34	.14	--	.43

05484800 WALNUT CREEK AT DES MOINES, IA

LOCATION.--Lat 41°35'14", long 93°42'11", in SW1/4 SE1/4 sec.2, T.78 N., R.25 W., Polk County, Hydrologic Unit 07100006, on left bank, 25 ft (8 m) downstream from bridge on 63rd Street in Des Moines, and 2.2 mi (3.5 km) upstream from Raccoon River.

DRAINAGE AREA.--78.4 mi² (203 km²).

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR Iowa 1973: 1972; WDR Iowa 1975: 1973-74.

GAGE.--Water-stage recorder. Datum of gage is 801.04 ft (244.157 m) NGVD (levels by Iowa Natural Resources Council).

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

AVERAGE DISCHARGE.--8 years, 68.6 ft³/s (1.943 m³/s), 11.52 in/yr (293 mm/yr), 49,700 acre-ft/yr (61.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft³/s (255 m³/s) July 1, 1973, gage height, 17.72 ft (5.401 m); no flow for many days in 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
June 13	0315	*1,010	28.6	*10.30	3.139
Aug. 10	0330	855	24.2	9.59	2.923
Aug. 19	0330	662	18.7	8.72	2.658
Aug. 21	1830	672	19.0	8.77	2.673

Minimum daily discharge, 6.0 ft³/s (0.17 m³/s) Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	14	37	14	10	16	131	92	32	118	25	52
2	55	15	36	14	10	28	152	146	30	89	20	47
3	34	15	52	14	11	85	135	180	29	80	19	40
4	29	14	54	14	10	180	137	142	32	82	17	34
5	26	14	50	14	7.2	240	153	118	29	56	14	29
6	23	14	29	14	8.0	290	125	102	26	49	13	70
7	21	13	31	14	10	291	114	96	87	43	12	26
8	21	13	34	14	11	230	103	83	62	41	11	24
9	26	13	34	14	6.0	163	86	73	54	36	11	21
10	21	13	35	13	6.8	144	79	111	82	60	280	20
11	19	12	33	14	8.2	187	83	112	65	130	74	17
12	20	43	30	15	8.2	260	90	125	122	53	40	16
13	18	97	29	16	8.4	263	85	145	442	41	32	15
14	17	44	28	16	8.2	130	80	93	132	33	27	16
15	16	33	29	17	8.0	79	74	64	93	37	22	14
16	16	48	27	18	8.0	74	72	65	74	26	20	13
17	14	80	26	17	8.0	94	68	64	76	20	18	12
18	14	70	28	16	8.0	286	65	91	68	18	32	12
19	15	60	30	17	8.1	293	92	95	89	17	227	12
20	17	63	24	15	8.2	195	334	75	242	15	106	12
21	18	55	25	15	8.4	141	346	67	82	13	141	10
22	24	52	32	16	8.5	136	201	72	62	21	246	10
23	20	54	31	16	8.8	294	158	60	56	54	282	8.6
24	17	44	16	15	9.2	305	143	53	44	80	139	7.5
25	18	41	17	15	9.6	244	159	51	36	34	94	6.4
26	18	41	17	16	10	215	173	51	31	23	74	6.8
27	17	40	17	17	10	191	149	50	490	22	72	6.8
28	16	36	18	16	12	185	117	46	195	18	70	6.8
29	16	40	17	14	---	205	125	37	430	62	68	6.8
30	17	36	13	12	---	180	102	37	180	66	66	6.4
31	16	---	14	11	---	145	---	36	---	33	56	---
TOTAL	648	1127	892	463	247.8	5769	3931	2632	3472	1470	2328	578.1
MEAN	20.9	37.6	28.8	14.9	8.85	186	131	84.9	116	47.4	75.1	19.3
MAX	55	97	54	18	12	305	346	180	490	130	282	70
MIN	14	12	13	11	6.0	16	65	36	26	13	11	6.4
CFSM	.26	.47	.36	.18	.11	2.30	1.62	1.05	1.43	.59	.93	.24
IN.	.30	.52	.41	.21	.11	2.65	1.81	1.21	1.60	.68	1.07	.27
AC-FT	1290	2240	1770	918	492	11440	7800	5220	6890	2920	4620	1150

CAL YR 1978 TOTAL 18232.55 MEAN 50.0 MAX 608 MIN .25 CFSM .62 IN 8.38 AC-FT 36160
WTR YR 1979 TOTAL 23557.90 MEAN 64.5 MAX 490 MIN 6.0 CFSM .80 IN 10.83 AC-FT 46730

05485500 DES MOINES RIVER BELOW RACCOON RIVER AT DES MOINES, IA

LOCATION.--Lat 41°34'30", long 93°35'48", in NE1/4 SE1/4 sec.10, T.78 N., R.24 W., Polk County, Hydrologic Unit 07100008, on right bank 10 ft (3 m) downstream from bridge on Southeast 14th Street at Des Moines, 0.8 mi (1.3 km) downstream from Raccoon River and Scott Street Dam, and at mile 200.7 (322.9 km).

DRAINAGE AREA.--9,879 mi² (25,586 km²).

PERIOD OF RECORD.--April 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1943 (P).

GAGE.--Water-stage recorder. Datum of gage is 762.52 ft (232.42 m) NGVD. Prior to Oct. 1, 1951, and Oct. 1, 1953, to Sept. 30, 1959, water-stage recorder above Scott Street Dam, 0.8 mi (1.3 km) upstream at datum 11.16 ft (3.40 m) higher. Oct. 1, 1951, to Sept. 30, 1953, and Oct. 1, 1959 to Sept. 30, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 mi (5.6 km) above station. Average daily pumpage was about 55 ft³/s (1.56 m³/s). At times, water is pumped from Raccoon River into recharge basins, or into Waterworks Reservoir, capacity, 4,800 acre-ft (5.92 hm³). Effluent from sewage treatment plant enters the river 2.3 mi (3.7 km) below station. Net effect of diversions not known. Several observations of water temperature were made during the year. Flow regulated by Saylorville Lake (station 05481630) 13.0 mi (20.9 km) upstream, since Apr. 12, 1977. Corps of Engineers gage height telemeter at station.

COOPERATION.--Six discharge measurements furnished by Corps of Engineers. Average monthly pumpage from galleries furnished by Des Moines Water Works.

AVERAGE DISCHARGE.--39 years, 4,081 ft³/s (116 m³/s), 5.61 in/yr (142 mm/yr), 2,957,000 acre-ft/yr (3,646 hm³/yr); median of yearly mean discharges, 3,490 ft³/s (98.8 m³/s) 4.8 in/yr (122 mm/yr), 2,530,000 acre-ft/yr (3,119 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft³/s (2,180 m³/s) June 26, 1947, gage height, 20.8 ft (6.34 m) in gage well, 21.6 ft (6.58 m) from outside floodmark, site and datum then in use; minimum daily, 26 ft³/s (0.74 m³/s) Jan. 16-29, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1893, that of June 26, 1947, site and datum then in use. Flood of May 31, 1903, reached a stage of 20.9 ft (6.37 m), from flood profile) at Scott Street site and datum, by office of Des Moines City Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,800 cfs (1,010 m³/s) Mar. 21, gage height, 25.07 ft (7.641 m); minimum daily, 540 ft³/s (15.3 m³/s) Feb. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4480	1790	1460	1600	630	670	28200	16700	6690	14200	12000	18600
2	4390	2110	1410	1610	640	630	30000	16500	6400	14300	12500	18200
3	4040	2370	1060	1600	620	1330	31400	16800	6290	11800	12900	17800
4	3700	1900	718	1450	600	4850	29600	19700	5970	10500	11900	17500
5	3130	1680	839	1200	580	3600	29500	20000	5350	9540	10700	17200
6	3000	1630	1260	1040	570	3470	29300	19000	5130	8360	8950	17400
7	2900	1580	1370	970	540	3930	27200	14900	4970	7670	6250	16400
8	2800	1510	1280	900	550	3830	25000	17200	4990	7360	5880	15200
9	2770	1460	1410	870	570	3690	23500	17000	4970	6710	5470	15300
10	2760	1450	1490	750	580	3010	22400	15500	5440	6040	9500	14900
11	2800	1430	2150	740	580	2810	21900	14800	5410	7230	9360	14200
12	2830	1510	2530	730	580	3240	21600	13700	5280	8440	7990	12900
13	2890	1990	2650	710	580	7540	21400	11800	5280	6840	8070	12300
14	2720	2030	2500	710	580	8460	21400	10900	5110	5830	7990	11200
15	2450	2020	1880	710	580	6160	21900	10500	5800	5660	8120	10600
16	2400	1730	1330	700	540	5750	22000	9580	5540	5930	8110	9650
17	2340	2250	1240	700	580	7010	22100	9710	5670	6560	8120	9510
18	2250	2430	1230	690	580	15200	22100	8850	5560	6510	8030	9320
19	2010	2420	1240	670	580	26200	22500	9340	5450	6440	8210	9140
20	1750	2270	1230	650	570	32800	23000	10700	5830	5840	8610	8710
21	1820	1860	1120	650	580	34800	22400	12100	8290	5330	10700	8070
22	2090	1640	1020	660	580	31800	19700	11800	8250	4730	14000	7940
23	2120	1540	970	660	590	27700	21100	11000	8380	4430	17600	7800
24	2120	1690	950	680	590	26800	19900	10300	8620	6210	17600	7450
25	2200	1730	950	690	580	25800	17800	9720	8400	9990	17800	6780
26	2230	1730	930	700	640	25800	19000	9460	8140	10800	18700	6150
27	2000	1880	840	700	690	27700	19600	8720	10400	10800	20300	5950
28	1970	1700	660	670	720	28900	19300	8160	12700	11600	20800	5460
29	1960	1280	630	670	---	28400	18200	7780	17000	11200	19800	5010
30	1920	1260	670	660	---	27500	17300	7150	15000	9840	19500	4950
31	2060	---	820	610	---	28200	---	6910	---	10900	19000	---
TOTAL	80900	53870	39837	26360	16600	457580	690300	386280	219410	257590	374360	341590
MEAN	2610	1796	1285	850	593	14760	23010	12460	7314	8309	12080	11390
MAX	4480	2430	2650	1610	720	34800	31400	20000	17000	14300	20800	18600
MIN	1750	1260	630	610	540	630	17300	6910	4970	4430	5470	4950
AC-FT	160500	106900	79020	52290	32930	907600	1369000	766200	435200	510900	742500	677500

CAL YR 1978 TOTAL 1357987 MEAN 3721 MAX 20700 MIN 200 AC-FT 2694000
WTR YR 1979 TOTAL 2944677 MEAN 8068 MAX 34800 MIN 540 AC-FT 5841000

05485520 DES MOINES RIVER BELOW DES MOINES, IA

WATER-QUALITY RECORDS

LOCATION.--Lat 41°33'03", long 93°31'29", in NE1/4 NE1/4 sec.20, T.78 N., R.23 W., Polk County, Hydrologic Unit 07100008, at bridge on State Highway 5 near east edge of Des Moines, 0.2 mi (0.3 km) downstream from unnamed stream, 1.4 mi (2.3 km) upstream from Fourmile Creek, and at mile 195.9 (315.2 km).

DRAINAGE AREA.--9,901 mi² (25,644 km²).

PERIOD OF RECORD.--Water years 1971, 1975 to current year.

REMARKS.--Water discharge estimated on basis of records at gaging station 4.8 mi (7.7 km) upstream at SE 14th Street, Des Moines. No significant inflow between gaging station and sampling site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
NOV												
29...	1115	1200	800	8.2	3.5	5	11.5	88	11	2500	80	34
JAN												
24...	0830	680	980	7.8	.5	6	10.9	78	36	41000	100	39
FEB												
21...	1230	580	940	7.8	3.0	3	11.6	88	23	6000	110	35
MAR												
07...	1200	3710	570	7.8	.0	21	13.4	94	47	4800	75	22
APR												
30...	1030	17400	640	8.5	9.5	2	8.4	77	27	K1540	75	24
MAY												
31...	1145	6920	710	8.2	19.0	17	6.8	76	25	3800	90	16
JUN												
13...	0945	6290	650	8.1	20.0	500	7.0	82	83	K12600	88	34
JUL												
11...	1810	6830	650	8.2	26.0	110	7.2	91	57	K11700	92	29
AUG												
14...	1450	9080	750	8.4	18.0	18	--	--	51	--	84	31
SEP												
18...	0730	9520	700	8.1	17.5	13	9.4	104	28	1100	83	31

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV											
29...	19	3.5	320	0	260	3.2	79	38	522	.71	1690
JAN											
24...	31	4.0	--	--	310	--	120	50	591	.80	1090
FEB											
21...	49	3.8	--	--	300	--	130	81	616	.84	965
MAR											
07...	16	6.4	--	--	180	--	67	31	310	.42	3110
APR											
30...	8.1	4.7	230	0	190	1.2	61	25	404	.55	19000
MAY											
31...	10	3.2	260	0	210	2.6	92	28	487	.66	9100
JUN											
13...	10	7.0	--	--	170	--	79	24	401	.55	6810
JUL											
11...	10	4.1	--	--	150	--	82	28	369	.50	6800
AUG											
14...	9.7	3.1	--	--	240	--	81	25	497	.68	12200
SEP											
18...	8.5	3.7	--	--	250	--	79	21	454	.62	11700

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
NOV											
29...	584	9.4	.54	--	1.8	2.3	12	52	.40	--	--
JAN											
24...	624	6.7	2.9	--	.90	3.8	11	46	.94	--	--
FEB											
21...	651	5.5	1.6	--	1.3	2.9	8.4	37	.61	--	--
MAR											
07...	424	4.6	1.4	--	1.1	2.5	7.1	31	.47	--	--
APR											
30...	528	9.8	.24	.29	1.1	1.3	11	49	.26	.80	.80
MAY											
31...	579	10	.05	.06	1.7	1.7	12	52	.15	.46	.46
JUN											
13...	2340	8.4	.37	.45	3.0	3.4	12	52	.98	3.0	3.0
JUL											
11...	856	2.9	.10	.12	2.4	2.5	5.4	24	.24	--	.74
AUG											
14...	562	8.4	.13	.16	1.7	1.8	10	45	.29	--	.89
SEP											
18...	527	4.9	.05	.06	1.1	1.1	6.0	27	.21	--	.64

05485640 FOURMILE CREEK AT DES MOINES, IA

LOCATION.--Lat 41°36 50", long 93°32'43", in NE1/4 NE1/4 sec.32, T.79 N., R.23 W., Polk County, Hydrologic Unit 07100008, on right bank 20 ft (6 m) downstream from bridge on Easton Blvd., 4.4 mi (7.1 km) downstream from Muchikinock Creek and 5.0 mi (8.0 km) upstream from Des Moines River.

DRAINAGE AREA.--92.7 mi² (240 km²).

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974 (P).

GAGE.--Water-stage recorder. Datum of gage is 795.87 ft (242.581 m) NGVD.

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

AVERAGE DISCHARGE.--8 years, 76.1 ft³/s (2.155 m³/s), 11.2 in/yr (284 mm/yr), 55,130 acre-ft/yr (68.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,340 ft³/s (151 m³/s) June 9, 1974, gage height, 14.84 ft (4.523 m); no flow for many days in 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 13	0100	965	27.3	8.59	2.618	Mar. 23	0345	1,080	30.6	8.91	2.716
Mar. 19	0430	*1,470	41.6	*10.00	3.048	Apr. 20	1700	851	24.1	8.10	2.469

Minimum daily discharge, 3.1 ft³/s (0.088 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	23	64	15	14	63	198	146	75	100	10	9.8
2	71	24	53	15	14	70	199	188	66	82	8.4	7.8
3	65	25	71	15	14	150	199	220	60	70	7.8	6.2
4	59	24	66	15	14	270	185	177	58	60	6.5	5.0
5	51	25	63	15	14	200	219	122	57	48	6.5	24
6	50	24	60	15	14	260	174	101	52	43	5.9	30
7	50	22	47	15	14	210	151	89	55	38	6.2	12
8	48	23	64	15	14	190	144	71	58	35	5.9	11
9	50	25	52	15	14	154	128	63	57	32	5.9	9.8
10	43	24	50	15	13	193	101	86	58	54	26	9.1
11	42	21	53	14	13	222	117	141	58	110	10	7.6
12	42	27	46	14	13	475	129	110	64	46	6.2	7.2
13	36	116	39	14	13	597	119	124	69	38	5.4	7.0
14	34	92	34	12	13	112	108	114	62	29	4.3	7.2
15	33	69	35	13	13	33	98	103	54	32	4.3	6.3
16	32	100	30	14	12	50	96	90	52	23	4.3	5.8
17	30	140	27	14	12	74	96	77	47	18	4.3	5.3
18	30	130	29	14	12	493	90	96	53	16	4.8	5.3
19	27	120	27	14	12	806	119	209	47	15	45	5.4
20	29	136	26	14	12	460	397	194	200	14	18	5.5
21	30	117	22	14	13	384	540	111	77	12	29	6.2
22	33	108	24	14	13	334	488	95	55	14	46	7.8
23	29	108	23	14	13	893	320	84	48	16	56	7.5
24	28	90	17	14	14	431	254	75	39	18	30	9.1
25	34	83	18	15	14	304	260	70	32	14	19	11
26	30	83	17	15	15	247	288	69	28	13	16	8.4
27	27	85	17	13	16	222	253	75	400	11	15	6.5
28	25	81	16	15	73	244	209	69	170	11	14	5.7
29	25	82	15	13	---	324	191	64	360	13	29	3.8
30	26	72	13	14	---	338	161	62	147	15	15	3.1
31	24	---	14	14	---	247	---	89	---	13	11	---
TOTAL	1191	2099	1132	442	435	9050	6031	3384	2658	1053	475.7	256.4
MEAN	38.4	70.0	36.5	14.3	15.5	292	201	109	88.6	34.0	15.3	8.55
MAX	71	140	71	15	73	893	540	220	400	110	56	30
MIN	24	21	13	12	12	33	90	62	28	11	4.3	3.1
CFSM	.41	.76	.39	.15	.17	3.15	2.17	1.18	.96	.37	.17	.09
IN.	.48	.84	.45	.18	.17	3.63	2.42	1.36	1.07	.42	.19	.10
AC-FT	2360	4160	2250	877	863	17950	11960	6710	5270	2090	944	509

CAL YR 1978	TOTAL	26352.4	MEAN 72.2	MAX 1190	MIN 3.6	CFSM .78	IN 10.57	AC-FT	52270	
WTR YR 1979	TOTAL	28207.1	MEAN 77.3	MAX 893	MIN 3.1	CFSM .83	IN 11.32	AC-FT	55950	

05486000 NORTH RIVER NEAR NORWALK, IA

LOCATION.--Lat 41°27'25", long 93°39'10", in NW1/4 SW1/4 sec.20, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on left bank 10 ft (3 m) downstream from bridge on county highway R57, 1.7 mi (2.7 km) southeast of Norwalk, 8.2 mi (8.4 km) upstream from Middle Creek, and 6.2 mi (10.0 km) downstream from Badger Creek.

DRAINAGE AREA.--349 mi² (904 km²).

PERIOD OF RECORD.--February 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1946. WDR IA-76-1: 1975 (P).

GAGE.--Water-stage recorder. Datum of gage is 788.45 ft (240.320 m) NGVD (levels by Corps of Engineers). Prior to June 12, 1946, nonrecording gage at same site and datum. Jan. 7 to Oct. 11, 1960, nonrecording gage at site 2.1 mi (3.4 km) upstream at different datum.

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

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

AVERAGE DISCHARGE.--39 years, 179 ft³/s (5.069 m³/s), 6.97 in/yr (177 mm/yr), 129,700 acre-ft/yr (160 hm³/s/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s) June 13, 1947, gage height, 25.3 ft (7.71 m), from floodmark, from rating curve extended above 9,100 ft³/s (258 m³/s) on basis of velocity-area studies; no flow at times during period 1954-58.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,140 ft³/s (117 m³/s) Mar. 20, gage height, 21.57 ft (6.575 m), no other peak above base of 1,700 ft³/s (48.1 m³/s); minimum daily, 0.30 ft³/s (0.008 m³/s) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	31	127	20	23	108	377	342	94	181	31	7.4
2	57	30	120	20	24	120	354	368	91	148	30	9.4
3	103	31	112	21	24	230	475	973	80	138	24	8.6
4	93	33	110	20	24	600	419	636	75	138	22	8.8
5	64	34	99	20	25	1200	402	388	74	115	19	7.5
6	52	33	88	20	26	940	359	318	75	113	18	6.8
7	45	31	80	20	26	700	270	275	75	91	17	7.0
8	40	31	70	20	26	810	254	241	107	74	15	6.0
9	38	30	68	20	26	500	225	217	104	69	13	5.2
10	39	30	69	20	26	300	195	243	103	69	14	4.5
11	40	29	69	20	26	380	187	289	156	168	14	4.2
12	38	31	66	20	27	470	224	203	140	151	13	3.9
13	36	97	67	20	27	960	314	177	220	94	20	4.3
14	34	262	68	20	28	1600	229	165	273	72	18	3.8
15	33	171	68	20	29	1000	183	150	116	62	14	3.6
16	33	105	68	20	27	780	161	136	84	60	12	2.9
17	34	376	66	20	25	600	149	124	70	54	11	2.8
18	31	447	59	20	23	700	286	115	62	44	10	2.1
19	29	247	60	20	25	760	434	126	68	38	9.4	1.6
20	28	131	60	21	27	3000	741	134	145	34	10	1.2
21	30	68	51	21	30	1820	1270	121	192	32	28	.68
22	30	65	45	21	33	452	988	134	112	30	68	.43
23	31	84	44	21	37	893	497	153	75	28	56	.30
24	35	71	39	21	43	1070	407	146	65	28	21	.36
25	38	58	33	21	51	593	499	136	64	31	14	.48
26	35	55	30	21	58	478	1150	134	59	45	22	.47
27	35	55	27	21	89	420	908	135	435	35	25	.32
28	35	102	26	21	114	383	440	141	780	28	13	.77
29	32	101	26	22	---	689	398	131	726	38	11	.68
30	30	130	24	22	---	1190	423	112	280	56	8.8	.66
31	31	---	22	22	---	717	---	100	---	42	7.8	---
TOTAL	1284	2999	1961	636	969	24263	13218	7063	5000	2306	609.0	106.75
MEAN	41.4	100	63.3	20.5	34.6	783	441	228	167	74.4	19.6	3.56
MAX	103	447	127	22	114	3000	1270	973	780	181	68	9.4
MIN	28	29	22	20	23	108	149	100	59	28	7.8	.30
CFSM	.12	.29	.18	.06	.10	2.24	1.26	.65	.48	.21	.06	.01
IN.	.14	.32	.21	.07	.10	2.59	1.41	.75	.53	.25	.06	.01
AC-FT	2550	5950	3890	1260	1920	48130	26220	14010	9920	4570	1210	212

CAL YR 1978 TOTAL 88057.00 MEAN 241 MAX 7300 MIN 5.9 CFSM .69 IN 9.39 AC-FT 174700
WTR YR 1979 TOTAL 60414.75 MEAN 166 MAX 3000 MIN .30 CFSM .48 IN 6.44 AC-FT 119800

05486490 MIDDLE RIVER NEAR INDIANOLA, IA

LOCATION.--Lat 41°25'27", long 93°35'09", in SW1/4 SE1/4 sec.35, T.77 N., R.24 W., Warren County, Hydrologic Unit 07100008, on right bank 10 ft (3 m) downstream from bridge on county highway, 0.4 mi (0.6 km) upstream from Cavitt Creek, 1.5 mi (2.4 km) upstream from bridge on U.S. Highway 69, and 4.6 mi (7.4 km) northwest of Indianola.

DRAINAGE AREA.--503 mi² (1,302 km²).

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1941, 1944, 1946, 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 776.15 ft (236.571 m) NGVD (Corps of Engineers bench mark). Prior to June 11, 1946, June 9, 1947, to Nov. 23, 1948, and Sept. 8, 1951, to Oct. 30, 1952, nonrecording gage and June 11, 1946, to June 8, 1947 (destroyed by flood), Nov. 24, 1948, to Sept. 7, 1951, Sept. 1, 1952, to Sept. 30, 1962, water-stage recorder at site 1.6 mi (2.6 km) downstream at datum 2.81 ft (0.856 m) lower.

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

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

AVERAGE DISCHARGE.--39 years, 255 ft³/s (7.222 m³/s) 6.88 in/yr (175 mm/yr), 184,700 acre-ft/yr (228 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s (963 m³/s) June 13, 1947, gage heights: 26.40 ft (8.047 m), from floodmark, former site and datum; 28.27 ft (8.617 m), from floodmark, present site and datum; minimum daily, 0.11 ft³/s (0.003 m³/s) July 2, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	0345	*6,100	173	*18.32	5.584	Apr. 26	0145	5,920	168	17.87	5.447

Minimum daily discharge, 10 ft³/s (0.28 m³/s) Sept. 21,22,24-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	34	162	35	27	230	548	488	125	217	40	48
2	174	35	156	34	27	210	580	852	119	164	39	47
3	263	38	142	33	27	1150	886	1760	116	169	39	47
4	206	39	138	32	27	1700	633	797	110	141	37	46
5	126	44	128	32	27	1300	584	592	110	123	34	46
6	64	42	92	30	27	940	426	496	106	113	31	48
7	57	43	72	30	27	1220	352	440	104	109	31	44
8	53	46	74	29	26	700	327	400	95	101	29	43
9	52	49	72	29	26	560	293	380	93	94	28	41
10	52	49	70	29	26	450	266	300	95	149	30	39
11	60	49	70	28	27	660	272	330	100	234	28	38
12	52	51	73	28	27	1500	375	340	95	112	82	36
13	45	205	74	30	27	2000	418	350	201	96	76	35
14	44	250	76	31	27	2950	308	360	145	96	50	35
15	44	151	78	31	27	1240	260	370	86	91	40	35
16	42	129	80	32	26	773	241	378	76	79	36	35
17	40	1250	78	30	25	1010	237	355	65	68	32	33
18	39	581	80	30	26	2950	329	300	61	63	30	26
19	36	295	68	30	26	5350	386	280	59	57	29	19
20	37	214	60	30	28	2560	1100	240	152	53	27	14
21	37	155	56	30	31	1080	1450	206	139	51	38	10
22	36	155	52	30	33	882	836	190	85	49	93	10
23	39	173	47	30	36	1740	556	179	69	47	88	11
24	41	162	45	29	610	1280	466	170	61	45	151	10
25	40	146	45	28	500	714	2320	162	56	48	123	10
26	42	143	44	28	350	624	3070	159	55	60	92	10
27	40	143	40	28	260	496	1060	155	1730	53	71	10
28	39	123	38	28	240	468	696	153	845	60	57	12
29	38	134	35	28	---	886	627	151	727	56	53	13
30	36	167	37	28	---	2190	592	141	426	46	51	12
31	34	---	37	28	---	899	---	133	---	41	47	---
TOTAL	2051	5095	2319	928	2593	40712	20494	11607	6306	2885	1632	864
MEAN	66.2	170	74.8	29.9	92.6	1313	683	374	210	93.1	52.6	28.8
MAX	263	1250	162	35	610	5350	3070	1760	1730	234	151	48
MIN	34	34	35	28	25	210	237	133	55	41	27	10
CFSM	.13	.34	.15	.06	.18	2.61	1.36	.74	.42	.19	.11	.06
IN.	.15	.38	.17	.07	.19	3.01	1.52	.86	.47	.21	.12	.06
AC-FT	4070	10110	4600	1840	5140	80750	40650	23020	12510	5720	3240	1710

CAL YR 1978	TOTAL	108854	MEAN 298	MAX 8930	MIN 14	CFSM .59	IN 8.05	AC-FT 215900			
WTR YR 1979	TOTAL	97485	MEAN 267	MAX 5350	MIN 10	CFSM .53	IN 7.21	AC-FT 193400			

05487470 SOUTH RIVER NEAR ACKWORTH, IA

LOCATION.--Lat 41°20'14", long 93°29'10", in SE1/4 SE1/4 sec.34, T.76 N., R.23 W., Warren County, Hydrologic Unit 07100008, on right bank 15 ft (5 m) downstream from bridge on county highway, 0.5 mi (0.8 km) downstream from Otter Creek, and 2.2 mi (3.5 km) southwest of Ackworth.

DRAINAGE AREA.--460 mi² (1,191 km²).

PERIOD OF RECORD.--February 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1941, 1945 (M), 1946.

GAGE.--Water-stage recorder. Datum of gage is 769.97 ft (234.687 m) NGVD (levels by Corps of Engineers). Prior to June 12, 1946, nonrecording gage, June 13, 1946, to Apr. 13, 1960, water-stage recorder, and Apr. 14, 1960, to Sept. 30, 1961, nonrecording gage, all at site 4.0 mi (6.4 km) downstream at datum 8.06 ft (2.457 m) lower.

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

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

AVERAGE DISCHARGE.--39 years, 242 ft³/s (6.853 m³/s), 7.14 in/yr (181 mm/yr), 175,300 acre-ft/yr (216 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft³/s (963 m³/s) June 5, 1947, gage height, 24.60 ft (7.498 m), site and datum then in use; maximum gage height, 29.07 ft (8.861 m) June 10, 1974; no flow Sept. 19 to Oct. 13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1930 reached a stage of 24.5 ft (7.47 m), from information by local residents, discharge, about 30,000 ft³/s (850 m³/s), at site 4.0 mi (6.4 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,880 ft³/s (138 m³/s) Apr. 25, gage height, 16.68 ft (5.084 m) at 1400 hours, no peak above base of 5,000 ft³/s (142 m³/s); minimum daily, 1.9 ft³/s (0.054 m³/s) Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	37	260	31	34	210	427	233	75	169	32	9.4
2	237	39	240	32	35	195	598	603	73	120	28	11
3	438	42	230	31	35	1000	910	1960	71	598	24	8.1
4	224	38	222	31	36	1500	514	566	44	294	29	7.3
5	136	37	220	30	37	1150	504	348	47	150	24	6.5
6	87	38	220	30	39	900	292	270	42	110	18	6.2
7	77	36	220	30	40	1100	246	223	40	95	16	6.2
8	71	35	220	31	40	560	233	198	135	86	12	5.4
9	68	35	150	31	41	380	199	172	270	81	11	5.4
10	77	35	116	31	42	400	175	214	308	91	13	5.4
11	132	33	110	31	42	450	231	499	116	231	13	5.4
12	85	34	122	31	43	1000	370	215	72	98	12	5.4
13	64	459	132	31	45	1270	260	166	77	79	9.4	5.1
14	60	280	148	31	45	1400	190	142	67	71	9.8	4.8
15	60	134	142	31	46	1200	160	121	46	71	9.8	4.8
16	55	143	140	31	42	880	147	111	34	66	9.8	4.5
17	51	2550	116	31	40	1000	151	106	25	59	8.9	4.5
18	48	901	104	31	36	1210	202	99	32	55	8.9	4.5
19	44	353	112	31	40	2100	403	111	30	52	7.3	4.2
20	42	235	100	31	47	840	1730	97	36	50	8.1	4.2
21	42	180	84	31	53	425	1750	86	35	48	8.5	4.0
22	42	193	76	31	62	340	530	82	32	47	13	4.0
23	42	222	60	32	170	3340	336	81	36	45	35	4.0
24	42	213	52	32	560	2230	272	81	35	91	14	3.7
25	42	190	45	32	320	861	2230	80	32	212	9.8	3.2
26	42	183	40	32	210	828	1930	80	30	85	8.9	2.5
27	40	183	35	32	150	646	615	78	1960	64	10	1.9
28	38	165	32	32	220	959	352	78	1620	54	8.9	1.9
29	36	205	33	32	---	1420	332	78	857	62	8.1	1.9
30	35	266	32	33	---	1980	300	77	362	48	7.6	1.9
31	34	---	31	33	---	997	---	77	---	38	7.3	---
TOTAL	2601	7494	3844	970	2551	32770	16589	7331	6640	3420	435.1	147.3
MEAN	83.9	250	124	31.3	91.1	1057	553	236	221	110	14.0	4.91
MAX	438	2550	260	33	560	3340	2230	1960	1960	598	35	11
MIN	34	33	31	30	34	195	147	77	25	38	7.3	1.9
CFSM	.18	.54	.27	.07	.20	2.30	1.20	.51	.48	.24	.03	.01
IN.	.21	.61	.31	.08	.21	2.65	1.34	.59	.54	.28	.04	.01
AC-FT	5160	14860	7620	1920	5060	65000	32900	14540	13170	6780	863	292

CAL YR 1978	TOTAL	107714.5	MEAN 295	MAX 8790	MIN 6.9	CFSM .64	IN 8.71	AC-FT	213700
WTR YR 1979	TOTAL	84792.4	MEAN 232	MAX 3340	MIN 1.9	CFSM .50	IN 6.86	AC-FT	168200

05487980 WHITE BREAST CREEK NEAR DALLAS, IA

LOCATION.--Lat 41°14'41", long 93°16'08", in NW1/4 NW1/4 sec.3, T.74 N., R.21 W., Marion County, Hydrologic Unit 07100008, on left bank 15 ft (5 m) downstream from bridge on county highway, 0.5 mi (0.8 km) downstream from Kirk Branch, and 1.7 mi (2.7 km) northwest of Dallas.

DRAINAGE AREA.--342 mi² (886 km²).

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 759.12 ft (231.380 m) NGVD, (Corps of Engineers bench mark).

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

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

AVERAGE DISCHARGE.--17 years, 189 ft³/s (5.352 m³/s), 7.50 in/yr (190 mm/yr), 136,900 acre-ft/yr (169 hm³/yr); median of yearly mean discharges, 160 ft³/s (4.53 m³/s), 6.4 in/yr (162 mm/yr), 116,000 acre-ft/yr (143 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,430 ft³/s (267 m³/s) Oct. 11, 1973, gage height, 26.04 ft (7.937 m); minimum daily, 0.07 ft³/s (0.002 m³/s) Sept. 29, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 11, 1962, reached a stage of 28.87 ft (8.800 m), from floodmark, discharge, about 12,000 ft³/s (340 m³/s). Flood of June 6, 1947, may have been slightly higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 3	2315	*5,400	153	*19.66	5.992	Mar. 23	1915	4,830	137	18.70	5.700
Mar. 13	1915	3,570	101	16.56	5.047	May 2	2300	4,200	119	17.66	5.383

Minimum daily discharge, 1.2 ft³/s (0.034 m³/s) Sept. 12,13,22,23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	53	200	21	30	103	476	301	54	157	16	2.9
2	71	65	142	21	30	106	664	1270	28	48	11	5.3
3	131	67	118	22	29	670	718	2970	20	274	8.9	4.0
4	92	76	106	22	29	840	493	1210	17	304	8.0	3.7
5	72	75	108	23	29	560	499	565	45	80	7.7	5.0
6	59	71	100	23	29	500	392	506	27	50	7.1	10
7	53	56	93	24	29	420	345	494	19	42	6.5	5.3
8	49	54	94	25	28	290	337	479	527	37	6.0	2.7
9	46	58	90	25	27	232	335	462	866	33	5.6	2.2
10	46	54	66	25	27	252	314	468	722	30	18	1.7
11	79	53	57	24	28	375	316	474	250	27	13	1.5
12	79	54	58	23	29	1060	399	447	233	25	8.4	1.2
13	53	206	60	23	29	1900	394	416	82	23	5.9	1.2
14	38	251	69	23	30	1600	326	376	79	24	4.5	1.9
15	33	202	78	24	30	660	283	323	71	25	4.0	1.9
16	31	185	76	25	30	532	252	265	41	20	3.4	2.4
17	27	1710	72	26	28	810	229	214	32	19	3.2	2.4
18	24	1200	73	28	27	1300	218	182	28	18	2.7	2.5
19	24	324	74	29	27	1970	336	162	29	16	2.7	1.9
20	24	231	76	31	30	1190	1220	127	42	14	3.2	1.8
21	29	200	70	32	32	464	964	102	31	13	3.7	1.8
22	29	170	64	33	34	342	531	85	23	12	55	1.2
23	31	150	52	34	70	2730	318	73	29	11	58	1.2
24	36	130	44	34	164	2690	280	62	50	32	11	1.7
25	43	120	40	33	145	1390	769	55	60	24	4.5	1.9
26	42	110	35	32	115	808	845	51	36	13	2.7	2.2
27	43	100	30	32	100	735	464	51	946	14	1.9	2.4
28	39	98	25	32	94	1370	339	48	1530	13	1.9	2.4
29	39	97	23	32	---	1150	328	41	1200	20	1.9	2.2
30	41	170	22	32	---	1420	319	34	782	29	1.7	2.2
31	45	---	21	31	---	1230	---	53	---	17	1.7	---
TOTAL	1518	6389	2235	844	1329	29699	13703	12356	7899	1464	288.8	80.7
MEAN	49.0	213	72.1	27.2	47.5	958	457	399	263	47.2	9.32	2.69
MAX	131	1710	200	34	164	2730	1220	2970	1530	304	58	10
MIN	24	53	21	21	27	103	218	34	17	11	1.7	1.2
CFSM	.14	.62	.21	.08	.14	2.80	1.34	1.17	.77	.14	.03	.008
IN.	.17	.69	.24	.09	.14	3.23	1.49	1.35	.86	.16	.03	.01
AC-FT	3010	12670	4430	1670	2640	58910	27180	24530	15670	2900	573	150

CAL YR 1978	TOTAL	89705.3	MEAN 246	MAX 3950	MIN 6.6	CFSM .72	IN 9.76	AC-FT	177900	
WTR YR 1979	TOTAL	77815.5	MEAN 213	MAX 2970	MIN 1.2	CFSM .62	IN 8.46	AC-FT	154300	

05488100 LAKE RED ROCK NEAR PELLA, IA

LOCATION.--Lat 41°22'11", long 92°58'48", in NE1/4 NW1/4 sec.19, T.76 N., R.18 W., Marion County, Hydrologic Unit 07100008, at outlet works near right end of Red Rock Dam on Des Moines River, 1.4 mi (2.3 km) upstream from Lake Creek, 4.5 mi (7.2 km) southwest of Pella and at mile 142.3 (229.0 km).

DRAINAGE AREA.--12,323 mi² (31,917 km²).

PERIOD OF RECORD.--March 1969 to current year.

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

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in March 1969. Releases controlled through 14 concrete conduits extending through the concrete ogee spillway section into the stilling basin. Inlet invert elevation at 690 ft (210 m) NGVD. Maximum design discharge through the conduits is 37,500 ft³/s (1,060 m³/s) but normal flood control operation limits maximum outflow to 30,000 ft³/s (850 m³/s). Spillway section consists of 5 Tainter gates, 41 ft (12 m) wide and 46 ft (14 m) high, on concrete ogee crest at elevation 736 ft (224 m). The storage capacity of the reservoir at full flood-control pool level, 780 ft (238 m), is 1,830,000 acre-ft (2,260 hm³) and that of conservation pool level, 725 feet (221 m), is 90,000 acre-feet (111 hm³). Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 725 ft (221 m) with minimum release of 300 ft³/s (8.50 m³/s) and maximum release of 30,000 ft³/s (850 m³/s) during the non-growing season, providing discharges at Ottumwa and Keosauqua do not exceed 30,000 ft³/s (850 m³/s) and 35,000 ft³/s (991 m³/s) respectively.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 1,680,000 acre-ft (2,070 hm³) May 12-14, 1973; maximum elevation, 777.95 ft (237.119 m) May 14, 1973; minimum daily contents, 58,000 acre-ft (71.5 hm³) Feb. 16, 1977; minimum elevation, 719.68 ft (219.358 m) Feb. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,126,000 acre-ft (1,388 hm³) May 9; maximum elevation, 767.28 ft (233.867 m) May 10; minimum daily contents, 88,400 acre-ft (109 hm³) Sept. 17; minimum elevation, 728.07 ft (221.916 m) Jan. 15.

Capacity table (elevation, in feet, and contents, in acre-feet)

722	66,200	740	292,000	760	825,000
725	90,000	745	392,000	765	1,020,000
730	142,000	750	517,000	770	1,250,000
735	208,400	755	653,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	185000	142000	142000	140000	142000	146000	942000	1070000	836000	331000	94500	109000
2	173000	142000	141000	141000	142000	145000	973000	1090000	816000	326000	93100	108000
3	164000	143000	139000	142000	142000	148000	998000	1100000	793000	317000	91900	107000
4	155000	144000	141000	143000	142000	175000	1020000	1110000	769000	311000	91200	105000
5	147000	145000	143000	143000	142000	206000	1040000	1120000	743000	302000	91100	102000
6	141000	144000	143000	143000	143000	216000	1050000	1120000	718000	288000	90800	99300
7	140000	144000	142000	143000	143000	215000	1060000	1120000	693000	272000	90600	97800
8	141000	143000	142000	143000	143000	207000	1070000	1130000	670000	255000	92400	96200
9	141000	142000	141000	143000	143000	192000	1070000	1130000	650000	238000	94600	94200
10	142000	142000	141000	142000	144000	179000	1070000	1120000	629000	225000	97300	94100
11	142000	143000	142000	142000	144000	163000	1070000	1120000	608000	217000	98900	94000
12	141000	144000	144000	141000	144000	157000	1070000	1120000	587000	210000	97900	93100
13	142000	147000	144000	141000	143000	173000	1060000	1110000	566000	202000	95700	92600
14	142000	147000	143000	140000	143000	212000	1060000	1100000	546000	189000	93300	91300
15	142000	146000	142000	141000	143000	240000	1050000	1080000	527000	178000	92500	91400
16	141000	145000	141000	141000	143000	255000	1040000	1070000	507000	172000	92400	90000
17	141000	151000	140000	141000	142000	254000	1030000	1060000	485000	167000	92700	88400
18	141000	151000	140000	141000	142000	250000	1020000	1040000	465000	164000	93200	88800
19	142000	143000	140000	141000	142000	281000	1020000	1030000	450000	162000	93800	90100
20	143000	142000	140000	141000	142000	318000	1020000	1020000	427000	160000	94400	91400
21	144000	143000	141000	141000	142000	371000	1020000	1010000	406000	158000	95800	90800
22	143000	144000	142000	141000	142000	441000	1030000	1000000	385000	156000	98600	89400
23	142000	146000	142000	141000	143000	531000	1040000	993000	366000	154000	96700	88600
24	143000	147000	141000	141000	144000	596000	1040000	979000	348000	150000	95200	89300
25	144000	146000	140000	141000	145000	665000	1050000	964000	331000	150000	95000	89700
26	144000	147000	140000	142000	144000	702000	1050000	948000	313000	148000	96300	90000
27	144000	147000	141000	142000	144000	739000	1060000	932000	313000	146000	98600	90000
28	144000	145000	143000	141000	145000	774000	1070000	914000	321000	145000	103000	90700
29	143000	144000	143000	141000	---	815000	1070000	896000	326000	143000	106000	90500
30	143000	143000	141000	142000	---	867000	1070000	877000	331000	140000	107000	89300
31	142000	---	140000	142000	---	905000	---	866000	---	137000	109000	---
MAX	185000	151000	144000	143000	145000	905000	1070000	1130000	836000	331000	109000	109000
MIN	140000	142000	139000	140000	142000	145000	942000	856000	313000	137000	90600	88400

WTR YR 1979 MAX 1130000 MIN 88400

05488500 DES MOINES RIVER NEAR TRACY, IA

LOCATION.--Lat 41°16'53", long 92°51'34", in NW1/4 SE1/4 sec.19, T.75 N., R.17 W., Mahaska County, Hydrologic Unit 07100009, on right bank 250 ft (76 m) upstream from abandoned Bellefountaine Bridge, 0.5 mi (0.8 km) downstream from bridge on State Highway 92, 0.8 mi (1.3 km) east of Tracy, 3.1 mi (5.0 km) upstream from Cedar Creek, 6.4 mi (10.3 km) downstream from English Creek, and at mile 130.4 (209.8 km).

DRAINAGE AREA.--12,479 mi² (32,321 km²).

PERIOD OF RECORD.--March 1920 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1508: 1920 (M), 1922 (M), 1933.

GAGE.--Water-stage recorder. Datum of gage is 670.91 ft (204.493 m) NGVD. Prior to June 26, 1940, and June 30, 1952, to Nov. 4, 1960, nonrecording gage, and June 27, 1940, to June 29, 1952, water-stage recorder, at site 250 ft (76 m) downstream at same datum.

REMARKS.--Records good except those for winter period, which are fair. Flow regulated by Lake Red Rock (station 05488100) 11.9 mi (19.1 km) upstream, since March 12, 1969. Several observations of water temperature were made during the year. Corps of Engineers gage height telemeter at station.

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

AVERAGE DISCHARGE.--59 years, 4,683 ft³/s (132.6 m³/s), 5.10 in/yr (130 mm/yr), 3,393,000 acre-ft/yr (4,184 hm³/yr); median of yearly mean discharges, 3,950 ft³/s (112 m³/s), 4.3 in/yr (109 mm/yr), 2,862,000 acre-ft/yr (3,530 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 155,000 ft³/s (4,390 m³/s), June 14, 1947, gage height, 26.5 ft (8.08 m); minimum daily, 40 ft³/s (1.13 m³/s) Jan. 29 to Feb. 1, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1851, that of June 14, 1947. Flood of May 31, 1903, reached a stage of about 25 ft (7 m), discharge, about 130,000 ft³/s (3,680 m³/s). Minimum daily discharge since at least 1910, that of Jan. 29 to Feb. 1, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,600 ft³/s (810 m³/s) Apr. 16, gage height, 15.34 ft (4.676 m); minimum daily, 750 ft³/s (21.2 m³/s) Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13200	2030	2800	1300	950	1320	15400	18600	17900	16400	10500	17700
2	12300	1960	2940	1420	900	1900	16800	18500	17900	16800	11200	17700
3	10200	1840	2980	1370	830	3680	21700	20600	17600	18200	11800	17700
4	9280	1850	2310	1320	750	8080	24000	19200	17700	17400	11600	17600
5	8080	1840	867	1500	760	8520	24600	18400	18100	15200	10800	17600
6	7180	1840	1480	1400	760	9200	24600	18400	18100	15800	9890	17500
7	5110	1840	2390	1310	770	12200	24600	18400	18300	15800	8120	17400
8	2980	1840	2600	1290	780	15300	24800	18300	19500	15600	6110	16100
9	3040	1840	2480	1310	780	15000	24800	18300	18700	15000	5420	15400
10	3280	1590	2450	1290	790	13800	24800	18300	18500	12900	5780	14900
11	3760	1180	1810	1250	800	12700	24800	18400	17700	10800	6720	14300
12	3690	1180	1960	1280	840	13000	25500	18300	16900	11500	8050	14000
13	3480	1630	3150	1200	900	14000	25100	18200	16900	12400	8920	12900
14	3210	2630	3760	1220	860	10800	24800	18100	16700	12300	8900	11700
15	3200	3260	3450	1230	760	6100	26100	18000	16600	11200	8580	10800
16	3180	3270	3120	850	780	7800	27800	17900	16400	9040	8120	10800
17	3010	5470	2830	1020	900	13900	26500	17700	16300	8500	8120	10400
18	2530	8780	2250	1370	1040	19400	26300	17700	15600	8220	8160	9470
19	2250	8300	2240	1270	1160	22700	26600	17600	14600	7380	8200	8880
20	1890	6010	2240	1160	1280	20600	27100	17500	16100	7200	8120	8880
21	1710	2800	2320	1130	1040	15000	27400	17300	17800	6770	8640	8850
22	2350	2780	1600	1100	900	9880	24800	17300	17700	5140	11600	8850
23	2320	1720	1780	1080	970	6780	24000	17600	17600	5640	14900	8580
24	1850	2520	2020	1090	1030	7700	23600	18400	17400	6000	16400	8090
25	1900	2830	1880	1120	1140	7040	23800	18300	17300	7600	16500	7630
26	2060	2830	1340	810	1840	7480	24200	18200	17200	10100	16500	7050
27	2190	2980	940	940	2220	11300	22200	18100	17900	10600	16800	6740
28	2190	3240	890	1140	1190	15900	21000	17900	17300	10600	17400	6660
29	2190	3210	1070	1020	---	18600	19800	17800	16200	11200	17500	6070
30	2180	3080	1590	850	---	16900	19100	17900	15400	11600	17600	5030
31	2120	---	1200	820	---	15100	---	18200	---	10500	17700	---
TOTAL	127910	88170	66737	36460	27720	361680	716600	563400	518900	354490	344650	356290
MEAN	4126	2939	2153	1176	990	11670	23890	18170	17300	11440	11120	11880
MAX	13200	8780	3760	1500	2220	22700	27800	20600	19500	18200	17700	17700
MIN	1710	1180	867	810	750	1320	15400	17300	14600	5640	5420	6030
AC-FT	253700	174900	132400	72320	54980	717400	1421000	1118000	1029000	703100	683600	706700

CAL YR 1978 TOTAL 2006183 MEAN 5496 MAX 25000 MIN 590 AC-FT 3979000
WTR YR 1979 TOTAL 3563007 MEAN 9762 MAX 27800 MIN 750 AC-FT 7067000

05489000 CEDAR CREEK NEAR BUSSEY, IA

LOCATION.--Lat 41°13'09", long 92°54'38", at SW corner sec.11, T.74 N., R.18 W., Marion County, Hydrologic Unit 07100009, on left bank 10 ft (3 m) downstream from bridge on State Highway 156, 0.8 mi (1.3 km) downstream from North Cedar Creek, 1.6 mi (2.6 km) northwest of Bussey, 3.0 mi (4.8 km) upstream from Honey Creek, and 8.9 mi (14.3 km) upstream from mouth.

DRAINAGE AREA.--374 mi² (969 km²).

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 682.15 ft (207.919 m) NGVD (levels by Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same site and datum.

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

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

AVERAGE DISCHARGE.--32 years, 200 ft³/s (5.664 m³/s), 7.26 in/yr (184 mm/yr), 144,900 acre-ft/yr (179 hm³/yr); median of yearly mean discharges, 180 ft³/s (5.10 m³/s), 6.5 in/yr (165 mm/yr), 130,000 acre-ft/yr (160 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,300 ft³/s (830 m³/s) May 9, 1950, gage height, 27.50 ft (8.382 m); maximum gage height, 28.06 ft (8.553 m) July 2, 1958; no flow Sept. 6-20, 1955, Oct. 11, 12, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1946 reached a stage of 28.45 ft (8.672 m) on upstream side and 28.05 ft (8.550 m) on downstream side of bridge, levels to floodmarks by Corps of Engineers, discharge, 31,500 ft³/s (892 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,480 ft³/s (98.6 m³/s) May 3, gage height, 16.49 ft (5.026 m), no peak above base of 4,000 ft³/s (113 m³/s); minimum daily, 4.9 ft³/s (0.14 m³/s) Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	21	148	20	37	176	411	168	94	70	30	12
2	53	25	138	18	36	160	511	924	64	51	23	14
3	87	27	130	18	37	860	493	3220	55	169	18	12
4	60	25	142	20	36	1280	355	1620	49	402	17	9.6
5	48	25	132	21	35	860	464	404	59	85	18	7.9
6	46	29	110	23	34	700	262	288	46	55	15	15
7	40	39	120	24	35	900	215	229	41	45	12	25
8	35	38	122	25	35	500	205	192	814	40	9.0	12
9	35	30	81	25	33	390	187	163	615	35	8.6	8.3
10	75	27	57	25	34	330	161	204	350	32	14	7.0
11	117	25	52	26	35	520	248	512	133	30	26	6.5
12	71	26	58	26	35	1700	270	400	87	28	14	6.0
13	48	131	70	26	36	1300	260	340	98	25	9.8	5.9
14	38	150	72	29	37	960	256	280	107	25	9.3	5.6
15	34	67	74	33	38	760	250	190	70	26	9.8	5.4
16	31	53	76	32	34	669	264	109	59	27	9.0	5.2
17	29	2060	56	32	31	1280	260	94	54	22	8.0	5.6
18	28	1120	50	32	30	1890	250	98	50	18	7.8	5.1
19	27	266	58	33	32	2410	500	181	54	17	13	5.0
20	27	147	58	36	36	876	950	132	67	17	15	4.9
21	28	104	47	37	42	494	700	90	61	16	13	5.3
22	27	97	37	37	50	428	900	80	49	15	45	5.7
23	28	126	30	38	210	950	1200	76	50	16	73	5.7
24	30	138	28	38	450	2100	1350	70	94	18	42	5.6
25	26	106	25	37	340	796	1550	66	96	21	19	5.4
26	28	98	23	38	230	754	1490	68	62	21	13	5.5
27	28	104	22	38	190	600	499	76	118	19	14	6.1
28	25	90	21	37	180	818	261	72	161	26	30	6.5
29	23	116	20	37	---	975	233	54	414	42	15	6.5
30	21	150	19	36	---	1050	220	51	134	75	11	6.7
31	23	---	18	36	---	756	---	324	---	69	9.5	---
TOTAL	1266	5460	2094	933	2388	28242	15175	10775	4205	1557	570.8	236.9
MEAN	40.8	182	67.5	30.1	85.3	911	506	348	140	50.2	18.4	7.90
MAX	117	2060	148	38	450	2410	1550	3220	814	402	73	25
MIN	21	21	18	18	30	160	161	51	41	15	7.8	4.9
CFSM	.11	.49	.18	.08	.23	2.44	1.35	.93	.37	.13	.05	.02
IN.	.13	.54	.21	.09	.24	2.81	1.51	1.07	.42	.15	.06	.02
AC-FT	2510	10830	4150	1850	4740	56020	30100	21370	8340	3090	1130	470

CAL YR 1978	TOTAL	129937.0	MEAN	356	MAX	5710	MIN	11	CFSM	.95	IN	12.92	AC-FT	257700
WTR YR 1979	TOTAL	72902.7	MEAN	200	MAX	3220	MIN	4.9	CFSM	.54	IN	7.25	AC-FT	144600

05489090 SOUTH COAL CREEK NEAR BUSSEY, IA

LOCATION.--Lat 41°13'18", long 92°47'36", in SE1/4 SE1/4 sec. 10, T.74 N., R.17 W., Mahaska County, Hydrologic Unit 07080105, on right bank 800 ft (244 m) upstream from bridge on county highway, 2.9 mi (4.7 km) upstream from mouth and 6.5 mi (10.5 km) northeast of Bussey.

DRAINAGE AREA.--12.9 mi² (33.4 km²).

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 671.67 ft (204.725 m) NGVD.

REMARKS.--Records good except those for winter period and discharges over 200 ft³/s (5.7 m³/s) which are poor. Several observations of water temperatures were made during the period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,650 ft³/s (46.7 m³/s) July 7, 1978, gage height, 15.16 ft (4.621 m); no flow at times some years.

EXTREMES FOR CURRENT PERIOD.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum:

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
July 14, 1976	2300	*1,270	36.0	*14.14	4.310	July 20, 1978	2345	501	14.2	11.33	3.453
Aug. 26, 1977	1015	*311	8.81	*10.29	3.136	July 22, 1978	0615	1,440	40.8	14.61	4.453
Sep. 17, 1977	1430	307	8.69	10.27	3.130	Sep. 20, 1978	1430	1,420	40.2	14.54	4.432
Oct. 23, 1977	1730	1,590	45.0	14.99	4.569	Nov. 17, 1978	0800	528	15.0	11.46	3.493
Mar. 21, 1978	1830	364	10.3	10.61	3.234	Mar. 3, 1979	1730	a400	11.3	*13.09	3.990
July 1, 1978	2130	547	15.5	11.55	3.520	Mar. 13, 1979	1730	a540	15.3	11.93	3.636
July 7, 1978	0615	*1,650	46.7	*15.16	4.621	May 2, 1979	1715	*669	19.0	12.08	3.682

Minimum daily discharge for current period: No flow for some days in 1976 and 1977 water years; 0.23 ft³/s (0.007 m³/s) Nov. 26, 1977; 0.02 ft³/s (0.001 m³/s) Sept. 17, 1979.

a Ice jam

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										---	.34	.02
2										---	.23	.03
3										---	.21	.05
4										---	.23	.02
5										---	.23	.03
6										---	.19	.34
7										---	.19	.06
8										---	.17	.02
9										---	.17	.03
10										---	.19	.01
11										---	.19	.01
12										---	1.4	.01
13										6.2	13	.00
14										152	7.1	.00
15										43	3.2	.00
16										2.5	.40	.00
17										.50	.23	.00
18										.28	.21	.00
19										.19	.15	.01
20										12	.17	.02
21										35	.09	.02
22										4.3	.06	.02
23										1.3	.07	.03
24										.68	.10	.02
25										.45	.17	.07
26										.97	.17	1.5
27										7.6	.31	.28
28										5.8	.05	.10
29										2.3	.02	.10
30										.68	.02	.10
31										.50	.02	---
TOTAL										---	29.28	2.90
MEAN										---	.94	.097
MAX										---	13	1.5
MIN										---	.02	.00
CFSM										---	.07	.008
IN.										---	.08	.01
AC-FT										---	58	5.8

DES MOINES RIVER BASIN

05489090 SOUTH COAL CREEK NEAR BUSSEY, IA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.37	.07	.00	.10	.52	1.2	.45	.19	.00	.45	2.0
2	.07	.34	.08	.00	.06	.50	1.7	.62	.10	.00	.30	6.4
3	.09	.21	.07	.00	.02	.46	1.4	.50	.09	.00	.20	3.2
4	1.1	.17	.09	.00	.01	.43	2.6	2.8	.31	.00	.13	2.6
5	3.8	.17	.10	.03	.02	.40	5.6	16	.50	.00	.13	1.4
6	1.8	.21	.14	.06	.01	.36	2.3	3.0	.68	.00	.60	.56
7	.56	.25	.07	.10	.00	.33	1.4	2.5	.02	.00	2.5	.31
8	.30	.21	.07	.10	.00	.32	1.1	1.4	.02	.00	10	.37
9	.23	.23	.10	.04	.00	.30	.82	.89	.02	.00	31	3.2
10	.15	.23	.14	.01	.00	1.3	.75	.68	.02	.00	7.3	.82
11	.12	.34	.08	.00	.02	5.8	.62	.50	.03	.00	1.2	.31
12	.12	.25	.08	.00	.13	12	.56	.40	.05	.00	.40	24
13	.15	.19	.08	.01	.19	3.9	1.2	.34	.05	.00	.28	39
14	.21	.17	.07	.02	.00	2.0	.82	.89	.03	.00	.17	6.9
15	.25	.17	.09	.01	.27	2.3	.50	.28	.03	.00	.12	2.8
16	.25	.21	.10	.00	.22	.68	.45	.28	.02	.12	8.7	2.0
17	.45	.25	.10	.00	.22	.62	.56	.12	.03	.45	2.1	74
18	.19	.34	.12	.00	.34	.75	.31	.15	.05	.15	.40	11
19	.09	.34	.15	.00	.34	.62	.34	.17	.02	.07	.15	4.3
20	.07	.34	.10	.00	.30	.75	.50	.21	.02	.02	.10	2.3
21	.12	.31	.03	.01	.43	.89	1.2	.34	.01	.01	20	1.5
22	.07	.34	.04	.02	.40	2.3	1.5	.40	.01	.00	2.3	1.3
23	.15	.31	.07	.06	.50	2.3	1.1	.34	.01	.00	.31	1.4
24	.21	.23	.04	.10	.58	1.8	.82	.28	.01	.02	.15	11
25	.25	.27	.08	.08	.74	1.5	.50	.23	.01	.01	.10	2.6
26	.25	.30	.09	.09	.66	1.1	.37	.17	.01	.00	83	1.2
27	.31	.24	.09	.13	.60	.89	.37	.17	.00	.00	6.0	.82
28	.31	.13	.09	.08	.55	7.8	.37	.17	.00	.00	36	.62
29	.15	.06	.04	.14	---	15	.34	.17	.00	.00	7.8	.56
30	.23	.03	.03	.08	---	4.1	.31	.50	.00	.00	2.0	.62
31	.28	---	.01	.08	---	2.1	---	.31	---	.00	.89	---
TOTAL	12.41	7.21	2.51	1.25	6.71	74.12	31.61	35.26	2.34	.85	224.78	209.09
MEAN	.40	.24	.081	.040	.24	2.39	1.05	1.14	.078	.027	7.25	6.97
MAX	3.8	.37	.15	.14	.74	15	5.6	16	.68	.45	83	74
MIN	.07	.03	.01	.00	.00	.30	.31	.12	.00	.00	.10	.31
CFSM	.03	.02	.006	.003	.02	.19	.08	.09	.006	.002	.56	.54
IN.	.04	.02	.01	.00	.02	.21	.09	.10	.01	.00	.65	.60
AC-FT	25	14	5.0	2.5	13	147	63	70	4.6	1.7	446	415

WTR YR 1977 TOTAL 608.14 MEAN 1.67 MAX 83 MIN .00 CFSM .13 IN 1.75 AC-FT 1210

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	18	.72	.84	.44	1.2	7.3	6.3	1.4	87	2.2	.50
2	3.9	25	.64	.86	.47	1.1	5.3	5.8	1.5	25	2.4	.49
3	1.4	14	.59	.88	.44	1.0	4.1	5.4	.97	4.0	2.2	.57
4	.97	10	.53	.92	.48	.90	3.9	5.5	.89	2.6	1.6	.51
5	.75	7.6	.63	.98	.52	1.0	4.9	5.3	.68	2.0	1.2	.50
6	.68	7.3	.34	1.1	.53	1.0	9.9	5.0	.68	13	.98	.50
7	14	7.1	.43	1.2	.48	.87	4.9	120	.62	482	.89	.44
8	22	6.7	.59	1.4	.49	.79	3.2	66	.68	13	.89	.38
9	5.3	9.9	.25	.72	.53	.96	4.1	36	.62	7.0	.77	.37
10	3.4	5.6	.31	.80	.53	1.2	64	20	.45	4.6	.88	.40
11	10	3.6	.34	.85	.58	1.3	18	11	.37	3.2	1.1	.51
12	4.1	2.8	.68	.88	.62	1.5	10	60	.31	2.6	.88	.51
13	2.5	2.6	2.0	.90	.63	1.6	6.7	260	.31	3.4	.97	.70
14	1.5	3.0	4.3	.91	.96	4.4	5.1	50	.31	2.0	.76	1.5
15	1.2	2.8	4.3	.92	.86	8.4	5.6	9.2	2.1	1.7	.66	1.0
16	.97	2.5	7.2	.92	.84	20	3.6	7.8	2.0	1.3	.62	.68
17	.89	4.1	9.3	.90	.75	23	98	6.2	.82	1.2	.75	7.7
18	.82	2.5	5.4	.70	.75	54	458	5.1	.68	1.1	1.4	42
19	.75	2.0	209	.48	.84	164	7.6	4.1	.62	58	.85	6.1
20	.68	2.5	2.5	.50	.91	140	19	3.9	.40	55	.56	516
21	.62	1.8	2.0	.58	.76	147	16	2.8	.34	73	.56	15
22	11	1.1	1.8	.60	.80	60	13	2.5	.29	426	.58	8.1
23	478	1.7	2.0	.60	.90	28	12	3.2	57	14	.37	5.6
24	75	1.7	1.9	.58	1.1	17	10	2.6	7.5	8.0	1.0	4.2
25	17	.89	1.2	.55	1.3	12	9.4	2.3	3.0	6.0	4.1	3.5
26	11	.23	.72	.50	1.3	14	8.6	1.8	6.3	4.9	2.9	2.7
27	8.5	.82	.53	.43	1.5	31	8.0	3.9	25	3.6	54	3.0
28	6.9	.68	.72	.40	1.4	24	7.5	6.2	31	2.7	7.0	1.7
29	6.0	.58	.74	.43	---	15	7.2	2.3	59	2.3	1.4	1.8
30	4.9	.61	.76	.40	---	11	7.0	1.7	6.8	2.2	.73	2.1
31	84	---	.80	.42	---	10	---	1.2	---	2.0	.43	---
TOTAL	795.73	149.71	57.12	23.15	21.71	797.22	841.9	723.1	212.64	1314.4	95.63	629.06
MEAN	25.7	4.99	1.84	.75	.78	25.7	28.1	23.3	7.09	42.4	3.08	21.0
MAX	478	25	9.3	1.4	1.5	164	458	260	59	482	54	516
MIN	.62	.23	.25	.40	.44	.79	3.2	1.2	.29	1.1	.37	.37
CFSM	1.99	.39	.14	.06	.06	1.99	2.18	1.81	.55	3.29	.24	1.63
IN.	2.29	.43	.16	.07	.06	2.30	2.43	2.09	.61	3.79	.28	1.81
AC-FT	1580	297	113	46	43	1580	1670	1430	422	2610	190	1250

WTR YR 1978 TOTAL 5661.37 MEAN 15.5 MAX 516 MIN .23 CFSM 1.20 IN 16.32 AC-FT 11230

05489090 SOUTH COAL CREEK NEAR BUSSEY, IA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	.93	3.7	1.3	.76	6.9	16	5.6	.82	.78	.45	.93
2	5.1	.88	3.8	1.4	.74	5.5	27	215	.69	.67	.39	.31
3	7.4	.94	3.7	1.6	.71	200	17	48	.63	76	.32	.24
4	2.5	.88	3.7	1.8	.68	140	21	13	.68	56	.30	.23
5	2.0	1.1	3.7	1.7	.66	24	19	9.4	1.2	4.8	.28	.19
6	1.5	1.3	2.9	2.1	.74	40	11	7.8	.99	2.2	.33	.26
7	1.2	1.0	2.3	2.2	.82	60	11	6.6	.77	1.6	.20	.38
8	1.2	.99	2.1	2.0	.70	25	10	5.7	30	1.3	.18	.39
9	1.6	1.1	2.0	2.1	.50	12	8.9	4.8	6.4	1.1	.12	.34
10	6.1	.83	2.0	1.8	.52	25	7.5	21	4.2	1.0	.37	.31
11	17	.88	2.0	1.7	.52	34	16	32	2.1	.85	.53	.25
12	4.7	1.6	2.2	2.0	.52	150	18	6.9	1.1	.73	.40	.24
13	2.8	11	2.6	3.1	.52	195	9.5	5.4	1.4	.72	.33	.09
14	2.2	3.3	2.7	2.4	.62	330	7.6	4.2	1.1	.72	.25	.06
15	1.8	1.4	3.3	1.5	.70	22	6.6	3.5	.90	.84	.23	.04
16	1.8	2.2	4.0	1.6	.68	33	5.9	2.7	.59	.73	.28	.03
17	1.8	177	2.5	1.4	.68	51	5.5	2.4	.57	.47	.31	.02
18	1.6	13	2.9	1.4	.93	104	4.7	4.1	.56	.39	.31	.02
19	1.5	6.7	4.6	1.4	.99	49	20	7.5	.72	.34	.60	.03
20	1.4	4.5	5.3	1.4	1.0	21	144	2.9	.93	.34	.63	.03
21	1.3	3.5	3.9	1.4	1.7	17	21	1.9	.67	.34	.58	.03
22	1.2	3.3	2.2	1.4	4.3	16	12	1.8	.58	.43	1.2	.03
23	1.2	6.8	1.7	1.3	45	50	9.2	1.6	.63	.27	.59	.03
24	.89	5.2	1.6	1.2	60	34	8.1	1.4	1.1	.47	.31	.03
25	1.1	3.8	1.1	1.1	45	22	53	1.4	.75	.60	.26	.03
26	1.3	3.8	1.0	.96	18	21	24	1.5	.54	.52	.23	.03
27	1.2	4.2	.80	1.0	11	21	11	2.0	10	.52	.23	.03
28	1.0	3.2	1.1	1.0	8.5	34	8.0	1.3	3.4	.42	.25	.03
29	.90	3.4	1.2	.92	---	33	8.7	1.0	3.4	.51	.25	.03
30	.91	3.5	.80	.88	---	39	6.9	.93	1.2	1.3	.23	.03
31	.89	---	.79	.86	---	19	---	.77	---	.60	2.5	---
TOTAL	78.79	271.23	78.19	47.92	207.49	1833.4	548.1	424.10	78.62	157.56	13.44	4.69
MEAN	2.54	9.04	2.52	1.55	7.41	59.1	18.3	13.7	2.62	5.08	.43	.16
MAX	17	177	5.3	3.1	60	330	144	215	30	76	2.5	.93
MIN	.89	.83	.79	.86	.50	5.5	4.7	.77	.54	.27	.12	.02
CFSM	.20	.70	.20	.12	.57	4.58	1.42	1.06	.20	.39	.03	.01
IN.	.23	.78	.23	.14	.60	5.29	1.58	1.22	.23	.45	.04	.01
AC-FT	156	538	155	95	412	3640	1090	841	156	313	27	9.3

CAL YR 1978	TOTAL	5087.02	MEAN 13.9	MAX 516	MIN .29	CFSM 1.08	IN 14.67	AC-FT	10090
WTR YR 1979	TOTAL	3743.53	MEAN 10.3	MAX 330	MIN .02	CFSM .80	IN 10.79	AC-FT	7430

05489190 MUCHAKINOCK CREEK NEAR EDDYVILLE, IA

LOCATION.--Lat. 41°12'04", long 92°38'24", in SW1/4 NW1/4 sec.19, T.74 N., R.15 W., Mahaska County, Hydrologic Unit 07100009, on left bank 20 ft (6.1 m) downstream from bridge on state highway 137, 3.0 mi (4.8 km) north of Eddyville and 4.0 mi (6.4 km) upstream from mouth.

DRAINAGE AREA.--70.2 mi² (181.8 km²).

PERIOD OF RECORD.--July 1975 to current year (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 664.4 ft (202.51 m) NGVD.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s (227 m³/s) Apr. 24, 1976, gage height, 18.10 ft (5.517 m); minimum daily, 0.13 ft³/s (0.004 m³/s) Jan. 8, 9, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 960 ft³/s (27.2 m³/s) Mar. 13, gage height, 12.85 ft (3.917 m), no peak above base of 1,000 ft³/s (28.3 m³/s); minimum daily, 1.1 ft³/s (0.031 m³/s) Sept. 8,20,21,23,25,30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	7.2	51	12	11	24	150	80	28	37	7.7	4.3
2	9.8	7.3	47	12	12	22	197	348	22	31	5.5	3.1
3	18	7.0	59	11	12	180	162	488	21	31	6.2	2.0
4	9.4	7.5	77	11	11	400	154	174	21	53	6.1	1.7
5	7.3	7.5	48	11	10	410	155	121	23	36	6.1	1.7
6	6.2	8.5	41	11	12	330	103	99	19	26	5.6	1.6
7	5.2	7.5	42	11	12	338	96	83	19	23	5.6	1.6
8	4.8	6.2	38	10	11	269	89	71	75	21	5.6	1.1
9	5.5	6.5	33	10	9.6	220	79	62	46	19	5.5	1.2
10	9.3	6.5	29	10	10	204	72	66	49	16	10	1.3
11	37	6.3	30	10	10	199	87	182	38	15	6.7	1.3
12	15	7.3	28	11	11	399	106	69	31	14	5.5	1.2
13	11	34	27	12	11	722	83	60	33	13	5.1	1.2
14	10	19	24	13	12	762	69	53	28	13	3.8	1.2
15	9.4	11	26	13	12	286	61	48	23	12	3.8	1.2
16	9.4	9.8	24	13	10	260	60	45	20	9.6	3.8	1.2
17	8.5	243	22	13	8.2	531	60	43	19	8.2	3.8	1.2
18	8.2	170	23	13	8.8	647	53	53	16	8.0	3.8	1.2
19	8.9	70	24	14	9.4	609	236	87	16	8.2	38	1.2
20	8.2	51	24	15	11	247	286	54	31	8.0	17	1.1
21	8.5	44	21	16	14	155	277	43	20	7.5	4.5	1.1
22	8.2	40	19	14	17	128	151	38	16	6.7	17	1.2
23	8.2	47	16	15	27	325	114	38	14	7.3	43	1.1
24	7.7	41	16	13	42	351	102	36	15	8.0	5.5	1.2
25	8.2	37	15	12	41	211	269	32	13	8.7	2.9	1.1
26	10	37	14	11	37	173	395	33	12	8.0	2.5	1.3
27	8.5	37	12	14	28	157	180	38	119	8.9	1.6	1.3
28	7.3	33	10	14	26	236	127	30	99	11	1.6	1.2
29	7.2	39	10	12	---	381	115	25	72	8.2	2.0	1.2
30	7.2	51	9.2	12	---	328	97	22	47	15	1.9	1.1
31	7.2	---	11	11	---	214	---	30	---	9.8	1.8	---
TOTAL	293.5	1099.1	870.2	380	446.0	9718	4185	2650	1005	501.1	239.5	43.4
MEAN	9.47	36.6	28.1	12.3	15.9	313	140	85.5	33.5	16.2	7.73	1.45
MAX	37	243	77	16	42	762	395	488	119	53	43	4.3
MIN	4.2	6.2	9.2	10	8.2	22	53	22	12	6.7	1.6	1.1
CFSM	.14	.52	.40	.18	.23	4.46	1.99	1.22	.48	.23	.11	.02
IN.	.16	.58	.46	.20	.24	5.15	2.22	1.40	.53	.27	.13	.02
AC-FT	582	2180	1730	754	885	19280	8300	5260	1990	994	475	86

CAL YR 1978 TOTAL 20843.1 MEAN 57.1 MAX 855 MIN 2.0 CFSM .81 IN 11.04 AC-FT 41340
WTR YR 1979 TOTAL 21430.8 MEAN 58.7 MAX 762 MIN 1.1 CFSM .84 IN 11.36 AC-FT 42510

05489500 DES MOINES RIVER AT OTTUMWA, IA

LOCATION.--Lat 41°00'39", long 92°24'40", in SE1/4 NE1/4 sec.25, T.72 N., R.14 W., Wapello County, Hydrologic Unit 07100009, on right bank 15 ft (4 m) downstream from Wabash Railroad Bridge at Ottumwa, 0.4 mi (0.6 km) downstream from Ottumwa powerplant, 6.5 mi (10.5 km) upstream from Village Creek, 9.5 mi (15.3 km) downstream from South Avery Creek, and at mile 94.1 (151.4 km).

DRAINAGE AREA.--13,374 mi² (34,638 km²).

PERIOD OF RECORD.--March 1917 to current year (published as "at Eldon" October 1930 to March 1935). Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1917-20. WSP 1308: 1917-23 (M), 1925-27 (M), 1931. WSP 1438: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 622.00 ft (189.586 m) NGVD. Prior to Sept. 30, 1930, nonrecording gages at Market Street Bridge 1,700 ft (518 m) upstream at datum 0.83 ft (0.25 m) higher. Oct. 1, 1930, to Mar. 31, 1935, nonrecording gage at Eldon 15 mi (24.1 km) downstream at different datum. Apr. 1, 1935, to Oct. 25, 1963, water-stage recorder at site 1,100 ft (335 m) downstream at Vine Street Bridge at datum 0.77 ft (0.23 m) higher.

REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 12, 1958, and since Nov. 30, 1960, diurnal fluctuation at low flow caused by powerplant above station. Flow regulated by Lake Red Rock (station 05488100) 48.2 mi (77.6 km) upstream, since March 12, 1969. Several observations of water temperature were made during the year. Corps of Engineers gage height telemeter at station.

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

AVERAGE DISCHARGE.--62 years, 5,109 ft³/s (145 m³/s), 5.19 in/yr (132 mm/yr), 3,701,000 acre-ft/yr (4,560 hm³/yr); median of yearly mean discharges, 4,350 ft³/s (123 m³/s), 4.4 in/yr (112 mm/yr), 3,150,000 acre-ft/yr (3,880 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft³/s (3,820 m³/s) June 7, 1947, gage height, 20.2 ft (6.16 m), site and datum then in use; minimum daily, 30 ft³/s (0.85 m³/s) Jan. 27-29, 31, Feb. 2, 3, 5-7, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1850, that of June 7, 1947. Flood of May 31, 1903, reached a stage of 19.4 ft (5.91 m), former site and datum at Vine Street Bridge or about 22 ft (6.71 m) at Market Street Bridge, from information by Corps of Engineers and U.S. Weather Bureau, discharge about 140,000 ft³/s (3,960 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,400 ft³/s (946 m³/s) Apr. 20, gage height , 11.34 ft (3.456 m); minimum daily, 800 ft³/s (22.7 m³/s) Feb. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12600	2160	3830	2700	1030	2000	15700	19300	18000	16300	10600	17800
2	12400	2200	3740	2100	1200	2100	16100	19700	17800	16300	10600	17500
3	10700	1990	3930	1500	1190	4400	20000	25500	17700	17800	11700	17500
4	9900	1950	3940	1600	1000	15300	23000	22300	17400	20300	11700	17400
5	8040	1950	2180	1200	960	18100	24000	19400	17900	15400	11300	17400
6	7700	2020	2200	1600	960	16000	24000	19000	18200	15700	10300	17300
7	6030	1950	2680	1540	990	18000	23800	18800	17800	15700	9330	17200
8	3660	1950	3000	1500	1000	19000	23600	18700	19500	15500	6940	16700
9	3000	2000	2900	1460	1060	16000	23600	18600	20100	15300	5670	15300
10	3170	2000	2650	1470	1010	14000	25200	18500	18900	14100	5510	15100
11	3610	1440	2330	1500	1030	17000	27000	19300	18400	11700	6150	14300
12	3750	1280	2150	1370	1000	19000	26000	18700	17100	11100	7410	14200
13	3560	1620	2580	1480	1030	20000	24800	18400	16900	12300	8860	13500
14	3210	2380	3500	1400	1150	19300	24000	18200	16800	12300	8990	12400
15	3020	3420	3800	1320	1130	10700	25000	18100	16600	12100	8960	11200
16	3050	3650	3500	1300	1040	8260	26000	18000	16400	10400	8300	11100
17	3100	7230	3300	1000	800	12800	25000	17900	16300	7810	8150	11000
18	2660	11500	2500	960	1150	15000	25000	17900	16100	8650	8210	10200
19	2270	9540	2900	1290	1150	25000	30000	18100	14800	7520	8480	9280
20	2160	8810	2700	1280	1160	22900	33000	17700	14900	7310	8400	9130
21	1530	4310	2980	1180	1140	17700	30000	17400	17500	7010	8330	9160
22	2100	3550	2600	1200	1100	13100	26000	17300	17700	6470	10200	9140
23	2510	2650	2300	1210	1210	11100	23800	17200	17600	5730	14100	9150
24	2150	2510	2340	1210	1900	12500	23600	18100	17400	5620	16100	8580
25	1960	3180	2350	1200	2300	10000	24000	18300	17300	6760	16300	8180
26	2080	3270	2080	1280	2200	8920	26400	18200	17100	8900	16400	7600
27	2260	3280	920	940	2660	10600	23900	18100	18000	10600	16600	7100
28	2310	3520	850	1150	2600	15600	21900	17900	20000	10700	17100	7020
29	2310	3700	1020	1320	---	18600	20900	17700	16900	10700	17300	6620
30	2320	4090	1970	1260	---	19100	19700	17700	16500	11800	17400	6320
31	2300	---	2400	1100	---	17100	---	18100	---	11000	17500	---
TOTAL	131420	105100	82120	42620	36150	449180	725000	578100	523600	358880	342890	364380
MEAN	4239	3503	2649	1375	1291	14490	24170	18650	17450	11580	11060	12150
MAX	12600	11500	3940	2700	2660	25000	33000	25500	20100	20300	17500	17800
MIN	1530	1280	850	940	800	2000	15700	17200	14800	5620	5510	6320
AC-FT	260700	208500	162900	84540	71700	890900	1438000	1147000	1039000	711800	680100	722700

CAL YR 1978	TOTAL	2243502	MEAN	6147	MAX	24500	MIN 501	AC-FT	4450000
WTR YR 1979	TOTAL	3739440	MEAN	10250	MAX	33000	MIN 800	AC-FT	7417000

05490500 DES MOINES RIVER AT KEOSAUQUA, IA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE1/4 SW1/4 sec.36, T.69 N., R.10 W., Van Buren County, Hydrologic Unit 07100009, on right bank 10 ft (3 m) upstream from bridge on State Highway 1 at Keosauqua, 4.0 mi (6.4 km) downstream from Chequest Creek, and at mile 51.3 (82.5 km).

DRAINAGE AREA.--14,038 mi² (36,358 km²).

PERIOD OF RECORD.--May 1903 to July 1905, April to December 1910, August 1911 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 525: 1913-20. WSP 1438: Drainage area. WSP 1508: 1903, 1905-6, 1915-18 (M), 1922 (M), 1924-26 (M), 1932-34 (M), 1937, 1942 (M).

GAGE.--Water-stage recorder. Datum of gage is 547.36 ft (166.835 m) NGVD. Prior to Dec. 24, 1933, nonrecording gage, and Dec. 25, 1933, to Sept. 30, 1972, water-stage recorder, same site at datum 10.00 ft (3.05 m) higher.

REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by powerplant at Ottumwa. Flow regulated by Lake Red Rock (station 05488100) 91.0 mi (146 km) upstream, since March 12, 1969. Several observations of water temperature were made during the year. National Weather Service gage height telemeter at station.

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

AVERAGE DISCHARGE.--70 years (1903-5, 1911-79), 5,538 ft³/s (156.8 m³/s) 5.36 in/yr (136 mm/yr), 4,012,000 acre-ft/yr (4,950 hm³/yr); median of yearly mean discharges, 4,930 ft³/s (140 m³/s), 4.8 in/yr (122 mm/yr), 3,570,000 acre-ft/yr (4,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 146,000 ft³/s (4,130 m³/s) June 1, 1903, gage height, 27.85 ft (8.489 m), from floodmark, datum then in use; minimum daily, 40 ft³/s (1.13 m³/s) Jan. 30, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1851, reached a stage of 24 ft (7 m), discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,500 ft³/s (1,090 m³/s) Apr. 20, gage height, 21.49 ft (6.550 m); maximum gage height, 22.39 ft (6.824 m) Mar. 9 (backwater from ice); minimum daily discharge, 740 ft³/s (21.0 m³/s) Dec. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12700	2490	4530	1120	1190	2500	16400	18800	17800	16000	10200	18100
2	12600	2330	4190	1620	1290	2200	16300	18500	17200	15800	10000	17500
3	11900	2370	4010	1500	1300	3100	18000	27600	17200	16600	10500	17100
4	10000	2150	3400	1400	1340	9700	22300	24700	17000	19600	11200	17000
5	9310	2130	2950	1300	1200	17000	24400	19700	17100	17800	11000	17000
6	7840	2290	2250	1400	1100	17000	24500	18500	17500	14800	10200	16900
7	7260	2220	1610	1600	1060	18200	24100	18100	17600	15300	9440	16900
8	5670	2160	2250	1650	1100	21800	24200	18000	18200	15100	7900	16600
9	3600	2160	3440	1600	1190	21000	24200	17800	20400	14900	5920	15300
10	3440	2150	3900	1480	1210	13000	24100	17800	19300	14300	5610	14600
11	3490	2170	4200	1460	1200	12800	25400	19200	18500	12500	5380	14100
12	3990	1680	4550	1470	1180	15500	27800	18400	17200	10400	6200	13600
13	3920	1840	4700	1460	1180	24000	26300	17800	16600	11000	7520	13300
14	3780	2270	4100	1390	1160	28100	25000	17600	16400	11800	8390	12200
15	3390	2890	6800	1380	1250	17700	24300	17400	16200	11700	8410	11000
16	3250	3680	4700	1200	1230	9720	25500	17200	16000	10800	8120	10200
17	3230	5890	4000	1280	1200	12500	27000	17100	15900	8770	7630	10100
18	3220	10600	3600	1090	990	16000	25900	17100	15700	7490	7660	9810
19	2840	10500	2900	940	1150	20900	25900	17600	14900	7810	7770	8950
20	2430	8830	2700	1100	1200	28400	31100	17300	14100	6910	7930	8290
21	2340	7250	2400	1150	1280	24000	34800	16900	15800	6730	7880	8320
22	1730	3780	2250	1120	1300	19000	29300	16700	17400	6380	10700	8290
23	2370	3910	2140	1100	1540	14500	25200	16600	17300	5840	12500	8260
24	2680	2660	1900	1110	2000	11300	24100	17000	17200	5310	14700	8050
25	2360	2950	1500	1120	2500	12300	24200	17800	16900	5520	15800	7590
26	2180	3500	1440	1100	2500	9600	28500	17700	16700	7090	15800	7150
27	2280	3580	1480	1220	2200	9950	25900	17700	16700	9400	17700	6610
28	2460	3520	860	1060	2500	14400	22400	17400	19500	10500	16500	6300
29	2480	3870	740	910	---	25700	20900	17300	18000	10400	16800	6240
30	2470	4510	980	1200	---	28800	19600	17100	16300	10800	16900	5780
31	2490	---	810	1200	---	19800	---	17300	---	11400	18600	---
TOTAL	143700	112330	91280	39730	39540	500470	737600	565700	512700	348750	330860	351140
MEAN	4635	3744	2945	1282	1412	16140	24590	18250	17090	11250	10670	11700
MAX	12700	10600	6800	1650	2500	28800	34800	27600	20400	19600	18600	18100
MIN	1730	1680	740	910	990	2200	16300	16600	14100	5310	5380	5780
AC-FT	285000	222800	181100	78800	78430	992700	1463000	1122000	1017000	691700	656300	696500

CAL YR 1978 TOTAL 2421461 MEAN 6634 MAX 32700 MIN 661 AC-FT 4803000
WTR YR 1979 TOTAL 3773800 MEAN 10340 MAX 34800 MIN 740 AC-FT 7485000

BIG SIOUX RIVER BASIN

06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW1/4 SW1/4 sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on right bank 3 ft (0.9 m) upstream from bridge on county highway K30, 0.3 mi (0.5 km) north of Rock Valley and at mile 19.1 (30.7 km). Prior to May 5, 1976, at site 3.2 mi (5.1 km) downstream.

DRAINAGE AREA.--1,592 mi² (4,123 km²).

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1439: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,222.54 ft (372.630 m) NGVD. Prior to Aug. 13, 1952, nonrecording gage (June 4, 1949, to Aug. 12, 1952, supplementary water-stage recorder operating above 6.2 ft (1.89 m) gage height) and Aug. 13, 1952, to May 4, 1976, water-stage recorder, at site 3.2 mi (5.1 km) downstream at datum 10.73 ft (3.271 m) lower.

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

AVERAGE DISCHARGE.--31 years, 314 ft³/s (8.892 m³/s), 2.68 in/yr (68 mm/yr), 227,500 acre-ft/yr (281 hm³/yr); median of yearly mean discharges, 250 ft³/s (7.08 m³/s), 2.1 in/yr (53 mm/yr), 181,000 acre-ft/yr (223 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,400 ft³/s (1,140 m³/s) Apr. 7, 1969, gage height, 17.32 ft (5.279 m); no flow for many days during winter period in 1959 and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of 17.0 ft (5.18 m), former site and datum, discharge not determined, from information by State Highway Commission.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	0900	*19,300	547	*18.91	5.764
Mar. 30	2100	7,670	217	15.12	4.609
Apr. 13	2400	5,790	164	13.96	4.255
May 11	2100	5,350	152	13.60	4.145
Aug. 11	2400	3,000	85.0	11.27	3.435
Aug. 23	1200	7,930	225	15.82	4.822
Aug. 29	1400	3,120	88.4	11.29	3.441

Minimum daily discharge, 6.9 ft³/s (0.20 m³/s) Jan. 8-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	57	48	10	10	23	4570	1110	520	416	464	1330
2	68	57	44	8.0	10	23	3860	1140	506	384	380	1190
3	66	56	44	8.0	10	21	3180	1140	478	358	324	1150
4	64	56	42	8.0	10	20	2880	1040	448	334	272	1010
5	70	56	42	7.0	11	22	2910	925	416	303	240	885
6	70	56	40	7.0	11	22	2560	842	394	279	218	793
7	65	56	40	7.0	11	22	1990	780	375	262	198	994
8	65	56	40	6.9	12	22	1920	736	363	255	216	1000
9	62	57	35	6.9	12	23	2210	936	368	246	1460	846
10	62	56	35	6.9	16	23	1900	2170	435	232	1820	739
11	63	56	35	6.9	15	23	1680	4510	481	222	2650	662
12	64	58	35	6.9	17	24	2880	4160	512	214	2210	828
13	64	62	35	6.9	17	24	5060	2530	515	212	1320	1470
14	63	56	33	6.9	17	30	5570	1880	464	220	1050	2150
15	62	56	33	6.9	17	40	3220	1590	420	260	910	2180
16	62	56	32	6.9	17	70	2400	1410	423	272	806	1620
17	62	56	30	6.9	17	100	2420	1240	464	244	1110	1280
18	62	55	30	6.9	18	200	2250	1200	611	226	1530	1090
19	62	55	30	6.9	18	800	2170	1120	755	212	1490	943
20	62	55	25	6.9	18	1980	1960	1070	907	206	1920	838
21	62	55	20	6.9	19	4810	1780	939	1030	305	3260	758
22	61	55	20	6.9	19	9490	1560	846	1190	716	4430	678
23	60	55	20	7.0	20	17100	1360	768	1170	885	7110	611
24	60	55	20	8.0	21	10300	1220	720	962	842	4240	557
25	60	55	18	8.0	21	5740	1170	678	813	656	2340	551
26	60	53	18	8.0	22	4430	1210	649	713	498	2000	534
27	59	53	17	9.0	23	4190	1170	624	630	399	2510	492
28	59	50	16	9.0	23	4230	1050	582	565	334	2880	464
29	59	50	15	9.0	---	7000	990	546	504	322	3010	442
30	59	48	15	10	---	7260	1020	537	456	445	2140	420
31	58	---	10	10	---	6780	---	532	---	344	1560	---
TOTAL	1949	1657	917	236.5	451	84842	70120	38950	17888	11103	56068	28505
MEAN	62.9	55.2	29.6	7.63	16.1	2737	2337	1256	596	358	1809	950
MAX	74	62	48	10	23	17100	5570	4510	1190	885	7110	2180
MIN	58	48	10	6.9	10	20	990	532	363	206	198	420
CFSM	.04	.04	.02	.005	.01	1.72	1.47	.79	.37	.23	1.14	.60
IN.	.05	.04	.02	.01	.01	1.98	1.64	.91	.42	.26	1.31	.67
AC-FT	3870	3290	1820	469	895	168300	139100	77260	35480	22020	111200	56540

CAL YR 1978	TOTAL	149824.0	MEAN 410	MAX 7160	MIN 10	CFSM .26	IN 3.50	AC-FT 297200		
WTR YR 1979	TOTAL	312686.5	MEAN 857	MAX 17100	MIN 6.9	CFSM .54	IN 7.31	AC-FT 620200		

06485500 BIG SIOUX RIVER AT AKRON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°49'42", long 96°33'45", in NW1/4 SW1/4 sec.31, T.93 N., R.48 W., Plymouth County, Iowa, Hydrologic Unit 10170203, on left bank at west edge of Akron, 0.6 mi (1.0 km) downstream from bridge on State Highway 48, and 2.3 mi (3.7 km) upstream from Union Creek.

DRAINAGE AREA.--9,030 mi² (23,390 km²), approximately, of which about 1,970 mi² (5,100 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929 (M), 1931-33 (M), 1936 (M), 1938 (M), 1940 (M). WSP 1389: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft (341.041 m) NGVD. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft (91 m) upstream at same datum.

REMARKS.--Records good except those for the winter period, which are poor. Water-quality data available in reports of Water Resources Data for South Dakota. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--51 years, 855 ft³/s (24.21 m³/s), 619,400 acre-ft/yr (764 hm³/yr); median of yearly mean discharges, 730 ft³/s (20.7 m³/s), 529,000 acre-ft/yr (650 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s (2,290 m³/s) Apr. 9, 1969, gage height, 22.99 ft (7.007 m); minimum daily, 4 ft³/s (0.11 m³/s) Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 25	1230	*30,500	864	*a21.74	6.626
Apr. 1	1300	13,100	371	18.18	5.541
Apr. 16	0345	12,600	357	18.16	5.535
May 13	Unknown	8,330	236	16.80	5.121
Aug. 12	1700	4,380	124	12.70	3.871
Aug. 25	1700	5,770	163	14.81	4.514
Aug. 30	0800	4,590	133	13.29	4.051

a Ice jam

Minimum daily discharge, 58 ft³/s (1.64 m³/s) Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	245	174	155	87	62	78	12900	3550	1710	1690	1228	2730
2	239	178	145	83	61	79	11500	3570	1630	1570	1150	2330
3	237	182	140	78	60	80	9130	3550	1580	1450	1040	2140
4	226	186	135	75	60	80	7710	3490	1540	1350	1060	2060
5	227	188	130	73	59	80	6710	3330	1540	1250	985	1990
6	226	182	125	72	59	84	6230	3130	1510	1170	851	1920
7	225	184	120	76	59	90	5980	2930	1430	1110	765	1640
8	223	181	115	78	59	100	5400	2770	1380	1070	708	1720
9	220	181	110	80	58	110	5120	2800	1300	1040	692	1790
10	213	182	105	82	60	120	5320	3490	1400	1000	1550	1760
11	211	182	105	80	62	125	5230	4700	1430	979	3480	1630
12	210	188	106	75	64	130	5140	5810	1470	948	4280	1540
13	211	198	108	70	66	135	5780	8130	1440	909	3758	1780
14	207	197	110	65	67	140	7650	7570	1410	884	2490	2580
15	205	191	112	62	69	150	11200	5920	1340	902	2020	3200
16	197	190	116	64	68	200	12100	4980	1290	1060	1760	3230
17	185	204	118	66	66	270	9510	4220	1280	1000	1500	2620
18	183	205	120	68	68	800	7910	3760	1520	996	1800	2170
19	182	149	120	70	71	1700	7430	3450	1870	930	2510	1900
20	186	151	120	70	74	3400	7330	3190	1990	896	2200	1710
21	186	150	118	68	77	4200	7110	2960	2130	845	2778	1530
22	186	170	114	66	78	5800	6650	2720	2430	898	3640	1390
23	179	190	110	65	79	13000	6050	2500	2710	1190	4130	1270
24	179	200	105	62	77	24000	5500	2320	2710	1600	4800	1180
25	184	210	98	64	72	29000	5130	2180	2500	1750	5470	1110
26	175	205	95	66	70	18900	4830	2070	2380	1450	4550	1050
27	176	195	98	66	74	13300	4550	2000	2280	1220	3250	1000
28	177	180	100	65	77	11000	4210	1930	2140	1080	3539	954
29	182	175	98	64	---	9790	3890	1830	2010	997	4140	908
30	181	165	95	63	---	10600	3670	1780	1840	1100	4590	070
31	176	---	92	62	---	12200	---	1710	---	1110	3530	---
TOTAL	6239	5513	3538	2185	1876	159741	206870	108460	53270	35814	80431	53702
MEAN	201	184	114	70.5	67.0	5153	6896	3499	1775	1146	2595	1790
MAX	245	210	155	87	79	29000	12900	8130	2710	1750	5470	3230
MIN	175	149	92	62	58	78	3670	1710	1280	846	692	870
CFSM	.02	.02	.01	.008	.007	.57	.76	.39	.20	.13	.29	.20
IN.	.03	.02	.01	.01	.01	.66	.85	.45	.22	.15	.33	.22
AC-FT	12380	10940	7020	4330	3720	316800	410300	215100	105700	70440	159500	106500

CAL YR 1978	TOTAL	477045	MEAN	1307	MAX	17600	MIN 92	CFSM .15	IN 1.97	AC-FT	946200
WTR YR 1979	TOTAL	717339	MEAN	1965	MAX	29000	MIN 58	CFSM .22	IN 2.96	AC-FT	1423000

06486000 MISSOURI RIVER AT SIOUX CITY, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°29'10", long 96°24'47", in NW1/4 SE1/4 sec.16, T.29 N., R.9 E., sixth principal meridan, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 77 at South Sioux City, Nebraska, 2.0 mi (3.2 km) downstream from Big Sioux River, and at mile 732.3 (1,178.3 km).

DRAINAGE AREA.--314,600 mi² (814,800 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to current year in reports of Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only published in WSP 1310. January 1879 to December 1890 (monthly discharges only) in House Document 238, 73rd Congress, 2d session, Missouri River. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft (322.168 m) NGVD. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi (2.7 km) of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935 to Sept. 30, 1969, water-stage recorder at present site at datum 19.98 ft (6.090 m) higher, and Oct. 1, 1969 to Sept. 30, 1970 at datum 20.00 ft (6.096 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by upstream main-stem reservoirs. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--82 years, 32,070 ft³/s (908.2 m³/s), 23,230,000 acre-ft/yr (28,600 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s (12,500 m³/s) Apr. 14, 1952, gage height, 24.28 ft (7.401 m), datum then in use; minimum, 2,500 ft³/s (70.8 m³/s) Dec. 29, 1941; minimum gage height observed, 10.68 ft (3.255 m), Dec. 6, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 57,800 ft³/s (1,640 m³/s) Nov. 5, gage height, 23.48 ft (7.157 m); minimum daily, 15,000 ft³/s (425 m³/s) Mar. 22; minimum gage height, 13.52 ft (4.121 m) Jan. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53200	56300	55400	24500	23500	23500	37000	41200	45500	41700	39400	37900
2	53600	56500	52700	24500	23500	23000	36500	43500	45800	41500	40000	35700
3	54100	56900	47500	24500	23500	22000	36300	42200	45900	42100	40200	35700
4	54500	57300	43400	24000	23500	20000	37200	38600	46100	41600	39300	35500
5	55000	57600	39800	24000	23500	19000	38300	40700	46000	40900	38900	35800
6	54400	56900	35100	24000	23500	18000	39600	42800	46600	40000	38400	37500
7	53700	56500	32200	24000	23500	17500	39700	41500	47100	40100	37600	35300
8	53700	56000	30000	24000	23500	17500	39700	40900	46700	40200	38100	34900
9	53900	56500	28000	24000	23500	17000	38200	40800	47700	40400	39800	35100
10	55000	56900	27000	24000	23500	17000	36900	43600	48600	40000	39600	35300
11	56000	56600	26700	24000	23500	16500	37100	45700	48500	39500	40500	35400
12	56100	56600	25600	22000	23500	16500	38100	45200	47700	39500	42600	37400
13	56300	56500	25700	19000	23500	16500	37000	45200	46900	41600	43500	38700
14	56100	56200	25400	18500	23500	16500	35900	46800	46000	41000	42400	39200
15	56800	55900	26100	18500	23500	16500	37400	47600	46100	41300	40700	42500
16	56500	55700	26400	18000	24000	16500	40400	46600	46100	41700	40600	43400
17	56500	56000	26300	18000	25000	17000	42800	47500	44800	42600	40500	42500
18	57000	56000	27200	18000	25000	20000	41700	47600	43600	42500	39700	41200
19	57000	54800	26900	18000	25000	30000	38900	47100	44100	42400	50100	40000
20	57400	55600	27000	17500	25000	20000	39000	46300	46100	41600	44200	39800
21	57000	55800	26000	17500	24500	17000	40500	46400	44300	38800	42100	40400
22	56500	55900	27200	17500	24500	15000	40000	46400	43800	39300	40800	40400
23	55300	55700	27000	18000	24500	25000	39500	46200	43600	39400	37300	41300
24	55600	55500	25800	18000	24000	32000	38900	46700	41300	39700	36800	41700
25	56200	55500	27100	18500	24000	35200	39000	46500	41200	40500	35700	41400
26	56500	55700	27000	20000	23500	37700	39400	46300	40900	40700	38300	41200
27	57000	56900	26500	21000	23500	40400	38000	46100	41900	40800	38000	41300
28	56600	56800	26500	22000	23500	43000	36300	46200	42400	39800	35800	41400
29	56200	57200	26500	23000	---	38600	39300	46500	42200	39200	36100	40800
30	56400	56200	25000	23500	---	39100	39900	47300	41700	41000	36800	39700
31	56500	---	25000	23500	---	39100	---	46900	---	41200	38400	---
TOTAL	1726600	1688500	944000	655500	668500	742600	1158500	1392900	1349200	1262600	1232200	1169400
MEAN	55700	56280	30450	21150	23880	23950	38620	44930	44970	40730	39750	38980
MAX	57400	57600	55400	24500	25000	43000	42800	47600	48600	42600	50100	43400
MIN	53200	54800	25000	17500	23500	15000	35900	38600	40900	38800	35700	34900
AC-FT	3425000	3349000	1872000	1300000	1326000	1473000	2298000	2763000	2676000	2504000	2444000	2320000

CAL YR 1978 TOTAL 14340900 MEAN 39290 MAX 61200 MIN 14300 AC-FT 28450000
WTR YR 1979 TOTAL 13990500 MEAN 38330 MAX 57600 MIN 15000 AC-FT 27750000

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year. Daily sediment loads October 1954 to September 1971 in reports of Corps of Engineers.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1972 to September 1976, November 1977 to current year.
WATER TEMPERATURES: October 1971 to September 1976, November 1977 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 850 micromhos Mar. 29, Apr. 2, 13, Nov. 2, 1973, Dec. 7-9, 1977 and Jan. 26, 1978; minimum daily, 410 micromhos Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 28.0° C. July 30, 1976 and Aug. 7, 1979; minimum daily, 0.0° C on many days during the winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,620 mg/L Nov. 20, 1972; minimum daily mean, 42 mg/L Dec. 29, 1975.
SEDIMENT LOADS: Maximum daily, 222,000 tons (201,000 tonnes) Nov. 20, 1972; minimum daily, 2,970 tons (2,700 tonnes) Dec. 29, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 790 micromhos Sept. 17; minimum daily, 560 micromhos Apr. 1.
WATER TEMPERATURES: Maximum daily, 28.0° C Aug. 7; minimum daily, 0.0° C on many days during the winter period.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	740	695	700				560		---	---	740	750
2	740	700	700				---		---	---	730	760
3	740	695	---				---		680	---	730	760
4	740	695	---				---		690	---	760	775
5	750	700	---				---		695	---	730	760
6	740	700	---				---		690	---	740	725
7	740	700	---				---		690	---	730	740
8	730	700	---				---		695	---	750	770
9	730	700	---				---		690	---	740	750
10	720	700	---				---		---	---	750	760
11	720	700	---				---		---	---	750	775
12	720	700	---				---		---	---	750	760
13	710	705	---				---		---	---	760	760
14	705	680	---				---		---	---	750	745
15	705	675	---				---		---	---	750	760
16	700	690	---				---		---	---	760	760
17	705	690	---				---		695	---	750	790
18	705	610	---				---		710	---	760	740
19	705	760	---				---		700	---	720	725
20	700	710	---				---		690	---	725	720
21	705	700	---				---		710	---	730	710
22	700	695	---				---		710	710	740	750
23	700	695	---				---		710	720	760	---
24	705	695	---				---		---	725	760	---
25	700	690	---				---		---	730	750	---
26	700	695	---				---		---	740	760	---
27	700	695	---				---		---	740	760	---
28	700	695	---				---		---	720	730	---
29	700	695	---				---		---	740	730	---
30	700	700	---				---		---	740	725	---
31	695	---	---				---		---	740	730	---
TOTAL	22150	20860	1400				560		9755	7305	23050	16545
MEAN	715	695	700				560		697	731	744	752
MAX	750	760	700				560		710	740	760	790
MIN	695	610	700				560		680	710	720	710

WTR YR 1979 TOTAL 101625 MEAN 721 MAX 790 MIN 560

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	12.0	.0				3.0		---	---	25.0	25.0
2	18.0	12.0	---				---		---	---	26.0	25.0
3	17.0	13.0	---				---		19.0	---	26.0	25.0
4	17.0	12.0	---				---		19.0	---	24.0	25.0
5	17.0	13.0	---				---		20.0	---	26.0	25.0
6	17.0	11.0	---				---		20.0	---	27.0	25.0
7	16.0	11.0	---				---		20.0	---	28.0	24.0
8	16.0	11.0	---				---		20.0	---	27.0	25.0
9	15.0	11.0	---				---		20.0	---	26.0	24.0
10	15.0	10.0	---				---		---	---	26.0	24.0
11	15.0	8.0	---				---		---	---	26.0	24.0
12	15.0	7.0	---				---		---	---	25.0	23.0
13	15.0	7.0	---				---		---	---	23.0	21.0
14	15.0	6.0	---				---		---	---	24.0	21.0
15	15.0	6.0	---				---		---	---	23.0	20.0
16	14.0	6.0	---				---		---	---	21.0	21.0
17	13.0	5.0	---				---		20.0	---	22.0	21.0
18	13.0	5.0	---				---		21.0	---	24.0	21.0
19	13.0	3.0	---				---		21.0	---	23.0	21.0
20	14.0	3.0	---				---		21.0	---	23.0	20.0
21	13.0	3.0	---				---		21.0	---	23.0	20.0
22	12.0	2.0	---				---		21.0	24.0	24.0	19.0
23	12.0	2.0	---				---		22.0	24.0	24.0	---
24	12.0	2.0	---				---		---	24.0	23.0	---
25	12.0	2.0	---				---		---	25.0	24.0	---
26	12.0	2.0	---				---		---	25.0	23.0	---
27	12.0	10.0	---				---		---	25.0	25.0	---
28	12.0	1.0	---				---		---	26.0	24.0	---
29	12.0	.0	---				---		---	25.0	24.0	---
30	12.0	.0	---				---		---	25.0	23.0	---
31	12.0	---	---				---		---	25.0	26.0	---
TOTAL	442.0	196.0	0.0				3.0		285.0	248.0	758.0	499.0
MEAN	14.5	6.5	.0				3.0		20.5	25.0	24.5	22.5
MAX	19.0	13.0	.0				3.0		22.0	26.0	28.0	25.0
MIN	12.0	.0	.0				3.0		19.0	24.0	21.0	19.0

WTR YR 1979 TOTAL 2431.0 MEAN 17.5 MAX 28.0 MIN .0

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
17...	1455	56500	660	8.4	12.5	14	9.9	93	50	15
NOV										
07...	1420	56500	630	8.2	10.0	4	10.4	92	20	20
DEC										
05...	1300	38900	735	7.5	.0	16	--	--	8	75
JAN										
08...	1200	E24000	740	8.0	.0	4	13.8	97	15	830
FEB										
06...	1630	18600	760	8.0	.0	1	12.7	91	28	23
MAR										
28...	1500	44900	600	7.6	.5	110	15.2	111	58	310
APR										
17...	1600	43300	740	8.4	9.0	66	12.5	113	41	45
MAY										
15...	1415	47600	700	8.4	12.0	27	13.6	131	39	120
JUN										
14...	1020	46400	700	8.1	21.0	23	9.4	109	26	19
JUL										
10...	1430	40000	825	8.3	24.0	24	8.6	105	12	17
AUG										
07...	1300	37000	700	8.3	26.0	22	8.8	111	--	20
SEP										
04...	1515	35400	730	8.3	25.0	24	8.1	100	11	41

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
OCT 17...	96	220	84	64	55	21	21	66	66	38
NOV 07...	47	220	67	57	54	21	20	65	65	39
DEC 05...	80	230	79	--	57	20	21	90	66	38
JAN 08...	20	250	92	--	63	21	23	72	69	37
FEB 06...	K8	240	83	71	61	21	22	66	68	37
MAR 28...	1000	210	92	61	55	21	18	37	37	27
APR 17...	720	210	75	61	53	23	20	--	52	34
MAY 15...	300	280	120	67	67	26	27	59	54	29
JUN 14...	33	250	99	56	60	21	24	60	63	35
JUL 10...	41	230	70	58	54	22	23	--	69	51
AUG 07...	25	230	73	53	57	23	22	62	70	51
SEP 04...	110	250	90	54	62	12	23	61	66	47

DATE	SODIUM ADSORPTION RATIO (00931)	SODIUM+POTASSIUM DISSOLVED (MG/L AS NA) (00933)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K) (00937)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
OCT 17...	1.9	--	4.6	4.8	140	210	10	.7	7.9	480
NOV 07...	1.9	--	4.6	4.9	150	180	9.5	.4	7.3	471
DEC 05...	1.9	--	5.3	5.5	150	200	15	.4	8.2	471
JAN 08...	1.9	--	--	5.8	160	220	11	.4	8.6	502
FEB 06...	1.9	--	5.0	5.4	160	210	10	.4	27	488
MAR 28...	1.1	--	8.3	8.5	120	150	9.0	.3	10	385
APR 17...	1.5	59	6.5	6.5	140	180	11	.4	11	453
MAY 15...	1.4	60	--	5.8	160	210	14	.4	7.4	440
JUN 14...	1.7	68	5.4	5.4	150	200	11	.3	5.8	481
JUL 10...	2.0	75	--	6.0	160	220	11	.5	8.0	494
AUG 07...	2.0	76	5.5	5.5	160	200	11	.5	1.0	484
SEP 04...	1.8	71	4.1	5.4	160	220	14	.5	8.3	503

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)
OCT 17...	460	.65	73200	556	.12	.01	--	.52	.53	.11
NOV 07...	431	.64	71900	754	.13	.02	--	.88	.90	.37
DEC 05...	463	.64	49500	567	.15	.02	--	.36	.38	.00
JAN 08...	497	.68	32500	547	.19	.01	--	.39	.40	.10
FEB 06...	500	.66	24500	521	.27	.06	--	.20	.25	.00
MAR 28...	360	.52	46700	797	1.3	.37	--	1.2	1.6	.00
APR 17...	418	.62	53000	665	1.2	.18	.22	1.1	1.3	.74
MAY 15...	482	.60	56500	638	1.0	.07	.08	.65	--	.00
JUN 14...	460	.65	60300	551	.80	.04	.05	.91	.95	.77
JUL 10...	488	.67	53400	567	.07	.01	.01	.46	.46	.21
AUG 07...	463	.66	48400	601	.08	.03	.04	.46	.49	.22
SEP 04...	496	.68	48100	631	.33	.02	.02	.81	.83	.67

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHATE, TOTAL (MG/L AS PO4) (00650)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 17...	.42	.65	2.9	.05	--	--	.01	4.3	--	--
NOV 07...	.53	1.0	4.6	.06	--	--	.01	3.0	--	--
DEC 05...	.39	.53	2.3	.05	--	--	.02	--	4.2	--
JAN 08...	.30	.59	2.6	.03	--	--	.02	3.8	--	--
FEB 06...	.25	.52	2.3	.02	--	--	.01	--	--	--
MAR 28...	1.9	2.9	13	.54	--	--	.12	--	7.2	13
APR 17...	.56	2.5	11	.23	.71	.71	.07	5.2	--	--
MAY 15...	.84	1.7	7.5	.18	.55	.55	.04	4.5	--	--
JUN 14...	.18	1.0	4.6	.09	.28	.28	.01	--	5.4	2.1
JUL 10...	.25	.53	2.3	.07	--	.21	.02	5.8	--	--
AUG 07...	.27	.57	2.5	.12	--	.37	.01	--	6.1	--
SEP 04...	.16	1.2	5.1	.06	--	.18	.02	--	7.9	.7

DATE	TIME	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 17...	1455	--	--	--	--	--	--	847	129000	10
27...	1000	--	76.2	64.6	.640	.000	--	--	--	--
NOV 07...	1420	1800	--	--	--	--	--	604	76900	14
DEC 05...	1300	--	--	--	--	--	--	457	48000	24
MAR 28...	1500	780	--	--	--	--	--	--	--	--
APR 17...	1600	--	--	--	--	--	--	534	62400	39
MAY 15...	1415	3800	--	--	--	--	--	--	--	--
JUN 14...	1020	--	--	--	--	--	--	331	41500	20
25...	1130	--	12.2	11.3	12.5	.440	71.4	--	--	--
JUL 10...	1430	12000	--	--	--	--	--	384	41500	16
31...	1100	--	25.5	22.1	.833	.024	4D82	--	--	--
AUG 07...	1300	--	--	--	--	--	--	121	12100	50
28...	1100	--	54.7	51.2	3.54	.065	989	--	--	--
SEP 04...	1515	--	--	--	--	--	--	213	20400	28
25...	1200	--	68.3	64.2	53.6	2.24	76.5	--	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) (01006)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
DEC 05...	1300	3	2	100	50	50	0	0	<1	20
MAR 28...	1500	5	2	100	0	100	10	0	10	0
AUG 07...	1300	3	2	200	100	60	19	11	8	0
SEP 04...	1515	6	5	80	0	80	25	15	10	10

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE) (01044)
DEC 05...	20	0	1	0	<3	6	0	6	4000	4000
MAR 28...	0	0	3	3	0	20	9	11	8500	8400
AUG 07...	0	0	0	0	<3	17	3	14	1400	1400
SEP 04...	0	10	1	0	<3	19	8	11	22000	22000

DATE	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) (01050)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71895)	MERCURY DISSOLVED (UG/L AS HG) (71890)
DEC 05...	<0	17	15	2	140	130	10	.0	.0	.0
MAR 28...	110	73	0	88	700	650	50	.1	.0	.1
AUG 07...	0	11	10	1	130	130	<1	.0	.0	.1
SEP 04...	10	4	4	0	170	170	2	.1	.0	.3

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) (01076)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 05...	2	0	2	0	0	0	40	30	8
MAR 28...	2	0	2	0	0	0	50	30	20
AUG 07...	2	0	2	0	0	0	80	80	<3
SEP 04...	2	0	2	0	0	0	20	20	<3

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
NOV 07...	1420	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 29...	0930	ND	--	ND	--	ND	--	ND	--	ND
MAY 15...	1230	ND	--	ND	--	ND	--	ND	--	ND

DATE	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 29...	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 15...	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 29...	ND	--	ND	--	ND	--	ND	--	ND
MAY 15...	ND	--	ND	--	ND	--	ND	--	ND

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)
NOV 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 29...	--	ND	--	ND	--	ND	--	ND	--
MAY 15...	--	ND	--	ND	--	ND	--	ND	--

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO JULY 1979

DATE	NOV 7,78	MAR 28,79	MAY 15,79	JUN 14,79	JUL 10,79
TIME	1420	1500	1415	1020	1430
TOTAL CELLS/ML	1800	780	3800	49000	12000
DIVERSITY: DIVISION	1.2	0.0	1.6	0.8	1.1
.CLASS	1.2	0.0	1.6	0.8	1.1
..ORDER	1.9	0.7	2.2	1.2	1.2
...FAMILY	2.0	1.9	2.9	2.7	2.0
....GENUS	2.6	1.9	3.4	3.6	3.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	1800	4	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	--	-	1200	3	*	0
....MICRACTINIUM	--	-	--	-	770#	21	10000#	22	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	44	2	--	-	42	1	1400	3	150	1
....DICTYOSPHAERIUM	--	-	--	-	--	-	5100	10	3000#	26
....KIRCHNERIELLA	15	1	--	-	--	-	--	-	--	-
....OOCYSTIS	190	11	--	-	--	-	620	1	500	4
....SELENASTRUM	--	-	--	-	*	0	3400	7	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	120	1
....WESTELLA	--	-	--	-	56	1	--	-	150	1
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	110	3	2500	5	1500	13
....SCENEDESMUS	58	3	--	-	280	7	9200#	19	2500#	21
....TETRASTRUM	--	-	--	-	110	3	1200	3	460	4
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	98	3	1700	3	120	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	590#	34	130#	17	220	6	920	2	1300	12
....MELOSIRA	260	15	--	-	70	2	620	1	--	-
....STEPHANODISCUS	--	-	--	-	390	10	620	1	--	-
..PENNALES										
...FRAGILARIACEAE										
....ASTERIONELLA	390#	22	260#	33	790#	21	3100	6	--	-
....FRAGILARIA	--	-	--	-	--	-	1100	2	--	-
....SYNEDRA	--	-	--	-	*	0	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	130#	17	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	15	1	260#	33	220	5	2500	5	77	1
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	*	0	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	--	-	28	1	*	0	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	620	5
....ANACYSTIS	170	10	--	-	70	2	920	2	930	8
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	420	11	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	29	2	--	-	28	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%.

06600100 FLOYD RIVER AT ALTON, IA

LOCATION.--Lat 42°58'55", long 96°00'03", in NE1/4 NE1/4 sec.11, T.94 N., R.44 W., Sioux County, Hydrologic Unit 10230002, on left bank at downstream side of Chicago and Northwestern Railway Company bridge at east edge of Alton, 34.3 mi (55.2 km) upstream from West Branch Floyd River at mile 58.1 (93.5 km).

DRAINAGE AREA.--265 mi² (686 km²).

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

GAGE.--Water-stage recorder. Datum of gage is 1,269.55 ft (386.959 m) NGVD.

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

AVERAGE DISCHARGE.--24 years, 48.7 ft³/s (1.379 m³/s), 2.50 in/yr (64 mm/yr), 35,280 acre-ft/yr (43.5 hm³/yr); median of yearly mean discharges, 44 ft³/s (1.25 m³/s), 2.3 in/yr (58 mm/yr), 31,900 acre-ft/yr (39.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) Mar. 23, 1979, gage height, 18.4 ft (5.61 m); no flow at times in 1956, 1958-59, 1965, 1968, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a discharge of about 45,500 ft³/s (1,290 m³/s), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	----	*14,000	396	*18.4	5.61	May 11	0130	2,870	81.3	16.07	4.898
Mar. 30	----	1,600	45.3	Unknown	---						

Minimum daily discharge, 0.40 ft³/s (0.011m³/s) Jan. 27 to Feb. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.9	5.0	.75	.40	.60	416	123	134	83	111	118
2	5.7	5.7	5.0	.68	.40	.60	333	136	128	79	86	119
3	5.8	6.2	5.0	.66	.40	.60	283	141	124	73	76	106
4	6.3	6.4	5.0	.64	.40	.60	256	130	120	68	63	95
5	7.4	7.0	5.0	.64	.40	.60	245	121	116	53	54	88
6	8.5	6.1	4.9	.64	.40	.60	203	115	114	65	46	89
7	8.0	6.3	4.9	.64	.40	.60	198	109	110	54	42	100
8	8.5	6.8	4.9	.64	.40	.60	199	108	107	52	41	90
9	8.5	7.8	4.5	.64	.40	.60	187	225	110	51	113	81
10	8.5	8.1	4.0	.64	.40	.60	167	1540	121	49	148	73
11	9.1	7.6	4.0	.63	.40	.80	178	2140	122	45	97	65
12	9.1	8.2	4.0	.62	.40	1.0	382	624	127	41	71	94
13	8.5	9.8	3.5	.60	.40	2.5	425	441	119	39	60	229
14	7.4	8.7	3.5	.60	.40	2.5	284	353	111	37	52	321
15	8.5	8.7	3.5	.50	.40	3.0	235	318	105	35	47	238
16	8.5	8.2	3.0	.50	.40	5.0	217	275	107	33	43	177
17	8.5	8.0	3.0	.50	.40	10	224	247	115	31	43	147
18	8.0	8.0	3.0	.40	.40	70	211	256	129	29	42	126
19	8.0	7.0	3.0	.40	.40	500	195	250	185	28	75	111
20	8.0	6.4	2.8	.40	.40	708	184	231	258	27	108	101
21	8.0	6.0	2.5	.40	.40	1200	178	207	279	26	217	93
22	8.0	5.6	2.2	.40	.40	2100	163	193	179	32	366	86
23	8.0	5.6	2.0	.40	.40	7080	150	181	150	32	258	80
24	8.0	5.6	1.8	.40	.40	1010	140	170	135	28	187	78
25	8.0	5.6	1.7	.40	.40	820	144	164	124	26	143	74
26	7.4	5.6	1.5	.40	.40	780	153	154	113	25	128	68
27	7.4	5.6	1.3	.40	.50	762	149	163	109	25	180	65
28	8.0	5.4	1.2	.40	.60	800	136	152	106	24	223	63
29	8.0	5.2	1.0	.40	----	850	131	145	97	27	191	59
30	7.4	5.0	.95	.40	---	1100	130	142	90	192	155	55
31	7.4	---	.85	.40	---	952	---	142	----	166	129	---
TOTAL	242.0	203.1	98.50	16.12	11.50	18762.80	6498	9717	3954	1576	3604	3290
MEAN	7.81	6.77	3.18	.52	.41	606	217	313	132	50.8	116	110
MAX	9.1	9.8	5.0	.75	.60	7080	426	2140	279	192	366	321
MIN	5.6	5.0	.85	.40	.40	.50	130	108	90	24	41	56
CFSM	.03	.03	.01	.002	.002	2.28	.82	1.18	.50	.19	.44	.42
IN.	.03	.03	.01	.00	.00	2.63	.91	1.36	.56	.22	.51	.46
AC-FT	480	403	195	32	23	37220	12890	19270	7840	3130	7150	6530

CAL YR 1978	TOTAL	18474.50	MEAN	50.6	MAX	1150	MIN	.85	CFSM .19	IN 2.59	AC-FT	36640
WTR YR 1979	TOTAL	47973.02	MEAN	131	MAX	7080	MIN	.40	CFSM .49	IN 6.73	AC-FT	95150

06600300 WEST BRANCH FLOYD RIVER NEAR STRUBLE, IA

LOCATION.--Lat 42°55'15", long 96°10'30", in NE1/4 NE1/4 sec.32, T.94 N., R.45 W., Sioux County, Hydrologic Unit 10230002, on left bank near wingwall at downstream side of bridge on county highway B62, 0.2 mi (0.3 km) west of U.S. Highway 75, 0.8 mi (1.3 km) downstream from Orange City slough, 2.2 mi (3.5 km) northeast of Struble, 14 mi (23 km) upstream from Floyd River, and at mile 39.3 (63.2 km).

DRAINAGE AREA.--181 mi² (469 km²).

PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.

GAGE.--Water-stage recorder. Datum of gage is 1,239.40 ft (377.769 m) NGVD (State Highway Commission benchmark).

REMARKS.--Records fair except those for winter period and period of no gage-height record Oct. 1 to Nov. 11, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 31.1 ft³/s (0.881 m³/s), 2.33 in/yr (59 mm/yr), 22,530 acre-ft/yr (27.8 hm³/yr); median of yearly mean discharges, 27 ft³/s (0.76 m³/s), 2.0 in/yr (51 mm/yr), 19,600 acre-ft/yr (24.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,060 ft³/s (228 m³/s) Mar. 28, 1962, gage height, 15.63 ft (4.764 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	----	830	23.5	ice jam	---	Mar. 30	1000	2,150	60.9	13.00	3.962
Mar. 22	2345	*6,880	195	*15.39	4.691	May 10	1200	962	27.2	9.49	2.893
Mar. 29	0400	1,360	38.5	10.89	3.319	July 30	0500	636	18.0	8.28	2.524

Minimum daily discharge, 0.05 ft³/s (0.001 m³/s) Feb. 6-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	3.1	2.1	.80	.06	.35	208	61	57	33	38	71
2	5.8	3.3	2.0	.80	.06	.40	174	78	55	30	34	73
3	4.4	3.9	2.0	.80	.06	.40	147	69	53	29	33	61
4	6.1	3.6	2.0	.80	.06	.45	135	64	52	27	30	54
5	6.1	3.6	2.0	.80	.05	.46	136	61	49	25	26	49
6	5.8	3.3	1.9	.76	.06	.45	106	57	49	23	23	61
7	5.8	3.6	1.8	.74	.05	.45	104	53	47	22	22	42
8	5.2	3.9	1.8	.71	.05	.45	*102	53	46	22	22	67
9	7.1	4.1	1.7	.70	.05	.45	91	188	51	21	30	42
10	6.1	4.1	1.6	.70	.05	.45	84	760	61	25	70	38
11	6.4	3.9	1.5	.60	.06	.45	86	388	57	27	45	36
12	6.8	4.1	1.5	.50	.07	.45	298	215	54	23	34	94
13	8.1	5.2	1.5	.50	.07	.47	189	185	53	23	29	189
14	6.1	4.0	1.5	.50	.07	.50	144	161	50	22	24	148
15	5.5	4.0	1.5	.50	.07	.60	130	144	47	21	22	99
16	6.5	3.5	1.4	.45	.08	1.0	114	121	50	20	21	83
17	5.8	3.6	1.3	.45	.08	5.0	96	110	53	20	22	73
18	6.4	3.1	1.3	.40	.08	27	88	114	83	19	20	64
19	6.1	2.8	1.3	.35	.08	100	81	115	91	19	61	57
20	6.1	2.5	1.2	.30	.09	738	86	104	129	18	128	53
21	6.1	2.5	1.2	.25	.10	2000	85	93	76	18	154	49
22	5.8	2.6	1.2	.20	.15	4640	78	87	61	23	192	45
23	5.2	2.4	1.2	.15	.20	2440	73	80	55	24	113	43
24	6.1	2.3	1.2	.10	.20	625	69	75	51	22	77	43
25	5.8	2.2	1.1	.09	.25	482	81	71	47	19	65	40
26	4.9	2.1	1.0	.08	.30	375	84	73	44	17	77	38
27	6.5	2.1	1.0	.08	.30	278	72	71	44	17	156	36
28	4.9	2.1	1.0	.08	.30	563	67	67	41	17	180	35
29	4.9	2.1	.90	.07	---	1140	67	62	37	19	109	33
30	3.9	2.1	.90	.06	---	1940	67	61	35	264	87	32
31	3.1	---	.80	.06	---	355	---	60	---	64	73	---
TOTAL	178.8	95.5	44.40	13.38	3.09	15715.77	3341	3901	1678	973	2017	1848
MEAN	5.77	3.18	1.43	.43	.11	507	111	126	55.9	31.4	65.1	61.6
MAX	8.1	5.2	2.1	.80	.30	4640	298	760	129	264	192	189
MIN	3.1	2.1	.80	.06	.05	.35	67	53	35	17	20	32
CFSM	.03	.02	.008	.002	.001	2.80	.61	.70	.31	.17	.36	.34
IN.	.04	.02	.01	.00	.00	3.23	.69	.80	.34	.20	.41	.38
AC-FT	355	189	88	27	6.1	31170	6630	7740	3330	1930	4000	3670

CAL YR 1978	TOTAL	14013.70	MEAN	38.4	MAX	1600	MIN	.00	CFSM	.21	IN	2.88	AC-FT	27800
WTR YR 1979	TOTAL	29808.94	MEAN	81.7	MAX	4640	MIN	.05	CFSM	.45	IN	6.13	AC-FT	59130

06600500 FLOYD RIVER AT JAMES, IA

LOCATION.--Lat 42°34'36", long 96°18'43", in SE1/4 SE1/4 sec.30, T.90 N., R.46 W., Plymouth County, Hydrologic Unit 10230002, on right bank at downstream side of bridge on county highway C70, 0.2 mi (0.3 km) east of James, 14.3 mi (23.0 km) downstream from West Branch Floyd River, and at mile 9.5 (15.3 km).

DRAINAGE AREA.--882 mi² (2,284 km²).

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

REVISED RECORDS.--WSP 1240: 1935 (M), 1936, 1937-38 (M), 1942, 1945. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,092.59 ft (333.021 m) NGVD. Prior to Sept. 11, 1938, June 9 to Nov. 5, 1953, and Oct. 1, 1955, to May 22, 1957, nonrecording gage and May 23, 1957, to Sept. 30, 1970, water-stage recorder at same site at datum 10.0 ft (3.048 m) higher.

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

AVERAGE DISCHARGE.--44 years (water years 1936-79), 179 ft³/s (5.069 m³/s), 2.76 in/yr (70 mm/yr), 129,700 acre-ft/yr (160 hm³/yr); median of yearly mean discharges, 150 ft³/s (4.25 m³/s), 2.3 in/yr (58 mm/yr), 109,000 acre-ft/yr (134 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,500 ft³/s (2,020 m³/s) June 8, 1953, gage height, 25.3 ft (7.71 m), from floodmarks, datum then in use, from rating curve extended above 16,000 ft³/s (453 m³/s) on basis of contracted-opening and flow-over-embankment measurement of peak flow; minimum daily, 0.90 ft³/s (0.025 m³/s) Jan. 10-22, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage and discharge since 1892, that of June 8, 1953, from information by Corps of Engineers.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	2045	*15,500	439	*28.19	8.592
Mar. 31	1100	4,020	114	a17.59	5.361
May 12	0600	3,550	101	16.97	5.172

a Observed

Minimum daily discharge, 6.3 ft³/s (0.18 m³/s) Jan. 6-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	43	29	6.4	8.6	8.2	2010	307	320	247	458	571
2	51	42	29	6.4	8.8	8.2	1270	304	312	243	316	450
3	51	40	29	6.4	9.0	8.2	1030	326	312	226	252	380
4	51	40	28	6.4	9.2	8.2	874	323	309	210	220	340
5	51	40	28	6.4	9.4	8.2	797	309	272	195	187	297
6	51	39	28	6.3	9.4	8.2	703	288	265	190	164	300
7	51	39	28	6.3	9.4	8.2	607	273	265	183	144	306
8	51	39	28	6.3	9.4	8.2	575	368	265	178	132	408
9	51	39	27	6.3	9.4	8.2	544	469	257	173	129	325
10	50	38	27	6.3	9.4	8.2	492	2220	301	171	157	262
11	50	38	27	6.3	9.4	8.2	459	3360	306	184	309	235
12	50	38	26	6.3	9.4	8.2	708	2860	309	183	238	262
13	50	42	26	6.3	9.4	8.2	1130	1530	301	156	184	516
14	50	38	26	6.3	9.3	8.2	893	1210	280	149	163	701
15	50	38	25	6.3	9.0	10	673	1040	265	142	144	755
16	48	39	25	6.3	8.6	50	579	868	275	130	132	612
17	47	40	25	6.3	8.4	200	525	752	337	123	127	489
18	46	40	25	6.3	8.2	2000	511	762	331	114	128	415
19	45	39	25	6.4	8.2	5000	475	798	374	108	837	368
20	45	34	25	6.4	8.2	5260	452	710	695	103	469	330
21	45	33	25	6.6	8.2	4880	435	626	635	98	1090	306
22	45	32	24	6.6	8.2	5990	404	550	569	98	946	284
23	45	32	20	6.8	8.2	12300	373	492	426	107	908	263
24	44	32	17	7.0	8.2	9170	344	460	371	114	679	250
28	43	32	15	7.2	8.2	3560	344	439	337	103	507	240
26	43	32	13	7.4	8.2	2300	379	450	316	94	495	229
27	42	31	12	7.6	8.2	1690	367	428	311	90	562	217
28	43	30	10	7.8	8.2	1540	345	392	422	92	658	208
29	43	30	9.0	8.0	---	2980	323	368	335	93	675	199
30	43	30	8.0	8.2	---	3550	311	357	270	397	543	190
31	43	---	7.0	8.4	---	3890	---	334	---	930	450	---
TOTAL	1468	1099	696.0	208.3	245.7	64484.8	18932	23973	10343	5624	12403	10708
MEAN	47.4	36.6	22.5	6.72	8.78	2080	631	773	345	181	400	357
MAX	51	43	29	8.4	9.4	12300	2010	3360	695	930	1090	755
MIN	42	30	7.0	6.3	8.2	8.2	311	273	257	90	127	190
CFSM	.05	.04	.03	.008	.01	2.36	.72	.88	.39	.21	.45	.41
IN.	.06	.05	.03	.01	.01	2.72	.80	1.01	.44	.24	.52	.45
AC-FT	2910	2180	1380	413	487	127900	37550	47550	20520	11160	24600	21240

CAL YR 1978 TOTAL 70449.0 MEAN 193 MAX 6910 MIN 3.0 CFSM .22 IN 2.97 AC-FT 139700
WTR YR 1979 TOTAL 150184.8 MEAN 411 MAX 12300 MIN 5.3 CFSM .47 IN 6.33 AC-FT 297900

06601200 MISSOURI RIVER AT DECATUR, NB

WATER-QUALITY RECORDS

LOCATION.--Lat 42°00'26", long 96°14'29", NE1/4 SW1/4 sec. 36, T.24 N., R.10 E., Burt County, Hydrologic Unit 10230001, at bridge on State Highway 175 and 51 at Decatur, Nebraska, 6.0 mi (9.7 km) west of Onawa, Iowa and at mile 691.0 (1,111.8 km).

DRAINAGE AREA.--316,160 mi² (818,850 km²).

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

REMARKS.--Water discharge estimated on basis of records at gaging station 41.3 mi (66.4 km) upstream at Sioux City. No significant inflow between gaging station and sampling site. Records of daily gage heights available in subdistrict office, USGS, Council Bluffs, Iowa.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)
OCT												
18...	0930	52200	700	8.2	12.5	7	9.9	93	29	14000	60	21
NOV												
08...	1120	53400	710	8.4	9.5	12	10.0	88	25	10000	54	20
DEC												
05...	1055	38900	670	8.7	.0	17	--	--	12	7800	50	22
JAN												
08...	1015	E24000	840	8.4	.0	6	13.5	95	20	7800	48	22
FEB												
06...	1120	19000	770	8.0	.0	6	12.2	87	31	2300	72	21
MAR												
28...	1245	39100	490	8.0	2.5	210	13.4	103	86	14500	69	22
APR												
17...	1130	--	660	8.0	9.0	76	11.2	99	45	6500	64	24
MAY												
16...	1130	45700	740	8.0	12.5	24	10.4	100	21	3100	70	26
JUN												
13...	1320	46300	720	8.1	22.0	22	8.4	100	--	850	15	22
JUL												
11...	1030	36400	730	8.0	25.0	25	8.3	102	14	2000	65	22
AUG												
07...	1130	38000	740	8.1	26.0	21	7.9	100	--	7000	53	22
SEP												
05...	1245	34400	780	8.2	26.0	1	7.6	96	9	770	50	20

DATE	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT											
18...	60	4.5	180	0	150	1.8	210	10	478	.65	67400
NOV											
08...	65	4.5	170	3	140	1.1	180	9.5	457	.62	65900
DEC											
05...	92	5.4	210	0	170	.7	200	14	470	.64	49400
JAN											
08...	--	4.9	200	0	160	1.3	230	12	517	.70	33500
FEB											
06...	67	5.3	--	--	170	--	210	10	503	.68	25800
MAR											
28...	22	11	--	--	110	--	100	13	319	.43	33700
APR											
17...	46	5.1	--	--	140	--	170	12	451	.61	--
MAY											
16...	5.9	3.5	190	0	160	3.0	210	14	493	.67	60800
JUN											
13...	70	5.1	--	--	150	--	220	11	471	.64	58900
JUL											
11...	70	5.1	--	--	160	--	230	11	495	.67	48600
AUG											
07...	63	5.5	--	--	160	--	210	13	493	.67	50600
SEP											
05...	63	3.7	--	--	160	--	220	15	496	.67	46100

06601200 MISSOURI RIVER AT DECATUR, NB--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHATE, TOTAL (MG/L AS PO4) (00650)	PHOS-PHORUS TOTAL (MG/L AS PO4) (71886)
OCT											
18...	551	.13	.01	--	.83	.84	.97	4.3	.05	--	--
NOV											
08...	699	.15	.04	--	.39	.43	.58	2.6	.12	--	--
DEC											
05...	512	.18	.04	--	.29	.33	.51	2.3	.07	--	--
JAN											
08...	564	.22	.03	--	.40	.43	.65	2.9	.05	--	--
FEB											
06...	538	.24	.11	--	.29	.40	.64	2.8	.03	--	--
MAR											
28...	1240	3.2	.89	--	2.9	3.8	7.0	31	1.0	--	--
APR											
17...	733	1.4	.23	.28	1.2	1.4	2.8	12	.28	.86	.86
MAY											
16...	639	1.0	.05	.06	.63	.68	1.7	7.4	.17	.52	.52
JUN											
13...	538	.17	.16	.19	.54	.70	.87	3.9	.08	.25	.25
JUL											
11...	569	.09	.01	.01	.30	.31	.40	1.8	.08	--	.25
AUG											
07...	625	.13	.01	.01	.48	.49	.62	2.7	.09	--	.28
SEP											
06...	593	.37	.02	.02	.82	.84	1.2	5.4	.07	--	.21

06602020 WEST FORK DITCH AT HORNICK, IA

LOCATION.--Lat 42°13'37", long 96°04'40", in SW1/4 sec.27, T.86 N., R.45 W., Woodbury County, Hydrologic Unit 10230004, on left bank at upstream side of State Highway 141 bridge, 1.0 mi (1.6 km) east of Hornick, 9.2 mi (14.8 km) upstream from Wolf Creek, and 13.5 mi (21.7 km) north of Onawa.

DRAINAGE AREA.--403 mi² (1,044 km²).

PERIOD OF RECORD.--April 1939 to September 1969 (published as "at Holly Springs"), July 1974 to current year.

REVISED RECORDS.--WSP 1240: 1943, 1945 (M). WSP 1310: 1941 (M) 1944-46 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,045.82 ft (318.766 m) NGVD. Prior to June 16, 1959, nonrecording gage at site 3.0 mi (4.8 km) upstream and June 16, 1959 to Sept. 30, 1969, recording gage at site 2.2 mi (3.5 km) upstream at datum 7.0 ft (2.134 m) higher.

REMARKS.--Records good except those for winter period and those of no gage-height record Jan. 10-24, Jan. 26 to Feb. 27, Mar. 1-13, 15-19, 21-23, 25, 27, 28, Apr. 1-3, 5-15, which are poor. West Fork ditch is a dredged channel which diverts flow of West Fork Little Sioux River at Holly Springs 5.5 mi (8.8 km) south, thence southeast 6.5 mi (10.5 km) to a point 1.2 mi (1.9 km) west of Kennebec, where Wolf Creek enters from left. From this point, ditch roughly parallels Little Sioux River and becomes known as Monona-Harrison ditch. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--35 years (1940-69, 1975-79), 94.1 ft³/s (2.665 m³/s), 3.17 in/yr (81 mm/yr), 68,180 acre-ft/yr, (84.1 hm³/yr); median of yearly mean discharges, 84 ft³/s (2.38 m³/s), 2.8 in/yr (71 mm/yr), 60,900 acre-ft/yr (75.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft³/s (351 m³/s) Mar. 28, 1962, gage height, 22.46 ft (6.846 m), site and datum then in use; maximum gage height, 25.2 ft (7.681 m) site and datum then in use, Mar. 30, 1960, from floodmark; minimum daily discharge, 0.2 ft³/s (0.006 m³/s) July 30, Aug. 17, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	1430	*5,600	159	*a20.05	6.111	Aug. 22	0330	2,090	58.9	13.76	4.194
May 10	1445	2,110	59.2	13.79	4.203						

a Observed

Minimum daily discharge, 4.6 ft³/s (0.13 m³/s) Dec. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	22	10	8.0	10	14	280	145	110	112	203	233
2	24	22	6.2	8.1	10	16	250	165	100	104	100	289
3	23	22	9.1	8.4	10	20	230	156	95	91	84	191
4	23	23	11	8.6	10	30	220	143	91	80	77	154
5	25	22	8.0	8.8	10	39	200	137	89	78	67	135
6	24	22	7.2	9.1	10	37	195	135	87	73	60	130
7	24	22	6.5	9.4	10	41	190	129	81	73	56	123
8	24	22	6.0	9.4	10	40	185	229	81	71	53	121
9	24	23	5.3	9.6	10	37	180	635	89	67	50	116
10	25	23	4.8	9.8	10	44	170	1520	117	65	47	106
11	26	22	4.6	9.9	11	47	175	773	122	64	46	98
12	26	24	4.7	10	11	40	210	352	111	77	44	96
13	26	25	4.8	10	11	37	240	298	106	71	42	155
14	25	25	4.8	10	11	34	221	273	100	62	45	228
15	24	22	4.9	10	11	100	200	232	93	71	45	175
16	23	23	5.0	10	11	190	187	206	92	68	43	142
17	23	24	5.2	10	11	120	173	182	181	60	42	128
18	23	24	5.3	10	11	1000	169	162	193	57	40	116
19	22	27	5.3	10	11	2200	167	166	171	54	331	105
20	23	29	5.4	10	11	5400	170	160	456	52	923	100
21	23	39	5.8	10	12	3000	185	144	251	51	963	96
22	23	33	6.0	10	12	2000	178	133	178	53	1460	91
23	23	28	7.0	10	12	1300	161	125	150	63	459	82
24	23	24	6.5	10	12	900	152	119	137	82	311	87
25	23	19	7.6	10	12	700	155	114	128	78	202	85
26	23	17	7.9	10	12	550	187	113	119	61	228	83
27	23	13	7.9	10	12	380	180	121	111	54	465	78
28	23	11	8.0	10	13	290	160	118	301	53	358	76
29	24	13	8.2	10	---	330	151	111	203	53	257	74
30	23	11	8.0	10	---	390	148	105	132	65	200	70
31	22	---	7.9	10	---	310	---	112	---	154	167	---
TOTAL	736	676	204.9	299.1	307	19636	5669	7513	4275	2217	7468	3763
MEAN	23.7	22.5	6.61	9.65	11.0	633	189	242	143	71.5	241	125
MAX	26	39	11	10	13	5400	280	1520	456	154	1460	289
MIN	22	11	4.6	8.0	10	14	148	105	81	51	40	70
CFSM	.06	.06	.02	.02	.03	1.57	.47	.60	.36	.18	.60	.31
IN.	.07	.06	.02	.03	.03	1.81	.52	.69	.39	.20	.69	.35
AC-FT	1460	1340	406	593	609	38950	11240	14900	8480	4400	14810	7460

CAL YR 1978	TOTAL	34120.9	MEAN	93.5	MAX	3720	MIN	4.6	CFSM	.23	IN 3.15	AC-FT	67680
WTR YR 1979	TOTAL	52764.0	MEAN	145	MAX	5400	MIN	4.6	CFSM	.36	IN 4.87	AC-FT	104700

MONONA-HARRISON DITCH BASIN

06602400 MONONA-HARRISON DITCH NEAR TURIN, IA

LOCATION.--Lat 41°57'52", long 95°59'30", in NW1/4 NE1/4 sec.32, T.83 N., R.44 W., Monona County, Hydrologic Unit 10230004, on left pier at downstream side of bridge on county highway E54, 1.0 mi (1.6 km) west of gaging station on Little Sioux River near Turin, 4 mi (6.4 km) southwest of Turin, 5.2 mi (8.4 km) northeast of Blencoe, and 12.5 mi (20.1 km) upstream from mouth.

DRAINAGE AREA.--900 mi² (2,331 km²).

PERIOD OF RECORD.--April 1939 to current year. Records for April 1939 to January 1958 not equivalent owing to diversion from Little Sioux River through equalizer ditch 1.5 mi (2.4 km) upstream. Prior to May 1942, published as "near Blencoe".

GAGE.--Water-stage recorder. Datum of gage is 1,015.00 ft (309.372 m) NGVD (Corps of Engineers bench mark). Prior to May 7, 1942, non-recording gage at site 4.8 mi (7.7 km) downstream at datum 5.40 ft (1.646 m) lower. May 7, 1942, to Oct. 13, 1953, nonrecording gage and Oct. 14, 1953 to Sept. 30, 1975, recording gage at same site at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good except those for winter period, which are poor. Monona-Harrison ditch is a dug channel and is a continuation of West Fork ditch, paralleling the Little Sioux River, and discharging into the Missouri River 1.5 mi (2.4 km) upstream from the mouth of the Little Sioux River. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years, 210 ft³/s (5.947 m³/s), 3.17 in/yr (81 mm/yr), 152,100 acre-ft/yr (188 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s (564 m³/s) Feb. 19, 1971, gage height, 23.03 ft (7.020 m); minimum daily, 8.5 ft³/s (0.24 m³/s) Jan. 3-11, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,440 ft³/s (211 m³/s) Mar. 20, gage height, 20.95 ft (6.386 m) time unknown, from graph based on gage readings; no other peak above base of 2,500 ft³/s (70.8 m³/s); minimum daily, 24 ft³/s (0.68 m³/s) Jan. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	59	45	24	29	26	545	241	196	187	249	298
2	52	61	46	24	32	28	466	330	194	172	169	476
3	53	64	47	25	32	50	403	318	185	165	131	292
4	52	64	47	25	31	88	375	264	183	158	124	223
5	58	67	47	25	31	89	359	247	175	147	111	197
6	60	59	48	25	30	84	327	238	164	138	99	186
7	56	59	48	26	30	94	308	229	161	133	89	184
8	56	61	48	26	30	90	317	229	159	122	82	169
9	60	62	48	27	29	84	302	697	163	113	79	220
10	60	60	47	28	30	108	289	896	213	108	75	173
11	59	60	47	28	31	110	288	914	223	108	70	150
12	56	60	47	29	31	92	387	622	202	111	64	144
13	56	60	47	29	32	108	480	435	180	115	63	174
14	59	60	47	29	33	144	403	413	176	102	62	265
15	59	55	47	29	29	480	337	359	165	111	68	229
16	53	55	47	30	30	270	315	331	160	122	65	192
17	55	55	47	31	31	1880	297	309	210	94	63	174
18	55	59	46	33	27	4000	287	312	330	75	61	161
19	58	44	45	34	31	5100	273	314	370	78	71	150
20	58	48	44	34	33	7000	264	308	441	78	1080	142
21	60	52	56	34	34	5400	285	274	456	77	759	137
22	62	53	63	33	36	3300	281	239	307	79	1550	133
23	61	54	61	32	35	2500	261	226	258	95	630	131
24	63	53	66	31	35	2120	246	217	236	112	447	127
25	62	52	48	31	33	1420	248	211	220	122	297	131
26	61	51	39	33	32	953	293	209	200	79	324	124
27	60	49	30	34	31	721	284	198	183	94	655	119
28	61	48	26	33	29	651	259	194	230	90	518	113
29	62	46	25	34	---	877	244	201	349	91	345	110
30	65	41	26	34	---	947	239	186	198	105	280	109
31	59	---	25	34	---	645	---	185	---	109	239	---
TOTAL	1801	1671	1400	924	877	39459	9662	10346	6887	3490	8919	5433
MEAN	58.1	55.7	45.2	29.8	31.3	1273	322	334	230	113	288	181
MAX	65	67	66	34	36	7000	545	914	456	187	1550	476
MIN	50	41	25	24	27	26	239	185	159	75	61	109
CFSM	.07	.06	.05	.03	.04	1.41	.36	.37	.26	.13	.32	.20
IN.	.07	.07	.06	.04	.04	1.63	.40	.43	.28	.14	.37	.22
AC-FT	3570	3310	2780	1830	1740	78270	19160	20520	13660	6920	17690	10780

CAL YR 1978	TOTAL	79082	MEAN 217	MAX 8020	MIN 25	CFSM .24	IN 3.27	AC-FT@ 156900		
WTR YR 1979	TOTAL	90869	MEAN 249	MAX 7000	MIN 24	CFSM .28	IN 3.76	AC-FT 180200		

06605000 OCHEYEDAN RIVER NEAR SPENCER, IOWA

LOCATION.--Lat 43° 07'44", long 95° 12' 37", in SW1/4SW1/4 sec.15, T.96N., R.37W., Clay County, Hydrologic Unit 10230003, on left bank 3 ft (1 m) downstream from bridge on county highway M38, 3.4 mi (5.5 km) west by southwest of Spencer, and at mile 4.1 (6.6 km).

DRAINAGE AREA.--426 mi² (1,103 km²).

PERIOD OF RECORD.--October 1977 to current year. Occasional low-flow measurements, water years 1957-51, 1964, 1966-68, 1970, 1971, 1974-77.

GAGE.--Water-stage recorder. Datum of gage is 1311.66 ft NGVD.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,960 ft³/s (112 m³/s) May 11, 1979, gage height, 9.54 ft (2.908 m); maximum gage height, 9.96 ft (3.036 m) Mar. 23, 1979, backwater from ice; no flow Jan. 24 to Mar. 9, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 2.95 ft³/s (0.084 m³/s) was measured Oct. 17, 1958.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s (48.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 23	----	Ice jam	----	*9.96	3.036
Mar. 31	0300	2,980	84.4	9.19	2.801
May 11	1115	*3,960	112	9.54	2.908
Aug. 23	1715	2,840	80.4	9.12	2.780
Aug. 28	0930	1,890	53.5	8.29	2.527
Sept. 14	----	1,700	48.1	a8.00	2.438

a Observed

No flow Jan. 24 to Mar. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	23	14	2.5	.00	.00	1630	386	258	157	192	678
2	32	22	13	2.4	.00	.00	1140	433	245	149	154	647
3	32	22	12	2.2	.00	.00	917	429	232	144	140	560
4	31	22	11	2.0	.00	.00	843	389	216	135	130	493
5	32	22	11	1.5	.00	.00	810	365	202	125	114	453
6	31	22	10	1.2	.00	.00	668	339	199	119	97	794
7	31	22	10	.90	.00	.00	620	320	205	115	84	1100
8	31	22	9.4	.70	.00	.00	707	341	200	112	78	809
9	30	22	9.0	.54	.00	.00	629	498	192	110	127	636
10	30	22	8.7	.43	.00	.03	553	1200	205	106	171	544
11	30	22	8.4	.33	.00	.06	538	2880	219	105	143	473
12	29	24	8.8	.26	.00	.13	780	1490	210	99	124	600
13	28	25	9.3	.20	.00	.30	1120	978	196	103	115	1000
14	28	27	9.5	.15	.00	.70	808	815	182	115	110	1700
15	28	27	9.3	.12	.00	1.8	716	692	174	115	105	1100
16	27	26	9.0	.09	.00	4.9	680	602	173	103	105	910
17	27	25	9.0	.08	.00	9.8	723	545	187	99	118	745
18	27	24	8.8	.06	.00	25	670	520	192	94	202	675
19	26	23	8.3	.04	.00	80	680	526	201	88	240	515
20	26	23	8.0	.03	.00	170	616	499	332	89	708	460
21	26	22	7.5	.03	.00	400	593	447	466	94	1210	404
22	26	22	7.0	.02	.00	930	532	416	332	104	1550	370
23	25	21	6.4	.02	.00	1540	480	375	274	118	2350	345
24	24	23	5.9	.00	.00	1980	444	344	245	114	1740	320
25	25	20	5.2	.00	.00	2210	444	327	224	96	893	301
26	25	19	4.7	.00	.00	2300	483	319	208	88	770	285
27	25	18	4.2	.00	.00	2210	447	315	200	84	1310	269
28	23	17	3.8	.00	.00	1980	404	288	188	79	1800	261
29	23	16	3.3	.00	---	1830	409	271	178	78	1310	243
30	23	15	3.0	.00	---	2250	413	280	165	216	917	234
31	26	---	2.7	.00	---	2420	---	283	---	292	753	---
TOTAL	859	660	250.2	15.80	.00	20342.72	20497	17912	6701	3645	17860	17924
MEAN	27.7	22.0	8.07	.51	.000	656	683	578	223	118	576	597
MAX	32	27	14	2.5	.00	2420	1630	2880	466	292	2350	1700
MIN	23	15	2.7	.00	.00	.00	404	271	165	78	78	234
CFSM	.07	.05	.02	.001	.000	1.54	1.60	1.36	.52	.28	1.35	1.40
IN.	.08	.06	.02	.00	.00	1.78	1.79	1.56	.59	.32	1.56	1.57
AC-FT	1700	1310	496	31	.00	40350	40660	35530	13290	7230	35430	35550

CAL YR 1978 TOTAL 50504.80 MEAN 138 MAX 2130 MIN 2.7 CFSM .32 IN 4.41 AC-FT 100200
WTR YR 1979 TOTAL 106666.72 MEAN 292 MAX 2880 MIN .00 CFSM .69 IN 9.31 AC-FT 211600

06605850 LITTLE SIOUX RIVER AT LINN GROVE, IA

LOCATION.--Lat 42°53'24", long 95°14'30", in SW1/4 SW1/4 sec.5, T.93 N., R.37 W., Buena Vista County, Hydrologic Unit I0230003, on right bank at downstream side of bridge on State Highway 264, in Linn Grove, Iowa, and at mile 123.7 (199.0 km).

DRAINAGE AREA.--1,548 mi² (4,009 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,223.60 ft (372.95 m) NGVD.

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

AVERAGE DISCHARGE.--7 years, 500 ft³/s (14.16 m³/s), 4.39 in/yr (112 mm/yr), 362,200 acre-ft/yr (447 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,620 ft³/s (244 m³/s) Apr. 29, 1975; gage height, 17.85 ft (5.441 m); maximum gage height, 18.2 ft (5.55 m), from graph based on gage readings, Mar. 4, 1979 (backwater from ice); minimum daily discharge, 0.70 ft³/s (0.020 m³/s) Feb. 4, 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	----	*7,200	204	*a18.2	5.55
Apr. 1	2200	6,940	197	16.96	5.169
May 14	1000	3,430	97.1	14.11	4.301
Aug. 27	1530	3,960	112	14.84	4.523
Sept. 18	1100	2,640	74.8	12.61	3.844

a Ice jam; from graph based on gage readings.

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Feb. 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	73	54	27	17	25	6770	1370	797	581	1150	3740
2	113	77	54	27	17	26	6820	1330	761	531	943	3480
3	110	80	54	27	17	27	5760	1290	718	488	795	3050
4	108	77	54	27	17	28	4690	1300	677	450	729	2600
5	107	77	54	26	17	29	4000	1270	642	416	675	2280
6	108	74	54	26	17	30	3600	1190	606	390	640	2080
7	103	71	51	26	17	31	3380	1120	578	365	602	1890
8	99	69	50	26	17	32	3240	1130	539	345	560	1880
9	101	71	49	25	17	34	3130	1340	550	328	521	2010
10	103	73	47	25	17	35	2850	1490	562	313	545	2160
11	101	74	46	25	17	36	2630	1630	559	299	640	2130
12	98	75	44	24	17	38	2440	1920	565	282	675	1920
13	95	81	43	24	17	39	2330	2700	557	275	686	1750
14	93	88	42	23	17	40	2380	3410	532	501	741	1730
15	93	84	40	23	16	42	2630	2990	503	579	801	1910
16	89	75	38	23	16	43	2720	2660	473	443	849	2190
17	85	64	37	22	17	45	2490	2520	497	357	876	2530
18	83	76	35	22	17	110	2330	2300	532	318	862	2690
19	84	72	33	21	17	320	2250	2060	591	295	1030	2460
20	84	66	32	21	18	1240	2180	1810	843	281	1450	2120
21	83	65	31	21	19	2050	2100	1640	1080	270	1470	1860
22	83	65	30	20	20	4180	1990	1510	1120	306	1770	1690
23	82	66	29	20	21	6000	1880	1390	1050	358	2050	1540
24	81	66	29	20	21	7300	1740	1270	938	364	2360	1420
25	80	67	28	19	22	7280	1640	1160	848	349	2790	1280
26	80	67	27	19	23	6540	1630	1090	775	327	3360	1180
27	80	68	27	18	24	6040	1680	1020	759	322	3980	1140
28	79	66	27	18	25	5650	1650	970	778	311	3840	1070
29	77	57	27	18	---	5090	1520	908	716	359	3460	986
30	73	54	27	18	---	5360	1410	848	635	617	3360	916
31	72	---	27	18	---	5950	---	807	---	1070	3590	---
TOTAL	2844	2138	1220	699	514	63690	85860	49443	20781	12490	47790	59682
MEAN	91.7	71.3	39.4	22.5	18.4	2055	2862	1595	693	403	1542	1989
MAX	117	88	54	27	25	7300	6820	3410	1120	1070	3980	3740
MIN	72	54	27	18	16	25	1410	807	473	270	521	916
CFSM	.06	.05	.03	.02	.01	1.33	1.85	1.03	.45	.26	1.00	1.29
IN.	.07	.05	.03	.02	.01	1.53	2.06	1.19	.50	.30	1.15	1.43
AC-FT	5640	4240	2420	1390	1020	126300	170300	98070	41220	24770	94790	118400

CAL YR 1978	TOTAL	166332	MEAN 456	MAX 3850	MIN 27	CFSM .30	IN 4.00	AC-FT	329900	
WTR YR 1979	TOTAL	347151	MEAN 951	MAX 7300	MIN 16	CFSM .61	IN 8.34	AC-FT	688600	

06606600 LITTLE SIOUX RIVER AT CORRECTIONVILLE, IA

LOCATION.--Lat 42°28'20", long 95°47'49", in NE1/4 NW1/4 sec.1, T.88 N., R.43 W., Woodbury County, Hydrologic Unit 10230003, on right bank 10 ft (3 m) upstream from bridge on State Highway 31, 0.3 mi (0.6 km) upstream from Bacon Creek, 0.5 mi (0.8 km) west of Correctionville, 0.8 mi (1.3 km) downstream from Pierson Creek, and at mile 56.0 (90.1 km).

DRAINAGE AREA.--2,500 mi² (6,475 km²).

PERIOD OF RECORD.--May 1918 to July 1925, October 1928 to July 1932, June 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 856: 1919. WSP 1240: 1924-25, 1931, 1932 (M), 1937, 1945 (M), 1947 (M), 1949 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,096.49 ft (334.210 m) NGVD. May 28, 1918, to July 1, 1925 and Oct. 29, 1928 to July 15, 1929, nonrecording gage 0.2 mi (0.3 km) downstream at datum 1.25 ft (0.381 m) lower. July 16, 1929, to July 2, 1932, and June 15, 1936, to Nov. 7, 1938, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--52 years (1918-24, 1928-31, 1936-79), 705 ft³/s (19.97 m³/s), 3.83 in/yr (97 mm/yr), 510,800 acre-ft/yr (630 hm³/yr); median of yearly mean discharge, 550 ft³/s (15.6 m³/s), 3.0 in/yr (76 mm/yr), 398,000 acre-ft/yr (491 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 ft³/s (844 m³/s) Apr. 7, 1965, gage height, 25.86 ft (7.882 m); minimum daily, 2.6 ft³/s (0.074 m³/s) July 17, 25, 1936, caused by construction dam above gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23 or 24, 1891, reached a stage of 29.34 ft (8.943 m), present datum, from levels to floodmark by Soil Conservation Service (discharge not determined).

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	2215	*13,100	371	*22.13	6.745
May 16	1500	4,000	113	13.84	4.218
Aug. 19	1300	4,740	134	14.91	4.545
Aug. 21	1745	4,740	134	14.91	4.545
Aug. 30	0800	4,590	130	14.70	4.481

Minimum daily discharge, 45 ft³/s (1.27 m³/s) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262	183	142	66	53	82	7490	2180	1330	1000	1480	4080
2	258	182	120	60	55	84	7340	2160	1270	929	1480	4160
3	253	183	122	57	56	97	7810	2090	1220	884	1400	4200
4	247	183	132	56	55	102	8230	1990	1170	836	1190	4040
5	243	183	140	54	60	106	7740	1940	1110	801	1070	3560
6	240	179	138	55	62	103	6620	1910	1060	767	1010	3250
7	237	177	136	52	63	109	5780	1840	1020	736	952	2960
8	236	177	134	50	62	115	5060	1920	955	713	908	2670
9	237	177	130	48	62	121	4610	2300	931	690	874	2510
10	239	177	128	45	61	122	4320	2470	950	666	849	2480
11	234	174	126	46	61	124	4080	3330	949	686	835	2540
12	233	176	126	50	60	130	4050	3330	930	634	845	2610
13	232	187	127	52	60	140	4060	2970	913	609	897	2700
14	229	189	128	48	61	150	3830	3020	900	595	922	2670
15	226	185	130	46	60	168	3600	3500	878	627	923	2560
16	221	183	130	46	59	190	3560	3940	859	695	953	2520
17	215	171	130	46	60	540	3590	3760	883	746	996	2550
18	212	163	130	47	63	3900	3630	3460	932	673	1030	2770
19	207	157	131	52	66	8100	3450	3330	950	614	3350	2900
20	204	158	130	50	70	7900	3330	3080	1030	577	1910	2930
21	204	148	130	48	72	7870	3230	2730	1280	546	3560	2680
22	205	154	129	47	69	8580	3080	2460	1420	552	2890	2380
23	203	168	130	48	69	11300	2900	2260	1420	1660	2610	2160
24	200	169	132	48	70	12200	2730	2090	1390	1040	2760	2010
25	201	170	122	50	74	11600	2620	1940	1290	780	2770	1860
26	196	171	110	53	79	9230	2620	1820	1190	748	3390	1720
27	193	164	98	54	80	8560	2520	1760	1120	718	4250	1580
28	192	148	93	52	84	8190	2470	1660	1240	707	4300	1490
29	190	152	85	51	---	7920	2430	1550	1140	696	4470	1430
30	189	142	75	52	---	8510	2320	1460	1080	865	4540	1340
31	185	---	71	52	---	8230	---	1390	---	1220	4270	---
TOTAL	6823	5130	3785	1581	1806	124573	129100	75640	32810	24010	63684	79310
MEAN	220	171	122	51.0	64.5	4018	4303	2440	1094	775	2054	2644
MAX	262	189	142	66	84	12200	8230	3940	1420	1660	4540	4200
MIN	185	142	71	45	53	82	2320	1390	859	546	835	1340
CFSM	.09	.07	.05	.02	.03	1.61	1.72	.98	.44	.31	.82	1.06
IN.	.10	.08	.06	.02	.03	1.85	1.92	1.13	.49	.36	.95	1.18
AC-FT	13530	10180	7510	3140	3580	247100	256100	150000	65080	47620	126300	157300

CAL YR 1978	TOTAL	291675	MEAN	799	MAX	7070	MIN 71	CFSM .32	IN 4.34	AC-FT	578300
WTR YR 1979	TOTAL	548252	MEAN	1502	MAX	12200	MIN 45	CFSM .60	IN 8.18	AC-FT	1087000

06607200 MAPLE RIVER AT MAPLETON, IA

LOCATION.--Lat 42°09'28", long 95°48'27", in SE1/4 SE1/4 sec.23, T.85 N., R.43 W., Monona County, Hydrologic Unit 10230005, on right bank on downstream side of bridge on State Highway 175, 0.5 mi (0.8 km) southwest of Mapleton, 0.8 mi (1.3 km) downstream from Wilsey Creek, 2.0 mi (3.2 km) upstream from McClarey Creek, and 16.0 mi (25.7 km) upstream from mouth.

DRAINAGE AREA.--669 mi² (1,732 km²).

PERIOD OF RECORD.--October 1941 to current year.

REVISED RECORDS.--WSP 1310: 1942 (M), 1946 (M), 1948 (M). WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,085.86 ft (330.970 m) NGVD. See WSP 1730 for history of changes prior to Sept. 20, 1956.

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

AVERAGE DISCHARGE.--38 years, 231 ft³/s (6.542 m³/s), 4.69 in/yr (119 mm/yr), 167,400 acre-ft/yr (206 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s (589 m³/s) Sept. 12, 1978, gage height, 16.74 ft (5.102 m); maximum gage height, 22.1 ft (6.74 m) June 12, 1950; no flow Sept. 21, 22, 1945 caused by temporary dam above gage.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	1800	9,430	267	11.07	3.374	Mar. 24	0100	9,040	256	10.84	3.304
Mar. 20	1315	*11,000	312	*a13.76	4.194						

a Ice jam

Minimum daily discharge, 45 ft³/s (1.27 m³/s) Jan. 1-18, Jan. 25 to Feb. 10, Feb. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	131	100	45	45	65	1240	448	262	223	348	461
2	196	134	95	45	45	65	1090	613	253	220	288	377
3	199	138	90	45	45	70	1030	613	245	217	242	325
4	192	136	90	45	45	75	949	523	238	214	217	294
5	185	131	90	45	45	75	908	488	230	209	200	275
6	188	128	85	45	45	80	808	467	231	203	178	290
7	181	126	80	45	45	80	766	447	218	197	168	345
8	181	128	75	45	45	80	781	432	210	192	159	310
9	188	131	70	45	45	80	730	466	238	186	151	283
10	166	132	75	45	45	80	686	578	282	178	140	263
11	163	128	80	45	48	90	676	473	258	173	129	249
12	159	131	80	45	50	90	895	437	239	175	119	247
13	163	143	80	45	50	100	879	425	238	162	118	277
14	165	139	80	45	50	120	748	414	222	160	123	283
15	170	127	78	45	50	150	679	400	215	160	125	266
16	166	128	78	45	45	200	643	380	209	157	127	248
17	156	134	76	45	45	600	618	355	209	155	127	236
18	162	134	74	45	50	3800	599	353	218	147	124	226
19	158	120	74	50	55	4200	576	373	245	139	190	216
20	158	110	72	55	55	6640	590	355	506	132	2010	211
21	158	110	72	55	55	5130	610	334	666	132	1230	209
22	166	130	70	55	55	4020	563	319	472	160	3140	202
23	173	120	68	55	55	4720	533	304	367	180	2330	196
24	162	110	66	50	55	5150	516	293	324	1300	879	206
25	160	110	64	45	56	2010	532	293	298	494	627	205
26	154	110	62	45	60	1420	555	298	277	330	603	185
27	147	105	60	45	63	1120	533	304	266	263	687	177
28	143	105	58	45	65	1130	488	297	257	269	633	170
29	139	105	56	45	---	1920	470	278	255	284	524	168
30	140	105	52	45	---	2730	455	267	235	257	439	168
31	135	---	50	45	---	1600	---	271	---	409	378	---
TOTAL	5170	3719	2300	1445	1412	47690	21146	12298	8383	7677	16753	7568
MEAN	167	124	74.2	46.6	50.4	1538	705	397	279	248	540	252
MAX	199	143	100	55	65	6640	1240	613	666	1300	3140	461
MIN	135	105	50	45	45	65	455	267	209	132	118	168
CFSM	.25	.19	.11	.07	.08	2.30	1.05	.59	.42	.37	.81	.38
IN.	.29	.21	.13	.08	.08	2.65	1.18	.68	.47	.43	.93	.42
AC-FT	10250	7380	4560	2870	2800	94590	41940	24390	16630	15230	33230	15010

CAL YR 1978 TOTAL 110780 MEAN 304 MAX 8160 MIN 35 CFSM .45 IN 6.16 AC-FT 219700
WTR YR 1979 TOTAL 135561 MEAN 371 MAX 6640 MIN 45 CFSM .56 IN 7.54 AC-FT 268900

06607500 LITTLE SIOUX RIVER NEAR TURIN, IA

LOCATION.--Lat 41°57'52", long 95°58'21", in NW1/4 NE1/4 sec.33, T.83 N., R.44 W., Monona County, Hydrologic Unit 10230003, on left bank on downstream side of bridge on county highway E54, 1.0 mi (1.6 km) east of gaging station on Monona-Harrison ditch near Turin, 2.5 mi (4.0 km) downstream from Maple River, 3.8 mi (6.1 km) south of Turin, 6.2 mi (10.0 km) northeast of Blencoe, and at mile 13.5 (21.7 km).

DRAINAGE AREA.--3,526 mi² (9,132 km²). Prior to Jan. 15, 1958, 4,426 mi² (11,463 km²), combined area above this station and Monona-Harrison ditch station 1.0 mi (1.6 km) west.

PERIOD OF RECORD.--January 1958 to current year. April 1939 to May 1942 at site 4.7 mi (7.6 km) downstream published as "near Blencoe", June 1942 to January 1958 at site 1,200 ft (370 m) east on old river channel; records not equivalent owing to diversion into Monona-Harrison ditch through equalizer ditch 1.5 mi (2.4 km) upstream.

GAGE.--Water-stage recorder. Datum of gage is 1,019.850 ft (310.850 m) NGVD (Corps of Engineers bench mark). Prior to July 15, 1958, nonrecording gages near present site at different datums. July 15 to Sept. 3, 1958, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--21 years, 1,095 ft³/s (31.01 m³/s), 4.22 in/yr (107 mm/yr), 793,300 acre-ft/yr (978 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 ft³/s (850 m³/s) Feb. 19, 1971, gage height, 27.44 ft (8.364 m), backwater from ice; minimum daily, 17 ft³/s (0.48 m³/s) Jan. 18-20, Jan. 28 to Feb. 1, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	1345	21,600	612	23.89	7.282	Aug. 20	1315	5,120	145	15.27	4.654
Mar. 23	1415	*24,900	705	*24.77	7.550	Aug. 22	1515	7,170	203	17.42	5.310
May 12	1400	4,800	136	14.91	4.545	Aug. 28	1000	5,380	152	15.56	4.743
May 16	2400	4,860	138	14.98	4.566						

Minimum daily discharge, 120 ft³/s (3.40 m³/s) Jan. 2-17, 28-31, Feb. 1-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	571	346	240	130	120	180	9670	2760	1700	1300	1610	5030
2	546	346	230	120	120	190	9060	2860	1630	1200	1700	4910
3	524	341	220	120	120	210	8940	2840	1570	1130	1720	4820
4	513	332	240	120	120	220	9040	2660	1520	1040	1540	4720
5	495	341	240	120	120	220	9210	2490	1460	976	1310	4360
6	485	340	230	120	120	230	8270	2460	1400	930	1180	3800
7	481	330	220	120	120	230	7270	2430	1340	886	1090	3520
8	471	335	210	120	120	230	6300	2350	1280	840	1030	3160
9	464	338	200	120	120	230	5730	2680	1290	758	989	2840
10	461	335	240	120	130	230	5300	3010	1360	738	946	2700
11	471	327	280	120	130	230	4990	3440	1360	723	929	2720
12	457	330	280	120	130	240	4860	4590	1310	758	937	2820
13	454	338	280	120	130	260	5040	4100	1270	678	930	2900
14	451	352	280	120	130	290	4740	3670	1250	639	1020	3000
15	435	352	280	120	130	300	4300	3960	1220	643	1040	2920
16	416	350	280	120	130	310	4060	4610	1180	693	1050	2810
17	425	358	280	120	130	900	4150	4700	1140	800	1080	2800
18	410	346	280	150	140	3500	4150	4320	1220	783	1130	2910
19	386	305	280	200	140	10000	4170	4040	1310	707	1470	3080
20	380	300	280	190	140	16000	3940	3850	1400	647	4460	3230
21	375	300	280	180	150	15000	3860	3430	1880	605	3970	3150
22	395	290	280	200	150	14700	3680	3050	1930	596	6310	2830
23	401	290	280	170	150	21900	3480	2810	1960	679	5770	2500
24	409	280	280	150	150	17600	3300	2600	1900	2360	3760	2310
25	384	270	250	150	160	14700	3190	2420	1810	1480	3510	2170
26	371	270	210	140	170	12700	3180	2280	1650	962	3710	1990
27	372	270	190	130	175	10900	3140	2180	1530	865	4700	1820
28	365	260	170	120	180	10500	3000	2130	1460	812	5310	1740
29	349	260	160	120	---	10700	2940	1980	1570	865	5320	1680
30	350	260	150	120	---	11500	2890	1850	1410	809	5360	1610
31	349	---	140	120	---	10800	---	1770	---	1090	5190	---
TOTAL	13406	9482	7460	4190	3825	185200	155850	94320	44310	27992	80071	90850
MEAN	432	316	241	135	137	5974	5195	3043	1477	903	2583	3028
MAX	571	358	280	200	180	21900	9670	4700	1960	2360	6310	5030
MIN	349	250	140	120	120	180	2890	1770	1140	596	929	1610
CFSM	.12	.09	.07	.04	.04	1.69	1.47	.86	.42	.26	.73	.86
IN.	.14	.10	.08	.04	.04	1.95	1.64	1.00	.47	.30	.84	.96
AC-FT	26590	18810	14800	8310	7590	367300	309100	187100	87890	55520	158800	180200

CAL YR 1978	TOTAL	413609	MEAN	1133	MAX	11000	MIN 140	CFSM .32	IN 4.36	AC-FT	820400	
WTR YR 1979	TOTAL	716956	MEAN	1964	MAX	21900	MIN 120	CFSM .56	IN 7.56	AC-FT	1422000	

06608500 SOLDIER RIVER AT PISGAH, IA

LOCATION.--Lat 41°49'52", long 95°55'50", in NW1/4 NE1/4 sec.14, T.81 N., R.44 W., Harrison County, Hydrologic Unit 10230001, on left bank on downstream side of bridge on county highway F20, at west edge of Pisgah, 0.4 mi (0.6 km) downstream from Cobb Creek, 0.5 mi (0.8 km) upstream from Mogger Ditch, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--407 mi² (1,054 km²).

PERIOD OF RECORD.--March 1940 to current year.

REVISED RECORDS.--WSP 956: 1940 (M). WSP 1240: 1940, 1941 (M), 1947. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,036.53 ft (315.934 m) NGVD. Prior to Oct. 11, 1954, nonrecording gage at same site and datum with supplementary water-stage recorder operating above 8.2 ft (2.50 m) gage height Mar. 2, 1946, to Sept. 24, 1953.

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

AVERAGE DISCHARGE.--39 years, 124 ft³/s (3.512 m³/s), 4.14 in/yr (105 mm/yr), 89,840 acre-ft/yr (111 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s (637 m³/s) June 12, 1950, gage height, 28.17 ft (8.586 m); minimum daily, 2 ft³/s (0.057 m³/s) Jan. 2-10, 1945.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	2400	*11,300	320	*18.37	5.599	Mar. 30	0030	5,050	144	12.17	3.709

Minimum daily discharge, 25 ft³/s (0.71 m³/s) Jan. 12-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	60	52	35	30	45	502	187	158	126	88	270
2	62	60	50	34	30	60	449	185	156	123	82	118
3	64	60	48	34	30	350	483	342	152	121	78	66
4	65	61	48	33	30	200	388	232	187	119	74	59
5	63	61	48	32	30	180	350	224	211	117	69	56
6	65	58	48	31	31	170	328	216	151	116	65	114
7	65	58	46	30	31	160	319	214	143	119	63	56
8	64	58	46	29	31	150	292	216	153	119	62	54
9	64	58	46	28	31	140	271	307	198	117	61	55
10	67	60	46	27	31	135	262	304	229	114	67	52
11	70	59	46	26	32	130	259	229	164	149	61	48
12	70	60	46	25	32	130	546	192	145	112	60	53
13	70	63	46	25	32	250	395	209	139	102	59	73
14	70	63	46	25	32	260	310	201	136	103	66	62
15	69	58	46	25	32	200	280	189	131	104	69	52
16	69	58	46	26	33	300	254	185	126	94	66	52
17	68	65	46	27	33	600	283	187	128	90	67	49
18	68	69	46	27	33	5000	262	204	240	90	64	47
19	66	61	46	27	34	5090	251	194	428	89	62	46
20	66	58	46	27	34	1280	398	187	1540	89	75	47
21	66	56	45	28	35	1040	375	185	248	86	90	44
22	77	54	44	28	35	2220	272	177	190	96	173	43
23	88	54	42	28	36	2200	258	173	168	201	129	44
24	80	54	41	28	36	835	257	170	179	104	86	42
25	73	54	40	28	36	751	268	168	160	90	71	42
26	69	54	40	29	37	655	240	163	153	83	91	42
27	66	54	40	29	38	514	204	161	149	80	110	40
28	64	52	40	29	40	527	199	159	152	89	84	38
29	64	52	38	29	---	1320	199	156	147	86	71	39
30	64	52	38	29	---	1860	194	152	132	231	65	40
31	60	---	36	29	---	695	---	162	---	128	63	---
TOTAL	2100	1744	1382	887	925	27447	9348	6230	6593	3487	2391	1843
MEAN	67.7	68.1	44.6	28.6	33.0	885	312	201	220	112	77.1	61.4
MAX	88	69	52	35	40	5090	546	342	1540	231	173	270
MIN	60	52	36	25	30	45	194	152	126	80	59	38
CFSM	.17	.14	.11	.07	.08	2.17	.77	.49	.54	.28	.19	.15
IN.	.19	.16	.13	.08	.08	2.51	.85	.57	.60	.32	.22	.17
AC-FT	4170	3460	2740	1760	1830	54440	18540	12360	13080	6920	4740	3660

CAL YR 1978 TOTAL 45514 MEAN 125 MAX 9210 MIN 27 CFSM .31 IN 4.16 AC-FT 90280
WTR YR 1979 TOTAL 64377 MEAN 176 MAX 5090 MIN 25 CFSM .43 IN 5.88 AC-FT 127700

06609500 BOYER RIVER AT LOGAN, IA

LOCATION.--Lat 41°38'33", long 95°46'57", in SE1/4 NW1/4 sec.19, T.79 N., R.42 W., Harrison County, Hydrologic Unit 10230007, on left bank 9 ft (3 m) downstream from Illinois Central Railroad bridge at Logan, 0.4 mi (0.6 km) downstream from Elk Grove Creek, 10.5 mi (16.9 km) upstream from Willow Creek, and 15.8 mi (25.4 km) upstream from mouth.

DRAINAGE AREA.--871 mi² (2,256 km²).

PERIOD OF RECORD.--May 1918 to July 1925, November 1937 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 956: 1938-39. WSP 1240: 1918-19, 1920 (M), 1921, 1922 (M), 1924-25, 1938 (M), 1945. WSP 1440: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,009.38 ft (307.659 m) NGVD (Chicago and Northwestern Railway Company bench mark). See WSP 1918 for history of changes prior to Oct. 18, 1960.

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

AVERAGE DISCHARGE.--47 years (water years 1919-24, 1939-79), 308 ft³/s (8.723 m³/s), 4.80 in/yr (122 mm/yr), 223,100 acre-ft/yr (275 hm³/yr); median of yearly mean discharge, 280 ft³/s (7.93 mb/s), 4.4 in/yr (112 mm/yr), 203,000 acre-ft/yr (250 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft³/s (708 m³/s) Feb. 19, 1971, gage height, 22.65 ft (6.904 m), from floodmark; maximum gage height, 25.22 ft (7.687 m) Mar. 1, 1965, backwater from ice; minimum daily discharge, 1.5 ft³/s (0.042 m³/s) July 16, 1938.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	2400	*23,400	663	*22.47	6.849	Mar. 30	0500	15,100	428	18.18	5.541
Mar. 23	0345	10,500	297	15.28	4.657	June 18	1600	10,200	289	15.06	4.490

Minimum daily discharge, 52 ft³/s (1.47 m³/s) Jan. 14-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369	163	125	78	62	90	1510	532	379	343	425	562
2	353	164	120	75	62	100	1330	994	377	326	318	358
3	343	162	120	72	62	500	1240	1150	377	308	264	276
4	331	158	120	70	64	350	1070	820	375	302	232	235
5	322	154	120	68	64	325	982	728	387	299	205	215
6	313	147	120	64	64	300	866	689	352	279	185	387
7	298	142	120	64	66	290	820	649	338	267	168	498
8	287	143	120	62	66	270	851	607	342	263	162	284
9	290	143	120	60	66	260	827	598	395	256	166	231
10	294	145	120	58	68	250	761	604	461	249	162	193
11	281	141	120	56	68	250	746	607	397	344	149	175
12	271	138	120	54	70	250	886	563	352	247	145	159
13	264	149	120	53	70	270	838	552	340	226	145	169
14	273	160	120	52	72	300	736	549	320	206	167	168
15	265	150	120	52	72	450	692	529	296	244	244	161
16	249	150	120	52	72	400	668	516	284	200	242	151
17	233	160	120	52	72	3000	650	471	285	189	260	139
18	229	180	120	54	72	17200	641	478	2350	175	223	132
19	227	160	120	54	74	12800	628	1020	962	163	236	158
20	219	150	120	54	74	5870	921	712	2230	158	458	162
21	217	145	115	56	76	4050	939	556	1090	154	571	148
22	221	140	110	56	78	4560	744	500	793	157	581	157
23	257	130	105	56	78	7180	683	471	551	1800	1110	158
24	239	130	100	56	78	3890	659	440	522	673	959	143
25	222	130	95	58	78	2590	674	433	466	501	468	165
26	210	130	90	58	80	1890	723	433	428	358	389	172
27	200	130	90	58	82	1440	636	454	410	269	363	142
28	191	125	90	58	84	1290	585	440	693	302	335	133
29	177	125	90	60	---	1550	568	416	460	359	336	128
30	173	125	85	60	---	7240	553	398	371	1880	298	112
31	171	---	80	60	---	1990	---	392	---	804	272	---
TOTAL	7989	4369	3455	1840	1994	81195	24427	18301	17383	12401	10238	6271
MEAN	258	146	111	59.4	71.2	2619	814	590	579	400	330	209
MAX	369	180	125	78	84	17200	1510	1150	2350	1880	1110	562
MIN	171	125	80	52	62	90	553	392	284	154	145	112
CFSM	.30	.17	.13	.07	.08	3.01	.94	.68	.67	.46	.38	.24
IN.	.34	.19	.15	.08	.09	3.47	1.04	.78	.74	.53	.44	.27
AC-FT	15850	8670	6850	3650	3950	161100	48450	36300	34480	24600	20310	12440

CAL YR 1978	TOTAL	122879	MEAN 337	MAX 10800	MIN 28	CFSM .39	IN 5.25	AC-FT	243700	
WTR YR 1979	TOTAL	189863	MEAN 520	MAX 17200	MIN 52	CFSM .60	IN 8.11	AC-FT	376600	

06610000 MISSOURI RIVER AT OMAHA, NB
(National stream-quality accounting network station)

LOCATION.--Lat 41°15'32", long 95°55'20", in SE1/4 NW1/4 sec.23, T.15 N., R.13 E., Douglas County, Hydrologic Unit 10230006, on right bank on left side of concrete floodwall, at foot of Douglas Street, 275 ft (84 m) downstream from Interstate 480 Highway bridge in Omaha, and at mile 615.9 (991.0 km).

DRAINAGE AREA.--322,800 mi² (836,100 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. April 1872 to December 1899 (gage heights only) in reports of the Missouri River Commission and since January 1875, (gage heights only) in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 761: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 958.24 ft (292.072 m) NGVD. See WSP 1730 for history of changes prior to Sept. 30, 1936.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by upstream main-stem reservoirs. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--61 years, 29,740 ft³/s (842.2 m³/s), 21,550,000 acre-ft/yr (26,600 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 396,000 ft³/s (11,200 m³/s) Apr. 18, 1952, gage height, 30.20 ft (9.205 m); minimum, about 2,200 ft³/s (62 m³/s) Jan. 6, 1937; minimum gage height observed, -2.77 ft (-0.844 m) Jan. 10, 1957, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 90,000 ft³/s (2,550 m³/s) Mar. 19, gage height, 13.26 ft (4.042 m); minimum daily, 18,500 ft³/s (524 m³/s) Jan. 18-25; minimum gage height, 2.75 ft (0.838 m) Jan. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54100	57500	56000	26000	24000	28400	56300	43500	51100	42800	45200	45400
2	54300	58200	54400	26000	25000	29100	52700	48800	49100	42000	44000	46600
3	55100	57200	50600	25500	24000	31500	51700	50800	47700	41900	43000	43400
4	55200	57200	44300	25500	24000	25100	51800	46300	48500	41800	42600	41800
5	55400	67800	40400	25500	24500	20700	52500	42300	48500	41800	42100	41200
6	55700	56600	37000	25000	24500	20500	51600	44800	48500	41400	41800	43400
7	55300	56200	33800	25000	24500	21000	50300	48100	49600	41300	41800	42300
8	54500	66300	31400	25000	25000	20700	49500	48600	60400	41600	41600	41200
9	54700	56700	29100	25000	25000	19600	48000	49300	50400	40800	41300	39600
10	55100	57800	27100	25000	25000	19600	45800	50700	50600	40900	41200	39500
11	55700	59500	26600	25000	25000	19100	45200	54000	50300	40900	40600	39200
12	57400	58600	27400	24000	25000	20100	45500	56200	49400	41700	39800	38900
13	56900	57700	27900	21000	25000	23900	46500	55000	49900	41900	41100	39800
14	57400	57800	27400	20000	25000	25300	45900	54200	49200	44000	43500	41500
15	57600	58500	26900	19500	25000	22900	43700	55700	49000	45500	44200	41600
16	57600	57600	26000	19000	24500	22300	44500	54600	49900	44200	42500	43100
17	58000	56800	25700	19000	24000	29600	46900	54200	49800	43600	41100	45000
18	59700	56100	25500	18500	23700	51900	48400	55900	52400	43000	40900	44500
19	58700	55900	26200	18500	23900	82800	45800	56200	55300	43500	40800	43800
20	67700	54900	27800	18500	24600	68000	45600	55500	52300	42800	47500	43400
21	57700	55100	28000	18500	25200	59200	47000	53600	51600	42400	52000	43800
22	59000	55200	28100	18500	25800	51400	46100	52300	50200	41100	48800	44200
23	58800	55400	28700	18500	26800	74200	44600	51300	50100	42200	48100	44400
24	57700	55400	28600	18500	26700	80900	43200	50500	49300	42100	46000	44400
25	58100	55600	28100	18500	26300	67400	43300	50500	46200	43000	44800	43600
26	57300	56700	25800	19000	26300	56900	43600	49500	44900	42500	44200	43200
27	57600	56900	28300	20000	26600	55600	44100	48900	44400	42200	45800	43600
28	57400	57300	28700	21000	27500	55700	43100	49300	43800	42100	46700	43900
29	57000	56900	28400	22000	---	55900	42800	50300	44100	42600	44000	44100
30	57200	55600	28100	23000	---	65200	43000	50200	43500	43100	43000	43500
31	57000	---	27400	23500	---	59500	---	51200	---	45100	43300	---
TOTAL	1760900	1705000	979700	677500	702400	1284000	1411000	1581300	1470000	1315800	1353300	1283900
MEAN	56800	56830	31600	21850	25090	41420	47030	51010	49000	42450	43650	42800
MAX	59700	59500	56000	26000	27500	82800	56300	56200	55300	45500	52000	46600
MIN	54100	54900	25500	18500	23700	19100	42800	42300	43500	40800	39800	38900
AC-FT	3493000	3382000	1943000	1344000	1393000	2547000	2799000	3137000	2916000	2610000	2684000	2547000

CAL YR 1978 TOTAL 15155560 MEAN 41520 MAX 81200 MIN 6710 AC-FT 30060000
WTR YR 1979 TOTAL 15524800 MEAN 42530 MAX 82800 MIN 18500 AC-FT 30790000

06610000 MISSOURI RIVER AT OMAHA, NB--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Sediment samples collected from Interstate 80 highway bridge 2.0 mi (3.2 km) downstream from gaging station.

PERIOD OF RECORD.--July 1969 to September 1976, January 1978 to current year. Daily sediment loads April 1939 to September 1971 are in reports of Corps of Engineers.

PERIOD OF DAILY RECORD.--
CHEMICAL ANALYSES: July 1969 to June 1972.
SPECIFIC CONDUCTANCE: October 1972 to September 1976, January 1978 to current year.
WATER TEMPERATURES: October 1971 to September 1976, January 1978 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 900 micromhos Oct. 30-31, 1978; minimum daily, 335 micromhos Mar. 22, 1978.
WATER TEMPERATURES: Maximum daily, 32.0° C July 24, 1972; minimum daily, 0.0° C on many days during the winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,180 mg/L May 19, 1974; minimum daily mean, 165 mg/L Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,060,000 tons (962,000 tonnes) May 19, 1974; minimum daily, 3,990 tons (3,620 tonnes) Jan. 14, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 900 micromhos Oct. 30-31; minimum daily, 380 micromhos Mar. 31.
WATER TEMPERATURE: Maximum daily, 29.0° C Aug. 9; minimum daily, 0.0° C on many days during winter period.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	750	850	690	675	---	750	400	720	590	625	700	725
2	650	850	650	710	---	750	420	700	600	700	700	650
3	750	850	650	710	---	800	430	725	590	700	725	725
4	750	850	650	700	---	750	390	700	590	700	740	700
5	750	850	750	750	---	750	420	750	600	710	745	750
6	750	850	650	700	---	750	400	725	525	650	590	725
7	725	825	650	725	---	700	530	700	580	720	710	700
8	725	740	540	790	---	750	540	725	580	700	710	750
9	700	710	675	675	750	650	500	700	585	700	680	675
10	730	700	625	740	---	750	520	700	640	700	720	725
11	725	670	650	800	---	800	470	650	600	700	710	750
12	710	670	600	800	---	775	530	675	725	650	700	750
13	710	700	650	840	---	650	540	675	700	675	660	750
14	700	700	650	840	---	650	540	700	675	725	700	750
15	710	700	750	850	---	750	590	700	625	650	700	750
16	710	640	675	850	---	700	710	650	650	725	700	750
17	700	720	625	840	---	650	700	625	725	650	710	625
18	700	710	700	850	---	600	680	725	740	725	710	750
19	710	710	625	850	---	440	680	725	700	750	720	750
20	700	710	650	800	---	440	690	700	700	750	700	750
21	700	700	700	780	750	440	700	550	740	750	645	725
22	700	710	710	780	750	470	700	550	700	750	655	750
23	700	720	710	700	750	480	700	625	640	700	655	700
24	700	720	700	790	700	410	690	550	660	705	660	750
25	700	710	700	790	750	480	690	600	740	700	700	700
26	700	700	700	700	750	450	710	600	700	700	700	750
27	700	---	700	800	750	540	700	600	750	725	690	750
28	700	700	710	---	750	580	710	525	750	725	685	750
29	700	700	710	---	---	500	720	540	750	710	695	750
30	900	700	700	---	---	400	720	590	750	705	705	750
31	900	---	690	---	---	380	---	600	---	700	675	---
TOTAL	22455	21365	20835	20845	6700	18985	17720	20300	19900	21775	21595	21875
MEAN	724	737	672	772	744	612	591	655	663	702	697	729
MAX	900	850	750	860	750	800	720	750	750	750	745	750
MIN	650	640	540	675	700	380	390	525	525	625	645	625

WTR YR 1979 TOTAL 234350 MEAN 687 MAX 900 MIN 380

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	12.0	5.0	.0	---	4.0	8.0	13.0	21.0	24.0	25.0	26.0
2	20.0	12.0	2.0	1.0	---	4.0	5.0	12.0	19.0	26.0	25.0	26.0
3	17.0	12.0	1.0	1.0	---	3.0	8.0	11.0	21.0	24.0	27.0	25.0
4	17.0	13.0	.0	.0	---	3.0	6.0	12.0	21.0	24.0	27.0	24.0
5	17.0	11.0	2.0	.0	---	4.0	6.0	14.0	21.0	24.0	27.0	26.0
6	14.0	11.0	2.0	1.0	---	5.0	5.0	17.0	23.0	23.0	28.0	25.0
7	14.0	12.0	1.0	1.0	---	2.0	8.0	17.0	23.0	23.0	28.0	25.0
8	16.0	11.0	1.0	1.0	---	1.0	8.0	17.0	20.0	24.0	28.0	25.0
9	15.0	11.0	1.0	1.0	---	3.0	6.0	12.0	20.0	24.0	29.0	24.0
10	15.0	12.0	1.0	1.0	---	1.0	6.0	12.0	20.0	27.0	25.0	24.0
11	15.0	11.0	1.0	1.0	---	3.0	7.0	13.0	20.0	26.0	26.0	24.0
12	14.0	9.0	1.0	1.0	---	5.0	7.0	13.0	22.0	27.0	25.0	23.0
13	14.0	9.0	2.0	1.0	---	3.0	6.0	14.0	22.0	27.0	25.0	23.0
14	14.0	9.0	3.0	1.0	---	3.0	8.0	15.0	24.0	26.0	22.0	23.0
15	14.0	8.0	3.0	1.0	---	4.0	8.0	15.0	25.0	27.0	22.0	21.0
16	13.0	8.0	3.0	1.0	---	4.0	13.0	18.0	25.0	26.0	22.0	20.0
17	13.5	6.0	2.0	1.0	---	5.0	13.0	19.0	22.0	26.0	25.0	20.0
18	13.0	6.0	1.0	1.0	---	2.0	14.0	17.0	22.0	26.0	23.0	21.0
19	12.5	5.0	2.0	1.0	---	5.0	14.0	21.0	22.0	27.0	26.0	22.0
20	14.0	5.0	3.0	1.0	---	5.0	13.0	18.0	22.0	26.0	28.0	20.0
21	14.0	4.0	3.0	1.0	2.0	5.0	15.0	19.0	23.0	26.0	24.0	20.0
22	14.0	4.0	4.0	1.0	2.0	5.0	15.0	19.0	22.0	21.0	24.0	20.0
23	11.0	4.0	3.0	1.0	2.0	3.0	16.0	19.0	22.0	24.0	24.5	20.0
24	13.0	4.0	1.0	1.0	3.0	3.0	16.0	19.0	22.0	27.0	26.0	19.0
25	11.0	6.0	1.0	1.0	4.0	4.0	13.0	19.0	24.0	26.0	24.0	19.0
26	11.0	6.0	1.0	1.0	4.0	4.0	14.0	19.0	24.0	27.0	24.0	20.0
27	14.0	---	1.0	1.0	4.0	4.0	14.0	20.0	24.0	27.0	23.0	22.0
28	11.0	6.0	1.0	---	4.0	8.0	14.0	20.0	26.0	27.0	23.0	20.0
29	12.0	6.0	1.0	---	---	6.0	13.0	20.0	24.0	27.0	23.0	20.0
30	12.0	5.0	.0	---	---	5.5	14.0	20.0	26.0	28.0	26.0	20.0
31	11.0	---	.0	---	---	8.0	---	20.0	---	24.0	26.0	---
TOTAL	436.0	238.0	53.0	24.0	25.0	124.5	313.0	514.0	672.0	791.0	780.5	667.0
MEAN	14.0	8.0	1.5	1.0	3.0	4.0	10.5	16.5	22.5	25.5	25.0	22.0
MAX	20.0	13.0	5.0	1.0	4.0	8.0	16.0	21.0	26.0	28.0	29.0	26.0
MIN	11.0	4.0	.0	.0	2.0	1.0	5.0	11.0	19.0	21.0	22.0	19.0

WTR YR 1979 TOTAL 4638.0 MEAN 13.5 MAX 29.0 MIN .0

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
16...	0915	57300	700	8.3	13.5	22	9.2	88	1200	240	240
NOV											
06...	1330	56700	720	7.9	12.0	8	8.5	79	1900	550	--
DEC											
04...	1430	44700	700	8.9	.0	16	13.4	98	980	1100	240
JAN											
10...	1000	E25500	825	8.3	.0	7	12.6	85	2300	2100	270
FEB											
09...	0830	E21000	750	8.3	.0	10	10.6	75	18000	10000	240
MAR											
30...	1245	55000	450	7.7	4.0	2700	11.8	94	5600	62000	190
APR											
19...	1330	46700	650	7.9	13.0	76	9.6	95	11500	7900	250
MAY											
21...	1230	52600	725	8.2	15.5	51	--	--	--	--	270
JUN											
18...	0845	49600	745	8.2	21.5	32	7.8	92	2300	470	250
JUL											
09...	1230	41300	710	8.2	23.0	27	8.0	96	670	540	250
AUG											
13...	1335	42200	750	8.6	25.0	35	7.9	98	360	340	250
SEP											
10...	1320	38500	760	7.9	23.0	44	7.6	92	1800	590	240

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	SODIUM+POTASSIUM DISSOLVED (MG/L AS NA) (00933)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT 16...	92	64	20	65	36	1.9	--	4.8	150	--	6.0
NOV 06...	--	--	--	--	--	--	--	--	150	190	20
DEC 04...	88	59	22	65	37	1.8	--	5.4	150	200	11
JAN 10...	98	66	25	70	36	1.9	--	6.3	170	220	12
FEB 09...	80	58	23	65	36	1.8	--	5.3	160	210	14
MAR 30...	63	51	16	17	15	.5	--	8.5	130	85	12
APR 19...	99	60	24	48	29	1.3	54	6.2	150	160	12
MAY 21...	110	67	25	55	30	1.5	--	5.8	160	180	19
JUN 18...	91	61	24	53	35	1.7	66	2.9	160	200	13
JUL 09...	89	60	24	70	37	1.9	76	5.5	150	230	14
AUG 13...	92	63	23	74	49	2.0	80	5.6	160	240	18
SEP 10...	60	60	22	60	46	1.7	65	5.1	180	220	9.6

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 16...	.7	8.0	478	499	.65	74000	.21	.01	--	.58	.59
NOV 06...	.4	7.3	475	--	.65	72700	.24	.04	--	.66	.70
DEC 04...	.4	7.5	478	461	.65	57700	.25	.03	--	.52	.55
JAN 10...	.4	9.1	525	511	.71	36100	.30	.05	--	.38	.43
FEB 09...	.4	10	510	482	.69	28900	.33	.24	--	.31	.55
MAR 30...	.3	8.0	293	276	.40	43500	4.4	.93	--	22	23
APR 19...	.4	11	454	412	.62	57200	2.3	.13	.16	1.4	1.5
MAY 21...	.4	7.3	481	456	.65	68300	1.2	.03	.04	.84	.87
JUN 18...	.3	6.4	484	467	.66	64800	.40	.06	.07	.74	.80
JUL 09...	.5	8.8	493	509	.67	55000	.41	.05	.06	.67	.72
AUG 13...	.5	7.5	513	528	.70	58500	.15	.03	.04	.46	.49
SEP 10...	.5	8.2	503	498	.68	52300	.81	.03	.04	1.1	1.1

DATE	NITROGEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHATE, TOTAL (MG/L AS PO4) (00650)	PHOSPHORUS TOTAL (MG/L AS PO4) (71886)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)
OCT 16...	.23	.36	.80	3.5	.00	--	--	.03	4.4	--	--
NOV 06...	.16	.54	.94	4.2	.09	--	--	.02	3.8	--	--
DEC 04...	.23	.32	.80	3.5	.07	--	--	.02	--	3.7	.7
JAN 10...	.14	.29	.73	3.2	.06	--	--	.03	3.4	--	--
FEB 09...	.04	.51	.88	3.9	.13	--	--	.06	4.5	--	--
MAR 30...	21	1.9	27	120	2.9	--	--	.11	--	17	81
APR 19...	.10	1.4	3.8	17	.28	.86	.86	.10	13	--	--
MAY 21...	.48	.39	2.1	9.2	.26	.80	.80	.09	6.6	--	--
JUN 18...	.46	.34	1.2	5.3	.13	.40	.40	.01	--	6.7	1.6
JUL 09...	.48	.24	1.1	5.0	.11	.34	.34	.03	3.8	--	--
AUG 13...	.20	.29	.64	2.8	.12	--	.37	.02	--	--	--
SEP 10...	.86	.24	1.9	8.5	.02	--	.06	.00	--	9.4	--

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
12...	1230	--	180	169	64.1	6.37	--	--	--	--
16...	0915	--	--	--	--	--	--	916	142000	13
NOV										
06...	1330	4600	--	--	--	--	--	963	147000	9
JAN										
10...	1000	--	--	--	--	--	--	405	--	6
FEB										
09...	0830	--	--	--	--	--	--	855	--	49
MAR										
30...	1245	34000	--	--	--	--	--	--	--	--
APR										
19...	1330	--	--	--	--	--	--	837	106000	45
MAY										
21...	1230	4300	.160	.080	.000	.000	--	707	100000	22
JUN										
18...	0845	5200	--	--	--	--	--	--	--	--
AUG										
13...	1335	--	19.6	12.2	6.13	4.42	1207	489	55700	22
SEP										
10...	1320	--	--	--	--	--	--	570	59300	38
17...	1145	--	5.20	4.17	45.5	13.0	22.6	--	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) (01006)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
DEC										
04...	1430	3	2	60	0	60	1	0	4	20
MAR										
30...	1245	66	1	1000	900	100	7	5	2	70
JUN										
18...	0845	3	4	100	100	0	2	1	1	10
SEP										
10...	1320	5	2	70	0	70	6	3	3	10

DATE	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE) (01044)
DEC										
04...	20	0	1	0	<3	15	11	4	3400	3400
MAR										
30...	70	0	78	78	0	160	150	9	98000	98000
JUN										
18...	0	10	4	4	0	34	30	4	6400	6400
SEP										
10...	0	20	4	1	<3	100	86	14	5400	5400

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)
DEC										
04...	0	16	16	0	150	140	10	.1	.1	.0
MAR										
30...	100	130	130	3	8700	8700	50	.3	.2	.1
JUN										
18...	10	14	14	0	310	300	10	.2	.0	.2
SEP										
10...	<10	13	13	0	340	340	<1	.0	.0	.0

DATE	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG) (01076)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC									
04...	2	0	2	0	0	0	30	20	9
MAR									
30...	7	4	3	0	0	0	450	420	30
JUN									
18...	1	0	2	0	0	0	60	50	10
SEP									
10...	2	0	2	0	0	0	30	30	<3

06610000 MISSOURI RIVER AT OMAHA, NB--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1978 TO JUNE 1979

DATE TIME	NOV 6,78 1330		MAR 30,79 1245		MAY 21,79 1230		JUN 18,79 0845	
TOTAL CELLS/ML	4600		34000		4300		5200	
DIVERSITY: DIVISION	0.8		0.2		1.6		1.9	
.CLASS	0.8		0.2		1.6		1.9	
..ORDER	1.1		0.2		2.1		2.8	
...FAMILY	1.4		0.3		2.9		3.4	
....GENUS	2.0		0.3		3.2		3.8	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	52	1	52	1
....MICRACTINIUM	320	7	--	-	740#	17	290	5
...OOCYSTACEAE								
....ANKISTRODESMUS	40	1	--	-	140	3	39	1
....CHODATELLA	--	-	--	-	*	0	*	0
....DICTYOSPHAERIUM	--	-	--	-	160	4	--	-
....SELENASTRUM	40	1	--	-	--	-	--	-
....WESTELLA	--	-	--	-	--	-	160	3
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	52	1
....SCENEDESMUS	160	3	--	-	620	15	650	13
....TETRASTRUM	--	-	--	-	100	2	260	5
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	440	8
..VOLVOCALES								
....CHLAMYDOMONADACEAE								
....CARTERIA	79	2	--	-	--	-	--	-
....CHLAMYDOMONAS	79	2	--	-	39	1	210	4
...PHACOTACEAE								
....PHACOTUS	320	7	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	3000#	64	--	-	270	6	210	4
....MELOSIRA	79	2	--	-	--	-	--	-
....SKELETONEMA	440	9	--	-	--	-	--	-
....STEPHANODISCUS	40	1	--	-	--	-	100	2
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	660	2	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	1000#	24	100	2
....FRAGILARIA	--	-	--	-	26	1	360	7
....SYNEDRA	--	-	--	-	*	0	*	0
...NAVICULACEAE								
....NAVICULA	--	-	660	2	*	0	--	-
...NITZSCHIACEAE								
....NITZSCHIA	40	1	--	-	220	5	91	2
.XANTHOPHYCEAE								
..HETEROCOCCALES								
...CHLOROTHECIACEAE								
....OPHIOCYTIUM	--	-	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	40	1	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	490	12	520	10
..NOSTOCALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	210	4
...OSCILLATORIACEAE								
....ARTHROSPIRA	--	-	33000#	96	--	-	--	-
....OSCILLATORIA	--	-	--	-	320	8	780	15
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	620	12
....TRACHELOMONAS	--	-	--	-	*	0	*	0
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06610520 MOSQUITO CREEK NEAR EARLING, IA

LOCATION.--Lat 41°45'10", long 95°27'50", in N1/2 SE1/4 sec.11, T.80 N., R.40 W., Shelby County, Hydrologic Unit 10230006, on right bank at stream-stabilization structure 1,300 ft (396 m) downstream from bridge on State Highway 191, 0.5 mi (0.8 km) downstream from small left-bank tributary and 2.3 mi (3.7 km) southwest of Earling.

DRAINAGE AREA.--32.0 mi² (82.9 km²).

PERIOD OF RECORD.--August 1965 to September 1979 (discontinued).

GAGE.--Duplex water-stage recorder. Datum of gage is 1,222.56 ft (372.636 m) NGVD. Gage heights obtained of headwater (base gage) and tailwater (supplementary gage) elevations at stream-stabilization structure.

REMARKS.--Records fair except those for winter period, which are poor. The stabilization structure is a dam approximately 16 ft (5 m) high constructed of sheet piling and derrick stone. The crest of the cut-off piling is rectangular in shape at low stages and trapezoidal at high stages. Daily discharges computed from headwater gage readings. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 16.2 ft³/s (0.459 m³/s), 6.87 in/yr (174 mm/yr), 11,740 acre-ft/yr (14.5 hm³/yr); median of yearly mean discharges, 13 ft³/s (0.37 m³/s), 5.5 in/yr (140 mm/yr), 9,420 acre-ft/yr (11.6 hm³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Sept. 11, 1972, gage height, 31.18 ft (9.504 m), from floodmarks; no flow for several days in 1970-72, 77.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	1330	2,390	67.7	23.05	7.026	June 19	1945	5,460	155	26.26	8.004
Mar. 22	1900	760	21.5	20.62	6.285	July 27	1930	1,380	39.1	21.68	6.608
Mar. 29	2045	1,280	36.2	21.51	6.556	July 30	0445	*7,280	206	*27.83	8.483
Apr. 20	0600	740	21.0	20.58	6.273	Aug. 22	1000	1,720	48.7	22.17	6.757
June 18	1415	4,250	120	25.05	7.635	Sept. 6	0045	2,800	79.3	23.56	7.181

Minimum daily discharge, 2.0 ft³/s (0.067 m³/s) Feb. 18-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	4.7	3.8	2.5	2.4	4.5	44	17	13	15	14	27
2	8.3	4.7	3.7	2.5	2.4	6.0	48	176	13	12	12	11
3	7.7	4.5	3.5	2.5	2.4	8.0	52	68	13	10	11	8.7
4	7.7	4.0	3.4	2.5	2.4	9.0	48	35	15	10	10	8.0
5	7.7	3.5	3.3	2.5	2.4	13	46	32	15	10	8.7	10
6	7.4	3.5	3.2	2.5	2.4	20	25	32	14	10	8.0	185
7	7.1	4.0	3.1	2.5	2.4	23	22	26	15	10	7.7	12
8	7.1	4.5	3.1	2.4	2.4	22	19	25	16	10	7.1	11
9	7.7	4.5	3.0	2.3	2.3	21	19	23	32	10	7.1	10
10	7.7	4.7	3.0	2.3	2.3	21	19	27	22	10	7.1	9.3
11	7.1	4.5	3.1	2.3	2.3	22	22	27	17	11	6.8	8.7
12	7.1	5.7	3.2	2.3	2.3	25	29	25	17	9.3	6.8	8.3
13	7.1	4.9	3.2	2.3	2.2	33	19	22	16	9.0	7.1	8.7
14	6.6	4.2	3.2	2.3	2.2	70	19	20	16	8.7	7.1	7.1
15	6.3	3.8	3.3	2.4	2.2	66	18	19	15	11	7.1	7.1
16	6.0	4.2	3.3	2.4	2.1	120	17	18	16	8.7	7.1	6.8
17	6.3	6.3	3.2	2.4	2.1	400	17	17	16	8.7	7.4	6.8
18	6.3	4.9	3.2	2.4	2.0	1460	17	35	211	8.0	6.8	6.8
19	5.7	4.0	3.1	2.4	2.0	208	17	32	389	8.0	7.7	6.8
20	5.7	3.8	3.1	2.4	2.0	78	224	22	148	8.0	6.8	6.6
21	6.0	3.8	3.1	2.4	2.0	58	54	21	78	8.0	18	6.0
22	7.1	4.0	3.1	2.4	2.1	268	33	20	63	8.0	135	6.0
23	6.3	4.7	3.0	2.4	2.2	148	22	19	66	8.7	11	6.0
24	5.7	4.7	2.9	2.4	2.7	63	21	18	61	10	8.0	6.0
25	5.2	4.5	2.8	2.4	2.8	56	46	18	56	8.7	7.7	6.0
26	4.9	4.5	2.7	2.4	3.0	38	29	21	36	8.0	9.3	5.4
27	4.9	4.0	2.7	2.4	3.1	44	20	22	30	139	8.3	4.7
28	4.5	4.0	2.7	2.4	3.5	70	17	19	40	33	7.7	4.9
29	4.7	3.9	2.6	2.4	---	183	16	18	19	16	7.7	4.7
30	4.2	3.9	2.6	2.4	---	101	15	17	18	610	7.4	4.9
31	4.5	---	2.6	2.4	---	46	---	15	---	17	7.4	---
TOTAL	198.9	130.9	95.8	74.5	66.6	3704.5	1014	906	1496	1063.8	390.9	420.3
MEAN	6.42	4.36	3.09	2.40	2.38	120	33.8	29.2	49.9	34.3	12.6	14.0
MAX	8.3	6.3	3.8	2.5	3.5	1460	224	176	389	610	135	185
MIN	4.2	3.5	2.6	2.3	2.0	4.5	15	15	13	8.0	6.8	4.7
CFSM	.20	.14	.10	.08	.07	3.75	1.06	.91	1.56	1.07	.39	.44
IN.	.23	.15	.11	.09	.08	4.31	1.18	1.05	1.74	1.24	.45	.49
AC-FT	395	260	190	148	132	7350	2010	1800	2970	2110	775	834

CAL YR 1978 TOTAL 6544.8 MEAN 17.9 MAX 1900 MIN 1.1 CFSM .56 IN 7.61 AC-FT 12980
WTR YR 1979 TOTAL 9562.2 MEAN 26.2 MAX 1460 MIN 2.0 CFSM .82 IN 11.12 AC-FT 18970

06807000 MISSOURI RIVER AT NEBRASKA CITY, NB

LOCATION.--Lat 40°40'55", long 95°50'48", in NW1/4 NE1/4 sec.9, T.8 N., R.14 E., Otoe County, Hydrologic Unit 10240001, on right bank 0.7 mi (1.1 km) upstream from Waubonsie Highway Bridge at Nebraska City, and at mile 562.6 (905.2 km).

DRAINAGE AREA .--410,00 mi² (1,062,000 km²), approximately. The 3,959 mi² (10,254 km²) 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 905.35 ft (275.954 m) NGVD, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.

REMARKS.--Records good except those for winter period, which are poor. Flow regulated by upstream main-stem reservoirs. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.--50 years, 35,580 ft³/s (1,008 m³/s), 25,780,000 acre-ft/yr (31,800 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 414,000 ft³/s (11,700 m³/s) Apr. 19, 1952; maximum gage.height, 27.66 ft (8.431 m) Apr. 18, 1952; minimum discharge, 1,600 ft³/s (45.3 m³/s) Dec. 31, 1946 (discharge measurement); minimum gage height observed, -0.28 ft (-0.085 m) Dec. 24, 1960, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 122,000 ft³/s (3,460 m³/s) Mar. 19, gage height, 19.93 ft (6.075 m); minimum daily, 20,500 ft³/s (581 m³/s) Jan. 18-28; minimum gage height, 6.03 ft (1.838 m) Jan. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56100	59300	59300	27800	24000	35000	68200	53100	53400	53100	47000	46100
2	56200	58700	59000	27700	24500	36000	64200	60000	53200	53000	46800	47400
3	56500	58400	55700	27800	25000	50000	64000	70400	51300	53000	45500	46500
4	57400	58800	51600	27500	25000	45000	62600	61200	51900	52000	45600	44800
5	58300	58600	47200	26700	25000	41700	61600	54800	51200	51200	45300	44200
6	59800	59200	44200	26600	25500	39500	61700	53700	51300	50000	44300	47400
7	59200	59000	40000	26600	26000	49800	59300	54400	51500	49700	43900	46800
8	58200	59400	37400	26500	26000	40400	57700	54200	52700	50500	43200	44900
9	57700	58800	34400	26500	26500	36700	55000	54800	52500	49500	42300	42700
10	57100	58800	31500	26500	26500	37400	53800	56000	53700	48000	42800	42000
11	57800	59700	30100	26500	27000	35500	52100	59700	54700	47900	42900	41300
12	59500	60500	30500	26000	27000	39000	52500	68900	55000	47400	42500	41200
13	60100	60900	31200	26000	27000	45800	54000	68000	54300	46900	43400	41600
14	59700	61000	31500	23500	28000	51400	54000	63900	53900	47400	44800	42300
15	59200	62300	31900	22500	28000	50900	53100	64100	53700	51600	45600	42600
16	59000	62900	31300	21500	27500	49100	52100	64000	53200	51500	44900	43300
17	58900	62700	31800	21000	27500	57100	53300	62400	53600	49100	44300	45600
18	59000	61400	31300	20500	27000	73200	54100	63200	53600	47900	44600	46300
19	59800	60000	31800	20500	28500	114000	53200	62500	57900	47300	44400	46500
20	59400	59100	31800	20500	29000	110000	51600	62100	56300	46500	47200	46100
21	59500	58400	32200	20500	29000	92700	51500	61000	56700	45900	53200	46000
22	60000	57300	31800	20500	29000	76000	52200	58900	56900	44100	52700	45900
23	60400	58000	31300	20500	29500	95700	52900	58000	56100	43800	52700	45400
24	60500	59300	31100	20500	30000	109000	51300	57000	54600	45900	50000	46100
25	60300	58400	30100	20500	31000	92700	52400	56200	53600	45200	47800	46500
26	60100	58200	29200	20500	32000	75600	53000	55700	53000	44600	47400	45500
27	60000	58300	28700	20500	33000	67900	51800	55000	52400	44400	47800	44600
28	60000	59200	29900	20500	34000	65000	51300	54100	52700	44500	49500	44900
29	60100	59700	30500	21500	---	64700	51900	54200	53800	44500	48200	45300
30	59300	60000	30100	22500	---	71600	51800	54100	54500	45900	46100	45000
31	59500	---	29000	23000	---	71800	---	53500	---	47600	45200	---
TOTAL	1828600	1786300	1107400	729700	778000	1920200	1658200	1829100	1613200	1489900	1431900	1344800
MEAN	58990	59540	35720	23540	27790	61940	55270	59000	53770	48060	46190	44830
MAX	60500	62900	59300	27800	34000	114000	68200	70400	57900	53100	53200	47400
MIN	56100	57300	28700	20500	24000	35000	51300	53100	51200	43800	42300	41200
AC-FT	3627000	3543000	2197000	1447000	1543000	3809000	3289000	3628000	3200000	2955000	2840000	2667000

CAL YR 1978	TOTAL	17467900	MEAN	47860	MAX	154000	MIN	12900	AC-FT	34650000
WTR YR 1979	TOTAL	17517300	MEAN	47990	MAX	114000	MIN	20500	AC-FT	34750000

06807320 WEST NISHNABOTNA RIVER AT HARLAN, IA

LOCATION.--Lat 41°38'41", long 95°18'50", in NW1/4 NE1/4 sec. 19, T.79 N., R.38 W., Shelby County, Hydrologic Unit 10240002, in southeast part of City of Harlan, in city owned brick pumphouse on right bank, 50 ft (15 m) landward of levee, 250 ft (76 m) downstream from State Highway 44, 1.4 mi (2.3 km) downstream from confluence with West Fork.

DRAINAGE AREA.--316 mi² (818 km²).

PERIOD OF RECORD.--Oct. 1, 1977 to current year. Occasional low-flow measurements, water years 1957-77.

GAGE.--Water-stage recorder. Datum of gage is 1,162.894 ft (354.450 m) NGVD.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s (411 m³/s) Sept. 13, 1978, gage height, 26.18 ft (7.980 m); minimum daily, 9.0 ft³/s (0.25 m³/s) Feb. 16-22.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 18	1545	*12,200	346	*24.03	7.324
Mar. 23	0245	4,040	114	14.72	4.487
Mar. 30	0345	2,090	59.2	11.74	3.578
June 19	2345	4,000	113	14.66	4.468
July 30	Unknown	5,520	156	a16.59	5.057
Sept. 6	0230	1,500	42.5	10.60	3.231

a From high-water mark

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Jan. 7-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	64	50	19	19	60	315	217	155	147	172	111
2	95	62	17	18	19	80	302	465	154	136	145	59
3	90	62	50	17	19	400	308	415	151	130	127	57
4	89	61	52	17	19	190	291	339	148	133	118	76
5	88	61	50	17	19	190	304	321	146	116	108	74
6	88	55	45	17	20	210	260	305	136	116	96	366
7	83	54	42	16	20	230	282	285	141	109	89	80
8	84	55	41	16	20	280	268	263	141	109	84	71
9	83	57	40	16	20	250	245	236	153	106	78	71
10	83	56	42	16	20	200	236	215	163	123	76	65
11	86	53	45	16	21	220	235	232	144	178	70	64
12	86	56	45	17	22	250	280	221	138	78	65	65
13	83	63	45	18	22	600	236	218	133	72	62	76
14	82	56	45	19	22	1000	223	211	130	68	65	62
15	82	52	46	19	22	558	212	203	128	80	65	58
16	77	55	46	19	22	1060	208	197	125	65	64	55
17	75	66	46	19	22	4610	202	193	125	62	64	52
18	75	64	47	19	22	10500	194	229	129	59	58	52
19	71	55	45	19	22	5530	196	282	583	59	78	52
20	70	45	43	19	22	1150	384	225	1360	59	70	51
21	68	40	36	19	22	813	332	205	237	57	254	50
22	72	50	36	19	23	1510	277	199	214	55	319	45
23	72	50	32	19	23	2310	256	191	163	57	108	45
24	71	50	28	19	25	818	247	183	185	80	74	50
25	70	50	25	19	25	431	279	183	173	77	68	52
26	69	50	25	19	26	373	302	188	161	73	66	47
27	68	50	25	19	28	319	254	184	182	59	67	45
28	67	28	25	19	50	311	234	176	313	140	61	44
29	69	60	23	19	---	312	235	174	198	332	57	42
30	65	52	21	19	---	1060	221	165	155	2590	55	43
31	64	---	20	19	---	356	---	161	---	286	53	---
TOTAL	2422	1632	1178	562	636	36181	7818	7281	6464	5811	2936	2080
MEAN	78.1	54.4	38.0	18.1	22.7	1167	261	235	215	187	94.7	69.3
MAX	97	66	52	19	50	10500	384	465	1360	2590	319	366
MIN	64	28	17	16	19	60	194	161	125	55	53	42
CFSM	.25	.17	.12	.06	.07	3.69	.83	.74	.68	.59	.30	.22
IN.	.29	.19	.14	.07	.07	4.26	.92	.86	.76	.68	.35	.24
AC-FT	4800	3240	2340	1110	1260	71760	15510	14440	12820	11530	5820	4130

CAL YR 1978 TOTAL 47912.0 MEAN 131 MAX 1060D MIN 9.0 CFSM .42 IN 5.64 AC-FT 95030
WTR YR 1979 TOTAL 75001.0 MEAN 205 MAX 1050D MIN 16 CFSM .65 IN 8.83 AC-FT 148800

06807410 WEST NISHNABOTNA RIVER AT HANCOCK, IA

LOCATION.--Lat 41°23'24", long 95°22'17", in NE1/4 sec.18, T.76 N., R.39 W., Pottawattamie County, Hydrologic Unit 10240002, on downstream end of right pier of bridge on county highway G30, 0.5 mi (1.0 km) west of Hancock school, and 3.0 mi (4.8 km) downstream from Jim Creek.

DRAINAGE AREA.--609 mi² (1,577 km²).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,085.94 ft (330.995 m) NGVD.

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

AVERAGE DISCHARGE.--20 years, 271 ft³/s (7.675 m³/s), 6.04 in/yr (153 mm/yr), 196,300 acre-ft/yr (242 hm³/yr); median of yearly mean discharges, 230 ft³/s (6.51 m³/s), 5.1 in/yr (130 mm/yr), 167,000 acre-ft/yr (206 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft³/s (748 m³/s) Sept. 13, 1972, gage height, 22.12 ft (6.742 m); minimum daily, 2.2 ft³/s (0.062 m³/s) Feb. 8, 9, 1971.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 13	2200	6,130	174	10.44	3.182	Mar. 23	0500	5,000	142	9.45	2.880
Mar. 18	1900	*18,300	518	*19.54	5.956	July 30	1500	6,210	176	10.73	3.271

Minimum daily discharge, 40 ft³/s (1.13 m³/s) Jan. 13-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,110 ft³/s (31.4 m³/s) Sept. 1, gage height, 4.70 ft (1.433 m), no peak above base of 4,000 ft³/s (113 m³/s); minimum daily, 9.2 ft³/s (0.26 m³/s) July 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	235	129	116	50	52	140	600	410	316	240	565	428
2	224	129	89	50	54	170	577	698	306	228	453	219
3	215	128	100	48	54	1500	577	1050	300	216	392	150
4	209	128	110	45	58	350	546	758	293	270	353	134
5	203	126	100	43	58	340	543	698	290	250	313	117
6	196	122	95	43	58	350	520	679	283	201	280	1050
7	192	121	90	43	60	542	478	641	277	201	257	446
8	190	122	85	43	60	425	467	592	280	207	240	201
9	184	124	86	43	64	341	442	546	313	210	219	168
10	182	121	88	43	66	276	413	527	356	207	210	159
11	178	117	88	42	68	280	424	508	320	343	192	140
12	175	119	88	42	68	810	460	482	293	231	183	134
13	171	128	88	40	68	3410	453	473	283	201	174	153
14	169	124	88	40	68	2560	402	460	286	183	168	137
15	165	117	86	40	68	1380	377	420	254	231	162	124
16	161	121	86	40	68	1380	346	402	247	186	158	120
17	158	142	86	40	68	6240	346	392	244	159	150	110
18	148	144	86	40	68	14800	333	438	247	150	159	104
19	146	122	88	41	68	10500	326	679	283	147	300	100
20	144	88	88	41	68	1630	482	554	1780	144	204	100
21	144	80	88	42	68	1060	832	464	573	140	201	97
22	160	108	86	43	68	1560	603	435	392	134	626	95
23	158	114	78	45	68	3480	539	417	353	559	501	92
24	152	117	65	45	68	1280	508	392	320	543	250	97
25	150	119	60	45	68	970	641	384	290	377	180	92
26	144	111	62	45	68	763	649	384	260	290	165	92
27	139	124	60	45	80	649	562	395	244	213	162	87
28	135	120	60	45	100	607	516	370	440	679	159	85
29	135	130	60	45	---	611	501	356	560	569	156	83
30	135	137	56	47	---	1230	460	346	320	3560	140	83
31	129	---	52	50	---	706	---	329	---	964	120	---
TOTAL	5226	3632	2558	1354	1852	60340	14923	15679	11003	12233	7792	5197
MEAN	169	121	82.5	43.7	66.1	1946	497	506	367	395	251	173
MAX	235	144	116	50	100	14800	832	1050	1780	3660	626	1050
MIN	129	80	52	40	52	140	326	329	244	134	120	83
CFSM	.28	.20	.14	.07	.11	3.20	.82	.83	.60	.65	.41	.28
IN.	.32	.22	.16	.08	.11	3.69	.91	.96	.67	.75	.48	.32
AC-FT	10370	7200	5070	2690	3670	119700	29600	31100	21820	24260	15460	10310

CAL YR 1978	TOTAL	109840	MEAN 301	MAX 12000	MIN 40	CFSM .49	IN 6.71	AC-FT	217900	
WTR YR 1979	TOTAL	141789	MEAN 388	MAX 14800	MIN 40	CFSM .64	IN 8.66	AC-FT	281200	

06808500 WEST NISHNABOTNA RIVER AT RANDOLPH, IA

LOCATION.--Lat 40°52'23", long 95°34'48", in NE1/4 NE1/4 sec.17, T.70 N., R.41 W., Fremont County, Hydrologic Unit 10240002, on right bank 30 ft (9 m) upstream from bridge on State Highway 184, 0.3 mi (0.5 km) downstream from Deer Creek, 0.5 mi (0.8 km) west of Randolph, and 16.2 mi (26.1 km) upstream from confluence with East Nishnabotna River.

DRAINAGE AREA.--1,326 mi² (3,434 km²).

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1440: Drainage area. WDR Iowa 1974: 1973 (M). WDR IA-76-1: 1975 (P).

GAGE.--Water-stage recorder. Datum of gage is 932.99 ft (284.375 m) NGVD, unadjusted. Prior to Aug. 26, 1955, nonrecording gage and June 30, 1949, to Aug. 25, 1955, supplementary water-stage recorder, operating above gage height 8.4 ft (2.56 m) at same site and datum.

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

AVERAGE DISCHARGE.--31 years, 548 ft³/s (15.52 m³/s), 5.61 in/yr (142 mm/yr), 397,000 acre-ft/yr (490 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft³/s (1,010 m³/s) June 21, 1967, gage height, 22.60 ft (6.888 m); maximum gage height, 24.8 ft (7.56 m) Mar. 5, 1949, from graph based on gage readings (backwater from ice); minimum daily discharge, 10 ft³/s (0.283 m³/s) Dec. 17-21, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1947 reached a stage of about 24 ft (7.3 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft³/s (184 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 3	----	11,000	312	ice jam	---	Mar. 23	1400	7,780	220	16.63	5.069
Mar. 12	1800	8,080	229	16.84	5.133	July 24	0315	11,000	312	18.67	5.691
Mar. 18	1000	*17,100	484	*21.20	6.462						

Minimum daily discharge, 190 ft³/s (5.38 m³/s) Jan. 15-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	653	384	344	220	200	600	1240	911	530	468	1120	824
2	631	370	319	220	200	1500	1180	949	501	434	805	1300
3	620	366	220	220	200	10000	1150	1500	496	420	736	531
4	590	357	210	220	200	6980	1130	1410	511	406	632	388
5	567	357	280	210	200	1440	1120	1140	511	420	572	339
6	547	323	310	210	200	2020	1090	1070	477	416	588	2120
7	537	331	290	210	200	4320	1050	1020	463	411	477	1580
8	526	362	270	210	200	1610	999	966	448	463	444	595
9	519	357	260	200	200	1240	944	911	458	416	420	440
10	515	357	250	200	200	1430	922	867	516	384	416	394
11	506	348	240	200	200	1910	911	861	511	428	408	357
12	493	353	280	200	200	6340	994	818	472	463	376	347
13	464	379	270	200	200	5830	950	779	439	411	359	382
14	460	370	260	200	200	4880	894	762	420	363	358	370
15	456	353	250	190	200	3130	834	735	402	2200	360	358
16	441	370	250	190	200	1710	801	702	393	545	356	337
17	432	472	250	190	200	4320	784	670	397	397	357	324
18	424	444	250	190	200	15100	777	685	477	378	358	309
19	417	397	250	190	200	14900	763	861	477	348	498	297
20	392	340	250	200	200	6970	827	927	1180	336	454	290
21	393	290	250	200	200	2570	1270	784	1800	315	422	282
22	405	315	250	200	200	1890	1250	707	1210	308	456	277
23	452	388	250	200	200	6160	1050	655	845	310	763	269
24	425	370	250	200	200	2480	986	620	615	6150	630	265
25	411	353	240	200	200	1680	1880	600	530	1210	416	267
26	397	384	240	200	200	1550	1290	585	506	726	381	265
27	384	353	240	200	200	1340	1150	585	482	564	369	257
28	370	306	240	200	300	1110	1020	580	625	475	365	244
29	370	315	240	200	---	2020	1080	1110	655	2430	548	242
30	370	348	240	200	---	1390	982	585	620	1690	426	235
31	375	---	230	200	---	1760	---	540	---	3440	335	---
TOTAL	14542	10812	7973	6270	5700	120180	31318	25895	17967	27708	15126	14486
MEAN	469	360	257	202	204	3877	1044	835	599	894	488	483
MAX	653	472	344	220	300	15100	1880	1500	1800	6150	1120	2120
MIN	370	290	210	190	200	600	763	540	393	308	335	235
CFSM	.35	.27	.19	.15	.15	2.92	.79	.63	.45	.67	.37	.36
IN.	.41	.30	.22	.18	.16	3.37	.88	.73	.50	.78	.42	.41
AC-FT	28840	21450	15810	12440	11310	238400	62120	51360	35640	54940	30000	28730

CAL YR 1978 TOTAL 244658 MEAN 670 MAX 12000 MIN 150 CFSM .51 IN 6.86 AC-FT 485300
WTR YR 1979 TOTAL 297969 MEAN 816 MAX 15100 MIN 190 CFSM .62 IN 8.36 AC-FT 591000

06809210 EAST NISHNABOTNA RIVER NEAR ATLANTIC, IA

LOCATION.--Lat 41°20'47", long 95°04'31", 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, 1.9 mi (3.1 km) upstream from Turkey Creek, and 5.4 mi (8.7 km) southwest of junction of U.S. Highway 6 and State Highway 83 in Atlantic.

DRAINAGE AREA.--436 mi² (1,129 km²).

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,105.83 ft (337.057 m) NGVD. Prior to Oct. 1, 1970, at site 2.0 mi (3.2 km) upstream at datum 5.00 ft (1.524 m) higher.

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

AVERAGE DISCHARGE.--19 years, 213 ft³/s (6.032 m³/s), 6.63 in/yr (168 mm/yr), 154,300 acre-ft/yr (190 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft³/s (756 m³/s) Sept. 12, 1972, gage height, 22.81 ft (6.952 m); minimum daily, 2.5 ft³/s (0.071 m³/s) July 10, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 13	1900	4,680	133	10.41	3.173	Mar. 18	1700	*18,500	524	*18.42	5.614

Minimum daily discharge, 32 ft³/s (0.91 m³/s) Jan. 14-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	98	55	48	37	72	340	426	252	269	265	168
2	195	105	50	46	38	100	358	603	248	245	209	120
3	185	103	60	44	38	600	358	885	238	216	176	98
4	180	96	70	43	39	500	333	620	232	194	156	85
5	170	96	60	42	39	450	337	540	228	194	138	83
6	162	94	66	41	40	400	323	507	212	173	130	505
7	158	91	64	40	40	990	316	478	191	159	122	135
8	150	94	62	38	42	649	296	458	197	159	117	91
9	140	94	60	37	42	426	282	430	212	145	135	85
10	140	91	60	36	44	303	269	414	219	140	159	74
11	136	87	62	35	44	498	272	406	203	138	130	74
12	130	89	64	34	46	1890	289	399	200	140	115	76
13	127	103	66	33	46	3740	272	365	191	143	108	87
14	122	103	68	32	48	1820	255	362	185	143	103	85
15	120	91	70	32	48	1020	238	340	179	153	105	76
16	118	91	70	32	50	1010	238	330	173	132	108	71
17	114	138	70	32	50	2220	232	326	176	127	105	69
18	110	156	70	32	52	14300	222	380	179	117	127	65
19	105	132	70	33	52	3550	238	511	191	103	279	63
20	105	112	70	33	54	519	252	418	206	100	279	62
21	108	70	70	33	56	410	241	365	194	96	173	67
22	110	80	70	33	58	478	486	330	173	94	265	62
23	122	90	70	34	60	1280	446	330	168	474	466	62
24	115	85	70	34	60	1620	422	309	173	1170	176	60
25	115	80	70	34	60	474	620	306	176	391	135	62
26	110	75	70	35	60	446	895	306	179	216	130	62
27	105	70	70	35	64	380	595	316	434	173	127	62
28	105	60	65	35	68	351	519	282	940	188	145	56
29	103	70	60	36	---	360	511	275	507	462	154	60
30	100	60	55	36	---	399	474	261	340	1310	117	55
31	98	---	50	37	---	369	---	265	---	536	103	---
TOTAL	4068	2804	2007	1125	1375	41624	10929	12543	7396	8300	5057	2780
MEAN	131	93.5	64.7	36.3	49.1	1343	364	405	247	268	163	92.7
MAX	210	156	70	48	68	14300	895	885	940	1310	466	505
MIN	98	60	50	32	37	72	222	261	168	94	103	55
CFSM	.30	.21	.15	.08	.11	3.08	.84	.93	.57	.62	.37	.21
IN.	.35	.24	.17	.10	.12	3.55	.93	1.07	.63	.71	.43	.24
AC-FT	8070	5560	3980	2230	2730	82560	21680	24880	14670	16460	10030	5510

CAL YR 1978	TOTAL	77802	MEAN 213	MAX 3420	MIN 37	CFSM .49	IN 6.64	AC-FT	154300	
WTR YR 1979	TOTAL	100008	MEAN 274	MAX 14300	MIN 32	CFSM .63	IN 8.53	AC-FT	198400	

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IA

LOCATION.--Lat 41°00'41", long 95°14'07", in NW1/4 SE1/4 sec.29, T.72 N., R.38 W., Montgomery County, Hydrologic Unit 10240003, on left bank on downstream side of Coolbaugh Street bridge in Red Oak, and 0.2 mi (0.3 km) upstream from Red Oak Creek.

DRAINAGE AREA.--894 mi² (2,315 km²).

PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1921, 1922-23 (M), 1924, 1942 (M), 1944 (M), 1946. WSP 1440: Drainage area. WSP 1710: 1957.

GAGE.--Water-stage recorder. Datum of gage is 1,005.45 ft (306.461 m) NGVD. Prior to July 5, 1925, nonrecording gage at present site at datum 4.60 ft (1.402 m) higher. May 29, 1936, to Nov. 13, 1952, nonrecording gage with supplementary water-stage recorder in operation above 3.2 ft (0.975 m) gage height July 30, 1939, to Nov. 13, 1952, and Nov. 14, 1952, to June 13, 1966, water-stage recorder, all at site 0.5 mi (0.8 km) upstream at datum 5.00 ft (1.524 m) higher. June 14, 1966, to Sept. 30, 1969, at present site at datum 5.00 ft (1.524 m) higher.

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

AVERAGE DISCHARGE.--49 years (water years 1918-24, 1936-79), 375 ft³/s (10.62 m³/s), 5.70 in/yr (145 mm/yr), 271,700 acre-ft/yr (335 hm³/yr); median of yearly mean discharges, 360 ft³/s (10.2 m³/s), 5.5 in/yr (140 mm/yr), 261,000 acre-ft/yr (322 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s (1,080 m³/s) Sept. 13, 1972, gage height, 27.43 ft (8.361 m); maximum gage height, 28.23 ft (8.605 m) June 13, 1947, present datum; minimum daily discharge, 6 ft³/s (0.17 m³/s) Aug. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 13	0345	8,010	227	15.34	4.676
Mar. 19	0015	*16,900	479	*21.20	6.462
Mar. 23	0800	5,110	145	12.78	3.895
Mar. 29	0830	4,500	127	12.17	3.709
June 27	2100	7,400	210	14.83	4.520

Minimum daily discharge, 80 ft³/s (2.27 m³/s) Jan. 14-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	357	176	160	95	105	250	686	753	411	473	554	712
2	330	176	140	95	105	500	675	755	390	406	530	599
3	325	178	130	90	105	6000	681	1490	377	368	372	261
4	313	177	140	90	110	3900	676	1170	363	336	318	201
5	298	172	140	86	110	1500	653	973	350	332	286	179
6	282	171	135	86	110	1480	632	896	348	311	262	1490
7	276	167	130	86	110	3230	575	833	333	280	243	760
8	260	164	120	86	115	1800	587	777	316	268	227	330
9	253	164	110	86	115	913	558	732	325	258	218	253
10	253	164	105	86	115	704	516	688	359	247	220	224
11[e]	250	161	105	86	120	606	506	675	363	248	382	208
12	242	160	105	86	120	2320	569	638	320	407	235	195
13	233	172	105	84	120	6050	564	620	294	268	204	198
14	226	185	105	80	120	4100	498	608	292	226	193	199
15	224	181	105	80	120	2030	471	577	283	280	187	189
16	217	176	105	80	120	1210	446	547	267	242	184	178
17	208	222	105	80	120	3560	437	525	257	209	181	172
18	203	283	105	80	120	11900	431	551	285	188	178	168
19	201	253	105	82	120	8800	414	789	275	179	244	159
20	198	202	105	85	120	2890	597	821	287	169	851	152
21	196	135	105	85	120	1460	1850	669	298	161	368	150
22	201	150	105	90	120	1350	985	597	313	154	265	148
23	214	160	105	90	120	4220	793	565	255	223	489	143
24	213	170	100	90	120	1750	708	530	246	1340	402	137
25	201	180	100	95	120	1080	1040	514	235	1100	253	141
26	198	160	100	95	120	914	1490	506	228	477	213	134
27	192	150	100	95	130	801	1140	509	2020	324	201	131
28	186	140	100	95	170	730	925	498	2480	462	195	126
29	180	160	95	100	---	1680	881	452	1060	633	403	124
30	176	180	95	100	---	839	861	438	601	893	264	118
31	176	---	95	100	---	757	---	423	---	1720	196	---
TOTAL	7282	5289	3460	2744	3320	79324	21845	21119	14231	13182	9318	8179
MEAN	235	176	112	88.5	119	2559	728	681	474	425	301	273
MAX	357	283	160	100	170	11900	1850	1490	2480	1720	851	1490
MIN	176	135	95	80	105	250	414	423	228	154	178	118
CFSM	.26	.20	.13	.10	.13	2.86	.81	.76	.53	.48	.34	.31
IN.	.30	.22	.14	.11	.14	3.30	.91	.88	.59	.55	.39	.34
AC-FT	14440	10490	6860	5440	6590	157300	43330	41890	28230	26150	18480	16220

CAL YR 1978	TOTAL	177992	MEAN 488	MAX	6060	MIN 95	CFSM .55	IN 7.41	AC-FT	353000		
WTR YR 1979	TOTAL	189293	MEAN 519	MAX	11900	MIN 80	CFSM .58	IN 7.88	AC-FT	375500		

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IA
(National stream-quality accounting network station)

LOCATION.--Lat 40°37'57", long 95°37'32", in SW1/4 SE1/4 sec.11, T.67 N., R.42 W., Fremont County, Hydrologic Unit 10240004, on left bank 1.6 mi (2.6 km) downstream from confluence of East Nishnabotna and West Nishnabotna Rivers and 2 mi (3.2 km) northeast of Hamburg, and at mile 13.2 (21.2 km).

DRAINAGE AREA.--2,806 mi² (7,268 km²).

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 Iowa. 1974: 1973.

GAGE.--Water-stage recorder. Datum of gage is 894.17 ft (272.543 m) NGVD. See WSP 1730 for history of changes prior to Nov. 16, 1950.

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

AVERAGE DISCHARGE.--52 years, 1,036 ft³/s (29.34 m³/s), 5.01 in/yr (127 mm/yr), 750,600 acre-ft/yr (925 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,500 ft³/s (1,570 m³/s) June 24, 1947, gage height, 26.03 ft (7.934 m), present site and datum, from floodmark; maximum gage height, 27.46 ft (8.370 m) Mar. 7, 1979; minimum daily discharge, 4.5 ft³/s (0.13 m³/s) Aug. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 3	----	16,000	453	ice jam	---
Mar. 7	1500	ice jam	---	*27.46	8.370
Mar. 13	1030	13,900	394	22.43	6.837
Mar. 19	----	*23,000	651	Unknown	---
July 24	1145	13,900	394	22.43	6.837

Minimum daily discharge, 380 ft³/s (10.8 m³/s) Jan. 15-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1220	783	741	460	400	800	3380	2470	1310	1600	2970	2640
2	1190	748	624	440	400	2500	3090	2450	1280	1400	1850	2880
3	1140	757	550	420	400	14000	2880	2690	1240	1220	1700	1620
4	1100	753	600	400	400	10000	2720	3410	1220	1130	1360	1090
5	1050	730	650	400	400	4000	2610	2910	1240	1130	1230	810
6	1010	720	600	400	400	4500	2440	2720	1180	1080	1130	2410
7	985	706	590	400	400	6000	2340	2590	1150	1130	1050	3900
8	980	695	580	400	400	4000	2260	2470	1110	1230	966	1770
9	970	694	570	400	400	3000	2180	2300	1100	1180	890	1190
10	960	682	560	400	400	2500	2080	2190	1180	1010	868	958
11	945	667	550	400	400	3000	2020	2120	1190	1160	848	829
12	930	683	600	400	400	6680	2020	2040	1150	1010	979	776
13	900	729	640	400	400	11400	2010	1950	1070	1190	846	777
14	880	708	640	390	400	11300	1940	1880	1030	1000	774	766
15	850	693	640	380	400	6700	1800	1830	995	3380	761	713
16	830	686	640	380	400	5240	1740	1760	966	1710	737	577
17	805	891	640	380	400	6550	1680	1680	956	1110	742	648
18	780	914	640	380	400	14000	1650	1740	1170	924	713	620
19	770	867	640	390	400	22000	1610	1930	1440	834	721	593
20	770	747	630	390	410	16000	1860	2230	1350	787	954	579
21	785	600	630	390	410	14000	2580	2070	2500	760	1340	554
22	795	600	630	390	420	8000	3010	1830	2490	739	978	538
23	882	700	600	400	430	7000	2500	1690	2180	721	1040	530
24	877	700	550	400	440	7000	2310	1610	1950	8240	1280	531
25	838	678	550	400	450	6000	3540	1550	1270	3930	1010	522
26	808	757	550	400	450	5700	3430	1520	1170	2470	791	523
27	785	718	550	400	450	4660	3090	1500	1110	1600	746	514
28	768	618	550	400	450	3940	2760	1490	3280	1330	704	501
29	741	616	520	400	---	5150	2890	1860	2460	3310	973	484
30	727	668	500	400	---	4480	2620	1560	2070	3380	1080	479
31	729	---	480	400	---	4010	---	1360	---	4270	810	---
TOTAL	27800	21508	18435	12390	11510	224110	73040	63400	43807	55965	32841	31422
MEAN	897	717	595	400	411	7229	2435	2045	1460	1805	1059	1047
MAX	1220	914	741	460	450	22000	3540	3410	3280	8240	2970	3900
MIN	727	600	480	380	400	800	1610	1360	956	721	704	479
CFSM	.32	.26	.21	.14	.15	2.58	.87	.73	.52	.64	.38	.37
IN.	.37	.29	.24	.16	.15	2.97	.97	.84	.58	.74	.44	.42
AC-FT	55140	42660	36570	24580	22830	444500	144900	125800	86890	111000	65140	62330

CAL YR 1978	TOTAL	592454	MEAN	1623	MAX	16600	MIN 320	CFSM .58	IN 7.85	AC-FT	1175000	
WTR YR 1979	TOTAL	616228	MEAN	1688	MAX	22000	MIN 380	CFSM .60	IN 8.17	AC-FT	1222000	

06811840 TARKIO RIVER AT STANTON, IA

LOCATION.--Lat 40°58'52", long 95°06'32", in NW1/4 SW1/4 sec.4, T.71 N., R.37 W., Montgomery County, Hydrologic Unit 10240005, on right bank 10 ft (3 m) downstream from bridge on county highway H42, 0.1 mi (0.2 km) downstream from Little Tarkio Creek, and 0.5 mi (0.8 km) west of Stanton.

DRAINAGE AREA.--49.3 mi² (127.7 km²).

PERIOD OF RECORD.--October 1957 to current year. Annual maximum, water years 1952-57.

REVISED RECORDS.--WSP 1919: 1960 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,104.67 ft (336.703 m) NGVD.

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

AVERAGE DISCHARGE.--22 years, 27.3 ft³/s (0.773 m³/s), 7.52 in/yr (191 mm/yr), 19,780 acre-ft/yr (24.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft³/s (637 m³/s) June 9, 1967, gage height, 28.56 ft (8.705 m), from rating curve extended above 1,600 ft³/s (45.3 m³/s) on basis of slope-area measurement of peak flow; no flow at times most years.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 3	0700	*2,300	65.1	*14.40	4.389	Mar. 18	1200	1,800	51.0	13.65	4.161

Minimum daily discharge, 1.8 ft³/s (0.051 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	11	11	3.3	2.8	5.0	73	60	11	13	11	111
2	13	7.1	10	3.3	2.8	200	80	114	10	11	85	12
3	13	7.5	9.5	3.3	2.8	1250	74	100	9.8	13	11	6.8
4	10	8.3	9.0	3.3	2.8	119	62	95	9.1	12	10	5.4
5	10	7.7	9.0	3.3	2.8	65	59	90	8.3	14	9.0	5.4
6	8.3	7.2	9.0	3.3	2.7	451	47	80	7.5	15	8.5	21
7	9.1	6.3	8.5	3.3	2.7	367	48	75	6.5	15	8.0	6.8
8	10	9.1	8.0	3.3	2.7	87	47	70	6.8	14	7.6	5.4
9	10	10	7.5	3.3	2.7	79	40	65	13	12	7.2	4.8
10	9.1	6.6	7.0	3.3	2.7	88	34	60	14	9.1	6.8	3.7
11	8.3	5.3	7.0	3.3	2.7	102	54	55	9.1	15	6.6	3.5
12	7.5	8.4	7.0	3.2	2.7	274	77	50	9.1	12	6.4	3.2
13	6.1	16	7.0	3.2	2.7	203	44	45	10	11	6.2	4.8
14	6.1	8.4	6.5	3.2	2.7	63	38	40	7.5	8.3	6.0	3.7
15	6.1	8.8	6.5	3.2	2.6	31	35	37	6.8	17	5.9	2.6
16	7.2	15	6.5	3.2	2.6	31	35	35	6.8	9.1	5.8	3.0
17	10	31	6.0	3.2	2.6	56	35	35	6.8	9.1	5.7	2.7
18	8.3	16	6.0	3.1	2.6	1080	32	47	12	8.3	5.6	2.8
19	7.5	13	6.0	3.1	2.6	132	32	40	9.1	7.5	5.5	2.7
20	8.3	10	5.5	3.1	2.5	69	52	35	11	6.1	5.4	3.2
21	8.3	10	5.0	3.1	2.5	57	45	30	7.5	5.4	5.3	2.7
22	10	10	4.5	3.0	2.5	180	40	27	15	4.8	5.3	2.7
23	8.3	12	4.0	3.0	2.5	205	38	24	12	4.8	5.4	2.3
24	6.8	10	3.8	3.0	2.5	90	36	22	11	239	5.2	2.7
25	4.8	9.9	3.5	3.0	2.5	67	98	21	11	23	5.0	2.7
26	5.6	12	3.5	2.9	2.5	50	160	17	10	11	5.0	2.3
27	4.9	10	3.5	2.9	2.5	41	65	16	10	7.5	4.8	2.1
28	5.0	8.3	3.4	2.9	3.0	41	60	16	84	8.3	4.8	2.0
29	5.4	12	3.4	2.9	---	402	136	15	21	105	6.1	1.9
30	4.4	12	3.4	2.9	---	108	65	14	14	11	5.0	1.8
31	8.7	---	3.4	2.8	---	78	---	12	---	11	4.5	---
TOTAL	252.1	318.9	193.9	97.2	74.3	6071.0	1741	1442	379.7	662.3	279.6	237.7
MEAN	8.13	10.6	6.25	3.14	2.65	196	58.0	46.5	12.7	21.4	9.02	7.92
MAX	13	31	11	3.3	3.0	1250	160	114	84	239	85	111
MIN	4.4	5.3	3.4	2.8	2.5	5.0	32	12	6.5	4.8	4.5	1.8
CFSM	.17	.22	.13	.06	.05	3.98	1.18	.94	.26	.43	.18	.16
IN.	.19	.24	.15	.07	.06	4.58	1.31	1.09	.29	.50	.21	.18
AC-FT	500	633	385	193	147	12040	3450	2860	753	1310	555	471

CAL YR 1978	TOTAL	14203.13	MEAN 38.9	MAX 986	MIN .12	CFSM .79	IN 10.72	AC-FT 28170			
WTR YR 1979	TOTAL	11749.70	MEAN 32.2	MAX 1250	MIN 1.8	CFSM .65	IN 8.87	AC-FT 23310			

06813500 MISSOURI RIVER AT RULO, NB

LOCATION.--Lat 40°03'14", long 95°25'12", in NW1/4 NW1/4 sec.17, T.1 N., R.18 E., Richardson County, Hydrologic Unit 10240005, on downstream end of middle pier of bridge on U.S. Highway 159 at Rulo, 3.2 mi (5.1 km) upstream from Nemaha River, and at mile 498.0 (801.3 km).

DRAINAGE AREA (REVISED).--414,900 mi² (1,074,600 km²), approximately. The 3,959 mi² (10,254 km²) in Great Divide basin are not included.

PERIOD OF RECORD.--October 1949 to current year in reports of Geological Survey. Gage-height record collected at site 80 ft (24 m) upstream January 1886 to December 1899 published in reports of Missouri River Commission September 1929 to September 1950 in files of Kansas City office of Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft (255.188 m) NGVD. Prior to Sept. 13, 1950, nonrecording gage at site 80 ft (24 m) upstream at same datum.

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

AVERAGE DISCHARGE.--30 years, 39,650 ft³/s (1,123 m³/s), 28,730,000 acre-ft/yr (35,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358,000 ft³/s (10,100 m³/s) Apr. 22, 1952, gage height, 25.60 ft (7.803 m); minimum daily, 4,420 ft³/s (125 m³/s) Jan. 13, 1957; minimum gage height, 0.65 ft (0.198 m) Jan. 7, 1971, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1881 reached a stage of 22.9 ft (6.98 m), from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) Mar. 23, gage height, 20.33 ft (6.197 m); minimum daily, 21,000 ft³/s (595 m³/s) Jan. 18-29; minimum gage height, 6.32 ft (1.926 m) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57300	59200	60200	28700	24000	38000	77100	53300	54200	53800	49700	49300
2	57000	59000	59400	28500	24500	42700	73200	55600	54400	52700	50800	52500
3	57100	58500	56600	27800	25000	80000	69000	77300	53500	52600	47300	48500
4	57000	58100	52400	27300	25000	85000	66700	70200	52600	52400	46100	45900
5	57200	59200	47500	26900	25000	58400	64700	60300	53500	53700	46100	45200
6	58400	59800	43500	26500	25000	53100	63500	57000	52900	52200	45000	46800
7	60300	59900	39400	26500	25500	79000	61800	57400	53300	51200	44900	53900
8	59000	60100	36400	26500	26000	57600	59600	58000	54000	54500	44400	47600
9	58500	59700	34000	26500	26000	46500	57200	56900	55100	55000	43500	44200
10	57500	59000	31400	26500	26500	44700	55800	57800	56000	49800	43500	42900
11	57500	59700	29800	26500	26500	44600	54000	58600	56700	49400	43900	42300
12	58000	61400	29600	26500	27000	46300	53200	65400	56700	48100	43300	41900
13	61500	62600	30700	25500	27000	55400	54000	71200	55500	47700	42800	42200
14	60800	62000	31400	24000	27500	65300	55600	66900	55000	47300	44000	43200
15	60100	61800	31600	23000	28000	60200	55100	66400	55100	56400	45500	44300
16	59600	61500	31200	22000	28000	52200	52600	67800	55200	59700	45700	44500
17	59600	62300	31300	21500	28000	51400	53800	66000	55100	52500	44200	45800
18	59700	62200	32100	21000	27500	90300	56000	65200	55100	49300	43400	46900
19	60900	62000	32100	21000	28000	120000	56200	66800	59300	47900	43900	46800
20	60500	61700	32100	21000	28500	125000	54200	65700	57500	46900	44400	46700
21	60200	60800	32000	21000	29000	129000	54800	65700	58500	46100	50900	46600
22	60300	58900	32300	21000	29500	113000	55700	63100	57000	45100	54200	47700
23	61400	57500	32100	21000	30000	128000	55800	61200	60200	42900	51600	47900
24	61400	58900	32100	21000	31000	135000	55500	59900	60500	52800	51500	47200
25	60700	58500	31700	21000	32000	132000	54000	58400	54600	53800	48500	47300
26	60300	59400	30900	21000	33000	114000	60200	57700	52200	47300	48000	47100
27	59900	59500	30200	21000	34000	91500	55700	56900	52200	45500	47500	46300
28	60500	58800	30400	21000	35000	82900	54600	55500	53100	46000	49000	46100
29	60000	59400	31100	21000	---	80500	54100	54900	55800	48100	51000	46100
30	59700	60100	30800	22000	---	82000	54200	55600	55700	49100	47200	46200
31	59200	---	29400	23000	---	83600	---	54200	---	48800	46000	---
TOTAL	1841100	1801500	1115700	737700	782000	2467200	1747900	1906900	1660600	1558600	1447800	1389900
MEAN	59390	60050	35990	23800	27930	79590	58260	61510	55350	50280	46700	46330
MAX	61500	62600	60200	28700	35000	135000	77100	77300	60500	59700	54200	53900
MIN	57000	57500	29400	21000	24000	38000	52600	53300	52200	42900	42800	41900
AC-FT	3652000	3573000	2213000	1463000	1551000	4894000	3467000	3782000	3294000	3091000	2872000	2757000

CAL YR 1978 TOTAL 18453800 MEAN 50560 MAX 160000 MIN 14000 AC-FT 36600000
WTR YR 1979 TOTAL 18456900 MEAN 50570 MAX 135000 MIN 21000 AC-FT 36610000

NODAWAY RIVER BASIN

06817000 NODAWAY RIVER AT CLARINDA, IA

LOCATION.--Lat 40°44'19", long 95°00'47", in SW1/4 NE1/4 sec.32, T.69 N., R.36 W., Page County, Hydrologic Unit 10240009, near left abutment on downstream side of bridge on State Highway 2 (city route), 0.5 mi (0.8 km) downstream from North Branch, 1.2 mi (1.9 km) east of city square of Clarinda, and 7.5 mi (12.1 km) upstream from East Nodaway River.

DRAINAGE AREA.--762 mi² (1,973 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1240: 1918-20 (M), 1921, 1922-25 (M), 1936-38, 1942, 1943-45 (M), 1948. WSP 1440: Drainage area. WSP 1710: 1958, 1959 (P).

GAGE.--Water-stage recorder. Datum of gage is 960.36 ft (292.718 m) NGVD. Prior to July 5, 1925, and May 28, 1936, to Mar. 26, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Clarinda municipal water supply is taken from Nodaway River, 500 ft (152 m) above station. Average daily pumpage was 1.20 ft³/s (0.034 m³/s).

COOPERATION.--Average pumpage furnished by Clarinda water works.

AVERAGE DISCHARGE.--49 years (1918-24, 1936-79), 331 ft³/s (9.374 m³/s), 5.90 in/yr (150 mm/yr), 239,800 acre-ft/yr (296 hm³/yr); median of yearly mean discharges, 260 ft³/s (7.36 m³/s), 4.6 in/yr (117 mm/yr), 188,000 acre-ft/yr (232 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,100 ft³/s (881 m³/s) June 13, 1947, gage height, 25.3 ft (7.71 m), from floodmark, from rating curve extended above 15,000 ft³/s (425 m³/s) on basis of an overflow profile and extended channel rating; minimum daily, 1 ft³/s (0.028 m³/s) Sept. 5, 9, 12, 14, 1918, Dec. 9, 27-31, 1923.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1903 reached a stage of 25.4 ft (7.74 m), from floodmarks, discharge not determined.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 3	1700	15,400	436	14.17	4.319
Mar. 7	0245	5,220	148	8.14	2.481
Mar. 18	1800	*17,600	498	*15.18	4.627
Mar. 29	1830	5,020	142	7.97	2.429
June 27	2300	11,100	314	11.94	3.639

Minimum daily discharge, 36 ft³/s (1.02 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	85	120	40	46	200	817	552	176	421	146	281
2	120	76	110	40	46	1000	812	373	169	368	282	316
3	125	77	100	39	46	11100	930	810	160	312	316	140
4	122	78	110	39	46	5290	794	710	153	258	131	101
5	116	76	110	39	46	1970	734	528	155	234	115	84
6	104	74	100	39	46	2210	625	504	146	228	103	354
7	102	69	90	39	46	3890	558	478	123	196	95	424
8	98	70	80	39	46	1550	561	425	137	178	88	168
9	99	72	70	39	46	821	517	404	135	178	86	109
10	99	73	65	39	46	798	486	440	186	171	82	88
11	96	69	64	36	46	750	476	431	194	166	81	81
12	89	74	62	39	46	2300	519	425	156	166	97	74
13	84	124	62	39	46	3340	509	413	185	152	83	79
14	81	144	62	39	46	2280	441	339	239	148	83	70
15	81	124	60	39	46	1090	407	328	179	401	80	69
16	77	105	60	40	46	873	382	331	137	185	81	65
17	77	255	60	40	46	1200	378	289	90	132	77	59
18	78	306	60	40	46	12400	501	314	146	132	74	55
19	76	221	60	40	46	5280	366	378	785	101	69	55
20	77	140	60	41	46	1750	420	410	356	101	72	53
21	75	100	60	41	46	1070	1020	339	318	101	73	50
22	76	98	60	41	46	986	557	300	439	98	68	48
23	84	95	60	42	46	3380	445	261	347	95	65	47
24	86	100	55	42	46	1550	404	235	288	838	71	44
25	86	110	50	43	46	851	1020	238	215	332	62	49
26	76	110	48	43	46	728	1900	237	177	188	57	46
27	71	100	46	44	50	623	868	235	4220	139	55	46
28	70	90	45	44	60	575	662	228	4050	234	58	46
29	69	120	45	44	---	2540	868	211	999	841	86	38
30	71	120	44	45	---	2650	766	197	550	403	99	37
31	72	---	42	45	---	1090	---	186	---	189	88	---
TOTAL	2759	3355	2120	1259	1306	76135	19743	11549	15610	7686	3023	3176
MEAN	89.0	112	68.4	40.6	46.6	2456	658	373	520	248	97.5	106
MAX	125	306	120	45	60	12400	1900	810	4220	841	316	424
MIN	69	69	42	36	46	200	366	186	90	95	55	37
CFSM	.12	.15	.09	.05	.06	3.22	.86	.49	.68	.33	.13	.14
IN.	.13	.16	.10	.06	.06	3.72	.96	.56	.76	.38	.15	.16
AC-FT	5470	6650	4210	2500	2590	151000	39160	22910	30960	15250	6000	6300

CAL YR 1978	TOTAL	202454	MEAN 555	MAX 14800	MIN 42	CFSM .73	IN 9.88	AC-FT	401600	
WTR YR 1979	TOTAL	147721	MEAN 405	MAX 12400	MIN 36	CFSM .53	IN 7.21	AC-FT	293000	

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--October 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to current year.
WATER TEMPERATURES: October 1975 to September 1978.
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at time of analysis. Suspended-sediment samples at normal flows and winter period are collected below dam 300 ft (91 m) upstream from gage. Samples at higher stages are collected from bridge at gage. Random water temperatures are on file for the 1979 water year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 480 micromhos Jan. 26, May 18, 1979; minimum daily, 130 micromhos June 15, 1976.
WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 23, 1978; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 23,800 mg/L Apr. 17, 1978; minimum daily mean, 5 mg/L Dec. 14, 1977, Feb. 24, 1978.
SEDIMENT LOADS: Maximum daily, 991,000 tons (899,000 tonnes) Sept. 2, 1977; minimum daily, 0.23 ton (0.21 tonne) Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 480 micromhos Jan. 26, May 18; minimum daily, 175 micromhos June 28.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 21,500 mg/L Mar. 18; minimum daily mean, 3 mg/L Feb. 4.
SEDIMENT LOADS: Maximum daily, 720,000 tons (653,000 tonnes) Mar. 18; minimum daily, 0.37 ton (0.34 tonne) Feb. 4.

WATER QUALITY DATA, OCTOBER 1978 TO SEPTEMBER 1979

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	440	---	---	---	480	440	300	400	450	350	370	300
2	440	---	---	320	465	---	360	360	380	370	400	290
3	430	390	300	---	480	---	370	380	440	380	280	320
4	440	320	---	300	480	---	380	370	450	400	340	380
5	440	320	---	420	480	---	400	400	440	400	390	410
6	440	320	---	430	480	---	410	360	450	410	420	400
7	420	350	300	400	480	---	420	400	440	420	420	280
8	420	340	---	450	450	220	420	410	450	410	430	370
9	440	---	330	440	470	---	420	420	450	420	430	340
10	440	300	280	450	430	330	380	420	430	420	430	370
11	420	---	---	430	440	---	420	420	440	420	440	400
12	420	---	---	450	470	---	420	---	430	420	440	410
13	420	300	---	430	470	---	420	420	430	420	440	410
14	420	---	310	400	430	---	410	420	---	410	430	420
15	400	---	---	420	460	280	420	430	380	340	430	430
16	420	---	360	420	440	260	420	420	410	340	430	430
17	420	---	330	420	435	---	430	430	430	400	420	420
18	---	---	---	470	440	---	440	480	430	420	420	430
19	300	---	---	450	---	---	410	420	300	430	400	430
20	---	300	---	410	445	---	420	410	300	430	410	430
21	240	300	270	410	450	250	340	420	340	420	410	430
22	390	---	---	450	455	---	370	430	220	410	420	420
23	390	---	---	430	460	---	400	440	320	400	420	430
24	405	---	---	460	465	---	410	430	340	300	430	420
25	280	---	---	460	460	340	400	400	400	280	430	415
26	410	---	---	480	460	---	300	440	420	370	430	420
27	---	---	---	420	465	370	350	440	430	390	430	430
28	---	---	---	400	455	400	380	440	175	410	410	420
29	280	295	---	420	---	400	360	440	210	330	390	430
30	400	310	---	400	---	260	380	440	310	290	400	420
31	---	---	---	460	---	300	---	440	---	310	400	---

06817000 NODAWAY RIVER AT CLARINDA, IA--Continued

WATER QUALITY RECORDS

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	50	16	90	21	118	38	157	17	4	.50	56	30
2	49	16	84	17	105	31	141	15	4	.50	3400	9180
3	44	15	70	15	93	25	140	15	6	.75	19000	569000
4	38	13	55	12	90	27	140	15	3	.37	7100	101000
5	46	14	67	14	93	28	33	3.5	4	.50	1800	9570
6	23	6.5	73	15	95	26	19	2.0	10	1.2	2050	12200
7	10	2.8	82	15	93	23	31	3.3	10	1.2	3050	32000
8	10	2.6	104	*20	97	21	20	2.1	10	1.2	1410	5900
9	27	7.2	112	22	101	19	15	1.6	7	.87	440	975
10	21	5.6	112	22	86	15	20	2.1	6	.75	100	215
11	17	4.4	110	20	81	14	23	2.2	7	.87	505	1020
12	12	2.9	108	22	98	16	20	2.1	8	.99	2200	13700
13	12	2.7	137	46	117	20	27	2.8	10	1.2	3700	33400
14	8	1.7	147	57	118	20	27	2.8	6	.75	2200	13500
15	7	1.5	134	45	95	15	8	.84	7	.87	240	706
16	10	2.1	121	34	77	12	20	2.2	18	2.2	190	448
17	12	2.5	185	127	105	17	25	2.7	15	1.9	760	2460
18	34	7.2	227	188	101	16	18	1.9	10	1.2	21500	720000
19	68	14	210	125	96	16	13	1.4	12	1.5	7000	99800
20	84	17	180	68	95	15	10	1.1	14	1.7	1500	7090
21	90	18	118	32	93	15	11	1.2	9	1.1	130	376
22	85	17	99	26	91	15	15	1.7	6	.75	2400	6390
23	76	17	112	29	90	15	16	1.8	17	2.1	7400	67500
24	85	20	110	30	85	13	18	2.0	9	1.1	3750	15700
25	125	29	105	31	82	11	23	2.7	13	1.6	1200	2760
26	82	17	105	31	77	10	24	2.8	15	1.9	810	1590
27	73	14	98	26	72	8.9	34	4.0	13	1.8	610	1030
28	70	13	89	22	68	8.3	53	6.3	23	3.7	460	714
29	72	13	110	36	82	10	36	4.3	---	---	7170	85600
30	80	15	121	39	154	18	25	3.0	---	---	11000	89900
31	92	18	---	---	166	19	7	.85	---	---	710	2090
TOTAL	---	345.7	---	1207	---	557.2	---	127.29	---	35.07	---	1905844

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	180	397	490	730	42	20	600	682	188	74	1020	996
2	1010	2210	160	161	27	12	418	415	828	1640	765	795
3	1220	3060	1410	3080	36	16	327	275	1620	1990	215	81
4	760	1630	1070	2050	46	19	284	198	278	98	175	48
5	680	1350	468	667	62	26	237	150	120	37	95	22
6	540	911	371	505	53	21	186	115	55	15	1100	1880
7	452	681	360	465	51	17	188	99	41	11	1840	2110
8	480	727	330	379	56	21	202	97	38	9.0	500	227
9	391	546	248	271	67	24	156	75	34	7.9	177	52
10	320	420	236	280	81	41	127	59	36	8.0	130	31
11	343	441	257	299	153	80	62	28	24	5.2	110	24
12	500	701	170	195	63	27	34	15	40	10	84	17
13	570	783	162	181	172	86	28	11	43	9.6	60	13
14	402	479	157	144	643	415	26	10	42	9.4	47	8.9
15	278	305	132	117	628	304	1910	2200	40	8.6	34	6.3
16	249	257	76	68	415	154	420	210	33	7.2	40	7.0
17	440	449	58	45	292	71	133	47	38	7.9	52	8.3
18	2230	3020	245	208	2450	966	88	31	32	6.4	63	9.4
19	570	563	339	346	8830	20900	78	21	46	8.6	47	7.0
20	1600	1810	217	240	2900	2790	62	17	41	8.0	35	5.0
21	4890	14000	162	148	1900	1630	47	13	43	8.5	33	4.5
22	1550	2330	123	100	6640	9370	41	11	55	10	32	4.1
23	520	625	120	85	2200	2060	40	10	57	10	38	4.8
24	390	425	73	46	955	743	2030	23400	64	12	39	4.6
25	4960	22300	47	30	350	203	1300	1170	82	14	48	6.4
26	9150	51400	43	28	220	105	229	116	68	10	40	5.0
27	2610	6120	35	22	6670	164000	92	35	55	8.2	47	5.8
28	1040	1860	31	19	11400	154000	360	227	56	8.8	58	7.2
29	1790	4200	40	23	3200	8630	3520	12000	97	23	50	5.1
30	940	1940	38	20	990	1470	1970	2140	67	18	47	4.7
31	---	---	49	25	---	---	414	211	66	16	---	---
TOTAL	---	125940	---	10977	---	368221	---	44088	---	4109.3	---	6400.1

TOTAL LOAD FOR YEAR: 2467851.66 TONS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	TEMPERATURE (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)
APR							
18...	1830	10.5	418	507	572	64	71
JUN							
28...	0940	22.0	3800	10400	107000	60	64
JUL							
24...	0715	20.5	1080	12900	37600	44	49

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR						
18...	--	89	--	--	--	99
JUN						
28...	68	72	97	99	100	--
JUL						
24...	51	66	--	--	--	99

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	NUMBER OF SAMPLING POINTS (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)
JAN							
04...	1630	39	3	0	1	9	65
MAY							
24...	1700	235	3	2	5	32	88
JUL							
25...	1225	308	3	1	1	6	54
SEP							
25...	1700	50	3	2	3	8	25

DATE	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
JAN						
04...	88	96	99	100	--	--
MAY						
24...	94	98	99	100	--	--
JUL						
25...	66	72	79	83	92	100
SEP						
25...	43	58	70	80	91	100

06818750 PLATTE RIVER NEAR DIAGONAL, IA

LOCATION.--Lat 40°46'02", long 94°24'46", in NE1/4 NW1/4 sec.22, T.69 N., R.31 W., Ringgold County, Hydrologic Unit 10240012, on left bank at downstream side of bridge on county highway, 2.2 mi (3.5 km) upstream from Turkey Creek, 4.6 mi (7.4 km) southwest of Diagonal, and 4.9 mi (7.9 km) downstream from Gard Creek.

DRAINAGE AREA.--217 mi² (562 km²).

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WSP 2119: 1969 (P).

GAGE.--Water-stage recorder. Datum of gage is 1,095.27 ft (333.838 m) NGVD.

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

AVERAGE DISCHARGE.--11 years, 131 ft³/s (3.710 m³/s), 8.20 in/yr (208 mm/yr), 94,910 acre-ft/yr (117 hm³/yr); median of yearly mean discharge, 110 ft³/s (3.12 m³/s), 6.9 in/yr (175 mm/yr), 79,700 acre-ft/yr (98.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,420 ft³/s (182 m³/s) Oct. 12, 1973, gage height, 23.24 ft (7.084 m); minimum daily, 0.21 ft³/s (0.006 m³/s) Jan. 14, 15, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1967 reached a stage of 23.16 ft (7.059 m), from floodmark by local resident, discharge, 6,360 ft³/s (180 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s), and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 3	2345	ice jam	---	*20.61	6.282	Mar. 18	2230	4,070	115	18.38	5.602
Mar. 4	----	4,000	113	ice jam	--	July 24	2400	*4,510	128	19.35	5.898

Minimum daily discharge, 3.0 ft³/s (0.085 m³/s) Sept. 22, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	13	59	9.4	9.6	150	222	174	22	92	68	7.0
2	28	17	40	9.4	10	300	317	337	21	77	57	18
3	121	13	35	9.4	10	900	476	452	19	67	54	11
4	55	13	25	9.4	10	3000	309	207	18	57	45	7.1
5	37	12	20	9.4	10	1100	321	139	21	53	38	5.8
6	28	11	15	9.4	10	700	211	110	19	47	32	7.4
7	24	11	12	9.2	10	1200	157	95	63	44	28	8.8
8	22	11	11	9.0	10	518	146	98	411	42	25	6.9
9	21	11	10	9.0	11	331	144	85	116	42	22	5.3
10	24	12	10	9.0	11	293	106	84	157	39	19	4.7
11	23	11	10	9.0	11	356	110	90	71	172	17	4.4
12	20	12	10	9.0	11	810	240	74	52	65	16	4.2
13	18	254	10	9.0	11	998	152	63	151	43	14	4.2
14	16	110	10	9.0	11	552	112	59	63	37	13	4.7
15	15	44	10	9.0	11	253	94	57	43	388	12	4.2
16	15	87	10	9.0	11	194	77	50	36	105	11	4.2
17	15	866	10	9.0	11	277	362	47	32	54	11	4.2
18	12	302	10	9.0	11	2020	207	45	44	42	10	3.7
19	12	123	10	9.0	11	2050	127	45	137	37	9.1	3.9
20	12	80	10	9.0	13	444	316	44	829	34	8.4	3.5
21	11	61	10	9.0	14	279	418	38	117	31	7.5	3.5
22	11	71	10	9.0	15	260	189	35	71	30	7.0	3.0
23	12	67	10	9.0	17	1590	132	33	106	29	6.4	3.5
24	13	66	9.6	9.0	25	486	111	34	103	2240	6.1	3.9
25	11	58	9.6	9.0	84	278	771	32	58	1350	6.1	3.9
26	13	64	9.6	9.0	80	219	878	30	45	167	6.0	3.5
27	12	60	9.5	9.0	70	171	309	30	1200	101	5.5	3.7
28	12	44	9.5	9.0	100	168	200	29	741	73	5.5	3.5
29	10	53	9.5	9.2	---	185	358	25	213	547	8.1	3.2
30	9.8	56	9.5	9.4	---	920	258	22	135	173	9.6	3.0
31	10	---	9.4	9.4	---	320	---	22	---	90	6.7	---
TOTAL	667.8	2613	443.2	282.6	618.6	21322	7830	2685	5114	6368	584.0	157.9
MEAN	21.5	87.1	14.3	9.12	22.1	688	261	86.6	170	205	18.8	5.26
MAX	121	866	59	9.4	100	3000	878	452	1200	2240	68	18
MIN	9.8	11	9.4	9.0	9.6	150	77	22	18	29	5.5	3.0
CFSM	.10	.40	.07	.04	.10	3.17	1.20	.40	.78	.95	.09	.02
IN.	.11	.45	.08	.05	.11	3.66	1.34	.46	.88	1.09	.10	.03
AC-FT	1320	5180	879	561	1230	42290	15530	5330	10140	12630	1160	313

CAL YR 1978 TOTAL 59853.90 MEAN 164 MAX 4500 MIN .30 CFSM .76 IN 10.26 AC-FT 118700
WTR YR 1979 TOTAL 48686.10 MEAN 133 MAX 3000 MIN 3.0 CFSM .61 IN 8.35 AC-FT 96570

06819190 EAST FORK ONE HUNDRED AND TWO RIVER NEAR BEDFORD, IA

LOCATION.--Lat 40°38'01", long 94°44'41", in NE1/4 NE1/4 sec.9, T.67 N., R.34 W., Taylor County, Hydrologic Unit 10240013, on left bank at downstream side of bridge of county highway J55, 0.4 mi (0.6 km) upstream from Daugherty Creek, and 2.8 mi (4.5 km) southwest of junction of U.S. Highways 2 and 148 in Bedford.

DRAINAGE AREA.--92.1 mi² (238.5 km²).

PERIOD OF RECORD.--September 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,057.51 ft (322.329 m) NGVD (levels by Corps of Engineers). Prior to Oct. 1, 1968, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records fair except those for winter period, which are poor. Slight regulation at low flow by low dam used for water supply in Bedford. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 53.4 ft³/s (1.512 m³/s), 7.87 in/yr (200 mm/yr), 38,690 acre-ft/yr (47.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,980 ft³/s (283 m³/s) Oct. 11, 1973, gage height, 20.72 ft (6.315 m); maximum gage height, 20.95 ft (6.386 m) Jan. 12, 1960, present datum; no flow at times in 1966-68, 1972, 1977.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 3	----	3,000	85.0	ice jam	---	July 24	1530	*8,280	234	*18.35	5.593
Mar. 18	1500	2,350	66.6	8.95	2.728	July 29	1045	3,970	112	12.03	3.667

Minimum daily discharge, 0.22 ft³/s (0.006 m³/s) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	3.7	42	1.9	3.2	100	51	42	3.7	9.9	25	18
2	7.1	6.3	35	1.9	3.3	80	142	280	3.3	7.4	17	5.9
3	22	3.8	30	1.8	3.3	2000	142	175	2.0	5.9	14	1.7
4	13	3.4	25	1.8	3.5	876	83	68	2.0	4.1	11	.65
5	9.2	3.4	20	1.8	3.5	266	80	46	3.3	3.7	8.4	.65
6	6.5	3.4	15	1.8	3.5	446	44	36	2.0	2.6	6.9	19
7	5.3	6.0	10	1.8	3.7	573	41	29	2.0	2.0	5.0	5.0
8	4.2	3.9	6.0	1.8	3.7	161	36	26	5.4	2.6	4.1	2.9
9	4.1	2.3	4.0	1.9	3.7	116	29	22	9.9	2.6	3.3	1.7
10	4.5	2.3	3.0	1.9	3.9	146	26	19	8.9	2.0	2.9	.65
11	5.1	2.3	2.0	1.9	3.9	175	30	23	6.4	3.3	2.6	.40
12	7.7	3.6	2.2	2.0	3.9	352	41	19	2.6	6.4	2.0	.40
13	4.0	95	2.5	2.0	3.9	364	29	19	3.7	1.5	1.7	.65
14	3.0	27	2.5	2.0	3.9	171	23	16	3.7	1.3	2.3	.40
15	2.4	15	2.4	2.2	4.0	87	20	13	2.3	186	2.6	.34
16	2.3	17	2.2	2.2	4.0	64	19	11	1.7	27	2.0	.29
17	2.4	501	2.0	2.2	4.0	109	17	9.9	1.7	9.9	1.5	.29
18	2.3	108	2.0	2.4	4.0	1160	18	9.4	2.3	5.4	1.5	.25
19	2.3	46	2.0	2.4	4.0	410	18	9.9	3.3	2.6	1.3	.29
20	2.3	31	2.0	2.4	4.5	134	69	8.4	31	1.7	1.1	.29
21	2.8	30	2.0	2.6	6.0	83	58	5.9	8.4	1.1	1.1	.25
22	3.8	28	2.0	2.6	8.0	81	32	5.4	17	.91	.91	.29
23	4.8	27	2.0	2.6	15	1040	27	5.4	48	.60	.77	.22
24	3.5	27	2.0	2.8	50	220	26	5.4	30	1770	.65	.25
25	2.9	23	2.0	2.8	45	101	403	5.9	12	146	.65	.25
26	2.6	35	2.0	2.8	35	79	214	5.9	8.9	34	.65	.29
27	3.5	33	2.0	3.0	25	55	83	5.9	35	15	.55	.25
28	2.1	30	2.0	3.0	35	54	53	5.4	166	29	.77	.29
29	2.1	30	2.0	3.0	---	51	119	3.7	31	1540	3.3	.29
30	2.3	50	2.0	3.2	---	88	60	4.1	13	234	1.1	.29
31	2.4	---	1.9	3.2	---	47	---	4.5	---	46	.77	---
TOTAL	150.3	1197.4	233.7	71.7	294.4	9689	2033	939.1	470.5	4104.51	127.42	62.42
MEAN	4.85	39.9	7.54	2.31	10.5	313	67.8	30.3	15.7	132	4.11	2.08
MAX	22	501	42	3.2	50	2000	403	280	166	1770	25	19
MIN	2.1	2.3	1.9	1.8	3.2	47	17	3.7	1.7	.60	.55	.22
CFSM	.05	.43	.08	.03	.11	3.40	.74	.33	.17	1.43	.05	.02
IN.	.06	.48	.09	.03	.12	3.91	.82	.38	.19	1.66	.05	.03
AC-FT	298	2380	464	142	584	19220	4030	1860	933	8140	253	124

CAL YR 1978 TOTAL 28950.35 MEAN 79.3 MAX 2850 MIN .31 CFSM .86 IN 11.69 AC-FT 57420
WTR YR 1979 TOTAL 19373.45 MEAN 53.1 MAX 2000 MIN .22 CFSM .58 IN 7.83 AC-FT 38430

06897950 ELK CREEK NEAR DECATUR CITY, IA
(Hydrologic bench-mark station)

LOCATION.--Lat 40°43'18", long 93°56'12", near the southeast corner sec.34, T.69 N., R.27 W., Decatur County, Hydrologic Unit 10280102, at right downstream corner of bridge on county highway, 1,000 ft (305 m) downstream from West Elk Creek, 5.2 mi (8.4 km) upstream from mouth, and 5.7 mi (9.2 km) southwest of Decatur City.

DRAINAGE AREA.--62.5 mi² (136 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 924.70 ft (281.849 m) NGVD. Oct. 1, 1967, to Sept. 30, 1974, at datum 10.00 ft (3.05 m) higher.

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

AVERAGE DISCHARGE.--12 years, 30.7 ft³/s (0.869 m³/s), 7.94 in/yr (202 mm/yr), 22,240 acre-ft/yr (27.4 hm³/yr); median of yearly discharges, 25 ft³/s (0.71 m³/s), 6.5 in/yr (165 mm/yr), 18,100 acre-ft/yr (22.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft³/s (323 m³/s) Apr. 24, 1976, gage height, 25.80 ft (7.864 m), from rating curve extended above 5,300 ft³/s (150 m³/s) on basis of step-backwater computation; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 14, 1967, reached a stage of 18.35 ft (5.593 m), datum in use prior to Oct. 1, 1974, discharge, 15,000 ft³/s (425 m³/s), estimated from rating curve extended above 5,300 ft³/s (150 m³/s) on basis of step-backward computation. Flood of Aug. 6, 1959, reached a stage between 20.5 and 22.5 ft (6.25 and 6.86 m), datum in use prior to Oct. 1, 1974, 300 ft (91 m) downstream , from information by assistant county engineer, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 6	2030	677	19.2	14.59	4.447	Mar. 30	0630	1,420	40.2	16.17	4.929
Mar. 18	1630	1,540	43.6	16.76	5.108	May 2	1745	1,060	30.0	15.30	4.663
Mar. 23	1230	*3,870	110	*19.85	6.050	June 27	0800	1,130	32.0	15.83	4.825

No flow Aug. 18-31, Sept. 11-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	14	63	2.7	3.5	92	44	10	2.6	.53	.70	.61
2	9.2	16	38	2.5	3.4	78	65	259	2.4	.80	.53	2.2
3	13	16	42	2.4	3.5	84	40	94	2.4	1.7	.40	1.5
4	8.3	17	25	2.4	3.5	140	38	19	2.4	1.3	.25	.90
5	9.6	18	19	2.3	3.5	240	36	9.2	2.4	1.1	.18	.51
6	6.4	18	12	2.2	3.5	425	20	5.1	2.4	.90	.18	.44
7	6.4	17	8.2	2.1	3.5	143	20	3.1	6.4	1.2	.18	.27
8	6.4	15	7.1	2.1	3.5	17	17	2.2	17	1.5	.16	.16
9	7.9	16	6.3	2.1	3.5	4.8	14	1.3	25	1.9	.14	.05
10	15	18	4.9	2.0	3.5	3.3	13	4.5	13	1.6	.12	.01
11	26	18	6.8	2.1	3.5	102	33	7.5	5.1	2.1	.12	.00
12	13	19	8.2	2.1	3.6	128	37	1.2	3.3	1.4	.12	.00
13	13	55	10	2.1	3.6	141	19	.70	15	.80	.12	.00
14	13	14	11	2.2	3.8	26	14	.49	4.8	.44	.09	.00
15	14	7.6	11	2.4	3.8	3.8	11	.31	2.6	30	.05	.00
16	15	35	9.2	2.6	3.8	4.1	10	.44	2.1	3.8	.04	.00
17	13	280	5.8	2.8	3.9	17	90	.49	3.0	1.4	.01	.00
18	15	110	6.7	2.9	3.9	296	28	.53	5.7	.53	.00	.00
19	14	36	8.5	2.9	4.0	74	51	.80	7.1	.31	.00	.00
20	13	21	9.8	3.0	6.0	16	75	.57	7.1	.31	.00	.00
21	15	17	8.0	3.0	14	7.1	47	.70	3.8	.23	.00	.00
22	14	16	6.0	3.0	38	71	23	1.2	4.8	.23	.00	.00
23	13	17	4.3	3.1	74	157	17	1.3	51	.25	.00	.00
24	12	22	3.0	3.1	102	145	16	1.4	20	1.7	.00	.00
25	13	21	3.1	3.2	80	1120	50	1.5	4.8	2.2	.00	.00
26	12	23	3.6	3.2	60	104	36	2.2	3.1	1.0	.00	.00
27	10	23	3.4	3.3	62	71	18	2.6	231	.53	.00	.00
28	9.6	20	3.2	3.4	76	70	11	2.1	19	2.4	.00	.00
29	8.8	32	2.9	3.5	---	51	24	2.1	3.0	10	.00	.00
30	9.6	66	2.8	3.5	---	265	14	1.9	.66	6.1	.00	.00
31	12	---	2.7	3.5	---	56	---	2.2	---	1.7	.00	---
TOTAL	369.4	1017.6	355.5	83.7	580.8	4152.1	931	439.63	472.96	79.96	3.39	6.75
MEAN	11.9	33.9	11.5	2.70	20.7	134	31.0	14.2	15.8	2.58	.11	.23
MAX	26	280	63	3.5	102	1120	90	259	231	30	.70	2.2
MIN	6.4	7.6	2.7	2.0	3.4	3.3	10	.31	.66	.23	.00	.00
CFSM	.23	.65	.22	.05	.39	2.55	.59	.27	.30	.05	.002	.004
IN.	.26	.72	.25	.06	.41	2.94	.66	.31	.34	.06	.00	.00
AC-FT	733	2020	705	166	1150	8240	1850	872	938	159	6.7	13

CAL YR 1978 TOTAL 17410.63 MEAN 47.7 MAX 3910 MIN .01 CFSM .91 IN 12.34 AC-FT 34530
WTR YR 1979 TOTAL 8492.79 MEAN 23.3 MAX 1120 MIN .00 CFSM .44 IN 6.02 AC-FT 16850

06897950 ELK CREEK NEAR DECATUR CITY, IA--Continued
(Hydrologic bench-mark station)

/WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

REMARKS.--Miscellaneous biological data collected September 1970 to September 1972 are available in the District office.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
04...	1715	5.6	520	8.2	16.0	12.1	125	390	250	280	250
NOV											
15...	1035	7.6	500	7.7	4.0	12.1	94	450	310	420	220
DEC											
14...	0910	11	505	6.6	.0	12.4	87	--	2300	3700	260
JAN											
11...	1115	2.0	630	7.4	.0	12.2	86	110	65	95	290
FEB											
14...	1200	3.7	540	7.4	.0	13.2	93	140	15	40	290
MAR											
29...	1000	52	440	8.1	7.0	12.1	102	K800	580	3100	190
JUN											
08...	1015	21	360	7.9	18.0	9.1	98	>8000	>6000	>10000	160
JUL											
12...	0900	1.4	520	8.1	23.0	7.4	87	1650	880	K70	220
AUG											
16...	0800	.05	520	7.8	16.0	8.0	82	--	--	--	270

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT											
04...	55	74	17	9.9	8	.3	4.6	200	53	8.3	.2
NOV											
15...	52	64	15	9.4	8	.3	7.4	170	50	12	.2
DEC											
14...	55	78	17	12	9	.3	3.3	210	57	8.0	.2
JAN											
11...	27	87	17	12	8	.3	2.3	260	63	8.5	.2
FEB											
14...	56	85	18	11	8	.3	1.9	230	68	7.9	.2
MAR											
29...	31	55	13	9.6	10	.3	3.5	160	44	7.1	.2
JUN											
08...	38	47	9.8	8.9	10	.3	6.5	120	43	8.7	.2
JUL											
12...	13	63	16	10	12	.3	4.9	210	42	7.5	.2
AUG											
16...	21	79	18	11	8	.3	4.1	250	40	17	.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
04...	11	316	298	.43	4.82	.25	.03	25	.38	81
NOV										
15...	12	304	272	.41	6.25	1.4	.20	42	.86	98
DEC										
14...	14	312	316	.42	9.43	.60	.09	38	1.1	99
JAN										
11...	12	411	358	.56	2.29	.67	.03	73	.41	66
FEB										
14...	13	336	343	.46	3.42	.54	.02	64	.65	91
MAR										
29...	13	246	242	.33	34.7	1.2	.07	221	31	--
JUN										
08...	7.1	223	203	.30	12.6	1.8	.53	843	48	100
JUL										
12...	9.6	462	279	.63	1.75	.01	.05	13	.05	95
AUG										
16...	7.9	321	328	.44	.05	.08	.13	74	.01	96

0689750 ELK CREEK NEAR DECATUR CITY, IA--Continued

WATER-QUALITY RECORDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT 04...	270	130	390	.2	1	0	20
JUN 08...	21000	24	790	.2	1	0	100

DATE	TIME	CYANIDE TOTAL (MG/L AS CN) (00720)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
OCT 04...	1715	.00	1	0	13	0	5
JUN 08...	1015	.00	6	300	1	20	24

06898000 THOMPSON RIVER AT DAVIS CITY, IA

LOCATION.--Lat 40°38'25", long 93°48'29", in SE1/4 SE1/4 sec.35, T.68 N., R.26 W., Decatur County, Hydrologic Unit 10280102, on right bank 15 ft (5 m) downstream from bridge on U.S. Highway 69 at Davis City, 2.6 mi (4.2 km) upstream from Dickersons Branch, and 5.2 mi (8.4 km) upstream from Iowa-Missouri State line.

DRAINAGE AREA.--701 mi² (1,816 km²).

PERIOD OF RECORD.--May 1918 to July 1925, July 1941 to current year. Monthly discharge only for some periods, published in WSP 1310. Prior to October 1918, published as "Grand River".

REVISED RECORDS.--WSP 1240: 1918, 1920-21 (M), 1922-24, 1925 (M), 1946-47 (M). WSP 1440: Drainage area. WSP 1710: 1957.

GAGE.--Water-stage recorder. Datum of gage is 874.04 ft (266.407 m) NGVD. May 14, 1918, to July 2, 1925, July 14, 1941, to Feb. 24, 1942, nonrecording gage, and Feb. 25, 1942, to Feb. 8, 1967, water-stage recorder at same site at datum 2.00 ft (0.61 m) higher.

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

AVERAGE DISCHARGE.--44 years (1918-24, 1941-79), 370 ft³/s (10.48 m³/s), 7.17 in/yr (182 mm/yr), 268,100 acre-ft/yr (331 hm³/yr); median of yearly mean discharges, 320 ft³/s (9.06 m³/s) 6.2 in/yr (157 mm/yr) 232,000 acre-ft/yr (286 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft³/s (688 m³/s) June 10, 1974, gage height, 19.43 ft (5.922 m), from rating curve extended above 17,000 ft³/s (481 m³/s) on basis of velocity-area study; minimum daily, 0.1 ft³/s (0.003 m³/s) June 25, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 8, 1885, reached a stage of 22.8 ft (6.95 m), datum in use prior to Feb. 9, 1967, from floodmark, discharge, 30,000 ft³/s (850 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 19	1530	5,090	144	7.84	2.390	Mar. 23	1715	*8,220	233	*10.34	3.152

Minimum daily discharge, 4.6 ft³/s (0.13 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	44	290	37	45	510	1000	519	67	282	51	24
2	107	45	275	29	45	600	876	1040	62	224	50	28
3	104	54	220	31	45	1300	1010	3630	59	209	58	31
4	180	55	170	32	45	4800	1070	1300	57	232	99	28
5	190	55	160	33	45	4540	907	576	54	170	82	26
6	154	57	204	33	45	4130	744	389	50	143	65	22
7	123	57	220	34	44	3480	551	307	70	128	55	25
8	105	54	208	34	44	2380	457	257	185	115	49	22
9	94	51	190	34	44	1570	417	224	461	106	56	20
10	85	49	162	34	44	1220	370	197	223	95	47	17
11	82	46	135	34	43	1020	393	229	119	85	41	14
12	81	44	108	34	44	2260	510	227	93	93	35	12
13	77	185	95	35	43	3570	682	179	344	152	30	11
14	68	586	108	35	44	3760	511	155	246	94	26	9.3
15	60	281	112	35	46	1910	366	153	164	311	22	8.2
16	52	177	106	35	46	913	311	147	96	168	21	8.5
17	52	2590	96	36	46	939	440	135	77	98	20	8.4
18	51	2150	92	37	46	2120	423	122	67	75	19	8.1
19	50	680	87	38	46	4840	433	115	77	68	19	7.5
20	48	359	90	40	46	4150	540	109	79	62	20	6.6
21	47	237	90	41	46	1940	1890	103	457	58	20	6.3
22	47	194	86	41	52	888	1110	99	245	58	19	5.5
23	48	193	74	42	66	5520	581	94	236	57	20	5.2
24	45	208	72	42	134	4670	434	91	228	60	19	6.4
25	48	201	78	43	224	1850	409	87	141	771	19	5.9
26	49	207	51	43	300	1530	1350	84	108	330	19	4.8
27	48	208	31	44	385	1040	1930	83	1460	216	18	5.0
28	49	192	23	44	455	815	756	80	3720	150	19	5.2
29	47	175	22	45	---	717	554	77	1700	123	19	4.6
30	43	300	23	45	---	2240	583	74	482	96	20	6.1
31	43	---	22	45	---	2390	---	75	---	70	20	---
TOTAL	2382	9734	3700	1165	2558	73612	21608	10957	11427	4899	1077	392.8
MEAN	76.8	324	119	37.6	91.4	2375	720	353	381	158	34.7	13.1
MAX	190	2590	290	45	455	5520	1930	3630	3720	771	99	31
MIN	43	44	22	29	43	510	311	74	60	57	18	4.6
CFSM	.11	.46	.17	.05	.13	3.39	1.03	.50	.54	.23	.05	.02
IN.	.13	.52	.20	.06	.14	3.91	1.15	.58	.61	.26	.06	.02
AC-FT	4720	19310	7340	2310	5070	146000	42860	21730	22670	9720	2140	779

CAL YR 1978	TOTAL	194948.0	MEAN 534	MAX 9690	MIN 17	CFSM .76	IN 10.35	AC-FT 386700
WTR YR 1979	TOTAL	143511.8	MEAN 393	MAX 5520	MIN 4.6	CFSM .56	IN 7.62	AC-FT 284700

06898400 WELDON RIVER NEAR LEON, IA

LOCATION.--Lat 40°41'45", long 93°38'07", in NE1/4 NE1/4 sec.17, T.68 N., R.24 W., Decatur County, Hydrologic Unit 10280102, on left bank 10 ft (3 m) downstream from bridge on county highway A, 200 ft (61 m) upstream from unnamed creek, 1.3 mi (2.1 km) downstream from Brush Creek, and 6.5 mi (10.5 km) southeast of post office at Leon.

DRAINAGE AREA.--104 mi² (269 km²).

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

GAGE.--Water-stage recorder. Datum of gage is 906.26 ft (276.228 m) NGVD.

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

AVERAGE DISCHARGE.--21 years, 73.2 ft³/s (2.073 m³/s), 9.56 in/yr (243 mm/yr), 53,030 acre-ft/yr (65.4 hm³/yr); median of yearly mean discharges, 52 ft³/s (1.47 m³/s), 6.8 in/yr (173 mm/yr), 37,700 acre-ft/yr (46.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,600 ft³/s (1,376 m³/s) Aug. 6, 1959, gage height, 25.27 ft (7.702 m), from rating curve extended above 5,600 ft³/s (159 m³/s) on basis of contracted-opening and flow-over-embankment measurement at gage height 25.27 ft (7.702 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Stage and discharge of the flood of Aug. 6, 1959, are the greatest since at least 1919.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,180 ft³/s (147 m³/s) Mar. 23, gage height, 16.05 ft (4.892 m), at 1315 hours; no other peak above base of 4,500 ft³/s (127 m³/s); minimum daily, 0.37 ft³/s (0.01 m³/s) Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	52	110	4.6	6.2	200	72	44	12	20	20	2.3
2	9.0	57	76	4.7	5.8	188	102	898	8.2	16	16	1.7
3	2.9	56	81	4.9	6.9	1580	76	630	6.1	146	12	1.1
4	.56	59	52	5.1	6.1	62	68	97	4.6	37	9.0	1.2
5	.85	61	46	5.4	4.4	120	81	52	3.0	20	6.8	1.2
6	1.0	66	24	5.4	5.8	259	50	38	2.4	15	5.2	1.2
7	1.0	63	14	5.2	7.1	450	45	29	15	9.9	3.9	1.0
8	1.0	61	14	4.9	6.0	191	43	25	117	8.1	3.0	.83
9	1.0	61	11	4.2	4.6	146	39	23	329	6.8	2.2	.80
10	1.0	62	9.3	3.8	4.9	216	36	18	98	5.8	3.0	.79
11	1.0	66	10	4.1	5.9	443	104	16	22	5.0	2.3	.37
12	1.2	68	12	4.1	6.8	810	115	13	20	3.7	2.2	.43
13	1.9	128	16	4.2	6.1	979	63	11	76	2.6	1.9	.67
14	2.6	33	19	4.5	7.5	409	49	9.6	41	1.6	1.6	.99
15	2.9	27	16	5.3	10	194	39	8.0	31	353	1.2	1.4
16	3.7	21	14	6.6	8.5	165	35	7.1	25	71	1.6	1.0
17	9.9	824	9.7	7.1	4.4	256	83	6.6	24	47	.80	6.3
18	12	137	10	7.6	4.5	608	57	6.2	28	40	.79	4.1
19	15	62	11	7.8	5.8	529	114	6.7	26	36	1.2	2.2
20	16	42	12	8.1	7.8	163	121	5.1	22	34	1.2	1.6
21	21	34	8.2	8.6	14	100	87	3.1	18	34	1.5	1.6
22	25	32	7.4	9.6	16	313	57	2.4	15	34	1.8	1.7
23	28	45	6.2	10	136	2740	47	2.1	72	34	2.4	1.5
24	30	42	4.9	10	220	408	44	1.4	67	40	3.1	1.9
25	32	35	3.7	9.1	172	273	142	1.1	44	25	2.1	2.3
26	34	44	7.4	7.6	130	198	161	1.3	38	19	3.0	2.8
27	36	49	7.0	7.8	114	166	70	1.3	981	12	1.6	3.0
28	37	40	6.3	8.4	140	200	50	.91	151	33	.54	2.8
29	41	68	5.5	7.4	---	150	64	.63	597	200	.39	2.1
30	45	160	5.0	6.4	---	196	55	62	46	94	1.0	1.7
31	48	---	4.6	6.8	---	109	---	141	---	35	1.2	---
TOTAL	486.51	2555	633.2	199.3	1067.1	12821	2169	2160.54	2939.3	1448.5	114.52	62.68
MEAN	15.7	85.2	20.4	6.43	38.1	414	72.3	69.7	98.0	46.7	3.69	1.75
MAX	48	824	110	10	220	2740	161	898	981	363	20	6.3
MIN	.56	21	3.7	3.8	4.4	62	35	.63	2.4	1.6	.39	.37
CFSM	.15	.82	.20	.06	.37	3.98	.70	.67	.94	.45	.04	.02
IN.	.17	.91	.23	.07	.38	4.59	.78	.77	1.05	.52	.04	.02
AC-FT	965	5070	1260	395	2120	25430	4300	4290	5830	2870	227	104

CAL YR 1978	TOTAL	38096.70	MEAN	104	MAX	3050	MIN	.00	CFSM	1.00	IN	13.63	AC-FT	75560
WTR YR 1979	TOTAL	26646.55	MEAN	73.0	MAX	2740	MIN	.37	CFSM	.70	IN	9.53	AC-FT	52850

06903400 CHARITON RIVER NEAR CHARITON, IA

LOCATION.--Lat 40°57'12", long 93°15'37", in SW1/4 NE1/4 sec.15, T.71 N., R.21 W., Lucas County, Hydrologic Unit 10280201, on right bank 15 ft (5 m) downstream from bridge on county highway S43, 0.4 mi (0.6 km) downstream from Wolf Creek, and 5.0 mi (8.0 km) southeast of Chariton.

DRAINAGE AREA.--182 mi² (471 km²).

PERIOD OF RECORD.--October 1965 to current year. Occasional low-flow measurements, water years 1958-60, 1962, 1964.

GAGE.--Water-stage recorder. Datum of gage is 917.96 ft (279.794 m) NGVD (levels by U.S. Weather Bureau from a Corps of Engineers bench mark).

REMARKS.--Records good except those for winter period and those below 20 ft³/s (0.57 m³/s), which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 118 ft³/s (3.342 m³/s), 7.91 in/yr (201 mm/yr), 76,800 acre-ft/yr (94.7 hm³/yr); median of yearly mean discharges, 85 ft³/s (2.41 m³/s), 6.3 in/yr (160 mm/yr), 61,600 acre-ft/yr (76.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,320 ft³/s (179 m³/s) Aug. 8, 1970, gage height, 20.15 ft (6.142 m); maximum gage height, 20.20 ft (6.157 m) Oct. 12, 1973; no flow Aug. 1, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1960 reached a stage of about 23 ft (7.0 m), discharge, about 15,000 ft³/s (425 m³/s) and flood of June 5, 1947 reached a stage of 21.65 ft (6.599 m), from floodmark, discharge, 11,000 ft³/s (312 m³/s). A discharge of 0.08 ft³/s (0.002 m³/s) was measured on Oct. 30, 1963.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 4	--	1,600	45.3	*a18.24	5.590	May 3	0730	1,540	43.6	17.09	5.209
Mar. 24	0100	*1,890	53.5	17.75	5.410						

Minimum daily discharge, 0.97 ft³/s (0.027 m³/s) Sept. 12.

a Ice jam

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.5	337	6.2	9.2	142	174	51	51	597	6.3	5.4
2	4.5	8.4	266	6.6	9.3	136	135	393	20	274	5.3	6.0
3	5.8	8.6	138	6.4	9.2	720	149	1310	15	54	4.7	15
4	5.7	8.3	82	5.7	8.9	1480	135	756	8.7	109	4.2	5.1
5	6.0	7.9	52	5.7	9.0	1080	130	674	9.6	167	4.2	3.0
6	6.7	8.6	32	6.4	10	1200	102	117	8.2	53	3.4	3.4
7	6.0	9.7	22	6.1	9.0	1100	74	49	7.6	26	2.9	2.7
8	4.6	9.7	20	5.5	8.7	860	54	36	172	17	2.8	2.0
9	4.1	9.5	16	5.4	8.7	670	48	28	181	14	2.6	1.7
10	4.4	8.1	15	5.2	8.8	405	43	32	448	12	5.2	1.2
11	18	6.6	15	5.3	8.8	340	70	46	291	9.6	4.8	1.7
12	12	7.7	18	6.1	8.9	720	187	24	76	10	4.5	.97
13	4.7	46	19	6.2	8.4	1140	147	19	50	12	3.9	1.2
14	3.2	85	20	5.8	9.4	1080	90	16	27	12	2.0	1.2
15	3.3	67	20	6.8	9.0	960	54	14	25	11	1.7	1.4
16	2.4	42	20	6.8	9.0	888	40	13	21	9.3	1.4	1.4
17	2.8	642	17	7.2	9.0	495	34	12	12	8.3	1.2	1.3
18	3.6	535	18	6.9	9.0	640	30	11	9.7	7.3	1.2	1.2
19	3.5	383	17	8.3	9.0	988	43	14	9.3	6.7	2.0	1.2
20	3.2	99	17	8.4	9.4	675	478	13	8.8	6.7	1.8	1.1
21	3.1	44	16	8.5	10	527	615	10	8.1	6.3	2.8	1.2
22	3.1	34	13	8.6	11	167	194	9.8	7.1	6.2	2.6	1.0
23	3.8	37	13	8.6	17	1150	97	9.1	47	5.1	2.8	1.0
24	4.2	46	11	8.2	28	1570	63	8.5	199	4.5	2.6	1.0
25	4.9	43	9.0	9.2	47	1270	226	10	89	4.6	2.6	1.2
26	5.2	42	8.4	9.2	75	991	483	9.6	35	4.6	2.3	1.0
27	5.3	48	7.4	9.3	128	431	284	9.6	520	4.5	2.0	1.0
28	5.2	43	8.4	8.4	146	571	127	9.1	754	4.2	2.0	1.0
29	5.8	64	7.5	8.5	---	570	71	8.4	562	4.3	2.1	1.6
30	5.9	270	6.1	8.6	---	368	63	8.2	628	8.0	2.2	1.5
31	5.0	---	5.5	8.7	---	254	---	319	---	7.9	2.3	---
TOTAL	161.6	2669.6	1266.3	222.8	642.7	23688	4440	4039.3	4300.1	1476.1	92.4	69.57
MEAN	5.21	89.0	40.8	7.19	23.0	761	148	130	143	47.6	2.98	2.32
MAX	18	642	337	9.3	146	1570	615	1310	754	697	6.3	15
MIN	2.4	6.5	5.5	5.2	8.4	136	30	8.2	7.1	4.2	1.2	.97
CFSM	.03	.49	.22	.04	.13	4.18	.81	.71	.79	.26	.02	.01
IN.	.03	.55	.26	.05	.13	4.82	.91	.83	.88	.30	.02	.01
AC-FT	321	5300	2510	442	1270	46790	8810	8010	8530	2930	183	138

CAL YR 1978	TOTAL	57480.32	MEAN 157	MAX 3040	MIN .00	CFSM .86	IN 11.75	AC-FT 114000
WTR YR 1979	TOTAL	42968.47	MEAN 118	MAX 1570	MIN .97	CFSM .65	IN. 8.78	AC-FT 85230

06903700 SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IA

LOCATION.--Lat 40°48'02", long 93°11'32", in SW1/4 SW1/4 sec.5, T.69 N., R.20 W., Wayne County, Hydrologic Unit 10280201, on right bank 20 ft (6 m) downstream from bridge on county highway S50, 1.3 mi (2.1 km) downstream from Jordan Creek and 4.3 mi (6.9 km) northwest of Promise City.

DRAINAGE AREA.--168 mi² (435 km²).

PERIOD OF RECORD.--October 1967 to current year. Occasional low-flow measurements, water years 1958-66, published as "near Bethlehem". Monthly discharge measurements for March 1965 to September 1967 available in files of Iowa City district office.

GAGE.--Water-stage recorder. Datum of gage is 913.70 ft (278.496 m) NGVD (Corps of Engineers bench mark).

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

AVERAGE DISCHARGE.--12 years, 106 ft³/s (3.002 m³/s), 8.57 in/yr (218 mm/yr) 76,800 acre-ft/yr (94.7 hm³/yr); median of yearly mean discharges, 88 ft³/s (2.492 m³/s), 7.1 in/yr (180 mm/yr) 63,800 acre-ft/yr (78.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,700 ft³/s (275 m³/s) Apr. 10, 1978, gage height, 21.92 ft (6.681 m); no flow July 6, 7, 21-24, 28-31, and Aug. 1, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 21, 1965, reached a stage of 25.5 ft (7.77 m), from floodmarks, discharge not determined.

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

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage Height (ft)	Gage Height (m)
Mar. 4	--	2,900	82.1	*a19.74	6.017	May 3	0030	3,480	98.6	16.59	5.057
Mar. 13	2200	2,710	76.8	14.73	4.490	June 8	1215	2,100	59.5	12.59	3.837
Mar. 24	0045	*4,910	139	19.18	5.846	June 27	1630	3,000	85.0	15.40	4.694

Minimum daily discharge, 1.3 ft³/s (0.037 m³/s) Sept. 12.

a Ice jam

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	3.4	172	5.6	9.3	148	119	46	17	44	19	29
2	8.0	4.2	97	3.2	9.4	148	132	1100	9.9	27	11	25
3	6.2	4.1	78	2.8	9.4	1600	108	1920	7.3	44	7.0	7.8
4	4.8	4.1	73	4.1	9.4	2500	102	213	7.2	185	5.1	4.2
5	5.4	4.4	30	6.5	9.4	960	146	110	7.1	63	3.9	3.1
6	4.7	9.7	20	5.2	9.4	650	87	78	6.1	28	3.0	3.2
7	4.2	11	19	6.8	9.4	1000	68	60	5.7	20	2.6	2.1
8	3.3	10	10	6.4	9.3	550	60	50	1160	15	2.3	1.8
9	3.1	6.4	8.0	6.0	9.3	350	53	43	226	14	2.1	1.8
10	4.0	5.0	7.3	5.0	9.2	360	47	66	226	8.4	2.7	1.4
11	4.1	4.9	7.8	6.4	9.2	520	142	99	51	6.9	2.2	1.5
12	3.5	5.5	12	6.6	9.1	1600	312	47	24	5.9	2.0	1.3
13	3.2	70	16	7.3	9.0	2250	127	33	68	4.4	2.0	1.4
14	2.7	55	15	7.2	9.4	1190	76	28	36	3.5	1.8	1.6
15	2.6	19	14	7.2	9.6	366	62	24	16	318	1.8	1.7
16	2.1	17	13	7.4	9.8	248	49	21	10	189	1.8	1.6
17	2.2	988	9.4	7.4	10	492	42	20	7.6	28	1.9	1.5
18	2.0	200	9.0	7.6	10	836	39	22	8.8	13	2.2	2.0
19	2.1	64	11	7.8	11	1170	52	38	17	8.3	2.4	3.2
20	2.3	36	12	8.0	13	280	400	29	19	6.3	2.6	1.7
21	2.4	26	9.6	8.2	15	154	272	19	9.0	5.2	2.4	2.7
22	2.5	22	7.2	8.3	16	157	92	15	7.5	4.3	6.5	2.8
23	3.4	33	5.8	8.5	112	3720	59	14	199	3.7	7.1	3.2
24	3.7	40	5.2	8.6	278	2730	49	13	208	4.5	3.5	3.6
25	4.1	30	3.7	8.7	250	349	263	12	47	17	3.8	3.5
26	4.5	33	2.9	8.8	170	320	456	12	19	13	6.1	3.7
27	4.2	46	2.5	8.9	126	246	113	28	1560	10	9.3	1.7
28	3.7	39	2.8	9.0	122	308	66	22	554	53	7.1	5.2
29	3.4	47	3.5	9.0	---	458	59	17	475	307	4.9	6.9
30	3.3	207	3.2	9.1	---	520	54	13	107	98	11	5.7
31	3.1	---	4.0	9.2	---	253	---	11	---	43	153	---
TOTAL	118.4	2044.7	683.9	220.8	1282.6	26433	3716	4223	5115.2	1590.4	294.1	135.9
MEAN	3.82	68.2	22.1	7.12	45.8	853	124	136	171	51.3	9.49	4.53
MAX	9.6	988	172	9.2	278	3720	456	1920	1560	318	153	29
MIN	2.0	3.4	2.5	2.8	9.0	148	39	11	5.7	3.5	1.8	1.3
CFSM	.02	.41	.13	.04	.27	5.08	.74	.81	1.02	.31	.06	.03
IN.	.03	.45	.15	.05	.28	5.85	.82	.94	1.13	.35	.07	.03
AC-FT	235	4060	1360	438	2540	52430	7370	8380	10150	3150	583	270

CAL YR 1978	TOTAL	53032.1	MEAN 145	MAX 7020	MIN 1.1	CFSM .86	IN 11.74	AC-FT 105200
WTR YR 1979	TOTAL	45858.0	MEAN 126	MAX 3720	MIN 1.3	CFSM .75	IN 10.15	AC-FT 90960

06903880 RATHBUN LAKE NEAR RATHBUN, IA

LOCATION.--Lat 40°49'30", long 92°53'33", in NW1/4 NE1/4 sec.35, T.70 N., R.18 W., Appanoose County, Hydrologic Unit 10280201, at control tower of Rathbun Dam, 1.8 mi (2.9 km) north of Rathbun and 3.9 mi (6.3 km) upstream from Walnut Creek and at mile 142.3 (229.0 km).

DRAINAGE AREA.--549 mi² (1,421 km²).

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at NGVD.

REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in November 1969. Release is controlled by two hydraulically controlled slide gages, 6 ft (2 m) wide and 12 ft (4 m) high, into forechamber of an 11-ft (3 m) diameter horseshoe conduit through the dam. No dead storage. Maximum design discharge through gates is 5,000 ft³/s (142 m³/s). Uncontrolled notch spillway is concrete overflow section 500 ft (152 m) in length, located about 3,000 ft (914 m) west of the right abutment of the dam and provides emergency discharge into the adjacent drainage area of Little Walnut Creek. Uncontrolled notch spillway is at elevation 926 ft (282 m), contents 552,000 acre-ft (681 hm³). Conservation pool level is at elevation 904.0 ft (275.54 m), contents 205,000 acre-ft (253 hm³). Reservoir is used for flood control, low-flow augumentation, conservation and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 402,000 acre-ft (496 hm³) May 8-10, 1973; maximum elevation, 918.15 ft (279.852 m) May 9, 1973; minimum daily contents, 100 acre-ft (0.123 hm³) Oct. 1-15, Nov. 17-21, 1969; minimum elevation, 855.40 ft (260.726 m) Oct. 6-10, 1969.

EXTPEMES FOR CURRENT YEAR.--Maximum daily contents, 312,000 acre-ft (385 hm³) Apr. 2; maximum elevation, 912.29 ft (278.066 m) May 6; minimum daily contents, 172,000 acre-ft (212 hm³) Oct. 29 to Nov. 5, Nov. 9,10,12; minimum elevation, 900.81 ft (274.567 m) Nov. 12.

Capacity table (elevation, in feet, and contents, in acre-feet)

860	400	880	33,800	900	164,300
862	850	885	55,730	905	216,600
865	2,390	890	84,530	910	278,500
870	7,950	895	120,000	915	351,000
860	18,100				

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197000	172000	186000	192000	193000	193000	310000	297000	274000	257000	223000	204000
2	195000	172000	187000	191000	193000	194000	312000	296000	273000	256000	222000	205000
3	194000	172000	189000	191000	193000	194000	311000	304000	271000	255000	221000	205000
4	192000	172000	189000	191000	193000	201000	310000	309000	269000	257000	221000	205000
5	191000	172000	189000	191000	193000	218000	309000	310000	267000	257000	220000	205000
6	188000	173000	190000	191000	193000	218000	308000	310000	266000	256000	218000	205000
7	185000	173000	190000	191000	193000	223000	307000	309000	265000	255000	216000	205000
8	183000	173000	190000	191000	193000	228000	306000	308000	265000	253000	213000	205000
9	183000	172000	190000	191000	193000	230000	305000	307000	266000	251000	211000	204000
10	183000	172000	190000	191000	193000	231000	303000	305000	268000	249000	209000	204000
11	183000	173000	190000	191000	193000	232000	302000	306000	277000	247000	208000	204000
12	183000	172000	190000	191000	193000	232000	304000	304000	276000	244000	208000	204000
13	182000	173000	190000	192000	193000	237000	305000	303000	274000	242000	207000	204000
14	180000	173000	190000	192000	192000	245000	303000	301000	273000	240000	207000	204000
15	179000	173000	190000	192000	192000	250000	302000	299000	271000	238000	207000	203000
16	177000	173000	190000	192000	192000	252000	301000	297000	269000	238000	207000	203000
17	175000	176000	190000	192000	191000	254000	299000	296000	267000	237000	207000	203000
18	174000	178000	190000	192000	191000	256000	298000	294000	266000	235000	206000	203000
19	173000	181000	190000	192000	190000	260000	297000	294000	265000	232000	206000	203000
20	173000	182000	190000	192000	190000	264000	300000	294000	264000	230000	206000	203000
21	173000	182000	191000	193000	190000	265000	305000	292000	262000	228000	204000	203000
22	173000	183000	191000	193000	189000	265000	307000	290000	261000	224000	205000	202000
23	173000	183000	191000	193000	189000	265000	307000	289000	259000	222000	205000	202000
24	173000	183000	191000	193000	190000	277000	297000	287000	260000	221000	205000	202000
25	173000	183000	191000	193000	191000	286000	297000	285000	259000	221000	205000	202000
26	173000	183000	191000	193000	191000	293000	301000	284000	257000	221000	205000	202000
27	173000	185000	191000	193000	192000	295000	302000	282000	256000	220000	205000	202000
28	173000	185000	191000	193000	193000	295000	301000	280000	257000	221000	205000	201000
29	172000	185000	191000	193000	---	297000	300000	278000	257000	222000	205000	201000
30	172000	185000	191000	193000	---	302000	298000	277000	257000	223000	205000	201000
31	172000	---	191000	193000	---	308000	---	276000	---	223000	205000	---
MAX	197000	185000	191000	193000	193000	308000	312000	310000	277000	257000	223000	205000
MIN	172000	172000	186000	191000	189000	193000	297000	276000	256000	220000	204000	201000

WTR YR 1979 MAX 312000 MIN 172000

06903900 CHARITON RIVER NEAR RATHBUN, IA

LOCATION.--Lat 40°49'22", long 92°53'22", in SE1/4 NE1/4 sec.35, T.70 N., R.18 W., Appanoose County, Hydrologic Unit 10280201, on left bank 600 ft (183 m) downstream from outlet of Rathbun Dam, 1.8 mi (2.9 km) north of Rathbun and 3.7 mi (6.0 km) upstream from Walnut Creek and at mile 142.1 (228.6 km).

DRAINAGE AREA.--549 mi² (1,421 km²).

PERIOD OF RECORD.--October 1956 to current year. Monthly discharge only for some periods, published in WSP 1730.

REVISED RECORDS.--WSP 1560: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 847.92 ft (258.446 m) NGVD. Prior to Nov. 16, 1960, nonrecording gage and Nov. 17, 1960, to Sept. 30, 1969, recording gage, at site 3.1 mi (5.0 km) downstream at datum 4.65 ft (1.42 m) lower.

REMARKS.--Records good. Flow regulated by Rathbun Reservoir (station 06903880) since Nov. 21, 1969. Records of discharge include diversion of 15 ft³/s (0.42 m³/s) Oct. 1 to Oct. 31; 17 ft³/s (0.48 m³/s) Nov. 1 to Mar. 1, and 11 ft³/s (0.31 m³/s) Mar. 2 to Sept. 30 from reservoir through fish ponds on left bank downstream from dam. Diverted flow returns to stream 0.1 mi (0.2 km) downstream from gage. Several observations of water temperature were made during the year. Corps of Engineers gage height telemeter at station. Rathbun Regional Water Association permit No. 3663 allows withdrawal from Rathbun Dam discharge immediately downstream from gage for maximum rate of 4,200 gpm (9.36 ft³/s) and maximum quantity of 638 million gallons per year (1,955 acre-ft).

AVERAGE DISCHARGE.--23 years, 318 ft³/s (9.01 m³/s) 7.87 in/yr (200 mm/yr), 230,400 acre-ft/yr (284 hm³/yr); median of yearly mean discharges, 240 ft³/s (6.80 m³/s) 5.9 in/yr (150 mm/yr), 174,000 acre-ft/yr (215 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,800 ft³/s (617 m³/s) Mar. 31, 1960, gage height, 25.3 ft (7.71 m), from floodmark, site and datum then in use; no flow Oct. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,220 ft³/s (34.6 m³/s) July 11, gage height, 11.62 ft (3.542 m); minimum daily, 17 ft³/s (0.48 m³/s) Nov. 1 to Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	820	17	17	21	31	231	31	810	822	788	180	29
2	826	17	17	21	31	418	343	395	822	787	638	28
3	971	17	17	21	30	444	833	449	822	254	28	28
4	1140	17	17	21	30	520	834	824	821	31	210	27
5	804	17	17	21	31	459	836	817	821	252	672	27
6	1170	17	17	21	30	435	831	817	735	642	915	27
7	1080	17	17	21	31	446	829	817	429	785	1090	27
8	370	17	17	21	31	618	827	817	429	785	1090	27
9	39	17	17	21	30	817	826	817	430	1000	1090	27
10	34	17	17	21	30	816	826	653	654	1140	289	27
11	28	17	17	21	31	816	97	456	814	1170	193	27
12	271	17	17	21	30	854	456	819	787	1170	194	20
13	787	17	17	21	152	971	829	819	682	1100	130	19
14	780	17	17	21	243	955	826	819	814	807	27	22
15	779	17	17	21	241	843	822	817	814	562	28	21
16	780	17	17	21	240	833	821	819	812	645	28	22
17	622	17	17	21	240	850	821	819	810	850	28	21
18	351	17	17	21	239	874	821	590	539	1150	28	21
19	26	17	17	21	239	912	548	418	396	1150	28	21
20	26	17	17	21	238	850	203	775	544	1150	28	21
21	26	17	17	24	238	838	170	773	802	1150	30	21
22	26	17	20	28	239	833	456	788	692	1150	30	21
23	26	17	21	32	240	895	780	824	379	1050	29	21
24	26	17	21	31	240	958	531	822	453	218	28	21
25	26	17	21	31	239	870	20	822	787	30	29	21
26	26	17	21	31	238	850	465	822	797	250	29	21
27	26	17	21	31	239	852	809	822	246	618	28	21
28	26	17	21	31	239	863	805	822	30	35	28	21
29	26	17	21	30	---	802	595	821	494	29	28	21
30	26	17	21	31	---	310	810	721	787	28	28	21
31	19	---	21	30	---	41	---	401	---	27	28	---
TOTAL	11983	510	566	750	4110	22074	18701	22805	19264	20803	7129	699
MEAN	387	17.0	18.3	24.2	147	712	623	736	642	671	230	23.3
MAX	1170	17	21	32	243	971	836	824	822	1170	1090	29
MIN	19	17	17	21	30	41	20	395	30	27	27	19
AC-FT	23770	1010	1120	1490	8150	43780	37090	45230	38210	41260	14140	1390

CAL YR 1978 TOTAL 212800 MEAN 583 MAX 1240 MIN 11 AC-FT 422100
WTR YR 1979 TOTAL 129394 MEAN 355 MAX 1170 MIN 17 AC-FT 256700

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years up to the current year for which the annual maximum has been determined.

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		UPPER IOWA RIVER BASIN					
05388310	WATERLOO CR NR DORCHESTER, IOWA.	LAT 4327XX, LONG 9130XX, IN NW 1/4 SEC. 25, T.100 N., R.6 W., ALLAMAKEE COUNTY, ON STATE HIGHWAY 76, 1.4 MILES SOUTH OF DORCHESTER.	43.6	1966-	1979	A	(+)
		WEXFORD CREEK BASIN					
05388400	WEXFORD CR NR HARPERS FERRY, IOWA.	LAT 4316XX, LONG 9108XX, IN SE 1/4 SEC. 25, T.98 N., R.3 W., ALLAMAKEE COUNTY, AT BRIDGE, 5 MILES NORTH OF HARPERS FERRY.	11.9	1953-	1979	A	(+)
		PAINT CREEK BASIN					
05388600	PAINT CR NR WATERVILLE, IOWA.	LAT 4311XX, LONG 9116XX, NEAR CENTER SEC.36, T.97 N., R.4 W., ALLAMAKEE COUNTY, AT BRIDGE, 3 MILES SOUTHEAST OF WATERVILLE.	56.0	1953-	1979	A	(+)
05388700	LITTLE PAINT CR TR NR WATERVILLE, IOWA.	LAT 4314XX, LONG 9115XX, IN SE 1/4 SEC. 1, T.97 N., R.4 W., ALLAMAKEE COUNTY, AT CULVERT, 3.5 MILES NORTHEAST OF WATERVILLE.	1.09	1953-	03-20-79	1.96	125
		TURKEY RIVER BASIN					
05411530	NB TURKEY R NR CRESCO, IOWA.	LAT 4322XX, LONG 9213XX, IN NW 1/4 SEC. 25, T.99 N., R.12 ., HOWARD COUNTY, AT BRIDGE ON STATE HIGHWAY 9, ABOUT 5 MILES WEST OF CRESCO.	19.5	1966-	08-22-79	90.70	1,350
05411650	CRANE CR TR NR SARATOGA, IOWA (DISCONTINUED).	LAT 4322XX, LONG 9223XX, NEAR SOUTHEAST CORNER OF SEC.21, T.99 N., R.13 W., HOWARD COUNTY, AT BRIDGE ON STATE HWY 9, 1 MILE EAST OF SARATOGA.	4.06	1953-78	----	---	---
05411700*	CRANE CR NR LOURDES, IOWA.	LAT 4315XX, LONG 9219XX, IN NW 1/4 SEC. 6, T.97 N., R.12 W., HOWARD COUNTY, AT BRIDGE ON STATE HIGHWAY 272, 1 MILE SW OF LOURDES.	75.8	1951-	03-20-79	10.33	2,200
		LITTLE MAQUOKETA RIVER BASIN					
05414350	LITTLE MAQUOKETA R NEAR GRAF, IOWA.	LAT 423009, LONG 905150, IN SE 1/4 SEC. 20, T.89 N., R.1 E., DUBUQUE COUNTY, AT BRIDGE, 300 FEET DOWNSTREAM FROM ILLINOIS CENTRAL RR BRIDGE, 0.5 MILE NE OF GRAF.	39.6	1951-	06-18-79	8.54	1,700
05414400	MF LITTLE MAQUOKETA R NEAR RICKARDSVILLE, IOWA.	LAT 423338, LONG 905135, IN SE 1/4 SEC. 32, T.90 N., R.1 E., DUBUQUE COUNTY, AT BRIDGE, 2 MILES SOUTHEAST OF RICKARDSVILLE.	30.2	1951-	03-29-79	A	(+)
05414450*	NF LITTLE MAQUOKETA NEAR RICKARDSVILLE, IOWA.	LAT 423509, LONG 905120, NEAR NW CORNER SEC. 28, T.90 N., R.1 E., DUBUQUE COUNTY, AT BRIDGE, 1 MILE NE OF RICKARDSVILLE.	21.6	1951- e	08-20-79	7.32	1,020
05414600	LITTLE MAQUOKETA R TR AT DUBUQUE, IOWA.	LAT 423233, LONG 904138, NEAR NW CORNER SEC.11, T.89 N., R.2 E., DUBUQUE COUNTY, AT BRIDGE ON STATE HIGHWAY 386 NR NORTH CITY LIMITS OF DUBUQUE.	1.54	1951-	1979	A	(+)
		MAQUOKETA RIVER BASIN					
05417000	MAQUOKETA RIVER NR MANCHESTER, IOWA.	LAT 422722, LONG 912556, IN NW1/4NE1/4 SEC. 9, T.88 N., R.5 W., DELAWARE CO., ON LEFT BANK, 0.6 MI DOWNSTREAM FROM SAND CREEK, 1.5 MI UPSTREAM FROM SPRING BRANCH, 2.3 MI SOUTHEAST FROM DAM ON MAQUOKETA RIVER IN MANCHESTER, AND AT MILE 100.5.	305	1933-73. 1976-	03-12-76 08-25-77 04-06-78 03-19-79	8.72 5.83 8.64 16.07	2,390 335 2,320 10,900
05417530	PLUM CR AT EARLVILLE, IOWA.	LAT 422813, LONG 911453, IN NE 1/4 SEC. 1, T.88 N., R.4 W., DELAWARE COUNTY, AT BRIDGE ON U.S. HIGHWAY 20, 1.5 MILES SOUTHEAST OF EARLVILLE.	41.1	1966-	06-18-79	87.29	2,900
05417590	KITTY CR NR LANGWORTHY, IOWA.	LAT 4212XX, LONG 9112XX, IN NW 1/4 SEC. 4, T.85 N., R.3 W., JONES COUNTY, AT BRIDGE ON U.S. HIGHWAY 151, ABOUT 1 MILE NE OF LANGWORTHY.	14.4	1966-	1979	A	(+)

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		WAPSIPINICON RIVER BASIN					
05420600	LITTLE WAPSIPINICON TR NR RICEVILLE, IOWA.	LAT 4321XX, LONG 9229XX, NEAR S 1/4 CORNER SEC.27, T.99 N., R.14 W., HOWARD COUNTY, AT CULVERT, 3.5 MILES EAST OF RICEVILLE.	0.90	1953-	08-22-79	4.79	245
05420620	LITTLE WAPSIPINICON R NR ACME, IOWA.	LAT 4320XX, LONG 9229XX, AT N 1/4 CORNER SEC. 10, T.98 N., R.14 W., HOWARD COUNTY, AT BRIDGE ON CO. ROAD D, 1 MILE NORTH OF ACME.	7.76	1953-	08-22-79	5.31	380
05420640*	LITTLE WAPSIPINICON R AT ELMA, IOWA.	LAT 4314XX, LONG 9227XX, IN NW 1/4 SEC. 12, T.97 N., R.14 W., HOWARD COUNTY, AT BRIDGE ON COUNTY ROAD A, NEAR WEST CITY LIMITS OF ELMA.	37.3	1953-	08-22-79	9.43	1,250
05420650	LITTLE WAPSIPINICON R NR NEW HAMPTON, IOWA.	LAT 4304XX, LONG 9224XX, IN NW 1/4 SEC. 9, T.95 N., R.13 W., CHICKASAW COUNTY AT BRIDGE ON U.S. HIGHWAY 18, 4 MILES WEST OF NEW HAMPTON.	95.0	1966-	08-22-79	86.84	1,900
05420690	EF WAPSIPINICON R NR NEW HAMPTON, IOWA.	LAT 4305XX, LONG 9218XX, IN SE 1/4 SEC. 31, T.96 N., R.12 W., CHICKASAW CO. AT BRIDGE ON U.S. HIGHWAY 63, 2 MILES NORTH OF NEW HAMPTON.	30.3	1966-	05-19-79	83.89	1,000
05420850	LITTLE WAPSIPINICON R NR ORAN, IOWA.	LAT 4243XX, LONG 9202XX, IN NE 1/4 SEC. 8, T.91 N., R.10 W., FAYETTE COUNTY, AT BRIDGE ON STATE HIGHWAY 3, 2 MILES NE OF ORAN.	94.1	1966-	08-30-79	91.81	6,200
05420855	BUCK CR NR ORAN, IOWA.	LAT 424253, LONG 920733, IN NE 1/4 SEC. 10, T.91 N., R.11 W., BREMER COUNTY, AT BRIDGE ON STATE HIGHWAY 3, 2.5 MILES NW OF ORAN.	37.9	1966-	08-29-79	90.00	1,460
05421100	PINE CR TR NR WINTHROP, IOWA.	LAT 4229XX, LONG 9147XX, IN SW 1/4 SEC. 27, T.89 N., R.8 W., BUCHANAN COUNTY, AT CULVERT, 1.4 MILES NORTH OF U.S. HIGHWAY 20 AND 2.5 MILES NW OF WINTHROP.	0.334	1953-	08-30-79	5.34	88
05421200	PINE CR NR WINTHROP, IOWA.	LAT 4228XX, LONG 9147XX, IN SW 1/4 SEC. 34, T.89 N., R.8 W., BUCHANAN COUNTY, AT RR BRIDGE, 500 FT UPSTREAM FROM U.S. HIGHWAY 20 AND 2.5 MILES NW OF WINTHROP.	28.3	1950-	06-18-79	13.52	1,060
05421300	PINE CR TR NO. 2 AT WINTHROP, IOWA.	LAT 4228XX, LONG 9144XX, AT N 1/4 CORNER SEC. 2, T.88 N., R.8 W., BUCHANAN COUNTY, AT CULVERT ON U.S. HIGHWAY 20 NEAR WEST CITY LIMITS OF WINTHROP.	0.704	1953-	08-30-79	6.41	120
05421550*	BUFFALO CR ABOVE WINTHROP, IOWA.	LAT 4230XX, LONG 9144XX, NEAR NE CORNER SEC. 25, T.89 N., R. 8 W., BUCHANAN COUNTY, AT BRIDGE, 1.5 MILES NE OF WINTHROP.	68.2	1957-	08-30-79	19.11	11,000
05421600	BUFFALO CR NR WINTHROP, IOWA.	LAT 4228XX, LONG 9143XX, IN NE 1/4 SEC. 1, T.88 N., R.8 W., BUCHANAN COUNTY, AT BRIDGE ON U.S. HIGHWAY 20, 1 MILE EAST OF WINTHROP.	71.4	1953-	08-30-79	90.95	11,100
05421890	SILVER CR AT WELTON, IOWA.	LAT 4155XX, LONG 9036XX, IN NW 1/4 SEC. 15, T.82 N., R.3 E., CLINTON COUNTY, AT BRIDGE ON U.S. HIGHWAY 61 AT NORTH EDGE OF WELTON.	9.03	1966-	1979	A	(+)
		IOWA RIVER BASIN					
05448400*	WESTMAIN DRAINAGE DITCH 1 & 2 NR BRITT, IOWA.	LAT 4306XX, LONG 9347XX, IN SW 1/4 SEC. 27, T.96 N., R.25 W., HANCOCK COUNTY, AT BRIDGE ON U.S. HIGHWAY 18 NEAR EAST CITY LIMITS OF BRITT.	21.2	1966-	08-21-79	84.01	265
05448600	EB IOWA R ABOVE HAYFIELD, IOWA.	LAT 4309XX, LONG 9341XX, NEAR S 1/4 CORNER SEC. 4, T.96 N., R.24 W., HANCOCK COUNTY, AT BRIDGE, 1.5 MILES SE OF HAYFIELD.	2.23	1953-	08-21-79	6.21	59
05448700	EB IOWA R NR HAYFIELD, IOWA.	LAT 4311XX, LONG 9339XX, IN NW 1/4 SEC. 35, T.97 N., R.24 W., HANCOCK COUNTY, AT BRIDGE, 2 MILES EAST OF HAYFIELD.	7.94	1952-	08-21-79	12.19	230
05448800	EB IOWA R NR GARNER, IOWA.	LAT 4306XX, LONG 9337XX, NEAR CENTER SEC. 25, T.96 N., R.24 W., HANCOCK COUNTY, AT BRIDGE ON U.S. HIGHWAY 18, 1.2 MILES WEST OF GARNER.	45.1	1952-	08-21-79	11.81	830

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED					
05448900	EB IOWA R TR NR GARNER, IOWA.	LAT 4306XX, LONG 9340XX, NEAR CENTER SEC. 27, T.96 N., R.24 W., HANCOCK COUNTY, AT CULVERT ON U.S. HWY 18, 2.1 MILES WEST OF GARNER.	5.98	1952-	08-21-79	6.32	145
05451955	STEIN CR NR CLUTIER, IOWA.	LAT 420446, LONG 921800, IN NE 1/4 SEC. 24, T.84 N., R.13 W., TAMA COUNTY, AT BRIDGE ON STATE HIGHWAY 318, 5 MILES EAST OF CLUTIER.	23.4	1971-	03-19-79	74.73	2,500
05453200	PRICE CR AT AMANA, IOWA.	LAT 4148XX, LONG 9153XX, IN SE 1/4 SEC. 22, T.81 N., R.9 W., IOWA COUNTY, AT BRIDGE ON STATE HIGHWAY 149, NEAR NORTH EDGE OF AMANA.	29.1	1966-	03-19-79	84.35	2,450
05453600	RAPID CR BELOW MORSE, IOWA.	LAT 414345, LONG 912538, NEAR NE CORNER SEC. 21, T.80 N., R.5 W., JOHNSON COUNTY, AT BRIDGE, 1.5 MILES SE OF MORSE.	8.12	1951-	08-20-79	19.09	500
05453750	RAPID CR SW OF MORSE, IOWA.	LAT 414323, LONG 912616, IN W 1/2 SEC. 21, T.80 N., R.5 W., JOHNSON COUNTY, AT BRIDGE, 2 MILES SOUTHWEST OF MORSE.	15.2	1951-	08-20-79	27.47	2,000
05453850	RAPID CR TR NO. 3 NR OASIS, IOWA.	LAT 414233, LONG 912714, NEAR CENTER OF SEC. 29, T.80 N., R.5 W., JOHNSON COUNTY, AT BRIDGE, 3.5 MILES WEST OF OASIS.	1.62	1951-	08-20-79	20.91	250
05453900	RAPID CR TR NR OASIS, IOWA.	LAT 414114, LONG 912637, NEAR SW CORNER SEC. 33, T.80 N., R.5 W., JOHNSON COUNTY, AT BRIDGE, 3 MILES SW OF OASIS.	.97	1951-	08-20-79	15.40	330
05453950	RAPID CR TR NR IOWA CITY, IOWA.	LAT 414156, LONG 912839, IN NW 1/4 SEC. 31, T.80 N., R.5 W., JOHNSON COUNTY, AT BRIDGE, 4 MILES NE OF IOWA CITY.	3.43	1951-	08-20-79	24.05	320
05455100*	OLD MANS CR NR IOWA CITY, IOWA.	LAT 413623, LONG 913656, IN NW 1/4 SEC. 36, T.79 N., R.7 W., JOHNSON COUNTY, AT BRIDGE, 3 MILES SOUTHWEST OF IOWA CITY.	201	1950-64, 1965-	03-18-79	13.16	320
05455140	N ENGLISH R NR MONTEZUMA, IOWA.	LAT 413845, LONG 923420, IN SW 1/4 SEC. 14, T.79 N., R.15 W., POWESHIEK CO., AT BRIDGE, 5.0 MILES NORTHWEST OF MONTEZUMA.	31.0	1972-	03-18-79	23.75	1,350
05455200*	N ENGLISH R NR GUERNSEY, IOWA.	LAT 4138XX, LONG 9224XX, NEAR SW CORNER SEC. 17, T.79 N., R.13 W., POWESHIEK COUNTY, AT BRIDGE, 2.2 MILES WEST OF GUERNSEY.	68.7	1953-	03-18-79	12.60	2,800
05455210	N ENGLISH R AT GUERNSEY, IOWA.	LAT 4138XX, LONG 9221XX, IN NW 1/4 SEC. 22, T.79 N., R.13 W., POWESHIEK CO., AT BRIDGE ON STATE HIGHWAY 21, 1 MILE SW OF GUERNSEY.	81.5	1960, 1966-	03-18-79	85.44	3,600
05455230	DEEP R AT DEEP RIVER, IOWA.	LAT 4135XX, LONG 9221XX, IN SW 1/4 SEC. 3, T.78 N., R.13 W., POWESHIEK CO., AT BRIDGE ON STATE HIGHWAY 21, 1 MILE NE OF DEEP RIVER.	30.5	1960, 1966-	03-29-79	79.70	720
05455300	S ENGLISH R NR BARNES CITY, IOWA.	LAT 4131XX, LONG 9228XX, NEAR NW CORNER SEC. 34, T.78 N., R.14 W., POWESHIEK COUNTY, AT BRIDGE, 1 MILE NORTH OF BARNES CITY.	11.5	1953-	03-18-79	11.32	370
05455350	S ENGLISH R TR NO.2 NR MONTEZUMA, IOWA.	LAT 4134XX, LONG 9227XX, NEAR SW CORNER SEC. 11, T.78 N., R.14 W., POWESHIEK COUNTY, AT BOX CULVERT, 4 MILES SE OF MONTEZUMA.	0.523	1953-	06-27-79	10.59	100

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED					
05455550	BULGERS RUN NR RIVERSIDE, IOWA.	LAT 4129XX, LONG 9138XX, IN SE 1/4 SEC. 11, T.77 N., R.7 W., WASHINGTON CO., AT BRIDGE ON STATE HIGHWAY 22, 2.5 MILES WEST OF RIVERSIDE.	6.31	1965-	04-20-79	87.20	1,800
05457440	DEER CR NR CARPENTER, IOWA.	LAT 4325XX, LONG 9259XX, IN NE 1/4 SEC. 8, T.99 N., R.18 W., MITCHELL COUNTY, AT BRIDGE ON STATE HIGHWAY 105, 1.5 MILES EAST OF CARPENTER.	91.6	1966-	03-21-79	83.40	(+)
05458560	BEAVERDAM CR NR SHEFFIELD, IOWA.	LAT 4256XX, LONG 9312XX, IN NW 1/4 SEC. 27, T.94 N., R.20 W., CERRO GORDO CO. AT BRIDGE ON U.S. HIGHWAY 65, 3 MILES NORTH OF SHEFFIELD.	123	1966-	08-22-79	57.51	3,500
05459010	ELK CR AT KENSETT, IOWA.	LAT 4322XX, LONG 9313XX, IN NE 1/4 SEC. 28, T.99 N., R.20 W., WORTH COUNTY, AT BRIDGE ON U.S. HIGHWAY 65, 1 MILE NORTH OF KENSETT.	58.1	1966-	08-23-79	90.15	250
05459490	SPRING CR NR MASON CITY, IOWA.	LAT 431248, LONG 931238, IN SE 1/4 SEC. 16, T.97 N., R.20 W., CERRO GORDO CO. AT BRIDGE ON U.S. HIGHWAY 65, 4 MILES NORTH OF MASON CITY.	29.3	1966-	08-23-79	86.93	1,000
05460100	WILLOW CR NR MASON CITY, IOWA.	LAT 4309XX, LONG 9316XX, IN NE 1/4 SEC. 12, T.96 N., R.21 W., CERRO GORDO CO. AT BRIDGE ON U.S. HIGHWAY 18, 3.5 MILES WEST OF MASON CITY.	78.6	1966-	08-21-79	91.83	1,080
05462750	BEAVER CR TR NR APLINGTON, IOWA.	LAT 4235XX, LONG 9251XX, IN NW 1/4 SEC. 27, T.90 N., R.17 W., BUTLER COUNTY, AT BRIDGE ON U.S. HIGHWAY 20, 2 MILES EAST OF APLINGTON.	11.6	1966-	07-14-79	94.05	900
05463090	BLACK HAWK CR AT GRUNDY CENTER, IOWA.	LAT 4222XX, LONG 9246XX, IN NW 1/4 SEC. 7, T.87 N., R.16 W., GRUNDY COUNTY, AT BRIDGE ON STATE HIGHWAY 14, AT NORTH EDGE OF GRUNDY CENTER.	56.9	1966-	04-19-79	87.92	3,300
05464145	TWELVE MILE CR NR TRAER, IOWA.	LAT 421350, LONG 922756, IN SE 1/4 SEC. 27, T.86 N., R.14 W., TAMA COUNTY, AT BRIDGE ON U.S. HIGHWAY 63, 2.5 MILES NORTH OF TRAER.	43.8	1966-	07-03-79	88.36	3,800
05464310	PRATT CR NR GARRISON, IOWA.	LAT 421053, LONG 921110, IN SE 1/4 SEC. 12, T.85 N., R.12 W., BENTON COUNTY, AT BRIDGE ON U.S. HIGHWAY 218, 3.5 MILES NW OF GARRISON.	23.4	1966-	07-14-79	91.93	2,100
05464318	E BLUE CR AT CENTER POINT, IOWA.	LAT 421244, LONG 914721, IN SW 1/4 SEC. 33, T.86 N., R.8 W., LINN COUNTY, AT BRIDGE ON STATE HIGHWAY 150, 1.5 MILES NORTH OF CENTER POINT.	17.6	1966-	1979	A	(+)
05464560	PRAIRIE CR AT BLAIRSTOWN, IOWA.	LAT 415442, LONG 920503, IN SW 1/4 SEC. 13, T.82 N., R.11 W., BENTON COUNTY, AT BRIDGE ON STATE HIGHWAY 82, AT NORTH EDGE OF BLAIRSTOWN.	87.0	1966-	03-18-79	---	8,500
05464880	OTTER CR AT WILTON, IOWA.	LAT 413617, LONG 910208, IN NE 1/4 SEC. 35, T.79 N., R.2 W., CEDAR COUNTY, AT BRIDGE ON STATE HIGHWAY 38, 1.5 MILES NW OF WILTON.	10.7	1966-	1979	A	(+)
05465150	NF LONG CR AT AINSWORTH, IOWA.	LAT 4117XX, LONG 9132XX, IN SW 1/4 SEC. 22, T.75 N., R.6 W., WASHINGTON CO., AT BRIDGE ON U.S. HIGHWAY 218, 1 MILE SE OF AINSWORTH.	30.2	1951, 1965-	03-18-79	88.60	2,000

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		SKUNK RIVER BASIN					
05469860	MUD LAKE DRAINAGE DITCH 71 IN JEWELL, IOWA.	LAT 4219XX, LONG 9338XX, IN SW 1/4 SEC. 27, T.87 N., R.24 W., HAMILTON CO., AT BRIDGE ON U.S. HIGHWAY 69 IN JEWELL.	65.4	1966-	03-19-79	89.50	1,850
05469990	KEIGLEY BR NR STORY CITY, IOWA.	LAT 4209XX, LONG 9337XX, IN NW 1/4 SEC. 26, T.85 N., R.24 W., STORY COUNTY, AT BRIDGE ON U.S. HIGHWAY 69, 3 MILES SOUTH OF STORY CITY.	31.0	1966-	03-19-79	89.91	940
05472090	N SKUNK R NR BAXTER, IOWA.	LAT 4149XX, LONG 9304XX, IN NE 1/4 SEC. 21, T.81 N., R.19 W., JASPER COUNTY, AT BRIDGE ON STATE HIGHWAY 223, 4.5 MILES EAST OF BAXTER.	52.2	1966-	03-19-79	77.39	1,900
05472290	SUGAR CR NR SEARSBORO, IOWA.	LAT 4134XX, LONG 9244XX, IN SE 1/4 SEC. 7, T.78 N., R.16 W., POWESHIEK CO., AT BRIDGE ON STATE HIGHWAY 225, 1.8 MILES WEST OF SEARSBORO.	52.7	1966-	03-18-79	91.13	1,300
05472390	MIDDLE CR NR LACEY, IOWA.	LAT 4125XX, LONG 9239XX, IN NE 1/4 SEC. 1, T.76 N., R.16 W., MAHASKA COUNTY, AT BRIDGE ON U.S. HIGHWAY 63, 1.5 MILES NW OF LACEY.	23.0	1966-	03-18-79	86.34	1,000
05472445	ROCK CR AT SIGOURNEY, IOWA.	LAT 412012, LONG 921320, IN NE 1/4 SEC. 3, T.75 N., R.12 W., KEOKUK COUNTY, AT BRIDGE ON STATE HIGHWAY 92, NEAR WEST EDGE OF SIGOURNEY.	26.3	1966-	03-19-79	89.00	900
05473300*	CEDAR CR NR BATAVIA, IOWA.	LAT 4101XX, LONG 9207XX, IN SW 1/4 SEC. 27, T.72 N., R.11 W., JEFFERSON CO., AT BRIDGE ON U.S. HIGHWAY 34, 2.5 MILES NE OF BATAVIA.	252	1966-	03-20-79	80.67	4,300
		DES MOINES RIVER BASIN					
05480930	WHITE FOX CR AT CLARION, IOWA.	LAT 4244XX, LONG 9342XX, IN NW 1/4 SEC. 5, T.91 N., R.24 W., WRIGHT COUNTY, AT BRIOGE ON STATE HIGHWAY 3, 1.5 MILES EAST OF CLARION.	13.3	1966-	07-14-79	90.23	480
05481510	BLUFF CR AT PILOT MOUND, IOWA.	LAT 4210XX, LONG 9401XX, IN NW 1/4 SEC. 20, T.85 N., R.27 W., BOONE COUNTY, AT BRIDGE ON STATE HIGHWAY 329, AT NW EDGE OF PILOT MOUND.	23.5	1966-	03-10-79	86.77	(+)
05481680	BEAVER CR AT BEAVER, IOWA.	LAT 4202XX, LONG 9409XX, IN NE 1/4 SEC. 6, T.83 N., R.28 W., BOONE COUNTY, AT BRIDGE ON U.S. HIGHWAY 30, AT SW EDGE OF BEAVER.	38.5	1966-	03-19-79	89.99	520
05481690	W BEAVER CR AT GRAND JUNCTION, IOWA.	LAT 4202XX, LONG 9413XX, IN NE 1/4 SEC. 3, T.83 N., R.29 W., GREENE COUNTY, AT BRIDGE ON U.S. HIGHWAY 30, NEAR EAST EDGE OF GRAND JUNCTION.	12.6	1966-	06-27-79	89.51	520
05482600	HARDIN CR AT FARNHAMVILLE, IOWA.	LAT 421601, LONG 942510, NEAR NE CORNER SEC. 14, T.86 N., R.31 W., CALHOUN CO., AT BRIDGE ON STATE HIGHWAY 175, NEAR WEST CITY LIMITS OF FARNHAMVILLE.	43.7	1952-	03-19-79	10.29	1,850
05482800	HAPPY RUN AT CHURDAN, IOWA.	LAT 4210XX, LONG 9430XX, NEAR SW CORNER SEC. 17, T.85 N., R.31 W., GREENE CO. AT BRIDGE NEAR WEST CITY LIMITS OF CHURDAN.	7.58	1952-	03-19-79	9.36	(+)
05482900	HARDIN CR NR FARLIN, IOWA.	LAT 4206XX, LONG 9426XX, NEAR N 1/4 CORNER SEC. 14, T.84 N., R.31 W., GREENE COUNTY, AT BRIDGE, 1.5 MILES NE OF FARLIN.	101	1951-	03-19-79	12.69	2,330
05483318	BRUSHY FORK CR NR TEMPLETON, IOWA.	LAT 4157XX, LONG 9453XX, IN NW 1/4 SEC. 1, T.82 N., R.35 W., CARROLL COUNTY, AT BRIDGE ON U.S. HIGHWAY 71, 4 MILES NE OF TEMPLETON.	45.0	1966-	03-19-79	86.58	(+)
05483349	M RACCOON R TR AT CARROLL, IOWA.	LAT 4203XX, LONG 9453XX, IN NW 1/4 SEC. 36, T.84 N., R.35 W., CARROLL COUNTY, AT BRIDGE ON U.S. HIGHWAY 71, 1.5 MILES SOUTH OF CARROLL.	6.58	1966-	1979	A	(+)

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED					
05487350 S	OTTER CR TR NR WOODBURN, IOWA.	LAT 4103XX, LONG 9336XX, NEAR SW CORNER SEC. 11, T.72 N., R.24 W., CLARKE CO. AT BRIDGE, 2 MILES NORTH OF WOODBURN.	0.71	1955-	05-02-79	9.75	(+)
05487600 S	WHITE BREAST CR NR OSCEOLA, IOWA.	LAT 405736, LONG 934128, NEAR SW CORNER SEC. 12, T.71 N., R.25 W., CLARKE COUNTY, AT BRIDGE, 6 MILES SE OF OSCEOLA.	28.0	1953-	05-02-79	12.06	2,500
05487800*	WHITE BREAST CR AT LUCAS, IOWA.	LAT 4101XX, LONG 9328XX, IN NE 1/4 SEC. 23, T.72 N., R.23 W., LUCAS COUNTY, AT BRIDGE ON U.S. HIGHWAY 65, NEAR SOUTH CITY LIMITS OF LUCAS.	128	1953-	03-22-79	14.18	2,500
05488620	COAL CR NR ALBIA, IOWA.	LAT 4101XX, LONG 9251XX, IN SW 1/4 SEC. 20, T.72 N., R.17 W., MONROE COUNTY, AT BRIDGE ON U.S. HIGHWAY 34, 2 MILES SW OF ALBIA.	13.5	1966-	03-24-79	77.77	(+)
05489150 L	MUCHAKINOCK CR AT OSKALOOSA, IOWA.	LAT 4116XX, LONG 9238XX, IN SE 1/4 SEC. 25, T.75 N., R.16 W., MAHASKA COUNTY, AT BRIDGE ON STATE HIGHWAY 137, AT SOUTH EDGE OF OSKALOOSA.	9.12	1966-	1979	A	(+)
05489350 S	AVERY CR NR BLAKESBURG, IOWA.	LAT 4101XX, LONG 9237XX, IN SE 1/4 SEC. 19, T.72 N., R.15 W., WAPELLO COUNTY, AT BRIDGE ON U.S. HIGHWAY 34, 3.5 MILES NORTH OF BLAKESBURG.	33.1	1965-	03-24-79	80.03	1,500
05489490	BEAR CR AT OTTUMWA, IOWA.	LAT 410043, LONG 922754, IN NW 1/4 SEC. 27, T.72 N., R.14 W., WAPELLO COUNTY, AT BRIDGE ON U.S. HIGHWAY 34, NEAR WEST EDGE OF OTTUMWA.	22.9	1965-	03-29-79	87.88	2,150
		FOX RIVER BASIN					
05494100 S	FOX CR TR NR WEST GROVE, IOWA.	LAT 4044XX, LONG 9238XX, NEAR S 1/4 CORNER SEC. 31, T.69 N., R.15 W., DAVIS CO., AT CULVERT ON STATE HIGHWAY 2, 3.5 MILES WEST OF WEST GROVE.	0.55	1953-	03-30-79	5.23	(+)
05494110 S	FOX CR NR WEST GROVE, IOWA.	LAT 4044XX, LONG 9236XX, IN SE 1/4 SEC. 32, T.69 N., R.15 W., DAVIS COUNTY, AT BRIDGE ON STATE HIGHWAY 2, 2.4 MILES WEST OF WEST GROVE.	12.2	1965-	03-30-79	83.37	(+)
		BIG SIOUX RIVER BASIN					
06483410	OTTER CR NORTH OF SIBLEY, IOWA.	LAT 4328XX, LONG 9544XX, AT NE CORNER SEC. 25, T.100 N., R.42 W., OSCEOLA CO., AT BRIDGE ON COUNTY ROAD H, 4 MILES NORTH OF SIBLEY.	11.9	1952-	08-21-79	7.41	320
06483420	SCHUTTE CR NR SIBLEY, IOWA.	LAT 4328XX, LONG 9547XX, NEAR NW CORNER SEC. 23, T.100 N., R.42 W., OSCEOLA COUNTY, AT CULVERT, 6 MILES NW OF SIBLEY.	1.43	1952-	08-21-79	8.25	(+)
06483430	OTTER CR AT SIBLEY, IOWA.	LAT 4324XX, LONG 9546XX, NEAR N 1/4 CORNER SEC. 14, T.99 N., R.42 W., OSCEOLA CO., AT BRIDGE, 1 MILE NW OF SIBLEY.	29.9	1952-	08-21-79	8.70	1,500
06483440	DAWSON CR NR SIBLEY, IOWA.	LAT 4323XX, LONG 9543XX, NEAR NW CORNER SEC. 20, T.99 N., R.41 W., OSCEOLA CO., AT CULVERT ON COUNTY ROAD D, 2 MILES SE OF SIBLEY.	4.35	1952-	08-21-79	6.93	(+)
06483450	WAGNER CR NR ASHTON, IOWA.	LAT 4321XX, LONG 9546XX, ON SOUTH LINE SEC. 35, T.99 N., R.42 W., OSCEOLA COUNTY, AT BRIDGE, 3 MILES NE OF ASHTON.	7.09	1952-	08-21-79	16.15	(+)
06483460*	OTTER CR NR ASHTON, IOWA.	LAT 4320XX, LONG 9546XX, IN SE 1/4 SEC. 2, T.98 N., R.42 W., OSCEOLA COUNTY, AT BRIDGE, 2 MILES NORTHEAST OF ASHTON.	88.0	1952-	08-21-79	12.39	18000
06483495	BURR OAK CR NR PERKINS, IOWA.	LAT 431443, LONG 961038, IN SE 1/4 SEC. 5, T.97 N., R.45 W., SIOUX CO., AT BRIDGE ON U.S. HIGHWAY 75, 4 MILES NORTH OF PERKINS.	30.9	1966-	05-11-79	84.67	160

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		PERRY CREEK BASIN					
05599800	PERRY CR NR MERRILL, IOWA.	LAT 424316, LONG 962033, IN NW 1/4 SEC. 12, T.91 N., R.47 W., PLYMOUTH CO., AT BRIDGE ON COUNTY ROAD M, 5 MILES WEST OF MERRILL.	8.17	1953-	05-09-79	5.16	(+)
05599950	PERRY CR NR HINTON, IOWA.	LAT 423757, LONG 962213, IN NE 1/4 SEC. 15, T.90 N., R.47 W., PLYMOUTH CO., AT BRIDGE, 4 MILES WEST OF HINTON.	30.8	1953-	03-22-79	30.93	(+)
		FLOYD RIVER BASIN					
05600030	L FLOYD R NR SANBORN, IOWA.	LAT 431110, LONG 954330, IN NE 1/4 SEC. 31, T.97 N., R.41 W., O BRIEN CO., AT BRIDGE ON U.S. HIGHWAY 18, 3.5 MILES WEST OF SANBORN.	8.44	1966-	03-22-79	87.19	(+)
05600080	WILLOW CR AT HOSPERS, IOWA.	LAT 430438, LONG 955416, IN NE 1/4 SEC. 3, T.95 N., R.43 W., SIOUX CO., AT BRIDGE ON STATE HIGHWAY 60, AT NORTH EDGE OF HOSPERS.	37.9	1966-	05-10-79	85.94	(+)
		MONONA-HARRISON DITCH BASIN					
05601480	BIG WHISKEY SLOUGH NR REMSEN, IOWA.	LAT 4248XX, LONG 9553XX, IN NW 1/4 SEC. 11, T.92 N., R.43 W., PLYMOUTH CO., AT BRIDGE ON STATE HIGHWAY 3, 4.2 MILES EAST OF REMSEN.	12.9	1966-	06-09-67 04-05-69 03-02-70 03-03-73 07-22-78 03-22-79	92.16 92.75 91.41 92.04 92.78 94.87	480 720 280 440 730 (+)
05602190	ELLIOTT CR AT LAWTON, IOWA.	LAT 422830, LONG 961122, IN NW 1/4 SEC. 3, T.88 N., R.46 W., WOODBURY CO., AT BRIDGE ON U.S. HIGHWAY 20, AT WEST EDGE OF LAWTON.	34.8	1966-	1979	A	(+)
05602240	BIG WHISKEY CR NR LAWTON, IOWA.	LAT 422830, LONG 961501, IN NW 1/4 SEC. 6, T.88 N., R.46 W., WOODBURY CO., AT BRIDGE ON U.S. HIGHWAY 20, 3.5 MILES WEST OF LAWTON.	51.3	1966-	1979	A	(+)
		LITTLE SIOUX RIVER BASIN					
05604510	OCHEYEDAN R NR OCHEYEDAN, IOWA.	LAT 4326XX, LONG 9537XX, IN NE 1/4 SEC. 6, T.99 N., R.40 W., OSCEOLA CO., AT BRIDGE ON STATE HIGHWAY 9, 4 MILES NW OF OCHEYEDAN.	73.5	1966-	03-22-79	85.75	(+)
05605340	PRAIRIE CR NR SPENCER, IOWA.	LAT 430516, LONG 950940, IN SE 1/4 SEC. 36, T.96 N., R.37 W., CLAY COUNTY, AT BRIDGE ON U.S. HIGHWAY 71, 4 MILES SOUTH OF SPENCER.	22.3	1966-	03-22-79	89.85	1,080
05605750	WILLOW CR NR CORNELL, IOWA.	LAT 4243XX, LONG 9510XX, IN SE 1/4 SEC. 12, T.94 N., R.37 W., CLAY COUNTY, AT BRIDGE ON U.S. HIGHWAY 71, 2 MILES NW OF CORNELL.	78.6	1966-	03-22-79	91.49	3,700
05605890	WATERMAN CR AT HARTLEY, IOWA.	LAT 431106, LONG 953043, IN NE 1/4 SEC. 36, T.97 N., R.40 W., O BRIEN CO., AT BRIDGE ON U.S. HIGHWAY 18, 1.8 MILES WEST OF HARTLEY.	28.7	1966-	08-26-79	85.93	450
05606790	MAPLE CR NR ALTA, IOWA.	LAT 4245XX, LONG 9522XX, IN NE 1/4 SEC. 31, T.92 N., R.38 W., BUENA VISTA CO. AT BRIDGE ON STATE HIGHWAY 3, 6 MILES NW OF ALTA.	15.5	1966-	03-22-79	87.28	560
05607197	WILSEY CR AT MAPLETON, IOWA.	LAT 4210XX, LONG 9545XX, IN SE 1/4 SEC. 14, T.85 N., R.43 W., MONONA CO., AT BRIDGE ON STATE HIGHWAY 141, 1.2 MILES NW OF MAPLETON.	18.4	1966-	1979	A	(+)

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		SOLDIER RIVER BASIN					
06608450	JORDAN CR AT MOORHEAD, IOWA.	LAT 4155XX, LONG 9552XX, IN NW 1/4 SEC. 16, T.82 N., R.43 W., MONONA CO., AT BRIDGE ON STATE HIGHWAY 183, AT SW CORNER OF MOORHEAD.	30.1	1966-	1979	A	(+)
		BOYER RIVER BASIN					
06609560	WILLOW CR NR SOLDIER, IOWA.	LAT 4155XX, LONG 9542XX, IN NW 1/4 SEC. 14, T.82 N., R.42 W., MONONA CO., AT BRIDGE ON STATE HIGHWAY 37, 6 MILES SE OF SOLDIER.	29.1	1966-	1979	72.48	(+)
		MOSQUITO CREEK BASIN					
06610510	MOSER CR NR EARLING, IOWA.	LAT 4147XX, LONG 9527XX, IN NE 1/4 SEC. 1, T.80 N., R.40 W., SHELBY CO., AT BRIDGE ON STATE HIGHWAY 37, 1.5 MILES WEST OF EARLING.	21.6	1966-	03-18-79	78.27	(+)
06610600*	MOSQUITO CR AT NEOLA, IOWA.	LAT 412709, LONG 953637, IN NE 1/4 SEC. 19, T.77 N., R.42 W., POTTAWATTAMIE CO., AT BRIDGE ON COUNTY ROAD S, 0.5 MILE SOUTH OF NEOLA.	131	1966-	03-29-79	23.51	(+)
		NISHNABOTNA RIVER BASIN					
06807418	GRAYBILL CR NR CARSON, IOWA.	LAT 4114XX, LONG 9523XX, IN NW 1/4 SEC. 7, T.74 N., R.39 W., POTTAWATTAMIE CO., AT BRIDGE ON STATE HIGHWAY 92, 2 MILES EAST OF CARSON.	45.9	1966-	1979	A	(+)
06807470	INDIAN CR NR EMERSON, IOWA.	LAT 4102XX, LONG 9523XX, IN NW 1/4 SEC. 19, T.72 N., R.39 W., MONTGOMERY CO., AT BRIDGE ON U.S. HIGHWAY 34, 1 MILE EAST OF EMERSON.	37.3	1966-	03-18-79	89.35	1,600
06807720	M SILVER CR NR AVOCA, IOWA.	LAT 412833, LONG 952806, NEAR N 1/4 CORNER SEC. 17, T.77 N., R.40 W., POTTAWATTAMIE CO., AT BRIDGE ON STATE HIGHWAY 83, 7 MILES WEST OF AVOCA.	3.21	1955-	03-18-79	7.52	350
06807760	M SILVER CR NR OAKLAND, IOWA.	LAT 411928, LONG 953319, NEAR E 1/4 CORNER SEC. 4, T.75 N., R.41 W., POTTAWATTAMIE CO., AT BRIDGE, 8.5 MILES NW OF OAKLAND.	25.7	1953-	03-18-79	11.55	1,400
06807780	M SILVER CR AT TREYNOR, IOWA.	LAT 411437, LONG 953653, NEAR NE CORNER SEC. 1, T.74 N., R.42 W., POTTAWATTAMIE CO., AT BRIDGE ON COUNTY ROAD F, 1 MILE NORTH OF TREYNOR.	42.7	1953-	03-18-79	8.24	1,600
06808880	BLUEGRASS CR AT AUDUBON, IOWA.	LAT 4143XX, LONG 9456XX, IN NW 1/4 SEC. 28, T.80 N., R.35 W., AUDUBON CO., AT BRIDGE ON U.S. HIGHWAY 71, NEAR SOUTH EDGE OF AUDUBON.	15.4	1966-	03-18-79	84.57	810
		TARKIO RIVER BASIN					
06811760	TARKIO R NR ELLIOT, IOWA.	LAT 4106XX, LONG 9506XX, NEAR NE CORNER SEC. 28, T.73 N., R.37 W., MONTGOMERY COUNTY, AT BRIDGE, 4.5 MILES SE OF ELLIOT.	10.7	1952-	03-29-79	11.40	1,350
06811800	E TARKIO CR NR STANTON, IOWA.	LAT 4105XX, LONG 9506XX, IN W 1/2 SEC. 34, T.73 N., R.37 W., MONTGOMERY CO., AT BRIDGE, 7 MILES NORTH OF STANTON.	4.66	1952-	03-29-79	8.93	600
06811820	TARKIO R TR NR STANTON, IOWA.	LAT 4103XX,LONG 9506XX, NEAR NE CORNER SEC. 16, T.72 N., R.37 W., MONTGOMERY COUNTY, AT BOX CULVERT, 4 MILES NORTH OF STANTON.	0.67	1952-	1979	A	(+)
06811875	SNAKE CR NR YORK-TOWN, IOWA.	LAT 4045XX, LONG 9508XX, IN NW 1/4 SEC. 32, T.69 N., R.37 W., PAGE COUNTY, AT BRIDGE ON STATE HIGHWAY 2, 1.5 MILES NE OF YORKTOWN.	9.10	1966-	03-03-79	94.10	1,500

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1979--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		NODAWAY RIVER BASIN					
06816290	W NODAWAY R AT MASSENA, IOWA.	LAT 4115XX, LONG 9445XX, IN SE 1/4 SEC. 33, T.75 N., R.34 W., CASS COUNTY, AT BRIDGE ON STATE HIGHWAY 148, AT SE CORNER OF MASSENA.	23.4	1966-	06-27-79	79.91	(+)
		PLATTE RIVER BASIN					
06818598	PLATTE R NR STRINGTOWN, IOWA.	LAT 4059XX, LONG 9430XX, IN SE 1/4 SEC. 2, T.71 N., R.32 W., ADAMS COUNTY, AT BRIDGE ON U.S. HIGHWAY 34, 3.8 MILES EAST OF STRINGTOWN.	51.7	1966-	07-24-79	91.02	1,400
06819110	MB 102 R NR GRAVITY, IOWA.	LAT 4050XX, LONG 9444XX, IN SE 1/4 SEC. 27, T.70 N., R.34 W., TAYLOR COUNTY, AT BRIDGE ON STATE HIGHWAY 148, 4.8 MILES NORTH OF GRAVITY.	33.5	1966-	1979	A	(+)
		CHARITON RIVER BASIN					
06903980	CHARITON R NR UDELL, IOWA.	LAT 404653, LONG 925012, IN NE 1/4 SEC. 17, T.69 N., R.17 W., APPANOOSE CO., AT BRIDGE, 5.0 MILES WEST OF UDELL.	631	1972-	04-21-79	852.08	2,200
06903990	COOPER CR AT CENTERVILLE, IOWA.	LAT 404502, LONG 925136, IN NW 1/4 SEC. 30, T.69 N., R.17 W., APPANOOSE CO., AT BRIDGE ON STATE HIGHWAY 5, AT NORTH EDGE OF CENTERVILLE.	47.8	1966-	04-21-79	72.21	1,600
06904040	CHARITON R AT COAL CITY, IOWA.	LAT 403535, LONG 924240, IN NE 1/4 SEC. 20, T.67 N., R.16 W., APPANOOSE CO., AT BRIDGE IN COAL CITY.	816	1972-	10-16-78	821.72	4,800

* Also a low-flow partial-record station.
\+ Discharge not determined.
A Peak stage did not reach bottom of gage.
B Revised.
C Ice affected.

DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1979

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Upper Iowa River basin				
Bear Creek	Upper Iowa River	NE1/4 sec.2, T.99 N., R.6 W., Allamakee County, at bridge on State Highway 76, 3.0 mi (4.8 km) south of Dorchester.	118	1941-77	10-24-78	50.6
					05-14-79	77.2
					06-26-79	86.7
					08-01-79	71.6
					08-27-79	82.5
					09-25-79	58.4
		Mill Creek Basin				
Mill Creek	Mississippi River	SE1/4 SW1/4 sec. 13, T.86 N., R.4 E., Jackson County, at bridge on State Highway 62, 400 ft (122 m) upstream from Little Mill Creek, 1.1 mi (1.8 km) southwest of Bellevue.	22.3	--	07-02-79	24.9
					07-24-79	7.56
Little Mill Creek	Mississippi River	SE1/4 SW1/4 sec. 13, T.86 N., R.4 E., Jackson County, at bridge on State Highway 62, 1.1 mi (1.8 km) southwest of Bellevue.	10.3	--	07-02-79	23.9
					07-24-79	5.23
		Boyer River Basin				
*06609400 Boyer River	Missouri River	Lat 4200XX, long 9523XX, in NE1/4 sec.16, T.83 N., R.39 W., Crawford County, at bridge, 2 miles SW of Denison.	517	1957-77	11-06-78	117
					05-09-79	368
					09-11-79	122

* Also a low-flow partial-record station.

Carroll County

420335N0945215.1. Local number 84-35-25bddb1. City of Carroll, test hole 1. Drilled observation artesian well in Dakota Sandstone of Early Cretaceous age, diam 8 in, depth 120 ft, cased to 100. Lsd 1,244 ft above msl. MP top of casing, 4.0 ft above lsd (since July 1975). Highest water level 34.55 below lsd, Sept. 8, 1945; lowest 77.68 below lsd, June 14, 1968. Records available: 1939-49, 1952 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 29, 1978	66.00	Feb. 21, 1979	67.00	May 17, 1979	68.00	Aug. 10, 1979	75.00

Cerro Gordo County

430456N0932536.1. Local number 95-22-3abba1. Knut Olson. Drilled domestic and stock artesian well in limestone of Devonian age, diam 4 in, depth 134 ft, casing information not available. Lsd 1,258 ft above msl. MP top of casing, 1.40 ft above lsd. Highest water level 14.34 below lsd, July 3, 1945; lowest 24.87 below lsd, Feb. 9, 1979. Records available: 1941 to current year.

Nov. 8, 1978	24.15	Feb. 14, 1979	24.87	May 23, 1979	22.76	Aug. 30, 1979	23.52

430806N0931645.1. Local number 96-21-13bccb1. Mason City & Clear Lake RR. Drilled unused artesian well in dolomite in Cedar Valley Limestone of Devonian age, diam 5 in, depth 198 ft, casing information not available. Lsd 1,165 ft above msl. MP top of well curb, 1.30 ft above lsd. Highest water level 1.73 below lsd, June 28, 1951; lowest 17.26 below lsd, Nov. 18, 1955. Records available: 1940 to current year.

Nov. 8, 1978	6.83	Feb. 14, 1979	7.50	May 23, 1979	5.36	Aug. 30, 1979	3.81

430658N0932810.1. Local number 96-22-20cadc1. W. Baine and H. Elder. Drilled unused water-table well in glacial drift, diam 5 in, depth 126 ft, casing information not available. Lsd 1,249 ft above msl. MP hole in side of casing, 1.30 ft above lsd. Highest water level 29.65 below lsd, Mar. 25, 1942; lowest 51.37 below lsd, Aug. 4, 1977. Records available: 1940 to current year.

Nov. 8, 1978	46.40	Feb. 14, 1979	48.10	May 23, 1979	43.20		

Clayton County

424101N0913200.1. Local number 91-6-22acab1. Howard Bowman. Dug unused water-table well in glacial drift, diam 36 in, depth 18 ft, cribbed with brick. Lsd 1,221 ft above msl. MP top of board platform, 0.08 ft above lsd. Highest water level 3.54 below lsd, May 6, 1960; lowest 10.03 below lsd, Jan. 24, 1965 and Feb. 7, 1977. Records available: 1957 to current year.

Oct. 7, 1978	7.82	Jan. 7, 1979	8.89	Apr. 7, 1979	5.80	July 7, 1979	7.66
Oct. 21	7.98	Jan. 21	6.89	Apr. 21	5.36	July 21	8.04
Nov. 7	8.60	Feb. 7	9.35	May 7	5.56	Aug. 7	7.55
Nov. 22	6.84	Feb. 21	8.99	May 21	6.66	Aug. 21	5.46
Dec. 7	8.07	Mar. 7	7.29	June 7	7.88	Sept. 7	6.70
Dec. 21	8.10	Mar. 21	5.69	June 21	6.74	Sept. 21	7.81

424057N0913200.1. Local number 91-6-22acac1. City of Strawberry Point, well 2. Drilled unused artesian well in dolomite of Silurian age, diam 16 to 10 in, depth 492 ft, cased 16-in 0-130, 12-in 130-161, lined 10-in 229-370. Lsd 1,219 ft above msl. MP top of recorder platform, 2.10 ft above lsd. Highest water level 114.38 below lsd, May 9, 1973; lowest 133.18 below lsd, Feb. 4, 1968. Records available: 1963 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1978-79

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	127.47	127.85	127.60	128.47	128.98	128.37	122.52	----	123.32	125.07	125.55	122.49
10	127.84	128.10	128.16	128.90	129.37	128.09	121.62	120.64	123.98	124.87	125.60	e122.85
15	127.76	128.28	127.74	128.70	129.19	128.20	122.22	121.50	e123.70	125.15	125.95	123.56
20	127.94	128.14	127.75	128.16	128.98	126.50	122.53	121.67	e124.00	125.53	125.10	123.74
25	127.36	127.74	128.07	128.89	129.33	123.76	121.80	122.17	----	124.42	e123.80	e124.00
Eom	128.23	127.85	128.43	129.25	128.63	122.66	121.98	123.36	e124.25	e125.65	123.15	e124.25

e Estimated

425940N0911947.1. Local number 95-4-32dddd1. Milton and Willis Meier. Drilled stock artesian well in St. Peter Sandstone of Middle Ordovician age, diam 6 in, reported depth 380 ft, Casing information not available. Lsd 1,090 ft above msl. MP plug in pumpbase, 1.00 ft above lsd. Highest water level 82.56 below lsd, Oct. 8, 1974; lowest 126.56 below lsd, Jan. 13, 1969. Records available: 1957 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 7, 1978	90.91	Aug. 28, 1979	86.95				

Des Moines County

404844N0911427.1. Local number 69-3-6aaba1. Iowa Ordnance Plant, well 3. Drilled unused artesian well in St. Peter Sandstone of Middle Ordovician age, diam 16 in, depth 1,209 ft, cased 0-855. Lsd 717 ft above msl. MP top of platform, 1.61 ft above lsd. Highest water level 162.70 below lsd, Mar. 27, 1950; lowest 201.75 below lsd, Aug. 15, 1978. Records available: 1950 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 7, 1978	197.83	Feb. 25, 1979	192.32	June 4, 1979	188.27	Aug. 5, 1979	190.79
Nov. 18	197.29	Apr. 15	183.89	July 14	192.77	Sept. 15	189.18
Dec. 17	196.25						

404753N0911425.1. Local number 69-3-6ddcd1. Iowa Ordnance Plant, well 2. Drilled unused artesian well in limestone of Devonian and Mississippian age, diam 19 in, depth 675 ft, cased 0-75. Lsd 699 ft above msl. MP top of platform, 1.91 ft above lsd. Highest water level 74.46 below lsd, Apr. 18, 1975; lowest 83.19 below lsd, Apr. 26, 1950. Records available: 1950 to current year.

Oct. 7, 1978	77.99	Feb. 25, 1979	78.23	June 4, 1979	78.29	Aug. 16, 1979	79.07
Nov. 18	77.99	Apr. 15	79.17	July 14	78.59	Sept. 15	79.29
Dec. 17	78.22						

Emmet County

432927N0943455.1. Local number 100-32-11dddd1. Okamanpedan Lake Reserve State Park. Drilled public-supply artesian well in Dakota Sandstone of Early Cretaceous age, diam 6 in, depth 277 ft, casing information not available. Lsd 1,233 ft above msl. MP plug in pumpbase, 0.61 ft above lsd. Highest water level 59.60 below lsd, Dec. 19, 1946; lowest 77.86 below lsd, Aug. 27, 1979. Records available: 1939 to current year.

Nov. 1, 1978	70.86	Aug. 27, 1979	77.86				

Grundy County

422605N0925600.1 Local number 88-18-15dbb1. Town of Wellsburg. Drilled public-emergency-supply artesian well in English River Siltstone, of Stainbrook (1950), of Early Mississippian age, diam 12 in, depth 280 ft, cased to 128. Lsd 1,060 ft above msl. MP edge of vent pipe, 1.25 ft above lsd. Highest water level 35.26 below lsd, June 26, 1979. lowest 96.81 below lsd, Sept. 27, 1960. Records available: 1960 to current year.

Nov. 8, 1978	35.31	June 26, 1979	35.26	Aug. 27, 1979	40.77		

Henry County

405810N0913305.2. Local number 71-6-9aba2. City of Mount Pleasant, well 4. Drilled municipal artesian well in Jordan Sandstone of Late Cambrian age, diam 20 to 19 in, depth 1,860 ft, cased 20-in 0-623. Lsd 732 ft above msl. MP hole in pumpbase, 2.25 ft above lsd. Highest water level 132.00 below lsd, May 5, 1946; lowest non pumping 198.75 below lsd, June 7, 1978. Records available: 1946-50, 1953-57, 1959 to current year. Water levels affected by pumping.

Nov. 9, 1978	p208	June 27, 1979	p215	Aug. 29, 1979	p211		

p Well being pumped.

410848N0913948.1. Local number 73-7-9aab1. Town of Wayland. Dug unused water-table well in glacial drift, diam 4 ft, depth 52 ft, casing information not available. Lsd 745 ft above msl. MP top of cement cover, 0.21 ft above lsd. Highest water level 2.30 below lsd, Sept. 1, 1965; lowest 14.69 below lsd, Feb. 2, 1977. Records available: 1960 to current year.

Nov. 9, 1978	9.57	June 27, 1979	9.92	Aug. 29, 1979	9.27		

Jasper County

414205N0925920.1. Local number 80-18-31abbb1. P. W. Beukema. Dug stock water-table well in glacial drift, diam 36 in, depth 37 ft, cribbed with brick. Lsd 937 ft above msl. MP top of cement platform, 0.70 ft above lsd (since Apr. 1, 1970). Highest water level 2.67 below lsd, June 10, 1947; lowest 27.15 below lsd, Dec. 18, 1948. Records available: 1940 to current year.

Nov. 30, 1978	5.55	Apr. 5, 1979	4.15	Aug. 27, 1979	4.39		

Johnson County

414107N0913229.1. Local number 79-6-4aaaa1. Forest View Trailer Court. Drilled unused artesian well in limestone of Silurian age, diam 6 in, depth 280 ft, cased to 96 ft. Lsd 735 ft above msl. MP top of casing, 1.00 ft above lsd. Highest water level 96.93 ft below lsd, Mar. 23, 1979; lowest 146.01 ft below lsd, July 17, 1971. Records available: 1971 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1978-79

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	129.60	125.74	106.98	102.23	98.95	97.49	98.05	110.00	123.45	125.47	125.72	122.29
10	129.05	124.85	105.68	101.50	98.55	98.02	98.16	113.93	124.00	126.10	125.55	121.99
15	128.19	123.57	103.71	100.76	97.93	98.47	100.00	117.15	123.80	125.59	125.77	121.95
20	126.35	117.77	102.65	99.50	97.75	97.83	105.03	118.64	124.30	125.36	125.27	122.43
25	125.55	112.72	103.02	99.44	97.97	97.66	109.97	120.77	124.94	125.73	124.16	123.02
Eom	125.13	109.53	102.52	99.01	97.53	98.90	109.53	122.03	125.13	125.84	122.92	123.06

e Estimated.

414315N0912520.1. Local number 80-5-22cbcb1. Chicago, Rock Island & Pacific RR. Co. Drilled unused water-table well in glacial drift, diam 1 1/4 in, depth 20 ft, screened 18-20 ft. Lsd 753 ft above msl. MP top of casing 4.20 ft above lsd. Highest water level 5.78 below lsd, Sept. 20, 1977; lowest dry, Dec. 2-31, 1955, Nov. 8 to Dec. 31, 1964. Records available: 1941-56, 1958 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 24, 1978	11.00	Mar. 20, 1979	5.80	June 18, 1979	11.40	Sept. 21, 1979	11.83
Dec. 20	10.20	Apr. 17	8.13	July 17	13.15		
Feb. 5, 1979	12.73	May 17	9.18	Aug. 21	5.94		

414315N0912520.2. Local number 80-5-22cbcb2. Chicago, Rock Island & Pacific RR. Co. Drilled unused artesian well in limestone of Devonian age, diam 5 in, depth 82 ft cased. Lsd 753 ft above msl. MP top of casing 2.50 ft above lsd (since July 1, 1975). Highest water level 8.15 below lsd, Apr. 21, 1952; lowest 21.05 below lsd, Sept. 26, 1957. Records available: 1941 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 24, 1978	17.08	Mar. 20, 1978	13.70	June 18, 1979	16.48	Sept. 21, 1979	17.10
Dec. 20	16.78	Apr. 17	15.44	July 17	17.23		
Feb. 5, 1979	17.49	May 17	15.54	Aug. 21	15.09		

Linn County

415422N0914226.1. Local number 82-7-18cdcd1. Lester Petrak. Dug unused water-table well in glacial drift, diam 4 ft, depth 14 ft, cribbed with brick. Lsd 835 ft above msl. MP base of recorder shelter, 0.08 ft above lsd. Highest water level 1.09 below lsd, Aug. 4, 1968; lowest e11.75 below lsd, Feb. 8, 1977. Records available: 1959 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1978-79

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	5.38	6.04	4.97	e6.18	e7.18	e5.20	3,83	3.99	5.54	6.65	5.78	5.67
10	5.43	6.28	5.16	e6.39	7.35	e4.50	4.27	4.66	5.76	6.84	5.78	6.22
15	5.21	6.22	5.26	e6.50	7.34	4.03	e4.48	4.91	5,80	5.65	----	6.72
20	5.25	4.88	5.36	e6.66	7.44	2.82	4.00	4.95	5.93	5.87	----	7.04
25	5.44	4.97	5.65	e6.84	7.26	3.61	4.33	5.13	6.25	6.01	4.95	7.35
Eom	5.89	4.96	6.02	e7.00	7.01	3.28	4.61	5.34	6.44	6.01	5.26	7.59

e Estimated.

415816N0913934.1. Local number 83-7-28addal. The Kacena Co., Inc. (formerly Collins Radio). Drilled unused artesian well in limestone of Silurian age, diam 10 in, depth 420 ft, cased to 75. Lsd 735 ft above msl. MP top of well cover, 6.15 ft below lsd. Highest water level 51.10 below lsd, Feb. 25, 1963; lowest 93.80 below lsd, Aug. 1, 1975. Records available: 1962 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 24, 1978	88.50	Mar. 20, 1979	84.51	June 19, 1979	83.99	Aug. 21, 1979	86.47
Dec. 21	87.26	Apr. 20	84.08	July 17	84.86	Sept. 19	86.55
Feb. 20, 1979	87.86	May 18	83.71				

Linn County--Continued

415725N0914104.1. Local number 83-7-32acdc1. Floyd Felter. 22nd Ave. SW. and 11th St. SW., Cedar Rapids. Drilled unused artesian well in limestone of Silurian age, diam 5 in, depth 282 ft, cased. Lsd 805 ft above msl. MP plug in well cover, at lsd. Highest water level 75.88 below lsd, Jan. 26, 1942; lowest 107.00 below lsd, Sept. 16, 1976. Records available: 1940 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 24, 1978	101.50	Mar. 20, 1979	99.45	June 19, 1979	99.74	Aug. 21, 1979	102.09
Dec. 21	100.51	Apr. 20	96.49	July 17	102.09	Sept. 19	101.87
Feb. 20, 1979	99.31	May 18	95.00				

420526N0913707.1. Local number 84-7-13bcbb1. U.S. Geol. Survey. Drilled observation water-table well in glacial drift, diam 1 1/4 in, depth 17 ft, screened 15-17. Lsd 882 ft above msl. MP top of casing, 0.75 ft above lsd. Highest water level 1.11 below lsd, Mar. 29, 1960; lowest 12.90 below lsd, Dec. 3, 1956. Records available: 1940 to current year.

Oct. 24, 1978	4.75	Jan. 25, 1979	4.95	Apr. 23, 1979	1.74	July 17, 1979	4.37
Nov. 20	3.82	Feb. 21	4.91	May 18	2.92	Aug. 21	3.37
Dec. 19	3.93	Mar. 20	1.83	June 19	3.68	Sept. 19	5.89

Lyon County

432140N0955953.1. Local number 99-44-26dddd1. State of Iowa. Drilled unused water-table well in glacial drift, diam 20 in, depth 38 ft, lined with tile. Lsd 1,400 ft above msl. MP plug in well cover, 2.01 ft above lsd. Highest water level +0.41 above lsd, May 9, 1979; lowest 9.74 below lsd, Oct. 24, 1940. Records available: 1940-43, 1947 to current year.

Jan. 9, 1979	3.43	Apr. 10, 1979	0.44	May 9, 1979	+0.41	July 11, 1979	2.12

432553N0961055.1. Local number 99-45-5abac1. City of Rock Rapids. Drilled unused artesian well in Dakota Sandstone of Early Cretaceous age, diam 10 in, depth 375 ft, cased to 296. Lsd 1,375 ft above msl. MP plug in cover over casing, 1.00 ft above lsd. Highest water level 100.08 below lsd, July 27, 1964; lowest 113.90 below lsd, Nov. 30, 1974. Records available: 1960 to current year.

Oct. 2, 1978	113.37●	Apr. 9, 1979	112.82	June 19, 1979	112.40	Aug. 9, 1979	113.10
Jan. 8, 1979	113.30	May 9	112.56	July 10	112.75	Sept. 6	112.89

Madison County

411727N0934830.1. Local number 75-26-23aaac1. Town of St. Charles, No. 1. Drilled unused artesian well in limestone of Mississippian age, diam 10 in, depth 1,058 ft, cased 0-657. Lsd 1,067 ft above msl. MP plug in well cover, 1.20 ft above lsd (since Jan. 1, 1971). Highest water level 261.62 below lsd, Nov. 20, 1962; lowest 269.17 below lsd, June 26, 1979. Records available: 1962 to current year. Records prior to April 1970 are from recording gage; subsequent records are periodic tape measurements.

Nov. 8, 1978	268.34	June 26, 1979	269.17	Aug. 27, 1979	269.16		

Marion County

411323N0931426.1. Local number 74-21-11dbcc2. Town of Melcher. Drilled unused water-table well in glacial drift, diam 18 in; depth 25 ft, lined with tile. Lsd 948 ft above msl. MP top of well cover, 0.75 ft above lsd (since June 21, 1976). Highest water level 0.12 below lsd, Apr. 24, 1976; lowest 16.27 below lsd, Oct. 22, 1953. Records available: 1950 to current year.

Oct. 12, 1978	4.95	Jan. 25, 1979	4.35	Apr. 25, 1979	1.04	Aug. 11, 1979	4.54
20	5.25	Feb. 14	4.45	May 10	2.89	27	5.68
Nov. 15	5.31	26	3.78	23	4.34	Sept. 12	6.15
30	5.25	Mar. 9	2.30	June 13	4.35	24	6.58
Dec. 6	4.40	26	2.15	July 12	4.50		
Jan. 10, 1979	4.53	Apr. 11	2.05	26	4.43		

Marshall County

420355N0925347.1. Local number 84-18-24cdca1. City of Marshalltown. Drilled unused artesian well in glacial sand and gravel of Pleistocene age, diam 8 in, depth 200 ft, cased to 190, screened 190-200. Lsd 871 ft above msl. MP top of casing, at lsd. Highest water level 4.92 below lsd, July 13, 1951; lowest 52.17 below lsd, Aug. 2, 1978. Records available: 1949 to current year.

Nov. 8, 1978	40.30	Apr. 4, 1979	39.64	Aug. 27, 1979	47.14		

Montgomery County

405835N0950129.1. Local number 71-36-6dad1. State of Iowa. Drilled observation water-table well in glacial drift, diam 1 1/4 in, depth 38 ft, screened 36-38. Lsd 1,081 ft above msl. MP top of casing, 3.02 ft above lsd. Highest water level 2.52 below lsd, May 31, 1951; lowest 30.99 below lsd, Apr. 26, 1950. Records available: 1950 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 16, 1978	13.71	Apr. 20, 1979	12.94	June 228, 1979	13.36	Aug. 23, 1979	14.11
Feb. 12, 1979	14.26	May 24	12.62	July 25	11.86	Sept. 26	14.62

Muscatine County

412120N0910804.4. Local number 76-2-30cbaa1. U.S. Geol. Survey. Drilled observation water-table well in alluvial sand and gravel, diam 6 in, depth 27 ft, screened 24-27. Lsd 546 ft above msl. MP base of recorder shelter, 3.70 ft above lsd. Highest water level 8.51 below lsd, May 16, 1973; lowest 15.03 below lsd, June 30, 1977. Records available: 1966 to current year.

Water level at noon, from recorder graph, water year October 1 to September 30 1978-79

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
5	14.25	14.37	e14.50	14.36	14.59	e14.40	e13.20	12.49	e12.70	13.31	13.96	14.34
10	14.25	14.40	e14.48	14.37	14.63	e14.20	e13.10	12.42	e12.80	13.49	14.08	e14.37
15	14.26	14.42	e14.46	14.42	14.63	e14.00	e12.90	12.42	e12.90	13.55	14.18	e14.42
20	14.28	14.48	e14.43	14.48	14.64	e13.80	e12.70	12.42	e13.00	13.69	14.27	e14.46
25	14.29	14.51	e14.41	14.52	e14.60	e13.60	12.58	e12.50	13.08	13.79	14.29	e14.60
EOm	14.34	14.52	e14.39	14.54	e14.00	e13.40	12.59	e12.60	13.22	13.86	14.30	e14.54

e Estimated

Page County

404257N0951512.1. Local number 68-38-7ccal. William Brayman. Drilled unused water-table well in glacial drift, diam 12 in, depth 44 ft, lined with tile. Lsd 1,087 ft above msl. MP top of 3/4-in pipe inserted through board cover, 1.50 ft above lsd. Highest water level 1.44 below lsd, June 23, 1947; lowest 20.96 below lsd, Nov. 24, 1958. Records available: 1934 to current year.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 16, 1978	15.32	May 25, 1979	11.77	July 25, 1979	12.85	Sept. 26, 1979	13.28
Apr. 20, 1979	10.46	June 27	12.87	Aug. 23	13.33		

Sac County

423013N0951753.1. Local number 89-38-26abaa1. City of Schaller. Drilled public-emergency-supply artesian well in Dakota Sandstone of Early Cretaceous age, diam 10 to 8 in, depth 352 ft, cased to 352, perforated 304-352. Lsd 1,376 ft above msl. MP edge of pump breather pipe, 1.80 ft above lsd. Highest water level 210.04 below lsd, Mar. 25, 1948; lowest 240.10 below lsd, May 24, 1977. Records available: 1940 to current year.

Nov. 6, 1978	230.54	Feb. 20, 1979	231.40	May 21, 1979	230.76	Aug. 31, 1979	230.76

Webster County

421837N0940836.1. Local number 87-28-29cccd1. Ransom Helms. Drilled unused water-table well in glacial drift, diam 12 in, depth 42 ft, lined with tile. Lsd 1,165 ft above msl. MP top of platform, 4.10 ft above lsd. Highest water level 0.05 below lsd, Aug. 1, 1972; lowest 13.62 below lsd, Mar. 12, 1956. Records available: 1942 to current year.

Oct. 20, 1978	4.11	Jan. 22, 1979	5.53	Apr. 20, 1979	1.29	July 20, 1979	4.13
Nov. 21	4.15	Feb. 20	6.27	May 21	1.26	Aug. 20	5.85
Dec. 20	3.85	Mar. 20	1.78	June 21	3.85	Sept. 20	4.11

423013N0942147.1. Local number 89-30-22ddaa1. Johnson Township Consolidated School, Barnum. Drilled unused artesian well in sandstone of Cretaceous age, diam 4 in, reported depth 208 ft, cased to bottom, perforated 203-208, measured depth 203 ft. Lsd 1,174 ft above msl. MP top of casing, 6.40 ft below lsd. Highest water level 30.86 below lsd, July 2, 1945; lowest 44.55 below lsd, May 24, 1977. Records available: 1942-45, 1947 to current year.

Nov. 6, 1978	43.53	Feb. 20, 1979	42.82	May 21, 1979	43.26	Aug. 27, 1979	42.70

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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