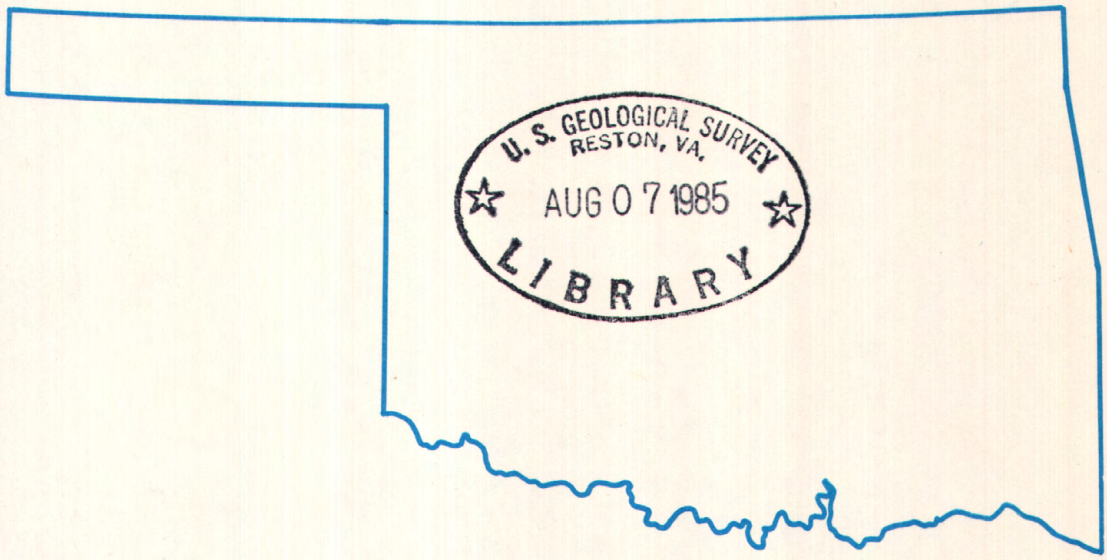
Water Resources Data Oklahoma Water Year 1983



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-83-1
Prepared in cooperation with the State of Oklahoma
and with other agencies

CALENDAR FOR WATER YEAR 1983

1982

OCTOBER

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1983

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Water Resources Data Oklahoma Water Year 1983

by L.D. Hauth, J.K. Kurklin, and D.M. Walters

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-83-1
Prepared in cooperation with the State of Oklahoma
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

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PREFACE

This report was prepared by personnel of the Oklahoma District of the Water Resources Division of the U.S. Geological Survey under the supervision of J.H. Irwin, District Chief, and A. Clebsch, Regional Hydrologist, Central Region. It was done in cooperation with the State of Oklahoma and with other agencies.

This report is one of a series issued by state. General direction for the series is by Philip Cohen, Chief Hydrologist, U.S. Geological Survey, and James F. Daniel, Assistant Chief Hydrologist for Scientific Publications and Data Management.

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Water resources data for the 1983 water year for Oklahoma consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes or reservoirs. This report contains discharge records for 117 gaging stations; stage and contents for 27 lakes or reservoirs; water quality for 39 gaging stations and 3 lakes. Also included are 39 crest-stage partial-record stations and 3 low-flow stations. 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 Oklahoma.

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GAGING RECORDS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

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

GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

(Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (e) contents, (m) microbiological, (t) water temperture, (s) sediment.)

WATER RESOURCES DATA FOR OKLAHOMA, 1983

INTRODUCTION

Water resources data for Oklahoma for the 1983 water year are presented in one volume. Data consist of records of stage, discharge, and water quality of streams and stage, contents, and water quality of lakes and reservoirs. This report contains discharge records for 117 gaging stations; stage and contents for 27 lakes and reservoirs; water quality for 39 gaging stations and 3 lakes. Also included are data for 39 crest-stage partial-record stations and 3 low-flow stations. Additional water data were collected at various sites, not part of 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 Oklahoma. Records are published for the water year, which begins on October 1 and ends on September 30.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were 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." 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 or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow and water quality are published as an official Survey report 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 OK-82-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA, 22161.

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." For water years 1975 through 1980, water data for ground water are published as an official Survey report on a state-boundary basis.

Beginning with the 1981 water year, water data for ground water are published as a separate official Survey report on a state-boundary basis. Records are published for the climatological year, which begins on April 1 and ends on March 31.

COOPERATION

The U.S. Geological Survey and organizations of the State of Oklahoma have had cooperative agreements for the systematic collection of streamflow records since 1935, and for water-quality records since 1941. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Oklahoma Water Resources Board, Gerald E. Borelli, chairman.
James R. Barnett, executive director.

Oklahoma Department of Transportation, Richard A. Ward, chief engineer.

Oklahoma City Water Department, Earl Potts, director of water services.

Oklahoma Geological Survey, Charles J. Mankin, director.

Oklahoma State Department of Health, Environmental Health Services, Mark S. Coleman, deputy commissioner.

Assistance in the form of funds or services was given by the following Federal Agencies: Bureau of Land Management, U.S. Department of the Interior; Corps of Engineers, U.S. Army; Federal Emergency Management Agency; and Bureau of Reclamation, U.S. Department of the Interior.

Assistance in the form of funds or services was rendered by the city of Oklahoma City and the following organizations through the Oklahoma Water Resources Board: Grand River Dam Authority; Central Oklahoma Master Conservancy District; Fort Cobb Reservoir Master Conservancy District; Lugert-Altus Irrigation District; Foss Reservoir Master Conservancy District; Mountain Park Master Conservancy District; Oklahoma Gas and Electric Company; the cities of Ada, Altus, Claremore, Lawton, Sapulpa, and Tulsa.

Organizations that supplied data are acknowledged in the station descriptions.

Some records have been collected and computed by contractors in accordance with U.S. Geological Survey specifications and under Geological Survey quality control.

HYDROLOGIC CONDITIONS

Streamflow in the state was below average in the west half, above average in the northeast and near average in the southeast.

Discharge at the index station in south-central Oklahoma, Washita River near Dickson, was in the upper 75 percent quartile for five months of the year. Reservoirs were near normal for the year.

The chemical quality of surface waters in the state showed no significant change in 1983.

The levels of dissolved solids were slightly higher in 1983 than in the previous water year in the west and central areas, but decreased in the eastern third of the state.

Nutrient and heavy metal concentrations in the western and central areas of the state decreased as the stream discharges and sediment levels decreased. In the eastern third of the state, where sediment loads are very low, nutrient and heavy metal concentrations were only slightly higher than the previous year.

Dissolved pesticide and herbicide levels remained at or below measurable accumulations in stream bottom materials across the state during the year.

DEFINITION OF TERMS

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

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, 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 ± 0.5°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 intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms 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 ± 0.5°C on M-enterococcus 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 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 cells per sample volume, 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-feet, about 646,000 gallons or 2,447 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 many 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.

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

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 (CFS, 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, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

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

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

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

Diversity index is the numerical expression of evenness of distribution of aquatic organisms. The formula for diveristy index is:

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

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 samples are different.

Drainage area of a stream at a specific 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 river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by 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 interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

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

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

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

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

Micrograms per liter (µG/L, µg/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 represent 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 insect, phytoplankter, 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 millliliters (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 Subcommittee 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.

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 catogories 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/mL of sample.

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

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

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.

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

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 sample 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 volume, that passes a section in a given time. It is computed by multiplying ft^3/s (daily mean discharge) times mg/L times 0.0027.

Suspended-sediment load is the quanity of suspended sediment 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.

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

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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 USGS 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.

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

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

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For 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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the 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 substance in solution or suspension that passes a stream section during a 24-hour day.

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

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

Total load (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 ft^3/s (sum of daily mean discharges) times the mg/L of the constituent, times the factor 0.0027.

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

Water year is the 12-month period ending September 30 each year. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months.

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 before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, 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 07304500, which appears just to the left of the station name, includes the 2-digit part number "07" plus the 6-digit downstream order number "304500".

NUMBERING SYSTEM FOR MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude; the next 7 digits denote degrees, minutes, and seconds of longitude; and the last 2 digits (assigned sequentially) identify the other sites within a 1-second grid. See figure 1 below.

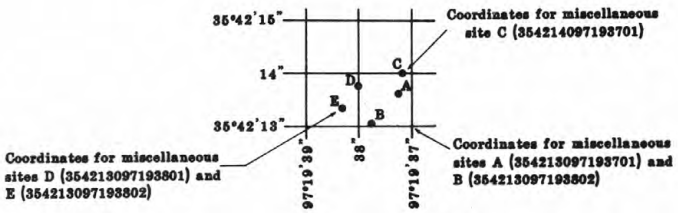

Figure 1.--System for numbering miscellaneous sites (latitude and longitude).

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 into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

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 textbooks, in Water-Supply Paper 888, and the 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 discharges 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 hydrologists, technicians, 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 the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some 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 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.

The description of the gaging station 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 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 are 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 is explained in "DEFINITION OF TERMS" on page 3.

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 minimu 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 a stream-gaging station 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 discharge 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-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 and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is 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 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 field data and computed results

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

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 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the 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.

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. A continuing record station is a specific site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, bimonthly or quarterly.

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-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, 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 temperatures

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. 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 discharges.

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 section.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or in some instances hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily 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 were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

1-D1. *Water temperature--influential factors, field 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-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A11. *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-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

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.

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

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

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis 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.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

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

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

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

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

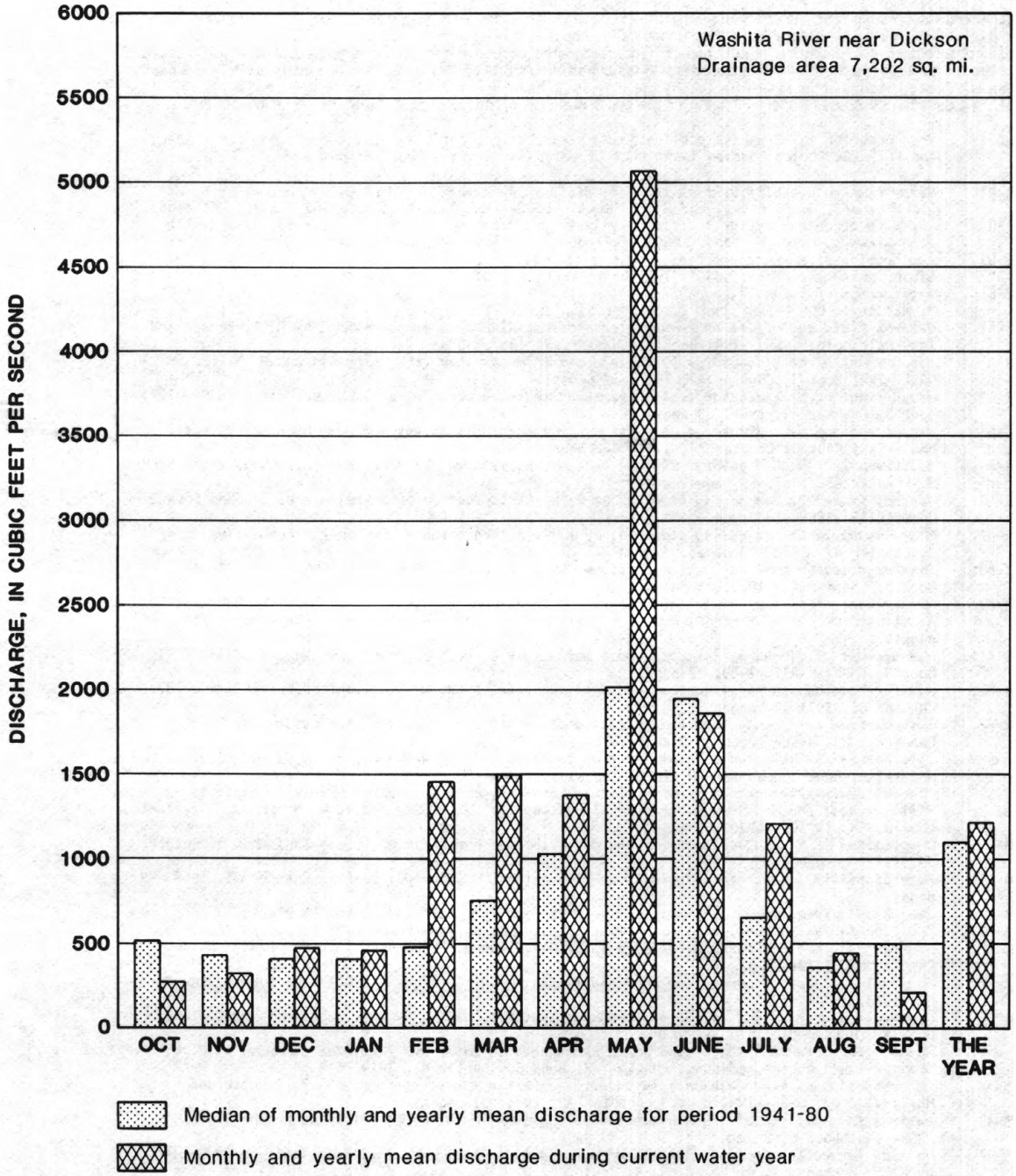

Figure 2.--Discharge during 1983 water year compared with median discharge for period 1941-80 for one representative gaging station.

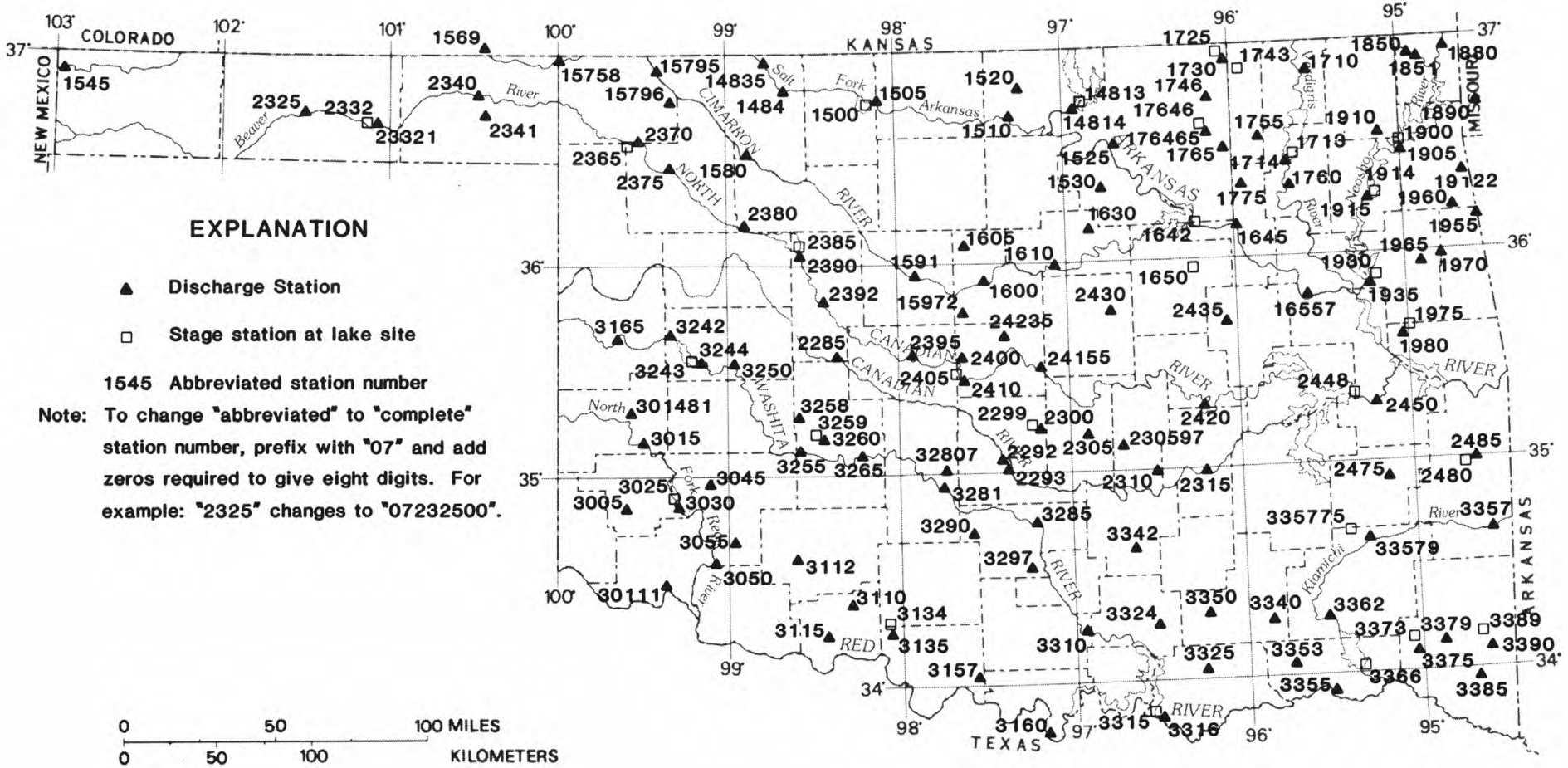

Figure 3.--Locations of continuous-record surface-water stations, water year 1983.

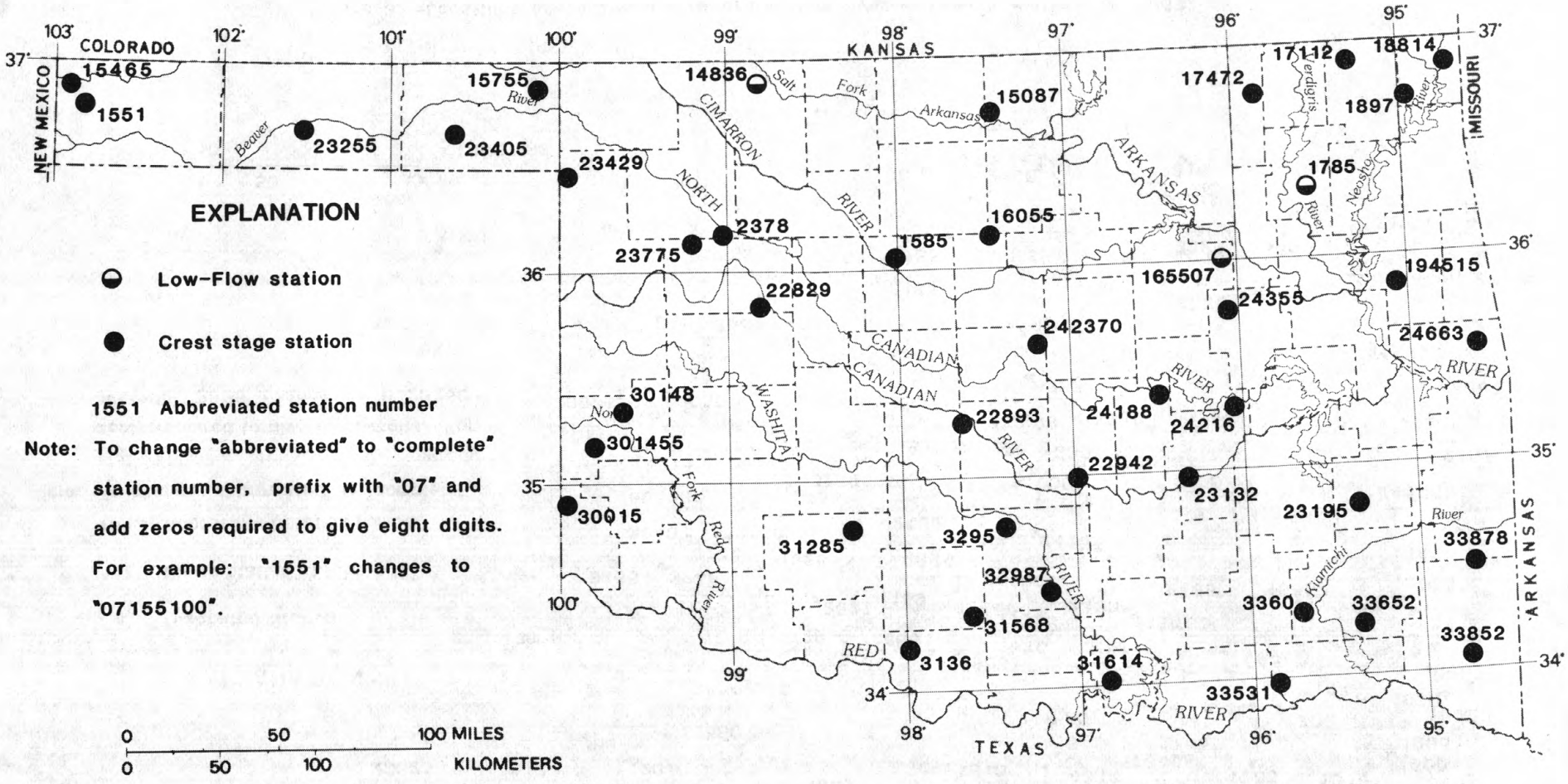

Figure 4.--Locations of partial-record stations, water year 1983.

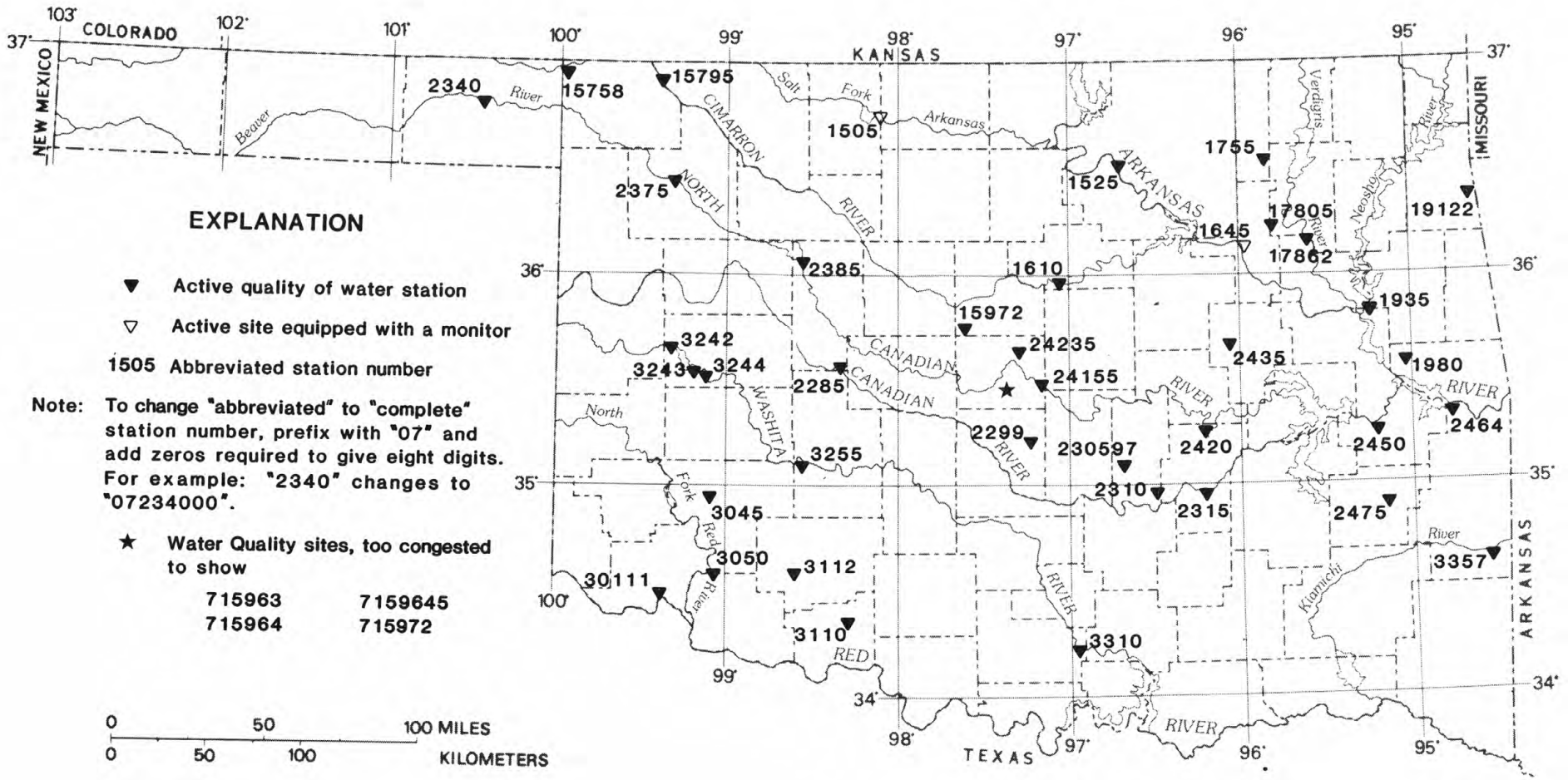

Figure 5.--Locations of quality-water stations, water year 1983.

ARKANSAS RIVER BASIN

07148130 KAW LAKE NEAR PONCA CITY, OK

LOCATION.--Lat 36°41'58", long 96°55'18", in NW 1/4 SW 1/4 sec.30, T.26 N., R.4 E., Osage County, Hydrologic Unit 11060001, 1,700 ft (518 m) east of centerline of spillway on dam on Arkansas River, about 8 mi (13 km) east of Ponca City, and at mile 653.7 (1,051.8 km).

DRAINAGE AREA.--46,530 mi^2 (120,513 km^2), of which 7,607 mi^2 (19,702 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to July 8, 1976, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by a rolled, earthfill dam. Spillway is concrete, gravity ogee-weir type controlled by 8, 50 ft (15.2 m) taintor gates. Outlet works consist of two sluice gates. Regulated storage began April 22, 1976; conservation pool first filled July 6, 1976. Capacity, 1,348,000 acre-ft (1.66 km^3), at elevation 1,044.5 ft (318.36 m), top of flood control pool, 428,600 acre-ft (528 hm^3), at elevation 1,010.0 ft (307.85 m), top of conservation pool, and 250,700 acre-ft (309 hm^3), at elevation 997.5 ft (304.04 m), crest of controlled spillway. Dead storage 85,100 acre-ft (105 hm^3) below elevation 978.0 ft (208.09 m). Figures given herein represent total contents. Reservoir is designed for flood control, water-quality control, recreation, fish and wildlife, and water supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 799,200 acre-ft (985 hm^3) June 6, 1982, elevation, 1,027.27 ft (313.112 m), minimum since conservation pool first filled, 223,100 acre-ft (275 hm^3) March 25, 1977, elevation, 995.06 ft (303.294 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 756,300 acre-ft (933 hm^3) Apr. 8, elevation, 1,025.60 ft (312.603 m); minimum, 387,800 acre-ft (478 hm^3) Jan. 28, elevation, 1,007.51 ft (307.089 m).

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

1,007	379,700	1,020	624,000
1,012	463,700	1,025	741,200
1,016	539,800	1,030	873,000

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	412300	424400	434700	452000	394300	389200	558300	444900	479600	507300	405100	403500
2	413000	424700	435700	452100	397700	389700	614200	445000	476900	497300	405000	403500
3	413100	423200	436900	451200	397700	390100	655900	445000	475000	485900	404500	403300
4	413300	422600	437100	450500	397400	390800	662500	445200	472700	473600	404000	402700
5	413500	422200	438500	449300	397100	394900	682600	443300	470500	495800	403500	402000
6	414000	421500	438600	448700	396700	399600	723400	442300	468100	523400	403300	402800
7	414200	421200	440200	447300	396100	404000	750900	439200	468300	514400	403200	401900
8	414800	421200	440700	446100	396100	400700	751900	435500	467900	502600	403000	401500
9	416500	421000	440700	445000	395700	395200	736900	431500	466300	493000	402800	401200
10	418000	420900	442800	445000	395800	390000	720000	429800	465700	482000	402500	402000
11	419000	422000	443000	445200	397100	391600	700700	430200	466300	474100	402800	401500
12	419700	421900	443100	444900	398600	394600	679900	431400	476300	468800	402500	402300
13	420200	420900	442600	444900	399700	397500	657000	446800	485400	462500	402700	402500
14	420400	421200	444700	445200	401200	399100	630900	467000	489100	456200	402800	401500
15	421200	421000	445200	444700	403700	401700	604200	468300	498500	448700	402800	404100
16	421000	421700	446100	445000	406300	404000	577800	469700	510500	441700	402500	404000
17	420900	421900	446400	438500	408700	405900	551800	471400	513200	435200	402800	404300
18	421000	422400	447300	427600	408400	406900	523800	481800	510700	427900	402800	405100
19	421900	423100	447900	417800	407600	409200	501600	484100	512700	421200	402500	404100
20	421700	424200	448700	408100	404000	410500	486900	485000	507600	412100	405800	403700
21	422000	424400	449500	400900	401700	411100	474900	497300	499800	402200	407400	401900
22	422200	426800	449600	397000	399200	411800	465900	502600	491000	398800	405400	402000
23	422400	426800	449300	393300	396600	411800	459400	514600	480500	400200	403500	400400
24	422600	426600	449300	390100	394600	412100	450400	526100	471900	401400	402700	399600
25	422900	427100	450700	388400	392800	412600	442000	526500	465200	402700	402200	400900
26	422600	429500	450200	388900	391600	421400	436800	525000	463500	403500	402300	401400
27	422200	431000	452300	388700	390600	443300	435900	520000	462600	404100	402500	401000
28	423900	431700	451400	389200	389500	461600	435500	514200	471600	404300	402200	401200
29	423900	432600	451600	389200	---	474500	440700	505500	505700	405000	402500	401400
30	423700	433100	451800	389800	---	502800	442600	496000	511900	405100	403200	401400
31	423700	---	452000	391400	---	527300	---	487200	---	405800	403000	---
MAX	423900	433100	452300	452100	408700	527300	751900	526500	513200	523400	407400	405100
MIN	412300	420900	434700	388400	389500	389200	435500	429800	462600	398800	402200	399600
†	1,009.71	1,010.26	1,011.34	1,007.74	1,007.62	1,015.37	1,010.81	1,013.28	1,014.58	1,008.63	1,008.46	1,008.36
††	+11,900	+9,400	+18,900	-60,600	-1,900	+137,800	-84,700	+44,600	+24,700	-106,100	-2,800	-1,600

CAL YR 1982 MAX 798800 MIN 397300, †† +18,400
WTR YR 1983 MAX 751900 MIN 388400, †† -10,400

† Elevation, in feet, at end of month.
†† Change in contents, in acre-feet.

ARKANSAS RIVER BASIN

07148140 ARKANSAS RIVER NEAR PONCA CITY, OK

LOCATION.--Lat 36°41'55", long 96°55'40", in SW 1/4 SE 1/4 sec.25, T.26 N., R.3 E., Kay County, Hydrologic Unit 11060001, at spillway of Kaw Dam, about 8 mi (13 km) east of Ponca City, and at mile 653.7 (1,051.8 km).

DRAINAGE AREA.--46,530 mi^2 (120,513 km^2), of which 7,607 mi^2 (19,702 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1976 to current year.

GAGE.--Gate position recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records fair.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft^3/s (589 m^3/s) June 27-29, 1977; no flow May 13, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,000 ft^3/s (566 m^3/s) April 8-9; minimum daily, 140 ft^3/s (3.96 m^3/s) Aug. 31, Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	400	155	700	500	1580	2860	3100	6820	9000	718	140
2	156	400	155	700	500	1100	10800	3100	4810	9000	840	225
3	156	400	155	863	812	1100	14000	3100	3800	9000	840	331
4	156	400	155	1160	1130	2040	15100	3100	3800	9000	840	331
5	156	400	155	1160	1130	3000	17100	3100	3800	1170	741	331
6	156	400	155	1160	1130	3000	18300	3640	3800	15500	560	331
7	156	400	155	1160	1130	4690	19700	4000	2420	15500	560	331
8	156	400	155	1160	1130	6000	20000	4000	3810	1260	560	331
9	156	400	155	1160	1130	6000	20000	4000	3810	10000	560	196
10	156	400	155	834	1130	4810	19900	2820	3690	10000	560	150
11	156	400	155	580	1130	1550	19700	1900	3600	7920	449	150
12	156	400	155	580	1130	600	19500	1900	3600	6000	280	150
13	156	400	155	580	1130	600	19300	1900	3600	6000	280	565
14	156	400	155	580	1130	600	19100	1900	3600	6000	280	728
15	156	257	155	580	1130	600	18900	1900	3600	6000	280	659
16	156	155	155	580	1130	600	18700	1900	3600	6000	280	951
17	156	155	155	3700	1130	600	18400	1740	4650	6000	163	580
18	156	155	155	6000	2090	600	18100	1900	6000	6000	163	580
19	156	155	155	6000	3000	600	15800	3020	6000	6000	210	929
20	156	155	155	6000	3000	600	11800	3580	7120	6300	280	1120
21	156	155	155	4470	3000	912	10000	3900	8000	6500	280	1120
22	156	155	472	2500	3000	1200	9060	3900	8000	2900	1750	771
23	156	155	700	2500	3000	1200	8200	3760	8000	280	1580	493
24	156	155	700	2500	3000	1200	8200	5140	6650	280	840	300
25	156	155	700	1790	2580	1200	7100	7330	5600	280	640	300
26	156	155	700	500	2200	1200	6100	8000	5600	280	280	300
27	156	155	700	500	2200	1200	4290	8000	5600	280	280	300
28	156	155	700	500	2200	1990	3100	8000	5600	438	280	300
29	257	155	700	500	---	3440	3100	8000	7370	560	280	217
30	400	155	700	500	---	4880	3100	8000	9000	560	190	170
31	400	---	700	500	---	8150	---	8000	---	560	140	---
TOTAL	5425	8182	10027	51997	46902	66842	399310	127630	155350	164568	15984	13380
MEAN	175	273	323	1677	1675	2156	13310	4117	5178	5309	516	446
MAX	400	400	700	6000	3000	8150	20000	8000	9000	15500	1750	1120
MIN	156	155	155	500	500	600	2860	1740	2420	280	140	140
AC-FT	10760	16230	19890	103100	93030	132600	792000	253200	308100	326400	31700	26540

CAL YR 1982	TOTAL	1035798	MEAN	2838	MAX	18000	MIN	109	AC-FT	2055000
WTR YR 1983	TOTAL	1065597	MEAN	2919	MAX	20000	MIN	140	AC-FT	2114000

ARKANSAS RIVER BASIN

07148350 SALT FORK ARKANSAS RIVER NEAR WINCHESTER, OK

LOCATION.--Lat 36°57'45", long 98°46'55", in NE 1/4 SE 1/4 sec.26, T.29 N., R.15 W., Woods County, Hydrologic Unit 11060002, near left bank on downstream side of pier of county road bridge, 1 mi (2 km) northeast of Winchester, 2.5 mi (4.0 km) upstream from Greenwoood Creek, 4.9 mi (7.9 km) downstream from Yellowstone Creek, 5 mi (8 km) downstream from State line, 19 mi (31 km) northwest of Alva, and at mile 156.2 (251 km).

DRAINAGE AREA.--856 mi^2 (2,220 km^2).

PERIOD OF RECORD.--October 1959 to current year. Monthly discharge only for some periods, published in WSP 1731.

REVISED RECORDS.--WSP 1731: Drainage area. WSP 1921: 1960.

GAGE.--Water-stage recorder. Datum of gage is 1,410.05 ft (429.783 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--24 years, 80.3 ft^3/s (2.274 m^3/s), 62,900 acre-ft/yr (77.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft^3/s (1,470 m^3/s) Aug. 19, 1961, gage height, 13.95 ft (4.252 m), from rating curve extended above 17,400 ft^3/s (493 m^3/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1957 reached a stage of 15.4 ft (4.69 m), from information by county engineer, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,740 ft^3/s (191 m^3/s) at 0645 June 11, gage height 10.74 ft (3.274 m) no other peak above base of 5,000 ft^3/s (142 m^3/s); Minimum daily discharge, 0.26 ft^3/s (0.007 m^3/s) Sept. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	11	26	22	31	32	256	92	220	140	2.0	.38
2	1.9	11	26	33	26	31	272	83	169	114	1.6	.32
3	1.6	11	24	37	16	33	167	74	133	94	1.4	.33
4	1.5	12	23	28	13	66	173	68	249	79	1.1	.41
5	1.5	12	24	43	11	72	308	65	187	66	1.0	.44
6	1.3	13	24	33	17	77	334	60	156	61	.97	.32
7	1.4	14	23	42	14	73	252	57	132	57	.93	.30
8	1.9	15	24	32	45	61	238	55	113	52	.81	.28
9	1.5	14	19	30	82	51	259	54	99	45	.81	.26
10	1.2	15	28	26	98	44	214	52	879	40	.84	.26
11	1.3	18	30	23	76	40	178	55	3830	35	.73	.51
12	1.5	15	29	22	73	39	159	52	808	31	.67	.44
13	1.7	14	27	22	70	37	148	53	480	26	.83	237
14	2.4	13	28	21	64	34	154	567	362	22	1.0	105
15	2.7	14	25	19	60	35	144	330	310	18	.58	161
16	3.2	15	21	17	51	52	127	191	280	19	.50	59
17	3.5	17	22	19	47	61	113	148	238	21	.48	90
18	3.7	18	21	12	46	60	110	140	203	19	.45	52
19	4.1	18	20	12	50	68	105	124	166	16	.64	7.6
20	4.2	17	17	22	49	73	98	119	144	12	1.1	5.3
21	4.4	16	18	27	51	72	94	870	137	8.5	.49	2.8
22	4.8	18	19	24	63	65	100	339	127	6.4	.48	1.9
23	6.4	20	19	26	57	78	121	248	111	5.4	.46	1.5
24	7.0	19	20	40	49	95	124	186	103	4.8	.43	1.4
25	9.1	20	18	36	41	130	108	171	161	4.3	.41	1.2
26	9.2	23	14	38	40	220	92	159	204	4.0	.37	1.3
27	9.3	30	24	33	38	238	81	133	518	2.9	.35	1.3
28	9.8	34	21	33	33	161	84	133	259	2.1	.35	1.0
29	10	30	14	36	---	147	90	294	219	2.6	.35	.86
30	10	25	12	30	---	156	90	202	176	3.1	.30	.95
31	10	---	19	33	---	132	---	345	---	2.5	.39	---
TOTAL	133.8	522	679	871	1311	2533	4793	5519	11173	1013.6	22.82	735.36
MEAN	4.32	17.4	21.9	28.1	46.8	81.7	160	178	372	32.7	.74	24.5
MAX	10	34	30	43	98	238	334	870	3830	140	2.0	237
MIN	1.2	11	12	12	11	31	81	52	99	2.1	.30	.26
AC-FT	265	1040	1350	1730	2600	5020	9510	10950	22160	2010	45	1460

CAL YR 1982	TOTAL 56015.3	MEAN 153	MAX 4720	MIN 1.2	AC-FT 111100
WTR YR 1983	TOTAL 29306.58	MEAN 80.3	MAX 3830	MIN .26	AC-FT 58130

ARKANSAS RIVER BASIN

07148400 SALT FORK ARKANSAS RIVER NEAR ALVA, OK

LOCATION.--Lat 36°48'45", long 98°38'50", in SW 1/4 SW 1/4 sec.18, T.27 N., R.13 W., Woods County, Hydrologic Unit 11060002, at bridge on U.S. Highway 281, 1.0 mi (1.6 km) northeast of Alva, 19 mi (31 km) upstream from Medicine Lodge River, and at mile 126.0 (202.7 km).

DRAINAGE AREA.--1,009 mi^2 (2,613 km^2).

PERIOD OF RECORD.--April 1904 to December 1905 (gage heights only), October 1937 to September 1951, monthly discharge only for some periods, published in WSP 1311, October 1979 to current year. Occasional low flow measurements water years 1952-54, 1977-79.

GAGE.--Water stage recorder. Datum of gage is 1,292.04 ft (393.814 m) National Geodetic Vertical Datum of 1929. April 1904 to December 1905, chain gage at site 0.8 mi (1.3 km) upstream at different datum, and February 1938 to September 1951, water stage recorder at present site and at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good.

AVERAGE DISCHARGE.-18 years (water years 1938-51, 1980-83), 147.7 ft^3/s (4.183 m^3/s), 107,000 acre-ft/yr (132 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft^3/s (765 m^3/s) Oct. 23, 1941, from rating curve extended above 13,000 ft^3/s (368 m^3/s). Maximum gage height, 15.04 ft (4.584 m) Oct. 30, 1979; no flow at times in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,270 ft^3/s (121 m^3/s) June 11, gage height 12.52 ft (3.816 m), no peak above base of 8,000 ft^3/s (227 m^3/s); minimum daily discharge, 0.92 ft^3/s (0.026 m^3/s) Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	12	29	30	43	58	152	92	246	218	12	2.4
2	6.8	12	29	32	41	52	289	89	206	183	9.8	1.7
3	5.4	11	28	42	42	71	195	86	187	169	8.3	1.5
4	4.4	12	27	37	33	108	169	84	205	156	6.0	1.4
5	4.1	14	26	41	35	82	215	83	213	128	6.0	1.3
6	3.8	14	25	43	41	82	316	81	187	97	6.2	1.1
7	3.5	14	25	43	30	86	249	80	171	87	5.7	1.3
8	4.3	15	25	40	47	79	224	75	148	79	5.3	1.1
9	4.2	16	25	37	56	71	249	72	131	73	5.3	.92
10	3.8	16	28	37	73	67	225	72	423	67	4.7	1.1
11	4.1	15	29	38	82	61	201	72	2510	63	4.3	6.5
12	4.3	13	28	37	81	57	177	73	1120	59	4.4	4.0
13	4.7	11	28	35	79	57	159	85	685	54	4.0	80
14	4.1	14	34	35	73	58	153	393	497	51	5.4	235
15	4.2	21	34	31	71	55	146	403	398	47	8.5	142
16	4.7	26	33	30	67	57	139	215	319	43	4.3	225
17	4.4	23	31	31	63	63	132	170	263	47	3.7	85
18	4.4	23	32	30	65	71	125	147	230	43	3.4	87
19	4.2	24	32	26	65	77	119	134	205	37	3.7	51
20	4.5	26	31	25	68	76	112	118	183	34	7.4	34
21	5.1	25	31	33	73	77	112	493	163	29	5.0	25
22	5.5	24	32	40	69	84	109	530	145	26	3.1	21
23	6.1	25	34	46	72	86	113	272	132	23	2.2	17
24	6.3	26	33	42	69	94	124	206	120	22	2.1	14
25	6.3	25	33	44	62	141	116	174	143	21	1.9	12
26	7.2	29	32	46	56	164	106	166	215	19	1.6	11
27	8.2	31	40	39	58	273	104	147	702	16	1.5	9.6
28	9.3	38	39	42	58	195	100	141	853	14	1.8	8.0
29	9.4	37	25	43	---	160	99	469	365	14	1.6	6.4
30	10	36	19	46	---	175	91	241	277	15	1.3	5.4
31	10	---	25	53	---	166	---	340	---	14	2.1	---
TOTAL	173.9	628	922	1174	1672	3003	4820	5803	11642	1948	142.6	1092.72
MEAN	5.61	20.9	29.7	37.9	59.7	96.9	161	187	388	62.8	4.60	36.4
MAX	10	38	40	53	82	273	316	530	2510	218	12	235
MIN	3.5	11	19	25	30	52	91	72	120	14	1.3	.92
AC-FT	345	1250	1830	2330	3320	5960	9560	11510	23090	3860	283	2170

CAL YR 1982	TOTAL 53005.8	MEAN 145	MAX 2900	MIN 2.2	AC-FT 105100				
WTR YR 1983	TOTAL 33021.22	MEAN 90.5	MAX 2510	MIN .92	AC-FT 65500				

ARKANSAS RIVER BASIN

07150000 GREAT SALT PLAINS LAKE NEAR JET, OK

LOCATION.--Lat 36°44'40", long 98°08'08", in NW 1/4 SE 1/4 sec.11, T.26 N., R.9 W., Alfalfa County, Hydrologic Unit 11060004, at right end of Great Salt Plains Dam on Salt Fork Arkansas River, 4.5 mi (7.2 km) upstream from Wagon Creek, 5.5 mi (8.8 km) northeast of Jet, and at mile 103.3 (166.2 km).

DRAINAGE AREA.--3,200 mi^2 (8,288 km^2), of which 8 mi^2 (20.7 km^2) is probably noncontributing.

PERIOD OF RECORD.--July 1941 to current year. Prior to October 1970, published as Great Salt Plains Reservoir near Jet.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth dam. Outlet works consist of 310 ft (94.5 m) uncontrolled concrete spillway containing a series of three weirs to form a cascade. Storage began in June 1941; conservation pool was first filled Oct. 21, 1941. Capacity, 257,700 acre-ft (318 hm^3) at elevation 1,138.5 ft (347.01 m), crest of upper weir, and 31,420 acre-ft (38.7 hm^3) at elevation 1,125.0 ft (342.90 m), crest of intermediate weir and conservation pool. Reservoir is used for flood control and as a wildlife refuge. Figures given herein represent total contents. Revised capacity table, based on survey in 1971, used since Oct. 1, 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 189,400 acre-ft (234 hm^3) July 2, 1951, elevation, 1,134.38 ft (345.759 m); minimum, 17,180 acre-ft (21.2 hm^3) Sept. 6, 1973, elevation, 1,123.16 ft (342.339 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 62,450 acre-ft (77.0 hm^3) June 15, 16, elevation 1,127.96 ft (343.802 m); minimum, 24,050 acre-ft (29.7 hm^3) Sept. 13, elevation 1,124.10 ft (342.626).

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

1,124	23,280	1,128	62,940
1,126	40,700	1,129	75,970
1,127	51,180	1,130	90,350

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30270	29470	33280	33460	34110	35220	43950	36990	39770	52360	30610	26050
2	30270	29300	33280	33370	34670	35130	45520	36620	39490	50760	30440	25970
3	30270	29300	33000	33370	34670	35040	47090	36430	39310	48660	30280	25800
4	30270	29300	33370	33280	34670	36150	48250	36150	39310	45210	30120	25720
5	30180	29140	33740	33280	34670	37730	49610	35690	39030	43110	30040	25720
6	30010	29220	33550	33280	34580	39490	50130	35600	38840	41220	29710	25230
7	29840	29790	33370	33280	34580	40240	50550	34950	38660	39860	29390	24990
8	30800	29710	33180	33370	34580	40330	50760	34300	38470	38570	29300	24910
9	31760	29710	33280	33740	34480	40050	50550	33930	38100	37640	29220	24750
10	30800	29950	33370	33830	34580	39490	49920	33650	38010	36710	29140	24420
11	30270	33180	33370	33550	34580	38940	48870	33650	39120	35970	29060	24500
12	30180	30690	33460	33460	34670	38380	47830	33650	43110	35410	28650	24260
13	30120	30120	33650	33370	34760	37920	46570	33460	52470	34950	28330	25970
14	30440	29950	33550	33370	34760	37270	45310	33740	60240	34480	28080	26780
15	30040	30040	33460	33280	34850	36900	43950	34200	62450	34110	28000	29550
16	29950	30040	33370	33280	34850	36340	42800	34580	61410	33740	27840	30930
17	29870	30120	33370	33090	34850	36150	41640	34950	53060	33650	27680	32160
18	29870	30120	33460	32810	34950	35870	40420	36150	50340	33550	27430	32530
19	30200	30610	33550	32900	34850	35690	39310	36340	47510	33180	26700	32810
20	29950	30520	33370	32900	34670	35780	38940	36340	44680	32900	27510	32630
21	29550	30610	33180	33000	34850	35690	38470	37270	42060	32720	28000	32810
22	29630	30520	33280	33280	35320	35410	38010	38290	39960	32440	28080	32630
23	29630	30770	33280	33370	35600	35410	38010	39770	38190	32260	27920	32440
24	29630	31010	33370	33460	35600	35600	37820	41120	36900	31980	27680	32440
25	29630	31180	33650	33370	35500	35600	37730	41640	36430	31610	27510	32630
26	29470	31340	33180	33550	35500	37820	37450	41750	36060	31420	27430	32530
27	29870	32070	33650	33740	35410	39490	37080	41540	36430	31510	27190	32350
28	29870	33000	34020	33740	35320	40420	37080	41120	42800	31340	26860	32070
29	29790	33090	33930	33930	---	41430	36800	40510	46360	30850	26700	31880
30	29630	33180	33740	33740	---	42480	36620	40140	51530	30850	26620	31790
31	29550	---	33550	33460	---	43110	---	39960	---	30770	26210	---
MAX	31760	33180	34020	33930	35600	43110	50760	41750	62450	52360	30610	32810
MIN	29470	29140	33000	32810	34110	35040	36620	33460	36060	30770	26210	24260
†	1,124.77	1,125.19	1,125.23	1,125.22	1,125.42	1,126.23	1,125.56	1,125.92	1,127.03	1,124.92	1,124.36	1,125.04
††	-810	+3,630	+370	-90	+1,860	+7,790	-6,490	+3,340	+11,570	-20,760	-4,560	+5,580

CAL YR 1982 MAX 84130 MIN 29140 †† - 990
WTR YR 1983 MAX 62450 MIN 24260 †† +1,430

† Elevation, in feet, at end of month
†† Change in contents, in acre-ft

ARKANSAS RIVER BASIN

07150500 SALT FORK ARKANSAS RIVER NEAR JET, OK

LOCATION.--Lat 36°45'11", long 98°07'44", in NE 1/4 NE 1/4 sec.11, T.26 N., R.9 W., Alfalfa County, Hydrologic Unit 11060004, near center of span on downstream side of county road bridge, 0.6 mi (0.97 km) downstream from Great Salt Plains Dam, 4 mi (6.4 km) upstream from Wagon Creek, 6 mi (9.7 km) northeast of Jet, and at mile 102.7 (165.2 km).

DRAINAGE AREA.--3,202 mi^2 (8,293 km^2), of which 8 mi^2 (20.7 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1937 to current year.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,092.20 ft (332.903 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Mar. 17, 1938, nonrecording gage at site 2.5 mi (4.0 km) upstream at datum 13.46 ft (4.103 m) higher. Mar. 17, 1938, to Apr. 26, 1953, water-stage recorder at site 200 ft (61.0 m) upstream, datum 5.00 ft (1.524 m) higher prior to Oct. 1, 1950.

REMARKS.--Records good. Flow regulated since June 1941 by Great Salt Plains Lake (station 07150000).

AVERAGE DISCHARGE.--(Since regulation by Great Salt Plains Dam) 42 years (water years 1942-83), 373 ft^3/s (10.56 m^3/s), 270,200 acre-ft/yr (333 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 25,900 ft^3/s (733 m^3/s) May 19, 1938, gage height, 13.80 ft (4.206 m), present datum; no flow at times in 1939-41, 1944, 1955-56.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,360 ft^3/s (123 m^3/s) June 14, gage height, 7.47 ft (2.277 m); minimum daily discharge, 0.99 ft^3/s (0.028 m^3/s) Nov. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	11	121	128	268	261	1300	580	849	2340	22	19
2	17	3.0	115	121	322	258	1550	430	801	2090	21	19
3	16	2.8	99	120	270	256	1770	426	815	1850	20	19
4	18	2.5	135	122	228	508	1860	449	833	1420	19	19
5	17	2.4	168	122	222	795	2060	463	742	1250	19	19
6	17	1.8	135	125	225	1040	2050	500	727	1070	18	19
7	16	.99	125	127	215	1030	2090	389	725	923	19	19
8	34	1.7	108	135	215	923	2060	324	680	767	19	19
9	67	1.7	117	175	230	825	1970	312	625	639	19	19
10	38	1.7	134	187	246	682	1790	320	637	544	19	19
11	15	126	116	128	250	607	1590	338	1000	455	19	20
12	15	29	133	126	249	529	1550	350	1690	383	19	20
13	16	2.0	143	130	253	474	1360	318	3460	338	19	23
14	17	2.0	139	131	235	407	1260	401	4260	299	19	19
15	17	1.8	126	120	266	415	1080	446	4060	248	12	23
16	16	1.6	114	112	259	339	990	502	3440	213	5.9	19
17	18	1.5	115	98	256	343	912	511	2840	204	18	84
18	16	1.5	133	72	266	316	764	747	2410	205	18	106
19	24	1.1	140	109	239	316	620	505	2020	167	20	119
20	16	1.4	117	106	230	366	688	456	1700	148	20	92
21	16	1.8	104	117	287	328	624	750	1440	125	19	96
22	17	2.0	115	158	362	275	575	916	1240	103	19	76
23	17	2.0	120	151	351	305	631	1160	1080	87	20	52
24	16	2.2	132	146	322	369	600	1280	975	67	20	67
25	17	7.8	175	128	303	325	571	1200	1030	44	29	75
26	16	11	82	173	300	830	552	1120	977	41	32	55
27	16	41	160	174	280	1030	467	1040	1110	70	32	53
28	16	130	211	170	266	1040	462	999	1240	47	32	36
29	15	109	163	198	---	1110	479	917	1480	26	26	28
30	15	112	135	145	---	1210	450	872	2170	25	19	27
31	16	---	133	113	---	1200	---	905	---	30	20	---
TOTAL	603	616.29	4063	4167	7415	18712	34725	19926	47056	16218	632.9	1280
MEAN	19.5	20.5	131	134	265	604	1158	643	1569	523	20.4	42.7
MAX	67	130	211	198	362	1210	2090	1280	4260	2340	32	119
MIN	15	.99	82	72	215	256	450	312	625	25	5.9	19
AC-FT	1200	1220	8060	8270	14710	37120	68880	39520	93340	32170	1260	2540

CAL YR 1982	TOTAL 241794.49	MEAN 662	MAX 6590	MIN .99	AC-FT 479600			
WTR YR 1983	TOTAL 155414.19	MEAN 426	MAX 4260	MIN .99	AC-FT 308300			

ARKANSAS RIVER BASIN

07150500 SALT FORK ARKANSAS RIVER NEAR JET, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-63, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1954 to September 1959, October 1961 to September 1963, July 1968 to current year.
WATER TEMPERATURE: October 1954 to September 1959, October 1961 to September 1963, July 1968 to current year.
CHLORIDES: October 1955 to September 1959.

INSTRUMENTATION.--Water quality monitor since July 1968.

REMARKS.--In addition to the water quality monitor, samples were collected by a local observer on a daily basis. Additional samples were collected quarterly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 57,000 micromhos Jan. 28, 1977; minimum daily, 1,280 micromhos Nov. 4, 1980.
WATER TEMPERATURE: Maximum daily, 36.0°C, Aug. 11, 1980; minimum daily, 0.0°C on many days during winter period.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 19,800 micromhos Nov. 21; minimum daily, 1,010 micromhos June 13.
WATER TEMPERATURE: Maximum daily, 36.5°C Aug. 6; minimum 0.0°C Dec. 29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT								
13...	1430	810	16	7800	8.0	17.5	9.3	103
NOV								
30...	1532	810	104	--	--	6.0	--	--
30...	1545	80020	104	7120	8.4	6.0	13.8	120
30...	1601	810	128	--	--	3.0	--	--
MAR								
07...	1730	80020	996	5980	8.1	11.5	10.7	107
JUN								
28...	1140	80020	1150	3500	8.2	25.0	8.2	105
AUG								
04...	1630	80020	19	5830	8.6	34.5	13.5	205

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)
OCT									
13...	730	619	190	63	1400	80	23	10	116
NOV									
30...	--	--	--	--	--	--	--	--	--
30...	810	666	220	63	1200	76	19	9.7	144
30...	--	--	--	--	--	--	--	--	--
MAR									
07...	500	369	130	42	1000	81	20	5.9	129
JUN									
28...	510	373	140	40	500	68	10	7.3	142
AUG									
04...	630	532	160	57	990	77	18	9.6	103

07150500 SALT FORK ARKANSAS RIVER NEAR JET, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SEDI-MENT, SUS-PENDED (MG/L)
OCT								
13...	640	2300	2.8	4700	4700	6.4	204	140
NOV								
30...	--	--	--	--	--	--	--	40
30...	590	1900	4.0	4040	4100	5.5	1130	--
30...	--	--	--	--	--	--	--	30
MAR								
07...	370	1600	3.0	3190	3200	4.3	8580	--
JUN								
28...	420	770	9.0	1990	2000	2.7	6180	--
AUG								
04...	550	1500	4.7	3360	3300	4.6	172	--

ARKANSAS RIVER BASIN

07150500 SALT FORK ARKANSAS RIVER NEAR JET, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6730	7670	6660	7700	7280	8060	5970	3610	3340	1100	5720	8680
2	6510	10400	6710	7560	7500	7940	6030	3420	3290	3160	6110	8510
3	6580	11400	6820	7600	7740	7690	5160	3410	3270	3530	5950	8400
4	6450	11400	6790	7560	7520	7680	4680	3550	4160	3560	5820	8750
5	6490	14500	6770	7250	7500	7850	4660	3550	4420	3970	5710	9440
6	6720	14900	6820	7370	7530	7190	4420	3600	4380	4210	5650	9430
7	---	---	6930	7320	7570	5660	3830	4000	4490	4160	6160	9370
8	6410	17500	7150	---	7510	6390	3680	3900	4290	3520	6130	9460
9	5870	19300	7150	---	7420	6270	3580	3930	2920	3530	6040	9470
10	5850	18300	6950	---	7480	6620	2680	3910	3690	3760	6270	9260
11	6770	7080	7390	---	7450	6350	3170	3990	3700	4300	5900	9390
12	7660	7840	7700	---	7890	6340	3160	3980	4280	4290	6240	10600
13	7930	9410	7770	---	7970	6320	3480	3970	1010	4250	6250	9470
14	7990	12700	7970	---	7910	6060	3480	3920	2630	4420	---	9830
15	7950	12900	7150	6480	8020	6090	3500	4020	2890	4340	---	8420
16	---	13400	7530	6980	7800	6100	3100	4400	2330	4240	9640	9270
17	8460	13700	7560	7020	7650	6190	2810	4920	2320	4410	6500	9200
18	8050	13500	7690	7220	7560	6400	3060	---	2360	4520	6420	6160
19	7770	16700	7660	7620	5890	6300	3510	3730	2850	4540	6410	7630
20	7870	19400	7230	7640	7220	6250	3630	4740	3550	4630	6220	6930
21	7920	19800	7660	7570	7250	5840	3560	4130	3930	4520	6160	8870
22	7570	19700	8130	7460	7350	6360	3570	4140	4290	4630	6040	8060
23	7760	17400	8090	7250	7570	6650	3460	3720	4170	4660	6400	8820
24	8220	14000	8090	7220	8030	6300	3630	3520	4280	4630	6470	8890
25	8210	---	8220	7270	8030	6110	3560	3330	4320	5010	6540	8480
26	8520	8300	8200	7180	8110	5730	3580	3310	4490	4910	7320	8430
27	8260	6860	7830	7140	8110	5520	3570	3140	3490	4880	7320	8320
28	7570	6840	7850	7220	8210	7160	3530	3230	2980	4910	8760	8580
29	8730	6650	7520	7160	---	6830	3540	3400	3900	5230	8740	8740
30	7770	6620	7650	7300	---	6000	3610	3510	3870	5200	8830	8800
31	---	---	7720	7310	---	5740	---	3400	---	5320	8650	---
MEAN	7450	12800	7460	7310	7610	6520	3770	3780	3530	4270	6700	8790

WTR YR 1983 MEAN 6600 MAX 19800 MIN 1010

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	---	10.0	2.0	1.5	11.0	9.5	18.0	20.5	26.5	32.0	32.0
2	23.0	---	10.0	2.0	1.5	13.0	8.0	17.5	22.0	27.0	33.0	32.0
3	21.0	---	9.0	1.5	1.0	15.0	10.0	17.0	22.5	26.0	32.5	30.5
4	24.0	---	9.0	2.0	1.5	14.0	8.0	18.0	24.0	26.0	28.5	29.0
5	24.5	---	9.5	2.5	2.5	14.5	4.0	20.0	22.0	25.5	33.0	30.5
6	20.5	12.0	8.0	4.0	2.5	13.0	8.0	20.0	22.0	26.0	36.5	30.5
7	---	---	7.0	3.5	4.0	12.0	7.5	20.0	24.0	25.0	31.0	30.0
8	23.5	14.5	7.5	---	4.0	12.5	7.0	19.0	22.0	25.0	32.0	28.5
9	17.5	17.0	5.0	---	4.0	10.5	8.0	20.0	24.0	25.5	31.0	31.0
10	15.5	14.0	5.0	---	4.5	9.5	9.5	18.5	25.5	25.0	31.0	30.0
11	19.0	14.0	4.0	---	3.0	10.5	10.5	19.0	27.0	25.0	26.0	30.0
12	19.0	10.0	4.0	---	3.0	11.5	6.0	23.0	23.0	26.5	32.0	27.0
13	19.5	7.0	3.0	---	4.0	11.0	15.0	24.0	22.0	29.0	33.0	28.0
14	19.5	9.5	4.5	---	7.0	13.5	11.0	18.0	23.5	28.0	---	27.5
15	16.5	5.5	4.0	6.0	7.5	13.5	12.0	16.5	25.0	26.5	---	27.5
16	---	9.0	8.0	5.5	9.0	11.0	---	18.5	27.0	26.0	33.0	26.5
17	20.0	10.0	5.0	4.5	8.0	9.5	---	17.0	26.5	27.0	32.0	26.5
18	21.5	9.5	6.0	2.0	9.0	7.0	11.0	---	26.0	27.0	31.0	26.5
19	16.0	14.0	5.5	2.0	11.0	7.0	13.0	16.5	26.0	28.0	28.0	24.0
20	16.0	14.5	6.0	1.5	10.0	6.0	12.0	18.0	27.0	29.0	29.0	19.0
21	16.0	13.5	6.0	1.5	9.0	6.0	12.0	19.0	26.0	28.0	31.0	22.5
22	17.0	12.0	6.0	1.0	10.0	5.0	13.0	22.0	28.0	30.0	33.0	22.0
23	14.5	5.5	---	1.5	11.0	4.5	15.0	26.0	28.0	31.5	32.0	19.0
24	15.0	4.0	7.5	2.0	9.0	5.5	14.0	23.0	27.0	30.0	31.0	19.0
25	15.0	---	8.0	3.0	9.0	6.0	13.0	22.5	26.0	31.5	31.0	23.0
26	15.5	6.5	7.5	3.5	9.5	7.5	16.0	22.0	27.0	32.0	32.5	22.0
27	15.5	4.5	4.0	2.0	10.0	6.0	17.0	26.0	29.0	29.0	33.0	24.0
28	16.5	4.5	3.0	3.0	10.5	6.5	17.0	28.5	28.0	27.5	31.5	24.5
29	---	5.0	.0	5.0	---	7.0	17.0	26.0	26.5	33.5	32.0	24.0
30	15.5	7.0	1.0	4.5	---	10.0	16.0	23.0	26.0	34.0	33.0	24.0
31	---	---	2.5	4.0	---	11.5	---	21.5	---	31.0	30.5	---
MEAN	18.5	9.5	6.0	3.0	6.5	9.5	11.5	20.5	25.0	28.0	31.5	26.5

WTR YR 1983 MEAN 17.0 MAX 36.5 MIN .0

ARKANSAS RIVER BASIN

07151000 SALT FORK ARKANSAS RIVER AT TONKAWA, OK

LOCATION.--Lat 36°40'13", long 97°18'33", in NW 1/4 SE 1/4 sec.4, T.25 N., R.1 W., Kay County, Hydrologic Unit 11060004, near right bank on downstream side of pier of bridge on U.S. Highway 77 in Tonkawa, 4 mi (6 km) downstream from Thompson Creek, 7.8 mi (12.6 km) upstream from Chikaskia River, and at mile 33.8 (54.4 km).

DRAINAGE AREA.--4,528 mi^2 (11,728 km^2), of which 8 mi^2 (20.7 km^2) is probably noncontributing.

PERIOD OF RECORD.--September 1903 to October 1905 (gage heights only), October 1935 to current year. Monthly discharge only for some periods, published as Arkansas River (Salt Fork) near Tonkawa 1903-4 and as "near Tonkawa" 1905.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 930.22 ft (283.531 m) Corps of Engineers datum. September 1903 to October 1905, nonrecording gage near present site at different datum. Jan. 2, 1936, to Jan. 22, 1939, nonrecording gage, and Jan. 23, 1939, to June 20, 1960, water-stage recorder at site 100 ft (30.5 m) upstream at same datum.

REMARKS.--Records good. Some regulation since June 1941 by Great Salt Plains Lake, 69.5 mi (111.8 km) upstream (station 07150000).

AVERAGE DISCHARGE.--(Since regulation by Great Salt Plains Dam) 42 years (water years 1942-83) 734 ft^3/s (20.79 m^3/s), 531,800 acre-ft/yr (656 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,300 ft^3/s (2,760 m^3/s) Oct. 11, 1973, gage height, 28.98 ft (8.833 m); no flow Aug. 31 to Oct. 12, Oct. 14-16, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1923, reached a stage of 26.8 ft (8.17 m), from infomation by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 11,000 ft^3/s (312 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Mar. 27	1700	*13,400	379	17.64	5.377	Apr. 6	0800	11,200	317	16.31	4.971

Minimum daily discharge, 28 ft^3/s (0.79 m^3/s) Nov. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	55	102	166	280	412	3150	896	1110	2960	108	64
2	68	51	104	159	266	393	3920	803	1030	2910	103	62
3	63	48	108	154	326	387	4680	842	946	2670	100	59
4	67	50	124	151	414	488	3470	690	908	2320	97	55
5	67	46	119	149	362	1580	5950	657	937	1850	93	54
6	60	43	120	151	342	3160	10700	658	1060	1510	92	55
7	61	44	138	152	317	2550	8880	657	1020	1250	93	57
8	77	42	133	154	312	1940	5260	671	941	1040	90	57
9	808	42	124	153	313	1300	3580	578	893	895	87	54
10	417	39	127	157	352	1080	2930	524	861	770	86	54
11	188	46	123	173	585	928	2680	518	1500	669	82	153
12	139	49	136	203	690	816	2360	526	4600	594	79	135
13	109	43	128	170	584	742	2160	1080	5730	528	78	183
14	93	84	137	159	523	687	1910	2310	4460	470	76	191
15	82	70	144	159	514	639	1760	1690	6220	430	72	1030
16	77	50	146	160	478	1930	1520	1020	6400	380	72	1830
17	74	43	139	157	466	816	1380	748	4680	350	72	1100
18	73	40	127	148	436	581	1260	1650	3910	320	70	399
19	68	39	123	149	411	553	1160	2020	3500	290	64	220
20	62	35	126	135	414	607	1020	1450	2830	260	84	206
21	63	31	138	139	419	586	950	4130	2240	230	99	185
22	65	31	132	156	594	563	957	6190	1850	210	97	161
23	63	29	123	159	686	527	923	3350	1570	190	83	147
24	62	28	125	178	611	499	992	1940	1360	170	72	145
25	61	29	123	190	535	573	933	1590	1250	155	69	134
26	61	38	124	191	481	4040	864	1480	2050	144	65	125
27	60	45	174	193	448	12100	851	1320	3320	138	62	128
28	59	53	143	209	436	10600	802	1250	3680	132	69	121
29	59	53	152	217	---	6540	741	1270	5490	125	77	108
30	57	74	205	221	---	5970	791	1440	3870	120	66	101
31	56	---	188	233	---	4190	---	1120	---	112	64	---
TOTAL	3386	1370	4155	5245	12595	67777	78534	45068	80216	24192	2521	7373
MEAN	109	45.7	134	169	450	2186	2618	1454	2674	780	81.3	246
MAX	808	84	205	233	690	12100	10700	6190	6400	2960	108	1830
MIN	56	28	102	135	266	387	741	518	861	112	62	54
AC-FT	6720	2720	8240	10400	24980	134400	155800	89390	159100	47980	5000	14620

CAL YR 1982	TOTAL	400115	MEAN	1096	MAX	14400	MIN	28	AC-FT	793600
WTR YR 1983	TOTAL	332432	MEAN	911	MAX	12100	MIN	28	AC-FT	659400

ARKANSAS RIVER BASIN

07152000 CHIKASKIA RIVER NEAR BLACKWELL, OK

LOCATION.--Lat 36°48'41", long 97°16'41", in NE 1/4 NW 1/4 sec.23, T.27 N., R.1 W., Kay County, Hydrologic Unit 11060005, near left bank on downstream side of State Highway 11 bridge at northeast edge of Blackwell, 0.2 mi (0.3 km) downstream from Bitter Creek, and at mile 28.2 (45.4 km).

DRAINAGE AREA.--1,859 mi^2 (4,815 km^2).

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 967.41 ft (29.487 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). See WSP 1921 for history of changes prior to April, 1952.

REMARKS.--Records poor. Some regulation at low flow by Lake Blackwell, capacity 3,600 acre-ft (4.44 hm^3) 12.6 mi (20.3 km) above station. Small diversion made from reservoir for municipal supply of city of Blackwell.

AVERAGE DISCHARGE.--48 years 483 ft^3/s (13.68 m^3/s) 350,000 acre-ft/yr (432 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 85,000 ft^3/s (2,410 m^3/s) June 22, 1942, gage height, 33.3 ft (10.15 m), from floodmark, present site and datum; no flow at times in 1954, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1923, reached a stage of about 34 ft (10.4 m), present site and datum, from information by local residents, discharge 100,000 ft^3/s (2,830 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,000 ft^3/s (227 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Mar. 27	1200	16,100	456	28.44	8.669
Mar. 30	2200	12,200	346	26.32	8.022
Apr. 2	1800	*22,400	634	*30.15	9.190
Apr. 6	0900	15,700	445	28.30	8.626
June 12	1200	12,100	343	26.70	8.138
June 29	1800	12,600	357	27.02	8.236

Minimum daily discharge, 18 ft^3/s (0.510 m^3/s) Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	52	103	79	290	214	3010	561	430	1260	89	36
2	30	47	96	81	611	204	15500	519	432	721	83	35
3	25	53	96	92	175	207	8850	447	413	614	78	35
4	42	47	96	152	137	1630	1830	390	373	512	73	34
5	48	44	96	79	130	4600	5590	363	370	438	72	33
6	49	47	95	92	119	2400	13200	390	1020	388	68	43
7	48	49	94	102	104	1340	4810	396	781	351	68	71
8	440	62	89	107	139	765	1780	394	509	324	65	56
9	1230	72	84	108	111	526	1350	353	395	303	56	32
10	273	68	93	105	279	406	1340	338	353	250	56	24
11	106	61	95	103	1050	350	1200	343	2470	252	52	128
12	66	70	93	95	815	285	1020	763	10800	248	50	572
13	62	82	83	97	509	230	740	898	6170	218	42	341
14	53	72	83	97	512	214	670	1240	3710	209	43	289
15	43	61	91	93	677	203	640	640	4850	205	41	764
16	22	66	102	93	565	401	600	498	1580	190	37	1890
17	32	80	98	93	388	394	540	442	859	189	36	793
18	61	97	95	93	280	232	500	763	689	180	35	386
19	25	115	92	94	226	192	450	751	860	158	31	272
20	48	84	80	96	210	221	410	650	672	154	53	214
21	18	75	69	95	244	209	380	2010	497	149	58	148
22	56	79	92	96	384	214	350	4110	411	125	77	131
23	64	79	105	95	354	214	450	2180	365	120	75	114
24	49	79	75	95	364	194	400	1040	342	116	62	105
25	49	74	76	96	300	186	350	769	357	108	53	98
26	55	79	78	102	255	4730	310	616	1310	111	46	87
27	51	91	95	100	229	14100	290	522	2470	104	43	84
28	53	103	106	103	220	5490	900	489	2720	101	41	82
29	54	105	110	103	---	1520	720	457	9220	90	42	81
30	54	105	103	104	---	8840	600	440	5620	90	45	74
31	52	---	78	112	---	7440	---	421	---	93	46	---
TOTAL	3306	2198	2841	3052	9677	58151	68780	24193	61048	8371	1716	7052
MEAN	107	73.3	91.6	98.5	346	1876	2293	780	2035	270	55.4	235
MAX	1230	115	110	152	1050	14100	15500	4110	10800	1260	89	1890
MIN	18	44	69	79	104	186	290	338	342	90	31	24
AC-FT	6560	4360	5640	6050	19190	115300	136400	47990	121100	16600	3400	13990

CAL YR 1982	TOTAL	232416	MEAN	637	MAX	19400	MIN	18	AC-FT	461000
WTR YR 1983	TOTAL	250385	MEAN	686	MAX	15500	MIN	18	AC-FT	496600

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK

LOCATION.--Lat 36°30'09", long 96°43'22", in NW 1/4 sec.1, T.23 N., R.5 E., Osage County, Hydrologic Unit 11060006, near left bank on downstream side of pier of bridge on State Highway 18 at Ralston, 2 mi (3.2 km) downstream from Salt Creek, 2 mi (3.2 km) upstream from Grayhorse Creek, and at mile 594.0 (955.7 km).

DRAINAGE AREA.--54,465 mi^2 (141,064 km^2), of which 7,615 mi^2 (19,723 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1925 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1922 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 776.70 ft (236.738 m), National Geodetic Vertical Datum of 1929. Oct. 1, 1925, to Nov. 13, 1935, nonrecording gage at site of former highway bridge 1,200 ft (366 m) downstream at same datum. Nov. 14, 1935 to Feb. 23, 1939, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated since April 1976 by Kaw Lake (station 07148130) 59.7 mi (96.1 km) upstream; some regulation by Great Salt Plains Lake (station 07150000) since 1941.

AVERAGE DISCHARGE.--(Prior to regulation by Kaw Dam) 50 years (water years 1926-75), 4,826 ft^3/s (136.7 m^3/s), 3,496,000 acre-ft/yr (4.31 km^3/yr); (since regulation by Kaw Dam) 7 years (water years 1977-83), 4,115 ft^3/s (116.5 m^3/s), 2,981,000 acre-ft/yr (3.68 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 211,000 ft^3/s (5,980 m^3/s) Oct. 13, 1973, gage height, 22.98 ft (7.004 m); minimum 14 ft^3/s (0.40 m^3/s) Oct. 12, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 11, 1923, reached a stage of 23.8 ft (7.25 m), referred to outside gage on basis of stages observed in 1923 and 1944 at site 1,200 ft (366 m) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,700 ft^3/s (1,440 m^3/s) Apr. 7, gage height, 12.88 ft (3.926 m), minimum daily discharge, 293 ft^3/s (8.30 m^3/s) Oct. 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	434	404	794	2330	3420	23700	6980	11400	23800	1100	544
2	380	477	359	786	2300	3140	12600	6250	10500	17300	1070	464
3	380	477	375	732	2300	2550	25300	5870	9090	15000	1120	416
4	380	490	386	708	2240	2760	34400	5630	7670	14300	1140	423
5	380	503	385	786	2170	3430	29800	5480	7330	13700	1110	469
6	333	496	365	1110	2080	8430	35500	5260	7160	15500	1110	466
7	316	496	336	1230	2080	10800	47800	5610	7120	18700	1030	459
8	305	529	322	1210	2090	10500	41100	6090	7300	18700	960	455
9	327	524	351	1200	2110	10600	31000	6080	7310	15000	904	469
10	316	520	355	1160	2400	9400	28300	6040	7040	12200	876	521
11	1270	529	342	1150	2360	8060	26900	5240	7450	11300	858	475
12	1480	576	330	902	2750	4990	25900	4130	7620	9270	852	435
13	786	576	346	716	3730	3180	25100	6600	13600	7030	793	423
14	591	537	341	693	3310	2760	24600	23000	19300	6370	707	548
15	490	515	323	670	2890	2530	23700	15400	13000	5830	668	1000
16	422	510	315	655	2770	2350	22900	10200	14900	5360	647	1410
17	416	517	315	663	2810	2310	22100	6890	13900	4940	656	2800
18	380	398	316	701	2700	3450	21500	9080	11600	4590	631	3180
19	368	398	322	5030	3060	2680	20900	8430	12000	4230	570	2180
20	316	316	316	6490	4330	2330	17200	8650	11200	4010	632	1600
21	310	310	306	6580	4500	2170	13600	21700	11500	4330	729	1550
22	310	310	311	6310	4590	2160	12600	18200	11600	4840	725	1500
23	305	398	314	3850	4810	2440	12500	19400	11000	3550	658	1400
24	299	327	477	3360	4950	2510	12000	16400	10500	1630	1620	1120
25	293	327	655	3340	4770	2420	11800	11700	9400	1420	1170	940
26	293	333	708	3170	4340	3810	10300	11900	8240	1280	984	805
27	293	490	802	3150	3690	7770	9450	12100	10100	1170	868	743
28	310	495	1050	2990	3510	23600	8120	12800	12000	1100	678	683
29	305	488	893	1320	---	25900	9290	11400	13100	1050	618	646
30	299	483	834	1240	---	17300	8490	11200	18300	1070	584	654
31	299	---	786	1200	---	18500	---	11500	---	1110	594	---
TOTAL	13291	13779	14040	63896	87970	208250	648450	315210	322230	249680	26662	28778
MEAN	429	459	453	2061	3142	6718	21620	10170	10740	8054	860	959
MAX	1480	576	1050	6580	4950	25900	47800	23000	19300	23800	1620	3180
MIN	293	310	306	655	2080	2160	8120	4130	7040	1050	570	416
AC-FT	26360	27330	27850	126700	174500	413100	1286000	625200	639100	495200	52880	57080

CAL YR 1982 TOTAL 1880718 MEAN 5153 MAX 32700 MIN 293 AC-FT 3730000
WTR YR 1983 TOTAL 1992236 MEAN 5458 MAX 47800 MIN 293 AC-FT 3952000

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-63, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1950 to September 1963, July 1968 to current year.
WATER TEMPERATURE: January 1950 to September 1963, July 1968 to current year.

INSTRUMENTATION.--Water quality monitor July 1968 to September 1980.

REMARKS.--Samples were collected by a local observer on a daily basis. Additional samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,510 micromhos Sept. 14, 1955; minimum daily, 157 micromhos Nov. 21, 1979.
WATER TEMPERATURE: Maximum daily, 37.0°C, July 28, 1956; minimum, -0.5°C on many days during winter period.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,270 micromhos Mar. 18; minimum daily, 334 micromhos May 21.
WATER TEMPERATURE: Maximum daily, 33.0°C Aug. 14; minimum daily, 0.0°C on several days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
13...	1340	80020	757	994	8.0	17.5	350	9.0	97	K3300	840	180
DEC												
08...	1600	80020	250	--	8.4	6.0	1.0	11.9	96	23	K20	--
FEB												
09...	1300	80020	2080	1900	7.7	4.0	24	12.8	101	130	390	280
APR												
05...	1500	1028	29300	--	7.5	6.0	650	11.0	91	>1200	>2000	190
JUN												
07...	1500	80020	7100	1350	8.2	25.0	40	10.5	132	58	44	270
AUG												
09...	1300	80020	899	1200	7.8	30.0	5.5	7.8	107	28	130	260

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
13...	66	50	14	130	60	4	5.3	117	75	200	.40	6.5
DEC												
08...	--	--	--	--	--	--	--	186	190	560	.30	3.3
FEB												
09...	119	81	19	250	66	7	4.8	163	110	400	.30	6.2
APR												
05...	76	51	14	140	62	5	4.5	110	85	220	.30	<.4
JUN												
07...	111	75	20	150	54	4	5.1	159	130	240	.30	6.2
AUG												
09...	109	70	21	180	59	5	5.5	154	110	300	.40	6.7

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT												
13...	558	550	.76	1140	.820	.210	.27	2.8	.530	1.6	.160	.020
DEC												
08...	1330	--	1.8	898	.270	.090	.12	1.6	.140	.43	.110	.070
FEB												
09...	1000	970	1.4	5620	.760	.220	.28	1.1	.180	.55	.120	.140
APR												
05...	574	590	.78	45400	.770	.260	.33	3.5	.250	.77	.130	.090
JUN												
07...	735	720	1.0	14100	.460	.080	.10	1.4	.270	.83	.090	.080
AUG												
09...	815	790	1.1	1980	<.100	.080	.10	1.6	.120	.37	.060	.020

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT												
13...	.06	80	3	100	.6	<1	<1	<3	8	19	7	20
DEC												
08...	.21	--	--	--	--	--	--	--	--	--	--	--
FEB												
09...	.43	30	2	190	<.5	4	<1	<3	7	78	<1	26
APR												
05...	.28	310	2	130	<.5	1	<1	<3	5	170	1	16
JUN												
07...	.25	--	--	--	--	--	--	--	--	--	--	--
AUG												
09...	.06	10	3	130	<.5	<1	<1	<3	1	<3	<1	28

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT												
13...	<1	.3	<10	7	1	<1	490	<6	9	593	1210	98
DEC												
08...	--	--	--	--	--	--	--	--	--	11	7.4	73
FEB												
09...	16	<.1	<10	3	1	<1	930	<6	17	38	213	90
APR												
05...	8	<.1	<10	7	1	<1	500	<6	17	878	69500	94
JUN												
07...	--	--	--	--	--	--	--	--	--	261	5000	58
AUG												
09...	11	.3	<10	<1	1	1	810	<6	8	73	177	89

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1840	1870	1600	2200	1790	1880	1080	---	986	769	1530	1500
2	1830	1610	1660	2400	1120	1910	666	1040	963	847	1540	1580
3	1860	1570	1610	2290	1430	2010	1350	1090	1070	1040	1520	1560
4	1850	1540	1610	2210	1880	2020	1080	1130	1230	1050	1410	1660
5	1800	1520	1750	2300	1900	1820	1160	1070	1250	919	---	1640
6	1870	1520	2100	1870	1500	1760	1160	---	1270	1080	1340	1660
7	1870	1500	2420	1910	1770	1530	1020	---	1290	884	1330	1640
8	1780	1520	2460	1740	2090	1210	943	959	1300	890	1390	1570
9	1840	1520	2470	1760	1710	1290	818	966	1320	915	1430	1580
10	1930	1490	2430	1820	1810	1420	798	974	1330	1040	1440	1590
11	2000	1480	2570	1840	1790	1480	765	922	1270	1000	1440	1650
12	1170	1460	2680	---	1930	1710	791	1080	1150	913	1420	1720
13	1010	1480	2700	---	1900	2160	746	1010	1410	1060	1430	1600
14	1160	1510	2740	2190	1560	2460	748	352	678	1020	1440	1580
15	1260	1490	2680	2290	1490	2720	707	529	773	1020	1560	2110
16	1350	1480	2680	2280	1670	2770	640	549	856	996	1600	1130
17	1460	1500	2700	2220	1780	2710	---	809	833	982	---	977
18	1610	1560	2790	2180	1720	3270	616	---	1200	957	---	653
19	1670	1670	2880	1210	1790	1530	560	647	1150	932	1610	573
20	1730	1750	2980	1230	1600	1930	530	774	1080	916	1480	700
21	1760	1850	3070	1240	1560	2170	563	334	1160	896	1590	781
22	1760	1940	2980	1220	1570	2300	627	661	1040	826	1560	862
23	1870	1910	2950	1400	1590	2330	636	604	1050	810	1430	837
24	1850	1780	2560	1380	1600	2010	753	720	1140	997	988	950
25	1770	1650	2240	1400	1480	2140	723	796	1200	1330	1020	1290
26	1820	1610	2210	1420	1540	1060	750	832	1350	1590	1230	1520
27	1840	---	1990	1480	1760	492	816	902	1260	1670	1220	1600
28	1910	1500	1880	1990	1840	768	689	817	1280	1700	1260	1620
29	1790	1490	1940	2120	---	510	557	831	943	1740	1430	1720
30	1810	1510	2220	2090	---	826	763	923	1010	1740	1480	1730
31	1870	---	2270	2170	---	1090	---	927	---	1660	1500	---
MEAN	1710	1600	2380	1860	1680	1780	795	824	1130	1100	1410	1390

WTR YR 1983 MEAN 1480 MAX 3270 MIN 334

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	19.0	11.0	2.0	5.0	9.0	11.0	19.0	18.5	26.5	28.0	25.5
2	22.0	15.0	13.5	3.0	2.0	10.0	8.5	17.0	20.0	27.0	29.0	24.5
3	21.0	9.5	11.5	2.5	.0	14.0	8.5	15.0	21.0	28.5	28.5	27.0
4	20.0	7.5	9.0	2.0	.0	14.5	8.0	16.0	23.0	26.0	27.5	25.0
5	23.0	6.0	9.0	3.0	.0	16.5	7.0	17.0	23.0	24.5	---	25.0
6	21.0	7.0	6.0	3.0	1.0	14.0	6.0	---	19.0	25.5	29.0	24.0
7	17.0	12.0	6.0	4.0	.0	10.5	7.0	---	20.0	26.5	28.5	24.0
8	22.0	13.5	7.0	9.0	3.5	9.5	7.0	15.0	21.0	26.0	27.5	26.0
9	17.0	13.5	3.0	7.0	5.5	6.0	7.0	16.0	21.5	26.0	28.0	24.5
10	14.5	15.0	5.5	7.0	5.0	6.0	8.0	17.0	21.5	27.0	28.5	24.5
11	13.0	17.0	4.0	5.0	5.5	6.0	9.0	17.0	21.0	29.5	29.0	25.0
12	15.5	10.0	.0	---	6.0	7.5	11.0	20.0	22.5	27.0	28.0	25.0
13	13.5	5.0	.0	---	7.0	11.0	7.0	20.0	23.0	27.5	33.0	23.0
14	17.0	5.0	2.0	8.0	6.0	12.0	6.0	18.0	22.0	26.5	28.0	20.0
15	18.0	3.0	3.0	6.0	9.5	14.0	7.0	15.0	22.0	25.5	28.0	21.0
16	19.0	4.5	4.0	4.5	11.5	13.5	9.0	15.5	26.0	25.0	28.5	22.5
17	14.5	5.5	4.5	3.0	8.5	10.0	---	19.5	23.0	25.5	---	24.0
18	13.5	9.0	8.5	2.0	8.0	8.0	10.0	---	24.0	26.5	---	25.0
19	17.5	12.0	6.0	1.5	11.0	7.5	9.0	16.5	25.5	27.0	27.0	24.5
20	10.0	17.0	4.5	3.0	11.5	5.5	8.0	20.0	25.0	28.0	25.0	20.0
21	10.0	11.0	5.0	3.0	10.0	4.0	10.0	18.5	26.0	27.5	26.5	18.0
22	10.0	12.0	9.5	2.5	9.0	5.0	10.0	19.5	26.0	27.0	28.0	16.0
23	10.0	7.5	10.0	4.5	9.0	5.5	11.0	18.5	26.5	28.0	28.0	16.0
24	11.0	2.5	12.0	4.0	8.5	6.5	13.0	20.0	26.0	28.0	31.5	16.5
25	11.0	5.0	7.5	5.0	6.0	7.5	12.0	24.5	27.0	28.0	28.0	18.0
26	12.0	7.0	4.0	4.0	6.0	9.0	14.0	21.0	26.5	28.0	27.5	18.5
27	14.0	---	4.5	2.5	9.0	7.5	14.0	24.0	25.0	28.5	28.0	21.5
28	15.5	5.0	1.5	5.5	7.0	6.0	17.0	22.5	24.5	27.5	28.0	21.0
29	14.5	4.5	.0	6.0	---	7.5	16.0	23.0	27.0	26.5	28.0	21.0
30	12.5	7.0	.0	6.0	---	8.0	18.0	20.0	25.5	28.0	28.0	22.0
31	17.0	---	2.0	6.0	---	8.0	---	23.5	---	27.5	27.0	---
MEAN	15.5	9.0	5.5	4.5	6.0	9.0	10.0	19.0	23.5	27.0	28.0	22.5

WTR YR 1983 MEAN 15.0 MAX 33.0 MIN .0

ARKANSAS RIVER BASIN

07153000 BLACK BEAR CREEK AT PAWNEE, OK

LOCATION.--Lat 36°20'37", long 96°47'57", on east line of SE 1/4 NE 1/4 sec.31, T.22 N., R.5 E., Pawnee County, Hydrologic Unit 11060006, on downstream side of left pier of bridge on State Highway 18 in north Pawnee, 300 ft (91.4 m) downstream from Skedee Creek, and at mile 23.4 (37.7 km).

DRAINAGE AREA.--576 mi^2 (1,492 km^2).

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 802.73 ft (244.672 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1944, nonrecording gage at present site and datum except for Aug. 27, 1953, to Apr. 29, 1954, nonrecording gage at site 500 ft (152 m) downstream at same datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--39 years, 170 ft^3/s (4.814 m^3/s), 123,200 acre-ft/yr (152 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 30,200 ft^3/s (855 m^3/s) Oct. 3, 1959, gage height, 31.43 ft (9.580 m); no flow at times in many years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1943, reached a stage of 28.19 ft (8.592 m), from floodmark, discharge 17,800 ft^3/s (504 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,480 ft^3/s (155 m^3/s) at 1200 May 21, gage height, 13.86 ft (4.225 m); no other peak above base of 4,000 ft^3/s (113 m^3/s); minimum daily discharge, 0.24 ft^3/s (0.007 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	1.3	34	4.5	367	8.6	180	32	382	172	5.0	2.7
2	.33	1.3	14	4.2	241	7.4	132	36	279	97	5.0	2.6
3	.33	1.3	5.0	3.7	88	7.8	104	30	221	60	4.9	2.8
4	.48	1.3	4.2	3.3	42	103	90	24	182	44	4.9	3.2
5	.59	1.2	4.1	3.0	24	185	1650	21	152	32	4.8	3.9
6	.53	1.2	3.5	2.9	18	107	1960	18	145	23	4.9	4.2
7	.59	1.2	3.3	2.7	14	55	853	22	133	19	5.9	3.9
8	.30	1.2	3.0	2.6	15	31	488	16	107	17	6.1	3.8
9	.26	1.1	3.1	2.7	26	21	340	15	93	14	5.3	4.0
10	.30	1.2	4.4	2.2	33	15	249	17	62	12	5.2	4.3
11	.30	1.6	4.1	2.1	23	12	182	18	343	11	5.0	4.9
12	.33	1.4	3.6	2.1	21	9.0	138	15	563	10	4.4	5.2
13	.75	1.2	3.3	2.0	18	7.6	118	942	330	8.0	4.0	4.2
14	.90	1.1	3.1	2.0	16	7.2	100	3000	202	7.8	3.4	5.3
15	1.2	1.1	3.1	1.9	11	7.2	62	3420	123	6.8	3.3	41
16	1.2	1.1	3.1	1.9	8.7	6.9	49	3270	82	6.3	3.6	18
17	1.3	1.2	3.0	1.9	7.0	6.0	42	1290	59	7.0	4.1	8.0
18	1.3	1.5	3.1	1.9	5.9	5.9	36	2820	48	6.9	4.2	7.9
19	1.4	1.7	3.0	2.2	5.5	7.2	33	2460	86	6.6	3.9	5.5
20	1.3	1.7	2.7	2.2	7.9	7.9	30	1020	100	5.9	4.1	8.1
21	1.3	1.7	2.9	2.2	57	7.4	28	4480	65	6.0	4.2	3.1
22	1.3	2.2	3.1	2.6	244	7.5	28	4340	50	5.8	3.9	2.8
23	1.3	1.7	3.5	2.5	133	8.4	46	4390	40	6.4	3.6	2.2
24	1.3	1.7	48	2.6	60	8.7	53	2010	34	6.4	3.9	2.2
25	1.3	2.0	25	3.0	31	11	67	1200	32	6.3	3.9	3.2
26	1.2	3.6	9.1	4.1	20	811	55	865	25	6.0	3.9	3.2
27	1.2	8.3	21	3.5	15	1160	43	584	209	5.7	3.6	2.7
28	1.5	20	46	3.5	11	489	36	1060	473	5.6	4.2	2.3
29	1.3	24	18	4.3	---	270	31	679	1110	5.4	4.1	2.0
30	1.2	25	6.8	4.0	---	364	27	1190	334	5.0	3.3	2.0
31	1.2	---	4.8	26	---	286	---	549	---	5.0	3.1	---
TOTAL	28.03	116.1	298.9	110.3	1563.0	4040.7	7250	39833	6064	629.9	133.7	169.2
MEAN	.90	3.87	9.64	3.56	55.8	130	242	1285	202	20.3	4.31	5.64
MAX	1.5	25	48	26	367	1160	1960	4480	1110	172	6.1	41
MIN	.24	1.1	2.7	1.9	5.5	5.9	27	15	25	5.0	3.1	2.0
AC-FT	56	230	593	219	3100	8010	14380	79010	12030	1250	265	336

CAL YR 1982	TOTAL 61695.49	MEAN 169	MAX 5050	MIN .12	AC-FT 122400				
WTR YR 1983	TOTAL 60236.83	MEAN 165	MAX 4480	MIN .24	AC-FT 119500				

ARKANSAS RIVER BASIN

07154500 CIMARRON RIVER NEAR KENTON, OK

LOCATION.--Lat 36°55'36", long 102°57'31", in SE 1/4 sec. 4, T.5 N., R.1 E., Cimarron County, Hydrologic Unit 11040001, near right bank on downstream side of pier of county road bridge, 1.5 mi (2.4 km) upstream from North Carrizo Creek, 1.7 mi (2.7 km) northeast of Kenton, 2.2 mi (3.5 km) downstream from Carrizozo Creek, and at mile 594.0 (955.7 km).

DRAINAGE AREA.--1,106 mi^2 (2,865 km^2), of which 68 mi^2 (176.1 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1904 to July 1905 (gage heights only), October 1950 to current year.

REVISED RECORDS.--WSP 1711: 1956 (M).

GAGE.--Water-stage recorder. Datum of gage is 4,262.08 ft (1,299.082 m) National Geodetic Vertical Datum of 1929, (levels by State Highway Department). April 1904 to July 1905 nonrecording gage at site 0.9 mi (1.45 km) upstream at different datum. Oct. 1, 1950, to Sept. 19, 1967, water-stage recorder at same site and at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records poor. Extensive diversions for irrigation above station.

AVERAGE DISCHARGE.--33 years (water years 1951-83), 21.5 ft^3/s (0.609 m^3/s), 15,580 acre-ft/yr (19.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,400 ft^3/s (1,230 m^3/s) Oct. 17, 1965, gage height, 22.32 ft (6.803 m); present datum, from rating curve extended above 7,000 ft^3/s (198 m^3/s) on basis of contracted-opening measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 311 ft^3/s (8.81 m^3/s) Apr. 26, gage height, 7.91 ft (2.411 m), no peak above base of 2,000 ft^3/s (56.6 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	1.4	1.5	4.0	5.2	4.6	6.9	75	4.6	1.1	8.5	.00
2	4.4	1.8	1.3	4.4	4.8	5.6	6.5	64	4.6	.64	2.8	.00
3	4.1	1.9	1.5	4.1	4.2	3.1	6.4	53	3.9	.43	.46	.00
4	3.2	1.9	2.3	5.6	4.7	2.7	8.8	19	3.1	.29	.00	.00
5	1.9	2.3	2.9	8.3	3.8	2.9	7.9	13	2.6	.23	.00	.00
6	1.0	2.2	2.4	8.8	4.0	2.6	7.2	11	4.3	.20	.00	.00
7	.95	1.9	2.0	8.6	3.4	2.4	7.4	8.8	4.7	.16	.00	.00
8	1.3	1.9	1.6	8.3	4.1	2.1	7.4	7.8	4.3	.12	.00	.00
9	1.1	1.8	2.0	7.5	5.6	2.1	7.2	7.3	4.0	.08	.00	.00
10	.80	1.6	2.0	6.6	7.5	2.1	6.2	6.9	3.5	.02	.00	.00
11	.97	1.9	1.8	6.2	7.6	2.0	5.8	6.5	3.1	.00	.00	.00
12	1.4	.70	1.6	5.2	7.5	2.0	9.2	6.0	2.7	.00	.00	.00
13	1.5	.18	2.7	4.6	7.6	1.8	8.0	5.4	2.0	.00	.00	.00
14	1.7	.11	4.3	4.0	7.4	1.9	5.0	5.1	1.4	.00	.00	.00
15	1.7	.81	3.9	3.1	7.0	2.2	3.7	4.9	.96	.00	.00	.00
16	1.4	1.5	4.7	2.6	6.9	4.0	3.6	4.8	.66	.00	.00	.00
17	1.1	1.5	5.0	1.9	6.7	3.2	4.9	4.6	.70	.00	.00	.00
18	1.0	1.9	5.2	1.9	5.8	2.9	3.2	4.1	.68	.00	.00	.00
19	.87	2.1	5.8	1.9	3.2	4.2	3.9	3.9	.53	.00	.00	.00
20	.89	.58	6.0	1.6	2.8	4.0	3.3	5.5	.21	.00	.00	.00
21	1.1	.17	5.6	2.0	2.7	4.8	46	6.6	.02	.00	.00	.00
22	1.3	.17	5.7	2.7	2.3	7.9	167	6.1	.00	.00	.00	.00
23	1.4	.15	5.9	3.3	2.1	8.7	180	5.7	.21	.00	.00	.00
24	1.4	.99	6.2	3.0	1.9	8.1	223	5.1	.25	.00	.00	.00
25	1.3	1.5	5.8	6.0	2.1	7.7	228	4.6	.31	.00	.00	.00
26	1.2	1.5	5.1	6.4	2.0	7.3	222	4.4	1.8	.00	.00	.00
27	1.1	1.7	6.1	6.5	1.9	6.5	195	4.1	4.0	.00	.00	.00
28	1.0	2.0	6.7	6.6	2.1	6.4	177	3.8	3.1	.00	.00	.00
29	1.1	1.8	4.3	6.3	---	6.6	146	3.2	2.6	.00	.00	.00
30	1.3	1.7	4.1	6.4	---	6.4	96	3.7	1.8	.00	.00	.00
31	1.2	---	3.9	6.0	---	7.3	---	4.4	---	30	.00	---
TOTAL	48.18	41.66	119.9	154.4	126.9	136.1	1802.5	368.3	66.63	33.27	11.76	.00
MEAN	1.55	1.39	3.87	4.98	4.53	4.39	60.1	11.9	2.22	1.07	.38	.00
MAX	4.4	2.3	6.7	8.8	7.6	8.7	228	75	4.7	30	8.5	.00
MIN	.80	.11	1.3	1.6	1.9	1.8	3.2	3.2	.00	.00	.00	.00
AC-FT	96	83	238	306	252	270	3580	731	132	66	23	.00

CAL YR 1982	TOTAL	4724.13	MEAN	12.9	MAX	619	MIN	.00	AC-FT	9370
WTR YR 1983	TOTAL	2909.60	MEAN	7.97	MAX	228	MIN	.00	AC-FT	5770

ARKANSAS RIVER BASIN

07156900 CIMARRON RIVER NEAR FORGAN, OK

LOCATION.--Lat 37°00'45", long 100°29'30", in SE 1/4 SE 1/4 sec.8, T.35 S., R.24 E., Mead County, Kans., Hydrologic Unit 11040006, near center of span on downstream side of pier of bridge on Kansas State Highway 23, 0.8 mi (1.3 km) north of Oklahoma-Kansas State Line, 7.8 mi (12.5 km) north of Forgan, and at mile 375.7 (604.5 km).

DRAINAGE AREA.--8,536 mi^2 (22,108 km^2), of which 4,316 mi^2 (11,178 km^2)is probably noncontributing.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,326.05 ft (708.980 m) (National Geodetic Vertical Datum of 1929).

REMARKS.--Records fair. Extensive diversion for irrigation above station.

AVERAGE DISCHARGE.--18 years, 75.9 ft^3/s (2.149 m^3/s), 54,990 acre-ft/yr (67.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft^3/s (600 m^3/s) Oct. 20, 1965, gage height, 8.10 ft (2.469 m); minimum, 15 ft^3/s (0.42 m^3/s) July 27, Aug. 17, 18, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,240 ft^3/s (35.1 m^3/s) June 10, gage height, 4.34 ft (1.323 m), no peak above base of 3,000 ft^3/s (85.0 m^3/s); minimum daily discharge, 15 ft^3/s (0.42 m^3/s) July 27, Aug. 17, 18, 1983.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	29	32	34	42	50	79	51	48	37	21	24
2	42	32	34	28	35	49	62	49	45	34	21	24
3	36	33	38	30	31	48	57	50	44	32	19	24
4	36	32	37	31	32	48	78	48	45	33	18	24
5	31	36	38	32	29	49	69	52	51	32	18	25
6	32	35	35	34	29	50	75	52	50	30	17	24
7	32	34	35	35	28	51	65	51	47	29	18	24
8	31	35	38	39	34	48	59	50	44	28	18	23
9	32	38	41	40	44	49	57	47	43	25	18	20
10	30	37	37	37	56	47	55	46	207	24	17	22
11	31	38	34	39	56	46	49	47	159	24	16	25
12	33	40	34	41	54	47	45	48	51	25	16	25
13	31	39	39	43	52	47	54	91	43	25	16	49
14	30	41	42	42	52	44	58	125	42	23	18	41
15	32	42	42	41	53	45	52	50	42	21	17	36
16	31	42	42	43	52	58	50	44	49	22	16	31
17	32	39	41	47	55	52	53	41	53	22	15	29
18	29	38	39	45	53	48	48	41	48	21	15	30
19	30	39	40	44	48	55	49	40	43	18	16	29
20	29	39	42	45	48	51	50	81	41	17	17	31
21	31	40	45	48	45	43	54	83	40	16	21	32
22	33	42	42	49	46	45	56	56	38	17	24	32
23	32	42	42	48	49	49	52	49	35	17	23	32
24	34	41	41	49	50	48	51	46	34	18	22	30
25	33	38	41	50	52	56	48	44	37	18	21	30
26	31	37	39	49	53	54	46	47	42	18	21	30
27	31	37	37	46	54	51	47	48	39	15	21	29
28	33	39	34	45	52	48	48	46	41	18	21	28
29	32	37	31	45	---	52	49	45	42	22	23	29
30	30	35	31	45	---	49	53	55	39	20	24	29
31	31	---	32	44	---	48	---	54	---	22	23	---
TOTAL	1008	1126	1175	1288	1284	1525	1668	1677	1582	723	591	861
MEAN	32.5	37.5	37.9	41.5	45.9	49.2	55.6	54.1	52.7	23.3	19.1	28.7
MAX	47	42	45	50	56	58	79	125	207	37	24	49
MIN	29	29	31	28	28	43	45	40	34	15	15	20
AC-FT	2000	2230	2330	2550	2550	3020	3310	3330	3140	1430	1170	1710

CAL YR 1982	TOTAL	17646	MEAN	48.3	MAX	614	MIN	24	AC-FT	35000
WTR YR 1983	TOTAL	14508	MEAN	39.7	MAX	207	MIN	15	AC-FT	28780

ARKANSAS RIVER

07157580 CIMARRON RIVER NEAR ENGLEWOOD, KS

LOCATION.--Lat 36°58'38", long 99°58'32", in SE 1/4 sec.23, T.9 N., R.26 W., Harper County, Ok, Hydrologic Unit 11040008, on the downstream side of bridge on U.S. Highway 283, 4 mi (6.4 km) south of Englewood, Kansas, 10.5 mi (16.9 km) north of junction of U.S. Highways 283 and 64, and at mile 341.6 (549.6 km).

DRAINAGE AREA.--10,096 mi^2 (26,149 km^2), of which 4,813 mi^2 (12,466 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 11, 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,965.62 ft (599.121 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft^3/s (44.2) June 10, 1983, gage height, 7.11 ft (2.167 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 1,560 ft^3 (44.2 m^3) June 10, gage height, 7.11 ft (2.167 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	25	35	29	44	65	226	60	33	42	.00	.00
2	35	27	26	24	32	86	171	52	27	31	.00	.00
3	27	25	24	25	19	89	84	50	22	26	.00	.00
4	21	21	36	31	15	102	188	58	16	20	.00	.00
5	21	22	47	41	11	115	148	59	23	22	.00	.00
6	17	26	40	61	13	136	171	10	26	19	.00	.00
7	13	29	37	92	12	117	131	.02	26	16	.00	.00
8	17	28	36	73	93	102	120	1.2	20	13	.00	.00
9	20	29	43	85	173	78	113	.00	17	9.5	.00	.00
10	14	26	58	82	199	61	109	.00	981	7.4	.00	.00
11	15	26	47	75	213	61	127	.00	502	6.0	.00	.00
12	20	23	40	76	119	54	104	.00	55	5.3	.00	.00
13	23	21	38	66	85	72	96	21	92	4.1	.00	.00
14	19	22	46	74	78	76	66	250	84	3.2	.00	.00
15	16	21	36	74	67	63	51	60	92	3.1	.00	.00
16	18	31	35	81	65	100	71	16	121	2.8	.00	.00
17	20	34	40	90	96	115	74	2.0	125	3.6	.00	.00
18	21	35	29	86	121	94	69	.00	181	2.1	.00	.00
19	19	34	39	68	103	106	64	.00	154	1.1	.00	.00
20	18	32	37	65	93	108	62	86	94	.48	.00	.00
21	19	32	38	41	121	81	63	255	79	.02	.00	.00
22	22	34	30	31	102	105	66	41	73	.00	.00	.00
23	24	36	34	29	88	117	77	24	72	.00	.00	.00
24	25	24	36	45	87	138	69	20	73	.00	.00	.00
25	26	31	33	67	97	126	60	24	64	.00	.00	.00
26	23	39	31	60	82	106	52	19	71	.00	.00	.00
27	22	29	47	57	80	63	57	18	65	.00	.00	.00
28	25	48	28	61	72	60	66	21	74	.00	.00	.01
29	21	49	24	47	---	89	70	16	67	.00	.00	.03
30	21	40	23	42	---	86	71	37	48	.00	.00	.07
31	23	---	22	66	---	91	---	42	---	.00	.00	---
TOTAL	636	899	1115	1844	2380	2862	2896	1242.22	3377	237.70	.00	.11
MEAN	20.5	30.0	36.0	59.5	85.0	92.3	96.5	40.1	113	7.67	.00	.00
MAX	35	49	58	92	213	138	226	255	981	42	.00	.07
MIN	11	21	22	24	11	54	51	.00	16	.00	.00	.00

WTR YR 1983 TOTAL 17489.03 MEAN 47.9 MAX 981 MIN .00

ARKANSAS RIVER BASIN

07157580 CIMARRON RIVER NEAR ENGLEWOOD, KS--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year February, 1982 to current year.

REMARKS.--Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT												
15...	1730	80020	14	3900	8.5	21.0	--	8.3	101	410	260	87
NOV												
18...	1400	80020	35	3700	8.0	9.5	--	10.1	97	420	233	100
DEC												
14...	1300	80020	46	3640	8.3	6.0	90	11.3	101	460	270	110
FEB												
08...	1500	80020	111	3390	8.0	.0	290	13.3	100	440	247	110
MAR												
15...	1545	80020	52	3830	8.2	11.0	80	10.3	103	420	254	100
APR												
26...	2015	80020	50	3880	8.3	19.5	65	8.5	102	420	255	94
JUN												
23...	1330	80020	72	3100	8.5	32.5	65	6.8	102	400	213	99

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)
OCT											
15...	46	660	78	15	6.5	147	210	1100	2140	2.9	79
NOV											
18...	42	620	76	14	6.2	190	190	1000	2080	2.8	197
DEC											
14...	46	570	72	12	5.6	195	200	990	2050	2.8	252
FEB											
08...	40	500	71	11	4.9	193	180	790	1780	2.4	533
MAR											
15...	41	590	75	13	5.9	165	200	980	2080	2.8	293
APR											
26...	44	660	77	15	6.8	161	240	1000	2030	2.8	274
JUN											
23...	37	530	74	12	11	187	180	850	1840	2.5	358

ARKANSAS RIVER BASIN

07157950 CIMARRON RIVER NEAR BUFFALO, OK

LOCATION.--Lat 36°51'07", long 99°18'54", in SE 1/4 NE 1/4 sec.2, T.27 N., R.20 W., Harper County, Hydrologic Unit 11050001, near left bank on downstream side of pier of U.S. Highway 64, 0.5 mi (0.8 km) downstream from Keno Creek, 17.0 mi (27.4 km) northeast of Buffalo, and at mile 289.1 (465.2 km).

DRAINAGE AREA.--12,004 mi^2 (31,090 km^2), of which 4,813 mi^2 (12,466 km^2)is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,599.67 ft (487.579 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1979, at site 6.9 mi (11.1 km) upstream at an altitude of 1,650 ft (502.9 m).

REMARKS.--Records fair.

AVERAGE DISCHARGE.--23 years, 143 ft^3/s (4.050 m^3/s), 103,600 acre-ft/yr (128 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 26,400 ft^3/s (748 m^3/s) Sept. 26, 1973, gage height, 5.57 ft (1.698 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,260 ft^3/s (92.3 m^3/s) June 11 at 1230, gage height, 7.39 ft (2.252 m), no other peak above base of 3,000 ft^3/s (85.0 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.15	6.7	21	27	83	978	101	304	161	.25	.00
2	.03	.13	9.5	14	6.2	80	761	91	323	115	.05	.00
3	.00	.16	9.3	16	8.0	86	434	83	266	85	.00	.00
4	.00	.17	11	18	18	106	347	70	193	65	.01	.00
5	.00	.18	11	24	21	96	592	60	192	60	.00	.00
6	.00	.18	9.6	33	31	99	563	60	171	50	.00	.00
7	.00	.18	12	80	28	109	457	48	156	44	.00	.00
8	.02	.18	9.7	148	31	113	384	28	142	39	.00	.00
9	.00	.20	9.0	144	116	96	350	20	123	32	.00	.00
10	.00	.21	25	96	151	80	309	20	413	25	.00	.00
11	.00	.33	28	75	253	75	246	18	2770	21	.00	.00
12	.01	.30	31	61	220	72	206	15	2350	18	.00	.00
13	.02	.29	41	57	179	72	188	21	1240	12	.00	165
14	.04	.29	49	58	159	66	163	466	874	8.9	.00	119
15	.05	.30	50	51	147	64	159	876	637	7.3	.00	25
16	.05	.31	40	50	132	89	146	434	456	6.4	.00	6.2
17	.06	.30	39	46	136	92	138	269	401	6.9	.00	6.7
18	.07	.32	40	33	151	128	120	168	362	5.6	.00	5.2
19	.06	.36	38	31	147	144	114	98	332	3.9	.00	3.5
20	.03	.29	36	24	140	147	110	97	273	3.1	.00	2.4
21	.06	.29	35	33	136	143	113	241	217	2.4	.00	1.7
22	.08	.30	35	40	132	140	118	960	175	1.9	.00	1.4
23	.10	.26	39	39	132	144	128	567	145	1.5	.00	1.3
24	.11	.26	47	99	124	155	124	371	120	1.2	.00	1.3
25	.12	.28	49	137	106	171	109	304	153	1.0	.00	1.3
26	.12	.35	34	117	102	243	105	275	141	.88	.00	1.3
27	.13	3.0	54	83	92	252	83	238	487	.56	.00	1.3
28	.14	8.4	30	70	89	230	77	219	465	.42	.00	1.2
29	.14	4.5	17	70	---	201	86	246	326	9.3	.00	1.5
30	.15	4.1	13	59	---	184	94	250	229	2.5	.00	1.6
31	.15	---	17	66	---	175	---	267	---	.87	.00	---
TOTAL	1.74	26.57	874.8	1893	3014.2	3935	7802	6981	14436	791.63	.31	346.90
MEAN	.06	.89	28.2	61.1	108	127	260	225	481	25.5	.01	11.6
MAX	.15	8.4	54	148	253	252	978	960	2770	161	.25	165
MIN	.00	.13	6.7	14	6.2	64	77	15	120	.42	.00	.00
AC-FT	3.5	53	1740	3750	5980	7810	15480	13850	28630	1570	.6	688

CAL YR 1982	TOTAL	36922.55	MEAN	101	MAX	1680	MIN	.00	AC-FT	73240
WTR YR 1983	TOTAL	40103.15	MEAN	110	MAX	2770	MIN	.00	AC-FT	79540

07157950 CIMARRON RIVER NEAR BUFFALO, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on U.S. Highway 64.

PERIOD OF RECORD.--Water years 1953, 1961-63, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to Jan. 1982.
WATER TEMPERATURE: July 1968 to Jan. 1982.

INSTRUMENTATION.--Water quality monitor from March 1969 to September 1979.

REMARKS.--Samples were collected quarterly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 109,000 micromhos July 20, 21, 1980; minimum daily, 1,020 micromhos July 2, 1975.
WATER TEMPERATURE: Maximum daily, 38.0°C Aug. 14, 1974; minimum daily, -0.5°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
NOV												
09...	1130	80020	.21	14000	8.1	15.0	1.3	11.1	123	22	200	1500
FEB												
10...	1600	80020	153	13400	8.1	2.5	270	12.2	101	190	410	540
MAY												
19...	1300	80020	99	4840	8.3	17.5	40	8.9	102	130	3600	610

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV												
09...	1290	450	82	2900	81	34	6.6	181	1200	4800	.30	21
FEB												
10...	354	130	51	2600	91	50	6.3	184	310	4100	.70	14
MAY												
19...	387	150	57	800	74	15	7.5	225	360	1300	.80	18

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
NOV												
09...	9320	9600	12.7	5.3	<.100	<.060	.08	.70	.010	.03	.010	<.010
FEB												
10...	7480	7300	10.2	3090	.480	<.060	.08	1.6	.260	.80	.070	.060
MAY												
19...	2810	2800	3.8	751	<.100	<.060	--	.60	.080	.25	.020	.020

ARKANSAS RIVER BASIN

07157950 CIMARRON RIVER NEAR BUFFALO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
09...	--	20	1	100	<10	1	<1	<1	4	90	1	50
FEB												
10...	.18	10	2	100	<10	<1	<1	1	3	20	6	60
MAY												
19...	.06	10	3	100	<10	<1	<1	<1	1	20	2	60

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
09...	370	<.1	1	1	1	<1	2900	38	30	2	63
FEB											
10...	20	<.1	--	<1	1	<1	2200	87	20	254	97
MAY											
19...	20	<.1	7	1	2	<1	2100	19	20	71	86

ARKANSAS RIVER BASIN

07157960 BUFFALO CREEK NEAR LOVEDALE, OK

LOCATION.--Lat 36°46'08", long 99°21'58", in NW 1/4 NW 1/4 sec.4, T.26 N., R.20 W., Harper County, Hydrologic Unit 11050001, near center of channel on downstream side of pier of bridge on State Highway 34, 1.2 mi (1.9 km) east of Lovedale, 1.3 mi (2.1 km) upstream from Sleeping Bear Creek, and at mile 7.6 (12.2 km).

DRAINAGE AREA.--408 mi^2 (1,057 km^2).

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,602.56 ft (488.460 m) Oklahoma State Highway Department datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--17 years, 10.0 ft^3/s (0.283 m^3/s), 7,245 acre-ft/yr (8.93 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 15,800 ft^3/s (447 m^3/s) Aug. 9, 1967, gage height, 14.80 ft (4.511 m), from rating curve extended above 7,000 ft^3/s (198 m^3/s) on basis of slope-area determination of peak flow; maximum gage height, 16.17 ft (4.929 m) May 10, 1979; no flow each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 103 ft^3/s (2.92 m^3/s) Apr. 1, gage height, 6.50 ft (1.981 m), no peak above base of 1,000 ft^3/s (28.3 m^3/s); no flow July 26 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.30	1.7	2.1	3.2	5.8	40	11	9.0	8.6	.00	.00
2	.17	.29	1.6	2.0	3.3	5.4	35	9.5	8.3	4.7	.00	.00
3	.16	.27	1.4	2.0	3.7	5.5	31	9.0	7.5	2.7	.00	.00
4	.14	.29	1.5	2.0	3.7	6.8	26	8.6	6.5	1.8	.00	.00
5	.12	.31	1.5	2.1	3.7	7.2	29	8.3	5.6	1.4	.00	.00
6	.10	.35	1.4	2.2	3.7	7.8	32	7.6	5.5	1.3	.00	.00
7	.10	.46	1.3	2.2	3.4	6.7	30	6.9	5.1	1.1	.00	.00
8	.17	.53	1.3	2.3	4.3	5.8	28	6.5	4.9	.93	.00	.00
9	.16	.63	1.3	2.3	5.3	5.5	27	6.3	4.2	.80	.00	.00
10	.12	.70	1.8	2.1	5.9	5.1	24	6.2	41	.72	.00	.00
11	.13	.75	1.9	2.0	6.7	4.9	22	6.3	36	.64	.00	.00
12	.16	.57	1.7	2.1	7.6	4.8	20	6.1	25	.58	.00	.00
13	.18	.59	1.7	2.1	8.7	4.7	17	6.5	22	.53	.00	.00
14	.18	.61	1.6	1.9	9.3	4.5	16	14	23	.47	.00	.00
15	.19	.66	1.5	1.8	8.7	4.4	15	15	15	.42	.00	.00
16	.19	.75	1.5	1.7	7.4	6.2	14	15	11	.38	.00	.00
17	.19	.80	1.5	1.8	7.1	12	14	12	9.1	.31	.00	.00
18	.17	.91	1.6	2.0	8.3	11	13	9.4	7.8	.28	.00	.00
19	.15	1.0	1.5	2.3	8.6	12	13	7.9	6.0	.24	.00	.00
20	.15	1.0	1.5	2.4	7.6	13	12	7.4	4.6	.17	.00	.00
21	.19	.94	1.5	2.5	8.5	12	13	14	3.6	.13	.00	.00
22	.23	.96	1.6	2.6	11	12	13	14	3.0	.11	.00	.00
23	.24	.89	1.7	2.7	9.7	13	13	10	2.5	.07	.00	.00
24	.24	.89	1.8	2.8	8.7	14	13	8.8	2.1	.04	.00	.00
25	.25	.96	1.7	2.8	7.7	15	13	8.1	2.7	.03	.00	.00
26	.23	1.1	1.6	2.7	6.8	19	11	7.5	2.7	.00	.00	.00
27	.22	1.5	2.3	2.6	6.2	24	11	9.8	3.7	.00	.00	.00
28	.22	2.0	2.8	2.6	5.8	22	11	12	13	.00	.00	.00
29	.23	2.0	2.6	2.5	---	18	11	8.9	11	.00	.00	.00
30	.25	1.9	2.3	2.5	---	16	11	8.1	10	.00	.00	.00
31	.28	---	2.0	2.8	---	15	---	9.2	---	.00	.00	---
TOTAL	5.63	24.91	52.7	70.5	184.6	319.1	578	289.9	311.4	28.45	.00	.00
MEAN	.18	.83	1.70	2.27	6.59	10.3	19.3	9.35	10.4	.92	.00	.00
MAX	.28	2.0	2.8	2.8	11	24	40	15	41	8.6	.00	.00
MIN	.10	.27	1.3	1.7	3.2	4.4	11	6.1	2.1	.00	.00	.00
AC-FT	11	49	105	140	366	633	1150	575	618	56	.00	.00

CAL YR 1982	TOTAL	2874.14	MEAN	7.87	MAX	435	MIN	.09	AC-FT	5700
WTR YR 1983	TOTAL	1865.19	MEAN	5.11	MAX	41	MIN	.00	AC-FT	3700

ARKANSAS RIVER BASIN

07158000 CIMARRON RIVER NEAR WAYNOKA, OK

LOCATION.--Lat 36°31'02", long 98°52'45", in NW 1/4 NE 1/4 sec.35, T.24 N., R.16 W., Woods County, Hydrologic Unit 11050001, near left bank on downstream side of bridge on U.S. Highway 281, 4 mi (6 km) south of Waynoka, and at mile 247.0 (397.4 km).

DRAINAGE AREA.--13,334 mi^2 (34,535 km^2), of which 4,830 mi^2 (12,510 km^2) is probably noncontributing.

PERIOD OF RECORD.--September 1903 to December 1905 (gage heights and discharge measurements only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 1,367.35 ft (416.768 m) National Geodetic Vertical Datum of 1929. September 1903 to December 1905, nonrecording gage at the Atchison, Topeka and Santa Fe Railway Co. bridge 5 mi (8 km) upstream at different datum. Feb. 4 to Mar. 3, 1938, nonrecording gage and Mar. 4, 1938, to Oct. 24, 1956, water-stage recorder, on former highway bridge 50 ft (15.2 m) downstream at present datum.

REMARKS.--Records fair. Extensive diversions for irrigation above station.

AVERAGE DISCHARGE.--46 years, (water years 1938-83), 329 ft^3/s (9.317 m^3/s), 238,400 acre-ft/yr (294 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,500 ft^3/s (2,680 m^3/s) May 16, 1957, gage height, 15.10 ft (4.602 m), from rating curve extended above 45,000 ft^3/s (1,270 m^3/s) on basis of contracted-opening measurement of peak flow; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 14 ft (4.3 m) occurred probably in 1914.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,500 ft^3/s (354 m^3/s) at 1515 June 28, gage height, 8.39 ft (2.557 m), no other peak above base of 10,000 ft^3/s (283 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.47	16	29	184	105	2500	229	409	375	.00	.00
2	.56	.38	14	31	150	99	1510	222	381	242	.00	.00
3	.28	.34	12	34	53	119	1020	203	393	164	.00	.00
4	.14	.36	17	33	63	522	700	193	359	115	.00	.00
5	.00	.35	21	37	67	302	772	178	305	89	.00	.00
6	.00	.51	22	32	65	278	1240	163	267	71	.00	.00
7	.00	.65	18	35	82	234	944	147	261	55	.00	1.4
8	.56	.81	14	40	83	193	799	138	220	45	.00	.00
9	.00	1.1	15	63	108	175	862	132	200	34	.00	.00
10	.00	1.3	21	98	142	149	725	122	572	26	.00	.00
11	.00	1.3	33	83	189	130	617	118	3270	20	.00	.00
12	.00	.23	30	65	254	119	502	113	5630	14	.00	.00
13	.00	.63	26	58	224	112	419	109	3690	8.2	.00	150
14	.02	.64	26	54	191	110	394	769	2020	4.3	.00	555
15	.03	.92	29	52	169	113	341	588	1120	2.4	.00	153
16	.00	1.2	29	51	153	144	312	956	696	1.2	.00	97
17	.01	1.3	30	50	145	190	287	531	458	.54	.00	14
18	.00	1.4	29	46	162	164	265	417	391	.00	.00	7.6
19	.00	1.3	28	34	170	205	251	318	339	.00	.00	3.5
20	.00	.70	27	49	157	299	251	249	289	.00	.00	1.5
21	.00	1.0	27	63	201	312	258	471	252	.00	.00	1.1
22	.00	4.2	29	68	250	257	251	486	213	.00	.00	.88
23	.42	2.9	31	64	186	285	270	981	181	.00	.00	.72
24	.66	2.2	31	64	168	333	261	644	160	.00	.00	.55
25	.79	3.8	30	71	153	324	241	476	151	.00	.00	4.4
26	.60	10	30	121	139	488	220	427	327	.00	.00	4.8
27	.61	16	41	133	126	718	204	407	354	.00	.00	2.6
28	.57	26	79	113	114	424	208	390	5890	.00	.00	1.1
29	.35	37	67	102	---	383	207	358	2200	.00	.00	.52
30	.27	21	49	96	---	355	221	358	599	.00	.00	.09
31	.45	---	34	105	---	318	---	452	---	.00	.00	---
TOTAL	6.32	139.99	905	1974	4148	7959	17052	11345	31597	1266.64	.00	999.76
MEAN	.20	4.67	29.2	63.7	148	257	568	366	1053	40.9	.00	33.3
MAX	.79	37	79	133	254	718	2500	981	5890	375	.00	555
MIN	.00	.23	12	29	53	99	204	109	151	.00	.00	.00
AC-FT	13	278	1800	3920	8230	15790	33820	22500	62670	2510	.00	1980

CAL YR 1982	TOTAL 74425.99	MEAN 204	MAX 5480	MIN .00	AC-FT 147600
WTR YR 1983	TOTAL 77392.71	MEAN 212	MAX 5890	MIN .00	AC-FT 153500

ARKANSAS RIVER BASIN

07159100 CIMARRON RIVER NEAR DOVER, OK

LOCATION.--Lat 35°57'06", long 97°54'51", in SW 1/4 NE 1/4 sec.14, T.17 N., R.7 W., Kingfisher County, Hydrologic Unit 11050002, near right bank on downstream bridge on U.S. Highway 81, 1.0 mi (1.6 km) downstream from Turkey Creek, 2.0 mi (3.2 km) south of Dover, 2.5 mi (4.0 km) upstream from Kingfisher Creek, and at mile 160.6 (258.4 km).

DRAINAGE AREA.--15,713 mi^2 (40,697 km^2), of which 4,926 mi^2 (12,758 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 999.19 ft (304.553 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

AVERAGE DISCHARGE.--10 years, 780 ft^3/s (22.09 m^3/s), 565,100 acre-ft/yr (697 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,900 ft^3/s (1,950 m^3/s) May 17, 1982, gage height, 22.87 ft (6.971 m) from high-water mark; minimum daily, 4.3 ft^3/s (0.12 m^3/s) Sept 23, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 12,000 ft^3/s (340 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 14	2200	*27,200	770	*18.99	5.788	June 12	0700	24,200	685	18.60	5.669
May 21	2130	16,800	476	17.45	5.319						

Minimum daily discharge 30 ft^3/s (0.85 m^3/s) Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	62	134	154	239	268	656	264	1190	2760	87	36
2	77	62	129	151	294	251	1570	215	969	1280	83	36
3	81	62	129	151	243	245	4360	192	889	853	81	36
4	82	62	129	149	222	265	1900	175	730	642	77	34
5	75	60	126	135	244	1350	2160	164	675	529	73	33
6	72	60	126	123	246	3720	4410	144	691	453	71	31
7	71	60	123	116	245	1340	3350	132	637	401	71	31
8	71	62	109	116	215	833	1940	120	547	356	66	31
9	88	67	107	116	215	676	1250	112	490	325	66	30
10	241	69	106	116	215	551	1060	103	466	295	62	31
11	128	76	104	114	215	461	1080	108	5590	271	60	34
12	101	84	107	111	220	417	863	122	19200	254	58	58
13	89	84	109	132	247	378	749	4140	8440	233	56	248
14	80	84	109	148	299	351	630	22000	5740	217	54	895
15	77	84	115	148	348	322	508	14200	4330	204	52	712
16	74	82	119	144	348	318	459	4790	2810	196	51	735
17	74	75	116	132	326	318	407	2820	1850	187	48	709
18	72	74	116	125	300	318	374	7080	1420	177	44	644
19	66	75	115	124	281	370	361	3850	1140	165	53	328
20	63	76	109	124	268	385	341	2230	963	153	112	257
21	64	76	109	124	315	374	319	10800	847	141	102	291
22	64	76	106	124	428	419	316	10800	742	131	77	205
23	65	74	106	124	447	511	353	3910	670	123	57	164
24	65	74	106	130	454	521	618	2040	616	114	53	142
25	65	74	106	139	436	518	363	1600	620	107	47	127
26	65	86	106	140	362	1650	300	1370	2410	103	44	128
27	65	121	109	145	321	3410	266	1100	2450	98	43	126
28	64	156	123	151	294	3460	244	987	2990	92	41	114
29	64	163	130	174	---	1930	228	960	2780	87	40	104
30	62	153	132	193	---	911	258	985	7060	83	39	97
31	62	---	143	193	---	745	---	1340	---	87	37	---
TOTAL	2463	2473	3613	4266	8287	27586	31693	98853	79952	11117	1905	6447
MEAN	79.5	82.4	117	138	296	890	1056	3189	2665	359	61.5	215
MAX	241	163	143	193	454	3720	4410	22000	19200	2760	112	895
MIN	62	60	104	111	215	245	228	103	466	83	37	30
AC-FT	4890	4910	7170	8460	16440	54720	62860	196100	158600	22050	3780	12790

CAL YR 1982	TOTAL	384696	MEAN	1054	MAX	42700	MIN	60	AC-FT 763000
WTR YR 1983	TOTAL	278655	MEAN	763	MAX	22000	MIN	30	AC-FT 552700

ARKANSAS RIVER BASIN

07159640 BLUFF CREEK BELOW BETHANY/WARR ACRES SEWAGE TREATMENT PLANT NEAR EDMOND, OK

LOCATION.--Lat. 35°40'05", long. 97°35'46", SE 1/4 SW 1/4 sec.23, T.14 N., R.4 W., Oklahoma County, Hydrologic Unit 11050002, 0.6 mi (0.96 km) west of NW 192 and Portland, 6.5 mi (10.4 km) west of Edmond and at mile 0.5 (0.8 km).

DRAINAGE AREA.--40.0 mi^2 (103.6 km^2) of which 6.4 mi^2 (16.6 km^2) probably is noncontributing.

PERIOD OF RECORD.--Water year August 1983 to current year.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)
AUG 01...	1130	80020	4.3	1400	7.8	27.0	7.8	101	--	--
SEP 22...	1215	80020	3.6	810	7.9	14.5	8.6	87	1.0	K102000

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
AUG 01...	--	--	--	--	--	--	--	--	--	--
SEP 22...	K18000	50	25	73	4.0	154	120	86	9.8	467

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	CARBON, ORGANIC TOTAL (MG/L AS C)
AUG 01...	--	.160	11.0	.300	2.1	1.90	5.8	1.60	--	--
SEP 22...	31	.050	.600	.370	1.2	.270	.83	--	.2	5.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CARBON, ORGANIC DISSOLVED (MG/L AS C)	PHENOLS TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)
AUG 01...	--	--	--	--	--	--	--	--	--	--
SEP 22...	5.7	2	<.1	<.10	<.010	<.1	<.010	<.010	<.010	<.010

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)
AUG 01...	--	--	--	--	--	--	--	--	--
SEP 22...	<.010	<.010	<.010	<.010	<.010	<.01	<.01	<.1	<1

07159645 DEER CREEK BELOW DEER CREEK ADVANCED WASTE WATER TREATMENT FACILITY NEAR EDMOND, OK

LOCATION.--Lat 35°40'55", long 97°35'27", in NW 1/4 NE 1/4 sec.23, T.14 N., R.4 W., Oklahoma County, Hydrologic Unit 11050002, 0.25 mi (0.4 km) west of NW 206 and Portland, 6.5 mi (10.4 km) west of Edmond and at mile 9.7 (15.6 km).

DRAINAGE AREA.--124 mi^2 (321 km^2).

PERIOD OF RECORD.--Water year July 1983 to current year.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)
JUL										
29...	0900	80020	14	1400	7.9	25.0	7.6	95	--	--
SEP										
22...	0830	80020	14	1110	7.9	17.5	7.9	85	1.0	<100

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
JUL										
29...	--	--	--	--	--	--	--	--	--	--
SEP										
22...	<100	78	25	130	9.2	174	190	150	11	752

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	CARBON, ORGANIC TOTAL (MG/L AS C)
JUL										
29...	--	2.50	8.00	.200	2.6	2.30	7.1	1.90	--	--
SEP										
22...	78	.090	9.90	.190	2.3	1.30	4.0	--	.4	7.2

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	PHENOLS TOTAL (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)
JUL										
29...	--	--	--	--	--	--	--	--	--	--
SEP										
22...	6.2	<1	<.1	<.10	<.010	<.1	<.010	<.010	<.010	<.010

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)
JUL									
29...	--	--	--	--	--	--	--	--	--
SEP									
22...	<.010	<.010	<.010	<.010	.080	<.01	<.01	<.1	<1

ARKANSAS RIVER BASIN

07159720 COTTONWOOD CREEK NEAR NAVINA, OK

LOCATION.--Lat 35°46'36", long 97°32'45", SW 1/4 NW 1/4 sec. 17, T.15 N., R.4 W., Logan County, Hydrologic Unit 11050002 on downstream right bank, 0.5 mi (0.8 km) downstream from Deer Creek, 1.7 mi (2.7 km) southeast of Navina, 10.7 mi (17.2 km) southwest of Guthrie, and at mile 25.0 (40.2 km).

DRAINAGE AREA.--247 mi^2 (640 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1980, March 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 962.10 ft (293.248 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Low flow sustained by part of sewage effluent from Oklahoma City.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,300 ft^3/s (348 m^3/s) May 30, 1980, gage height, 22.43 ft (6.837 m); minimum daily, 8.0 ft^3/s (0.23 m^3/s) Oct. 14, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,600 ft^3/s (102 m^3/s) at 0645 May 14, gage height, 20.87 ft (6.361 m), no other peak above base of 2,000 ft^3/s (56.6 m^3/s); minimum daily discharge, 15 ft^3/s (0.42 m^3/s) Oct. 22, 23, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	32	27	27	199	47	105	64	217	86	21	24
2	31	36	25	26	186	48	103	62	159	63	20	24
3	36	34	24	24	93	51	94	58	138	53	19	22
4	31	37	32	24	72	52	92	56	118	45	19	22
5	30	39	42	25	57	67	196	53	107	42	19	21
6	28	41	34	24	57	66	302	52	108	40	19	22
7	32	44	28	24	52	58	164	50	94	38	21	20
8	26	46	24	22	48	51	126	46	88	37	23	20
9	24	49	23	24	50	45	117	46	82	35	24	19
10	21	47	21	28	80	43	150	48	78	35	22	20
11	21	48	30	28	68	41	142	447	329	32	21	20
12	22	55	29	28	52	41	114	146	259	32	20	19
13	22	46	26	20	49	44	101	942	243	31	20	21
14	20	41	26	16	48	48	93	3330	199	29	21	26
15	33	46	27	22	47	48	85	1980	96	30	20	22
16	34	40	22	23	45	48	82	467	80	29	19	19
17	24	40	22	26	47	48	82	294	71	30	19	18
18	18	38	23	26	44	56	80	326	67	31	19	19
19	31	38	25	21	42	48	77	273	64	30	19	18
20	19	39	23	29	68	44	77	205	60	28	178	25
21	18	43	21	28	99	48	75	723	54	27	426	48
22	15	39	22	28	210	46	82	550	52	26	142	22
23	15	38	21	31	101	45	274	389	48	25	81	20
24	16	37	25	34	68	44	205	267	47	24	55	19
25	17	36	40	30	58	47	105	189	49	23	46	21
26	15	40	31	32	56	493	85	156	63	23	40	20
27	16	68	29	65	51	478	75	140	81	21	36	19
28	24	73	58	41	48	197	68	131	139	20	33	20
29	26	52	45	36	---	143	63	123	465	20	30	18
30	21	38	35	33	---	123	63	134	150	23	28	18
31	27	---	32	34	---	110	---	393	---	21	26	---
TOTAL	744	1300	892	879	2095	2768	3477	12140	3805	1029	1506	646
MEAN	24.0	43.3	28.8	28.4	74.8	89.3	116	392	127	33.2	48.6	21.5
MAX	36	73	58	65	210	493	302	3330	465	86	426	48
MIN	15	32	21	16	42	41	63	46	47	20	19	18
AC-FT	1480	2580	1770	1740	4160	5490	6900	24080	7550	2040	2990	1280

WTR YR 1983 TOTAL 31281 MEAN 85.7 MAX 3330 MIN 15 AC-FT 62050

ARKANSAS RIVER BASIN

07159720 COTTONWOOD CREEK NEAR NAVINA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to November 1980.
WATER TEMPERATURE: October 1977 to November 1980.

REMARKS.--Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT											
27...	1330	80020	15	1400	7.7	14.5	6.8	66	360	127	93
NOV											
29...	1300	80020	55	935	8.0	7.0	8.2	71	280	108	73
DEC											
15...	1320	80020	28	1300	7.8	6.0	8.0	66	400	157	100
JAN											
18...	1300	80020	26	1430	7.9	5.0	6.8	55	410	127	100
FEB											
23...	1345	80020	100	955	7.7	10.0	7.4	69	310	123	76
MAR											
29...	1430	80020	134	1100	7.6	8.0	8.2	72	380	170	94
APR											
27...	1430	80020	76	1290	7.8	19.0	4.9	55	410	161	97
MAY											
24...	1330	80020	266	850	7.8	20.0	6.9	78	270	87	67
JUN											
21...	1245	80020	57	1300	7.6	24.0	5.4	67	460	168	110
SEP											
15...	1030	80020	24	1320	7.7	21.5	6.3	75	350	141	91

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT											
27...	30	140	45	3	9.5	229	220	170	13	850	810
NOV											
29...	24	84	39	2	5.8	173	160	95	10	574	560
DEC											
15...	36	130	41	3	7.7	241	230	150	14	865	810
JAN											
18...	39	150	44	3	8.9	284	250	170	11	895	900
FEB											
23...	30	77	34	2	4.8	191	170	95	12	591	580
MAR											
29...	36	92	34	2	4.4	213	220	100	12	718	690
APR											
27...	40	110	37	2	5.2	247	230	140	12	789	780
MAY											
24...	26	62	33	2	4.3	188	140	71	12	508	500
JUN											
21...	44	120	36	3	5.9	289	240	130	17	870	840
SEP											
15...	29	140	46	3	11	206	240	170	12	852	820

ARKANSAS RIVER BASIN

07159720 COTTONWOOD CREEK NEAR NAVINA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)
OCT											
27...	1.2	34	63	.970	.330	1.30	.340	30	30	31	140
NOV											
29...	.78	85	22	2.11	.290	2.40	.950	1.8	2.7	5.1	23
DEC											
15...	1.2	65	4	3.24	.160	3.40	5.00	4.4	9.4	13	57
JAN											
18...	1.2	63	14	3.61	.790	4.40	4.60	5.4	10	14	64
FEB											
23...	.80	160	57	1.70	.200	1.90	.810	4.1	4.9	6.8	30
MAR											
29...	.98	258	97	1.47	.130	1.60	.600	1.7	2.3	3.9	17
APR											
27...	1.1	162	97	1.49	.310	1.80	1.10	1.5	2.6	4.4	19
MAY											
24...	.69	365	154	1.11	.090	1.20	.160	1.6	1.8	3.0	13
JUN											
21...	1.2	134	90	3.81	.190	4.00	.110	2.1	2.2	6.2	27
SEP											
15...	1.2	55	90	8.76	.040	8.80	.120	2.1	2.2	11	49

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)
OCT											
27...	1.30	4.0	.260	91	<1	19	<1	26	<.1	<22	14
NOV											
29...	1.60	4.9	1.20	--	--	--	--	--	--	--	--
DEC											
15...	1.80	5.5	1.20	<100	2	50	8	50	<.1	<21	<11
JAN											
18...	3.10	9.5	2.60	--	--	--	--	--	--	--	--
FEB											
23...	.710	2.2	.570	<100	<1	80	1	100	<.1	<23	15
MAR											
29...	.600	1.8	.400	--	--	--	--	--	--	--	--
APR											
27...	1.00	3.1	.970	140	1	10	3	140	<.1	<22	<10
MAY											
24...	.510	1.6	.280	--	--	--	--	--	--	--	--
JUN											
21...	1.20	3.7	.920	160	<1	12	2	57	<.1	<39	17
SEP											
15...	1.40	4.3	1.40	93	<1	<3	1	12	.3	<25	<12

ARKANSAS RIVER BASIN

07159720 COTTONWOOD CREEK NEAR NAVINA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	RA-226, DIS-SOLVED, PLAN-CHET COUNT (PCI/L)	RADIUM 228 DIS-SOLVED (PCI/L AS RA-228)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	PHENOLS TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCN DISSOLV (UG/L)	ALDRIN, DIS-SOLVED (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	DDD, DIS-SOLVED (UG/L)
OCT 27...	13	<.1	<2.0	7.9	12	5	<.1	<.10	<.01	<.1	<.01
NOV 29...	--	--	--	9.0	8.0	--	--	--	--	--	--
DEC 15...	<11	<.2	<2.0	6.1	6.8	2	--	--	--	--	--
JAN 18...	--	--	--	8.2	7.5	--	--	--	--	--	--
FEB 23...	14	<.1	<2.0	12	9.3	6	<.1	<.10	<.01	<.1	<.01
MAR 29...	--	--	--	10	10	--	--	--	--	--	--
APR 27...	<10	.2	<2.0	8.1	7.0	<1	<.1	<.10	<.01	<.1	<.01
MAY 24...	--	--	--	8.6	10	--	--	--	--	--	--
JUN 21...	14	.2	<2.0	6.9	7.9	3	<.1	<.10	<.01	<.1	<.01
SEP 15...	<11	<.1	<2.0	7.6	7.6	<1	<.1	<.10	<.01	<.1	<.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	DDE, DIS-SOLVED (UG/L)	DDT, DIS-SOLVED (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-ELDRIN DIS-SOLVED (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ETHION DISSOLV (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	MALA-THION, DIS-SOLVED (UG/L)
OCT 27...	<.01	<.01	.24	<.01	<.01	<.01	<.01	<.01	<.01	.05	.01
NOV 29...	--	--	--	--	--	--	--	--	--	--	--
DEC 15...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	<.01	<.01	.09	<.01	<.01	<.01	<.01	<.01	<.01	<.01	.03
MAR 29...	--	--	--	--	--	--	--	--	--	--	--
APR 27...	<.01	<.01	.18	<.01	<.01	<.01	<.01	<.01	<.01	.01	.01
MAY 24...	--	--	--	--	--	--	--	--	--	--	--
JUN 21...	<.01	<.01	.17	<.01	<.01	<.01	<.01	<.01	<.01	.01	<.01
SEP 15...	<.01	<.01	.33	<.01	<.01	<.01	<.01	<.01	<.01	.08	<.01

ARKANSAS RIVER BASIN

07159720 COTTONWOOD CREEK NEAR NAVINA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	MIREX, DIS-SOLVED (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PER-THANE DISSOLV (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TRI-THION DISSOLV (UG/L)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
27...	<.01	<.01	<.01	<.01	<.01	<.10	<1.0	<.01	--	38	90
NOV											
29...	--	--	--	--	--	--	--	--	--	--	--
DEC											
15...	--	--	--	--	--	--	--	--	--	--	--
JAN											
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
23...	<.01	<.01	<.01	<.01	.03	<.10	<1.0	<.01	--	--	--
MAR											
29...	--	--	--	--	--	--	--	--	--	--	--
APR											
27...	<.01	<.01	<.01	<.01	.01	<.10	<1.0	<.01	--	--	--
MAY											
24...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	<.01	.01	<.01	<.01	<.01	<.10	<1.0	<.01	--	--	--
SEP											
15...	<.01	<.01	<.01	<.01	<.01	<.10	<1.0	<.01	1500	88	93

ARKANSAS RIVER BASIN

07160000 CIMARRON RIVER NEAR GUTHRIE, OK

LOCATION.--Lat 35°55'07", long 97°25'34", in NE 1/4 SE 1/4 sec.29, T.17 N., R.2 W., Logan County, near left bank on U.S. Highway 77 bridge, 1.2 mi (1.9 km) downstream from Cottonwood Creek, 2.5 mi (4.0 km) north of Guthrie, 6.5 mi (10.5 km) upstream from Skeleton Creek, and at mile 121.8 (196.0 km).

DRAINAGE AREA.--16,892 mi^2 (43,750 km^2), of which 4,926 mi^2 (12,758 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1937 to September 1976, February 10, 1983 to current year. Monthly discharge only for some periods, published in WSP's 1311 and 1731.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 896.50 ft (273.253 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1939, nonrecording gage at railway bridge 1,800 ft (549 m) upstream at datum 4.00 ft (1.219 m) higher. Mar. 20, 1939 to September 30, 1976 gage 2,000 ft (609.6 m) upstream at datum 4.00 ft (1.219 m) higher. Since Sept. 14, 1967, supplementary water-stage recorder at present site and datum.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--39 years, (water years 1938-76) 889 ft^3/s (25.18 m^3/s), 644,100 acre-ft/yr (794 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 158,000 ft^3/s (4,475 m^3/s) May 17, 1957, gage height, 18.58 ft (5.663 m); minimum 0.1 ft^3/s (0.003 m^3/s) Nov. 2, 1939.

EXTREMES FOR CURRENT PERIOD.--Feb. 10 to Sept. 30, Peak discharges above base of 16,000 ft^3/s (453 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 15	0800	*39,500	1,120	*12.48	3.804	June 12	2300	24,400	691	11.09	3.380
May 22	1300	24,000	680	11.05	3.368						

Minimum daily discharge 115 ft^3/s (3.26 m^3/s) Aug. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	648	1690	756	3060	6540	164	165
2					---	619	1550	798	2050	2880	163	156
3					---	598	3450	708	1700	1930	162	154
4					---	641	5080	665	1530	1600	162	156
5					---	686	3260	629	1300	1300	155	148
6					---	1470	6620	583	1170	1100	150	143
7					---	2890	6030	563	1200	930	150	140
8					---	1590	4190	544	1080	770	150	135
9					---	1200	2750	522	912	630	145	135
10					557	1080	2180	511	828	540	145	135
11					584	898	2060	939	1240	450	140	132
12					564	791	2000	1020	14500	350	135	130
13					544	733	1650	1090	15400	320	135	130
14					544	693	1420	21200	8140	290	130	130
15					584	670	1260	32000	6590	270	125	1200
16					663	648	1100	10300	4320	260	120	1470
17					656	633	1010	5170	3180	250	115	1360
18					626	633	955	3780	2420	240	115	1320
19					584	663	884	7760	1910	230	121	1390
20					605	749	850	3590	1600	220	347	1150
21					686	766	824	7870	1320	205	1140	700
22					908	717	822	21100	1200	200	817	550
23					1030	800	903	9190	1020	190	648	420
24					936	936	1710	4850	950	180	374	470
25					908	908	1590	2880	975	175	270	400
26					861	1630	1040	2400	1000	170	230	320
27					749	5420	890	1980	3480	170	215	290
28					686	5610	816	1720	3830	168	194	290
29					---	4850	759	1570	5200	166	184	290
30					---	2790	733	1710	4890	165	178	270
31					---	1910	---	2330	---	164	171	---
TOTAL					---	44870	60076	150728	97995	23053	7450	13879
MEAN					---	1447	2003	4862	3267	744	240	463
MAX					---	5610	6620	32000	15400	6540	1140	1470
MIN					---	598	733	511	828	164	115	130

ARKANSAS RIVER BASIN

07160500 SKELETON CREEK NEAR LOVELL, OK

LOCATION.--Lat 36°03'36", long 97°35'05", in NW 1/4 SW 1/4 sec.1, T.18 N., R.4 W., Logan County, Hydrologic Unit 11050002, near right bank on downstream side of pier of bridge on State Highway 74, 2 mi (3 km) upstream from Otter Creek, 2.8 mi (4.5 km) east of Lovell, and at mile 14.6 (23.5 km).

DRAINAGE AREA.--410 mi^2 (1,062 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 909.76 ft (277.295 m) Oklahoma State Highway Department datum. Prior to Dec. 5, 1949, nonrecording gage at site 60 ft (18.3 m) downstream at datum 4.70 ft (1.433 m) higher. Prior to Oct. 1, 1979, gage at present site and datum 5.00 ft (1.524 m) higher.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--34 years, 117 ft^3/s (3.313 m^3/s), 84,770 acre-ft/yr (105 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,200 ft^3/s (2,130 m^3/s) May 16, 1957, gage height, 34.58 ft (10.540 m), no flow at times in 1953-54, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 17, 1932, reached a stage of 32.0 ft (9.75 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft^3/s (65.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 14	1630	*17,600	498	*33.98	10.357	May 21	0900	3,900	110	23.26	7.090

Minimum daily discharge, 2.5 ft^3/s (0.071 m^3/s) Sept. 8, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	8.5	12	12	29	18	120	66	221	180	17	3.6
2	4.7	10	10	11	152	19	138	37	136	102	17	4.1
3	4.1	9.2	6.2	12	57	19	190	30	114	75	36	3.5
4	8.1	6.8	6.0	11	27	27	119	25	101	55	12	3.1
5	12	8.3	5.8	11	25	54	938	22	80	52	10	3.1
6	6.4	8.3	8.0	11	21	93	1620	21	86	44	9.4	3.1
7	6.4	9.0	6.6	12	16	59	498	20	85	41	11	2.8
8	6.4	13	6.0	12	17	32	239	17	68	37	10	2.5
9	7.0	12	5.8	12	20	23	189	15	60	39	9.3	2.8
10	26	14	6.0	12	32	19	203	16	56	30	7.1	2.5
11	16	16	6.5	12	38	16	132	20	468	29	6.6	155
12	9.5	21	7.7	9.3	44	14	85	32	1220	28	6.4	426
13	8.5	66	6.8	11	38	14	67	932	439	23	5.9	186
14	8.3	37	5.3	11	26	14	59	9830	161	24	4.7	467
15	7.4	16	5.4	11	24	15	54	6710	125	25	4.1	120
16	7.6	13	5.5	12	25	55	51	1130	78	22	4.1	38
17	7.6	14	5.3	11	22	27	46	254	63	19	3.8	15
18	7.8	14	5.2	9.9	18	19	48	1130	49	21	3.5	8.1
19	9.0	17	5.5	12	16	17	46	1780	46	17	4.9	5.2
20	8.5	17	5.6	14	17	16	44	452	46	16	7.9	120
21	7.4	18	5.5	14	18	30	43	3300	38	16	181	40
22	8.5	14	5.5	15	41	25	45	3480	36	13	46	20
23	8.8	6.0	5.4	14	91	19	55	1310	26	13	14	7.0
24	10	5.0	6.1	15	42	16	115	430	32	11	6.9	5.0
25	9.0	8.5	5.9	17	30	22	81	286	55	11	5.7	3.7
26	9.5	8.1	5.2	16	27	763	52	226	1520	13	5.1	3.9
27	8.1	7.4	5.9	15	23	1460	44	178	1120	12	4.7	3.6
28	8.5	35	6.5	39	20	457	40	156	1460	10	4.5	3.8
29	7.6	35	50	20	---	182	39	192	597	12	5.1	3.3
30	8.1	18	23	12	---	147	56	346	412	11	4.4	3.3
31	7.0	---	13	14	---	142	---	270	---	11	3.7	---
TOTAL	269.0	485.1	263.2	420.2	956	3833	5456	32713	8998	1012	471.8	1665.0
MEAN	8.68	16.2	8.49	13.6	34.1	124	182	1055	300	32.6	15.2	55.5
MAX	26	66	50	39	152	1460	1620	9830	1520	180	181	467
MIN	4.1	5.0	5.2	9.3	16	14	39	15	26	10	3.5	2.5
AC-FT	534	962	522	833	1900	7600	10820	64890	17850	2010	936	3300

CAL YR 1982	TOTAL	58101.7	MEAN	159	MAX	13400	MIN	1.4	AC-FT	115200
WTR YR 1983	TOTAL	56542.3	MEAN	155	MAX	9830	MIN	2.5	AC-FT	112200

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK

LOCATION.--Lat 35°57'32", long 97°01'49", in SW 1/4 SW 1/4 sec.7, T.17 N., R.3 E., Payne County, Hydrologic Unit 11050003, near right bank at downstream side of bridge on U.S. Highway 177, 1.0 mi (1.6 km) south of Perkins, 1.5 mi (2.4 km) upstream from Dugout Creek, 4.0 mi (6.4 km) downstream from Wildhorse Creek, and at mile 87.3 (140.5 km).

DRAINAGE AREA.--17,852 mi^2 (46,237 km^2) of which 4,962 mi^2 (12,758 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1927 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 814.88 ft (248.375 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 26, 1940, and Jan. 9 to Apr. 7, 1957, nonrecording gage at same site and datum 5.00 ft (1.524 m) higher. Prior to Oct. 1, 1977, at same site and datum 5.00 ft (1.524 m) higher.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--44 years, 1,187 ft^3/s (33.62 m^3/s), 860,000 acre-ft/yr (1.06 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 149,000 ft^3/s (4,220 m^3/s) May 17, 1957, gage height, 19.53 ft (5.953 m) Datum then in use; minimum, 0.8 ft^3/s (0.023 m^3/s) Dec. 8, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 4, 5, 1926, reached a stage of 17.0 ft (5.18 m) from floodmarks, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16,000 ft^3/s (453 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 15	1200	*49,100	1,390	*18.40	5.608	June 13	0900	22,400	634	15.63	4.764
May 22	2000	31,000	878	16.45	5.013						

Minimum daily discharge, 85 ft^3/s (2.41 m^3/s) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145	152	378	290	753	643	1930	1140	3580	5350	247	123
2	150	147	331	281	612	610	1730	1150	3590	4760	239	115
3	152	142	290	285	741	591	1610	1160	2510	2650	232	111
4	154	149	289	283	661	645	4280	1070	2130	1930	227	108
5	149	153	296	272	565	647	4900	1010	1910	1540	221	102
6	144	147	284	263	502	667	6060	959	1690	1290	205	99
7	148	148	289	256	503	2060	9050	923	1530	1130	193	95
8	146	147	273	251	477	2420	5630	894	1480	1020	194	93
9	141	129	257	244	468	1430	4290	866	1360	940	188	91
10	138	112	261	242	439	1090	3170	846	1260	874	187	87
11	141	164	258	238	450	952	2810	849	1730	848	184	86
12	181	192	246	235	480	847	2740	1120	5100	784	182	85
13	235	199	246	233	461	781	2510	2150	19100	726	169	233
14	199	191	261	228	455	749	2150	13800	9970	675	157	229
15	179	199	251	233	456	721	1950	40900	7010	632	154	309
16	164	219	245	253	487	691	1780	21400	5750	600	149	540
17	158	195	244	258	537	683	1650	11800	3840	589	145	548
18	175	184	242	255	543	692	1550	9720	4020	562	144	475
19	167	184	232	259	528	690	1480	12600	2490	506	146	485
20	150	189	230	266	538	705	1420	12000	2000	486	155	532
21	153	177	225	267	569	742	1370	15600	1720	486	232	390
22	161	175	225	283	638	751	1360	28600	1530	445	603	364
23	154	173	220	300	726	746	1360	21400	1400	405	533	343
24	153	173	244	302	836	781	1460	10100	1280	378	379	300
25	153	180	224	295	812	838	2160	6450	1340	356	290	249
26	150	205	208	314	784	1530	1970	4480	1290	337	225	208
27	147	259	234	327	752	3170	1490	3890	3630	317	197	181
28	164	280	260	328	683	6410	1310	3880	4450	302	172	172
29	157	338	247	362	---	4940	1230	3290	6230	283	152	166
30	147	386	289	352	---	3810	1170	3140	4990	267	138	155
31	154	---	315	369	---	2450	---	3460	---	257	130	---
TOTAL	4909	5688	8094	8624	16456	44482	77570	240647	109910	31725	6769	7074
MEAN	158	190	261	278	588	1435	2586	7763	3664	1023	218	236
MAX	235	386	378	369	836	6410	9050	40900	19100	5350	603	548
MIN	138	112	208	228	439	591	1170	846	1260	257	130	85
AC-FT	9740	11280	16050	17110	32640	88230	153900	477300	218000	62930	13430	14030

CAL YR 1982	TOTAL	754452	MEAN	2067	MAX	67200	MIN	112	AC-FT	1496000
WTR YR 1983	TOTAL	561948	MEAN	1540	MAX	40900	MIN	85	AC-FT	1115000

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1953-63, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1963, June 1965 to Jan. 1982.
WATER TEMPERATURE: October 1962 to September, 1963, June 1965 to Jan. 1982.

INSTRUMENTATION.--Water-quality monitor from April 1969 to September 1980.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 32,400 micromhos March 18, 1957; minimum, 353 micromhos April 30, 1970.
WATER TEMPERATURE: Maximum, 39.0°C June 18, 1974; minimum daily, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
OCT												
13...	1000	80020	242	6200	8.6	14.5	12	10.6	109	190	63	540
DEC												
07...	1100	80020	289	6800	8.4	7.0	2.6	12.5	107	29	22	620
FEB												
08...	1200	80020	468	12000	8.0	5.0	9.7	13.8	112	59	370	700
APR												
12...	1500	1028	273	9500	8.0	17.0	300	8.7	97	1200	420	600
MAY												
15...	1730	1028	47000	890	7.4	16.0	--	6.1	64	--	--	--
JUN												
08...	1400	80020	1490	8600	8.2	24.0	40	10.9	137	--	--	650
AUG												
08...	1500	80020	189	5800	8.1	32.0	6.5	8.3	119	<20	40	540

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT												
13...	361	130	51	1100	82	21	6.6	176	380	1700	.40	5.0
DEC												
07...	403	160	53	1100	79	20	5.5	216	400	1800	.40	5.9
FEB												
08...	488	180	61	2000	86	34	5.5	216	480	3100	.40	8.1
APR												
12...	406	150	55	1500	84	28	6.9	198	460	2200	.40	11
MAY												
15...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
08...	478	160	60	1500	83	27	7.1	169	470	2300	.40	9.3
AUG												
08...	358	120	58	1200	83	23	7.3	183	440	1900	.40	5.6

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
13...	3460	3500	4.7	<.100	<.060	.08	2.5	.550	1.7	.150	.150	.46
DEC												
07...	3740	3700	5.1	.440	<.060	.08	1.4	.300	.92	.240	.200	.61
FEB												
08...	6190	6000	8.4	.980	.490	.63	1.8	.250	.77	.220	.210	.64
APR												
12...	4700	4500	6.4	1.10	.270	.35	1.8	.410	1.3	.150	.130	.40
MAY												
15...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
08...	4690	4600	6.4	<.100	.090	.12	1.5	.180	.55	.010	.010	.03
AUG												
08...	3870	3800	5.3	<.100	.060	.08	1.0	.140	.43	.060	.020	.06

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT											
13...	20	6	160	<.5	4	<1	<3	3	4	<1	70
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
FEB											
08...	10	3	100	<10	5	<1	<1	5	40	8	40
APR											
12...	110	3	200	<10	3	<1	1	6	90	1	40
MAY											
15...	--	--	--	--	--	--	--	--	--	--	--
JUN											
08...	--	--	--	--	--	--	--	--	--	--	--
AUG											
08...	20	6	<100	<10	4	<1	<1	2	10	<1	40

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
13...	10	<.1	20	1	1	<1	1700	9	8	89	70
DEC											
07...	--	--	--	--	--	--	--	--	--	25	48
FEB											
08...	40	<.1	4	<1	2	<1	2100	50	30	20	84
APR											
12...	20	<.1	<1	2	3	<1	1800	23	10	438	95
MAY											
15...	--	--	--	--	--	--	--	--	--	3180	80
JUN											
08...	--	--	--	--	--	--	--	--	--	106	87
AUG											
08...	20	.5	4	2	1	<1	1900	30	20	37	54

ARKANSAS RIVER BASIN

07163000 COUNCIL CREEK NEAR STILLWATER, OK

LOCATION.--Lat 36°06'58", long 96°52'03", in NW 1/4 NE 1/4 sec.22, T.19 N., R.4 E., Payne County, Hydrologic Unit 11050003, on right bank downstream side of bridge on State Highway 51, 10.0 mi (16.1 km) east of Stillwater, and at mile 10.0 (16.1 km). Prior to Nov. 9, 1982, gage 200 ft (61.8 m) upstream.

DRAINAGE AREA.--31 mi^2 (80.3 km^2).

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

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 828.28 ft (252.490 m) National Geodetic Vertical Datum of 1929. Prior to May 4, 1934, nonrecording gage at same site and datum. Prior to Nov. 9, 1982, gage 200 ft (61.8 m) upstream at 10.00 ft (3.048 m) higher datum.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--49 years, 10.8 ft^3/s (0.306 m^3/s), 4.73 in/yr (120 mm/yr), 7,820 acre-ft/yr (9.64 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 25,000 ft^3/s (708 m^3/s) Oct. 2, 1959, gage height, 18.9 ft (5.76 m), from floodmarks, from rating curve extended above 2,500 ft^3/s (70.8 m^3/s) on basis of slope-area measurements at gage heights 13.4 ft (4.08 m) and 17.5 ft (5.33 m); no flow at times in each year except 1975.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 27, 1912, reached a stage of 16.6 ft (5.06 m) at gage, based on floodmarks set by local resident at site 900 ft (274 m) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,230 ft^3/s (34.8 m^3/s) at 0730 Apr. 5, gage height, 12.93 ft (3.941 m), no other peak above base of 1,200 ft^3/s (34.0 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.28	1.2	216	1.4	8.1	4.6	6.4	2.1	.00	.00
2	.00	.00	.42	1.2	22	1.3	8.1	4.0	4.6	1.3	.00	.00
3	.00	.00	.15	1.1	4.5	1.4	6.0	4.0	4.1	1.0	.00	.00
4	.00	.00	.13	1.0	2.4	42	5.5	4.0	3.7	.64	.00	.00
5	.00	.00	.20	.92	2.0	27	359	4.2	12	.58	.00	.00
6	.00	.00	.22	.89	1.9	6.3	32	4.1	11	.49	.00	.00
7	.00	.00	.17	.82	1.5	3.7	13	3.7	4.1	.43	.00	.00
8	.00	.00	.13	.80	1.6	2.4	9.5	3.5	3.2	.41	.00	.00
9	.00	.00	.12	.85	2.1	1.8	8.9	3.5	2.7	.40	.00	.00
10	.00	.00	.20	.89	2.7	1.6	7.4	3.8	3.0	.37	.00	.00
11	.00	.15	.22	1.0	2.2	1.5	6.3	4.9	48	.36	.00	.00
12	.00	.30	.21	1.0	1.8	1.5	6.0	4.2	8.6	.33	.00	.00
13	.00	.11	.20	1.0	1.6	1.5	5.6	82	4.4	.29	.00	.00
14	.00	.06	.20	1.1	1.6	1.5	5.5	152	6.8	.28	.00	.00
15	.00	.03	.19	1.1	1.5	1.6	5.2	14	3.1	.25	.00	.00
16	.00	.03	.17	1.1	1.6	1.4	4.8	6.8	1.6	.25	.00	.00
17	.00	.04	.15	1.1	1.9	1.2	5.2	5.0	1.4	.25	.00	.00
18	.00	.04	.14	1.1	2.2	1.1	5.2	259	1.3	.25	.00	.00
19	.00	.06	.13	1.2	2.5	1.2	4.9	17	1.3	.25	.00	.00
20	.00	.07	.13	1.3	3.5	1.6	4.8	8.3	1.2	.22	.00	.00
21	.00	.07	.12	1.3	20	1.5	5.0	141	1.1	.18	.00	.00
22	.00	.06	.12	1.6	23	1.3	5.4	22	1.1	.15	.00	.00
23	.00	.09	.12	1.7	5.3	1.4	7.6	9.0	1.0	.11	.00	.00
24	.00	.08	100	1.7	3.0	1.6	6.9	5.9	.81	.10	.00	.00
25	.00	.07	6.8	1.7	2.1	1.9	5.0	4.8	.84	.08	.00	.00
26	.00	.84	2.1	2.0	1.9	274	4.6	4.3	.88	.07	.00	.00
27	.00	2.0	12	1.8	1.6	43	4.3	4.1	1.9	.04	.00	.00
28	.00	.82	9.4	1.7	1.5	10	4.1	47	17	.01	.00	.00
29	.00	.19	2.6	1.6	---	9.8	4.2	14	97	.00	.00	.00
30	.00	.14	1.7	1.6	---	29	4.4	11	4.5	.00	.00	.00
31	.00	---	1.3	32	---	12	---	17	---	.00	.00	---
TOTAL	.00	5.25	140.02	69.37	335.5	488.5	562.5	872.7	258.63	11.19	.00	.00
MEAN	.00	.17	4.52	2.24	12.0	15.8	18.7	28.2	8.62	.36	.00	.00
MAX	.00	2.0	100	32	216	274	359	259	97	2.1	.00	.00
MIN	.00	.00	.12	.80	1.5	1.1	4.1	3.5	.81	.00	.00	.00
AC-FT	.00	10	278	138	665	969	1120	1730	513	22	.00	.00

CAL YR 1982	TOTAL	5337.87	MEAN	14.6	MAX	1130	MIN	.00	AC-FT	10590
WTR YR 1983	TOTAL	2743.66	MEAN	7.52	MAX	359	MIN	.00	AC-FT	5440

ARKANSAS RIVER BASIN

07164200 KEYSTONE LAKE NEAR SAND SPRINGS, OK

LOCATION.--Lat 36°09'05", long 96°15'05", in SW 1/4 SE 1/4 sec.4, T.19 N., R.10 E., Tulsa County, Hydrologic Unit 11110101, in stair tower of intake structure near left end of Keystone Dam on Arkansas River, 8.5 mi (13.7 km) west of Sand Springs, and at mile 538.8 (866.9 km).

DRAINAGE AREA.--74,506 mi^2 (192,971 km^2), of which 12,541 mi^2 (32,481 km^2) is probably noncontributing.

PERIOD OF RECORD.--September 1964 to current year. Prior to October 1970, published as Keystone Reservoir near Sand Springs.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1964, nonrecording gage nearby at same datum.

REMARKS.--Reservoir is formed by rolled-fill earth dam. Spillway is concrete ogee weir controlled by 18, 40 ft (12.2 m) taintor gates. Outlet works consist of nine sluices. Regulated storage began Sept. 11, 1964; power pool was first filled Nov. 20, 1964. Capacity, 1,836,000 acre-ft (2.26 km^3), at elevation 754.0 ft (229.82 m), top of flood control pool, 618,000 acre-ft (762 hm^3), at elevation 723.0 ft (220.37 m) top of power pool, 520,700 acre-ft (354 hm^3) at elevation 706.0 ft (215.19 m), minimum power pool. Figures given herein represent total contents. Reservoir is designed for flood control, power development, and conservation. Revised capacity table, based on survey in 1969, used since Oct. 1, 1972.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,886,000 acre-ft (2.33 hm^3) Nov. 6, 1974, elevation, 754.86 ft (230.081 m); minimum since power pool was first filled, 297,800 acre-ft (367 hm^3) Jan. 19, 1965, elevation, 705.07 ft (214.905 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 889,800 acre-ft (1,097 hm^3) May 24, elevation 732.13 ft (223.153 m); minimum, 540,200 acre-ft (666 hm^3) Nov. 5, elevation, 719.84 ft (219.407 m).

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

718	498,600	731	852,900
721	567,600	735	988,400
727	729,200	739	1,137,300

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	561100	544600	565200	602600	632100	625300	753900	669100	722000	764000	614900	582600
2	561300	546200	575400	605100	650700	615700	737200	665200	713400	767300	614900	581100
3	562100	541100	578100	602000	656400	612000	715100	663300	708500	759200	614100	581900
4	555900	542000	580600	600000	657500	606600	724500	661600	707600	749700	614400	577600
5	551400	540200	582800	597500	657800	611800	739300	658000	706200	758300	614900	561300
6	549500	541300	583100	597700	658800	619500	743400	656700	701800	753000	614600	560100
7	546900	542700	584800	594900	658800	627100	764000	653400	697500	742000	616700	558500
8	545500	542000	584100	596200	659900	628700	789700	651200	692400	733400	616700	558200
9	545800	543200	584800	600500	661300	632400	783200	647000	694700	723300	616200	555600
10	546000	543200	584800	596400	662700	633400	767000	649600	695500	703300	615900	556300
11	543700	546900	587100	595400	664100	631100	746400	648500	695800	691300	614900	557300
12	544100	544800	587800	596200	664900	632100	728600	646600	700100	688400	613600	557000
13	545800	545500	584800	587800	668000	629000	708800	655800	717500	678000	610800	557500
14	546700	547400	588400	579900	671300	615700	684500	714300	752400	667400	604600	555400
15	546900	548100	586600	579400	673800	603800	669600	789400	774000	659400	601500	559000
16	547200	550000	587100	579400	675200	590900	662400	832300	783500	658800	594900	559200
17	548100	549500	585600	570000	676600	581100	654200	812000	791600	657800	588900	562300
18	547200	550900	587800	559700	678300	571500	647700	802900	783800	653900	585600	571700
19	549300	549700	588600	550900	679700	580400	652300	797900	777700	640900	584100	577600
20	546900	550400	587600	550400	682800	585600	658600	780700	766700	637200	585300	587300
21	546200	551600	583600	552300	681900	583800	656700	807600	755300	633400	586800	589900
22	546900	552100	581100	565000	681100	584100	653600	852900	744000	632100	584300	594700
23	547600	553000	578600	576900	673800	584800	655800	889500	733700	645500	583100	595400
24	548600	551100	581400	579400	664100	586100	653900	882300	742600	653900	582800	599000
25	547200	552100	584100	581100	655300	589900	649300	855200	753900	646000	585300	602800
26	547200	553500	587100	584100	651500	618500	647400	819600	759200	635000	584100	602800
27	542000	558700	593700	584100	647400	642300	649600	791900	753900	627100	586800	602600
28	546900	560900	595700	586600	640900	681700	651500	778900	757700	619300	589100	601800
29	545300	560400	596200	590400	---	736300	652600	763700	760700	618800	587800	601300
30	543900	562100	599000	593100	---	751200	664100	748800	755300	617500	584100	601000
31	545100	---	600000	606400	---	744900	---	733100	---	615400	583100	---
MAX	562100	562100	600000	606400	682800	751200	789700	889500	791600	767300	616700	602800
MIN	542000	540200	565200	550400	632100	571500	647400	646600	692400	615400	582800	555400
†	720.05	720.77	722.30	722.55	723.87	727.53	724.72	727.13	727.88	727.90	721.63	722.34
††	-18,200	+17,000	+37,900	+6,400	+34,500	+104,000	-80,800	+69,000	+22,200	-139,900	-32,300	+17,900

CAL YR 1982 MAX 1145000 MIN 508700, †† +57,000
WTR YR 1983 MAX 889500 MIN 540200, †† +37,700

† Elevation in feet, at end of month.
†† Change in contents, in acre-feet.

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK

LOCATION.--Lat 36°08'37", long 96°00'13", in NW 1/4 sec.11, T.19 N., R.12 E., Tulsa County, Hydrologic Unit 11110101, near left bank on downstream side of pier of 11th Street bridge on U.S. Highway 66 in Tulsa, 10.1 mi (16.3 km) upstream from Polecat Creek, 15.1 mi (24.3 km) downstream from Keystone Dam, and at mile 523.7 (842.6 km).

DRAINAGE AREA.--74,615 mi^2 (193,253 km^2), of which 12,541 mi^2 (32,481 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1925 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1904 are published in reports of the U.S. Weather Bureau.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 615.23 ft (187.522 m) Corps of Engineers datum. Prior to Feb. 2, 1939, nonrecording gage and Feb. 2, 1939, to Sept. 30, 1952, water-stage recorder at datum 3.00 ft (0.914 m) higher.

REMARKS.--Records poor. Except for 109 mi^2 (282 km^2) intervening area, flow completely regulated by Keystone Lake (station 07164200) since September 1964. Prior to September 1964, minor regulation by John Martin Lake in Colorado and by Great Salt Plains Lake (station 07150000).

COOPERATION.--Gage height record and 9 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Keystone Lake) 39 years (water years 1926-64), 6,554 ft^3/s (185.6 m^3/s), 4,745,000 acre-ft/yr (5.85 km^3/yr); (since regulation by Keystone Lake) 19 years (water years 1965-83), 6,968 ft^3/s (197.3 m^3/s), 5,048,000 acre-ft/yr (6.22 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft^3/s (6,970 m^3/s) Oct. 5, 1959, gage height, 22.00 ft (6.706 m); minimum, 27 ft^3/s (0.76 m^3/s) Oct. 12, 13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1904, 22.8 ft (6.949 m), June 13, 1923, present datum, from reports of U.S. Weather Bureau.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,600 ft^3/s (1,320 m^3/s) Apr. 9, gage height, 9.26 ft (2.822 m); minimum daily discharge 74 ft^3/s (2.10 m^3/s) Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889	136	190	431	2870	9630	25600	5880	21400	24800	1610	2390
2	1610	681	724	158	591	9510	26700	8330	16600	25000	1210	2380
3	312	1040	297	627	302	6520	30600	8150	15400	24900	832	2400
4	2830	1020	492	2300	941	6900	32300	7490	9970	24700	1020	1550
5	2580	220	271	1300	1380	4530	40800	7690	8050	12300	848	9490
6	1870	674	136	2750	2820	2200	43700	7680	9620	16300	844	2440
7	1430	245	201	1510	3370	4030	44200	7480	9100	25100	1140	1770
8	1120	118	189	2070	2380	8700	45700	7790	9420	25000	129	730
9	1200	638	599	310	2320	10300	46500	7800	7670	24900	708	287
10	239	245	263	956	2400	10300	45800	8060	5940	24500	1010	1520
11	655	1130	698	2730	2300	10200	45000	7850	7260	21200	698	269
12	1240	672	184	1450	1480	7480	44100	8130	7570	14100	1010	128
13	269	802	527	3470	2220	7170	43400	9980	7430	14100	1250	717
14	858	264	582	5060	1920	9950	42600	16600	13300	14000	1770	264
15	262	132	436	1970	2260	9810	39000	18200	13800	11000	3080	822
16	881	93	346	2600	2340	9430	32400	27500	13800	7490	2580	277
17	252	82	712	3960	2300	7890	31500	32200	15600	6300	2800	760
18	169	533	455	5730	2280	8000	29200	33800	19900	6600	3130	260
19	815	619	130	5920	1560	3180	24000	29100	20000	10500	1220	131
20	241	421	409	5800	2380	420	19500	23700	19800	5740	945	1240
21	666	372	1130	5740	6090	1890	19800	19100	19900	6040	227	296
22	242	264	2010	2130	6640	2460	20200	18800	19800	5360	125	1270
23	113	685	1580	172	10200	2450	17200	24300	19800	1940	1700	316
24	74	254	882	1050	10300	2110	15900	36700	7630	278	1090	1350
25	121	313	269	2180	9940	2200	15400	35800	8180	2550	1750	269
26	482	302	164	2260	7610	1430	15400	34500	6000	7160	1890	134
27	1380	618	685	2160	6900	468	11400	31100	13700	6800	2050	1380
28	846	267	1020	2050	9800	232	10600	24200	13800	5060	217	1440
29	257	418	1910	349	---	2550	11100	23200	16900	2780	1060	1260
30	1700	463	399	158	---	16500	6140	23000	24900	1850	3630	1260
31	325	---	152	510	---	25100	---	22800	---	2020	2120	---
TOTAL	25928	13721	18042	69861	107894	203540	875740	576910	402240	380368	43693	38800
MEAN	836	457	582	2254	3853	6566	29190	18610	13410	12270	1409	1293
MAX	2830	1130	2010	5920	10300	25100	46500	36700	24900	25100	3630	9490
MIN	74	82	130	158	302	232	6140	5880	5940	278	125	128
AC-FT	51430	27220	35790	138600	214000	403700	1737000	1144000	797800	754500	86670	76960

CAL YR 1982	TOTAL	2972239	MEAN	8143	MAX	61500	MIN	74	AC-FT	5895000
WTR YR 1983	TOTAL	2756737	MEAN	7553	MAX	46500	MIN	74	AC-FT	5468000

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-61, 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1977 to current year.
WATER TEMPERATURE: March 1977 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1977.

REMARKS.--In addition to water-quality monitor, samples were collected by a local observer on a daily basis. Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum 7,820 micromhos Feb. 16, 1978; minimum daily 518 micromhos July 27, 1977.
WATER TEMPERATURE: Maximum daily 32.0°C July 3-6, 14, 1978; minimum daily 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,760 micromhos Feb. 6,8,10; minimum daily, 961 micromhos June 3
WATER TEMPERATURE: Maximum, 33.5°C Aug. 12; minimum 4.0°C on several days during the winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
19...	1100	80020	655	1740	8.0	18.5	2.5	10.2	112	250	200	270
DEC												
14...	1130	80020	582	1890	8.4	5.5	5.1	12.4	102	180	90	270
FEB												
09...	1615	80020	2090	2850	8.5	6.0	15	10.7	89	990	3700	300
APR												
12...	1413	80020	44100	2090	8.2	11.5	37	10.6	103	100	220	230
JUN												
28...	1525	80020	13700	1570	7.8	26.0	14	6.8	87	K17	180	250
AUG												
24...	1425	80020	1090	--	8.1	31.0	2.3	6.0	82	--	--	250
SEP												
28...	1430	1028	586	1480	8.0	24.0	--	10.1	123	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
19...	111	73	20	260	67	7	7.5	155	130	390	.50	3.7
DEC												
14...	115	74	21	270	68	7	6.9	157	140	420	.40	3.1
FEB												
09...	145	82	24	420	75	11	5.9	160	79	660	.30	1.3
APR												
12...	109	62	19	320	74	9	4.8	125	120	500	.30	5.5
JUN												
28...	116	68	19	240	67	7	5.6	132	130	350	.30	7.2
AUG												
24...	108	65	21	280	70	8	6.2	142	140	420	.50	4.9
SEP												
28...	--	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
19...	1010	980	1.4	.280	.100	.13	1.1	.120	.37	.120	.070	.21
DEC												
14...	998	1000	1.4	.350	.070	.09	1.0	.130	.40	.110	.060	.18
FEB												
09...	1480	1400	2.0	.340	.070	.09	.70	.130	.40	.090	.070	.21
APR												
12...	1120	1100	1.5	.730	.240	.31	1.0	.130	.40	.080	.070	.21
JUN												
28...	887	900	1.2	.610	.060	.08	.60	.120	.37	.100	.080	.25
AUG												
24...	1010	1000	1.4	<.100	.010	.01	1.1	.180	.55	.110	.040	.12
SEP												
28...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT												
19...	30	3	150	<.5	2	<1	<3	2	10	3	30	13
DEC												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
09...	30	2	100	<10	<5	<1	<5	5	20	<5	20	40
APR												
12...	150	2	200	<10	<1	<1	1	8	100	2	10	<10
JUN												
28...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	20	4	200	<10	<1	<1	<1	4	--	1	--	--
SEP												
28...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
OCT											
19...	<.1	<10	2	1	<1	770	<6	6	13	80	--
DEC											
14...	--	--	--	--	--	--	--	--	12	77	--
FEB											
09...	<.1	<1	<5	1	<5	940	17	<10	29	84	--
APR											
12...	<.1	<1	4	1	<1	800	14	20	69	74	--
JUN											
28...	--	--	--	--	--	--	--	--	20	97	--
AUG											
24...	<.1	<2	4	1	<1	790	7	--	6	71	--
SEP											
28...	--	--	--	--	--	--	--	--	--	--	0

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1760	1890		---	2260	---	---	970	1560	1800	1780
2	1590	1690	1900		---	1890	2090	2100	969	1580	1830	1770
3	1820	1750	1840		---	1950	---	1390	961	---	1890	---
4	1830	1730	1830		---	2250	1780	1750	---	---	1920	---
5	1740	1740	1820		---	1670	1500	1750	---	1620	1980	---
6	1790	1750	---		2760	1670	1430	1910	1290	1650	---	1840
7	1820	1760	---		2660	2070	1450	---	1290	1690	---	1930
8	1810	1730	---		2760	2480	1460	1440	1350	1570	1900	1880
9	1620	1750	---		2580	2180	1970	1400	1370	---	1960	1790
10	1740	1720	---		2760	2260	1830	1460	---	1610	2090	1790
11	1720	1670	---		2590	2590	2030	1450	---	1470	2070	1800
12	1730	1750	---		2580	2640	2070	1730	1460	1530	1820	1740
13	1780	1750	---		2350	2480	1590	1420	1450	1460	---	1690
14	1760	1750	---		2590	2140	1460	1420	1240	1460	---	1670
15	1630	1750	---		2560	1670	1570	---	1230	1550	1730	---
16	1820	1730	---		2530	2070	---	1760	1620	---	1930	1450
17	1730	---	---		2520	1670	1530	1750	1620	1530	1830	1520
18	1550	1880	---		2520	1900	1530	1870	1730	1590	1810	1470
19	1770	1710	---		2460	1970	2000	1750	1720	1550	2070	1460
20	1740	1750	---		2620	1960	1960	1590	1700	1560	1990	1300
21	1800	1660	---		2190	1940	---	1410	1660	1480	2010	1470
22	1730	1580	---		2660	1890	---	1210	1630	1460	1940	1480
23	1780	1800	---		2150	2070	1550	1170	1640	---	1990	1460
24	1850	1840	---		2480	1960	---	1070	1570	1520	1960	---
25	1680	1730	---		2260	2090	1980	1070	1290	1540	1830	---
26	1760	1710	---		2600	2470	2080	1080	---	1650	1830	1470
27	1680	1860	---		2260	2110	2090	1010	1940	1670	1830	---
28	1800	1630	---		1670	2290	1810	1000	1580	1660	1710	---
29	1690	1790	---		---	2390	1820	---	1630	1730	1680	1630
30	1900	1670	---		---	2330	---	---	1580	---	1710	1680
31	1680	---	---		---	2340	---	990	---	---	1820	---
MEAN	1750	1740	1860		2480	2120	1760	1460	1460	1570	1890	1640

WTR YR 1983 MEAN 1790 MAX 2760 MIN 961

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	14.0	9.0		---	7.0	---	---	21.0	27.5	29.0	29.0
2	22.0	14.0	9.0		---	7.0	8.5	14.5	21.0	27.0	28.0	30.0
3	22.0	12.0	10.0		---	7.0	---	14.5	23.0	---	31.5	---
4	22.0	12.0	10.0		---	7.0	9.0	16.0	---	---	32.0	---
5	21.0	10.0	8.0		---	7.0	9.0	19.0	---	28.5	31.0	---
6	21.0	10.0	---		4.0	8.0	9.5	20.5	23.5	28.5	---	26.0
7	20.0	10.0	---		4.0	8.0	8.5	---	24.0	28.5	---	30.0
8	19.0	9.0	---		4.0	8.0	9.0	18.0	24.5	27.0	28.0	30.0
9	19.0	9.0	---		5.0	8.0	9.5	21.0	25.0	---	32.5	29.5
10	18.0	9.0	---		5.0	8.0	10.5	19.0	---	28.5	32.5	29.5
11	17.0	9.0	---		5.0	8.0	11.5	18.0	---	27.0	33.0	29.0
12	17.0	9.0	---		5.0	7.0	11.0	---	25.0	29.0	33.5	29.0
13	17.0	9.0	---		5.0	6.0	9.0	---	25.5	29.0	---	24.5
14	17.0	14.0	---		5.0	7.0	10.0	18.5	24.5	28.5	---	25.0
15	17.0	14.0	---		5.0	7.0	10.0	---	25.5	27.5	28.0	---
16	18.0	14.0	---		5.0	7.0	---	20.5	25.5	---	30.0	22.5
17	16.0	---	---		5.0	8.0	14.0	19.0	24.0	29.0	28.0	26.5
18	16.0	14.0	---		8.0	5.0	13.0	18.0	25.0	27.0	29.0	27.0
19	16.0	14.0	---		7.0	5.0	10.0	21.0	25.0	29.5	27.0	---
20	16.0	14.0	---		7.0	8.0	12.5	21.0	25.5	30.0	28.0	19.0
21	16.0	12.0	---		6.0	8.0	---	19.5	26.0	29.0	28.0	20.0
22	16.0	12.0	---		7.0	7.0	---	21.5	26.5	30.0	28.0	21.5
23	12.0	12.0	---		7.0	5.0	13.0	21.0	26.5	---	31.5	22.0
24	17.0	14.0	---		7.0	7.0	---	21.5	27.0	31.0	31.5	---
25	17.0	13.0	---		7.0	6.0	13.0	22.0	25.5	29.5	31.5	---
26	16.0	13.0	---		5.0	5.0	13.5	23.0	---	31.0	27.0	24.0
27	16.0	12.0	---		4.0	5.0	15.0	23.0	26.0	31.5	31.5	---
28	16.0	9.0	---		4.0	7.0	16.0	21.5	26.5	27.0	28.5	---
29	16.0	10.0	---		---	4.0	17.5	---	26.5	28.5	32.5	25.0
30	17.0	10.0	---		---	5.0	---	---	27.0	---	32.0	24.5
31	17.0	---	---		---	6.0	---	21.0	---	---	25.0	---
MEAN	17.5	11.5	9.0		5.5	6.5	11.5	19.5	25.0	28.5	30.0	26.0

WTR YR 1983 MEAN 18.0 MAX 33.5 MIN 4.0

ARKANSAS RIVER BASIN

07165000 HEYBURN LAKE NEAR HEYBURN, OK

LOCATION.--Lat 35°56'52", long 96°17'55", in SE 1/4 sec.13, T.17 N., R.9 E., Creek County, Hydrologic Unit 11110101, at intake structure at right abutment of Heyburn Dam on Polecat Creek, 2.5 mi (4.0 km) northwest of Heyburn, 3.5 mi (5.5 km) upstream from bridge on U.S. Highway 66, 11.0 mi (17.7 km) southwest of Sapulpa, and at mile 48.6 (28.2 km).

DRAINAGE AREA.--123 mi^2 (318.6 km^2).

PERIOD OF RECORD.--October 1950 to current year. Prior to October 1970, published as Heyburn Reservoir near Heyburn.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earth dam. Outlet works consist of an 8.25 ft (2.515 m) diameter concrete conduit extending from an uncontrolled concrete drop inlet at the upstream side of dam at a concrete stilling basin near downstream toe of dam and three, 36 in. (0.91 m) gated lowflow pipes which drain into the conduit below the drop inlet. Spillway is 200 ft (61.0 m) channel in a natural saddle about 1,000 ft (304.8 m) west of right abutment. Storage began Sept. 29, 1950; conservation pool was first filled Mar. 10, 1951. Capacity, 144,800 acre-ft (179 hm^3), at elevation 802.0 ft (244.45 m) maximum pool, 55,030 acre-ft (67.9 hm^3), at elevation 784.0 ft (238.96 m), spillway crest and top of flood control pool, and 6,620 acre-ft (8.2 hm^3) at elevation 761.5 (232.11 m), conservation pool. Dead storage, 226 acre-ft (3,280 m^3) below elevation 740.0 ft (225.55 m), invert of lowflow sluices. Reservoir was designed for flood control and conservation. Figures given herein represent total contents. Revised capacity table, based on survey in 1971, used since Oct. 1, 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 32,210 acre-ft (39.7 hm^3), Nov. 4, 1974, elevation, 776.85 ft (236.784 m); minimum since conservation pool was first filled, 4,070 acre-ft (5.02 hm^3) May 8, 9, 1981, elevation 757.95 ft (231.023 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 13,350 acre-ft (16.5 hm^3), May 14, elevation, 767.24 ft (233.855 m); minimum, 5,040 acre-ft (6.21 hm^3) Sept. 30, elevation 759.44 ft (231.477 m).

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

757	3,510	769	15,940
760	5,420	772	21,090
763	8,130	775	27,550
766	11,690		

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5620	5380	5860	7040	11180	6980	7480	7190	7560	6760	6070	5480
2	5620	5370	6170	6980	10400	6950	7340	7090	7380	6740	6060	5460
3	5620	5350	6220	6940	8650	6920	7170	7020	7240	6710	6040	5440
4	5610	5340	6240	6900	8050	6900	7340	6980	7130	6690	6020	5420
5	5600	5320	6260	6880	7690	6890	8620	6930	8580	6660	5980	5390
6	5580	5320	6260	6800	7490	7450	8190	6910	8310	6640	5970	5370
7	5570	5310	6260	6780	7290	7440	7830	6890	7850	6620	5970	5350
8	5560	5300	6260	6770	7210	7350	7610	6860	7520	6600	5940	5320
9	5540	5300	6250	6760	7140	7220	7420	6820	7330	6570	5920	5300
10	5520	5310	6260	6740	7100	7130	7310	7120	7190	6540	5900	5280
11	5500	5350	6260	6720	7060	7030	7190	7540	7080	6530	5890	5270
12	5490	5340	6260	6710	7000	6950	7130	7440	7000	6520	5860	5250
13	5480	5330	6240	6700	6970	6940	7190	10020	6950	6490	5840	5240
14	5470	5320	6230	6700	6930	6890	7170	13010	6900	6470	5820	5220
15	5460	5310	6220	6660	6890	6880	7120	10350	6850	6450	5800	5240
16	5450	5300	6220	6650	6850	6870	7050	9200	6820	6440	5770	5240
17	5440	5300	6220	6640	6830	6850	7010	8430	6790	6420	5740	5230
18	5420	5290	6220	6640	6830	6830	6980	8640	6760	6400	5730	5220
19	5420	5280	6200	6640	6810	6770	6960	8110	6750	6380	5690	5200
20	5400	5290	6190	6640	6820	6760	6940	7740	6730	6350	5680	5210
21	5390	5280	6180	6640	7240	6760	6960	8050	6710	6330	5670	5190
22	5380	5300	6180	6640	7330	6760	7870	7830	6700	6310	5660	5170
23	5370	5300	6180	6640	7280	6760	8910	7610	6680	6280	5630	5150
24	5350	5280	6190	6640	7190	6760	8310	7430	6670	6260	5610	5120
25	5350	5270	6220	6640	7140	6830	7890	7220	6720	6240	5590	5110
26	5340	5380	6220	6680	7120	9100	7620	7120	6760	6210	5580	5090
27	5330	5720	7630	6680	7080	8420	7470	7070	6780	6180	5560	5080
28	5390	5810	7620	6680	7010	8000	7350	7430	6830	6150	5540	5070
29	5390	5830	7420	6690	---	7720	7260	7380	6840	6130	5530	5050
30	5380	5830	7240	6690	---	7600	7240	7670	6790	6110	5500	5040
31	5380	---	7120	7340	---	7460	---	7820	---	6100	5500	---
MAX	5620	5830	7630	7340	11180	9100	8910	13010	8580	6760	6070	5480
MIN	5330	5270	5860	6640	6810	6760	6940	6820	6670	6100	5500	5040
†	759.94	760.56	762.03	762.25	761.92	762.36	762.15	762.71	761.69	760.90	760.11	759.44
††	-250	+450	+1,290	+220	-330	+450	-220	+580	-1,030	-690	-600	-460

CAL YR 1982 MAX 24340 MIN 4260, †† +2,750
WTR YR 1983 MAX 13010 MIN 5040, †† -590

† Elevation, in feet, at end of month
†† Change in contents, in acre-ft

ARKANSAS RIVER BASIN

07165570 ARKANSAS RIVER NEAR HASKELL, OK

LOCATION.--Lat 35°49'23", long 95°38'39", in NE 1/4 sec.31, T.16 N., R.16 E., Muskogee County, Hydrologic Unit 11110101, near right bank on downstream side of bridge on State Highway 104, 2 mi (3.2 km) east of Haskell, 23.5 mi (37.8 km) upstream from Verdigris River, and at mile 483.7 (778.3 km).

DRAINAGE AREA.--75,473 mi^2 (195,475 km^2), of which 12,541 mi^2 (32,481 km^2) probably is noncontributing.

PERIOD OF RECORD.--June 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 530.00 ft (161.544 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Keystone Lake (station 07164200) 55.1 mi (88.7 km) upstream.

COOPERATION.--Gage-height record and 22 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--11 years, 8,152 ft^3/s (230.9 m^3/s), 6,369,000 acre-ft/yr (7.85 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 108,000 ft^3/s (3,060 m^3/s) Nov. 6, 1974, gage height, 17.30 ft (5.273 m); minimum daily, 193 ft^3/s (5.47 m^3/s) Feb. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45,200 ft^3/s (1,280 m^3/s) Apr. 9, 10, gage height, 12.36 ft (3.767 m); minimum daily discharge, 139 ft^3/s (3.94 m^3/s) Nov. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1940	1290	762	693	6240	10500	24600	8420	26700	22500	2980	1310
2	1040	438	567	570	11800	10300	24500	8080	22200	22400	2170	1190
3	1830	448	1020	595	7150	9860	26300	11200	18800	22600	1950	1160
4	1100	594	988	439	3380	8040	28500	9390	16200	22500	1430	1200
5	1150	559	786	1730	1990	9780	33800	9070	11900	20600	1540	562
6	3100	674	625	1850	2700	6040	40400	9080	14900	11500	1400	7550
7	2160	670	352	2310	3500	4290	42200	9050	13800	18100	1350	2340
8	1910	503	198	1700	3400	5330	43000	8820	11800	22500	1750	1630
9	1330	277	224	2500	3010	9890	44400	8900	11600	22300	726	1050
10	1680	394	395	1100	3470	11000	43900	8880	9030	22300	999	548
11	938	613	580	798	3190	10900	43100	9730	8230	22200	1410	1490
12	633	886	624	2880	2850	10700	43000	10100	8610	17100	1140	530
13	1110	1140	560	2060	2270	8570	42200	10800	8560	13900	1370	334
14	701	773	296	3120	2410	8320	42200	21200	9430	13700	1560	605
15	753	579	621	5490	2020	10700	40800	22800	13500	13000	2420	540
16	667	305	406	3120	2460	10500	36000	24300	13600	11900	3490	1010
17	667	185	579	1790	2490	9910	33000	28900	13400	9000	3340	658
18	658	139	459	3360	2460	9100	32300	33600	16100	8500	3670	772
19	409	274	745	5660	2440	9060	29800	32100	18300	10100	3570	539
20	498	475	363	6050	2260	4700	24300	26700	18300	12500	2190	349
21	617	678	175	5690	3270	1610	22400	23800	18300	9010	1440	1010
22	633	566	504	5750	8570	1900	22800	23200	18400	8930	690	575
23	600	684	2040	3180	9200	3340	26600	21400	18300	8480	443	736
24	328	690	1970	1210	11400	3230	21900	31600	16700	4410	1030	507
25	241	578	2540	902	11200	2910	17900	36400	8460	1660	1150	947
26	196	767	887	2270	10800	3290	16800	35500	8600	3560	1440	545
27	341	2410	565	2800	8480	4010	15800	34700	8410	7230	1450	313
28	576	3700	2240	2630	7810	3250	13000	30900	13700	6860	2270	817
29	2090	1620	2670	2470	---	1910	12500	27400	13500	5910	641	1260
30	798	610	1920	1470	---	3910	12300	26700	18500	3380	400	1160
31	1550	---	1300	1020	---	19400	---	27500	---	2770	1580	---
TOTAL	32244	23519	27961	77207	142220	226250	900300	630220	427830	401400	52989	33237
MEAN	1040	784	902	2491	5079	7298	30010	20330	14260	12950	1709	1108
MAX	3100	3700	2670	6050	11800	19400	44400	36400	26700	22600	3670	7550
MIN	196	139	175	439	1990	1610	12300	8080	8230	1660	400	313
AC-FT	63960	46650	55460	153100	282100	448800	1786000	1250000	848600	796200	105100	65930

CAL YR 1982 TOTAL 3303839 MEAN 9052 MAX 62100 MIN 139 AC-FT 6553000
WTR YR 1983 TOTAL 2975377 MEAN 8152 MAX 44400 MIN 139 AC-FT 5902000

ARKANSAS RIVER BASIN

07171000 VERDIGRIS RIVER NEAR LENAPAH, OK

LOCATION.--Lat 36°51'05", long 95°35'06", at center of sec.3, T.27 N., R.16 E., Nowata County, Hydrologic Unit 11070103, on right bank on downstream side of county road bridge, 2.8 mi (4.5 km) east of Lenapah, 4.5 mi (7.2 km) upstream from Cedar Creek, and at mile 144.6 (232.7 km).

DRAINAGE AREA.--3,639 mi^2 (942.5 km^2).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 977: 1942 (M). WSP 1117: drainage area.

GAGE.--Water-stage recorder. Datum of gage is 644.89 ft (196.562 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation, by dams in Kansas, since April 1949.

COOPERATION.--Gage-height record and 8 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation) 11 years (water years 1939-49), 2,599 ft^3/s (73.60 m^3/s), 1,833,000 acre-ft/yr (2.32 km^3/yr); (since regulation) 17 years (water years 1967-83), 2,407 ft^3/s (68.17 m^3/s), 1,744,000 acre-ft/yr (2.15 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 137,000 ft^3/s (3,880 m^3/s) May 20, 1943, gage height, 40.44 ft (12.326 m), from floodmarks; no flow at times in 1939-40, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,500 ft^3/s (864 m^3/s) Apr. 23, gage height, 28.53 ft (8.696 m); minimum daily discharge, 8.3 ft^3/s (0.24 m^3/s) Aug. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	68	233	3650	14100	1010	13500	7520	1150	1450	23	16
2	41	69	2930	3500	17600	996	22100	6610	1980	1520	22	18
3	43	63	1260	3370	9610	871	20400	5970	1400	1300	19	23
4	43	58	1110	3250	4090	1330	16200	4250	3660	1200	17	25
5	41	50	1010	2700	5580	8660	18500	2770	7000	8000	15	22
6	38	46	1000	2320	5440	5260	24200	2450	4000	4590	13	27
7	37	43	821	1860	5200	3450	17800	5970	2100	1590	12	45
8	37	40	727	1220	4690	2900	13100	2790	2000	1650	11	56
9	41	42	890	957	4320	2960	14900	2060	2090	1390	9.8	36
10	105	42	1070	748	4120	2550	16000	1850	2010	1170	9.1	27
11	802	49	1300	693	5260	2190	16400	1840	1870	1130	8.6	22
12	345	54	1460	677	5450	1780	16300	2070	1530	1100	8.3	18
13	194	72	974	636	4930	1400	15800	9120	1350	1060	12	16
14	136	83	559	494	4290	1110	15400	17100	1410	669	14	15
15	164	75	440	437	3780	988	15000	20900	1730	301	13	18
16	517	72	1050	395	3510	693	14800	5350	1680	196	11	43
17	526	71	1100	325	4080	435	13500	3110	1500	144	9.9	66
18	478	69	1030	241	4270	356	11100	5710	1650	102	9.5	57
19	418	281	828	207	3490	332	9550	9310	1470	85	9.2	56
20	403	377	580	201	2810	423	8580	6830	2020	75	9.2	68
21	388	338	737	197	2700	551	5030	5130	1200	69	16	74
22	296	236	939	201	3230	807	5570	5940	1340	65	37	68
23	223	142	730	205	2880	1340	27400	7140	2480	60	33	56
24	189	99	742	218	2980	2600	25300	4890	2640	54	26	47
25	144	76	731	248	2300	2130	11700	3940	2410	48	24	44
26	112	76	1000	458	1800	2240	4200	2800	2200	42	21	44
27	84	111	2600	649	1450	9590	5900	1770	2210	38	20	44
28	76	168	8400	516	1070	11000	7320	1370	2000	33	19	46
29	76	135	9680	578	---	5620	7470	1370	2330	28	17	50
30	69	117	4780	1190	---	11300	7880	1200	1750	26	15	52
31	66	---	3670	1490	---	13100	---	1120	---	24	15	---
TOTAL	6177	3222	54381	33831	135030	99972	420900	160250	64160	29209	498.6	1199
MEAN	199	107	1754	1091	4823	3225	14030	5169	2139	942	16.1	40.0
MAX	802	377	9680	3650	17600	13100	27400	20900	7000	8000	37	74
MIN	37	40	233	197	1070	332	4200	1120	1150	24	8.3	15
AC-FT	12250	6390	107900	67100	267800	198300	834900	317900	127300	57940	989	2380

CAL YR 1982	TOTAL	909428	MEAN	2492	MAX	24500	MIN	37	AC-FT	1804000
WTR YR 1983	TOTAL	1008829.6	MEAN	2764	MAX	27400	MIN	8.3	AC-FT	2001000

ARKANSAS RIVER BASIN

07171300 OOLOGAH LAKE NEAR OOLOGAH, OK

LOCATION.--Lat 36°25'19", long 95°40'43", in NE 1/4 NW 1/4 sec.2, T.22 N., R.15 E., Rogers County, Hydrologic Unit 11070103, in gage tower 1,000 ft (304.8 m) from left end of dam on Verdigris river, 2.0 mi (3.2 km) southeast of Oologah, and at mile 90.3 (145.3 km).

DRAINAGE AREA.--4,339 mi^2 (11,238 km^2).

PERIOD OF RECORD.--May 1963 to current year. Prior to October 1970, published as Oologah Reservoir near Oologah.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth dam. Spillway is concrete ogee-type weir controlled by 7 taintor gates. Storage began May 15, 1963, conservation pool was first filled Apr. 4, 1964. Capacity 1,519,000 acre-ft (1.87 km^3) at elevation 661.0 ft (201.47 m), top of flood control pool, 553,400 acre-ft (682 hm^3) at elevation 638.0 ft (194.46 m), conservation pool. Dead storage 9,260 acre-ft (11.4 hm^3) below elevation 592.0 ft (180.44 m). Figures given herein represent total contents. Reservoir is used for flood control and conservation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,426,000 acre-ft (1.76 km^3) Apr. 26, 1973, elevation, 659.33 ft (200.964 m); minimum since conservation pool first filled 33,750 acre-ft (41.6 hm^3) Aug. 28, Oct. 27, 1969, elevation, 602.87 ft (183.755 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 770,600 acre-ft (950 hm^3) Apr. 25, elevation, 644.68 ft (196.498 m); minimum, 504,500 acre-ft (622 hm^3) Sept. 28, elevation, 636.30 ft (193.944 m).

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

636	496,290	644	750,470
638	553,420	646	819,420
641	645,970	649	935,900

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	523800	522100	537000	601000	614200	578300	622400	732400	640800	570000	545700	521500
2	524100	523200	548800	601000	648300	578300	638500	726800	637500	567300	544800	520900
3	523500	521500	554900	601300	664600	574900	648300	717500	639400	574300	543600	519800
4	522700	520900	555400	608900	660000	591200	658000	707400	638500	565700	542800	516600
5	522100	520100	557400	611700	657700	614200	680500	690300	648600	572800	542500	517200
6	523500	518900	557200	618100	657400	625500	692600	676300	647300	572800	542200	516300
7	520900	518600	558900	620300	654400	626700	694200	678900	646000	570600	541900	515500
8	519500	518900	560300	618400	654400	622100	679900	662200	632900	569100	541300	515200
9	521200	517800	556900	617500	651800	616300	646900	650500	608600	565700	540800	513500
10	520600	518100	563900	617500	647300	608300	662300	641400	591500	563000	539000	513200
11	520900	517800	562400	619400	644700	604300	654800	628400	584400	560900	539000	513200
12	520900	521500	560900	614500	642400	599700	646900	608000	576800	560000	538200	514300
13	521200	517800	559700	605300	638500	598500	640800	609600	569700	559200	537000	512300
14	519800	520100	564200	597900	635600	593300	632900	646300	563300	558000	535300	510900
15	521500	518300	565100	587200	631000	591200	623300	681800	559200	556300	534400	512000
16	520900	517800	566900	578300	625500	588100	614500	687700	558300	556900	533300	511700
17	519800	517800	566000	570900	621200	583800	605600	677900	557200	555400	533000	510000
18	518100	517800	571500	558300	616900	582600	597000	677300	558300	555700	531900	510600
19	521200	514000	570300	553400	611100	586000	595800	684400	557700	555700	530400	508000
20	522400	519800	569700	554300	607100	586000	593300	687700	559200	554600	529300	512000
21	522900	519200	567300	553700	602200	576100	595500	688700	560000	554000	528400	510300
22	522100	529800	564200	552600	600100	560600	625500	690600	559700	553400	527500	511700
23	521500	528400	562000	552000	595800	553400	708400	691000	562000	552300	527300	508900
24	521500	527000	558900	552600	595500	554300	759900	690000	565100	551100	526400	506800
25	521200	527000	556900	552300	592400	556600	767500	689000	568500	552600	525800	507100
26	520100	533600	551100	558300	587500	558000	744900	685100	574300	549700	525000	507100
27	518100	532400	556900	556900	582900	578300	718200	677600	576500	548800	524700	506600
28	522900	535000	579800	557200	578900	592400	705300	672700	577700	548200	523800	506000
29	522100	535300	595100	559700	---	593900	724400	665900	576100	546800	522100	505400
30	521500	548000	601600	560600	---	605000	726100	657700	573700	546500	521500	504800
31	520900	---	601000	574000	---	613500	---	649600	---	546200	522400	---
MAX	524100	548000	601600	620300	664600	626700	767500	732400	648600	574300	545700	521500
MIN	518100	514000	537000	552000	578900	553400	593300	608000	557200	546200	521500	504800
†	636.87	637.81	639.57	638.69	638.85	639.98	643.40	641.11	638.68	637.75	636.92	636.31
††	-3,200	+27,100	+53,000	-27,000	+4,900	+34,600	+112,600	-76,500	-75,900	-27,500	-23,800	-17,600

CAL YR 1982 MAX 918900 MIN 505100, †† +50,500
WTR YR 1983 MAX 767500 MIN 504800, †† -19,300

† Elevation in feet, at end of month.
†† Change in contents, in acre-feet.

ARKANSAS RIVER BASIN

07171400 VERDIGRIS RIVER NEAR OOLOGAH, OK

LOCATION.--Lat 36°25'17", long 95°41'01", in NW 1/4 sec.2, T.22 N., R.15 E., Rogers County Hydrologic Unit 11070105, on right bank 0.2 mi (0.3 km) downstream from Oologah Dam, 1.2 mi (1.9 km) upstream from Fourmile Creek, 2 mi (3.2 km) southeast of Oologah, and at mile 90.0 (144.8 km).

DRAINAGE AREA.--4,339 mi^2 (11,238 km^2).

PERIOD OF RECORD.--June 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 552.00 ft (168.250 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation by several dams in Kansas prior to May 1963 and completely regulated thereafter by Oologah Lake (station 07171300).

COOPERATION.--Gage height record and 7 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Since regulation by Oologah Lake) 19 years (water years 1965-83), 2,651 ft^3/s (75.08 m^3/s), 1,920,000 acre ft/yr (2.37 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft^3/s (850 m^3/s) May 16, 1973, gage height, 38.05 ft (11.598 m); no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1943 reached a stage of 65.2 ft (19.87 m), from floodmarks. Flood of May 9, 1961, reached a stage of 52.8 ft (16.09 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,200 ft^3/s (572 m^3/s) Apr. 7, gage height, 30.10 ft (9.174 m); minimum daily discharge, 2.9 ft^3/s (0.082 m^3/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	41	37	3870	3510	1200	9640	9980	4860	2340	23	60
2	35	40	38	3850	2720	650	12000	9640	3730	2330	3.6	59
3	35	40	167	2210	4350	645	14800	9530	2100	2330	2.9	59
4	35	40	409	120	6570	650	13600	9500	2090	2320	17	58
5	35	40	401	118	6530	650	12900	9480	2090	2310	49	58
6	36	41	595	803	6530	678	20000	9460	2070	2300	51	58
7	37	41	865	1330	6520	1460	20100	9440	2070	2300	52	57
8	37	41	852	1320	6510	6160	19600	9420	8080	2300	53	58
9	38	41	848	1320	6520	6140	19300	9370	14300	2290	54	58
10	38	41	862	1020	6500	6120	19100	7320	10200	2290	55	57
11	37	41	877	689	6480	4240	19000	13200	4810	2290	52	57
12	37	40	853	1600	6480	3170	19000	14500	4790	1600	50	57
13	37	40	595	5220	6470	3150	18800	15000	4790	1010	51	58
14	37	40	87	5190	6460	3160	18700	11000	4770	1010	53	58
15	37	40	85	5180	6450	3150	18700	5190	2890	468	53	59
16	37	39	84	5160	6430	3140	18600	5110	2080	105	54	57
17	38	38	84	5150	6430	1970	18500	7640	1700	100	55	57
18	39	39	83	5140	6410	238	15800	8280	932	99	56	57
19	39	39	83	3450	6400	104	9520	4950	925	93	57	59
20	39	37	1330	774	6420	101	9500	4940	915	87	58	59
21	39	37	2100	471	6420	6340	7430	4940	914	65	59	58
22	40	37	1740	470	5450	8820	4060	4940	906	40	60	57
23	39	36	2380	468	5130	3760	5520	4910	901	38	61	57
24	40	36	3640	469	4200	2210	4360	4890	901	38	61	57
25	40	35	3610	349	4110	1630	6730	4890	898	45	63	57
26	39	57	3560	131	4100	1030	14700	4890	912	56	62	59
27	39	40	2160	384	4100	996	19000	4900	1140	55	60	61
28	40	40	285	712	3080	2910	13900	4890	2470	55	61	62
29	40	39	134	709	---	6040	9600	4890	2370	54	61	61
30	40	38	1940	706	---	6950	9720	4880	2350	56	60	61
31	40	---	3890	1730	---	8790	---	4860	---	57	60	---
TOTAL	1174	1194	34674	60113	157280	96252	422180	236830	93954	30531	1567.5	1750
MEAN	37.9	39.8	1119	1939	5617	3105	14070	7640	3132	985	50.6	58.3
MAX	40	57	3890	5220	6570	8820	20100	15000	14300	2340	63	62
MIN	35	35	37	118	2720	101	4060	4860	898	38	2.9	57
AC-FT	2330	2370	68780	119200	312000	190900	837400	469800	186400	60560	3110	3470

CAL YR 1982	TOTAL 899598.48	MEAN	2465	MAX	19100	MIN	.00	AC-FT	1784000
WTR YR 1983	TOTAL 1137499.5	MEAN	3116	MAX	20100	MIN	2.9	AC-FT	2256000

07172500 HULAH LAKE NEAR HULAH, OK

LOCATION.--Lat 36°55'44", long 96°05'18", in SE 1/4 sec.2, T.28 N., R.11 E., Osage County, Hydrologic Unit 11070106, in stair tower at right end of Hulah Dam on Caney River, 0.5 mi (0.8 km) downstream from Hickory Creek, 2.0 mi (3.2 km) west of Hulah, 15.7 mi (25.3 km) upstream from Little Caney River, and at mile 96.2 (154.8 km).

DRAINAGE AREA.--732 mi^2 (1,896 km^2).

PERIOD OF RECORD.--April 1950 to current year. Prior to October 1970, published as Hulah Reservoir near Hulah.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Feb. 15, 1951, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by an earth dam. Spillway is 472 ft (143.9 m) concrete ogee-type weir controlled by 10 taintor gates. Outlet works consist of nine rectangular sluices, two 24 in. (0.61 m) gated pipes, and one 10 in. (254 mm) water-supply pipe. Closure for diversion made Feb. 6, 1950; regulated storage began Oct. 25, 1950; conservation pool was first filled Sept. 24, 1951. Capacity, 292,600 acre-ft (361 hm^3) at elevation 765.0 ft (233.17 m), top of taintor gates, 65,600 acre-ft (80.9 hm^3) at elevation 740.0 ft (225.55 m), crest of spillway, and 34,660 acre-ft (42.7 hm^3) at elevation 733.0 ft (223.42 m) conservation pool. Dead storage, 506 acre-ft (0.62 hm^3) below elevation 706.0 ft (215.19 m) invert of sluices. Figures given herein represent total contents. Reservoir is used for flood control, conservation, and municipal water supply. Revised capacity table, based on survey in 1973, used since Oct. 1, 1977.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 293,400 acre-ft (362 hm^3) June 23, 1957, elevation, 764.87 ft (233.132 m); minimum since conservation pool was first filled, 11,250 acre-ft (13.9 hm^3) Mar. 20, 1957, elevation, 723.22 ft (220.437 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 86,590 acre-ft (107 hm^3) May 23, elevation 744.34 ft (226.875 m), minimum, 23,990 acre-ft (29.6 hm^3) Dec. 24, elevation 730.86 ft (222.766 m).

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

727	13,750	743	78,170
732	27,660	749	120,500
737	47,070	756	184,200

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27390	25500	24800	29050	38560	31690	53170	49530	35670	33110	30050	26670
2	27360	25340	24800	29220	41070	31580	54650	48760	34150	32820	30370	26600
3	27330	25310	24580	29360	41520	31510	53410	45800	33000	32490	29880	26630
4	27230	25210	24830	29430	40700	31550	51260	42470	32670	32130	29770	26500
5	27090	25120	24800	29530	39440	32090	61060	39000	32050	31840	29710	26340
6	27130	25120	24770	29600	37770	33450	59430	38360	31760	31730	29640	26270
7	26830	25050	24700	29670	36280	33780	55030	37570	31870	31660	29640	26080
8	27090	24990	24610	29740	34980	33340	49890	36280	32020	31660	29500	25950
9	26960	24930	24580	29840	34150	32640	44630	34870	32050	31580	29390	25820
10	26860	24860	24610	29880	33780	32130	38920	33450	31980	31510	29320	25760
11	26670	25150	24520	29710	32890	31800	35630	32050	31910	31510	29190	25530
12	26570	24890	24640	29740	31980	31690	34570	37180	31940	31480	29050	25500
13	26530	24930	24520	30090	30870	31400	33410	69150	31910	31480	28910	25370
14	26440	24670	24480	30090	30370	31260	32270	79820	32020	31400	28810	25920
15	26370	24670	24420	30090	30510	31190	31660	83130	31870	31370	28740	25850
16	26310	24640	24420	30090	30620	31190	31660	81000	31800	31300	28640	25760
17	26180	24550	24360	30050	30800	31080	31660	78840	31840	31300	28570	25630
18	26080	24480	24360	30050	30830	31010	31550	82120	32020	31220	28400	25500
19	25850	24480	24270	30050	30870	31220	31480	77510	32230	31120	28230	25630
20	25950	24450	24270	30050	31120	31300	31370	71230	32670	31080	28090	25600
21	25850	24390	24200	30090	31300	31440	31370	81370	32890	30970	28030	25500
22	25760	24270	24170	30190	31580	31510	33370	85230	32930	30900	27930	25180
23	25720	24390	24080	30160	31760	31660	39320	85680	32890	30800	27730	25050
24	25720	24300	24270	30160	31660	31760	41190	80690	32860	30690	27660	25050
25	25560	24230	24330	30230	31760	32090	41390	73710	32860	30620	27490	24960
26	25430	24330	24300	30300	31800	38160	39760	66720	32860	30510	27390	24930
27	25370	24640	26730	30270	31800	43690	37650	60650	32860	30340	27330	24890
28	25630	24640	27990	30300	31730	43910	35400	55810	33410	30340	27260	24700
29	25530	24580	28400	30270	---	42770	45100	50340	33860	30230	27130	24670
30	25470	24520	28570	30300	---	48620	47600	44850	33450	30160	27060	24580
31	25430	---	28810	32090	---	47640	---	39400	---	30050	26930	---
MAX	27390	25500	28810	32090	41520	48620	61060	85680	35670	33110	30370	26670
MIN	25370	24230	24080	29050	30370	31010	31370	32050	31760	30050	26930	24580
†	731.32	731.03	732.34	733.27	733.17	737.13	737.12	735.18	733.64	732.70	731.78	731.05
††	-2,200	-910	+4,290	+3,280	-360	+15,910	-40	-8,200	-5,950	-3,400	-3,120	-2,350

CAL YR 1982 MAX 182800 MIN 24080, †† -3,420
WTR YR 1983 MAX 85680 MIN 24080, †† -3,050

† Elevation, in feet, at end of month
†† Change, in contents, in acre-feet

ARKANSAS RIVER BASIN

07173000 CANEY RIVER NEAR HULAH, OK

LOCATION.--Lat 36°55'34", long 96°05'01", in NE 1/4 NE 1/4 sec.11, T.28 N., R.11 E., Osage County, Hydrologic Unit 11070106, on left bank 1,200 ft (365.8 m) downstream from Hulah Dam, 2.1 mi (3.4 km) upstream from Opossum Creek, 2.5 mi (4.0 km) west of Hulah, and at mile 95.9 (154.3 km).

DRAINAGE AREA.--733 mi^2 (1,898 km^2).

PERIOD OF RECORD.--October 1937 to current year.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 699.00 ft (213.055 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 18, 1939, nonrecording gage. Feb. 18, 1939, to Sept. 30, 1948, waterstage recorder at county road bridge, 0.2 mi (0.3 km) upstream at datum 14.04 ft (4.279 m) lower. Oct. 1, 1948, to Sept. 30, 1972, at site 0.6 mi (1.0km) downstream at datum 17.04 ft (5.194 m) lower.

REMARKS.--Records fair. Flow completely regulated since February 1950 by Hulah Lake (station 07172500). About 5 to 9 ft^3/s (0.14 to 0.25 m^3/s) is diverted above station by city of Bartlesville for municipal water supply.

COOPERATION.--Gage-height record and 9 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Hulah Dam) 13 years (water years 1938-50), 413 ft^3/s (11.70 m^3/s), 299,200 acre-ft/yr (369 hm^3/yr); (since regulation by Hulah Dam) 33 years (water years 1951-83), 328 ft^3/s 9.288 m^3/s), 237,600 acre-ft/yr (293 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,000 ft^3/s (1,440 m^3/s) Apr. 10, 1944, gage height, 39.45 ft (12.024 m), at former site and datum; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 40.2 ft (12.25 m) occurred at former site and datum, date unknown, from floodmark, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,890 ft^3/s (110 m^3/s) May 21, gage height, 7.14 ft (2.176 m). Minimum daily discharge, 2.5 ft^3/s (.071 m^3/s) on May 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	13	13	31	172	2240	2.5	1950	360	11	18
2	12	13	13	13	15	173	2220	636	1350	247	12	11
3	12	13	13	13	289	172	2190	1520	909	249	12	11
4	12	13	13	13	760	172	2630	1810	375	248	12	11
5	12	13	13	13	1000	173	3770	1830	374	182	12	11
6	12	13	13	13	967	176	3710	1450	238	83	12	12
7	11	13	13	13	958	313	3630	913	69	55	12	12
8	13	13	13	13	955	517	3580	879	69	10	12	12
9	25	13	13	13	957	513	3440	877	70	10	12	12
10	25	13	13	13	951	511	3390	871	70	10	12	12
11	21	14	13	13	943	355	2320	868	69	7.5	12	14
12	19	13	13	13	940	254	1060	613	69	6.2	11	15
13	16	13	13	13	923	251	1070	460	69	6.0	12	18
14	13	13	13	14	567	251	1060	244	69	6.0	12	22
15	13	13	13	13	247	210	584	24	69	6.1	11	23
16	13	13	13	13	203	169	299	978	69	5.9	11	26
17	13	14	13	13	163	169	296	2420	40	6.1	11	26
18	13	13	13	13	163	125	299	2870	15	6.2	12	26
19	13	13	13	13	166	84	299	3390	15	6.1	12	26
20	13	13	13	13	170	82	299	3810	15	6.1	7.5	26
21	13	13	13	13	169	82	299	1440	42	6.2	7.3	24
22	13	13	13	13	169	80	240	6.8	71	6.2	7.2	17
23	18	13	17	13	169	84	167	705	53	6.2	7.0	15
24	24	12	21	13	170	84	156	2990	45	6.2	7.9	15
25	17	12	21	13	172	120	362	3780	73	6.2	11	15
26	13	13	20	13	172	194	1100	3730	75	6.2	11	15
27	13	13	21	13	172	180	1350	3360	75	6.2	11	15
28	13	14	14	13	172	947	1320	2610	76	6.2	12	15
29	13	13	14	13	---	2190	1390	2860	308	8.2	13	15
30	13	13	13	13	---	2220	522	2800	501	13	19	15
31	13	---	13	22	---	2220	---	2730	---	12	24	---
TOTAL	456	391	440	413	12733	13243	45292	53477.3	7292	1599.0	360.9	505
MEAN	14.7	13.0	14.2	13.3	455	427	1510	1725	243	51.6	11.6	16.8
MAX	25	14	21	22	1000	2220	3770	3810	1950	360	24	26
MIN	11	12	13	13	15	80	156	2.5	15	5.9	7.0	11
AC-FT	904	776	873	819	25260	26270	89840	106100	14460	3170	716	1000

CAL YR 1982	TOTAL 151210.94	MEAN 414	MAX 6300	MIN .35	AC-FT 299900				
WTR YR 1983	TOTAL 136202.2	MEAN 373	MAX 3810	MIN 2.5	AC-FT 270200				

07174300 COPAN LAKE NEAR COPAN, OK

LOCATION.--Lat 36°53'13", long 95°57'10", in NW 1/4, NW 1/4 sec.29, T.28 N., R.13 E., Washington County, Hydrologic Unit 11070106, 600 ft (183 m) northwest of project office, 1.5 mi (2.4 km) southwest of Copan and at mile 7.4 (11.9km).

DRAINAGE AREA.--505 mi^2 (1,308 km^2).

PERIOD OF RECORD.--Apr. 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth dam. Spillway is concrete ogee-type weir controlled by 4 taintor gates. A 36 in (0.9 m) diameter low-flow pipe and a 12 in (0.3 m) diameter future water supply pipe extend through the spillway. Storage began April 1, 1983, conservation pool was first filled Apr. 23, 1983. Capacity 227,700 acre-feet (281 hm^3) at elevation 732.0 ft (223.11 m), top of flood control pool; 43,400 acre-ft (53.5 hm^3) at elevation, 710.0 ft (216 m), top of conservation pool. Dead storage 600 acre-ft (0.74 hm^3) below elevation 687.5 ft (209.55 m). Figures given herein represent total contents. Reservoir is used for flood control, water conservation and future water supply.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD APR. TO SEPT.--Maximum contents, 79,120 acre-ft (97.6 hm^3) May 23, 1983, elevation, 716.24 ft (218.310 m) minimum since conservation pool first filled, 31,480 acre-ft (38.8 hm^3) Sept.30, 1983, elevation, 707.33 ft (215.594 m).

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							9530	50100	50210	38370	36010	33010
2							13430	49170	49060	38420	35870	32920
3							17300	47520	46910	38460	35740	32800
4							20320	45360	45310	38510	35660	32630
5							28940	43200	43240	38460	35520	32510
6							35390	42190	41910	38370	35440	32550
7							38100	44130	40630	38230	35390	32430
8							40160	42250	40020	38230	35260	32260
9							41340	42240	39560	38100	35130	32140
10							41810	41200	39280	38010	35000	32050
11							41860	40540	39190	37960	34960	32010
12							42290	39700	39010	37920	34960	32050
13							41290	44870	39240	37780	34790	31890
14							40070	54870	39330	37740	34620	31770
15							39470	67660	39330	37560	34530	32220
16							39280	70800	39240	37470	34400	32180
17							39100	70050	39100	37420	34270	32100
18							38780	72240	39100	37380	34230	32050
19							38780	72740	39010	37240	34060	31930
20							38920	70550	38960	37200	33980	32140
21							39060	73950	39100	37070	33890	32010
22							41340	77810	39190	37020	33810	31970
23							51150	78860	39150	36890	33680	31810
24							57650	76250	39150	36750	33600	31730
25							59800	72110	39470	36750	33510	31730
26							58890	73370	39890	36620	33430	31730
27							56530	63230	39700	36400	33300	31640
28							53240	61470	40300	36270	33260	31600
29							51310	58610	40770	36220	33090	31560
30							50470	55700	39100	36140	33090	31480
31							---	52970	---	36090	33130	---
MAX							59800	78860	50210	38510	36010	33010
MIN							9530	39700	38960	36090	33090	31480
						†	711.40	711.87	709.09	708.42	707.73	707.33
						††	---	+2,500	-13,870	-3,010	-2,960	-1,650

† Elevation, in feet, at end of month
†† Change, of contents, in acre-feet

ARKANSAS RIVER BASIN

07174600 SAND CREEK AT OKESA, OK

LOCATION.--Lat 36°43'10", long 96°07'56", in NW 1/4 NW 1/4 sec.21, T.26 N., R.11 E., Osage County, Hydrologic Unit 11070106, on downstream side of left abutment of county road bridge, 0.5 mi (0.8 km) northeast of Okesa, 9 mi (14 km) southwest of Bartlesville, and at mile 17.2 (27.7 km).

DRAINAGE AREA.--139 mi^2 (360 km^2).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 689.20 ft (210.068 m) National Geodetic Vertical Datum of 1929. Prior to May 25, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good.

COOPERATION.--Gage-height record and 5 discharge measurements and 2 observations of no flow furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--24 years, 67.6 ft^3/s (1.914 m^3/s), 49,000 acre-ft/yr (60.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft^3/s (416 m^3/s) Sept. 13, 1961, gage height, 27.7 ft (8.44 m), from floodmarks; no flow at times in each year except 1975.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Apr 5	1200	4,560	129	13.68	4.170	May 14	0930	*7,980	226	*18.02	5.492
May 21	1030	5,610	159	15.14	4.615						

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.3	28	1700	25	257	165	35	23	.49	.00
2	.00	.00	36	23	370	23	301	100	38	16	.45	.00
3	.00	.00	5.1	19	148	21	142	70	69	12	.36	.00
4	.00	.00	6.4	17	91	28	145	53	64	8.7	.34	.00
5	.00	.00	8.4	15	69	99	2060	45	37	6.7	.22	.00
6	.00	.00	9.6	13	64	91	432	39	28	5.2	.15	.00
7	.00	.00	5.9	11	57	67	185	54	22	4.5	.10	.00
8	.00	.00	3.8	9.4	53	49	136	88	19	3.6	.08	.00
9	.00	.00	3.2	8.9	111	30	127	53	16	2.9	.01	.00
10	.00	.00	3.1	7.5	178	29	105	39	16	2.6	.00	.00
11	.00	.00	5.7	5.9	123	24	80	37	14	2.2	.00	.00
12	.00	.00	4.7	5.2	73	23	69	35	14	2.0	.00	.00
13	.00	.00	3.1	5.2	51	21	61	308	13	1.9	.00	.00
14	.00	.00	2.3	4.6	43	21	60	3560	16	1.5	.00	.00
15	.00	.00	2.0	3.7	38	19	54	316	16	1.6	.00	.00
16	.00	.00	1.8	3.0	33	18	44	149	12	1.8	.00	.00
17	.00	.00	1.8	2.3	30	17	39	99	9.5	1.8	.00	.00
18	.00	.00	1.7	3.1	25	16	35	972	8.5	1.9	.00	.00
19	.00	.00	1.2	3.7	23	16	34	224	6.9	1.9	.00	.00
20	.00	.00	1.1	4.4	21	19	41	106	6.4	1.8	.00	.00
21	.00	.00	1.1	4.2	23	23	45	2040	5.4	1.9	.00	.00
22	.00	.00	.99	4.0	36	21	121	388	4.9	1.6	.00	.00
23	.00	.00	.93	4.2	41	19	1060	155	4.1	1.6	.00	.00
24	.00	.00	1.1	4.9	63	17	292	91	3.7	1.5	.00	.00
25	.00	.00	1.7	4.9	59	16	133	63	3.5	1.4	.00	.00
26	.00	.00	5.3	5.5	46	826	91	48	3.8	1.2	.00	.00
27	.00	.00	500	8.5	34	737	70	40	4.1	1.1	.00	.00
28	.00	.02	387	8.9	29	181	63	83	13	.88	.00	.00
29	.00	.58	104	8.9	---	153	337	63	11	.52	.00	.00
30	.00	.30	51	8.8	---	1290	279	40	12	.49	.00	.00
31	.00	---	36	77	---	310	---	34	---	.50	.00	---
TOTAL	.00	.90	1198.32	332.7	3632	4249	6898	9557	525.8	116.29	2.20	.00
MEAN	.00	.03	38.7	10.7	130	137	230	308	17.5	3.75	.07	.00
MAX	.00	.58	500	77	1700	1290	2060	3560	69	23	.49	.00
MIN	.00	.00	.93	2.3	21	16	34	34	3.5	.49	.00	.00
AC-FT	.00	1.8	2380	660	7200	8430	13680	18960	1040	231	4.4	.00

CAL YR 1982	TOTAL	31167.24	MEAN	85.4	MAX	3910	MIN	.00	AC-FT	61820
WTR YR 1983	TOTAL	26512.21	MEAN	72.6	MAX	3560	MIN	.00	AC-FT	52590

ARKANSAS RIVER BASIN

07175500 CANEY RIVER NEAR RAMONA, OK

LOCATION.--Lat 36°30'31", long 95°50'36", in NE 1/4 NW 1/4 sec.5, T.23 N., R.14 E., Washington County, Hydrologic Unit 11070106, near left bank on downstream side of pier of county road bridge, 1 mi (1.6 km) upstream from Buck Creek, 2.2 mi (3.5 km) downstream from Double Creek, 4.5 mi (7.2 km) southeast of Ramona, and at mile 32.0 (51.5 km).

DRAINAGE AREA.--1,955 mi^2 (5,063 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1935 to February 1939 (published as "near Collinsville"), September 1945 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1241: 1939.

GAGE.--Water-stage recorder. Datum of gage is 586.43 ft (178.744 m) National Geodetic Vertical Datum of 1929. Dec. 4, 1935, to Feb. 28, 1939, nonrecording gage at site 16.2 mi (26.1 km) downstream at datum 21.41 (6.526 m) lower. Sept. 1, 1945, to Feb. 15, 1946, nonrecording gage at present site and datum.

REMARKS.--Records poor. Some regulation since February 1950 by Hulah Lake (station 07172500).

COOPERATION.--Gage-height record and 19 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--41 years, 941 ft^3/s (26.65 m^3/s), 681,900 acre-ft/yr (841 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft^3/s (1,090 m^3/s) Oct. 3, 1945, gage height, 30.12 ft (9.181 m); no flow Aug. 9 to Sept. 15, 1936, Sept. 11 to Nov. 3, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,500 ft^3/s (212 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 2	0300	9,570	271	26.03	7.934	Apr. 30	1100	10,300	292	24.68	7.522
Apr. 6	1500	10,500	297	25.23	7.690	May 15	0800	11,300	320	26.66	8.126
Apr. 23	1800	*11,400	323	*26.86	8.187	May 22	1100	9,870	280	23.57	7.184

Minimum daily discharge, 15 ft^3/s (0.42 m^3/s) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	25	65	264	8080	466	6800	8140	6860	2670	33	39
2	28	23	589	231	9250	445	6520	3510	6400	1810	50	47
3	29	20	488	204	6500	430	5450	2660	5780	480	48	52
4	31	18	279	195	3500	533	3660	4070	5090	355	42	47
5	31	17	242	183	2620	2040	7490	4750	2720	323	36	37
6	29	17	259	175	2270	1420	10300	4710	2170	281	33	30
7	25	17	230	167	1920	1670	8710	5220	1970	173	43	28
8	26	18	182	164	1720	1440	6820	3880	1210	120	40	28
9	27	18	149	161	1680	1270	5700	2660	735	96	39	28
10	31	18	136	156	1940	996	5390	2300	467	56	35	30
11	32	22	209	147	2040	861	5170	2550	393	39	35	30
12	29	44	204	139	1910	717	4090	3680	239	32	36	29
13	31	49	144	136	1680	551	1930	6000	189	30	31	33
14	31	37	123	134	1510	516	2380	9850	225	28	31	35
15	27	28	105	129	1180	486	2410	10800	261	25	30	49
16	15	25	84	126	665	453	1630	5380	205	26	29	75
17	22	25	76	125	586	395	685	3110	198	25	29	79
18	20	26	69	122	507	376	636	7290	188	25	30	64
19	18	25	62	123	478	364	580	9590	140	24	29	60
20	17	26	57	126	461	350	529	8790	93	24	31	68
21	18	29	50	130	516	350	601	8520	80	25	30	83
22	18	39	47	134	1200	329	2750	9390	76	27	35	77
23	18	37	45	137	987	316	10700	3760	90	26	31	62
24	19	34	86	144	919	314	9730	1380	140	26	27	57
25	17	31	194	160	774	310	3590	5480	138	27	23	51
26	20	33	149	227	605	579	2380	8190	412	28	21	45
27	25	99	658	425	532	3160	4120	8880	968	28	20	42
28	35	238	4050	285	489	2810	4890	8830	4140	27	23	38
29	41	133	1500	237	---	2890	7450	7910	1680	27	30	34
30	50	72	498	208	---	5800	10200	7150	1900	28	33	33
31	29	---	324	605	---	6860	---	7020	---	32	36	---
TOTAL	815	1243	11353	5899	56519	39497	143291	185450	45157	6943	1019	1410
MEAN	26.3	41.4	366	190	2019	1274	4776	5982	1505	224	32.9	47.0
MAX	50	238	4050	605	9250	6860	10700	10800	6860	2670	50	83
MIN	15	17	45	122	461	310	529	1380	76	24	20	28
AC-FT	1620	2470	22520	11700	112100	78340	284200	367800	89570	13770	2020	2800

CAL YR 1982	TOTAL	373590	MEAN	1024	MAX	9380	MIN	13	AC-FT	741000
WTR YR 1983	TOTAL	498596	MEAN	1366	MAX	10800	MIN	15	AC-FT	989000

ARKANSAS RIVER BASIN

07175500 CANEY RIVER NEAR RAMONA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952-53, 1955-62, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to April 1982.
WATER TEMPERATURE: October 1966 to April 1982.

REMARKS.--Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,880 micromhos Feb. 5, 1967; minimum daily, 114 micromhos Oct. 20, 1973.
WATER TEMPERATURE: Maximum daily 38.0°C July 18, 19, 1980; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT												
20...	1445	80020	19	7.5	15.5	8.9	90	250	66	79	12	66
NOV												
23...	1105	80020	37	7.7	9.0	--	--	200	23	63	10	48
DEC												
03...	1415	810	416	--	18.0	--	--	--	--	--	--	--
15...	1330	80020	128	7.6	5.0	11.0	87	230	87	71	12	65
JAN												
25...	1230	80020	161	7.8	3.5	11.8	90	160	57	51	8.7	49
FEB												
16...	1320	80020	651	8.2	6.0	11.9	98	160	43	50	8.0	27
MAR												
29...	1150	80020	3100	7.8	8.0	11.3	97	130	44	41	7.2	32
MAY												
04...	1100	80020	3980	7.6	17.5	8.7	93	130	28	43	6.6	17
19...	1134	80020	9720	7.2	17.5	9.0	96	95	22	30	4.9	15
JUN												
21...	1215	80020	80	8.3	28.0	6.8	89	190	51	59	9.8	49
JUL												
20...	1120	80020	25	8.0	30.0	7.1	96	190	18	60	9.6	31
AUG												
04...	1050	80020	44	7.4	30.0	6.0	81	220	33	70	11	46
SEP												
27...	1130	80020	41	7.9	21.5	11.1	129	240	76	77	12	63

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)
OCT												
20...	36	2	5.1	182	27	140	5.1	460	450	.63	.690	3.1
NOV												
23...	34	2	6.5	176	23	87	5.6	367	360	.50	.790	3.5
DEC												
03...	--	--	--	--	--	--	--	--	--	--	--	--
15...	38	2	3.8	141	42	140	7.5	466	430	.63	.640	2.8
JAN												
25...	39	2	3.8	107	33	97	7.1	358	320	.49	.530	2.3
FEB												
16...	27	1	2.7	116	27	51	6.4	260	240	.35	--	--
MAR												
29...	34	1	2.9	89	33	60	7.4	267	240	.36	--	--
MAY												
04...	21	.7	2.3	107	24	29	7.1	203	190	.28	--	--
19...	25	.7	2.5	74	18	26	7.2	163	150	.22	.200	.89
JUN												
21...	36	2	3.1	138	29	100	2.9	371	340	.50	--	--
JUL												
20...	26	1	3.2	172	23	58	1.4	310	290	.42	--	--
AUG												
04...	31	1	3.8	188	27	83	2.6	363	360	.49	--	--
SEP												
27...	36	2	4.8	167	23	130	5.2	454	420	.62	.870	3.9

ARKANSAS RIVER BASIN

07175500 CANEY RIVER NEAR RAMONA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS NO2)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)
OCT												
20...	.030	.10	.720	.090	.12	.060	.18	2	130	.5	<1	<10
NOV												
23...	.080	.26	.870	2.00	2.6	1.10	3.4	4	68	<.5	<1	<10
DEC												
03...	--	--	--	--	--	--	--	--	--	--	--	--
15...	.040	.13	.680	.580	.75	.220	.67	1	140	.6	<1	<10
JAN												
25...	.030	.10	.560	.940	1.2	.280	.86	1	87	.5	<1	<10
FEB												
16...	<.020	--	.500	.230	.30	.040	.12	1	75	<.5	<1	<10
MAR												
29...	<.020	--	.480	.120	.15	.020	.06	1	69	<.5	<1	<10
MAY												
04...	<.020	--	.400	.160	.21	.040	.12	1	65	<.5	<1	<10
19...	.020	.07	.220	.140	.18	.020	.06	1	58	<.5	<1	<10
JUN												
21...	<.020	--	<.100	.080	.10	<.010	--	1	110	<.5	<1	<10
JUL												
20...	<.020	--	<.100	.080	.10	<.010	--	1	110	<.5	<1	<10
AUG												
04...	<.020	--	<.100	.040	.05	<.010	--	2	120	<.5	<1	<10
SEP												
27...	.730	2.4	1.60	.250	.32	.050	.15	2	120	<.5	<1	<10

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)
OCT												
20...	<3	<10	13	<10	16	28	<.1	<10	680	<6	4	--
NOV												
23...	<3	<10	110	<10	14	45	<.1	<10	530	<6	7	--
DEC												
03...	--	--	--	--	--	--	--	--	--	--	--	240
15...	<3	<10	79	<10	12	86	<.1	<10	780	<6	16	--
JAN												
25...	<3	<10	260	<10	19	69	<.1	<10	550	<6	32	--
FEB												
16...	<3	20	220	<10	19	34	<.1	<10	440	<6	59	--
MAR												
29...	<3	<10	300	<10	5	20	<.1	<10	410	<6	5	--
MAY												
04...	<3	<10	100	<10	10	5	<.1	<10	320	<6	<3	--
19...	<3	<10	130	<10	<4	4	<.1	<10	240	<6	4	--
JUN												
21...	<3	<10	7	<10	26	4	<.1	<10	570	<6	<3	--
JUL												
20...	<3	<10	10	<10	13	11	<.1	<10	510	<6	3	--
AUG												
04...	<3	<10	4	<10	21	25	<.1	<10	560	<6	<3	--
SEP												
27...	<3	<10	<3	<10	13	12	<.1	<10	630	<6	<3	--

ARKANSAS RIVER BASIN

07176000 VERDIGRIS RIVER NEAR CLAREMORE, OK

LOCATION.--Lat 36°18'26", long 95°41'52", SE 1/4 SW 1/4 sec.10, T.21 N., R.15 E., Rogers County, Hydrologic Unit 11070105, near left bank on downstream side of pier of bridge on State Highway 20, 2.3 mi (3.7 km) downstream from Caney River, 4.5 mi (7.2 km) west of Claremore, 12.4 mi (20.0 km) upstream from Bird Creek, and at mile 76.0 (122.3 km).

DRAINAGE AREA.--6,534 mi^2 (16,923 km^2).

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 538.62 ft (164.171 m), National Geodetic Vertical Datum of 1929. Prior to Feb. 24, 1939, and May 17 to Aug. 24, 1967, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated since May 1963 to Oologah Lake 14.3 mi (23.0 km) upstream (station 07171300); some regulation by dams in Kansas since 1949 and by Hulah Lake since 1950 (station 07172500).

COOPERATION.--Gage-height record and 10 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Oologah Lake) 27 years (water years 1936-62), 3,723 ft^3/s (105.4 m^3/s), 2,695,000 acre-ft/yr (3.32 km^3/yr); (since regulation by Oologah Lake) 19 years (water years 1965-83), 4,714 ft^3/s (133.5 m^3/s), 2,734,000 acre-ft/yr (3.37 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 182,000 ft^3/s (5,150 m^3/s) May 21, 1943, gage height, 55.05 ft (16.779 m); no flow at times in 1936, 1939-40, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,500 ft^3/s (864 m^3/s) Apr. 7, gage height, 26.66 ft (8.126 m); minimum daily discharge, 46 ft^3/s (1.30 m^3/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	81	189	4980	12100	2200	18300	18800	10000	4580	125	94
2	54	67	837	4750	14400	1130	18800	14700	8950	4600	71	96
3	54	56	1220	2080	13900	1100	21900	12200	6440	3680	46	102
4	54	53	971	420	12500	1480	19600	12500	6160	3080	50	100
5	54	52	785	383	9870	3980	19100	13200	4940	2980	70	90
6	56	51	861	867	9190	2840	29600	13300	3990	2930	80	84
7	60	50	1170	1550	8830	4480	30100	13400	3830	2870	90	80
8	56	51	1030	1530	8580	8400	28000	13300	8700	2740	87	82
9	52	51	966	1490	8480	8120	26100	12200	15700	2670	85	80
10	54	56	979	1260	8740	7880	25400	9590	12200	2640	84	82
11	52	77	1210	842	8790	6490	25100	15000	6090	2600	83	80
12	54	79	1140	1290	8740	4590	24900	17500	6020	2080	82	79
13	62	86	927	5890	8520	4340	23300	22500	5930	1170	78	82
14	64	110	286	5940	8310	4180	22600	25300	5940	1160	80	87
15	62	95	242	5880	8140	4140	22900	16300	4150	851	78	94
16	62	82	221	5900	7650	4110	22700	13900	2520	224	80	160
17	62	75	204	5830	7360	3520	21300	10100	2210	211	80	142
18	60	68	192	5840	7250	970	17800	14200	1210	200	78	130
19	54	66	182	4150	7160	538	10800	12400	1180	198	80	110
20	52	68	1070	983	7120	546	10700	12600	1120	184	83	118
21	50	65	2250	645	7230	3380	8460	12000	1070	172	84	170
22	48	704	1770	659	8100	10700	6890	12400	1050	122	86	140
23	48	865	2380	659	7400	5980	17000	11100	1040	110	90	130
24	48	185	4220	672	6380	2680	16200	6950	1040	107	84	118
25	48	111	4540	684	6080	2390	15300	7850	1100	106	80	100
26	54	291	4340	451	5680	1650	17600	10300	1220	110	78	94
27	56	1410	3760	1010	5470	3580	23700	11300	2080	123	78	99
28	69	1700	5430	1440	4530	5850	21300	11800	5860	125	80	95
29	99	532	3710	1170	---	9480	14200	11500	5320	122	86	94
30	81	288	2890	1090	---	12500	17800	10900	4030	121	90	94
31	92	---	5160	2050	---	17600	---	10200	---	126	91	---
TOTAL	1823	7525	55132	72385	236500	150824	597450	409290	141090	42992	2517	3106
MEAN	58.8	251	1778	2335	8446	4865	19920	13200	4703	1387	81.2	104
MAX	99	1700	5430	5940	14400	17600	30100	25300	15700	4600	125	170
MIN	48	50	182	383	4530	538	6890	6950	1040	106	46	79
AC-FT	3620	14930	109400	143600	469100	299200	1185000	811800	279900	85270	4990	6160

CAL YR 1982	TOTAL	1325034	MEAN	3630	MAX	21900	MIN	18	AC-FT 2628000
WTR YR 1983	TOTAL	1720634	MEAN	4714	MAX	30100	MIN	46	AC-FT 3413000

ARKANSAS RIVER BASIN

07176460 BIRCH LAKE NEAR BARNSDALL, OK

LOCATION.--Lat 36°32'05", long 96°09'45", in NW 1/4 NE 1/4 sec.30, T.24 N., R.11 E., Osage County, Hydrologic Unit 11070107, 450 ft (137 m) north of dam on Birch Creek, 1.5 mi (2.4 km) south of Barnsdall and at mile 0.8 (1.3 km).

DRAINAGE AREA.--66.0 mi^2 (170.9 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to May 31, 1977 nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth dam with uncontrolled concrete spillway. Storage began Mar. 18, 1977; conservation pool was first filled Mar. 23, 1978. The outlet work is a gated intake structure. Capacity, 58,180 acre-ft (71.7 hm^3) at elevation 774.0 ft (235.92 m), crest of uncontrolled spillway and 19,180 acre-ft (23.7 hm^3) at elevation 750.5 ft (228.75 m), top of conservation pool. Dead storage, 3,360 acre-ft (4.14 hm^3) below elevation 730.0 ft (222.50 m). Figures given herein represent total contents. Reservoir is used for flood control, water supply, water quality, recreation, and fish and wildlife.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 25,240 acre-ft (31.1 hm^3) May 22, 1978, elevation, 755.48 ft (230.270 m); minimum since conservation pool was first filled, 13,080 acre-ft (16.1 hm^3) Oct. 26-29, 1977, elevation, 744.68 ft (226.868 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,680 acre-ft (30.4 hm^3) May 18, elevation, 755.05 ft (230,139 m), minimum, 16,460 acre-ft (20.3 hm^3) Sept. 30, elevation, 748.03 ft (228.000 m).

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

749	17,510	752	20,920
750	18,620	754	23,350
751	19,750	755	24,620

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17280	16830	18330	21490	23070	19470	19700	21750	19310	20720	18360	17300
2	17280	16810	18750	21510	23350	19480	19370	20540	19310	20360	18310	17230
3	17240	16760	18810	21520	23220	19530	19020	19730	19280	20010	18300	17180
4	17240	16750	18860	21520	22770	19550	18900	19320	19260	19110	18250	17160
5	17230	16720	18970	21520	22320	19490	20230	19290	19210	19430	18210	17130
6	17190	16720	18990	21530	21850	19370	20380	19310	19190	19350	18190	17110
7	17160	16700	19010	21530	21390	19230	20420	19320	19180	19290	18150	17090
8	17220	16690	19010	21530	20900	19150	20310	19320	19180	19240	18140	17020
9	17160	16670	19010	21550	20870	19120	20210	19290	19170	19180	18090	16970
10	17130	16670	19070	21550	20640	19100	20090	19330	19140	19140	18080	16920
11	17110	16790	19090	21540	20210	19100	19930	19430	19110	19090	18030	16870
12	17100	16760	19090	21540	19750	19100	19810	20040	19090	19060	17970	16860
13	17090	16730	19110	21540	19290	19110	19700	22170	19090	19030	17940	16850
14	17060	16690	19120	21290	19110	19140	19560	23680	19120	18980	17890	16830
15	17040	16680	19120	20840	19110	19160	19450	23880	19100	18950	17880	16900
16	17020	16680	19110	20420	19110	19160	19450	23970	19090	18930	17840	16870
17	16990	16680	19100	19950	19110	19150	19450	23810	19090	18900	17790	16840
18	16970	16670	19100	19530	19110	19120	19420	24530	19070	18860	17750	16810
19	16950	16660	19090	19290	19100	19140	19410	23960	19030	18840	17720	16770
20	16910	16660	19090	19250	19110	19140	19410	23480	19010	18810	17690	16790
21	16880	16660	19090	19240	19160	19140	19410	23150	18990	18760	17650	16740
22	16860	16930	19080	19240	19250	19140	19760	22760	18980	18730	17630	16710
23	16840	16870	19080	19240	19290	19140	20660	22210	18950	18690	17590	16680
24	16820	16880	19150	19210	19360	19140	20830	20960	18940	18650	17510	16660
25	16810	16870	19150	19180	19410	19230	20860	20920	18930	18600	17480	16620
26	16780	17020	19150	19230	19420	20020	20890	20260	18970	18580	17430	16600
27	16780	17300	21140	19240	19430	20110	20890	19820	19030	18540	17410	16570
28	16870	17420	21370	19280	19450	20160	21080	19880	21190	18490	17380	16530
29	16840	17420	21420	19280	---	20190	23250	19630	21210	18460	17320	16510
30	16840	17420	21460	19280	---	20240	22800	19470	21060	18430	17330	16460
31	16830	---	21480	20280	---	19980	---	19340	---	18400	17320	---
MAX	17280	17420	21480	21550	23350	20240	23250	24530	21210	20720	18360	17300
MIN	16780	16660	18330	19180	19100	19100	18900	19290	18930	18400	17320	16460
†	748.37	748.92	752.47	751.45	750.74	751.20	753.55	750.64	752.12	749.81	748.83	748.03
††	-470	+590	+4,060	-1,200	-830	+530	+2,820	-3,460	+1,720	-2,660	-1,080	-860

CAL YR 1982 MAX 24520 MIN 16660, †† +2,280
WTR YR 1983 MAX 24530 MIN 16460, †† -840

† Elevation, in feet, at end of month
†† Change, in contents, in acre-feet

ARKANSAS RIVER BASIN

07176465 BIRCH CREEK BELOW BIRCH LAKE NEAR BARNSDALL, OK

LOCATION.--Lat 36°32'08", long 96°09'38", NW 1/4 NE 1/4 sec.30, T.24 N., R.11 E., Osage County, Hydrologic Unit 11070107, 300 ft (91 m) downstream from Birch Dam, 1.5 mi (2.4 km) south of Barnsdall, and at mile 0.7 (1.1 km).

DRAINAGE AREA.--66.0 mi^2 (179.9 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 690.00 ft (210.312 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow completely regulated since March 1977 by Birch Lake (station 07176460).

COOPERATION.--Gage-height record and 11 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--6 years, 24.7 ft^3/s (0.700 m^3/s), 17,900 acre-ft/yr (22.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 623 ft^3/s (17.6 m^3/s) May 22-24, 1978, gage height, 9.53 ft (2.905 m); no flow at times in 1977, 1982, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,600 ft^3/s (17.0 m^3/s) May 1, 2, no flow Mar. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	4.4	2.3	1.7	2.0	.17	145	600	12	148	5.7	4.3
2	3.0	5.0	1.1	1.6	2.0	.18	145	600	12	148	5.7	4.3
3	3.0	4.1	.94	1.6	123	.15	145	422	12	148	5.7	4.4
4	3.0	3.5	.90	1.6	260	47	68	134	12	148	5.7	4.4
5	3.0	3.5	.91	1.6	260	85	2.0	15	12	110	5.4	4.3
6	3.0	3.2	.94	1.6	260	83	2.0	14	8.0	39	5.4	4.3
7	3.0	3.2	.92	1.7	260	83	31	12	3.0	33	5.0	4.5
8	3.0	3.5	.90	1.7	260	40	75	12	3.0	22	4.7	4.4
9	3.0	3.5	.90	1.6	260	4.9	75	12	3.0	19	4.7	4.4
10	3.0	3.8	.93	1.6	260	5.0	75	7.0	3.0	19	4.4	4.6
11	3.0	4.7	.79	1.7	260	2.4	75	2.0	3.0	13	4.4	4.6
12	3.0	4.7	.83	1.8	260	.03	75	2.0	3.0	9.3	4.3	4.6
13	3.0	4.7	.80	2.0	258	.04	75	2.0	3.0	8.9	4.4	4.7
14	2.5	4.7	1.2	2.0	100	.09	75	2.0	3.0	8.9	4.4	4.6
15	2.0	4.7	2.0	146	14	.10	44	2.0	3.0	8.4	4.4	4.7
16	2.0	4.7	2.0	225	14	.01	14	2.0	3.0	8.4	4.4	4.9
17	2.2	4.7	2.0	225	13	.00	14	193	3.0	8.4	4.4	5.0
18	2.2	4.1	1.8	225	13	.02	14	330	3.0	8.0	4.4	5.1
19	2.5	3.8	1.8	120	12	.05	14	330	3.0	4.4	4.4	5.2
20	2.7	3.8	1.8	2.0	12	.05	14	330	3.0	7.6	4.2	5.2
21	2.5	4.1	1.9	2.0	12	.05	14	330	3.0	7.6	4.3	5.1
22	2.5	6.1	2.0	2.0	6.4	.05	14	330	3.0	7.2	4.4	5.2
23	2.2	2.7	2.0	2.0	.24	.05	14	330	3.0	7.2	4.4	5.0
24	2.5	1.1	2.3	2.0	.61	.05	14	330	2.5	7.2	4.4	5.0
25	2.2	1.1	2.0	2.0	.21	.05	14	330	2.0	6.8	4.3	4.8
26	2.5	1.3	2.0	2.0	.17	79	14	330	2.0	6.8	4.3	5.0
27	2.7	1.8	3.1	2.0	.16	79	51	176	7.2	6.4	4.4	5.4
28	3.2	1.1	1.7	2.0	.21	79	185	78	10	6.4	4.4	6.0
29	3.2	1.0	1.8	2.0	---	79	270	75	2.0	6.1	4.4	6.4
30	3.2	.96	1.8	2.0	---	79	473	75	87	6.1	4.3	6.5
31	3.8	---	1.8	2.0	---	145	---	42	---	6.1	4.4	---
TOTAL	85.6	103.56	48.16	988.8	2923.00	891.44	2240.0	5449.0	231.7	993.2	144.1	146.9
MEAN	2.76	3.45	1.55	31.9	104	28.8	74.7	176	7.72	32.0	4.65	4.90
MAX	3.8	6.1	3.1	225	260	145	473	600	87	148	5.7	6.5
MIN	2.0	.96	.79	1.6	.16	.00	2.0	2.0	2.0	4.4	4.2	4.3
AC-FT	170	205	96	1960	5800	1770	4440	10810	460	1970	286	291

CAL YR 1982	TOTAL 10542.02	MEAN 28.9	MAX 526	MIN .79	AC-FT 20910				
WTR YR 1983	TOTAL 14245.46	MEAN 39.0	MAX 600	MIN .00	AC-FT 28260				

ARKANSAS RIVER BASIN

07176500 BIRD CREEK NEAR AVANT, OK

LOCATION.--Lat 36°29'12", long 96°03'50", in NW 1/4 sec.7, T.23 N., R.12 E., Osage County, Hydrologic Unit 11070107, 150 ft (45.7 m) upstream from county road bridge at Avant, 1.5 mi (2.4 km) upstream from Candy Creek, and at mile 54.2 (87.2 km).

DRAINAGE AREA.--364 mi^2 (943 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 651.28 ft (198.510 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diversions above station for municipal water supply of cities of Pawhuska and Barnsdall.

COOPERATION.--Gage-height record and 9 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--38 years, 194 ft^3/s (5.494 m^3/s), 140,600 acre-ft/yr (173 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 32,400 ft^3/s (918 m^3/s), Oct. 2, 1959, gage height, 31.40 ft (9.571 m); maximum gage height, 32.03 ft (9.763 m) Mar. 11, 1974; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft^3/s (170 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 1	0500	8,440	239	11.36	3.463	May 21	1800	9,200	261	12.60	3.840
May 14	1500	10,900	309	15.44	4.706	June 28	0500	*12,300	348	17.80	5.425

Minimum daily discharge, 3.2 ft^3/s (0.091 m^3/s) July 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	23	30	61	5830	60	668	1310	95	296	10	6.2
2	5.4	16	733	50	1160	54	593	991	89	294	10	4.8
3	4.9	9.2	143	40	427	50	486	680	115	285	8.2	4.1
4	4.3	8.6	62	34	502	57	376	351	95	284	8.6	5.4
5	4.3	8.6	48	30	434	376	3370	101	80	270	8.6	6.3
6	4.5	9.3	61	26	423	412	1520	82	68	40	7.8	6.2
7	4.7	11	42	23	401	255	567	148	49	14	9.3	6.2
8	5.2	14	24	22	400	194	399	108	39	9.1	7.7	6.4
9	6.2	21	13	17	560	92	321	90	31	6.3	6.9	6.5
10	6.5	23	12	18	728	68	281	81	30	5.8	6.3	6.2
11	6.0	36	35	16	526	55	236	782	29	5.7	6.2	6.2
12	5.6	41	31	16	435	44	206	255	36	5.2	5.8	5.8
13	5.2	33	16	14	390	39	194	2350	31	3.4	5.7	5.7
14	5.2	30	10	45	300	35	192	8980	27	3.2	5.7	5.7
15	5.4	24	8.1	234	111	33	176	1640	28	3.4	5.7	12
16	5.7	20	7.0	240	95	32	97	626	29	5.7	5.5	15
17	5.7	18	6.2	239	86	30	77	546	22	6.2	5.0	10
18	6.3	16	5.7	238	83	26	70	3520	16	6.5	4.5	9.2
19	7.5	16	5.7	222	75	25	66	1280	12	6.4	4.3	9.9
20	8.6	16	5.4	54	67	26	63	776	11	5.7	4.8	13
21	9.0	16	5.2	29	70	29	67	4690	10	6.0	5.5	12
22	9.3	45	4.8	25	130	34	411	2130	9.9	6.5	5.9	9.4
23	8.1	51	4.7	20	133	36	2610	954	8.7	6.7	6.2	8.6
24	8.2	29	5.9	20	179	33	747	659	8.5	6.7	5.8	8.6
25	9.6	22	13	21	154	29	292	543	8.9	6.7	5.7	8.1
26	10	21	43	30	106	1640	184	480	9.8	7.0	5.2	7.9
27	12	86	1750	56	86	1940	158	353	410	7.2	5.2	7.9
28	23	160	1130	58	71	587	412	205	5380	6.7	5.2	7.9
29	29	75	276	50	---	426	2550	267	197	6.7	5.2	7.9
30	26	37	126	43	---	2240	1480	205	133	7.3	5.4	7.5
31	29	---	81	632	---	1060	---	170	---	10	5.8	---
TOTAL	284.3	935.7	4737.7	2623	13962	10017	18869	35353	7107.8	1633.1	197.7	236.6
MEAN	9.17	31.2	153	84.6	499	323	629	1140	237	52.7	6.38	7.89
MAX	29	160	1750	632	5830	2240	3370	8980	5380	296	10	15
MIN	3.9	8.6	4.7	14	67	25	63	81	8.5	3.2	4.3	4.1
AC-FT	564	1860	9400	5200	27690	19870	37430	70120	14100	3240	392	469

CAL YR 1982	TOTAL	88094.1	MEAN	241	MAX	8520	MIN	3.2	AC-FT	174700
WTR YR 1983	TOTAL	95956.9	MEAN	263	MAX	8980	MIN	3.2	AC-FT	190300

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK

LOCATION.--Lat 36°16'42", long 95°57'14", in NW 1/4 NW 1/4 sec.29, T.21 N., R.13 E., Tulsa County, Hydrologic Unit 11070107, on downstream side of right pier of county road bridge, 1.5 mi (2.4 km) upstream from Delaware Creek, 2.4 mi (3.9 km) downstream from Hominy Creek, 2.5 mi (4.0 km) southeast of Sperry, and at mile 25.0 (40.2 km).

DRAINAGE AREA.--905 mi^2 (2,344 km^2).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1921: 1943.

GAGE.--Water-stage recorder. Datum of gage is 579.43 ft (176.610 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

COOPERATION.--Gage-height record and 15 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--45 years, 577 ft^3/s (16.34 m^3/s), 348,500 acre-ft/yr (430 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft^3/s (2,550 m^3/s) Oct. 3, 1959, gage height, 32.60 ft (9.936 m), from rating curve extended above 49,000 ft^3/s (1,390 m^3/s); no flow at times in 1939, 1954-57, 1964-66, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1943, reached a stage of 31.68 ft (9.656 m), discharge 72,200 ft^3/s (2,040 m^3/s). Flood in 1915 reached a stage similar to flood of Oct. 31, 1941, 30.14 ft (9.187 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 11,000 ft^3/s (312 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 1	2400	11,200	317	24.00	7.315	May 14	2300	*11,900	337	*24.35	7.422

Minimum daily discharge, 4.8 ft^3/s (0.14 m^3/s) Oct. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	20	100	154	9180	174	1230	3150	250	322	22	26
2	5.2	18	1130	115	9410	152	911	2030	176	328	22	26
3	5.6	14	1530	89	3930	137	784	1530	174	283	22	26
4	7.7	12	374	70	2510	192	608	947	186	251	21	26
5	9.4	9.2	238	57	1760	353	3270	440	158	238	21	24
6	7.8	7.5	201	46	787	1020	5710	257	137	199	21	23
7	6.0	6.3	185	37	624	562	2380	274	117	103	20	23
8	5.4	6.5	128	30	578	377	1410	436	94	79	20	23
9	5.5	6.8	81	24	656	260	760	258	82	64	20	23
10	5.4	8.3	86	21	1450	167	625	193	72	53	20	23
11	6.4	25	119	18	1360	135	548	548	63	48	19	23
12	7.2	40	132	14	877	114	416	1310	59	46	18	22
13	7.6	28	105	14	611	99	363	4600	59	43	15	22
14	7.1	23	80	12	524	91	392	9950	65	37	16	22
15	6.4	21	59	51	331	86	349	11200	68	34	16	29
16	6.1	20	46	162	221	84	288	5450	63	34	17	32
17	6.1	19	39	164	190	80	197	2880	61	34	17	31
18	5.9	19	27	161	173	78	184	5410	54	35	17	28
19	5.7	18	18	161	164	76	171	5580	48	34	17	27
20	4.8	17	17	117	153	79	166	2900	43	31	17	40
21	5.1	16	15	31	160	82	164	2350	38	29	19	37
22	6.6	90	14	22	464	83	510	6190	35	26	21	28
23	8.3	69	18	19	632	85	6760	2810	34	25	22	23
24	9.2	47	94	18	516	88	4520	1650	31	24	22	19
25	10	28	137	19	516	82	1440	1120	51	24	22	18
26	9.8	102	70	62	363	554	793	765	155	24	22	17
27	9.4	396	1060	97	259	4310	437	604	214	24	22	17
28	22	616	5080	128	206	2440	755	526	5420	23	22	17
29	24	436	2100	108	---	961	2550	498	3950	23	22	17
30	24	187	682	80	---	1850	3850	455	506	23	22	17
31	21	---	233	397	---	2360	---	340	---	22	25	---
TOTAL	276.2	2325.6	14198	2498	38605	17211	42541	76651	12463	2563	619	729
MEAN	8.91	77.5	458	80.6	1379	555	1418	2473	415	82.7	20.0	24.3
MAX	24	616	5080	397	9410	4310	6760	11200	5420	328	25	40
MIN	4.8	6.3	14	12	153	76	164	193	31	22	15	17
AC-FT	548	4610	28160	4950	76570	34140	84380	152000	24720	5080	1230	1450

CAL YR 1982	TOTAL	189353.3	MEAN	519	MAX	9080	MIN	4.8	AC-FT 375600
WTR YR 1983	TOTAL	210679.8	MEAN	577	MAX	11200	MIN	4.8	AC-FT 417900

ARKANSAS RIVER BASIN

07178050 BIRD CREEK NEAR CATOOSA, OK

LOCATION.--Lat 36°14'21", long 95°50'52", in NW 1/4 SW 1/4 sec.5, T.20 N., R.14 E., Tulsa County, Hydrologic Unit 11070107, at bridge on U.S. Highway 75, approximately 5.5 mi (8.8 km) northwest of Catoosa.

DRAINAGE AREA.--1,080 mi^2 (2,797 km^2).

PERIOD OF RECORD.--Water years 1965 to current year.

REMARKS.--Samples were collected on a monthly basis and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT											
20...	1200	80020	680	6.9	18.5	15	4.8	52	160	27	50
NOV											
23...	1250	80020	480	7.0	12.0	39	--	--	150	24	46
DEC											
15...	1140	80020	545	7.4	6.0	45	11.9	97	160	48	50
JAN											
25...	1050	80020	765	7.7	6.0	8.8	9.9	80	160	44	50
FEB											
16...	1115	80020	493	7.8	8.0	60	11.4	98	140	51	40
MAR											
29...	1355	80020	395	7.5	9.0	160	11.1	97	110	37	33
MAY											
04...	1245	80020	356	7.3	19.0	110	8.5	94	100	29	29
19...	1340	80020	218	6.9	18.0	230	9.0	97	71	15	21
JUN											
21...	1400	80020	728	7.2	27.0	6.0	6.9	89	210	61	61
JUL											
20...	1315	80020	630	7.2	28.5	6.5	6.2	82	170	38	50
AUG											
04...	1300	80020	669	7.1	30.0	5.5	5.6	76	190	48	61
SEP											
27...	1345	80020	627	7.0	24.5	6.8	7.6	93	150	34	47

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
OCT										
20...	8.3	64	45	2	8.7	132	49	78	377	.51
NOV										
23...	7.4	36	34	1	5.6	122	35	47	265	.36
DEC										
15...	9.5	43	35	2	4.8	116	55	62	316	.43
JAN										
25...	9.4	77	50	3	5.7	120	55	120	410	.56
FEB										
16...	8.8	37	36	1	3.5	85	40	63	266	.36
MAR										
29...	7.4	28	34	1	2.7	76	34	53	225	.31
MAY										
04...	6.9	27	36	1	3.1	72	27	46	201	.27
19...	4.6	14	29	.7	2.6	56	19	22	140	.19
JUN										
21...	13	64	39	2	6.3	145	64	90	430	.58
JUL										
20...	11	54	40	2	7.2	132	59	74	364	.50
AUG										
04...	10	58	38	2	7.9	146	60	76	382	.52
SEP										
27...	9.0	55	42	2	7.0	121	55	72	353	.48

ARKANSAS RIVER BASIN

07178620 VERDIGRIS RIVER NEAR INOLA, OK
(National stream-quality accounting network station)

LOCATION.--Lat 36°09'43", long 95°37'07", in NW 1/4 NW 1/4 sec.4, T.9 N., R.16 E., Rogers County, Hudrologic Unit 11070105, at bridge on State Highway 33, 6.0 mi (9.6 km) west of Inola, and at navigation channel mile 36.6 (58.9 km).

DRAINAGE AREA.--7,911 mi^2 (20,489 km^2).

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1971 to September 1976.
WATER TEMPERATURE: December 1971 to September 1976.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
OCT												
19...	1515	80020	500	7.3	19.0	2.1	8.0	89	240	820	160	45
DEC												
14...	1515	80020	450	7.6	7.0	50	11.9	100	130	710	160	41
FEB												
10...	1230	80020	400	8.2	3.5	38	11.7	90	870	1100	150	34
APR												
13...	1115	80020	369	7.9	10.0	130	11.3	104	300	840	150	37
JUN												
08...	1710	80020	363	7.4	22.5	75	8.0	95	82	880	140	38
AUG												
23...	1230	80020	493	8.3	32.0	8.6	6.4	90	25	46	180	57

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
OCT												
19...	47	9.3	36	33	1	5.1	111	70	39	.50	5.3	294
DEC												
14...	50	8.9	27	26	1	4.0	121	46	46	.30	4.3	256
FEB												
10...	47	8.4	18	20	.7	3.1	119	38	31	.20	2.7	218
APR												
13...	47	7.6	16	19	.6	2.6	112	41	26	.20	6.3	213
JUN												
08...	42	7.9	17	21	.7	2.8	100	39	28	.20	7.6	204
AUG												
23...	54	11	32	27	1	4.1	124	63	45	.40	4.5	288

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
OCT											
19...	280	.40	1.60	.100	.13	1.7	.390	1.2	.350	.330	1.0
DEC											
14...	260	.35	.830	.300	.39	1.7	.380	1.2	.260	.230	.71
FEB											
10...	220	.30	.330	.060	.08	.80	.120	.37	.060	.050	.15
APR											
13...	210	.29	.700	.120	.15	1.3	.140	.43	.060	.030	.09
JUN											
08...	200	.28	.640	.120	.15	.90	.180	.55	.070	.050	.15
AUG											
23...	290	.39	.560	.080	.10	1.1	.350	1.1	.310	.280	.86

ARKANSAS RIVER BASIN

07178620 VERDIGRIS RIVER NEAR INOLA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT											
19...	30	3	77	<.5	<1	<1	<3	3	20	2	17
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
10...	160	1	68	.8	<1	<1	<3	4	140	1	12
APR											
13...	100	1	65	<.5	<1	<1	<3	8	95	1	12
JUN											
08...	--	--	--	--	--	--	--	--	--	--	--
AUG											
23...	20	3	89	<.5	<1	<1	<3	5	4	1	11

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
19...	35	<.1	<10	3	<1	<1	400	<6	5	40	92
DEC											
14...	--	--	--	--	--	--	--	--	--	71	98
FEB											
10...	20	<.1	<10	<1	1	<1	370	<6	17	59	85
APR											
13...	16	<.1	<10	4	1	<1	360	<6	<3	197	94
JUN											
08...	--	--	--	--	--	--	--	--	--	--	--
AUG											
23...	2	<.1	<10	5	1	<1	420	<6	3	21	75

ARKANSAS RIVER BASIN

07185000 NEOSHO RIVER NEAR COMMERCE, OK

LOCATION.--Lat 36°55'43", long 94°57'26", in SW 1/4 SE 1/4 sec.5, T.28 N., R.22 E., Ottawa County, Hydrologic Unit 11070206, on downstream side of left pier of county road bridge, 1.3 mi (2.1 km) upstream from Mud Creek, 2.2 mi (3.5 km) downstream from Four Mile Creek, 4.5 mi (7.2 km) west of Commerce, and at mile 153.4 (246.8 km).

DRAINAGE AREA.--5,876 mi^2 (15,219 km^2).

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

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 748.97 ft (228.286 m) Corps of Engineers datum.

REMARKS.--Records good. Flow regulated to some extent since 1963 by John Redmond Reservoir in Kansas, 190 mi (360 km) upstream.

AVERAGE DISCHARGE.--44 years, 3,477 ft^3/s (98.46 m^3/s), 2,519,000 acre-ft/yr (3.11 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 267,000 ft^3/s (7,560 m^3/s) July 15, 1951, computed by flood-routing methods from hydrograph defined at Miami, mile 144.2 (232.0 km), by several discharge measurements, gage-height record, and by comparison with computed inflow into Lake O' The Cherokees; maximum gage height, 34.03 ft (10.327 km) July 16, 1951, from floodmark; no flow at times in 1953-54, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20,000 ft^3/s (566 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 2	1600	22,900	649	15.72	4.791	May 15	1900	27,200	770	17.57	5.355
Apr. 7	1300	31,400	889	18.64	5.681	June 5	2100	20,400	578	14.46	4.407
Apr. 24	1700	*40,200	1140	*19.96	6.084						

Minimum daily discharge 27 ft^3/s (0.76 m^3/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	51	162	1710	10500	1680	13000	16500	8620	3110	305	43
2	63	48	3310	1590	21800	1600	22900	14400	8160	2530	318	36
3	56	50	5370	2200	14400	1280	27100	11900	8480	2170	257	37
4	54	49	4060	2110	4890	1220	27500	11100	13300	1760	197	38
5	44	45	1790	2010	2670	11200	27700	11400	19600	7030	170	45
6	41	42	982	1940	2260	17500	29900	11800	16900	6690	160	55
7	39	40	914	1880	2060	10800	30800	14400	8950	4430	156	60
8	39	38	1100	1830	1780	5500	27400	13800	8410	5630	144	66
9	42	36	1140	1480	1690	3120	9760	12000	10100	5600	118	58
10	44	35	748	848	1900	2440	7630	10900	9640	4820	88	50
11	734	40	901	592	3200	2230	10100	10900	7970	3670	69	45
12	1270	52	2110	533	4270	2030	11500	12800	6410	3260	60	42
13	655	49	2740	432	4640	1870	11700	14700	4390	2950	49	41
14	370	56	1260	350	4880	1520	11600	20800	3600	2610	43	42
15	232	68	729	299	5890	1120	11500	26400	4830	2070	41	44
16	167	199	547	268	6710	1010	11400	20000	4840	1340	40	54
17	122	262	413	265	4460	947	11300	5370	7020	737	42	53
18	95	181	336	243	3250	890	11200	3680	8330	578	44	49
19	78	133	273	232	2640	995	10900	9770	8120	551	44	50
20	70	108	236	232	2270	1350	10700	11900	7240	516	42	61
21	59	92	211	233	2070	1470	11500	11000	6280	486	41	74
22	52	83	192	237	1970	1510	15500	9520	5480	428	42	64
23	48	87	174	238	2150	1370	33200	10100	7000	408	52	55
24	44	69	172	258	2180	1170	39400	8790	5920	410	47	51
25	42	62	318	271	2630	1010	39100	8860	4080	400	42	49
26	41	70	319	304	2780	1120	34800	10600	2850	360	40	52
27	36	88	1760	534	2620	6330	17900	10800	3040	316	32	50
28	40	132	6450	583	1980	16200	8660	11400	3680	290	27	48
29	63	162	10200	623	---	13300	13400	12900	4260	270	28	44
30	62	143	9040	1320	---	10400	15400	14300	3880	260	29	39
31	58	---	3500	1810	---	14000	---	10200	---	250	44	---
TOTAL	4832	2570	61457	27455	124540	138182	564450	382990	221380	65930	2811	1495
MEAN	156	85.7	1982	886	4448	4457	18820	12350	7379	2127	90.7	49.8
MAX	1270	262	10200	2200	21800	17500	39400	26400	19600	7030	318	74
MIN	36	35	162	232	1690	890	7630	3680	2850	250	27	36
AC-FT	9580	5100	121900	54460	247000	274100	1120000	759700	439100	130800	5580	2970

CAL YR 1982	TOTAL	1338161	MEAN	3666	MAX	33500	MIN	35	AC-FT 2654000
WTR YR 1983	TOTAL	1598092	MEAN	4378	MAX	39400	MIN	27	AC-FT 3170000

ARKANSAS RIVER BASIN

07185100 TAR CREEK AT MIAMI, OK

LOCATION.--Lat 36°52'56", long 94°51'43", in SE 1/4 SE 1/4 sec.30, T.28 N., R.23 E., Ottawa County, Hydrologic Unit 11070206, near right downstream abutment of Central street bridge of Miami, 0.6 mi (1.0 km) northwest of intersection of I-44 and State Highway 10.

DRAINAGE AREA.--52 mi^2 (134.7 km^2).

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 740.00 ft (226.725 m), Corps of Engineers datum. Prior to Oct. 1, 1982, datum 3.85 higher.

REMARKS.--Records fair below 100 ft^3/s (2.83 m^3/s), and poor above.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,030 ft^3/s (85.8 m^3/s) Jan. 30, 1982, gage height 14.76 ft (current datum) (4.499 m), maximum gage height, 18.64 ft (5.681 m) April 25, 1983 (backwater from Neosho River); minimum daily discharge, 0.12 ft^3/s (0.003 m^3/s) Oct. 14, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,500 ft^3/s (42.5 m^3/s) Apr. 30, (estimated during backwater), maximum gage height, 18.64 ft (5.681 m) Apr. 25, (backwater from Neosho River); minimum daily discharge, 0.19 ft^3/s (0.005 m^3/s) Oct. 3, Nov. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	.23	19	10	400	3.9	252	1100	32	6.5	2.1	1.1
2	.24	.19	141	7.6	320	4.2	180	600	62	5.7	1.3	.97
3	.19	.20	86	5.2	112	5.9	140	300	64	4.8	.95	.87
4	.32	.23	51	4.3	46	172	110	130	46	17	.97	.70
5	.35	.27	40	3.4	38	306	890	74	38	24	.87	.87
6	.38	.24	33	3.2	37	90	500	62	30	22	.70	.78
7	.47	.23	23	3.1	30	52	300	247	22	14	.96	.70
8	1.2	.24	16	2.5	32	38	200	124	21	8.6	.78	.87
9	1.4	.27	12	2.1	27	28	120	70	17	5.0	.70	.78
10	.70	.26	40	2.1	32	21	62	54	15	4.2	.70	.87
11	.42	10	39	1.9	30	15	51	164	14	4.7	.78	.70
12	.47	6.4	17	1.6	24	13	45	138	13	4.3	.78	.63
13	.87	1.4	15	1.4	23	11	57	200	12	3.8	.70	.97
14	.78	.43	14	1.4	23	11	62	250	448	3.3	.63	1.4
15	.70	.34	12	1.1	20	9.4	47	170	135	26	.57	5.0
16	.63	.31	10	1.1	18	8.3	36	120	55	31	.70	1.4
17	.70	.29	8.3	1.1	16	7.1	29	86	35	10	.96	.87
18	.78	.32	7.8	1.1	15	6.1	28	113	25	6.1	.75	.78
19	.63	.33	7.2	1.1	7.7	9.6	24	90	18	4.3	.72	.70
20	.26	.28	6.0	1.2	9.6	17	27	59	14	2.9	.62	.78
21	.23	.46	5.6	1.3	8.4	14	128	65	10	2.1	.54	.78
22	.34	40	5.3	2.1	8.7	12	459	114	8.5	1.8	.66	.87
23	.35	24	5.5	3.5	9.8	9.8	1000	162	6.3	1.4	2.5	.78
24	.28	9.8	35	3.3	6.9	8.5	400	79	6.1	1.3	1.6	.78
25	1.2	6.0	38	3.5	4.2	9.1	150	50	5.2	1.7	.83	.87
26	1.6	67	18	28	3.3	54	50	38	5.9	1.9	.79	.97
27	.79	76	113	33	2.8	94	35	32	6.5	2.0	.58	.97
28	17	53	179	23	3.1	71	30	118	6.5	2.0	.63	.97
29	3.9	26	63	35	---	98	300	81	17	1.6	.87	.97
30	1.0	20	27	37	---	251	1250	68	8.5	1.8	.87	.70
31	.46	---	17	96	---	113	---	42	---	1.6	5.0	---
TOTAL	38.93	344.72	1103.7	322.2	1307.5	1562.9	6962	5000	1196.5	227.4	32.11	30.40
MEAN	1.26	11.5	35.6	10.4	46.7	50.4	232	161	39.9	7.34	1.04	1.01
MAX	17	76	179	96	400	306	1250	1100	448	31	5.0	5.0
MIN	.19	.19	5.3	1.1	2.8	3.9	24	32	5.2	1.3	.54	.63
AC-FT	77	684	2190	639	2590	3100	13810	9920	2370	451	64	60

CAL YR 1982	TOTAL 11801.54	MEAN 32.3	MAX 1780	MIN .19	AC-FT 23410				
WTR YR 1983	TOTAL 18128.36	MEAN 49.7	MAX 1250	MIN .19	AC-FT 35960				

ARKANSAS RIVER BASIN

07188000 SPRING RIVER NEAR QUAPAW, OK

LOCATION.--Lat 36°56'04", long 94°44'45", in NE 1/4 SW 1/4 sec.5, T.28 N., R.24 E., Ottawa County, Hydrologic Unit 11070207, near center of span on downstream side of pier of county road bridge, 0.1 mi (0.2 km) upstream from Rock Creek, 3.0 mi (4.8 km) southeast of Quapaw, and at mile 13.9 (22.4 km). Records include flow of Rock Creek.

DRAINAGE AREA.--2,510 mi^2 (6,501 km^2), includes that of Rock Creek.

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

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 746.25 ft (227.457 m) National Geodetic Vertical Datum of 1929. Nonrecording gage on right bank at same datum used May 20 to Nov. 16, 1943.

REMARKS.--Records good. Occasional releases from flood gates at old Riverton Hydroelectric plant, 15 mi (24 km) above station.

AVERAGE DISCHARGE.--44 years, 1,914 ft^3/s (54.20 m^3/s), 10.35 in/yr (263 m/yr), 1,387,000 acre-ft/yr (1.71 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190,000 ft^3/s (5,380 m^3/s) May 19, 1943, gage height, 43.4 ft (13.23 m), from floodmark, from rating curve extended above 54,000 ft^3/s (1,530 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 5.8 ft^3/s (0.16 m^3/s) July 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 18,000 ft^3/s (510 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Apr 6	0300	20,900	592	16.69	5.087	May 1	0600	29,000	321	19.30	5.833
Apr 23	1600	*35,200	997	*21.04	6.413	July 5	2300	22,000	623	17.07	5.203

Minimum daily discharge, 195 ft^3/s (5.52 m^3/s) Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	378	306	2050	2040	6750	742	5400	26100	2210	1270	526	419
2	368	294	3130	1880	14100	728	11500	22100	2130	1050	517	346
3	364	278	10100	1760	8160	716	17200	12400	2130	967	482	248
4	358	279	13800	1650	4550	742	12500	5780	2470	6110	444	255
5	356	274	11700	1580	2830	1700	14900	4940	2320	20300	452	274
6	350	273	7900	1490	2600	1830	18800	4250	2450	20500	449	325
7	361	273	5610	1110	2370	1340	10500	5380	2080	9170	484	270
8	363	272	3840	1230	2170	1110	6040	5920	1780	4020	457	325
9	366	272	3180	1260	2040	996	4400	4310	1630	2090	440	330
10	371	274	2960	1200	1960	876	4090	3530	1510	1840	428	289
11	351	299	4820	1130	1900	802	3780	3630	1410	1460	417	283
12	331	317	5380	1070	1840	754	3310	4690	1340	1230	401	278
13	315	321	3690	1020	1700	780	2920	5630	1280	1220	388	277
14	308	304	2680	965	1460	675	2900	12400	6460	1150	374	269
15	300	295	2490	929	1290	575	2900	11900	4690	1390	370	276
16	295	287	2330	892	1350	657	2580	6180	2360	1170	349	272
17	291	280	2140	862	1270	624	2130	4160	1920	1170	275	276
18	289	277	2000	831	1210	603	2090	3880	1460	1150	283	277
19	288	279	1890	802	1160	598	1980	4120	1270	1070	303	279
20	278	277	1790	786	1100	635	1880	4380	1250	952	305	280
21	275	272	1670	783	1050	647	1830	3650	1150	703	302	273
22	272	301	1590	796	998	653	3760	3240	1080	560	300	289
23	295	428	1530	771	958	634	30700	2950	1000	675	301	328
24	267	403	1510	747	933	588	30900	2840	964	678	292	195
25	265	393	1850	742	894	575	28400	2630	1040	651	315	207
26	265	524	2390	762	850	767	12100	2190	934	629	374	264
27	270	929	2650	848	809	2880	5620	2130	1180	604	335	352
28	277	2660	5850	837	775	4210	4170	7570	1480	583	308	337
29	318	3560	5290	857	---	3000	5270	7380	1860	561	314	323
30	331	2860	3080	880	---	5440	15700	3400	1660	540	326	308
31	315	---	2210	911	---	5320	---	2470	---	528	439	---
TOTAL	9831	18061	123100	33421	69077	42197	270250	196130	56498	85991	11750	8724
MEAN	317	602	3971	1078	2467	1361	9008	6327	1883	2774	379	291
MAX	378	3560	13800	2040	14100	5440	30900	26100	6460	20500	526	419
MIN	265	272	1510	742	775	575	1830	2130	934	528	275	195
CFSM	.13	.24	1.58	.43	.98	.54	3.59	2.52	.75	1.11	.15	.12
IN.	.15	.27	1.82	.50	1.02	.63	4.01	2.91	.84	1.27	.17	.13
AC-FT	19500	35820	244200	66290	137000	83700	536000	389000	112100	170600	23310	17300

CAL YR 1982	TOTAL	729518	MEAN	1999	MAX	22000	MIN	265	CFSM	.80	IN.	10.81	AC-FT	1447000
WTR YR 1983	TOTAL	925030	MEAN	2534	MAX	30900	MIN	195	CFSM	1.01	IN.	13.71	AC-FT	1835000

ARKANSAS RIVER BASIN

07189000 ELK RIVER NEAR TIFF CITY, MO

LOCATION.--Lat 36°37'50", long 94°35'12", in NE 1/4 sec.22, T.22 N., R.34 W., McDonald County, Hydrologic Unit 11070208, on downstream side of second pier from right bank of bridge on State Highway 43, 0.8 mi (1.3 km) downstream from Blackfoot Branch, 2.8 mi (4.5 km) upstream from Buffalo Creek, 3.0 mi (4.8 km) southeast of Tiff City, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--872 mi^2 (2,258 km^2).

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

REVISED RECORDS.--WSP 927: 1940. WSP 1117: Drainage area.

GAGE.--Water stage recorder. Datum of gage is 750.61 ft (228.786 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Sept. 6, 1960 to Aug. 25, 1961, at site 100 ft (30.5 m) downstream.

REMARKS.--Records good.

AVERAGE DISCHARGE.--44 years, 770 ft^3/s (21.81 m^3/s), 11.99 in/yr (305 mm/yr), 557,900 acre-ft/yr (688 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 137,000 ft^3/s (3,880 m^3/s) Apr 19, 1941, gage height, 28.4 ft (8.66 m), from floodmark, from rating curve extended above 60,000 ft^3/s (1,700 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 5.1 ft^3/s (0.14 m^3/s), Sept. 5, 6, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft^3/s (255 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Dec. 3	1430	20,200	572	16.63	5,069	Apr. 30	0930	*35,200	997	*20.70	6.309

Minimum daily discharge, 51 ft^3/s (1.44 m^3/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	96	1220	1060	776	316	592	12900	645	288	135	87
2	84	101	1150	949	2590	306	2420	6270	589	261	134	84
3	84	101	12200	855	2600	300	7500	3700	757	246	130	78
4	84	103	13000	750	2050	304	4650	2720	764	239	129	72
5	82	104	5410	680	1680	354	3290	2190	691	594	125	67
6	79	106	3490	630	1420	386	2780	1830	631	444	122	67
7	84	107	2610	596	1230	429	2360	1640	571	361	121	63
8	95	107	1890	551	1080	520	1980	1440	516	313	131	58
9	107	107	1650	515	975	596	1730	1260	474	277	134	55
10	104	102	1330	483	888	600	1510	1130	438	256	127	54
11	104	101	1270	453	816	560	1320	1020	409	239	115	52
12	98	112	1180	424	744	517	1200	943	385	225	107	52
13	92	117	1110	400	677	507	1130	893	359	211	97	52
14	90	119	1040	380	626	490	1150	880	401	204	91	52
15	87	118	948	361	586	469	1140	863	610	197	87	51
16	84	114	868	343	555	447	1090	814	524	190	85	55
17	82	109	811	328	521	422	1030	750	452	183	80	56
18	79	107	745	313	493	400	981	737	405	182	76	56
19	77	106	687	296	470	385	932	759	373	177	74	54
20	74	103	633	290	448	391	884	741	347	167	71	55
21	74	101	585	297	429	384	880	720	326	165	65	56
22	74	114	546	292	411	366	1640	721	305	157	66	58
23	74	167	519	280	395	349	5200	866	287	149	67	60
24	74	218	503	272	382	335	7060	1030	275	142	65	60
25	74	272	880	268	370	324	4260	883	265	142	65	59
26	74	342	1410	267	354	336	3020	777	264	143	64	58
27	74	885	1190	272	338	376	2330	694	268	148	65	58
28	78	2720	1280	284	325	459	1920	707	340	141	67	57
29	85	2630	1500	300	---	515	5220	899	349	137	64	54
30	90	1670	1350	323	---	555	27300	820	321	128	70	83
31	94	---	1200	358	---	573	---	717	---	129	76	---
TOTAL	2622	11259	64205	13870	24229	13271	98499	52314	13341	6835	2905	1823
MEAN	84.6	375	2071	447	865	428	3283	1688	445	220	93.7	60.8
MAX	107	2720	13000	1060	2600	600	27300	12900	764	594	135	87
MIN	74	96	503	267	325	300	592	694	264	128	64	51
CFSM	.10	.43	2.38	.51	.99	.49	3.76	1.94	.51	.25	.11	.07
IN.	.11	.48	2.74	.59	1.03	.57	4.20	2.23	.57	.29	.12	.08
AC-FT	5200	22330	127400	27510	48060	26320	195400	103800	26460	13560	5760	3620

CAL YR 1982	TOTAL	233003	MEAN	638	MAX	13000	MIN	74	CFSM	.73	IN.	9.94	AC-FT	462200
WTR YR 1983	TOTAL	305173	MEAN	836	MAX	27300	MIN	51	CFSM	.96	IN.	13.02	AC-FT	605300

ARKANSAS RIVER BASIN

07190000 LAKE O' THE CHEROKEES AT LANGLEY, OK

LOCATION.--Lat 36°28'17", long 95°02'19", in SW 1/4 sec.14, T.23 N., R.21 E., Mayes County, Hydrologic Unit 11070209, on upstream side of pier at intake structure near right end of Pensacola Dam on Neosho River at Langley, 9.9 mi (15.9 km) upstream from Big Cabin Creek, and at mile 77.0 (123.9 km).

DRAINAGE AREA.--10,298 mi^2 (26,672 km^2).

PERIOD OF RECORD.--March 1940 to current year. Prior to October 1940, published as Grand Lake at Langley.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.10 ft (0.335 m), Corps of Engineers datum. Prior to Nov. 14, 1941, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by multiple-arch concrete dam, with top of taintor-type spillway gates at gage height 755.0 ft (230.12 m). Storage began Mar. 21, 1940; power-pool was first filled Apr. 19, 1941. Capacity between gage heights 682.0 ft (207.87 m), sill of powerhouse penstock, and 745.0 ft (227.08 m), maximum power pool is 1,492,000 acre-ft (1.84 km^3). Capacity between gage heights 745.0 ft (227.08 m), and 755.0 ft (230.12 m) is 525,000 acre-ft (647 hm^3) and is reserved for flood control. Dead storage below gage height 682.0 ft (207.87 m) is 180,200 acre-ft (222 hm^3). Figures given herein represent total contents. Reservoir is utilized for power development and flood control.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,213,000 acre-ft (2.73 km^3), May 25, 1957, gage height, 755.27 ft (230.206 m), minimum since power-pool was first filled, 642,900 acre-ft (793 hm^3) Sept. 28, 1954, gage height, 713.41 ft (217.447 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,959,000 acre-ft (2.42 km^3), Apr. 26, gage height, 750.80 ft (228.844 m); minimum, 1,334,000 acre-ft (1.64 km^3) Sept. 29-30, gage height, 737.04 ft (224.650 m).

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

737	1,332,000	744	1,626,000
739	1,411,000	747	1,767,000
741	1,494,000	751	1,970,000

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1430000	1391000	1422000	1591000	1605000	1552000	1593000	1898000	1731000	1583000	1506000	1363000
2	1430000	1390000	1444000	1587000	1667000	1548000	1638000	1869000	1721000	1585000	1498000	1362000
3	1432000	1386000	1486000	1580000	1706000	1543000	1718000	1819000	1715000	1587000	1490000	1360000
4	1430000	1383000	1534000	1577000	1712000	1544000	1775000	1767000	1714000	1598000	1482000	1359000
5	1430000	1381000	1556000	1572000	1704000	1551000	1810000	1738000	1726000	1626000	1477000	1357000
6	1429000	1378000	1563000	1574000	1696000	1572000	1835000	1721000	1734000	1657000	1470000	1354000
7	1428000	1376000	1567000	1574000	1683000	1581000	1842000	1740000	1725000	1665000	1471000	1352000
8	1427000	1371000	1566000	1574000	1672000	1579000	1835000	1742000	1715000	1662000	1467000	1350000
9	1427000	1370000	1563000	1570000	1658000	1569000	1807000	1737000	1711000	1655000	1460000	1349000
10	1426000	1367000	1563000	1572000	1644000	1558000	1783000	1734000	1711000	1647000	1446000	1347000
11	1426000	1369000	1558000	1572000	1634000	1550000	1764000	1741000	1706000	1638000	1438000	1347000
12	1426000	1372000	1556000	1569000	1623000	1552000	1749000	1747000	1697000	1636000	1433000	1347000
13	1430000	1369000	1554000	1569000	1614000	1554000	1732000	1761000	1688000	1634000	1429000	1345000
14	1430000	1367000	1561000	1573000	1604000	1544000	1728000	1788000	1695000	1633000	1425000	1344000
15	1428000	1365000	1563000	1569000	1596000	1533000	1723000	1809000	1695000	1634000	1420000	1344000
16	1425000	1364000	1567000	1569000	1592000	1523000	1718000	1815000	1686000	1631000	1418000	1343000
17	1422000	1363000	1568000	1569000	1583000	1514000	1712000	1788000	1680000	1625000	1413000	1343000
18	1418000	1362000	1570000	1566000	1569000	1503000	1709000	1768000	1676000	1621000	1406000	1341000
19	1414000	1360000	1570000	1565000	1576000	1497000	1705000	1762000	1672000	1615000	1401000	1339000
20	1412000	1360000	1573000	1566000	1578000	1496000	1702000	1755000	1666000	1608000	1400000	1341000
21	1410000	1360000	1571000	1568000	1565000	1497000	1710000	1757000	1659000	1601000	1396000	1339000
22	1407000	1369000	1565000	1564000	1557000	1501000	1735000	1763000	1648000	1593000	1390000	1339000
23	1403000	1370000	1562000	1565000	1552000	1500000	1834000	1768000	1640000	1582000	1391000	1337000
24	1402000	1369000	1562000	1563000	1552000	1504000	1906000	1761000	1632000	1570000	1387000	1336000
25	1399000	1371000	1559000	1563000	1550000	1504000	1952000	1754000	1622000	1559000	1379000	1335000
26	1397000	1381000	1559000	1565000	1551000	1493000	1957000	1747000	1606000	1547000	1376000	1336000
27	1394000	1388000	1558000	1563000	1554000	1494000	1923000	1733000	1596000	1536000	1369000	1335000
28	1396000	1397000	1571000	1565000	1555000	1515000	1864000	1741000	1585000	1526000	1365000	1335000
29	1395000	1411000	1586000	1568000	---	1534000	1859000	1747000	1589000	1516000	1363000	1334000
30	1393000	1415000	1599000	1569000	---	1549000	1891000	1747000	1583000	1512000	1362000	1334000
31	1391000	---	1596000	1575000	---	1573000	---	1740000	---	1512000	1364000	---
MAX	1432000	1415000	1599000	1591000	1712000	1581000	1957000	1898000	1734000	1665000	1506000	1363000
MIN	1391000	1360000	1422000	1563000	1550000	1493000	1593000	1721000	1583000	1512000	1362000	1334000
†	738.50	739.10	743.34	742.86	742.40	742.81	749.49	746.44	743.04	741.41	737.83	737.04
††	-38,000	+24,000	+181,000	-21,000	-20,000	+18,000	+318,000	-151,000	-157,000	-71,000	-148,000	-30,000

CAL YR 1982 MAX 1897000 MIN 1360000, †† +4,000
WTR YR 1983 MAX 1957000 MIN 1334000, †† -95,000

† Gage height, in feet, at end of month
†† Change in contents, in acre-ft

ARKANSAS RIVER BASIN

07190500 NEOSHO RIVER NEAR LANGLEY, OK

LOCATION.--Lat 36°26'15", long 95°02'44", in SE 1/4 sec.27, T.23 N., R.21 E., Mayes County, Hydrologic Unit 11070209, in concrete stilling well on left bank, 0.5 mi (0.8 km) upstream from bridge on State Highway 82, 1.5 mi (2.4 km) south of Langley, 3.6 mi (5.8 km) downstream from Pensacola Dam, 6.3 mi (10.1 km) upstream from Big Cabin Creek, and at mile 73.4 (118.1 km).

DRAINAGE AREA.--10,335 mi^2 (26,768 km^2).

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

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 607.65 ft (185.212 m), Corps of Engineers datum. Prior to Feb. 16, 1940, nonrecording gage at site 0.1 mi (0.2 km) upstream at same datum. Feb. 10, 1954, to Sept. 30, 1963, water-stage recorder at site 0.5 mi (0.8 km) downstream at same datum. Auxiliary water-stage recorders at sites 2.0 and 3.0 mi (3.2 and 4.8 km) upstream at same datum.

REMARKS.--Records fair. Low flow values of 25 ft^3/s (0.71 m^3/s) consist of estimated base flow (since July 1964). Flow regulated since 1940 by Lake O' The Cherokees (station 07190000).

AVERAGE DISCHARGE.--44 years, 6,856 ft^3/s (194.2 m^3/s), 4,967,000 acre-ft/yr (6.12 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 300,000 ft^3/s (8,500 m^3/s) May 20, 1943, gage height, 45.5 ft (13.87 m), from floodmarks, from computation of outflow from Lake O' The Cherokees; minimum daily, 9 ft^3/s (0.25 m^3/s), Mar. 25, 1940 (caused by closure of Pensacola Dam).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64,500 ft^3/s (1,830 m^3/s) May 1, gage height, 25.00 ft (7.620 m) minimum daily discharge, 25 ft^3/s (0.71 m^3/s) at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	881	556	7710	8790	5040	10300	64100	17000	6040	4140	703
2	25	603	45	5370	9610	4200	12200	63400	17000	2170	4990	542
3	25	1760	6760	5540	10800	3930	12500	58700	17000	2550	4270	732
4	420	1180	10200	5440	11600	7100	22100	48300	17000	1700	4370	776
5	863	1090	10600	6510	12100	11600	30300	34300	17000	11100	3480	903
6	979	2780	10600	2920	12100	11200	41700	24500	17000	11800	3910	1250
7	580	109	9150	2170	12100	11100	41500	20900	17000	11900	1450	1490
8	245	2050	8330	1510	12200	10600	39900	21300	17000	11200	2880	1070
9	276	493	8240	3520	12200	10600	32800	21400	14000	10900	4430	682
10	321	369	8010	2880	12300	10300	26700	18700	12400	10900	5600	577
11	426	374	8940	2740	11700	8830	24600	16800	12500	10100	5490	526
12	356	210	10300	2430	12200	2570	23900	17000	12500	5610	2840	382
13	554	317	7930	1140	12300	2310	23400	18000	12500	4360	2070	612
14	744	704	3030	1570	12200	8970	21000	24000	12500	3950	2020	445
15	1550	408	2100	1570	12600	9460	18800	28000	12500	2230	2450	775
16	1770	219	1030	1530	12600	7940	18600	29000	12400	4530	1980	592
17	778	2150	1370	1660	12000	7740	18300	25000	12400	3980	4200	576
18	1960	1000	1290	1910	12400	7800	17300	19000	12400	4100	3500	635
19	1700	708	1830	1910	2080	7120	16400	16500	12400	4870	1480	671
20	1300	487	671	1620	2630	3110	16200	21000	12400	4010	906	599
21	1360	558	1810	1790	10600	2980	16300	13400	12400	4470	1200	541
22	1100	580	880	2880	8760	2480	16700	11900	12500	4740	3370	464
23	1020	290	1740	1660	6580	1300	23800	13100	12400	5820	874	222
24	773	394	1640	2940	4660	1050	42400	17000	11900	6160	2270	658
25	1400	86	3700	2320	5200	2520	54800	16800	11900	6840	3670	416
26	774	162	4420	1780	3470	5460	57100	17000	11300	6820	2140	324
27	1220	25	3200	2010	2890	10500	51800	18000	10500	5620	2960	451
28	1110	35	10400	1530	3040	11200	45700	18000	10700	5150	2400	490
29	652	464	10200	1580	---	10500	42700	18500	7750	5020	961	494
30	830	2780	9080	2520	---	10500	54000	18500	8170	2910	1020	439
31	966	---	7520	3610	---	10500	---	18000	---	1650	716	---
TOTAL	26102	23266	165572	86270	261710	220510	873800	770100	396420	183200	88037	19037
MEAN	842	776	5341	2783	9347	7113	29130	24840	13210	5910	2840	635
MAX	1960	2780	10600	7710	12600	11600	57100	64100	17000	11900	5600	1490
MIN	25	25	45	1140	2080	1050	10300	11900	7750	1650	716	222
AC-FT	51770	46150	328400	171100	519100	437400	1733000	1527000	786300	363400	174600	37760

CAL YR 1982 TOTAL 2361262 MEAN 6469 MAX 32000 MIN 25 AC-FT 4684000
WTR YR 1983 TOTAL 3114024 MEAN 8532 MAX 64100 MIN 25 AC-FT 6177000

ARKANSAS RIVER BASIN

07191000 BIG CABIN CREEK NEAR BIG CABIN, OK

LOCATION.--Lat 36°34'06", long 95°09'07", in NE 1/4 NE 1/4 sec.15, T.24 N., R.20 E., Craig County, Hydrologic Unit 11070209, near downstream side of right bank end of county road bridge, 4.9 mi (7.9 km) northeast of Big Cabin, 0.9 mi (1.5 km) downstream from White Oak Creek, 6.8 mi (10.9 km) upstream from Mustang Creek, and at mile 13.0 (20.9 km).

DRAINAGE AREA.--450 mi^2 (1,165 km^2).

PERIOD OF RECORD.--October 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 622.00 ft (189.586 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 30, 1972, water-stage recorder at site 4.5 mi (7.2 km) downstream at same datum and present site used as supplemental gage.

REMARKS.--Records good. Low flow sustained by sewage from city of Vinita.

AVERAGE DISCHARGE.--36 years, 309 ft^3/s (8.751 m^3/s), 9.00 in/yr (229 mm/yr), 223,900 acre-ft/yr (276 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft^3/s (1,470 m^3/s) Oct. 3, 1959, gage height, 34.55 ft (10.531 m), at former site; maximum gage height, 44.58 ft (13.588 m) Nov. 4, 1974; minimum, 0.10 ft^3/s (0.003 m^3/s) at times in 1954, 1956 and 1963.

EXTREMES FOR OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1943, reached a stage of 34.96 ft (10.656 m) at former site, discharge, 63,000 ft^3/s (1,780 m^3/s), by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft^3/s (255 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Apr 24	0115	*15,300	433	*36.15	11.019	May 14	1745	9,220	261	31.18	9.504
Apr 30	0600	12,200	346	33.88	10.327						

Minimum daily discharge, 0.45 ft^3/s (0.013 m^3/s) Nov. 2, Sept. 26-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	.52	38	140	7140	52	695	7950	63	31	4.1	1.6
2	.60	.45	1530	105	5310	48	1450	1980	55	24	2.9	1.7
3	.60	.48	1150	85	911	45	603	617	365	16	2.3	1.5
4	.60	.55	629	72	447	983	344	385	198	13	1.3	1.1
5	.60	.60	272	61	322	5750	2570	281	98	12	1.0	.90
6	.60	.65	165	55	304	997	3410	216	64	9.5	.86	.75
7	.60	.75	124	51	264	811	719	1810	47	8.1	2.1	.65
8	.60	.80	80	47	236	443	430	743	36	7.2	4.4	.65
9	.65	.80	55	43	231	272	323	305	29	6.4	3.1	.65
10	.65	.80	119	38	235	192	268	205	25	5.2	1.9	.65
11	.65	1.3	412	34	196	150	207	1200	21	4.4	1.3	.60
12	.65	5.4	256	30	145	128	161	2050	17	3.7	1.0	.55
13	.65	6.2	117	28	117	114	162	3880	15	3.4	1.0	.55
14	.65	5.7	75	25	105	103	308	7970	44	3.1	1.0	.60
15	.65	4.5	58	22	96	97	200	4360	117	2.9	1.0	.90
16	.65	3.8	48	20	88	89	131	804	61	2.9	1.0	1.1
17	.65	3.6	40	19	79	77	105	499	33	2.6	1.0	1.1
18	.65	3.4	35	18	72	68	92	1470	21	2.6	1.0	.90
19	.65	3.4	31	18	66	63	82	797	15	2.3	1.0	.70
20	.65	3.4	27	18	62	121	95	379	12	2.3	.90	.90
21	.60	3.4	22	18	59	157	799	618	10	2.1	.90	1.3
22	.55	24	21	21	91	106	5910	1260	9.0	1.6	.80	1.0
23	.60	30	20	26	151	83	11200	657	9.0	1.3	.75	.65
24	.60	6.9	114	33	128	71	9420	393	9.0	1.0	.75	.52
25	.60	2.0	275	55	94	66	794	200	9.5	1.0	.75	.48
26	.60	176	128	446	77	186	469	133	10	.78	.75	.45
27	.55	464	1050	888	64	1250	320	102	9.7	.78	.75	.45
28	1.0	430	2360	430	57	462	286	98	83	.78	.80	.45
29	1.2	111	605	376	---	305	5590	191	90	.78	1.0	.45
30	1.0	50	276	583	---	2560	10800	102	35	1.0	1.0	.45
31	.60	---	184	705	---	1020	---	76	---	4.4	.89	---
TOTAL	20.65	1344.40	10316	4510	17147	16869	57943	41731	1610.2	178.12	43.30	24.25
MEAN	.67	44.8	333	145	612	544	1931	1346	53.7	5.75	1.40	.81
MAX	1.2	464	2360	888	7140	5750	11200	7970	365	31	4.4	1.7
MIN	.55	.45	20	18	57	45	82	76	9.0	.78	.75	.45
CFSM	.00	.10	.74	.32	1.36	1.21	4.29	2.99	.12	.01	.00	.00
IN.	.00	.11	.85	.37	1.42	1.39	4.79	3.45	.13	.01	.00	.00
AC-FT	41	2670	20460	8950	34010	33460	114900	82770	3190	353	86	48

CAL YR 1982	TOTAL	75450.43	MEAN	207	MAX	5940	MIN	.45	CFSM	.46	IN.	6.24	AC-FT	149700
WTR YR 1983	TOTAL	151736.92	MEAN	416	MAX	11200	MIN	.45	CFSM	.92	IN.	12.54	AC-FT	301000

ARKANSAS RIVER BASIN

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK

LOCATION.--Lat 36°20'07", long 94°38'24", in NE 1/4 NW 1/4 sec.4, T.21 N., R.25 E., Delaware County, Hydrologic Unit 11070209, on right bank 1.8 mi (2.9 km) upstream from Cherokee Creek, 4.8 mi (7.7 km) northeast of Row, 6.5 mi (10.5 km) southeast of Sycamore, and at mile 35.0 (56.3 km).

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2121: 1965 (M).

GAGE.--Water-stage recorder. Altitude of gage is 875 ft (266.7 m), from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--22 years, 102 ft^3/s (2.889 m^3/s), 10.41 in/yr (264 mm/yr), 73,900 acre-ft/yr (91.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,800 ft^3/s (1,130 m^3/s), July 27, 1975, gage height, 22.07 ft (6.727 m); minimum, 1.2 ft^3/s (34.0 m^3/s) Aug. 9, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to local residents, a flood of approximately the same magnitude as the July 27, 1975 flood occurred in the early 1880's.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 2,350 ft^3/s (66.6 m^3/s) Apr. 29, gage height, 8.98 ft (2.737 m), from highwater mark, no peak above base of 2,500 ft^3/s (70.8 m^3/s); minimum, 8.0 ft^3/s (0.23 m^3/s) Oct. 5, 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	11	69	121	58	45	49	626	114	55	22	12
2	8.8	11	108	108	139	44	143	459	105	55	24	12
3	8.8	11	368	99	182	43	568	366	100	53	26	12
4	8.6	11	593	88	167	43	445	305	93	52	27	13
5	8.2	11	388	80	148	44	359	253	93	49	27	12
6	8.0	11	284	75	130	47	307	215	94	46	26	12
7	8.2	12	218	71	114	50	257	193	86	46	25	11
8	8.9	12	169	67	101	53	217	166	80	44	24	11
9	9.7	12	139	64	93	56	189	148	75	43	23	11
10	11	11	122	61	87	58	164	135	73	42	24	10
11	11	11	110	59	81	58	146	124	70	40	24	10
12	12	12	100	56	76	58	132	117	67	39	23	9.8
13	12	13	95	53	72	56	130	117	65	34	23	9.0
14	12	13	89	51	68	55	147	120	65	35	22	8.8
15	11	13	84	49	65	54	155	121	67	34	21	8.8
16	11	13	79	47	63	52	146	116	66	33	20	9.1
17	10	13	74	46	61	51	135	110	65	32	19	9.9
18	10	13	70	45	59	49	127	126	62	31	19	10
19	10	12	67	43	57	48	118	135	60	30	17	10
20	9.8	12	64	42	55	47	111	131	58	29	17	10
21	9.4	12	61	41	54	47	119	138	55	28	17	10
22	9.4	13	59	40	52	46	231	132	55	28	16	10
23	9.6	14	57	40	51	45	432	429	54	26	15	11
24	9.6	17	56	40	50	44	554	404	53	25	14	11
25	9.9	20	56	39	49	43	411	304	52	24	14	11
26	10	24	62	39	48	42	320	237	51	23	14	11
27	9.7	28	80	39	47	42	253	194	51	23	13	11
28	9.7	33	107	40	46	43	208	180	52	22	13	11
29	9.8	66	147	41	---	45	1130	159	52	22	13	11
30	10	73	150	42	---	46	1080	139	53	21	13	11
31	11	---	137	44	---	48	---	127	---	21	13	---
TOTAL	306.1	538	4262	1770	2273	1502	8783	6526	2086	1085	608	319.4
MEAN	9.87	17.9	137	57.1	81.2	48.5	293	211	69.5	35.0	19.6	10.6
MAX	12	73	593	121	182	58	1130	626	114	55	27	13
MIN	8.0	11	56	39	46	42	49	110	51	21	13	8.8
CFSM	.07	.13	1.03	.43	.61	.36	2.20	1.59	.52	.26	.15	.08
IN.	.09	.15	1.19	.50	.64	.42	2.46	1.83	.58	.30	.17	.09
AC-FT	607	1070	8450	3510	4510	2980	17420	12940	4140	2150	1210	634

CAL YR 1982	TOTAL	26808.3	MEAN	73.4	MAX	1560	MIN	8.0	CFSM	.55	IN.	7.50	AC-FT	53170
WTR YR 1983	TOTAL	30058.5	MEAN	82.4	MAX	1130	MIN	8.0	CFSM	.62	IN.	8.41	AC-FT	59620

ARKANSAS RIVER BASIN

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1977, January 1980 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN DISSOLVED (MG/L AS N)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)
OCT										
14...	1610	80020	11	320	7.3	19.5	--	--	--	--
NOV										
09...	1420	80020	12	320	7.2	17.0	9.3	99	2.1	<10
DEC										
08...	1640	80020	164	270	7.4	13.0	9.4	90	4.9	<10
JAN										
20...	1325	80020	43	284	7.8	11.5	11.2	106	3.8	<10
FEB										
23...	1420	80020	53	271	7.6	10.5	11.3	105	3.9	<10
MAR										
15...	1450	80020	54	280	7.3	13.0	11.8	118	3.5	14
APR										
20...	1410	80020	111	258	7.8	13.5	13.5	134	3.1	<10
MAY										
25...	1250	80020	305	242	7.6	16.0	--	--	3.0	<10
JUN										
22...	1505	80020	56	278	7.2	19.5	--	--	2.2	<10
JUL										
26...	1420	80020	24	308	7.3	21.0	8.5	99	2.7	<10
AUG										
17...	1540	80020	19	304	7.0	21.5	8.0	94	2.5	<10
SEP										
14...	1410	80020	8.7	333	7.1	21.0	--	--	2.6	<10

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
OCT										
14...	140	4	54	1.6	6.8	9	.3	2.6	138	6.0
NOV										
09...	150	11	56	1.9	7.4	10	.3	2.5	137	6.0
DEC										
08...	110	11	43	1.6	5.0	9	.2	2.2	103	9.0
JAN										
20...	120	17	47	1.5	5.6	9	.2	1.9	107	7.0
FEB										
23...	130	24	49	1.5	5.6	9	.2	2.0	105	7.2
MAR										
15...	130	10	48	1.5	5.6	9	.2	1.9	116	7.0
APR										
20...	120	16	45	1.4	4.9	8	.2	1.7	102	8.1
MAY										
25...	110	13	43	1.3	4.4	8	.2	1.9	100	7.0
JUN										
22...	130	16	50	1.6	5.4	8	.2	2.1	116	6.6
JUL										
26...	130	2	50	1.7	5.9	9	.2	2.4	130	5.6
AUG										
17...	130	2	50	1.7	6.4	9	.3	2.2	130	6.0
SEP										
14...	130	2	51	1.8	7.0	10	.3	2.5	133	2.4

ARKANSAS RIVER BASIN

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, DISSOLVED (MG/L AS P)
OCT									
14...	11	<.10	10	170	.24	5.4	1.60	--	--
NOV									
09...	13	.10	9.6	180	.24	5.7	1.60	.50	.040
DEC									
08...	8.9	.20	9.4	140	.19	62	3.60	1.3	.050
JAN									
20...	10	<.10	7.7	140	.20	17	3.10	.70	.040
FEB									
23...	10	<.10	7.9	150	.20	21	3.00	.90	.040
MAR									
15...	10	<.10	7.4	150	.21	22	2.60	.90	.030
APR									
20...	9.0	<.10	7.6	140	.19	42	2.70	.40	.080
MAY									
25...	6.9	<.10	9.1	130	.18	110	2.10	.90	.040
JUN									
22...	9.1	.10	9.7	150	.21	23	1.80	.40	.030
JUL									
26...	10	.10	10	160	.22	11	1.80	.90	.040
AUG									
17...	12	<.10	10	170	.23	8.5	1.70	.80	.010
SEP									
14...	14	<.10	11	170	.23	4.0	1.70	.90	.030

ARKANSAS RIVER BASIN

07191400 LAKE HUDSON NEAR LOCUST GROVE, OK

LOCATION.--Lat 36°13'54", long 95°11'36", in SE 4 NW 4 sec.9, T.20 N., R. 20 E., Mayes County, Hydrologic Unit 11070209, at left side of Robert S. Kerr dam on Neosho River, 2.0 mi (3.2 km) northwest of Locust Grove, 3.5 mi (5.6 km) downstream from Salina Creek, and at mile 47.3 (76.1 km).

DRAINAGE AREA.--11,534 mi^2 (29,873 km^2).

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

GAGE.--Remote-controlled indicator and non-recording gage. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth dam and concrete spillway controlled by seventeen 22-foot (6.706 m) taintor gates. Storage began Nov. 12, 1963; power pool first filled June 12, 1964. Capacity, 444,500 acre-ft (548 hm^3) at elevation 636.0 ft (193.85 m), top of taintor gages, 200,300 acre-ft (247 hm^3) at elevation 619.0 ft (188.67 m) power pool, and 48,630 acre-ft (60.0 hm^3) at elevation 599.0 ft (182.58 m), top of spillway crest. Figures given herein represent total contents. Reservoir was designed for flood control and power development.

COOPERATION.--Records furnished by Grand River Dam Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 436,300 acre-ft (538 hm^3) Nov. 9, 1974, elevation, 635.56 ft (193.719 m); minimum since power pool first filled, 183,100 acre-ft (226 hm^3) Dec. 24, 1967, elevation, 617.38 ft (188.177 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 306,700 acre-ft (378 hm^3) Apr. 30, elevation, 627.56 ft (191.280 m); minimum, 196,200 acre-ft (242 hm^3) Oct. 3, elevation, 618.62 ft (188.555 m).

MONTH-END ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	619.10	201,400	---
Oct. 31	619.77	208,800	+ 7,400
Nov. 30	620.02	211,600	+ 2,800
Dec. 31	620.70	219,300	+ 7,700
CAL YR 82	---	---	+17,300
Jan. 31	619.73	208,300	-11,000
Feb. 28	619.32	203,800	- 4,500
Mar. 31	619.12	201,600	- 2,200
Apr. 30	627.52	306,200	+104,600
May 31	622.29	238,000	-68,200
June 30	618.80	198,100	-39,900
July 31	619.50	205,800	+ 7,700
Aug. 31	619.77	208,800	+ 3,000
Sept. 30	619.45	205,400	- 3,400
WTR YR 83	---	---	+ 4,000

ARKANSAS RIVER BASIN

07191500 NEOSHO RIVER NEAR CHOUTEAU, OK

LOCATION.--Lat 36°13'45", long 95°10'59", in SE 1/4 NW 1/4 sec.9, T.20 N., R.20 E., Mayes County, Hydrologic Unit 11070209, on left bank, 300 ft (91.4 m) downstream from Robert S. Kerr Dam, 2.2 mi (3.5 km) northwest of Locust Grove, 10 mi (16.1 km) northeast of Chouteau, and at mile 47.2 (75.9 km).

DRAINAGE AREA.--11,534 mi^2 (29,873 km^2).

PERIOD OF RECORD.--October 1937 to September 1950, October 1963 to current year.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 554.00 ft (168.859 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Apr. 3, 1941, nonrecording gage at bridge on State Highway 33, 8.2 mi (13.2 km) downstream, at datum 17.63 ft (5.374 m) lower. Apr. 3, 1941, Sept. 30, 1950; Oct. 1963 to Apr. 6, 1964, at site 2.5 mi (4.0 km) downstream at datum 2.17 ft (0.661 m) lower (now used as supplementary gage). Supplemental water-stage recorder Oct. 4, 1963, to July 10, 1973, at site 8.2 mi (13.2 km) downstream.

REMARKS.--Records fair. Flow regulated since 1940 by Lake O' The Cherokees (station 07190000), and completely regulated since 1963 by Lake Hudson (station 07191400).

AVERAGE DISCHARGE.--(Since regulation by Lake Hudson), 20 years (water years 1964-83), 7,632 ft^3/s (216.1 m^3/s), 5,529,000 acre-ft/yr (6.82 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 400,000 ft^3/s (11,328 m^3/s) May 20, 1943, gage height, 45.00 ft (13.716 m), site and datum then in use, from rating curve extended above 140,000 ft^3/s (3,965 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 12 ft^3/s (0.32 m^3/s) Nov. 13, 1963, (caused by closure of Robert S. Kerr Dam).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 82,200 ft^3/s (2,330 m^3/s) May 3, gage height, 24.91 ft (7.593 m); minimum daily discharge, 109 ft^3/s (3.09 m^3/s) Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	698	1560	546	9400	11100	4750	10100	78800	19800	5030	4180	196
2	708	1370	2690	7130	17100	2350	12700	78300	20700	192	5230	234
3	218	1150	8080	7000	15300	5240	11200	70000	25600	2080	3900	192
4	127	423	8400	6800	11100	9970	20700	56800	15900	2490	2920	527
5	118	147	8540	7650	13200	14700	26000	43300	13700	11100	6730	196
6	249	651	10400	4400	13800	11300	29400	29600	20900	8490	3780	2550
7	120	147	7850	4080	15200	18000	28700	27600	13100	12300	1110	1080
8	121	1420	9090	4300	11300	12900	35800	27000	14500	13100	599	177
9	121	2260	7990	3400	13800	12000	44600	20900	13400	12000	6100	240
10	122	1250	7870	4590	12900	11600	36700	18800	13900	7960	4830	175
11	123	1110	10600	3340	13600	9170	28900	19700	12400	13100	7330	557
12	121	2280	9940	2680	11900	685	29500	19800	11300	5140	1150	830
13	124	151	4290	2610	12800	3600	30300	24700	10400	3760	1470	470
14	127	1120	3530	3050	14600	8170	21900	24200	14700	2900	219	4020
15	450	1340	4310	2580	12900	9200	17400	29200	10200	7970	3850	359
16	471	1210	1830	619	13100	9030	17800	28300	15600	601	1040	398
17	648	325	1060	6050	11500	8220	18600	28700	13800	2860	2780	314
18	2190	443	5620	2780	11900	9360	21900	29500	11000	6310	3400	837
19	2900	1290	2040	5220	2470	5220	17200	27900	12400	5300	1040	366
20	2740	406	3730	3250	1820	2900	14500	21200	12400	3310	827	116
21	922	1730	2370	2500	11900	2500	19700	21300	10800	6440	1340	109
22	1250	4410	5850	2620	11200	1500	24200	20000	17200	5490	5390	130
23	1190	1910	5520	1210	11200	1980	31100	15500	8620	5310	567	1030
24	1550	285	4250	3760	4900	1160	39700	14500	10500	11000	366	191
25	1180	167	6760	852	6060	2510	55800	20100	12400	6960	1750	113
26	1860	1410	5380	5430	2770	6570	55200	19800	10400	4390	9430	577
27	851	675	6120	3100	1300	10200	54900	22600	10500	5010	742	207
28	1500	2450	14000	1390	3860	12300	55100	20100	11300	4210	1700	1290
29	2240	187	14000	2830	---	10100	55100	14700	5800	4460	302	141
30	1150	1430	8380	2630	---	13400	60400	14600	11600	3220	253	114
31	1120	---	9890	5000	---	11600	---	13300	---	908	197	---
TOTAL	27309	34707	200926	122251	294580	242185	925100	900800	404820	183391	84522	17736
MEAN	881	1157	6481	3944	10520	7812	30840	29060	13490	5916	2727	591
MAX	2900	4410	14000	9400	17100	18000	60400	78800	25600	13100	9430	4020
MIN	118	147	546	619	1300	685	10100	13300	5800	192	197	109
AC-FT	54170	68840	398500	242500	584300	480400	1835000	1787000	803000	363800	167600	35180

CAL YR 1982	TOTAL	2809248	MEAN	7697	MAX	31500	MIN	118	AC-FT	5572000
WTR YR 1983	TOTAL	3438327	MEAN	9420	MAX	78800	MIN	109	AC-FT	6820000

ARKANSAS RIVER BASIN

07193000 FORT GIBSON LAKE NEAR FORT GIBSON, OK

LOCATION.--Lat 35°52'16", long 95°13'43", in NW 1/4 NW 1/4 sec.18, T.16 N., R.20 E., Cherokee County, Hydrologic Unit 11070209, in control tower near left end of Fort Gibson Dam on Neosho River, 4.0 mi (6.4 km) north of Fort Gibson, and at mile 7.7 (12.4 km).

DRAINAGE AREA.--12,492 mi^2 (32,354 km^2).

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1970, published as Fort Gibson Reservoir near Fort Gibson.

REVISED RECORDS.--WSP 1731: 1950 (M).

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Jan. 13, 1950, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-gravity and earth-fill dam. Spillway is concrete ogee-type weir controlled by 30, 40 ft (12.2 m) taintor gates; outlet works consists of 10, 5'8" x 7.0' sluice gates. Regulated storage began Sept. 5, 1949; power pool was first maintained in 1953. Capacity, 1,284,000 acre-ft (1,583 hm^3) at elevation 582.0 ft (177.39 m), flood control pool, 365,200 acre-ft (450 hm^3) at elevation 554.0 ft (168.86 m) (maximum power pool), and 311,300 acre-ft (384 hm^3) at elevation 551.0 ft (167.94 m) (minimum power pool). Figures given herein represent total contents. Reservoir was designed for flood control and power development.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,278,000 acre-ft (1.58 km^3) May 12, 1961, elevation, 581.88 ft (177.357 m); minimum since first use of power pool, 303,800 acre-ft (375 hm^3) May 26, 1955, elevation, 550.56 ft (167.811 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 624,300 acre-ft (770 hm^3) May 3, elevation, 565.08 ft (172.236 m); minimum, 333,900 acre-ft (412 hm^3) Sept. 5, elevation 552.30 ft (168.341 m).

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

552	328,500	561	516,600
558	447,000	566	650,900

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	361000	370000	366900	406100	406500	367100	376600	581900	384700	390500	360800	341500
2	362900	370700	369000	398300	431300	360800	377600	610900	388500	382900	370000	338400
3	363300	368200	392500	389500	443000	361400	372200	619300	401100	378900	365800	337000
4	361400	367500	411800	388500	437100	381300	384300	603600	399300	375600	362700	335700
5	359500	363500	427100	389700	435100	394300	396500	564900	398900	380500	366000	334600
6	357600	363700	427300	386100	432500	393700	412200	505300	409600	376600	372800	338800
7	354200	364200	422700	380100	433800	402100	431300	460200	405900	377900	368800	340700
8	351000	366200	420400	388500	427500	400900	464100	433000	403500	379900	358000	340600
9	349700	368000	414500	394500	425800	395500	511100	400100	400300	382100	359500	340200
10	348300	367100	410700	390500	421200	388700	532600	382500	401300	375800	359500	338800
11	346300	368200	411100	394700	418900	383300	524600	377400	400900	380500	365600	338800
12	344200	366700	408800	393100	412800	363300	512500	374100	396900	369400	361800	339800
13	344200	366200	399900	391500	409400	347900	519600	384500	391500	362700	362700	339800
14	343600	367900	400900	386900	408600	342500	502200	423300	397700	354400	361800	344200
15	344000	365400	401900	390500	404900	344300	467100	468900	391500	357600	358900	344200
16	344300	366900	402300	391700	400900	348300	439300	501500	396900	356600	351400	344200
17	345100	366000	396300	390300	395900	343800	414900	521600	397500	356100	351900	343400
18	344700	366500	404300	382500	393900	344900	398100	552400	393300	356600	352800	344000
19	347600	368600	404300	380100	381700	351900	388500	584000	390900	355100	350600	343600
20	348500	368600	404900	376600	370500	353200	377600	585100	390900	349200	351500	344500
21	347400	369000	402900	369600	378300	350300	388100	567500	386900	346500	353200	341600
22	346300	369400	406500	373800	390500	347000	415500	548500	392500	346000	357600	339300
23	348300	365200	410100	376600	399100	346500	458000	523400	388500	353000	355300	338000
24	350800	365000	408600	377600	394900	344500	497400	495000	386100	365600	351700	337900
25	351200	365600	423300	373400	386900	343800	534100	477400	389500	368800	348800	338000
26	350500	369800	421400	379900	376600	353400	539600	456200	391500	366300	361000	338900
27	354800	368000	421600	379100	362400	365000	540800	443700	390500	368600	359900	338900
28	359500	371700	433200	371300	362700	368000	541800	431700	393500	365400	357600	340600
29	362000	366500	428600	379100	---	367100	541100	417400	386100	362400	351900	340600
30	365200	368000	415500	384500	---	372400	546200	400100	395300	366200	349000	340600
31	367100	---	409600	386300	---	374700	---	384900	---	365000	345800	---
MAX	367100	371700	433200	406100	443000	402100	546200	619300	409600	390500	372800	344500
MIN	343600	363500	366900	369600	362400	342500	372200	374100	384700	346000	345800	334600
†	554.10	554.15	556.25	555.09	553.87	554.50	562.18	555.02	555.54	553.99	552.96	552.67
††	+5,700	+900	+41,600	-23,300	-23,600	+12,000	+171,500	-161,300	+10,400	-30,300	-19,200	-5,200

CAL YR 1982 MAX 645100 MIN 332300, †† +56,900
WTR YR 1983 MAX 619300 MIN 334600, †† -20,800

† Elevation, in feet, at end of month
†† Change, in contents, in acre-feet

ARKANSAS RIVER BASIN

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK

LOCATION.--Lat 35°51'15", long 95°13'45", in SE 1/4 NW 1/4 sec.19, T.16 N., R.20 E., Cherokee County, Hydrologic Unit 11070209, on left bank 1.1 mi (1.8 km) downstream from Fort Gibson Dam, 3.5 mi (5.6 km) north of Fort Gibson, and at mile 6.6 (10.6 km).

DRAINAGE AREA.--12,495 mi^2 (32,362 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1950 to current year. Prior to October 1970, published as Neosho River below Fort Gibson Reservoir near Fort Gibson.

GAGE.--Water-stage recorder. Datum of gage is 483.75 ft (147.447 m), National Geodetic Vertical Datum of 1929. May 11, 1950, to Aug. 20, 1951, nonrecording gage and Aug. 21, 1951, to June 11, 1952, water-stage recorder, at site 4.4 mi (7.1 km) downstream at datum 8.00 ft (2.428 m) lower and used as auxiliary gage since June 10, 1971.

REMARKS.--Records fair. Flow completely regulated by Fort Gibson Lake (station 07193000).

COOPERATION.--Gage-height record and 5 discharge measurements furnished by Corps of Engineers, records computed by Geological Survey.

AVERAGE DISCHARGE.--34 years, 7,681 ft^3/s (217.5 m^3/s), 5,565,000 acre-ft/yr (6.86 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 223,000 ft^3/s (6,320 m^3/s) May 26, 1957, gage height, 37.60 ft (11.460 m), minimum, 12 ft^3/s (0.34 m^3/s) Oct. 10, 1957, Aug. 23, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1943 reached a stage of 43.0 ft (13.11 m), from highwater profile by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 47,500 ft^3/s (1,350 m^3/s) Mar. 24, maximum gage height, 18.25 ft (5.563 m) Apr. 12; minimum daily discharge, 15 ft^3/s (0.42 m^3/s) at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	547	353	1040	12600	11000	3010	11600	62500	20100	7290	5330	2280
2	41	857	3280	11500	11500	5990	13300	64200	19800	4340	400	1810
3	15	2040	1660	11000	13200	4440	14700	65400	20800	3890	5880	734
4	955	374	33	7630	16000	6790	16400	65200	19200	3820	4540	681
5	895	1740	2760	6890	16100	13300	23100	63700	16600	7250	4610	659
6	1280	27	10800	6820	16000	15200	25000	60000	16700	11900	2120	20
7	1290	45	11200	6750	16000	15200	22600	51300	16900	11900	2820	33
8	1500	389	11300	15	16000	15200	22500	41900	16900	11600	6040	31
9	768	740	11300	693	15900	15200	25300	37700	15500	11700	5480	15
10	739	1700	11300	6420	15900	15200	29600	30800	13600	11700	3600	895
11	742	1410	11300	1960	15900	13100	33400	25000	13800	11700	3970	246
12	967	2750	11300	3050	15900	11400	36100	22800	13800	11400	3450	15
13	15	18	10300	3600	15900	11400	30500	24200	13900	6530	778	326
14	15	15	3910	5860	15900	11200	31900	13700	13700	7020	487	970
15	15	1770	3600	15	15800	8820	34500	11200	13300	5580	4850	754
16	15	593	2150	313	15800	7920	33200	16500	13900	1910	4270	24
17	15	699	3100	6600	15200	9670	31700	20100	14000	2090	2200	18
18	1540	15	2760	6650	13300	9170	30400	19400	13800	5890	1920	17
19	1600	28	2260	5920	8410	2400	24800	15800	13700	6400	2480	664
20	1500	827	2810	5830	8450	2390	20300	22000	13700	6630	30	590
21	1680	1050	3450	6000	8700	3340	16800	29500	13800	6550	34	1100
22	1120	5090	3840	15	7500	3200	17600	31000	13700	6380	2560	1430
23	15	2920	4030	15	7880	2460	22500	30800	12300	942	2040	986
24	15	706	6160	3030	9330	2120	27400	28200	11200	5100	1970	50
25	669	15	15	2940	10600	2460	38700	29400	11300	4690	2240	33
26	66	475	6460	2950	8400	3420	52200	30500	11200	6140	3630	31
27	92	3040	9230	2900	8770	4740	54100	29800	11300	3880	1780	15
28	24	837	11200	5260	4040	11200	54500	28100	11100	5290	2590	178
29	15	3170	16400	37	---	11500	55000	25700	10600	5300	3200	15
30	25	898	14900	15	---	11500	58600	24900	6940	2040	2090	15
31	15	---	12500	7620	---	11500	---	22300	---	2060	1960	---
TOTAL	18190	34591	206348	140898	353380	264440	908300	1043600	427140	198912	89349	14635
MEAN	587	1153	6656	4545	12620	8530	30280	33660	14240	6417	2882	488
MAX	1680	5090	16400	12600	16100	15200	58600	65400	20800	11900	6040	2280
MIN	15	15	15	15	4040	2120	11600	11200	6940	942	30	15
AC-FT	36080	68610	409300	279500	700900	524500	1802000	2070000	847200	394500	177200	29030

CAL YR 1982	TOTAL	2808621	MEAN	7695	MAX	31600	MIN	15	AC-FT	5571000
WTR YR 1983	TOTAL	3699783	MEAN	10140	MAX	65400	MIN	15	AC-FT	7339000

ARKANSAS RIVER BASIN

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to September 1963, October 1973 to Jan. 1982.
WATER TEMPERATURE: October 1951 to September 1963, October 1973 to Jan. 1982.

REMARKS: Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 496 micromhos Sept. 7, 1975; minimum daily 188 micromhos Oct. 18, 1974.
WATER TEMPERATURE: Maximum daily, 31.5°C July 31, Aug. 1, 1955; minimum daily, 0.0°C Jan. 23-25, 1962.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
13...	1345	80020	15	295	7.5	21.0	4.7	8.8	100	K6	50	130
DEC												
08...	1035	80020	11100	300	7.9	10.5	2.5	9.6	86	30	41	120
FEB												
22...	1400	80020	7500	296	7.8	8.0	13	12.7	109	110	190	130
APR												
19...	1200	80020	21500	328	7.9	10.5	12	11.5	106	K10	330	140
JUN												
07...	1535	80020	16800	258	7.5	21.5	15	8.8	102	K16	93	110
AUG												
17...	1120	80020	2200	286	7.1	28.5	1.6	4.0	53	22	660	120

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
13...	30	43	6.2	9.3	13	.4	3.9	103	32	10	.20	3.7
DEC												
08...	17	39	6.5	10	14	.4	4.1	107	31	11	.20	.7
FEB												
22...	29	42	6.0	8.4	12	.3	3.5	101	29	8.9	.20	4.6
APR												
19...	37	45	6.2	9.5	13	.4	3.1	101	41	11	<.10	5.9
JUN												
07...	23	34	5.0	6.4	11	.3	2.8	83	33	6.6	.10	7.3
AUG												
17...	25	38	6.5	8.3	13	.3	3.5	97	35	8.4	.20	6.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
OCT												
13...	165	170	.22	--	--	--	--	--	--	--	--	--
DEC												
08...	174	170	.24	<.100	.070	.09	1.8	.070	.21	.050	.010	.03
FEB												
22...	168	160	.23	.680	.100	.13	.90	.070	.21	.040	.030	.09
APR												
19...	186	180	.25	1.40	.060	.08	1.6	.130	.40	.080	.080	.25
JUN												
07...	153	150	.21	.850	.160	.21	.70	.080	.25	.040	.020	.06
AUG												
17...	163	160	.22	<.100	.240	.31	1.0	.080	.25	.040	.030	.09

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT 13...	30	1	76	<.5	<1	<1	<3	2	8	5	<4
DEC 08...	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	180	1	65	<.5	1	<1	<3	4	81	1	8
APR 19...	80	1	65	<.5	<1	<1	<3	2	17	<1	14
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
AUG 17...	<10	1	68	.8	<1	<1	<3	3	8	1	9

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 13...	9	.1	<10	5	<1	<1	220	<6	3	15	70
DEC 08...	--	--	--	--	--	--	--	--	--	9	67
FEB 22...	5	<.1	<10	5	1	<2	200	<6	6	13	82
APR 19...	3	<.1	<10	5	1	<1	190	<6	7	21	81
JUN 07...	--	--	--	--	--	--	--	--	--	16	96
AUG 17...	120	<.1	<10	2	<1	<1	210	<6	5	6	62

ARKANSAS RIVER BASIN

07195500 ILLINOIS RIVER NEAR WATTS, OK

LOCATION.--Lat 36°07'48", long 94°34'12", in NE 1/4 sec.18, T.19 N., R.26 E., Adair County, Hydrologic Unit 11110103, near right bank on downstream side of pier of bridge on U.S. Highway 59, 1.5 mi (2.4 km) north of Watts, 4.5 mi (7.2 km) downstream from Cincinnati Creek, and at mile 106.2 (170.9 km).

DRAINAGE AREA.--635 mi^2 (1,645 km^2).

PERIOD OF RECORD.--August 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 893.78 ft (272.424 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulations at low flow by Lake Francis Dam, 0.8 mile (1.29 km) above station. Since July 2, 1957, small diversion above station for municipal water supply for city of Siloam Springs, Ark.

AVERAGE DISCHARGE.--28 years, 558 ft^3/s (15.80 m^3/s), 11.94 in/yr (303 mm/yr), 404,300 acre-ft/yr (499 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 68,000 ft^3/s (1,930 m^3/s) July 25, 1960, gage height, 25.96 ft (7.913 m), from rating curve extended above 51,000 ft^3/s (1,440 m^3/s); minimum, 8.6 ft^3/s (0.24 m^3/s) Oct. 26, 1955, Sept. 19, Oct. 14, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,700 ft^3/s (530 m^3/s) at 0600 Dec. 3, gage height, 18.76 ft (5.718 m), no other peak above base of 6,500 ft^3/s (184 m^3/s); minimum daily discharge, 68 ft^3/s (1.93 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	111	600	881	466	303	195	1570	470	331	115	107
2	81	102	3510	776	1490	295	1120	1210	438	284	113	103
3	81	103	14500	700	1190	286	2510	992	396	262	110	100
4	80	109	8930	643	933	287	1620	866	391	243	107	95
5	79	110	3180	606	790	369	1240	774	403	237	105	89
6	80	108	2160	575	719	468	1030	703	746	232	104	87
7	86	106	1490	554	670	511	881	611	622	227	106	83
8	93	102	1120	538	626	533	770	576	481	221	126	81
9	98	98	932	521	598	529	708	538	420	217	140	81
10	102	117	829	503	569	507	649	508	380	215	128	79
11	101	236	875	485	539	484	603	479	354	212	119	77
12	95	303	853	467	521	457	557	463	323	210	111	76
13	91	105	750	436	505	425	560	482	303	118	105	76
14	87	95	672	410	483	342	833	1150	298	83	99	74
15	84	91	630	385	461	239	726	2450	367	172	94	77
16	83	86	596	365	441	241	620	1360	365	171	87	78
17	82	86	567	342	418	243	567	872	315	170	85	79
18	81	88	546	319	382	243	521	753	284	98	84	79
19	78	82	528	306	342	244	508	930	262	69	92	82
20	122	95	505	298	338	245	511	728	252	73	88	79
21	174	76	481	295	334	245	555	651	241	76	85	79
22	152	140	453	298	327	245	813	611	238	82	80	80
23	138	262	434	275	323	245	2030	636	233	97	78	80
24	125	408	581	279	320	245	2550	865	233	106	78	82
25	120	381	2910	278	320	243	1570	615	235	108	77	82
26	115	339	1590	277	321	245	1230	524	243	108	77	76
27	105	402	1220	281	318	245	1020	472	264	117	76	73
28	105	753	2320	283	310	245	884	497	288	117	74	72
29	100	907	1630	292	---	246	1140	600	309	112	83	69
30	105	715	1220	314	---	216	1970	573	364	108	102	68
31	113	---	1020	347	---	191	---	503	---	109	108	---
TOTAL	3118	6716	57632	13329	15054	9862	30491	24562	10518	4985	3036	2443
MEAN	101	224	1859	430	538	318	1016	792	351	161	97.9	81.4
MAX	174	907	14500	881	1490	533	2550	2450	746	331	140	107
MIN	78	76	434	275	310	191	195	463	233	69	74	68
CFSM	.16	.35	2.93	.68	.85	.50	1.60	1.25	.55	.25	.15	.13
IN.	.18	.39	3.38	.78	.88	.58	1.79	1.44	.62	.29	.18	.14
AC-FT	6180	13320	114300	26440	29860	19560	60480	48720	20860	9890	6020	4850

CAL YR 1982	TOTAL	215807	MEAN	591	MAX	19700	MIN	76	CFSM	.93	IN.	12.64	AC-FT	428100
WTR YR 1983	TOTAL	181746	MEAN	498	MAX	14500	MIN	68	CFSM	.78	IN.	10.65	AC-FT	360500

ARKANSAS RIVER BASIN

07196000 FLINT CREEK NEAR KANSAS, OK

LOCATION.--Lat 36°11'54", long 94°42'30", in SW 1/4 sec.24, T.20 N., R.24 E., Delaware County, Hydrologic Unit 11110103, at bridge on State Highway 33, 6.0 mi (9.7 km) southeast of Kansas, 6.0 mi (9.7 km) downstream from Sager Creek, and at mile 2.8 (4.5 km).

DRAINAGE AREA.--110 mi^2 (285 km^2).

PERIOD OF RECORD.--August 1955 to September 1976, April 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 854.59 ft (260.479 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Small diversion above station for irrigation.

AVERAGE DISCHARGE.--25 years, (water years 1956-76, 80-83), 110 ft^3/s (3.115 m^3/s) 13.57 in/yr (345 mm/yr), 79,700 acre-ft/yr (98.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,600 ft^3/s (668 m^3/s) Aug. 14, 1961, gage height, 15.66 ft (4.773 m), from rating curve extended above 7,200 ft^3/s (204 m^3/s); minimum daily, 0.6 ft^3/s (0.017 m^3/s) Oct. 11-13, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 480 ft^3/s (13.6 m^3/s) Apr. 23, gage height, 7.40 ft (2.256 m), no peak above base of 2,500 ft^3/s (70.8 m^3/s); minimum daily discharge, 11 ft^3/s (0.31 m^3/s) Aug. 14,15, Sep.12,13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	18	75	46	45	43	48	187	74	36	16	17
2	15	23	106	46	44	42	165	171	69	33	15	16
3	15	26	265	46	43	42	331	158	65	32	13	15
4	15	23	324	45	42	44	265	140	61	30	12	14
5	15	21	265	45	41	46	221	129	59	30	12	13
6	16	20	247	45	40	47	190	118	60	30	12	13
7	18	19	196	45	39	48	167	116	57	29	14	13
8	20	18	159	45	56	48	152	102	53	27	13	14
9	22	18	132	45	52	50	138	96	52	24	14	13
10	19	19	120	45	46	68	125	90	50	19	13	13
11	18	21	112	45	44	65	115	88	47	18	12	12
12	18	24	98	44	44	60	107	83	45	18	12	11
13	18	23	90	44	43	57	117	87	43	18	12	11
14	17	21	83	44	43	54	137	101	50	17	11	12
15	17	20	78	44	42	52	130	103	53	17	11	14
16	17	20	72	44	42	50	122	92	46	17	12	14
17	16	20	67	44	42	48	113	87	43	16	14	14
18	16	20	61	44	41	47	108	98	42	15	14	13
19	17	20	56	44	41	46	105	104	43	15	14	12
20	18	20	52	44	40	48	102	97	41	15	13	14
21	18	20	51	44	40	45	106	105	37	15	13	15
22	17	20	50	44	40	44	183	102	34	15	12	15
23	18	26	48	43	52	43	403	100	34	16	12	14
24	17	27	49	43	48	42	391	98	32	15	13	14
25	17	27	50	42	47	42	304	89	33	15	13	14
26	17	52	48	42	47	44	249	82	33	16	13	13
27	17	118	47	42	46	48	209	76	34	16	13	13
28	19	114	48	42	44	47	180	88	34	16	13	13
29	22	100	47	42	---	44	173	91	38	15	12	14
30	20	91	47	44	---	44	206	82	41	16	16	13
31	18	---	47	45	---	44	---	80	---	20	19	---
TOTAL	542	1009	3190	1367	1234	1492	5362	3240	1403	631	408	406
MEAN	17.5	33.6	103	44.1	44.1	48.1	179	105	46.8	20.4	13.2	13.5
MAX	22	118	324	46	56	68	403	187	74	36	19	17
MIN	15	18	47	42	39	42	48	76	32	15	11	11
CFSM	.16	.31	.94	.40	.40	.44	1.63	.95	.43	.19	.12	.12
IN.	.18	.34	1.08	.46	.42	.50	1.81	1.10	.47	.21	.14	.14
AC-FT	1080	2000	6330	2710	2450	2960	10640	6430	2780	1250	809	805

CAL YR 1982	TOTAL	25294	MEAN	69.3	MAX	1830	MIN	13	CFSM	.63	IN.	8.55	AC-FT	50170
WTR YR 1983	TOTAL	20284	MEAN	55.6	MAX	403	MIN	11	CFSM	.51	IN.	6.86	AC-FT	40230

ARKANSAS RIVER BASIN

07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK

LOCATION.--Lat 35°55'17", long 94°55'15", in SE 1/4 sec.26, T.17 N., R.22 E., Cherokee County, Hydrologic Unit 11110103, near center of span on downstream side of pier of bridge, 0.2 mi (0.3 km) downstream from U.S. Highway 62, 2.2 mi (3.5 km) northeast of Tahlequah, 6.5 mi (10.5 km) upstream from Baron Fork, and at mile 55.8 (89.9 km).

DRAINAGE AREA.--959 mi^2 (2,482 km^2).

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 664.14 ft (202.430 m), Corps of Engineers datum. Prior to Feb. 23, 1939, nonrecording gage.

REMARKS.--Records good.

AVERAGE DISCHARGE.--48 years, 863 ft^3/s (24.44 m^3/s) 12.22 in/yr (310 mm/yr), 625,200 acre-ft/yr (771 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft^3/s (4,250 m^3/s) May 10, 1950, gage height, 27.94 ft (98.516 m), from rating curve extended above 77,000 ft^3/s (2,180 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 0.1 ft^3/s (0.003 m^3/s) Oct. 10-14, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of January 1916 reached a stage of about 26 ft (7.9 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,800 ft^3/s (447 m^3/s) Dec. 4 at 1200, gage height, 14.44 ft (4.401 m), no other peaks above base of 9,000 ft^3/s (255 m^3/s); Minimum discharge, 90 ft^3/s (2.55 m^3/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	139	843	1610	698	475	370	2380	768	398	140	116
2	97	140	802	1380	1030	462	476	2130	699	412	139	120
3	94	139	3500	1200	2030	451	1310	1760	644	381	138	120
4	96	139	14000	1070	1990	457	3210	1500	588	358	134	118
5	94	139	10300	967	1680	728	2490	1300	549	336	129	116
6	94	139	4280	890	1450	1000	2050	1160	622	306	124	112
7	97	139	2930	827	1290	1100	1760	1040	774	290	117	107
8	97	138	2130	779	1160	1090	1540	919	887	279	125	103
9	108	136	1660	744	1060	1080	1360	836	720	269	131	100
10	115	133	1580	712	978	1040	1230	762	616	263	137	99
11	122	136	1400	676	904	961	1110	711	549	257	149	96
12	126	145	1340	645	838	893	1020	665	500	250	147	95
13	124	220	1300	617	788	829	997	668	456	245	139	92
14	123	252	1180	586	750	764	1130	742	443	242	132	92
15	120	188	1060	554	711	698	1310	1180	435	205	126	96
16	116	156	970	527	671	555	1300	2550	435	172	121	100
17	113	142	904	501	636	488	1150	1870	465	194	114	100
18	112	134	847	477	603	460	1040	1380	432	198	108	99
19	109	128	798	452	568	446	938	1200	394	194	102	99
20	107	127	753	430	515	446	895	1270	366	169	100	106
21	106	124	713	414	495	434	846	1180	344	137	101	108
22	115	132	676	407	532	420	919	1070	326	123	102	107
23	161	133	637	398	504	412	1460	980	310	116	101	105
24	170	146	710	385	505	405	3110	940	302	112	98	105
25	165	230	899	373	510	398	3850	1100	303	114	95	103
26	158	345	2850	377	497	405	2730	951	312	118	96	103
27	152	397	2180	372	491	407	2120	808	315	123	96	104
28	155	431	2020	372	486	401	1740	758	341	129	95	102
29	153	619	2980	390	---	399	1480	779	370	128	101	101
30	147	935	2410	408	---	399	1600	847	374	128	100	98
31	141	---	1920	437	---	395	---	856	---	142	104	---
TOTAL	3786	6501	70572	19977	24370	18898	46541	36292	14639	6788	3641	3122
MEAN	122	217	2277	644	870	610	1551	1171	488	219	117	104
MAX	170	935	14000	1610	2030	1100	3850	2550	887	412	149	120
MIN	94	124	637	372	486	395	370	665	302	112	95	92
CFSM	.13	.23	2.37	.67	.91	.64	1.62	1.22	.51	.23	.12	.11
IN.	.15	.25	2.74	.77	.95	.73	1.81	1.41	.57	.26	.14	.12
AC-FT	7510	12890	140000	39620	48340	37480	92310	71990	29040	13460	7220	6190

CAL YR 1982	TOTAL	296472	MEAN	812	MAX	18200	MIN	94	CFSM	.85	IN.	11.50	AC-FT	588100
WTR YR 1983	TOTAL	255127	MEAN	699	MAX	14000	MIN	92	CFSM	.73	IN.	9.90	AC-FT	506000

ARKANSAS RIVER BASIN

07197000 BARON FORK AT ELDON, OK

LOCATION.--Lat 35°55'16", long 94°50'18", in SE 1/4 sec.27, T.17 N., R.23 E., Cherokee County, Hydrologic Unit 11110103, on downstream side of second pier from left bank of bridge on State Highway 51, 0.4 mi (0.6 km) southeast of Eldon, 6.0 mi (9.7 km) downstream from Tyner Creek, and at mile 8.8 (14.2 km).

DRAINAGE AREA.--307 mi^2 (795 km^2).

PERIOD OF RECORD.--October 1948 to current year. Prior to October 1970 published as Barren Fork at Eldon.

GAGE.--Water-stage recorder. Datum of gage is 701.14 ft (213.707 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Dec. 14, 1948, nonrecording gage at same site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--35 years, 282 ft^3/s (7.986 m^3/s), 12.46 in/yr (316 mm), 204,300 acre-ft/yr (252 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,600 ft^3/s (1,060 m^3/s) Apr. 3, 1957, gage height, 20.33 ft (6.197 m), maximum gage height, 22.73 ft (6.928 m), Apr. 20, 1976; minimum, 1.7 ft^3/s (0.048 m^3/s) Oct. 25, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 15, 1945, reached a stage of 23.8 ft (7.25 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft^3/s (170 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Dec. 3	unknown	8,350	236	13.62	4.151	May 14	2215	*8,950	253	*13.84	4.218

Minimum discharge, 7.3 ft^3/s (0.21 m^3/s) Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	30	150	359	546	227	172	470	245	118	21	12
2	16	32	1000	325	942	217	411	412	227	102	21	11
3	16	32	5760	294	701	207	797	361	211	91	21	13
4	16	32	2560	266	580	267	666	321	197	82	20	15
5	15	31	1320	245	494	1140	574	287	187	78	19	10
6	17	30	880	226	441	973	510	258	214	70	18	9.6
7	19	27	669	207	392	800	451	233	208	66	19	8.6
8	23	25	536	192	350	674	404	212	196	63	21	8.2
9	35	23	441	181	316	565	368	194	187	58	21	7.7
10	34	23	389	170	293	485	336	180	177	57	20	7.3
11	31	25	371	159	267	418	307	168	166	54	20	11
12	31	28	353	149	248	365	282	161	155	53	19	12
13	31	28	313	141	230	328	285	161	143	52	19	12
14	30	28	286	135	215	300	432	2030	138	51	18	11
15	29	26	260	126	204	274	421	2810	185	50	17	11
16	27	26	239	120	193	252	367	1240	172	50	16	11
17	25	26	221	116	186	233	337	762	143	50	15	9.0
18	25	26	207	112	181	216	313	595	125	52	14	8.9
19	24	26	196	110	173	204	296	598	113	52	12	8.5
20	23	36	183	107	166	198	299	498	104	46	11	11
21	23	42	172	105	164	190	303	427	96	43	11	12
22	23	80	163	104	193	181	351	428	91	41	9.8	12
23	23	200	158	101	265	171	1150	378	86	38	9.3	12
24	22	150	248	98	255	162	1430	338	81	35	8.6	12
25	21	100	1100	95	272	155	1040	300	79	31	8.2	11
26	21	200	625	94	266	156	839	267	78	30	8.4	11
27	21	300	482	94	251	178	700	242	80	28	8.5	10
28	24	350	701	93	238	207	618	251	97	25	8.4	9.9
29	27	300	579	99	---	191	638	281	112	23	8.5	9.6
30	27	200	468	166	---	181	539	270	129	22	11	9.4
31	29	---	403	180	---	174	---	256	---	22	11	---
TOTAL	745	2482	21433	4969	9022	10289	15636	15389	4422	1633	464.7	316.7
MEAN	24.0	82.7	691	160	322	332	521	496	147	52.7	15.0	10.6
MAX	35	350	5760	359	942	1140	1430	2810	245	118	21	15
MIN	15	23	150	93	164	155	172	161	78	22	8.2	7.3
CFSM	.08	.27	2.25	.52	1.05	1.08	1.70	1.62	.48	.17	.05	.03
IN.	.09	.30	2.60	.60	1.09	1.25	1.89	1.86	.54	.20	.06	.04
AC-FT	1480	4920	42510	9860	17900	20410	31010	30520	8770	3240	922	628

CAL YR 1982	TOTAL	108098	MEAN	296	MAX	9390	MIN	13	CFSM	.96	IN.	13.10	AC-FT	214400
WTR YR 1983	TOTAL	86801.4	MEAN	238	MAX	5760	MIN	7.3	CFSM	.78	IN.	10.52	AC-FT	172200

ARKANSAS RIVER BASIN

07197500 TENKILLER FERRY LAKE NEAR GORE, OK

LOCATION.--Lat 35°35'43", long 95°02'57", in SE 1/4 SW 1/4 sec.14, T.13 N., R.21 E., Sequoyah County, Hydrologic Unit 11110103, at gage tower on right bank, 0.6 mi (1.0 km) upstream from Tenkiller Ferry Dam on Illinois River, 6.0 mi (9.7 km) northeast of Gore, and at mile 12.8 (20.6 km).

DRAINAGE AREA.--1,610 mi^2 (4,170 km^2).

PERIOD OF RECORD.--July 1952 to current year. Prior to October 1970, published as Tenkiller Ferry Reservoir near Gore.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1953, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth dam. Spillway consists of 590-ft (179.8 m) concrete modified ogee weir in right abutment controlled by 10 taintor gates. Outlet works consist of a 19-ft (5.8 m) diameter tunnel in right abutment controlled by two vertical lift gates. A similar tunnel conducts water to two hydroelectric turbines. Closure was made for diversion in July 1950 and regulated storage began in July 1952; conservation pool was first filled Apr. 9, 1953. Capacity, 1,231,000 acre-ft (1,520 hm^3) at elevation 667.0 ft (203.30 m), flood-control pool, 791,900 acre-ft (976 hm^3) at elevation, 642.0 ft (195.68 m), spillway crest, 628,700 acre-ft at elevation 630.0 ft (192.02 m), maximum power pool, and 283,100 acre-ft (349 hm^3) at elevation 594.5 ft (181.20 m), conservation and minimum power pool. Figures given herein represent total contents. Reservoir is used for flood control and for power development.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,218,000 acre-ft (1.50 km^3) June 5, 1957, elevation, 666.36 ft (203.107 m); minimum since conservation pool was first filled, 305,700 acre-ft (377 hm^3) Oct. 21, 1954, elevation, 597.50 ft (182.118 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 704,100 acre-ft (868 hm^3) Apr. 26, elevation, 635.80 ft (193.792 m); minimum, 543,700 acre-ft (670 hm^3) Sept. 30, elevation, 622.87 ft (189.851 m).

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

622	533,900	635	693,400
627	591,800	639	748,600
631	641,000	643	806,600

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	559500	554100	568900	698400	653400	644400	634600	685600	685100	661000	619800	566500
2	559900	554500	574200	702300	658300	643900	636300	684200	683400	661700	617600	565000
3	560000	554500	592300	702300	663700	642800	639400	679800	681500	662400	615500	564100
4	557700	554500	625000	700400	670200	644900	646800	677300	681100	663100	614300	563300
5	555000	554100	653300	697700	675500	650700	651200	676800	680800	662600	612500	562600
6	555400	554200	662400	693700	679800	655900	654200	675800	678300	661300	611500	561300
7	555200	554200	667600	689900	681600	656900	656500	675300	676000	660500	611200	559000
8	556100	554400	670600	689200	682900	656900	658300	673900	674100	659900	609500	556000
9	556200	554500	672400	688900	684800	656600	661800	672600	673800	660100	607500	552000
10	556000	554600	672800	686300	685400	655800	664600	671400	673000	660300	605800	550200
11	555700	555200	675700	683700	683400	654800	665400	670300	672800	659700	604500	549900
12	555700	555200	679000	681300	682800	655500	667200	669000	672600	659300	603000	548000
13	555700	555400	678500	679000	681600	656500	670300	668600	671500	658800	601000	547600
14	555500	555500	679800	676500	678600	655000	671700	679900	670600	658400	599900	547200
15	555600	555500	680000	675700	675600	653300	673100	690600	669700	658000	598000	547500
16	555400	555500	680800	676000	672700	651000	676800	697100	668900	658000	595500	547400
17	555300	555600	681600	672600	669600	648500	680000	699700	667900	658000	592700	547000
18	555200	555700	680000	669300	665600	645700	680200	700900	668900	657500	589700	546900
19	555200	555900	682000	666800	664200	647600	680000	701300	668900	655300	587200	546600
20	555000	556200	679900	663300	663000	647700	679500	700100	667200	653200	585800	547000
21	554900	556400	676900	660300	660000	644800	679400	700400	664600	651500	584700	546600
22	554100	557400	672700	661000	656900	642600	681600	700400	663300	648100	581500	546400
23	554000	557500	668400	662000	653800	639300	686300	699200	661000	645300	579200	545900
24	554100	557500	664800	658700	651200	636000	693800	694300	658700	640900	578100	545400
25	553800	557800	668800	655100	647800	632600	700900	689700	659500	638500	576700	545300
26	553800	560000	670700	652300	647600	632400	703600	685800	660600	636800	574500	545100
27	552600	561800	673500	648600	647600	633700	701300	684200	659700	632800	573400	544800
28	553500	563300	678700	644700	645100	633600	698000	686100	661300	629100	572200	544400
29	553800	564800	684200	646200	---	634200	694100	687500	660500	625500	570100	544000
30	553900	566900	689900	647600	---	633400	690400	688800	661200	623700	569100	543700
31	554100	---	694800	648600	---	633300	---	687200	---	622200	568000	---
MAX	560000	566900	694800	702300	685400	656900	703600	701300	685100	663100	619800	566500
MIN	552600	554100	568900	644700	645100	632400	634600	668600	658700	622200	568000	543700
†	623.77	624.87	635.11	631.58	631.31	630.37	634.77	634.53	632.54	629.47	624.97	622.87
††	-7,600	+12,800	+127,900	-46,200	-3,500	-11,800	+57,100	-3,200	-26,000	-39,000	-54,200	-24,300

CAL YR 1982 MAX 813100 MIN 552600, †† +98,100
WTR YR 1983 MAX 703600 MIN 543700, †† -18,000

† Elevation, in feet, at end of month
†† Change in contents, in acre-feet

ARKANSAS RIVER BASIN

07198000 ILLINOIS RIVER NEAR GORE, OK

LOCATION.--Lat 35°34'23", long 95°04'07", in NE 1/4 SW 1/4 sec.27, T.13 N., R.21 E., Sequoyah County, Hydrologic Unit 11110104, on right bank 4.5 mi (7.2 km) (revised) downstream from Tenkiller Ferry Dam, 4.5 mi (7.2 km) northeast of Gore, and at mile 8.5 (13.7 km).

DRAINAGE AREA.--1,626 mi^2 (4,211 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1924 to April 1926, April 1939 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 473.00 ft (144.170 m) National Geodetic Vertical Datum of 1929. See WSP 1921 for history of changes prior to Feb. 19, 1952.

REMARKS.--Records fair. Except for 16 mi^2 (41 km^2) intervening area, flow completely regulated since July 1952 by Tenkiller Ferry Lake (station 07197500).

COOPERATION.--Gage-height record and 14 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--45 years (water years 1924-25, 1939-83), 1,471 ft^3/s (41.66 m^3/s), 1,066,000 acre-ft/yr (1.31 km^3/yr) adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180,000 ft^3/s (5,100 m^3/s) May 11, 1950, gage height, 29.6 ft (9.02 m), from floodmark, present site and datum, from rating curve extended above 42,000 ft^3/s (1,190 m^3/s) by velocity-area studies; minimum, 2.0 ft^3/s (0.057 m^3/s) Sept. 16, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,140 ft^3/s (146 m^3/s) Apr. 26, gage height, 8.32 ft (2.536 m); minimum daily discharge, 29 ft^3/s (0.82 m^3/s) Feb. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	147	38	262	1220	1270	111	4750	2110	505	1320	722
2	102	52	44	58	837	1090	255	4770	2080	106	1230	679
3	87	50	171	1530	659	1320	602	4740	2060	87	1090	384
4	1200	52	87	2450	39	1560	295	3530	1030	88	588	331
5	1390	51	52	2640	31	158	1110	1780	1060	522	975	252
6	102	51	1700	3380	29	90	1290	1800	2120	1000	725	746
7	92	50	1670	3330	1100	2050	1300	1800	2150	604	228	1190
8	82	49	1540	1370	1090	2310	1120	1800	2110	502	954	1350
9	82	52	1420	1200	749	2260	85	1760	1150	135	1120	1970
10	89	45	2120	2420	1260	2210	391	1570	1120	88	759	856
11	130	50	413	2320	2430	2310	1040	1580	803	515	629	137
12	91	50	60	2140	1660	967	587	1570	745	394	691	1100
13	91	40	1700	2100	1790	972	871	1600	1220	499	986	131
14	92	46	1040	2000	2640	2130	1150	622	1070	518	561	92
15	89	117	1120	1120	2640	2220	1210	199	1070	331	935	83
16	48	48	893	516	2560	2280	70	1050	1080	203	1250	95
17	47	54	707	2440	2620	2320	49	1770	1020	150	1390	99
18	46	67	1780	2280	2610	2320	1400	1850	106	346	1480	98
19	48	45	60	1860	1610	45	1700	1890	98	1250	1200	203
20	50	44	1980	2340	1580	718	1600	2530	1530	1140	626	97
21	48	45	2290	2160	2620	2250	1600	2220	1670	957	489	95
22	384	141	2840	101	2630	2100	1550	1860	1060	1730	1760	85
23	53	44	3340	55	2630	2400	1500	2080	1460	1430	1120	84
24	47	61	2730	2280	2650	2470	1620	3780	1610	2150	604	96
25	276	40	674	2250	2660	2530	1630	3830	158	1210	666	101
26	53	43	1980	2110	1100	1110	2870	3460	92	938	1110	99
27	628	46	2350	2380	1010	223	4960	1970	811	2070	633	102
28	60	43	573	2450	2200	796	4850	493	817	1940	497	258
29	49	39	917	115	---	526	4780	826	732	1880	1210	173
30	50	39	251	56	---	1190	4750	740	172	1110	567	197
31	51	---	58	998	---	873	---	2130	---	827	667	---
TOTAL	6787	1701	36598	52711	46654	47068	46346	66350	34314	25225	28060	11905
MEAN	219	56.7	1181	1700	1666	1518	1545	2140	1144	814	905	397
MAX	1390	147	3340	3380	2660	2530	4960	4770	2150	2150	1760	1970
MIN	46	39	38	55	29	45	49	199	92	87	228	83
AC-FT	13460	3370	72590	104600	92540	93360	91930	131600	68060	50030	55660	23610

CAL YR 1982	TOTAL	443863	MEAN	1216	MAX	6480	MIN	38	AC-FT	880400
WTR YR 1983	TOTAL	403719	MEAN	1106	MAX	4960	MIN	29	AC-FT	800800

ARKANSAS RIVER BASIN

07198000 ILLINOIS RIVER NEAR GORE, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948, 1952, 1954 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to September 1948, October 1953 to September 1963.
WATER TEMPERATURE: October 1947 to September 1948, October 1953 to September 1963.

REMARKS.--Monthly samples were collected and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
DEC											
22...	1005	80020	2840	210	7.6	11.0	1.7	9.4	88	85	4
JAN											
26...	1000	80020	3350	205	7.6	8.0	2.7	10.4	89	85	5
FEB											
16...	1000	80020	3610	220	7.4	7.0	1.8	11.5	96	87	8
MAR											
16...	1030	80020	3630	218	8.0	10.0	2.1	11.2	99	88	8
APR											
14...	1240	80020	1800	211	8.3	10.0	40	11.9	107	87	9
MAY											
19...	1010	80020	1820	177	7.6	12.0	.90	8.4	79	90	11
JUN											
29...	1030	80020	50	--	7.1	17.0	1.2	7.4	79	100	13
JUL											
20...	1520	80020	1740	--	7.2	13.0	1.2	7.6	77	95	7
AUG											
17...	0900	80020	34	--	6.8	17.0	1.2	6.5	68	100	12
SEP											
22...	0845	80020	85	282	6.8	13.0	1.1	7.6	72	100	10

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
DEC											
22...	31	1.9	4.6	10	.2	2.7	81	10	6.3	110	.15
JAN											
26...	31	1.8	4.3	10	.2	2.8	80	11	6.4	136	.19
FEB											
16...	32	1.8	4.3	9	.2	2.7	79	12	6.5	108	.15
MAR											
16...	32	1.9	4.4	10	.2	2.7	80	11	7.1	114	.16
APR											
14...	32	1.7	4.8	10	.2	2.5	78	10	7.4	94	.13
MAY											
19...	33	1.8	4.5	10	.2	2.5	79	10	6.6	104	.14
JUN											
29...	36	2.4	14	23	.6	2.5	87	13	26	147	.20
JUL											
20...	35	1.9	4.7	9	.2	2.5	88	11	6.9	115	.16
AUG											
17...	38	2.4	14	22	.6	2.6	93	11	26	149	.20
SEP											
22...	37	2.4	13	21	.6	2.3	92	10	26	154	.21

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK

LOCATION.--Lat 35°32'37", long 98°19'03", SE 1/4 NW 1/4 sec.1, T.12 N., R.11 W., Caddo County, Hydrologic Unit 11090202, on downstream side of pier near center of bridge on U.S. Highway 281, 3.3 mi (5.3 km) east of Bridgeport, 1.6 mi (2.6 km) downstream from Lumpmouth Creek, and at mile 263.3 (423.6 km).

DRAINAGE AREA.--25,276 mi^2 (65,465 km^2), of which 4,801 mi^2 (12,435 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1944 to September 1964; October 1969 to current year.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,360.00 ft (414.528 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1947, at site 3.8 mi (6.1 km) upstream at datum 24.25 ft (7.391 m) higher. Oct. 1, 1947 to Sept. 30, 1948, nonrecording gage and Oct. 1, 1948 to September 1964, Oct. 1, 1969 to Dec. 17, 1980 at site 4.0 mi (6.4 km) upstream and at datum 24.25 ft (7.391 m) higher.

REMARKS.--Records poor. Occasional slight regulation by Conchas Reservoir in New Mexico, and by Lake Meredith in Texas since 1964.

AVERAGE DISCHARGE.--34 years, 376 ft^3/s (10.65 m^3/s), 272,400 acre-ft/yr (336 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 150,000 ft^3/s (4,250 m^3/s) June 23, 1948, gage height, 14.60 ft (4.450 m), from floodmarks, from rating curve extended above 50,000 ft^3/s (1,420 m^3/s), no flow at times in 1946, 1951-56, 1964, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1914 reached a stage of about 19.4 ft (5.91 m), a higher stage probably occurred during flood in October 1904.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft^3/s (170 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 21	0945	7,690	218	12.45	3.795	June 13	2400	10,300	292	12.05	3.673
June 11	2000	*39,000	1,100	15.71	4.788						

Minimum daily discharge, 7.0 ft^3/s (0.20 m^3/s) Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	16	51	87	271	306	321	286	1250	650	15	13
2	25	16	50	90	224	299	303	273	362	570	15	12
3	22	16	50	90	172	496	332	270	365	510	15	11
4	20	18	50	93	160	786	354	260	390	454	13	9.0
5	19	19	51	100	167	1490	946	252	402	362	12	8.3
6	18	22	50	102	321	1160	751	235	350	285	12	7.8
7	16	22	51	115	292	970	362	229	325	215	18	7.3
8	16	22	50	130	292	513	382	220	281	170	14	7.2
9	22	23	50	135	258	234	377	214	305	130	13	7.2
10	18	24	59	167	278	206	510	208	343	100	13	7.1
11	17	29	60	151	288	201	772	216	14300	79	13	7.0
12	21	35	59	143	296	190	766	557	9500	67	19	14
13	19	39	61	139	292	182	491	1440	8000	58	15	26
14	18	29	63	135	306	189	398	4650	6700	58	13	20
15	16	28	62	133	318	188	394	2560	6270	59	12	15
16	16	23	71	133	325	218	366	804	2870	60	12	14
17	15	23	75	137	330	256	350	706	1950	47	12	13
18	15	31	78	139	299	277	346	763	1450	43	12	13
19	15	32	78	143	285	284	335	650	1050	38	12	12
20	15	31	79	156	285	264	335	1190	810	33	131	11
21	16	32	79	158	299	262	343	5070	740	29	185	11
22	16	34	80	162	310	274	648	2590	720	27	58	11
23	16	33	80	158	317	321	773	1280	650	25	16	10
24	16	33	82	187	339	569	463	950	578	23	14	10
25	16	34	82	195	370	868	318	468	510	21	13	10
26	16	46	80	218	374	1420	299	500	849	19	13	9.8
27	16	69	93	224	350	1180	289	271	1190	18	13	9.7
28	21	71	108	212	321	702	279	271	1960	17	13	9.1
29	20	60	90	227	---	358	283	215	1150	16	13	9.7
30	16	56	97	224	---	335	279	671	750	16	13	9.7
31	16	---	96	230	---	310	---	4000	---	15	13	---
TOTAL	541	966	2165	4713	8139	15308	13165	32269	66370	4214	755	334.9
MEAN	17.5	32.2	69.8	152	291	494	439	1041	2212	136	24.4	11.2
MAX	25	71	108	230	374	1490	946	5070	14300	650	185	26
MIN	13	16	50	87	160	182	279	208	281	15	12	7.0
AC-FT	1070	1920	4290	9350	16140	30360	26110	64010	131600	8360	1500	664

CAL YR 1982	TOTAL	126460	MEAN	346	MAX	36500	MIN	11	AC-FT 250800
WTR YR 1983	TOTAL	148939.9	MEAN	408	MAX	14300	MIN	7.0	AC-FT 295400

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-61, 1964, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1948 to September 1960, October 1969 to April 1982.
WATER TEMPERATURE: October 1948 to September 1960, October 1969 to April 1982.

REMARKS: Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,830 micromhos June 11, 1975; minimum daily, 223 micromhos Aug. 16, 1973.
WATER TEMPERATURE: Maximum daily, 40.0°C July 9, 22, 1973; minimum, 0.0°C many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
NOV												
04...	1035	80020	19	1180	7.6	8.5	12.4	111	570	381	170	34
DEC												
17...	0930	80020	77	1950	8.0	4.0	12.2	99	680	--	190	50
FEB												
17...	1300	80020	338	2300	8.2	8.5	10.7	98	630	409	160	57
MAY												
27...	1115	80020	289	2340	8.1	24.0	8.1	103	670	490	170	60
JUL												
12...	1100	80020	67	1820	8.0	28.0	8.6	117	740	--	190	64
SEP												
07...	1000	80020	7.3	1190	8.1	27.0	7.3	98	560	441	160	39

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)
NOV												
04...	39	13	.7	3.2	186	440	23	11	880	830	1.2	--
DEC												
17...	160	--	3	--	--	--	--	15	--	--	--	.660
FEB												
17...	280	49	5	7.4	226	390	410	17	1450	1500	2.0	.470
MAY												
27...	220	41	4	8.0	185	520	320	14	1510	1400	2.1	--
JUL												
12...	150	--	2	--	--	--	--	17	--	--	--	--
SEP												
07...	49	16	.9	4.4	121	480	29	13	856	850	1.2	--

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV 04...	.110	.49	--	.030	.10	--	.140	--	.220	.28	--	.120
DEC 17...	.380	1.7	.040	.020	.07	.700	.400	.210	.130	.17	.090	.030
FEB 17...	.430	1.9	.030	.030	.10	.500	.460	.260	.190	.24	.060	.050
MAY 27...	--	--	.050	.020	.07	<.100	<.100	.070	<.060	--	.070	.030
JUL 12...	--	--	<.020	<.020	--	<.100	<.100	.050	.120	.15	.050	.010
SEP 07...	--	--	<.020	<.020	--	<.100	<.100	.090	.070	.09	.030	.020

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)
NOV 04...	.37	--	--	6	98	.5	<2	<1	<1	--	<10	<3
DEC 17...	.09	3	0	3	160	<.5	1	<1	5	0	<10	<3
FEB 17...	.15	4	1	3	140	.6	1	<1	18	--	<10	<3
MAY 27...	.09	5	--	--	250	<.5	1	<1	11	--	--	<3
JUL 12...	.03	4	0	6	220	<.5	<1	<1	4	--	<10	<3
SEP 07...	.06	9	1	8	140	.8	<1	<1	<1	--	<10	<3

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-MPENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)
NOV 04...	<10	5	10	<10	43	15	--	--	<.1	<10	1200	10
DEC 17...	10	6	1	<10	79	23	.1	--	<.1	<10	2000	7
FEB 17...	<10	4	4	<10	90	20	<.1	--	<.1	<10	2	8
MAY 27...	<10	22	7	<10	78	10	.2	--	<.1	<10	2100	13
JUL 12...	<10	6	<1	<10	71	23	.2	.0	.3	10	2300	16
SEP 07...	<10	14	3	<10	39	40	.1	--	<.1	<10	1200	18

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	PCN DISSOLV (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)
NOV												
04...	10	--	--	--	--	--	--	--	--	--	--	--
DEC												
17...	16	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	21	<.1	<.1	<.10	<.10	<.01	<.010	<.1	<.1	<.01	<.010	<.01
MAY												
27...	31	--	--	--	--	--	--	--	--	--	--	--
JUL												
12...	39	<.1	<.1	<.10	<.10	<.01	<.010	<.1	<.1	<.01	<.010	<.01
SEP												
07...	19	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)
NOV												
04...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
17...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	<.010	<.01	<.010	.01	.01	<.01	<.010	<.01	<.010	<.01	<.010	<.01
MAY												
27...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
12...	<.010	<.01	<.010	.01	.01	<.01	<.010	<.01	<.010	<.01	<.010	<.01
SEP												
07...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, DIS-SOLVED (UG/L)
NOV												
04...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
17...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	<.01	<.01	<.010	<.01	<.010	<.01	<.010	<.01	<.01	<.01	<.01	<.01
MAY												
27...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
12...	<.01	<.01	<.010	<.01	<.010	<.01	<.010	<.01	<.01	<.01	<.01	<.01
SEP												
07...	--	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)
NOV 04...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 17...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 17...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.1	<1.0	<1	<.01
MAY 27...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.1	<1.0	<1	<.01
SEP 07...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TOTAL TRI-THION (UG/L)	2,4-D, DIS-SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP DISSOLV (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T DIS-SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, DIS-SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 04...	--	--	--	--	--	--	--	--	--	8	57
DEC 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 17...	<.01	<.01	<.01	<.00	<.01	<.01	<.01	<.01	<.01	1480	46
MAY 27...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	<.01	.05	.04	<.00	<.01	<.01	<.01	<.01	<.01	--	--
SEP 07...	--	--	--	--	--	--	--	--	--	19	74

ARKANSAS RIVER BASIN

07229200 CANADIAN RIVER AT PURCELL, OK

LOCATION.--Lat 35°00'50", long 97°20'50", in NW 1/4 sec.7, T.6 N., R.1 W., Cleveland County, Hydrologic Unit 11090202, near left bank on downstream side of pier of U.S. Highway 77, 0.5 mi (0.8 km) east of Purcell, 1.0 mi (1.6 km) upstream from Walnut Creek, and at mile 184.9 (297.5 km).

DRAINAGE AREA.--25,939 mi^2 (67,182 km^2), of which 4,801 mi^2 (12,435 km^2) probably is noncontributing.

PERIOD OF RECORD.--October 1959 to June 1961 and October 1979 to September 1983 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,017.14 ft (310.024 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,500 ft^3/s (1,430 m^3/s) May 19, 1982, gage height, 14.50 ft (4.420 m), no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1904 reached a stage of 14.18 ft (4.322 m) and flood in 1914 reached a stage of 12.98 ft (3.956 m), from information by the Atchison, Topeka, and Santa Fe Railway Co.

EXTREMES FOR CURRENT PERIOD.--Peak discharges above base of 8,000 ft^3/s (227 m^3/s) and maximum for each year (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 15	0300	9,340	265	9.09	2.771
May 22	0245	11,700	331	9.07	2.765
June 12	1200	17,500	496	10.21	3.112
June 13	0630	*23,900	677	*10.99	3.350
Aug. 21	0315	11,300	320	9.39	2.862

Minimum daily discharge, 13 ft^3/s (0.20 m^3/s) Oct. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	23	178	98	1060	234	516	498	2810	795	39	60
2	21	23	382	309	343	262	431	485	1750	756	30	57
3	22	20	135	190	268	318	471	460	1930	590	28	64
4	21	19	157	158	198	1590	451	461	2210	462	32	70
5	25	19	102	149	223	810	866	427	2470	350	34	82
6	19	20	92	142	208	1650	1160	384	2080	277	34	81
7	20	21	73	138	195	1550	1030	375	2060	219	47	156
8	24	20	68	134	223	1210	836	390	1810	177	39	105
9	19	20	64	133	345	1040	725	356	1320	156	57	62
10	15	22	78	134	503	783	785	424	1390	138	53	62
11	14	73	99	163	350	681	546	813	1430	117	56	61
12	14	83	84	166	339	442	572	653	14500	110	51	61
13	14	49	61	195	300	333	624	1430	13400	98	46	88
14	15	40	73	181	270	338	626	4430	5360	95	36	106
15	16	43	76	168	300	315	733	5390	4360	88	32	93
16	16	42	68	164	310	298	878	2870	2200	88	37	110
17	17	51	68	164	326	311	584	1110	1120	83	41	137
18	17	48	71	166	296	306	641	994	1030	74	56	125
19	16	42	66	213	287	329	740	1320	939	65	87	100
20	14	39	71	253	551	439	778	747	665	60	525	198
21	14	37	76	264	425	405	884	1440	797	53	4950	114
22	14	37	69	267	421	416	851	6380	733	60	1100	80
23	14	40	66	294	389	559	1160	2200	588	59	335	63
24	15	37	238	227	347	602	877	1110	491	50	337	55
25	13	36	120	209	353	624	848	939	521	51	219	47
26	14	128	92	208	576	1930	758	1480	768	45	195	46
27	14	199	129	259	343	2590	650	1460	917	44	140	43
28	41	178	140	291	242	1290	624	1240	1440	40	102	40
29	55	143	99	312	---	908	553	1390	1080	39	121	37
30	32	134	96	306	---	773	518	1280	905	39	115	36
31	28	---	93	450	---	541	---	2160	---	45	101	---
TOTAL	613	1686	3284	6505	9991	23877	21716	45096	73074	5323	9075	2439
MEAN	19.8	56.2	106	210	357	770	724	1455	2436	172	293	81.3
MAX	55	199	382	450	1060	2590	1160	6380	14500	795	4950	198
MIN	13	19	61	98	195	234	431	356	491	39	28	36
AC-FT	1220	3340	6510	12900	19820	47360	43070	89450	144900	10560	18000	4840

CAL YR 1982	TOTAL	244503	MEAN	670	MAX	43500	MIN	11	AC-FT	485000
WTR YR 1983	TOTAL	202679	MEAN	555	MAX	14500	MIN	13	AC-FT	402000

ARKANSAS RIVER BASIN

07229300 WALNUT CREEK AT PURCELL, OK

LOCATION.--Lat 34°59'56", long 97°22'00", NW 1/4 NW 1/4 sec.13, T.6 N., R.2 W., McClain County, Hydrologic Unit 11090202, on downstream side of right bank pier of bridge on U.S. Highway 77, at south edge of Purcell, and at mile 1.0 (1.6 km).

DRAINAGE AREA.--202 mi^2 (523 km^2).

PERIOD OF RECORD.--Water years 1951-55, 1958-65 (occasional low-flow measurements). October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,017.57 ft (310.155 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--18 years, 46.4 ft^3/s (1.31 m^3/s), 33,620 acre-ft/yr (41.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,200 ft^3/s (770 m^3/s) May 23, 1975, gage height, 16.80 ft (5.121 m), from rating curve extended above 8,200 ft (232 m^3/s) on basis of slope-area measurement at peak; no flow at times in 1966-67.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Mar 4	0830	*3,390	96.0	*9.30	2.83	Jun 14	0700	3,330	94.3	9.31	2.84

Minimum daily discharge, 5.5 ft^3/s (0.156 m^3/s) Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	13	192	28	416	55	80	54	73	40	16	6.3
2	8.4	12	182	37	66	55	72	48	65	35	16	6.5
3	16	11	32	45	48	42	67	49	64	32	15	6.6
4	8.4	11	54	32	44	1200	42	48	61	30	15	6.4
5	7.2	11	23	30	47	195	281	47	59	30	15	6.1
6	6.6	12	19	30	45	119	111	46	60	28	15	6.0
7	6.0	13	18	29	41	95	76	46	59	27	17	6.0
8	6.0	13	16	28	45	82	72	45	58	26	17	6.0
9	6.0	13	16	27	48	75	74	45	57	25	17	6.0
10	5.8	13	19	27	48	70	75	79	56	25	16	6.0
11	5.5	33	23	26	40	67	69	121	56	24	15	6.0
12	6.3	28	18	26	37	66	65	44	65	23	15	6.2
13	7.5	19	18	26	36	66	82	414	70	22	15	6.9
14	7.8	16	18	26	36	65	69	966	995	21	14	7.1
15	6.9	15	17	25	35	64	61	212	95	22	14	8.2
16	7.2	15	16	25	35	61	58	110	51	22	14	7.6
17	6.9	15	16	26	35	58	59	90	41	23	14	7.0
18	7.2	16	16	26	35	58	59	128	308	22	14	6.7
19	7.2	16	15	29	24	59	57	89	59	21	16	6.6
20	6.9	16	15	29	233	60	58	52	38	20	82	22
21	6.9	16	15	28	89	57	63	283	34	19	27	16
22	7.5	16	16	30	80	57	71	138	32	19	12	11
23	8.1	16	18	30	66	58	185	92	31	19	9.7	9.7
24	8.4	16	46	29	62	67	74	77	31	18	8.7	8.8
25	8.7	16	34	28	58	39	62	72	43	18	8.1	8.4
26	8.7	61	24	31	57	932	58	69	52	17	7.5	8.2
27	8.7	58	31	31	55	158	56	70	91	16	7.2	8.2
28	30	38	37	30	55	97	56	70	300	16	7.2	8.0
29	20	27	26	31	---	90	55	65	85	15	7.2	7.9
30	14	10	24	19	---	90	56	64	51	15	6.9	7.9
31	12	---	24	312	---	83	---	87	---	16	6.6	---
TOTAL	279.1	585	1038	1176	1916	4340	2323	3820	3140	706	480.1	240.3
MEAN	9.00	19.5	33.5	37.9	68.4	140	77.4	123	105	22.8	15.5	8.01
MAX	30	61	192	312	416	1200	281	966	995	40	82	22
MIN	5.5	10	15	19	24	39	42	44	31	15	6.6	6.0
AC-FT	554	1160	2060	2330	3800	8610	4610	7580	6230	1400	952	477

CAL YR 1982	TOTAL	24249.6	MEAN	66.4	MAX	3980	MIN	4.5	AC-FT	48100
WTR YR 1983	TOTAL	20043.5	MEAN	54.9	MAX	1200	MIN	5.5	AC-FT	39760

ARKANSAS RIVER BASIN

07229900 LAKE THUNDERBIRD NEAR NORMAN, OK

LOCATION.--Lat 35°13'15", long 97°13'05", in NW 4 SE 4 sec.29, T.9 N., R.1 E., Cleveland County, Hydrologic Unit 11090203, near center of dam on Little River, just downstream from Hog Creek, 13 mi (20.9 km) east of Norman, and at mile 96.4 (111.1km).

DRAINAGE AREA.--256 mi^2 (663 km^2).

PERIOD OF RECORD.--March 1965 to current year.

GAGE.--Nonrecording gage at outlet structure and at pump house. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth dam. Regulated storage began Mar. 1, 1965; minimum conservation pool first filled September 1965. Capcity, 196,200 acre-ft (242 hm^3) at elevation 1,049.4 ft (319.86 m), crest of drop inlet; 139,600 acre-ft (147 hm^3) at elevation 1,039.0 ft (316.687 m), top of conservation pool; 13,640 acre-ft (16.8 hm^3) at elevation 1,010.0 ft (307.848 m), minimum conservation pool. Dead storage, 1,200 acre-ft (1.48 hm^3) below elevation 997.0 ft (303.886 m), sill of gated outlet. Figures given herein represent total contents. Reservoir is used for flood control, irrigation (inactive), and municipal water supplies diverted to Del City, Midwest City, and Norman.

COOPERATION.--Elevations and data on diversions furnished by Central Oklahoma Master Conservancy District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 147,100 acre-ft (181 hm^3) May 30, 1975, elevation, 1,043.20 ft (317.967 m); minimum since conservation pool first reached, 15,370 acre-ft (19.0 hm^3) Nov. 30, 1965, elevation, 1,011.0 ft (308.153 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,400 acre-ft (164 hm^3) May 23, elevation, 1,041.18 ft (317.352 m); minimum, 109,200 acre-ft (135 hm^3) Nov. 25, elevation, 1,037.23 ft (316.148 m).

MONTH-END ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	Elevation (feet)*	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30	1037.90	113,000	---	---
Oct. 31	1037.42	110,300	- 2,700	945
Nov. 30	1037.50	110,700	+ 400	827
Dec. 31	1038.03	113,800	+ 3,100	809
CAL YR 82	---	---	+17,240	12,347
Jan. 31	1038.26	115,200	+ 1,400	409
Feb. 28	1039.11	120,200	+ 5,000	711
Mar. 31	1039.36	121,800	+ 1,600	949
Apr. 30	1039.13	120,400	- 1,400	811
May 31	1040.39	128,200	+ 7,800	1,061
June 30	1039.23	121,000	- 7,200	890
July 31	1038.39	115,900	- 5,100	1,762
Aug. 31	1038.22	114,900	- 1,000	1,872
Sept. 30	1037.46	110,500	- 4,400	1,538
WTR YR 83	---	---	- 2,500	12,584

* Elevation at 0800 on the following day.

ARKANSAS RIVER BASIN

351307097132401 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 1

LOCATION.--Lat 35°13'07", long 97°13'24".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
DEC									
01...	0836	1028	111000	10.0	370	8.2	11.0	10.1	97
01...	0843	1028	111000	5.00	377	8.2	10.5	10.1	96
01...	0846	1028	111000	1.00	383	8.3	10.5	10.3	98
MAR									
30...	1100	1028	122000	1.00	420	8.3	7.5	11.1	97
30...	1101	1028	122000	5.00	420	--	7.5	11.1	97
30...	1102	1028	122000	10.0	430	--	7.5	11.1	97
30...	1103	1028	122000	15.0	420	--	7.5	11.1	97
30...	1104	1028	122000	20.0	430	8.0	7.5	11.0	96
30...	1105	1028	122000	25.0	430	--	7.5	11.0	96
30...	1106	1028	122000	30.0	430	--	7.5	11.0	96
30...	1107	1028	122000	35.0	440	--	7.5	11.1	97
30...	1108	1028	122000	40.0	410	8.0	7.5	10.1	88
JUN									
29...	1045	1028	121000	1.00	370	8.1	27.0	8.0	105
29...	1047	1028	121000	5.00	370	--	26.5	8.2	107
29...	1049	1028	121000	10.0	370	--	26.5	8.2	107
29...	1051	1028	121000	15.0	375	--	26.5	7.9	103
29...	1053	1028	121000	20.0	375	--	26.0	7.5	97
29...	1055	1028	121000	25.0	380	7.5	22.5	3.6	44
29...	1057	1028	121000	30.0	380	--	22.0	2.9	35
29...	1059	1028	121000	35.0	380	--	21.5	2.6	31
29...	1101	1028	121000	40.0	380	--	21.5	1.5	18
29...	1103	1028	121000	50.0	424	7.6	--	--	--
SEP									
28...	1110	1028	111000	1.00	412	8.9	21.5	8.7	103
28...	1111	1028	111000	5.00	414	8.7	21.5	8.7	103
28...	1112	1028	111000	10.0	415	8.6	21.5	8.6	102
28...	1113	1028	111000	15.0	418	8.6	21.0	8.6	101
28...	1114	1028	111000	20.0	418	8.6	21.0	8.8	103
28...	1115	1028	111000	25.0	419	8.6	21.0	8.8	103
28...	1116	1028	111000	30.0	421	8.5	21.0	8.1	95
28...	1117	1028	111000	35.0	424	8.5	21.0	7.6	89
28...	1118	1028	111000	40.0	425	8.5	21.0	7.6	89
28...	1119	1028	111000	49.0	426	8.5	21.0	7.4	87

ARKANSAS RIVER BASIN

351320097131801 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 2

LOCATION.--Lat 35°13'20", long 97°13'18".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Samples were collected in a Kemmerer sampler. Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)
DEC												
01...	0855	80020	111000	35.0	378	8.2	11.0	--	10.0	96	--	--
01...	0901	1028	111000	30.0	383	8.2	10.5	--	10.0	95	--	--
01...	0903	1028	111000	25.0	387	8.2	10.5	--	10.1	96	--	--
01...	0906	80020	111000	20.0	387	8.1	10.5	--	10.3	98	--	--
01...	0909	1028	111000	15.0	389	8.1	10.5	--	10.1	96	--	--
01...	0912	1028	111000	10.0	386	8.1	10.5	--	10.4	99	--	--
01...	0915	80020	111000	1.00	390	8.1	10.5	--	10.3	98	--	--
MAR												
30...	1000	80020	122000	1.00	420	8.2	8.0	--	10.8	95	--	--
30...	1002	1028	122000	5.00	420	--	8.0	--	10.7	94	--	--
30...	1004	1028	122000	10.0	430	--	8.0	--	10.7	94	--	--
30...	1006	1028	122000	15.0	420	--	8.0	--	10.7	94	--	--
30...	1008	1028	122000	20.0	430	--	7.5	--	10.7	93	--	--
30...	1010	80020	122000	25.0	430	8.2	7.5	--	10.7	93	--	--
30...	1012	1028	122000	30.0	430	--	7.5	--	10.7	93	--	--
30...	1014	1028	122000	35.0	--	--	7.5	--	10.6	92	--	--
30...	1016	1028	122000	40.0	--	--	7.5	--	10.7	93	--	--
30...	1018	1028	122000	45.0	--	--	7.5	--	--	--	--	--
30...	1020	80020	122000	53.0	420	8.4	7.5	--	9.4	82	--	--
JUN												
29...	1015	80020	121000	1.00	370	8.0	26.5	3.4	7.9	103	--	--
29...	1017	1028	121000	5.00	370	--	26.5	--	7.8	102	--	--
29...	1019	1028	121000	10.0	370	--	26.0	--	7.9	102	--	--
29...	1021	1028	121000	15.0	370	--	26.0	--	7.8	101	--	--
29...	1023	1028	121000	20.0	375	--	25.5	--	7.6	97	--	--
29...	1025	80020	121000	25.0	360	7.6	22.0	10	3.2	38	--	--
29...	1027	1028	121000	30.0	370	--	21.5	--	2.4	28	--	--
29...	1029	1028	121000	35.0	380	--	21.0	--	1.4	16	--	--
29...	1031	1028	121000	40.0	380	--	20.5	--	1.2	14	--	--
29...	1035	80020	121000	50.0	417	7.5	--	140	--	--	--	--
SEP												
28...	1035	80010	111000	1.00	416	9.1	21.5	7.3	8.4	100	.2	K4
28...	1036	1028	111000	5.00	415	8.7	21.5	--	8.3	98	--	--
28...	1037	1028	111000	10.0	417	8.6	21.5	--	7.7	91	--	--
28...	1038	1028	111000	15.0	419	8.6	21.0	--	8.0	94	--	--
28...	1039	1028	111000	20.0	419	8.6	21.0	--	8.1	95	--	--
28...	1040	80020	111000	25.0	420	8.6	21.0	9.3	7.9	93	--	--
28...	1041	1028	111000	30.0	422	8.6	21.0	--	7.7	90	--	--
28...	1042	1028	111000	35.0	423	8.6	21.0	--	7.8	92	--	--
28...	1043	1028	111000	40.0	425	8.6	21.0	--	7.8	92	--	--

ARKANSAS RIVER BASIN

351320097131801 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
DEC												
01...	--	170	0	32	21	18	18	.6	5.3	170	11	26
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	170	0	32	21	18	18	.6	5.3	169	10	26
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	180	68	32	25	20	19	.7	6.0	115	9.0	18
MAR												
30...	--	180	6	35	22	18	18	.6	4.6	172	11	25
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	180	9	35	22	17	17	.6	4.5	169	11	26
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	180	7	35	22	14	14	.5	4.6	171	11	25
JUN												
29...	--	180	5	36	22	18	17	.6	4.3	176	11	25
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	180	6	36	22	18	17	.6	4.4	175	12	26
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	190	15	38	23	22	20	.7	4.9	175	13	34
SEP												
28...	<1	170	4	31	23	18	18	.6	4.7	168	12	27
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	170	7	31	23	18	18	.6	4.6	165	15	30
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

351320097131801 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)
DEC												
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
30...	210	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	217	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	212	--	--	--	--	--	--	--	--	--	--	--
JUN												
29...	223	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	230	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	237	--	--	--	--	--	--	--	--	--	--	--
SEP												
28...	228	17	.020	.200	.110	.80	.020	.06	.010	4.7	4.8	13000
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	242	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	RESER-VOIR STORAGE (AC-FT)	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
SEP											
28...	1044	1028	111000	45.0	426	8.5	21.0	--	7.0	82	--
28...	1045	1028	111000	50.0	427	8.5	21.0	--	6.8	80	--
28...	1046	80020	111000	52.0	428	8.5	21.0	60	6.8	80	170

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
SEP											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	3	31	23	18	18	.6	4.7	169	12	28	235

ARKANSAS RIVER BASIN

351320097131801 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 2--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO SEPTEMBER 1983

DATE	SEP 28,83
TIME	1035
TOTAL CELLS/ML	13000
DIVERSITY: DIVISION	1.3
.CLASS	1.3
..ORDER	1.9
...FAMILY	2.2
....GENUS	3.0

ORGANISM	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)		
.BACILLARIOPHYCEAE		
..BACILLARIALES		
...NITZSCHIACEAE		
....NITZSCHIA	600	5
..EUPODISCALES		
...COSCINODISCACEAE		
....CYCLOTELLA	880	7
....MELOSIRA	70	1
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....SCHROEDERIA	*	0
...HYDRODICTYACEAF		
....PEDIASTRUM	560	4
...OOCYSTACEAE		
....ANKISTRODESMUS	280	2
....OOCYSTIS	600	5
....TREUBARIA	*	0
...SCENEDESMACEAE		
....ACTINASTRUM	280	2
....SCENEDESMUS	490	4
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	180	1
CHRYSOPHYTA		
.CHRYSOPHYCEAE		
..OCHROMONADALES		
...OCHROMONADACEAE		
....OCHROMONAS	210	2
CRYPTOPHYTA (CRYPTOMONADS)		
.CRYPTOPHYCEAE		
..CRYPTOMONADALES		
...CRYPTOMONADACEAE		
....CRYPTOMONAS	70	1
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	490	4
....GOMPHOSPHAERIA	700	5
..NOSTOCALES		
...NOSTOCACEAE		
....ANABAENA	4100#	32
....APHANIZOMENON	3500#	27

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

ARKANSAS RIVER BASIN

351333097131201 LAKE THUNDERBIRD DAMSITE CROSS SECTION NO. 3

LOCATION.--Lat 35°13'33", long 97°13'12".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
DEC									
01...	0937	1028	111000	30.0	382	8.4	11.0	10.2	98
01...	0941	1028	111000	25.0	383	8.4	10.5	10.3	98
01...	0945	1028	111000	20.0	387	8.4	10.5	10.1	96
01...	0947	1028	111000	15.0	380	8.4	10.5	10.3	98
01...	0949	1028	111000	10.0	389	8.4	10.5	10.2	97
01...	0951	1028	111000	1.00	378	8.4	10.5	10.3	98
MAR									
30...	0930	1028	122000	1.00	400	8.1	8.0	10.4	92
30...	0931	1028	122000	5.00	420	--	8.0	10.4	92
30...	0932	1028	122000	10.0	420	--	8.0	10.4	92
30...	0933	1028	122000	15.0	430	--	8.0	10.4	92
30...	0934	1028	122000	20.0	430	8.1	8.0	10.3	91
30...	0935	1028	122000	25.0	430	--	8.0	10.3	91
30...	0936	1028	122000	30.0	430	--	8.0	10.2	90
30...	0937	1028	122000	35.0	--	--	7.5	10.4	91
30...	0938	1028	122000	40.0	400	8.2	7.5	10.3	90
JUN									
29...	0948	1028	121000	1.00	360	7.8	25.5	7.7	98
29...	0950	1028	121000	5.00	365	--	25.5	7.7	98
29...	0952	1028	121000	10.0	360	--	25.5	7.6	97
29...	0954	1028	121000	15.0	365	--	25.0	7.3	93
29...	0956	1028	121000	20.0	365	7.6	24.5	6.8	85
29...	0958	1028	121000	25.0	350	--	21.5	3.8	45
29...	1000	1028	121000	30.0	370	--	21.0	2.6	31
29...	1002	1028	121000	35.0	375	7.3	20.5	2.5	29
SEP									
28...	1020	1028	111000	1.00	416	9.0	21.5	7.7	91
28...	1021	1028	111000	5.00	416	8.7	21.5	7.6	90
28...	1022	1028	111000	10.0	417	8.6	21.5	7.5	89
28...	1023	1028	111000	15.0	417	8.6	21.5	7.5	89
28...	1024	1028	111000	20.0	419	8.6	21.0	7.4	87
28...	1025	1028	111000	25.0	420	8.6	21.0	7.4	87
28...	1026	1028	111000	30.0	422	8.6	21.0	7.5	88
28...	1027	1028	111000	33.0	423	8.5	21.0	7.0	82

ARKANSAS RIVER BASIN

351317097145101 LAKE THUNDERBIRD LITTLE RIVER CROSS SECTION

LOCATION.--Lat 35°13'17", long 97°14'51".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR									
30...	1225	1028	122000	1.00	440	8.2	7.5	11.0	96
30...	1226	1028	122000	5.00	440	--	7.5	11.0	96
30...	1227	1028	122000	10.0	440	--	7.5	11.0	96
30...	1228	1028	122000	15.0	440	--	7.5	11.0	96
30...	1229	1028	122000	20.0	450	8.0	7.5	11.0	96
30...	1230	1028	122000	25.0	440	--	7.5	11.0	96
30...	1231	1028	122000	30.0	430	--	7.5	11.0	96
30...	1232	1028	122000	35.0	460	--	7.5	11.1	97
30...	1233	1028	122000	40.0	440	--	7.5	10.6	92
30...	1234	1028	122000	43.0	440	8.1	7.5	10.6	92
JUN									
29...	1200	1028	121000	1.00	360	8.2	26.0	7.6	98
29...	1202	1028	121000	5.00	360	--	26.0	7.5	97
29...	1204	1028	121000	10.0	370	--	26.0	7.4	96
29...	1206	1028	121000	15.0	370	7.9	25.5	6.2	79
29...	1208	1028	121000	20.0	375	--	23.5	4.2	52
29...	1210	1028	121000	25.0	375	--	22.5	2.8	34
29...	1212	1028	121000	30.0	375	--	21.5	1.9	23
29...	1214	1028	121000	35.0	380	7.8	21.0	1.6	19
SEP									
28...	0945	1028	111000	1.00	415	8.9	21.5	8.1	96
28...	0946	1028	111000	5.00	415	8.8	21.5	8.0	95
28...	0947	1028	111000	10.0	416	8.7	21.5	7.5	89
28...	0948	1028	111000	15.0	417	8.5	21.0	6.8	80
28...	0949	1028	111000	20.0	418	8.5	21.0	6.7	79
28...	0950	1028	111000	25.0	419	8.5	21.0	6.8	80
28...	0951	1028	111000	30.0	420	8.6	21.0	6.7	79
28...	0952	1028	111000	32.0	421	8.6	21.0	6.7	79

ARKANSAS RIVER BASIN

351255097151001 LAKE THUNDERBIRD CLEAR CREEK CROSS SECTION

LOCATION.--Lat 35°12'55", long 97°15'10".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR									
30...	1245	1028	122000	1.00	460	8.2	8.0	10.9	96
30...	1246	1028	122000	5.00	460	--	8.0	11.0	97
30...	1247	1028	122000	10.0	460	--	7.5	10.9	95
30...	1248	1028	122000	15.0	470	8.0	7.5	10.9	95
30...	1249	1028	122000	20.0	470	--	7.5	10.9	95
30...	1250	1028	122000	25.0	470	--	7.5	10.9	95
30...	1251	1028	122000	30.0	480	8.0	7.5	10.7	93
JUN									
29...	1220	1028	121000	1.00	380	8.2	26.5	7.9	103
29...	1222	1028	121000	5.00	380	--	26.0	7.8	101
29...	1224	1028	121000	10.0	380	--	26.0	7.6	98
29...	1226	1028	121000	15.0	380	8.0	25.5	6.5	83
29...	1228	1028	121000	20.0	385	--	23.0	2.4	29
29...	1230	1028	121000	25.0	385	--	21.5	1.4	17
29...	1232	1028	121000	27.0	385	7.6	21.0	1.0	12
SEP									
28...	0930	1028	111000	1.00	413	9.3	21.5	8.1	96
28...	0931	1028	111000	5.00	414	8.8	21.5	8.0	95
28...	0932	1028	111000	10.0	415	8.7	21.5	7.8	92
28...	0933	1028	111000	15.0	416	8.7	21.5	7.2	85
28...	0934	1028	111000	20.0	417	8.6	21.0	6.9	81
28...	0935	1028	111000	25.0	418	8.6	21.0	6.2	73
28...	0936	1028	111000	28.0	418	8.5	21.0	6.1	72

351318097155901 LAKE THUNDERBIRD LITTLE RIVER ABOVE CLEAR CREEK SITE NO. 1

LOCATION.--Lat 35°13'18", long 97°15'59".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Samples were collected in a Kemmerer Sampler. Specific conductance, pH, water temperature, and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)
MAR									
30...	1315	1028	122000	1.00	440	8.2	8.5	--	10.9
30...	1316	1028	122000	5.00	440	--	8.0	--	10.8
30...	1317	1028	122000	10.0	440	8.0	8.0	--	10.8
30...	1318	1028	122000	15.0	440	--	8.0	--	10.8
30...	1319	1028	122000	21.0	450	8.0	8.0	--	10.4
JUN									
29...	1242	1028	121000	1.00	380	8.2	26.5	--	7.2
29...	1244	1028	121000	5.00	380	--	26.5	--	7.1
29...	1246	1028	121000	10.0	380	--	26.0	--	6.8
29...	1248	1028	121000	15.0	380	7.9	24.5	--	5.2
29...	1300	1028	121000	20.0	385	--	22.5	--	1.4
29...	1302	1028	121000	27.0	385	7.4	22.5	--	.5
SEP									
28...	0900	80010	111000	1.00	413	8.7	22.0	6.3	8.6
28...	0901	1028	111000	5.00	413	8.8	21.5	--	8.5
28...	0902	1028	111000	10.0	414	8.7	21.5	--	8.1
28...	0903	1028	111000	15.0	416	8.6	21.5	--	7.8
28...	0904	1028	111000	19.0	417	8.6	21.5	--	7.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	ALKALINITY LAB (MG/L AS CACO3)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
MAR									
30...	97	--	--	--	--	--	--	--	--
30...	95	--	--	--	--	--	--	--	--
30...	95	--	--	--	--	--	--	--	--
30...	95	--	--	--	--	--	--	--	--
30...	92	--	--	--	--	--	--	--	--
JUN									
29...	94	--	--	--	--	--	--	--	--
29...	93	--	--	--	--	--	--	--	--
29...	88	--	--	--	--	--	--	--	--
29...	65	--	--	--	--	--	--	--	--
29...	17	--	--	--	--	--	--	--	--
29...	6	--	--	--	--	--	--	--	--
SEP									
28...	103	8.0	<1	<1	168	232	15	.020	.100
28...	101	--	--	--	--	--	--	--	--
28...	96	--	--	--	--	--	--	--	--
28...	92	--	--	--	--	--	--	--	--
28...	89	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

351318097155901 LAKE THUNDERBIRD LITTLE RIVER ABOVE CLEAR CREEK SITE NO. 1--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	NITRO-GEN, TOTAL (MG/L AS N)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)
MAR								
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
JUN								
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
SEP								
28...	.100	.80	.030	.09	.030	.90	5.4	15000
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--

351318097155901 LAKE THUNDERBIRD LITTLE RIVER ABOVE CLEAR CREEK SITE NO. 1--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO SEPTEMBER 1983

DATE	SEP 26,83
TIME	0900
TOTAL CELLS/ML	15000
DIVERSITY: DIVISION	1.7
.CLASS	1.7
..ORDER	2.4
...FAMILY	2.5
....GENUS	3.2

ORGANISM	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)		
.BACILLARIOPHYCEAE		
..BACILLARIALES		
...NITZSCHIACEAE		
....NITZSCHIA	1600	11
..EUPODISCALES		
...COSCINODISCACEAE		
....CYCLOTELLA	850	6
....MELOSIRA	180	1
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....POLYEDRIOPSIS	*	0
...OOCYSTACEAE		
....ANKISTRODESMUS	420	3
...SCENEDESMACEAE		
....SCENEDESMUS	1300	9
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	480	3
CHRYSOPHYTA		
.CHRYSOPHYCEAE		
..OCHROMONADALES		
...OCHROMONADACEAE		
....OCHROMONAS	850	6
CRYPTOPHYTA (CRYPTOMONADS)		
.CRYPTOPHYCEAE		
..CRYPTOMONADALES		
...CRYPTOCHRYSIDACEAE		
....CHROOMONAS	*	0
...CRYPTOMONADACEAE		
....CRYPTOMONAS	180	1
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	240	2
....GOMPHOSPHAERIA	1500	10
..NOSTOCALES		
...NOSTOCACEAE		
....ANABAENA	4400#	29
....APHANIZOMENON	1800	12
....CYLINDROSPERMUM	970	6
EUGLENOPHYTA (EUGLENOIDS)		
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

ARKANSAS RIVER BASIN

351442097140201 LAKE THUNDERBIRD HOG CREEK CROSS SECTION

LOCATION.--Lat 35°14'42", long 97°14'02".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
DEC									
01...	1032	1028	111000	25.0	385	8.5	10.5	10.8	103
01...	1037	1028	111000	20.0	385	8.7	10.0	10.8	101
01...	1039	1028	111000	15.0	388	8.7	10.0	10.5	99
01...	1041	1028	111000	10.0	385	8.7	10.0	10.7	100
01...	1043	1028	111000	1.00	385	8.7	10.0	11.0	103
MAR									
30...	1135	1028	122000	1.00	430	8.2	8.0	10.6	94
30...	1136	1028	122000	5.00	430	--	8.0	10.5	93
30...	1137	1028	122000	10.0	430	--	8.0	10.6	94
30...	1138	1028	122000	15.0	430	--	8.0	10.6	94
30...	1139	1028	122000	20.0	430	8.0	8.0	10.6	94
30...	1140	1028	122000	25.0	430	--	8.0	10.5	93
30...	1141	1028	122000	30.0	430	--	8.0	10.5	93
30...	1142	1028	122000	35.0	440	8.0	8.0	9.8	87
JUN									
29...	1112	1028	121000	1.00	370	8.2	26.5	8.2	107
29...	1114	1028	121000	5.00	370	--	26.5	8.3	108
29...	1116	1028	121000	10.0	370	--	26.5	8.1	106
29...	1118	1028	121000	15.0	375	8.0	26.0	7.8	101
29...	1120	1028	121000	20.0	380	--	23.5	5.2	64
29...	1122	1028	121000	25.0	380	--	22.0	3.8	45
29...	1124	1028	121000	30.0	385	--	21.0	2.5	29
29...	1126	1028	121000	33.0	385	7.5	21.0	1.9	22
SEP									
28...	1000	1028	111000	1.00	415	9.1	22.0	9.1	109
28...	1001	1028	111000	5.00	415	8.9	22.0	9.0	108
28...	1002	1028	111000	10.0	416	8.8	22.0	9.0	108
28...	1003	1028	111000	15.0	417	8.8	22.0	8.6	103
28...	1004	1028	111000	20.0	418	8.7	21.5	8.4	100
28...	1005	1028	111000	25.0	421	8.6	21.5	7.4	88

07230000 LITTLE RIVER BELOW LAKE THUNDERBIRD NEAR NORMAN, OK

LOCATION.--Lat 35°13'17", long 97°12'51", in NE 1/4 SE 1/4 sec.29, T.9 N., R.1 E., Cleveland County, Hydrologic Unit, 11090203, at right bank of outlet channel, 170 ft (51.8 m) upstream from State Highway 9, 1,200 ft (365.8 m) downstream from Lake Thunderbird, 1.0 mi (1.6 km) upstream from Prairie Creek, 13.0 mi (20.9 km) east of Norman, and at mile 96.2 (154.8 km).

DRAINAGE AREA.--257 mi^2 (666 km^2).

PERIOD OF RECORD.--October 1952 to current year. Prior to October 1964, published as Little River below Hog Creek near Norman.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 965.62 ft (294.321 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1956, nonrecording gage 800 ft (243.8 m) downstream at same datum. Nov. 28, 1956 to Oct. 14, 1964, water-stage recorder at site 800 ft (243.8 m) downstream at same datum. Oct. 15, 1964, to Sept. 1, 1965, nonrecording gage at site 170 ft (51.8 m) downstream at same datum.

REMARKS.--Records good. Flow regulated by Lake Thunderbird since March 1965 (station 07229900). In prior years, occasional small diversions above station for irrigation.

AVERAGE DISCHARGE.--(Prior to regulation by Lake Thunderbird) 12 years (water years 1952-64), 58.9 ft^3/s (1.668 m^3/s), 42,640 acre-ft/yr (52.6 hm^3/yr); (after regulation by Lake Thunderbird) 18 years, (water years 1966-83), 18.2 ft^3/s (0.515 m^3/s), 13,190 acre-ft/yr (16.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,600 ft^3/s (980 m^3/s) May 25, 1957, gage height, 28.85 ft (8.793 m), from high-water mark, at site then in use, from rating curve extended above 15,000 ft^3/s (425 m^3/s); no flow at times in 1954-56, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 434 ft^3/s (12.3 m^3/s) June 9, gage height, 5.25 ft (1.600 m); minimum daily discharge, 0.50 ft^3/s (0.014 m^3/s) Oct. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	.52	.98	.63	1.5	152	350	191	419	.61	.64	.61
2	.90	.53	.75	.78	.61	96	349	105	421	.61	.61	.61
3	.54	.53	.61	.66	.61	.67	351	.67	421	.61	.64	.61
4	.53	.53	.55	.61	.64	1.4	145	.69	423	.61	.66	.61
5	.53	.53	.53	.61	.63	.69	.99	.69	425	.60	.65	.61
6	.52	.53	.53	.61	.61	.68	109	.68	426	.61	.61	.61
7	.54	.53	.53	.61	98	199	191	.66	427	.61	.61	.59
8	.53	.53	.53	.61	157	357	192	.64	431	.61	.61	.61
9	.53	.53	.53	.61	154	355	192	.64	432	.61	.61	.61
10	.53	.62	.66	.61	153	353	194	.96	114	.67	.61	.62
11	.61	.93	.59	.58	153	352	194	.70	.74	.65	.61	.64
12	.61	.55	.53	.61	153	353	194	110	.64	.64	.69	.66
13	.61	.53	.53	.61	153	351	79	72	.79	.64	.66	.61
14	.53	.53	.53	.59	153	232	107	1.4	.63	.61	.65	.71
15	.53	.53	.53	.61	57	149	81	.67	.62	.63	.68	.66
16	.53	.53	.53	.61	.69	149	.77	193	.61	.61	.69	.59
17	.53	.53	.59	.61	.69	149	.77	242	.61	.61	.63	.59
18	.53	.53	.61	.61	.69	61	.75	.78	.61	.61	.87	.60
19	.50	.53	.61	.61	.73	.70	.72	111	.61	.61	3.0	.70
20	.52	.53	.61	.61	.76	.62	.72	245	.61	.61	.67	.55
21	.53	.53	.61	.64	.73	.63	.75	222	.61	.61	.62	.56
22	.53	.57	.61	.61	95	.69	.75	.67	.60	.61	.61	.57
23	.53	.54	.54	.61	153	.68	.85	225	.61	.62	.61	.58
24	.53	.53	.74	.61	153	.65	.69	420	.65	.61	.61	.58
25	.53	.54	.53	.61	153	.64	116	418	.64	.61	.61	.57
26	.53	1.1	.53	.65	153	1.1	190	417	.61	.61	.61	.53
27	.53	.80	.69	.67	153	.58	190	417	.73	.61	.61	.59
28	.89	.61	.61	.68	153	179	190	417	.68	.61	.61	.59
29	.57	.61	.61	.63	---	353	190	417	.61	.63	.61	.59
30	.53	.61	.58	.64	---	351	190	419	.61	.65	.62	.60
31	.53	---	.61	1.7	---	351	---	419	---	.64	.61	---
TOTAL	17.63	17.54	18.52	20.44	2252.89	4551.73	3801.76	5069.85	3951.82	19.18	22.13	18.16
MEAN	.57	.58	.60	.66	80.5	147	127	164	132	.62	.71	.61
MAX	.90	1.1	.98	1.7	157	357	351	420	432	.67	3.0	.71
MIN	.50	.52	.53	.58	.61	.58	.69	.64	.60	.60	.61	.53
AC-FT	35	35	37	41	4470	9030	7540	10060	7840	38	44	36

CAL YR 1982	TOTAL	11456.53	MEAN	31.4	MAX	426	MIN	.27	AC-FT	22720
WTR YR 1983	TOTAL	19761.65	MEAN	54.1	MAX	432	MIN	.50	AC-FT	39200

ARKANSAS RIVER BASIN

07230500 LITTLE RIVER NEAR TECUMSEH, OK

LOCATION.--Lat 35°10'25", long 96°55'55", near northwest corner sec.18, T.8 N., R.4 E., Pottawatomie County, Hydrologic Unit 11090203, on downstream side of center pier of bridge on U.S. Highway 177, 1.5 mi (2.4 km) downstream from Dance Creek, 5.0 mi (8.0 km) south of Tecumseh, and at mile 77.2 (124.2 km).

DRAINAGE AREA.--456 mi^2 (1,181 km^2).

PERIOD OF RECORD.--October 1943 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 898.52 ft (273.869 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records fair. Flow regulated or diverted since 1965 by Lake Thunderbird, 19.2 mi (30.9 km) upstream (station 07229900).

AVERAGE DISCHARGE.--(Prior to regulation by Lake Thunderbird) 21 years (water years 1944-64), 149 ft^3/s (4.22 m^3/s), 107,900 acre-ft/yr (133.0 hm^3/yr); (since regulation by Lake Thunderbird) 18 years (water years 1966-83), 77.4 ft^3/s (2.92 m^3/s), 56,100 acre-ft/yr (69.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,400 ft^3/s (918 m^3/s) May 25, 1957, gage height, 18.84 ft (5.742 m), maximum gage height, 19.68 ft (5.998 m), May 18, 1949; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1932 reached a stage of 25.58 ft (7.797 m), from flood mark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 3,080 ft^3/s (87.2 m^3/s) Jan. 31, gage height, 15.02 ft (4.578 m); no flow Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.74	3.9	11	12	1770	140	274	197	492	18	.93	2.1
2	5.5	2.9	161	62	256	137	264	186	492	16	.56	1.8
3	8.7	2.0	52	69	144	50	264	58	490	14	.41	1.4
4	4.1	1.8	27	31	106	745	226	39	490	12	.33	1.2
5	1.7	2.1	18	24	93	199	166	36	490	11	.29	.96
6	1.3	2.5	14	19	83	93	170	33	488	10	.26	.82
7	.99	3.2	11	15	87	107	222	30	488	9.6	22	.67
8	1.3	3.7	10	15	194	299	223	27	488	9.2	26	.57
9	1.1	3.5	9.7	13	190	343	218	27	488	8.5	4.1	.50
10	.64	4.4	15	13	181	352	229	88	488	8.0	1.3	.44
11	.86	22	25	12	163	356	210	198	150	7.6	.80	.41
12	1.7	40	17	12	152	360	200	85	80	7.4	.43	.39
13	2.1	17	13	12	144	361	435	1350	60	7.2	.37	.39
14	2.0	10	12	12	141	307	168	2000	49	9.6	.33	.91
15	1.7	7.9	11	11	124	155	196	524	42	13	.20	2.0
16	1.6	6.4	9.8	9.7	40	150	68	320	31	13	.06	9.1
17	1.6	6.0	9.0	11	32	145	57	518	28	12	.00	11
18	1.8	6.1	8.7	12	29	128	49	329	26	10	.16	6.0
19	1.6	5.4	8.5	13	28	48	45	174	24	6.7	1.3	3.1
20	1.6	5.2	7.8	13	124	45	44	262	22	4.4	205	4.5
21	1.5	4.9	7.6	13	77	38	46	562	20	3.7	118	13
22	2.0	6.7	7.8	17	96	33	52	170	20	3.2	38	8.9
23	2.1	5.7	7.9	17	160	34	325	149	18	2.6	20	4.8
24	2.0	4.5	47	17	153	39	116	489	19	2.0	15	2.7
25	2.2	7.5	29	16	144	46	96	498	43	1.5	11	1.8
26	2.0	95	15	26	141	753	201	496	35	1.2	8.8	1.3
27	2.0	121	38	25	139	154	199	496	31	.88	7.3	1.0
28	13	54	38	18	140	120	199	494	56	.63	5.9	.91
29	19	23	18	16	---	262	198	494	51	.53	4.6	.82
30	10	13	13	15	---	269	198	494	24	.59	3.3	.76
31	6.3	---	13	1080	---	266	---	492	---	1.3	2.7	---
TOTAL	104.73	491.3	684.8	1650.7	5131	6534	5358	11315	5723	225.33	499.43	84.25
MEAN	3.38	16.4	22.1	53.2	183	211	179	365	191	7.27	16.1	2.81
MAX	19	121	161	1080	1770	753	435	2000	492	18	205	13
MIN	.64	1.8	7.6	9.7	28	33	44	27	18	.53	.00	.39
AC-FT	208	974	1360	3270	10180	12960	10630	22440	11350	447	991	167

CAL YR 1982	TOTAL 47300.05	MEAN 130	MAX 2480	MIN .25	AC-FT 93820			
WTR YR 1983	TOTAL 37801.54	MEAN 104	MAX 2000	MIN .00	AC-FT 74980			

ARKANSAS RIVER BASIN

07230597 LITTLE RIVER NEAR BOWLEGS, OK.

LOCATION.--Lat 35°06'19", long 96°40'06", in NW 1/4 SE 1/4 sec.3, T.7 N., R.6 E., Seminole County, Hydrologic Unit 11090203, on the right downstream abutment of state highways 3 and 99, 6.7 miles (10.8 km) south of Seminole and at river mile 57.8.

DRAINAGE AREA.--550 mi^2 (885 km^2).

PERIOD OF RECORD.--Jan. 26, 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 826.20 ft (251.826 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow regulated by Lake Thunderbird 38.8 miles (62.4 km) upstream.

EXTREMES FOR CURRENT PERIOD JANUARY 26 to SEPTEMBER 30.--Maximum discharge, 3260 ft^3/s (92.3 km^3/s) May 14, gage height, 19.81 ft (6.038 m) from a Highwater Mark. No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	2200	166	390	195	380	17	.00	.00
2				---	1640	169	370	195	386	14	.00	.00
3				---	499	118	350	100	382	11	.00	.00
4				---	207	538	330	50	391	10	.00	.00
5				---	171	811	300	39	393	9.0	.00	.00
6				---	164	298	250	37	386	8.3	.00	.00
7				---	148	225	185	35	364	7.8	.00	.00
8				---	186	349	245	33	364	7.0	.00	.00
9				---	190	375	250	38	386	6.7	.36	.00
10				---	180	372	260	199	418	6.5	1.1	.00
11				---	170	368	275	571	206	6.0	.71	.00
12				---	160	361	250	162	56	5.5	.36	.00
13				---	150	345	700	966	41	5.7	.00	.00
14				---	145	331	950	2860	51	5.7	.00	.00
15				---	135	229	400	2980	60	6.0	.00	.00
16				---	90	213	200	1620	39	6.0	.00	20
17				---	61	232	109	873	32	7.2	.00	3.6
18				---	55	235	80	834	30	7.5	.00	3.0
19				---	54	182	69	287	24	6.2	.00	2.1
20				---	146	116	61	331	22	4.2	36	23
21				---	140	104	59	992	20	4.0	171	10
22				---	138	93	90	549	20	3.5	35	5.0
23				---	135	85	547	182	19	3.0	8.6	3.0
24				---	200	80	250	322	18	2.5	5.2	2.5
25				---	170	80	140	404	19	2.0	3.8	2.0
26				35	170	855	195	387	39	1.5	3.0	1.5
27				35	170	690	195	376	28	1.0	2.1	1.0
28				24	170	301	195	426	79	.05	1.2	.50
29				20	---	378	195	420	156	.02	.50	.00
30				17	---	397	195	410	35	.01	.00	.00
31				547	---	400	---	406	---	.00	.00	---
TOTAL				---	8044	9496	8085	17279	4844	174.88	268.93	77.20
MEAN				---	287	306	270	557	161	5.64	8.68	2.57
MAX				---	2200	855	950	2980	418	17	171	23
MIN				---	54	80	59	33	18	.00	.00	.00

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NEAR SASAKWA, OK

LOCATION.--Lat 34°59'02", long 96°33'01", NE 1/4 sec.22, T.6 N., R.7 E., Seminole County, Hydrologic Unit 11090203, near left abutment on downstream side of county road bridge, 2.8 mi (4.5 km) northwest of Sasakwa, 8.7 mi (14.0 km) downstream from Salt Creek, and at mile 24.1 (38.8 km).

DRAINAGE AREA.--865 mi^2 (2,240 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 744.34 ft (226.875 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Apr. 11, 1946, nonrecording gage at same site and datum. Prior to Oct. 1, 1979, gage at same site and datum 4.87 ft (1.484 m) higher.

REMARKS.--Records good. Flow regulated by Lake Thunderbird 72.3 mi (116.3 m) upstream since March 1965 (station 07229900).

AVERAGE DISCHARGE.--(Prior to regulation by Lake Thunderbird) 23 years (water years 1943-65), 398 ft^3/s (11.27 m^3/s), 288,400 acre-ft/yr (356 hm^3/yr); (since regulation by Lake Thunderbird) 18 years (water years 1966-83), 243 ft^3/s (6.882 m^3/s), 176,100 acre-ft/yr (217 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,600 ft^3/s (1,260 m^3/s) May 11, 1950, gage height, 33.48 ft (10.205 m); no flow at times most years after 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,280 ft^3/s (178 m^3/s) Feb. 1, gage height, 21.30 ft (6.492 m); minimum daily discharge, 0.21 ft^3/s (0.006 m^3/s) on Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	4.3	47	41	5630	238	467	281	555	95	3.6	1.4
2	.88	5.8	75	46	3770	229	454	257	509	63	3.4	1.1
3	2.2	3.9	143	49	2330	227	408	235	493	48	3.2	.95
4	1.3	2.5	127	116	1000	447	391	150	473	39	3.0	.84
5	.96	2.0	69	77	692	1440	350	87	452	67	2.8	.63
6	.65	1.6	41	53	557	869	270	70	441	35	2.8	.45
7	.58	1.4	28	44	448	473	212	61	434	29	4.1	.35
8	2.3	1.3	20	39	423	350	252	53	424	25	3.7	.31
9	.96	1.2	17	33	492	519	256	49	415	22	4.4	.27
10	.46	1.1	15	30	447	479	273	65	410	22	7.3	.24
11	.31	2.2	19	26	393	448	286	450	391	18	12	.24
12	.40	5.0	23	22	344	441	259	389	185	17	7.2	.21
13	.31	8.2	26	21	309	436	995	1340	95	15	5.3	.29
14	.31	30	27	19	293	436	1410	5350	142	14	4.1	.35
15	.27	18	20	17	275	403	615	5090	139	14	3.5	.98
16	.27	9.6	17	16	252	244	461	3890	104	19	2.9	64
17	.24	6.7	15	15	169	232	274	2310	84	22	2.6	41
18	.27	5.2	14	14	126	227	208	1830	69	21	2.3	5.7
19	.31	4.6	12	17	116	214	170	1330	60	17	2.5	2.3
20	.31	4.2	12	20	404	157	145	846	53	14	2.8	1.9
21	.31	4.2	11	22	496	116	142	2040	47	12	58	2.9
22	.31	160	11	25	432	101	150	1930	43	10	139	1.8
23	.31	123	11	26	329	92	1140	899	39	8.3	48	1.7
24	.31	29	66	28	331	89	1030	617	37	7.1	20	1.0
25	.31	14	159	27	305	93	475	762	37	6.2	9.8	1.3
26	.31	41	94	29	271	671	329	717	52	5.6	6.2	1.1
27	.27	258	338	44	254	1400	372	639	67	5.0	4.7	.79
28	.70	286	275	56	244	641	345	664	94	4.7	3.7	.52
29	1.4	143	137	61	---	391	321	672	265	4.4	2.8	.37
30	.90	77	76	45	---	528	300	557	227	4.2	2.2	.28
31	1.0	---	52	984	---	496	---	573	---	4.0	1.7	---
TOTAL	20.00	1254.0	1997	2062	21132	13127	12760	34203	6836	687.5	379.6	135.27
MEAN	.65	41.8	64.4	66.5	755	423	425	1103	228	22.2	12.2	4.51
MAX	2.3	286	338	984	5630	1440	1410	5350	555	95	139	64
MIN	.24	1.1	11	14	116	89	142	49	37	4.0	1.7	.21
AC-FT	40	2490	3960	4090	41920	26040	25310	67840	13560	1360	753	268

CAL YR 1982	TOTAL 150738.36	MEAN 413	MAX 5830	MIN .07	AC-FT 299000				
WTR YR 1983	TOTAL 94593.37	MEAN 259	MAX 5630	MIN .21	AC-FT 187600				

07231000 LITTLE RIVER NEAR SASAKWA, OK--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to April 1982.
WATER TEMPERATURE: October 1955 to April 1982.

REMARKS: Samples were collected every six weeks and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 138,000 micromhos Oct. 31, 1956; minimum daily, 118 micromhos Sept. 11, 1977.
WATER TEMPERATURE: Maximum daily, 38.5°C July 13, 1978; minimum, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT 19...	1443	80020	.30	1910	8.2	22.0	9.0	106	380	74	46	240
NOV 15...	1420	80020	19	1590	8.0	9.0	11.1	98	330	59	44	190
FEB 23...	1400	80020	316	1140	7.8	12.0	10.1	98	280	62	29	120
APR 20...	1400	80020	142	1840	8.0	12.5	10.9	106	410	92	43	190
JUN 07...	1100	80020	435	856	7.9	20.0	8.2	93	240	50	28	69
JUL 14...	1330	80020	14	2720	7.9	30.0	6.9	95	500	96	63	340
AUG 23...	0900	80020	52	488	7.6	25.0	6.6	83	130	27	15	49

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)
OCT 19...	6	--	--	--	--	3.6	--	<1	400	<.5	3	<10
NOV 15...	5	--	--	--	--	7.2	--	1	390	<.5	3	<10
FEB 23...	3	3.4	163	41	260	7.7	579	1	280	<.5	2	<10
APR 20...	4	--	--	--	--	7.5	--	1	380	<.5	1	<10
JUN 07...	2	4.3	--	18	140	4.0	455	1	320	<.5	3	<10
JUL 14...	7	--	--	--	--	7.4	--	<1	490	<.5	7	<10
AUG 23...	2	3.4	--	16	83	6.1	261	<1	230	<.5	<1	10

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NEAR SASAKWA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
19...	<3	<10	22	<10	20	520	<.1	10	1100	<6	41
NOV											
15...	<3	10	19	<10	16	31	<.1	<10	740	<6	12
FEB											
23...	<3	<10	16	<10	18	10	.3	<10	670	<6	23
APR											
20...	<3	10	9	<10	25	18	.2	<10	1100	<6	11
JUN											
07...	<3	<10	14	<10	13	2	.5	<10	520	<6	46
JUL											
14...	<3	<10	13	<10	31	88	2.2	<10	1600	<6	9
AUG											
23...	<3	<10	73	<10	<4	3	.8	<10	260	<6	22

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK

LOCATION.--Lat 34°58'32", long 96°14'24", in NE 1/4 SW 1/4 sec.22, T.6 N., R.10 E., Hughes County, Hydrologic Unit 11090202, near left bank on downstream side of pier of bridge on old U.S. Highway 75, 0.5 mi (0.8 km) northeast of Calvin, 2.4 mi (3.9 km) upstream from Shawnee Creek, 8.5 mi (13.7 km) downstream from Little River, and at mile 93.9 (151.1 km).

DRAINAGE AREA.--27,952 mi^2 (72,396 km^2), of which 4,801 mi^2 (12,435 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1905 to December 1908 (gage heights and discharge measurements only except for period July 1905 to December 1906), October 1938 to September 1942, July 1944 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1904 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 1341: Drainage area. WSP 1391: 1941.

GAGE.--Water-stage recorder and nonrecording gage. Datum of gage is 682.72 ft (208.093 m), National Geodetic Vertical Datum of 1929. January 1905 to December 1908, nonrecording gage at site 0.8 mi (1.3 km) upstream at datum 4.00 ft (1.219 m) higher. Oct. 1, 1938, to Aug. 12, 1944, nonrecording gage at present site and datum. Aug. 13, 1944, to July 31, 1977, water-stage recorder at present site and datum 2.00 ft (0.611 m) higher.

REMARKS.--Records fair. Occasional slight regulation by dams in New Mexico and Texas.

AVERAGE DISCHARGE.--44 years (water years 1906, 1939-42, 1945-83), 1,514 ft^3/s (42.88 m^3/s), 1,096,900 acre-ft/yr (1.36 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 174,000 ft^3/s (4,930 m^3/s) May 11, 1950, gage height, 17.35 ft (5.288 m), maximum gage height, 21.00 ft (6.401 m), Aug. 7, 1906, from floodmark, site and datum then in use; no flow at times in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 57,900 ft^3/s (1640 m^3/s) May 14, gage height, 11.96 ft (3.645 m), no peak above base of 25,000 ft^3/s (708 m^3/s). Minimum daily flow 7.3 ft^3/s (0.21 m^3/s) Sept 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	18	408	354	16300	1040	870	531	2400	2420	31	33
2	28	19	342	337	6390	804	790	439	3910	1510	24	25
3	45	20	787	342	2720	711	815	378	3080	1080	23	19
4	55	20	713	366	1580	1760	854	337	1810	811	24	16
5	79	19	559	446	1240	6150	1100	325	1580	1180	31	20
6	53	20	434	476	951	2820	1320	288	1480	700	33	18
7	36	43	386	348	826	2280	1390	258	1230	616	37	15
8	29	42	268	309	904	1510	1260	240	1210	474	46	12
9	33	33	205	278	975	1280	1030	235	1100	364	47	10
10	49	33	194	258	916	1140	915	240	1010	304	51	8.2
11	51	42	199	240	1040	994	859	259	962	271	45	7.9
12	44	64	245	222	1090	1030	840	1200	1070	251	34	7.3
13	37	77	249	217	963	964	2270	2540	11100	237	32	7.9
14	34	93	246	222	881	951	4360	31200	14000	315	30	10
15	31	118	187	235	848	904	1760	16100	8870	327	28	885
16	28	136	160	257	836	741	1340	10200	7010	315	27	646
17	36	113	152	271	751	663	989	6720	5090	261	23	371
18	22	74	155	252	672	590	793	4740	3510	175	21	198
19	22	68	185	243	701	599	644	3670	2430	127	22	90
20	22	68	185	280	902	556	599	3390	1600	99	21	86
21	20	75	173	281	2410	531	581	6400	1050	78	23	74
22	20	137	148	279	1650	581	701	8230	934	73	4800	80
23	19	319	148	324	1360	644	2820	7370	1010	68	3300	59
24	19	212	215	317	1220	701	3060	4590	948	54	1380	59
25	19	168	412	304	1080	741	1050	3960	816	50	636	59
26	19	263	564	327	1030	1700	910	3670	962	46	309	45
27	18	672	1350	343	1280	5440	793	3360	920	42	154	36
28	18	972	1040	362	1310	3070	761	3220	1510	39	138	29
29	18	815	1300	382	---	1670	836	2990	3240	42	102	28
30	18	595	460	476	---	1330	672	2720	2900	35	64	29
31	18	---	384	2400	---	1030	---	2640	---	31	46	---
TOTAL	971	5348	12453	11748	52826	44925	36982	132440	88742	12395	11582	2983.3
MEAN	31.3	178	402	379	1887	1449	1233	4272	2958	400	374	99.4
MAX	79	972	1350	2400	16300	6150	4360	31200	14000	2420	4800	885
MIN	18	18	148	217	672	531	581	235	816	31	21	7.3
AC-FT	1930	10610	24700	23300	104800	89110	73350	262700	176000	24590	22970	5920

CAL YR 1982	TOTAL	581150	MEAN	1592	MAX	47400	MIN	18	AC-FT 1153000
WTR YR 1983	TOTAL	413395.3	MEAN	1133	MAX	31200	MIN	7.3	AC-FT 820000

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-53, 1960-61, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1965 to Jan. 1982.
WATER TEMPERATURE: July 1965 to Jan. 1982.

REMARKS.--A sample was collected bi-monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 11,400 micromhos Nov. 17, 1966; minimum daily, 205 micromhos Nov. 1, 1972.
WATER TEMPERATURE: Maximum daily, 34.0°C July 7, 1975; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
19...	1030	80020	22	1790	8.2	20.0	6.2	9.6	109	K24	150	360
DEC												
08...	1350	80020	263	1150	8.2	8.0	11	11.8	100	K200	450	320
MAR												
15...	1330	80020	947	1450	8.2	20.0	190	94.0	106	130	>1000	380
MAY												
18...	1500	80020	4450	794	7.5	21.0	600	7.4	86	>1200	>2000	220
JUL												
19...	1220	80020	135	1890	8.2	31.5	17	8.9	125	K14	K50	380
SEP												
20...	1130	80020	91	1030	7.6	19.5	95	7.6	84	K1300	K1900	220

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
19...	96	78	39	220	57	5	7.0	261	110	350	.60	6.7
DEC												
08...	105	74	32	100	40	3	6.4	212	130	150	.40	7.8
MAR												
15...	151	89	38	130	42	3	5.4	229	170	210	.50	7.6
MAY												
18...	77	54	20	57	36	2	4.6	141	87	91	.30	8.8
JUL												
19...	213	77	46	190	51	4	6.4	169	200	320	.50	7.3
SEP												
20...	68	51	22	120	54	4	5.9	151	78	190	.40	6.2

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT												
19...	972	970	1.3	58	.100	.100	.13	2.0	.190	.58	.140	.650
DEC												
08...	650	630	.88	462	.600	.410	.53	3.7	.350	1.1	.210	.180
MAR												
15...	804	790	1.1	2060	.390	.080	.10	1.4	.220	.67	.110	.110
MAY												
18...	408	410	.55	4900	.340	.150	.19	.30	.060	.18	.050	.030
JUL												
19...	1050	950	1.4	383	<.100	.050	.06	1.8	.160	.49	.020	<.010
SEP												
20...	566	570	.77	139	<.100	.020	.03	1.4	.170	.52	.050	.050

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT												
19...	2.0	10	5	310	<.5	2	<1	<3	3	11	2	34
DEC												
08...	.55	--	--	--	--	--	--	--	--	--	--	--
MAR												
15...	.34	10	2	310	<.5	<1	<1	<3	1	<3	<1	32
MAY												
18...	.09	100	1	200	<.5	<1	<1	<3	2	67	<1	17
JUL												
19...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
20...	.15	30	3	180	<.5	<1	<1	<3	3	5	1	18

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT												
19...	28	<.1	<10	4	<1	<1	1100	6	15	17	1.0	58
DEC												
08...	--	--	--	--	--	--	--	--	--	113	80	86
MAR												
15...	4	<.1	<10	<1	1	2	1100	6	5	298	762	72
MAY												
18...	9	<.1	<10	2	1	<1	540	<6	6	1300	15600	78
JUL												
19...	--	--	--	--	--	--	--	--	--	41	15	80
SEP												
20...	4	<.1	<10	1	<1	1	570	8	<3	131	32	93

ARKANSAS RIVER BASIN

07232500 BEAVER RIVER NEAR GUYMON, OK
(Headwater of the North Canadian River)

LOCATION.--Lat 36°43'24", long 101°29'30", NW 1/4 SW 1/4 sec.18, T.3 N., R.15 E., Texas County, Hydrologic Unit 11100101, near center of span on downstream side of pier of bridge on U.S. Highway 64 at Dry Sand Draw, 1.2 mi (1.9 km) upstream from Goff Creek, 2.5 mi (4.0 km) north of Guymon, and at mile 650.7 (1,047.0 km).

DRAINAGE AREA.--2,139 mi^2 (5,540 km^2), which includes that of Dry Sand Draw and of which 964 mi^2 (2,497 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1970, published as North Canadian River near Guymon.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,970.69 ft (905.466 m) revised, National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records poor.

AVERAGE DISCHARGE.--46 years, 22.8 ft^3/s (0.646 m^3/s), 16,550 acre-ft/yr (20.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,400 ft^3/s (1,570 m^3/s) June 15, 1964, gage height, 13.68 ft (4.170 m); maximum gage height, 13.82 ft (4.212 m), Sept 23, 1941, from floodmark; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 37 ft^3/s (1.05 m^3/s) Apr. 4, gage height, 4.70 ft (1.433 m), no peaks above base of 2,400 ft^3/s (68.0 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	3.2	4.2	1.3	2.0	.00	.00	.00
2	.00	.00	.00	.00	.00	3.3	4.3	1.0	1.5	.00	.00	.00
3	.00	.00	.00	.00	.85	3.4	4.0	1.1	.49	.00	.00	.00
4	.00	.00	.00	.00	.89	3.5	6.1	.93	.15	.00	.00	.00
5	.00	.00	.00	1.2	.40	3.7	6.5	1.0	2.0	.00	.00	.00
6	.00	.00	.00	3.0	.34	3.3	6.8	.83	3.6	.00	.00	.00
7	.00	.00	.00	1.4	.33	2.9	6.2	.27	3.3	.00	.00	.00
8	.00	.00	.00	2.3	1.2	2.7	5.9	.22	2.7	.00	.00	.00
9	.00	.00	.00	1.1	1.1	2.7	6.1	.58	1.9	.00	.00	.00
10	.00	.00	.00	1.3	1.8	2.9	6.0	2.3	2.4	.00	.00	.00
11	.00	.00	.00	.95	2.8	3.0	6.0	1.9	3.8	.00	.00	.00
12	.00	.00	.00	.91	5.1	2.7	5.7	1.2	1.9	.00	.00	.00
13	.00	.00	.00	.88	5.0	2.4	5.3	1.2	.69	.00	.00	.00
14	.00	.00	.00	.28	5.3	2.3	5.3	1.8	.53	.00	.00	.00
15	.00	.00	.00	1.1	5.7	2.4	5.2	2.0	.00	.00	.00	.00
16	.00	.00	.00	1.2	5.7	4.9	4.8	2.0	.00	.00	.00	.00
17	.00	.00	.00	1.6	5.9	5.5	4.7	1.7	.32	.00	.00	.00
18	.00	.00	.00	3.6	5.8	5.0	4.4	.96	.84	.00	.00	.00
19	.00	.00	.00	1.8	5.1	7.2	3.7	.85	.00	.00	.00	.00
20	.00	.00	.00	1.2	4.8	6.2	3.6	2.3	.00	.00	.00	.00
21	.00	.00	.00	.93	4.8	9.3	3.4	5.5	.00	.00	.00	.00
22	.00	.00	.00	.83	4.0	6.4	3.7	4.9	.00	.00	.00	.00
23	.00	.00	.00	.97	3.7	6.0	3.8	3.6	.00	.00	.00	.00
24	.00	.00	.00	3.1	3.4	6.2	3.5	2.5	.00	.00	.00	.00
25	.00	.00	.00	4.4	3.1	6.0	3.1	1.5	.00	.00	.00	.00
26	.00	.00	.00	4.9	3.2	6.0	2.2	1.9	.00	.00	.00	.00
27	.00	.00	.00	5.0	3.2	6.5	1.8	1.7	.00	.00	.00	.00
28	.00	.00	.00	1.9	3.3	5.0	1.6	1.2	4.5	.00	.00	.00
29	.00	.00	.00	.62	---	4.9	1.6	.70	7.0	.00	.00	.00
30	.00	.00	.00	.40	---	4.7	1.6	.98	1.4	.00	.00	.00
31	.00	---	.00	2.4	---	4.2	---	1.8	---	.00	.00	---
TOTAL	.00	.00	.00	49.27	86.81	138.4	131.1	51.72	41.02	.00	.00	.00
MEAN	.00	.00	.00	1.59	3.10	4.46	4.37	1.67	1.37	.00	.00	.00
MAX	.00	.00	.00	5.0	5.9	9.3	6.8	5.5	7.0	.00	.00	.00
MIN	.00	.00	.00	.00	.00	2.3	1.6	.22	.00	.00	.00	.00
AC-FT	.00	.00	.00	98	172	275	260	103	81	.00	.00	.00

CAL YR 1982	TOTAL	1597.60	MEAN	4.38	MAX	573	MIN	.00	AC-FT	3170
WTR YR 1983	TOTAL	498.32	MEAN	1.37	MAX	9.3	MIN	.00	AC-FT	988

ARKANSAS RIVER BASIN

07233200 OPTIMA LAKE NEAR HARDESTY, OK

LOCATION.--Lat 36°39'23", long 101°08'13", in NE 1/4 NE 1/4 sec.8, T.2 N., R.18 E., Texas County, Hydrologic Unit 11100102, in control tower for dam on Beaver River, 4.5 mi (7.2 km) northeast of Hardesty, and at mile 623.2 (1,002.7 km).

DRAINAGE AREA.--5,029 mi^2 (13,025 km^2), of which 1,788 mi^2 (4,631 km^2) is probably noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earth dam having a concrete gate tower with a 12'0" x 16'5" oblong conduit. Discharges are controlled by two drum-hoist operated tractor-type service gates and a 36 in. low-flow control pipe. Closure for storage was made Oct. 2, 1978. Capacity, 618,500 acre-ft (763 hm^3) at elevation 2,814.2 ft (857.77 m), maximum pool; 382,500 acre-ft (472 hm^3) at elevation 2,796.0 ft (852.22 m), uncontrolled spillway crest; 229,500 acre-ft (283 hm^3) at elevation 2,779.0 ft (847.04 m), top of flood-control pool; 129,000 acre-ft (159 hm^3) at elevation 2,763.5 ft (842.32 m), top of conservation pool. Figures given herein represent total contents. Reservoir is used for flood control, sediment control, and water supply. Capacity table based on original survey.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 7,610 acre-ft (9.38 hm^3) May 30 to June 2, 1980, elevation, 2,722.90 ft (829.940 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,380 acre-ft (6.63 hm^3) Oct. 1-3, elevation, 2,720.70 ft (829.269 m); minimum, 3,110 acre-ft (3.83 hm^3) Sept. 30, elevation, 2,718.00 ft (828.446 m).

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

2,718	3,110	2,721	5,670
2,719	3,870	2,722	6,660
2,720	4,730		

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5380	4910	4550	4290	4030	4730	4550	4730	4820	4820	4370	3550
2	5380	4820	4550	4290	4030	4730	4550	4730	4820	4820	4290	3480
3	5380	4820	4550	4290	4030	4730	4640	4730	4820	4820	4290	3480
4	5350	4820	4550	4290	4030	4730	4640	4730	4820	4820	4290	3480
5	5350	4820	4460	4290	4120	4730	4640	4730	4820	4820	4200	3400
6	5350	4820	4460	4200	4200	4730	4640	4640	4820	4730	4200	3400
7	5290	4820	4460	4200	4290	4730	4640	4640	4820	4730	4200	3400
8	5290	4730	4460	4200	4290	4730	4640	4640	4730	4730	4120	3400
9	5290	4730	4460	4200	4370	4730	4640	4640	4780	4730	4120	3400
10	5290	4730	4370	4200	4370	4640	4640	4640	4820	4730	4120	3400
11	5290	4730	4370	4200	4460	4640	4640	4640	4820	4640	4030	3400
12	5290	4730	4370	4200	4550	4640	4640	4640	4820	4640	4030	3400
13	5290	4730	4370	4200	4640	4640	4640	4730	4820	4640	4030	3400
14	5290	4730	4370	4200	4730	4550	4640	4730	4910	4550	3950	3400
15	5100	4730	4370	4200	4820	4550	4730	4730	4910	4550	3950	3400
16	5100	4640	4370	4120	4820	4550	4730	4730	4910	4550	3950	3400
17	5100	4640	4370	4120	4820	4550	4730	4730	4910	4550	3950	3330
18	5100	4640	4370	4120	4820	4550	4730	4730	4910	4550	3950	3330
19	5100	4640	4290	4120	4820	4550	4730	4730	4910	4550	3870	3330
20	5010	4640	4290	4120	4820	4550	4730	4820	4910	4460	3870	3250
21	5010	4550	4290	4120	4820	4550	4730	4820	4910	4460	3790	3250
22	5010	4550	4290	4120	4820	4550	4730	4780	4910	4460	3790	3250
23	5010	4550	4290	4120	4820	4550	4730	4780	4910	4460	3710	3250
24	4910	4550	4290	4120	4820	4550	4730	4780	4910	4460	3710	3250
25	4910	4550	4290	4030	4820	4550	4730	4730	4820	4460	3630	3180
26	4910	4550	4290	4030	4820	4550	4730	4730	4820	4460	3630	3180
27	4910	4550	4290	4030	4820	4550	4730	4730	4820	4370	3630	3180
28	4910	4550	4290	4030	4730	4550	4730	4730	4820	4370	3630	3180
29	4910	4550	4290	4030	---	4550	4730	4820	4820	4370	3550	3180
30	4910	4550	4290	4030	---	4550	4730	4820	4820	4370	3550	3110
31	4910	---	4290	4030	---	4550	---	4820	---	4370	3550	---
MAX	5380	4910	4550	4290	4820	4730	4730	4820	4910	4820	4370	3550
MIN	4910	4550	4290	4030	4030	4550	4550	4640	4730	4370	3550	3110
†	2,720.20	2,719.80	2,719.50	2,719.20	2,720.00	2,719.80	2,720.00	2,720.10	2,720.10	2,719.60	2,718.60	2,718.00
††	-470	-360	-260	-260	+700	-180	+180	+90	0	-450	-820	-440

CAL YR 1982 MAX 6360 MIN 3870, ++ -80
WTR YR 1983 MAX 5380 MIN 3110, ++ -2,270

† Elevation, in feet, at end of month
†† Change in contents, in acre-feet

07233210 BEAVER RIVER NEAR HARDESTY, OK
(Headwater of the North Canadian River)

LOCATION.--Lat 36°39'23", long 101°08'06", in SE 1/4 NE 1/4 sec.8, T.2 N., R.18 E., Texas County, Hydrologic Unit 11100102, on left bank of outlet channel, 500 ft (152 m) downstream from Optima Dam, 5 mi (8 km) northeast of Hardesty, and at mile 623.1 (1,002.6 km).

DRAINAGE AREA.--5,029 mi^2 (13,025 km^2), of which 1,788 mi^2 (4,631 km^2) is probably noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage 2,690.00 ft (819.912 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow completely regulated by Optima Lake (07233200).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 685 ft^3/s (19.4 m^3/s) June 8, 1978, gage height, 10.42 ft (3.176 m); no flow at times in 1978, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14 ft^3/s (0.396 m^3/s) June 10, gage height, 8.62 ft (2.627 m); minimum daily discharge, 0.01 ft^3/s (<0.001 m^3/s) Oct. 12, Nov. 4-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.03	.04	.09	.27	.04	.04	.08	.07	.08	.08	.18
2	.03	.03	.04	.09	.30	.13	.03	.08	.06	.10	.08	.10
3	.03	.02	.04	.08	.09	.25	.04	.08	.05	.10	.08	.08
4	.03	.01	.04	.07	.06	.25	.09	.11	.05	.14	.10	.08
5	.02	.01	.04	.04	.06	.12	.04	.13	.10	.10	.18	.18
6	.02	.01	.05	.04	.06	.06	.04	.06	.10	.10	.14	.14
7	.02	.01	.06	.04	.04	.06	.04	.05	.08	.10	.14	.10
8	.02	.01	.06	.04	.04	.12	.04	.06	.09	.10	.14	.10
9	.02	.02	.06	.04	.04	.18	.04	.06	.08	.08	.10	.08
10	.02	.02	.05	.04	.04	.18	.03	.06	2.1	.10	.10	.08
11	.02	.02	.03	.04	.04	.14	.04	.06	.21	.10	.10	.10
12	.01	.02	.03	.04	.04	.14	.04	.06	.08	.14	.10	.14
13	.02	.02	.03	.04	.04	.14	.05	.37	.10	.14	.08	.18
14	.02	.02	.04	.04	.04	.13	.04	.05	.10	.10	.08	.18
15	.02	.02	.04	.04	.04	.10	.04	.04	.11	.08	.06	.18
16	.02	.02	.04	.04	.04	.14	.04	.04	.15	.10	.04	.18
17	.02	.04	.04	.04	.06	.06	.04	.04	.20	.10	.04	.14
18	.02	.04	.04	.03	.06	.06	.05	.03	.14	.10	.04	.14
19	.02	.04	.04	.03	.06	.07	.14	.04	.12	.10	.04	.18
20	.02	.04	.04	.04	.06	.05	.20	.15	.10	.10	.04	.10
21	.02	.04	.04	.04	.06	.03	.15	.06	.10	.10	.04	.14
22	.02	.04	.04	.05	.06	.05	.12	.04	.10	.14	.04	.18
23	.02	.04	.04	.05	.06	.05	.10	.04	.10	.14	.04	.18
24	.02	.04	.04	.04	.06	.04	.10	.04	.10	.14	.04	.16
25	.02	.04	.04	.04	.06	.04	.08	.04	.10	.10	.04	.14
26	.02	.04	.04	.05	.05	.03	.09	.04	.10	.08	.04	.12
27	.02	.04	.08	.04	.04	.03	.10	.04	.10	.08	.04	.12
28	.03	.04	.07	.04	.04	.03	.10	.05	.18	.10	.06	.11
29	.03	.04	.06	.04	---	.03	.10	.07	.14	.14	.14	.11
30	.03	.04	.08	.04	---	.03	.10	.11	.10	.10	.08	.10
31	.03	---	.08	.07	---	.03	---	.08	---	.08	.18	---
TOTAL	.69	.85	1.46	1.45	1.91	2.81	2.15	2.26	5.21	3.26	2.50	4.00
MEAN	.02	.03	.05	.05	.07	.09	.07	.07	.17	.11	.08	.13
MAX	.03	.04	.08	.09	.30	.25	.20	.37	2.1	.14	.18	.18
MIN	.01	.01	.03	.03	.04	.03	.03	.03	.05	.08	.04	.08
AC-FT	1.4	1.7	2.9	2.9	3.8	5.6	4.3	4.5	10	6.5	5.0	7.9

CAL YR 1982	TOTAL	55.19	MEAN	.15	MAX	5.3	MIN	.01	AC-FT	109
WTR YR 1983	TOTAL	28.55	MEAN	.08	MAX	2.1	MIN	.01	AC-FT	57

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK
(Headwater of the North Canadian River)

LOCATION.--Lat 36°49'20", long 100°31'05", SW 1/4 sec.7, T.4 N., R.24 E., Beaver County, Hydrologic Unit 11100201, near right bank on downstream side of pier of bridge on U.S. Highway 270 at Beaver, 1.5 mi (2.4 km) downstream from Home Creek, 5 mi (8.0 km) upstream from Clear Creek, and at mile 576.0 (926.8 km).

DRAINAGE AREA.--7,955 mi^2 (20,603 km^2), of which 4,270 mi^2 (11,059 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1904 to December 1905 (gage heights only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as Beaver Creek at Beaver 1904-5, and October 1937 to Septebmer 1970 as North Canadian River at Beaver.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,368.16 ft (721.815 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Mar. 29, 1904, to Dec. 31, 1905, nonrecording gage at same vicinity at different datum. Mar. 1, 1938, to Sept. 30, 1946, water-stage recorder at present site at datum 3.0 ft (9.91 m) higher.

REMARKS.--Records fair except during winter periods which are poor.

AVERAGE DISCHARGE.--46 years, 94.4 ft^3/s (2.673 m^3/s), 68,390 acre-ft/yr (84.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft^3/s (1,980 m^3/s) Oct. 8, 1946, maximum gage height, 14.55 ft (4.435 m) by slope-area measurement of peak flow in overflow section and extension of rating curve for main channel above 42,000 ft^3/s (1,190 m^3/s); no flow at times in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 5,510 ft^3/s (156 m^3/s) at 1030 June 10, gage height, 10.50 ft (3.200 m), no other peak above base of 4,000 ft^3/s (113 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.15	.09	.51	14	12	30	33	.03	.00
2	.00	.00	.00	.15	.00	.63	14	9.7	27	28	.01	.00
3	.00	.00	.00	.14	.00	.84	14	9.7	22	24	.00	.00
4	.00	.00	.00	.13	.02	1.6	17	9.4	19	20	.00	.00
5	.00	.00	.00	.16	.04	3.0	19	9.6	21	17	.00	.00
6	.00	.00	.00	.19	.08	3.7	19	8.8	25	17	.00	.00
7	.00	.00	.00	.15	.16	3.5	22	6.8	62	16	.00	.00
8	.00	.00	.00	.11	.21	2.9	25	6.2	39	15	.00	.00
9	.00	.00	.08	.09	.25	1.9	25	6.3	37	13	.00	.00
10	.00	.00	.03	.08	.27	1.7	22	5.6	3700	12	.00	.00
11	.00	.00	.00	.09	.28	1.7	21	4.8	1000	9.6	.00	.00
12	.00	.00	.01	.11	.27	2.0	19	3.4	576	8.2	.00	.00
13	.00	.00	.05	.12	.30	2.1	18	8.1	499	6.6	.00	.00
14	.00	.00	.02	.08	.30	2.1	17	340	246	5.2	.00	.00
15	.00	.00	.02	.13	.32	2.1	17	85	175	4.0	.00	.00
16	.00	.00	.03	.12	.31	5.1	18	49	143	2.6	.00	.00
17	.00	.00	.01	.11	.33	8.0	17	35	136	1.7	.00	.00
18	.00	.00	.01	.09	.31	9.7	16	30	143	1.0	.00	.00
19	.00	.00	.02	.08	.29	12	15	26	112	.74	.00	.00
20	.00	.00	.04	.07	.32	13	13	35	91	.51	.00	.00
21	.00	.00	.06	.05	.32	12	13	68	76	.42	.00	.00
22	.00	.00	.05	.05	.31	14	14	61	66	.28	.00	.00
23	.00	.00	.06	.04	.29	16	14	48	61	.21	.00	.00
24	.00	.00	.05	.08	.35	17	13	41	54	.16	.00	.00
25	.00	.00	.00	.15	.35	17	13	33	48	.14	.00	.00
26	.00	.00	.04	.15	.36	17	12	28	46	.12	.00	.00
27	.00	.00	.16	.19	.39	15	10	26	43	.07	.00	.00
28	.00	.00	.13	.16	.52	14	10	27	46	.24	.00	.00
29	.00	.00	.06	.14	---	14	11	23	44	.17	.00	.00
30	.00	.00	.10	.16	---	13	12	30	38	.07	.00	.00
31	.00	---	.14	.25	---	12	---	33	---	.05	.00	---
TOTAL	.00	.00	1.17	3.77	7.04	239.08	484	1118.4	7625	237.08	.04	.00
MEAN	.00	.00	.04	.12	.25	7.71	16.1	36.1	254	7.65	.00	.00
MAX	.00	.00	.16	.25	.52	17	25	340	3700	33	.03	.00
MIN	.00	.00	.00	.04	.00	.51	10	3.4	19	.05	.00	.00
AC-FT	.00	.00	2.3	7.5	14	474	960	2220	15120	470	.08	.00

CAL YR 1982	TOTAL	6538.96	MEAN	17.9	MAX	1070	MIN	.00	AC-FT	12970
WTR YR 1983	TOTAL	9715.58	MEAN	26.6	MAX	3700	MIN	.00	AC-FT	19270

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952, 1958-59, 1962-63, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to Jan. 1982.
WATER TEMPERATURE: October 1967 to Jan. 1982.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD:
SPECIFIC CONDUCTANCE: Maximum daily, 6,720 micromhos April 6, 1981; minimum daily, 286 micromhos July 31, 1971.
WATER TEMPERATURE: Maximum daily, 38.0°C July 18, 1978; minimum -1.0°C on Dec. 22, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
DEC												
14...	1630	80020	.03	5470	8.3	6.5	1.5	11.4	103	78	81	1600
FEB												
08...	1800	80020	.28	5200	8.1	.0	3.0	13.0	101	52	400	1300
MAY												
18...	1530	80020	29	6090	8.4	18.0	16	8.8	105	55	200	920

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
DEC												
14...	1360	340	170	640	47	7	7.8	192	950	1300	.70	20
FEB												
08...	1130	300	140	570	48	7	6.8	204	830	1100	.60	19
MAY												
18...	671	200	100	960	69	14	11	245	560	1600	1.6	21

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
DEC												
14...	3680	3500	5.0	.30	<.100	<.060	.08	<.10	.050	.15	.030	.020
FEB												
08...	3260	3100	4.4	2.5	<.100	<.060	.08	.80	.040	.12	.020	.010
MAY												
18...	3650	3600	5.0	286	<.100	<.060	--	1.4	.070	.21	.070	.060

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
DEC												
14...	.06	20	2	<100	<10	<1	<1	1	1	60	1	130
FEB												
08...	.03	20	2	100	<10	1	<1	5	2	40	3	100
MAY												
18...	.18	10	5	300	<10	1	<1	1	2	30	3	160

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED, SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC												
14...	160	<.1	2	1	<1	<1	4300	3	30	8	.00	45
FEB												
08...	200	<.1	10	5	1	<1	3900	22	30	369	.28	1
MAY												
18...	30	<.1	6	2	1	<1	3700	24	20	104	8.1	60

ARKANSAS RIVER BASIN

07234100 CLEAR CREEK NEAR ELMWOOD, OK

LOCATION.--Lat 36°38'42", long 100°30'07", SW 1/4 SW 1/4 sec.8, T.2 N., R.24 E., Beaver County, Hydrologic Unit 11100201, on downstream side of right pile bent of county road bridge, 1,000 ft (304.8 m) downstream from small irrigation dam, 2.8 mi (4.5 km) northeast of Elmwood, and at mile 16.9 (27.2 km).

DRAINAGE AREA.--170 mi^2 (440 km^2).

PERIOD OF RECORD.--October 1965 to current year.

REVISED RECORDS.--WSP 2121: 1966.

GAGE.--Water-stage recorder. Datum of gage is 2,541.26 ft (774.576 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--18 years, 6.88 ft^3/s (0.195 m^3/s), 4,980 acre-ft/yr (6.14 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft^3/s (566 m^3/s) Oct. 16, 1969, gage height, 13.97 ft (4.258 m), from floodmark, from rating curve extended above 12,500 ft^3/s (343 m^3/s) on basis of slope-area measurement at gage height 13.15 ft (4.008 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 100 ft^3/s (2.83 m^3/s) June 10, gage height 8.43 ft (2.569 m) from highwater mark, no peak above base of 500 ft^3/s (14.2 m^3/s); minimum daily discharge 0.90 ft^3/s (0.025 m^3/s) Sept 26, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.2	2.2	2.2	2.4	2.2	2.9	2.3	2.2	2.3	1.6	1.3
2	2.3	2.2	2.2	2.2	2.2	2.2	2.5	2.3	2.3	2.0	1.5	1.3
3	2.1	2.2	2.2	2.2	2.2	2.2	2.6	2.3	2.1	1.9	1.3	1.4
4	2.1	2.3	2.2	2.3	2.2	2.3	3.2	2.2	2.0	2.1	1.4	1.3
5	2.0	2.3	2.2	2.3	2.2	2.3	2.9	2.2	2.9	2.0	1.2	1.2
6	1.9	2.4	2.2	2.3	2.2	2.2	2.7	2.0	2.4	2.0	1.1	1.2
7	2.0	2.4	2.2	2.3	2.2	2.1	2.6	2.0	2.3	1.8	1.0	1.3
8	2.2	2.4	2.2	2.4	2.2	2.2	2.7	2.0	2.2	1.8	1.1	1.2
9	2.1	2.4	2.3	2.4	2.3	2.2	2.6	2.0	2.5	2.0	1.0	1.2
10	2.1	2.4	2.4	2.4	2.2	2.2	2.6	2.1	54	1.9	1.0	1.1
11	2.1	2.3	2.3	2.3	2.2	2.2	2.6	2.0	45	1.8	.98	1.2
12	2.1	2.2	2.2	2.3	2.2	2.3	2.5	1.9	3.4	1.6	1.0	1.5
13	2.1	2.4	2.2	2.3	2.2	2.3	2.5	2.2	8.2	1.5	.96	1.4
14	2.0	2.4	2.2	2.2	2.3	2.3	2.4	2.5	3.5	1.5	.98	1.6
15	1.9	2.5	2.2	2.1	2.3	2.3	2.4	2.2	3.2	1.3	1.1	1.3
16	1.9	2.4	2.2	2.2	2.3	2.6	2.4	1.9	3.1	1.2	1.1	1.1
17	1.8	2.4	2.2	2.1	2.3	2.4	2.4	1.9	2.9	1.3	1.0	1.0
18	1.8	2.4	2.3	2.1	2.1	2.3	2.4	1.8	2.9	1.2	1.0	.98
19	1.8	2.3	2.3	2.2	2.1	2.6	2.4	1.8	2.7	1.2	.98	1.0
20	1.9	2.3	2.3	2.2	2.1	2.4	2.4	2.2	2.7	1.3	1.0	1.0
21	2.0	2.2	2.4	2.1	2.3	2.3	2.4	3.2	2.6	1.2	1.0	.98
22	2.0	2.3	2.4	2.1	2.2	2.5	2.5	2.6	2.5	1.1	.97	.98
23	2.0	2.3	2.3	2.1	2.1	2.5	2.4	2.3	2.2	1.1	1.1	.98
24	2.0	2.3	2.5	2.1	2.2	2.5	2.4	2.4	2.2	1.4	1.0	.96
25	2.0	2.2	2.3	2.1	2.1	2.5	2.4	2.3	2.3	1.5	.94	.92
26	2.0	2.1	2.3	2.1	2.1	2.6	2.4	2.1	2.2	1.4	.97	.90
27	2.1	2.2	2.7	2.0	2.1	2.4	2.4	2.3	2.3	1.5	1.0	.93
28	2.0	2.1	2.3	2.1	2.1	2.4	2.4	2.4	2.2	1.4	1.1	.90
29	2.0	2.1	2.1	2.1	---	2.5	2.3	2.2	2.1	1.6	1.4	.90
30	2.1	2.1	2.2	2.2	---	2.5	2.3	2.6	2.2	1.7	1.3	.90
31	2.1	---	2.1	2.4	---	2.5	---	2.7	---	1.7	1.2	---
TOTAL	62.7	68.7	70.3	68.4	61.6	73.0	75.6	68.9	175.3	49.3	34.28	33.93
MEAN	2.02	2.29	2.27	2.21	2.20	2.35	2.52	2.22	5.84	1.59	1.11	1.13
MAX	2.3	2.5	2.7	2.4	2.4	2.6	3.2	3.2	54	2.3	1.6	1.6
MIN	1.8	2.1	2.1	2.0	2.1	2.1	2.3	1.8	2.0	1.1	.94	.90
AC-FT	124	136	139	136	122	145	150	137	348	98	68	67

CAL YR 1982	TOTAL	3454.7	MEAN	9.46	MAX	1560	MIN	1.7	AC-FT 6850
WTR YR 1983	TOTAL	842.01	MEAN	2.31	MAX	54	MIN	.90	AC-FT 1670

ARKANSAS RIVER BASIN

07236500 FORT SUPPLY LAKE NEAR FORT SUPPLY, OK

LOCATION.--Lat 36°33'14", long 99°34'16", in NE 1/4 SE 1/4 sec.17, T.24 N., R.22 W., Woodward County, Hydrologic Unit 11100203, in control tower at left end of Fort Supply Dam on Wolf Creek, 2.0 mi (3.2 km) southeast of Fort Supply and at mile 5.5 (8.8 km).

DRAINAGE AREA.--1,735 mi^2 (4,494 km^2), of which 241 mi^2 (624 km^2) is probably noncontributing.

PERIOD OF RECORD.--June 1942 to current year. Prior to October 1970, published as Fort Supply Reservoir near Fort Supply.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earth dam. Outlet works consist of a 540 ft (164.6 m) uncontrolled gravity-type concrete weir, one 36-in. (914 mm) diameter gated by-pass, and one 18 ft (5.49 m) oval-shaped conduit controlled by three vertical-lift sluice gates. Regulated storage began May 4, 1942; conservation pool first filled in June 1942. Capacity, 100,700 acre-ft (124 hm^3) at elevation 2,028.0 ft (618.134 m), crest of spillway, 13,890 acre-ft (17.1 hm^3) at elevation 2,004.0 ft (610.819 m), conservation pool, designated in 1965. No storage below elevation 1,987.0 ft (605.638 m). Figures given herein represent total contents. Reservoir is used for flood control and conservation. Revised capacity table, based on survey in 1969, used since Oct. 1, 1972.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 99,500 acre-ft (123 hm^3) June 25, 1957, elevation, 2,026.97 ft (617.820 m); no contents at times November 1942 to January 1943.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,130 acre-ft (19.9 hm^3) June 17, elevation, 2,005.15 ft (611.170 m); minimum, 11,370 acre-ft (14.0 hm^3) Oct. 19, elevation 2,002.58 ft (610.860 m).

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

2,001	8,930	2,004	13,890
2,002	10,430	2,015	15,830
2,003	12,080		

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12000	11520	12400	13830	15160	14940	15340	14440	14270	15390	14020	12640
2	11910	11490	12380	13870	15240	14960	15410	14480	14230	15350	14000	12590
3	11910	11520	12410	13950	15240	15000	15340	14500	14250	15040	13950	12560
4	11910	11540	12490	14000	15300	15020	15390	14540	14250	14830	13890	12520
5	11910	11540	12520	14040	15320	15120	15410	14610	14270	14630	13850	12410
6	11790	11570	12610	14100	15350	15180	15390	14400	14270	14420	13830	12340
7	11780	11570	12560	14150	15370	15240	15350	14360	14270	14400	13810	12340
8	11790	11640	12610	14230	15350	15220	15280	14350	14290	14420	13780	12310
9	11710	11690	12750	14210	15350	15180	15040	14330	14270	14420	13740	12220
10	11720	11740	12720	14330	15350	15120	14750	14270	14610	14420	13700	12200
11	11670	11570	12790	14380	15350	15100	14520	14360	14850	14380	13660	12190
12	11670	11670	12930	14420	15350	15020	14140	14140	15530	14380	13650	12120
13	11660	11660	12970	14500	15430	14980	14000	14120	15590	14420	13590	12400
14	11660	11690	12930	14520	15300	14960	13950	14190	15810	14400	13570	12490
15	11620	11740	12990	14610	15280	14850	13910	14190	15970	14420	13530	12560
16	11660	11720	13040	14610	15200	14920	13910	14290	16090	14360	13520	12610
17	11620	11790	13090	14650	15200	14920	13890	14140	15970	14360	13440	12680
18	11640	11860	13110	14770	15220	14900	13930	14120	15710	14360	13350	12640
19	11570	11830	13170	14870	15120	15000	13890	14060	15410	14330	13280	12340
20	11570	11840	13200	14900	15020	15000	13950	14170	15060	14330	13240	12450
21	11560	11880	13260	14920	15040	15020	13980	14210	14750	14270	13200	12490
22	11560	11840	13310	14960	15100	15040	14020	14190	14560	14230	13170	12400
23	11570	11910	13390	14960	15180	15040	14140	14210	14500	14230	13150	12490
24	11590	11980	13400	14980	15180	15100	14190	14190	14520	14150	13090	12360
25	11620	11980	13420	14940	15160	15160	14400	14120	14560	14170	13020	12360
26	11660	12000	13500	15000	15140	15160	14230	14120	14610	14170	12950	12380
27	11620	12140	13550	15100	15060	15280	14270	14120	14940	14140	12880	12410
28	11520	12200	13650	15040	14980	15300	14330	14120	15100	14060	12840	12380
29	11570	12260	13700	15040	---	15280	14380	14120	15490	14040	12810	12360
30	11500	12330	13740	15060	---	15340	14500	14190	15570	14020	12730	12340
31	11520	---	13780	15100	---	15280	---	14210	---	14040	12680	---
MAX	12000	12330	13780	15100	15430	15340	15410	14610	16090	15390	14020	12680
MIN	11500	11490	12380	13830	14980	14850	13890	14060	14230	14020	12680	12120
†	2002.67	2003.14	2003.94	2004.63	2004.57	2004.72	2004.32	2004.17	2004.87	2004.08	2003.34	2003.15
††	-480	+810	+1,450	+1,320	-120	+300	-780	-290	+1,360	-1,530	-1,360	-340

CAL YR 1982 MAX 22740 MIN 11490, †† +930
WTR YR 1983 MAX 16090 MIN 11490, †† +380

† Elevation, in feet, at end of month
†† Change in contents, in acre-ft

ARKANSAS RIVER BASIN

07237000 WOLF CREEK NEAR FORT SUPPLY, OK

LOCATION.--Lat 36°34'00", long 99°33'05", SE 1/4 SE 1/4 sec.9, T.24 N., R.22 W., Woodward County, Hydrologic Unit 11100203, near left bank on downstream side of pier of bridge on U.S. Highway 270, 1.0 mi (1.6 km) southeast of Fort Supply, 1.6 mi (2.6 km) downstream from Fort Supply Dam, and at mile 3.9 (6.3 km).

DRAINAGE AREA.--1,739 mi^2 (4,504 km^2), of which 241 mi^2 (624 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Prior to October 1, 1941, published as "Near Supply".

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,958.38 ft (596.914 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). See WSP 1921 for history of changes prior to Sept. 30, 1962.

REMARKS.--Records good. Flow completely regulated since May 1942 by Fort Supply Lake (station 07236500).

AVERAGE DISCHARGE.--(Prior to regulation by Fort Supply Dam) 5 years, (water years 1938-42), 104 ft^3/s (2.95 m^3/s), 73,350 acre-ft/yr (92.9 hm^3/yr); (since regulation by Fort Supply Dam) 41 years (water years 1943-83), 56.1 ft^3/s (1.589 m^3/s), 40,640 acre-ft/yr (50.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft^3/s (402 m^3/s) June 24, 1939, gage height, 15.60 ft (4.775 m), present datum, from rating curve extended above 8,000 ft^3/s (227 m^3/s); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 19.6 ft (5.97 m), present datum, was reached prior to October 1937, from information by State Highway Department.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 206 ft^3/s (5.83 m^3/s) June 19-21, gage height, 6.59 ft (2.009 m); minimum daily discharge, .66 ft^3/s (0.019 m^3/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	2.2	1.5	1.5	22	50	53	21	21	132	1.1	.74
2	4.1	2.1	1.4	1.5	21	50	52	21	21	132	1.1	.76
3	4.0	2.1	1.4	1.5	21	50	52	20	21	131	1.1	.73
4	3.9	2.1	1.4	1.5	21	28	59	20	21	131	1.0	.70
5	3.6	2.1	1.3	1.5	21	2.2	74	35	21	131	1.0	.69
6	3.6	2.1	1.3	1.7	21	1.6	74	48	21	129	.99	.66
7	3.5	2.5	1.3	1.7	30	1.4	75	47	20	71	1.1	.72
8	3.4	1.9	1.3	2.2	41	24	120	47	20	13	1.0	.72
9	3.2	2.0	1.3	1.7	42	48	193	46	20	11	1.0	.73
10	3.2	2.0	1.5	1.6	42	48	196	46	21	9.7	1.0	.76
11	3.2	2.1	1.5	1.6	42	48	196	45	21	9.3	.93	.80
12	3.1	1.9	1.4	1.6	42	49	195	45	20	9.0	.90	.78
13	3.0	1.8	1.5	1.6	42	49	145	45	20	8.7	.93	1.5
14	3.0	1.8	1.4	1.6	54	49	95	45	20	8.5	.86	1.3
15	2.9	1.8	1.4	1.5	67	49	81	44	20	8.2	.85	1.1
16	3.2	1.8	1.3	1.6	67	50	58	44	20	8.0	.82	.96
17	3.0	1.7	1.4	1.6	67	49	56	44	95	7.9	.80	.93
18	2.9	1.7	1.4	1.6	67	50	55	44	200	6.1	.80	.89
19	3.0	1.6	1.5	1.7	67	51	56	44	205	2.3	.84	.92
20	2.8	1.3	1.5	1.6	67	50	38	45	205	1.8	.88	.89
21	2.8	2.0	1.5	8.5	67	49	21	45	174	1.6	.82	.87
22	2.8	1.2	1.5	21	45	50	21	45	109	1.5	.79	.84
23	2.7	1.3	1.6	22	2.2	50	21	45	64	1.4	.80	.90
24	2.7	1.3	1.6	22	26	50	21	44	23	1.4	.80	.89
25	2.7	1.4	1.5	22	51	51	21	44	22	1.3	.73	.90
26	2.6	1.4	1.5	22	50	51	21	44	22	1.4	.73	.91
27	2.5	1.5	1.6	22	50	51	21	34	22	1.2	.73	.90
28	2.2	1.5	1.5	22	49	51	21	21	23	1.2	.73	.91
29	2.2	1.5	1.6	21	---	51	21	21	68	1.1	.73	.93
30	2.1	1.5	1.4	21	---	51	21	21	132	1.1	.70	.93
31	2.2	---	1.5	22	---	51	---	21	---	1.1	.70	---
TOTAL	94.4	53.2	44.8	257.9	1204.2	1353.2	2133	1181	1692	974.8	27.26	26.26
MEAN	3.05	1.77	1.45	8.32	43.0	43.7	71.1	38.1	56.4	31.4	.88	.88
MAX	4.3	2.5	1.6	22	67	51	196	48	205	132	1.1	1.5
MIN	2.1	1.2	1.3	1.5	2.2	1.4	21	20	20	1.1	.70	.66
AC-FT	187	106	89	512	2390	2680	4230	2340	3360	1930	54	52

CAL YR 1982	TOTAL	17539.1	MEAN	48.1	MAX	833	MIN	1.2	AC-FT	34790
WTR YR 1983	TOTAL	9042.02	MEAN	24.8	MAX	205	MIN	.66	AC-FT	17930

ARKANSAS RIVER BASIN

07237500 NORTH CANADAIN RIVER AT WOODWARD, OK

LOCATION.--Lat 36°26'18", long 99°16'40", SE 1/4 SE 1/4 sec.25, T.23 N., R.20 W., Woodward County, Hydrologic Unit 11100301, near right bank on downstream side of pier of bridge on State Highway 15, 200 ft (61.0 m) downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 6.0 mi (9.7 km) east of Woodward, 7.2 mi (11.6 km) upstream from Indian Creek, 27.5 mi (44.2 km) downstream from Wolf Creek, and at mile 460.2 (740.5 km).

DRAINAGE AREA.--11,589 mi^2 (30,016 km^2), of which 4,812 mi^2 (12,463 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1903 to September 1905 (gage heights only), October 1905 to June 1906, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as Canadian River (North Fork) near Woodward 1903-06. Gage-height records collected in this vicinity since 1919 are contained in reports of U.S. Weather Service.

REVISED RECORDS.--WSP 1341: Drainage area. WSP 1731: 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,830.43 ft (557.915 m) National Geodetic Vertical Datum of 1929. Prior to July 1906, nonrecording gage at railway bridge 200 ft (61.0 m) upstream at different datum. Oct. 1, 1938, to Oct. 26, 1943, nonrecording gage and Oct. 27, 1943, to July 12, 1951, water-stage recorder, at site 7.8 mi (12.6 km) upstream at datum 37.01 ft (11.281 m) higher than present datum.

REMARKS.--Records fair. Some regulation since May 1942 by Fort Supply Lake on Wolf Creek 33 mi (53 km) upstream (station 07236500).

AVERAGE DISCHARGE.--45 years, (water years 1939-83), 183 ft^3/s (5.182 m^3/s), 132,600 acre-ft/yr (163 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,000 ft^3/s (1,190 m^3/s) Oct. 10, 1946, gage height, 9.80 ft (2.987 m), site and datum then in use; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 12, 1923, reached a stage of 11.0 ft (3.35 m), site and datum then in use; from reports of U.S. Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,130 ft^3/s (32.0 m^3/s) June 15, 16, gage height, 7.92 ft (2.414 m), no peak above base of 3,500 ft^3/s (99.1 m^3/s); minimum daily discharge, 2.4 ft^3/s (0.068 m^3/s) Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	8.4	15	13	38	79	136	98	84	246	25	3.7
2	14	8.5	14	14	25	79	135	94	83	233	18	3.4
3	13	8.9	12	14	22	80	139	92	80	224	16	3.4
4	12	8.9	12	14	35	91	140	89	77	214	15	3.2
5	11	8.5	12	23	35	76	157	86	75	207	14	3.3
6	10	8.6	14	18	37	53	172	89	72	202	14	2.8
7	10	8.6	13	16	36	47	178	95	70	194	14	3.0
8	19	9.2	14	17	42	43	188	95	68	155	14	2.7
9	15	11	14	18	58	50	225	93	66	109	14	2.4
10	12	12	18	19	62	73	280	92	120	95	14	2.5
11	12	12	16	19	66	75	289	91	163	86	13	6.1
12	12	10	14	21	64	76	290	90	120	80	13	3.9
13	12	9.5	15	16	65	78	290	95	343	74	12	76
14	12	8.3	16	16	64	78	236	128	878	69	11	25
15	11	8.2	15	16	68	79	195	103	1060	65	9.7	14
16	11	8.4	15	16	75	90	179	105	1060	61	9.1	11
17	9.6	9.9	16	16	80	94	162	110	696	59	8.3	10
18	9.3	14	15	16	82	92	156	137	595	54	7.6	8.1
19	8.7	14	14	21	86	93	151	128	572	51	7.5	6.2
20	9.3	10	14	18	86	97	145	121	517	45	8.2	5.1
21	12	8.9	14	18	90	97	134	156	480	42	7.8	4.8
22	12	9.1	13	19	91	97	122	132	415	38	6.5	4.8
23	12	10	14	24	81	98	121	126	336	35	5.7	5.1
24	12	10	14	32	56	99	117	120	269	32	5.5	4.9
25	12	11	12	35	58	108	115	118	221	30	5.2	5.5
26	12	12	12	36	78	136	109	120	204	29	4.8	5.6
27	11	17	18	37	78	128	106	117	192	26	5.0	4.9
28	9.9	18	16	38	79	126	104	106	272	22	4.2	4.4
29	9.5	15	12	38	---	121	102	89	263	20	3.8	4.5
30	9.8	13	13	38	---	119	100	91	227	21	3.6	4.4
31	8.3	---	12	40	---	119	---	87	---	21	3.5	---
TOTAL	358.4	320.9	438	696	1737	2771	4973	3293	9678	2839	313.0	244.7
MEAN	11.6	10.7	14.1	22.5	62.0	89.4	166	106	323	91.6	10.1	8.16
MAX	19	18	18	40	91	136	290	156	1060	246	25	76
MIN	8.3	8.2	12	13	22	43	100	86	66	20	3.5	2.4
AC-FT	711	637	869	1380	3450	5500	9860	6530	19200	5630	621	485

CAL YR 1982	TOTAL 41370.5	MEAN 113	MAX 929	MIN 8.2	AC-FT 82060				
WTR YR 1983	TOTAL 27662.0	MEAN 75.8	MAX 1060	MIN 2.4	AC-FT 54870				

ARKANSAS RIVER BASIN

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1955, 1958-59, 1961-63, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to Jan. 1982.
WATER TEMPERATURE: October 1974 to Jan. 1982.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD:
SPECIFIC CONDUCTANCE: Maximum daily, 3,760 micromhos Nov. 27, 1975; minimum daily, 348 micromhos Aug. 22, 1977.
WATER TEMPERATURE: Maximum daily, 38.0°C June 21, 1981; minimum daily 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
NOV												
09...	1445	80020	11	2630	8.4	15.0	3.4	16.6	178	250	470	740
DEC												
15...	1330	80020	15	2320	8.3	6.0	3.0	13.2	113	62	180	730
FEB												
10...	1130	80020	60	1340	8.0	3.0	39	12.7	102	100	300	370
MAY												
19...	1630	80020	126	1580	8.2	20.0	400	8.3	99	1400	K12000	340
JUL												
13...	1430	80020	73	2310	8.2	29.5	25	7.9	112	1000	2900	540
AUG												
30...	1630	80020	3.3	3300	8.9	35.0	3.1	17.4	273	K210000	>100000	890

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV												
09...	534	210	53	290	46	5	7.2	211	610	380	.70	24
DEC												
15...	499	200	55	220	40	4	5.4	228	480	340	.60	25
FEB												
10...	161	97	30	140	45	3	4.9	206	190	200	.70	20
MAY												
19...	173	85	30	190	55	5	5.9	164	190	280	.70	16
JUL												
13...	344	130	52	300	54	6	6.6	195	350	480	.90	27
AUG												
30...	770	250	63	430	51	7	7.9	117	830	640	.60	11

ARKANSAS RIVER BASIN

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
NOV												
09...	1740	1700	2.4	51	2.10	.180	.23	2.1	.940	2.9	.820	.880
DEC												
15...	1490	1500	2.0	60	1.60	.400	.52	1.5	1.30	4.0	.960	.930
FEB												
10...	815	810	1.1	131	2.80	.190	.24	2.1	.450	1.4	.290	.160
MAY												
19...	904	900	1.2	308	.340	<.060	--	2.9	.450	1.4	.080	.060
JUL												
13...	1530	1500	2.1	302	<.100	.060	.08	1.2	.120	.37	.130	.050
AUG												
30...	2350	2300	3.2	21	.160	.070	.09	2.2	.410	1.3	.120	.100

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
09...	2.7	10	3	100	<10	<1	<1	<1	1	80	2	60
DEC												
15...	2.9	--	--	--	--	--	--	--	--	--	--	--
FEB												
10...	.49	10	3	130	<.5	<1	<1	<3	2	8	2	49
MAY												
19...	.18	40	3	140	1	<1	<1	<3	3	27	1	50
JUL												
13...	.15	--	--	--	--	--	--	--	--	--	--	--
AUG												
30...	.31	<10	6	<100	<10	<1	<1	<1	3	50	1	70

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV												
09...	90	<.1	2	1	<1	<1	1600	6	20	8	.23	67
DEC												
15...	--	--	--	--	--	--	--	--	--	10	.41	80
FEB												
10...	10	<.1	<10	<1	1	<1	1000	<6	21	81	13	89
MAY												
19...	2	<.1	<10	1	1	<1	1100	7	40	621	211	95
JUL												
13...	--	--	--	--	--	--	--	--	--	56	11	95
AUG												
30...	40	.1	<1	2	1	<1	2000	11	10	9	.08	71

ARKANSAS RIVER BASIN

07238000 NORTH CANADIAN RIVER NEAR SEILING, OK

LOCATION.--Lat 36°11'06", long 98°55'15", in NW 1/4 sec.28, T.20 N., R.16 W., Major County, Hydrologic Unit 11100301, near center of span on downstream side of pier of bridge on U.S. Highway 60, 2.0 mi (3.2 km) upstream from Seiling Creek, 2.2 mi (3.5 km) north of Seiling, 2.8 mi (4.5 km) downstream from Deep Creek, and at mile 422.6 (680.0 km).

DRAINAGE AREA.--12,261 mi^2 (31,756 km^2), of which 4,847 mi (12,554 km^2) is probably noncontributing.

PERIOD OF RECORD.--July 1946 to current year.

REVISED RECORDS.--WSP 1341: Drainage area. WSP 1731: 1951 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,675.53 ft (510.702 m) National Geodetic Vertical Datum of 1929. July 1, 1946, to Aug. 17, 1964, at site 60 ft (18.3 m) downstream and prior to Oct. 1, 1954, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good. Some regulation by Fort Supply Lake on Wolf Creek 70.6 mi (113.6 km) upstream. (Station 07236500).

AVERAGE DISCHARGE.--37 years, 205 ft^3/s (5.802 m^3/s), 148,500 acre-ft/yr (183 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft^3/s (935 m^3/s) May 19, 1951, gage height, 15.61 ft (4.758 m), present datum; maximum gage height, 16.00 ft (4.877 m) Oct. 11, 1946, present datum; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,800 ft^3/s (51.0 m^3/s) Mar. 4, gage height 9.84 ft (2.999 m), no peak above base of 3,500 ft^3/s (99.1 m^3/s); no flow Sept. 6-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	14	37	34	76	120	192	150	149	260	36	.79
2	17	14	37	35	69	120	220	145	136	263	33	.63
3	16	13	36	40	64	124	205	141	131	245	27	.38
4	14	14	35	41	73	1060	197	137	124	233	25	.15
5	12	15	35	39	79	549	208	134	119	226	23	.09
6	11	16	34	40	84	254	240	131	118	218	22	.00
7	10	16	33	44	80	169	255	130	112	213	21	.00
8	12	17	33	43	84	137	252	133	108	204	20	.00
9	14	17	33	45	89	117	262	132	101	174	18	.00
10	15	19	37	44	102	106	289	130	248	131	17	.00
11	15	21	38	43	110	118	328	130	1070	115	15	8.6
12	14	20	37	44	118	117	334	128	573	105	14	12
13	14	19	38	45	117	117	334	132	352	95	14	15
14	13	20	38	44	118	114	326	474	461	87	14	32
15	12	20	37	44	119	114	279	291	880	83	13	39
16	12	20	38	44	120	162	244	207	1020	81	11	22
17	11	21	37	44	120	206	228	185	1050	79	9.7	16
18	11	22	37	45	122	175	211	183	743	74	8.9	13
19	10	24	37	48	123	157	204	194	609	69	8.5	11
20	10	25	36	47	125	167	198	182	568	63	9.5	11
21	11	26	36	54	127	164	195	261	516	58	9.4	10
22	12	25	36	53	138	151	188	262	480	55	7.8	10
23	13	25	36	52	149	153	181	209	419	50	6.2	9.7
24	15	23	36	56	133	155	173	191	352	46	5.1	9.2
25	15	24	35	63	107	163	166	177	307	43	4.3	9.4
26	14	29	34	70	103	221	160	169	289	42	3.6	10
27	13	33	39	70	118	241	156	164	250	38	2.9	9.9
28	13	36	41	71	120	208	152	158	269	35	2.4	9.0
29	13	39	39	73	---	195	151	149	329	33	1.9	8.0
30	12	39	34	71	---	184	150	140	302	34	1.4	7.4
31	13	---	36	74	---	178	---	151	---	34	1.0	---
TOTAL	405	666	1125	1560	2987	6216	6678	5500	12185	3486	405.6	274.24
MEAN	13.1	22.2	36.3	50.3	107	201	223	177	406	112	13.1	9.14
MAX	18	39	41	74	149	1060	334	474	1070	263	36	39
MIN	10	13	33	34	64	106	150	128	101	33	1.0	.00
AC-FT	803	1320	2230	3090	5920	12330	13250	10910	24170	6910	805	544

CAL YR 1982	TOTAL	62907.1	MEAN	172	MAX	2680	MIN	9.5	AC-FT 124800
WTR YR 1983	TOTAL	41487.84	MEAN	114	MAX	1070	MIN	.00	AC-FT 82290

ARKANSAS RIVER BASIN

07238500 CANTON LAKE NEAR CANTON, OK

LOCATION.--Lat 36°05'03", long 98°36'05", in SE 1/4 NE 1/4 sec.32, T.19 N., R.13 W., Blaine County, Hydrologic Unit 11100301, near right end of Canton Dam on North Canadian River, 2.0 mi (3.2 km) northwest of Canton, and at mile 394.3 (634.4 km).

DRAINAGE AREA.--12,483 mi^2 (32,331 km^2), of which 4,883 mi^2 (12,647 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1948 to current year. Prior to October 1970, published as Canton Reservoir near Canton.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earth dam. The outlet works consists of a concrete gravity, chute-type weir spillway controlled by 16 taintor gates with net length of 640 ft (195.1 m), three sluice gates and two, 24 in. (610 mm) valved pipes. Regulated storage began Apr. 15, 1948; conservation pool was first filled July 4, 1948. Capacity, 377,100 acre-ft (465 hm^3) at elevation 1,638.0 ft (499.26 m) (flood-control pool), 109,700 acre-ft (135 hm^3) at elevation 1,615.2 ft (492.31 m). (Normal water-supply pool, designated in 1965), 93,180 acre-ft (115 hm^3) at elevation 1,613.0 ft (492 m) (crest of spillway), and 14,140 acre-ft (17.4 hm^3) at elevation 1,596.5 ft (486.61 m) (conservation pool). Figures given herein represent total contents. Reservoir was designed for flood control, irrigation, and conservation, but owing to a lack of facilities, it is not being used for irrigation at this time. Revised capacity table, based on survey in 1980, used since Oct. 1, 1981.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 258,600 acre-ft (319 hm^3) May 25, 1951, elevation, 1,628.05 ft (496.230 m); mimimum since conservation pool was first filled, 867 acre-ft (1.07 hm^3) May 5, 1955, elevation, 1,585.66 ft (483.309 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 121,000 acre-ft (149 hm^3) April 1, elevation, 1,616.60 ft (492.740 m); minimum, 99,640 acre-ft (123 hm^3) Nov. 15, elevation, 1,613.88 ft (491.911 m).

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

1,609	66,710	1,615	108,200
1,611	79,350	1,617	124,400
1,613	93,180	1,619	142,000

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104900	101700	101700	102900	106600	111700	120700	112100	112100	114900	110800	106000
2	105000	101900	101800	103000	106600	111700	119800	112000	111400	113900	110700	105700
3	104800	101700	101800	102800	106400	112100	119400	111800	111700	113200	110600	105500
4	104600	101300	101800	102800	106400	112700	119600	111700	111700	112800	110300	105100
5	104500	101100	101700	103000	106500	114300	120000	111400	112100	112300	110200	105100
6	104400	101100	102100	103100	106800	114500	119800	111600	112100	111700	110100	104700
7	104100	100800	101800	103200	106900	115500	119600	111500	112000	111700	109900	104600
8	104800	101100	101800	103100	107000	116300	119200	111400	111900	112000	109800	104200
9	104700	100900	102200	103400	107200	116500	118600	111400	111700	112100	109600	104000
10	104400	101000	101900	103400	107300	116500	118000	111400	112100	112300	109400	103900
11	104200	101300	101700	103400	107600	116700	117800	111400	114900	112500	109200	103900
12	104100	101300	101500	103400	107600	116900	117300	112000	116200	112500	109400	103800
13	104000	100900	101900	103400	107800	117000	117200	115300	117500	112500	109500	104400
14	103900	101100	101900	103700	107900	117300	116500	118600	118400	112400	109400	104500
15	103700	100200	101800	103600	108300	117900	116100	119300	118800	112300	109200	104400
16	103500	100400	101800	103600	108500	118200	115200	119800	118600	112300	109000	104200
17	103400	100300	102100	103700	108700	118600	114100	117800	118800	112400	108700	103900
18	103000	100300	101900	103700	108800	118800	113300	117200	119000	112400	108500	103500
19	103100	100300	102100	103800	109100	119000	112500	117100	118800	112300	108500	104300
20	103000	100500	102200	104000	109500	119800	111500	117400	118200	112200	108300	104700
21	102800	100500	102300	104200	110200	119800	111600	118900	117500	112100	108100	103200
22	102800	100800	102300	104400	110300	119300	112100	119000	116900	112100	107800	103100
23	102500	100900	102300	104300	110600	119000	112100	119800	116400	111800	107600	102400
24	102400	100400	102400	104400	111000	118600	112000	118800	115600	111700	107400	102200
25	102400	100200	102700	104400	111000	118400	111700	117900	115100	111700	107100	102400
26	101800	100500	102400	105000	111000	119800	111800	116800	114900	111600	107000	102400
27	101700	101100	103100	104700	111200	120100	112000	116100	115300	111100	106800	102100
28	102300	101300	103100	104900	111500	119600	112100	115200	115700	111000	106600	102100
29	101800	101100	102800	105300	---	119300	112100	114400	116100	110900	106300	101900
30	101700	101500	102800	105200	---	119300	112100	113500	115600	110800	106300	101800
31	101600	---	102800	105500	---	119600	---	113300	---	110800	106200	---
MAX	105000	101900	103100	105500	111500	120100	120700	119800	119000	114900	110800	106000
MIN	101600	100200	101500	102800	106400	111700	111500	111400	111400	110800	106200	101800
†	1,614.14	1,614.12	1,614.30	1,614.65	1,615.42	1,616.42	1,615.50	1,615.65	1,615.93	1,615.33	1,614.74	1,614.16
††	-3,400	-100	+1,300	+2,700	+6,000	+8,100	-7,500	+1,200	+2,300	-4,800	-4,600	-4,400

CAL YR 1982 MAX 126900 MIN 47070, †† +55,690
WTR YR 1983 MAX 120700 MIN 100200, †† -3,200

† Elevation, in feet, at end of month
†† Change in contents, in acre-ft

ARKANSAS RIVER BASIN

360544098354701 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 1

LOCATION.--Lat 36°05'44", long 98°35'47".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Samples were collected quarterly in a Kemmerer sampler. Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
NOV												
03...	1000	80020	102000	1.00	1560	8.4	12.5	24	9.4	91	410	220
03...	1010	1028	102000	5.00	1440	8.3	12.0	--	9.1	87	--	--
03...	1014	1028	102000	10.0	1520	8.3	12.5	--	9.1	88	--	--
03...	1018	80020	102000	15.0	1510	8.3	12.5	28	9.0	87	410	231
03...	1021	1028	102000	20.0	1450	8.2	12.5	--	9.0	87	--	--
03...	1025	1028	102000	25.0	1430	8.3	12.5	--	7.9	77	--	--
03...	1030	80020	102000	30.0	1500	8.3	12.5	180	7.5	73	400	213
MAR												
31...	0906	80020	120000	1.00	1450	8.4	6.5	18	11.6	102	450	252
31...	0911	1028	120000	5.00	1490	8.4	6.5	--	11.5	101	--	--
31...	0914	1028	120000	10.0	1500	8.4	6.0	--	11.5	100	--	--
31...	0917	80020	120000	15.0	1500	8.4	6.0	25	11.4	99	440	242
31...	0920	1028	120000	20.0	1490	8.4	6.0	--	11.4	99	--	--
31...	0923	1028	120000	25.0	1480	8.3	6.5	--	11.3	99	--	--
31...	0929	80020	120000	30.0	1490	8.3	6.0	2200	11.3	98	440	244
JUN												
21...	1015	1028	118000	35.0	1540	7.0	23.5	--	7.2	88	--	--
21...	1017	1028	118000	15.0	1530	7.1	23.5	--	7.9	96	--	--
21...	1020	1028	118000	5.00	1540	6.9	23.5	--	7.8	95	--	--
SEP												
22...	0850	80020	103000	5.00	1600	9.9	19.5	9.8	8.8	99	420	256
22...	0910	1028	103000	10.0	1600	9.9	19.0	--	8.6	96	--	--
22...	0930	80020	103000	15.0	1610	10.4	19.5	12	8.5	96	420	254
22...	0940	1028	103000	20.0	1590	10.3	19.5	--	8.5	96	--	--
22...	0950	1028	103000	25.0	1610	10.6	19.5	--	8.5	96	--	--
22...	1000	80020	103000	30.0	1600	10.4	19.5	16	8.1	91	420	258

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
NOV												
03...	100	39	150	44	3	8.5	191	1.5	280	210	917	1.2
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	100	40	150	43	3	8.6	184	1.8	260	200	886	1.2
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	99	38	150	44	3	8.3	191	1.8	270	210	919	1.2
MAR												
31...	110	42	150	42	3	8.1	196	1.5	290	200	842	1.1
31...	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--	--
31...	110	40	150	42	3	7.7	198	1.5	280	200	926	1.3
31...	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--	--
31...	110	40	150	42	3	7.5	196	1.9	270	210	801	1.1
JUN												
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
22...	100	41	170	46	4	8.5	163	.0	300	250	995	1.4
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	100	41	170	46	4	8.2	165	.0	290	260	994	1.4
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	100	42	170	46	4	8.3	165	.0	300	260	996	1.4

ARKANSAS RIVER BASIN

360558098351501 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 2

LOCATION.--Lat 36°05'58", long 98°35'15".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1020	1028	102000	1.00	1540	8.4	13.0	9.7	95
03...	1023	1028	102000	5.00	1460	8.4	12.5	9.3	90
03...	1027	1028	102000	10.0	1450	8.3	12.5	9.2	89
03...	1030	1028	102000	15.0	1440	8.3	12.5	9.2	89
03...	1040	1028	102000	20.0	1450	8.3	12.5	9.2	89
03...	1045	1028	102000	25.0	1450	8.3	12.5	8.9	86
03...	1101	1028	102000	30.0	1480	8.3	12.5	8.8	85
MAR									
31...	0942	1028	120000	1.00	1470	8.6	6.5	11.2	98
31...	0944	1028	120000	5.00	1480	8.6	6.5	11.4	100
31...	0946	1028	120000	10.0	1480	8.5	6.5	11.3	99
31...	0948	1028	120000	15.0	1490	8.5	6.0	11.3	98
31...	0950	1028	120000	20.0	1500	8.5	6.0	11.2	97
31...	0953	1028	120000	25.0	1490	8.4	6.0	11.2	97
JUN									
21...	1045	1028	118000	40.0	1540	7.0	23.5	6.9	84
21...	1050	1028	118000	20.0	1500	7.2	23.5	8.1	99
21...	1101	1028	118000	5.00	1520	7.2	23.5	8.0	98
SEP									
22...	1030	1028	103000	5.00	1610	10.1	19.5	8.9	100
22...	1032	1028	103000	10.0	1610	10.0	19.5	8.8	99
22...	1034	1028	103000	15.0	1610	10.2	19.5	8.8	99
22...	1036	1028	103000	20.0	1620	10.2	19.5	8.5	96
22...	1038	1028	103000	25.0	1620	10.3	19.5	8.4	95
22...	1040	1028	103000	30.0	1620	10.0	20.5	8.6	99
22...	1042	1028	103000	35.0	1630	10.0	19.5	8.9	100

ARKANSAS RIVER BASIN

360612098344001 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 3

LOCATION.--Lat 36°06'12", long 98°34'40".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1105	1028	102000	1.00	1530	8.5	12.0	10.4	100
03...	1107	1028	102000	5.00	1440	8.6	12.0	10.0	96
03...	1110	1028	102000	10.0	1400	8.4	12.0	9.8	94
03...	1112	1028	102000	15.0	1410	8.4	12.0	9.7	93
03...	1114	1028	102000	20.0	1390	8.4	12.5	9.6	93
03...	1115	1028	102000	25.0	1450	8.4	12.5	9.3	90
MAR									
31...	1010	1028	120000	1.00	1500	8.6	6.5	11.0	97
31...	1011	1028	120000	5.00	1500	8.6	6.0	11.1	96
31...	1014	1028	120000	10.0	1490	8.6	6.0	11.2	97
31...	1016	1028	120000	15.0	1490	8.5	6.5	11.1	97
31...	1020	1028	120000	20.0	1470	8.5	6.5	11.2	98
31...	1022	1028	120000	23.0	1470	8.5	6.5	11.0	97
JUN									
21...	1135	1028	118000	13.0	1530	7.1	23.5	6.8	83
21...	1140	1028	118000	7.00	1530	6.9	23.5	7.4	90
21...	1144	1028	118000	3.00	1530	6.9	23.5	8.0	98
SEP									
22...	1100	1028	103000	5.00	1600	10.1	20.0	8.1	92
22...	1102	1028	103000	10.0	1610	10.1	19.5	8.4	95

ARKANSAS RIVER BASIN

360744098364101 CANTON LAKE CROSS SECTION NO. 2 SITE NO. 1

LOCATION.--Lat 36°07'44", long 98°36'41".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1204	1028	102000	1.00	1500	8.3	12.5	10.0	97
03...	1206	1028	102000	5.00	1440	8.3	12.5	10.2	99
03...	1208	1028	102000	10.0	1440	8.3	12.0	10.0	96
03...	1210	1028	102000	15.0	1390	8.4	12.0	10.0	96
03...	1213	1028	102000	18.0	1440	8.4	12.0	7.5	72
MAR									
31...	1043	1028	120000	1.00	1460	8.5	7.5	11.2	101
31...	1045	1028	120000	5.00	1460	8.4	8.0	11.6	106
31...	1048	1028	120000	10.0	1480	8.4	7.0	11.5	102
31...	1050	1028	120000	15.0	1480	8.4	7.5	11.5	104
31...	1051	1028	120000	18.0	1480	8.4	7.5	11.4	103
JUN									
21...	1215	1028	118000	12.0	1520	7.0	24.0	8.1	100
21...	1220	1028	118000	7.00	1520	7.0	24.5	8.8	109
21...	1230	1028	118000	3.00	1530	7.0	24.5	8.4	104
SEP									
22...	1150	1028	103000	5.00	1620	10.0	20.5	9.6	110
22...	1158	1028	103000	10.0	1620	10.3	21.0	10.6	123

ARKANSAS RIVER BASIN

360808098362101 CANTON LAKE CROSS SECTION NO. 2 SITE NO. 2

LOCATION.--Lat 36°08'08", long 98°36'21".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1200	1028	102000	1.00	1550	8.4	12.0	10.6	102
03...	1204	1028	102000	5.00	1470	8.4	12.0	10.0	96
03...	1207	1028	102000	10.0	1460	8.4	12.5	9.6	93
03...	1211	1028	102000	15.0	1500	8.4	11.0	9.0	84
03...	1220	1028	102000	16.0	1510	8.4	11.0	7.0	66
MAR									
31...	1102	1028	120000	1.00	1480	8.4	7.5	11.4	103
31...	1105	1028	120000	5.00	1480	8.4	7.5	11.8	106
31...	1109	1028	120000	10.0	1500	8.3	7.0	11.7	104
31...	1110	1028	120000	16.0	1490	8.3	7.0	11.6	103
JUN									
21...	1401	1028	118000	18.0	1520	7.1	24.0	7.1	87
21...	1408	1028	118000	10.0	1450	7.1	24.0	7.8	96
21...	1420	1028	118000	5.00	1490	7.0	24.0	7.9	97
SEP									
22...	1210	1028	103000	5.00	1610	10.2	20.0	10.4	119
22...	1230	1028	103000	10.0	1620	10.3	20.5	9.6	110
22...	1235	1028	103000	15.0	1620	10.2	20.5	8.4	97

ARKANSAS RIVER BASIN

360828098360501 CANTON LAKE CROSS SECTION NO. 2 SITE NO. 3

LOCATION.--Lat 36°08'28", long 98°36'05".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1249	1028	102000	1.00	1540	8.4	12.0	9.7	93
03...	1251	1028	102000	5.00	1450	8.4	12.5	9.6	93
03...	1253	1028	102000	10.0	1450	8.4	12.5	9.6	93
03...	1255	1028	102000	15.0	1420	8.4	12.5	9.3	90
03...	1258	1028	102000	18.0	1530	8.4	12.5	8.3	81
MAR									
31...	1120	1028	120000	1.00	1480	8.4	7.5	11.7	105
31...	1122	1028	120000	5.00	1480	8.3	7.5	11.8	106
31...	1125	1028	120000	10.0	1480	8.4	7.0	11.8	105
31...	1127	1028	120000	16.0	1490	8.4	7.0	11.7	104
JUN									
21...	1510	1028	118000	13.0	1530	7.1	24.0	7.2	89
21...	1514	1028	118000	8.00	1510	7.1	24.0	7.6	94
21...	1545	1028	118000	4.00	1510	7.1	24.0	7.9	97
SEP									
22...	1240	1028	103000	5.00	1590	10.1	20.0	9.8	112
22...	1245	1028	103000	10.0	1610	10.2	19.0	9.4	105
22...	1248	1028	103000	15.0	1580	10.3	20.5	9.8	113

ARKANSAS RIVER BASIN

360809098391601 CANTON LAKE CROSS SECTION NO. 3 SITE NO. 1

LOCATION.--Lat 36°08'09", long 98°39'16".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1313	1028	102000	1.00	1530	8.2	12.0	--	--
03...	1315	1028	102000	8.00	1480	8.2	12.0	--	--
MAR									
31...	1142	1028	120000	1.00	1490	8.4	8.0	11.8	108
31...	1144	1028	120000	7.00	1490	8.4	8.0	11.9	108
JUN									
21...	1605	1028	118000	8.00	1440	7.1	26.0	6.8	87
21...	1607	1028	118000	2.00	1460	7.0	26.0	6.7	86
SEP									
22...	1300	1028	103000	5.00	1600	10.1	19.5	9.2	104

ARKANSAS RIVER BASIN

360828098390701 CANTON LAKE CROSS SECTION NO. 3 SITE NO. 2

LOCATION.--Lat 36°08'28", long 98°39'07".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1317	1028	102000	1.00	1550	8.2	11.5	8.5	81
03...	1320	1028	102000	8.00	1520	8.1	12.0	8.5	82
MAR									
31...	1155	1028	120000	1.00	1460	8.8	9.5	11.8	111
31...	1157	1028	120000	5.00	1470	8.7	8.5	12.0	111
31...	1158	1028	120000	8.00	1490	8.6	8.5	11.5	106
JUN									
21...	1620	1028	118000	3.00	1450	7.1	25.0	7.4	93
SEP									
22...	1310	1028	103000	5.00	1600	10.1	19.0	9.2	103

ARKANSAS RIVER BASIN

360844098390000 CANTON LAKE CROSS SECTION NO. 3 SITE NO. 3

LOCATION.--Lat 36°08'44", long 98°39'00".

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly at depth intervals of 5 feet.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
03...	1325	1028	102000	1.00	1540	8.1	12.0	9.4	90
03...	1328	1028	102000	6.00	1480	8.1	12.5	9.6	93
MAR									
31...	1210	1028	120000	1.00	1470	8.6	10.0	12.0	115
31...	1212	1028	120000	5.00	1460	8.6	9.5	12.0	113
31...	1214	1028	120000	10.0	1460	8.6	8.0	12.0	109
JUN									
21...	1705	1028	118000	5.00	1460	7.0	25.5	7.6	96
SEP									
22...	1320	1028	103000	5.00	1640	10.2	18.5	9.7	107
22...	1322	1028	103000	10.0	1610	10.1	19.5	10.3	116

ARKANSAS RIVER BASIN

07239000 NORTH CANADIAN RIVER AT CANTON, OK

LOCATION.--Lat 36°04'45", long 98°35'25", in NE 1/4 SW 1/4 sec.33, T.19 N., R.13 W., Blaine County, Hydrologic Unit 11100301, on right bank 2,700 ft (823.0 m) downstream from Canton Dam, 1.5 mi (2.4 km) northwest of Canton, 4.8 mi (7.7 km) upstream from Minnehaha Creek, and at mile 393.8 (633.6 km).

DRAINAGE AREA.--12,484 mi^2 (32,334 km^2), of which 4,883 mi^2 (12,647 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1914 are contained in reports of U.S. Weather Service.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,562.50 ft (476.250 m), Corps of Engineers datum. Oct. 1, 1937, to Jan. 5, 1955, water-stage recorder at site 2.5 mi (4.0 km) downstream at datum 1.91 ft (0.582 m) lower prior to Oct. 1, 1950, and at datum 6.91 ft (2.106 m) lower thereafter.

REMARKS.--Records fair. Flow partly regulated by Fort Supply Lake (station 07236500) for period May 1942 to April 1948 and completely regulated thereafter by Canton Lake (station 07238500).

AVERAGE DISCHARGE.--(Prior to regulation by Canton Dam) 11 years (water years 1938-48), 256 ft^3/s (7,250 m^3/s), 185,500 acre-ft/yr (229 hm^3/yr); (since regulation by Canton Dam) 35 years (water years 1949-83), 159 ft^3/s (4.503 m^3/s), 115,200 acre-ft/yr (142 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft^3/s (702 m^3/s) Oct. 12, 1946, gage height, 12.83 ft (3.911 m), site and datum then in use; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 13, 1923, reached a stage of 16.8 ft (5.121 m), at site 300 ft (91.4 m) upstream from former site at datum 1.91 ft (0.582 m) lower than present datum, from reports of U.S. Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 927 ft^3/s (26.3 m^3/s) May 17, gage height, 8.46 ft (2.579 m); minimum daily discharge, 4.4 ft^3/s (0.125 m^3/s) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	9.2	7.2	5.0	7.1	6.5	312	153	431	555	18	11
2	19	9.1	7.2	5.4	6.8	6.9	304	152	193	554	18	10
3	19	8.6	7.2	5.7	6.6	7.3	299	150	78	555	20	10
4	17	8.5	7.2	5.6	6.8	7.3	301	148	21	554	18	10
5	19	8.5	7.1	5.3	6.8	6.3	306	111	20	509	15	11
6	16	8.5	7.1	5.0	6.6	5.3	371	79	61	276	13	11
7	14	8.8	7.1	5.3	6.6	5.1	576	78	99	25	12	13
8	14	9.0	7.2	5.0	6.2	5.0	570	77	98	23	13	14
9	11	9.0	7.2	4.7	6.0	5.2	567	76	96	21	11	12
10	10	8.9	7.4	4.4	6.1	5.0	563	51	96	19	11	12
11	10	8.9	7.0	4.6	6.2	5.1	559	11	142	19	11	11
12	9.8	8.5	7.0	4.5	6.3	5.5	557	8.2	126	17	12	11
13	9.3	8.6	6.8	4.7	6.6	5.5	555	8.1	116	16	13	12
14	9.1	8.6	6.8	5.3	6.7	6.0	551	8.0	170	14	14	10
15	9.1	8.8	6.7	5.4	6.5	6.0	642	8.1	433	14	13	11
16	9.4	8.2	6.7	5.4	6.2	6.1	771	326	593	15	12	13
17	9.4	7.9	6.8	5.5	6.0	5.3	757	920	741	15	11	12
18	9.4	8.0	6.6	5.6	6.5	4.7	743	571	827	16	11	12
19	9.4	8.0	6.5	5.7	6.9	4.8	720	21	827	15	11	11
20	9.4	8.0	6.5	5.7	6.8	5.3	526	11	831	15	11	11
21	9.4	8.0	6.1	6.2	7.0	156	176	11	823	14	11	11
22	9.3	7.9	6.0	6.0	7.1	327	169	11	835	14	11	11
23	9.3	7.6	5.9	5.9	7.1	329	167	272	812	13	12	12
24	9.4	7.6	5.9	6.2	7.0	330	165	705	766	12	12	12
25	9.4	7.5	5.8	6.3	6.8	330	162	696	584	12	13	12
26	9.5	7.7	5.7	6.6	6.5	337	159	692	531	12	12	12
27	9.7	8.1	6.4	6.4	6.3	315	158	683	121	13	11	13
28	9.7	7.4	5.9	6.5	6.4	312	157	674	116	16	12	13
29	9.5	7.2	5.7	6.3	---	311	155	665	298	19	13	13
30	9.3	7.2	5.3	6.5	---	312	154	652	551	17	12	13
31	9.2	---	5.0	7.0	---	310	---	632	---	16	11	---
TOTAL	359.0	247.8	203.0	173.7	184.5	3483.2	12172	8660.4	11436	3405	398	350
MEAN	11.6	8.26	6.55	5.60	6.59	112	406	279	381	110	12.8	11.7
MAX	22	9.2	7.4	7.0	7.1	337	771	920	835	555	20	14
MIN	9.1	7.2	5.0	4.4	6.0	4.7	154	8.0	20	12	11	10
AC-FT	712	492	403	345	366	6910	24140	17180	22680	6750	789	694

CAL YR 1982	TOTAL	29051.7	MEAN	79.6	MAX	859	MIN	2.8	AC-FT	57620
WTR YR 1983	TOTAL	41072.6	MEAN	113	MAX	920	MIN	4.4	AC-FT	81470

ARKANSAS RIVER BASIN

07239200 NORTH CANADIAN RIVER NEAR WATONGA, OK

LOCATION.--Lat 35°50'30", long 98°28'00", on the north line of sec.27, T.16 N., R.12 W., Blaine County, Hydrologic Unit 11100301, on right bank on downstream side of bridge pier on U.S. Highways 270 and 281, 2.5 mi (4.0 km) west of Watonga, and at mile 364.9 (587.1 km).

DRAINAGE AREA.--12,692 mi^2 (20,421 km^2), of which 4,899 mi^2 (7,882 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,468.60 ft (447.629 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum 3,990 ft^3/s (113 m^3/s) July 3, 1981, gage height, 13.99 ft (4.264 m); minimum daily discharge 2.4 ft^3/s (0.068 m^3/s) June 29, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 980 ft^3/s (27.8 m^3/s) May 18, gage height, 9.50 ft (2.896 m); minimum daily discharge, 4.5 ft^3/s (0.13 m^3/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	11	11	14	20	16	278	160	619	520	21	12
2	20	11	11	15	22	16	280	157	413	605	21	11
3	17	12	11	15	14	16	266	157	198	587	21	11
4	16	12	11	14	18	16	260	157	96	493	16	11
5	15	12	11	14	16	18	345	157	74	493	16	10
6	17	12	11	13	16	19	308	116	67	488	16	10
7	17	12	11	13	15	18	380	103	103	256	18	9.9
8	20	12	11	14	16	16	490	100	103	73	16	9.9
9	14	11	13	14	16	15	498	100	103	58	15	9.0
10	11	11	14	13	16	15	506	99	149	53	15	9.0
11	11	11	14	13	15	14	506	72	149	44	15	9.0
12	9.9	11	12	13	15	13	491	53	619	42	15	11
13	8.6	11	14	12	15	13	491	123	202	37	15	21
14	8.1	10	15	12	15	12	483	480	202	36	24	20
15	8.5	10	13	14	15	13	482	270	336	36	16	15
16	8.6	10	13	8.0	15	13	619	125	536	36	15	14
17	9.9	10	13	6.0	15	14	728	480	619	32	14	14
18	10	11	13	4.5	15	14	680	980	767	30	14	13
19	9.4	11	12	5.0	15	14	707	413	864	29	14	13
20	9.4	11	12	13	15	14	668	125	860	29	18	14
21	9.4	10	13	9.9	16	14	514	193	837	26	15	14
22	9.9	9.6	13	9.4	17	150	268	134	834	26	15	13
23	10	9.8	13	9.0	18	280	171	76	818	25	14	13
24	10	10	14	11	18	270	171	311	804	22	14	13
25	10	10	13	11	17	272	160	700	640	21	13	14
26	9.8	11	13	14	17	366	160	714	556	21	14	14
27	11	11	16	14	16	303	160	694	452	21	14	14
28	12	11	16	12	16	266	164	697	259	21	13	13
29	11	11	14	11	---	272	160	697	144	21	13	13
30	11	11	13	10	---	276	160	785	345	21	12	12
31	11	---	16	13	---	276	---	704	---	29	12	---
TOTAL	378.5	326.4	400	363.8	454	3044	11554	10132	12768	4231	484	379.8
MEAN	12.2	10.9	12.9	11.7	16.2	98.2	385	327	426	136	15.6	12.7
MAX	23	12	16	15	22	366	728	980	864	605	24	21
MIN	8.1	9.6	11	4.5	14	12	160	53	67	21	12	9.0
AC-FT	751	647	793	722	901	6040	22920	20100	25330	8390	960	753

CAL YR 1982	TOTAL	35232.9	MEAN	96.5	MAX	1870	MIN	8.1	AC-FT	69880
WTR YR 1983	TOTAL	44515.5	MEAN	122	MAX	980	MIN	4.5	AC-FT	88300

ARKANSAS RIVER BASIN

07239500 NORTH CANADIAN RIVER NEAR EL RENO, OK

LOCATION.--Lat 35°33'44", long 97°57'32", on east line of sec.32, T.13 N., R.7 W., Canadian County, Hydrologic Unit 11100301, near left bank on downstream side of pier of bridge on old U.S. Highway 81, 2.0 mi (3.2 km) north of courthouse in El Reno, 2.2 mi (3.5 km) downstream from Target Creek, and at mile 307.4 (494.6 km).

DRAINAGE AREA.--13,042 mi^2 (33,779 km^2) of which 4,899 mi^2 (12,688 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1902 to April 1908, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at site 1.0 mi (1.6 km) upstream March 1914 to March 1934 and at present site thereafter are contained in reports of U.S. Weather Service. Published as Canadian River (North Fork) near El Reno 1902-4.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,299.02 ft (395.941 m) National Geodetic Vertical Datum of 1929. October 1902 to April 1908, nonrecording gage at site about 50 ft (15.2 m) downstream at different datum.

REMARKS.--Records good. Some regulation by Fort Supply Lake (station 07236500) for period May 1942 to April 1948 and by Canton Lake (station 07238500) thereafter.

AVERAGE DISCHARGE.--(Prior to regulation by Canton Lake) 16 years (water years 1903-07, 1938-48), 264 ft^3/s (7.476 m^3/s), 191,300 acre-ft/yr (236 hm^3/yr); (since regulation by Canton Lake) 35 years (water years 1949-83), 193 ft^3/s (5.466 m^3/s), 139,800 acre-ft/yr (172 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft^3/s (425 m^3/s) Oct. 28, 1941, gage height, 15.98 ft (4.871 m); maximum gage height, 18.20 ft (5.547 m) Sept. 21, 1965; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1923, reached an elevation of 1,326.3 ft (404.256 m) above mean sea level at railroad bridge 1.0 mi (1.6 km) above station, from reports of U.S. Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,290 ft^3/s (64.9 m^3/s) June 13, gage height, 9.55 ft (2.911 m); minimum daily discharge, 5.3 ft^3/s (0.150 m^3/s) on Oct. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	12	24	16	25	34	258	133	822	233	34	15
2	18	12	23	15	30	34	258	128	650	453	36	14
3	18	12	22	14	33	34	267	126	493	450	38	13
4	19	12	21	14	35	35	254	138	305	439	27	12
5	20	12	21	13	36	38	506	150	187	429	34	11
6	18	12	20	14	32	38	622	152	142	426	34	10
7	17	12	20	18	34	37	436	148	113	418	26	9.0
8	16	13	20	19	30	37	355	124	95	327	23	8.7
9	14	13	19	19	36	36	494	119	110	152	23	8.2
10	15	14	20	18	40	34	517	118	111	121	22	7.9
11	17	18	20	18	39	31	514	117	955	111	22	8.0
12	18	19	19	18	36	31	506	117	1900	107	24	8.3
13	17	17	19	18	35	31	497	118	2080	99	27	8.6
14	15	16	20	17	34	31	497	625	1040	92	27	8.5
5	14	16	20	16	34	31	491	1170	768	87	27	8.4
16	10	15	19	17	33	31	480	896	489	82	27	8.2
17	7.1	15	19	17	33	31	532	896	580	79	27	8.0
18	7.2	15	19	17	33	31	668	942	666	75	27	7.5
19	7.0	16	18	19	33	31	674	1070	757	71	28	7.5
20	6.9	16	17	19	33	32	658	714	804	67	532	10
21	6.5	16	17	21	34	31	644	1210	769	65	257	10
22	6.4	16	18	19	35	31	517	1290	750	62	45	11
23	6.2	16	18	21	35	31	494	581	742	60	29	12
24	5.9	15	20	23	37	110	514	308	729	58	25	11
25	5.7	15	19	20	38	196	282	257	730	56	23	10
26	5.3	21	18	23	36	461	225	621	693	51	22	9.9
27	5.8	25	20	24	35	509	195	704	570	46	21	9.0
28	9.3	26	21	25	35	360	181	660	787	42	20	8.2
29	12	25	19	26	---	278	154	628	462	41	19	7.7
30	8.9	24	17	25	---	260	139	669	251	39	18	7.4
31	11	---	17	27	---	258	---	1040	---	37	17	---
TOTAL	374.2	486	604	590	959	3193	12829	15969	19550	4875	1561	288.0
MEAN	12.1	16.2	19.5	19.0	34.3	103	428	515	652	157	50.4	9.60
MAX	20	26	24	27	40	509	674	1290	2080	453	532	15
MIN	5.3	12	17	13	25	31	139	117	95	37	17	7.4
AC-FT	742	964	1200	1170	1900	6330	25450	31670	38780	9670	3100	571

CAL YR 1982	TOTAL 73377.2	MEAN 201	MAX 5630	MIN 5.3	AC-FT 145500				
WTR YR 1983	TOTAL 61278.2	MEAN 168	MAX 2080	MIN 5.3	AC-FT 121500				

ARKANSAS RIVER BASIN

07240000 LAKE HEFNER CANAL NEAR OKLAHOMA CITY, OK

LOCATION.--Lat 35°33'11", long 98°57'11", in SW 1/4 SW 1/4 sec.34, T.13 N., R.4 W., Oklahoma County, Hydrologic Unit 11050002, attached to left wing wall just downstream from outlet of inverted siphon, 2,600 ft (792.5 m) upstream from Lake Hefner, 3.0 mi (4.8 km) northeast of Bethany, and 7.6 mi (12.2 km) northwest of the State Capitol in Oklahoma City.

PERIOD OF RECORD.--March 1944 to current year.

REVISED RECORDS.--WDR OK-80-1: 1968-80 (Datum).

GAGE.--Water stage recorder and concrete control. Datum of gage is 1,196.06 ft (364.559 m) National Geodetic Vertical Datum of 1929 (revised). Prior to Apr. 8, 1947, nonrecording gage at site 2.7 mi (4.3 km) upstream at different datum. Apr. 8, 1947, to Apr. 30, 1950, water-stage recorder at site 3.0 mi (4.8 km) upstream at different datum. May 1, 1950 to May 19, 1954, Apr. 26, 1957 to Feb. 19, 1968 at present site and datum 4.90 ft (1.494 m) higher. May 20, 1954 to Apr. 25, 1957, water-stage recorder and concrete control at site 2,500 ft (762.0 m) downstream at datum 2.10 ft (0.640 m) higher than present datum.

REMARKS.--Records good. Use of canal began in March 1944. Canal diverts water from North Canadian River just upstream from Lake Overholser (station 07240500) and delivers water to Lake Hefner, capacity, 80,600 acre-ft (99.4 hm^3), for municipal water supply of Oklahoma City. Subsequent to April 1950, small ground-water seepage, when head gates are closed, included in records.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,500 ft^3/s (42.5 m^3/s) May 28, 1955; no flow at times in each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.59	.78	.00	.53	5.5	.68	221	16	19	11	30	.00
2	.75	.74	16	.52	.80	.72	225	16	37	30	29	.00
3	.72	.70	54	.62	.64	1.1	223	15	36	67	29	.00
4	.76	.75	5.3	.67	.69	45	262	15	51	126	29	.00
5	.73	.75	1.1	.67	.96	79	402	15	76	88	29	.00
6	.66	.63	16	.60	.80	77	630	14	54	34	28	.00
7	.67	.66	1.5	.69	.80	75	603	14	1.7	33	26	.00
8	.67	.70	.50	.70	.86	36	434	13	.66	33	24	.00
9	.52	.74	.60	.66	1.1	.85	356	13	.58	156	23	.00
10	1.1	.71	.72	.61	.96	.84	563	19	1.2	134	18	.00
11	1.2	.95	.55	.50	.67	.89	448	15	7.5	33	4.6	.00
12	1.2	.54	.55	.66	.70	.83	437	13	62	34	4.0	.00
13	1.1	.66	.38	.72	.67	.72	285	160	253	34	4.0	.00
14	1.0	.52	.34	.50	.60	.73	24	120	45	25	4.1	.00
15	.95	.64	.34	.55	.55	.66	23	140	96	29	4.2	.00
16	.84	.51	.34	.57	.54	.54	23	110	89	31	4.2	.00
17	.78	.50	.35	.42	.50	.61	23	130	4.9	31	4.2	.00
18	.82	.42	.40	.50	.52	.67	23	75	.60	31	4.2	.00
19	.72	.42	.35	.55	1.2	.78	71	41	.52	32	5.0	.00
20	.70	.34	.37	.53	32	.69	116	62	.47	33	150	.00
21	.85	.27	.44	.52	63	.72	119	36	7.1	33	612	.00
22	.78	.23	.52	.55	64	.71	119	35	81	32	1030	.00
23	.76	.00	.50	.58	63	.82	116	20	110	31	714	.00
24	.77	.00	.83	.46	60	.82	22	4.3	125	31	30	.00
25	.77	.00	.32	.55	51	.85	73	2.6	113	31	20	.00
26	.69	.00	.41	.78	1.9	329	125	6.4	123	32	10	.00
27	.82	.00	1.1	.53	.73	696	69	1.8	39	32	1.0	.00
28	.97	.00	.52	.50	.72	537	16	1.1	5.6	31	.00	.00
29	.93	.00	.59	.44	---	363	16	1.1	4.0	31	.00	.00
30	.93	.00	.63	.57	---	278	16	5.5	1.7	31	.00	.00
31	.86	---	.70	2.1	---	214	---	6.4	---	31	.00	---
TOTAL	25.61	13.16	106.25	19.35	355.41	2744.23	6083	1136.2	1445.53	1371	2870.50	.00
MEAN	.83	.44	3.43	.62	12.7	88.5	203	36.7	48.2	44.2	92.6	.00
MAX	1.2	.95	54	2.1	64	696	630	160	253	156	1030	.00
MIN	.52	.00	.00	.42	.50	.54	16	1.1	.47	11	.00	.00
AC-FT	51	26	211	38	705	5440	12070	2250	2870	2720	5690	.00

CAL YR 1982	TOTAL	14890.37	MEAN	40.8	MAX	1480	MIN	.00	AC-FT	29540
WTR YR 1983	TOTAL	16170.24	MEAN	44.3	MAX	1030	MIN	.00	AC-FT	32070

ARKANSAS RIVER BASIN

07240500 LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK

LOCATION.--Lat 35°29'11", long 97°39'58", on north line of SW 4 sec.30, T.12 N., R.4 W., Oklahoma County, Hydrologic Unit 11100301, at control tower at left end of dam on North Canadian river, 2.9 mi (4.7 km) upstream from Mustang Creek, 9.0 mi (14.5 km) west of State Capitol in Oklahoma City, and at mile 281.5 (452.9 km).

DRAINAGE AREA.--13,221 mi^2 (34,242 km^2), of which 4,899 mi^2 (12,688 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year.

GAGE.--Nonrecording gage. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Oklahoma City Water Department). Prior to Oct. 1, 1955, at same site at datum, 1,065.77 ft (324.847 m) elevation. Oct. 1, 1955, to Sept. 30, 1962, water-stage recorder at same site and present datum.

REMARKS.--Reservoir is formed by Ambursen-type dam flanked by long earth-fill sections. Outlet facilities are twenty-three taintor gates and one uncontrolled spillway. Storage began in 1917. Dam was partly washed out in 1923 and rebuilt in 1924. Capacity, 17,100 acre-ft (21.1 hm^3) below elevation 1,242.27 ft (378.644 m), top of spillway gates. Dead storage, 1,400 acre-ft (1.73 hm^3) below elevation 1,229.77 ft (374.834 m), sill of outlet works. Figures given herein represent total contents. Water diverted for municipal water supply by Oklahoma City. Revised capacity table used since Oct. 1, 1950.

COOPERATION.--Elevations and capacity table furnished by Oklahoma City Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 20,900 acre-ft (25.8 hm^3) June 14, 1944, elevation, 1,242.67 ft (378.766 m); from capacity table then in use; minimum observed, 1,870 acre-ft (2.31 hm^3) May 14, 1955, elevation, 1,230.62 ft (375.093 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 17,160 acre-ft (21.2 hm^3) May 14, elevation, 1,242.30 ft (378.653 m); minimum, 12,500 acre-ft (15.4 hm^3) Aug. 19, elevation, 1,239.25 ft (377.723 m).

MONTH-END ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1241.05	15,240	---
Oct. 31	1240.35	14,180	-1,060
Nov. 30	1240.15	13,870	- 310
Dec. 31	1239.60	13,030	- 840
CAL YR 82	---	---	-2,370
Jan. 31	1240.15	13,870	+ 840
Feb. 28	1241.40	15,780	+1,910
Mar. 31	1241.30	15,630	- 150
Apr. 30	1241.25	15,550	- 80
May 31	1241.70	16,340	+ 790
June 30	1241.30	15,630	- 710
July 31	1240.65	14,630	-1,000
Aug. 31	1241.40	15,780	+1,150
Sept. 30	1239.45	12,800	-2,980
WTR YR 83	---	---	-2,440

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER, NEAR OKLAHOMA CITY, OK

LOCATION.--Lat 35°28'46", long 97°39'47", in southeast corner of SW 1/4 sec.30, T.12 N., R.4 W., Oklahoma County, Hydrologic Unit 11100301, on left bank 200 ft (61.0 m) upstream from bridge on State Highway 4, 0.5 mi (0.8 km) downstream from Lake Overholser, 2.4 mi (3.9 km) upstream from Mustang Creek, 9.1 mi (14.6 km) southwest of State Capitol in Oklahoma City, and at mile 281.0 (452.1 km).

DRAINAGE AREA.--13,222 mi^2 (34,245 km^2), of which 4,899 mi^2 (12,688 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1952 to September 1968, October 1969 to September 1972, October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,194.66 ft (364.132 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1961, at datum 10.00 ft (3.048 m) higher and through Mar. 24, 1971, at site 200 ft (61.0 m) downstream.

REMARKS.--Records fair. Some regulation by Canton Lake (station 07238500) and Lake Overholser (station 07240500). Diversions above station into Lake Overholser and Lake Hefner Canal (station 07240000).

AVERAGE DISCHARGE.--29 years, 102 ft^3/s (2.887 m^3/s), 73,900 acre-ft/yr (91.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s (360 m^3/s) Nov. 3, 1974, gage height, 29.18 ft (8.894 m); no flow at times in 1952-57.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 40.9 ft (12.47 m), present datum, was reached in October 1923 from information by State Highway Department.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,190 ft^3/s (90.3 m^3/s) May 23, gage height, 20.88 ft (6.364 m); minimum daily discharge, 2.4 ft^3/s (0.068 m^3/s) Oct. 30-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	2.5	16	3.4	26	4.5	198	98	872	72	5.4	15
2	52	2.9	3.4	3.6	25	4.5	52	99	927	56	5.5	20
3	10	4.4	2.8	3.6	10	4.5	5.0	97	582	390	5.4	19
4	5.0	2.9	2.8	3.6	5.4	4.7	8.2	80	464	194	5.4	18
5	4.3	2.9	2.7	3.6	5.2	5.0	34	74	576	212	5.4	18
6	4.2	2.9	18	3.8	6.2	9.0	12	74	181	271	5.4	17
7	4.2	2.9	30	3.8	5.4	15	6.2	85	317	189	6.0	16
8	4.2	2.9	30	3.8	5.5	8.7	5.6	85	339	89	5.7	17
9	4.2	3.1	13	4.1	8.2	40	6.4	30	260	48	6.0	17
10	4.2	3.2	3.0	4.2	6.7	8.7	6.5	145	264	67	5.9	18
11	4.2	4.0	3.4	4.4	7.5	5.3	5.4	84	453	32	5.7	18
12	4.1	17	3.2	4.1	4.6	5.1	5.1	5.0	1320	6.8	5.9	14
13	4.1	3.4	19	4.2	4.6	5.2	165	173	1520	155	6.0	9.0
14	4.1	17	2.8	5.0	4.6	4.8	336	1400	1210	39	5.8	8.7
15	4.0	32	2.7	4.6	4.5	4.8	197	1220	962	5.7	5.7	8.3
16	4.0	62	2.7	4.3	4.6	54	241	697	688	5.7	5.7	8.3
17	3.9	30	2.7	4.3	4.3	51	275	293	650	5.6	5.5	8.3
18	3.9	39	2.9	4.4	4.2	10	274	91	566	5.6	5.1	8.3
19	3.9	42	2.9	4.5	4.8	8.4	259	648	587	5.5	4.9	14
20	3.9	4.5	2.9	4.5	8.1	50	168	824	677	5.8	71	33
21	3.9	3.0	2.9	4.8	14	12	114	718	758	5.7	10	25
22	3.0	25	3.0	5.3	15	4.8	115	1700	586	5.7	8.7	33
23	2.5	37	3.0	4.9	5.5	15	155	1460	491	5.5	8.3	17
24	2.6	3.2	3.2	5.0	9.9	41	249	765	512	5.4	8.7	7.7
25	2.7	2.8	4.3	4.9	4.6	108	134	405	639	5.3	9.0	7.4
26	2.7	4.3	3.2	12	4.4	122	5.6	474	493	5.4	9.0	7.2
27	2.6	6.0	4.5	5.1	4.3	52	57	548	611	5.4	9.3	7.1
28	2.6	4.0	6.3	4.3	4.3	5.9	99	566	692	5.5	9.7	6.9
29	2.6	29	3.4	9.7	---	5.1	99	666	736	5.7	9.7	6.8
30	2.4	22	3.6	4.0	---	5.0	98	726	166	5.5	9.7	6.8
31	2.4	---	3.4	8.9	---	4.6	---	1200	---	5.4	9.7	---
TOTAL	255.4	417.8	207.7	150.7	217.4	678.6	3385.0	15530.0	19099	1915.2	279.2	429.8
MEAN	8.24	13.9	6.70	4.86	7.76	21.9	113	501	637	61.8	9.01	14.3
MAX	93	62	30	12	26	122	336	1700	1520	390	71	33
MIN	2.4	2.5	2.7	3.4	4.2	4.5	5.0	5.0	166	5.3	4.9	6.8
AC-FT	507	829	412	299	431	1350	6710	30800	37880	3800	554	853

CAL YR 1982	TOTAL	68192.1	MEAN	187	MAX	4630	MIN	2.2	AC-FT	135300
WTR YR 1983	TOTAL	42565.8	MEAN	117	MAX	1700	MIN	2.4	AC-FT	84430

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK

LOCATION.--Lat 35°30'08", long 97°10'52", in SW 1/4 NE 1/4 sec.22, T.12 N., R.1 E., Oklahoma County, Hydrologic Unit 11100302, on downstream center of bridge of access road to O.G.& E. power plant, 1.8 mi (2.9 km) northwest of Harrah, 4.6 mi (7.4 km) downstream from Choctaw Creek, and at mile 229.2 (368.8 km). Prior to June 19, 1981, gage 0.8 mi (1.3 km) upstream.

DRAINAGE AREA.--13,501 mi^2 (34,968 km^2), of which 4,899 mi^2 (12,688 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,055.69 ft (321.774 m) National Geodetic Vertical Datum of 1929. Prior to June 19, 1981, gage 0.8 mi (1.3 km) upstream at same datum.

REMARKS.--Records fair. Some regulation by Canton Lake (station 07238500) and by Lake Overholser (station 07240500), where diversions are made into Lake Hefner Canal (station 07240000). Low flow sustained in part by sewage effluent from Oklahoma City.

AVERAGE DISCHARGE.--15 years, 293 ft^3/s (8.300 m^3/s), 212,300 acre-ft/yr (262 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,630 ft^3/s (216 m^3/s) June 9, 1974, gage height, 18.14 ft (5.529 m), corrected; minimum, 23 ft^3/s (0.65 m^3/s) Aug. 8, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,640 ft^3/s (160 m^3/s) May 15, gage height, 13.55 ft (4.13 m); minimum daily discharge, 92 ft^3/s (2.61 m^3/s) Jan 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	154	220	106	1440	141	232	347	1680	592	142	123
2	144	156	248	101	822	145	358	314	1300	340	124	118
3	236	154	158	125	314	153	332	317	1360	220	117	130
4	220	143	234	116	230	502	218	319	1000	574	117	130
5	162	147	201	116	203	634	682	307	778	501	113	125
6	151	152	142	115	219	260	729	264	870	479	116	125
7	144	147	130	115	202	198	316	262	517	530	116	128
8	144	145	122	111	166	173	238	255	510	538	237	123
9	135	152	135	106	161	174	214	294	662	338	185	123
10	127	156	154	104	199	184	277	357	512	305	126	125
11	130	161	136	106	184	201	246	2660	609	262	128	122
12	142	234	142	106	143	171	197	823	957	238	117	120
13	139	214	126	114	143	171	189	1700	1500	180	117	125
14	137	173	115	101	130	149	256	4890	1720	234	110	175
15	148	161	130	93	135	141	562	4460	1420	328	96	138
16	193	178	108	93	113	135	467	2300	1240	184	111	131
17	153	222	109	92	133	137	465	1460	1010	153	99	125
18	149	248	111	96	140	226	540	1260	1000	142	97	123
19	152	209	106	99	142	176	556	946	868	140	104	122
20	153	240	104	118	212	160	535	1130	860	137	476	140
21	166	209	108	111	272	173	450	1800	900	130	1450	284
22	157	182	106	113	299	178	388	1670	1040	132	366	173
23	155	175	108	115	234	147	871	2010	840	130	234	152
24	153	214	118	136	180	158	823	1780	912	128	197	154
25	149	216	402	131	156	199	584	1180	773	122	175	133
26	153	243	142	150	145	1240	497	877	969	119	154	113
27	156	659	120	289	138	1180	245	974	810	113	145	111
28	163	446	243	158	142	391	222	1020	1100	120	136	116
29	282	201	154	126	---	262	333	1020	1250	123	130	111
30	182	138	123	115	---	297	364	1100	1050	126	128	108
31	159	---	109	161	---	281	---	2390	---	132	123	---
TOTAL	4985	6229	4664	3738	6997	8737	12386	40486	30017	7790	6086	4026
MEAN	161	208	150	121	250	282	413	1306	1001	251	196	134
MAX	282	659	402	289	1440	1240	871	4890	1720	592	1450	284
MIN	127	138	104	92	113	135	189	255	510	113	96	108
AC-FT	9890	12360	9250	7410	13880	17330	24570	80300	59540	15450	12070	7990

CAL YR 1982	TOTAL	174064	MEAN	477	MAX	5800	MIN	87	AC-FT 345300
WTR YR 1983	TOTAL	136141	MEAN	373	MAX	4890	MIN	92	AC-FT 270000

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURE: October 1968 to current year.

REMARKS.--Samples were collected by a local observer on a daily basis. Partial analyses were made on those samples at or near the 5th, 15th, and 25th for each month. Additional samples were collected bi-weekly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,700 micromhos Sept. 25, 1980; minimum daily, 262 micromhos June 9, 1974.
WATER TEMPERATURE: Maximum daily, 36.0°C July 11, 1982; minimum 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,350 micromhos Dec. 11; minimum daily, 348 micromhos May 14.
WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 1; minimum daily, 3.0°C Feb. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN DISSOLVED (MG/L AS N)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)
OCT											
06...	1600	80020	154	1890	7.3	29.0	--	--	--	--	--
14...	0745	80020	136	2490	7.2	15.0	6.2	64	13	44	14
15...	1800	80020	154	2100	7.3	22.0	--	--	--	--	--
25...	2130	80020	154	2320	7.1	17.0	--	--	--	--	--
29...	1200	80020	399	2100	7.8	15.0	4.4	45	14	68	30
NOV											
05...	1600	80020	150	1800	7.5	13.0	--	--	--	--	--
09...	0900	80020	152	1900	7.9	15.0	7.0	72	11	48	8.0
15...	1645	80020	159	1660	6.8	8.0	--	--	--	--	--
25...	1600	80020	212	1410	7.1	7.0	--	--	--	--	--
30...	1000	80020	140	975	7.7	9.0	8.6	78	8.8	53	--
DEC											
05...	1600	80020	175	755	6.8	12.0	--	--	--	--	--
08...	0945	80020	123	1390	7.7	9.0	8.2	72	9.0	66	--
15...	1915	80020	131	1470	6.8	7.0	--	--	--	--	--
25...	1600	80020	328	516	7.1	10.5	--	--	--	--	--
30...	0800	80020	120	1100	7.8	3.0	10.4	80	8.7	45	--
JAN											
05...	1630	80020	125	1470	8.0	7.0	--	--	--	--	--
15...	1750	80020	96	1580	7.0	9.0	--	--	--	--	--
19...	1230	80020	100	1500	7.7	4.0	10.8	85	10	45	40
25...	1600	80020	136	1540	7.1	8.0	--	--	--	--	--
31...	1115	80020	122	1200	7.8	8.0	8.8	78	16	49	9.0
FEB											
05...	1700	80020	203	1110	7.9	5.5	--	--	--	--	--
15...	1815	80020	135	1470	7.0	13.0	--	--	--	--	--
24...	1000	80020	180	1090	7.6	11.0	7.7	73	8.5	40	15
25...	1700	80020	156	1330	7.7	13.0	--	--	--	--	--
28...	1430	80020	139	1500	7.7	13.0	8.1	81	17	52	--
MAR											
05...	1610	80020	544	545	7.5	15.5	--	--	--	--	--
15...	1815	80020	143	1490	7.0	19.0	--	--	--	--	--
18...	1215	80020	251	1550	7.9	9.0	8.3	75	13	52	27
25...	1700	80020	199	1560	6.8	10.0	--	--	--	--	--
31...	1030	80020	274	1030	7.8	12.0	7.2	70	3.7	54	35
APR											
05...	1645	80020	1270	1320	7.5	9.5	--	--	--	--	--
15...	0945	80020	565	1350	7.6	12.0	8.8	85	3.9	81	--
15...	1600	80020	589	1440	7.1	5.0	--	--	--	--	--
25...	2030	80020	598	1190	7.1	17.5	--	--	--	--	--

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS NONCARBONATE (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)
OCT											
06...	--	--	--	159	160	83	27	260	63	7	12
14...	K4500	--	<1000	--	--	--	--	--	--	--	--
15...	--	--	--	191	190	94	31	290	62	7	14
25...	--	--	--	212	210	99	32	340	65	8	13
29...	--	--	--	--	--	--	--	--	--	--	--
NOV											
05...	--	--	--	215	210	84	45	240	56	5	13
09...	48000	K250	K590	--	--	--	--	--	--	--	--
15...	--	--	--	178	180	82	35	210	56	5	12
25...	--	--	--	140	140	82	35	170	50	4	11
30...	--	--	--	--	--	--	--	--	--	--	--
DEC											
05...	--	--	--	74	74	47	16	88	50	3	7.3
08...	41500	3300	450	--	--	--	--	--	--	--	--
15...	--	--	--	145	150	86	33	180	52	4	11
25...	--	--	--	44	44	40	11	54	44	2	5.6
30...	--	--	--	--	--	--	--	--	--	--	--
JAN											
05...	--	--	--	107	110	70	25	180	57	5	10
15...	--	--	--	102	100	70	25	200	60	5	12
19...	K2000	K250	<100	--	--	--	--	--	--	--	--
25...	--	--	--	96	96	66	23	180	59	5	11
31...	--	--	--	--	--	--	--	--	--	--	--
FEB											
05...	--	--	--	87	87	60	22	130	53	4	8.0
15...	--	--	--	116	120	75	28	180	55	5	9.5
24...	<1000	K250	K450	--	--	--	--	--	--	--	--
25...	--	--	--	95	95	73	27	150	52	4	10
28...	--	--	--	--	--	--	--	--	--	--	--
MAR											
05...	--	--	--	24	24	40	10	51	43	2	5.3
15...	--	--	--	118	120	83	30	180	53	4	10
18...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	118	120	83	29	200	56	5	10
31...	465000	K5600	K2700	--	--	--	--	--	--	--	--
APR											
05...	--	--	--	107	110	78	29	150	50	4	7.6
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	213	210	95	36	150	45	3	7.7
25...	--	--	--	127	130	79	30	120	44	3	7.6

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)
OCT											
06...	160	120	420	1080	1.5	--	--	--	--	--	--
14...	--	--	--	1470	2.0	--	11	171	1.88	8.4	.520
15...	172	120	470	1200	1.6	--	--	--	--	--	--
25...	167	110	570	1320	1.8	--	--	--	--	--	--
29...	--	--	--	1180	1.6	1270	181	10	1.33	5.8	.270
NOV											
05...	181	110	390	1040	1.4	421	--	--	--	--	--
09...	--	--	--	1050	1.4	431	14	85	4.08	18	.620
15...	171	130	330	970	1.3	416	--	--	--	--	--
25...	209	180	220	829	1.1	475	--	--	--	--	--
30...	--	--	--	558	.76	211	37	93	2.24	9.7	.660
DEC											
05...	109	62	130	451	.61	213	--	--	--	--	--
08...	--	--	--	814	1.1	270	49	110	2.06	9.3	.640
15...	206	150	240	884	1.2	313	--	--	--	--	--
25...	101	40	76	302	.41	267	--	--	--	--	--
30...	--	--	--	627	.85	203	1	95	1.77	8.0	.130
JAN											
05...	171	120	280	850	1.2	287	--	--	--	--	--
15...	176	110	300	889	1.2	230	--	--	--	--	--
19...	--	--	--	911	1.2	246	<1	118	1.18	5.3	.220
25...	164	100	290	846	1.2	311	--	--	--	--	--
31...	--	--	--	785	1.1	259	26	70	1.09	4.9	.210
FEB											
05...	154	100	180	640	.87	351	--	--	--	--	--
15..	187	120	260	834	1.1	304	--	--	--	--	--
24...	--	--	--	631	.86	307	54	83	1.42	6.2	.180
25...	199	100	220	752	1.0	317	--	--	--	--	--
28...	--	--	--	857	1.2	322	31	89	1.36	6.2	.240
MAR											
05...	117	44	70	323	.44	474	--	--	--	--	--
15...	213	130	260	850	1.2	328	--	--	--	--	--
18...	--	--	--	929	1.3	637	63	45	1.62	7.1	.280
25...	209	120	290	897	1.2	482	--	--	--	--	--
31...	--	--	--	604	.82	--	75	72	2.32	10	.180
APR											
05...	208	120	220	766	1.0	2630	--	--	--	--	--
15...	--	--	--	844	1.1	--	217	131	.700	3.1	.100
15...	173	200	160	717	.98	1140	--	--	--	--	--
25...	194	210	210	893	1.2	1440	--	--	--	--	--

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC DIS-SOLVED (UG/L AS AS)
OCT											
06...	--	--	--	--	--	--	--	--	--	--	--
14...	1.7	2.40	4.20	5.4	6.8	--	11	4.20	4.10	13	--
15...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
29...	.89	1.60	4.40	5.7	7.6	13	12	3.20	3.40	10	--
NOV											
05...	--	--	--	--	--	--	--	--	--	--	--
09...	2.0	4.70	3.30	4.3	3.1	--	6.4	5.20	5.40	17	--
15...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
30...	2.2	2.90	4.10	5.3	1.8	--	5.9	3.00	2.40	7.4	4
DEC											
05...	--	--	--	--	--	--	--	--	--	--	--
08...	2.1	2.70	6.00	7.7	.30	--	6.3	4.10	3.70	11	--
15...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
30...	.43	1.90	5.70	7.3	1.1	--	6.8	2.80	2.50	7.7	--
JAN											
05...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
19...	.72	1.40	6.90	8.9	2.0	--	8.9	4.60	3.90	12	--
25...	--	--	--	--	--	--	--	--	--	--	--
31...	.69	1.30	10.0	13	5.0	--	15	4.80	3.90	12	--
FEB											
05...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
24...	.59	1.60	5.00	6.4	1.9	--	6.9	2.20	1.80	5.5	4
25...	--	--	--	--	--	--	--	--	--	--	--
28...	.79	1.60	8.60	11	6.4	--	15	4.70	3.80	12	--
MAR											
05...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
18...	.92	1.90	4.40	5.7	6.6	--	11	2.40	1.60	4.9	--
25...	--	--	--	--	--	--	--	--	--	--	--
31...	.59	2.50	2.90	3.7	-1.7	--	1.2	1.80	1.40	4.3	--
APR											
05...	--	--	--	--	--	--	--	--	--	--	--
15...	.33	.800	1.40	1.8	1.7	--	3.1	.720	.530	1.6	--
15...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT										
06...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
NOV										
05...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
30...	1	<10	5	17	5	32	<.1	<1	15	11
DEC										
05...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
JAN										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
FEB										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
24...	<1	<10	5	30	4	92	<.1	1	25	11
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
APR										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	LENGTH OF EXPO-) SURE (DAYS	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
06...	--	--	--	--	--	--	--	--	--	--
14...	3000	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	146	157	94
NOV										
05...	--	--	--	--	--	--	--	--	--	--
09...	29000	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
30...	--	34	--	--	--	.500	<.100	59	22	49
DEC										
05...	--	--	--	--	--	--	--	--	--	--
08...	630	--	--	--	--	--	--	38	13	64
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	36	12	77
JAN										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
19...	9400	50	1.40	1.60	28.2	7.10	<.100	12	3.2	32
25...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	18	5.9	47
FEB										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
24...	31000	--	--	--	--	--	--	61	30	56
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	34	13	67
MAR										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	151	102	44
25...	--	--	--	--	--	--	--	--	--	--
31...	26000	--	--	--	--	--	--	88	65	70
APR										
05...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN DISSOLVED (MG/L AS N)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)
APR												
28...	1230	80010	208	1380	7.8	21.0	6.0	71	8.4	32	--	--
MAY												
05...	2000	80020	282	1520	7.1	22.5	--	--	--	--	--	--
15...	1600	80020	3820	665	7.1	18.0	--	--	--	--	--	--
19...	0900	80020	1010	685	7.7	17.5	5.4	59	3.6	74	19	--
25...	2000	80020	1040	715	7.3	27.0	--	--	--	--	--	--
JUN												
01...	1300	80010	1830	895	7.7	18.0	6.3	69	2.2	68	7.2	--
05...	1900	80020	761	1330	7.2	25.0	--	--	--	--	--	--
15...	1700	80020	1320	1210	7.3	26.5	--	--	--	--	--	--
22...	1000	80020	1100	1300	7.9	27.0	6.5	86	1.9	41	4.4	57000
25...	1730	80020	857	1430	7.3	28.0	--	--	--	--	--	--
JUL												
05...	2030	80020	435	1380	7.4	28.5	--	--	--	--	--	--
14...	1315	80020	171	1550	8.4	28.0	13.2	175	5.2	60	10	K97000
15...	1700	80020	128	1460	7.2	27.0	--	--	--	--	--	--
20...	0930	80020	149	1500	8.1	26.5	7.8	101	5.2	48	12	K43300
25...	1700	80020	128	1480	7.2	34.0	--	--	--	--	--	--
28...	1030	80020	130	1500	8.2	27.0	9.0	119	5.0	50	8.4	--
AUG												
05...	1800	80020	116	1490	7.1	32.0	--	--	--	--	--	--
11...	0930	80020	138	--	--	28.5	6.4	--	--	--	13	450
15...	1800	80020	95	1500	7.2	35.0	--	--	--	--	--	--
25...	1920	80020	161	1380	7.2	32.5	--	--	--	--	--	--
30...	1030	80020	141	1430	8.0	28.0	8.5	114	7.6	49	13	--
SEP												
05...	1700	80020	125	1370	7.3	34.0	--	--	--	--	--	--
08...	1000	80020	118	1390	7.8	26.0	5.9	75	5.4	38	2.2	--
15...	1700	80020	140	1280	7.4	26.0	--	--	--	--	--	--
20...	1130	80020	152	1550	7.8	18.5	6.6	73	8.7	46	4.0	K17500
25...	1950	80020	130	1560	7.2	26.0	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS NONCARBONATE (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
APR												
28...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
05...	--	--	154	150	91	35	160	48	4	8.8	218	210
15...	--	--	56	56	56	15	54	36	2	7.9	146	92
19...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	55	55	54	17	62	38	2	8.8	150	94
JUN												
01...	K83000	41000	--	--	--	--	--	--	--	--	--	--
05...	--	--	159	160	92	34	130	43	3	8.4	211	200
15...	--	--	140	140	81	32	120	43	3	7.9	194	190
22...	K8000	K1500	--	--	--	--	--	--	--	--	--	--
25...	--	--	183	180	97	36	150	45	3	8.4	208	230
JUL												
05...	--	--	175	170	91	34	140	45	3	8.3	193	220
14...	K1700	K1700	--	--	--	--	--	--	--	--	--	--
15...	--	--	163	160	90	35	160	48	4	8.8	206	220
20...	--	970	--	--	--	--	--	--	--	--	--	--
25...	--	--	95	95	77	28	180	55	5	11	213	130
28...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
05...	--	--	80	80	71	27	190	58	5	12	209	120
11...	3600	11000	--	--	--	--	--	--	--	--	--	--
15...	--	--	103	100	74	28	190	57	5	11	197	140
25...	--	--	87	87	65	24	170	57	5	12	174	120
30...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
05...	--	--	122	120	75	25	160	53	4	12	169	150
08...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	102	100	65	19	160	58	5	12	139	100
20...	5000	12000	--	--	--	--	--	--	--	--	--	--
25...	--	--	129	130	80	27	200	57	5	13	182	150

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, DISSOLVED (MG/L)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS NO2)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)
APR												
28...	--	785	1.1	441	64	126	3.53	15	.270	.89	3.80	3.00
MAY												
05...	210	868	1.2	661	--	--	--	--	--	--	--	--
15...	63	392	.53	--	--	--	--	--	--	--	--	--
19...	--	350	.48	954	172	73	1.20	5.3	.100	.33	1.30	.560
25...	73	417	.57	1170	--	--	--	--	--	--	--	--
JUN												
01...	--	497	.68	2460	610	115	.640	2.8	.050	.16	.690	.290
05...	190	802	1.1	1650	--	--	--	--	--	--	--	--
15...	150	725	.99	2580	--	--	--	--	--	--	--	--
22...	--	829	1.1	2460	237	112	.750	3.3	.080	.26	.830	.190
25...	210	883	1.2	2040	--	--	--	--	--	--	--	--
JUL												
05...	200	836	1.1	982	--	--	--	--	--	--	--	--
14...	--	917	1.2	423	33	148	3.38	15	.320	1.1	3.70	.080
15...	220	888	1.2	307	--	--	--	--	--	--	--	--
20...	--	--	--	--	3	141	3.46	--	.140	.46	3.60	.050
25...	260	861	1.2	298	--	--	--	--	--	--	--	--
28...	--	--	--	--	31	130	2.94	--	.260	.85	3.20	.090
AUG												
05...	270	863	1.2	270	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--
15...	270	878	1.2	225	--	--	--	--	--	--	--	--
25...	250	797	1.1	346	--	--	--	--	--	--	--	--
30...	--	803	1.1	306	19	120	5.26	23	.440	1.4	5.70	.290
SEP												
05...	230	808	1.1	273	--	--	--	--	--	--	--	--
08...	--	760	1.0	242	24	107	2.58	12	.520	1.7	3.10	1.30
15...	250	738	1.0	279	--	--	--	--	--	--	--	--
20...	--	837	1.1	344	87	150	5.81	26	.390	1.3	6.20	.800
25...	290	923	1.3	324	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
APR												
28...	3.9	1.6	4.6	2.90	2.20	6.7	--	--	--	--	--	--
MAY												
05...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
19...	.72	1.7	2.3	.490	.430	1.3	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
01...	.37	1.2	1.5	.320	.230	.71	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
22...	.24	.91	1.1	.630	.580	1.8	4	1	<10	5	84	6
25...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
05...	--	--	--	--	--	--	--	--	--	--	--	--
14...	.10	1.4	1.5	3.30	2.80	8.6	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
20...	.06	1.6	1.6	3.10	2.70	8.3	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
28...	.12	1.7	1.8	3.20	2.70	8.3	--	--	--	--	--	--
AUG												
05...	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
30...	.37	1.6	1.9	4.10	4.00	12	--	--	--	--	--	--
SEP												
05...	--	--	--	--	--	--	--	--	--	--	--	--
08...	1.7	1.0	2.3	3.70	2.50	7.7	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
20...	1.0	1.7	2.5	5.20	4.90	15	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS TOTAL (UG/L)	PHYTOPLANKTON, TOTAL (CELLS PER ML)	LENGTH OF EXPOSURE (DAYS)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
APR												
28...	--	--	--	--	--	41000	--	--	--	74	42	58
MAY												
05...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	1000	2730	70
25...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
01...	--	--	--	--	--	15000	--	--	--	1010	4990	71
05...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
22...	4	<.1	1	33	5	32000	--	--	--	333	989	79
25...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
05...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	66	30	33
15...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	47	19	69
25...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	120000	--	--	--	42	15	63
AUG												
05...	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	83000	29	27.0	7.40	56	21	42
15...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	41	16	56
SEP												
05...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	34	11	22
15...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	88	36	82
25...	--	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1780	1330	1570	442	1490	1210	1450	1000	1100	1310	---
2	---	1710	1030	1410	448	1460	1610	1470	1000	1340	1460	1470
3	---	1880	1390	1350	697	1460	1240	1480	1110	1280	---	1450
4	---	1950	1420	1360	967	826	1250	1480	1230	1390	1500	1410
5	---	1800	755	1470	1110	545	1320	1450	1330	1380	1490	1370
6	1890	1790	1170	1550	1310	836	660	1520	1380	1440	1470	1300
7	1830	1660	1320	1470	1620	1230	883	1530	1410	1460	1390	1290
8	2280	1700	1460	1520	1310	1310	1160	1560	---	1470	1650	1350
9	2250	1830	1740	1470	1560	1420	1340	1510	1420	1470	985	1300
10	2330	1630	1650	1500	1550	1410	1420	1380	1540	1460	1300	1310
11	2210	1680	2350	1580	1110	1370	1020	369	1410	1470	1500	1360
12	1990	1980	1210	1520	1240	1640	1340	873	945	1470	1530	1330
13	2170	1030	1620	1520	1390	1500	---	868	963	1460	1460	1340
14	2180	1400	1620	1600	1440	1540	1620	348	1190	1650	1500	1590
15	2100	1660	1470	1580	1470	1490	1440	665	1210	1460	1500	1280
16	2120	1580	1470	1550	---	---	1480	666	737	1350	1500	1550
17	1800	1480	1430	1470	1550	1440	1440	708	852	1510	1460	1740
18	1910	1480	1540	1480	1460	1410	1470	752	990	1530	1480	1800
19	2040	1430	1550	---	1440	1280	1520	796	1170	1540	1430	1790
20	2050	1540	1560	1490	1340	1370	1500	801	1360	1560	850	1600
21	2210	1570	1530	1420	682	1480	1490	1040	1330	1520	646	949
22	1900	1450	1520	1400	731	1340	1500	712	1390	1530	790	1250
23	1990	1520	1650	1480	850	1340	1280	704	1420	1480	1110	1600
24	2060	1660	1530	1770	1150	1380	811	583	1410	1490	1370	1680
25	2320	1410	516	1540	1330	1560	1190	715	1430	1480	1380	1560
26	2280	1200	842	1350	1460	1070	1180	909	1400	1490	1380	1600
27	1980	476	1090	742	1490	643	1160	953	1420	1540	1380	1740
28	1520	485	720	1010	1540	878	---	1340	1240	1460	1370	---
29	1240	701	---	1210	---	1090	1170	1280	948	1580	1390	1380
30	1070	1050	---	1390	---	1100	1350	1270	1140	1500	1410	1450
31	1540	---	1340	1260	---	1100	---	630	---	1570	---	---
MEAN	1970	1480	1370	1430	1210	1270	1290	1030	1220	1470	1340	1460

WTR YR 1983 MEAN 1370 MAX 2350 MIN 348

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	21.0	15.5	5.5	6.0	17.0	11.5	19.0	22.0	31.0	36.0	---
2	---	18.0	14.0	4.0	4.0	17.0	11.5	20.0	23.0	30.0	32.5	31.0
3	---	14.0	12.0	5.5	4.0	15.0	11.5	20.0	24.0	31.0	---	33.0
4	---	13.0	11.0	4.0	3.0	15.5	11.0	22.0	27.0	28.5	32.0	34.0
5	---	13.0	11.5	7.0	5.0	17.0	9.0	22.5	25.0	28.5	32.0	34.0
6	29.0	15.0	11.0	9.0	5.5	15.0	9.0	24.0	25.0	29.0	33.0	32.0
7	24.0	17.0	11.0	10.0	5.5	14.0	11.0	23.0	24.0	30.0	29.0	---
8	27.0	18.0	8.0	12.0	7.5	14.0	9.0	22.5	---	30.0	29.0	---
9	23.0	18.0	8.0	12.0	9.0	11.0	12.0	22.0	25.0	31.0	31.0	30.0
10	21.0	19.0	8.0	9.0	9.5	12.0	16.0	22.0	27.0	30.0	34.0	30.5
11	19.0	18.0	6.0	9.5	7.0	13.0	18.5	21.0	28.0	31.0	34.0	30.0
12	20.5	12.0	5.5	9.0	11.0	15.0	19.5	24.0	26.0	32.0	33.0	31.0
13	26.0	9.0	5.5	11.0	11.5	17.5	---	22.0	24.0	30.5	33.0	24.0
14	20.0	8.0	5.0	9.5	13.0	19.0	15.0	18.0	25.0	26.5	34.0	27.0
15	22.0	8.0	7.0	9.0	13.0	19.0	5.0	18.0	26.5	27.0	35.0	26.0
16	20.0	8.0	8.0	9.0	---	---	17.0	19.0	26.0	28.0	33.0	29.0
17	18.0	10.0	8.0	9.0	12.5	12.0	18.0	20.0	26.5	30.0	34.0	30.0
18	21.0	12.0	8.0	5.0	14.0	11.0	18.0	21.0	27.0	33.0	32.0	31.0
19	19.0	17.0	9.0	---	14.0	8.0	14.0	22.0	28.5	33.0	25.0	26.5
20	15.0	15.0	9.0	6.0	13.0	8.0	14.0	23.0	29.0	33.0	26.0	19.0
21	16.0	15.0	9.0	4.0	13.0	12.0	15.0	20.0	29.0	33.0	28.0	19.0
22	14.0	16.0	13.0	4.0	12.5	10.0	16.0	21.0	29.0	33.0	32.0	20.5
23	15.0	12.0	14.0	8.0	4.0	9.0	18.0	23.0	30.0	33.0	33.0	21.0
24	16.0	7.0	14.0	8.0	11.5	12.0	18.0	23.5	28.0	33.0	32.0	23.0
25	17.0	7.0	10.5	8.0	13.0	10.0	17.5	27.0	28.0	34.0	32.5	26.0
26	16.0	8.0	7.0	6.5	12.5	9.0	23.0	27.0	29.0	34.5	30.0	27.0
27	20.0	7.0	7.0	7.0	13.5	9.0	17.0	27.0	28.0	32.5	34.0	29.0
28	18.0	8.0	5.5	8.0	14.5	11.0	---	29.0	28.0	32.5	33.5	---
29	16.0	10.5	---	10.5	---	11.0	19.0	30.0	26.0	32.5	31.0	30.0
30	16.0	12.0	---	10.5	---	13.0	19.0	22.0	26.0	31.0	33.0	28.0
31	22.0	---	7.0	8.0	---	16.5	---	18.0	---	32.0	---	---
MEAN	19.5	13.0	9.0	8.0	9.5	13.0	15.0	22.5	26.5	31.0	32.0	28.0

WTR YR 1983 MEAN 19.0 MAX 36.0 MIN 3.0

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	OCT 14,82	NOV 9,82	DEC 8,82	JAN 19,83	FEB 24,83
TIME	0745	0900	0945	1230	1000
TOTAL CELLS/ML	3000	29000	1300	9400	31000
DIVERSITY: DIVISION	1.6	1.5	1.1	1.3	0.8
.CLASS	1.6	1.5	1.1	1.3	0.8
..ORDER	2.2	2.6	2.2	1.9	1.3
...FAMILY	2.4	0.0	2.2	2.0	1.4
....GENUS	2.4	0.0	2.2	2.1	1.4

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)										
.BACILLARIOPHYCEAE										
..ACHNANTHALES										
...ACHNANTHACEAE										
....COCCONEIS	29	1	--	-	--	-	--	-	--	-
..BACILLARIALES										
...NITZSCHIACEAE										
....NITZSCHIA	430	14	1300	4	290#	23	840	9	330	1
..EUPODISCALES										
...COSCINODISCACEAE										
....CYCLOTELLA	350	11	1200	4	430#	34	4700#	50	2900	9
....MELOSIRA	--	-	*	0	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-
..FRAGILARIALES										
...FRAGILARIACEAE										
....FRAGILARIA	--	-	3700	13	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	--	-
..NAVICULALES										
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	72	2	--	-	--	-	--	-	--	-
...GOMPHONEMACEAE										
....GOMPHONEMA	--	-	230	1	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	290	9	--	-	230#	18	250	3	420	1
..SURIRELLALES										
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	170	2	--	-
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHLOROCOCCACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...DICTYOSPHAERIACEAE										
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	920	10	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	58	2	1200	4	170	14	--	-	470	2
....CHODATELLA	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	*	0
....OOCYSTIS	--	-	*	0	--	-	--	-	--	-
...PALMELLACEAE										
....SPHAEROCYSTIS	--	-	920	3	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	200	7	230	1	--	-	170	2	370	1
....TETRASTRUM	--	-	460	2	--	-	--	-	190	1
..VOLVOCALES	--	-	350	1	--	-	--	-	--	-
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	1300	4	--	-	--	-	*	0
CHRYSOPHYTA										
.CHRYSOPHYCEAE										
..CHROMULINALES										
...CHRYSOCOCCACEAE										
....CHRYSOCOCCUS	--	-	*	0	--	-	--	-	--	-

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	OCT 14,82		NOV 9,82		DEC 8,82		JAN 19,83		FEB 24,83	
TIME	0745		0900		0945		1230		1000	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	2300	8	--	-	--	-	23000#	76
..NOSTOCALES										
...HAMMATOIDEACEAE										
....RAPHIDIOPSIS	--	-	1200	4	--	-	--	-	--	-
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
..OSCILLATORIALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	2100	7	--	-	--	-	--	-
....OSCILLATORIA	1400#	47	11000#	40	--	-	--	-	2600	8
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	170	6	230	1	140	11	2200#	23	230	1
....PHACUS	--	-	*	0	--	-	--	-	--	-
....TRACHELOMONAS	--	-	350	1	--	-	170	2	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	MAR 31,83	APR 28,83	JUN 1,83	JUN 22,83	AUG 11,83
TIME	1030	1230	1300	1000	0930
TOTAL CELLS/ML	26000	41000	15000	32000	83000
DIVERSITY: DIVISION	0.7	1.2	1.2	1.6	1.2
.CLASS	0.7	1.2	1.2	1.6	1.2
..ORDER	1.8	1.7	2.4	2.5	1.5
...FAMILY	1.9	1.8	2.4	2.8	1.6
....GENUS	1.9	1.8	2.7	3.2	1.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (DIATOMS)										
.BACILLARIOPHYCEAE										
..ACHNANTHALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	--	-
..BACILLARIALES										
...NITZSCHIACEAE										
....NITZSCHIA	630	2	1500	4	1400	10	560	2	--	-
..EUPODISCALES										
...COSCINODISCACEAE										
....CYCLOTELLA	520	2	4300	10	6200#	42	6900#	21	2300	3
....MELOSIRA	--	-	--	-	100	1	2500	8	--	-
....STEPHANODISCUS	--	-	--	-	410	3	--	-	--	-
..FRAGILARIALES										
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	1100	8	--	-	--	-
....SYNEDRA	--	-	--	-	310	2	--	-	--	-
..NAVICULALES										
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	100	1	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	--	-	--	-
...GOMPHONEMACEAE										
....GOMPHONEMA	*	0	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	580	2	--	-	620	4	700	2	780	1
..SURIRELLALES										
...SURIRELLACEAE										
....SURIRELLA	*	0	--	-	100	1	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHLOROCOCCACEAE										
....SCHROEDERIA	*	0	--	-	--	-	--	-	--	-
...DICTYOSPHAERIACEAE										
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	780	1
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	4500	14	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	230	1	--	-	--	-	1300	4	28000#	34
....CHODATELLA	--	-	--	-	--	-	--	-	1600	2
....KIRCHNERIELLA	--	-	2000	5	--	-	*	0	--	-
....OOCYSTIS	--	-	--	-	2300#	15	2100	7	--	-
...PALMELLACEAE										
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	690	3	1000	2	--	-	560	2	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES	--	-	--	-	--	-	--	-	--	-
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	630	2	2000	5	100	1	840	3	6200	7
CHRYSOPHYTA										
.CHRYSOPHYCEAE										
..CHROMULINALES										
...CHRYSOCOCCACEAE										
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-	--	-

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	MAR 31,83		APR 28,83		JUN 1,83		JUN 22,83		AUG 11,83	
TIME	1030		1230		1300		1000		0930	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	12000#	45	28000#	67	210	1	4800	15	44000#	52
..NOSTOCALES										
...HAMMATOIDEACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	2800	9	--	-
..OSCILLATORIALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	10000#	40	2500	6	1500	10	4300	14	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	*	0	500	1	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	210	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

ARKANSAS RIVER BASIN

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK

LOCATION.--Lat 35°15'53", long 96°12'25", in center of SW 1/4 sec.12, T.9 N., R.10 E., Hughes County, Hydrologic Unit 11100302, on right downstream abutment of bridge on U.S. Highway 75, 2.3 mi (3.7 km) upstream from Wewoka Creek, 2.5 mi (4.0 km) northeast of Wetumka, and at mile 84.4 (135.8 km).

DRAINAGE AREA.--14,290 mi^2 (37,011 km^2) of which 4,899 mi^2 (12,688 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 977: 1942. WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 683.28 ft (208.264 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good. Some regulation by Lake Overholser (station 07240500) and other dams upstream.

AVERAGE DISCHARGE.--46 years, 654 ft^3/s (18.52 m^3/s), 473,800 acre-ft/yr (584 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,000 ft^3/s (1,870 m^3/s) Apr. 15, 1945, gage height, 26.40 ft (8.047 m); no flow Aug. 27 to Oct. 11, 1954, Aug. 25 to Oct. 22, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1923 reached a stage of 26.9 ft (8.20 m), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,900 ft^3/s (365 m^3/s) May 14, gage height, 12.20 ft (3.719 m); minimum daily discharge, 103 ft^3/s (2.92 m^3/s) Sept. 12, 1983.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	173	491	334	9120	436	636	861	1730	1110	264	152
2	149	178	376	291	6770	411	589	707	2090	1340	270	137
3	184	177	382	265	2680	382	573	629	2000	1080	255	131
4	168	150	505	250	1850	590	505	602	1440	805	243	127
5	153	142	505	244	1200	1890	514	554	1490	590	221	117
6	139	136	330	235	928	1880	663	531	1900	523	186	113
7	139	134	267	225	782	1180	687	520	1090	517	190	114
8	191	136	306	223	685	848	1080	506	911	654	242	114
9	171	129	256	224	639	609	1010	485	885	565	185	111
10	142	127	234	226	643	499	749	475	701	583	206	105
11	129	144	226	222	612	453	657	1740	596	637	193	104
12	131	164	217	216	575	440	595	1370	658	530	191	103
13	131	152	217	210	534	435	1330	4860	603	466	313	112
14	126	162	227	209	533	438	1940	11700	591	431	212	119
15	123	173	238	207	489	431	1170	11100	838	402	167	116
16	123	168	214	203	451	412	734	5450	1490	395	155	249
17	121	185	200	204	421	404	592	3730	357	357	143	437
18	121	167	191	205	402	370	718	5020	355	355	131	248
19	121	155	190	201	385	358	727	2980	354	354	118	200
20	135	150	183	198	431	356	670	1890	352	352	116	179
21	145	159	176	195	1020	362	726	2870	351	351	127	189
22	143	208	175	195	1100	389	852	3170	350	350	130	156
23	140	224	176	195	893	355	2020	2280	349	349	134	153
24	137	205	280	197	876	340	1520	2130	348	348	138	156
25	137	195	526	203	758	350	1170	2120	326	326	142	204
26	137	223	258	232	654	657	1280	2070	315	315	146	194
27	135	402	1090	406	531	2460	1030	1550	324	324	151	163
28	144	652	1110	372	472	1540	1970	1340	306	306	155	158
29	156	577	608	375	---	1410	1210	1240	289	289	159	153
30	153	559	383	386	---	930	1050	1200	1290	266	163	136
31	173	---	328	1240	---	719	---	2080	---	264	163	---
TOTAL	4439	6506	10865	8588	36434	22334	28967	77760	24679	15534	5609	4750
MEAN	143	217	350	277	1301	720	966	2508	823	501	181	158
MAX	191	652	1110	1240	9120	2460	2020	11700	2090	1340	313	437
MIN	121	127	175	195	385	340	505	475	289	264	116	103
AC-FT	8800	12900	21550	17030	72270	44300	57460	154200	48950	30810	11130	9420

CAL YR 1982	TOTAL	305691	MEAN	838	MAX	10900	MIN	106	AC-FT	606300
WTR YR 1983	TOTAL	246465	MEAN	675	MAX	11700	MIN	103	AC-FT	488900

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952, 1954 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1953 to current year.
WATER TEMPERATURE: October 1953 to current year.

REMARKS.--Samples were collected by a local observer on a daily basis. Samples were collected bimonthly, and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 37,100 micromhos Dec. 31, 1954; minimum daily, 98 micromhos April 30, 1977.
WATER TEMPERATURE: Maximum daily, 39.0°C July 5, 1971; minimum 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,160 micromhos Oct. 23; minimum daily, 219 micromhos Feb. 1.
WATER TEMPERATURE: Maximum daily, 30.0°C Aug. 12; minimum daily, 1.5°C Dec. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
18...	1445	80020	121	1810	9.4	22.0	9.1	20.0	235	K4	>400	310
DEC												
07...	1415	80020	254	678	7.9	10.0	80	10.9	99	K2000	K2200	150
MAR												
14...	1500	80020	439	1260	8.2	18.5	65	12.8	142	K57	580	300
APR												
12...	1635	80020	598	924	7.9	19.0	120	9.2	104	290	210	220
JUN												
21...	1630	80020	967	1010	7.9	30.0	210	7.3	100	830	1700	250
SEP												
19...	1245	80020	190	1030	8.5	26.0	100	11.6	148	K1200	K1300	230

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
18...	207	72	32	240	62	6	11	106	94	400	.80	.1
DEC												
07...	43	42	12	65	47	2	6.6	112	57	100	.40	8.1
MAR												
14...	69	78	25	120	46	3	6.4	230	67	190	.60	14
APR												
12...	53	58	19	80	43	2	5.0	171	60	130	.40	10
JUN												
21...	78	62	23	84	41	2	8.4	172	120	110	.50	8.7
SEP												
19...	64	59	21	120	52	4	8.5	171	95	160	.70	7.2

ARKANSAS RIVER BASIN

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT												
18...	890	920	1.2	291	.400	.080	.10	5.9	.920	2.8	.190	.190
DEC												
07...	382	360	.52	262	2.10	.140	.18	4.2	1.50	4.6	.830	.710
MAR												
14...	635	640	.86	753	2.80	.160	.21	2.1	1.70	5.2	1.70	1.00
APR												
12...	473	470	.64	764	1.90	.120	.15	2.7	.890	2.7	.530	.400
JUN												
21...	550	520	.75	1440	.950	.080	.10	2.6	.960	2.9	.570	.480
SEP												
19...	574	580	.78	294	1.40	.050	.06	.50	1.40	4.3	1.00	1.00

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT												
18...	.58	30	7	130	<.5	2	<1	<3	2	14	3	54
DEC												
07...	2.2	--	--	--	--	--	--	--	--	--	--	--
MAR												
14...	3.1	10	4	240	<.5	<1	<1	<3	2	4	2	29
APR												
12...	1.2	30	3	170	<.5	<1	<1	<3	6	17	4	23
JUN												
21...	1.5	--	--	--	--	--	--	--	--	--	--	--
SEP												
19...	3.1	30	7	170	<.5	<1	<1	<3	4	<3	1	31

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT												
18...	7	<.1	<10	5	<1	<1	1400	10	6	69	23	74
DEC												
07...	--	--	--	--	--	--	--	--	--	139	95	79
MAR												
14...	11	<.1	<10	4	<1	<1	950	6	3	161	191	70
APR												
12...	7	<.1	<10	5	1	<1	670	<6	75	319	515	60
JUN												
21...	--	--	--	--	--	--	--	--	--	604	1580	78
SEP												
19...	2	.1	<10	4	<1	<1	700	16	<3	293	150	74

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1610	1770	946	695	219	964	664	879	943	1210	1430	1230
2	1530	1850	935	994	242	1090	784	1070	1060	1230	1410	1280
3	1510	1690	604	1200	310	1170	862	1120	933	1070	1370	1260
4	1890	1800	695	951	494	1220	1000	1230	791	1210	1420	1280
5	1910	1870	643	981	480	590	1060	1190	843	1160	1380	1300
6	2010	1410	660	1180	555	442	975	1280	895	1230	1460	1270
7	2110	1370	578	1210	570	517	1170	1380	832	1390	1420	1260
8	1980	1460	790	1380	614	697	988	---	1060	1350	1340	1290
9	1960	1720	1250	1410	815	698	955	1430	1190	1370	1170	1370
10	1880	1710	1310	1440	817	681	595	1440	1270	1220	1320	1310
11	1510	1700	953	1480	948	820	706	1430	1280	1420	1360	1450
12	1460	1630	1000	---	1010	896	831	570	1300	1460	1290	1490
13	1420	1670	1350	---	1140	1060	905	587	1440	1440	1290	1280
14	1530	1720	1340	---	1050	1140	627	339	1370	1440	1460	1170
15	1640	1610	1690	1450	1080	1230	699	253	1420	1450	1430	1160
16	1880	1410	1610	1450	1200	1300	600	309	1240	1440	1230	1270
17	1780	1410	1580	1460	1130	1360	743	364	1100	1370	1240	641
18	1720	1850	1790	1480	1140	1310	887	404	1210	1270	1450	551
19	1820	1830	1360	1460	1170	1460	1290	510	1220	1310	1440	1070
20	1850	1680	1500	1440	1190	1430	1290	506	851	1580	1420	1040
21	2070	---	1620	1490	985	1440	1320	559	848	1340	1410	973
22	2060	1260	1620	1440	782	1360	1330	473	924	1370	1540	1090
23	2160	1460	1500	1430	829	1440	1160	582	1080	1280	1470	1090
24	2130	1440	1480	1410	824	1340	683	744	1210	1280	1320	---
25	1750	1290	567	1360	996	1300	872	782	1340	1390	603	1490
26	1830	900	1280	1250	918	1240	770	743	1310	1440	572	1660
27	2040	894	956	1040	864	600	1220	696	1350	1420	708	1630
28	1800	830	311	1040	884	453	750	680	1330	1420	734	1220
29	1830	746	899	1100	---	421	497	732	1360	1440	962	998
30	1770	610	608	1030	---	623	825	830	1080	1440	1010	1210
31	1750	---	632	311	---	605	---	835	---	1490	1200	---
MEAN	1810	1470	1100	1230	831	997	902	798	1140	1350	1250	1220

WTR YR 1983 MEAN 1180 MAX 2160 MIN 219

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.5	20.0	11.0	3.5	6.5	10.0	7.5	20.0	18.0	26.5	---	26.0
2	22.0	18.0	15.0	6.5	5.5	11.0	9.0	19.0	19.0	27.5	---	24.0
3	22.0	14.0	14.5	---	4.0	11.0	9.0	17.5	21.0	29.0	---	24.0
4	22.5	9.0	11.5	---	4.0	15.5	11.5	17.0	22.0	27.0	27.5	24.0
5	22.5	12.0	10.0	---	4.0	14.0	10.5	19.0	24.5	26.5	27.5	25.0
6	23.5	11.0	8.5	---	4.0	15.0	9.0	25.5	22.0	25.0	28.0	26.5
7	23.5	14.0	7.5	---	3.0	13.5	9.0	20.0	20.0	25.0	29.0	27.5
8	23.5	14.5	9.0	10.5	4.0	12.0	10.0	---	21.0	25.0	26.5	25.0
9	23.0	14.5	8.5	9.0	5.0	10.0	8.0	19.0	22.5	25.5	27.0	25.0
10	22.0	16.0	8.0	1.5	6.0	8.0	9.0	19.0	24.0	27.0	28.0	25.0
11	17.0	18.0	6.5	6.5	7.5	7.0	12.0	20.5	24.0	27.0	28.0	26.0
12	16.0	14.0	1.5	---	7.5	8.0	15.0	20.0	23.0	28.0	30.0	25.0
13	16.0	7.0	3.0	---	8.0	10.0	15.5	21.0	23.5	27.5	27.0	24.0
14	14.5	7.0	3.5	---	7.0	13.0	10.5	20.0	24.0	26.0	29.0	20.0
15	15.0	5.0	4.0	5.5	9.5	15.0	11.0	18.0	23.0	26.0	29.0	22.0
16	15.5	6.5	4.0	4.0	9.0	15.0	11.5	17.0	24.0	25.0	29.0	21.0
17	15.0	9.0	5.0	3.5	10.0	12.0	11.5	17.0	24.5	26.0	28.0	23.5
18	15.0	11.0	8.0	4.0	10.5	10.0	13.5	18.0	25.0	27.0	27.5	24.0
19	18.5	13.5	7.0	4.0	11.0	9.0	14.0	18.0	26.0	28.0	27.5	24.5
20	13.0	15.0	5.5	4.5	12.0	6.0	11.0	19.5	26.5	28.5	27.0	25.0
21	12.0	---	6.0	4.0	12.0	6.0	12.0	20.0	27.5	28.0	27.5	14.0
22	12.0	15.0	9.0	4.0	17.0	5.0	13.0	20.0	26.0	---	27.0	14.5
23	10.5	14.0	12.0	4.0	12.0	8.0	14.0	20.5	27.0	---	27.5	16.0
24	10.0	12.0	12.0	4.0	11.5	8.0	14.0	20.5	27.0	---	28.0	---
25	10.0	9.0	11.0	6.0	10.5	8.5	14.5	21.0	28.0	---	28.0	19.0
26	10.0	7.0	7.0	7.0	9.0	10.0	16.0	22.0	27.0	---	28.0	20.0
27	12.5	7.0	7.5	5.0	9.0	9.0	18.0	24.0	26.5	---	28.0	22.0
28	15.0	6.5	5.0	6.0	9.0	7.5	20.0	23.5	25.0	---	28.0	21.0
29	13.0	6.5	4.0	7.0	---	7.0	19.5	24.0	25.5	---	28.0	22.0
30	15.0	8.0	4.0	6.0	---	9.0	19.5	23.0	25.0	---	28.0	21.0
31	18.0	---	4.0	7.0	---	9.0	---	18.0	---	---	28.0	---
MEAN	17.0	11.5	7.5	5.5	8.0	10.0	12.5	20.0	24.0	26.5	28.0	22.5

WTR YR 1983 MEAN 16.0 MAX 30.0 MIN 1.5

ARKANSAS RIVER BASIN

07242350 DEEP FORK NEAR ARCADIA, OK

LOCATION.--Lat 35°38'58", long 97°21'12", on east line of NE 1/4 sec.36, T.14 N., R.2 W., Oklahoma County, Hydrologic Unit 11100303, on left bank at upstream side of county road bridge, 1.9 mi (3.1 km) southwest of Arcadia, 2.0 mi (3.2 km) upstream from Coffee Creek, and at mile 213.1 (342.9 km).

DRAINAGE AREA.--105 mi^2 (272 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

REVISED RECORDS.--WRD OK-77-1; 1975 (gage height only).

GAGE.--Water-stage recorder. Datum of gage is 941.65 ft (287.015 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1974, at site 0.3 mi (0.5 km) downstream at same datum. May 2, 1978, to May 14, 1979, the gage was temporarily moved 1.3 mi (2.1 km) downstream to county road bridge, at a 5.00 ft (1.524 m) lower datum.

REMARKS.--Records poor. Low flow sustained by part of sewage effluent from Oklahoma City.

AVERAGE DISCHARGE.--14 years, 67.4 ft^3/s (1.909 m^3/s), 48,980 acre-ft/yr (60.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft^3/s (405 m^3/s) Nov. 2, 1974, gage height, 26.9 ft (8.20 m) from floodmark; no flow Sept. 28, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (56.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Mar. 26	0745	2,360	66.8	10.00	3.05
May 10	2115	3,004	85.1	11.18	3.41
May 13	0900	5,360	152	14.80	4.51
May 14	0530	*7,788	221	*17.87	5.45

No flow Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	10	18	14	564	21	43	21	56	21	7.0	11
2	10	8.0	16	14	50	21	45	20	41	15	7.0	9.4
3	40	6.5	20	16	20	45	36	20	34	12	6.3	10
4	12	6.5	74	13	15	134	46	19	31	12	6.3	10
5	13	8.4	28	12	17	62	523	18	28	13	6.7	8.8
6	10	8.8	21	11	33	38	74	17	29	13	6.3	9.9
7	11	8.4	16	11	16	30	49	17	28	12	11	9.2
8	12	8.0	13	11	16	25	52	14	28	11	20	8.0
9	13	9.6	12	11	44	22	65	15	28	10	14	8.2
10	11	10	32	10	43	20	81	574	29	11	13	8.2
11	10	16	24	10	22	18	34	526	749	9.2	12	8.4
12	11	28	16	9.7	19	16	20	252	51	9.0	10	8.7
13	12	11	13	10	16	16	21	1330	36	8.7	8.3	21
14	11	8.0	6.7	11	16	17	25	2500	35	8.6	7.9	30
15	10	7.2	11	9.4	15	19	20	458	30	11	6.6	17
16	11	10	12	9.7	17	19	19	169	24	9.1	6.7	13
17	10	7.2	10	9.4	16	16	19	63	22	9.0	6.2	7.6
18	10	8.4	10	9.6	16	17	21	31	36	9.0	6.2	6.9
19	10	7.6	9.0	16	17	16	20	85	21	7.8	12	6.2
20	9.6	6.9	9.2	18	104	22	19	13	20	7.4	658	51
21	10	6.5	9.3	17	114	17	23	176	18	7.1	174	17
22	10	6.9	9.7	16	75	15	24	91	17	7.0	16	5.8
23	10	8.4	9.2	31	35	16	590	131	20	8.0	12	2.9
24	10	10	253	21	25	23	58	79	40	7.5	12	1.4
25	9.6	10	47	16	21	18	37	46	56	7.0	12	.38
26	10	224	21	103	19	709	32	42	16	6.8	12	.38
27	10	188	81	32	19	71	29	44	58	6.3	11	.17
28	20	58	40	16	21	44	24	13	59	6.6	11	.00
29	19	24	21	14	---	44	24	6.5	107	6.1	11	.22
30	10	20	15	12	---	57	27	573	28	6.1	11	21
31	10	---	14	92	---	32	---	118	---	7.0	10	---
TOTAL	375.2	750.3	891.1	605.8	1405	1640	2100	7481.5	1775	294.3	1123.5	311.75
MEAN	12.1	25.0	28.7	19.5	50.2	52.9	70.0	241	59.2	9.49	36.2	10.4
MAX	40	224	253	103	564	709	590	2500	749	21	658	51
MIN	9.6	6.5	6.7	9.4	15	15	19	6.5	16	6.1	6.2	.00
AC-FT	744	1490	1770	1200	2790	3250	4170	14840	3520	584	2230	618

CAL YR 1982	TOTAL 39769.2	MEAN 109	MAX 4780	MIN 4.8	AC-FT 78880				
WTR YR 1983	TOTAL 18753.45	MEAN 51.4	MAX 2500	MIN .00	AC-FT 37200				

ARKANSAS RIVER BASIN

07242350 DEEP FORK NEAR ARCADIA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to January 1980.
WATER TEMPERATURE: October 1969 to January 1980.

REMARKS.--Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	MAGNESIUM, DISSOLVED (MG/L AS MG)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT											
26...	1315	80020	8.1	940	8.5	15.0	14.2	138	24	29	110
NOV											
23...	0935	80020	6.8	820	7.8	8.5	11.6	102	26	39	75
DEC											
14...	1215	80020	6.5	800	8.1	5.0	12.8	105	28	34	55
JAN											
20...	1045	80020	17	850	8.1	2.5	13.6	103	25	36	92
FEB											
25...	1045	80020	21	775	8.1	7.5	11.6	100	33	33	66
MAR											
31...	1100	80020	32	--	8.0	15.0	9.2	95	43	33	51
APR											
26...	1330	80020	32	745	8.2	20.0	9.1	105	22	31	54
MAY											
26...	1230	80020	29	845	7.8	27.0	8.0	104	21	35	57
JUN											
20...	1100	80020	20	760	8.3	27.0	9.6	126	30	36	51
JUL											
12...	1100	80020	9.3	950	8.3	28.5	6.5	87	26	47	74
AUG											
29...	1300	80020	13	730	8.4	33.5	8.2	119	57	25	75
SEP											
09...	1430	80020	9.8	790	8.2	22.0	9.8	116	25	26	90

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MERCURY DISSOLVED (UG/L AS HG)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
26...	.720	.130	.17	2.40	20	<100	<.1	21	.46	88
NOV										
23...	.140	.150	.19	.930	20	<100	<.1	--	--	--
DEC										
14...	.550	.390	.50	.050	10	<100	<.1	71	1.2	96
JAN										
20...	.390	.600	.77	.270	10	<100	.1	58	2.6	39
FEB										
25...	.860	.380	.49	.200	30	<100	<.1	29	1.6	85
MAR										
31...	.950	.260	.33	.160	10	<100	<.1	192	--	67
APR										
26...	.820	.160	.21	.220	30	<100	<.1	93	8.0	71
MAY										
26...	.860	.180	.23	.220	40	<100	<.1	175	14	64
JUN										
20...	<.100	.080	.10	.200	140	<100	<.1	--	--	--
JUL										
12...	.120	.060	.08	.260	30	<100	.2	66	1.7	90
AUG										
29...	<.100	.060	.08	.200	60	<100	<.1	99	3.5	62
SEP										
09...	<.100	.050	.06	.280	30	<100	.6	33	.87	61

ARKANSAS RIVER BASIN

07243000 DRY CREEK NEAR KENDRICK, OK

LOCATION.--Lat 35°46'55", long 96°51'20", in NW 1/4 NW 1/4 sec.14, T.15 N., R.4 E., Lincoln County, Hydrologic Unit 11100303, near left bank on downstream side of county road bridge, 1.0 mi (1.6 km) downstream from Beaver Creek and 4.5 mi (7.2 km) west of Kendrick.

DRAINAGE AREA.--69.0 mi^2 (178.7 km^2).

PERIOD OF RECORD.--October 1955 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 820 ft (249.9 m), from topographic map. Prior to Oct. 1, 1981, gage at same site and datum 5.00 ft (1.52 m) higher.

REMARKS.--Records good.

AVERAGE DISCHARGE.--28 years, 21.1 ft^3/s (0.597 m^3/s), 15,290 acre-ft/yr (18.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft^3/s (510 m^3/s) Nov. 2, 1974, gage height, 24.20 ft (7.376 m) present datum; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (56.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Dec. 1	2215	3,460	98.0	17.80	5.425	June 5	1730	2,970	84.1	16.40	4.999
May 14	0330	*3,840	109	*18,44	5.621						

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.1	515	5.1	625	9.6	25	13	29	3.4	.68	.00
2	1.3	2.0	220	4.9	68	9.4	21	11	21	3.2	.49	.00
3	1.3	1.8	13	4.6	24	9.6	19	10	19	3.1	.41	.00
4	1.3	1.8	9.3	4.6	17	135	19	9.7	15	2.8	.35	.00
5	1.3	1.7	8.2	4.6	16	50	313	9.5	557	2.9	.35	.00
6	1.2	1.8	6.9	4.4	17	20	58	9.2	110	2.7	.34	.00
7	1.0	1.8	6.3	4.4	14	14	30	8.4	23	2.7	.60	.00
8	1.1	1.7	5.6	4.4	14	12	27	8.0	15	2.6	.58	.00
9	1.0	1.8	5.6	4.4	16	11	28	8.1	11	2.5	.40	.00
10	.82	1.8	6.7	4.3	16	9.9	32	18	9.7	2.4	.40	.00
11	.74	13	5.8	4.0	12	9.7	23	41	11	2.3	.37	.00
12	1.0	4.9	5.2	3.8	11	9.9	20	12	9.0	2.3	.36	.00
13	1.3	2.4	5.2	4.1	10	10	21	340	7.6	2.3	.44	.00
14	1.3	2.1	5.2	4.0	10	10	19	1160	7.2	2.3	.30	.03
15	1.5	2.2	4.9	3.7	9.6	10	16	84	6.6	2.2	.24	.07
16	1.5	2.3	4.7	4.0	9.3	9.3	16	39	6.3	2.2	.15	.15
17	1.6	2.4	4.9	4.0	9.0	8.7	16	28	6.0	2.1	.08	.00
18	1.9	2.5	4.9	3.8	9.0	8.9	16	27	5.8	2.0	.06	.00
19	1.9	2.6	4.6	4.3	9.2	9.8	16	21	5.3	1.8	.11	.00
20	1.8	2.4	4.6	4.1	12	10	16	19	5.0	1.7	.84	.21
21	1.9	2.2	4.7	4.1	50	9.0	16	68	4.7	1.6	1.0	.02
22	2.1	2.3	4.7	4.6	35	8.7	26	26	4.4	1.6	.42	.00
23	2.5	2.2	4.7	4.4	16	9.2	52	17	4.2	1.4	.21	.00
24	2.6	2.1	28	4.4	13	9.5	22	15	4.1	1.2	.03	.00
25	2.6	2.3	7.5	4.3	11	10	17	13	8.9	1.1	.02	.00
26	2.6	7.0	4.9	7.7	10	450	16	12	7.3	1.0	.01	.00
27	2.4	11	28	5.6	9.6	71	15	12	9.3	.88	.01	.00
28	3.1	4.6	13	4.9	9.6	29	16	23	6.1	.72	.01	.00
29	2.8	1.8	6.3	4.6	---	39	14	122	4.4	.60	.00	.00
30	2.2	1.6	5.6	7.1	---	39	14	223	3.8	.57	.00	.00
31	2.1	---	5.4	154	---	27	---	111	---	.97	.00	---
TOTAL	52.96	92.2	959.4	291.2	1082.3	1078.2	959	2517.9	936.7	61.14	9.26	.48
MEAN	1.71	3.07	30.9	9.39	38.7	34.8	32.0	81.2	31.2	1.97	.30	.02
MAX	3.1	13	515	154	625	450	313	1160	557	3.4	1.0	.21
MIN	.74	1.6	4.6	3.7	9.0	8.7	14	8.0	3.8	.57	.00	.00
AC-FT	105	183	1900	578	2150	2140	1900	4990	1860	121	18	.9

CAL YR 1982	TOTAL 17190.26	MEAN 47.1	MAX 5590	MIN .74	AC-FT 34100				
WTR YR 1983	TOTAL 8040.74	MEAN 22.0	MAX 1160	MIN .00	AC-FT 15950				

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK

LOCATION.--Lat 35°40'31", long 96°03'55", NW 1/4 SW 1/4 sec.20, T.14 N., R.12 E., Okmulgee County, Hydrologic Unit 11100303, on right bank 1,000 ft (305 m) downstream from county road bridge, 2.8 mi (4.5 km) upstream from Adams Creek, 4.0 mi (6.4 km) south of Beggs, 8.2 mi (13.2 km) downstream from Flat Rock (Checkerboard) Creek, and at mile 84.8 (136.4 km).

DRAINAGE AREA.--2,018 mi^2 (5,277 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1938 to current year.

REVISED RECORDS.--WSP 957: 1941. WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 632.55 ft (192.802 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 29, 1939, nonrecording gage at site 550 ft (167.6 m) upstream at same datum. Aug. 29, 1939, to June 22, 1953, nonrecording gage at site 1,000 ft (304 m) upstream and same datum. June 23, 1953, to July 15, 1981, recording gage at site 1,000 ft (304 m) upstream at same datum

REMARKS.--Records fair.

AVERAGE DISCHARGE.--45 years, 793 ft^3/s (22.46 m^3/s), 574,500 acre-ft/yr (708 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft^3/s (1,890 m^3/s) May 11, 1943, gage height, 34.55 ft (10.531 m); no flow at times in 1939, 1954, 1956.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 3	1600	5,270	149	19.42	5.919	May 18	1000	*9,740	276	*22.44	6.840
Apr. 23	2300	3,150	89.2	14.41	4.392	June 6	1000	3,420	96.9	15.15	4.618

Minimum daily discharge 5.1 ft^3/s (0.14 m^3/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	17	150	759	3420	421	2040	767	2700	512	25	35
2	34	22	106	471	4340	353	1420	647	2640	512	24	31
3	28	22	244	198	5150	309	902	550	2530	512	22	26
4	23	22	504	170	5020	393	696	456	2400	512	19	22
5	21	22	555	149	4640	1480	574	390	2310	512	19	17
6	19	24	590	134	4430	1930	944	331	3250	362	24	13
7	18	24	492	125	4340	1940	1330	275	2750	176	26	10
8	17	22	378	121	4270	1850	1360	223	2300	160	33	9.2
9	14	19	296	116	3990	1520	1470	176	1960	141	47	8.6
10	13	19	241	115	2700	895	1470	140	1670	120	41	7.8
11	13	22	199	109	1150	662	1170	992	954	96	28	7.3
12	14	23	168	103	815	523	882	2110	596	93	22	6.8
13	18	23	160	98	626	428	762	2310	486	85	18	5.6
14	20	22	148	92	522	368	1320	3870	424	78	19	5.3
15	16	21	139	88	477	327	1110	4760	534	72	19	5.1
16	16	24	126	87	427	303	789	7340	536	68	20	6.7
17	16	25	118	84	378	276	627	8710	439	66	20	7.6
18	15	25	108	80	330	243	548	9680	348	62	20	11
19	14	26	99	80	293	222	483	9720	284	57	18	9.4
20	13	32	93	80	296	215	430	9380	239	54	16	10
21	13	33	88	80	824	243	389	8320	215	52	14	28
22	13	35	81	80	1710	242	451	7480	214	51	12	27
23	13	36	75	80	1350	219	2300	6610	214	48	11	24
24	13	36	105	80	1010	197	3040	5220	214	44	9.7	18
25	13	32	358	80	758	189	2840	4410	214	42	8.6	16
26	13	39	150	82	697	603	2600	3300	214	39	16	16
27	13	73	393	89	597	2380	1990	1740	214	36	63	22
28	15	303	2090	147	498	2390	1120	1180	214	32	65	32
29	18	395	1420	224	---	2240	813	1220	230	30	56	33
30	20	287	1060	178	---	2160	922	1980	499	28	47	27
31	18	---	885	270	---	2160	---	2640	---	26	40	---
TOTAL	543	1725	11619	4649	55058	27681	36792	106927	31792	4678	822.3	497.4
MEAN	17.5	57.5	375	150	1966	893	1226	3449	1060	151	26.5	16.6
MAX	39	395	2090	759	5150	2390	3040	9720	3250	512	65	35
MIN	13	17	75	80	293	189	389	140	214	26	8.6	5.1
AC-FT	1080	3420	23050	9220	109200	54910	72980	212100	63060	9280	1630	987

CAL YR 1982	TOTAL	372007	MEAN	1019	MAX	12000	MIN	13	AC-FT	737900
WTR YR 1983	TOTAL	282783.7	MEAN	775	MAX	9720	MIN	5.1	AC-FT	560900

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1951 to current year.
WATER TEMPERATURE: November 1951 to current year.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 10,500 micromhos Jan. 12, 1955; minimum daily, 83 micrmhos June 10, 1974.
WATER TEMPERATURE: Maximum daily, 38.5°C Aug. 8, 1970; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,680 micromhos Sept. 9-12, 16, 18, 19; minimum daily, 167 micromhos Feb. 1.
WATER TEMPERATURE: Maximum daily, 32.0°C on Sept. 18, 19; minimum daily, 7.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
NOV												
08...	1330	810	23	--	--	16.5	--	--	--	--	--	--
DEC												
07...	1450	80020	477	380	7.2	10.0	45	9.4	85	3600	520	120
21...	1430	810	85	--	--	5.0	--	--	--	--	--	--
FEB												
17...	1140	80020	386	794	7.6	8.0	110	10.7	91	K30	390	220
MAY												
20...	1120	80020	9470	280	6.9	19.0	320	5.6	62	>1200	>2000	84
AUG												
16...	1350	80020	20	1250	7.7	32.5	18	6.8	97	K14	320	320
SEP												
29...	1400	1028	33	1200	7.6	23.5	--	8.9	107	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
07...	24	26	13	29	34	1	4.3	95	29	46	.20	6.0
21...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	61	49	24	65	39	2	3.6	161	31	120	.30	8.4
MAY												
20...	10	20	8.3	15	27	.7	4.0	74	12	23	.20	8.2
AUG												
16...	63	60	42	140	48	3	5.7	261	38	240	.50	6.7
SEP												
29...	--	--	--	--	--	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
07...	227	210	.31	.430	.160	.21	13	1.10	3.4	.120	.080	.25
21...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	408	400	.55	.560	.210	.27	1.7	.180	.55	.080	.030	.09
MAY												
20...	139	140	.19	.150	<.060	--	1.4	.170	.52	.050	.030	.09
AUG												
16...	672	690	.91	<.100	.070	.09	1.1	.090	.28	.030	.030	.09
SEP												
29...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
07...	200	2	84	<.5	<1	<1	<3	8	190	3	6	4
21...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	100	1	140	<.5	<1	<1	<3	4	71	<1	21	65
MAY												
20...	--	1	78	<.5	1	<1	<3	5	250	3	<4	14
AUG												
16...	10	2	200	<.5	<1	<1	<3	3	5	1	14	22
SEP												
29...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
NOV											
08...	--	--	--	--	--	--	--	--	80	--	--
DEC											
07...	<.1	<10	8	<1	<1	260	<6	56	826	99	--
21...	--	--	--	--	--	--	--	--	100	--	--
FEB											
17...	.1	20.	2	1	<1	460	<6	10	151	95	--
MAY											
20...	<.1	<10	2	1	<1	160	<6	10	157	95	--
AUG											
16...	<.1	<10	3	1	<1	720	<6	4	64	72	--
SEP											
29...	--	--	--	--	--	--	--	--	--	--	11

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	698	1170	785	528	169	516	367	444	382	668	1330	1360
2	702	1180	463	529	168	517	606	430	383	666	1420	1340
3	699	1170	465	530	168	517	603	430	313	666	1420	1360
4	702	1240	464	529	167	750	608	797	314	666	1400	1350
5	704	1240	464	532	169	744	331	796	311	667	1410	1360
6	704	1160	331	660	451	311	657	795	310	182	1280	1260
7	724	1180	332	657	502	312	656	802	314	775	1260	1260
8	718	1160	330	662	644	311	653	653	312	777	1240	1260
9	713	1180	475	669	536	529	570	647	459	775	1240	1680
10	716	1180	475	679	562	526	569	540	460	776	1250	1680
11	746	1200	476	675	750	312	567	543	461	775	1240	1680
12	752	1190	555	682	---	309	594	544	460	869	1250	1680
13	751	1200	553	898	763	528	591	541	312	867	1240	1470
14	809	1130	551	910	756	630	594	171	711	870	1250	1460
15	814	1130	554	900	756	632	671	173	710	872	1250	1460
16	815	1200	774	1010	756	742	670	173	709	971	1260	1680
17	835	1200	687	1010	756	865	673	182	708	974	1260	1670
18	836	1140	694	990	761	861	749	187	709	973	1260	1680
19	858	1140	656	1010	764	577	806	183	709	1040	1400	1680
20	857	1140	690	1100	758	720	722	310	710	1030	1410	809
21	887	1130	653	1100	522	774	390	309	667	1040	1410	824
22	909	1140	651	1100	555	946	389	310	668	1040	1400	822
23	948	1140	774	1100	585	948	715	311	667	1280	1430	820
24	981	1140	683	1080	586	914	390	414	666	1270	1580	821
25	1080	1090	775	1100	571	909	435	413	666	1280	1570	1160
26	1090	1090	319	1080	595	971	434	413	668	1270	1580	1160
27	1090	1090	678	1090	594	335	436	414	658	1280	1590	1150
28	1100	1090	170	1080	595	331	434	185	655	1340	1580	1160
29	1100	1090	170	1090	---	331	434	390	673	1340	1570	1160
30	1100	924	530	1090	---	386	433	387	677	1330	1580	986
31	1190	---	529	176	---	379	---	385	---	1330	1360	---
MEAN	859	1150	539	847	554	595	558	428	547	957	1380	1310

WTR YR 1983 MEAN 812 MAX 1680 MIN 167

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	17.0	12.0	9.0	8.0	12.0	12.0	16.0	18.0	19.0	25.0	29.0
2	26.0	16.0	12.0	9.0	8.0	12.0	12.0	16.0	18.0	19.0	25.0	30.0
3	27.0	17.0	12.0	9.0	8.0	12.0	12.0	16.0	18.0	19.0	25.0	30.0
4	27.0	15.0	12.0	9.0	8.0	13.0	12.0	17.0	18.0	19.0	26.0	30.0
5	27.0	14.0	12.0	9.0	8.0	13.0	12.0	17.0	18.0	19.0	26.0	---
6	27.0	15.0	11.0	11.0	8.0	13.0	14.0	17.0	18.0	19.0	26.0	30.0
7	22.0	15.0	10.0	11.0	8.0	14.0	14.0	17.0	18.0	18.0	26.0	30.0
8	21.0	16.0	10.0	11.0	8.0	14.0	14.0	17.0	18.0	19.0	25.0	30.0
9	22.0	16.0	11.0	11.0	8.0	14.0	14.0	17.0	18.0	18.0	27.0	31.0
10	21.0	16.0	11.0	11.0	8.0	14.0	14.0	16.0	18.0	19.0	27.0	31.0
11	21.0	16.0	10.0	11.0	8.0	14.0	14.0	17.0	18.0	19.0	28.0	31.0
12	21.0	14.0	10.0	11.0	---	14.0	14.0	17.0	18.0	19.0	29.0	31.0
13	21.0	13.0	9.0	9.0	10.5	10.0	14.0	17.0	18.0	19.0	29.0	31.0
14	20.0	13.0	9.0	9.0	9.0	10.0	14.0	17.0	18.0	19.0	29.0	31.0
15	20.0	13.0	9.0	8.0	9.0	14.0	14.0	17.0	18.0	19.0	29.0	31.0
16	20.0	13.0	12.0	8.0	9.0	16.0	14.0	17.0	18.0	19.0	29.0	31.0
17	19.0	13.0	12.0	8.0	10.0	15.0	14.0	17.0	18.0	19.0	30.0	---
18	19.0	16.0	12.0	8.0	10.0	15.0	16.0	17.0	18.0	19.0	30.0	32.0
19	18.0	16.0	12.0	7.0	10.0	12.0	16.0	17.0	18.0	19.0	28.0	32.0
20	18.0	16.0	12.0	8.0	10.0	12.0	16.0	18.0	18.0	19.0	28.0	31.0
21	18.0	16.0	12.0	8.0	10.0	12.0	16.0	17.0	19.0	19.0	28.0	29.0
22	18.0	16.0	12.0	8.0	10.0	11.0	16.0	18.0	19.0	19.0	28.0	28.0
23	18.0	15.0	11.0	8.0	10.0	11.0	16.0	18.0	19.0	21.0	28.0	27.0
24	18.0	15.0	11.0	8.0	10.0	11.0	16.0	18.0	19.0	21.0	30.0	28.0
25	18.0	13.0	11.0	8.0	10.0	11.0	15.0	18.0	19.0	21.0	30.0	21.0
26	18.0	13.0	11.0	8.0	11.0	11.0	15.0	18.0	19.0	21.0	30.0	21.0
27	18.0	13.0	11.0	8.0	11.0	12.0	16.0	18.0	19.0	21.0	30.0	21.0
28	17.0	13.0	11.0	8.0	11.0	12.0	16.0	18.0	19.0	---	30.0	21.0
29	17.0	13.0	11.0	8.0	---	12.0	16.0	18.0	19.0	23.0	30.0	20.0
30	18.0	12.0	11.0	8.0	---	12.0	15.0	18.0	19.0	23.0	30.0	20.0
31	17.0	---	9.0	8.0	---	12.0	---	18.0	---	24.0	30.0	---
MEAN	20.5	14.5	11.0	9.0	9.0	12.5	14.5	17.0	18.5	19.5	28.0	28.0

WTR YR 1983 MEAN 17.0 MAX 32.0 MIN 7.0

ARKANSAS RIVER BASIN

07244800 EUFAULA LAKE NEAR BROOKEN, OK

LOCATION.--Lat 35°18'25", long 95°21'45", in SW 1/4 sec.25, T.10 N., R.18 E., McIntosh County, Hydrologic Unit 11090204, in intake structure near left end of dam on Canadian River, 4.0 mi (6.4 km) northeast of Brooken, and at mile 27.0 (43.4 km).

DRAINAGE AREA.--47,522 mi^2 (123,082 km^2), of which 9,700 mi^2 (25,123 km^2) is probably noncontributing.

PERIOD OF RECORD.--February 1964 to current year. Prior to October 1970, published as Eufaula Reservoir near Brooken.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earthen dam having a gated, concrete, ogee-type spillway weir controlled by eleven, 40 ft (12.2 m) taintor gates. Closure for diversion was made Feb. 1, 1963, and regulated storage began Feb. 10, 1964; minimum power pool was first filled June 17, 1964. Capacity, 3,798,000 acre-ft (4.68 km^3) at elevation 597.0 ft (181.966 m), top of flood control pool, 2,329,000 acre-ft (2.87 km^3) at elevation 585.0 ft (178.308 m), top of power pool, and 864,800 acre-ft (1.07 km^3) at elevation 565.0 ft (172.212 m), bottom of power pool. Dead storage is negligible. Figures given herein represent total contents. Reservoir is used for flood control, sediment control, power development, and other water uses. Revised capacity table, based on survey 1969, used since Oct. 1, 1972.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,791,000 acre-ft (4.67 km^3) Apr. 25, 1973, elevation, 596.95 ft (181.950 m); minimum since power pool first filled, 1,182,000 acre-ft (1.46 km^3) Nov. 4, 1964, elevation, 570.23 ft (173.806 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,858,000 acre-ft (3.52 km^3) May 17, elevation, 589.82 ft (179.777 m); minimum, 1,797,000 acre-ft (2.22 km^3) Sept. 29, elevation, 579.29 ft (176.568 m).

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

579	1,772,000	589	2,763,000
583	2,131,000	593	3,251,000
587	2,539,000	595	3,516,000

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1887000	1868000	1958000	2209000	2333000	2416000	2316000	2495000	2550000	2429000	2217000	1924000
2	1894000	1864000	1977000	2208000	2440000	2395000	2310000	2486000	2535000	2429000	2206000	1912000
3	1892000	1862000	2034000	2212000	2477000	2380000	2312000	2476000	2528000	2429000	2194000	1906000
4	1884000	1859000	2061000	2211000	2489000	2392000	2316000	2468000	2524000	2426000	2185000	1901000
5	1880000	1858000	2078000	2204000	2510000	2418000	2322000	2458000	2528000	2425000	2174000	1894000
6	1881000	1857000	2078000	2204000	2525000	2447000	2315000	2458000	2521000	2420000	2166000	1884000
7	1882000	1855000	2081000	2194000	2529000	2448000	2318000	2444000	2520000	2410000	2166000	1870000
8	1901000	1856000	2084000	2195000	2534000	2439000	2326000	2438000	2514000	2404000	2155000	1858000
9	1887000	1854000	2085000	2197000	2546000	2421000	2336000	2426000	2510000	2399000	2146000	1842000
10	1883000	1854000	2094000	2185000	2551000	2398000	2344000	2417000	2504000	2394000	2138000	1831000
11	1882000	1858000	2095000	2178000	2551000	2380000	2349000	2406000	2501000	2388000	2128000	1828000
12	1883000	1857000	2102000	2179000	2547000	2375000	2354000	2400000	2500000	2379000	2118000	1818000
13	1881000	1854000	2106000	2170000	2538000	2371000	2386000	2418000	2490000	2371000	2111000	1818000
14	1881000	1854000	2105000	2160000	2532000	2358000	2402000	2672000	2503000	2362000	2107000	1816000
15	1880000	1849000	2108000	2161000	2525000	2349000	2412000	2812000	2507000	2360000	2097000	1818000
16	1877000	1850000	2108000	2162000	2514000	2348000	2422000	2857000	2504000	2359000	2087000	1815000
17	1874000	1849000	2111000	2147000	2500000	2330000	2430000	2828000	2500000	2360000	2071000	1814000
18	1874000	1849000	2115000	2136000	2480000	2312000	2425000	2821000	2496000	2354000	2057000	1816000
19	1873000	1853000	2112000	2135000	2465000	2304000	2418000	2815000	2486000	2346000	2042000	1813000
20	1869000	1852000	2109000	2128000	2481000	2305000	2412000	2784000	2477000	2336000	2042000	1818000
21	1868000	1851000	2102000	2124000	2537000	2290000	2405000	2769000	2464000	2325000	2040000	1815000
22	1864000	1882000	2102000	2124000	2561000	2279000	2426000	2764000	2452000	2314000	2029000	1813000
23	1862000	1879000	2096000	2123000	2547000	2266000	2449000	2745000	2445000	2305000	2018000	1810000
24	1860000	1879000	2098000	2115000	2519000	2254000	2474000	2713000	2438000	2294000	2006000	1807000
25	1859000	1882000	2095000	2112000	2499000	2238000	2482000	2675000	2441000	2285000	1997000	1807000
26	1858000	1898000	2098000	2118000	2477000	2254000	2484000	2644000	2444000	2278000	1985000	1807000
27	1856000	1929000	2139000	2114000	2459000	2254000	2486000	2631000	2455000	2264000	1978000	1805000
28	1866000	1937000	2168000	2112000	2437000	2265000	2483000	2619000	2437000	2252000	1973000	1801000
29	1864000	1945000	2184000	2118000	---	2274000	2488000	2606000	2432000	2240000	1957000	1800000
30	1865000	1949000	2193000	2121000	---	2284000	2496000	2587000	2434000	2238000	1944000	1799000
31	1864000	---	2201000	2170000	---	2286000	---	2567000	---	2228000	1937000	---
MAX	1901000	1949000	2201000	2212000	2561000	2448000	2496000	2857000	2550000	2429000	2217000	1924000
MIN	1856000	1849000	1958000	2112000	2333000	2238000	2310000	2400000	2432000	2228000	1937000	1799000
†	580.07	581.04	583.72	583.40	586.03	584.57	586.59	587.26	586.00	584.00	580.90	579.31
††	-26,000	+85,000	+252,000	-31,000	+267,000	-151,000	+210,000	+71,000	-133,000	-206,000	-291,000	-138,000

CAL YR 1982 MAX 3545000 MIN 1849000, †† +66,000
WTR YR 1983 MAX 2857000 MIN 1799000, †† -91,000

† Elevation, in feet, at end of month
†† Change in contents, in acre-feet

ARKANSAS RIVER BASIN

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK

LOCATION.--Lat 35°15'50", long 95°14'21", in SE 1/4 SE 1/4 sec.12, T.9 N., R.19 E., Haskell County, Hydrologic Unit 11090204, on left downstream bank at end of bridge on State Highway 2, 0.8 mi (1.3 km) north of Whitefield, 5.5 mi (8.8 km) upstream from Taleka (Snake) Creek, 8.2 mi (13.2 km) downstream from Eufaula Dam, and at mile 18.8 (30.2 km). Prior to July 27, 1983 gage at site 400 ft (122 m) upstream.

DRAINAGE AREA.--47,576 mi^2 (123,222 km^2), of which 9,700 mi^2 (25,123 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1177: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 473.16 ft (144.219 m), National Geodetic Vertical Datum of 1929. Prior to Jan. 11, 1939, nonrecording gage and Jan. 11, 1939, to Dec. 10, 1941, June 12, 1947, to Sept. 30, 1948, water-stage recorder, all at site 2.1 mi (3.4 km) downstream at datum 2.20 ft (0.671 m) higher. Dec. 11, 1941, to June 1, 1947, and Oct. 1, 1948, to Sept. 30, 1978, water-stage recorder at site 400 ft (122 m) upstream and at datum 5.00 ft (1.524 m) higher. Oct. 1, 1978 to July 26, 1983, water-stage recorder at site 400 ft (122 m) upstream at same datum.

REMARKS.--Records fair. Prior to February 1964, occasional slight regulation by Conchas Lake in New Mexico and, except for 54 mi^2 (140 km^2) of intervening area, completely regulated thereafter by Eufaula Lake (station 07244800).

COOPERATION.--Gage-height record and 26 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Eufaula Dam) 25 years (water years 1939-63), 6,005 ft^3/s (170.1 m^3/s), 4,347,000 acre-ft/yr (5.36 km^3/yr); (since regulation by Eufaula Dam) 16 years (water years 1968-83), 5,067 ft^3/s (143.5 m^3/s), 3,671,000 acre-ft/yr (4.53 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 281,000 ft^3/s (7,960 m^3/s) May 10, 1943, gage height, 25.5 ft (7.77 m) datum then in use; minimum daily, 0.4 ft^3/s (0.011 m^3/s) Oct. 8, 1956.

EXTREMES FOR OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1898, that of May 10, 1943, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43,500 ft^3/s (1,230 m^3/s) May 18, gage height, 16.53 ft (5.038 m); minimum daily discharge, 22 ft^3/s (0.62 m^3/s) Dec. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	677	38	390	34	1730	15700	781	6020	17700	3920	5530	4830
2	588	157	931	30	7560	15600	89	7820	14000	2710	4690	5870
3	93	510	2140	262	5010	12900	111	6310	13800	2250	4280	2670
4	2690	66	282	1540	7830	13400	2060	7010	8640	2030	4700	1550
5	1190	101	150	2950	4430	6050	3330	6270	8330	3430	4690	1420
6	931	597	101	2010	4560	5970	5520	6180	8050	3910	2600	4410
7	379	70	191	3440	8150	9630	2980	3400	8250	3800	1600	5650
8	104	57	345	1480	7570	13400	3470	3230	8200	3230	4900	5610
9	113	189	63	837	8360	15500	767	6070	6570	3530	4330	6030
10	72	484	118	5620	8370	15400	64	6210	6410	3330	3670	4260
11	61	63	334	3110	8020	15400	1510	6360	4590	3820	3610	1540
12	294	105	67	2360	8250	7290	890	6850	4300	3770	3820	2890
13	407	398	42	3830	8380	6090	1370	6050	7310	4910	1430	631
14	74	72	115	4390	8530	9390	2430	4000	7960	4430	1100	84
15	199	522	272	1950	8220	9090	4690	7840	8000	3330	3670	72
16	475	186	112	750	8270	7480	1310	24400	7920	863	4200	74
17	71	105	37	4980	9270	7170	39	38500	7630	122	5200	62
18	51	500	152	4560	11800	9050	3890	40100	6720	2710	6000	59
19	688	136	22	4920	9970	10300	6070	33900	6480	4150	5530	348
20	557	58	1330	5350	12300	2610	5910	34100	7870	5150	1610	256
21	74	56	3130	4870	12300	5160	6370	34200	8530	3330	155	85
22	1120	514	2900	1270	15100	6790	6200	33900	7480	5800	3630	72
23	589	397	2830	180	22200	7840	3960	34000	5140	3600	5790	127
24	75	630	3300	4640	22100	7830	3460	33900	6070	5640	5890	523
25	55	105	1200	2320	19900	8590	5840	33700	2000	3830	6090	81
26	205	242	57	2110	15800	5130	5770	31800	173	3700	6310	72
27	560	483	653	2240	15700	2050	6980	23800	5680	4620	4680	452
28	77	205	1290	2050	15700	2700	9530	19300	6170	5620	3120	1190
29	126	140	989	1020	---	3800	9610	19100	6330	5010	5620	925
30	371	252	61	148	---	2800	6490	18900	3450	4390	6850	749
31	51	---	43	1610	---	3750	---	18800	---	3560	4390	---
TOTAL	13017	7438	23647	76861	295380	263860	111491	562020	219753	114495	129685	52592
MEAN	420	248	763	2479	10550	8512	3716	18130	7325	3693	4183	1753
MAX	2690	630	3300	5620	22200	15700	9610	40100	17700	5800	6850	6030
MIN	51	38	22	30	1730	2050	39	3230	173	122	155	59
AC-FT	25820	14750	46900	152500	585900	523400	221100	1115000	435900	227100	257200	104300

CAL YR 1982	TOTAL	2591337	MEAN	7100	MAX	43900	MIN	22	AC-FT	5140000
WTR YR 1983	TOTAL	1870239	MEAN	5124	MAX	40100	MIN	22	AC-FT	3710000

ARKANSAS RIVER BASIN

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1944-64, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1944 to February 1945, September 1946 to September 1964, October 1966 to current year.
WATER TEMPERATURE.--September 1944 to February 1945, September 1946 to September 1964, October 1966 to current year.

REMARKS.--Samples were collected by a local observer on a daily basis. Additional samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 22,900 micromhos Nov. 11, 1956; minimum daily, 36 micrmhos May 19, 1980.
WATER TEMPERATURE: Maximum daily, 39.0°C, July 16, 1981; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 549 micromhos Aug. 22; minimum daily, 92 micromhos Dec. 3.
WATER TEMPERATURE: Maximum daily, 30.0°C Aug. 31, Sept. 1; minimum daily, 4.0°C Jan. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
20...	0955	80020	352	410	7.8	15.0	10	9.6	95	320	280	120
DEC												
21...	1315	80020	2900	435	7.7	11.0	9.8	10.4	97	K29	90	130
FEB												
15...	1525	80020	11400	465	8.0	8.5	5.8	11.7	99	K3	K33	130
APR												
14...	0940	1028	252	400	7.8	8.5	.80	11.4	99	K8	48	100
JUN												
27...	1445	80020	10200	--	7.4	23.0	30	6.1	73	180	200	120
AUG												
16...	1330	80020	196	--	7.3	27.0	5.4	6.8	87	120	K36	130

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
20...	31	33	9.8	31	34	1	4.3	92	38	52	.30	3.4
DEC												
21...	37	35	10	33	35	1	4.3	92	35	50	.30	3.5
FEB												
15...	40	35	11	38	37	1	4.5	93	38	57	.30	3.3
APR												
14...	27	27	8.7	30	38	1	3.4	77	30	47	.20	4.7
JUN												
27...	31	30	10	36	39	2	3.3	85	38	58	.20	4.7
AUG												
16...	37	34	11	36	37	1	3.8	94	38	61	.30	5.6

ARKANSAS RIVER BASIN

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
20...	228	230	.31	.200	.080	.10	1.4	.070	.21	.060	.030	.09
DEC												
21...	233	230	.32	.230	<.060	.08	.90	.090	.28	.050	<.010	--
FEB												
15...	242	240	.33	.260	.090	.12	.80	.050	.15	.050	.030	.09
APR												
14...	191	200	.26	.380	.100	.13	1.0	.080	.25	.050	.020	.06
JUN												
27...	237	230	.32	.520	<.060	--	.60	.100	.31	.060	.040	.12
AUG												
16...	239	250	.33	.360	.060	.08	.70	.050	.15	.060	.040	.12

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT											
20...	20	2	99	<.5	4	<1	<3	4	48	4	12
DEC											
21...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	20	1	110	<.5	2	<1	<3	3	35	4	8
APR											
14...	210	1	82	<.5	<1	<1	<3	4	110	5	13
JUN											
27...	--	--	--	--	--	--	--	--	--	--	--
AUG											
16...	20	1	100	<1	<1	<1	<3	3	13	2	10

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
20...	4	<.1	<10	3	<1	<1	280	<6	26	15	92
DEC											
21...	--	--	--	--	--	--	--	--	--	58	76
FEB											
15...	4	<.1	<10	3	1	<1	310	<6	40	11	77
APR											
14...	20	<.1	<10	3	<1	<1	240	<6	10	46	94
JUN											
27...	--	--	--	--	--	--	--	--	--	37	85
AUG											
16...	58	<.1	<10	4	<1	<1	300	<6	11	8	82

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	438	438	403	380	422	446	421	438	457	451	442	463
2	406	444	93	395	415	437	454	429	458	446	446	465
3	428	396	92	385	428	448	456	428	451	444	460	491
4	445	423	117	410	418	450	426	430	452	445	461	483
5	395	398	114	410	420	413	428	432	461	445	439	484
6	394	397	170	412	426	412	424	425	454	452	444	475
7	421	423	312	416	422	438	425	441	455	453	450	477
8	437	429	313	408	420	440	425	445	464	440	452	474
9	433	399	330	402	415	433	428	445	457	443	447	474
10	448	400	331	407	410	431	467	444	452	463	446	469
11	441	430	187	---	417	442	469	445	456	458	443	485
12	462	431	192	---	420	439	360	444	448	453	443	476
13	395	420	209	---	419	432	359	445	459	444	450	516
14	448	433	335	420	421	450	423	160	452	442	458	515
15	443	427	339	420	423	433	425	160	450	439	458	520
16	403	422	356	421	428	431	407	447	449	450	467	520
17	430	427	361	416	433	426	423	449	446	486	446	537
18	446	407	373	417	435	426	425	428	442	446	450	540
19	459	408	380	417	450	420	426	479	443	444	460	534
20	427	440	432	415	445	419	422	478	444	440	456	497
21	425	430	414	420	434	415	422	472	443	463	508	497
22	405	215	415	426	437	422	373	497	459	450	549	516
23	405	344	410	429	424	423	373	492	445	446	462	508
24	447	399	409	418	423	430	421	493	442	457	460	510
25	448	372	412	416	437	424	423	476	440	460	456	509
26	459	367	411	396	437	423	423	466	439	451	480	521
27	410	110	384	378	440	435	426	443	433	444	460	490
28	427	105	391	403	442	436	419	445	432	455	456	495
29	407	200	399	385	---	426	420	446	440	445	455	491
30	404	356	361	346	---	420	426	430	450	442	458	513
31	422	---	353	340	---	417	---	425	---	440	460	---
MEAN	428	376	316	404	427	430	421	432	449	450	459	498

WTR YR 1983 MEAN 424 MAX 549 MIN 92

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	17.0	10.0	5.0	5.0	12.0	15.0	19.0	19.0	28.0	29.0	30.0
2	28.0	16.0	13.0	7.0	6.0	11.0	12.0	18.0	22.0	26.0	28.0	27.0
3	29.0	15.0	12.0	5.0	5.0	12.0	14.0	19.0	20.0	28.0	29.0	29.0
4	26.0	14.0	10.0	6.0	6.0	11.0	12.0	18.0	21.0	21.0	28.0	26.0
5	25.0	15.0	9.0	8.0	7.0	10.0	11.0	20.0	24.0	27.0	26.0	25.0
6	26.0	16.0	8.0	7.0	5.0	9.0	10.0	20.0	20.0	26.0	28.0	28.0
7	27.0	16.0	10.0	9.0	7.0	8.0	11.0	19.0	25.0	29.0	24.0	29.0
8	26.0	17.0	10.0	11.0	6.0	10.0	11.0	20.0	23.0	22.0	25.0	27.0
9	25.0	16.0	8.0	10.0	6.0	6.0	12.0	18.0	24.0	27.0	28.0	28.0
10	24.0	18.0	9.0	8.0	8.0	5.0	13.0	18.0	23.0	27.0	27.0	29.0
11	23.0	18.0	8.0	---	9.0	9.0	18.0	20.0	23.0	28.0	27.0	28.0
12	24.0	15.0	7.0	---	7.0	12.0	18.0	19.0	22.0	29.0	29.0	27.0
13	23.0	14.0	5.0	---	9.0	13.0	17.0	21.0	23.0	28.0	28.0	24.0
14	23.0	13.0	4.0	8.0	7.0	10.0	14.0	19.0	22.0	27.0	28.0	27.0
15	24.0	14.0	10.0	7.0	8.0	13.0	15.0	17.0	24.0	26.0	26.0	26.0
16	19.0	14.0	9.0	5.0	7.0	15.0	14.0	17.0	20.0	26.0	27.0	28.0
17	20.0	15.0	8.0	10.0	10.0	12.0	17.0	19.0	23.0	28.0	28.0	27.0
18	16.0	15.0	8.0	7.0	9.0	11.0	15.0	19.0	21.0	---	29.0	28.0
19	16.0	16.0	9.0	5.0	11.0	9.0	11.0	18.0	23.0	---	27.0	26.0
20	15.0	15.0	11.0	6.0	10.0	8.0	10.0	19.0	26.0	29.0	26.0	17.0
21	14.0	14.0	9.0	5.0	9.0	10.0	13.0	20.0	25.0	28.0	29.0	18.0
22	15.0	16.0	13.0	4.0	12.0	10.0	14.0	22.0	23.0	27.0	28.0	22.0
23	20.0	13.0	9.0	6.0	6.0	9.0	17.0	21.0	26.0	29.0	28.0	18.0
24	14.0	9.0	11.0	8.0	8.0	11.0	15.0	23.0	24.0	28.0	27.0	20.0
25	13.0	11.0	10.0	9.0	10.0	10.0	19.0	24.0	24.0	26.0	29.0	25.0
26	19.0	10.0	9.0	6.0	7.0	12.0	18.0	25.0	24.0	28.0	27.0	19.0
27	18.0	10.0	7.0	5.0	8.0	8.0	16.0	24.0	25.0	27.0	29.0	22.0
28	19.0	9.0	7.0	6.0	9.0	10.0	17.0	25.0	26.0	28.0	27.0	27.0
29	19.0	9.0	8.0	7.0	---	10.0	15.0	22.0	25.0	29.0	28.0	25.0
30	18.0	13.0	7.0	7.0	---	11.0	18.0	20.0	26.0	28.0	25.0	20.0
31	18.0	---	5.0	8.0	---	13.0	---	22.0	---	27.0	30.0	---
MEAN	21.0	14.0	9.0	7.0	8.0	10.5	14.5	20.0	23.0	27.0	27.5	25.0

WTR YR 1983 MEAN 17.5 MAX 30.0 MIN 4.0

ARKANSAS RIVER BASIN

07246400 ROBERT S. KERR LOCK AND DAM (ARKANSAS RIVER) NEAR SALLISAW, OK

LOCATION.--Lat 35°20'57", long 94°46'43", in SW 1/4 SW 1/4, sec. 9, T.10N., R.24 E., LeFlore County, Hydrologic Unit 11110104, from lock wall at dam, 0.5 mi (0.8 km) upstream from gage on bridge on U.S. Highway 59, 3.5 mi (5.6 km) downstream from Sans Bois Creek, 7.5 mi (12.1 km) south of Sallisaw, and at mile 395.4 (636.2 km).

DRAINAGE AREA.--147,756 mi^2 (382,688 km^2) of which 22,241 mi^2 (57,604 km^2) is probably noncontributing.

PERIOD OF RECORD.--Water years 1970 to current year.

REVISED RECORDS.--OK-77-1: Drainage area.

REMARKS.--Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT											
22...	1230	80020	796	7.9	17.0	8.5	88	--	160	43	46
NOV											
18...	1045	80020	810	7.8	12.0	10.2	96	21	160	43	47
DEC											
22...	1400	80020	576	7.8	12.0	11.6	110	--	120	27	36
JAN											
26...	1450	80020	552	7.8	6.5	12.5	103	20	140	--	43
FEB											
16...	1510	80020	525	7.8	11.0	11.8	108	21	140	39	42
MAR											
16...	1445	80020	748	7.8	15.5	10.5	108	29	150	51	45
APR											
14...	1503	80020	938	7.6	11.0	11.2	103	29	170	55	50
MAY											
19...	1415	80020	560	7.4	18.0	9.5	102	--	120	39	34
JUN											
29...	1530	80020	897	7.6	27.0	7.2	93	21	170	56	48
JUL											
20...	1250	80020	1070	7.8	28.5	7.6	100	36	180	66	52
AUG											
17...	1130	80020	893	8.1	30.0	6.4	86	24	170	58	48
SEP											
21...	1135	80020	668	7.3	22.0	7.2	84	21	150	42	42

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
OCT										
22...	11	83	52	3	4.8	117	58	130	411	.56
NOV										
18...	11	86	53	3	4.8	120	--	--	424	.58
DEC										
22...	8.0	53	47	2	4.4	96	45	75	288	.39
JAN										
26...	8.4	46	40	2	4.2	--	39	66	293	.40
FEB										
16...	8.2	41	38	2	3.8	100	41	61	264	.36
MAR										
16...	9.6	76	51	3	4.1	101	50	120	365	.50
APR										
14...	11	110	58	4	3.9	115	65	160	461	.63
MAY										
19...	8.1	55	49	2	3.4	79	43	87	281	.38
JUN										
29...	11	93	54	3	4.0	109	69	140	437	.59
JUL										
20...	13	110	56	4	4.7	118	86	170	519	.71
AUG										
17...	12	89	53	3	4.4	112	64	140	423	.58
SEP										
21...	11	71	50	3	3.8	108	55	110	367	.50

ARKANSAS RIVER BASIN

07247500 FOURCHE MALINE NEAR RED OAK, OK

LOCATION.--Lat 34°54'45", long 95°09'20", in NW 1/4 NW 1/4 sec.13, T.5 N., R.20 E., Latimer County, Hydrologic Unit 11110105, on downstream side of left abutment of county road bridge, 0.1 mi (0.2 km) downstream from Little Fourche Maline, 5.0 mi (8.0 km) southwest of Red Oak, and at mile 41.2 (66.3 km).

DRAINAGE AREA.--122 mi^2 (316 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1631: 1940.

GAGE.--Water-stage recorder. Datum of gage is 540.80 ft (164.836 m), National Geodetic Vertical Datum of 1929. Prior to April 25, 1939, nonrecording gage at same site and datum.

REMARKS.--Records fair. Some regulation by several floodretarding structures.

AVERAGE DISCHARGE.--45 years, 125 ft^3/s (3.540 m^3/s), 13.91 in/yr (353 mm/yr), 90,560 acre-ft/yr (112 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 41,500 ft^3/s (1,175 m^3/s) May 19, 1960, gage height, 24.79 ft (7.556 m), from floodmarks, from rating curve extended above 25,000 ft^3/s (709 m^3/s); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1935 reached a stage of 25.4 ft (7.742 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,210 ft^3/s (62.6 m^3/s) Dec. 3, gage height, 13.93 ft (4.246 m), no peak above base of 3,000 ft^3/s (85 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.48	18	123	651	145	25	52	302	65	3.0	.00
2	.00	.97	632	109	574	121	102	45	183	42	3.0	.00
3	.00	1.4	2000	116	318	118	105	39	126	32	3.0	.00
4	.00	1.2	1600	104	205	530	74	33	97	26	2.8	.00
5	.00	.75	905	92	165	1160	61	29	81	152	2.5	.00
6	.00	.61	737	83	166	657	58	24	103	116	2.4	.00
7	.02	3.5	474	77	155	466	53	20	78	58	2.1	.00
8	.06	6.7	269	74	131	253	47	18	59	40	14	.00
9	.56	5.9	91	70	120	136	41	16	46	31	4.2	.00
10	1.2	4.6	71	64	126	100	36	14	38	26	.93	.00
11	.84	3.3	141	56	122	82	33	16	32	23	.56	.00
12	.35	2.8	143	51	105	74	29	16	28	19	.40	.00
13	.23	2.1	105	46	92	70	104	15	24	16	.33	.00
14	.20	2.1	80	42	86	63	251	273	21	14	.30	.00
15	.18	2.1	64	37	79	59	155	1240	19	12	.23	.00
16	.18	1.6	53	34	73	52	96	711	17	11	.20	.00
17	.20	1.2	45	30	68	50	70	387	14	9.8	.17	.00
18	.35	1.2	40	27	67	44	60	1460	19	9.9	.16	.00
19	.52	1.3	36	26	65	35	52	1220	22	8.8	.14	.00
20	.71	1.4	33	27	95	34	47	676	18	7.4	.12	.00
21	.70	3.3	30	30	843	31	42	742	15	6.5	.09	.00
22	.12	2.6	29	31	991	24	52	1160	13	6.1	.08	.00
23	.00	1.4	29	29	666	20	377	686	12	5.6	.07	.00
24	.00	.81	43	28	486	17	304	415	12	5.0	.08	.00
25	.07	.61	68	26	276	16	176	228	12	4.7	.08	.00
26	.24	4.3	60	33	202	25	113	212	21	4.5	.08	.00
27	.15	52	330	58	167	53	82	1200	228	4.3	.08	.00
28	.12	75	853	71	155	44	66	889	124	4.0	.06	.00
29	.33	45	468	120	---	33	60	948	272	3.6	.06	.00
30	.91	26	253	150	---	25	60	950	136	3.6	.04	.00
31	.78	---	165	176	---	23	---	552	---	3.2	.03	---
TOTAL	9.02	256.23	9865	2040	7249	4560	2831	14286	2172	770.0	41.29	.00
MEAN	.29	8.54	318	65.8	259	147	94.4	461	72.4	24.8	1.33	.00
MAX	1.2	75	2000	176	991	1160	377	1460	302	152	14	.00
MIN	.00	.48	18	26	65	16	25	14	12	3.2	.03	.00
AC-FT	18	508	19570	4050	14380	9040	5620	28340	4310	1530	82	.00

CAL YR 1982	TOTAL 54554.68	MEAN 149	MAX 3480	MIN .00	AC-FT 108200				
WTR YR 1983	TOTAL 44079.54	MEAN 121	MAX 2000	MIN .00	AC-FT 87430				

ARKANSAS RIVER BASIN

07247500 FOURCHE MALINE NEAR RED OAK, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952, 1954, 1956-60, 1963, 1978 to current year.

REMARKS.-- Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
FEB											
08...	1400	80020	127	81	5.5	6.5	12.1	102	23	5.0	2.6
APR											
19...	1500	80020	52	112	6.5	13.0	10.0	98	29	6.3	3.3
JUN											
09...	1600	80020	45	106	6.3	22.0	7.3	86	27	5.6	3.1
JUL											
11...	1430	80020	22	107	6.3	26.5	6.0	77	28	6.1	3.2
AUG											
24...	1000	80020	.07	176	6.5	27.0	.9	11	60	13	6.7

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)
FEB											
08...	7.8	41	.7	1.2	19	6.4	<.10	7.5	57	.08	720
APR											
19...	10	41	.8	1.5	20	6.2	.10	5.8	62	.08	1000
JUN											
09...	9.3	42	.8	1.4	21	6.6	.10	8.6	97	.13	1100
JUL											
11...	9.2	39	.8	1.8	16	5.3	.10	7.5	80	.11	--
AUG											
24...	13	30	.8	4.2	12	8.4	.20	7.6	109	.15	1200

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUMINUM, SUSPENDED RECOV. (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	BERYLLIUM, DISSOLVED (UG/L AS BE)	BORON, DISSOLVED (UG/L AS B)
FEB											
08...	650	70	1	--	<1	<100	--	23	<10	<.5	10
APR											
19...	800	200	1	0	1	<100	--	36	<10	<.5	30
JUN											
09...	1100	20	1	0	1	<100	--	43	<10	.5	30
JUL											
11...	--	180	1	--	<1	<100	--	40	<10	<.5	30
AUG											
24...	1200	40	5	4	1	100	.00	81	<10	<.5	30

ARKANSAS RIVER BASIN

07247500 FOURCHE MALINE RIVER NEAR RED OAK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
FEB										
08...	1	<1	<10	<10	2	1	1	1100	870	230
APR										
19...	1	<1	10	<10	8	6	2	2100	1800	260
JUN										
09...	<1	1	10	<10	6	5	1	2600	2300	340
JUL										
11...	<1	<1	40	<10	8	--	<1	3100	2900	220
AUG										
24...	<1	<1	<10	<10	19	16	3	4000	3900	120

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-MPENDED RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
FEB										
08...	1	0	1	60	20	37	.2	--	<.1	5
APR										
19...	6	5	1	140	40	100	.3	.2	.1	10
JUN										
09...	2	--	<1	140	60	85	.5	.3	.2	<1
JUL										
11...	1	0	1	220	90	130	1.5	.7	.8	6
AUG										
24...	3	--	<1	2200	200	2000	.7	.2	.5	12

ARKANSAS RIVER BASIN

07248000 WISTER LAKE NEAR WISTER, OK

LOCATION.--Lat 34°56'10", long 94°43'10", in SE 1/4 NE 1/4 sec.1, T.5 N., R.24 E., LeFlore County, Hydrologic Unit 11110105, in control tower near right end of Wister Dam on Poteau River, 2.0 mi (3.2 km) south of Wister, 2.7 mi (4.3 km) upstream from Caston Creek, and at mile 60.9 (98.0 km).

DRAINAGE AREA.--993 mi^2 (2,572 km^2).

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1970, published as Wister Reservoir near Wister.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by an earthen dam with outlets of an uncontrolled, concrete, chute-type spillway and six 7.0 ft (2.13 m) x 12.0 ft (3.66 m) vertical liftgates. Regulated storage began Oct. 4, 1949, conservation pool was first filled Dec. 19, 1949. Capacity, 429,600 acre-ft (530 hm^3) at elevation 502.5 ft (153.16 m) crest of spillway and 29,950 acre-ft (36.9 hm^3) at elevation 471.6 ft (143.74 m) conservation pool. Figures given herein represent total contents. Reservoir is used for flood control and recreation. Revised capacity table used since Oct. 1, 1973.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 507,400 acre-ft (626 hm^3) May 27, 1957, elevation, 505.73 ft (154.147 m); minimum since conservation pool was first filled, 4,020 acre-ft (5.0 hm^3) Oct. 16, 1961, elevation, 456.97 ft (139.284 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 210,400 acre-ft (259 hm^3) Dec. 6, elevation, 491.13 ft (149.696 m); minimum, 26,590 acre-ft (32.8 hm^3) Feb. 14, elevation, 471.48 ft (143.707 m).

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

471	24,720	483	106,500
475	43,240	487	152,400
479	69,990	492	224,000

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58570	59130	70380	74520	35690	29240	29240	48180	119600	67330	61700	59970
2	58430	60260	70540	67020	39470	28280	31530	53840	107900	68960	61480	59970
3	58430	60400	147600	59760	39790	27670	34670	92440	102800	72390	61270	59760
4	58360	60470	193400	55090	38690	36320	35010	97850	99130	73040	61190	59690
5	58150	60470	208100	52300	37170	56430	33030	94160	94830	82370	60980	59410
6	58290	60550	210300	49140	35480	65720	31440	88500	92060	83160	60760	59270
7	58290	60550	205200	45730	33630	67790	30560	82990	87950	81140	60620	59270
8	59760	60550	197300	42630	31710	61340	30260	76010	82370	78210	61270	58920
9	59900	60470	187800	39260	30350	53130	30220	67250	78120	74850	61340	58850
10	59760	60550	177800	35930	29190	46360	30130	58080	75430	71260	61560	58640
11	59620	60760	172700	32390	28530	42630	29920	52230	73530	68260	61480	58500
12	59550	60620	167200	30220	27870	40310	29530	47240	71260	65640	61850	58430
13	59410	60550	158100	29360	26980	37870	34200	42580	69200	64140	61770	58220
14	59270	60400	148800	28780	26620	35390	43350	54690	67170	63910	61770	58080
15	59060	60330	137900	28690	26940	32850	45150	88870	64960	63910	61850	58290
16	58990	60330	127400	28530	27260	30260	44250	103000	63840	63990	61770	58150
17	58920	60330	116400	28280	27510	28400	42250	108500	63760	63910	61630	58010
18	58780	60330	105900	27870	27630	27910	39790	155000	63610	63840	61410	57870
19	59060	60330	94930	27790	27750	28240	37220	188500	63540	63990	61270	57800
20	58920	60260	84140	27630	27910	28490	34820	194500	63390	63990	61120	57940
21	58850	60260	73200	27630	29530	28320	32530	197900	63320	63910	60980	57800
22	58710	60330	63470	27630	35350	28320	32160	204200	63320	63760	60830	57590
23	58640	60260	57940	27630	38640	28280	50230	205100	63240	63470	60690	57460
24	58570	60050	72800	27590	37930	28240	59620	197700	63320	63240	60550	57250
25	58500	60050	81310	27470	36720	28160	61050	187600	63390	63020	60400	57180
26	58430	61990	82190	27750	34910	28860	58500	176200	63470	62800	60330	57110
27	58290	69280	90930	27990	33030	28610	56570	165200	63470	62580	60190	56910
28	58710	69590	98740	28450	30650	28900	54760	157000	64590	62510	60120	56840
29	58570	70230	97070	29030	---	29110	52680	149200	66400	62210	59900	56700
30	58500	70380	90550	29490	---	29240	50480	139400	67400	62140	59830	56570
31	58500	---	82990	30300	---	28690	---	129600	---	61920	60190	---
MAX	59900	70380	210300	74520	39790	67790	61050	205100	119600	83160	61850	59970
MIN	58150	59130	57940	27470	26620	27670	29240	42580	63240	61920	59830	56570
†	477.46	479.05	480.55	472.38	472.46	472.00	476.24	485.13	478.67	477.94	477.70	477.18
††	-210	+11,880	+12,610	-52,690	+350	-1,960	+21,790	+79,120	-62,200	-5,480	-1,730	-3,620

CAL YR 1982 MAX 210300 MIN 26700, †† +55,890
WTR YR 1983 MAX 210300 MIN 26620, †† -2,140

† Elevation, in feet, at end of month.
†† Change in contents, in acre-feet.

ARKANSAS RIVER BASIN

07248500 POTEAU RIVER NEAR WISTER, OK

LOCATION.--Lat 34°56'15", long 94°42'54", in NW 1/4 NW 1/4 sec.6, T.5 N., R.25 E., LeFlore County, Hydrologic Unit 11110105, on left bank of outflow channel 700 ft (213.4 m) downstream from Wister Dam, 2.2 mi (3.5 km) southeast of Wister, 2.6 mi (4.2 km) upstream from Caston Creek, and at mile 60.8 (97.8 km).

DRAINAGE AREA.--993 mi^2 (2,572 km^2).

PERIOD OF RECORD.--May 1938 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to May 21, 1951, records below about 500 ft^3/s (14.2 m^3/s) include flow from Caston Creek, drainage area, 70 mi^2 (181 km^2).

REVISED RECORDS.--WSP 1117: Drainage area. WSP 1241: 1939, 1943 (M), 1945 (M).

GAGE.--Water-stage recorder. Datum of gage is 445.43 ft (135.767 m), National Geodetic Vertical Datum of 1929. See WSP 1921 for history of changes prior to June 28, 1953.

REMARKS.--Records good. Flow completely regulated by Wister Lake since October 1949 (station 07248000).

COOPERATION.--Gage height record and 13 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Wister Dam) 11 years (water years 1939-49), 1,325 ft^3/s (37.52 m^3/s), 960,000 acre-ft/yr (1.18 km^3/yr), (since regulation by Wister Dam) 34 years (water years 1950-83), 1,055 ft^3/s (29.88 m^3/s), 764,300 acre-ft/yr (942 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 78,600 ft^3/s (2,230 m^3/s) May 16, 1945, gage height, 37.16 ft (11.326 m), site and datum then in use; no flow at times in 1938-39, 1943, 1947, 1953-54, 1961, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1935 reached a stage of 43.0 ft (13.11 m) at site 0.1 mi (0.2 km) upstream at datum 13.11 ft (3.996 m) lower, estimated as 38.5 ft (11.73 m) at site 1.6 mi (2.6 km) downstream at datum 12.41 ft (3.783 m) lower, on basis of fall determined for flood in 1943, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,770 ft^3/s (192 m^3/s) May 26, gage height, 7.87 ft (2.399 m); minimum daily discharge, 7.8 ft^3/s (0.22 m^3/s) Aug. 21, 1983.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.0	1880	5090	828	1360	466	1890	6210	486	35	15
2	11	9.1	1870	4990	1520	1020	308	1900	6080	486	35	15
3	11	8.8	936	4900	1970	743	310	2730	4860	486	35	15
4	12	8.8	24	3680	1950	556	1140	3770	3030	486	35	13
5	12	8.8	1210	2390	1940	601	2000	4160	3010	777	35	12
6	12	8.8	3300	2370	1920	631	1700	4120	2970	1620	35	12
7	12	8.8	5390	2340	1900	2000	1140	4060	2930	1950	35	11
8	13	8.8	6220	2320	1890	4750	891	4020	2900	1960	33	11
9	11	8.8	6290	2290	1580	5430	550	4500	2400	1930	25	11
10	11	8.8	6230	2260	1360	4470	548	5020	1520	1910	23	12
11	11	8.8	6200	2220	1130	2990	545	3870	1170	1730	20	12
12	11	8.5	6140	1560	983	1860	541	3190	1160	1390	18	12
13	11	8.4	6070	835	978	1830	565	3130	1160	1010	19	14
14	10	8.4	5990	663	639	1800	832	1340	1150	379	19	16
15	10	8.4	5900	403	339	1780	1680	29	1150	131	19	15
16	10	8.4	5810	399	281	1760	2060	29	600	102	18	14
17	10	8.4	5710	398	280	1310	2050	1160	109	102	18	15
18	10	8.4	5610	398	275	586	2020	1190	95	102	18	14
19	10	8.4	5490	390	269	274	1980	670	93	102	18	14
20	9.8	8.4	5360	388	263	272	1950	3120	90	102	11	13
21	9.8	8.4	5240	334	260	268	1920	3660	50	102	7.8	13
22	9.4	8.4	5110	259	1150	267	1560	3090	21	102	8.7	13
23	9.3	8.4	3460	259	2090	267	1140	3540	19	102	9.4	11
24	9.3	8.4	1890	257	2560	265	1200	5720	19	102	9.8	11
25	9.3	8.4	1940	255	2320	263	2250	6440	19	102	11	11
26	9.3	8.8	1950	255	1900	263	3050	6580	19	102	12	10
27	9.3	10	2310	255	1890	263	2450	6680	19	65	13	10
28	9.3	9.1	3070	255	1870	259	1940	6590	19	36	13	9.8
29	9.3	596	4520	255	---	259	1920	6510	251	35	14	10
30	9.3	1500	5250	255	---	355	1900	6420	486	35	14	10
31	9.3	---	5180	549	---	545	---	6320	---	35	15	---
TOTAL	321.7	2338.9	131550	43472	36335	39297	42606	115448	43609	18059	631.7	374.8
MEAN	10.4	78.0	4244	1402	1298	1268	1420	3724	1454	583	20.4	12.5
MAX	13	1500	6290	5090	2560	5430	3050	6680	6210	1960	35	16
MIN	9.3	8.4	24	255	260	259	308	29	19	35	7.8	9.8
AC-FT	638	4640	260900	86230	72070	77950	84510	229000	86500	35820	1250	743

CAL YR 1982	TOTAL	518382.6	MEAN	1420	MAX	6820	MIN	8.4	AC-FT	1028000
WTR YR 1983	TOTAL	474043.1	MEAN	1299	MAX	6680	MIN	7.8	AC-FT	940300

RED RIVER BASIN

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.--Lat 34°51'32", long 99°30'28", in SW 1/4 SE 1/4 sec.34. T.5 N, R.22 W., Greer County, Hydrologic Unit 11120202, near left bank on downstream side of pier of bridge on Stage Highway 34, 0.5 mi (0.8 km) south of Mangum, 13.0 mi (20.9 km) downstream from Fish Creek, and at mile 35.5 (57.1 km).

DRAINAGE AREA.--1,566 mi^2 (4,056 km^2) of which 209 mi^2 (541 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1905 to June 1906, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1241: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,490.87 ft (454.417 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Apr. 11, 1905, to June 30, 1906, nonrecording gage at site 0.2 mi (0.3 km) upstream at different datum. Oct. 1, 1937, to Nov. 8, 1938, nonrecording gage at present site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--46 years, (water years 1938-83), 38.4 ft^3/s (1.087 m^3/s), 61,800 acre-ft/yr (76.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft^3/s (2,040 m^3/s) May 16, 1957, gage height, 14.55 ft (4.435 m); maximum gage height 14.7 ft (4.48 m) June 16, 1938; no flow at times in each year except 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,340 ft^3/s (123 m^3/s) May 14, gage height, 9.13 ft (2.783 m), no peaks above base of 6,000 ft^3/s (170 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	28	32	67	36	33	14	35	2.8	.00	.00
2	.00	.00	25	58	131	36	30	11	31	6.5	.00	.00
3	.00	.00	23	50	86	36	26	8.6	28	3.1	.00	.00
4	.00	.00	29	43	70	62	24	7.4	22	1.1	.00	.00
5	.00	.00	35	44	77	69	41	5.9	35	.80	.00	.00
6	.00	.00	36	43	86	63	45	4.4	292	.71	.00	.00
7	.00	.00	33	37	98	52	37	3.3	73	.59	.00	.00
8	.00	.00	29	41	103	42	39	2.9	37	.41	.00	.00
9	.00	.00	25	40	94	34	44	2.6	28	.27	.00	.00
10	.00	.00	30	34	102	29	53	2.9	28	.15	.00	.00
11	.00	.00	35	31	111	26	68	3.7	759	.11	.00	.00
12	.00	.00	39	29	89	24	56	4.1	735	.04	.00	.00
13	.00	.00	45	27	77	22	47	5.4	256	.00	.00	.00
14	.00	.00	43	25	68	22	40	1180	122	.00	.00	.00
15	.00	.00	37	23	58	22	33	205	63	.00	.00	.00
16	.00	.00	34	22	55	36	30	103	37	.00	.00	.00
17	.00	.00	33	22	51	159	29	64	28	.00	.00	.00
18	.00	.00	31	24	50	128	28	36	32	.00	.00	.00
19	.00	.10	29	34	49	88	25	28	47	.00	.00	.00
20	.00	.10	27	41	47	71	23	29	46	.00	.00	.00
21	.00	.10	27	51	51	61	28	560	25	.00	.00	.00
22	.00	.10	27	56	63	61	31	96	21	.00	.00	.00
23	.00	2.6	27	54	64	58	40	312	16	.00	.00	.00
24	.00	2.8	27	58	73	57	31	96	12	.00	.00	.00
25	.00	3.6	26	54	71	68	24	44	10	.00	.00	.00
26	.00	9.6	26	45	56	565	19	315	9.4	.00	.00	.00
27	.00	31	36	39	46	111	16	198	6.6	.00	.00	.00
28	.00	51	40	35	40	73	13	53	10	.00	.00	.00
29	.00	47	67	34	---	52	13	32	7.2	.00	.00	.00
30	.00	34	42	32	---	42	14	25	6.0	.00	.00	.00
31	.00	---	36	41	---	36	---	34	---	.00	.00	---
TOTAL	.00	182.00	1027	1199	2033	2241	980	3486.2	2857.2	16.58	.00	.00
MEAN	.00	6.07	33.1	38.7	72.6	72.3	32.7	112	95.2	.53	.00	.00
MAX	.00	51	67	58	131	565	68	1180	759	6.5	.00	.00
MIN	.00	.00	23	22	40	22	13	2.6	6.0	.00	.00	.00
AC-FT	.00	361	2040	2380	4030	4450	1940	6910	5670	33	.00	.00

CAL YR 1982	TOTAL 32239.40	MEAN 88.3	MAX 2020	MIN .00	AC-FT 63950				
WTR YR 1983	TOTAL 14021.98	MEAN 38.4	MAX 1180	MIN .00	AC-FT 27810				

RED RIVER BASIN

07301110 SALT FORK RED RIVER NEAR ELMER, OK

LOCATION.--Lat 34°28'44", long 99°22'55", in NW 1/4 NE 1/4 sec.15, T.1 S., R.21 W., Jackson County, Hydrologic Unit 11120202, on right bank at bridge on State Highway 5, 1.7 mi (2.7 km) west of Elmer, and at mile 3.5 (5.6 km).

DRAINAGE AREA.--1,878 mi^2 (4,864 km^2), of which 209 mi^2 (541 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1, 1979, to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,258.55 ft (383.606 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. An irrigation channel flows into the Salt Fork River approximately 10 miles upstream from gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,900 ft^3/s (1,070 m^3/s) May 30, 1980, gage height, 15.11 ft (4.606 m); minimum daily discharge, 0.08 ft^3/s (0.002 m^3/s) Sept. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,780 ft^3/s (78.7 m^3/s) May 21, gage height, 8.00 ft (2.438 m), no peak above base of 6,000 ft^3/s (170 m^3/s); minimum daily discharge, 4.3 ft^3/s (0.12 m^3/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	6.2	9.3	34	83	61	79	23	52	12	47	47
2	10	6.1	9.4	34	97	57	68	21	47	9.6	40	59
3	8.6	6.0	8.8	34	137	55	53	20	41	8.0	38	57
4	9.0	6.0	9.0	35	115	55	43	16	34	7.5	40	61
5	8.3	6.2	9.5	39	98	70	53	14	30	7.1	37	63
6	8.0	6.4	11	41	98	79	66	13	36	6.6	34	65
7	7.6	6.6	13	43	101	79	73	11	130	6.3	42	79
8	8.3	6.7	14	44	109	74	68	9.4	99	5.9	83	79
9	7.0	6.9	14	43	121	66	64	9.2	62	6.3	98	78
10	6.8	7.8	13	39	108	55	63	8.6	47	11	69	83
11	6.5	8.5	14	32	103	50	65	8.6	175	7.4	45	81
12	6.5	8.1	15	35	107	44	68	8.2	1160	5.4	38	204
13	7.4	7.5	16	34	99	41	64	8.5	685	9.4	46	99
14	7.2	6.8	13	34	86	41	52	502	877	34	61	102
15	7.2	6.0	18	31	76	39	47	583	236	41	74	58
16	6.8	6.7	21	29	67	34	42	206	133	45	77	28
17	6.7	6.4	20	28	61	31	37	122	112	52	75	23
18	6.6	6.2	18	27	59	93	34	104	78	47	73	27
19	6.2	7.5	19	30	56	137	33	48	56	47	70	26
20	5.9	7.1	19	35	52	122	31	34	69	34	74	18
21	6.0	7.0	19	44	49	102	41	1750	69	27	69	12
22	6.1	6.9	18	54	56	84	44	744	46	23	51	9.7
23	6.4	6.6	17	64	64	81	42	807	38	23	46	9.8
24	6.4	6.8	17	66	66	81	43	1310	29	19	56	8.2
25	6.7	6.9	16	65	68	81	49	333	25	20	68	6.7
26	7.0	9.8	16	70	81	674	39	116	42	25	81	6.5
27	6.8	16	18	64	76	568	30	338	34	39	85	6.8
28	6.6	18	22	58	66	256	27	266	26	48	91	4.3
29	6.2	17	25	55	---	140	26	116	19	53	84	4.9
30	6.1	11	27	52	---	121	25	55	16	60	68	6.5
31	6.1	---	32	54	---	96	---	51	---	56	50	---
TOTAL	221.0	241.7	511.0	1347	2359	3567	1469	7655.5	4503	795.5	1910	1412.4
MEAN	7.13	8.06	16.5	43.5	84.3	115	49.0	247	150	25.7	61.6	47.1
MAX	10	18	32	70	137	674	79	1750	1160	60	98	204
MIN	5.9	6.0	8.8	27	49	31	25	8.2	16	5.4	34	4.3

CAL YR 1982 TOTAL 50543.8 MEAN 138 MAX 3020 MIN 5.6
WTR YR 1983 TOTAL 25992.1 MEAN 71.2 MAX 1750 MIN 4.3

RED RIVER BASIN

07301110 SALT FORK RED RIVER NEAR ELMER, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to Jan. 1982.
WATER TEMPERATURE: October 1978 to Jan. 1982.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,530 micromhos July 18, 1981; minimum daily, 300 micromhos May 15, 1980.
WATER TEMPERATURE: Maximum daily, 39.5°C June 18, 1981; minimum daily, 0.0°C on several days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
13...	1515	80020	7.6	3440	8.2	23.0	3.1	8.8	109	--	--	1400
DEC												
07...	1450	80020	15	4280	8.2	12.5	1.5	7.4	74	65	150	1500
FEB												
24...	0820	80020	66	2920	7.8	10.0	45	11.0	104	55	300	1500
APR												
07...	0920	80020	74	3310	8.1	7.0	36	11.7	102	96	170	--
JUN												
29...	1440	80020	18	3520	8.4	30.5	7.4	6.6	95	98	930	1300
AUG												
11...	0930	80020	45	2970	7.9	27.5	--	8.5	115	K5500	4900	960
SEP												
21...	1000	80020	12	4200	8.1	12.5	--	6.4	63	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
13...	1280	300	160	520	44	6	7.7	129	1100	880	.50	1.7
DEC												
07...	1370	400	130	370	34	4	7.1	172	1400	570	.50	5.6
FEB												
24...	1310	400	110	270	29	3	5.1	151	1300	390	.70	11
APR												
07...	--	--	--	--	--	--	--	147	1300	410	.50	12
JUN												
29...	1200	330	120	320	34	4	8.1	123	1100	540	.40	8.4
AUG												
11...	827	220	100	310	--	4	--	138	760	500	.70	11
SEP												
21...	--	--	--	--	--	--	--	--	--	--	--	--

RED RIVER BASIN

07301110 SALT FORK RED RIVER NEAR ELMER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
13...	3200	3100	4.4	.440	.200	.26	2.0	.080	.25	.050	.010	.03
DEC												
07...	3130	3000	4.3	1.00	.450	.58	3.0	.220	.67	.150	.130	.40
FEB												
24...	2610	2600	3.5	.820	.330	.43	1.3	.200	.61	.110	.100	.31
APR												
07...	2670	--	3.6	1.10	.420	.54	1.9	.210	.64	.100	.060	.18
JUN												
29...	2510	2500	3.4	<.100	<.060	--	1.7	.130	.40	.030	.040	.12
AUG												
11...	2050	--	2.8	--	--	--	--	--	--	--	--	--
SEP												
21...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT											
13...	20	2	<100	<10	1	<1	<1	3	60	2	110
DEC											
07...	20	2	58	<2	<3	<1	<9	3	13	1	150
FEB											
24...	20	3	<100	<10	<1	<1	1	3	20	3	80
APR											
07...	<10	--	--	<10	2	<1	1	1	30	4	80
JUN											
29...	--	--	--	--	--	--	--	--	--	--	--
AUG											
11...	<10	5	--	--	<1	<1	1	1	--	1	--
SEP											
21...	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
13...	30	.1	--	5	7	<1	4000	17	20	10	69
DEC											
07...	30	<.1	<30	3	4	<1	4700	<18	43	13	50
FEB											
24...	30	<.1	5	5	4	<1	3900	11	20	93	88
APR											
07...	20	<.1	2	2	--	<1	--	8	10	112	90
JUN											
29...	--	--	--	--	--	--	--	--	--	22	87
AUG											
11...	--	--	6	2	3	<1	2700	15	--	203	85
SEP											
21...	--	--	--	--	--	--	--	--	--	--	--

RED RIVER BASIN

07301481 NORTH FORK RED RIVER NEAR SAYRE, OK

LOCATION.--Lat 35°17'05", long 99°37'18", in SE 1/4 NW 1/4 sec.3, T.9 N., R.23 W., Beckham County, Hydrologic Unit 11120302, on left bank at end of downstream bridge of Interstate 40, 1.2 mi (1.9 km) upstream from Deep Fork Creek 1.8 mi (2.9 km) southeast of Sayre, and at mile 124.7 (200.6 km).

DRAINAGE AREA.--2,159 mi^2 (5,592 km^2) of which 399 mi^2 (1,033 km^2) is probably noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is 1,775.98 ft (541.319 m) Oklahoma State Highway Department datum. Supplementary nonrecording gage 1.0 mi (1.6 km) upstream on State Highway 283 (read by observer).

REMARKS.--Records poor.

AVERAGE DISCHARGE.--5 years, 61.0 ft^3/s (1.728 m^3/s), 44,190 acre-ft/yr (54.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s (360 m^3/s) May 28, 1978, gage height, 9.00 ft (2.743 m); no flow in 1978, 1980, and 1983.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge 355 ft^3/s (10.1 m^3/s) June 12. No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.6	41	61	150	110	112	41	220	56	.00	.00
2	.00	2.4	38	64	160	110	105	40	200	41	.00	.00
3	.00	2.4	36	62	140	140	100	36	170	33	.00	.00
4	.00	2.7	35	60	100	200	110	35	150	28	.00	.00
5	.00	3.2	37	64	120	300	120	33	130	15	.00	.00
6	.00	5.1	34	62	140	230	118	32	120	9.0	.00	.00
7	3.0	6.3	32	62	160	190	122	29	110	6.5	.00	.00
8	25	8.2	32	70	150	160	123	28	88	1.6	.00	.00
9	23	9.6	32	76	180	130	140	28	301	.00	.00	.00
10	10	10	37	70	260	120	168	26	311	.00	.00	.00
11	8.0	11	42	59	240	110	160	30	200	.00	.00	.00
12	7.0	9.1	45	59	220	110	130	40	355	.00	.00	.00
13	5.4	9.5	55	56	200	100	110	60	158	.00	.00	.00
14	5.0	8.5	57	52	180	92	100	130	142	.00	.00	.00
15	4.0	9.7	52	50	160	90	95	190	112	.00	.00	.00
16	3.6	11	50	50	140	190	90	110	87	.00	.00	.00
17	3.0	12	50	50	130	310	88	140	64	.00	.00	.00
18	2.6	13	50	54	120	260	80	110	52	.00	.00	.00
19	2.3	16	48	58	120	190	74	82	43	.00	.00	.00
20	1.8	15	46	67	120	140	70	90	37	.00	.00	.00
21	1.5	15	44	74	130	130	80	110	29	.00	.00	.00
22	1.7	16	46	82	140	130	86	200	25	.00	.00	.00
23	1.5	15	47	91	175	120	87	140	29	.00	.00	.00
24	1.8	16	53	105	200	100	80	105	22	.00	.00	.00
25	1.9	19	51	125	190	340	70	110	26	.00	.00	.00
26	2.6	33	52	120	160	270	54	220	36	.00	.00	.00
27	2.4	53	71	100	130	240	47	270	131	.00	.00	.00
28	2.6	56	65	90	120	200	42	230	170	.00	.00	.00
29	2.9	49	69	84	---	160	41	190	125	.00	.00	.00
30	3.0	45	56	85	---	140	41	230	80	.00	.00	.00
31	2.8	---	59	120	---	125	---	230	---	.00	.00	---
TOTAL	128.40	484.3	1462	2282	4435	5237	2843	3345	3723	190.10	.00	.00
MEAN	4.14	16.1	47.2	73.6	158	169	94.8	108	124	6.13	.00	.00
MAX	25	56	71	125	260	340	168	270	355	56	.00	.00
MIN	.00	2.4	32	50	100	90	41	26	22	.00	.00	.00
AC-FT	255	961	2900	4530	8800	10390	5640	6630	7380	377	.00	.00

CAL YR 1982	TOTAL 34805.40	MEAN 95.4	MAX 5230	MIN .00	AC-FT 69040				
WTR YR 1983	TOTAL 24129.80	MEAN 66.1	MAX 355	MIN .00	AC-FT 47860				

RED RIVER BASIN

07301500 NORTH FORK RED RIVER NEAR CARTER, OK

LOCATION.--Lat 35°10'05", long 99°30'25", in NW 1/4 SE 1/4 sec.15, T.8 N., R.22 W., Beckham County, Hydrologic Unit 11120302, near left bank on downstream side of pier of bridge on State Highway 34, 3.0 mi (4.8 km) south of Carter, 10.8 mi (17.4 km) downstream from Timber Creek, and at mile 110.5 (177.8 km).

DRAINAGE AREA.--2,337 mi^2 (6,053 km^2), of which 399 mi^2 (1,033 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1944 to September 1962. Annual maximum and occasional low-flow measurements, water years 1963-64. August 1964 to current year.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,673.71 ft (510.147 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--37 years, (1944-62, 1964-83) 174 ft^3/s (4.928 m^3/s), 87,664 acre-ft/yr (108 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,400 ft^3/s (1,510 m^3/s) May 26, 1959, maximum gage height, 14.98 ft (4.566 m) May 17, 1977; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge 724 ft^3/s (20.5 m^3/s), no known peaks above base of 3,200 ft^3/s (90.6 m^3/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.3	43	56	143	102	106	58	190	16	.00	.00
2	.00	3.5	41	66	146	99	95	55	190	12	.00	.00
3	.00	3.5	41	55	105	99	88	52	153	6.0	.00	.00
4	.00	3.8	39	55	106	108	91	49	113	4.1	.00	.00
5	.00	4.4	40	59	118	273	101	43	76	3.0	.00	.00
6	.00	4.1	38	55	123	242	100	41	65	2.1	.00	.00
7	.00	5.5	34	55	161	180	102	40	44	1.8	.00	.00
8	.00	4.4	33	68	212	136	112	38	35	1.5	.00	.00
9	31	7.6	32	75	196	116	130	37	31	1.1	.00	.00
10	29	9.0	34	68	241	101	153	37	35	.83	.00	.00
11	15	11	39	60	208	95	149	37	107	.60	.00	.00
12	9.0	11	40	57	191	89	120	38	612	.40	.00	.00
13	3.5	8.2	44	55	175	88	100	49	390	.19	.00	.00
14	3.5	8.2	52	54	154	85	91	256	261	.12	.00	.00
15	3.0	7.0	49	50	140	85	80	220	179	.06	.00	.00
16	3.0	9.0	51	50	133	106	73	179	123	.01	.00	.00
17	2.4	9.0	47	50	124	166	71	118	95	.00	.00	.00
18	2.1	12	46	54	118	248	71	87	87	.00	.00	.00
19	1.5	13	44	62	114	146	71	67	98	.00	.00	.00
20	1.4	13	42	64	111	116	73	67	110	.00	.00	.00
21	1.3	13	43	75	118	112	78	137	76	.00	.00	.00
22	1.4	13	44	95	129	112	87	289	55	.00	.00	.00
23	1.7	14	43	95	148	98	87	190	47	.00	.00	.00
24	1.8	13	44	101	184	92	80	132	43	.00	.00	.00
25	2.8	14	45	115	158	139	76	89	38	.00	.00	.00
26	2.4	30	44	110	130	297	71	126	35	.00	.00	.00
27	2.6	50	54	100	114	182	69	724	30	.00	.00	.00
28	2.8	62	58	95	105	155	63	317	78	.00	.00	.00
29	2.4	50	57	87	---	128	60	182	41	.00	.00	.00
30	2.6	45	72	80	---	115	60	128	24	.00	.00	.00
31	2.8	---	60	92	---	106	---	186	---	.00	.00	---
TOTAL	129.00	454.5	1393	2213	4105	4216	2708	4068	3461	49.81	.00	.00
MEAN	4.16	15.1	44.9	71.4	147	136	90.3	131	115	1.61	.00	.00
MAX	31	62	72	115	241	297	153	724	612	16	.00	.00
MIN	.00	3.3	32	50	105	85	60	37	24	.00	.00	.00
AC-FT	256	902	2760	4390	8140	8360	5370	8070	6860	99	.00	.00

CAL YR 1982	TOTAL 63504.35	MEAN 174	MAX 11500	MIN .00	AC-FT 126000				
WTR YR 1983	TOTAL 22797.31	MEAN 62.5	MAX 724	MIN .00	AC-FT 45220				

RED RIVER BASIN

07302500 LAKE ALTUS AT LUGERT, OK

LOCATION.--Lat 34°53'15", long 99°17'47", in SW 1/4 SE 1/4 sec.22, T.5 N., R.20 W., Kiowa County, Hydrologic Unit 11120303, on upstream face of Altus Dam on North Fork Red River, 1.0 mi (1.6 km) west of Lugert, 2.6 mi (4.2 km) upstream from Elm Fork of North Fork, and at mile 73.5 (118.3 km).

DRAINAGE AREA.--2,515 mi^2 (6,514 km^2), of which 399 mi^2 (1,033 km^2) is probably noncontributing.

PERIOD OF RECORD.--December 1943 to September 1950 (monthly records only), October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Nov. 19, 1948, nonrecording or float gage at same site and datum.

REMARKS.--Reservoir is formed by concrete and coursed mansonry dam. Storage began in December 1943. Capacity, 134,600 acre-ft (166 hm^3) at elevation 1,559.0 ft (475.18 m) crest of uncontrolled spillway and 72,500 acre-ft (89.4 hm^3) at elevation 1,547.0 ft (471.53 m) crest of controlled spillway. Dead storage, 1,660 acre-ft (2.05 hm^3) below elevation 1,517.5 ft (462.53 m) sill of headgate at irrigation canal. Figures given herein represent total contents. Reservoir is used for flood control, municipal water supply for city of Altus, and irrigation of about 48,000 acres (194 km^2). Revised capacity table used since Jan. 1, 1969. From 1927 to 1943, a dam to form reservoir for municipal water supply was at same site. Elevation of crest was 1,514.31 ft (461.56 m).

COOPERATION.--Data on diversions furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 170,600 ft^3/s (210 hm^3) May 19, 1951, elevation 1,562.10 ft (476.128 m); minimum after initial storage, 4,690 acre-ft (5.78 hm^3) Aug. 25, 1944, elevation, 1,520.2 ft (463.357 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents 112,300 acre-ft (138 hm^3) June 27, elevation 1,555.23 ft (474.034 m); minimum 38,290 acre-ft (47.2 hm^3) Sept. 28, elevation, 1,537.29 ft (468.566 m).

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

1535	31,970	1550	85,560
1540	46,560	1555	110,960
1545	64,170	1560	140,900

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74090	71750	71950	73710	77850	84110	93170	97360	105100	111200	80940	50690
2	74130	71890	72070	73800	77850	84110	93020	97160	105600	110700	80030	49840
3	74050	71510	72100	73880	77940	84430	92880	97060	106000	110700	79160	48790
4	73880	71510	72180	74010	78240	84660	93660	96750	106000	110700	78420	47810
5	73710	71390	72220	74090	78550	85250	93760	96840	106500	110700	77760	46690
6	73800	71410	72180	74130	78590	85470	93910	96780	106400	110300	76980	45610
7	73630	71410	72300	74260	78810	85750	93950	96840	106400	109700	76430	44320
8	73710	71410	72260	74210	79070	86040	94150	96780	106400	109000	75760	43190
9	73550	71310	72260	74590	79380	86130	94300	96730	106400	108400	75090	42060
10	73420	71490	72420	74510	79680	86270	94400	96730	106900	107200	74210	41300
11	73380	72100	72380	74630	80030	86370	94790	96780	106900	106700	73340	40820
12	73340	71570	72260	74670	80330	86370	94890	96940	108700	105400	72140	40330
13	73250	71230	72220	74840	80420	86700	95480	97970	109700	103900	71030	40070
14	73170	71230	72550	74840	80940	86560	95280	98380	110100	102200	69630	39690
15	73130	71150	72550	74880	81170	87070	95430	99290	110400	100400	68380	39580
16	73050	71270	72630	74970	81390	87690	95530	99400	110500	99090	67080	39170
17	72800	71230	72710	75010	81570	87690	95690	99700	110600	97720	65780	39050
18	72750	71270	72750	75300	81620	87920	95790	100200	110700	96450	64600	38990
19	72800	71170	72750	75340	82030	88140	95840	100100	110500	95480	63870	38960
20	72710	71210	72800	75590	82210	88580	95990	100800	110900	94400	63040	38930
21	72630	71210	72880	75630	82620	88630	96190	101100	111100	93460	62510	38790
22	72590	71350	72880	75630	82710	88820	96400	101800	111100	92730	61530	38790
23	72500	71190	72920	75800	82980	89150	96500	102300	111000	92090	60330	38610
24	72460	71150	73090	75930	83210	89290	96550	102600	111000	91260	59060	38500
25	72300	71150	73050	76180	83430	90230	96250	102800	111100	90570	57850	38580
26	71940	71550	73090	76220	83610	91410	96700	103400	111000	89150	56480	38550
27	72100	71630	73210	76430	83840	91700	96800	103700	112300	87690	55390	38320
28	71950	71670	73340	76590	84070	91900	96910	104300	111400	86130	54230	38290
29	71910	71750	73300	76680	---	92390	96960	104700	111200	84790	53210	38440
30	71950	71710	73380	76810	---	92530	97010	104900	110600	83390	52390	38410
31	71870	---	73460	77550	---	92580	---	105200	---	82210	51540	---
MAX	74130	72100	73460	77550	84070	92580	97010	105200	112300	111200	80940	50690
MIN	71870	71150	71950	73710	77850	84110	92880	96730	105100	82210	51540	38290
†	1,546.84	1,546.80	1,547.23	1,548.20	1,549.67	1,551.47	1,552.36	1,553.94	1,554.93	1,549.26	1,541.50	1,537.33
††	-2,050	-160	+1,750	+4,090	+6,520	+8,510	+4,430	+8,190	+5,400	-28,390	-30,670	-13,130

CAL YR 1982 MAX 131300 MIN 18620, †† +54,840
WTR YR 1983 MAX 112300 MIN 38290, †† -35,510

† Elevation, in feet, at end of month.
†† Change in contents, in acre-ft.

RED RIVER BASIN

07303000 NORTH FORK RED RIVER BELOW ALTUS DAM, NEAR LUGERT, OK

LOCATION.--Lat 34°53'26", long 99°18'22", in SW 1/4 sec.22, T.5 N., R.20 W., Greer County, Hydrologic Unit 11120303, on right bank at State Highway 44A bridge, 3,500 ft (1,067 m) downstream from Altus Dam, 1.9 mi (3.1 km) upstream from Elm Fork of North Fork, 2.0 mi (3.2 km) west of Lugert, and at mile 72.8 (117.1 km).

DRAINAGE AREA.--2,515 mi^2 (6,514 km^2), of which 399 mi^2 (1,033 km^2) is probably noncontributing.

PERIOD OF RECORD.--March 1930 to December 1932 (published as "at Lugert Dam"), December 1943 to September 1950 (published as spill from Lake Altus), October 1950 to September 1962, August 1964 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1311: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,471.81 ft (448.608 m) National Geodetic Vertical Datum of 1929. Mar. 19, 1930, to Dec. 21, 1932, nonrecording gage at former Lugert Dam, 0.7 mi (1.1 km) upstream at datum 1,504.31 ft (458.514 m) National Geodetic Vertical Datum of 1929, unadjusted.

REMARKS.--Records poor. Some regulation at low flow by Lugert Lake prior to December 1943, capacity 13,500 acre-ft (16.6 hm^3) and completely regulated thereafter by Lake Altus (station 07302500). Diversions at Lake Altus by-pass most of streamflow. Seepage from Altus Dam not included for period February 1953 to September 1977.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,100 ft^3/s (456 m^3/s) May 18, 1951, gage height, 12.70 ft (3.87 m), maximum gage height, 16.37 ft (4.990 m) May 21, 1977 (backwater from Elm Fork of the North Fork Red River); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 16, 1928, reached a stage of 14.5 ft (4.42 m), site and datum in use 1930-32, discharge, 14,300 ft^3/s (405 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 289 ft^3/s (8.18 m^3/s) June 23, gage height, 6.46 ft (1.969 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.03	1.1	.92	.06	.00	.00	.05	.00	.00
2	.00	.00	.00	.08	.93	.91	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.03	.87	.87	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.96	.93	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	1.0	.92	.18	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	1.0	.87	.23	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	1.1	.85	.24	.00	.00	.00	.00	.00
8	.00	.00	.00	.05	1.1	.50	.28	.00	.00	.00	.00	.00
9	.00	.00	.00	.07	1.1	.14	.24	.00	.00	.00	.00	.00
10	.00	.00	.00	.07	1.1	.03	.24	.00	.00	.00	.00	.00
11	.00	.00	.00	.06	1.2	.00	.40	.00	.00	.00	.00	.00
12	.00	.00	.00	.01	1.3	.00	.70	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	1.3	.00	.80	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	1.3	.00	.77	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	1.3	.00	.75	.01	.00	.00	.00	.00
16	.00	.00	.00	.00	1.0	.08	.71	.12	.00	.00	.00	.00
17	.00	.00	.00	.01	.88	.10	.65	.07	.00	.00	.00	.00
18	.00	.00	.00	.04	.77	.09	.58	.30	.00	.00	.00	.00
19	.00	.00	.00	.16	.73	.06	.47	.20	.00	.00	.00	.00
20	.00	.00	.00	.22	.72	.05	.44	.12	.00	.00	.00	.00
21	.00	.00	.00	.27	.83	.08	.50	.57	.00	.00	.00	.00
22	.00	.00	.00	.31	.91	.08	.64	.53	.00	.00	.00	.00
23	.00	.00	.00	.37	.90	.13	.72	.71	62	.00	.00	.00
24	.00	.00	.00	.39	.97	.19	.70	.52	1.3	.00	.00	.00
25	.00	.00	.00	.41	.97	.47	.49	.29	.77	.00	.00	.00
26	.00	.00	.00	.44	.96	1.8	.31	.34	.55	.00	.00	.00
27	.00	.00	.00	.46	.98	1.1	.20	.16	.50	.00	.00	.00
28	.00	.00	.00	.52	.95	.86	.05	.35	.74	.00	.00	.00
29	.00	.00	.00	.52	---	.56	.01	.18	.45	.00	.00	.00
30	.00	.00	.00	.59	---	.46	.00	.05	.21	.00	.00	.00
31	.00	---	.00	.97	---	.27	---	.01	---	.00	.00	---
TOTAL	.00	.00	.00	6.08	28.23	13.32	11.36	4.53	66.52	.05	.00	.00
MEAN	.00	.00	.00	.20	1.01	.43	.38	.15	2.22	.00	.00	.00
MAX	.00	.00	.00	.97	1.3	1.8	.80	.71	62	.05	.00	.00
MIN	.00	.00	.00	.00	.72	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	12	56	26	23	9.0	132	.1	.00	.00

CAL YR 1982	TOTAL	5.37	MEAN	.01	MAX	.71	MIN	.00	AC-FT	11
WTR YR 1983	TOTAL	130.09	MEAN	.36	MAX	62	MIN	.00	AC-FT	258

RED RIVER BASIN

07304500 ELK CREEK NEAR HOBART, OK

LOCATION.--Lat 34°54'51", long 99°06'49", in NE 1/4 NE 1/4 sec.17, T.5 N., R.18 W., Kiowa County, Hydrologic Unit 11120303, near right bank on downstream side of pier of county road bridge, 7.0 mi (11.3 km) downstream from Little Elk Creek, 7.5 mi (12 km) south of Hobart, and at mile 10.9 (17.5 km).

DRAINAGE AREA.--549 mi^2 (1,422 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1904 to March 1908, October 1949 to current year.

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1241: 1905.

GAGE.--Water-stage recorder. Datum of gage is 1,429.4 ft (435.68 m) National Geodetic Vertical Datum of 1929. See WSP 1920 for history of changes prior to Apr. 28, 1954.

REMARKS.--Records good. Part of high flows are diverted into West Otter Creek above station.

AVERAGE DISCHARGE.--37 years, (water years 1905-07, 1950-83), 72.8 ft^3/s (2.060 m^3/s), 52,740 acre-ft/yr (65.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,400 ft^3/s (634 m^3/s) Oct. 4, 1955, gage height, 30.75 ft (9.373 m), from floodmarks, from rating curve extended above 5,300 ft^3/s (150 m^3/s) on basis of field estimate of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 ft^3/s (70.0 m^3/s) June 27, gage height, 18.35 ft (5.593 m), minimum daily discharge, 2.0 ft^3/s (0.057 m^3/s) Sept. 22,23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	11	23	16	21	21	42	26	203	85	6.4	3.1
2	18	9.9	20	17	21	21	39	25	113	54	6.2	3.0
3	16	9.4	22	17	21	21	38	25	86	42	6.5	3.0
4	13	10	21	16	25	21	37	26	68	38	6.5	2.8
5	13	11	18	18	23	22	42	25	50	36	5.9	2.8
6	13	12	17	20	23	22	42	25	100	34	6.1	2.6
7	13	12	16	21	22	22	42	26	71	32	6.3	2.6
8	13	13	16	20	22	22	49	26	57	27	6.2	2.6
9	36	13	16	18	22	22	40	26	48	25	6.0	3.1
10	15	12	21	17	25	21	37	26	41	25	5.9	3.0
11	12	14	19	16	23	21	36	26	205	23	5.9	7.1
12	12	13	17	15	22	20	36	25	499	21	5.8	9.3
13	12	13	17	15	21	20	34	26	236	16	5.5	18
14	11	13	17	15	21	20	33	268	239	16	5.3	25
15	11	13	16	14	21	20	32	253	386	16	5.1	18
16	10	12	16	14	21	25	32	51	110	16	4.8	13
17	11	13	16	14	22	26	32	68	85	14	4.9	9.6
18	11	15	16	17	22	31	31	51	72	13	5.1	7.6
19	10	18	15	20	22	35	31	40	65	12	4.9	6.1
20	9.0	16	15	20	22	23	31	45	61	11	5.1	3.6
21	9.0	16	15	20	22	22	31	642	58	11	5.1	2.6
22	10	16	15	20	23	22	32	417	56	10	4.6	2.0
23	10	15	15	20	22	22	32	137	54	9.1	4.6	2.0
24	11	15	15	20	23	22	34	124	52	8.6	4.8	2.1
25	11	15	15	18	23	24	34	118	51	8.3	4.3	2.1
26	10	18	15	18	22	728	36	137	185	7.6	4.0	2.2
27	10	24	21	18	22	500	30	123	872	7.3	4.1	2.2
28	11	23	19	18	22	109	28	131	1440	7.8	4.0	2.2
29	10	29	17	18	---	66	28	511	461	7.5	3.8	2.5
30	12	28	16	19	---	50	27	408	141	7.0	3.5	2.3
31	11	---	16	21	---	45	---	156	---	6.7	3.2	---
TOTAL	387.0	452.3	533	550	621	2066	1048	4013	6165	646.9	160.4	168.1
MEAN	12.5	15.1	17.2	17.7	22.2	66.6	34.9	129	206	20.9	5.17	5.60
MAX	36	29	23	21	25	728	49	642	1440	85	6.5	25
MIN	9.0	9.4	15	14	21	20	27	25	41	6.7	3.2	2.0
AC-FT	768	897	1060	1090	1230	4100	2080	7960	12230	1280	318	333

CAL YR 1982	TOTAL 53296.58	MEAN 146	MAX 5700	MIN .84	AC-FT 105700				
WTR YR 1983	TOTAL 16810.7	MEAN 46.1	MAX 1440	MIN 2.0	AC-FT 33340				

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-52, 1954-63, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1949 to September 1951, October 1958 to September 1963, November 1969 to current year.
WATER TEMPERATURE: October 1949 to September 1951, October 1958 to September 1963, November 1969 to current year.

REMARKS.--Samples were collected by a local observer on a daily basis. Additional samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Nov. 27, 1958; minimum daily, 136 micromhos May 15, 1980.
WATER TEMPERATURE: Maximum daily, 35.0°C July 8, 1951; minimum daily, -0.5°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,660 micromhos Sept. 10; minimum daily, 290 micromhos June 28.
WATER TEMPERATURE: Maximum daily, 26.5°C on several days during July and Aug.; minimum daily, 0.5°C at times during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)
OCT										
12...	1400	80020	12	1160	8.3	16.5	8.3	91	460	267
NOV										
22...	1445	80020	16	2390	8.4	14.5	8.6	91	1100	671
DEC										
07...	1230	80020	17	2210	7.9	10.0	10.6	102	880	559
JAN										
11...	1320	80020	16	2150	8.1	7.5	8.0	108	970	642
FEB										
22...	1430	80020	22	2020	8.1	11.0	9.0	87	1000	653
APR										
05...	1430	80020	47	1900	8.3	10.5	11.4	109	900	657
MAY										
19...	1200	80020	35	1070	8.0	19.5	9.6	111	430	246
JUN										
30...	1640	80020	141	994	7.9	29.5	6.9	98	350	167
AUG										
11...	1425	80020	5.9	2300	8.3	31.5	7.2	105	930	700
SEP										
22...	0920	80020	2.0	2210	8.0	15.5	5.1	55	990	740

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT										
12...	100	51	85	28	2	6.9	193	340	84	.40
NOV										
22...	210	130	170	26	2	6.7	390	750	160	.50
DEC										
07...	190	99	140	26	2	6.4	324	660	130	.40
JAN										
11...	190	120	150	25	2	4.4	328	760	140	.50
FEB										
22...	220	110	150	24	2	3.9	350	760	150	.60
APR										
05...	180	110	130	24	2	5.1	246	700	140	.50
MAY										
19...	91	49	86	30	2	8.0	183	300	98	.40
JUN										
30...	81	36	61	27	1	9.3	184	210	61	.40
AUG										
11...	190	110	200	32	3	6.1	228	860	210	.40
SEP										
22...	200	120	210	31	3	7.0	255	820	--	.40

RED RIVER BASIN

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)
OCT									
12...	7.1	841	790	1.1	--	--	--	--	--
NOV									
22...	8.9	1730	1700	2.4	<100	5	480	2	<10
DEC									
07...	15	1510	1400	2.1	--	--	--	--	--
JAN									
11...	5.8	1780	1600	2.4	--	--	--	--	--
FEB									
22...	4.8	1700	1600	2.3	<100	4	400	1	10
APR									
05...	12	1490	1400	2.0	--	--	--	--	--
MAY									
19...	5.6	759	750	1.0	<100	3	220	<1	<10
JUN									
30...	11	592	580	.81	--	--	--	--	--
AUG									
11...	<1.2	1780	--	2.4	<100	8	640	1	10
SEP									
22...	4.5	1830	--	2.5	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT									
12...	--	--	--	--	--	--	--	--	--
NOV									
22...	5	40	5	80	<.1	<100	3	30	12
DEC									
07...	--	--	--	--	--	--	--	--	--
JAN									
11...	--	--	--	--	--	--	--	--	--
FEB									
22...	3	20	3	460	<.1	<100	3	50	7.5
APR									
05...	--	--	--	--	--	--	--	--	--
MAY									
19...	5	60	4	20	<.1	<100	2	10	17
JUN									
30...	--	--	--	--	--	--	--	--	--
AUG									
11...	3	30	<1	220	<.1	<100	2	20	10
SEP									
22...	--	--	--	--	--	--	--	--	--

07304500 ELK CREEK NEAR HOBART, OK-Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2160	2130	2000	2070	1970	2030	1650	1800	665	1000	2350	2570
2	2150	2120	1960	2030	1660	2050	1810	1840	1140	1220	2360	2590
3	2230	2110	1860	2010	1700	2090	1920	1880	1140	1400	2340	2580
4	2150	2130	1760	2020	1950	2130	2010	1940	1130	1490	2330	2570
5	1960	2100	1770	2080	1720	2110	2000	1880	1370	1560	2330	2590
6	2090	2130	1860	2030	1520	2170	2060	1870	1450	1720	2300	2610
7	2150	2180	1880	2070	1560	2180	1920	1860	1580	1630	2290	2630
8	2180	2150	1960	2050	1620	2190	2110	1860	1600	1590	2280	2640
9	2200	2190	2090	2080	1820	2180	2120	1850	1550	1510	2250	2650
10	2240	2160	2000	2110	1980	2100	2100	1810	1630	1600	2290	2660
11	2270	2120	2040	2120	1950	2040	1910	1830	1320	1610	2350	2640
12	1220	2110	2020	---	2010	1990	1920	1830	666	1640	2330	1260
13	1250	2140	2140	---	2000	2030	1960	1830	737	1640	2390	1000
14	1650	2120	2110	---	2010	2080	2000	1740	703	1640	2380	1540
15	2100	2140	2150	2110	2030	2080	1980	510	373	1710	2400	1890
16	2170	2170	2160	2100	2050	1980	1930	811	737	1680	2460	2110
17	2200	2200	2140	2100	2070	2070	1970	896	793	1700	2480	2390
18	2250	2240	2020	2110	2090	1860	1900	1200	993	1710	2470	2440
19	2240	2230	2120	2050	2100	1980	1890	1330	1160	1860	2480	2470
20	2320	2200	2150	2090	2140	1970	1880	1330	1340	1940	2440	2520
21	2330	2180	2160	2080	2120	1800	1870	1540	1460	2070	2430	2550
22	2250	2140	2150	2100	2130	1710	1890	427	1530	2110	2470	2580
23	2210	2140	2140	2110	2110	1690	1880	733	1560	2150	2520	2600
24	2260	2240	2120	2090	2060	1830	1870	1050	1610	2120	2510	2590
25	2260	2230	2070	2070	2090	1930	1850	1080	1690	2110	2500	2600
26	2300	2140	2100	2080	2110	1420	1830	1120	1700	2170	2490	2560
27	2280	2060	2100	2060	2130	720	1830	885	820	2210	2520	2550
28	2260	2080	2160	---	2020	682	1850	1420	290	2220	2530	2520
29	2230	2150	2150	2040	---	840	1780	864	420	2260	2540	2490
30	2190	2040	2100	2070	---	1180	1730	365	710	2230	2550	2450
31	2200	---	2100	2100	---	1440	---	732	---	2270	2570	---
MEAN	2130	2150	2050	2080	1950	1820	1910	1360	1130	1800	2420	2390

WTR YR 1983 MEAN 1930 MAX 2660 MIN 290

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	16.0	9.5	1.5	3.0	10.0	12.5	20.5	16.0	24.5	25.5	24.0
2	20.5	13.0	10.0	.5	1.0	11.0	7.5	17.5	17.0	24.5	26.0	22.0
3	20.5	9.0	9.5	.5	1.0	14.0	9.0	16.0	20.5	25.0	25.0	21.0
4	19.5	7.0	8.0	1.0	1.5	14.0	11.5	16.0	21.0	25.5	25.5	22.0
5	20.5	6.5	8.0	---	1.5	12.0	7.5	17.0	23.0	23.0	25.5	23.0
6	21.0	8.0	7.0	---	1.5	11.0	7.0	17.0	18.5	24.0	25.5	22.0
7	18.0	11.0	6.5	3.5	.5	11.0	7.5	18.0	18.0	22.0	25.0	24.0
8	21.0	13.5	5.0	5.5	2.5	11.0	7.0	17.0	19.0	23.0	25.0	24.5
9	16.5	14.0	3.0	5.0	4.0	9.5	7.0	17.0	21.0	23.0	25.0	22.5
10	14.5	14.5	5.5	4.5	5.5	8.0	8.5	17.5	21.0	24.5	25.5	22.5
11	13.0	16.0	4.0	4.5	5.0	8.0	12.0	17.0	20.0	24.0	26.0	26.0
12	14.5	10.5	2.0	---	4.0	9.0	14.0	19.5	21.0	24.5	26.5	22.0
13	18.5	7.0	1.5	---	4.0	11.0	13.0	20.5	21.0	25.0	26.0	20.5
14	13.0	6.0	3.0	---	6.0	13.0	8.5	18.5	21.0	24.0	26.5	19.0
15	13.5	4.0	4.0	4.0	9.0	15.0	9.5	14.0	18.5	23.5	26.0	21.0
16	14.0	5.0	4.0	3.0	7.5	12.5	11.0	14.0	21.0	23.5	26.0	21.5
17	15.0	7.0	4.0	3.5	7.5	7.5	12.0	15.5	21.5	24.5	26.0	22.5
18	15.5	9.0	5.5	2.0	7.0	8.0	13.0	15.0	22.0	25.0	26.5	23.0
19	16.5	9.5	4.5	2.5	8.5	8.0	13.5	16.0	23.0	25.0	24.5	22.0
20	11.0	10.5	4.0	2.0	10.5	5.0	12.0	18.5	24.0	25.5	24.0	18.5
21	11.5	8.5	4.0	2.0	9.0	4.5	13.5	17.5	24.0	24.5	25.0	12.0
22	10.5	11.0	4.0	2.0	8.5	4.0	14.5	16.0	25.0	24.5	25.0	12.5
23	10.5	9.0	6.0	1.5	9.0	6.0	15.0	18.0	24.5	25.5	25.0	13.0
24	11.0	5.5	8.0	3.0	10.0	7.0	14.0	19.0	24.0	25.5	25.0	15.0
25	11.0	5.0	4.5	3.0	9.0	8.0	15.0	20.0	24.0	25.5	25.0	17.0
26	11.5	5.0	2.5	4.0	8.0	9.0	14.5	21.0	24.0	26.5	25.0	18.5
27	12.5	4.5	3.0	3.0	8.0	6.0	18.0	22.0	23.0	25.5	25.0	19.5
28	14.0	4.0	2.0	3.0	8.0	7.0	19.0	22.5	23.0	25.0	24.5	20.0
29	11.0	4.5	1.0	4.0	---	9.0	18.0	22.5	21.0	25.5	25.0	20.0
30	11.0	5.5	1.0	6.0	---	9.0	20.0	20.0	22.5	26.0	25.0	19.0
31	14.0	---	1.5	7.0	---	9.0	---	16.0	---	26.5	25.5	---
MEAN	15.0	8.5	4.5	3.0	5.5	9.5	12.0	18.0	21.5	24.5	25.5	20.5

WTR YR 1983 MEAN 14.0 MAX 26.5 MIN .5

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK

LOCATION.--Lat 34°38'04", long 99°05'47", in NW 1/4 NE 1/4 sec.21, T.2 N., R.18 W., Tillman County, Hydrologic Unit 11120303, near left bank on downstream side of pier of bridge on old U.S. Highway 62, 2.5 mi (4.0 km) east of Headrick, 12.9 mi (20.8 km) upstream from Otter Creek, and at mile 33.0 (53.1 km).

DRAINAGE AREA.--4,244 mi^2 (10,992 km^2), of which 399 mi^2(1,033 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1905 to March 1908, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to July 1905, published as "near Snyder".

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1241: 1905-07.

GAGE.--Water-stage recorder. Datum of gage is 1,294.83 ft (394.664 m) National Geodetic Vertical Datum of 1929. Prior to July 18, 1905, nonrecording gage at site 0.2 mi (0.3 km) downstream at different datum. July 18, 1905, to Mar. 30, 1908, nonrecording gage at Navajo damsite 10.4 mi (16.7 km) upstream at different datum. Oct. 1, 1937, to Jan. 29, 1969, water-stage recorder at present site at datum 5.0 ft (1.52 m) higher.

REMARKS.--Records good. Flow regulated since December 1943 by storage and diversion at Lake Altus, 39.5 mi (63.6 km) above station (station 07302500). Diversions for irrigation of about 48,000 acres (194 km^2) above station; some return flow may re-enter at Stinking Creek, 16 mi (26 km) below station.

AVERAGE DISCHARGE.--(Prior to regulation by Lake Altus) 8 years (1906-07, 1938-43), 455 ft^3/s (12.89 m^3/s), 329,600 acre-ft/yr (406 hm^3/yr); (since regulation by Lake Altus) 38 years (water years 1945-83), 262 ft^3/s (7.420 m^3/s), 189,100 acre-ft/yr (233 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft^3/s (991 m^3/s) May 28, 1977, gage height, 17.26 ft (5.261 m) present datum; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 21.1 ft (6.43 m) present datum occurred sometime prior to 1927, from information by State Highway Department.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,570 ft^3/s (44.5 m^3/s) Mar. 27, gage height, 8.73 ft (2.661 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	23	64	44	64	47	124	49	211	371	14	2.0
2	29	24	57	49	77	46	109	45	204	312	13	1.8
3	28	23	52	47	81	46	100	43	150	190	13	1.8
4	31	23	50	45	84	48	91	43	120	95	12	1.6
5	30	23	48	44	76	47	93	41	110	96	11	1.4
6	27	25	46	46	68	58	93	39	100	86	10	1.4
7	27	25	44	45	66	68	94	38	90	77	10	1.2
8	26	26	44	44	63	67	91	37	80	63	15	1.2
9	25	27	42	43	61	63	92	36	74	56	13	1.2
10	25	27	44	42	60	55	86	35	70	51	11	1.2
11	36	32	44	41	61	50	80	36	66	46	8.8	1.2
12	31	33	43	41	60	48	77	37	577	43	7.6	1.6
13	39	30	43	40	58	47	74	35	776	41	7.0	2.2
14	39	29	43	39	57	47	72	41	545	39	6.3	5.0
15	37	30	42	38	55	44	70	306	338	37	5.9	4.0
16	34	30	42	38	54	60	69	450	374	36	5.3	2.6
17	32	30	42	39	52	64	66	195	210	35	4.9	1.7
18	30	31	41	41	52	69	65	146	150	34	4.1	1.0
19	28	32	40	43	51	68	62	126	120	32	4.1	.80
20	27	32	40	44	50	75	61	114	110	33	5.3	.50
21	28	31	40	45	52	63	66	122	100	31	4.5	.11
22	28	32	41	49	55	58	63	552	90	29	3.3	.15
23	28	31	41	49	57	57	60	695	84	27	3.0	.17
24	28	31	41	48	55	57	58	541	78	25	2.9	.14
25	27	33	40	48	53	59	59	265	70	23	2.7	.00
26	27	41	39	47	54	158	63	187	68	21	2.6	.00
27	27	49	43	44	51	1570	58	230	66	20	2.5	.00
28	25	49	43	45	49	947	56	280	777	19	2.5	.00
29	25	52	42	45	---	351	54	250	943	18	2.3	.00
30	24	60	42	44	---	228	51	467	546	16	2.2	.00
31	24	---	43	56	---	160	---	315	---	15	2.2	---
TOTAL	902	964	1366	1373	1676	4825	2257	5796	7297	2017	212.0	35.97
MEAN	29.1	32.1	44.1	44.3	59.9	156	75.2	187	243	65.1	6.84	1.20
MAX	39	60	64	56	84	1570	124	695	943	371	15	5.0
MIN	24	23	39	38	49	44	51	35	66	15	2.2	.00
AC-FT	1790	1910	2710	2720	3320	9570	4480	11500	14470	4000	421	71

CAL YR 1982	TOTAL	113546.2	MEAN	311	MAX	8120	MIN	8.0	AC-FT 225200
WTR YR 1983	TOTAL	28720.97	MEAN	78.7	MAX	1570	MIN	.00	AC-FT 56970

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-52, 1954-63, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1959 to September 1963, July 1968 to current year.
WATER TEMPERATURE: November 1959 to September 1963, July 1968 to current year.

INSTRUMENTATION.--Water-quality monitor from August 1959-September 1981.

REMARKS.--Samples were collected by a local observer on a daily basis. Additional samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 23,300 micromhos June 8, 1974; minimum daily, 325 micromhos May 30,1980.
WATER TEMPERATURE: Maximum daily, 38.0°C July 19, 1969, Aug. 4, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 15,200 micromhos Oct. 15; minimum daily, 663 micromhos June 29.
WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 12, 16; minimum daily, 0.0°C on several days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
05...	1200	80020	30	8370	8.1	22.0	--	--	--	--	--	1200
15...	1900	80020	36	15200	8.1	22.0	--	--	--	--	--	1700
25...	1141	80020	27	10200	8.1	--	--	--	--	--	--	1300
NOV												
24...	1330	80020	31	11200	7.9	5.5	3.6	9.4	110	53	110	1500
FEB												
25...	1100	80020	51	9750	8.1	7.5	1.5	8.2	74	67	120	1300
MAY												
17...	1430	80020	184	2620	7.5	21.5	3100	8.5	104	K9400	7400	550
AUG												
10...	0930	80020	11	7250	7.6	26.5	1.7	7.9	107	150	7900	1100
SEP												
20...	1330	80020	.55	7170	7.7	19.5	--	8.8	106	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
05...	1010	270	120	1500	73	20	9.2	160	940	2400	--	--
15...	1590	430	160	3000	79	32	12	143	1300	5100	--	--
25...	1120	320	120	1900	76	24	9.6	177	1000	3100	--	--
NOV												
24...	1300	350	150	2200	76	26	10	193	1100	3700	.30	2.6
FEB												
25...	1160	340	120	1700	73	21	8.3	189	970	2600	.70	<1.2
MAY												
17...	475	170	31	300	--	6	--	80	540	460	.30	6.3
AUG												
10...	1010	260	110	1200	--	16	--	100	950	1900	.40	3.2
SEP												
20...	--	--	--	--	--	--	--	--	--	--	--	--

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
05...	5290	--	7.2	--	--	--	--	--	--	--	--	--
15...	9560	--	13.0	--	--	--	--	--	--	--	--	--
25...	6430	--	8.7	--	--	--	--	--	--	--	--	--
NOV												
24...	7470	7600	10.2	<.100	.100	.13	1.3	.260	.80	.080	.060	.18
FEB												
25...	6020	--	8.2	<.100	.180	.23	.90	.240	.74	.220	.210	.64
MAY												
17...	1540	--	2.1	.890	.190	.24	7.5	1.30	4.0	.050	.030	.09
AUG												
10...	4600	--	6.3	--	--	--	--	--	--	--	--	--
SEP												
20...	--	--	--	--	--	--	--	--	--	--	--	--

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8330	10500	13300	11300	8230	10000	4080	7520	2760	1680	6160	1310
2	8240	10600	12500	10600	9320	9990	4580	8680	4460	2380	5980	1280
3	8310	10700	10700	10500	7010	9960	5220	7090	3840	3050	5810	1280
4	8270	10500	9640	10300	10100	9620	5720	6160	5080	3610	5730	1280
5	8370	10300	10200	10400	7460	9540	5980	6080	5850	6420	5490	1310
6	8390	10700	10600	---	7190	9880	6240	5430	5370	5460	5290	1300
7	8540	11000	10700	10700	8220	14300	7100	5800	6470	4110	6270	1320
8	8460	11000	11000	10700	9150	10500	6480	6540	6940	4500	7530	1310
9	8360	10900	11400	10500	9240	7620	7120	5770	9440	4880	6560	1310
10	8390	10800	11200	10400	9960	11600	7150	5400	13100	5240	7150	1320
11	8940	10300	10900	---	9600	8560	7630	5210	5650	5300	7660	1300
12	6650	10200	11100	---	9140	8000	7790	5200	4020	5560	7000	1300
13	7970	10900	11000	---	9200	8620	8050	8860	2700	5470	5460	1570
14	11900	11500	11200	---	9480	9190	8300	5320	2200	5400	4030	7070
15	15200	11900	11300	10900	9860	9560	8340	7550	1810	5560	3960	3970
16	12400	12200	11300	10700	10000	8120	8300	4610	2770	5540	2310	1570
17	9720	12400	11100	10600	10200	8270	8230	2530	2220	5700	2030	6970
18	9190	12200	11100	10300	10000	10600	8310	3900	3330	5890	1910	1550
19	9330	12000	11200	10100	9860	8340	8170	4150	4140	5970	1860	1450
20	9890	11800	11200	9830	9970	10300	8260	4750	4750	5960	2160	1340
21	9900	11700	11000	10400	9450	9120	7750	4870	5280	5930	2010	7760
22	9800	11000	10800	9850	9400	8740	7810	3090	5920	5920	1610	1280
23	9990	11400	10800	10600	9900	9110	8130	4800	6310	6190	1690	1300
24	10200	11700	10800	10900	9780	10000	8310	1190	6020	6150	1640	1310
25	10200	11200	10700	11400	9460	9920	8140	1300	6550	6220	1530	1250
26	10300	11000	10100	11000	10000	6420	9160	3600	4820	6270	1520	1310
27	10300	9800	10700	11100	9740	3010	9940	3780	6230	6260	1460	1290
28	10200	10400	10100	11100	9950	1090	9330	6730	2670	6260	1460	1250
29	10100	11000	10800	10800	---	1350	9060	2900	663	---	1300	1250
30	10400	11300	11000	10700	---	2020	7330	2430	1440	6370	1470	1230
31	10400	---	11100	10300	---	3230	---	1050	---	6250	1370	---
MEAN	9570	11100	11000	10600	9320	8280	7530	4910	4760	5320	3790	2010

WTR YR 1983 MEAN 7300 MAX 15200 MIN 663

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	16.0	12.0	1.0	2.0	11.0	11.0	21.0	18.0	25.0	33.0	23.0
2	27.0	14.0	12.0	.0	.0	12.0	5.0	15.0	18.0	25.0	26.0	28.0
3	19.0	7.0	8.0	1.0	.0	16.0	7.0	16.0	22.0	24.0	29.0	24.0
4	20.0	7.0	7.0	1.0	1.0	15.0	10.0	17.0	23.0	26.0	27.0	23.0
5	22.0	7.0	7.0	.0	2.0	12.0	8.0	17.0	22.0	25.0	31.0	23.0
6	20.0	5.0	5.0	---	2.0	10.0	5.0	18.0	17.0	24.0	28.0	22.0
7	22.0	15.0	5.0	.5	.0	11.0	6.0	20.0	17.0	29.0	27.0	24.0
8	20.0	14.0	4.0	2.0	3.0	10.0	6.0	17.0	17.0	29.0	32.0	23.0
9	13.0	17.0	2.0	6.0	5.0	8.0	4.0	16.0	18.0	27.0	32.0	23.0
10	12.0	15.0	4.0	5.0	5.0	8.0	5.0	16.0	17.0	28.0	34.0	22.0
11	12.0	22.0	3.0	---	5.0	7.0	10.0	16.0	24.0	23.0	32.0	24.0
12	15.0	8.0	1.0	---	3.0	12.0	12.0	21.0	22.0	32.0	36.0	22.0
13	16.0	5.0	.0	---	3.0	10.0	12.0	23.0	21.0	24.0	35.0	21.0
14	15.0	4.0	4.0	---	6.0	13.0	7.0	17.0	23.0	22.0	30.0	21.0
15	22.0	5.0	3.0	3.0	7.0	15.0	8.0	17.0	23.0	23.0	32.0	26.0
16	---	6.0	5.0	3.0	7.0	9.0	10.0	17.0	23.0	29.0	36.0	27.0
17	17.0	8.0	5.0	2.0	8.0	6.0	11.0	16.0	28.0	24.0	33.0	23.0
18	15.0	10.0	4.0	3.0	8.0	6.0	13.0	20.0	25.0	28.0	30.0	23.0
19	16.0	12.0	5.0	3.0	8.0	9.0	10.0	18.0	24.0	29.0	23.0	23.0
20	8.0	10.0	3.0	2.0	9.0	4.0	7.0	27.0	24.0	26.0	28.0	21.0
21	11.0	8.0	5.0	2.0	8.0	8.0	10.0	17.0	24.0	26.0	26.0	17.0
22	12.0	14.0	4.0	3.0	8.0	6.0	16.0	18.0	25.0	23.0	32.0	14.0
23	12.0	5.0	8.0	2.0	9.0	6.0	14.0	18.0	26.0	23.0	26.0	13.0
24	11.0	3.0	4.0	3.0	10.0	7.0	12.0	20.0	22.0	24.0	26.0	18.0
25	---	5.0	1.0	2.0	9.0	8.0	17.0	23.0	27.0	27.0	26.0	20.0
26	13.0	5.0	1.0	4.0	9.0	10.0	19.0	22.0	24.0	30.0	25.0	19.0
27	13.0	3.0	8.0	2.0	7.0	8.0	18.0	23.0	24.0	34.0	27.0	22.0
28	13.0	2.0	1.0	3.0	6.0	8.0	17.0	23.0	24.0	23.0	23.0	22.0
29	13.0	4.0	.0	5.0	---	9.0	7.0	24.0	22.0	---	29.0	25.0
30	13.0	8.0	.0	6.0	---	9.0	7.0	22.0	23.0	31.0	23.0	22.0
31	14.0	---	.0	5.0	---	12.0	---	17.0	---	26.0	25.0	---
MEAN	15.5	9.0	4.0	2.5	5.5	9.5	10.0	19.0	22.0	26.5	29.0	22.0

WTR YR 1983 MEAN 15.0 MAX 36.0 MIN .0

07305500 WEST OTTER CREEK AT SNYDER LAKE, NEAR MOUNTAIN PARK, OK

LOCATION.--Lat 34°44'02", long 98°59'10", in SE 1/4 NE 1/4 sec.16, T.3 N., R.17 W., Kiowa County, Hydrologic Unit 11120303, near east end of Snyder Dam, 0.8 mi (1.3 km) upstream from small tributary, 3 mi (5 km) northwest of Mountain Park, and at mile 26.0 (41.8km).

DRAINAGE AREA.--132 mi^2 (342 km^2).

PERIOD OF RECORD.--April 1903 to March 1908, October 1951 to September 1971, July 1972 to current year. Published as Otter Creek near Mountain Park 1903-8 and as Otter Creek at Snyder Lake, near Mountain Park 1951-60. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1731: 1960 (M). WSP 1920: 1959-60. WRD OK-78-2: 1977.

GAGE.--Water-stage recorder and broad-crested masonry spillway. Datum of gage is 1,361.06 ft (414.851 m), National Geodetic Vertical Datum of 1929. April 1903 to March 1908, nonrecording gage at site 1.8 mi (2.9 km) downstream at different datum. October 1951 to September 1971 at intake tower at same site and datum. July 1972 to August 1976, 700 ft (213.4 m) downstream at datum 1,344.00 ft (409.651 m).

REMARKS.--Records poor. The city of Snyder diverted about 130 acre-ft (160,000 m^3) annually prior to October 1958 and none thereafter. Flow completely regulated since June 1975 by Tom Steed Reservoir.

AVERAGE DISCHARGE.--(Prior to regulation by Tom Steed Reservoir) 27 years (water years 1904-7, 1911, 1973-75) 23.0 ft^3/s (0.651 m^3/s), 16,660 acre-ft/yr (20.5 hm^3/yr); (since regulation by Tom Steed Reservoir) 8 years (water years 1976-83) 3.52 ft^3/s (0.100 m^3/s) 2,550 acre-ft/yr (3.14 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft^3/s (402 m^3/s) June 6, 1953, gage height, 19.50 ft, (5.944 m), from floodmarks, from rating curve extended above 1,600 ft^3/s (45.3 m^3/s) on basis of contracted-opening and flow-over-dam measurements of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17 ft^3/s (0.48 m^3/s) June 11, 13, gage height, 12.15 ft (3.70 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	1.2	1.2	.00	.00	.16	.32	1.6	.50	3.5	.00	1.6
2	.34	.16	1.1	.01	.00	.50	.00	.13	1.3	3.0	.00	2.2
3	.03	.00	.64	.00	.00	.51	.00	.00	1.3	3.3	.00	2.6
4	.30	.00	.00	.06	.00	.70	.00	.25	1.7	2.7	.00	2.2
5	.32	.60	.12	.10	.07	.53	.00	.80	2.3	.57	.00	2.2
6	.11	1.7	.15	.36	.01	.15	.00	1.3	.08	.00	.00	2.6
7	.24	2.6	.25	.41	.01	.14	.00	.14	1.3	.00	.00	2.4
8	.31	2.1	.00	.24	.17	.09	.00	.24	2.7	.00	.00	2.2
9	.00	1.6	.00	.16	.07	.00	.00	.76	2.9	.00	.00	1.4
10	.00	2.2	.00	.05	.06	.00	.00	.50	2.9	.00	.00	1.6
11	.26	3.6	.00	.06	.06	.00	.00	.29	5.1	.00	.00	2.1
12	.27	.10	.00	.04	.00	.04	.02	.33	2.3	.00	.00	1.6
13	.20	.00	.00	.33	.10	.26	.00	.28	3.6	.00	.00	.77
14	.50	.00	.00	.09	.35	.30	.00	.14	1.1	.00	.00	.66
15	.35	.00	.00	.00	.20	.23	.00	.00	2.4	.00	.00	1.5
16	.35	.00	.00	.00	.09	.37	.08	.00	2.9	.00	.00	1.7
17	.55	.00	.00	.00	.20	.00	.58	.00	3.2	.00	.03	2.2
18	.78	.00	.00	.06	.35	.00	.55	.00	3.0	.00	1.8	2.1
19	.55	.00	.00	.20	.56	.00	.29	.00	2.8	.00	1.1	1.4
20	.00	.00	.00	.26	.41	.00	.33	.09	2.6	.00	1.3	.64
21	.24	.00	.04	.02	.00	.00	.95	.05	3.3	.00	1.8	.58
22	.77	.00	.23	.00	.00	.00	.96	.81	5.8	.00	2.6	1.2
23	1.0	.00	.48	.00	.00	.00	.01	1.0	5.6	.00	2.5	1.4
24	.97	.00	.50	.00	.00	.00	.00	.10	5.5	.00	2.7	1.1
25	1.0	.00	.05	.00	.00	.72	.04	.12	5.0	.00	2.6	1.6
26	1.2	.00	.00	.00	.00	4.1	.51	.07	5.0	.00	2.1	1.9
27	1.6	.00	.00	.00	.00	.11	1.2	.10	4.0	.00	3.2	1.9
28	.64	.00	.00	.00	.05	.22	.65	.19	2.0	.00	3.5	1.4
29	1.1	.00	.00	.00	---	.72	.76	.07	2.8	.00	3.4	1.4
30	1.0	.10	.00	.00	---	.04	1.6	.00	3.5	.00	3.3	1.4
31	1.6	---	.00	1.7	---	.60	---	.12	---	.00	1.7	---
TOTAL	16.78	15.96	4.76	4.15	2.76	10.49	8.85	9.48	88.48	13.07	33.63	49.55
MEAN	.54	.53	.15	.13	.10	.34	.29	.31	2.95	.42	1.08	1.65
MAX	1.6	3.6	1.2	1.7	.56	4.1	1.6	1.6	5.8	3.5	3.5	2.6
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.00	.58
AC-FT	33	32	9.4	8.2	5.5	21	18	19	176	26	67	98

CAL YR 1982	TOTAL	3864.66	MEAN	10.6	MAX	226	MIN	.00	AC-FT	7670
WTR YR 1983	TOTAL	257.96	MEAN	.71	MAX	5.8	MIN	.00	AC-FT	512

RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX

LOCATION.--Lat 34°06'36", long 98°31'53", Cotton County, Okla., Hydrologic Unit 11130102, on left bank at downstream side of bridge on U.S. Highways 277 and 281, 2.5 mi (4.0 km) northeast of Burkburnett, and at mile 933 (1,501 km).

DRAINAGE AREA.--20,570 mi^2 (53,280 km^2), of which 5,936 mi^2 (15,374 km^2) probably is noncontributing.

PERIOD OF RECORD.--July 1924 to August 1925 (monthly discharge only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 952.57 ft (290.343 m) National Geodetic Vertical Datum of 1929. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft (305 m) downstream at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--23 years (water years 1961-83), 841 ft^3/s (23.82 m^3/s), 609,300 acre-ft/yr (751 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,800 ft^3/s (1,780 m^3/s) Oct. 19, 1965, gage height, 11.46 ft (3.493 m); maximum gage height, 12.64 ft (3.853 m) July 27, 1975; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 3, 1957, reached a stage of 13.54 ft (4.127 m), from levels to floodmarks. According to local residents, higher stages occurred in 1891 and June 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,480 ft^3/s (212 m^3/s) June 15 at 0345, gage height, 8.45 ft (2.573 m), no peak above base of 9,000 ft^3/s (255 m^3/s); minimum daily discharge, 1.7 ft^3/s (0.05 m^3/s) Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	38	79	70	899	256	583	176	710	1040	53	45
2	77	35	75	95	567	244	472	150	903	699	69	41
3	77	30	69	107	390	228	383	143	639	397	67	33
4	74	32	66	119	350	225	350	136	521	252	60	25
5	70	33	66	121	357	211	383	132	472	574	57	19
6	61	33	61	120	350	199	397	129	370	2300	51	16
7	56	32	56	119	357	190	397	107	319	1360	45	15
8	57	35	48	115	370	199	370	98	301	630	65	14
9	46	35	46	113	383	203	383	101	296	404	40	15
10	45	39	60	102	383	214	383	98	301	331	33	18
11	45	53	67	95	383	206	370	113	279	247	40	29
12	53	53	71	89	376	198	331	113	290	178	65	41
13	47	52	75	88	376	178	307	132	426	139	50	49
14	47	50	78	77	370	170	284	1440	2870	122	38	63
15	47	57	70	71	344	178	268	1240	5270	116	33	115
16	47	58	71	67	313	232	247	1040	2140	122	30	111
17	47	59	71	63	290	310	242	592	1510	143	33	103
18	55	58	70	62	273	419	222	991	1060	162	37	74
19	49	61	65	77	262	390	208	927	878	158	48	52
20	39	57	59	84	247	411	195	547	659	155	49	35
21	42	56	56	92	232	434	296	1610	1060	150	44	19
22	41	58	56	116	227	397	449	5290	731	141	40	11
23	41	55	55	117	227	376	565	3320	480	148	38	7.9
24	39	55	55	116	237	338	376	3310	363	136	37	4.9
25	39	71	49	130	252	301	286	2320	296	104	29	1.8
26	38	96	49	130	252	435	251	1830	273	74	23	1.8
27	41	107	67	132	257	1050	237	1350	195	63	20	1.7
28	47	88	63	112	257	1590	215	1610	222	57	24	1.7
29	44	82	61	113	---	1870	200	1130	565	43	40	1.7
30	39	85	63	92	---	1140	190	1080	565	39	50	1.7
31	41	---	65	134	---	779	---	831	---	41	51	---
TOTAL	1568	1653	1962	3138	9581	13571	9840	32086	24964	10525	1359	966.2
MEAN	50.6	55.1	63.3	101	342	438	328	1035	832	340	43.8	32.2
MAX	77	107	79	134	899	1870	583	5290	5270	2300	69	115
MIN	38	30	46	62	227	170	190	98	195	39	20	1.7
AC-FT	3110	3280	3890	6220	19000	26920	19520	63640	49520	20880	2700	1920

CAL YR 1982 TOTAL 326263.0 MEAN 894 MAX 11400 MIN 30 AC-FT 647100
WTR YR 1983 TOTAL 111213.2 MEAN 305 MAX 5290 MIN 1.7 AC-FT 220600

RED RIVER BASIN

07311000 EAST CACHE CREEK NEAR WALTERS, OK

LOCATION.--Lat 34°21'44", long 98°16'56", on south line of SE 1/4 SE 1/4 sec.19, T.2 S., R.10 W., Cotton County, Hydrologic Unit 11130202, at right bank on downstream side of bridge on State Highway 53, 1.8 mi (2.9 km) east of Walters, 12.2 mi (19.6 km) upstream from West Cache Creek, and at mile 19.7 (31.7 km).

DRAINAGE AREA.--675 mi^2 (1,748 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1938 to December 1963; October 1969 to current year. Prior to October 1969, published as Cache Creek near Walters.

GAGE.--Water-stage recorder. Datum of gage is 938.2 ft (285.963 m) Oklahoma State Highway Department datum. Prior to Jan. 8, 1939, nonrecording gage at same site and datum.

REMARKS.--Records poor. Flow partly regulated by Lake Lawtonka, capacity 42,300 acre-ft (52.2 hm^3) on Medicine Creek prior to late 1953, and 63,000 acre-ft (77.7 hm^3) thereafter, by Lake Thomas, capacity, 8,300 acre-ft (10.2 hm^3) on Little Medicine Creek, and since March 1961 by Lake Ellsworth, capacity, 94,500 acre-ft (117 hm^3) on East Cache Creek. Low flow sustained by sewage from cities of Lawton and Walters.

AVERAGE DISCHARGE.--39 years, 161 ft^3/s (4.560 m^3/s), 116,600 acre-ft/yr (144 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,200 ft^3/s (799 m^3/s) May 18, 1951, gage height, 29.72 ft (9.059 m); no flow at times in 1939-40.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1906 reached a stage about the same as on May 18, 1951, and on May 17, 1947, gage height, 29.62 ft (9.028 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,400 ft^3/s (68 m^3/s) May 15; minimum daily discharge, 8.5 ft^3/s (.24 m^3/s) Sept. 7

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	29	47	32	245	44	37	35	38	80	26	26
2	33	29	44	32	342	43	35	30	30	57	30	25
3	33	28	42	37	160	41	36	27	21	45	31	18
4	36	28	33	51	100	39	37	32	23	37	32	10
5	30	31	38	62	71	41	38	29	22	30	23	9.7
6	28	24	40	51	58	40	37	28	36	27	20	8.6
7	32	17	38	45	54	39	39	31	33	25	19	8.5
8	32	22	39	48	60	40	38	27	27	23	19	10
9	30	34	36	48	58	38	44	24	22	36	25	13
10	29	33	35	46	65	39	39	35	21	27	23	13
11	26	29	35	45	61	41	38	52	18	24	16	13
12	25	22	40	43	56	40	430	95	42	24	13	15
13	20	26	59	40	54	42	370	130	24	41	9.7	15
14	24	31	48	40	60	39	360	2000	700	28	15	17
15	23	26	42	41	54	40	360	2400	170	26	17	21
16	25	28	40	41	52	110	150	720	80	32	24	24
17	26	37	39	42	52	60	90	400	36	29	27	23
18	27	28	40	42	58	45	54	600	45	23	25	18
19	33	25	39	40	56	41	42	250	37	27	16	14
20	36	31	38	38	54	42	43	310	30	30	21	13
21	34	31	38	50	80	40	69	540	23	38	29	12
22	30	26	35	41	180	39	210	580	23	30	26	12
23	25	25	36	40	90	38	230	620	21	22	22	11
24	21	26	33	49	46	39	130	240	22	22	18	14
25	23	32	27	46	45	38	69	170	20	22	22	13
26	30	52	35	39	44	39	56	200	19	20	27	15
27	32	119	37	40	43	340	41	260	42	19	22	15
28	42	174	41	44	45	150	46	160	73	23	17	13
29	40	100	110	52	---	90	33	100	162	28	16	19
30	31	53	56	65	---	60	37	40	118	31	16	20
31	29	---	37	95	---	40	---	47	---	27	22	---
TOTAL	920	1196	1297	1425	2343	1817	3238	10212	1978	953	668.7	458.8
MEAN	29.7	39.9	41.8	46.0	83.7	58.6	108	329	65.9	30.7	21.6	15.3
MAX	42	174	110	95	342	340	430	2400	700	80	32	26
MIN	20	17	27	32	43	38	33	24	18	19	9.7	8.5
AC-FT	1820	2370	2570	2830	4650	3600	6420	20260	3920	1890	1330	910

CAL YR 1982	TOTAL	95071	MEAN	260	MAX	4180	MIN	17	AC-FT 188600
WTR YR 1983	TOTAL	26506.5	MEAN	72.6	MAX	2400	MIN	8.5	AC-FT 52580

07311000 EAST CACHE CREEK NEAR WALTERS, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1948, 1951-55, 1958-63, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to September 1953, October 1969 to March 1977.
WATER TEMPERATURE: October 1951 to September 1953, October 1969 to March 1977.

REMARKS.--Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
OCT											
20...	1215	80020	32	770	8.3	15.0	7.3	7.5	78	220	23
NOV											
30...	1200	80020	53	550	7.8	8.0	3.0	9.4	84	150	19
DEC											
08...	0930	80020	36	965	8.0	8.5	1.6	6.5	61	250	40
JAN											
26...	--	80020	39	714	8.3	4.5	4.0	--	--	200	7
FEB											
24...	1515	80020	46	765	7.8	13.5	22	--	--	230	13
APR											
21...	1530	80020	69	1020	7.8	14.0	100	7.1	73	230	56
MAY											
25...	1430	80020	170	558	7.0	22.0	50	6.8	83	190	26
JUL											
22...	1215	80020	33	772	8.1	--	45	6.9	--	220	6
AUG											
23...	1530	80020	22	710	7.8	28.0	32	5.2	71	170	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
OCT											
20...	67	13	70	40	2	7.8	198	73	68	446	.61
NOV											
30...	46	8.8	46	39	2	6.4	132	49	45	306	.42
DEC											
08...	74	15	76	39	2	7.8	207	71	68	451	.61
JAN											
26...	61	12	65	40	2	6.9	195	69	70	425	.58
FEB											
24...	69	13	68	39	2	6.4	213	68	66	427	.58
APR											
21...	66	17	95	46	3	6.6	179	63	150	546	.74
MAY											
25...	56	11	40	31	1	5.7	159	69	38	331	.45
JUL											
22...	65	13	72	41	2	8.7	210	71	68	476	.65
AUG											
23...	51	11	76	47	3	9.6	177	63	77	433	.59

RED RIVER BASIN

07311200 BLUE BEAVER CREEK NEAR CACHE, OK
(Hydrologic bench-mark station)

LOCATION.--Lat 34°37'24", long 98°33'48", in NE 1/4 NE 1/4 sec.28, T.2 N., R.13 W., Comanche County, Hydrologic Unit 11130203, on downstream side of right bank pier on old U.S. Highway 62, 3,000 ft (914.4 m) upstream from St. Louis-San Francisco Railway Co. bridge, 4.0 mi (6.4 km) east of Cache, and at mile 12.0 (19.3 km).

DRAINAGE AREA.--24.6 mi^2 (63.7 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,215.26 ft (370.411 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Minor regulation by Lake Rush, Lake Jed Johnson, and Lake Ketch, combined surface-area 132 acres (534,000 m^2).

AVERAGE DISCHARGE.--19 years, 9.59 ft^3/s (0.271 m^3/s), 6,948 acre-ft/yr (8.57 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft^3/s (385 m^3/s) Aug. 28, 1977, gage height, 18.02 ft (5.492 m) from floodmarks, from rating curve extended above 250 ft^3/s (7.08 m^3/s) on basis of contracted opening; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1907, that of Aug. 28, 1977, according to local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 391 ft^3/s (11.1 m^3/s) Jan. 31, gage height, 9.26 ft (2.822 m), no peak above base of 500 ft^3/s (14.2 m^3/s), no flow July 22 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	.73	1.5	2.6	185	7.3	20	3.7	8.3	.78	.00	.00
2	1.6	.88	1.4	4.3	82	6.8	19	3.2	6.7	.72	.00	.00
3	1.7	1.1	3.1	9.7	59	6.5	11	3.2	5.3	.68	.00	.00
4	1.5	1.3	1.6	10	47	7.5	7.1	3.2	4.2	.65	.00	.00
5	1.4	1.4	1.4	9.5	45	8.1	17	2.9	3.8	.62	.00	.00
6	1.3	1.5	1.2	9.5	43	7.0	19	2.7	4.0	.51	.00	.00
7	1.2	1.5	1.1	11	37	6.4	17	2.4	3.6	.47	.00	.00
8	1.2	1.5	1.1	13	37	5.9	14	2.2	3.4	.40	.00	.00
9	.97	1.5	1.1	13	35	4.7	13	2.0	2.9	.35	.00	.00
10	.94	1.6	1.3	11	32	4.3	12	1.9	2.7	.26	.00	.00
11	.94	1.7	1.2	9.4	28	3.8	9.4	1.9	3.3	.26	.00	.00
12	.99	1.4	1.0	7.2	24	3.6	8.7	1.7	2.9	.16	.00	.00
13	.99	1.4	1.0	6.1	22	3.2	7.4	1.7	2.5	.14	.00	.00
14	.94	1.4	.98	5.0	20	2.8	6.8	8.8	2.4	.20	.00	.00
15	.93	1.3	.94	6.9	18	3.9	5.9	9.4	2.0	.40	.00	.00
16	.85	1.5	.94	5.5	16	5.1	4.2	6.6	1.8	.34	.00	.00
17	.89	1.4	.92	4.1	14	8.4	3.5	4.8	1.6	.37	.00	.00
18	.85	1.4	.91	3.6	13	8.0	3.2	13	1.6	.25	.00	.00
19	.83	1.4	.86	4.4	12	5.1	3.1	15	1.4	.10	.00	.00
20	.79	1.3	.89	5.6	10	4.1	2.9	14	1.3	.05	.00	.00
21	.85	1.3	.88	7.5	11	4.3	4.7	112	1.1	.01	.00	.00
22	.85	1.4	.91	10	15	3.9	6.4	59	.98	.00	.00	.00
23	.84	1.2	.89	13	15	3.6	6.9	46	.92	.00	.00	.00
24	.85	1.1	.89	14	13	3.4	7.6	34	.89	.00	.00	.00
25	.79	1.4	.80	18	14	4.2	6.5	25	.89	.00	.00	.00
26	.75	2.0	.87	19	9.8	96	4.5	19	.88	.00	.00	.00
27	.73	2.0	1.9	18	8.4	61	3.8	15	.95	.00	.00	.00
28	.73	1.7	1.1	13	7.9	37	3.5	13	1.3	.00	.00	.00
29	.69	1.5	1.7	13	---	29	3.5	9.9	.96	.00	.00	.00
30	.74	1.5	2.4	14	---	25	3.6	8.7	.87	.00	.00	.00
31	.77	---	2.1	107	---	20	---	9.5	---	.00	.00	---
TOTAL	31.00	42.31	38.88	397.9	873.1	399.9	255.2	455.4	75.44	7.72	.00	.00
MEAN	1.00	1.41	1.25	12.8	31.2	12.9	8.51	14.7	2.51	.25	.00	.00
MAX	1.7	2.0	3.1	107	185	96	20	112	8.3	.78	.00	.00
MIN	.69	.73	.80	2.6	7.9	2.8	2.9	1.7	.87	.00	.00	.00
AC-FT	61	84	77	789	1730	793	506	903	150	15	.00	.00

CAL YR 1982	TOTAL	8083.99	MEAN	22.1	MAX	983	MIN	.00	AC-FT	16030
WTR YR 1983	TOTAL	2576.85	MEAN	7.06	MAX	185	MIN	.00	AC-FT	5110

07311200 BLUE BEAVER CREEK NEAR CACHE, OK--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
29...	1450	80020	1.5	320	7.3	12.0	.80	9.8	96	74	98
MAR											
07...	1340	80020	6.4	105	6.7	15.0	3.5	6.2	65	27	54
MAY											
16...	1430	80020	6.6	147	7.7	20.5	12	9.2	108	K590	180

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV											
29...	75	0	21	5.5	17	32	.9	1.6	84	19	16
MAR											
07...	46	0	13	3.2	9.8	31	.7	1.2	51	22	31
MAY											
16...	49	0	14	3.5	9.8	29	.6	1.5	54	14	5.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)
NOV											
29...	.30	15	148	150	.20	<.100	<.060	.08	.70	.050	.15
MAR											
07...	.40	12	93	120	.13	.110	.120	.15	.60	.050	.15
MAY											
16...	.30	13	91	94	.12	.490	.110	.14	.50	.030	.09

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
NOV											
29...	.060	<.010	--	40	<1	63	<.5	<1	<1	<3	2
MAR											
07...	.040	.020	.06	--	--	--	--	--	--	--	--
MAY											
16...	.060	.030	.09	40	<1	50	<.5	<1	<1	<3	2

RED RIVER BASIN

07311200 BLUE BEAVER CREEK NEAR CACHE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)
NOV											
29...	170	4	13	12	.1	<10	<1	<1	<1	99	<6
MAR											
07...	--	--	--	--	--	--	--	--	--	--	--
MAY											
16...	28	2	11	10	<.1	<10	1	<1	<1	69	<6

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
29...	16	--	--	--	--	--	--	--	--	--	--
MAR											
07...	--	<1.5	<.4	2.1	<.5	2.0	<.5	.53	.20	13	64
MAY											
16...	7	--	--	--	--	--	--	--	--	16	87

RED RIVER BASIN

07311500 DEEP RED RUN NEAR RANDLETT, OK

LOCATION.--Lat 34°13'15", long 98°27'10", in SW 1/4 SW 1/4 sec.10, T.4 S., R.12 W., Cotton County, Hydrologic Unit 11130203, near right bank on downstream side of pier of bridge on U.S. Highway 277, 2.8 mi (4.5 km) north of Randlett, and at mile 4.8 (7.7 km).

DRAINAGE AREA.--617 mi^2 (1,598 km^2).

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

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1631: 1956. WSP 1920: 1951.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 924.49 ft (281.785 m) Oklahoma State Highway Department datum. Prior to Nov. 10, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--34 years, 112 ft^3/s (3.170 m^3/s), 81,140 acre-ft/yr (100 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,700 ft^3/s (1,370 m^3/s) Sept. 22, 1969, gage height, 27.51 ft (8.385 m), from rating curve extended above 13,000 ft^3/s (368 m^3/s) on basis of contracted-opening measurement of peak flow; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage somewhat exceeding 27 ft (8.2 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (56.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 23	0345	*4,460	126	*22.60	6.888	June 15	2030	2,620	74.2	20.41	6.221

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	.39	10	3.5	653	3.8	26	5.3	52	84	.72	.00
2	1.8	.24	6.2	3.7	1560	5.0	22	4.6	47	43	.67	.00
3	1.6	.16	4.7	3.3	614	4.5	18	4.3	43	29	.64	.00
4	1.6	.13	3.6	3.4	77	4.9	20	4.1	39	17	.61	.00
5	1.6	.13	2.8	4.1	50	5.0	18	3.9	33	13	.58	.00
6	1.5	.24	2.8	3.9	34	4.8	36	3.7	23	288	.56	.00
7	1.3	.46	3.6	3.7	27	4.7	41	3.3	18	317	.54	.00
8	1.3	.63	3.9	4.0	34	4.2	29	3.2	14	48	.20	.00
9	1.2	.54	3.9	4.1	33	3.8	18	3.2	11	25	.90	.00
10	1.2	.39	3.9	3.5	28	3.5	14	3.2	8.6	14	.41	.00
11	1.1	.63	3.7	3.1	23	3.4	13	3.3	8.8	11	.69	.00
12	1.5	.63	3.0	2.9	19	3.6	11	3.6	8.5	9.2	.59	.00
13	.94	.83	3.2	2.7	15	3.7	9.5	4.0	8.1	7.4	.68	.00
14	.83	.83	3.3	2.8	11	3.6	8.1	387	304	6.1	.44	.00
15	.72	.72	3.2	2.7	8.9	3.5	6.7	1410	2190	55	.08	.00
16	.63	1.1	3.0	2.6	8.1	4.4	6.1	405	2100	4.3	.00	.00
17	.63	1.1	2.9	2.4	7.4	4.1	5.6	61	323	3.6	.00	.00
18	.63	1.5	2.8	2.3	6.8	8.1	5.6	122	100	3.1	.00	.00
19	.54	2.2	2.7	2.7	6.6	19	4.9	172	79	2.6	.00	.00
20	.54	2.6	2.6	2.9	6.4	15	4.4	55	60	2.3	.00	.00
21	.72	2.2	2.7	3.3	6.3	10	10	654	53	2.0	.00	.00
22	.72	2.5	2.8	3.9	6.1	7.8	79	2910	49	1.8	.00	.00
23	.83	2.9	2.6	3.9	5.6	6.1	89	4070	41	1.6	.00	.00
24	.83	3.3	3.1	3.9	5.6	4.6	42	3540	23	1.4	.00	.00
25	.83	4.4	3.0	4.4	5.7	4.8	27	2070	27	1.3	.00	.00
26	.83	5.7	2.8	6.9	5.6	10	15	233	387	1.2	.00	.00
27	.94	6.1	5.5	7.8	5.0	543	11	126	128	1.1	.00	.00
28	.94	9.9	3.4	6.1	4.5	246	8.2	92	396	.98	.00	.00
29	1.5	11	3.7	4.7	---	69	6.4	80	742	.90	.00	.00
30	.63	13	4.2	3.8	---	46	5.6	68	209	.82	.00	.00
31	.34	---	3.9	17	---	34	---	58	---	.76	.00	---
TOTAL	32.07	76.45	113.5	130.0	3266.6	1093.9	610.1	16562.7	7525.0	996.46	8.31	.00
MEAN	1.03	2.55	3.66	4.19	117	35.3	20.3	534	251	32.1	.27	.00
MAX	1.8	13	10	17	1560	543	89	4070	2190	317	.90	.00
MIN	.34	.13	2.6	2.3	4.5	3.4	4.4	3.2	8.1	.76	.00	.00
AC-FT	64	152	225	258	6480	2170	1210	32850	14930	1980	16	.00

CAL YR 1982	TOTAL 66021.15	MEAN 181	MAX 7170	MIN .00	AC-FT 131000				
WTR YR 1983	TOTAL 30415.09	MEAN 83.3	MAX 4070	MIN .00	AC-FT 60330				

RED RIVER BASIN

07313400 WAURIKA LAKE NEAR WAURIKA, OK

LOCATION.--Lat 34°13'57", long 98°02'51", in SW 1/4 SW 1/4 sec.4, T.4 S., R.8 W., Jefferson County, Hydrologic Unit 11130208, 3,050 ft (930 m) east of outlet works on Beaver Creek, 5.5 mi (8.8 km) north of Waurika and at mile 27.0 (43.4 km).

DRAINAGE AREA.--562 mi^2 (1,456 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1977, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by an earth dam with a concrete outlet structure and emergency spillway. Storage began Aug. 1, 1977. Capacity 469,300 acre-ft (579 hm^3) at elevation 970.0 ft (295.66 m), crest of uncontrolled spillway and 203,100 acre-ft (250 hm^3) at elevation 951.4 ft (289.99 m), top of conservation pool. Dead storage, 3,400 acre-ft (4.19 hm^3) below elevation 910.0 ft (277.3 m). Reservoir is used for flood control, irrigation, water supply, water quality, fish and wildlife, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 298,200 acre-ft (368 hm^3) June 1, 1982, elevation, 955.40 ft (291.206 m); minimum since first major filling, 59,170 acre-ft (73.0 hm^3) Dec. 4-5, 1978, elevation, 931.56 ft (283.939 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 217,300 acre-ft (268 hm^3) May 16, elevation, 952.72 ft (290.389 m); minimum, 183,700 acre-ft (227 hm^3) Sept. 30, elevation, 949.51 ft (289.411 m).

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

943	127,500	949	178,800
946	151,300	950	188,500
948	169,100	955	243,400

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193000	189300	189400	189800	193900	201500	203900	204700	204700	204900	198200	191400
2	193200	189500	188900	190500	193900	201700	203200	203900	205000	204600	197800	191100
3	193400	188000	188800	190200	193900	200900	203800	203400	205100	204500	197400	190700
4	193000	187500	188900	190200	193400	201300	203400	203300	205000	204500	197100	190000
5	192800	187500	188900	190200	194000	201800	203200	202700	205200	203900	197000	189800
6	192700	187900	188400	190600	194100	201900	203400	203200	205000	203700	196900	189600
7	192700	187900	188900	190500	194600	201200	203200	203100	204900	203300	196800	189400
8	192200	187900	188400	190700	194500	201100	203100	202400	204800	203100	196600	188900
9	191400	187900	188100	190600	194800	201100	203500	202100	204700	202800	196700	188500
10	191400	188000	188500	190600	194400	201000	203800	202200	204300	202700	196700	188600
11	191400	188500	188400	190900	194300	201000	203900	202400	204700	202600	196600	188400
12	191000	187300	188400	190900	194800	201300	203900	202800	204700	202300	196300	188300
13	190900	187100	188400	190900	195200	201300	204000	204400	205100	201700	196100	187700
14	190600	186900	189000	190900	195300	200800	204000	214100	208700	201800	195700	187400
15	190900	186900	188700	190200	194800	201600	204100	216300	209000	201600	195400	187300
16	190400	186800	188500	190600	195500	201900	204400	216200	208700	201500	195200	187500
17	190800	186700	188700	190900	195800	201300	205200	215300	207900	201700	194900	187100
18	190200	186800	189000	190300	194700	201100	205200	214600	207400	201600	194100	186800
19	190300	187200	188200	190200	195800	201000	204000	212200	206700	201400	193900	186400
20	189300	187100	188500	190600	199100	200700	204400	210000	206000	201000	193200	185600
21	189300	186900	188600	190900	199600	201000	205900	211500	205300	200900	194300	185100
22	189100	187200	188800	190900	200500	199900	207400	211100	204600	200800	194000	185000
23	188900	187100	188800	191100	200700	200000	206400	209100	204000	200500	193600	184700
24	188700	186000	189500	190900	201700	200200	206500	206800	203800	200400	193500	184700
25	188400	186000	189300	191500	200600	201400	206000	205300	203500	200100	193200	184700
26	188500	187600	188800	191000	200000	203000	206300	204700	203500	199700	193100	184600
27	188600	187800	190200	190800	200700	202700	206300	205100	203600	199300	193000	184500
28	189200	188300	190000	191300	201100	202500	206100	205400	204500	199000	192700	184400
29	188700	188200	189600	192100	---	203100	205700	205200	204900	198800	192400	184200
30	189300	188500	189500	191800	---	203000	205000	204500	204900	198300	192300	183900
31	189400	---	189700	192900	---	203600	---	204700	---	198400	191700	---
MAX	193400	189500	190200	192900	201700	203600	207400	216300	209000	204900	198200	191400
MIN	188400	186000	188100	189800	193400	199900	203100	202100	203500	198300	191700	183900
†	950.09	950.00	950.12	950.42	951.21	951.45	951.59	951.56	951.58	950.95	950.31	949.53
††	-3,700	-900	+1,200	+3,200	+8,200	+2,500	+1,400	-300	+200	-6,500	-6,700	-7,800

CAL YR 1982 MAX 248200 MIN 143600, †† +44,900
WTR YR 1983 MAX 216300 MIN 183900, †† -9,200

† Elevation, in feet, at end of month.
†† Change in contents, in acre-feet.

RED RIVER BASIN

07313500 BEAVER CREEK NEAR WAURIKA, OK

LOCATION.--Lat 34°13'00", long 98°02'57", on north line of NW 1/4 NW 1/4 sec.16, T.4 S., R.8 W., Jefferson County, Hydrologic Unit 11130208, on left bank on downstream side of bridge on State Highway 5, 4.5 mi (7.2 km) northwest of Waurika, 6.2 mi (10.0 km) upstream from Cow Creek, and at mile 25.8 (45.1 km).

DRAINAGE AREA.--563 mi^2 (1,458 km^2).

PERIOD OF RECORD.--June 1953 to current year.

REVISED RECORDS.--WSP 1731: 1954 (M).

GAGE.--Water-stage recorder. Datum of gage is 874.17 ft (266.447 m) Oklahoma State Highway Department datum. Prior to Apr. 5, 1966, water-stage recorder at same site at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records fair. Flow regulated by Waurika Lake (07313400) 1.2 mi (1.9 km) upstream beginning August 1977.

AVERAGE DISCHARGE.--(Prior to regulation by Waurika Lake) 23 years, (water years 1954-76) 107 ft^3/s (3.030 m^3/s), 77,520 acre-ft/yr (95.6 hm^3/yr); (Since regulation by Waurika Lake) 6 years, (water years 1978-83) 35.7 ft^3/s (1.011 m^3/s), 25,860 acre-ft/yr (31.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft^3/s (912 m^3/s) May 20, 1955, gage height, 27.42 ft (8.358 m), present datum; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 18, 1951, reached a stage of 27.7 ft (8.44 m), present datum, from floodmark, discharge 65,300 ft^3/s (1,850 m^3/s) by contracted-opening measurement of peak flow. A similar stage was reached prior to 1889, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,210 ft^3/s (34.3 m^3/s) May 21, gage height, 17.15 ft (5.227 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	2.0	2.5	1.8	3.2	1.7	1.6	206	.73	.50	.09	.00
2	.62	2.1	2.5	1.8	2.0	1.7	1.7	208	.68	.50	.05	.00
3	.81	2.2	2.5	1.9	1.5	1.5	1.6	104	1.1	.50	.04	.00
4	.81	2.3	2.5	1.9	1.1	1.6	1.9	5.0	.67	.45	.00	.00
5	.81	2.3	2.4	2.2	1.4	1.5	1.5	2.0	.79	.51	.00	.00
6	.93	2.3	2.3	2.1	1.2	1.2	1.1	1.2	.92	.46	.00	.00
7	.74	2.2	2.4	1.9	1.2	1.1	1.1	1.2	.58	.45	.13	.00
8	.74	2.2	2.4	2.0	1.2	1.1	1.0	1.7	.56	.41	.19	.00
9	.68	2.3	2.3	2.0	1.3	1.2	1.0	6.6	.56	.40	.16	.00
10	.68	2.3	4.1	2.0	1.3	1.5	1.0	8.9	.56	.40	.22	.00
11	.68	2.5	1.9	2.0	1.3	1.1	1.0	8.9	.60	.45	.13	.00
12	.81	4.0	2.1	2.0	1.5	1.1	1.2	8.9	.61	.56	.03	.00
13	.87	3.4	5.5	1.9	1.4	1.1	5.4	8.9	.56	.40	.09	.00
14	.87	2.3	2.1	1.9	1.2	1.2	2.0	61	.56	.40	.07	.00
15	.81	1.9	1.7	1.9	1.1	1.3	1.5	3.2	1.2	.41	.00	.00
16	.74	1.9	1.7	1.9	1.3	1.6	1.2	111	1.7	.40	.00	.00
17	.68	2.4	1.7	6.3	1.2	1.3	1.1	536	1.7	.39	.00	.00
18	.74	3.1	1.9	4.0	1.1	1.1	1.1	1000	163	.33	.00	.00
19	2.0	2.4	2.5	1.4	1.2	1.1	1.1	1140	268	.30	.00	.00
20	1.9	2.6	1.8	1.7	1.8	1.1	1.1	1150	268	.28	.00	.00
21	1.7	2.0	1.7	1.3	2.1	1.1	3.1	1200	268	.25	.00	.00
22	2.2	1.9	1.7	1.8	2.0	1.4	1.6	1170	268	.23	.00	.00
23	2.0	1.9	1.7	1.5	1.4	1.6	1.3	1180	246	.20	.00	.00
24	1.9	1.9	1.7	1.5	1.4	1.6	1.2	1160	5.7	.19	.00	.00
25	2.2	2.6	1.9	1.2	1.5	1.5	1.2	887	.78	.15	.00	.00
26	2.0	3.0	1.9	1.3	1.5	1.7	1.7	439	.63	.14	.00	.00
27	1.9	3.2	1.8	1.3	1.5	1.4	68	197	.63	.10	.00	.00
28	1.9	2.6	1.8	1.2	1.6	1.0	200	1.7	.88	.28	.00	.00
29	1.9	2.6	2.0	1.1	---	1.2	200	.91	.60	.33	.00	.00
30	1.9	2.5	2.0	1.4	---	1.6	200	.82	.54	.17	.00	.00
31	1.9	---	1.9	1.2	---	1.6	---	.77	---	.10	.00	---
TOTAL	39.10	72.9	68.9	59.4	41.5	41.8	708.3	10809.70	1504.84	10.64	1.20	.00
MEAN	1.26	2.43	2.22	1.92	1.48	1.35	23.6	349	50.2	.34	.04	.00
MAX	2.2	4.0	5.5	6.3	3.2	1.7	200	1200	268	.56	.22	.00
MIN	.62	1.9	1.7	1.1	1.1	1.0	1.0	.77	.54	.10	.00	.00
AC-FT	78	145	137	118	82	83	1400	21440	2980	21	2.4	.00

CAL YR 1982	TOTAL	63889.27	MEAN	175	MAX	2040	MIN	.00	AC-FT	126700
WTR YR 1983	TOTAL	13358.28	MEAN	36.6	MAX	1200	MIN	.00	AC-FT	26500

RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, on left bank on downstream side of bridge abutment (revised) on U.S. Highway 81, 0.5 mi (0.8 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 1.2 mi (1.9 km) south of Terral, 3.6 mi (5.8 km) downstream from Little Wichita River, and at mile 872 (1,403 km).

DRAINAGE AREA.--28,723 mi^2 (74,393 km^2), of which 5,936 mi^2 (15,374 km^2) probably is noncontributing.

PERIOD OF RECORD.--January 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 770.31 ft (234.790 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Many small diversions for irrigation, oilfield, and municipal uses upstream from station.

AVERAGE DISCHARGE.--45 years (water years 1939-83), 2,117 ft^3/s (59.95 m^3/s), 1,534,000 acre-ft/yr (1.89 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197,000 ft^3/s (5,580 m^3/s) June 8, 1941, gage height, 28.12 ft (8.571 m); minimum, 43 ft^3/s (1.22 m^3/s) Mar. 15, 1939. Maximum stage since at least 1891, that of June 8, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1935, reached a stage of 27.2 ft (8.29 m); floods in 1891 and May 1, 1908, are reported to have reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,200 ft^3/s (430 m^3/s) May 23 at 1000, gage height, 16.97 ft (5.167 m), no peak above base of 21,000 ft^3/s (595 m^3/s); minimum discharge, 100 ft^3/s (2.83 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	267	216	409	399	615	562	1740	600	1230	1440	175	127
2	271	197	363	350	2720	570	1380	561	1080	1000	168	127
3	294	174	344	344	3370	573	1130	550	998	1100	166	131
4	332	159	322	354	2420	590	980	518	977	820	174	135
5	311	155	297	399	1460	585	966	420	890	721	185	134
6	269	151	270	400	1120	581	900	376	861	611	186	139
7	252	152	254	394	977	586	900	352	973	1260	189	132
8	239	150	251	383	891	578	1000	343	817	2030	213	124
9	226	153	242	371	838	549	906	337	661	1250	215	123
10	217	156	248	363	805	524	838	341	593	848	196	128
11	220	163	245	349	779	506	810	346	569	624	207	129
12	225	145	245	322	754	492	747	355	552	515	199	128
13	224	153	257	314	725	485	904	401	535	449	181	128
14	227	160	294	311	697	492	1580	1320	534	400	170	133
15	230	153	287	297	656	535	1860	5410	3320	364	175	145
16	221	144	283	287	631	790	889	5070	8150	338	165	164
17	207	146	273	280	614	632	600	2900	5300	308	149	174
18	201	149	254	270	587	632	518	2470	3210	294	142	188
19	202	151	245	280	570	790	561	2990	1990	292	145	181
20	194	151	245	280	616	733	821	2890	1560	292	154	165
21	202	153	242	287	2540	688	1950	2780	1310	290	151	138
22	207	153	242	314	1510	688	920	8340	1150	282	161	124
23	209	146	230	318	857	707	1810	12700	1180	270	182	120
24	224	142	242	322	733	688	1290	8740	1080	254	174	125
25	215	148	297	348	669	662	1130	7660	795	248	161	118
26	206	202	329	356	668	1130	788	5290	635	232	152	121
27	200	249	388	356	640	1830	617	2930	652	212	145	112
28	230	431	708	352	603	2460	561	1880	936	193	135	109
29	232	503	909	344	---	3270	493	1650	846	202	134	109
30	269	464	611	336	---	3030	572	1540	1060	194	134	109
31	268	---	467	398	---	2380	---	1370	---	182	131	---
TOTAL	7291	5769	10293	10478	30065	29318	30161	83430	44444	17515	5214	4020
MEAN	235	192	332	338	1074	946	1005	2691	1481	565	168	134
MAX	332	503	909	400	3370	3270	1950	12700	8150	2030	215	188
MIN	194	142	230	270	570	485	493	337	534	182	131	109
AC-FT	14460	11440	20420	20780	59630	58150	59820	165500	88150	34740	10340	7970

CAL YR 1982	TOTAL	1122114	MEAN	3074	MAX	41400	MIN	142	AC-FT	2226000
WTR YR 1983	TOTAL	277998	MEAN	762	MAX	12700	MIN	109	AC-FT	551400

RED RIVER BASIN

07315700 MUD CREEK NEAR COURTNEY, OK

LOCATION.--Lat 34°00'20", long 97°34'00", in NW 1/4 SE 1/4 sec.25, T.6 S., R.4 W., Jefferson County, Hydrologic Unit, 11130201, on downstream side of bridge on State Highway 89, 4.0 mi (6.4 km) downstream from North Mud Creek, 6.0 mi (9.7 km) northwest of Courtney, and at mile 11.5 (18.5 km).

DRAINAGE AREA.--572 mi^2 (1,481 km^2).

PERIOD OF RECORD.--October 1960 to current year.

CORRECTIONS.--The maximum gage height for the water year 1977 has been corrected to 24.65 ft (7.513 m), superseding figure published in the report for 1977.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 727.72 ft (221.809 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1968, auxiliary water-stage recorder 2.0 mi (3.2 km) downstream from base gage.

REMARKS.--Records good.

AVERAGE DISCHARGE.--23 years, 128 ft^3/s (3.62 m^3/s), 92,700 acre-ft/yr (114 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft^3/s (946 m^3/s) May 1, 1974, gage height, 31.37 ft (9.562 m); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1957, reached a stage of 30.6 ft (9.33 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,300 ft^3/s (36.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 15	1945	*9,650	273	*28.13	8.57

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 24	0845	2,590	73.3	24.42	7.44

Minimum daily discharge, 0.03 ft^3/s (0.001 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.45	.67	19	409	12	159	21	80	231	5.1	.97
2	1.4	.42	.59	12	587	11	80	19	74	92	4.5	.70
3	6.1	.41	.50	8.9	418	9.7	51	15	69	57	3.7	.56
4	1.8	.40	60	7.6	108	100	37	15	63	48	3.1	.49
5	.81	.40	46	6.9	54	754	31	13	57	40	2.8	.35
6	.70	.39	20	7.1	35	827	80	11	75	33	2.5	.32
7	.65	.50	12	7.1	27	438	88	10	95	27	2.6	.26
8	.63	.50	8.3	6.6	24	97	66	9.6	72	23	3.0	.24
9	.62	.56	6.1	5.9	22	55	44	8.9	51	19	2.7	.22
10	.62	.62	5.4	5.3	20	37	32	8.3	42	16	2.6	.23
11	.62	.86	5.6	5.0	18	29	27	8.2	38	13	.94	.20
12	.62	.80	4.8	4.6	17	25	24	8.7	35	11	.76	.18
13	.62	.67	4.5	4.4	16	22	61	20	32	9.4	.75	.23
14	.63	.67	4.0	4.3	14	20	359	453	32	7.8	.74	.24
15	.68	.67	4.5	3.8	13	19	524	3960	88	6.6	.67	.26
16	.62	.65	5.7	4.1	13	19	162	6160	419	6.2	.64	.30
17	.62	.63	5.3	4.6	17	18	72	3490	181	6.2	.57	.34
18	.62	.62	5.4	4.5	18	17	47	2040	74	7.6	.49	.34
19	.62	.61	4.5	5.0	18	17	35	1650	49	9.7	.92	.32
20	.62	.60	3.9	5.5	22	16	30	1630	43	8.0	2.7	.79
21	.61	.59	3.5	5.3	23	16	31	1610	38	6.7	25	.63
22	.59	.58	3.4	5.7	25	15	87	1820	35	5.6	10	.38
23	.57	.57	3.2	6.5	33	15	478	2250	32	4.8	5.4	.56
24	.55	.56	3.1	7.2	26	16	456	2430	30	4.1	4.1	.45
25	.54	.55	3.7	6.8	24	16	159	1070	93	3.6	4.9	.31
26	.52	.54	41	6.6	18	131	72	268	225	3.3	3.4	.24
27	.50	.53	71	6.6	15	617	46	173	260	5.0	3.0	.19
28	.48	.52	34	6.1	14	631	33	141	256	6.7	2.6	.12
29	.46	.51	135	6.1	---	157	27	135	466	7.0	2.0	.06
30	.46	1.7	119	5.6	---	82	23	111	751	6.8	1.7	.03
31	.53	---	41	12	---	179	---	93	---	6.2	1.4	---
TOTAL	26.71	18.08	665.66	206.7	2048	4417.7	3421	29651.7	3855	731.3	105.28	10.51
MEAN	.86	.60	21.5	6.67	73.1	143	114	957	129	23.6	3.40	.35
MAX	6.1	1.7	135	19	587	827	524	6160	751	231	25	.97
MIN	.46	.39	.50	3.8	13	9.7	23	8.2	30	3.3	.49	.03
AC-FT	53	36	1320	410	4060	8760	6790	58810	7650	1450	209	21

CAL YR 1982	TOTAL 149879.95	MEAN 411	MAX 14000	MIN .39	AC-FT 297300			
WTR YR 1983	TOTAL 45157.64	MEAN 124	MAX 6160	MIN .03	AC-FT 89570			

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°43'40", long 97°09'35", in SW 1/4 sec.36, T.9 S., R.1 E., Love County, Okla., Hydrologic Unit 11130201, near center of span on downstream side of bridge on U.S. Highway 77, 0.2 mi (0.3 km) downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 5.0 mi (8.0 km) downstream from Fish Creek, 4.5 mi (7.2 km) southwest of Thackerville, Okla., 7.0 mi (11.0 km) north of Gainesville, and at mile 791.5 (1,273.5 km).

DRAINAGE AREA.--30,782 mi^2 (79,725 km^2) of which 5,936 mi^2 (15,374 km^2) is probably noncontributing.

PERIOD OF RECORD.--May 1936 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 627.91 ft (191.387 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1939, and Feb. 13, 1965 to Nov. 14, 1966, nonrecording gage at same site and datum.

REMARKS.--Records poor. Flow slightly regulated by Lake Kemp, in Texas, since 1943 by Lake Altus (station 07302500), since 1946 by Lake Kickapoo, and since 1967 by Lake Arrowhead and Moss Lake, also in Texas.

COOPERATION.--Gage-height record and 14 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--47 years, 2,722 ft^3/s (77.09 m^3/s), 1,972,000 acre-ft/yr (2.43 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168,000 ft^3/s (4,758 m^3/s) June 9, 1941, gage height, 24.15 ft (7.361 m); maximum gage height, 29.45 ft (8.976 m) Oct. 14, 1981, from floodmark; minimum discharge, 48 ft^3/s (1.36 m^3/s) Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ft^3/s (510 m^3/s) May 17, 24, maximum gage height, 15.95 ft (4.862 m) May 24, no peaks above base of 24,000 ft^3/s (680 m^3/s); minimum daily discharge, 115 ft^3/s (3.26 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	411	346	730	900	631	744	3510	940	2950	2200	420	148
2	384	435	744	710	947	696	2900	948	2640	3000	380	140
3	398	371	663	637	1940	612	2190	948	2390	2700	350	135
4	600	310	536	553	3890	819	1720	924	2160	2400	300	129
5	696	287	502	497	3670	1330	1450	916	2070	2210	300	128
6	497	272	460	476	2500	1560	1290	908	1900	1810	280	129
7	476	262	445	476	1750	1670	1300	853	1800	1900	265	131
8	430	255	411	497	1420	1440	1280	779	1700	3000	260	132
9	389	245	380	497	1230	1060	1220	751	1600	5000	280	130
10	375	242	389	502	1090	831	1260	751	1500	3500	265	131
11	375	248	416	486	1030	744	1180	772	1400	2300	260	130
12	346	272	426	465	973	730	1080	779	1300	1880	258	126
13	298	250	393	455	908	718	1230	758	1200	1500	225	127
14	302	230	393	440	884	700	1790	744	1180	1350	222	130
15	333	210	389	416	838	692	2690	1720	1150	1200	222	131
16	354	215	389	393	816	750	2900	9950	1120	1100	218	135
17	342	217	389	384	779	900	2500	14600	7530	1200	206	265
18	325	220	393	380	744	820	1570	8720	7390	1100	200	271
19	313	224	371	375	702	790	1200	6750	5580	1000	227	190
20	294	226	354	371	808	770	990	6430	3590	950	282	182
21	294	226	342	371	816	758	956	8070	2620	890	391	174
22	294	228	325	371	838	876	956	9960	2150	800	564	212
23	298	228	317	375	2180	853	932	13200	1940	770	283	200
24	302	222	310	375	1810	816	1340	17000	1700	700	225	179
25	302	215	306	402	1140	772	2420	13400	1830	660	194	160
26	302	269	294	407	932	892	1910	12800	1700	600	191	140
27	306	384	325	411	831	1320	1520	9580	1600	560	191	131
28	313	426	402	421	779	1910	1200	6690	2180	520	179	122
29	329	435	536	445	---	2750	1020	4610	1950	540	168	117
30	333	513	696	450	---	3300	998	3610	1960	500	163	115
31	350	---	1010	497	---	3570	---	3380	---	450	158	---
TOTAL	11361	8483	14036	14435	36876	36193	48502	162241	71780	48290	8127	4570
MEAN	366	283	453	466	1317	1168	1617	5234	2393	1558	262	152
MAX	696	513	1010	900	3890	3570	3510	17000	7530	5000	564	271
MIN	294	210	294	371	631	612	932	744	1120	450	158	115
AC-FT	22530	16830	27840	28630	73140	71790	96200	321800	142400	95780	16120	9060

CAL YR 1982	TOTAL	2008385	MEAN	5502	MAX	62700	MIN	179	AC-FT	3984000
WTR YR 1983	TOTAL	464894	MEAN	1274	MAX	17000	MIN	115	AC-FT	922100

RED RIVER BASIN

07316500 WASHITA RIVER NEAR CHEYENNE, OK

LOCATION.--Lat 35°37'35", long 99°40'05", in SE 1/4 sec.5, T.13 N., R.23 W., Roger Mills County, Hydrologic Unit 11130301, on left downstream bank near bridge on U.S. Highway 283, 0.5 mi (0.8 km) downstream from Sergeant Major Creek, 1.0 mi (1.6 km) north of Cheyenne, 5.2 mi (8.4 km) upstream from Dead Indian Creek, and at mile 543.9 (875.1 km).

DRAINAGE AREA.--794 mi^2 (2,056 km^2).

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,900.98 ft (579.419 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). May 1, 1938, to Nov. 16, 1946, and Oct. 1, 1947, to Jan. 11, 1948, nonrecording gage at same site and datum. Jan. 12, 1948, to Feb. 3, 1977, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records fair. Some regulation by numerous flood-retarding structures.

AVERAGE DISCHARGE.--46 years, 29.1 ft^3/s (0.824 m^3/s), 21,080 acre-ft/yr (26.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft^3/s (1,980 m^3/s) Apr. 29, 1954, gage height, 15.24 ft (4.645 m); from rating curve extended above 27,000 ft^3/s (765 m^3/s) on basis of contracted-opening measurement of peak flow; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 3, 1934, reached a stage of 1.0 ft (0.30 m) lower than that in 1954 at site on upstream side of highway fill.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 427 ft^3/s (12.1 m^3/s) June 11, gage height, 8.43 ft (2.569 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	3.4	30	25	35	27	50	27	48	7.0	.00	.00
2	2.1	3.3	29	28	23	27	47	27	44	5.0	.00	.00
3	1.8	3.1	29	29	23	33	46	28	39	3.7	.00	.00
4	1.8	3.0	32	28	22	110	46	27	34	2.5	.00	.00
5	1.8	2.8	31	27	22	124	50	26	33	2.0	.00	.00
6	1.9	2.7	30	29	21	133	50	25	31	.90	.00	.00
7	2.0	2.9	29	30	22	86	45	23	26	.40	.00	.00
8	2.0	3.0	24	29	26	80	40	23	22	.20	.00	.00
9	1.9	3.2	24	28	34	78	37	22	21	.00	.00	.00
10	1.9	3.8	29	28	40	67	35	23	46	.00	.00	.00
11	1.9	3.5	30	24	45	60	33	25	266	.00	.00	.00
12	2.0	3.3	29	22	46	56	30	25	162	.00	.00	.00
13	1.8	3.1	30	22	47	55	29	23	100	.00	.00	.00
14	2.0	3.1	31	20	47	52	28	44	77	.00	.00	.00
15	2.1	3.2	28	20	41	52	26	44	70	.00	.00	.00
16	2.0	3.2	27	25	39	60	26	38	51	.00	.00	.00
17	2.2	3.1	28	27	37	68	27	33	48	.00	.00	.00
18	2.1	3.1	28	23	37	60	26	30	45	.00	.00	.00
19	2.1	3.1	25	24	36	51	26	29	42	.00	.00	.00
20	1.9	3.0	26	22	37	50	26	28	40	.00	.00	.00
21	2.1	3.0	26	22	42	49	26	35	38	.00	.00	.00
22	2.1	3.0	28	23	51	50	27	34	31	.00	.00	.00
23	2.1	2.9	28	25	50	52	27	31	26	.00	.00	.00
24	2.2	3.0	28	27	39	54	28	31	24	.00	.00	.00
25	2.5	3.3	25	27	36	68	29	28	21	.00	.00	.00
26	2.8	3.3	24	26	34	67	28	29	18	.00	.00	.00
27	2.8	3.5	27	24	30	63	26	27	22	.00	.00	.00
28	2.9	4.0	29	25	30	60	26	51	24	.00	.00	.00
29	3.0	15	47	24	---	58	28	38	15	.00	.00	.00
30	3.1	30	24	24	---	52	27	40	11	.00	.00	.00
31	3.3	---	28	29	---	51	---	61	---	.00	.00	---
TOTAL	68.4	133.9	883	786	992	1953	995	975	1475	21.70	.00	.00
MEAN	2.21	4.46	28.5	25.4	35.4	63.0	33.2	31.5	49.2	.70	.00	.00
MAX	3.3	30	47	30	51	133	50	61	266	7.0	.00	.00
MIN	1.8	2.7	24	20	21	27	26	22	11	.00	.00	.00
AC-FT	136	266	1750	1560	1970	3870	1970	1930	2930	43	.00	.00

CAL YR 1982	TOTAL	21466.1	MEAN	58.8	MAX	1110	MIN	1.7	AC-FT	42580
WTR YR 1983	TOTAL	8283.00	MEAN	22.7	MAX	266	MIN	.00	AC-FT	16430

RED RIVER BASIN

07324200 WASHITA RIVER NEAR HAMMON, OK

LOCATION.--Lat 35°39'23", long 99°18'21", on west line of sec.26, T.14 N., R.20 W., Custer County, Hydrologic Unit 11130301, on right bank near county road bridge, 2.2 mi (3.5 km) downstream from Quartermaster Creek, 4.7 mi (7.6 km) northeast of Hammon, and at mile 494.5 (795.7 km).

DRAINAGE AREA.--1,387 mi^2 (3,592 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,643.22 ft (500.853 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Some regulation by numerous flood-retarding structures.

AVERAGE DISCHARGE.--14 years, 34.7 ft^3/s (0.983 m^3/s), 25,140 acre-ft/yr (31.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft^3/s (170 m^3/s) May 17, 1982, gage height, 23.44 ft (7.145 m), from rating curve extended above 2,500 ft^3/s (70.8 m^3/s) on basis of slope-area; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 484 ft^3/s (13.7 m^3/s) June 11, gage height, 11.85 ft (3.612 m), no peak above base of 1,500 ft^3/s (42.5 m^3/s); minimum daily discharge, 3.0 ft^3/s (0.085 m^3/s) Sept 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	10	37	36	57	75	112	34	76	50	3.5	3.7
2	12	10	34	36	62	74	112	34	65	38	3.6	3.5
3	11	10	35	36	63	73	105	33	59	30	3.8	3.4
4	8.2	11	33	37	61	75	101	34	54	23	4.0	3.4
5	8.4	12	34	37	65	90	99	34	50	16	4.3	3.5
6	8.2	13	37	37	66	125	101	34	48	14	4.5	4.0
7	43	14	36	37	66	139	99	34	48	13	5.0	4.5
8	91	14	36	40	66	132	95	35	52	12	5.6	5.0
9	26	14	34	40	69	130	90	34	56	11	6.2	5.0
10	17	15	38	41	70	120	84	31	150	10	6.4	4.6
11	16	16	41	41	70	110	78	30	450	9.0	6.2	4.2
12	14	15	33	40	70	96	74	29	450	9.2	6.0	3.9
13	13	15	32	40	71	88	70	31	440	8.8	6.3	4.1
14	11	15	32	39	73	88	66	157	370	7.2	6.2	5.0
15	10	16	33	38	74	91	61	107	350	7.1	6.1	5.6
16	10	16	34	38	74	94	58	70	315	6.8	5.2	5.4
17	10	17	35	38	73	94	55	63	260	6.5	5.2	5.0
18	9.3	18	33	39	72	102	52	56	200	6.2	6.2	4.6
19	8.5	19	33	40	72	105	50	51	190	5.8	9.0	4.2
20	8.5	19	33	42	73	116	49	47	190	5.4	11	3.7
21	8.8	19	34	43	74	118	47	62	200	5.0	9.0	3.3
22	9.4	19	35	44	81	116	45	60	218	4.8	7.5	3.7
23	9.7	18	35	44	84	140	44	50	230	4.6	7.1	4.0
24	10	17	32	45	84	155	42	45	240	4.4	7.2	3.7
25	9.7	17	33	44	82	150	42	43	240	4.2	5.4	3.4
26	10	19	34	47	80	140	40	40	240	4.1	5.0	3.0
27	9.7	22	33	46	78	125	40	42	200	3.8	4.8	3.0
28	9.4	27	34	46	76	110	39	45	118	3.5	4.5	3.2
29	9.4	32	33	45	---	101	38	43	90	3.5	4.2	3.4
30	10	33	33	45	---	100	36	54	80	3.4	4.0	3.6
31	10	---	35	46	---	105	---	69	---	3.5	3.7	---
TOTAL	454.2	512	1064	1267	2006	3377	2024	1531	5729	333.8	176.7	120.6
MEAN	14.7	17.1	34.3	40.9	71.6	109	67.5	49.4	191	10.8	5.70	4.02
MAX	91	33	41	47	84	155	112	157	450	50	11	5.6
MIN	8.2	10	32	36	57	73	36	29	48	3.4	3.5	3.0
AC-FT	901	1020	2110	2510	3980	6700	4010	3040	11360	662	350	239

CAL YR 1982	TOTAL	39025.9	MEAN	107	MAX	4340	MIN	1.3	AC-FT	77410
WTR YR 1983	TOTAL	18595.3	MEAN	50.9	MAX	450	MIN	3.0	AC-FT	36880

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to September 1979.
WATER TEMPERATURE: October 1969 to September 1979.

REMARKS.--Samples were collected by a local observer on a weekly basis. A partial analysis was made bimonthly on one of these samples. Additional samples were collected semi-annually and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT												
13...	1545	80020	12	2140	8.0	17.0	--	--	--	--	--	--
DEC												
01...	1300	80020	16	2370	7.9	12.5	13.0	97	1200	270	120	110
JAN												
07...	1600	80020	44	1910	7.7	5.0	--	--	--	--	--	--
MAR												
20...	1600	80020	116	1630	7.9	8.0	--	--	--	--	--	--
MAY												
01...	1810	80020	34	1880	7.5	22.0	--	--	--	--	--	--
10...	1745	80020	32	--	7.9	18.5	9.6	107	1100	250	120	120
JUN												
26...	1700	80020	240	1930	8.0	27.0	--	--	--	--	--	--
SEP												
02...	1600	80020	3.3	2440	7.8	29.0	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)
OCT												
13...	--	--	--	--	1100	39	--	--	1780	2.4	--	--
DEC												
01...	17	1	6.5	--	960	67	--	19	--	--	--	--
JAN												
07...	--	--	--	--	940	47	--	--	1520	2.1	--	--
MAR												
20...	--	--	--	--	590	75	--	--	1230	1.7	--	--
MAY												
01...	--	--	--	--	860	68	--	--	1510	2.1	--	--
10...	19	2	4.0	231	1000	73	.60	12	1740	2.4	<.020	.240
JUN												
26...	--	--	--	--	870	51	--	--	1610	2.2	--	--
SEP												
02...	--	--	--	--	1400	55	--	--	2220	3.0	--	--

RED RIVER BASIN

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BORON, DISSOLVED (UG/L AS B)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	ZINC, DISSOLVED (UG/L AS ZN)
OCT												
13...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
01...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
07...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
20...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
01...	--	--	--	--	--	--	--	--	--	--	--	--
10...	<100	3	430	2	<10	5	40	2	40	<.1	1	100
JUN												
26...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
02...	--	--	--	--	--	--	--	--	--	--	--	--

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---			---	---	---	---	1880	---	---	---	---
2	---			---	---	---	---	---	---	---	---	2440
3	---			1940	---	---	1790	---	---	2120	---	---
4	---			---	---	---	---	---	---	---	---	---
5	---			---	---	---	---	---	---	---	---	---
6	---			---	---	1380	---	---	---	---	---	---
7	---			1910	---	---	---	---	---	---	2220	---
8	---			---	---	---	---	2160	---	---	---	---
9	---			---	---	---	---	---	---	---	---	---
10	---			---	1680	---	---	---	---	---	---	---
11	1540			1920	---	---	---	---	---	---	---	---
12	---			---	---	---	---	---	815	---	---	---
13	2140			---	1720	---	---	---	---	---	---	---
14	---			---	---	---	---	---	---	---	---	2660
15	---			---	---	---	---	---	---	---	---	---
16	---			1920	---	---	---	---	---	---	---	---
17	---			---	---	---	---	---	---	---	---	---
18	---			---	---	---	---	---	---	2140	---	2580
19	---			---	---	---	---	---	---	---	---	---
20	---			---	---	1630	---	---	1640	---	---	---
21	---			---	---	---	---	---	---	---	2170	---
22	---			---	---	---	---	1740	---	---	---	---
23	---			---	1760	---	---	---	---	---	---	---
24	---			---	---	---	---	---	---	---	---	---
25	---			---	---	---	---	---	---	---	---	---
26	---			---	---	---	---	---	1930	---	---	2580
27	---			---	---	1640	---	---	---	---	---	---
28	---			1850	---	---	---	---	---	---	---	---
29	---			---	---	---	---	---	---	2300	---	---
30	---			1820	---	---	---	---	---	---	---	---
31	---			---	---	---	---	---	---	---	---	---
MEAN	1840			1890	1720	1550	1790	1930	1460	2190	2200	2570

WTR YR 1983 MEAN 1930 MAX 2660 MIN 815

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---		---	---	---	---	---	22.0	---	---	---	---
2	---		---	---	---	---	---	---	---	---	---	29.0
3	---		---	3.0	---	---	13.5	---	---	29.0	---	---
4	---		---	---	---	---	---	---	---	---	---	---
5	---		---	---	---	---	---	---	---	---	---	---
6	---		---	---	---	15.5	---	---	---	---	---	---
7	---		---	5.0	---	---	---	---	---	---	29.0	---
8	---		---	---	---	---	---	21.0	---	---	---	---
9	---		---	---	---	---	---	---	---	---	---	---
10	---		---	---	9.0	---	---	---	---	---	---	---
11	16.0		---	6.0	---	---	---	---	---	---	---	---
12	---		---	---	---	---	---	---	21.0	---	---	---
13	17.0		.5	---	9.0	---	---	---	---	---	---	---
14	---		---	---	---	---	---	---	---	---	---	25.0
15	---		---	---	---	---	---	---	---	---	---	---
16	---		---	4.5	---	---	---	---	---	---	---	---
17	---		---	---	---	---	---	---	---	---	---	---
18	---		---	---	---	---	---	---	---	28.5	---	26.0
19	---		---	---	---	---	---	---	---	---	---	---
20	---		---	---	---	8.0	---	---	38.0	---	---	---
21	---		---	---	---	---	---	---	---	---	30.0	---
22	---		---	---	---	---	---	22.0	---	---	---	---
23	---		---	---	12.0	---	---	---	---	---	---	---
24	---		---	---	---	---	---	---	---	---	---	---
25	---		---	---	---	---	---	---	---	---	---	---
26	---		---	---	---	---	---	---	27.0	---	---	22.0
27	---		---	---	---	9.0	---	---	---	---	---	---
28	---		---	---	---	---	---	---	---	---	---	---
29	---		---	---	---	---	---	---	---	28.0	---	---
30	---		---	---	---	---	---	---	---	---	---	---
31	---		---	---	---	---	---	---	---	---	---	---
MEAN	16.5		.5	4.5	10.0	11.0	13.5	21.5	28.5	28.5	29.5	25.5

WTR YR 1983 MEAN 18.0 MAX 38.0 MIN .5

RED RIVER BASIN

07324300 FOSS RESERVOIR NEAR FOSS, OK

LOCATION.--Lat 35°32'18", long 99°10'40", in S 5 sec.2, T.12 N., R.19 W., Custer County, Hydrologic Unit 11130301, near right end of dam on Washita River, 0.5 mi (0.8 km) upstream from Oak Creek, 3.5 mi (5.6 km) west of Stafford, 6.0 mi (9.7 km) north of Foss, and at mile 474.4 (763.3 km).

DRAINAGE AREA.--1, 496 mi^2 (3,875 km^2).

PERIOD OF RECORD.--Feburary 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to October, 1961, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth dam. Outlet consists of four 6.0 ft x 7.5 ft high pressure gates and one uncontrolled spillway. Storage began Feb. 13, 1961. Capacity, 436,500 acre-ft (538 hm^3) at elevation 1,668.6 ft (508.59 m) crest of drop inlet and 256,100 acre-ft (316 hm^3) at elevation 1,652.0 ft (503.530 m) conservation pool. Dead storage, 12,420 acre-ft (15.3 hm^3) below elevation 1,597.2 ft (486.83 m) sill of gated outlet. Figures given herein represent total contents. Reservoir is designed for flood control, municipal water supply (inactive), and irrigation release. Revised capacity table used after Sept. 30, 1964. Water-quality samples were collected at 3 profile sites in the Reservoir-see partial-record stations 353325099111001, 353405099132501, and 353615099135001.

COOPERATION.--Elevations and data on diversions furnished by Foss Reservoir Master Conservancy District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 195,800 acre-ft (241 hm^3) June 29, 1977, elevation, 1,644.53 ft (501.253 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 179,700 acre-ft (222 hm^3) June 15, elevation, 1,642.26 ft (500.561 m); minimum, 148,400 acre-ft (183 hm^3) Oct. 16, elevation 1,637.34 ft (499.061 m).

MONTH-END ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	Elevation (feet)*	Contents (acre-feet)	Charge in contents (acre-feet)	Diversions (acre-feet)
Sept. 30	1639.00	158,400	---	---
Oct. 31	1638.70	156,600	- 1,800	13
Nov. 30	1638.60	156,000	- 600	152
Dec. 31	1638.80	157,200	+ 1,200	140
CAL YR 82	---	---	+14,900	2,221
Jan. 31	1639.10	159,100	+ 1,900	172
Feb. 28	1639.60	162,200	+ 3,100	175
Mar. 31	1640.40	167,300	+ 5,100	133
Apr. 30	1640.10	165,400	- 1,900	127
May 31	1640.30	166,700	+ 1,300	136
June 30	1641.00	171,200	+ 4,500	154
July 31	1638.70	156,600	-14,600	232
Aug. 31	1638.20	153,500	- 3,100	236
Sept. 30	1637.50	149,300	- 4,200	188
WTR YR 83	---	---	- 9,100	1,858

* Elevation at 0800 on the following day.

RED RIVER BASIN

353325099111000 FOSS RESERVOIR AT SITE NO. 1 NEAR FOSS, OK

LOCATION.--Lat 35°33'25", long 99°11'10", in SW 1/4 sec.35, T.13 N., R.19 W., Custer County, Hydrologic Unit 11130301, over old river channel, 600 ft (183 m) from left edge of water on a bearing of 250° from concrete structure at north end of dam.

PERIOD OF RECORD.--Water year 1980 to current year.

REMARKS.--Samples were collected quarterly in a Kemmerer sampler near bottom, mid-depth, and surface. Specific conductance, water temperature, pH, and dissolved oxygen were determined in the field at 5-ft. intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)
NOV												
02...	1217	80020	156000	1.00	1780	8.2	14.5	5.4	9.6	98	790	640
02...	1242	1028	156000	5.00	1660	7.9	14.5	--	9.2	94	--	--
02...	1246	1028	156000	10.0	1690	7.7	14.5	--	9.8	100	--	--
02...	1250	1028	156000	15.0	1700	7.9	14.5	--	9.5	97	--	--
02...	1254	80020	156000	20.0	1700	7.9	14.5	5.0	9.2	94	790	640
02...	1300	1028	156000	25.0	1700	8.0	14.5	--	9.2	94	--	--
02...	1302	1028	156000	30.0	1720	8.0	14.0	--	9.1	93	--	--
02...	1304	1028	156000	35.0	1700	8.0	14.5	--	9.1	93	--	--
02...	1307	80020	156000	38.0	1680	7.9	14.5	--	9.1	93	810	663
MAR												
30...	1215	80020	167000	1.00	1730	8.2	10.0	2.9	10.8	102	850	693
30...	1219	1028	167000	5.00	1730	8.2	9.5	--	11.9	111	--	--
30...	1222	1028	167000	10.0	1740	8.2	9.0	--	11.0	101	--	--
30...	1230	1028	167000	15.0	1760	8.3	9.0	--	11.0	101	--	--
30...	1233	1028	167000	20.0	1770	8.3	8.0	--	10.9	98	--	--
30...	1235	80020	167000	25.0	1810	8.3	8.0	3.8	10.9	98	810	654
30...	1238	1028	167000	30.0	1820	8.3	8.0	--	10.8	97	--	--
30...	1240	1028	167000	35.0	1820	8.3	7.5	--	10.8	96	--	--
30...	1244	1028	167000	40.0	1790	8.2	8.0	--	10.8	97	--	--
30...	1248	1028	167000	45.0	1780	8.2	7.5	--	10.8	96	--	--
30...	1250	80020	167000	50.0	1780	8.2	7.5	23	10.8	96	810	657
JUN												
22...	0905	1028	176000	21.0	1530	6.8	24.0	--	7.2	90	--	--
22...	0910	1028	176000	10.0	1530	6.9	25.0	--	7.7	98	--	--
22...	0920	1028	176000	5.00	1530	6.8	25.0	--	7.9	100	--	--
SEP												
21...	1410	80020	151000	5.00	1650	10.6	22.5	2.1	8.0	97	800	657
21...	1412	1028	151000	10.0	1670	10.1	23.0	--	8.4	103	--	--
21...	1414	80020	151000	15.0	1670	10.5	22.5	6.3	8.3	101	810	665
21...	1416	1028	151000	20.0	1670	9.2	22.5	--	8.0	97	--	--
21...	1418	1028	151000	25.0	1660	8.8	22.0	--	7.9	95	--	--
21...	1420	80020	151000	30.0	1690	9.7	23.5	2.2	6.0	74	810	665

RED RIVER BASIN

353325099111000 FOSS RESERVOIR AT SITE NO 1 NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
NOV											
02...	150	100	87	19	1	12	147	790	40	1320	1.8
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	150	100	80	18	1	11	147	760	45	1370	1.9
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	160	100	84	18	1	11	149	800	54	1380	1.9
MAR											
30...	160	110	84	17	1	11	160	720	47	1380	1.9
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	160	100	83	18	1	11	158	750	46	1330	1.8
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	160	100	81	18	1	11	155	700	46	1310	1.8
JUN											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
SEP											
21...	160	98	80	18	1	12	147	770	48	1320	1.8
21...	--	--	--	--	--	--	--	--	--	--	--
21...	160	100	81	18	1	11	147	770	46	1340	1.8
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	160	100	80	17	1	11	147	770	46	1320	1.8

353405099132500 FOSS RESERVOIR AT SITE NO. 2 NEAR FOSS OK

LOCATION.--Lat 35°34'05", long 99°13'25", in SE 1/4 sec.28, T.13 N., R.19 W., Custer County, Hydrologic Unit 11130301, over old river channel, 900 ft (274 m) from left edge of water on a bearing 155° from campgrounds on north shore.

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-ft. intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
02...	1345	1028	156000	1.00	1800	8.2	14.5	10.2	104
MAR									
30...	1313	1028	167000	1.00	1800	8.4	9.5	11.0	103
30...	1317	1028	167000	5.00	1800	8.4	9.0	11.1	102
30...	1318	1028	167000	10.0	1810	8.3	8.0	11.1	100
30...	1319	1028	167000	15.0	1820	8.3	7.5	10.9	97
30...	1321	1028	167000	20.0	1810	8.3	7.5	10.9	97
30...	1323	1028	167000	25.0	1810	8.3	7.5	10.8	96
30...	1325	1028	167000	30.0	1820	8.2	7.5	10.8	96
30...	1327	1028	167000	35.0	1810	8.2	7.5	10.8	96
30...	1329	1028	167000	40.0	1820	8.2	7.5	10.8	96
30...	1331	1028	167000	43.0	1820	8.2	7.5	10.8	96
JUN									
22...	1020	1028	176000	31.0	1610	6.6	25.0	7.1	90
22...	1030	1028	176000	15.0	1620	6.7	25.0	7.8	99
22...	1040	1028	176000	5.00	1660	6.7	25.0	7.8	99
SEP									
21...	1510	1028	151000	5.00	1660	9.9	22.5	8.5	103
21...	1512	1028	151000	10.0	1670	10.1	22.5	8.4	102
21...	1514	1028	151000	15.0	1690	10.0	22.0	8.1	97
21...	1516	1028	151000	20.0	1670	9.9	22.0	7.8	94
21...	1518	1028	151000	25.0	1680	10.0	22.0	7.4	89
21...	1520	1028	151000	30.0	1680	10.0	22.0	7.1	85
21...	1522	1028	151000	35.0	1680	9.8	22.5	6.6	80

RED RIVER BASIN

353615099135000 FOSS RESERVOIR AT SITE NO. 3 NEAR FOSS, OK

LOCATION.--Lat 35°36'15", long 99°13'50", in SE 1/4 sec.17, T.13 N., R.19 W., Custer County, Hydrologic Unit 11130301, over old river channel, 600 ft (183 m) from left edge of water on a bearing 240° from small tributary on north shore.

PERIOD OF RECORD.--Water years 1980 to current year.

REMARKS.--Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-ft. intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
02...	1405	1028	156000	1.00	1800	8.3	14.0	10.2	103
MAR									
30...	1353	1028	167000	1.00	1820	8.3	9.0	11.2	103
30...	1355	1028	167000	5.00	1810	8.3	8.5	11.2	102
30...	1357	1028	167000	10.0	1810	8.3	8.5	11.1	101
30...	1359	1028	167000	15.0	1820	8.3	8.0	11.0	99
30...	1401	1028	167000	20.0	1820	8.3	8.0	11.0	99
30...	1403	1028	167000	25.0	1830	8.3	7.5	10.8	96
JUN									
22...	1110	1028	176000	26.0	1580	6.6	24.0	6.7	84
22...	1115	1028	176000	13.0	1430	6.5	24.0	7.4	92
22...	1130	1028	176000	5.00	1360	6.5	24.0	7.8	97
SEP									
21...	1558	1028	151000	5.00	--	9.9	--	8.4	--
21...	1600	1028	151000	10.0	1680	10.1	21.5	8.3	99
21...	1602	1028	151000	15.0	1680	10.0	22.0	8.3	100
21...	1604	1028	151000	20.0	1690	10.0	21.5	8.0	95
21...	1606	1028	151000	25.0	1600	10.1	21.0	8.0	94
21...	1608	1028	151000	30.0	1670	10.1	21.5	8.1	96
21...	1610	1028	151000	35.0	1690	10.0	21.5	8.3	99
21...	1612	1028	151000	40.0	1700	9.8	22.0	7.9	95

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK

LOCATION.--Lat 35°32'20", long 99°10'10", in SW 1/4 SW 1/4 sec.1, T.12 N., R.19 W., Custer County, Hydrologic Unit 11130302, on left bank on downstream side of pile bent of county road bridge, 0.4 mi (0.6 km) downstream from Oak Creek, 0.9 mi (1.4 km) downstream from Foss Dam, 2.5 mi (4.0 km) west of Stafford, 6.0 mi (9.7 km) north of Foss , and at mile 473.5 (761.9 km).

DRAINAGE AREA.--1,551 mi^2 (4,017 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1956 to April 1957, February to December 1958, July 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,560 ft (475.5 m) from preliminary survey by Topographic Division.

REMARKS.--Records fair. Except for 55 mi^2 (142.4 km^2) intervening area, flow completely regulated since 1961 by Foss Reservoir (station 07324300).

AVERAGE DISCHARGE.--22 years, (water years 1962-83), 25.4 ft^3/s (0.719 m^3/s), 18,400 acre-ft/yr (22.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 14,000 ft^3/s (396 m^3/s) Apr. 9, 1957, gage height, 20.40 ft (6.218 m), from rating curve extended above 3,600 ft^3/s (102 m^3/s) on basis of velocity-area study; no flow at times in 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1959 reached a stage of 23.4 ft (7.13 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft^3/s (41.9 m^3/s) June 11, gage height, 19.18 ft (5.846 m); minimum daily discharge, 4.3 ft^3/s (1.22 m^3/s) Oct. 1, Sept. 12-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	7.6	9.2	8.0	14	7.1	12	274	300	735	10	5.6
2	5.2	7.0	7.8	7.9	8.9	6.1	11	273	300	721	9.5	5.7
3	5.2	6.6	7.1	7.6	9.8	7.9	11	273	300	720	8.5	5.6
4	4.6	6.8	7.1	7.6	9.1	8.5	12	223	300	718	8.9	5.3
5	5.6	7.2	6.8	7.5	9.5	9.0	97	136	300	716	8.8	5.1
6	4.9	7.0	5.9	7.7	8.8	7.9	137	135	300	714	8.8	4.8
7	5.4	7.0	5.6	8.0	7.0	6.8	136	135	300	711	8.6	4.6
8	5.5	6.5	5.6	7.9	8.3	6.4	137	135	300	709	8.6	5.3
9	5.3	6.6	5.4	7.3	9.4	6.3	137	64	300	709	8.9	5.1
10	5.5	7.0	5.2	7.1	8.5	6.0	137	8.1	600	707	8.7	4.8
11	5.7	7.0	5.2	7.0	8.9	6.1	137	8.2	1300	517	8.2	5.0
12	7.2	7.0	5.2	6.9	8.6	6.1	137	8.6	700	131	8.1	6.1
13	6.9	6.9	5.4	7.1	8.1	6.4	155	9.4	700	20	8.7	6.4
14	6.5	7.0	5.6	7.2	8.4	6.4	173	33	700	19	8.2	6.1
15	5.8	6.8	6.2	7.4	8.6	6.7	173	10	750	18	7.4	4.9
16	5.8	7.1	6.4	7.6	8.3	9.0	174	8.1	750	17	7.1	4.5
17	5.8	6.7	6.7	7.6	7.9	8.0	176	9.0	735	17	7.1	4.3
18	5.9	6.6	7.0	7.8	8.1	7.5	177	12	720	15	7.2	4.3
19	6.0	6.6	6.5	8.3	8.0	7.2	236	11	715	15	7.4	5.2
20	6.3	6.8	6.0	8.3	7.9	7.2	289	10	710	15	8.2	6.0
21	7.8	6.7	5.7	8.3	9.8	6.8	283	144	720	14	7.2	6.4
22	8.2	6.8	8.2	8.1	10	6.5	282	74	730	14	6.7	6.0
23	8.5	6.8	6.5	7.8	9.1	7.0	277	9.5	730	13	6.6	5.7
24	8.2	7.3	6.8	7.4	8.6	7.2	274	5.5	750	13	6.3	6.5
25	7.6	7.8	6.4	7.0	8.4	10	275	4.5	800	10	6.1	6.0
26	7.0	8.0	6.5	8.5	8.1	45	275	10	850	12	5.6	6.4
27	7.0	8.5	8.2	7.1	7.7	17	275	8.1	1000	11	5.5	6.0
28	7.2	9.5	8.1	7.1	7.7	14	273	33	800	11	5.4	5.1
29	7.5	20	8.9	6.8	---	13	274	12	740	11	5.5	5.8
30	7.6	14	7.8	6.9	---	13	274	34	740	10	5.5	5.9
31	7.4	---	8.0	7.4	---	12	---	200	---	10	5.5	---
TOTAL	197.4	233.2	207.0	234.2	245.5	294.1	5416	2310.0	18940	8073	232.8	164.5
MEAN	6.37	7.77	6.68	7.55	8.77	9.49	181	74.5	631	260	7.51	5.48
MAX	8.5	20	9.2	8.5	14	45	289	274	1300	735	10	6.5
MIN	4.3	6.5	5.2	6.8	7.0	6.0	11	4.5	300	10	5.4	4.3
AC-FT	392	463	411	465	487	583	10740	4580	37570	16010	462	326

CAL YR 1982	TOTAL	42398.4	MEAN	116	MAX	1180	MIN	3.0	AC-FT	84100
WTR YR 1983	TOTAL	36547.7	MEAN	100	MAX	1300	MIN	4.3	AC-FT	72490

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947-48, 1950-51, 1956, 1958, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1946 to September 1948, October 1969 to September 1976.
WATER TEMPERATURE: October 1946 to September 1948, October 1969 to September 1976.

REMARKS.--Samples were collected by a local observer on a weekly basis. A partial analysis was made bimonthly on one of these samples. Additional samples were collected semi-annually and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT										
18...	0900	80020	6.2	1680	7.8	15.0	--	--	--	--
DEC										
01...	1500	80020	7.8	1680	7.9	13.0	14.0	97	880	170
31...	1000	80020	7.8	1820	7.4	5.0	--	--	--	--
FEB										
28...	0900	80020	7.6	1790	7.6	6.0	--	--	--	--
MAY										
11...	1320	80020	8.3	--	7.5	18.5	10.4	114	940	180
16...	0900	80020	8.1	1670	7.5	14.0	--	--	--	--
JUL										
04...	0900	80020	716	1620	8.0	24.0	--	--	--	--
AUG										
22...	0900	80020	6.7	1770	8.1	23.0	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT									
18...	--	--	--	--	--	--	710	40	--
DEC									
01...	110	72	15	1	8.2	--	740	41	--
31...	--	--	--	--	--	--	830	67	--
FEB									
28...	--	--	--	--	--	--	830	45	--
MAY									
11...	120	78	15	1	9.4	224	790	52	.40
16...	--	--	--	--	--	--	680	41	--
JUL									
04...	--	--	--	--	--	--	780	47	--
AUG									
22...	--	--	--	--	--	--	730	43	--

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BORON, DIS-SOLVED (UG/L AS B)
OCT									
18...	--	1370	1.9	--	--	--	--	--	--
DEC									
01...	17	--	--	--	--	--	--	--	--
31...	--	1490	2.0	--	--	--	--	--	--
FEB									
28...	--	1450	2.0	--	--	--	--	--	--
MAY									
11...	16	1460	2.0	.370	.020	.390	<100	4	280
16...	--	1350	1.8	--	--	--	--	--	--
JUL									
04...	--	1280	1.7	--	--	--	--	--	--
AUG									
22...	--	1470	2.0	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT									
18...	--	--	--	--	--	--	--	--	--
DEC									
01...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
FEB									
28...	--	--	--	--	--	--	--	--	--
MAY									
11...	3	<10	3	15	<1	110	<.1	1	240
16...	--	--	--	--	--	--	--	--	--
JUL									
04...	--	--	--	--	--	--	--	--	--
AUG									
22...	--	--	--	--	--	--	--	--	--

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1710	---	---	---	---	---	---	---	---	1700	---
2	---	---	---	---	---	---	---	1710	---	---	---	---
3	---	---	---	1870	---	---	---	---	---	---	---	---
4	1430	---	---	---	---	---	1730	---	---	1620	---	---
5	---	---	---	---	---	---	---	---	---	---	---	2110
6	---	---	1690	---	---	---	---	---	1700	---	---	---
7	---	---	---	---	1910	1820	---	---	---	---	---	---
8	---	1720	---	---	---	---	---	---	---	---	1330	---
9	---	---	---	---	---	---	---	1740	---	---	---	---
10	---	---	---	1850	---	---	---	---	---	---	---	---
11	1670	---	---	---	---	---	1700	---	---	1580	---	---
12	---	---	---	---	---	---	---	---	---	---	---	2100
13	---	---	1770	---	---	---	---	---	---	---	---	---
14	---	---	---	---	1780	1810	---	---	---	---	---	---
15	---	1750	---	---	---	---	---	---	---	---	1820	---
16	---	---	---	---	---	---	---	1670	---	---	---	---
17	---	---	---	1880	---	---	---	---	---	---	---	---
18	1680	---	---	---	---	---	1720	---	---	1500	---	---
19	---	---	---	---	---	---	---	---	---	---	---	2150
20	---	---	1760	---	---	1800	---	---	1650	---	---	---
21	---	---	---	---	1770	---	---	---	---	---	---	---
22	---	1810	---	---	---	---	---	1590	---	---	1770	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	1890	---	---	---	---	---	---	---	---
25	1670	---	---	---	---	---	1710	---	---	1700	---	---
26	---	---	---	---	---	---	---	---	---	---	---	2020
27	---	---	1810	---	---	---	---	---	1650	---	---	---
28	---	---	---	---	1790	1600	---	---	---	---	---	---
29	---	1870	---	---	---	---	---	---	---	---	2170	---
30	---	---	---	---	---	---	---	1610	---	---	---	---
31	---	---	---	1820	---	---	---	---	---	---	---	---
MEAN	1610	1770	1760	1860	1810	1760	1720	1660	1670	1600	1760	2100

WTR YR 1983 MEAN 1760 MAX 2170 MIN 1330

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	14.0	---	---	---	---	---	---	---	---	23.0	---
2	---	---	---	---	---	---	---	13.0	---	---	---	---
3	---	---	---	3.0	---	---	---	---	---	---	---	---
4	16.0	---	---	---	---	---	8.0	---	---	24.0	---	---
5	---	---	---	---	---	---	---	---	---	---	---	22.0
6	---	---	6.0	---	---	---	---	---	19.0	---	---	---
7	---	---	---	---	1.0	9.0	---	---	---	---	---	---
8	---	22.0	---	---	---	---	---	---	---	---	23.0	---
9	---	---	---	---	---	---	---	15.0	---	---	---	---
10	---	---	---	4.0	---	---	---	---	---	---	---	---
11	11.0	---	---	---	---	---	8.0	---	---	23.0	---	---
12	---	---	---	---	---	---	---	---	---	---	---	23.0
13	---	---	6.0	---	---	---	---	---	---	---	---	---
14	---	---	---	---	5.0	9.0	---	---	---	---	---	---
15	---	4.0	---	---	---	---	---	---	---	---	23.0	---
16	---	---	---	---	---	---	---	14.0	---	---	---	---
17	---	---	---	2.0	---	---	---	---	---	---	---	---
18	15.0	---	---	---	---	---	9.0	---	---	22.0	---	---
19	---	---	---	---	---	---	---	---	---	---	---	22.0
20	---	---	4.0	---	---	4.0	---	---	20.0	---	---	---
21	---	---	---	---	6.0	---	---	---	---	---	---	---
22	---	8.0	---	---	---	---	---	26.0	---	---	23.0	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	3.0	---	---	---	---	---	---	---	---
25	10.0	---	---	---	---	---	11.0	---	---	23.0	---	---
26	---	---	---	---	---	---	---	---	---	---	---	17.0
27	---	---	4.0	---	---	---	---	---	20.0	---	---	---
28	---	---	---	---	6.0	5.0	---	---	---	---	---	---
29	---	5.0	---	---	---	---	---	---	---	---	24.0	---
30	---	---	---	---	---	---	---	17.0	---	---	---	---
31	---	---	---	5.0	---	---	---	---	---	---	---	---
MEAN	13.0	10.5	5.0	3.5	4.5	7.0	9.0	17.0	19.5	23.0	23.0	21.0

WTR YR 1983 MEAN 13.0 MAX 26.0 MIN 1.0

RED RIVER BASIN

07325000 WASHITA RIVER NEAR CLINTON, OK

LOCATION.--Lat 35°31'52", long 98°57'57", in SW 1/4 NE 1/4 sec.11, T.12 N., R.17 W., Custer County, Hydrologic Unit 11130302, on downstream side of pier of bridge on U.S. Highway 183, 0.5 mi (0.8 km) north of Clinton, 0.8 mi (1.3 km) upstream from Beaver Creek, 4.8 mi (7.7 km) downstream from Barnitz Creek, and at mile 447.4 (719.9 km).

DRAINAGE AREA.--1,977 mi^2 (5,120 km^2).

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1221: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,467.60 ft (447.324 m) National Geodetic Vertical Datum of 1929. See WSP 1920 for history of changes prior to Mar. 19, 1941.

REMARKS.--Records good. Flow regulated since February 1961 by Foss Reservoir (station 07324300) and by numerous flood-retarding structures.

AVERAGE DISCHARGE.--(Prior to regulation by Foss Reservoir) 25 years (water years 1936-60), 146 ft^3/s (4.135 m^3/s), 105,700 acre-ft/yr (130 hm^3/yr); (since regulation by Foss Reservoir) 23 years (water years 1961-83), 65.2 ft^3/s (1.846 m^3/s), 47,237 acre-ft/yr (58.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft^3/s (1,890 m^3/s) May 16, 1951, gage height, 31.09 ft (9.476 m), from rating curve extended above 7,900 ft^3/s (224 m^3/s) by contracted-opening measurement of peak flow; no flow at times in 1952-56, 1964, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 3-4, 1934, reached a stage of 33.9 ft (10.33 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,070 ft^3/s (172 m^3/s) June 11, gage height, 23.95 ft (7.30 m); minimum daily discharge, 20 ft^3/s (0.32 m^3/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	28	28	36	40	47	60	191	289	767	58	29
2	33	28	27	36	38	45	60	191	342	743	57	27
3	32	27	26	36	37	45	60	191	341	729	56	25
4	32	28	27	37	35	47	58	189	338	713	55	25
5	32	29	28	37	34	52	67	149	338	699	54	24
6	31	30	27	37	36	54	118	110	340	686	52	25
7	29	31	26	38	38	49	111	109	338	678	50	24
8	28	31	26	39	45	47	108	108	339	671	48	24
9	27	31	26	39	47	45	107	106	338	663	47	24
10	28	32	28	38	48	41	105	77	550	660	45	24
11	28	33	29	38	47	40	104	53	4940	645	44	23
12	28	30	29	38	47	39	102	49	4260	366	42	24
13	29	30	29	40	45	40	100	57	1750	166	40	26
14	28	30	30	38	46	40	114	354	1450	136	40	30
15	29	30	30	37	45	40	118	236	935	124	40	30
16	28	32	29	37	44	42	119	130	822	118	40	26
17	28	33	29	37	45	52	120	108	831	111	38	24
18	28	34	30	38	46	51	120	119	749	106	37	23
19	26	35	29	41	47	47	121	102	700	98	36	22
20	25	35	30	41	47	46	186	116	748	92	39	21
21	27	34	32	41	48	45	197	530	720	87	39	22
22	27	34	32	41	52	45	214	216	692	83	35	23
23	28	34	34	41	54	45	239	134	672	80	33	23
24	28	33	33	41	53	45	207	111	658	77	30	22
25	28	34	32	41	52	45	200	92	763	73	28	22
26	28	39	32	44	50	136	190	85	757	71	28	22
27	27	46	35	44	49	132	192	85	1130	68	28	22
28	27	42	38	43	48	81	193	190	874	64	31	21
29	26	36	35	44	---	68	194	133	741	62	31	20
30	32	31	36	42	---	65	194	131	782	60	26	20
31	28	---	36	40	---	63	---	276	---	59	26	---
TOTAL	890	980	938	1220	1263	1679	4078	4728	28527	9755	1253	717
MEAN	28.7	32.7	30.3	39.4	45.1	54.2	136	153	951	315	40.4	23.9
MAX	35	46	38	44	54	136	239	530	4940	767	58	30
MIN	25	27	26	36	34	39	58	49	289	59	26	20
AC-FT	1770	1940	1860	2420	2510	3330	8090	9380	56580	19350	2490	1420

CAL YR 1982	TOTAL	72948	MEAN	200	MAX	5110	MIN	14	AC-FT 144700
WTR YR 1983	TOTAL	56028	MEAN	154	MAX	4940	MIN	20	AC-FT 111100

RED RIVER BASIN

07325500 WASHITA RIVER AT CARNEGIE, OK

LOCATION.--Lat 35°07'02", long 98°33'49", in NW 1/4 NW 1/4 sec.3, T.7 N., R.13 W., Caddo County, Hydrologic Unit 11130302, on downstream side of right pier of bridge on State Highway 9, 1,300 ft (396.2 m) upstream from Running Creek, 2.7 mi (4.3 km) east of Carnegie, and at mile 353.9 (569.4 km). Records include flow of Running Creek.

DRAINAGE AREA.--3,129 mi^2 (8,104 km^2), includes that of Running Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1937 to current year.

REVISED RECORDS.--WSP 1087: 1938. WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,249.23 ft (380.765 m) National Geodetic Vertical Datum of 1929. Prior to October 1942, water-stage recorder at site 8.0 mi (12.9 km) upstream at datum 24.57 ft (7.489 m) higher.

REMARKS.--Records fair. Some diversion above station for irrigation. October 1942 to May 1949, occasional fluctuation caused by powerplant at Carnegie, 7.5 mi (12.1 km) above station. Some regulation by Foss Reservoir since February 1961 (station 07324300), and by numerous flood-retarding structures.

AVERAGE DISCHARGE.--(Prior to regulation by Foss Reservoir) 23 years (water years 1936-60), 314 ft^3/s (8.892 m^3/s), 277,500 acre-ft/yr (342 hm^3/yr); (since regulation by Foss Reservoir) 22 years (water years 1962-83), 243 ft^3/s (6.882 m^3/s), 176,100 acre-ft/yr (217 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) May 18, 1949, gage height, 26.21 ft (7.989 m), from rating curve extended above 35,500 ft^3/s (1,010 m^3/s) on basis of contracted-opening measurement of peak flow; no flow at times in 1956 and 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 23, 1903, reached a stage of about 29 ft (8.8 m) at former site and datum, from information by local resident; flood of May 18, 1949, reached a stage of 20.9 ft (6.37 m), from floodmark, at that site and datum.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
June 14	0100	*4,080	116	*17.41	5.307	June 29	0645	3,200	90.6	15.12	4.609

Minimum daily discharge, 58 ft^3/s (1.64 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	81	127	108	266	122	213	287	429	1600	138	69
2	98	84	118	113	320	114	189	281	480	1340	133	71
3	102	82	114	110	251	113	163	273	400	1110	128	72
4	102	81	110	108	199	113	143	270	426	1000	122	80
5	98	81	106	107	176	115	151	271	401	947	120	78
6	95	83	106	107	166	117	183	267	385	910	115	74
7	92	85	103	107	160	124	203	243	373	874	124	68
8	88	87	101	107	150	119	177	193	369	846	134	64
9	86	88	99	106	149	113	193	179	364	821	125	65
10	98	89	100	102	148	105	187	172	368	800	120	68
11	95	110	100	101	149	100	186	171	418	780	114	74
12	112	106	100	100	146	98	177	167	1920	764	110	77
13	105	109	102	98	142	96	171	143	2950	725	103	79
14	95	113	101	96	139	98	162	473	3590	526	112	88
15	91	101	101	96	134	98	155	372	3560	381	161	92
16	90	94	101	82	131	113	150	499	3660	319	111	91
17	89	94	100	85	127	116	157	455	2190	302	98	91
18	85	96	100	101	124	127	162	304	1590	281	92	82
19	84	100	100	101	124	126	164	282	1360	263	93	76
20	83	100	99	104	121	126	162	292	1110	248	99	74
21	83	100	99	107	125	123	167	505	956	230	94	72
22	81	99	97	111	125	116	193	1140	922	213	97	69
23	80	87	98	109	131	113	253	1260	868	199	99	67
24	82	120	100	107	134	112	359	701	827	188	86	67
25	85	112	96	107	132	116	444	440	808	178	79	66
26	84	105	99	120	133	663	335	330	831	173	72	70
27	83	117	106	113	130	1350	306	279	1990	167	71	67
28	82	132	107	111	125	675	300	265	2810	161	73	63
29	82	146	112	112	---	439	295	277	3020	155	71	64
30	81	140	115	109	---	304	290	452	2090	149	69	58
31	81	---	111	141	---	244	---	421	---	143	67	---
TOTAL	2792	3022	3228	3286	4357	6508	6390	11664	41465	16793	3230	2196
MEAN	90.1	101	104	106	156	210	213	376	1382	542	104	73.2
MAX	112	146	127	141	320	1350	444	1260	3660	1600	161	92
MIN	80	81	96	82	121	96	143	143	364	143	67	58
AC-FT	5540	5990	6400	6520	8640	12910	12670	23140	82250	33310	6410	4360

CAL YR 1982	TOTAL	208185	MEAN	570	MAX	10700	MIN	65	AC-FT	412900
WTR YR 1983	TOTAL	104931	MEAN	287	MAX	3660	MIN	58	AC-FT	208100

07325500 WASHITA RIVER AT CARNEGIE, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1953 to September 1976.
WATER TEMPERATURE: October 1953 to September 1976.

REMARKS.--Samples were collected by a local observer on a weekly basis. A partial analysis was made bimonthly on one of these samples. Additional samples were collected semi-annually and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)
NOV										
25...	1100	80020	105	2360	8.0	6.0	--	--	--	--
DEC										
02...	1245	80020	118	2450	7.8	10.0	10.3	97	1300	984
31...	1300	80020	111	2430	7.8	4.0	--	--	--	--
FEB										
18...	1200	80020	125	2310	7.6	10.0	--	--	--	--
MAY										
08...	1300	80020	192	1950	7.7	22.0	--	--	--	--
10...	1600	80020	173	2070	7.9	19.0	8.2	94	1100	930
JUN										
26...	1500	80020	821	1720	7.7	27.0	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV										
25...	--	--	--	--	--	--	--	1100	120	--
DEC										
02...	320	110	100	15	1	4.4	270	1100	95	.30
31...	--	--	--	--	--	--	--	1100	120	--
FEB										
18...	--	--	--	--	--	--	--	980	110	--
MAY										
08...	--	--	--	--	--	--	--	980	66	--
10...	260	120	100	16	1	8.0	215	990	90	.40
JUN										
26...	--	--	--	--	--	--	--	780	48	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)
NOV										
25...	--	1990	--	2.7	564	--	--	--	--	--
DEC										
02...	19	1910	1900	2.6	609	--	<.020	1.90	20	3
31...	--	--	--	--	--	--	--	--	--	--
FEB										
18...	--	2040	--	2.8	688	--	--	--	--	--
MAY										
08...	--	1690	--	2.3	876	--	--	--	--	--
10...	13	1850	1700	2.5	864	.870	.040	.910	300	3
JUN										
26...	--	1400	--	1.9	3100	--	--	--	--	--

RED RIVER BASIN

07325500 WASHITA RIVER AT CARNEGIE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV										
25...	--	--	--	--	--	--	--	--	--	--
DEC										
02...	390	<1	<10	2	40	1	90	<.1	1	20
31...	--	--	--	--	--	--	--	--	--	--
FEB										
18...	--	--	--	--	--	--	--	--	--	--
MAY										
08...	--	--	--	--	--	--	--	--	--	--
10...	420	<1	<10	3	170	3	60	<.1	1	20
JUN										
26...	--	--	--	--	--	--	--	--	--	--

07325500 WASHITA RIVER AT CARNEGIE, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	1700	---	---	1160	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	2350	---	---	---	---	---	---	---	---	2700
4	---	2530	---	---	1810	2370	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	1780	---	2440	---
6	---	---	---	---	---	---	2260	---	---	---	---	---
7	---	---	---	2420	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	1950	---	---	---	---
9	2260	---	---	---	---	---	---	---	---	1740	---	---
10	---	---	2450	---	---	---	---	---	---	---	---	2490
11	---	---	---	---	2200	2520	---	---	---	---	---	---
12	---	2420	---	---	---	---	---	---	1060	---	---	---
13	---	---	---	---	---	---	---	2040	---	---	2480	---
14	---	---	---	2430	---	---	---	---	---	---	---	---
15	2150	---	---	---	---	---	2230	---	---	---	---	---
16	---	---	---	---	---	---	---	---	930	---	---	---
17	---	---	2450	---	---	---	---	---	---	2150	---	---
18	---	---	---	---	2310	2340	---	---	---	---	---	2370
19	---	2400	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	1810	---	---	2400	---
21	---	---	---	2450	---	---	---	---	---	---	---	---
22	2380	---	---	---	---	---	2070	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	2440	---	---	---	---	---	---	---	---	---
25	---	2360	---	---	---	2360	---	---	---	---	---	---
26	---	---	---	---	2340	---	---	---	1720	---	---	---
27	---	---	---	2410	---	---	---	1580	---	---	2460	---
28	---	---	---	---	---	---	---	---	---	---	---	2540
29	---	---	---	---	---	---	1900	---	---	---	---	---
30	2370	---	---	---	---	---	---	---	---	---	---	---
31	---	---	2430	---	---	---	---	---	---	2360	---	---
MEAN	2290	2430	2420	2430	2170	2400	2030	1850	1370	1850	2450	2530

WTR YR 1983 MEAN 2190 MAX 2700 MIN 930

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	11.0	---	---	29.0	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	11.0	---	---	---	---	---	---	---	---	25.0
4	---	10.0	---	---	1.0	14.0	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	25.0	---	30.0	---
6	---	---	---	---	---	---	9.0	---	---	---	---	---
7	---	---	---	6.0	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	22.0	---	---	---	---
9	23.0	---	---	---	---	---	---	---	---	27.0	---	---
10	---	---	6.0	---	---	---	---	---	---	---	---	---
11	---	---	---	---	4.0	14.0	---	---	---	---	---	---
12	---	14.0	---	---	---	---	---	---	20.0	---	---	---
13	---	---	---	---	---	---	---	24.0	---	---	34.0	---
14	---	---	---	8.0	---	---	---	---	---	---	---	---
15	20.0	---	---	---	---	---	16.0	---	---	---	---	---
16	---	---	---	---	---	---	---	---	24.0	---	---	---
17	---	---	5.0	---	---	---	---	---	---	26.0	---	---
18	---	---	---	---	10.0	10.0	---	---	---	---	---	27.0
19	---	13.0	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	21.0	---	---	27.0	---
21	---	---	---	3.0	---	---	---	---	---	---	---	---
22	16.0	---	---	---	---	---	17.0	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	8.0	---	---	---	---	---	---	---	---	---
25	---	6.0	---	---	---	10.0	---	---	---	---	---	---
26	---	---	---	---	10.0	---	---	---	27.0	---	---	---
27	---	---	---	4.0	---	---	---	28.0	---	---	31.0	---
28	---	---	---	---	---	---	---	---	---	---	---	21.0
29	---	---	---	---	---	---	22.0	---	---	---	---	---
30	20.0	---	---	---	---	---	---	---	---	---	---	---
31	---	---	4.0	---	---	---	---	---	---	28.0	---	---
MEAN	20.0	11.0	7.0	5.5	6.5	12.0	15.0	24.0	24.0	27.5	30.5	24.5

WTR YR 1983 MEAN 17.0 MAX 34.0 MIN 1.0

RED RIVER BASIN

07325800 COBB CREEK NEAR EAKLY, OK

LOCATION.--Lat 35°17'26", long 98°35'38", in NW 1/4 NE 1/4 sec.5, T.9 N., R.13 W., Caddo County, Hydrologic Unit 11130302, near left downstream abutment of bridge, on State Highway 152, .5 mi (0.8 km) downstream from Fivemile Creek, 2.4 mi (3.9 km) southwest of Eakly, 3.0 mi (4.8 km) upstream from Fort Cobb Reservoir, and at mile 22.9 (36.8 km).

DRAINAGE AREA.--132 mi^2 (342 km^2).

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,369.70 ft (417.485 m) National Geodetic Vertical Datum of 1929. Oct. 29, 1980 to Aug. 11, 1982 gage at site 0.5 mi (0.8 km) downstream at same datum.

REMARKS.--Records poor. Some regulation by three small reservoirs having combined surface-area of 262 acres (1.06 km^2) and capacity of 3,100 acre-ft (3.82 hm^3).

AVERAGE DISCHARGE.--15 years, 21.0 ft ^{3}/s (0.595 m^3/s), 15,210 acre-ft/yr (18.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 8,680 ft^3/s (2,410 m^3/s) May 17, 1982, gage height 21.08 ft (6.425 m) from floodmark, no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,130 ft^3/s (32.0 m^3/s) Mar. 26, gage height, 14.03 ft (4.276 m); minimum daily, 3.5 ft^3/s (0.099 m^3/s) June 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	7.6	13	12	40	13	18	12	9.4	12	4.9	4.5
2	7.4	7.8	12	12	18	13	18	11	7.4	11	4.9	4.5
3	7.0	7.7	12	13	15	14	17	11	6.2	9.7	4.8	4.5
4	7.0	8.2	12	13	14	15	17	12	8.0	9.4	4.8	4.5
5	6.8	8.2	12	12	14	14	25	11	5.8	8.6	4.8	4.5
6	6.6	8.6	12	12	14	13	21	11	5.8	7.9	4.8	4.5
7	6.5	8.8	11	13	14	13	19	11	4.5	7.5	6.0	4.5
8	6.4	8.9	11	13	15	12	18	10	4.0	7.3	5.4	4.5
9	7.4	9.2	11	13	17	12	18	10	3.5	7.1	5.1	4.5
10	6.7	9.6	11	13	16	11	16	10	5.0	6.7	5.0	4.5
11	6.7	12	12	13	15	11	16	11	507	6.4	4.9	4.5
12	7.2	12	12	13	14	12	16	11	200	6.3	4.8	7.0
13	7.0	11	11	13	14	12	14	12	90	6.0	7.0	6.2
14	6.7	9.4	12	13	15	12	14	15	424	6.1	6.0	5.8
15	6.7	9.8	12	13	14	11	14	14	80	6.3	5.3	5.4
16	6.7	9.4	12	13	14	16	13	12	42	6.7	5.0	5.0
17	6.6	9.7	12	13	14	14	13	12	25	6.8	4.9	4.7
18	6.7	10	12	14	14	12	13	18	15	6.1	4.8	4.6
19	6.2	11	12	16	14	11	13	11	11	5.9	4.8	4.5
20	6.5	11	12	16	14	11	13	11	7.5	5.7	6.0	4.4
21	6.8	11	12	17	15	11	17	80	6.0	5.5	6.5	4.5
22	7.0	11	12	17	16	10	17	19	5.0	5.3	5.6	6.0
23	7.2	11	12	17	15	10	16	42	4.6	5.2	5.2	12
24	7.2	11	12	17	14	11	14	11	4.3	5.1	4.9	10
25	7.2	11	12	17	13	18	13	7.7	4.1	5.0	4.7	8.4
26	7.2	14	12	21	13	436	12	7.2	4.0	5.0	4.7	7.0
27	6.9	18	13	19	13	50	12	7.4	91	5.0	4.6	6.2
28	7.0	17	16	18	13	30	12	19	77	5.0	4.6	5.4
29	7.8	15	13	18	---	22	12	7.9	19	4.9	4.5	5.1
30	7.3	13	12	18	---	20	12	8.5	13	4.9	4.5	4.8
31	7.6	---	12	33	---	19	---	24	---	4.9	4.5	---
TOTAL	213.6	321.9	374	475	431	889	463	469.7	1689.1	205.3	158.3	166.5
MEAN	6.89	10.7	12.1	15.3	15.4	28.7	15.4	15.2	56.3	6.62	5.11	5.55
MAX	7.8	18	16	33	40	436	25	80	507	12	7.0	12
MIN	5.6	7.6	11	12	13	10	12	7.2	3.5	4.9	4.5	4.4
AC-FT	424	638	742	942	855	1760	918	932	3350	407	314	330

CAL YR 1982	TOTAL	11176.3	MEAN	30.6	MAX	2690	MIN	4.5	AC-FT	22170
WTR YR 1983	TOTAL	5856.4	MEAN	16.0	MAX	507	MIN	3.5	AC-FT	11620

RED RIVER BASIN

07325900 FORT COBB RESERVOIR NEAR FORT COBB, OK

LOCATION.--Lat 35°09'30", long 98°27'40", in SE 4 sec.21, T.8 N., R.12 W., Caddo County, Hydrologic Unit 11130302, in control house at right center of dam on Cobb Creek, 4.0 mi (6.4 km) northwest of Fort Cobb, and at mile 7.5 (12.1 km).

DRAINAGE AREA.--304 mi^2 (787 km^2).

PERIOD OF RECORD.--March 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to October, 1961, nonrecording gage at same datum.

REMARKS.--Reservoir is formed by earth dam. Outlet consists of two sets of controlled 5 ft x 5 ft steel gages and an uncontrolled concrete spillway. Storage began Mar. 30, 1959. Conservation pool was first filled in June 1962. Capacity, 143,700 acre-ft (177 hm^3) at elevation 1,354.8 ft (412.94 m) crest of drop inlet, 80,010 acre-ft (98.7 hm^3) at elevation 1,342.0 ft (409.04 m) conservation pool, and 1,664 acre-ft (2.05 hm^3) at elevation 1,300.0 ft (396.24 m) crest of gated outlet. Figures given herein represent total contents. Reservoir is used for flood control, for municipal and industrial water supply, and for irrigation releases. Revised capacity table used since May 1, 1964.

COOPERATION.--Elevations and data on diversions furnished by Fort Cobb Reservoir Master Conservancy District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 114,200 acre-ft (141 hm^3) June 4, 1982, elevation, 1,349.44 ft (411.309 m); minimum since conservation pool was first filled, 54,650 acre-ft (67.4 hm^3) Oct. 19, 1972, elevation 1,335.06 ft (406.926 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 85,020 acre-ft (105 hm^3) June 17, elevation, 1,343.20 ft (409.407 m); minimum, 72,270 acre-ft (89.1 hm^3) Nov. 24, elevation 1,340.05 ft (408.447 m).

MONTH-END ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	Elevation (feet)*	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30	1340.79	75,150	---	---
Oct. 31	1340.27	73,120	- 2,030	805
Nov. 30	1340.15	72,660	- 460	837
Dec. 31	1340.26	73,080	+ 420	746
CAL YR 82	---	---	+ 8,470	9,686
Jan. 31	1340.37	73,510	+ 430	655
Feb. 28	1340.80	75,190	+ 1,680	568
Mar. 31	1341.46	77,820	+ 2,630	694
Apr. 30	1341.62	78,460	+ 640	707
May 31	1341.84	79,350	+ 890	750
June 30	1342.88	83,660	+ 4,310	711
July 31	1342.08	80,340	- 3,320	1,007
Aug. 31	1341.26	77,010	- 3,330	1,158
Sept. 30	1340.27	73,120	- 3,890	1,122
WTR YR 83	---	---	- 2,030	9,760

*Elevation at 0800 on following day.

RED RIVER BASIN

07326000 COBB CREEK NEAR FORT COBB, OK

LOCATION.--Lat 35°08'37", long 98°26'33", in NE 1/4 NE 1/4 sec.27, T.8 N., R.12 W., Caddo County, Hydrologic Unit 11130302, on left bank 10 ft (3.0 m) upstream from county road bridge, 0.3 mi (0.5 km) upstream from Punjo Creek, 1.2 mi (1.9 km) downstream from Fort Cobb Dam, 3.0 mi (4.8 km) north of Fort Cobb, and at mile 5.8 (9.3 km).

DRAINAGE AREA.--313 mi^2 (811 km^2). Area at site used prior to Oct. 1, 1969, 319 mi^2 (826 km^2).

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1960, published as Pond Creek near Fort Cobb.

REVISED RECORDS.--WSP 1087: 1938. WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.49 ft (382.369 m) U.S. Bureau of Reclamation datum. Oct. 1, 1969 to Sept. 30, 1982 gage at same site and datum 5.00 ft (1.524 m) higher. Oct. 1, 1939, to Aug. 29, 1940, nonrecording gage and Aug. 30, 1940, to Sept. 30, 1969, water-stage recorder at site 0.8 mi (1.3 km) downstream at datum 1.92 ft (0.585 m) lower.

REMARKS.--Records fair. Flow regulated since March 1959 by Fort Cobb Reservoir (station 07325900).

AVERAGE DISCHARGE.--(Prior to regulation by Fort Cobb Reservoir) 19 years (water years 1940-58), 50.2 ft^3/s (1.42 m^3/s) 36,340 acre-ft/yr (44.8 hm^3/yr); (since regulation by Fort Cobb Reservoir) 25 years (water years 1959-83), 17.7 ft^3/s (0.501 m^3/s), 12,820 acre-ft/yr (15.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft^3/s (991 m^3/s) May 17, 1949, gage height, 18.72 ft (5.706 m), from floodmark in gage well at former site and datum, from rating curve extended above 4,300 ft^3/s (122 m^3/s) on basis of contracted-opening measurements at gage heights 16.62 ft (5.066 m), 17.58 ft (5.358 m) and 18.72 ft (5.706 m), at former site and datum; minimum daily, 0.2 ft^3/s (0.006 m^3/s) Sept. 20, 24-28, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1937, reached a stage of 19.3 ft (5.88 m), site and datum used in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 375 ft^3/s (10.6 m^3/s) June 17-22, gage height 11.17 ft (3.405 m); minimum daily discharge, 1.1 ft^3/s (0.031 m^3/s) June 15, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.3	2.0	2.3	2.9	2.1	2.2	2.3	1.5	2.4	9.6	1.7
2	2.4	2.3	2.0	2.6	2.3	2.1	2.2	2.0	1.5	2.3	14	1.7
3	2.4	2.4	2.0	2.3	2.1	2.1	2.2	2.0	1.6	2.3	15	1.7
4	2.3	2.6	2.0	2.2	2.2	2.2	2.3	2.0	1.5	2.3	16	1.7
5	2.3	2.6	2.0	2.4	2.4	2.2	3.3	2.0	1.5	2.2	16	1.8
6	1.9	2.4	1.9	2.3	2.4	2.2	2.5	1.8	1.6	2.1	16	1.7
7	1.6	2.4	1.8	2.3	2.3	2.0	2.4	1.9	1.3	2.0	17	1.7
8	2.0	2.3	1.8	2.2	2.3	2.1	2.4	1.8	1.3	2.1	11	1.7
9	1.8	2.3	1.8	2.2	2.3	2.2	2.5	1.9	1.2	1.9	3.3	1.7
10	2.2	2.3	2.0	2.0	2.3	2.2	2.3	1.7	1.3	2.0	3.1	1.7
11	2.2	2.3	2.0	2.2	2.3	2.3	2.3	1.9	1.6	2.0	3.0	2.5
12	2.2	2.3	1.9	2.1	2.2	2.4	2.4	1.6	1.2	1.9	3.1	3.1
13	2.2	1.9	1.9	2.0	2.2	2.4	2.3	2.8	7.2	1.9	3.1	3.5
14	2.2	2.0	1.9	2.1	2.2	2.5	2.4	7.5	6.2	1.9	3.2	3.4
15	2.2	2.0	1.9	2.1	2.2	2.5	2.4	1.7	1.1	6.6	3.4	3.1
16	2.2	2.1	1.9	2.1	2.3	2.6	2.4	1.6	1.1	3.1	3.5	2.5
17	2.2	2.2	1.9	2.1	2.1	2.4	2.4	1.6	183	2.6	2.5	2.5
18	2.2	2.1	2.0	2.1	2.1	2.2	2.4	1.5	374	2.4	1.7	2.2
19	2.2	2.1	2.0	2.2	2.1	2.2	2.6	1.6	374	2.2	1.8	2.3
20	2.2	2.1	1.9	2.1	2.1	2.2	2.5	1.6	373	2.1	2.0	2.0
21	2.2	1.9	1.9	2.1	2.1	2.1	3.1	2.2	371	2.0	1.9	2.3
22	2.3	1.9	1.9	2.1	2.1	2.1	2.8	1.8	165	1.8	1.8	2.1
23	2.1	1.7	1.9	2.1	2.1	2.1	2.6	1.9	5.1	1.9	1.9	2.2
24	2.0	1.7	2.0	2.1	2.1	2.1	2.4	1.6	3.9	1.9	1.8	2.1
25	2.1	1.9	2.0	2.1	2.1	2.2	2.6	1.6	3.6	1.9	1.7	2.3
26	2.2	2.7	2.1	2.2	2.1	3.7	2.6	1.5	3.4	1.8	1.7	3.0
27	2.1	2.4	2.6	2.1	2.1	2.0	2.6	1.5	6.6	1.8	1.7	2.9
28	2.2	2.0	2.2	2.2	2.1	1.8	2.4	1.8	3.4	1.8	1.7	2.3
29	2.2	2.0	2.0	2.2	---	1.8	2.4	1.5	3.1	5.1	1.7	2.1
30	2.3	2.0	2.1	2.2	---	1.9	2.3	1.5	2.7	14	1.7	2.0
31	2.2	---	2.1	3.8	---	2.1	---	1.8	---	14	1.7	---
TOTAL	67.1	65.2	61.4	69.1	62.1	69.0	74.2	61.5	1904.5	96.3	167.6	67.5
MEAN	2.16	2.17	1.98	2.23	2.22	2.23	2.47	1.98	63.5	3.11	5.41	2.25
MAX	2.4	2.7	2.6	3.8	2.9	3.7	3.3	7.5	374	14	17	3.5
MIN	1.6	1.7	1.8	2.0	2.1	1.8	2.2	1.5	1.1	1.8	1.7	1.7
AC-FT	133	129	122	137	123	137	147	122	3780	191	332	134

CAL YR 1982	TOTAL	22849.4	MEAN	62.6	MAX	1020	MIN	1.4	AC-FT	45320
WTR YR 1983	TOTAL	2765.5	MEAN	7.58	MAX	374	MIN	1.1	AC-FT	5490

RED RIVER BASIN

07326500 WASHITA RIVER AT ANADARKO, OK

LOCATION.--Lat 35°05'06", long 98°14'35", in NW 1/4 sec.15, T.7 N., R.10 W., Caddo County, Hydrologic Unit 11130302 at left bank 100 ft (30.48 m) upstream from bridge on U.S. Highway 281 at north edge of Anadarko, 8.1 mi (13.0 km) upstream from Sugar Creek, and at mile 305.2 (491.1 km).

DRAINAGE AREA.--3,656 mi^2 (9,460 km^2).

PERIOD OF RECORD.--October 1902 to September 1908; June 1924 to June 1925, published as "near Anadarko", October 1935 to February 1938; October 1963 to current year. Monthly dishcarge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1311: 1903, 1907-08, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,150.00 ft (350.520 m) National Geodetic Vertical Datum of 1929. October 26, 1902, to June 30, 1908, nonrecording gage at former bridge 125 ft (38.1 m) downstream at datum estimated to be 2.8 ft (0.85 m) higher. May 25, 1924, to June 30, 1925, nonrecording gage at county road bridge 14 mi (22.5 km) downstream at different datum. Jan. 10, 1936, to Mar. 7, 1938, non-recording gage on upstream side of bridge on U.S. Highway 281 at datum 1.88 ft (0.573 m) higher.

REMARKS.--Records good. Some regulation by low-water dams upstream and since March 1959, by Fort Cobb Reservoir (station 07325900), since February 1961, by Foss Reservoir (station 07324300), and by numerous flood-retarding structures.

AVERAGE DISCHARGE.--28 years (water years 1903-08, 1936-37, 1964-83), 373 ft^3/s (10.56 m^3/s), 270,200 acre-ft/yr (333 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft^3/s (821 m^3/s) May 25, 1903, gage height, 26.8 ft (8.17 m), affected by backwater, site and datum then in use; no flow Aug. 1, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1949, reached an elevation of 1,176.7 ft (358.66 m), from floodmark, at right bank on downstream side of bridge on U.S. Highway 281.

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

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
June 17	0330	*3,740	106	*15.08	4.596	June 30	0045	3,210	90.9	13.92	4.243

Minimum daily discharge, 78 ft^3/s (2.21 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	99	157	137	201	158	313	269	380	2270	160	82
2	113	99	154	142	275	158	277	263	360	1810	155	82
3	111	99	146	142	311	158	257	256	426	1460	153	82
4	110	99	142	142	279	158	237	256	380	1160	151	82
5	110	99	138	142	228	158	233	256	372	1000	148	87
6	109	99	135	139	206	158	236	258	372	910	147	90
7	106	99	133	139	192	158	240	260	365	857	157	88
8	105	99	132	139	187	158	261	258	346	805	158	84
9	103	99	130	138	182	158	257	228	339	771	160	80
10	98	99	130	136	180	156	254	213	335	750	146	79
11	97	104	130	134	177	153	256	206	335	734	139	80
12	103	110	128	133	174	150	256	203	363	732	132	87
13	105	115	127	132	174	148	256	278	2160	721	126	92
14	110	116	129	130	170	147	253	607	3370	679	122	92
15	108	118	130	127	165	145	252	647	3610	527	119	99
16	107	118	130	127	161	147	252	409	3630	406	159	103
17	107	115	130	127	160	149	252	437	3550	346	134	104
18	107	113	130	107	156	152	253	475	2310	319	116	103
19	105	113	130	109	155	154	261	326	1870	298	112	98
20	105	113	130	124	155	163	265	287	1660	281	113	92
21	102	113	130	128	155	164	270	289	1490	266	117	88
22	102	115	130	130	155	164	274	411	1370	249	112	86
23	102	118	129	133	155	164	286	1250	983	232	109	85
24	102	117	127	133	155	163	332	1210	700	215	109	82
25	102	102	127	134	157	160	368	646	600	206	106	80
26	102	144	127	136	158	216	431	425	500	195	96	80
27	103	140	132	136	158	774	329	322	1160	187	91	81
28	102	139	133	144	158	1240	294	286	2900	179	86	82
29	102	140	133	139	---	656	281	272	3040	171	87	80
30	99	149	133	139	---	472	273	254	2970	165	86	78
31	99	---	135	146	---	366	---	377	---	158	83	---
TOTAL	3249	3402	4127	4144	5139	7625	8259	12134	42246	19059	3889	2608
MEAN	105	113	133	134	184	246	275	391	1408	615	125	86.9
MAX	113	149	157	146	311	1240	431	1250	3630	2270	160	104
MIN	97	99	127	107	155	145	233	203	335	158	83	78
AC-FT	6440	6750	8190	8220	10190	15120	16380	24070	83790	37800	7710	5170

CAL YR 1982	TOTAL	250366	MEAN	686	MAX	6240	MIN	92	AC-FT 496600
WTR YR 1983	TOTAL	115881	MEAN	317	MAX	3630	MIN	78	AC-FT 229800

RED RIVER BASIN

07328070 WINTER CREEK NEAR ALEX, OK

LOCATION.--Lat 34°59'35", long 97°45'40", in NE 1/4 sec.18, T.6 N., R.5 W., Grady County, Hydrologic Unit 11130303, at left bank 1,000 ft (304.8 m) downstream from county road bridge, 0.7 mi (1.1 km) downstream from East Winter Creek, 3.2 mi (5.2 km) upstream from mouth, and 5.5 mi (8.9 km) north of Alex.

DRAINAGE AREA.--33 mi^2 (86 km^2).

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

GAGE.--Water-stage recorder and broad crest V-notch weir. Datum of gage is 1,040.00 ft (316.992 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1977 at datum 8.20 ft (2.499m) higher.

REMARKS.--Records fair. Flow regulated by 16 flood-retarding structures, combined capacity, 1,050 acre-ft (1.29 hm^3). Minor diversions for irrigation above station.

AVERAGE DISCHARGE.--19 years, 8.55 ft^3/s (0.242 m^3/s), 6,190 acre-ft/yr (7.63 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,080 ft^3/s (172 m^3/s) May 27, 1978, gage height, 17.35 ft (5.288 m); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 141 ft^3/s (3.99 m^3/s) June 14, gage height, 11.67 ft (3.557 m), no peak above base of 500 ft^3/s (14.2 m^3/s); minimum daily discharge, 0.59 ft^3/s (0.017 m^3/s) Sept. 4-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.2	7.2	6.1	28	6.9	13	7.5	10	8.8	1.7	.75
2	1.9	2.2	7.1	8.0	18	6.8	11	6.8	9.0	7.3	1.6	.79
3	1.9	2.2	8.8	8.8	14	8.6	9.8	6.5	8.5	6.0	1.5	.77
4	7.0	2.2	13	7.5	12	28	9.8	5.9	7.5	4.9	1.2	.59
5	8.5	2.2	11	7.0	12	17	21	5.5	6.7	4.4	1.2	.59
6	7.0	2.2	8.5	6.0	12	14	16	5.2	6.4	4.0	1.2	.59
7	5.5	2.2	7.5	6.0	9.9	11	14	5.0	5.7	3.9	1.7	.59
8	4.5	2.2	6.5	6.0	9.5	9.9	13	4.9	5.3	3.9	2.0	.59
9	4.0	2.2	6.3	6.0	7.9	9.1	12	4.9	4.8	3.7	1.8	.61
10	3.5	2.3	6.0	5.5	8.8	8.1	11	7.6	4.7	3.5	1.4	.65
11	3.0	3.2	5.5	5.5	9.4	7.6	11	9.2	5.8	3.3	1.3	.65
12	3.0	4.0	5.5	5.5	8.8	7.6	11	7.7	5.1	3.2	1.1	.63
13	3.0	4.0	5.2	5.5	8.0	7.6	12	12	6.5	3.0	1.1	3.5
14	2.8	4.0	5.1	5.0	7.9	7.6	10	63	88	3.0	1.1	2.1
15	2.8	3.7	4.7	5.0	7.6	7.6	9.5	26	51	3.2	.95	1.5
16	2.8	3.6	4.2	5.0	7.5	7.9	9.5	17	37	3.3	.88	1.2
17	2.6	3.5	4.2	5.0	7.3	7.9	9.5	13	25	3.3	.86	1.1
18	2.6	3.5	4.2	5.0	7.3	7.5	9.5	14	17	3.3	.86	.87
19	2.6	3.5	4.0	5.0	11	7.3	9.7	9.9	11	2.8	1.6	.87
20	2.6	3.5	3.9	5.5	25	7.2	9.8	8.8	8.0	2.6	3.3	3.9
21	2.5	3.5	3.9	5.5	18	6.8	11	23	6.3	2.5	2.2	2.7
22	2.5	3.4	3.4	6.0	13	6.5	12	14	5.6	2.3	1.4	2.0
23	2.5	3.3	3.2	9.0	10	6.7	11	12	4.8	2.2	1.1	1.5
24	2.4	3.3	11	8.5	9.5	9.7	9.9	10	4.6	2.1	.99	1.0
25	2.4	3.3	7.9	7.5	9.0	9.0	9.4	8.4	7.9	1.9	.99	1.0
26	2.2	11	6.9	6.8	8.5	63	8.7	12	6.0	1.9	.96	1.0
27	2.2	13	10	5.6	8.0	33	8.7	13	15	1.9	.95	1.0
28	2.2	11	9.6	5.6	7.3	23	9.0	12	17	1.6	.86	1.0
29	2.2	8.8	8.0	6.1	---	18	8.8	9.5	15	1.5	.88	1.0
30	2.2	7.8	7.3	5.9	---	16	7.8	10	12	1.4	.85	.98
31	2.2	---	6.8	21	---	15	---	13	---	1.7	.71	---
TOTAL	99.0	127.0	206.4	206.4	315.2	401.9	328.4	377.3	417.2	102.4	40.24	36.02
MEAN	3.19	4.23	6.66	6.66	11.3	13.0	10.9	12.2	13.9	3.30	1.30	1.20
MAX	8.5	13	13	21	28	63	21	63	88	8.8	3.3	3.9
MIN	1.9	2.2	3.2	5.0	7.3	6.5	7.8	4.9	4.6	1.4	.71	.59
AC-FT	196	252	409	409	625	797	651	748	828	203	80	71

CAL YR 1982	TOTAL	4015.2	MEAN	11.0	MAX	165	MIN	1.9	AC-FT 7960
WTR YR 1983	TOTAL	2657.46	MEAN	7.28	MAX	88	MIN	.59	AC-FT 5270

RED RIVER BASIN

07328100 WASHITA RIVER AT ALEX, OK

LOCATION.--Lat 34°55'35", long 97°46'30", in NW 1/4 sec.7, T.5 N., R.5 W., Grady County, Hydrologic Unit 11130303, near left bank on upstream side of county road bridge, 1.0 mi (1.6 km) north of Alex, 3.8 mi (6.1 km) downstream from Winter Creek, and at mile 226.5 (362.4 km).

DRAINAGE AREA.--4,787 mi^2 (12,398 km^2).

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

GAGE.--Water-stage recorder. Datum of gage is 1,000.00 ft (304.800 m) above mean sea level.

REMARKS.--Records poor. Some regulation by Fort Cobb Reservoir (station 07325900), by Foss Reservoir (07324300), and by numerous flood-retarding structures.

COOPERATION.--Records furnished by Agricultural Research Service prior to January 1978.

AVERAGE DISCHARGE.--19 years, 407 ft^3/s (11.53 m^3/s), 294,900 acre-ft/yr (364 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft^3/s (265 m^3/s) May 7, 1969, gage height, 17.83 ft, (5.435 m); maximum gage height 18.34 ft (5.590 m); June 2, 1973; no flow Aug. 13-18, 1970, Aug. 30 to Sept. 1, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,740 ft^3/s (106 m^3/s) June 17, gage height, 11.09 ft (3.380 m); no peak above base of 3,800 ft^3/s (108 m^3/s); minimum daily discharge, 92 ft^3/s (2.61 m^3/s) at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187	167	237	231	711	259	635	402	545	3110	194	94
2	184	165	235	260	532	254	520	377	670	2450	184	93
3	199	162	239	282	441	256	460	367	629	1950	176	92
4	195	159	244	273	450	264	422	354	652	1580	169	92
5	190	162	241	268	478	267	617	347	645	1320	167	94
6	182	165	228	270	452	270	596	341	585	1190	167	97
7	174	167	222	265	393	257	522	327	592	1140	167	92
8	176	170	212	258	359	249	459	317	561	1070	199	92
9	173	170	208	248	342	242	452	310	529	1030	190	92
10	169	172	214	243	348	234	458	315	510	996	174	92
11	167	180	229	239	344	231	429	298	516	975	165	92
12	167	185	228	230	324	227	422	272	585	967	158	92
13	168	187	224	227	304	224	402	280	709	949	150	94
14	174	189	219	224	296	221	383	821	2250	932	141	97
15	175	194	215	219	288	216	358	1010	3420	914	134	100
16	180	194	216	218	279	225	342	978	3580	805	124	97
17	174	196	214	218	268	226	334	726	3660	639	134	92
18	172	195	214	216	264	232	327	647	3620	511	141	96
19	169	196	212	230	265	233	316	738	2700	438	144	105
20	165	196	211	234	479	234	319	616	2140	396	147	109
21	167	196	210	220	335	230	320	631	1900	363	155	111
22	164	196	210	227	309	231	356	701	1730	339	187	108
23	164	194	210	235	293	238	364	765	1620	320	155	103
24	164	195	235	236	289	246	355	1150	1460	299	138	105
25	165	198	246	235	276	300	358	1340	1320	280	128	103
26	167	253	221	237	263	785	396	1010	1260	257	123	99
27	165	322	248	233	266	550	475	778	1410	237	118	102
28	169	299	274	228	261	705	527	654	1880	222	114	100
29	174	269	253	228	---	1290	462	564	2790	212	112	96
30	174	247	243	229	---	1040	417	504	3090	203	98	100
31	167	---	239	341	---	792	---	520	---	192	96	---
TOTAL	5380	5940	7051	7502	9909	11228	12803	18460	47558	26286	4649	2931
MEAN	174	198	227	242	354	362	427	595	1585	848	150	97.7
MAX	199	322	274	341	711	1290	635	1340	3660	3110	199	111
MIN	164	159	208	216	261	216	316	272	510	192	96	92
AC-FT	10670	11780	13990	14880	19650	22270	25390	36620	94330	52140	9220	5810

CAL YR 1982	TOTAL	322037	MEAN	882	MAX	7790	MIN	81	AC-FT 638800
WTR YR 1983	TOTAL	159697	MEAN	438	MAX	3660	MIN	92	AC-FT 316800

RED RIVER BASIN

07328500 WASHITA RIVER NEAR PAULS VALLEY, OK

LOCATION.--Lat 34°45'17", long 97°15'04", in SE 1/4 sec.1. T.3 N., R.1 W., Garvin County, Hydrologic Unit 11130303, on downstream side of left pier of bridge on U.S. Highway 77, 2 mi (3 km) northwest of Pauls Valley, 6 mi (10 km) downstream from Owl Creek, 7 mi (11 km) upstream from Washington Creek, and at mile 146.5 (235.7 km).

DRAINAGE AREA.--5,330 mi^2 (13,805 km^2).

PERIOD OF RECORD.--May to December 1899 (gage heights only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as "at Pauls Valley, Indian Territory" in 1899.

GAGE.--Water-stage recorder. Datum of gage is 854.61 ft (260.485 m) National Geodetic Vertical Datum of 1929. During 1899, nonrecording gage at site 9 mi (14 km) downstream at different datum. Mar. 29, 1938, to Jan. 25, 1939, nonrecording gage and Jan. 26, 1939, to Oct. 6, 1948, water-stage recorder at site 0.7 mi (1.1 km) upstream at datum 1.53 ft (0.466 m) higher. Mar. 11, 1975 to Jan. 26, 1981, water-stage recorder at site 200 ft (61.0 km) upstream and at same datum.

REMARKS.--Records poor. Some diversion for irrigation above station. Some regulation since March 1959, by Fort Cobb Reservoir (station 07325900), since February 1961, by Foss Reservoir (station 07234300), and by numerous flood-retarding structures.

AVERAGE DISCHARGE.--46 years, 683 ft^3/s (19.34 m^3/s), 494,800 acre-ft/yr (610 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,800 ft^3/s (1,010 m^3/s) May 18, 1957, gage height, 27.34 ft (8.333 m); maximum gage height, 29.88 ft (9.107 m) May 11, 1950; no flow in 1956, 1964, 1966-67, 1970-72.

EXTREMES OUTSIDE PERIOD OF RECORD.--Stream is reported to have receded to no flow in 1882 and in 1897 (from information by local resident).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,140 ft^3/s (174 m^3/s) at 1900 Mar. 4, gage height, 12,97 ft (3.953 m), no other peak above base of 5,000 ft^3/s (142 m^3/s); minimum daily discharge, 62 ft^3/s (1.76 m^3/s) Sept. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196	201	431	291	2430	508	1060	637	622	3210	220	96
2	208	185	1200	298	1520	518	1010	617	632	3100	223	87
3	326	172	545	373	1120	506	982	592	700	2470	220	80
4	363	167	441	370	959	2780	946	577	706	1930	199	76
5	275	165	407	346	885	2690	929	572	690	1660	189	70
6	241	163	362	329	849	1440	733	544	663	1430	185	66
7	220	163	328	329	755	1100	750	544	632	1300	192	64
8	208	168	304	325	681	878	700	535	592	1190	216	62
9	189	169	283	310	606	750	632	516	553	1090	213	62
10	175	180	275	287	548	653	568	568	520	1010	250	70
11	167	282	287	269	543	568	563	577	525	952	240	73
12	165	287	304	254	523	506	592	568	511	900	213	74
13	163	250	290	243	496	465	1060	773	592	866	202	114
14	158	210	277	238	466	483	872	1960	1540	850	172	78
15	154	198	263	223	458	443	750	2210	2840	839	160	78
16	152	208	251	216	454	422	679	1610	3450	806	145	131
17	153	216	243	216	452	397	663	1330	3700	767	134	81
18	157	220	241	220	452	381	627	1050	3800	690	131	71
19	154	220	233	254	456	377	612	898	3610	627	265	71
20	150	221	227	240	994	385	602	878	2850	582	298	81
21	151	220	224	250	1050	397	602	1240	2260	530	276	92
22	150	289	223	254	792	389	622	1100	1930	488	250	102
23	149	244	223	250	669	389	679	1080	1660	452	233	114
24	149	227	295	269	596	397	632	1060	1530	418	210	100
25	150	278	362	272	560	448	577	1300	1320	389	179	92
26	147	330	306	280	521	1230	553	1410	1220	358	142	87
27	145	463	306	291	512	1520	607	1070	1250	341	126	83
28	230	473	350	280	504	1210	627	828	1520	314	119	78
29	285	419	350	276	---	1060	690	733	2120	295	112	83
30	252	392	325	269	---	1510	674	684	2810	272	107	80
31	219	---	302	662	---	1260	---	637	---	254	102	---
TOTAL	6001	7380	10458	8984	20851	26060	21593	28698	47348	30380	5923	2496
MEAN	194	246	337	290	745	841	720	926	1578	980	191	83.2
MAX	363	473	1200	662	2430	2780	1060	2210	3800	3210	298	131
MIN	145	163	223	216	452	377	553	516	511	254	102	62
AC-FT	11900	14640	20740	17820	41360	51690	42830	56920	93910	60260	11750	4950

CAL YR 1982	TOTAL	381579	MEAN	1045	MAX	10200	MIN	31	AC-FT 756900
WTR YR 1983	TOTAL	216172	MEAN	592	MAX	3800	MIN	62	AC-FT 428800

RED RIVER BASIN

07329000 RUSH CREEK AT PURDY, OK

LOCATION.--Lat 34°41'42", long 97°35'54", in SE 1/4 SE 1/4 sec.27, T.3 N., R.4 W., on left downstream bank near end of bridge on State Highway 76, 0.8 mi (1.3 km) south of Purdy, 8.5 mi (13.7 km) south of Lindsay, and at mile 27.3 (43.9 km).

DRAINAGE AREA.--145 mi^2 (376 km^2)

PERIOD OF RECORD.--October 1939 to December 1953, February 1982 to current year. Prior to May 1940 monthly discharges only, published in WSP 1311.

REVISED RECORD.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1004.12 ft (306.056 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1942, nonrecording gage at site 1.2 mi (1.9 km) downstream at datum 9.42 ft (2.871 m) lower. Oct. 1, 1942 to Aug. 22, 1943 and May 11, 1950 to Sept. 18, 1952 nonrecording gage 1.2 mi (1.9 km) downstream at datum 14.42 ft (4.395 m) lower, Aug. 23, 1943 to May 10, 1950 and Sept. 19, 1952 to Dec. 31, 1953 water-stage recorder at site 1.2 mi (1.9 km) downstream at datum 14.42 ft (4.395 m) lower.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--15 yrs (water years 1940-1953, 1983), 68.6 ft^3/s (1.941 m^3/s), 49,700 acre-ft/yr (61.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft^3/s (850 m^3/s) May 10, 1950, gage height, 27.00 ft (8.230 m), from floodmarks and from rating extended above 5,000 ft^3/s (142 m^3/s) on the basis of a slope-area measurement at 27.00 ft (8.230 m). No flow at times in 1939, 1940, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,140 ft^3/s (32.3 m^3/s) May 14, gage height, 13.60 ft (4.145 m); minimum daily discharge, 0.65 ft^3/s (0.02 m^3/s) Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.2	79	16	100	21	18	23	15	42	2.6	2.1
2	2.6	3.8	56	22	36	19	12	27	14	14	2.1	2.0
3	5.8	3.5	28	24	25	18	9.4	29	14	15	1.8	1.8
4	4.9	3.5	25	22	19	17	8.5	22	15	17	1.6	1.9
5	3.3	3.8	20	20	23	16	25	17	15	14	1.4	1.8
6	2.8	4.0	17	20	26	14	26	16	16	13	1.4	1.7
7	2.6	4.2	15	19	24	13	15	15	18	12	1.8	1.6
8	2.8	4.4	14	19	23	12	12	14	16	12	2.2	1.5
9	2.2	4.2	13	18	22	12	11	13	16	12	2.1	1.6
10	2.4	4.6	14	17	22	11	9.8	12	18	11	1.8	1.4
11	2.2	11	16	16	21	11	10	15	19	11	1.6	1.3
12	3.3	9.1	16	15	20	10	28	30	19	10	1.4	1.2
13	3.0	5.1	15	15	19	9.8	70	44	20	10	1.3	1.4
14	2.8	5.1	15	14	19	11	43	695	19	10	1.2	2.1
15	2.8	4.6	13	14	19	18	13	262	18	10	1.2	1.8
16	2.4	4.8	12	13	19	28	11	172	15	10	.90	1.2
17	2.4	5.0	12	13	19	20	10	131	14	9.8	.77	1.4
18	2.6	5.0	12	14	19	15	9.8	105	13	9.2	.65	2.8
19	2.4	5.2	12	16	26	18	12	81	9.8	9.0	3.5	13
20	2.2	5.2	11	17	169	16	21	64	8.4	8.2	35	4.7
21	2.2	5.2	11	17	104	15	62	190	9.0	8.0	9.8	3.5
22	3.3	6.1	11	19	84	14	29	103	8.7	7.3	9.2	2.7
23	2.6	5.6	12	19	60	13	21	59	8.4	6.7	7.7	2.4
24	2.8	5.5	28	19	38	17	17	31	8.4	6.0	6.0	4.0
25	3.0	7.2	20	19	29	81	15	37	8.7	5.5	3.8	3.1
26	3.0	24	17	18	23	210	20	41	8.4	5.1	3.5	2.3
27	3.3	29	25	18	21	160	21	30	8.2	4.9	3.0	2.1
28	10	28	25	18	20	61	21	19	10	4.6	2.8	1.9
29	7.3	23	21	19	---	22	22	18	101	4.4	2.6	1.9
30	4.6	20	18	18	---	23	22	17	61	4.2	2.3	1.7
31	4.2	---	17	95	---	17	---	16	---	3.5	2.2	---
TOTAL	104.2	253.9	620	623	1049	942.8	624.5	2348	544.0	319.4	119.22	73.9
MEAN	3.36	8.46	20.0	20.1	37.5	30.4	20.8	75.7	18.1	10.3	3.85	2.46
MAX	10	29	79	95	169	210	70	695	101	42	35	13
MIN	2.2	3.5	11	13	19	9.8	8.5	12	8.2	3.5	.65	1.2

WTR YR 1983 TOTAL 7621.92 MEAN 20.9 MAX 695 MIN .65

RED RIVER BASIN

07329700 WILDHORSE CREEK NEAR HOOVER, OK

LOCATION.--Lat 34°32'29", long 97°14'49", on west line of SW 1/4 sec.19, T.1 N., R.1 E., Garvin County, Hydrologic Unit 11130303, on downstream left bank at bridge on State Highway 19A, 1.5 mi (2.4 km) north of Hoover, 1.8 mi (2.9 km) downstream from Sandy Creek, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--604 mi^2 (1,564 km^2).

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1944, 1951-69. October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 803.3 ft (244.85 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Flow regulated by Duncan, Clear Creek, Humphries and Fuqua Lakes, combined surface-area, 3,340 acres (13.5 km^2), and capacity, 44,800 acre-ft (55.2 hm^3), and numerous flood-retarding structures.

AVERAGE DISCHARGE.--14 years, 184 ft^3/s (5.211 m^3/s), 133,300 acre-ft/yr (164 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,700 ft^3/s (530 m^3/s) May 20, 1977, gage height, 24.70 ft (7.529 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 8,780 ft^3/s (249 m^3/s) May 15; minimum daily discharge, 5.0 ft^3/s (0.14 m^3/s) Oct. 11, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.7	99	30	1150	55	112	430	180	131	15	35
2	9.8	7.7	69	37	316	55	104	340	148	102	15	37
3	10	7.3	46	55	176	56	89	270	129	78	15	40
4	40	7.3	33	43	127	1980	78	220	112	65	14	45
5	19	7.3	23	38	110	1700	83	185	101	91	14	50
6	13	7.7	19	36	104	646	89	165	94	63	14	56
7	8.1	9.0	18	36	92	393	80	140	89	57	13	65
8	6.7	9.0	17	34	83	286	70	125	89	52	15	75
9	6.0	9.0	17	32	80	208	64	112	82	51	18	87
10	5.4	11	24	30	70	162	177	100	75	47	17	99
11	5.0	20	22	26	64	131	150	2090	72	45	15	122
12	7.4	17	18	24	59	108	111	1100	76	44	15	161
13	6.4	13	19	22	55	96	97	638	72	42	31	274
14	5.8	10	17	22	53	87	996	3400	753	40	44	50
15	5.3	8.3	15	22	50	80	703	8780	533	47	19	41
16	5.2	7.9	14	21	49	76	352	2490	179	50	14	974
17	5.0	8.3	13	21	46	70	249	594	127	47	13	370
18	5.2	10	14	22	45	68	168	537	92	38	13	152
19	6.2	13	13	27	45	63	99	361	70	33	24	88
20	5.4	17	12	30	86	62	81	204	65	29	1340	162
21	5.4	25	12	30	131	56	58	1260	56	27	695	81
22	6.1	15	13	30	99	55	1400	1200	54	25	179	55
23	6.7	12	16	29	86	51	2700	701	50	23	83	41
24	8.3	11	58	25	76	54	800	522	57	21	55	36
25	8.1	22	108	25	67	56	448	453	73	20	38	31
26	6.6	85	38	27	62	848	261	404	56	20	35	26
27	7.5	62	40	29	57	528	209	368	154	18	33	21
28	12	35	67	25	55	247	178	322	981	16	31	18
29	16	25	43	26	---	176	920	262	564	16	31	16
30	14	20	34	29	---	136	560	217	208	16	32	14
31	11	---	30	384	---	124	---	201	---	15	33	---
TOTAL	287.6	520.5	981	1267	3493	8713	11486	28191	5391	1369	2923	3322
MEAN	9.28	17.3	31.6	40.9	125	281	383	909	180	44.2	94.3	111
MAX	40	85	108	384	1150	1980	2700	8780	981	131	1340	974
MIN	5.0	7.3	12	21	45	51	58	100	50	15	13	14
AC-FT	570	1030	1950	2510	6930	17280	22780	55920	10690	2720	5800	6590

CAL YR 1982	TOTAL 143442.9	MEAN 393	MAX 10900	MIN 3.2	AC-FT 284500
WTR YR 1983	TOTAL 67944.1	MEAN 186	MAX 8780	MIN 5.0	AC-FT 134800

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK

LOCATION.--Lat 34°13'59", long 96°58'38", in SE 1/4 SW 1/4 sec.3, T.4 S., R.3 E., Carter County, Hydrologic Unit 11130303, on right bank 500 ft (152.4 m) upstream from bridge on U.S. Highway 177, 1.2 mi (1.9 km) downstream from Caddo Creek, 3.2 mi (5.1 km) north of Dickson, 12.0 mi (19.3 km) northeast of Ardmore, and at mile 63.5 (102.2 km).

DRAINAGE AREA.--7,202 mi^2 (18,653 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to Oct. 1, 1979, published as Washita River near Durwood.

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1281: 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 650.57 ft (198.294 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Feb. 16, 1939, nonrecording gage at site 500 ft (152.4 m) downstream at same datum. Dec. 15, 1950, to Feb. 19, 1952, nonrecording gage at same site and datum. Feb. 20, 1952, to Apr. 23, 1975, water-stage recorder at site 500 ft (152.4 m) downstream at same datum.

REMARKS.--Records good. Some diversions above station for irrigation. Some regulation since March 1959 by Fort Cobb Reservoir (station 07325900), since February 1961 by Foss Reservoir (station 07324300), and by numerous flood-retarding structures.

AVERAGE DISCHARGE.--55 years, 1,376 ft^3/s (38.97 m^3/s), 996,900 acre-ft/yr (1.23 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft^3/s (2,780 m^3/s) May 19, 1957, gage height, 42.30 ft (12.893 m), from floodmark; maximum gage height, 44.37 ft (13.524 m) Oct. 31, 1941; no flow Aug. 28, Sept. 14 to Oct. 1, Oct. 7-12, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10,000 ft^3/s (283 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 15	0130	*29,500	835	*27.04	8.242	May 21	1900	13,600	385	18.55	5.654
May 18	1215	10,700	303	16.63	5.069						

Minimum daily discharge, 151 ft^3/s (4.28 m^3/s) Sept. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	287	507	453	5800	757	1760	997	1220	3550	312	222
2	263	267	468	463	4400	695	1560	932	1110	3440	298	207
3	319	258	1030	497	2670	675	1390	925	1040	3060	283	200
4	319	234	749	525	2010	1410	1280	883	1020	2410	274	190
5	365	226	597	556	1720	6240	1220	776	996	2190	264	179
6	353	223	559	541	1530	3520	1270	705	923	1910	255	171
7	298	228	502	516	1400	2330	1390	681	891	1630	250	164
8	281	229	448	497	1290	2040	1230	656	765	1470	276	160
9	272	232	423	481	1200	1770	1080	637	696	1350	277	158
10	259	236	412	466	1090	1580	1010	632	656	1220	254	159
11	247	259	412	446	994	1460	951	713	633	1150	250	155
12	244	284	423	427	920	1190	906	770	616	1140	262	151
13	244	306	423	414	863	1080	1560	981	613	1110	259	151
14	240	312	419	401	811	996	3260	18900	2560	1040	269	155
15	239	281	408	389	765	865	2090	25100	2740	993	267	158
16	233	261	398	379	728	802	1600	12600	3080	990	233	199
17	233	253	387	376	697	748	1420	8520	3270	989	214	508
18	231	259	370	371	671	701	1350	9880	3200	946	201	323
19	230	266	367	380	646	680	1280	8670	3250	830	240	220
20	228	270	360	398	793	677	1240	6910	2970	722	606	202
21	228	270	344	405	1350	662	1230	9670	2160	640	2880	313
22	228	274	332	411	1550	650	1420	10500	1790	583	1250	288
23	228	270	330	422	1380	652	1590	7170	1600	532	823	223
24	223	284	331	418	1230	651	1710	6130	1450	509	545	195
25	220	287	419	409	1120	645	1400	5390	1370	488	457	181
26	223	337	592	424	1040	1560	1230	5230	1280	457	412	174
27	217	490	497	436	977	3390	1020	4380	1250	421	349	163
28	240	704	474	438	926	2300	962	2490	4260	389	301	160
29	299	714	509	445	---	1910	931	2060	4560	366	271	156
30	278	601	511	440	---	1750	951	1650	3520	343	253	152
31	338	---	481	692	---	1970	---	1380	---	328	240	---
TOTAL	8089	9402	14482	13916	40571	46356	41291	156918	55489	37196	13325	6037
MEAN	261	313	467	449	1449	1495	1376	5062	1850	1200	430	201
MAX	365	714	1030	692	5800	6240	3260	25100	4560	3550	2880	508
MIN	217	223	330	371	646	645	906	632	613	328	201	151
AC-FT	16040	18650	28730	27600	80470	91950	81900	311200	110100	73780	26430	11970

CAL YR 1982	TOTAL	864508	MEAN	2369	MAX	38500	MIN	217	AC-FT	1715000
WTR YR 1983	TOTAL	443072	MEAN	1214	MAX	25100	MIN	151	AC-FT	878800

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1944 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1944 to January 1982.
WATER TEMPERATURE: April 1947 to January 1982.

REMARKS.--Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,120 micromhos Nov. 15, 1963; minimum daily, 95 micromhos Nov. 2, 1951.
WATER TEMPERATURE: Maximum daily, 37.0°C July 18, 1964, July 24, 1981; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)
OCT												
27...	1100	80020	212	1600	8.0	15.0	10	10.8	110	K34	K110	730
NOV												
22...	1200	1028	274	--	--	--	--	--	--	--	--	--
DEC												
21...	1130	80020	343	1560	6.4	7.0	12	15.2	130	K34	K50	750
JAN												
28...	1300	1028	1240	--	--	--	--	--	--	--	--	--
FEB												
24...	1400	80020	1230	912	8.0	13.0	270	10.0	98	K300	7200	390
MAR												
28...	1600	1028	1360	--	--	--	--	--	--	--	--	--
APR												
18...	1600	80020	1350	1050	8.1	18.0	45	10.6	117	130	110	420
MAY												
25...	1500	1028	5140	--	--	15.0	--	--	--	--	--	--
JUN												
28...	1200	80020	5790	630	7.6	24.0	1400	6.1	76	K100	K26000	250
JUL												
27...	1300	1028	416	--	--	--	--	--	--	--	--	--
AUG												
31...	1200	1028	240	--	--	--	--	--	--	--	--	--
SEP												
27...	1100	80020	159	1520	7.9	26.0	28	8.7	111	110	120	680

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT												
27...	517	170	74	110	25	2	4.1	215	580	130	.50	5.7
NOV												
22...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
21...	472	180	73	92	21	2	4.1	279	480	110	.40	14
JAN												
28...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
24...	173	95	36	46	20	1	3.8	214	180	61	.30	8.0
MAR												
28...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
18...	220	100	40	53	22	1	3.7	196	240	71	.30	4.9
MAY												
25...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
28...	149	65	22	28	19	.8	5.4	104	170	33	.50	7.1
JUL												
27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
31...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
27...	495	150	73	98	24	2	4.8	183	520	120	.30	3.6

07331000 WASHITA RIVER NEAR DICKSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
27...	1260	1200	1.7	<.100	.060	.08	1.6	.150	.46	.090	.050	.15
NOV												
22...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
21...	1060	1100	1.4	.410	.140	.18	1.4	.190	.58	.100	<.010	--
JAN												
28...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
24...	564	560	.77	.500	.200	.26	1.0	.350	1.1	.070	.090	.28
MAR												
28...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
18...	637	630	.87	<.100	<.060	--	1.8	.170	.52	.020	.040	.12
MAY												
25...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
28...	399	390	.54	--	--	--	--	--	--	--	--	--
JUL												
27...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
31...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
27...	1130	1100	1.5	<.100	<.100	--	1.3	.190	.58	.010	.020	.06

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT											
27...	10	2	180	.7	1	<1	<3	2	6	<1	46
NOV											
22...	--	--	--	--	--	--	--	--	--	--	--
DEC											
21...	--	--	--	--	--	--	--	--	--	--	--
JAN											
28...	--	--	--	--	--	--	--	--	--	--	--
FEB											
24...	20	2	160	<.5	2	<1	<3	4	9	1	20
MAR											
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
18...	10	2	170	<.5	2	<1	<3	4	3	3	20
MAY											
25...	--	--	--	--	--	--	--	--	--	--	--
JUN											
28...	--	--	--	--	--	--	--	--	--	--	--
JUL											
27...	--	--	--	--	--	--	--	--	--	--	--
AUG											
31...	--	--	--	--	--	--	--	--	--	--	--
SEP											
27...	<10	1	200	1	<1	<1	<3	2	<3	<1	39

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
27...	18	<.1	<10	3	1	<1	2100	<6	14	33	74
NOV											
22...	--	--	--	--	--	--	--	--	--	86	44
DEC											
21...	--	--	--	--	--	--	--	--	--	75	62
JAN											
28...	--	--	--	--	--	--	--	--	--	168	15
FEB											
24...	5	.1	<10	3	1	<2	940	<6	10	350	98
MAR											
28...	--	--	--	--	--	--	--	--	--	169	22
APR											
18...	5	.1	<10	5	1	<1	1100	<6	20	305	53
MAY											
25...	--	--	--	--	--	--	--	--	--	639	75
JUN											
28...	--	--	--	--	--	--	--	--	--	5090	56
JUL											
27...	--	--	--	--	--	--	--	--	--	132	50
AUG											
31...	--	--	--	--	--	--	--	--	--	44	86
SEP											
27...	6	.2	<10	2	<1	<1	1900	<6	6	68	73

RED RIVER BASIN

07331500 LAKE TEXOMA NEAR DENISON, TX

LOCATION.--Lat 33°49'05", long 96°34'20", in NE 1/4 sec.33, T.8 S., R.7 E., Bryan County, Okla., Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi (1.9 km) upstream from Shawnee Creek, 1.8 mi (2.9 km) upstream from Sand Creek, 4.0 mi (6.4 km) northwest of Denison, 6.0 mi (9.7 km) southwest of Colbert, and at mile 725.9 (1,168.0 km).

DRAINAGE AREA.--39,719 mi^2 (102,872 km^2) of which 5,936 mi^2 (15,374 km^2) is probably noncontributing.

PERIOD OF RECORD.--July 1942 to current year. Month-end contents only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1944, nonrecording gage at same site and datum. Prior to Oct. 1, 1948, supplementary nonrecording gage in Cumberland pool at the same datum.

REMARKS.--Reservoir is formed by a rolled-fill earth dam. The controlled outlet consists of eight 20-feet diameter conduits and the uncontrolled outlet is a concrete, ogee-type weir spillway. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power-pool was first filled March 15, 1945. Capacity, based on 1969 survey, 5,312,000 acre-ft (6.55 km^3) at elevation 640.0 ft (195.07 m), crest of spillway, 2,643,000 acre-ft (3.26 km^3) at elevation 617.0 ft (188.06 m) maximum power pool; 1,031,000 acre-ft (1.27 km^3) at elevation 590.0 ft (179.83 m), minimum power pool, in Denison pool. Dead storage, 11,000 acre-ft (13.6 hm^3) at elevation 610.0 ft (185.93 m) in Cumberland pool. When contents are below 2,105,000 acre-ft (2.60 km^3), the reservoir is divided into two pools by protective levees around the Cumberland oilfield on the Washita River arm with bottom outlet channel for the upper pool (known as Cumberland pool) at elevation 610 ft (185.9 m). At higher elevations the two pools are considered as being at a common level, contents being computed from gage in Denison pool. Figures given herein represent total contents of both pools. Reservoir is used principally for flood control and power development. Revised capacity table, based on survey in 1969, used since Oct. 1, 1977.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,991,300 acre-ft (7.39 km^3) June 5, 1957, elevation, 643.18 ft (196.041 m). Minimum contents since power pool was first filled, 1,565,100 acre-ft (1.93 km^3) Sept. 16, 1964; minimum elevation, 599.96 ft (182.868 m) Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,877,000 acre-ft (3.55 km^3) May 26, elevation, 619.55 ft (188.839 m). Minimum, 2,270,000 acre-ft (2.80 km^3) Sept. 30, elevation, 612.29 ft (186.626 m).

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

611	2,175,800	622	3,116,900
614	2,398,800	627	3,649,100
617	2,643,300	632	4,239,700

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2490000	2429000	2438000	2456000	2460000	2570000	2614000	2600000	2800000	2771000	2497000	2373000
2	2490000	2440000	2446000	2459000	2463000	2571000	2593000	2598000	2786000	2764000	2493000	2371000
3	2489000	2433000	2443000	2458000	2467000	2576000	2590000	2590000	2775000	2754000	2488000	2370000
4	2485000	2429000	2444000	2455000	2473000	2584000	2597000	2579000	2761000	2752000	2486000	2363000
5	2481000	2426000	2447000	2452000	2488000	2598000	2593000	2576000	2747000	2753000	2478000	2360000
6	2478000	2424000	2446000	2446000	2498000	2614000	2591000	2572000	2732000	2744000	2476000	2356000
7	2478000	2425000	2445000	2444000	2501000	2620000	2590000	2581000	2726000	2733000	2476000	2354000
8	2484000	2426000	2448000	2440000	2507000	2626000	2594000	2581000	2720000	2727000	2473000	2352000
9	2481000	2427000	2445000	2443000	2515000	2630000	2595000	2579000	2715000	2717000	2467000	2350000
10	2481000	2428000	2455000	2439000	2518000	2634000	2598000	2583000	2708000	2711000	2463000	2350000
11	2476000	2430000	2461000	2435000	2523000	2636000	2598000	2584000	2700000	2702000	2460000	2347000
12	2474000	2429000	2458000	2430000	2525000	2642000	2604000	2585000	2693000	2697000	2452000	2338000
13	2474000	2426000	2445000	2429000	2529000	2645000	2614000	2584000	2685000	2690000	2449000	2338000
14	2473000	2427000	2447000	2434000	2533000	2646000	2617000	2624000	2712000	2681000	2445000	2335000
15	2470000	2420000	2445000	2429000	2533000	2646000	2626000	2642000	2713000	2675000	2438000	2335000
16	2470000	2420000	2440000	2430000	2534000	2659000	2635000	2662000	2706000	2668000	2430000	2331000
17	2466000	2420000	2438000	2430000	2534000	2649000	2645000	2704000	2706000	2662000	2424000	2329000
18	2459000	2421000	2442000	2424000	2535000	2635000	2639000	2734000	2710000	2651000	2414000	2329000
19	2460000	2417000	2442000	2423000	2537000	2634000	2634000	2748000	2713000	2640000	2418000	2325000
20	2455000	2416000	2442000	2422000	2545000	2622000	2628000	2762000	2711000	2628000	2415000	2323000
21	2453000	2415000	2443000	2425000	2549000	2607000	2628000	2802000	2706000	2615000	2412000	2317000
22	2447000	2416000	2444000	2424000	2553000	2592000	2636000	2813000	2701000	2604000	2411000	2311000
23	2446000	2412000	2446000	2424000	2557000	2582000	2636000	2842000	2698000	2594000	2410000	2306000
24	2446000	2409000	2453000	2419000	2557000	2574000	2639000	2855000	2695000	2582000	2406000	2304000
25	2440000	2408000	2452000	2419000	2556000	2554000	2638000	2866000	2697000	2567000	2397000	2302000
26	2430000	2424000	2453000	2419000	2559000	2577000	2639000	2866000	2700000	2555000	2394000	2293000
27	2420000	2430000	2462000	2414000	2563000	2569000	2628000	2867000	2701000	2544000	2389000	2287000
28	2422000	2431000	2461000	2412000	2564000	2565000	2620000	2862000	2779000	2530000	2389000	2282000
29	2413000	2433000	2452000	2415000	---	2570000	2614000	2848000	2789000	2517000	2387000	2274000
30	2411000	2434000	2446000	2416000	---	2575000	2606000	2828000	2780000	2511000	2381000	2270000
31	2410000	---	2448000	2440000	---	2581000	---	2816000	---	2506000	2373000	---
MAX	2490000	2440000	2462000	2459000	2564000	2659000	2645000	2867000	2800000	2771000	2497000	2373000
MIN	2410000	2408000	2438000	2412000	2460000	2554000	2590000	2572000	2685000	2506000	2373000	2270000
†	614.15	614.45	614.64	614.53	616.09	616.28	616.57	618.90	618.51	615.37	613.67	612.29
††	-89,000	+24,000	+14,000	-8,000	+124,000	+17,000	+25,000	+210,000	-36,000	-274,000	-133,000	-103,000

CAL YR 1982 MAX 4250000 MIN 2341000, †† -42,000
WTR YR 1983 MAX 2867000 MIN 2270000, †† -224,000

† Elevation, in feet, at end of month.
†† Change in contents, in acre-feet.

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX

LOCATION.--Lat 33°49'08", long 96°33'47", Grayson County, Hydrologic Unit 11140101, on right bank 1,800 ft (548.6 m) downstream from Denison Dam powerhouse, 0.4 mi (0.6 km) upstream from Shawnee Creek (spillway flow return), 4.5 mi (7.2 km) north of Denison, and at mile 725.5 (1,167.3 km).

DRAINAGE AREA.--39,720 mi^2 (102,875 km^2) of which 5,936 mi^2 (15,374 km^2) is probably noncontributing. At site used prior to October 1961, drainage area 39,777 mi^2 (103,022 km^2), of which 5,936 mi^2 (15,374 km^2) was probably noncontriubting.

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1934, published as "near Denison, Tex.", and October 1934 to September 1961, published as "near Colbert, Okla.". Gage-height records collected at various sites in this vicinity 1892-93, 1906-28, 1931-49 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 807: 1935 (M). WSP 1211: Drainage area. WSP 1241: 1924-29, 1932-33, 1934 (M), 1935.

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft (152,400 m) National Geodetic Vertical Datum of 1929. Oct. 9, 1923, to Sept. 24, 1934, nonrecording gage, and July 29, 1942, to Sept. 30, 1961, water-stage recorder at county road bridge 2.5 mi (4.0 km) downstream at datum 6.85 ft (2.088 m) higher prior to Oct. 1, 1931, at datum 7.07 ft (2.155 m) higher Oct. 1, 1931, to Sept. 24, 1934, and at datum 2.64 ft (0.805 m) lower July 29, 1942, to Sept. 30, 1961. Sept. 25, 1934, to July 28, 1942, water-stage recorder at railway bridge 1.9 mi (3.1 km) downstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records good. Flow regulated since October 1943 by Lake Texoma (station 07331500).

COOPERATION.--Gage-height record and 10 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Denison Dam) 20 years, 1924-43, 5,684 ft^3/s (161 m^3/s), 4,118,000 acre-ft/yr (5.08 km^3/yr); (since regulation by Denison Dam) 39 years (water years 1945-83), 4,336 ft^3/s (122.8 m^3/s), 3,141,000 acre-ft/yr (3.87 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft^3/s (5,690 m^3/s) May 21, 1935, gage height, 31.8 ft (9.69m) at site and datum then in use; maximum gage height, 32.0 ft (9.75 m) Apr. 25, 1942 (at site and datum used in 1943); minimum daily discharge, 12 ft^3/s (0.340 m^3/s) Jan. 10, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 26, 1908, reached a stage of 45.5 ft (13.87 m) at site and datum used July 29, 1942, to Sept. 30, 1961, from record of U.S. Weather Bureau.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,300 ft^3/s (547 m^3/s) May 24-27, maximum gage height, 11.00 ft (3.353 m); on May 26; minimum daily, 27 ft^3/s (0.76 m^3/s) Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2310	5030	54	62	1470	77	1400	5630	10500	10800	4940	243
2	1300	2240	59	67	4800	934	4160	6160	10600	8490	2130	491
3	1320	2200	3450	540	775	58	2490	4290	10600	8580	1830	699
4	1810	1350	90	2990	710	70	4680	6290	9740	8290	1550	1640
5	2110	1490	54	2940	177	77	5110	1510	10600	8600	3490	987
6	1170	49	792	3960	105	51	3210	1650	10400	8330	1630	1620
7	1130	29	1680	2990	1110	376	2360	805	5590	8380	919	169
8	2700	80	269	2840	566	1340	1270	126	5510	5850	1970	679
9	109	37	924	99	133	912	774	1760	5520	6430	3380	92
10	38	76	1560	2840	366	82	966	1870	5540	5780	1680	74
11	1570	944	1470	3210	96	425	1120	1420	5550	7310	2190	1610
12	1750	67	913	3210	78	78	66	1750	5920	5820	2750	3490
13	100	29	5630	1290	74	72	2970	132	5540	5790	3210	189
14	41	27	2270	81	276	1380	1790	394	7730	5780	2630	67
15	1310	2010	687	1200	1250	2600	832	144	5890	5770	3040	1480
16	86	496	3580	83	1320	2640	64	3340	7270	5200	4220	3490
17	264	128	884	841	1670	4540	431	4160	8080	5170	2790	436
18	3990	72	283	3260	1460	5600	4020	7580	8300	6740	2940	61
19	1590	2400	54	2260	1200	5620	5680	10600	8210	6900	2400	2270
20	89	1510	50	2000	1060	6660	5340	10600	7890	6990	2220	1530
21	1630	441	50	106	1850	5670	4740	10600	8110	6750	3350	1130
22	2840	980	50	693	856	7030	2280	10600	7360	6540	2490	2610
23	70	1900	47	62	763	6960	258	13100	5710	5230	2290	1320
24	39	235	750	3320	3880	5760	118	19000	5700	6990	3340	92
25	2360	51	556	124	2790	6780	3540	19100	3040	7200	4710	1210
26	3810	59	1190	3140	783	5730	3690	19100	2720	6610	2180	3920
27	3450	1850	780	1190	1100	5630	7130	17400	3350	6420	2700	3240
28	3000	275	3110	2160	157	5660	7030	14100	6100	7070	144	2430
29	4010	61	3750	59	---	4660	5670	14000	8650	7240	946	2910
30	754	57	4260	52	---	5110	5610	14000	10800	3650	2850	2140
31	916	---	89	697	---	1520	---	12400	---	3300	3070	---
TOTAL	47666	26173	39385	48366	30875	94102	88799	233611	216520	208000	79979	42319
MEAN	1538	872	1270	1560	1103	3036	2960	7536	7217	6710	2580	1411
MAX	4010	5030	5630	3960	4800	7030	7130	19100	10800	10800	4940	3920
MIN	38	27	47	52	74	51	64	126	2720	3300	144	61
AC-FT	94550	51910	78120	95930	61240	186700	176100	463400	429500	412600	158600	83940

CAL YR 1982	TOTAL	2859601	MEAN	7835	MAX	47600	MIN	27	AC-FT 5672000
WTR YR 1983	TOTAL	1155795	MEAN	3167	MAX	19100	MIN	27	AC-FT 2293000

RED RIVER BASIN

07332400 BLUE RIVER AT MILBURN, OK

LOCATION.--Lat 34°15'04", long 96°33'05", in SW 1/4 SW 1/4 sec.35, T.3 S., R.7 E., Johnston County, Hydrologic Unit 11140102, on downstream side of left pier of bridge on State Highway 48A, 0.5 mi (0.8 km) north of Milburn, and at mile 84.9 (136.6 km).

DRAINAGE AREA.--203 mi^2 (526 km^2).

PERIOD OF RECORD.--October 1965 to current year. Occasional low-flow measurements made in water years 1956-61. Prior to October 1975 published as Blue Creek near Milburn.

GAGE.--Water-stage recorder. Datum of gage is 649.65 ft (198.013 m), Oklahoma State Highway Department datum.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--18 years, 140 ft^3/s (3.96 m^3/s), 9.37 in/yr (238 mm/yr), 101,430 acre-ft/yr (125 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft^3/s (994 m^3/s) Oct. 8, 1970, gage height, 27.87 ft (8.495 m); minimum daily, 15 ft^3/s (0.42 m^3/s) Aug. 22, 24, 25, Sept. 1, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft^3/s (62.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
May 15	0445	*19,600	555	*26.22	7.992	May 21	2100	2,440	69.1	16.06	4.895
May 18	1115	2,990	84.7	17.57	5.355						

Minimum daily discharge, 36 ft^3/s (1.02 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	45	47	50	1300	87	77	65	180	180	49	45
2	45	46	49	64	339	86	78	62	170	170	47	46
3	51	43	48	74	165	84	76	62	160	160	45	44
4	46	42	46	60	133	114	75	60	155	155	46	43
5	45	43	45	56	128	131	75	60	150	170	48	42
6	44	44	44	54	131	112	74	57	150	160	47	41
7	44	45	43	53	125	93	74	54	143	150	50	41
8	45	45	43	52	113	89	73	52	130	140	45	39
9	46	45	42	52	108	85	72	51	125	130	50	39
10	43	45	47	51	108	82	71	60	120	120	43	40
11	42	48	57	49	100	81	70	50	115	110	46	41
12	43	48	50	48	93	81	69	47	110	100	47	41
13	43	44	46	48	89	81	187	47	105	98	50	42
14	42	44	46	48	88	82	209	3740	564	92	45	42
15	41	43	45	46	86	81	118	7640	220	90	44	41
16	41	44	44	46	83	81	91	500	170	95	46	60
17	41	45	44	46	80	78	79	182	150	85	44	45
18	41	46	44	46	80	78	74	1140	140	80	42	41
19	42	46	43	48	79	78	71	390	136	75	50	40
20	40	45	42	48	369	79	69	210	130	70	65	42
21	41	44	42	48	196	76	69	798	128	65	50	48
22	43	45	43	48	183	75	73	788	125	60	44	45
23	42	44	44	47	141	77	78	350	123	55	46	39
24	42	42	45	46	120	78	81	200	118	53	45	38
25	42	42	43	45	105	74	78	170	116	51	44	38
26	42	58	41	49	97	172	73	568	112	50	45	38
27	42	77	128	51	92	133	71	250	100	48	46	37
28	50	67	100	49	89	97	69	200	305	46	47	37
29	53	50	59	50	---	85	67	170	415	48	46	37
30	44	47	53	49	---	84	67	166	200	55	45	36
31	44	---	51	307	---	77	---	190	---	46	44	---
TOTAL	1355	1412	1564	1828	4820	2791	2508	18379	5065	3007	1451	1248
MEAN	43.7	47.1	50.5	59.0	172	90.0	83.6	593	169	97.0	46.8	41.6
MAX	53	77	128	307	1300	172	209	7640	564	180	65	60
MIN	40	42	41	45	79	74	67	47	100	46	42	36
CFSM	.22	.23	.25	.29	.85	.44	.41	2.92	.83	.48	.23	.20
IN.	.25	.26	.29	.33	.88	.51	.46	3.37	.93	.55	.27	.23
AC-FT	2690	2800	3100	3630	9560	5540	4970	36450	10050	5960	2880	2480

CAL YR 1982	TOTAL	66198	MEAN	181	MAX	7420	MIN	40	CFSM	.89	IN.	12.13	AC-FT	131300
WTR YR 1983	TOTAL	45428	MEAN	124	MAX	7640	MIN	36	CFSM	.61	IN.	8.32	AC-FT	90110

RED RIVER BASIN

07332500 BLUE RIVER NEAR BLUE, OK

LOCATION.--Lat 33°59'49", long 96°14'27", on line between sec.27 and 34, T.6 S., R.10 E., Bryan County, Hydrologic Unit 11140102, near left bank on downstream side of pier of bridge on U.S. Highway 70, 1.0 mi (1.6 km) west of Blue, 7.0 mi (11.3 km) east of Durant, 7.7 mi (12.4 km) upstream from Caddo Creek, and at mile 38.8 (62.1 km).

DRAINAGE AREA.--476 mi^2 (1,233 km^2).

PERIOD OF RECORD.--June 1936 to current year. Monthly discharge only for some periods, published in WSP 1311, 1731.

REVISED RECORDS.--WSP 957: 1938. WSP 1241: 1936, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.36 ft (153.424 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 13, 1945, nonrecording gage and Mar. 13, 1945, to Feb. 2, 1960, water-stage recorder at site 1.2 mi (1.9 km) downstream at datum 5.00 ft (1.524 m) lower.

REMARKS.--Records good. Some regulation at low flow by State Fish Hatchery, 16.0 mi (25.7 km) above station. Small diversion above station for municipal water supply of city of Durant.

COOPERATION.--Gage-height record and 19 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--47 years, 300 ft^3/s (8.496 m^3/s), 8.56 in/yr (217 mm/yr), 217,300 acre-ft/yr (268 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,200 ft^3/s (1,850 m^3/s) Oct. 14, 1981, gage height, 44.20 ft (13.472 m), from high water mark; no flow (estimated) Aug. 3, 4, 1936, result of regulation at fish hatchery, and no flow Sept. 19 to Oct. 16, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft^3/s (113 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 1	1600	4,280	121	20.51	6.251	May 16	2130	*5,110	145	*22.44	6.840

Minimum daily discharge, 30 ft^3/s (0.85 m^3/s) Sept. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	106	59	89	3920	151	157	104	223	324	63	37
2	45	1560	264	88	2710	144	159	105	208	204	63	37
3	44	103	262	93	686	138	143	222	196	163	58	36
4	43	57	115	113	354	250	123	123	186	138	56	35
5	48	52	67	110	283	582	106	99	174	131	57	35
6	45	50	54	91	276	324	116	90	166	139	58	35
7	42	50	47	84	268	215	117	86	160	129	56	33
8	47	50	45	81	255	169	107	81	148	110	65	33
9	59	50	42	79	222	143	100	79	140	102	68	34
10	51	51	86	76	210	130	100	76	135	98	64	34
11	44	54	734	72	204	119	97	81	130	95	65	32
12	43	55	176	70	184	114	92	85	127	91	56	31
13	44	54	121	67	166	113	129	84	127	90	65	30
14	43	54	113	65	156	114	839	1280	1620	108	58	31
15	42	51	91	63	150	114	344	3090	2380	122	55	33
16	41	50	72	62	143	113	192	4200	466	115	55	38
17	40	51	66	61	135	267	143	2570	240	101	51	42
18	39	52	61	60	130	161	125	503	190	95	47	50
19	38	54	58	61	126	120	113	1280	165	91	47	39
20	38	53	55	64	772	112	111	559	149	87	56	39
21	39	54	55	67	2090	108	107	1100	138	83	57	46
22	40	56	54	67	940	101	121	2580	128	80	55	40
23	39	50	54	66	549	97	159	1810	124	80	50	38
24	41	50	54	64	332	106	200	561	120	77	46	36
25	40	51	51	61	244	116	158	384	114	75	43	35
26	40	75	51	60	197	1070	126	361	113	67	43	35
27	38	732	898	61	173	891	114	748	124	65	42	33
28	40	300	640	65	160	348	110	411	2160	62	40	33
29	45	115	261	68	---	226	108	287	3210	58	38	33
30	50	76	137	65	---	185	106	247	1390	61	39	32
31	56	---	104	349	---	167	---	236	---	63	38	---
TOTAL	1351	4216	4947	2542	16035	7008	4722	23522	14951	3304	1654	1075
MEAN	43.6	141	160	82.0	573	226	157	759	498	107	53.4	35.8
MAX	59	1560	898	349	3920	1070	839	4200	3210	324	68	50
MIN	38	50	42	60	126	97	92	76	113	58	38	30
CFSM	.09	.30	.34	.17	1.20	.47	.33	1.59	1.05	.22	.11	.08
IN.	.11	.33	.39	.20	1.25	.55	.37	1.84	1.17	.26	.13	.08
AC-FT	2680	8360	9810	5040	31810	13900	9370	46660	29660	6550	3280	2130

CAL YR 1982	TOTAL	161553	MEAN	443	MAX	10400	MIN	38	CFSM	.93	IN.	12.63	AC-FT	320400
WTR YR 1983	TOTAL	85327	MEAN	234	MAX	4200	MIN	30	CFSM	.49	IN.	6.67	AC-FT	169200

RED RIVER BASIN

07334000 MUDDY BOGGY CREEK NEAR FARRIS, OK

LOCATION.--Lat 34°16'17", long 95°54'43", in NE 1/4 NW 1/4 sec.26, T.3 S., R.13 E., Atoka County, Hydrologic Unit 11140103, on downstream side of left bank pier of main span of bridge on State Highway 3, 1.3 mi (2.1 km) downstream from McGee Creek, 2.8 mi (4.5 km) northwest of Farris, and at mile 57.7 (92.8 km).

DRAINAGE AREA.--1,087 mi^2 (2,815 km^2).

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 444.58 ft (135.508 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 13, 1945, nonrecording gage, and Mar. 13, 1945, to Sept. 30, 1961, water-stage recorder at same site at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good. Some regulation since June 1959 by Atoka Reservoir, capacity, 125,000 acre-ft (154 hm^3), on North Boggy Creek, drainage area, 176 mi^2 (456 km^2); pipeline diversions to Oklahoma City since November 1963, normal capacity, 60 mgd (227, 100 m^3/s).

COOPERATION.--Gage-height records and 18 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--46 years, 880 ft^3/s (24.92 m^3/s), 637,600 acre-ft/yr (786 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,900 ft^3/s (1,750 m^3/s) June 17, 1945, gage height, 44.94 ft (13.698 m), datum then in use, from rating curve extended above 37,000 ft^3/s (1,050 m^3/s); no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,830 ft^3/s (278 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 1	1330	10,500	297	28.79	8.775	May 18	1945	*15,200	430	*34.81	10.610
Feb. 21	1200	12,900	365	33.32	10.156						

Minimum daily discharge, 0.35 ft^3/s (0.010 m^3/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	28	500	271	9080	280	222	509	240	481	10	1.6
2	3.8	82	900	265	7400	234	212	853	177	259	57	1.6
3	3.7	150	5280	353	6100	201	198	667	150	177	28	1.4
4	3.5	19	2450	269	4640	983	176	320	129	127	16	1.2
5	3.4	9.8	676	245	1130	2920	162	192	119	125	12	.95
6	9.6	6.4	337	218	729	1990	149	133	146	104	9.9	.86
7	15	5.0	214	180	784	1200	133	100	170	81	8.6	.86
8	16	4.3	160	167	753	581	120	78	108	65	7.7	.84
9	14	3.7	69	149	663	421	113	65	78	63	7.2	.77
10	10	3.7	104	123	609	308	112	117	63	60	12	.60
11	8.4	3.8	1010	94	551	235	113	285	54	46	14	.50
12	6.6	3.9	801	102	448	190	100	260	49	36	11	.45
13	5.1	3.7	386	91	342	161	449	179	44	28	20	.40
14	4.4	3.5	204	83	270	144	1750	6210	42	30	16	.35
15	3.9	3.2	196	75	225	131	1440	14000	40	28	30	1.2
16	3.7	2.9	155	68	184	120	781	12100	39	23	21	1.6
17	3.5	2.4	125	63	157	116	403	14100	53	21	13	147
18	3.4	2.0	106	60	135	115	271	14600	92	18	9.6	755
19	3.3	6.0	92	58	120	104	201	11600	66	15	8.6	196
20	3.3	5.5	77	56	1500	94	162	6930	50	14	7.7	78
21	3.3	4.1	66	56	11900	87	144	3250	41	14	6.4	40
22	3.3	4.1	62	56	7740	84	142	6380	35	13	5.6	32
23	3.3	4.8	59	56	4240	81	328	4770	32	12	5.0	126
24	3.3	8.0	57	55	1310	84	954	2110	27	11	4.6	71
25	3.2	23	53	54	725	86	859	1100	25	10	4.1	44
26	3.2	64	48	92	569	455	506	755	24	9.6	3.8	33
27	3.2	180	1450	157	443	1020	306	948	38	9.1	3.2	26
28	3.2	570	2700	230	343	692	218	774	399	8.6	3.3	19
29	3.2	520	1400	205	---	530	174	609	918	8.1	3.0	15
30	3.2	440	770	180	---	341	148	431	1210	7.5	2.3	12
31	9.8	---	386	631	---	262	---	345	---	7.4	1.8	---
TOTAL	170.9	2166.8	20893	4762	63090	14250	11046	104770	4658	1911.3	362.4	1609.18
MEAN	5.51	72.2	674	154	2253	460	368	3380	155	61.7	11.7	53.6
MAX	16	570	5280	631	11900	2920	1750	14600	1210	481	57	755
MIN	3.2	2.0	48	54	120	81	100	65	24	7.4	1.8	.35
AC-FT	339	4300	41440	9450	125100	28260	21910	207800	9240	3790	719	3190

CAL YR 1982	TOTAL 397373.7	MEAN 1089	MAX 18200	MIN 2.0	AC-FT 788200				
WTR YR 1983	TOTAL 229689.58	MEAN 629	MAX 14600	MIN .35	AC-FT 455600				

RED RIVER BASIN

07334200 BYRD'S MILL SPRING NEAR FITTSTOWN, OK

LOCATION.--Lat 34°35'45", long 96°39'55", in SW 1/4 SW 1/4 sec.34, T.2 N., R.6 E., Pontotoc County, Hydrologic Unit 11140104, upstream from weir outlet of spring, 0.5 mi (0.8 km) upstream from Big Spring Creek, 2.0 mi (3.2 km) west of Fittstown, and 12.0 mi (19.3 km) south of Ada.

PERIOD OF RECORD.--April 1959 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 1,021.17 ft (311.253 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Records do not include diversion of about 6 to 10 ft^3/s (0.17 to 0.28 m^3/s) by city of Ada for municipal water supply, a part of which is discharged as effluent to Sandy Creek, tributary to Canadian River. Records of zero flow do not include seepage of up to 0.10 ft^3/s (0.003 m^3/s).

AVERAGE DISCHARGE.--24 years, 7.23 ft^3/s (0.205 m^3/s), 5,240 acre-ft/yr (6.46 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30 ft^3/s (0.85 m^3/s) May 30, 1960, gage height, 3.22 ft (0.981 m); no flow at times in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20 ft^3/s (0.57 m^3/s) June 29, gage height, 3.15 ft (0.960 m); minimum daily discharge, 3.2 ft^3/s (0.091 m^3/s) Jan. 26 and Sept 13-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	6.0	4.9	6.2	8.0	11	9.0	9.5	18	14	7.0	4.5
2	6.2	6.0	5.9	6.0	8.1	11	9.0	9.3	17	14	7.2	4.3
3	6.2	5.8	7.4	5.9	8.4	11	9.0	9.0	16	14	7.2	4.1
4	6.2	5.8	9.1	5.8	8.6	11	9.0	9.0	16	14	7.2	4.3
5	6.2	5.8	7.9	5.7	8.6	11	8.7	9.0	16	14	7.3	4.1
6	6.2	5.8	7.7	5.6	9.0	11	8.6	9.0	16	14	7.1	4.1
7	6.2	5.8	7.6	5.5	9.0	11	8.6	9.0	16	14	6.9	3.8
8	6.2	6.1	7.7	5.4	9.5	11	8.6	9.0	16	13	6.9	3.7
9	6.1	6.0	7.7	5.3	9.5	11	8.6	9.0	16	13	6.7	3.7
10	6.0	5.9	7.7	5.2	9.5	9.7	8.6	9.0	16	13	6.6	3.6
11	5.8	5.9	7.7	5.0	9.5	9.0	8.7	9.0	16	13	6.6	3.4
12	6.2	5.7	7.7	4.9	9.5	9.0	9.0	9.0	16	13	6.6	3.4
13	6.2	5.5	7.7	4.8	9.7	9.0	9.0	9.0	16	13	6.6	3.2
14	6.2	5.5	7.6	4.7	10	8.9	9.0	12	16	13	6.2	3.2
15	5.9	5.8	7.7	4.6	10	8.6	9.0	12	15	13	6.1	3.2
16	5.8	5.8	7.5	4.5	10	8.6	9.0	12	15	13	5.9	3.2
17	5.8	5.8	7.6	4.3	10	8.1	9.0	12	15	13	5.8	5.3
18	5.9	5.7	7.5	4.2	10	6.6	9.0	13	15	12	5.8	5.4
19	6.2	5.5	7.3	4.1	10	7.7	9.5	14	14	12	5.9	5.5
20	6.2	5.5	7.3	4.0	10	8.6	9.5	14	15	11	5.8	5.5
21	6.0	5.5	7.3	3.9	10	8.6	9.5	14	13	11	5.6	5.5
22	5.9	5.5	7.2	3.8	10	8.6	9.5	15	13	11	5.0	5.3
23	5.8	5.5	6.9	3.7	10	8.6	9.2	16	12	11	3.3	5.2
24	5.8	5.4	6.9	3.6	11	8.6	9.0	16	12	11	4.4	5.2
25	6.0	5.5	6.9	3.6	11	8.8	9.0	16	12	11	5.3	5.2
26	6.2	5.3	6.8	3.2	11	9.0	9.4	17	12	11	5.3	5.2
27	6.2	5.5	6.7	4.1	11	9.0	9.2	17	14	9.4	5.0	5.2
28	6.2	5.5	6.6	6.4	11	9.0	9.0	17	15	6.7	4.7	5.1
29	6.1	5.5	6.5	6.9	---	9.0	9.0	17	14	6.7	4.6	4.9
30	6.0	5.4	6.4	6.9	---	9.0	9.5	17	14	6.9	4.6	4.8
31	5.9	---	6.3	7.1	---	9.0	---	18	---	6.9	4.7	---
TOTAL	188.0	170.3	223.7	154.9	271.9	290.0	270.7	386.8	447	365.6	183.9	133.1
MEAN	6.06	5.68	7.22	5.00	9.71	9.35	9.02	12.5	14.9	11.8	5.93	4.44
MAX	6.2	6.1	9.1	7.1	11	11	9.5	18	18	14	7.3	5.5
MIN	5.8	5.3	4.9	3.2	8.0	6.6	8.6	9.0	12	6.7	3.3	3.2
AC-FT	373	338	444	307	539	575	537	767	887	725	365	264

CAL YR 1982	TOTAL	3681.7	MEAN	10.1	MAX	15	MIN	4.9	AC-FT	7300
WTR YR 1983	TOTAL	3085.9	MEAN	8.45	MAX	18	MIN	3.2	AC-FT	6120

RED RIVER BASIN

07335000 CLEAR BOGGY CREEK NEAR CANEY, OK

LOCATION.--Lat 34°15'09", long 96°12'19", in NW 1/4 SE 1/4 sec.36, T.3 S., R.10 E., Atoka County, Hydrologic Unit 11140104, on downstream side of left pier of bridge on old U.S. Highways 69 and 75, 0.5 mi (0.8 km) downstream from Caney Creek, 1.5 mi (2.4 km) north of Caney, and at mile 24.1 (38.8 km).

DRAINAGE AREA.--720 mi^2 (1,865 km^2).

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 485.05 ft (147.843 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 13, 1945, nonrecording gage at same site and datum.

REMARKS.--Records good.

COOPERATION.--Gage-height record and 19 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--41 years, 487 ft^3/s (13.79 m^3/s), 9.18 in/yr (233 mm/yr), 352,800 acre-ft/yr (435 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft^3/s (1,510 m^3/s) Oct. 14, 1981, gage height, 26.60 ft (8.108 m) maximum gage height 26.77 (8.159 m) Dec. 11, 1946; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 26.9 ft (8.20 m) occurred in February 1938, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft^3/s (127 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Feb. 1	1000	4,620	131	19.71	6.008	May 17	0700	*11,600	329	*23.13	7.050

Minimum daily discharge 5.6 ft^3/s (0.16 m^3/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	37	48	111	4040	225	189	106	827	555	24	11
2	17	33	56	105	4290	208	171	125	750	297	21	11
3	17	24	55	114	3780	189	150	152	632	179	19	10
4	16	22	36	137	1720	294	134	93	552	141	18	9.1
5	16	21	24	153	1180	489	127	76	484	120	20	8.9
6	18	18	21	127	893	564	120	65	447	103	21	8.6
7	18	17	21	103	677	371	116	57	444	103	20	8.2
8	20	17	18	86	559	270	120	47	365	87	22	7.8
9	26	17	16	76	433	220	110	42	329	71	22	7.3
10	20	17	19	70	364	189	105	42	295	62	18	7.5
11	18	18	80	66	311	161	103	45	266	57	19	7.5
12	17	20	45	60	265	146	111	42	243	51	28	7.2
13	17	20	31	56	226	134	484	39	229	46	25	6.6
14	16	20	27	52	207	130	867	2220	341	50	26	6.3
15	17	20	26	48	194	128	834	4990	333	47	21	5.6
16	17	22	24	47	177	130	450	6050	199	47	22	12
17	17	23	22	46	153	152	310	10300	159	48	22	10
18	17	23	20	43	135	130	240	5960	131	50	19	49
19	17	23	18	42	123	115	200	4470	116	52	19	58
20	17	21	17	42	517	109	181	4540	104	48	19	34
21	17	21	17	44	2960	102	169	3400	96	43	17	26
22	17	21	16	45	1860	101	169	4670	94	39	15	22
23	17	25	16	48	1130	99	261	4770	95	35	15	18
24	16	25	16	50	730	104	291	3060	81	34	19	17
25	16	23	16	48	463	103	252	1960	71	31	20	18
26	17	37	16	50	369	532	198	1740	71	31	19	17
27	17	81	134	53	302	482	161	2510	173	31	17	16
28	16	57	234	53	252	488	139	1700	1060	29	14	16
29	17	113	403	57	---	292	121	1340	2190	28	11	14
30	19	96	218	61	---	229	111	1120	1060	26	11	12
31	30	---	132	312	---	200	---	904	---	25	11	---
TOTAL	554	932	1842	2405	28310	7086	6994	66635	12237	2566	594	461.6
MEAN	17.9	31.1	59.4	77.6	1011	229	233	2150	408	82.8	19.2	15.4
MAX	30	113	403	312	4290	564	867	10300	2190	555	28	58
MIN	16	17	16	42	123	99	103	39	71	25	11	5.6
CFSM	.02	.04	.08	.11	1.40	.32	.32	2.99	.57	.11	.03	.02
IN.	.03	.05	.10	.12	1.46	.37	.36	3.44	.63	.13	.03	.02
AC-FT	1100	1850	3650	4770	56150	14060	13870	132200	24270	5090	1180	916

CAL YR 1982	TOTAL	227207	MEAN	622	MAX	10900	MIN	16	CFSM	.86	IN.	11.74	AC-FT	450700
WTR YR 1983	TOTAL	130616.6	MEAN	358	MAX	10300	MIN	5.6	CFSM	.50	IN.	6.75	AC-FT	259100

RED RIVER BASIN

07335300 MUDDY BOGGY CREEK NEAR UNGER, TX

LOCATION.--Lat 34°01'30", long 95°45'04", in NW 1/4 NE 1/4 sec.20,T.6 S., R.15 E., Choctaw County, Hydrologic Unit 11140103, at bridge on U.S. Highway 70, 3.5 mi (5.6 km) west of Soper, 1.8 mi (2.9 km) east of Unger and at mile 18.6 (29.9 km).

DRAINAGE AREA.--2,273 mi^2 (5,887 km^2), Corps of Engineers.

PERIOD OF RECORD.--August 25, 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 392.72 ft (119.701 m) National Geodetic Vertical Datum of 1929. Auxiliary gage 7.4 mi (11.9 km) downstream.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,300 ft^3/s (603 m^3/s) May 20, 1983, gage height, 42.79 ft (13.042 m); minimum daily, 5.1 ft^3/s (0.14 m^3/s) Sept. 14, 1983.

EXTREMES FOR CURRENT PERIOD.--Aug. 25, 1982 to Sept. 30, 1983; maximum discharge, 21,300 ft^3/s (603 m^3/s) May 20, 1983, gage height, 42.79 ft (13.042 m); minimum daily, 5.1 ft^3/s (0.14 m^3/s) Sept. 14, 1983.

DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE
AUG 25	52	SEPT 1	42	8	36	15	32	22	35	29	33
26	49	2	47	9	33	16	31	23	35	30	33
27	49	3	50	10	33	17	33	24	35		
28	47	4	44	11	34	18	35	25	33		
29	47	5	41	12	36	19	36	26	33		
30	47	6	40	13	34	20	37	27	33		
31	45	7	39	14	33	21	35	28	33		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	38	481	745	3430	962	722	373	1600	3500	58	22
2	33	1720	1290	565	6760	829	640	992	1280	1830	60	20
3	31	634	6560	579	7940	727	582	1560	1080	854	59	18
4	31	182	7400	632	8820	1920	520	1520	935	528	89	16
5	30	97	4540	532	9320	4290	470	779	848	1490	85	14
6	34	65	1790	492	8670	4100	427	478	851	1360	70	12
7	91	52	652	466	6050	3330	396	339	795	668	63	10
8	78	44	424	415	2550	2170	362	268	711	351	61	9.0
9	78	42	323	373	1880	1340	323	221	570	255	60	8.6
10	52	40	334	336	1620	1000	313	192	443	205	58	8.1
11	52	39	1590	298	1370	862	295	289	370	188	56	7.6
12	60	39	2350	245	1170	677	287	604	322	167	55	6.7
13	49	39	1640	224	980	566	278	487	288	153	105	5.9
14	42	39	854	214	820	518	861	1970	261	148	77	5.1
15	38	40	530	203	705	487	2840	7010	282	136	72	5.5
16	36	40	424	189	628	487	2490	8710	517	148	62	10
17	33	40	343	176	557	456	1530	11700	358	150	63	12
18	31	40	289	168	493	517	868	15800	268	135	61	15
19	31	44	247	164	444	469	630	18900	244	123	52	591
20	30	46	220	165	1780	416	547	21000	239	115	48	351
21	30	46	197	167	7860	378	472	20100	203	109	44	183
22	30	45	181	167	9110	347	546	17600	176	102	40	131
23	29	44	179	162	11300	327	588	15500	160	95	38	91
24	29	44	341	161	11800	333	831	13700	161	89	35	94
25	29	42	324	159	9870	359	1390	11700	158	83	31	127
26	28	118	261	165	6260	1260	1270	9830	143	78	28	95
27	28	1270	2340	211	1990	2470	893	8720	165	73	28	72
28	28	1280	4890	311	1180	2250	631	6850	719	70	28	60
29	30	934	3890	359	---	1670	500	4180	2330	66	25	52
30	33	589	2290	332	---	1190	421	2730	3370	63	23	46
31	33	---	1470	434	---	900	---	2020	---	61	23	---
TOTAL	1220	7732	48644	9809	125357	37607	22923	206122	19847	13393	1657	2098.5
MEAN	39.4	258	1569	316	4477	1213	764	6649	662	432	53.5	70.0
MAX	91	1720	7400	745	11800	4290	2840	21000	3370	3500	105	591
MIN	28	38	179	159	444	327	278	192	143	61	23	5.1

WTR YR 1983 TOTAL 496409.5 MEAN 1360 MAX 21000 MIN 5.1

RED RIVER BASIN

07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.--Lat 33°52'32", long 95°30'08", in NW 1/4 sec.11,T.8 S., R.17 E., Choctaw County, Okla., Hydrologic Unit 11140101, on right downstream bank at end of bridge on U.S. Highway 271 at Arthur City, 10.6 mi (17.1 km) downstream from Muddy Boggy River, 26.0 mi (41.8 km) upstream from Kiamichi River, and at mile 633.1 (1,018.7 km).

DRAINAGE AREA.--44,531 mi^2 (115,335 km^2), of which 5,936 mi^2 (15,374 km^2) is probably noncontributing.

PERIOD OF RECORD.--January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1241: Drainage area. WSP 1311: 1906-11.

GAGE.--Water-stage recorder. Datum of gage is 380.07 ft (115.845 m) National Geodetic Vertical Datum of 1929. 1905-11, nonrecording gage at St. Louis-San Franciso Railway Co. bridge 200 ft (61.0 m) upstream at same datum. July 1, 1936, to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi (149.3 km) above station.

COOPERATION.--Gage-height record and 17 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Denison Dam) 13 years, (water years 1906-11, 1937-43) 9,266 ft^3/s (262.4 m^3/s) 6,713,000 acre-ft/yr (8.28 km^3/yr); (since regulation of Denison Dam) 39 years, (water years 1945-83), 7,852 ft^3/s (222.4 m^3/s), 5,689,000 acre-ft/yr (7.01 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 400,000 ft^3/s (11,300 m^3/s) May 28, 1908, gage height, 43.2 ft (13.17 m) from rating curve extended about 41,000 ft^3/s (1,160 m^3/s) on basis of records for later years; minimum, 130 ft^3/s Dec. 11, 12, 1956, gage height, 4.49 ft (1.369 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40,900 ft^3/s (1,160 m^3/s) Feb. 22, gage height, 16.23 ft (4.947 m); minimum daily, 223 ft^3/s (6.32 m^3/s) Nov. 13,16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3190	2700	2350	6740	4680	5000	9840	6320	16500	27800	4220	1760
2	2710	3610	1820	3700	18400	4640	6270	6010	13500	22100	3600	3030
3	1930	13600	12300	2630	17800	3740	4930	6720	12700	16100	4400	2520
4	2290	7970	19000	2560	15200	8170	5970	7590	12600	12200	3000	961
5	1730	3660	15500	2700	12000	13400	5450	6170	14400	13600	2440	839
6	1870	2670	8580	4050	11400	12200	6260	6150	12600	22000	2020	1210
7	2450	1900	3750	4400	9850	9020	6810	3310	12900	18600	2910	1710
8	3540	1330	2290	5220	5840	6410	5770	2420	10600	13200	2690	1450
9	2190	594	2470	4340	3970	4680	4390	1700	7620	10000	1700	1770
10	2250	366	2610	4180	4280	4230	3290	1400	7090	7130	1870	820
11	2400	278	5740	2740	3660	4360	3000	1180	6830	7050	2750	841
12	805	265	11800	2630	2860	3480	2830	2360	6740	6410	2610	599
13	527	223	11000	4020	2460	2950	2730	2490	6610	7410	2140	457
14	1650	587	7830	4100	2010	2890	2180	2650	6850	6460	2600	2030
15	1710	469	7510	3000	1650	2620	5120	11600	11500	6300	3110	2530
16	636	223	5690	1850	1440	2640	6040	15600	15700	6210	2950	926
17	343	350	3130	1430	1440	4000	5100	15900	9330	5960	3000	592
18	1010	1200	4320	1620	2480	5140	3000	19100	8420	5470	3700	2260
19	543	675	3160	1170	2420	6650	2080	20800	8880	5320	3270	2640
20	1460	465	2250	2700	4550	7500	3750	28800	8840	6460	2870	1580
21	2610	435	1570	3120	34400	7490	6310	32800	8600	6790	2680	1210
22	1730	1720	1170	3010	39400	8220	6270	35100	8220	6850	2240	2040
23	956	1380	1010	2130	28200	7780	6230	33800	8240	6640	2680	1760
24	2110	893	2090	1210	18900	8570	4860	30800	7380	6370	3100	1820
25	1980	1260	2540	1240	15800	8510	3260	33700	6050	5270	2360	2200
26	601	1840	1960	2120	14200	8320	2800	33700	5340	6390	2870	1500
27	624	3450	5190	2430	9440	14100	3530	35500	3960	6900	4380	706
28	2700	7840	14200	2380	5730	14800	4720	33500	4970	6370	3370	2170
29	3850	7860	15300	3110	---	10900	7130	22900	28400	6140	2670	3320
30	3720	4820	11000	3060	---	9770	7370	18400	37000	6620	2140	2930
31	3850	---	8070	1960	---	10500	---	17200	---	6550	968	---
TOTAL	59965	74633	197200	91550	294460	222680	147290	495670	328370	296670	87308	50181
MEAN	1934	2488	6361	2953	10520	7183	4910	15990	10950	9570	2816	1673
MAX	3850	13600	19000	6740	39400	14800	9840	35500	37000	27800	4400	3320
MIN	343	223	1010	1170	1440	2620	2080	1180	3960	5270	968	457
AC-FT	118900	148000	391100	181600	584100	441700	292100	983200	651300	588400	173200	99530

CAL YR 1982 TOTAL 4983024 MEAN 13650 MAX 128000 MIN 223 AC-FT 9884000
WTR YR 1983 TOTAL 2345977 MEAN 6427 MAX 39400 MIN 223 AC-FT 4653000

RED RIVER BASIN

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK
(Hydrologic bench-mark station)

LOCATION.--Lat 34°38'18", long 94°36'45", in SW 1/4 SE 1/4 sec.18, T.2 N., R.26 E., LeFlore County, Hydrologic Unit 11140105, in Ouachita National Forest, on downstream side of right bank pier of bridge on State Highway 63, 0.2 mi (0.3 km) upstream from Rattlesnake Creek, 1.1 mi (1.8 km) upstream from Big Branch, 2.1 mi (3.4 km) east of Big Cedar, and at mile 157.6 (253.6 km).

DRAINAGE AREA.--40.1 mi^2 (103.9 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 886.97 ft (270.348 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

AVERAGE DISCHARGE.--18 years, 91.8 ft^3/s (2.600 m^3/s), 25.74 in/yr (654 mm/yr), 55,062 acre-ft/yr (67.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft^3/s (609 m^3/s) Dec. 10, 1971, gage height, 17.08 ft (5.206 m); from rating curve extended above 9,000 ft^3/s (255 m^3/s); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (56.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Dec. 2	1915	*12,700	360	*15.57	4.746	May 14	1915	2,600	73.6	9.79	2.984
Mar. 4	1600	5,570	158	12.25	3.734	May 18	1245	3,340	94.6	10.71	3.264
May 2	2100	7,380	209	13.25	4.039	June 29	0145	2,370	67.1	9.68	2.950

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.29	76	89	134	46	90	306	33	97	1.2	.00
2	.00	46	3200	85	119	40	246	1400	27	86	.97	.00
3	.00	28	2470	73	98	37	162	807	28	64	.80	.00
4	.00	14	453	62	83	1500	139	288	54	47	.64	.00
5	.00	9.6	227	55	78	553	163	187	37	74	.53	.00
6	.00	7.4	141	49	72	277	139	138	35	56	.46	.00
7	.00	6.2	105	45	61	180	115	110	31	42	.42	.00
8	.00	5.3	82	42	55	136	98	87	24	32	.56	.00
9	.00	4.5	67	38	54	109	82	73	19	25	.46	.00
10	.00	4.4	69	35	53	90	74	81	15	19	.34	.00
11	.00	4.1	215	31	49	75	62	169	12	15	.27	.00
12	.00	4.6	175	27	45	65	54	162	10	11	.28	.00
13	.00	4.0	133	26	43	57	84	134	8.6	8.8	.96	.00
14	.00	3.6	107	23	40	51	91	1060	7.5	7.7	.83	.00
15	.00	3.6	85	20	37	45	80	677	6.7	6.8	.42	.00
16	.00	3.6	68	19	34	39	73	290	5.7	6.3	.26	.00
17	.00	3.6	57	18	31	35	66	173	4.6	6.3	.19	.00
18	.00	3.6	50	17	28	32	59	1250	3.8	9.4	.12	.00
19	.00	4.7	43	17	26	28	53	445	3.2	6.3	.06	.00
20	.00	5.8	37	17	23	31	49	219	2.6	7.6	.01	.00
21	.00	5.5	32	16	64	26	44	201	2.2	5.0	.00	.00
22	.00	6.1	30	15	170	22	55	168	1.9	4.0	.00	.00
23	.00	21	128	14	135	20	287	123	1.8	3.3	.00	.00
24	.00	14	819	13	111	18	166	95	1.5	2.7	.00	.00
25	.00	9.7	377	12	88	17	125	75	1.4	2.2	.00	.00
26	.00	118	198	19	72	36	101	61	3.0	1.9	.00	.00
27	.00	921	471	24	62	37	82	51	2.3	1.6	.00	.00
28	.05	285	326	21	54	32	70	69	8.5	1.4	.00	.00
29	.20	141	191	26	---	31	62	52	671	1.2	.00	.00
30	.25	96	139	27	---	39	467	43	154	1.2	.00	.00
31	.26	---	109	48	---	37	---	42	---	1.3	.00	---
TOTAL	.76	1784.19	10680	1023	1919	3741	3438	9036	1215.3	653.0	9.78	.00
MEAN	.02	59.5	345	33.0	68.5	121	115	291	40.5	21.1	.32	.00
MAX	.26	921	3200	89	170	1500	467	1400	671	97	1.2	.00
MIN	.00	.29	30	12	23	17	44	42	1.4	1.2	.00	.00
CFSM	.00	1.48	8.60	.82	1.71	3.02	2.87	7.26	1.01	.53	.01	.00
IN.	.00	1.66	9.91	.95	1.78	3.47	3.19	8.38	1.13	.61	.01	.00
AC-FT	1.5	3540	21180	2030	3810	7420	6820	17920	2410	1300	19	.00

CAL YR 1982	TOTAL	40881.60	MEAN	112	MAX	5960	MIN	.00	CFSM	2.79	IN.	37.93	AC-FT	81090
WTR YR 1983	TOTAL	33500.03	MEAN	91.8	MAX	3200	MIN	.00	CFSM	2.29	IN.	31.08	AC-FT	66450

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AGENCY ANALYZING SAMPLE (CODE NUMBER)	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
23...	1200	80020	27	26	--	13.5	4.0	10.2	101	K520	1200
MAR											
22...	1200	80020	22	22	6.2	7.0	4.7	12.5	106	K0	K17
MAY											
04...	1300	80020	298	21	5.5	15.0	6.0	11.1	115	72	120
JUL											
12...	1000	80020	12	26	5.4	24.5	5.2	7.6	94	K33	410

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV											
23...	6	0	1.0	.80	2.1	39	.4	1.1	10	<5.0	2.4
MAR											
22...	5	0	1.0	.69	1.9	40	.4	.70	10	4.2	2.1
MAY											
04...	4	0	.75	.62	1.6	40	.3	.60	7.0	4.0	1.3
JUL											
12...	6	0	1.0	.80	1.9	38	.4	.70	8.0	3.1	2.9

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
NOV											
23...	<.10	7.8	26	.04	<.100	<.060	.08	.50	.040	.12	.010
MAR											
22...	<.10	8.0	30	.04	<.100	<.060	.08	.60	.020	.06	.010
MAY											
04...	<.10	8.5	20	.03	<.100	<.060	--	.20	.030	.09	.020
JUL											
12...	<.10	7.6	24	.03	<.100	.060	.08	.70	.020	.06	.020

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV											
23...	<.010	--	90	<1	18	<.5	<1	<1	<3	2	160
MAR											
22...	.020	.06	--	--	--	--	--	--	--	--	--
MAY											
04...	<.010	--	100	<1	12	<.5	<1	<1	<3	1	85
JUL											
12...	.020	.06	--	--	--	--	--	--	--	--	--

RED RIVER BASIN

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV											
23...	2	6	6	<.1	<10	1	<1	<1	9	<6	20
MAR											
22...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	<1	11	4	.1	<10	6	<1	<1	8	<6	6
JUL											
12...	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV										
23...	--	--	--	--	--	--	--	--	--	--
MAR										
22...	--	--	--	--	--	--	--	--	--	--
MAY										
04...	<.9	<.4	.9	<.4	.8	<.4	<.03	.05	--	--
JUL										
12...	--	--	--	--	--	--	--	--	4	68

RED RIVER BASIN

07335775 SARDIS LAKE NEAR CLAYTON, OK

LOCATION.--Lat 34°37'45", long 95°21'03", in NE 1/4 SW 1/4 sec.19. T.2 N, R.19 E., Pushmataha County, Hydrologic Unit 11140105, on the northeast end of parking area on top of dam, 2.5 mi (4.0 km) north of Clayton, and at mile 2.8 (4.5 km).

DRAINAGE AREA.--275 mi^2 (712 km^2).

PERIOD OF RECORD.--December 27, 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth dam. The controlled outlet consists of two sluice gates and the uncontrolled outlet is a concrete spillway. Flow was diverted through control structure May 4, 1981; regulated storage began Dec. 27, 1982. Capacity, 792,100 acre-ft (977 hm^3) at elevation 624.0 ft (190.20 m), maximum pool; 505,100 acre-ft (623 hm^3), at elevation 611.0 ft (186.23 m), spillway crest; 430,600 acre-ft (531 hm^3), top of flood pool; 302,400 acre-ft (373 hm^3), top of conservation pool. Figures given herein represent total contents. Reservoir is designed for flood control, water supply, water quality control and conservation. Capacity table used since Dec. 27, 1982.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.--Dec. 27 to Sept. 30; maximum contents, 197,200 acre-ft (243 hm^3) July 1, elevation 592.73 ft (180.664 m).

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	16100	28590	63970	88000	119900	195000	196600	186600	180500
2			---	16680	31070	64140	88280	122200	195700	196600	186300	180000
3			---	17160	32000	64310	88760	124500	196000	196000	186100	179800
4			---	17370	32860	72380	89100	125300	196800	196200	185800	179600
5			---	17570	33780	77130	90010	125700	196800	195800	185700	179300
6			---	17940	34570	78860	90010	125500	196700	195600	185200	179300
7			---	18320	34990	80030	90140	126900	196700	195000	184800	178900
8			---	18570	35680	80680	90350	126700	169800	194600	185900	178600
9			---	18880	36540	81210	90840	126500	196600	194300	185900	178400
10			---	19210	37170	81600	91120	126900	196600	193900	185700	178200
11			---	19340	37780	81670	91470	127200	196600	193600	185400	178400
12			---	19340	38180	82130	91610	127500	196700	193300	184800	178200
13			---	19480	38470	82530	95950	127800	196800	193300	184700	177700
14			---	19610	38840	82660	97680	145400	196700	192800	184200	177400
15			---	19610	39250	82860	98630	154100	196600	192700	183800	177300
16			---	19740	39500	83330	99290	156200	196600	192400	183500	177300
17			---	19870	39540	83190	100100	157200	196500	192400	183000	177300
18			---	20010	39590	83060	100200	174900	196300	192300	182700	177200
19			---	20140	39590	82930	100300	177500	196200	191900	182500	176900
20			---	20220	43690	83390	100400	178500	196000	191600	182200	177000
21			---	20330	55080	83330	100800	181800	195900	191300	182300	176600
22			---	20360	58470	83130	103100	186100	195700	190800	182000	176300
23			---	20490	60160	83060	106900	187300	195300	190200	181800	176300
24			---	20600	61100	82990	108000	187700	195000	189900	181500	176000
25			---	20660	61990	83060	108900	188300	194700	189200	181400	176000
26			---	20960	62490	84740	109300	189800	195200	188700	181200	176100
27			8060	21070	63060	85000	109800	191100	195000	188300	181100	175800
28			12390	21210	63570	85280	110000	193600	196400	187800	181000	175600
29			13830	21690	---	85480	110600	194400	196900	187300	180800	175500
30			15070	21920	---	86020	118200	194300	197000	186900	180800	175400
31			15530	23340	---	86360	---	194800	---	186600	180500	---
MAX			---	23340	63570	86360	118200	194800	197000	196600	186600	180500
MIN			---	16100	28590	63970	88000	119900	169800	186600	180500	175400
†			564.13	567.13	576.60	580.25	584.52	592.52	592.72	591.77	591.19	590.71
††			---	+7,810	+40,230	+22,790	+31,840	+76,600	+2,200	-10,400	-6,100	-5,100

† Elevation, in feet, at end of month
†† Change in contents, in acre-ft

RED RIVER BASIN

07335790 KIAMICHI RIVER NEAR CLAYTON, OK

LOCATION.--Lat 34°34'30", long 95°20'26", in NE 1/4 SE 1/4 sec. 7, T.1 N., R.19 E., Pushmataha County, Hydrologic Unit 11140105, on left bank near downstream bridge abutment on U.S. Highway 271 approximately 1 mile southeast of Clayton at mile 101.6.

DRAINAGE AREA.--708 mi^2 (1833.7 km^2).

PERIOD OF RECORD.--Nov. 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 520.00 ft (158.496 m).

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft^3/s (702 m^3/s) June 7, 1981, gage geight 20.21 ft (6.160 m); minimum daily discharge 0.54 ft^3/s (0.015 m^3/s) Oct. 4-6, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 14,400 ft^3/s (408 m^3/s) Dec.4, gage height 14.61 ft (4.453 m), minimum daily discharge 0.36 ft^3/s (0.010 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	3.3	580	677	1040	357	252	2760	650	454	104	2.0
2	.62	271	2460	594	1060	313	562	5020	427	390	9.1	2.8
3	.55	516	10300	930	785	281	980	11900	327	321	8.1	3.5
4	.54	174	13700	678	590	1130	726	7480	2500	307	51	3.9
5	.54	123	6600	505	532	5190	625	1640	964	276	54	4.1
6	.54	77	3690	543	610	2690	620	1060	642	291	54	4.3
7	2.9	54	3070	386	638	1330	566	783	533	268	54	4.3
8	5.5	40	2610	367	507	964	480	585	366	244	63	4.2
9	17	30	1900	347	476	759	422	429	276	214	64	3.6
10	14	24	1060	316	632	603	383	349	220	195	144	3.2
11	14	22	2230	279	556	496	347	379	183	183	114	3.2
12	12	34	2650	243	426	423	307	460	156	171	83	3.0
13	8.8	28	1640	213	366	375	789	439	134	167	72	2.9
14	7.5	25	1140	196	332	335	2390	4670	114	235	91	2.8
15	7.5	20	857	179	305	305	1180	7420	97	311	94	2.7
16	6.8	20	654	161	278	270	843	3040	84	212	75	2.7
17	5.4	16	507	150	250	238	641	1480	74	185	50	2.9
18	5.2	16	456	143	227	213	514	6910	63	171	7.8	2.4
19	5.0	16	383	137	206	202	422	10600	54	156	5.1	1.8
20	4.5	16	331	137	598	188	368	2900	46	146	4.5	1.7
21	3.9	16	304	137	1820	181	334	1650	41	140	4.1	1.9
22	3.9	14	269	134	1730	171	385	2030	71	135	3.5	1.6
23	3.9	13	245	125	1290	156	2790	1320	155	134	3.1	.92
24	3.5	13	2790	116	947	146	1980	861	158	131	2.7	.82
25	2.7	11	4840	110	751	133	1070	633	161	131	2.5	.68
26	2.5	59	1880	109	584	185	765	559	212	131	2.2	.63
27	2.0	3720	3460	153	475	430	601	3610	204	131	2.2	.59
28	1.9	5980	5200	195	405	372	505	1530	266	127	2.0	.50
29	3.0	1890	2030	195	---	273	436	1660	593	125	1.9	.44
30	3.7	891	1210	195	---	250	1730	1170	1210	123	1.9	.36
31	3.7	---	878	226	---	250	---	822	---	123	1.7	---
TOTAL	154.19	14132.3	79924	8876	18416	19209	24013	86149	10981	6328	1229.4	70.44
MEAN	4.97	471	2578	286	658	620	800	2779	366	204	39.7	2.35
MAX	17	5980	13700	930	1820	5190	2790	11900	2500	454	144	4.3
MIN	.54	3.3	245	109	206	133	252	349	41	123	1.7	.36
AC-FT	306	28030	158500	17610	36530	38100	47630	170900	21780	12550	2440	140

CAL YR 1982	TOTAL 384040.94	MEAN 1052	MAX 17900	MIN .54	AC-FT 761700			
WTR YR 1983	TOTAL 269482.33	MEAN 738	MAX 13700	MIN .36	AC-FT 534500			

07336200 KIAMICHI RIVER NEAR ANTLERS, OK

LOCATION.--Lat 34°14'55", long 95°36'18", in SW 1/4 sec.35, T.3 S., R.16 E., Pushmataha County, Hydrologic Unit 11140105, on right bank, 50 ft (15.240 m) downstream from bridge on U.S. Highway 271 and State Highway 2, 2.0 mi (3.2 km) northeast of Antlers, 7.7 mi (12.4 km) downstream from Tenmile Creek, 5.4 mi (8.7 km) upstream from Cedar Creek and at mile 59.6 (95.9 km).

DRAINAGE AREA.--1,138 mi^2 (2,947 km^2).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 419.82 ft (127.961 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diversion above station for municipal water supply of city of Antlers.

COOPERATION.--Gage-height record, 11 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--11 years, 1,462 ft^3/s (41.40 m^3/s), 17.44 in/yr (443 mm/yr), 1,059,000 acre-ft/yr (1.31 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) Mar. 28, 1977, gage height, 38.33 ft (11.683 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 18,000 ft^3/s (510 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Dec. 03	2100	19,800	561	22.55	6.877	May 15	0300	*20,800	589	*23.17	7.062
Feb. 21	1100	18,500	524	21.68	6.608						

Minimum daily discharge, 0.54 ft^3/s (0.015 m^3/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	300	910	1240	5160	703	471	3560	999	998	131	3.6
2	1.1	610	2870	1160	4390	615	502	3030	767	505	130	3.0
3	1.2	860	15900	1340	2220	543	933	12300	632	417	121	2.4
4	1.3	270	17500	1310	1450	2420	1120	12600	1250	338	82	2.0
5	1.8	240	13300	983	1190	8000	885	5100	2340	1130	48	1.6
6	2.7	165	5280	807	1300	6680	808	1900	913	388	32	1.4
7	6.2	116	3860	807	1540	2930	777	1210	698	287	31	1.3
8	16	89	3240	625	1280	1870	695	970	572	279	56	1.3
9	25	76	2630	560	1090	1350	613	746	423	247	60	1.2
10	19	56	1860	508	1330	1050	558	673	331	227	82	1.1
11	18	49	3260	455	1300	865	511	1730	276	204	88	.96
12	16	38	4430	402	1000	734	467	1100	235	188	113	.78
13	12	34	2930	356	809	644	598	884	204	199	156	.65
14	9.8	30	1920	319	699	578	3210	9920	183	224	113	.54
15	9.1	26	1370	289	622	520	2790	18100	166	217	93	.55
16	7.8	23	1050	267	551	471	1490	9290	147	398	84	1.5
17	7.1	22	835	250	491	416	1060	3350	129	269	96	1.7
18	6.3	21	693	232	441	374	840	3950	115	212	88	1.9
19	5.9	21	597	220	400	340	688	11600	102	189	85	2.2
20	5.6	19	520	217	1680	317	585	8690	92	172	75	3.8
21	5.0	19	451	216	15800	304	519	3470	81	160	44	7.0
22	4.6	18	399	214	8330	289	511	4940	72	155	29	8.2
23	4.4	17	364	212	3570	277	1630	3290	80	148	21	8.3
24	4.1	17	936	201	2290	268	4130	1810	70	143	15	7.9
25	3.7	26	5510	193	1610	249	2190	1220	140	139	12	7.4
26	3.5	48	3750	302	1230	459	1380	913	171	135	9.7	7.0
27	3.3	1560	7480	798	979	1090	1010	3080	178	134	7.9	6.6
28	3.1	6820	10400	627	818	932	811	2730	476	131	6.9	6.3
29	4.0	4000	5000	548	---	689	676	2280	910	129	5.7	5.9
30	4.8	1560	2480	480	---	554	587	1840	1000	128	5.0	5.5
31	4.6	---	1640	602	---	493	---	1210	---	128	4.1	---
TOTAL	218.0	17150	123365	16740	63570	37024	33045	137486	13752	8618	1924.3	103.58
MEAN	7.03	572	3980	540	2270	1194	1102	4435	458	278	62.1	3.45
MAX	25	6820	17500	1340	15800	8000	4130	18100	2340	1130	156	8.3
MIN	1.0	17	364	193	400	249	467	673	70	128	4.1	.54
CFSM	.01	.50	3.50	.47	1.99	1.05	.97	3.90	.40	.24	.05	.00
IN.	.01	.56	4.03	.55	2.08	1.21	1.08	4.49	.45	.28	.06	.00
AC-FT	432	34020	244700	33200	126100	73440	65540	272700	27280	17090	3820	205

CAL YR 1982	TOTAL 608308.80	MEAN 1667	MAX 29100	MIN .65	CFSM 1.46	IN. 19.88	AC-FT 1207000
WTR YR 1983	TOTAL 452995.88	MEAN 1241	MAX 18100	MIN .54	CFSM 1.09	IN. 14.81	AC-FT 898500

RED RIVER BASIN

07336600 HUGO LAKE NEAR HUGO, OK

LOCATION.--Lat 34°00'42", long 95°22'49", in NW 1/4 SW 1/4 sec.25, T.6 S., R.18 E., Choctaw County, Hydrologic Unit 11140105, on upstream face of Hugo Dam on Kiamichi River, 700 ft (213 m) to left of spillway, 7.0 mi (11.3 km) east of Hugo, and at mile 17.6 (28.3 km).

DRAINAGE AREA.--1,709 mi^2 (4,426 km^2).

PERIOD OF RECORD.--January 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by rolled earth dam. The outlet works consists of a gate-controlled concrete gravity ogee weir with six 40-ft (12.2 m) by 50-ft (15.2 m) gates. Regulated storage began Jan. 18, 1974; conservation pool was first filled Mar. 12, 1974. Total capacity, 1,561,500 acre-ft (1.93 km^3) at elevation 452.5 ft (137.92 m), top of dam, 966,700 acre-ft (1.19 km^3) at elevation 437.5 ft (133.35 m), top of flood control pool. Dead storage 21,080 acre-ft (26.0 hm^3) at elevation 387.5 ft (118.11 m), crest of gated spillway. Figures given herein represent total contents. Reservoir is used for flood control, water supply, recreation and conservation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 577,800 acre-ft (712 hm^3) June 17, 1982, elevation, 425.00 ft (129.540 m); minimum since conservation pool was first filled, 88,860 acre-ft (110 hm^3) Nov. 15, 1978, elevation, 398.47 ft (121.454 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 272,900 acre-ft (336 hm^3) May 17, elevation, 411.88 ft (125.541 m); minimum, 121,100 acre-ft (149 hm^3) Nov. 1, elevation, 401.55 ft (122.392 m).

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

402	126,100	415	334,000
407	192,700	420	447,100
410	239,900	425	577,800

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128000	123200	168500	195100	176400	170600	163500	164600	158900	163100	157700	144000
2	127600	126700	175300	184100	179100	166500	161600	170300	158400	164300	157000	143400
3	127600	127100	214200	172900	171400	162200	161800	186500	161200	164300	156400	142800
4	127100	126600	250300	164900	166500	179200	164100	199000	169200	164200	156100	142200
5	126800	126800	269700	162300	166400	201800	165000	196300	174900	175500	155500	141700
6	127600	126800	269000	162500	166700	213900	163800	185500	173700	176400	155000	140900
7	127500	127200	263900	162200	166800	209900	163900	178800	168500	174600	154300	140500
8	127500	127300	257400	162900	166200	195900	162300	170300	163300	172900	153800	140100
9	127700	127700	248300	163100	165000	180000	162200	163800	159600	170900	153200	139300
10	127200	127600	241800	163400	162500	170600	162300	162200	158800	168700	152700	138900
11	126700	128000	243800	163900	161200	169100	161900	163000	158900	167200	152200	138400
12	126500	128000	241300	163000	159900	168300	161800	160400	158900	166400	149400	138000
13	126100	127300	235400	162300	158000	167500	162200	158000	158800	162500	152800	137700
14	125700	127800	224700	163000	157400	165000	162300	192000	159200	162600	152700	136700
15	125400	126800	209400	161400	158000	160800	162000	247800	158900	163000	152400	137200
16	125100	127000	194100	160800	158100	159700	163300	271000	158800	163300	152000	137100
17	124700	127100	183500	160300	158400	159100	162500	269700	158400	163700	151500	136500
18	124300	126800	178600	159300	159100	158900	161000	259000	158100	164200	150800	136100
19	126000	127300	173300	158900	159600	159700	159500	256400	157700	163500	150400	135700
20	124000	127200	167900	158100	176500	160600	158700	250300	157400	162600	150400	136500
21	123800	127200	161500	158300	237300	160000	159300	235900	157300	161800	150300	135200
22	123300	127200	158800	158700	265200	160100	161500	225700	156900	161000	149800	134600
23	123100	128000	159700	159200	262900	160700	164600	208200	156500	160700	149300	133900
24	122800	126800	163000	159900	248500	161100	172600	187700	156200	160300	148700	133400
25	122400	126700	174400	160000	231800	160700	173700	171800	156200	159900	148300	133000
26	122100	130400	183200	161600	214700	165700	169200	163000	156100	159600	147700	132800
27	121700	142300	206700	162900	198100	167900	164300	162000	156400	159200	147000	132300
28	122200	158100	227800	163400	181000	168000	160800	165000	162000	158800	146400	131700
29	122000	167500	226300	163900	---	166400	160300	164800	165300	158400	145700	131400
30	121700	167500	217600	163500	---	164900	159700	163900	162500	158400	145200	131200
31	121500	---	206600	165200	---	162000	---	162000	---	158100	144700	---
MAX	128000	167500	269700	195100	265200	213900	173700	271000	174900	176400	157700	144000
MIN	121500	123200	158800	158100	157400	158900	158700	158000	156100	158100	144700	131200
†	401.59	405.23	407.93	405.06	406.21	404.83	404.66	404.83	404.86	404.54	403.51	402.41
††	-6,700	+46,000	+39,100	-41,400	+15,800	-19,000	-2,300	+2,300	+500	-4,400	-13,400	-13,500

CAL YR 1982 MAX 577800 MIN 121500, †† +45,000
WTR YR 1983 MAX 271000 MIN 121500, †† +3,000

† Elevation, in feet, at end of month.
†† Change in contents, in acre-feet.

RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Tex.-McCurtain County, Okla. State line, Hydrologic Unit 11140106, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 mi (7.7 km) upstream from North Mill Creek, 13 mi (21 km) north of De Kalb, and at mile 556.9 (896.1 km).

DRAINAGE AREA.--47,348 mi^2 (122,631 km^2), of which 5,936 mi^2 (15,374 km^2) probably is noncontributing.

PERIOD OF RECORD.--December 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 302.92 ft (92.330 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. At times, flood peaks may be affected by storage in Lake Texoma (station 07331500) located approximately 169 mi (272 km) upstream, and low flows may be affected by releases for generation of electric power. Gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years (water years 1969-83), 11,510 ft^3/s (326.0 m^3/s), 8,339,000 acre-ft/yr (10.3 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft^3/s (5,350 m^3/s) Dec. 11, 1971, gage height, 31.55 ft (9.616 m), from graph based on gage readings; minimum, 213 ft^3/s (6.03 m^3/s) Nov. 30, 1979, from graph based on gage readings.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1957, 205,000 ft^3/s (5,800 m^3/s) June 1957, gage height, 32.2 ft (9.81 m), from rating curve extended above 186,500 ft^3/s (5,280 m^3/s). The greatest flood since 1936 occurred in February 1938, stage unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,000 ft^3/s (1,300 m^3/s) May 23 at 1800, gage height, 21.29 ft (6.483 m); minimum, 276 ft^3/s (7.82 m^3/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	936	4010	12400	17900	4780	18700	15300	9450	21500	31900	8130	2240
2	1560	4440	8000	16100	7400	14200	15200	9370	20000	26100	6940	1560
3	3210	4200	19800	13500	23700	9840	10800	10200	16500	22300	5100	2190
4	2770	11000	32100	11600	27100	11600	8100	12300	14200	19400	5050	3160
5	2420	10600	37500	9980	21800	23700	7470	16500	14200	16700	4680	2340
6	2530	5900	33200	7490	16800	28700	7910	17300	15100	17300	3800	1360
7	2450	4110	24000	6270	15800	25700	8100	15700	15700	23800	3330	1100
8	2490	3300	16100	6500	14600	22000	8780	12200	16700	24400	3300	1400
9	3110	2790	12400	6500	12000	21400	8490	9880	15600	17900	4050	1680
10	3600	2110	11100	6330	12700	17900	6700	8680	12100	14700	3440	1580
11	2660	1590	14100	5820	12700	13700	5720	6650	9670	11600	2660	1640
12	2740	1360	19000	5170	11000	9230	5020	5680	8680	9830	2910	1010
13	2470	1050	24500	4150	8830	7290	4680	6670	8350	8970	3810	776
14	1510	907	23800	4680	7540	6550	4760	6890	8170	8940	3540	494
15	1260	712	20600	5140	6450	6350	5560	8920	8110	9190	3170	348
16	2010	1100	19500	4990	5040	6870	6890	12600	9680	8500	3610	1910
17	1950	1170	17400	4120	4540	6500	8080	18400	14900	8330	3900	2490
18	1210	766	12100	3470	4290	5080	7850	21900	12800	8050	3730	1320
19	778	959	9030	3320	4190	4810	6520	28000	10200	7610	3850	720
20	1380	1710	8460	3180	4500	6630	5140	32600	10200	7130	4470	2270
21	976	1450	7220	3120	8330	8040	4920	38100	10500	7420	3960	2820
22	1950	1170	6630	3940	36700	8510	6440	43200	10200	8360	3640	1800
23	2770	2030	5280	3750	44500	8820	8310	45400	10000	8410	3320	1450
24	2100	2770	3770	3520	39800	9050	8140	44400	9760	8170	2950	2040
25	1680	2270	3380	2700	35800	8550	7430	41800	9710	7950	3460	1870
26	2420	2320	4070	2210	32100	9790	6610	41000	8660	7270	3460	2020
27	2230	8700	5930	2280	29700	10800	7670	37900	7930	6810	2920	2300
28	1340	12900	13400	3270	24200	14700	7850	34700	6650	8060	3590	1700
29	1470	12900	25700	3300	---	18800	8520	33400	6980	8090	4700	1100
30	3140	14300	28400	4110	---	16800	8370	29400	21800	7630	3650	2360
31	3990	---	22600	4360	---	15200	---	25200	---	7650	3150	---
TOTAL	67110	124594	501470	182770	476890	395810	231330	684390	364550	388470	122270	51048
MEAN	2165	4153	16180	5896	17030	12770	7711	22080	12150	12530	3944	1702
MAX	3990	14300	37500	17900	44500	28700	15300	45400	21800	31900	8130	3160
MIN	778	712	3380	2210	4190	4810	4680	5680	6650	6810	2660	348
AC-FT	133100	247100	994700	362500	945900	785100	458800	1357000	723100	770500	242500	101300

CAL YR 1982 TOTAL 6586759 MEAN 18050 MAX 128000 MIN 462 AC-FT 13060000
WTR YR 1983 TOTAL 3590702 MEAN 9838 MAX 45400 MIN 348 AC-FT 7122000

RED RIVER BASIN

07337300 PINE CREEK LAKE NEAR WRIGHT CITY, OK

LOCATION.--Lat 34°06'43", long 95°04'46", in NE 1/4 NW 1/4 sec.23, T.5 S., R.21 E., McCurtain County, Hydrologic Unit 11140107, at left of outlet works of dam on Little River, 4.7 mi (7.6 km) upstream from bridge on State Highway 98, 5.0 mi (8.0 km) northwest of Wright City, and at mile 145.3 (233.8 km).

DRAINAGE AREA.--635 mi^2 (1,645 km^2).

PERIOD OF RECORD.--June 1969 to current year. Prior to October 1970, published as Pine Creek Reservoir near Wright City.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by rolled earth dam; regulated storage began June 1, 1969; conservation pool was first filled Jan. 7, 1970. Total capacity, 1,136,000 acre-ft (1.40 km^3) at elevation 509.0 ft (153.14 m), top of dam, 465,800 acre-ft (574 hm^3) at elevation 480.0 ft (146.30 m), crest of spillway, 53,800 acre-ft (66.3 hm^3) at elevation 438.0 ft (133.50 m) top of conservation pool, 7,140 acre-ft (8.80 hm^3) dead storage at elevation 414.0 ft (126.19 m). Figures given herein represent total contents. Reservoir is designed for flood control, municipal and industrial water supply, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 348,410 acre-ft (430 hm^3) Dec. 16, 1971, elevation, 474.57 ft (144.039 m); minimum since conservation pool was first filled, 28,220 acre-ft (34.8 hm^3) Oct. 21, 1972, elevation, 429.34 ft (130.863 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 157,500 acre-ft (194 hm^3) May 19, elevation, 455.61 ft (138.870 m); minimum, 49,500 acre-ft (61.0 hm^3) Nov. 1, elevation, 436.83 ft (133.146 m).

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

436	46,650	445	85,440
439	57,610	448	102,600
442	70,490	462	217,470

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52970	50100	76060	79350	58810	55040	65230	74360	78350	78190	62270	58850
2	52820	50850	73600	74360	58970	55420	65230	76460	75870	79810	62100	58690
3	52710	51070	92550	69060	57250	56040	65230	89750	75230	80880	61890	58490
4	52560	51170	103000	63800	55930	66150	65670	92890	81140	81500	61720	58290
5	52410	51250	107600	59210	56200	78450	66020	91590	83320	89030	61600	58090
6	52630	51500	110200	56040	56660	84480	66020	87870	82590	89860	61470	57930
7	52600	51540	110100	54510	57250	87930	66190	83580	80060	89190	61350	57770
8	52670	51540	104400	54700	57140	88420	66240	78950	77000	87160	61220	57570
9	52630	51570	94790	54700	56470	84110	66190	75280	74030	85010	61640	57330
10	52410	51570	86790	54700	55890	78090	66240	74360	73260	82640	61680	57210
11	52270	51720	85170	54510	55270	72550	66190	75920	73400	80420	61680	57020
12	52120	51570	81960	54240	55080	68250	66460	75720	73500	77990	61600	56820
13	52010	51430	76210	54170	54470	63970	66900	74320	73550	75770	61640	56550
14	51830	51390	68930	54280	54280	60270	67750	113500	73690	73550	61560	56310
15	51680	51250	63200	54200	54620	59050	69060	140900	73790	71890	61510	56120
16	51540	51210	59380	54170	54890	58810	69890	148800	73790	70490	61470	56120
17	51320	51210	57770	54170	54890	59010	70440	155200	73790	69160	61310	55930
18	51270	51210	57510	54050	54930	59210	70910	156200	73790	68200	61020	55690
19	51070	51170	56270	53980	55000	58930	71050	156400	73790	67930	60890	55620
20	50920	51170	55310	53980	55120	60070	71330	149400	73740	67750	60770	55460
21	50780	51170	54770	53980	62520	60310	71470	142800	73690	67530	60600	55270
22	50640	51070	54620	53980	65670	60520	71650	137800	73600	67080	60440	55080
23	50490	50920	54620	54170	64620	60810	73830	130300	73550	66590	60310	54890
24	50310	50810	56780	54280	61470	61100	75920	121700	73450	66240	60150	54730
25	50170	50810	60150	54350	59210	61310	76510	112700	73400	65710	60070	54620
26	49990	51970	62140	54700	57530	62480	75720	103500	73550	65270	59900	54510
27	49890	67710	80680	55620	55650	63290	74650	97470	74120	64490	59740	54320
28	49850	77250	90250	56080	54770	64100	73790	93640	75970	63970	59540	54170
29	49750	80220	91250	56310	---	64580	73500	90520	80930	63370	59380	53980
30	49640	79200	88810	56240	---	65180	73690	86460	79350	62860	59210	53860
31	49570	---	84270	57020	---	65230	---	82480	---	62520	58970	---
MAX	52970	80220	110200	79350	65670	88420	76510	156400	83320	89860	62270	58850
MIN	49570	50100	54620	53980	54280	55040	65230	74320	73260	62520	58970	53860
†	436.85	443.80	444.78	438.85	438.27	440.83	442.68	444.44	443.83	440.20	439.34	438.03
††	-3,550	+29,630	+5,070	+27,250	-2,250	+10,460	+8,460	+8,790	-3,130	-16,830	-3,550	-5,110

CAL YR 1982 MAX 220600 MIN 49570, †† +29,040
WTR YR 1983 MAX 156400 MIN 49570, †† +740

† Elevation, in feet, at end of month.
†† Change in contents, in acre-feet.

RED RIVER BASIN

07337500 LITTLE RIVER NEAR WRIGHT CITY, OK

LOCATION.--Lat 34°04'10", long 95°02'47", in NE 1/4 NW 1/4 sec.6, T.6 S., R.22 E., McCurtain County, Hydrologic Unit 11140107, on left bank on downstream side of bridge on State Highway 98, 1.8 mi (2.9 km) upstream from White Oak Creek, 2.0 mi (3.2 km) west of Wright City, 4.7 mi (97.6 km) downstream from Pine Creek Lake, and at mile 140.6 (226.2 km).

DRAINAGE AREA.--645 mi^2 (1,671 km^2).

PERIOD OF RECORD.--October 1929 to September 1931, October 1944 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 346.76 ft (105.692 m) National Geodetic Vertical Datum of 1929. Oct. 12, 1929, to Sept. 30, 1931, nonrecording gage at railroad bridge 1.0 mi (1.6 km) downstream at datum 4.15 ft (1.265 m) higher. Dec. 6, 1944, to July 30, 1951, nonrecording gage at present site and datum.

REMARKS.--Records good. Except for 10 mi^2 (25.9 km^2) intervening area, flow completely regulated since June 1969 by Pine Creek Lake (station 07337300).

COOPERATION.--Gage-height record and 13 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Pine Creek Lake) 27 years (water years 1930-69), 917 ft^3/s (25.97 m^3/s), 664,400 acre-ft/yr (819 hm^3/yr); (since regulation by Pine Creek Lake) 13 years (water years 1971-83) 723 ft^3/s (20.48 m^3/s), 633,200 acre-ft/yr (781 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,200 ft^3/s (2,210 m^3/s) May 6, 1961, gage height, 45.60 ft (13.899 m); maximum gage height, 45.77 ft (13.951 m) Sept. 16, 1950; no flow at times in 1930, 1954, 1956, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 5,630 ft^3/s (159 m^3/s) May 22, gage height, 20.08 ft (6.120 m); maximum gage height, 20.65 ft (6.294 m) Dec. 11 (from backwater); minimum daily discharge 11 ft^3/s (0.31 m^3/s) Oct. 1-3, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	21	2220	3620	521	424	344	311	2630	1780	97	23
2	11	47	2560	3600	1220	240	356	295	2010	509	43	22
3	11	44	1300	3550	1900	164	363	568	873	51	25	23
4	12	33	50	3480	1710	170	354	620	626	24	20	25
5	12	27	47	3120	816	185	290	1360	593	23	19	24
6	12	26	47	2090	767	195	323	2660	796	22	19	21
7	15	27	540	1520	748	215	359	2710	1740	381	19	21
8	18	27	3220	409	846	637	371	2680	1920	989	19	21
9	19	27	5100	369	1490	2860	375	2560	1870	1070	19	22
10	16	27	5160	359	1680	3740	379	1660	974	1070	20	22
11	14	28	5100	352	1500	3510	372	900	235	1070	21	22
12	14	27	5000	347	1010	2590	291	673	174	1070	20	21
13	17	19	4900	313	935	2510	241	1340	140	1020	46	19
14	17	18	4800	183	782	2260	211	830	76	1060	40	17
15	15	14	4490	158	417	1190	191	300	42	982	33	20
16	14	16	2960	151	367	517	182	165	29	695	29	23
17	14	18	1590	146	353	180	181	170	25	637	24	26
18	14	19	762	146	342	98	179	178	22	595	20	26
19	14	21	722	147	287	47	177	1580	21	231	21	26
20	12	22	712	147	261	30	182	4340	19	126	19	27
21	11	23	624	136	276	21	207	5490	18	113	20	24
22	12	22	413	84	481	17	333	5580	17	122	21	23
23	12	22	348	58	1770	17	405	5410	17	175	22	23
24	12	18	264	47	2540	20	409	5300	17	199	19	25
25	12	19	221	43	2140	20	494	5210	18	205	20	27
26	13	18	205	43	1460	32	852	5140	22	205	19	25
27	16	19	1230	43	1370	39	939	4570	24	209	20	25
28	18	26	2000	85	1020	40	932	2720	29	212	19	24
29	21	135	2520	268	---	104	669	2620	261	199	20	22
30	20	1220	2890	308	---	182	408	2630	2050	139	20	21
31	21	---	3670	328	---	302	---	2640	---	118	21	---
TOTAL	450	2030	65665	25650	29009	22556	11369	73210	17288	15301	794	690
MEAN	14.5	67.7	2118	827	1036	728	379	2362	576	494	25.6	23.0
MAX	21	1220	5160	3620	2540	3740	939	5580	2630	1780	97	27
MIN	11	14	47	43	261	17	177	165	17	22	19	17
AC-FT	893	4030	130200	50880	57540	44740	22550	145200	34290	30350	1570	1370

CAL YR 1982	TOTAL	357647.9	MEAN	980	MAX	6560	MIN	7.4	AC-FT	709400
WTR YR 1983	TOTAL	264012	MEAN	723	MAX	5580	MIN	11	AC-FT	523700

RED RIVER BASIN

07337900 GLOVER CREEK NEAR GLOVER, OK

LOCATION.--Lat 34°05'51", long 94°54'07", in NW 1/4 NE 1/4 sec.28, T.5 S., R.23 E., McCurtain County, Hydrologic Unit 11140107, near right bank on downstream side of pier of bridge on State Highways 3 and 7, 2.0 mi (3.2 km) north of Glover, 11.0 mi (17.7 km) norhtwest of Broken Bow, and at mile 9.2 (14.8 km).

DRAINAGE AREA.--315 mi^2 (816 km^2).

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 378.70 ft (115.428 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

COOPERATION.--Gage-height record and 13 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--22 years, 449 ft^3/s (12.72 m^3/s), 19.36 in/yr (492 mm/yr), 325,300 acre-ft/yr (401 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,600 ft^3/s (2,790 m^3/s) Dec. 10, 1971, gage height, 29.72 ft (9.059 m); no flow at times in 1966, 1968, 1970, 1972, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1961 reached a stage of 28.84 ft (8.790 m), from floodmark. Flood in 1908 was higher than in May 1961, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,000 ft^3/s (227 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage Height (ft)	Gage Height (m)
Nov. 27	1200	11,400	323	10.80	3.292
Dec. 3	1100	21,700	615	14.92	4.548
Dec. 27	2100	10,200	289	10.18	3.103
Mar 4	2100	15,100	428	12.42	3.786
May 15	0300	*39,800	1,130	*20.62	6.285

No flow occurred on Sept. 17 and 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	19	493	492	400	212	214	168	365	240	11	5.4
2	.60	178	2880	425	721	194	221	366	281	297	11	4.9
3	.60	444	16500	417	598	180	240	3930	223	262	9.4	4.2
4	1.2	255	4150	370	474	8110	239	1270	190	178	8.4	3.6
5	1.2	164	1510	326	427	5370	249	693	167	173	7.2	2.9
6	1.6	119	884	291	420	1790	273	485	173	157	6.5	2.4
7	2.0	92	648	260	452	962	263	364	263	137	6.4	2.2
8	2.2	76	507	235	493	700	245	282	193	103	6.4	2.0
9	2.4	64	417	214	492	542	223	222	151	84	6.1	1.7
10	2.2	54	405	194	672	441	208	221	122	71	6.4	1.5
11	2.0	46	2900	175	663	373	188	1020	100	60	30	1.2
12	2.0	42	1830	154	543	320	172	898	86	53	24	.95
13	1.8	37	999	136	453	275	166	564	74	46	22	.56
14	.94	32	703	123	385	243	232	5620	67	46	48	.15
15	.80	29	561	110	340	225	301	14400	58	39	42	.14
16	.80	26	467	103	300	202	256	1900	53	39	31	.24
17	.80	25	394	96	267	182	218	885	47	37	23	.00
18	.75	24	339	87	239	165	196	724	43	48	19	.15
19	.60	23	303	84	215	153	181	809	40	47	16	.20
20	1.0	22	265	78	193	150	166	596	37	39	14	.39
21	1.2	22	234	74	187	150	155	552	34	34	14	.51
22	1.2	21	212	72	290	142	158	941	31	29	13	.40
23	1.2	21	199	68	493	128	272	710	30	26	10	.31
24	1.2	21	1010	61	430	121	466	534	28	23	9.0	.20
25	1.5	141	1340	56	351	112	357	413	27	21	7.8	.14
26	1.8	408	710	53	300	144	286	332	27	18	7.2	.00
27	1.8	8400	4180	76	261	289	246	355	36	16	6.6	.13
28	1.5	2860	3730	226	234	281	213	401	58	15	5.8	.20
29	3.4	1050	1370	211	---	232	191	569	109	13	6.1	.25
30	3.2	668	832	201	---	236	175	410	419	12	5.7	.40
31	3.0	---	614	196	---	232	---	345	---	11	5.5	---
TOTAL	47.29	15383	51586	5664	11293	22856	6970	40979	3532	2374	438.5	37.32
MEAN	1.53	513	1664	183	403	737	232	1322	118	76.6	14.1	1.24
MAX	3.4	8400	16500	492	721	8110	466	14400	419	297	48	5.4
MIN	.60	19	199	53	187	112	155	168	27	11	5.5	.00
CFSM	.00	1.63	5.28	.58	1.28	2.34	.74	4.20	.37	.24	.04	.00
IN.	.01	1.82	6.09	.67	1.33	2.70	.82	4.84	.42	.28	.05	.00
AC-FT	94	30510	102300	11230	22400	45330	13820	81280	7010	4710	870	74

CAL YR 1982	TOTAL 231207.79	MEAN 633	MAX 19800	MIN .60	CFSM 2.01	IN. 27.30	AC-FT 458600
WTR YR 1983	TOTAL 161160.11	MEAN 442	MAX 16500	MIN .00	CFSM 1.40	IN. 19.03	AC-FT 319700

RED RIVER BASIN

07338500 LITTLE RIVER BELOW LUKFATA CREEK NEAR IDABEL, OK

LOCATION.--Lat 33°56'28", long 94°45'30", in SE 1/4 SE 1/4 sec. 14,T.7 S., R.24 E., McCurtain County, Hydrologic Unit 11140107, on left bank at downstream side of bridge on U.S. Highway 70 just downstream from Lukfata Creek, 5.0 mi (8.0 km) northeast of Idabel, and at mile 103.4 (166.4 km).

DRAINAGE AREA.--1,226 mi^2 (3,175 hm^2).

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 312.08 ft (95.122 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1946 to Oct. 26, 1950, and for stages below 9.0 ft (2.7 m) Oct. 26, 1950, to Oct. 10, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since June 1969 by Pine Creek Lake (station 07337300) 41.9 mi (67.4 km) upstream.

COOPERATION.--Gage-height record and 16 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(Prior to regulation by Pine Creek Lake) 22 years, (water years 1947-68), 1,622 ft^3/s (45.95 m^3/s), 1,174,000 acre-ft/yr (1,45 km^3/yr); (since regulation by Pine Creek Lake) 13 years (water years 1971-83), 1,687 ft^3/s (47.78 m^3/s), 1,222,000 acre-ft/yr (1.51 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103,000 ft^3/s (2,920 m^3/s) Dec. 10, 1971, gage height, 39.39 ft (12.006 m); minimum, 0.4 ft^3/s (0.011 m^3/s) Sept. 15, 16, Sept. 21 to Oct. 1, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1938 reached a stage of 39.7 ft (12.10 m), from information by local resident, discharge, 86,000 ft^3/s (2,440 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 ft^3/s (391 m^3/s) Dec. 4, gage height, 28.84 ft (8.790 m); minimum daily discharge, 20 ft^3/s (0.57 m^3/s) Oct. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	49	2830	4610	926	1250	1000	581	3280	2740	122	27
2	23	223	4050	4440	2080	775	969	776	3220	3520	98	29
3	22	463	11800	4330	2790	606	918	3560	2060	2260	81	29
4	20	630	13500	4250	2930	5770	882	4860	1100	556	47	29
5	20	399	12100	4100	2210	11300	787	3200	784	3070	42	29
6	34	265	8910	3570	1710	11000	833	3200	763	4850	39	29
7	61	197	3080	2820	1800	7460	909	3450	1670	1250	39	28
8	54	150	2420	1790	1810	2980	874	3320	2330	1150	38	26
9	64	129	4130	939	2270	2750	822	3170	2290	1510	38	24
10	48	111	5300	874	3270	3960	784	2490	1950	1470	40	24
11	40	103	7320	832	3240	4400	750	2430	884	1430	45	26
12	34	96	9060	785	2510	4060	610	3000	351	1410	47	26
13	31	89	9100	750	1940	3380	512	2900	282	1390	60	28
14	28	87	8190	619	1760	3190	570	2910	247	1420	94	27
15	28	81	7150	488	1310	2550	627	9990	168	1490	108	22
16	29	78	5890	459	1010	1430	637	12100	126	1170	127	22
17	29	77	4110	441	918	812	559	10700	110	948	112	21
18	27	77	2290	423	841	547	509	5640	102	904	81	21
19	26	77	1530	418	728	470	468	2360	94	736	60	23
20	25	77	1420	413	655	389	467	3750	87	331	51	27
21	25	77	1360	409	888	395	464	5330	80	213	46	27
22	26	77	1100	398	1360	362	684	6690	74	192	43	26
23	27	105	879	388	2050	334	1710	7160	68	191	40	28
24	28	89	842	363	3020	311	1360	6970	63	269	39	28
25	29	80	2190	350	3290	291	1200	6540	64	288	37	28
26	29	317	2080	344	2530	345	1400	6130	78	288	34	29
27	29	5190	2700	328	1990	674	1520	5820	122	280	32	29
28	30	9140	7450	320	1900	717	1470	5120	123	268	29	27
29	37	7220	7990	320	---	642	1200	3910	340	187	27	26
30	46	2980	5970	318	---	859	777	3630	1500	181	26	26
31	51	---	4730	318	---	1060	---	3400	---	146	26	---
TOTAL	1023	28733	161471	41207	53736	75069	26272	145087	24410	36108	1748	791
MEAN	33.0	958	5209	1329	1919	2422	876	4680	814	1165	56.4	26.4
MAX	64	9140	13500	4610	3290	11300	1710	12100	3280	4850	127	29
MIN	20	49	842	318	655	291	464	581	63	146	26	21
AC-FT	2030	56990	320300	81730	106600	148900	52110	287800	48420	71620	3470	1570

CAL YR 1982	TOTAL	742504	MEAN	2034	MAX	13500	MIN	20	AC-FT 1473000
WTR YR 1983	TOTAL	595655	MEAN	1632	MAX	13500	MIN	20	AC-FT 1181000

RED RIVER BASIN

07338900 BROKEN BOW LAKE NEAR BROKEN BOW, OK

LOCATION.--Lat 34°08'35", long 94°41'00", in SW 1/4 sec.3, T.5 S., R.25 E., McCurtain County, Hydrologic Unit 11140108, at intake structure on upstream side of dam on Mountain Fork, 9.0 mi (14.5 km) northeast of Broken Bow, and at mile 20.3 (32.7 km).

DRAINAGE AREA.--754 mi^2 (1,953 km^2).

PERIOD OF RECORD.--October 1968 to current year. Prior to October 1970, published as Broken Bow Reservoir near Broken Bow.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by a rolled earth and gravel structure. Outlet works consists of power-generated turbines and a concrete ogee weir controlled by eight 40 ft (12.2 m) by 40 ft (12.2 m) taintor gates. Regulated storage began Oct. 3, 1968; conservation pool was first filled Jan. 30, 1969. Total capacity, 1,368,000 acre-ft (1.69 km^3) at elevation 627.5 ft (191.26 m), top of flood pool and spillway gages, 918,100 acre-ft (1.13 km^3) at elevation 599.5 ft (182.73 m), top of power pool, and 448,200 acre-ft (553 hm^3) at elevation 559.0 ft (170.38 m), bottom of power pool. Figures given herein represent total contents. Reservoir is used for flood control, power development and water supply.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,178,000 acre-ft (1.45 km^3) Dec. 17, 1971, elevation, 616.41 ft (187.882 m); minimum since conservation pool was first filled, 672,000 acre-ft (829 hm^3) Oct. 21, 1972, elevation 580.48 ft (176.930 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,052,000 acre-ft (1.30 km^3) May 19, elevation 608.51 ft (185.474 m); minimum, 753,900 acre-ft (930 hm^3) Sept. 30, elevation, 587.22 ft (178.985 m).

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

587	751,100	598	897,000
590	789,300	603	968,600
594	842,100	609	1,059,300

RESERVOIR STORAGE, (ACRE-FEET) WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	783700	768200	871400	939600	885900	917600	891800	920200	924300	908600	877800	787500
2	783000	772300	894200	936900	885900	917900	894400	930900	921500	976700	874900	785800
3	783300	773800	998300	927000	886400	920300	897000	967400	917100	988600	874100	787500
4	782900	773000	1021000	916800	887800	964400	893500	972300	920900	993300	871600	785500
5	782600	773500	1031000	907300	890000	991600	892800	966800	921600	1010000	869900	784700
6	781500	773800	1037000	899900	891500	1002000	888000	958200	919800	1017000	868000	783700
7	780400	773900	1034000	896700	892100	1003000	881900	948900	918100	1014000	866600	781500
8	779800	773300	1022000	896200	893300	994100	878200	938100	915200	1003000	865400	777900
9	780100	773500	1010000	897400	896700	984100	879900	932500	913000	991200	862800	772600
10	779800	772900	1001000	894600	898900	973000	881700	936900	911600	978900	860100	770500
11	779700	773300	1008000	892100	901000	961900	881800	947000	912000	966600	858300	770200
12	778000	772600	1015000	890400	902600	950200	883200	946900	912400	953700	858200	769200
13	778100	772100	1021000	890700	904200	938800	888400	941800	911000	941500	852600	769100
14	777800	772300	1015000	889800	904500	927300	891400	986000	911300	936500	850600	767300
15	775800	770900	1004000	890000	905400	920600	888400	1027000	911000	929500	846800	766900
16	775800	770100	993500	890000	905500	914500	891500	1038000	911000	929500	842100	765600
17	775400	769300	982000	890100	905100	909200	893600	1044000	908700	930000	836200	765600
18	775300	769500	972300	889600	905500	903500	890500	1047000	908700	928300	830600	765000
19	774900	769000	968800	888700	906300	904400	885000	1049000	910300	925500	827200	764000
20	773900	769200	958800	888700	907600	904700	884600	1041000	907200	922000	827000	764800
21	773200	769300	950900	888700	908500	901200	884800	1033000	907000	917900	826800	762700
22	771200	768600	944800	888700	913100	899200	887200	1028000	905100	912700	823500	762500
23	771000	770000	938400	888700	918800	895700	895000	1021000	901700	911600	821200	761100
24	770900	769600	938900	886900	918800	893700	901000	1010000	898600	909300	817400	760600
25	771400	770400	942700	886500	916800	891500	903000	998900	898500	904900	813100	760600
26	769700	777600	942400	886100	917400	893300	905900	986500	898900	901300	808700	759300
27	769600	834000	947300	884700	919100	894000	907900	975200	898200	896400	803200	758200
28	770900	857900	953000	884700	915800	893000	909700	964800	900600	892100	797100	756800
29	769500	865300	947600	884700	---	892300	909900	952800	906900	890400	792000	755700
30	769600	869400	943200	885200	---	891500	913800	941200	907300	885000	790100	753900
31	769600	---	942200	885800	---	891500	---	930300	---	879800	789000	---
MAX	783700	869400	1037000	939600	919100	1003000	913800	1049000	924300	1017000	877800	787500
MIN	769500	768200	871400	884700	885900	891500	878200	920200	898200	879800	789000	753900
†	588.46	596.01	601.19	597.20	599.35	597.61	599.20	600.36	598.74	596.77	589.97	587.22
††	-14,400	+99,800	+72,800	-56,400	+30,000	-24,300	+22,300	+16,500	-23,000	-27,500	-90,800	-35,100

CAL YR 1982 MAX 1055000 MIN 768200, †† +125,700
WTR YR 1983 MAX 1049000 MIN 75390, †† -30,100

† Elevation, in feet, at end of month
†† Change in contents, in acre-feet

RED RIVER BASIN

07339000 MOUNTAIN FORK NEAR EAGLETOWN, OK

LOCATION.--Lat 34°02'30", long 94°37'15", in SE 1/4 SE 1/4 sec.7, T.6 S., R.26 E., McCurtain County, Hydrologic Unit 11140108, near center of span on downstream side of pier of bridge on U.S. Highway 70, 2.0 mi (3.2 km) west of Eagletown, 10.7 mi (17.2 km) downstream from Broken Bow Dam, and at mile 8.9 (14.3 km).

DRAINAGE AREA.--787 mi^2 (2,040 km^2).

PERIOD OF RECORD.--March 1924 to December 1925, October 1929 to current year. Published as Mountain Fork River near Broken Bow 1924-25 and as Mountain Fork River near Eagletown 1929-60. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1241: 1924-26, 1930 (M), 1936-37 (M), 1938, 1939 (M) 1942 (M).

GAGE.--Water-stage recorder. Datum of gage is 333.87 ft (101.763 m) National Geodetic Vertical Datum of 1929. See WSP 1920 for history of changes prior to July 23, 1950.

REMARKS.--Records good. Except for 33 mi^2 (85 km^2) intervening area, flow completely regulated since October 1968 by Broken Bow Lake (station 07338900).

COOPERATION.--Gage-height record and 8 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--Prior to regulation by Broken Bow Dam, 40 years (water years 1925, 1930-68), 1,291 ft^3/s (36.56 m^3/s), 934,600 acre-ft/yr (1.15 km^3/yr); since regulation by Broken Bow Dam, 14 years (water years 1970-83), 1,389 ft^3/s (39.34 m^3/s), 1,006,000 acre-ft/yr (1.24 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft^3/s (2,850 m^3/s) May 20, 1960, gage height, 26.73 ft (8.147 m); from rating curve extended above 65,000 ft^3/s (1.840 m^3/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 18-19, 1915, reached a stage of 26.4 ft (8.05 m), from information by local resident, discharge, 92,500 ft^3/s (2,620 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,430 ft^3/s (239 m^3/s) Dec. 11, gage height, 7.76 ft (2.365 m); minimum daily discharge 94 ft^3/s (2.66 m^3/s) Jan. 30 and June 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	275	579	335	2840	630	876	453	115	3830	970	1950	698
2	146	691	1450	2220	1820	423	310	1150	2260	333	1310	655
3	127	201	3240	6030	1840	203	263	2040	2170	200	1320	492
4	119	468	547	5810	1030	2140	2140	1880	1570	138	696	133
5	113	283	217	6410	536	1060	2560	5410	1280	105	640	118
6	131	128	140	4990	157	270	3280	6080	2160	287	785	160
7	569	117	2450	3030	656	991	4380	6460	2100	1480	702	592
8	614	108	7040	1810	636	6670	3090	6310	2010	7050	613	1070
9	472	236	7040	328	384	6740	1480	4980	2010	7090	905	2400
10	143	136	7220	934	297	6760	167	1230	1290	7100	1080	1970
11	126	371	6130	2050	643	6780	253	2180	577	7110	1130	748
12	161	145	759	1280	193	6800	211	5100	120	7130	721	233
13	411	404	869	594	111	6820	138	5500	269	7070	1020	293
14	186	124	5570	344	393	6840	872	3500	610	3430	1780	221
15	382	357	7010	202	366	4520	3590	2830	122	4140	1370	321
16	587	245	7000	106	318	3560	1480	400	249	1480	2360	264
17	143	687	7010	102	887	3200	166	160	110	182	2740	421
18	123	241	6170	442	505	3150	1290	652	221	485	3040	131
19	160	132	3250	381	179	1510	3030	3240	94	1410	2220	205
20	408	298	5160	541	98	170	2090	6040	467	2010	981	312
21	137	118	5080	298	125	1040	475	6680	1140	2210	153	191
22	544	332	3690	109	296	1580	496	5620	251	2540	630	347
23	688	205	3940	97	374	1590	481	4500	1260	1790	1420	197
24	147	129	2500	845	768	1810	168	6740	1340	616	1450	354
25	121	310	1650	930	2790	1320	425	6770	1030	2750	2200	123
26	115	490	1290	456	1460	629	411	6780	164	1770	2400	143
27	260	2510	4030	984	359	143	125	6780	165	2340	2280	388
28	131	608	4280	323	1560	825	201	6820	540	2420	3370	565
29	127	204	5340	105	---	773	162	6850	650	1670	2890	512
30	455	139	5200	94	---	1110	447	6880	1530	1870	1790	517
31	139	---	2640	99	---	883	---	6730	---	2820	1020	---
TOTAL	8260	10996	118247	44784	19411	81186	34634	136407	31589	81996	46966	14774
MEAN	266	367	3814	1445	693	2619	1154	4400	1053	2645	1515	492
MAX	688	2510	7220	6410	2790	6840	4380	6880	3830	7130	3370	2400
MIN	113	108	140	94	98	143	125	115	94	105	153	118
AC-FT	16380	21810	234500	88830	38500	161000	68700	270600	62660	162600	93160	29300

CAL YR 1982	TOTAL	626566	MEAN	1717	MAX	8150	MIN	81	AC-FT	1243000
WTR YR 1983	TOTAL	629250	MEAN	1724	MAX	7220	MIN	94	AC-FT	1248000

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which stream flow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentially of a stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		ARKANSAS RIVER BASIN				
07148360	Greenwood Creek near Winchester, OK	Lat 36°55'23", long 98°47'27", in SW 1/4 NW 1/4 sec.11, T.28 N., R.14 N., Woods County, at county road bridge 2.4 mi (3.9 km) south of Winchester and at mile 1.9 (3.1 km).	41.2	1972-83	10-14-82	1.2
					01-07-83	1.6
					04-28-83	4.7
					08-03-83	1.4
07165507	Rock Creek at Sapulpa, OK	Lat 35°59'07", long 96°06'48", in NE 1/4 NW 1/4 sec.2, T.17 N., R.11 E., Creek County, at bridge on U.S. Highway Alt. 75, 0.2 mi (0.3 km) south of junction with State Highway 117, 0.3 mi (0.5 km) downstream from Biren Creek, 2.3 mi (3.7 km) upstream from mouth.	67.3	1979-83	10-21-82	0.14
					11-04-82	.13
					12-13-82	1.2
					02-15-83	9.0
					03-22-83	4.1
					07-29-83	.15
					08-30-83	.17
07178500	Dog Creek near Claremore, OK	Lat 36°15'40", long 95°36'05", in SW 1/4 SE 1/4 sec.16, T.21 N., R.16 E., Rogers County, at bridge on State Highway 88, 0.8 mi (1.3 km) upstream from Cat Creek, 1.5 mi (2.4 km) southeast of junction with U.S. Highway 66 in Claremore, 3.0 mi (4.8 km) downstream from Lake Claremore, 5.9 mi (9.5 km) upstream from Panter Creek.	63.6	1981-83	10-08-82	0
					12-07-82	.48
					02-15-83	18.0
					03-08-83	80.8
					06-01-83	15.8
					08-31-83	0
					09-19-83	0

DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-station gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relations 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 for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Annual Maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		ARKANSAS RIVER BASIN					
07150870	Salt Fork Arkansas River tributary near Eddy, Okla.	Lat 36°41'42", long 97°25'30", in SW 1/4 SW 1/4 sec.28, T.26 N., R.2 W., Kay County, at culvert on U.S. Highway 60, 3.0 mi (4.8 km) southeast of Eddy.	2.35	1964-83	03-26-83	12.43	220
07154650	Tesquite Creek near Kenton, Okla.	Lat 36°53'52", long 102°54'04", in NE 1/4 SE 1/4 sec.13, T.5N., R.1 E., Cimarron County, at county road bridge 3.9 mi (6.3 km) east of Kenton.	25.4	1964-83	---	<12.36	<212
07155100	Cold Springs Creek near Wheeless, Okla.	Lat 36°46'20", long 102°48'16", in SE 1/4 NE 1/4 sec.35, T.4 N., R.2 E., Cimarron County, at county road multi-barrel culvert, 6.0 mi (9.7 km) northeast of Wheeless.	11.0	1964-83	05-19-83	10.78	42
07157550	West Fork Creek near Knowles, Okla.	Lat 36°52'30", long 100°07'20", in SE 1/4 SE 1/4 sec.22, T.5 N., R.27 E., Beaver County, at county road culvert, 4.2 mi (6.8 km) east of Knowles.	4.22	1964-83	06-09-83	11.55	26
07158500	Preacher Creek near Dover, Okla.	Lat 36°02'37", long 98°00'48", in NW 1/4 NW 1/4 sec.13, T.18 N., R.8 W., Kingfisher County, at county road bridge, 7.1 mi (11.4 km) northwest of Dover.	14.5	1952-57† 1964-83	05-14-83	8.35	1,220
07160550	West Beaver Creek near Orlando, Okla.	Lat 36°08'45", long 97°28'05", in NW 1/4 NE 1/4 sec. 12, T.19 N., R.3 W., Logan County, at county road bridge, 5.0 mi (8.0 km) west of Orlando.	13.9	1964-83	05-13-83	9.47	2,830
07171120	Clear Creek tributary near Hollow, Okla.	Lat 36°52'50", long 95°16'00", in SW 1/4 NW sec.27, T.28 N., R.19 E., Craig County, on downstream side of multi-barrel box culvert on State Highway 10, 1.2 mi (1.9 km) southeast of Hollow.	2.19	1966-75 1980-83	04-23-83	6.98	390
07174720	Hogshooter Creek tributary near Bartlesville, Okla.	Lat 36°43'40", long 95°50'52", in SE 1/4 SE 1/4 sec.18, T.26 N., R.14 E., Washington County, at multi-barrel culvert on U.S. Highway 60, 4.9 mi (7.9 km) east of junction with U.S. Highway 75 southeast of Bartlesville.	.94	1965-83	04-22-83	8.90	444
07188140	Flint Branch near Peoria, Okla.	Lat 36°52'25", long 94°41'35", in SW 1/4 SW 1/4 sec.26, T.28 N., R.24 E., Ottawa County, at upstream side of dam, 3.2 mi (5.1 km) southwest of Peoria.	4.90	1964-83	04-22-83	14.10	600
07189700	Horse Creek at Afton, Okla.	Lat 36°41'50", long 94°57'20", in NE 1/4 NW 1/4 sec.33, T.26 N., R.22 E., Ottawa County, on downstream side of bridge on U.S. Highway 60 at east edge of Afton.	21.9	1966-83	04-22-83	11.21	1,620
07194515	Mill Creek near Park Hill, Okla.	Lat 35°48'08", long 98°47'15", in NW 1/4 NW 1/4 sec.3, T.15 N., R.21 E., Cherokee County, at multi-barrel culvert on U.S. Highway 62, 6.3 mi (10.1 km) southwest of junction with State Highway 82 near Park Hill.	2.57	1965-83	12-02-82	4.13	7.18

DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

Crest-stage partial-record stations

Annual maximum discharge at crest-stage partial-record stations

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Annual Maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		ARKANSAS RIVER BASIN					
07228290	Rough Creek near Thomas, Okla.	Lat 35°48'08", long 98°47'15", in NW 1/4 SW 1/4 sec.3, T.15 N., R.15 W., Custer County, at county road bridge, 4.7 mi (7.6 km) northwest of Thomas.	10.4	1964-83	06-11-83	5.87	194
07228930	Worley Creek near Tuttle, Okla.	Lat 35°17'28", long 97°45'10", in SE 1/4 SW 1/4 sec.32, T.10N., R.5 W., Grady County, at multi-barrel culvert on State Highway 37, 3.3 mi (5.3 km) east of Tuttle.	11.2	1965-72 1978-83	06-14-83	3.30	32
07229420	Julian Creek tributary near Asher, Okla.	Lat 34°59'09", long 96°58"48", in SW 1/4 SW 1/4 sec.15, T.6 N., R.3 E., Pottawatomie County, at multi-barrel culvert on Stage Highway 39, 3.4 mi (5.5 km) west of Asher.	2.28	1964-83	05-13-83	12.51	232
07231320	Leader Creek tributary near Atwood, Okla.	Lat 34°57'10", long 96°20'21", in NW 1/4 NW 1/4 sec.34, T.6 N., R.9 E., Hughes County, at multi-barrel culvert on State Highway 12, 0.7 mi (1.1 km) southwest of Atwood.	.72	1964-83	05-14-83	15.62	1,150
07231950	Pine Creek near Higgins, Okla.	Lat34°47'40", long 95°20'50", in NW 1/4 NE 1/4 sec.30, T.4 N., R.19 E., Latimer County, at bridge on State Highway 63, 5.4 mi (8.7 km) east of Higgins.	9.99	1964-83	05-14-83	11.28	2,820
07232550	South Fork tributary near Guymon, Okla.	Lat 36°40'06", long 101°29'54", in SW 1/4 NE 1/4 sec.1, T.2 N., R.14 E., Texas County, at multiple culvert on Chicago, Rock Island, and Pacific Railroad, 1.8 mi (2.9 km) southwest of junction of U.S. Highways 54 and 64 at Guymon.	.26	1964-83	---	<6.60	<4.0
07234050	North Fork Clear Creek tributary near Balko, Okla.	Lat 36°37'01", long 100°39'50", in SW 1/4 SW 1/4 sec.23, T.2N., R.22 E., Beaver County, at multi-barrel culvert on State Highway 3, 1.5 mi (2.4 km) southeast of Balko.	4.22	1964-83	---	<10.00	<2.0
07234290	Clear Creek tributary near Catesby, Okla.	Lat 36°29'30", long 99°57'20", in SE 1/4 SW 1/4 sec.2, T.23 N., R.26 W., Ellis County, on downstream side of county road bridge, 0.1 mi (0.2 km) east of Catesby.	8.51	1966-83	---	<3.00	<77
07237750	Cottonwood Creek near Vici, Okla.	Lat 36°08'45", long 99°12'00", in SE 1/4 SW 1/4 sec.2, T.19 N., R.19 W., Dewey County, at bridge on U.S. Highway 60, 5.4 mi (8.7 km) east of Vici.	11.8	1964-83	03-03-83	7.91	715
07237800	Bent Creek near Seiling, Okla.	Lat 36°11'26", long 99°00'36", in NW 1/4 SE 1/4 sec.21, T.20N., R.17 W., Woodward County, at bridge on U.S. Highway 183 and 270, 6 mi (10 km) northwest of Seiling.	139	1964-70† 1971-83	03-03-83	13.80	1,570
07241880	Sand Creek near Cromwell, Okla.	Lat 35°20'56", long 96°29"40", in SE 1/4 SE 1/4 sec.7, T.10 N., R.8 E., Seminole County, at bridge on State Highway 99A, 2.2 mk (3.5 km) west of Cromwell.	9.48	1964-83	05-14-83	13.80	1,850
07242160	Alabama Creek near Weleetka, Okla.	Lat 35°21'40", long 96°08'55", in NW 1/4 NE 1/4 sec.9, T.10 N., R.11 E., Okfuskee County, at county road multi-barrel culvert, 2.0 mi (3.2 km) north of Weleetka.	16.5	1965-74 1976-83	02-01-83	11.58	2,150
07243550	Adams Creek near Beggs, Okla.	Lat 35°44'55", long 96°02'15", in NE 1/4 SE 1/4 sec.28, T.15 N., R.12 E., Okmulgee County, at county road bridge, 2.0 mi (3.2 km) northeast of Beggs.	5.90	1965-83	05-14-83	9.32	956
07246630	Big Black Fox Creek near Long, Okla.	Lat 35°31'15", long 94°37'10", in NE 1/4 NE 1/4 sec.14, T.12 N., R.25 E., Sequoyah County, at county road bridge, 2.3 mi (3.7 km) northwest of Long.	5.32	1964-83	12-03-82	7.85	548
		RED RIVER BASIN					
07300150	Bear Creek near Vinson, Okla.	Lat 34°54'10", long 99°58'50", in NW 1/4 NE 1/4 sec.19, T.5 N., R.26 W., Harmon County, at bridge on State Highway 9, 6.9 mi (11.1 km) west of Vinson.	7.24	1964-83	05-14-83	7.79	264
07301455	Turkey Creek near Erick, Okla.	Lat 35°12"05", long 99°47'55", in NW 1/4 NW 1/4 sec.1, T.8 N., R.25 W., Beckham County, at county road multi-barrel culvert, 3.8 mi (6.1 km) southeast of Erick.	19.8	1964-72 1978-83	05-14-83	4.37	882

DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

Crest-stage partial-record stations

Annual maximum discharge at crest-stage partial-record stations

Station Number	Station Name	Location	Drainage area (mi^2)	Period of Record	Annual Maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		RED RIVER BASIN					
07301480	Short Creek near Sayre, Okla.	Lat 35°18'20", long 99°39'15", in SW 1/4 SE 1/4 sec.29, T.10 N., R.23 W., Beckham County, at county road multi-barrel culvert, 0.9 mi (1.4 km) northwest of Sayre.	9.12	1964-83	---	<11.17	<8.0
07312850	Nine Mile Beaver Creek near Elgin, Okla.	Lat 34°46'40", long 98°15'25", in SE 1/4 NW 1/4 sec.33, T.4 N., R.10 W., Comanche County, at multi-barrel culvert on State Highway 17, 2.0 mi (3.2 km) east of Elgin.	6.29	1964-83	---	<1.52	<27
07313600	Cow Creek at Waurika, Okla.	Lat 34°10'55", long 98°00'05", in SE 1/4 NE 1/4 sec.26, T.4 S., R.8 W., Jefferson County, at Chicago, Rock Island and Pacific Railway Co. bridge, near north edge of Waurika.	193	1967-70† 1971-83	05-14-83	21.30	3,430
07315680	Cottonwood Creek tributary near Loco, Okla.	Lat 34°18'40", long 97°34'00", in SE 1/4 NE 1/4 sec.12, T.3 S., R.4 W., Stephens County, at multi-barrel culvert on State Highway 53, 6.6 mi (10.6 km) southeast of Loco.	1.74	1964-83	03-26-83	10.22	1,030
07316140	Brier Creek near Powell, Okla.	Lat 33°59'54", long 96°49'35", in NW 1/4 NW 1/4 sec.31, T.6 S., R.5 E., Marshall County, at bridge on State Highway 32, 3.6 mi (5.8 km) northeast of Powell.	12.0	1965-83	06-14-83	12.11	3,190
07329500	Rush Creek near Maysville, Okla.	Lat 34°44'36", long 97°24'18", in SW 1/4 SW 1/4 sec.10, T.3 N., R.2 W., Garvin County, near right bank on downstream side of pier of bridge on State Highway 74, 2.8 miles downstream from Panther Creek, 5.3 miles south of Maysville, and at mile 14.2.	206	1953-76† 1977-83	---	<7.49	<2,590
07329870	Honey Creek near Davis, Okla.	Lat 34°26'50", long 97°07'40", in NW 1/4 NE 1/4 sec.30, T.1 S., R.2 E., Murray County, at bridge on State Highway 77D 4.0 mi (6.4 km) south of Davis.	18.7	1964-83	05-14-83	12.17	2,170
07335310	Rock Creek near Boswell, Okla.	Lat 33°57'57", long 95°52'02", in NE 1/4 NE 1/4 sec.7, T.7 S., R.14 E., Choctaw County, at culvert on State Highway 109, 4.2 mi (6.7 km) south of Boswell.	.94	1965-83	03-05-83	5.26	300
07336000	Tenmile Creek near Miller, Okla.	Lat 34°17'55", long 95°44'40", in NW 1/4 sec.16, T.3 S., R.15 E., Pushmataha County, at county road bridge, 1.2 mi (1.9 km) south of Miller.	68	1957-70† 1971-83	04-22-83	14.30	2,150
07336520	Frazier Creek near Oleta, Okla.	Lat 34°11'50", long 95°21'00", in NW 1/4 NE 1/4 sec.19, T.4 S., R.19 E., Pushmataha County, at bridge on State Highway 3, 0.5 mi (0.8 km) west of Oleta.	19.4	1965-83	05-15-83	15.68	4,410
07338520	Yanubbee Creek near Broken Bow, Okla.	Lat 34°03'35", long 94°44'22", in NW 1/4 SW 1/4, sec.6, T.6 S., R.25 E., McCurtain County, at bridge on U.S. Highway 259, 2.3 mi (3.7 km) north of Broken Bow.	9.10	1964-83	07-05-83	15.05	4,350
07338780	Mountain Fork tributary near Smithville, Okla.	Lat 34°29'48", long 94°40'06", in NW 1/4 SE 1/4 sec.3, T.1 S., R.25 E., McCurtain County, at multi-barrel culvert on U.S. Highway 259, 2.5 mi (4.0 km) northwest of Smithville.	.68	1965-83	12-03-82	5.16	291

† Operated as a continuous-record station.
* Revised.

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

U.S. DEPARTMENT OF THE INTERIOR
Geological Survey
Rm. 621, 215 Dean A. McGee
Oklahoma City, OK 73102

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