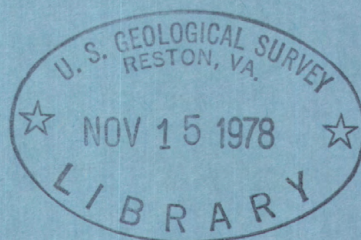


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Water Resources Data for Oklahoma Water Year 1977

Volume 2. Red River Basin



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-77-2

Prepared in cooperation with the State of Oklahoma
and with other agencies

CALENDAR FOR WATER YEAR 1977

1 9 7 6

OCTOBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
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24	25	26	27	28	29	30
31						

NOVEMBER

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1 9 7 7

JANUARY

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FEBRUARY

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27	28					

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APRIL

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MAY

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JUNE

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31						

AUGUST

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SEPTEMBER

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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
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Water Resources Data for Oklahoma Water Year 1977

Volume 2. Red River Basin



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-77-2

**Prepared in cooperation with the State of Oklahoma
and with other agencies**

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard Director

For information on the water program in Oklahoma write to
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Rm 621, 201 N.W. 3rd Street
Oklahoma City, Oklahoma 73102

1978

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 J.S. Cragwall, Jr., Chief Hydrologist, U.S. Geological Survey, and G.W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Oklahoma are in two volumes as follows:

- Volume 1. Arkansas River Basin
- Volume 2. Red River Basin

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CONTENTS

	Page
Preface.....	III
List of gaging stations, in downstream order, for which records are published.....	VI
Introduction.....	1
Cooperation.....	1
Hydrologic conditions.....	2
Definition of terms.....	3
Downstream order and station numbers.....	8
Numbering system for wells and miscellaneous sites.....	9
Special networks and programs.....	9
Explanation of stage and water-discharge records.....	10
Collection and computation of data.....	10
Accuracy of field data and computed results.....	12
Other data available.....	12
Explanation of water-quality records.....	13
Collection and examination of data.....	13
Water analysis.....	13
Water temperatures.....	13
Sediment.....	13
Explanation of ground-water level records.....	14
Collection of the data.....	14
Publications on techniques of water-resources investigations.....	15
Gaging station records.....	22
Discharge at crest-stage partial-record stations.....	215
Geohydrology of the Arbuckle aquifer, south central Oklahoma.....	216
Analysis of samples collected at partial-record sites.....	220
Ground-water level records.....	226
Index.....	233

ILLUSTRATIONS

Figure 1. System for numbering wells and miscellaneous sites.....	9
Figure 2. Discharge during 1977 water year compared with median discharge for period 1941-75 for one representative gaging station.....	16
Figure 3. Specific conductance during 1977 water year compared with average specific conductance for period 1945-75 at one site.....	16
Figure 4. Map of Oklahoma showing location of continuous-record surface-water stations, water year 1977.....	17
Figure 5. Map of Oklahoma showing location of partial record stations, water year 1977....	18
Figure 6. Map of Oklahoma showing location of water-quality stations, water year 1977....	19
Figure 7. Index map showing counties containing observation wells measured more than once a year, and number of wells in each county, 1977.....	20
Figure 8. Depth to water in selected wells in Oklahoma.....	21

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

LOWER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER BASIN

RED RIVER BASIN

Red River near Hollis (c).....	22
Red River near Quanah, TX (c).....	24
Salt Fork Red River near Weelington, TX (c).....	25
Salt Fork Red River near Vinson (c).....	27
Salt Fork Red River at Mangum (dc).....	29
North Fork Red River near Texola.....	31
North Fork Red River near Carter (dc).....	32
Lake Altus at Lugert.....	34
North Fork Red River below Altus Dam near Lugert (dc).....	35
Elm Fork of North Fork Red River at Salton Crossing near Carl (ct).....	37
Elm Fork of North Fork Red River near Carl (dc).....	44
Elm Fork of North Fork Red River near Mangum (c).....	56
Elk Creek near Hobart (dct).....	57
North Fork Red River near Headrick (dcmts).....	65
Otter Creek:	
West Otter Creek at Snyder Lake near Mountain Park (d).....	81
Red River near Burkburnett, TX (c).....	82
Cache Creek:	
East Cache Creek near Elgin (c).....	84
East Cache Creek near Walters (dct).....	86
West Cache Creek:	
Blue Beaver Creek near Cache (dc).....	92
Deep Red Run near Randlett (d).....	94
Deep Red Run near Taylor (c).....	95
Beaver Creek near Waurika (dc).....	97
Red River near Terral.....	100
Mud Creek near Courtney (dc).....	102
Walnut Bayou near Burneyville (c).....	104
Red River near Gainesville, TX (dc).....	106
Washita River near Reydon (c).....	109
Washita River near Cheyenne (d).....	110
Washita River near Hammon (dc).....	111
Foss Reservoir near Foss (c).....	119
Washita River near Foss (dct).....	122
Washita River near Clinton (d).....	129
Washita River at Carnegie (dct).....	130
Cobb Creek near Eakly (d).....	134
Lake Creek near Eakly (d).....	135
Willow Creek near Albert (d).....	136
Fort Cobb Reservoir near Fort Cobb.....	137
Cobb Creek near Fort Cobb (d).....	138
Washita River at Anadarko (dc).....	139
Little Washita River near Ninnekah (d).....	142
Winter Creek near Alex (d).....	143
Washita River at Alex (d).....	144
Washita River near Pauls Valley (dc).....	145
Wildhorse Creek near Hoover (d).....	148
Washita River near Durwood (dcmts).....	149
Lake Texoma near Denison, TX.....	159
Red River at Denison Dam near Denison, TX (dc).....	160
Blue River near Connerville (d).....	163
Blue River at Milburn (d).....	164
Blue River at Armstrong (c).....	165
Blue River near Blue (dc).....	166
Muddy Boggy Creek:	
McGee Creek near Farris (c).....	169
Muddy Boggy Creek near Farris (dc).....	177
Clear Boggy Creek:	
Big Springs Creek:	
Byrds' Mill Spring near Fittstown (d).....	180
Clear Boggy Creek above Caney Creek near Caney (c).....	181
Clear Boggy Creek near Caney (dct).....	183
Red River at Arthur City, TX (dc).....	184
Kiamichi River near Big Cedar (dcmts).....	187
Kiamichi River near Clayton (c).....	191
Kiamichi River near Antlers (dc).....	193
Hugo Lake near Hugo.....	196
Red River near De Kalb, TX (c).....	197
Little River near Cloudy (c).....	199
Pine Creek Lake near Wright City.....	201
Little River near Wright City (dc).....	202
Glover Creek near Glover (dc).....	203
Little River below Lukfata Creek near Idabel (dc).....	206
Mountain Fork near Smithville (c).....	209
Broken Bow Lake near Broken Bow.....	211
Mountain Fork near Eagletown (dc).....	212

WATER RESOURCES DATA FOR OKLAHOMA, 1977

Volume 2. Red River Basin

INTRODUCTION

Water resources data for Oklahoma for the 1977 water year are presented in two volumes, appropriately identified by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. Volumes 1 and 2 of this report contain discharge records for 112 gaging stations; stage and contents for 22 lakes and reservoirs; water quality for 95 gaging stations, 5 lakes, and 8 wells; and water levels for 49 observation wells. Also included are data for 41 crest-stage partial-record stations and 1 low-flow partial-record station. 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." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, Virginia, 22161.

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, water quality and ground water 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, volume 1 of this report is identified as "U.S. Geological Survey Water-Data Report OK-77-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161.

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, acting executive director.

Oklahoma Department of Transportation, Richard A. Ward, director.

Oklahoma City Water Department, Charles Baker, director of water services, succeeded by Patrick M. Brian.

Oklahoma Geological Survey, Charles J. Mankin, director.

Oklahoma State Department of Health, Environmental Health Services, Loyd F. Pummill, chief.

Oklahoma Pollution Control Coordinating Board, James F. Lovell, chairman; Denver Talley, director, Department of Pollution Control.

Assistance in the form of funds or services was given by the following Federal agencies: Agricultural Research Service, U.S. Department of Agriculture; Bureau of Land Management, U.S. Department of the Interior; Bureau of Reclamation, U.S. Department of the Interior; Corps of Engineers, U.S. Army; Federal Insurance Administration, U.S. Department of Housing and Urban Development.

Assistance in the form of funds or services was rendered by 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; the cities of Ada, Altus, Edmond, Guthrie, Lawton, Shawnee, and Tulsa; and Oklahoma Gas and Electric Company.

Organizations that supplied data are acknowledged in station descriptions.

HYDROLOGIC CONDITIONS

Drought conditions continued over the State for the first six months of the 1977 water year. The only relief was in the southeastern section where isolated showers occurred during February and some heavy local rains occurred during the last five days of March. Peak runoff equal to approximately 20-year recurrence intervals were experienced. The drought condition was essentially broken in the southern half of the State in March, but continued in the northern half through April. Runoff in May was near normal over most of the State with major flooding in south-central and southwestern sections. Rains 4 to 10 inches in 24 hours caused damages in 19 southern counties according to Civil Defense Headquarters. Four lives were lost due to flood related accidents, many homes were evacuated and numerous livestock were lost. Runoff continued about normal for the rest of the year except for the south-central. On August 27-28 a flood occurred just west of Lawton. The gaging station Blue Beaver Creek near Cache experienced a peak that was 1.3 times the 100-year recurrence interval flood. Fortunately, most of the flood inundated rural areas so that a minimum amount of damage was experienced. Monthly and annual mean discharge is compared with median discharge at Washita River near Durwood in Figure 2.

Reservoir contents were below normal for the first eight months except Lake Altus in southwest Oklahoma which was over the long-term average. In May all reservoirs in the southwest were filled to capacity, and other reservoirs showed a substantial increase. At year's end all reservoir elevations were near normal except Lake Altus which was 72 percent of normal.

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.

Adenosine triphosphate(ATP) is the primary energy donor in cellular life process. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

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

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

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

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

Bacteria are microscopic unicellular organisms, typically spherical, 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 ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the 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 ± 1.0°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/m³), and periphyton and benthic organisms in grams per square meter (g/m²).

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 contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-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 may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

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

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

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

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

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 (FT³/s, ft³/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 refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through 0.45-micrometer membrane filter, and thus may include some very small (coloidal) suspended particles. Analyses are performed on filtered samples.

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

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

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. 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.

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

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

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

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

Organism is any living entity, such as an 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 milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

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

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

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

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union 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 categories reported.

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

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

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

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

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

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

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

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

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

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

Milligrams of oxygen per area or volume per unit time ($\text{mg O}_2/(\text{m}^2 \cdot \text{time})$) for periphyton and macrophytes and $\text{mg O}_2/(\text{m}^3 \cdot \text{time})$ for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made with 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or 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 quantity 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.

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

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 lived.

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

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

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

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

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a 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 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.

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 indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream order and system of indentation 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 03041000, which appears just to the left of the station name, includes the 2-digit part number "03" plus the 6-digit downstream order number "041000".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

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

The well and 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 wells or other sites within a 1-second grid. See figure 1 below.

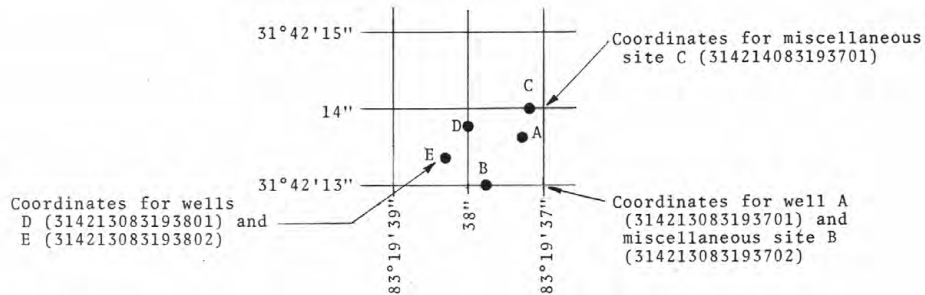


Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

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 natural 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.

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

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

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

EXPLANATION OF 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 text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

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

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

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

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

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

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations.

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 above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE". In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

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

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

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

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

Footnotes to the table of daily discharge are introduced by the work "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 a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

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

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

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

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

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

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 sections.

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

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

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

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

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

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

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective January 1978 but are subject to change.

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. \$1.60.
- 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. \$0.85.
- 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. \$1.90.
- 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. \$1.75.
- 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. \$1.00.
- 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. \$0.35.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. \$0.40.
- 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. \$1.00.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. \$0.35.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. \$1.00.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. \$1.40.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. \$1.25.
- 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. \$1.20.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. \$0.35. Not currently available.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. \$0.70.
- 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. \$2.50.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. \$0.65.
- 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. \$2.50.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. \$2.10.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. \$1.60.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. \$0.35.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. \$0.65.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. \$0.75.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. \$0.65.
- 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. \$1.10.
- 5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. \$2.40.
- 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. \$0.80.
- 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. \$0.90.
- 5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlike, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. \$20.00.
- 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. \$16.00.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. \$2.10.
- 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. \$2.30.
- 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. \$0.70.
- 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. \$1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

WATER RESOURCES DATA FOR OKLAHOMA,

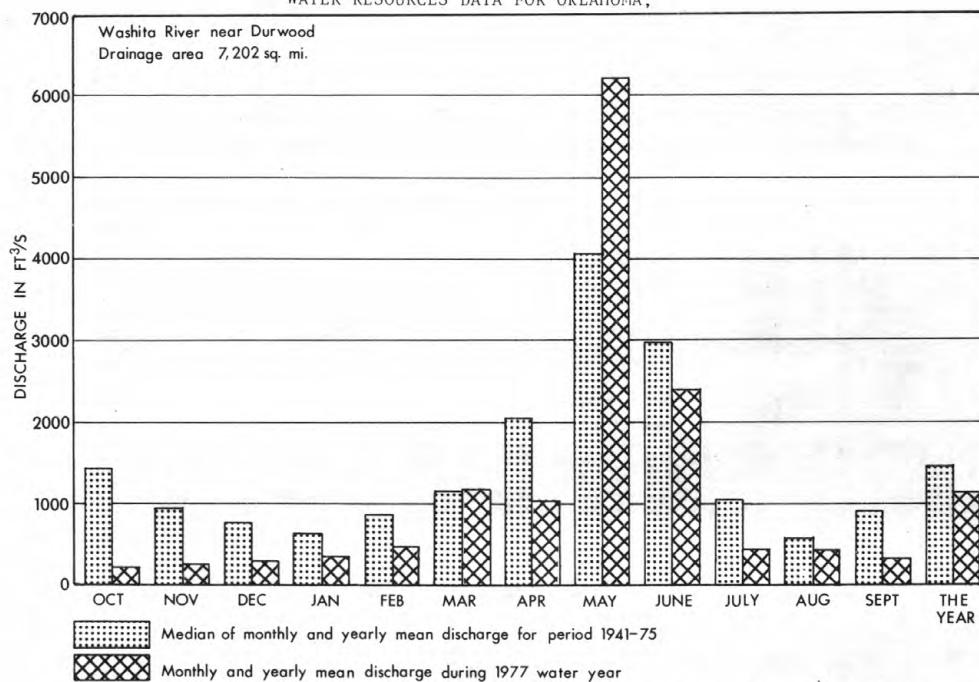


FIGURE 2--Discharge during 1977 water year compared with median discharge for period 1941-75 for one representative gaging station.

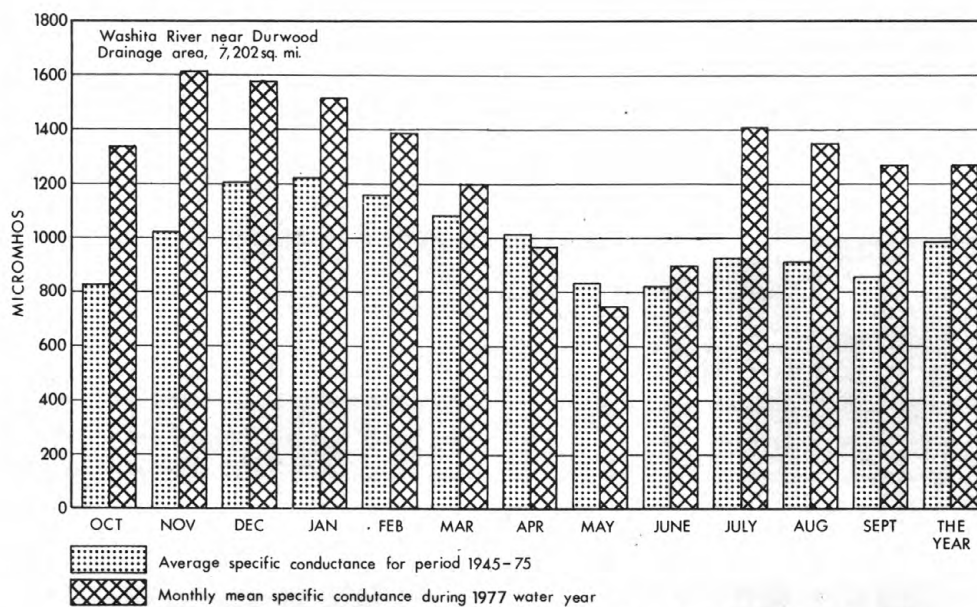


FIGURE 3--Specific conductance during 1977 water year compared with average specific conductance for period 1945-75 at one site.

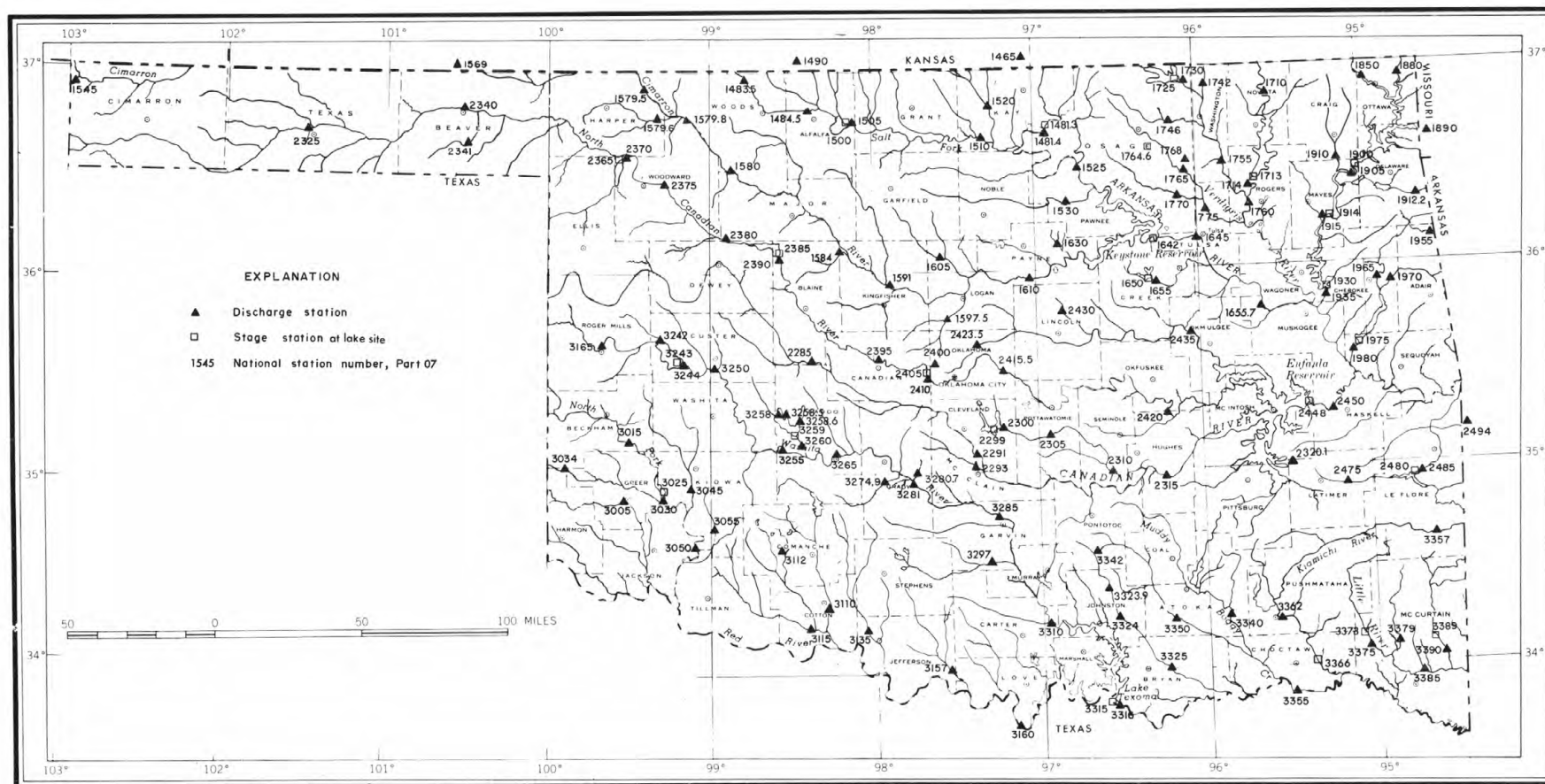


Figure 4.--Map of Oklahoma showing location of continuous-record surface-water stations, water year 1977.

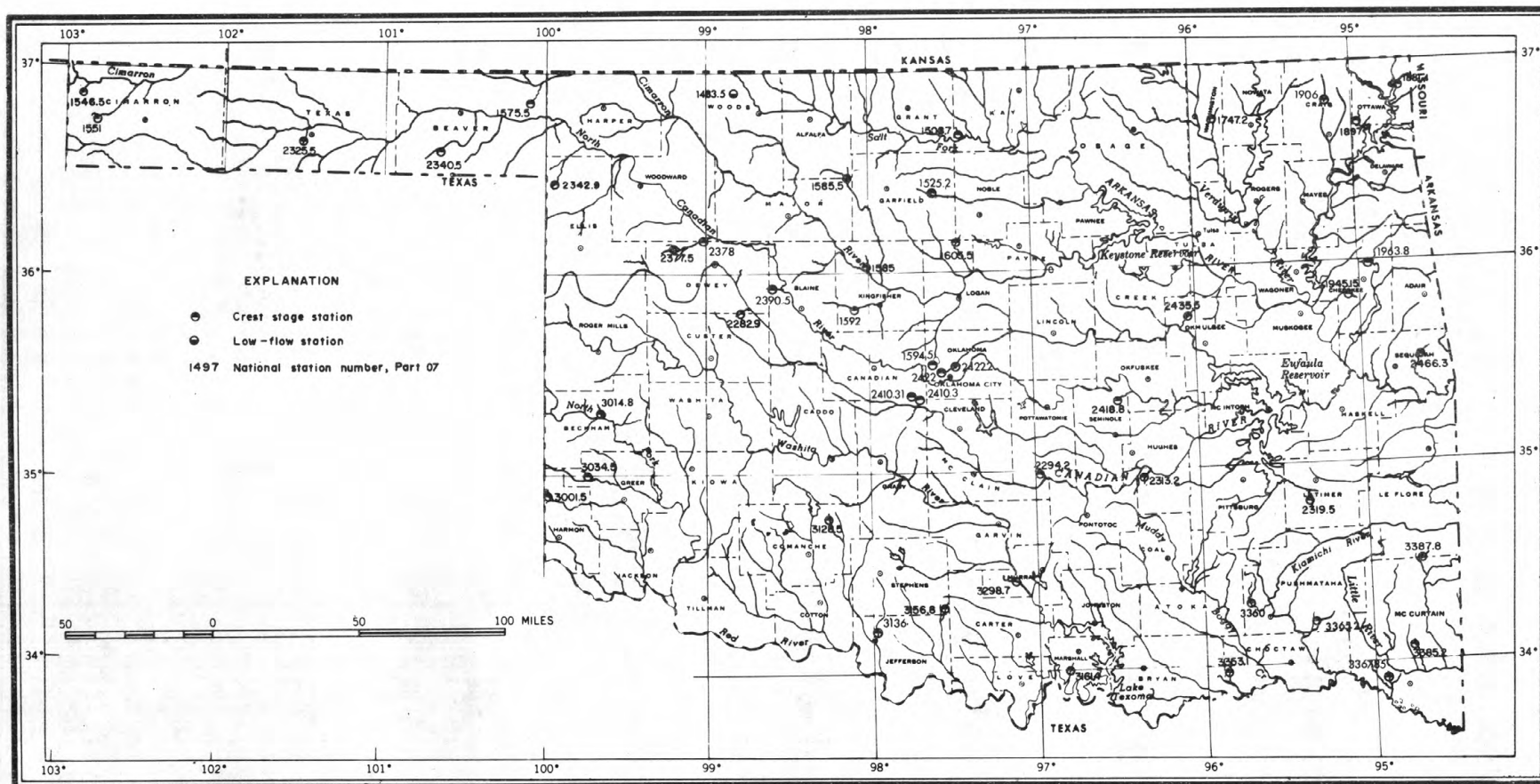


Figure 5.--Map of Oklahoma showing location of partial record stations, water year 1977.

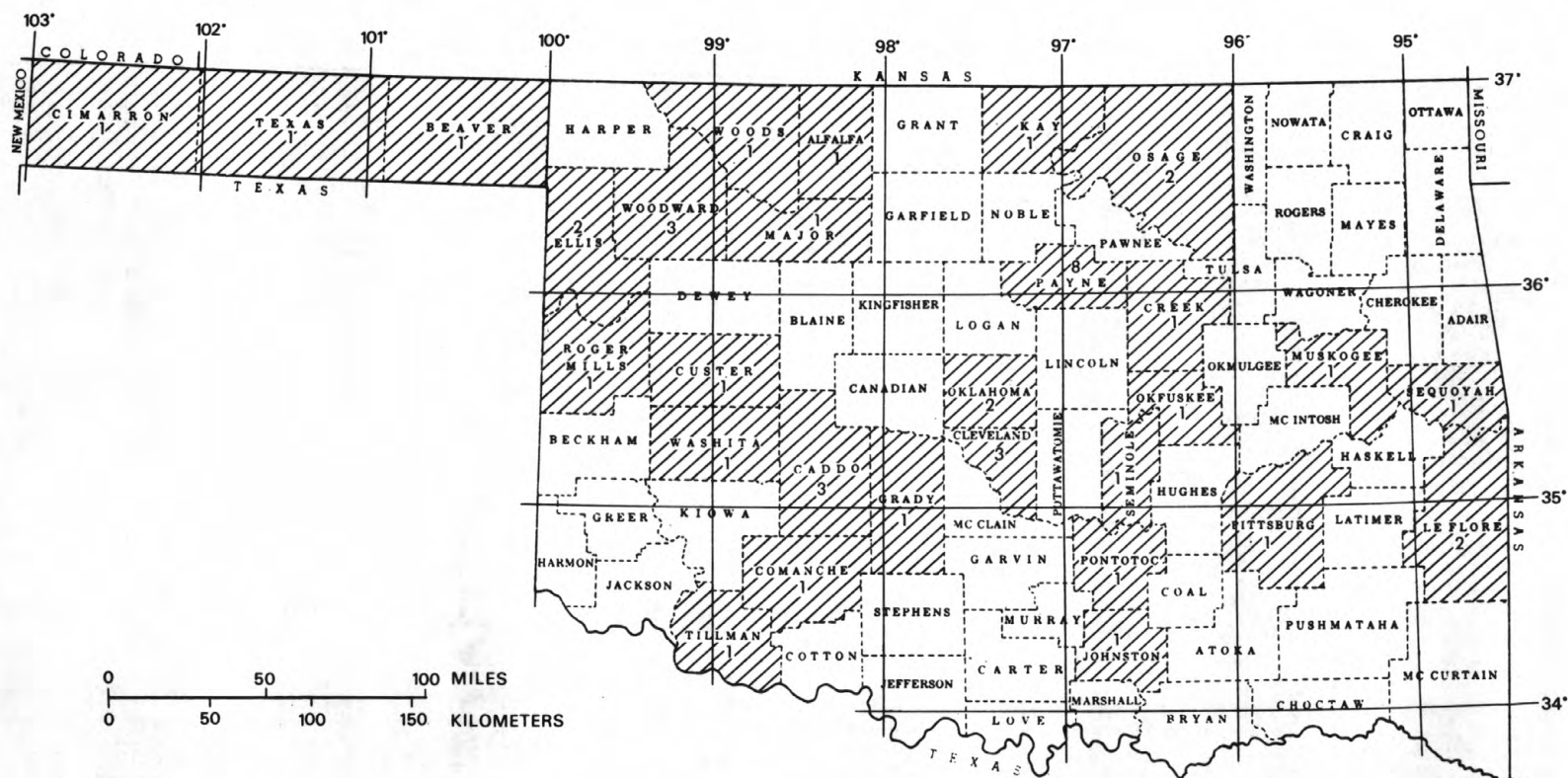


Figure 7.--Index map showing counties (hatched) containing observation wells measured more than once a year, and number of wells in each county, 1977.

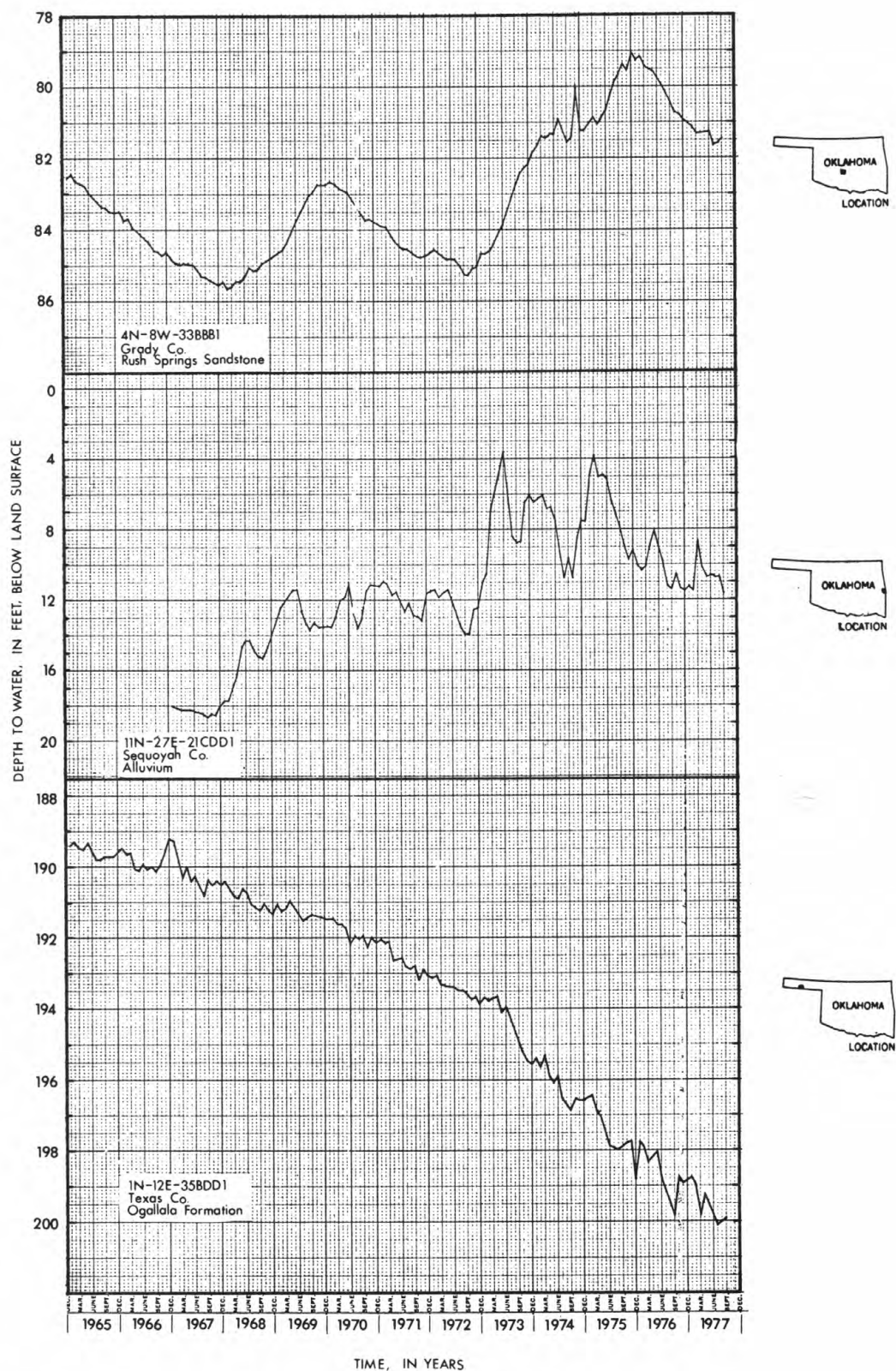


Figure 8.--Depth to water in selected wells in Oklahoma.

07299565 RED RIVER NEAR HOLLIS, OK

LOCATION.--Lat 34°34'59", long 99°57'22", in NE 1/4 NW 1/4 sec.8, T.1 N., R.26 W., Harmon County, Hydrologic Unit 11120105, at bridge on State Highway 30, 0.3 miles (0.5 km) upstream from Buck Creek, 7.0 mi (11.3 km) southwest of Hollis, and at mile 1,047.6 (1,685.6 km)..

DRAINAGE AREA.--8,154 mi² (21,119 km²) of which 4,769 mi² (12,352 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
UCT											
06...	1028	9740	0950	20000	7.2	13.0	73	10.5	103	23	3374
NOV											
03...	1028	9740	1000	24000	7.9	12.5	2	10.9	106	37	3721
DEC											
07...	1028	9740	1315	35000	8.3	4.0	18	13.3	106	16	2717
JAN											
05...	1028	9740	1040	35000	7.5	1.0	4	16.8	124	108	3974
FEB											
01...	1028	9740	1330	21000	8.0	11.0	5	12.1	115	48	3266
MAR											
01...	1028	9740	1245	44000	8.1	10.5	12	11.1	105	29	3795
APR											
05...	1028	9740	1440	37500	8.0	20.0	3	9.1	103	18	3614
MAY											
03...	1028	9740	1840	17000	7.9	25.0	225	7.5	95	39	2361
JUN											
02...	1028	9740	1030	--	7.7	24.0	25	8.0	100	145	1994
JUL											
06...	1028	9740	1500	27000	7.9	31.0	35	8.0	113	20	1650
AUG											
03...	1028	9740	1515	31000	7.8	34.0	23	7.8	96	155	4282
SEP											
07...	1028	9740	1530	30000	7.9	30.5	36	7.0	98	66	3190

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
UCT											
06...	880	200	5300	23	--	10630	.8	847	.70	<.14	--
NOV											
03...	1000	322	5000	19	--	8722	.6	21960	.70	<.08	<1
DEC											
07...	730	209	6000	17	--	11570	.7	24340	.50	<.03	--
JAN											
05...	929	239	6500	23	3075	13780	.5	27380	.60	<.06	--
FEB											
01...	934	248	6900	31	2527	11250	.6	22010	.90	<.03	<1
MAR											
01...	1120	301	6800	23	2986	13810	.6	27170	.80	.06	--
APR											
05...	960	264	6200	25	2885	10910	.6	22460	1.1	.11	--
MAY											
03...	738	130	2560	45	121	4627	.5	11200	2.8	.77	26
JUN											
02...	750	153	2000	39	1530	3015	.6	8973	5.8	4.1	--
JUL											
06...	927	19	4100	37	2501	9345	.6	18830	1.2	.35	--
AUG											
03...	1030	215	5300	44	2846	12800	.6	25000	1.3	.20	3
SEP											
07...	934	207	1300	17	2339	--	.5	20230	<.65	.05	--

RED RIVER BASIN

23

07299565 RED RIVER NEAR HOLLIS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
06...	--	--	--	700	--	151	--	--	--	--	--
NOV											
03...	11	37	16	600	36	690	<.5	41	2	10	3
DEC											
07...	--	--	--	460	--	232	--	--	--	--	--
JAN											
05...	--	--	--	240	--	98	--	--	--	--	--
FEB											
01...	20	102	74	400	72	120	<.5	90	2	44	12
MAR											
01...	--	--	--	600	--	150	--	--	--	--	--
APR											
05...	--	--	--	250	--	130	--	--	--	--	--
MAY											
03...	11	90	65	23000	73	810	<.5	101	2	24	140
JUN											
02...	--	--	--	3500	--	1200	--	--	--	--	--
JUL											
06...	--	--	--	900	--	340	--	--	--	--	--
AUG											
03...	1	130	32	750	110	250	<.5	80	2	30	28
SEP											
07...	--	--	--	1400	--	98	--	--	--	--	--

RED RIVER BASIN

07299570 RED RIVER NEAR QUANAH, TX

LOCATION.--Lat 34°24'47", long 99°44'03", Hardeman County, Hydrologic Unit 11120105, at bridge on State Highway 6, 8 mi (13 km) north of Quanah, 30 mi (48 km) upstream from Salt Fork Red River, and at mile 1,030 (1,657 km).

DRAINAGE AREA.--8,321 mi² (21,551 km²), of which 4,769 mi² (12,352 km²) is probably noncontributing.

PERIOD OF RECORD.--Water years 1960, 1976 to May 1977 (discontinued)

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COLLECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARDNESS (CA, MG)
UCT 05...	1028	9740	1630	18000	8.0	20.5	250	10.2	117	66	2930
NOV 02...	1028	9740	1530	18000	8.1	21.0	95	8.9	101	28	3510
DEC 07...	1028	9740	1600	24000	8.3	7.0	--	12.1	104	--	3117
JAN 05...	1028	9740	0820	21000	7.7	.0	2	13.0	108	21	3061
FEB 01...	1028	9740	1030	22000	8.1	4.0	3	13.2	105	44	3438
MAR 01...	1028	9740	1030	36000	8.0	7.0	17	12.0	103	17	3956
APR 06...	1028	9740	1325	20000	8.0	24.0	2	9.7	118	25	3193
MAY 03...	1028	9740	1645	15000	8.0	27.0	110	7.3	96	60	2272
DATE	TOTAL CALCIUM (CA) (MG/L)	TOTAL MAGNESIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	TOTAL FLUORIDE (F) (MG/L)	TOTAL FILTERABLE RESIDUE (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
UCT 05...	730	186	4900	25	--	7457	.6	16640	1.2	<.10	--
NOV 02...	439	124	5900	30	--	1925	.5	21960	.80	<.08	2
DEC 07...	--	--	--	--	--	7080	--	--	--	--	--
JAN 05...	803	228	4500	19	2500	8161	.4	19470	.50	<.03	--
FEB 01...	668	247	4300	22	2488	7943	--	16770	.80	<.03	3
MAR 01...	1170	331	7000	36	2976	13420	.6	26480	.80	.08	--
APR 06...	784	270	3000	21	3838	5756	.5	13480	1.1	.09	--
MAY 03...	767	140	2200	45	1942	3839	.5	9979	4.2	2.0	19
DATE	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT 05...	--	--	--	1000	--	380	--	--	--	--	--
NOV 02...	12	39	19	200	42	680	<.5	52	8	15	9
DEC 07...	--	--	--	--	--	--	--	--	--	--	--
JAN 05...	--	--	--	<100	--	183	--	--	--	--	--
FEB 01...	16	84	66	390	88	230	<.5	72	3	26	30
MAR 01...	--	--	--	780	--	170	--	--	--	--	--
APR 06...	--	--	--	310	--	230	--	--	--	--	--
MAY 03...	12	132	117	3400	135	1100	.6	148	2	22	250

RED RIVER BASIN

25

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX

LOCATION.--Lat 34°57'27", long 100°13'14", Collingsworth County, Hydrologic Unit 11120202, at bridge on U.S. Highway 83, 4 miles (6 km) downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4.5 miles (7.2 km) south of Lutie, and 7.2 miles (11.6 km) north of Wellington.

DRAINAGE AREA.--1,222 mi² (3,165 km²) of which 209 mi² (541 km²) is probably noncontributing.

PERIOD OF RECORD.--Water years 1960, 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT												
06...	1028	9740	1130	7.0	3300	7.4	13.5	2	--	--	8	1576
07...	--	--	1245	16	2920	7.5	9.5	20	11.6	106	--	1400
NOV												
03...	1028	9740	1525	10	3500	8.3	13.5	3	--	--	10	1850
04...	--	--	0800	11	3370	7.9	6.5	5	10.1	86	--	1800
DEC												
07...	1028	9740	1130	9.0	4000	8.3	1.0	7	13.0	98	8	2116
09...	--	--	1145	10	3300	8.0	10.0	6	10.4	96	--	--
JAN												
05...	1028	9740	1545	15	3100	7.9	.5	6	12.2	102	4	1915
06...	--	--	0845	10	3480	8.0	1.0	6	12.6	93	--	1800
FEB												
02...	1028	9740	1320	22	4000	8.1	12.0	35	--	--	13	1509
10...	--	--	1200	25	3290	8.0	11.0	25	11.6	109	--	1600
MAR												
01...	1028	9740	1520	29	3100	8.4	14.0	17	9.6	100	3	1450
16...	--	--	1130	13	3230	8.0	14.0	5	10.7	108	--	--
APR												
05...	1028	9740	1300	11	3500	8.1	21.0	5	6.7	102	8	1806
07...	--	--	1110	12	3180	8.0	21.0	10	9.2	107	--	1700
MAY												
04...	1028	9740	1015	90	1100	7.8	18.0	170	8.2	93	77	401
04...	--	--	1130	100	1080	7.4	21.5	860	6.2	95	--	390
JUN												
01...	1028	9740	1400	210	1730	8.0	28.0	275	7.2	97	82	622
09...	--	--	1130	26	2660	8.1	28.0	60	7.8	101	--	1400
JUL												
06...	1028	9740	1215	4.5	3200	8.0	27.0	2	8.1	106	<3	1703
13...	--	--	1130	3.0	3090	8.0	29.0	15	7.7	101	--	1600
AUG												
03...	1028	9740	1415	7.0	2620	7.8	34.0	4	7.4	110	6	500
11...	--	--	1300	5.0	2990	8.0	21.0	95	8.5	99	--	1600
SEP												
01...	--	--	1105	7.4	3690	8.1	27.5	15	7.7	100	--	--
08...	1028	9740	0840	7.5	3750	8.0	19.5	2	8.8	104	6	1823
14...	--	--	0900	9.5	--	--	25.5	--	--	--	--	--

RED RIVER BASIN

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible][illegible]

RED RIVER BASIN

27

07300400 SALT FORK RED RIVER NEAR VINSON, OK

LOCATION.--Lat 34°50'07", long 99°55'00", on west line of SW 1/4 sec.2, T.4 N., R.26 W., Harmon County, Hydrologic Unit 11120202, at bridge on State Highway 30, 1.1 miles (1.8 km) northeast of Lake Hall spillway, 4.6 miles (7.4 km) southwest of Vinson, and at mile 64.2 (103.3 km).

DRAINAGE AREA.--1,421 mi² (3,680 km²) of which 209 mi² (541.3 km²) is probably noncontributing.

PERIOD OF RECORD.--September 1976 to October 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 06...	1028	9740	1330	3000	7.6	13.5	1	9.6	96	11	1354
NOV 03...	1028	9740	1150	2800	8.3	13.5	2	10.1	99	11	1830
DEC 08...	1028	9740	1030	3800	8.3	.0	5	13.2	96	8	1859
JAN 05...	1028	9740	1400	3100	7.7	.0	8	13.0	94	6	1647
FEB 02...	1028	9740	1445	3600	8.2	10.0	5	11.1	105	10	1757
MAR 01...	1028	9740	1330	3400	8.3	11.0	10	10.9	106	3	1817
APR 06...	1028	9740	1450	3700	8.0	24.0	2	8.5	105	8	1821
MAY 04...	1028	9740	1140	1180	7.7	19.5	<1000	8.1	94	31	477
JUN 01...	1028	9740	1530	1590	7.8	29.0	200	7.4	100	104	368
JUL 06...	1028	9740	1335	3320	8.1	32.5	2	7.4	106	<3	1703
AUG 03...	1028	9740	1300	2550	7.9	32.0	15	7.5	107	12	503
SEP 07...	1028	9740	1400	3500	8.0	30.5	1	6.6	92	10	1706

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 06...	480	108	205	6.3	--	247	.7	2960	.80	<.14	--
NOV 03...	299	61	189	5.4	--	253	.6	3261	.80	<.08	1
DEC 08...	476	100	200	4.9	--	262	.7	2977	.90	<.03	--
JAN 05...	467	92	177	4.2	1525	237	.5	3106	.70	<.03	--
FEB 02...	513	105	224	4.7	1546	265	.5	2824	2.0	<.03	2
MAR 01...	496	102	227	5.3	1513	456	.5	3173	.90	.04	--
APR 06...	525	132	242	6.5	1523	268	.6	3136	1.3	.08	--
MAY 04...	265	34	251	15	392	259	.2	801	8.8	--	4
JUN 01...	326	66	94	11	417	119	.6	1130	3.2	2.0	--
JUL 06...	517	108	226	9.8	1678	281	.4	3116	1.1	.03	--
AUG 03...	404	76	140	8.6	1306	166	.5	2254	1.3	.07	13
SEP 07...	506	107	185	2.6	1465	232	.5	2824	<.65	.02	--

RED RIVER BASIN

07300400 SALT FORK RED RIVER NEAR VINSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT 06...	--	--	--	<100	--	150	--	--	--	--	--
NOV 03...	3	25	7	100	19	6	<.5	17	11	4	8
DEC 08...	--	--	--	260	--	73	--	--	--	--	--
JAN 05...	--	--	--	<100	--	34	--	--	--	--	--
FEB 02...	5	49	18	150	21	30	<.5	53	6	12	11
MAR 01...	--	--	--	<100	--	40	--	--	--	--	--
APR 06...	--	--	--	230	--	30	--	--	--	--	--
MAY 04...	6	173	79	4000	91	1300	<.5	132	4	7	280
JUN 01...	--	--	--	4600	--	800	--	--	--	--	--
JUL 06...	--	--	--	200	--	100	--	--	--	--	--
AUG 03...	1	50	5	630	25	10	<.5	15	2	5	13
SEP 07...	--	--	--	150	--	57	--	--	--	--	--

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 State Highway 34, 0.5 mi (0.8 km) south of Mangum, 13.0 mi (21 km) downstream from Fish Creek, and at mile 35.5 (57.1 km).

DRAINAGE AREA.--1,566 mi² (4,056 km²), of which 209 mi² (541 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

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) above mean sea level (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 poor.

AVERAGE DISCHARGE.--40 years (water years 1937-77), 88.0 ft³/s (2.492 m³/s), 63,760 acre-ft/yr (78.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft³/s (2,039 m³/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.--Peak discharges above base of 6,000 ft³/s (170 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
Apr. 20	1545	32,800 929	13.25 4.039	May 27	0400	*36,800 1,040	13.50 4.115
May 21	1400	23,600 668	12.65 3.856				

No flow Aug. 8-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	30	13	11	28	28	16	15	546	16	27	6.5
2	11	25	16	11	31	27	14	18	206	14	15	4.6
3	10	21	23	12	29	24	12	17	371	13	12	3.3
4	8.6	19	23	15	26	20	10	797	149	10	15	2.6
5	7.3	18	20	18	26	18	9.2	399	91	8.4	9.2	2.5
6	6.7	17	20	20	28	16	8.0	317	67	7.0	5.0	2.4
7	8.4	16	23	14	26	16	7.3	110	54	6.1	5.0	2.1
8	13	15	21	13	25	15	6.7	72	48	5.8	.00	1.8
9	16	14	18	15	24	14	6.4	73	45	6.1	.00	1.4
10	16	12	18	16	22	13	6.0	185	41	7.0	.00	1.3
11	13	12	14	16	33	13	5.6	277	39	7.0	.80	1.3
12	10	12	16	16	72	11	5.5	111	36	4.9	1.0	1.0
13	8.0	12	14	19	78	10	6.2	81	36	3.3	1.0	1.9
14	7.7	13	18	23	72	9.2	11	66	36	1.9	1.0	1.4
15	6.4	15	20	24	48	8.0	51	329	37	1.5	1.0	1.0
16	7.7	18	19	20	36	7.3	100	255	37	1.1	28	.74
17	8.0	20	18	29	30	7.0	283	159	38	1.0	20	.53
18	8.0	19	15	33	28	7.0	429	141	36	.50	12	.59
19	6.1	18	12	34	25	6.7	207	149	32	.33	46	.25
20	5.8	17	12	54	23	6.7	7340	187	30	.28	45	.17
21	6.1	16	10	50	22	6.4	814	9640	26	.28	29	64
22	5.8	15	25	42	21	6.4	254	856	40	1.1	15	77
23	6.7	15	16	38	18	6.4	131	179	43	11	11	34
24	6.4	14	15	36	16	6.4	83	63	27	8.0	8.8	16
25	6.7	15	16	32	14	7.0	56	54	25	4.5	17	9.6
26	7.3	16	18	29	18	8.0	42	2950	21	2.5	55	6.3
27	11	14	18	28	23	11	34	13200	19	1.8	39	3.7
28	13	13	18	27	26	18	24	929	17	1.8	49	2.7
29	38	13	18	22	---	22	17	444	21	3.5	13	2.8
30	62	13	17	21	---	24	13	298	18	2.7	7.7	1.6
31	42	---	11	20	---	19	---	363	---	4.1	9.2	---
TOTAL	395.9	487	535	758	868	411.5	10003.9	32754	2232	156.49	493.20	255.08
MEAN	12.8	16.2	17.3	24.5	31.0	13.3	333	1057	74.4	5.05	15.9	8.50
MAX	62	30	25	54	78	28	7340	13200	546	16	55	77
MIN	5.8	12	10	11	14	6.4	5.5	15	17	.28	.00	.17
AC-FT	785	966	1060	1500	1720	816	19840	64970	4430	310	978	506

CAL YR 1976	TOTAL	14535.85	MEAN	39.7	MAX	3460	MIN	.00	AC-FT	28830
WTR YR 1977	TOTAL	49350.07	MEAN	135	MAX	13200	MIN	.00	AC-FT	97890

RED RIVER BASIN

07300500 SALT FORK RED RIVER AT MANGUM, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947-52, 1954-56, 1960-63, 1976 to May 1977.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1946 to September 1948.

WATER TEMPERATURE: Decmeber 1946 to September 1948.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
05...	1028	9740	1430	2800	8.0	19.0	4	10.2	114	11	1754
NOV											
02...	1028	9740	1435	2800	8.3	20.5	8	8.5	96	10	1870
DEC											
07...	1028	9740	1630	3700	8.4	4.0	3	13.0	104	7	2002
JAN											
04...	1028	9740	1530	3100	8.1	6.0	6	12.2	104	4	1650
FEB											
01...	1028	9740	1600	3000	8.2	9.0	5	12.0	109	9	1757
MAR											
02...	1028	9740	0850	3000	8.2	7.0	6	11.4	101	<3	1678
APR											
06...	1028	9740	1125	4200	8.0	18.0	3	9.8	106	10	2078
MAY											
03...	1028	9740	1410	3100	8.2	27.0	43	8.1	106	15	1372

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHURUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
05...	490	107	230	8.3	--	280	.6	3254	.50	<.10	--
NOV											
02...	475	103	175	4.4	--	253	.5	3327	.80	<.08	<1
DEC											
07...	430	100	202	5.1	--	258	.5	3069	.80	<.03	--
JAN											
04...	463	101	184	4.5	1525	238	.3	3256	.80	<.03	--
FEB											
01...	537	116	229	6.2	1695	279	.5	3288	1.0	<.03	3
MAR											
02...	485	113	220	5.9	1534	447	.5	3212	.80	.03	--
APR											
06...	596	249	285	8.0	1863	343	.5	3555	1.5	.09	--
MAY											
03...	378	99	213	11	1172	278	.6	2460	1.4	.06	3

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GAN- ESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
05...	--	--	--	100	--	114	--	--	--	--	--
NOV											
02...	4	26	8	100	21	<5	<.5	18	6	4	11
DEC											
07...	--	--	--	120	--	42	--	--	--	--	--
JAN											
04...	--	--	--	200	--	13	--	--	--	--	--
FEB											
01...	6	58	40	160	52	30	<.5	38	3	8	6
MAR											
02...	--	--	--	270	--	30	--	--	--	--	--
APR											
06...	--	--	--	<200	--	70	--	--	--	--	--
MAY											
03...	4	46	12	780	16	70	<.5	36	2	8	18

07301315 NORTH FORK RED RIVER NEAR TEXOLA, OK

LOCATION.--Lat 35°17'40", long 99°59'23", on west line of SE 1/4 sec.31, T.10 N., R.26 W., Beckham County, Hydrologic Unit 11120302, at bridge on county road 4.8 miles (7.7 km) north of Texola, and at mile 148.7 (239.2 km).

DRAINAGE AREA.--1,284 mi² (3,326 km²) of which 379 mi² (982 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. No flow was observed on Oct. 26, Nov. 22, and Mar. 23.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA,MG) (MG/L)
DEC 27...	1028	9740	1600	6400	8.3	11.0	4	9.8	96	9	1970
JAN 25...	1028	9740	1330	2900	8.0	5.0	150	10.1	85	17	1052
FEB 23...	1028	9740	1305	4500	8.3	7.0	34	11.4	102	12	1750
APR 27...	1028	9740	1050	4150	8.4	19.5	51	9.0	105	19	1323
MAY 18...	1028	9740	1000	2050	8.0	19.5	260	8.0	94	92	660
JUN 02...	1028	9740	1030	1950	8.0	24.0	425	7.5	95	63	622
AUG 18...	1028	9740	1215	4900	8.3	21.0	8	8.6	104	6	1495

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PHOS- PHATE (P) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
DEC 27...	481	172	460	6.0	--	842	.5	4229	.50	<.03	--
JAN 25...	374	77	350	6.6	772	570	.6	2322	1.2	<.03	--
FEB 23...	470	129	490	7.8	1436	853	.6	3972	.10	.09	3
APR 27...	380	110	320	16	1098	640	.5	2908	1.7	.09	--
MAY 18...	398	59	160	11	473	257	.4	1288	4.3	1.0	<1
JUN 02...	267	59	163	10	390	239	.4	1372	3.2	.79	--
AUG 18...	346	102	175	11	625	628	.5	3420	1.2	.09	3

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANG- ANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SIL- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
DEC 27...	--	--	--	<100	--	60	--	--	--	--	--
JAN 25...	--	--	--	840	--	117	--	--	--	--	--
FEB 23...	6	66	21	770	7	80	<.5	34	--	6	18
APR 27...	--	--	--	850	--	90	--	--	--	--	--
MAY 18...	7	78	56	4000	6	910	1.1	110	5	5	175
JUN 02...	--	--	--	580	--	260	--	--	--	--	--
AUG 18...	1	10	7	<100	25	50	<.5	8	<1	6	6

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 mi² (6,053 km²), of which 399 mi² (1,033 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

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) above mean sea level.

REMARKS.--Records poor below 500 ft³/s (14.2 m³/s) and good above.

AVERAGE DISCHARGE.--31 years (1944-62, 1964-77), 123 ft³/s (3.483 m³/s), 89,110 acre-ft/yr (110 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,400 ft³/s (1,512 m³/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.--Peak discharge above base of 3,200 ft³/s (90.6 m³/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. 20	2215	5,700	161	9.14	2.786	May 21	2130	22,000	623	13.33	4.063
May 4	1530	4,280	121	8.53	2.600	May 27	1130	13,900	394	11.81	3.600
May 17	1945	*35,800	1,010	14.98	4.566	June 3	1000	3,870	110	7.48	2.280

No flow Oct. 8-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	5.5	5.7	11	30	42	28	473	1850	60	34	91
2	.70	4.5	6.7	10	32	61	23	796	1300	40	22	78
3	.60	4.0	8.1	10	33	59	19	331	1960	20	29	65
4	.50	3.5	7.6	11	41	42	17	2080	650	19	27	54
5	.30	3.2	7.3	10	45	33	15	360	520	19	32	46
6	.20	3.0	7.8	13	41	29	14	275	460	18	21	42
7	.10	2.9	6.3	17	38	26	14	260	427	18	15	41
8	.00	2.8	7.0	13	36	23	13	90	351	17	8.2	39
9	.00	2.7	8.2	8.0	32	21	12	70	270	17	7.0	32
10	.00	2.7	8.4	9.0	31	21	12	310	229	17	6.0	23
11	.00	2.6	6.7	11	45	20	11	330	203	16	9.8	20
12	.00	2.5	8.1	15	80	19	11	190	185	16	28	17
13	.00	2.5	7.6	16	194	17	13	90	172	16	65	17
14	.00	2.8	7.9	16	150	15	17	85	294	15	78	15
15	.00	5.4	8.2	16	102	14	37	735	841	15	60	15
16	.00	5.7	8.5	15	81	14	69	200	357	15	52	20
17	.00	5.6	8.4	14	67	14	359	15600	270	14	33	28
18	.00	5.6	8.6	13	54	14	765	9860	100	14	29	22
19	.00	5.8	8.9	14	47	13	406	2960	70	14	208	19
20	.00	5.8	7.4	15	41	12	2580	1600	50	14	343	19
21	.00	5.7	7.5	17	36	12	1310	10900	42	14	179	17
22	.00	5.6	6.6	20	33	11	400	9880	70	15	117	15
23	.00	5.8	8.0	53	30	12	150	2220	100	14	97	15
24	.00	5.8	9.1	68	26	12	70	1170	70	13	89	14
25	.00	5.9	9.5	70	24	13	45	853	80	12	85	13
26	.00	6.5	8.3	54	29	15	35	1610	70	11	79	11
27	.00	5.8	9.6	42	33	22	30	11900	40	16	77	9.8
28	.00	4.3	10	38	34	30	27	4920	30	17	83	9.0
29	4.0	4.6	9.8	28	---	29	26	1850	22	17	79	8.2
30	10	5.4	9.8	23	---	30	25	800	25	40	171	9.8
31	7.0	---	9.1	27	---	30	---	1300	---	47	106	---
TOTAL	24.30	134.5	250.7	697.0	1465	725	6553	84098	11108	610	2269.0	824.8
MEAN	.78	4.48	8.09	22.5	52.3	23.4	218	2713	370	19.7	73.2	27.5
MAX	10	6.5	10	70	194	61	2580	15600	1960	60	343	91
MIN	.00	2.5	5.7	8.0	24	11	11	70	22	11	6.0	8.2
AC-FT	48	267	497	1380	2910	1440	13000	166800	22030	1210	4500	1640

CAL YR 1976 TOTAL 17175.53 MEAN 46.9 MAX 1580 MIN .00 AC-FT 34070
WTR YR 1977 TOTAL 108759.30 MEAN 298 MAX 15600 MIN .00 AC-FT 215700

RED RIVER BASIN

33

07301500 NORTH FORK RED RIVER NEAR CARTER, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-51, 1958-63, 1968 to May 1977.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1976.

WATER TEMPERATURE: July 1968 to September 1976.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
NOV 02...	1028	9740	1230	2250	8.5	20.0	--	10.7	119	--	--
DEC 21...	1028	9740	1130	4000	8.1	.0	6	14.7	106	25	966
FEB 15...	1028	9740	1330	--	8.1	10.0	199	11.1	103	33	1260
MAR 16...	1028	9740	0930	3120	7.9	10.0	5	11.2	104	11	989
APR 19...	1028	9740	1230	2900	7.8	21.0	300	8.4	98	74	615
MAY 10...	1028	9740	1615	1900	8.0	18.0	120	7.9	89	34	799

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
NOV 02...	--	--	--	--	--	--	--	--	--	--	--
DEC 21...	197	106	157	5.6	--	390	.5	2693	.80	.04	--
FEB 15...	273	77	280	8.0	775	746	.6	2054	2.0	.21	7
MAR 16...	267	103	300	4.7	967	403	.6	2304	1.0	.07	--
APR 19...	363	90	285	8.2	643	429	.6	1952	4.9	1.1	--
MAY 10...	216	72	213	11	612	300	.3	1586	2.3	.49	12

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
NOV 02...	--	--	--	--	--	--	--	--	--	--	--
DEC 21...	--	--	--	<100	--	112	--	--	--	--	--
FEB 15...	3	59	15	3500	30	260	<.5	28	--	10	40
MAR 16...	--	--	--	310	--	50	--	--	--	--	--
APR 19...	--	--	--	5000	--	970	--	--	--	--	--
MAY 10...	3	31	15	710	41	220	.8	57	0	9	41

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 mi² (6,514 km²), of which 399 mi² (1,033 km²) 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 mean sea level (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 masonry dam. Storage began in December 1943. Capacity, 134,600 acre-ft (166 hm³) at elevation 1,559.0 ft (475.18 m) crest of uncontrolled spillway and 72,500 acre-ft (89.4 hm³) at elevation 1,547.0 ft (471.53 m) crest of controlled spillway. Dead storage, 1,660 acre-ft (2.05 hm³) 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 km²). Revised capacity table used since Jan. 1, 1969.

COOPERATION.--Data on diversions furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 170,600 acre-ft (210 hm³) May 19, 1951, elevation, 1,562.10 ft (476.128 m); minimum after initial storage, 4,690 acre-ft (5.78 hm³) Aug. 25, 1944, elevation, 1,520.2 ft (463.357 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 152,600 acre-ft (188 hm³) May 21, elevation, 1,561.77 ft (476.027 m); minimum, 75,240 acre-ft (92.7 hm³) Jan. 7, elevation, 1,547.66 ft (471.727 m).

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

1547	72,500	1554	105,500
1549	81,030	1558	128,400
1551	90,280	1562	154,100

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78660	77580	75910	75450	75950	77960	77830	92460	136800	136100	104400	98460
2	78610	77660	75830	75360	76250	78180	77960	95930	135600	135900	104800	98460
3	78480	77580	75910	75490	76290	78180	78050	98050	135600	135400	104800	98460
4	78830	77490	75830	75620	76250	78180	77830	105200	134800	134900	104400	98460
5	78310	77400	75830	75320	76340	78180	77830	109100	135200	134300	104200	98510
6	78180	77400	75870	75320	76420	78180	77750	111200	135300	133500	103800	98510
7	78400	77360	75870	75320	76460	78140	77620	112200	135100	132600	103300	98560
8	78310	77280	75620	75410	76340	78220	77830	112700	134800	131800	102200	98560
9	78310	77280	75700	75280	76550	78090	77400	113900	134700	130600	101000	98460
10	78180	77190	75700	75360	76760	78180	77320	115900	135000	129500	99740	98460
11	78010	76890	75870	75360	77320	78400	77320	118100	135400	128200	98560	98710
12	78050	76890	75830	75360	77360	78180	77450	119300	135800	126900	97190	97950
13	78050	76760	75790	75490	77620	77960	77450	119500	136400	125700	96030	98210
14	77960	76680	75830	75490	77790	78140	77880	119800	136400	124300	94930	98050
15	78050	76550	75830	75490	77830	78050	77750	121000	137800	123000	93690	97700
16	77790	76380	75790	75490	78140	77880	78440	122400	137700	121700	92710	97600
17	77530	76250	75790	75490	78220	77830	79050	122000	137400	120500	91730	97600
18	77620	76170	75700	75490	78180	77830	80450	139000	136600	119200	91050	97700
19	77400	76340	75830	75490	78270	77920	81480	150600	135900	117800	91710	97600
20	77360	76290	75700	75530	78400	77530	82690	152400	135700	116600	94930	96990
21	77280	76250	75490	75530	78180	77750	87050	145600	135500	115200	95680	97290
22	77100	76120	75700	75620	78530	77750	88140	145700	135700	114000	95930	96940
23	77530	76170	75490	75700	78480	77750	88700	139600	135800	112700	96180	97090
24	77190	76120	75490	75790	78400	77750	89180	135800	136100	111400	96430	97040
25	77150	76040	75620	75910	78700	77620	89470	134900	136200	110000	96180	96990
26	77190	76340	75620	76000	78530	77700	89660	138300	136200	108800	96180	96940
27	77190	76120	75620	76040	78400	77830	90040	144800	136200	107500	97190	96890
28	77230	76000	75620	76120	78400	78050	90520	146400	136100	106100	97700	96940
29	77620	76040	75620	76080	---	78050	90760	140600	136100	105200	98050	97190
30	77660	75830	75490	76080	---	77960	91100	135600	136100	104400	98210	96940
31	77620	---	75490	76040	---	77830	---	135300	---	104100	98360	---
MAX	78830	77660	75910	76120	78700	78400	91100	152400	137800	136100	104800	98710
MIN	77100	75830	75490	75280	75950	77530	77320	92460	134700	104100	91050	96890
†	1,548.22	1,547.80	1,547.72	1,547.85	1,548.40	1,548.27	1,551.17	1,559.12	1,559.24	1,553.74	1,552.63	1,552.35
‡	-1,170	-1,790	-340	+550	+2,360	-570	+13,270	+44,200	+800	-32,000	-5,740	-1,420
††	0	556	0	0	237	405	0	1,462	1,841	29,761	12,979	0
CAL YR 1976	MAX	136100	MIN	75490	††	62,228	‡	-50,910				
WTR YR 1977	MAX	152400	MIN	75280	††	47,241	‡	+18,150				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-ft.

†† Total diversions, in acre-ft.

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 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 mi² (6,514 km²), of which 399 mi² (1,033 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

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) above mean sea level. 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) above mean sea level, unadjusted.

REMARKS.--Records fair. Some regulation at low flow by Lugert Lake prior to December 1943 capacity, 13,500 acre-ft (16.6 hm³) and completely regulated thereafter by Lake Altus (station 07302500). Diversions at Lake Altus bypass most of streamflow. Seepage from Altus Dam not included except for period March 1951 to January 1953.

EXTREMES OR PERIOD OF RECORD.--Maximum discharge, 16,100 ft³/s (456 m³/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 each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 16, 1928, reached a stage of 14.5 ft (4.42 m), site and datum then in use, discharge, 14,300 ft³/s (405 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,900 ft³/s (365 m³/s) May 21, by computation of peak flow over dam, gage height, 16.37 ft (4.990); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	1440	95	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	1900	93	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	1590	77	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	1290	36	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	425	5.0	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	440	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	435	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	367	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	193	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	30	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	52	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	80	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	100	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	130	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	223	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	410	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	1640	340	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	4200	360	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	2230	330	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	2230	164	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	6200	60	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	11800	70	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	9000	80	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	3960	80	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	1480	100	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	1150	110	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	4880	100	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	8370	100	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	6660	100	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	3790	90	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	1540	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	69150.00	11259	308.00	.00	.00
MEAN	.0000	.0000	.0000	.0000	.0000	.0000	.0000	2230	375	9.94	.0000	.0000
MAX	.00	.00	.00	.00	.00	.00	.00	11800	1900	95	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	30	.00	.00	.00
AC=FT	.00	.00	.00	.00	.00	.00	.00	137100	22330	611	.00	.00
CAL YR 1976	TOTAL	5424.80	MEAN	14.8	MAX	1110	MIN	.00	AC=FT	10760		
WTR YR 1977	TOTAL	80697.00	MEAN	221	MAX	11800	MIN	.00	AC=FT	160100		

RED RIVER BASIN

07303000 NORTH FORK RED RIVER BELOW ALTUS DAM NEAR LUGERT, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963, November 1975 to current year.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COLLECTING SAMPLE	CODE FOR ANALYZING SAMPLE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARDNESS (CA, MG) (MG/L)	TOTAL CALCIUM (CA) (MG/L)
OCT 20...	1028	9740	0845	2800	8.3	8.0	17	11.9	104	--	913	205
JUL 20...	1028	9740	0800	1800	7.4	26.0	6	2.4	31	25	538	142

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL MAGNESIUM (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	TOTAL FLUORIDE (F) (MG/L)	TOTAL FILTERABLE RESIDUE (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)
OCT 20...	97	275	8.6	--	408	.6	2129	2.0	<.12	300	68
JUL 20...	41	142	8.4	502	196	.4	1117	2.1	.22	200	120

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK

LOCATION.--Lat 35°01'15", long 99°56'58", in NE 1/4 SW 1/4 sec.3, T.6 N., R.26 W., Harmon County, Hydrologic Unit 11120304, 0.1 mi (0.2 km) upstream from ford at saltworks, 2.6 mi (4.2 km) upstream from Carl gage, 3.5 mi (5.6 km) northeast of Carl, and at mile 56.6 (91.9 km).

DRAINAGE AREA.--411 mi² (1,023 km²).

PERIOD OF RECORD.--Water years 1960, 1961, 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1973 to current year.

WATER TEMPERATURE: April 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1973.

REMARKS.--In addition to water quality monitor, samples were collected by a local observer on a daily basis. Partial analyses were made each month on those samples having maximum, minimum and mean specific conductance for the month. Mean daily sulfate, chloride, and dissolved solids tables, and loads for those parameters were calculated from specific conductance values.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 80,700 micromhos Aug. 2, 1974; minimum, 1,330 micromhos May 21, 1974.

WATER TEMPERATURE: Maximum, 34.5°C July 7, 1973; minimum, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	HARDNESS (CA, MG) (MG/L)	NON-CARBO-NATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNE-SIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD-SORPTION RATIO
OCT											
08...	1830	8.7	9480	7.8	1900	1800	590	110	1400	61	14
12...	1300	5.0	16400	7.6	2300	2200	680	150	2900	73	26
16...	1630	6.2	12700	7.8	2200	2100	630	140	2100	68	20
NOV											
05...	1630	9.8	9550	7.9	2000	1900	590	120	1400	61	14
16...	1715	12	8240	7.8	1900	1800	570	120	1200	58	12
28...	1215	6.8	17900	7.6	2400	2300	700	170	3200	74	28
DEC											
07...	1345	7.5	16100	7.9	2200	2100	630	150	2900	74	27
14...	1145	9.8	10200	7.7	2000	1900	590	130	1600	63	16
29...	1030	9.8	9580	7.7	2000	1900	600	130	1500	62	14
JAN											
02...	1230	16	10100	7.8	2100	1900	610	130	1600	63	15
04...	1615	16	5220	8.1	1700	1500	500	100	770	50	8.2
23...	1245	14	7680	7.9	1800	1700	530	110	1100	57	11
FEB											
05...	1700	15	8500	7.5	2000	1800	590	120	990	52	9.7
10...	1715	15	7640	7.7	1800	1700	550	110	1100	57	11
25...	1620	9.6	9470	7.8	2000	1900	590	130	1400	60	14
MAR											
04...	1630	10	9350	7.9	1900	1900	580	120	1400	61	14
16...	1630	8.0	10100	7.8	2100	2000	630	130	1600	62	15
21...	1115	8.0	11000	7.8	2200	2100	650	140	1700	63	16
APR											
06...	1530	8.0	10600	7.5	2100	2000	610	140	1700	64	16
12...	1230	8.5	12300	7.8	2200	2100	630	140	2100	68	20
27...	1315	17	5180	7.6	1700	1600	540	80	570	42	6.1
MAY											
02...	1045	6.5	6480	7.7	1900	1800	590	95	950	52	9.6
15...	1645	305	2190	7.3	1200	1100	430	32	76	12	1.0
25...	1245	123	4640	7.8	1600	1500	520	75	490	40	5.3
JUN											
03...	1800	103	4360	7.6	1700	1600	560	79	400	33	4.2
13...	1730	48	6430	7.5	2000	1900	620	110	850	48	8.3
20...	1700	26	8090	7.5	2100	2000	650	120	1200	55	11
JUL											
04...	1800	10	9560	7.4	2200	2100	700	100	1400	58	13
20...	1330	10	12700	7.6	2300	2200	730	110	2100	67	19
29...	1800	192	2910	7.4	1400	1300	480	42	170	21	2.0
AUG											
01...	1800	153	2260	7.5	960	880	320	39	150	25	2.1
26...	1730	18	10000	7.5	2100	2000	630	120	1500	61	14
30...	1545	19	6300	7.7	1800	1700	590	87	780	48	7.9
SEP											
15...	1815	8.5	8610	7.0	2200	2000	660	130	1200	54	11
20...	1815	6.0	9630	7.7	2300	2200	670	140	1400	57	13
24...	--	13	7190	7.8	1700	1600	510	95	1100	59	12

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)
OCT											
08...	11	102	0	84	2.6	1700	2100	6470	8.80	152	.64
12...	15	93	0	76	3.7	2000	4700	10800	14.7	146	.77
16...	13	95	0	78	2.4	1800	3400	8530	11.6	143	.76
NOV											
05...	9.8	112	0	92	2.3	1700	2300	6560	8.92	174	1.9
16...	8.3	125	0	103	3.2	1700	1900	5760	7.83	187	1.6
28...	14	176	0	144	7.1	2100	5300	11700	15.9	215	1.6
DEC											
07...	12	128	0	105	2.6	1600	5000	10500	14.3	213	2.1
14...	8.5	120	0	98	3.8	1700	2800	6860	9.33	182	2.0
29...	8.1	145	0	119	4.6	1600	2500	6460	8.79	171	2.0
JAN											
02...	9.2	154	0	126	3.9	1700	2700	6900	9.38	298	2.3
04...	6.4	139	0	114	1.8	1400	1300	4230	5.75	183	2.1
23...	7.4	151	0	124	3.0	1500	1900	5310	7.22	201	2.1
FEB											
05...	8.0	146	0	120	7.4	1400	2000	5890	8.01	239	2.0
10...	7.5	137	0	112	4.4	1400	1800	5410	7.36	219	1.9
25...	9.1	129	0	110	3.3	1800	2300	6580	8.95	171	1.3
MAR											
04...	9.1	110	0	90	2.2	1700	2300	6520	8.87	176	1.1
16...	10	120	0	98	3.0	1700	2500	7070	9.62	153	.88
21...	10	130	0	107	3.3	1800	2800	7620	10.4	165	1.0
APR											
06...	10	89	0	73	4.5	1800	2700	7470	10.2	161	.56
12...	11	98	0	80	2.5	1900	3300	8490	11.5	195	.26
27...	7.3	140	0	115	5.6	1400	930	3920	5.33	180	.82
MAY											
02...	8.2	100	0	82	3.2	1500	1600	5060	6.88	88.8	--
15...	6.1	96	0	79	7.7	1100	100	1920	2.61	1580	--
25...	7.4	150	0	120	3.8	1300	840	3570	4.86	1190	--
JUN											
03...	7.0	160	0	130	6.4	1400	690	3450	4.69	959	--
13...	7.9	130	0	110	6.6	1700	1300	4930	6.70	639	--
20...	9.0	130	0	110	6.6	1900	1800	5870	7.98	412	--
JUL											
04...	8.0	110	0	90	7.0	1700	2300	6830	9.29	184	--
20...	12	92	0	75	3.7	1800	3500	8930	12.1	241	--
29...	8.4	110	0	90	7.0	1300	280	2480	3.37	1290	--
AUG											
01...	8.4	100	0	82	5.1	880	220	1730	2.35	715	--
26...	12	120	0	98	6.1	1700	2400	7050	9.59	343	--
30...	8.6	110	0	90	3.5	1600	1300	4540	6.17	233	--
SEP											
15...	9.9	170	0	140	27	2000	1900	6210	8.45	143	--
20...	11	88	0	72	2.8	2000	2300	6800	9.25	110	--
24...	10	110	0	90	2.8	1600	1500	4930	6.70	173	--

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	15.0	---	---	---	29.5	30.0	---
2	---	19.5	---	0.0	---	15.0	---	17.5	---	30.5	---	---
3	---	14.0	9.5	2.0	11.0	---	---	27.5	31.0	27.0	---	---
4	---	---	8.5	7.5	10.5	16.5	---	---	26.0	28.5	29.0	---
5	20.5	17.0	---	---	11.0	---	20.0	---	---	---	---	---
6	12.0	19.0	2.0	3.0	11.0	---	24.0	---	---	---	---	---
7	---	16.5	5.0	1.0	13.5	---	---	---	---	30.0	---	---
8	18.0	---	7.0	---	11.0	---	---	---	---	---	32.0	31.5
9	---	16.0	---	---	15.0	18.0	---	---	---	34.5	---	---
10	24.0	18.5	---	---	11.0	13.5	---	---	---	---	24.5	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	23.0	---	---	---	---	---	16.0	22.0	---	---	---	---
13	---	---	---	---	---	16.0	21.0	---	32.0	---	30.5	---
14	---	---	7.5	---	---	19.0	---	---	---	---	---	29.5
15	---	---	---	---	15.0	11.0	---	23.5	---	---	37.5	27.0
16	18.5	8.5	---	---	---	14.5	---	---	---	---	---	26.5
17	---	13.5	---	---	---	16.0	---	---	31.0	31.0	---	29.0
18	---	---	---	---	---	---	---	---	26.5	31.0	---	---
19	11.5	---	9.5	---	14.0	15.5	---	---	---	---	30.0	---
20	18.0	---	---	---	16.5	19.0	---	---	32.5	33.5	33.0	26.5
21	16.5	---	2.5	---	---	11.0	---	---	---	---	26.5	---
22	---	---	---	---	---	18.5	---	---	28.5	---	32.5	---
23	14.0	---	7.0	6.0	8.0	---	---	---	---	34.5	37.0	---
24	---	---	---	8.0	16.0	20.5	---	24.5	---	---	35.0	26.0
25	---	---	---	3.0	9.5	---	---	25.0	---	---	---	---
26	---	---	---	7.5	---	---	---	21.5	---	32.0	29.5	28.0
27	---	---	9.0	12.0	---	---	25.0	---	33.5	34.0	---	---
28	---	4.5	---	---	16.0	---	---	---	30.5	---	---	30.0
29	---	---	1.0	---	---	---	29.5	---	28.5	31.0	---	---
30	---	---	0.5	---	---	22.0	19.0	---	25.5	---	31.5	---
31	---	---	---	---	---	---	---	---	---	---	32.0	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	0.5	4.0	8.0	13.5	---	23.5	25.5	25.5	26.0
2	---	---	---	1.0	6.0	9.5	14.5	---	25.0	26.5	25.5	26.0
3	---	---	---	1.0	6.5	7.5	---	---	25.0	25.5	26.0	26.0
4	---	---	---	2.0	5.5	8.0	---	---	26.0	24.0	26.0	25.5
5	---	---	---	0.5	5.0	7.5	---	---	25.5	25.5	25.5	25.5
6	---	---	---	1.0	5.5	9.5	---	---	25.0	26.5	25.5	26.0
7	---	---	---	1.5	5.5	10.5	---	---	24.5	27.5	25.5	26.0
8	---	---	---	1.0	7.5	11.0	---	---	24.0	27.0	25.5	26.0
9	---	---	---	0.5	7.5	12.0	---	22.5	24.5	28.5	25.0	23.5
10	---	---	---	.0	6.5	12.0	---	16.5	25.0	28.5	25.5	23.0
11	---	---	---	0.5	9.0	7.5	---	18.5	25.0	27.0	25.0	25.0
12	---	---	---	0.5	10.0	7.5	---	20.0	26.0	27.0	24.5	24.5
13	---	---	---	0.5	10.0	10.5	---	19.0	25.5	25.5	26.5	22.5
14	---	---	---	0.5	8.5	13.0	---	18.5	25.5	26.5	27.0	22.0
15	---	---	---	0.5	8.0	12.5	---	17.5	26.0	27.5	28.0	21.5
16	---	---	---	0.5	8.0	11.0	---	19.5	26.0	29.0	28.0	23.0
17	---	7.0	---	0.5	9.0	12.5	---	18.5	26.0	28.0	26.5	23.0
18	---	5.0	---	0.5	10.5	11.0	---	23.5	26.0	27.5	25.5	22.5
19	---	5.5	---	1.0	10.0	11.0	---	21.0	26.5	23.5	26.0	21.5
20	---	1.5	---	2.0	10.0	10.5	---	19.0	26.0	28.5	26.5	22.5
21	---	---	1.0	3.5	10.5	9.0	---	18.0	25.5	29.5	26.5	23.5
22	---	---	1.5	2.5	10.5	10.0	---	21.5	24.5	29.0	27.0	24.0
23	---	---	2.5	4.0	8.0	11.0	---	22.5	25.0	30.5	28.0	21.0
24	---	---	4.0	4.5	11.0	13.0	---	24.0	25.5	30.5	27.5	21.5
25	---	---	3.0	3.5	8.5	14.5	---	23.5	26.0	31.0	27.5	22.0
26	---	3.0	---	5.0	6.5	15.0	---	21.0	27.5	30.5	26.5	22.5
27	---	5.0	---	5.0	6.5	14.5	---	20.5	29.0	29.0	25.0	23.5
28	---	5.0	---	2.0	7.5	14.0	---	24.0	28.5	30.0	24.5	25.0
29	---	3.5	---	0.5	---	12.5	---	25.0	27.0	27.5	23.5	25.0
30	---	1.0	---	1.0	---	12.5	---	26.0	26.5	28.5	26.0	24.0
31	---	1.0	---	2.0	---	12.5	---	22.0	---	27.5	26.0	---
MEAN	---	---	3.5	1.5	6.0	11.0	14.0	21.0	25.5	27.5	26.0	24.0
WIK YR 1977	MEAN	17.0		MAX	31.0	MIN	.0					

RED RIVER BASIN

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	9500	---	---	---	8400	2260	---
2	---	8980	---	10100	---	9400	---	6980	---	8420	---	---
3	---	10000	9320	7180	7860	---	---	6000	4360	8940	---	---
4	---	---	8730	5220	9580	9350	---	---	4620	9450	5540	---
5	15100	9550	---	---	8500	---	11200	---	---	---	---	---
6	14300	8770	9450	5270	8830	---	10600	---	5340	---	---	---
7	---	9400	16100	7540	9400	---	---	---	5500	9940	---	---
8	9480	---	9300	---	8670	---	---	---	5590	---	9190	8970
9	---	9220	---	---	9070	9660	---	---	---	9300	---	---
10	12700	9240	---	---	7640	9910	---	---	---	---	9880	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	16400	---	---	---	---	---	12300	4730	---	---	---	---
13	---	---	---	---	---	10600	11700	---	6430	---	6760	---
14	---	---	10200	---	---	9740	---	---	---	---	---	8880
15	---	---	---	---	8070	10300	---	2190	---	---	7480	8610
16	12700	8240	---	---	---	10100	---	---	---	---	---	8880
17	---	8460	---	---	---	9420	---	---	7470	12000	---	9220
18	---	---	---	---	---	---	---	---	7390	12000	---	---
19	10200	---	8930	---	7700	10900	---	---	---	---	7450	---
20	10600	---	---	---	8050	9860	---	---	8090	12700	7600	9630
21	10400	---	9030	---	---	11000	---	---	---	---	7700	---
22	---	---	---	---	---	10100	---	---	7600	---	7580	---
23	9880	---	9100	7680	9260	---	---	---	---	7210	7680	---
24	---	---	---	7750	7000	10500	---	3930	---	---	9020	7190
25	---	---	---	8220	9470	---	---	4640	---	---	---	---
26	---	---	---	10000	---	---	---	4880	---	11400	10000	9560
27	---	---	9500	8090	---	---	5180	---	6040	10400	---	---
28	---	17900	---	---	8010	---	---	---	7080	---	---	8690
29	---	---	5940	---	---	---	6270	---	7720	2910	---	---
30	---	---	12300	---	---	9420	6230	---	7700	---	6300	---
31	---	---	---	---	---	---	---	---	---	---	5940	---
MEAN	12200	9980	9830	7710	8610	9990	9070	4760	6500	9470	7360	8850
WTR YR 1977	MEAN	8740	MAX	17900	MIN	2190						

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	11900	7690	9630	5960	---	3640	8170	3440	---
2	---	---	---	10100	7690	9470	5240	---	3980	8390	3020	---
3	---	---	---	7280	7830	9480	5270	---	4190	8750	2770	---
4	---	---	---	5140	9670	9420	4710	---	4700	9230	6690	---
5	---	---	---	4210	9240	9540	11200	---	5020	9390	---	---
6	---	---	---	5200	8820	9610	---	---	5100	9540	---	---
7	---	---	---	5890	8800	9610	---	---	5330	9610	---	---
8	---	---	---	3960	8620	9650	---	---	5400	9370	---	---
9	---	---	---	8500	9440	9710	---	---	5530	8800	---	---
10	---	---	---	8760	7690	9890	---	---	5690	8510	---	---
11	---	---	---	8100	7910	10400	---	---	5870	8930	---	---
12	---	---	---	8000	7780	10600	---	---	6030	9320	---	---
13	---	---	---	7530	7330	10800	---	---	6050	8700	---	---
14	---	---	---	7000	7950	9830	---	---	6350	9470	---	---
15	---	---	---	6670	8140	10300	---	3610	6670	9790	---	---
16	---	---	---	6850	8020	10200	---	4070	6930	9700	---	---
17	---	---	---	6940	6820	9290	---	721	7350	11700	---	---
18	---	---	---	8640	6070	7840	10200	---	2670	7600	10600	---
19	---	---	---	8920	7210	7750	11000	---	4690	7460	10800	---
20	---	---	---	8970	6570	8070	10000	---	3430	7750	13500	---
21	---	---	10500	7260	8380	11000	---	813	7760	13500	---	---
22	---	---	9260	7150	8680	10200	---	1550	7500	4540	---	---
23	---	---	8800	7660	9440	10400	---	2970	7260	6540	---	---
24	---	---	8680	7630	8980	10500	---	3720	7330	10600	---	---
25	---	---	8990	7880	9580	10100	---	4580	7100	11300	---	---
26	---	---	9920	10000	9210	9750	---	4330	6390	12600	---	---
27	---	---	9310	8080	8630	9540	---	2780	6040	10300	---	---
28	---	---	7650	8100	8170	9300	---	2950	7170	5560	---	---
29	---	---	6010	9160	---	9420	---	3130	7470	5780	---	---
30	---	---	12400	8290	---	9650	---	3340	7670	10000	---	---
31	---	---	18200	8200	---	8950	---	3480	---	13800	---	---
MEAN			9550	7460	8400	9920	6480	3110	6280	9570	3980	
WTR YR 1977	MEAN	7840	MAX	18200	MIN	721						

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK--Continued

DISSOLVED CHLORIDE (CL), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	3200	1800	2400	1200	---	450	2000	390	
2			---	2600	1800	2400	980	---	560	2000	250	
3			---	1700	1800	2400	990	---	630	2100	220	
4			---	950	2400	2400	810	---	800	2300	1500	
5			---	640	2300	2400	240	---	910	2400	---	
6			---	970	2200	2400	---	---	940	2400	---	
7			---	1200	2200	2400	---	---	1000	2400	---	
8			---	560	2100	2400	---	---	1000	2300	---	
9			---	2100	2400	2500	---	---	1100	2200	---	
10			---	2100	1800	2500	---	---	1100	2100	---	
11			---	1900	1900	2700	---	---	1200	2200	---	
12			---	1900	1800	2800	---	---	1200	2300	---	
13			---	1700	1700	2800	---	---	1300	2100	---	
14			---	1600	1900	2500	---	---	1300	2400	---	
15			---	1500	1900	2700	---	440	1500	2500	---	
16			---	1500	1900	2600	---	590	1500	2500	---	
17			1500	1500	1900	2300	---	58	1700	3100	---	
18			2100	1300	1800	2600	---	210	1800	2800	---	
19			2200	1600	1800	2900	---	800	1700	2800	---	
20			2200	1400	1900	2600	---	380	1800	3700	---	
21			2700	1700	2000	2900	---	65	1800	3700	---	
22			2300	1600	2100	2600	---	120	1700	750	---	
23			2200	1800	2400	2700	---	240	1700	1400	---	
24			2100	1800	2200	2700	---	480	1700	2800	---	
25			2200	1900	2400	2600	---	760	1600	240	---	
26			2500	2600	2300	2500	---	680	1400	3400	---	
27			2300	1900	2100	2400	---	220	1200	2700	---	
28			1800	1900	2000	2300	---	240	1600	1100	---	
29			1200	2300	---	2400	---	280	1700	1200	---	
30			3400	2000	---	2400	---	350	1800	2600	---	
31			5300	2000	---	2200	---	400	---	3800	---	
MEAN			2400	1700	2000	2500	840	370	1300	2300	590	
WTR YR 1977	MEAN	1800		MAX	5300		MIN	58				

DISSOLVED SULFATE (SO4), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	1800	1600	1700	1500	---	1300	1600	1300	
2			---	1700	1600	1700	1400	---	1400	1600	1300	
3			---	1500	1600	1700	1400	---	1400	1600	1300	
4			---	1400	1700	1700	1400	---	1400	1700	1500	
5			---	1400	1700	1700	1800	---	1400	1700	---	
6			---	1400	1600	1700	---	---	1400	1700	---	
7			---	1500	1600	1700	---	---	1400	1700	---	
8			---	1400	1600	1700	---	---	1400	1700	---	
9			---	1600	1700	1700	---	---	1500	1600	---	
10			---	1600	1600	1700	---	---	1500	1600	---	
11			---	1600	1600	1700	---	---	1500	1600	---	
12			---	1600	1600	1700	---	---	1500	1700	---	
13			---	1600	1600	1700	---	---	1500	1600	---	
14			---	1500	1600	1700	---	---	1500	1700	---	
15			---	1500	1600	1700	---	1300	1500	1700	---	
16			---	1500	1600	1700	---	1400	1500	1700	---	
17			1500	1500	1600	1700	---	1200	1600	1800	---	
18			1600	1500	1600	1700	---	1300	1600	1700	---	
19			1600	1500	1600	1800	---	1400	1600	1700	---	
20			1600	1500	1600	1700	---	1300	1600	1900	---	
21			1700	1500	1600	1800	---	1200	1600	1900	---	
22			1700	1500	1600	1700	---	1200	1600	1400	---	
23			1600	1600	1700	1700	---	1300	1500	1500	---	
24			1600	1600	1600	1700	---	1400	1600	1700	---	
25			1600	1600	1700	1700	---	1400	1500	1800	---	
26			1700	1700	1700	1700	---	1400	1500	1800	---	
27			1700	1600	1600	1700	---	1300	1500	1700	---	
28			1600	1600	1600	1700	---	1300	1500	1500	---	
29			1500	1700	---	1700	---	1300	1600	1500	---	
30			1800	1600	---	1700	---	1300	1600	1700	---	
31			2200	1600	---	1600	---	1300	---	1900	---	
MEAN			1700	1600	1600	1700	1500	1300	1500	1700	1400	
WTR YR 1977	MEAN	1600		MAX	2200		MIN	1200				

RED RIVER BASIN

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK--Continued

DISSOLVED CHLORIDE (CL), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	121.00	68.00	71.30	30.80	---	372.00	200.00	150.00	
2			---	105.00	68.00	62.90	24.10	---	239.00	108.00	122.00	
3			---	59.70	68.00	71.30	23.00	---	179.00	90.70	109.00	
4			---	28.20	90.70	62.90	17.70	---	214.00	86.90	292.00	
5			---	15.40	80.70	62.90	5.25	---	233.00	84.20	---	
6			---	25.40	77.20	71.30	---	---	231.00	84.20	---	
7			---	28.80	71.30	71.30	---	---	238.00	84.20	---	
8			---	19.70	68.00	62.90	---	---	262.00	99.40	---	
9			---	49.30	77.80	65.50	---	---	249.00	95.00	---	
10			---	36.90	63.20	64.80	---	---	211.00	96.40	---	
11			---	34.40	169.00	67.10	---	---	194.00	89.10	---	
12			---	36.40	160.00	59.70	---	---	172.00	80.70	---	
13			---	39.90	101.00	62.70	---	---	172.00	68.00	---	
14			---	47.50	82.10	56.70	---	---	147.00	71.30	---	
15			---	39.30	71.80	59.00	---	822.00	146.00	65.50	---	
16			---	44.50	66.70	56.90	---	438.00	146.00	59.40	---	
17			48.60	44.50	61.60	47.20	---	850.00	151.00	69.50	---	
18			73.70	29.50	58.30	50.50	---	412.00	141.00	57.50	---	
19			77.20	60.50	53.50	62.60	---	957.00	124.00	65.00	---	
20			65.30	49.10	56.40	56.20	---	1180.00	131.00	91.90	---	
21			65.60	59.70	52.40	60.30	---	555.00	112.00	120.00	---	
22			68.30	56.20	52.20	54.80	---	227.00	106.00	105.00	---	
23			65.30	63.20	53.80	60.50	---	170.00	106.00	121.00	---	
24			73.70	63.20	51.10	59.80	---	215.00	96.40	121.00	---	
25			77.20	61.60	56.40	62.50	---	263.00	143.00	8.42	---	
26			81.00	84.20	93.10	64.80	---	3430.00	155.00	101.00	---	
27			86.90	61.60	73.70	110.00	---	1540.00	100.00	87.50	---	
28			63.20	66.70	70.20	112.00	---	336.00	95.00	140.00	---	
29			38.90	46.00	---	97.20	---	197.00	101.00	262.00	---	
30			101.00	64.80	---	71.30	---	185.00	219.00	204.00	---	
31			113.00	59.40	---	55.20	---	775.00	---	164.00	---	
MEAN			73.30	51.70	75.60	66.30	20.20	738.00	173.00	103.00	168.00	
WTR YR 1977	MEAN	149.00		MAX	3430.00		MIN	5.25				

DISSOLVED SULFATE (SO4), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	68.0	60.5	50.5	38.5	---	1070.0	160.0	498.0	
2			---	68.8	60.5	44.5	34.4	---	597.0	86.4	635.0	
3			---	52.6	60.5	50.5	32.5	---	397.0	69.1	642.0	
4			---	41.6	64.3	44.5	30.6	---	374.0	64.3	292.0	
5			---	33.6	59.7	44.5	39.4	---	359.0	59.7	---	
6			---	36.7	56.2	50.5	---	---	344.0	59.7	---	
7			---	36.0	51.8	50.5	---	---	333.0	59.7	---	
8			---	49.1	51.8	44.5	---	---	367.0	73.4	---	
9			---	37.6	55.1	44.5	---	---	340.0	69.1	---	
10			---	28.1	56.2	44.1	---	---	288.0	73.4	---	
11			---	28.9	143.0	42.2	---	---	243.0	64.8	---	
12			---	30.7	143.0	36.3	---	---	215.0	59.7	---	
13			---	37.6	95.0	38.1	---	---	198.0	51.8	---	
14			---	44.5	69.1	38.6	---	---	170.0	50.5	---	
15			---	39.3	60.5	37.2	---	2430.0	146.0	44.5	---	
16			---	44.5	56.2	37.2	---	1040.0	146.0	40.4	---	
17			48.6	44.5	51.8	34.9	---	17600.0	143.0	40.3	---	
18			56.2	34.0	51.8	33.0	---	2550.0	125.0	34.9	---	
19			56.2	56.7	47.5	38.9	---	1670.0	117.0	39.5	---	
20			47.5	52.6	47.5	36.7	---	4040.0	117.0	47.2	---	
21			41.3	52.6	41.9	37.4	---	10200.0	99.4	61.6	---	
22			50.5	52.6	39.7	35.8	---	2270.0	99.4	197.0	---	
23			47.5	56.2	38.1	38.1	---	923.0	93.1	130.0	---	
24			56.2	56.2	37.2	37.6	---	627.0	90.7	73.4	---	
25			56.2	51.8	39.9	40.9	---	484.0	134.0	63.2	---	
26			55.1	55.1	68.8	44.1	---	7070.0	166.0	53.5	---	
27			64.3	51.8	56.2	78.0	---	9130.0	126.0	55.1	---	
28			56.2	56.2	56.2	82.6	---	1820.0	89.1	190.0	---	
29			48.6	34.0	---	68.8	---	913.0	95.0	328.0	---	
30			53.5	51.8	---	50.5	---	688.0	194.0	133.0	---	
31			46.9	47.5	---	40.2	---	2520.0	---	82.1	---	
MEAN			52.3	46.2	61.4	45.0	35.1	3880.0	243.0	84.4	517.0	
WTR YR 1977	MEAN	435.0		MAX	17600.0		MIN	28.1				

07303395 ELM FORK OF NORTH FORK RED RIVER AT SALTON CROSSING NEAR CARL, OK--Continued

DISSOLVED SOLIDS (RESIDUE AT 180 DEG. C), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	8100	5470	6680	4390	---	2940	5770	2820	
2			---	6970	5470	6580	3940	---	3160	5910	2560	
3			---	5220	5560	6590	3960	---	3290	6130	2400	
4			---	3880	6710	6550	3610	---	3610	6430	4850	
5			---	3300	6440	6630	7660	---	3800	6530	---	
6			---	3920	6180	6670	---	---	3850	6630	---	
7			---	4350	6160	6670	---	---	4000	6670	---	
8			---	3140	6050	6690	---	---	4040	6520	---	
9			---	5980	6560	6730	---	---	4120	6160	---	
10			---	6140	5470	6840	---	---	4220	5980	---	
11			---	5730	5610	7160	---	---	4340	6240	---	
12			---	5660	5530	7290	---	---	4440	6490	---	
13			---	5370	5250	7410	---	---	4450	6100	---	
14			---	5040	5630	6810	---	---	4630	6580	---	
15			---	4830	5750	7100	---	2920	4830	6780	---	
16			---	4950	5680	7040	---	3210	5000	6730	---	
17			5000	4930	5630	6470	---	1120	5260	7970	---	
18			6060	4460	5560	7040	---	2340	5410	7290	---	
19			6240	5170	5510	7540	---	3600	5330	7410	---	
20			6270	4770	5710	6910	---	2810	5510	9100	---	
21			7220	5200	5900	7540	---	1180	5510	9100	---	
22			6450	5130	6090	7040	---	1640	5350	3510	---	
23			6160	5450	6560	7160	---	2530	5200	4750	---	
24			6090	5430	6280	7220	---	2990	5250	7290	---	
25			6280	5590	6650	6970	---	3530	5100	7720	---	
26			6860	6910	6420	6760	---	3370	4660	8540	---	
27			6480	5710	6060	6630	---	2410	4440	7100	---	
28			5450	5730	5770	6480	---	2510	5150	4140	---	
29			4420	6390	---	6550	---	2630	5330	4280	---	
30			8410	5850	---	6690	---	2760	5460	6910	---	
31			12000	5790	---	6260	---	2840	---	9280	---	
MEAN			6630	5330	5920	6860	4710	2610	4590	6650	3160	
WTR YR 1977	MEAN	5560	MAX	12000	MIN	1120						

DISSOLVED SOLIDS (TONS PER DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	306.0	207.0	198.0	113.0	---	2430.0	576.0	1080.0	
2			---	282.0	207.0	172.0	96.8	---	1350.0	319.0	1250.0	
3			---	183.0	210.0	196.0	92.0	---	933.0	265.0	1190.0	
4			---	115.0	254.0	172.0	79.0	---	965.0	243.0	943.0	
5			---	79.3	226.0	174.0	168.0	---	975.0	229.0	---	
6			---	103.0	217.0	198.0	---	---	946.0	233.0	---	
7			---	105.0	200.0	198.0	---	---	950.0	234.0	---	
8			---	110.0	196.0	175.0	---	---	1060.0	282.0	---	
9			---	140.0	213.0	176.0	---	---	934.0	266.0	---	
10			---	108.0	192.0	177.0	---	---	809.0	274.0	---	
11			---	104.0	500.0	178.0	---	---	703.0	253.0	---	
12			---	109.0	493.0	155.0	---	---	635.0	228.0	---	
13			---	126.0	312.0	166.0	---	---	589.0	198.0	---	
14			---	150.0	243.0	154.0	---	---	525.0	195.0	---	
15			---	126.0	217.0	155.0	---	5460.0	469.0	178.0	---	
16			---	147.0	199.0	154.0	---	2380.0	486.0	160.0	---	
17			162.0	146.0	182.0	133.0	---	16400.0	469.0	179.0	---	
18			213.0	101.0	180.0	137.0	---	4590.0	424.0	150.0	---	
19			219.0	195.0	164.0	163.0	---	4310.0	389.0	172.0	---	
20			186.0	167.0	170.0	149.0	---	8730.0	402.0	226.0	---	
21			175.0	183.0	155.0	157.0	---	10100.0	342.0	295.0	---	
22			192.0	180.0	151.0	148.0	---	3100.0	332.0	493.0	---	
23			183.0	191.0	147.0	160.0	---	1800.0	323.0	410.0	---	
24			214.0	191.0	146.0	160.0	---	1340.0	298.0	315.0	---	
25			220.0	181.0	156.0	167.0	---	1220.0	454.0	271.0	---	
26			222.0	224.0	260.0	175.0	---	17000.0	516.0	254.0	---	
27			245.0	185.0	213.0	304.0	---	16900.0	372.0	230.0	---	
28			191.0	201.0	203.0	315.0	---	3510.0	306.0	525.0	---	
29			143.0	128.0	---	265.0	---	1850.0	317.0	936.0	---	
30			250.0	190.0	---	199.0	---	1460.0	663.0	541.0	---	
31			256.0	172.0	---	157.0	---	5510.0	---	401.0	---	
MEAN			205.0	159.0	222.0	180.0	110.0	6220.0	679.0	307.0	1120.0	
WTR YR 1977	MEAN	835.0	MAX	17000.0	MIN	79.0						

RED RIVER BASIN

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK

LOCATION.--Lat 35°00'42", long 99°54'12", in SW 1/4 NW 1/4 sec.12, T.6 N., R.26 W., Harmon County, Hydrologic Unit 11120304, near left bank on downstream side of pier of bridge on State Highway 30, 4.0 mi (6.4 km) northeast of Carl, and at mile 54.0 (86.9 km).

DRAINAGE AREA.--416 mi² (1,077 km²).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1731: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,714.95 ft (522.717 m) above mean sea level (State Highway Department bench mark).

REMARKS.--Records good.

AVERAGE DISCHARGE.--18 years, 41.3 ft³/s (1.170 m³/s), 29,920 acre-ft/yr (36.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,100 ft³/s (626 m³/s) May 17, 1977, gage height, 12.60 ft (3.840 m), from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of slope-area measurement at gage height 11.45 ft (3.490 m); no flow Sept. 4, 1964.

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

DATE	TIME	DISCHARGE		GAGE HEIGHT		DATE	TIME	DISCHARGE		GAGE HEIGHT	
		(ft ³ /s)	(m ³ /s)	(ft)	(m)			(ft ³ /s)	(m ³ /s)	(ft)	(m)
Apr. 20	0745	4,450	126	6.68	2.036	May 20	2400	7,040	199	7.90	2.408
May 17	0330	*22,100	626	12.60	3.840	May 26	2145	9,210	261	8.76	2.670

Minimum daily discharge, 4.3 ft³/s (0.12 m³/s) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	11	12	14	14	11	9.8	9.5	306	37	142	16
2	6.0	9.9	10	15	14	10	9.4	9.6	158	20	181	13
3	5.4	8.8	11	13	14	11	8.9	13	105	16	183	11
4	4.9	8.7	11	11	14	10	8.4	411	99	14	72	9.5
5	4.5	8.9	11	9.2	13	10	8.4	152	95	13	30	11
6	4.3	9.6	11	10	13	11	8.2	65	91	13	20	10
7	8.5	8.4	10	9.1	12	11	7.9	47	88	13	14	10
8	8.3	8.1	11	13	12	10	8.0	42	97	16	11	9.6
9	7.5	8.7	11	9.0	12	10	8.1	43	84	16	11	9.3
10	6.9	9.1	11	6.8	13	9.9	8.2	156	71	17	12	9.2
11	5.4	9.2	9.8	7.0	33	9.5	8.3	132	60	15	36	8.9
12	4.9	8.5	10	7.4	33	8.2	9.1	53	53	13	65	7.3
13	5.0	10	11	9.0	22	8.6	10	43	49	12	30	8.4
14	4.9	10	12	11	16	8.7	18	38	42	11	23	9.0
15	5.1	11	12	10	14	8.4	55	692	36	10	20	8.8
16	5.2	11	12	11	13	8.4	36	275	36	9.1	14	8.0
17	5.0	12	12	11	12	7.9	116	5430	33	8.6	12	7.0
18	5.5	12	13	8.7	12	7.5	145	726	29	7.9	13	7.0
19	5.9	12	13	14	11	8.3	46	443	27	8.9	18	6.1
20	6.5	11	11	13	11	8.3	1440	1150	27	9.5	17	6.2
21	6.7	11	9.3	13	10	8.0	127	3160	23	12	16	41
22	7.2	11	11	13	9.5	8.1	60	700	23	52	14	35
23	7.8	13	11	13	8.6	8.6	37	263	23	32	12	16
24	7.3	13	13	13	8.9	8.5	27	166	21	16	10	13
25	7.3	13	13	12	9.0	9.2	22	128	33	13	84	11
26	7.5	14	12	12	15	9.9	21	1870	41	11	27	9.3
27	9.2	11	14	12	13	17	17	2600	31	12	15	8.6
28	8.8	7.6	13	13	13	18	13	518	22	47	14	8.7
29	19	11	12	7.7	---	15	14	260	22	81	80	10
30	18	12	11	12	---	11	12	196	45	29	30	8.9
31	14	---	8.2	11	---	9.6	---	718	---	16	19	---
TOTAL	229.4	314.5	352.3	343.9	395.0	310.6	2318.7	20509.1	1870	601.0	1245	346.8
MEAN	7.40	10.5	11.4	11.1	14.1	10.0	77.3	662	62.3	19.4	40.2	11.6
MAX	19	14	14	15	33	18	1440	5430	306	81	183	41
MIN	4.3	7.6	8.2	6.8	8.6	7.5	7.9	9.5	21	7.9	10	6.1
AC-FT	455	624	699	682	783	616	4600	40680	3710	1190	2470	688

CAL YR 1976	TOTAL	7970.03	MEAN 21.8	MAX 606	MIN .02	AC-FT 15810
WTR YR 1977	TOTAL	28836.30	MEAN 79.0	MAX 5430	MIN 4.3	AC-FT 57200

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-63, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to current year.

WATER TEMPERATURE: July 1968 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1971.

REMARKS.--In addition to water quality monitor, samples were collected by a local observer on a daily basis. Partial analyses were made each month on those samples having maximum, minimum and mean specific conductance for the month. An additional sample was collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. Mean daily sulfate, chloride, and dissolved solids tables, and loads for those parameters were calculated from specific conductance values.

COOPERATION.--Monthly samples were collected by the U.S. Geological Survey and selected parameters were analyzed by Oklahoma State Department of Health.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 224,000 micromhos Sept. 15, 1971; minimum, 2,190 micromhos June 2, 1973.

WATER TEMPERATURES: Maximum, 39.0°C June 22, 1969, Aug. 17, 1970; minimum, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT										
05...	--	--	1300	5.8	88800	7.5	--	--	--	--
06...	1028	9740	1430	4.6	40000	8.3	13.5	7	8.4	84
16...	--	--	1645	6.5	81500	7.0	--	--	--	--
23...	--	--	1200	8.4	89200	7.0	--	--	--	--
NOV										
03...	1028	9740	1415	9.0	31500	8.5	15.5	1	--	--
05...	--	--	1645	10	42500	7.9	--	--	--	--
16...	--	--	1700	12	34400	7.6	--	--	--	--
28...	--	--	1200	7.1	74100	7.8	--	--	--	--
DEC										
04...	--	--	1700	12	31400	7.8	--	--	--	--
08...	1028	9740	1200	8.4	34000	8.2	1.0	2	13.2	98
14...	--	--	1130	10	41200	7.7	--	--	--	--
27...	--	--	1730	16	30600	7.8	--	--	--	--
JAN										
04...	--	--	1600	17	23100	8.0	--	--	--	--
05...	1028	9740	1750	7.7	30000	7.8	1.0	3	13.4	100
07...	--	--	1130	2.4	37400	7.5	--	--	--	--
25...	--	--	1030	9.0	60600	7.5	--	--	--	--
FEB										
02...	1028	9740	1045	14	28000	8.1	7.5	3	11.4	101
05...	--	--	1715	15	44200	7.6	--	--	--	--
15...	--	--	1400	15	28400	7.6	--	--	--	--
25...	--	--	1640	9.8	46900	7.5	--	--	--	--
MAR										
02...	1028	9740	1145	12	41000	8.0	11.0	2	11.3	110
04...	--	--	1645	11	47200	7.4	--	--	--	--
15...	--	--	1045	8.3	80200	7.8	--	--	--	--
24...	--	--	1530	8.8	90800	7.4	--	--	--	--
APR										
05...	--	--	1345	9.8	85400	7.3	--	--	--	--
06...	1028	9740	1640	8.3	42500	8.2	24.0	2	9.2	114
13...	--	--	1300	9.8	87500	7.5	--	--	--	--
27...	--	--	1300	17	16000	7.6	--	--	--	--
MAY										
03...	--	--	1315	8.8	18400	7.5	--	--	--	--
04...	1028	9740	1500	1180	3600	7.6	22.5	<1000	7.8	95
15...	--	--	1630	311	3040	7.3	--	--	--	--
25...	--	--	1230	123	7700	7.7	--	--	--	--
JUN										
02...	1028	9740	1200	156	7100	7.7	26.0	84	7.8	101
06...	--	--	1730	90	10800	7.6	--	--	--	--
17...	--	--	1345	33	16200	7.4	--	--	--	--
27...	--	--	1315	31	15600	7.7	--	--	--	--
JUL										
04...	--	--	1815	11	23200	7.4	--	--	--	--
07...	1028	9740	0915	16	25000	7.9	22.0	1	8.8	106
17...	--	--	1830	7.8	33300	7.8	--	--	--	--

RED RIVER BASIN

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHDS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
JUL 27...	--	--	1830	13	30600	--	--	--	--	--
AUG 03...	1028	9740	1200	311	2800	7.4	26.0	39	8.0	104
08...	--	--	1300	12	27900	7.6	--	--	--	--
15...	--	--	1630	16	22200	7.5	--	--	--	--
25...	--	--	1630	60	23900	7.5	--	--	--	--
SEP 07...	1028	9740	1130	12	22000	8.6	26.0	75	8.8	114
08...	--	--	1730	8.8	29600	7.5	--	--	--	--
15...	--	--	1800	8.8	30200	7.5	--	--	--	--
26...	--	--	1815	8.8	30900	7.8	--	--	--	--
DATE	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
OCT 05...	--	5800	5600	--	1400	--	560	--	25000	90
06...	125	--	--	--	--	--	--	--	--	--
16...	--	5600	5500	--	1400	--	510	--	22000	89
23...	--	5800	5700	--	1400	--	570	--	24000	90
NOV 03...	102	--	--	--	--	--	--	--	--	--
05...	--	3000	2900	--	760	--	260	--	9700	88
16...	--	2800	2700	--	740	--	240	--	7900	86
28...	--	4900	4800	--	1200	--	470	--	19000	89
DEC 04...	--	2600	--	--	690	--	210	--	6800	85
08...	21	--	--	--	--	--	--	--	--	--
14...	--	3100	--	--	810	--	260	--	9200	86
27...	--	2500	--	--	640	--	210	--	6500	85
JAN 04...	--	2000	1900	--	530	--	160	--	5100	85
05...	93	--	--	--	--	--	--	--	--	--
07...	--	3000	2800	--	770	--	250	--	8400	86
25...	--	3900	3700	--	920	--	380	--	15000	89
FEB 02...	44	--	--	--	--	--	--	--	--	--
05...	--	3000	2900	--	730	--	280	--	10000	88
15...	--	2300	2200	--	600	--	190	--	6200	85
25...	--	3300	3100	--	790	--	310	--	11000	88
MAR 02...	30	--	--	--	--	--	--	--	--	--
04...	--	3500	3400	--	890	--	320	--	11000	87
15...	--	5300	--	--	1200	--	560	--	22000	90
24...	--	6000	5900	--	1300	--	670	--	26000	90
APR 05...	--	5800	5700	--	1300	--	610	--	24000	90
06...	27	--	--	--	--	--	--	--	--	--
13...	--	5800	5700	--	1300	--	630	--	25000	90
27...	--	1900	1800	--	560	--	120	--	3100	78
MAY 03...	--	2100	2000	--	600	--	140	--	3900	80
04...	176	--	--	--	--	--	--	--	--	--
15...	--	1200	1100	--	420	--	30	--	250	32
25...	--	1700	1600	--	530	--	85	--	1200	61
JUN 02...	28	--	--	--	--	--	--	--	--	--
06...	--	2100	1900	--	630	--	120	--	1800	65
17...	--	2400	2300	--	680	--	160	--	2900	73
27...	--	2100	2000	--	610	--	130	--	3100	76
JUL 04...	--	2800	2700	--	770	--	220	--	4600	78
07...	13	--	--	--	--	--	--	--	--	--
17...	--	3100	3000	--	810	--	250	--	7600	84

RED RIVER BASIN

47

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
JUL 27...	--	2700	2600	--	740	--	210	--	6900	85
AUG 03...	132	--	--	--	--	--	--	--	--	--
08...	--	2700	2600	--	770	--	190	--	5800	82
15...	--	2400	2300	--	710	--	160	--	4100	78
25...	--	2600	2500	--	730	--	190	--	4800	80
SEP 07...	21	--	--	--	--	--	--	--	--	--
08...	--	2900	2800	--	780	--	220	--	6500	83
15...	--	2800	2800	--	770	--	220	--	6600	83
26...	--	2700	2600	--	720	--	210	--	6800	85
DATE	SODIUM AD- SORP- TION RATIO	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)
OCT 05...	143	--	72	190	0	156	9.6	2800	40000	--
08...	--	--	--	--	--	--	--	--	--	.4
16...	128	--	64	157	0	129	25	2800	37000	--
23...	137	--	72	192	0	157	31	3000	38000	--
NOV 03...	--	--	--	--	--	--	--	--	--	.3
05...	77	--	31	121	0	99	2.4	2000	16000	--
16...	65	--	26	149	0	122	6.0	1900	13000	--
28...	118	--	55	196	1	162	5.0	3000	31000	--
DEC 04...	58	--	24	--	0	--	--	1800	11000	--
08...	--	--	--	--	--	--	--	--	--	1.0
14...	72	--	29	--	0	--	--	2000	15000	--
27...	57	--	23	--	0	--	--	1900	10000	--
JAN 04...	50	--	19	116	0	95	1.9	1300	8600	--
05...	--	--	--	--	--	--	--	--	--	.3
07...	67	--	33	189	0	155	9.6	1800	14000	--
25...	105	--	51	187	0	153	9.5	2200	26000	--
FEB 02...	--	--	--	--	--	--	--	--	--	.4
05...	80	--	34	148	0	121	5.9	2100	17000	--
15...	57	--	23	126	0	103	5.1	1800	10000	--
25...	84	--	38	135	0	111	6.8	2200	18000	--
MAR 02...	--	--	--	--	--	--	--	--	--	.4
04...	80	--	40	160	0	130	10	2300	18000	--
15...	131	--	75	--	0	--	--	3400	36000	--
24...	146	--	89	180	0	150	11	3500	42000	--
APR 05...	138	--	74	120	0	98	9.6	3300	40000	--
06...	--	--	--	--	--	--	--	--	--	.4
13...	142	--	80	190	0	156	9.6	3500	40000	--
27...	31	--	15	140	0	115	5.6	1400	4600	--
MAY 03...	37	--	15	110	0	90	5.6	1500	6000	--
04...	--	--	--	--	--	--	--	--	--	.2
15...	3.2	--	6.7	88	0	72	7.1	980	410	--
25...	13	--	8.9	150	0	123	4.8	1200	1900	--
JUN 02...	--	--	--	--	--	--	--	--	--	.4
06...	17	--	10	150	0	120	6.0	1700	2900	--
17...	26	--	14	130	0	110	8.3	1800	4800	--
27...	30	--	14	130	0	110	4.2	1600	4700	--
JUL 04...	38	--	21	120	0	98	7.6	1900	7700	--
07...	--	--	--	--	--	--	--	--	--	.4
17...	60	--	29	82	0	67	2.1	2100	12000	--

RED RIVER BASIN

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	SODIUM AD- SORP- TION RATIO	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)
JUL										
27...	58	--	28	89	0	73	--	1800	11000	--
AUG										
03...	--	--	--	--	--	--	--	--	--	.3
08...	49	--	25	110	0	90	4.4	1800	9700	--
15...	36	--	20	110	0	90	5.6	1700	7000	--
25...	41	--	21	89	0	73	4.5	1900	7700	--
SEP										
07...	--	--	--	--	--	--	--	--	--	.4
08...	53	--	29	92	0	75	4.7	2000	10000	--
15...	54	--	34	95	0	78	4.8	2100	10000	--
26...	57	--	25	100	0	82	2.5	1900	11000	--
DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
OCT										
05...	--	71400	--	97.1	1120	1.1	--	--	--	--
06...	--	--	--	--	--	--	1.2	<.14	--	--
16...	--	63100	--	85.8	1110	1.2	--	--	--	--
23...	--	71900	--	97.8	1630	.79	--	--	--	--
NOV										
03...	--	--	--	--	--	--	.80	<.08	<1	9
05...	--	28600	--	38.9	772	1.5	--	--	--	--
16...	--	24400	--	33.2	791	1.6	--	--	--	--
26...	1.8	56100	--	76.3	1080	2.2	--	--	--	--
DEC										
04...	--	21300	--	29.0	690	1.9	--	--	--	--
08...	--	--	--	--	--	--	.70	<.03	--	--
14...	--	28900	--	39.3	780	1.3	--	--	--	--
27...	--	20800	--	28.3	899	1.9	--	--	--	--
JAN										
04...	--	15700	--	21.4	721	1.7	--	--	--	--
05...	--	--	--	--	--	--	.80	.34	--	--
07...	--	25400	--	34.5	165	2.1	--	--	--	--
25...	--	45000	--	61.2	1090	.82	--	--	--	--
FEB										
02...	--	--	--	--	--	--	.80	<.03	2	12
05...	--	31200	--	42.4	1260	1.4	--	--	--	--
15...	--	19100	--	26.0	774	1.5	--	--	--	--
25...	--	33500	--	45.6	886	.99	--	--	--	--
MAR										
02...	--	--	--	--	--	--	.80	.05	--	--
04...	--	33800	--	46.0	1000	.63	--	--	--	--
15...	--	63700	--	86.6	1430	.01	--	--	--	--
24...	--	75200	--	102	1790	.05	--	--	--	--
APR										
05...	--	70100	--	95.3	1860	.44	--	--	--	--
06...	--	--	--	--	--	--	1.3	.07	--	--
13...	--	71900	--	97.8	1900	.05	--	--	--	--
27...	--	10200	--	13.9	468	.65	--	--	--	--
MAY										
03...	--	12200	--	16.6	290	--	--	--	--	--
04...	--	--	--	--	--	--	8.8	1.9	20	7
15...	--	2310	--	3.14	1940	--	--	--	--	--
25...	--	5220	--	7.10	1730	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	1.5	.16	--	--
06...	--	7300	--	9.93	1770	--	--	--	--	--
17...	--	10800	--	14.7	962	--	--	--	--	--
27...	--	10300	--	14.0	862	--	--	--	--	--
JUL										
04...	--	15600	--	21.2	463	--	--	--	--	--
07...	--	--	--	--	--	--	1.0	.03	--	--
17...	--	23100	--	31.4	486	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible]

UNCE-DAILY

[illegible]

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

[illegible]

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72100	22400	37200	37700	---	32500	88900	---			---	20800
2	80000	---	36100	29300	27000	43600	87200	---			---	21500
3	92800	20000	27400	26000	35800	43200	86500	---			---	25300
4	99500	21800	28200	24100	42700	47300	85400	---			---	21300
5	94800	38700	30700	31100	43000	52600	84500	---			---	22900
6	76200	41800	36000	32300	43300	55400	83100	---			---	22600
7	70200	33400	47000	39000	31100	62800	87900	---			---	25400
8	77200	53200	21700	49700	73800	62800	88300	---			---	29400
9	84300	69800	35400	48000	60400	64400	90200	---			---	30500
10	82300	34700	37900	---	31700	66300	89200	---			---	29900
11	81700	33600	40700	---	28000	70700	89400	---			---	28000
12	87900	30400	40000	---	31600	74800	84800	---			---	27000
13	86300	32900	42500	---	50100	81000	87700	---			---	30500
14	87100	34900	44600	---	34300	80700	88900	---			---	29100
15	84700	36000	40500	---	28200	79200	42100	---			---	30800
16	77900	34800	34800	---	25900	78600	41900	---			---	29400
17	77500	66200	28700	---	24400	83100	52900	---			---	34600
18	85900	62900	33100	---	23000	85300	50700	---			---	28900
19	86700	69200	38300	---	26300	85700	54500	---			---	22600
20	83600	69200	40500	---	32200	84200	---	---			---	24600
21	101000	63400	45400	---	38900	87700	---	---			---	29500
22	94600	66400	43900	---	37100	87900	---	---			---	37300
23	86400	62500	38900	---	43000	87200	---	---			---	35100
24	67400	59700	38300	---	40500	88600	---	---			51000	25500
25	60600	63500	37300	---	48000	88800	---	7200			43500	31000
26	55700	72700	33000	---	42600	89600	---	9150			40000	33400
27	50300	69100	30600	---	33400	91200	---	---			27700	26500
28	46400	72900	31400	---	28600	86700	---	---			38200	29100
29	70100	66600	32800	---	---	86700	---	---			45300	25100
30	55900	44700	37600	---	---	88600	---	---			18400	33900
31	33600	---	41800	---	---	89200	---	---			18600	---
MEAN	77100	49900	36500	35200	37200	74400	77100	8180			35300	28100
WTR YR 1977	MEAN	51600	MAX	101000	MIN	7200						

DISSOLVED CHLORIDE (CL), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31000	7300	14000	15000	---	12000	40000	---			---	6500
2	35000	---	14000	11000	9500	18000	39000	---			---	6900
3	41000	6200	9700	14000	9100	17000	38000	---			---	8700
4	45000	7000	10000	8100	17000	19000	38000	---			---	6800
5	42000	15000	11000	12000	17000	22000	37000	---			---	7600
6	33000	17000	14000	12000	17000	23000	37000	---			---	7400
7	30000	13000	19000	15000	12000	27000	39000	---			---	8800
8	34000	22000	7000	21000	32000	27000	39000	---			---	11000
9	37000	30000	14000	20000	26000	28000	40000	---			---	11000
10	36000	13000	15000	---	12000	29000	40000	---			---	11000
11	36000	13000	16000	---	10000	31000	40000	---			---	10000
12	39000	11000	16000	---	12000	33000	38000	---			---	9500
13	38000	12000	17000	---	21000	36000	39000	---			---	11000
14	39000	13000	18000	---	13000	36000	40000	---			---	11000
15	37000	14000	16000	---	10000	35000	17000	---			---	11000
16	34000	13000	13000	---	9000	35000	17000	---			---	11000
17	34000	29000	10000	---	8300	37000	22000	---			---	13000
18	38000	27000	12000	---	7600	38000	21000	---			---	10000
19	38000	30000	15000	---	9200	38000	23000	---			---	7400
20	37000	30000	16000	---	12000	37000	---	---			---	8400
21	45000	27000	18000	---	15000	39000	---	---			---	11000
22	42000	29000	18000	---	14000	39000	---	---			---	15000
23	38000	27000	15000	---	17000	39000	---	---			---	13000
24	29000	25000	15000	---	16000	39000	---	---			21000	8800
25	26000	27000	15000	---	20000	39000	---	310			18000	11000
26	23000	32000	12000	---	17000	40000	---	900			16000	13000
27	21000	30000	11000	---	13000	41000	---	---			9900	9300
28	19000	32000	12000	---	10000	38000	---	---			15000	11000
29	30000	29000	12000	---	---	38000	---	---			18000	8600
30	24000	18000	15000	---	---	39000	---	---			5400	13000
31	13000	---	17000	---	---	40000	---	---			5500	---
MEAN	34000	21000	14000	14000	14000	33000	34000	610			14000	10000
WTR YR 1977	MEAN	21000	MAX	45000	MIN	310						

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

DISSOLVED SULFATE (SO4), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2800	1700	2000	2000	---	1900	3200	---			---	1600
2	3000	---	2000	1800	1800	2200	3200	---			---	1700
3	3300	1600	1800	1800	2000	2200	3200	---			---	1700
4	3500	1700	1800	1700	2100	2300	3100	---			---	1600
5	3400	2100	1900	1900	2200	2400	3100	---			---	1700
6	2900	2100	2000	1900	2200	2400	3100	---			---	1700
7	2800	1900	2200	2100	1900	2600	3200	---			---	1700
8	2900	2400	1700	2300	2900	2600	3200	---			---	1800
9	3100	2800	2000	2300	2600	2600	3200	---			---	1900
10	3100	2000	2000	---	1900	2700	3200	---			---	1800
11	3100	1900	2100	---	1800	2800	3200	---			---	1800
12	3200	1900	2100	---	1900	2900	3100	---			---	1800
13	3200	1900	2100	---	2300	3000	3200	---			---	1900
14	3200	2000	2200	---	1900	3000	3200	---			---	1800
15	3100	2000	2100	---	1800	3000	2100	---			---	1900
16	3000	2000	2000	---	1800	3000	2100	---			---	1800
17	3000	2700	1800	---	1700	3100	2400	---			---	2000
18	3100	2600	1900	---	1700	3100	2300	---			---	1800
19	3200	2800	2000	---	1800	3100	2400	---			---	1700
20	3100	2800	2100	---	1900	3100	---	---			---	1700
21	3500	2600	2200	---	2100	3200	---	---			---	1800
22	3400	2700	2200	---	2000	3200	---	---			---	2000
23	3200	2600	2100	---	2200	3200	---	---			---	2000
24	2700	2500	2000	---	2100	3200	---	---			2300	1700
25	2600	2600	2000	---	2300	3200	---	1300			2200	1900
26	2400	2800	1900	---	2100	3200	---	1400			2100	1900
27	2300	2800	1900	---	1900	3300	---	---			1800	1800
28	2200	2800	1900	---	1800	3200	---	---			2000	1800
29	2800	2700	1900	---	---	3200	---	---			2200	1700
30	2500	2200	2000	---	---	3200	---	---			1600	1900
31	1900	---	2100	---	---	3200	---	---			1600	---
MEAN	3000	2300	2000	2000	2000	2900	2900	1400			2000	1800
WTR YR 1977	MEAN	2400	MAX	3500	MIN	1300						

DISSOLVED CHLORIDE (CL), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	578	217	454	567	---	356	1060	---			---	281
2	567	---	378	445	359	486	990	---			---	242
3	598	147	288	319	529	505	913	---			---	258
4	595	164	297	241	643	513	862	---			---	174
5	510	360	327	298	597	594	839	---			---	226
6	383	441	416	324	597	683	819	---			---	200
7	689	295	513	369	389	802	832	---			---	238
8	762	481	208	737	1040	729	842	---			---	285
9	749	705	416	486	842	756	875	---			---	276
10	671	319	445	---	421	775	886	---			---	273
11	525	323	423	---	891	795	896	---			---	240
12	516	252	432	---	1070	731	934	---			---	187
13	513	324	505	---	1250	836	1050	---			---	249
14	516	351	583	---	562	846	1940	---			---	267
15	509	416	518	---	378	794	2520	---			---	261
16	477	386	421	---	316	794	1650	---			---	238
17	459	940	324	---	269	789	6890	---			---	246
18	564	875	421	---	246	770	8220	---			---	189
19	605	972	526	---	273	852	2860	---			---	122
20	649	891	475	---	356	829	---	---			---	141
21	814	802	452	---	405	842	---	---			---	1220
22	816	861	535	---	359	853	---	---			---	1420
23	800	948	445	---	395	906	---	---			---	562
24	572	877	526	---	384	895	---	---			---	309
25	512	948	526	---	486	969	---	107			4080	327
26	466	1210	389	---	688	1070	---	4540			1170	326
27	522	891	416	---	456	1880	---	---			401	216
28	451	657	421	---	351	1850	---	---			567	258
29	1540	861	389	---	---	1540	---	---			3890	232
30	1170	583	445	---	---	1160	---	---			437	312
31	491	---	376	---	---	1040	---	---			282	---
MEAN	632	603	429	421	539	879	1890	2320			1420	326
WTR YR 1977	MEAN	726	MAX	8220	MIN	107						

RED RIVER BASIN

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

DISSOLVED SULFATE (SO4), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.2	50.5	64.8	75.6	---	56.4	84.7	---	---	---	---	69.1
2	48.6	---	54.0	72.9	68.0	59.4	81.2	---	---	---	---	59.7
3	48.1	38.0	53.5	63.2	75.6	65.3	76.9	---	---	---	---	50.5
4	46.3	39.9	53.5	50.5	79.4	62.1	70.3	---	---	---	---	41.0
5	41.3	50.5	56.4	47.2	77.2	64.8	70.3	---	---	---	---	50.5
6	33.7	54.4	59.4	51.3	77.2	71.3	68.6	---	---	---	---	45.9
7	64.3	43.1	59.4	51.6	61.6	77.2	68.3	---	---	---	---	45.9
8	65.0	52.5	50.5	80.7	94.0	70.2	69.1	---	---	---	---	46.7
9	62.8	65.8	59.4	55.9	84.2	70.2	70.0	---	---	---	---	47.7
10	57.8	49.1	59.4	---	66.7	72.2	70.8	---	---	---	---	44.7
11	45.2	47.2	55.6	---	160.0	71.8	71.7	---	---	---	---	43.3
12	42.3	43.6	56.7	---	169.0	64.2	76.2	---	---	---	---	35.5
13	43.2	51.3	62.4	---	137.0	69.7	86.4	---	---	---	---	43.1
14	42.3	54.0	71.3	---	82.1	70.5	156.0	---	---	---	---	43.7
15	42.7	59.4	68.0	---	68.0	68.0	312.0	---	---	---	---	45.1
16	42.1	59.4	64.8	---	63.2	68.0	204.0	---	---	---	---	38.9
17	40.5	87.5	58.3	---	55.1	66.1	752.0	---	---	---	---	37.8
18	46.0	84.2	66.7	---	55.1	62.8	900.0	---	---	---	---	34.0
19	51.0	90.7	70.2	---	53.5	69.5	298.0	---	---	---	---	28.0
20	54.4	83.2	62.4	---	56.4	69.5	---	---	---	---	---	28.5
21	63.3	77.2	55.2	---	56.7	69.1	---	---	---	---	---	199.0
22	66.1	80.2	65.3	---	51.3	70.0	---	---	---	---	---	189.0
23	67.4	91.3	62.4	---	51.1	74.3	---	---	---	---	---	86.4
24	53.2	87.7	70.2	---	70.5	73.4	---	---	---	---	62.1	59.7
25	51.2	91.3	70.2	---	55.9	79.5	---	449.0	---	---	499.0	56.4
26	48.6	106.0	61.6	---	85.0	85.5	---	7070.0	---	---	153.0	47.7
27	57.1	83.2	71.8	---	66.7	151.0	---	---	---	---	72.9	41.8
28	52.3	57.5	66.7	---	63.2	156.0	---	---	---	---	75.6	42.3
29	144.0	80.2	61.6	---	---	130.0	---	---	---	---	475.0	45.9
30	121.0	71.3	59.4	---	---	95.0	---	---	---	---	130.0	45.7
31	71.8	---	46.5	---	---	82.9	---	---	---	---	82.1	---
MEAN	57.0	66.6	61.2	61.0	76.4	77.9	189.0	3760.0	---	---	194.0	56.4
WTR YR 1977	MEAN	115.0	MAX	7070.0	MIN	28.0						

DISSOLVED SOLIDS (RESIDUE AT 180 DEG. C), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56400	14700	27100	27600	---	23200	70500	---	---	---	---	13400
2	63000	---	26200	20500	18600	32500	69100	---	---	---	---	14000
3	73800	12700	18900	17700	26000	32200	68500	---	---	---	---	17200
4	79400	14200	19600	16200	31700	35600	67600	---	---	---	---	13800
5	75400	28400	21700	22000	32000	40000	66800	---	---	---	---	15100
6	59800	31000	26100	23000	32300	42400	65600	---	---	---	---	14900
7	54800	24000	35400	28600	22000	48600	69600	---	---	---	---	17200
8	60700	40600	14100	37600	57800	48600	70000	---	---	---	---	20600
9	66600	54500	25600	36200	46600	49900	71600	---	---	---	---	21500
10	65000	25000	27700	---	22500	51500	70700	---	---	---	---	21000
11	64500	24100	30100	---	19400	55200	70900	---	---	---	---	19400
12	69600	21400	29500	---	22400	58700	67000	---	---	---	---	18600
13	68300	23500	31600	---	38000	63900	69500	---	---	---	---	21500
14	69000	25200	33300	---	24700	63600	70500	---	---	---	---	20300
15	67000	26100	29900	---	19600	62400	31200	---	---	---	---	21800
16	61300	25100	25100	---	17700	61900	31100	---	---	---	---	20600
17	60900	51500	20000	---	16400	65600	40300	---	---	---	---	25000
18	68000	48700	23700	---	15200	67500	38500	---	---	---	---	20200
19	68600	54000	28100	---	18000	67800	41600	---	---	---	---	14900
20	66000	54000	29900	---	22900	66500	---	---	---	---	---	16600
21	80600	49100	34000	---	28600	69500	---	---	---	---	---	20700
22	75300	51600	32800	---	27100	69600	---	---	---	---	---	27200
23	68400	48400	28600	---	32000	69100	---	---	---	---	---	25400
24	52500	46000	28100	---	29900	70200	---	---	---	---	38700	17300
25	46800	49200	27200	---	36200	70400	---	4760	---	---	32400	21900
26	42600	56900	23600	---	31700	71100	---	5780	---	---	29500	24000
27	38100	53900	21600	---	24000	72400	---	---	---	---	19200	18200
28	34900	57100	22300	---	19900	68600	---	---	---	---	28000	20300
29	54700	51800	23400	---	---	68600	---	---	---	---	33900	17000
30	42800	33400	27500	---	---	70200	---	---	---	---	11400	24400
31	24100	---	31000	---	---	70700	---	---	---	---	11500	---
MEAN	60600	37800	26600	25500	27200	58300	60600	5270	---	---	25600	19500
WTR YR 1977	MEAN	39300	MAX	80600	MIN	4760						

RED RIVER BASIN

55

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK--Continued

DISSOLVED SOLIDS (TONS PER DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	437	878	1040	---	689	1870	---			---	579
2	1020	---	707	830	703	877	1750	---			---	491
3	1080	302	561	621	983	956	1650	---			---	511
4	1050	334	582	481	1200	961	1530	---			---	354
5	916	682	644	546	1120	1080	1520	---			---	448
6	694	804	775	621	1130	1260	1450	---			---	402
7	1260	544	956	703	713	1440	1480	---			---	464
8	1360	888	419	1320	1870	1310	1510	---			---	534
9	1350	1280	760	880	1510	1350	1570	---			---	540
10	1210	614	823	---	790	1380	1570	---			---	522
11	940	599	796	---	1730	1420	1590	---			---	466
12	921	491	796	---	2000	1300	1650	---			---	367
13	922	634	939	---	2260	1480	1880	---			---	488
14	913	680	1080	---	1070	1490	3430	---			---	493
15	923	775	969	---	741	1420	4630	---			---	518
16	861	745	813	---	621	1400	3020	---			---	445
17	822	1670	648	---	531	1400	12600	---			---	473
18	1010	1580	832	---	492	1370	15100	---			---	382
19	1090	1750	986	---	535	1520	5170	---			---	245
20	1160	1600	888	---	680	1490	---	---			---	278
21	1460	1460	854	---	772	1500	---	---			---	2290
22	1460	1530	974	---	695	1520	---	---			---	2570
23	1440	1700	849	---	743	1600	---	---			---	1100
24	1030	1610	986	---	718	1610	---	---			1040	607
25	922	1730	955	---	880	1750	---	1650			7350	650
26	863	2150	765	---	1280	1900	---	29200			2150	603
27	946	1600	816	---	842	3320	---	---			778	423
28	829	1170	783	---	698	3330	---	---			1060	477
29	2810	1540	758	---	---	2780	---	---			7320	459
30	2080	1080	817	---	---	2080	---	---			923	586
31	911	---	686	---	---	1830	---	---			590	---
MEAN	1140	1100	810	782	1010	1570	3420	15400			2650	626
WTR YR 1977	MEAN	1430		MAX	29200		MIN	245				

07303500 ELM FORK OF NORTH FORK RED RIVER NEAR MANGUM, OK

LOCATION.--Lat 34°55'36", long 99°30'00", on east line sec.10, T.5 N., R.22 W., Greer County, Hydrologic Unit 11120304, at bridge on U.S. Highway 283, 3.0 mi (4.8 km) north of Mangum, 5.0 mi (8.0 km) downstream from Haystack Creek, and at mile 17.8 (28.6 km).

DRAINAGE AREA.--838 mi² (2,170 km²).

PERIOD OF RECORD.--Water years 1951, 1958, 1960, 1962-63, 1968 to May 1977.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1976.

WATER TEMPERATURE: July 1968 to September 1976.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COLLECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARDNESS (CA, MG) (MG/L)
OCT 05...	1028	9740	1300	19000	7.8	17.5	5	9.2	100	62	--
NOV 17...	1028	9740	1130	29000	8.1	6.0	1	12.4	103	29	2178
DEC 08...	1028	9740	0930	26000	8.3	-5	1	13.9	98	19	2831
JAN 04...	1028	9740	1700	24000	7.9	7.0	1	15.8	115	89	2954
FEB 02...	1028	9740	0900	26000	8.0	5.0	1	12.0	100	46	2101
MAR 02...	1028	9740	1040	31000	7.9	8.5	1	11.1	102	15	2553
APR 06...	1028	9740	0930	34000	7.5	12.5	2	10.2	99	33	2871
MAY 03...	1028	9740	1300	1800	7.5	20.5	310	6.7	78	34	458
DATE	TOTAL CALCIUM (CA) (MG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	TOTAL FLUORIDE (F) (MG/L)	TOTAL FILTERABLE RESIDUE (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 05...	--	--	--	--	--	--	.4	--	1.2	<.14	--
NOV 17...	740	43	5100	18	--	8900	.3	18230	.70	.01	1
DEC 08...	630	245	4400	15	--	8319	.4	17170	.60	<.03	--
JAN 04...	594	201	4400	19	1725	10100	.2	17600	.50	<.03	--
FEB 02...	610	204	5000	19	1704	8255	.3	16050	2.0	<.03	1
MAR 02...	600	213	4400	25	1698	8629	.3	17600	.80	.04	--
APR 06...	665	263	6900	23	1968	10130	.3	19680	1.4	.06	--
MAY 03...	170	27	185	14	339	265	.2	1322	1.6	.65	19
DATE	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (MG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT 05...	--	--	--	200	--	74	--	--	--	--	--
NOV 17...	26	48	54	210	96	59	.6	60	4	44	4
DEC 08...	--	--	--	130	--	29	--	--	--	--	--
JAN 04...	--	--	--	180	--	9	--	--	--	--	--
FEB 02...	14	94	58	150	58	20	<.5	74	4	24	10
MAR 02...	--	--	--	600	--	40	--	--	--	--	--
APR 06...	--	--	--	320	--	110	--	--	--	--	--
MAY 03...	2	88	64	4000	40	450	<.5	67	1	7	136

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 mi² (1,422 km²).

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) above mean sea level. See WSP 1920 for history of changes prior to Apr. 28, 1954.

REMARKS.--Records fair above 100 ft³/s (2.83 m³/s) and poor below.

AVERAGE DISCHARGE.--31 years (water years 1905-07, 1950-77), 75.2 ft³/s (2.130 m³/s), 54,480 acre-ft/yr (67.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,400 ft³/s (634 m³/s) Oct. 4, 1955, gage height, 30.75 ft (9.373 m), from floodmarks, from rating curve extended above 5,300 ft³/s (150 m³/s) on basis of field estimate of peak flow; no flow at times in most years.
Flood of June 9, 1907, reached a stage of 28.9 ft (8.81 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 2,200 ft³/s (62.3 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 4	2045	3,740 105	24.18 7.370	May 27	1930	*13,200 374	29.76 9.071
May 6	0845	2,620 74.2	19.68 5.998	Aug. 30	0230	2,750 77.9	20.33 6.197
May 21	0500	5,140 146	27.14 8.272				

Minimum daily, 6.7 ft³/s (.190 m³/s) Apr. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	31	14	13	15	17	13	11	1070	62	17	312
2	22	29	14	13	14	16	13	949	666	54	15	276
3	20	22	14	14	14	16	13	1260	511	35	194	220
4	19	16	15	14	14	16	13	2600	408	32	158	164
5	18	14	15	14	15	16	13	1870	333	31	55	120
6	16	13	15	14	13	16	14	2120	286	37	27	93
7	16	13	16	14	14	16	15	476	256	33	22	62
8	17	12	15	14	15	16	15	192	223	34	20	37
9	17	12	15	14	15	16	15	281	200	34	20	35
10	17	13	15	15	15	16	15	1130	180	35	18	29
11	18	14	15	15	17	15	14	664	160	34	17	34
12	17	17	15	15	20	15	13	235	140	34	15	38
13	15	17	15	16	23	14	13	83	125	32	48	30
14	14	17	15	16	24	14	13	70	87	28	30	25
15	13	16	15	16	25	14	16	53	141	25	24	25
16	13	16	15	16	22	13	30	41	122	22	20	24
17	11	17	14	17	25	13	35	38	109	18	16	23
18	10	17	14	18	22	13	25	714	49	17	14	24
19	10	18	14	18	19	13	44	831	34	17	122	22
20	10	18	15	18	17	13	24	1780	34	18	489	21
21	11	17	14	19	17	13	27	4730	34	18	170	17
22	11	16	14	20	16	13	18	2330	46	18	76	17
23	11	16	14	21	17	13	16	701	55	18	69	16
24	11	15	13	20	17	13	14	375	49	18	28	15
25	11	15	13	18	19	13	14	246	76	18	706	15
26	11	16	14	16	18	13	11	442	97	18	116	15
27	12	16	15	15	20	13	10	8400	62	34	162	15
28	12	15	14	15	18	13	9.3	8320	52	57	919	14
29	15	15	14	15	---	13	6.7	1860	54	61	957	14
30	25	14	14	15	---	13	45	1030	53	23	1280	15
31	30	---	13	15	---	13	---	969	---	23	356	---
TOTAL	478	497	447	493	500	441	537.0	44821	5712	938	6180	1767
MEAN	15.4	16.6	14.4	15.9	17.9	14.2	17.9	1446	190	30.3	199	58.9
MAX	30	31	16	21	25	17	45	8400	1070	62	1280	312
MIN	10	12	13	13	13	13	6.7	11	34	17	14	14
AC-FT	944	986	887	978	992	875	1070	86900	11330	1860	12260	3500
CAL YR 1976	TOTAL	27944.4	MEAN	76.4	MAX	5700	MIN	2.0	AC-FT	55430		
WTR YR 1977	TOTAL	62811.0	MEAN	172	MAX	8400	MIN	6.7	AC-FT	124600		

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. Partial analyses were made each month on those samples having maximum, minimum and mean specific conductance for the month. An additional sample was collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Monthly samples were collected by the U.S. Geological Survey and selected parameters were analyzed by Oklahoma State Department of Health.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Nov. 27, 1958; minimum daily, 153 micromhos Sept. 5, 1971.

WATER TEMPERATURE: Maximum daily, 35.0°C July 8, 1951; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos Feb. 15; minimum daily, 213 micromhos May 21.

WATER TEMPERATURE: Maximum daily, 28.0°C June 16; minimum daily, -0.5 Jan. 5, 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHUS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT										
16...	--	--	0823	13	2130	8.2	--	--	--	--
19...	1028	9740	1640	10	2180	8.4	10.5	3	13.4	125
23...	--	--	0830	11	2350	8.2	--	--	--	--
30...	--	--	0833	23	1790	7.9	--	--	--	--
NOV										
01...	--	--	0815	30	1900	8.5	--	--	--	--
03...	--	--	0830	22	2200	8.3	--	--	--	--
17...	1028	9740	0930	17	2500	8.3	3.5	2	12.7	99
20...	--	--	0800	18	2330	8.0	--	--	--	--
DEC										
05...	--	--	0840	15	2340	8.2	--	--	--	--
16...	--	--	0810	15	2240	8.2	--	--	--	--
21...	1028	9740	0930	14	2000	8.4	.5	1	13.2	96
25...	--	--	0840	13	2140	8.4	--	--	--	--
JAN										
04...	--	--	0830	14	2210	8.4	--	--	--	--
17...	--	--	0900	17	2350	8.3	--	--	--	--
21...	1028	9740	1130	19	2050	8.8	2.0	3	7.2	--
24...	--	--	0835	20	2070	8.4	--	--	--	--
FEB										
01...	--	--	0810	15	2080	8.2	--	--	--	--
13...	--	--	0820	22	2200	8.1	--	--	--	--
15...	1028	9740	1500	25	--	8.1	9.0	4	14.8	132
23...	--	--	0830	17	2330	8.1	--	--	--	--
MAR										
14...	--	--	0820	14	2200	8.1	--	--	--	--
16...	1028	9740	1130	14	2310	8.3	12.0	2	10.6	102
22...	--	--	0810	13	2430	7.9	--	--	--	--
26...	--	--	0800	13	2310	8.1	--	--	--	--
APR										
08...	--	--	0800	15	2460	7.8	--	--	--	--
13...	--	--	0800	13	1950	7.6	--	--	--	--
19...	1028	9740	1715	23	2250	8.0	22.0	16	9.2	110
26...	--	--	0825	14	1490	7.7	--	--	--	--
MAY										
09...	--	--	0830	118	937	7.5	--	--	--	--
10...	1028	9740	1145	1280	425	7.7	19.5	<1000	6.7	77
18...	--	--	0812	730	1680	7.5	--	--	--	--
21...	--	--	0810	4900	213	7.5	--	--	--	--
JUN										
01...	--	--	0807	1020	570	7.8	--	--	--	--
07...	--	--	0709	260	1320	7.8	--	--	--	--
13...	1028	9740	1530	125	1720	7.9	24.0	175	6.8	84
22...	--	--	0745	46	2080	8.0	--	--	--	--
JUL										
06...	--	--	0710	37	2020	8.1	--	--	--	--
19...	1028	9740	1235	17	2000	8.0	27.0	6	10.2	132
25...	--	--	0830	18	2320	7.8	--	--	--	--

RED RIVER BASIN

59

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
JUL										
31...	--	--	0830	23	1310	7.8	--	--	--	--
AUG										
14...	--	--	0800	30	2140	7.9	--	--	--	--
17...	1028	9740	1515	17	1690	8.3	23.5	31	8.6	105
25...	--	--	0740	706	1210	7.8	--	--	--	--
30...	--	--	0845	1280	220	7.4	--	--	--	--
SEP										
01...	--	--	0735	120	910	8.0	--	--	--	--
09...	--	--	1030	28	1910	8.1	--	--	--	--
22...	1028	9740	1630	17	2100	8.6	23.5	12	15.3	187
28...	--	--	0810	14	2200	7.9	--	--	--	--
DATE	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
OCT										
16...	--	860	510	--	180	--	100	--	160	29
19...	14	--	--	--	--	--	--	--	--	--
23...	--	1000	670	--	210	--	120	--	170	27
30...	--	710	420	--	150	--	82	--	130	28
NOV										
01...	--	770	500	--	170	--	84	--	140	28
03...	--	900	620	--	180	--	110	--	150	26
17...	20	--	--	--	--	--	--	--	--	--
20...	--	980	590	--	210	--	110	--	180	28
DEC										
05...	--	1000	740	--	210	--	120	--	170	27
18...	--	950	700	--	200	--	110	--	160	27
21...	11	--	--	--	--	--	--	--	--	--
25...	--	930	630	--	190	--	110	--	150	26
JAN										
04...	--	950	550	--	200	--	110	--	160	27
17...	--	1000	640	--	220	--	120	--	170	26
21...	20	--	--	--	--	--	--	--	--	--
24...	--	1000	630	--	190	--	130	--	150	24
FEB										
01...	--	890	530	--	190	--	100	--	150	27
13...	--	980	610	--	210	--	110	--	160	26
15...	24	--	--	--	--	--	--	--	--	--
23...	--	1000	630	--	210	--	120	--	160	25
MAR										
14...	--	950	570	--	200	--	110	--	160	27
16...	21	--	--	--	--	--	--	--	--	--
22...	--	1100	680	--	230	--	120	--	180	27
26...	--	1000	590	--	220	--	110	--	170	27
APR										
08...	--	1100	730	--	240	--	120	--	170	25
13...	--	800	390	--	160	--	97	--	150	29
19...	26	--	--	--	--	--	--	--	--	--
26...	--	590	300	--	120	--	71	--	110	29
MAY										
09...	--	360	200	--	82	--	38	--	59	26
10...	109	--	--	--	--	--	--	--	--	--
18...	--	670	400	--	140	--	77	--	110	26
21...	--	81	14	--	22	--	6.3	--	9.2	19
JUN										
01...	--	200	86	--	54	--	16	--	31	24
07...	--	560	280	--	120	--	63	--	84	24
13...	72	--	--	--	--	--	--	--	--	--
22...	--	830	470	--	150	--	110	--	160	29
JUL										
06...	--	790	510	--	180	--	83	--	150	29
19...	21	--	--	--	--	--	--	--	--	--
25...	--	880	670	--	190	--	98	--	190	32

RED RIVER BASIN

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
JUL										
31...	--	510	280	--	110	--	56	--	91	28
AUG										
14...	--	890	710	--	190	--	100	--	160	28
17...	8	--	--	--	--	--	--	--	--	--
25...	--	510	300	--	110	--	57	--	80	25
30...	--	93	23	--	26	--	6.7	--	9.1	17
SEP										
01...	--	350	180	--	84	--	34	--	61	27
09...	--	800	500	--	170	--	91	--	140	27
22...	19	--	--	--	--	--	--	--	--	--
28...	--	950	620	--	200	--	110	--	180	29
DATE	SODIUM AD- SORP- TION RATIO	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)
OCT										
16...	2.4	--	5.6	424	0	348	4.3	610	160	--
19...	--	--	--	--	--	--	--	--	--	.4
23...	2.3	--	5.5	424	0	348	4.3	720	180	--
30...	2.1	--	5.4	352	0	289	7.1	510	140	--
NOV										
01...	2.2	--	6.4	329	1	272	1.7	510	170	--
03...	2.2	--	6.3	341	0	280	2.7	690	160	--
17...	--	--	--	--	--	--	--	--	--	.4
20...	2.5	--	6.8	477	0	391	7.6	650	190	--
DEC										
05...	2.3	--	5.1	342	0	281	3.5	740	180	--
16...	2.3	--	4.5	308	0	253	3.1	720	160	--
21...	--	--	--	--	--	--	--	--	--	.5
25...	2.1	--	4.3	365	0	299	2.3	680	150	--
JAN										
04...	2.3	--	4.7	457	19	406	3.2	700	160	--
17...	2.3	--	4.9	492	0	404	3.9	730	180	--
21...	--	--	--	--	--	--	--	--	--	.6
24...	2.1	--	4.7	430	18	383	3.0	650	150	--
FEB										
01...	2.2	--	4.1	430	0	353	4.3	610	140	--
13...	2.2	--	4.4	454	0	370	5.8	680	150	--
15...	--	--	--	--	--	--	--	--	--	.5
23...	2.2	--	5.3	470	0	386	6.0	740	150	--
MAR										
14...	2.3	--	4.8	470	0	390	6.0	650	150	--
16...	--	--	--	--	--	--	--	--	--	.6
22...	2.4	--	5.1	470	0	390	9.5	820	170	--
26...	2.3	--	5.4	500	0	410	6.4	700	160	--
APR										
08...	2.2	--	5.5	440	0	361	11	850	160	--
13...	2.3	--	5.0	500	0	410	20	490	140	--
19...	--	--	--	--	--	--	--	--	--	.5
26...	2.0	--	6.3	360	0	295	11	370	90	--
MAY										
09...	1.4	--	6.4	200	0	164	10	230	66	--
10...	--	--	--	--	--	--	--	--	--	.1
18...	1.9	--	6.4	320	0	260	16	470	120	--
21...	.4	--	4.5	81	0	66	4.1	21	19	--
JUN										
01...	1.0	--	5.9	140	0	110	3.6	110	35	--
07...	1.5	--	5.5	340	0	280	8.6	320	77	--
13...	--	--	--	--	--	--	--	--	--	.3
22...	2.4	--	5.0	440	0	360	7.0	580	150	--
JUL										
06...	2.3	--	5.5	340	0	280	4.3	590	140	--
19...	--	--	--	--	--	--	--	--	--	.4
25...	2.8	--	4.5	260	0	213	6.6	790	190	--

RED RIVER BASIN

61

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	SODIUM AD- SORP- TION RATIO	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)
JUL										
31...	1.8	--	7.0	270	0	221	6.8	360	91	--
AUG										
14...	2.3	--	6.1	210	0	170	4.2	640	160	--
17...	--	--	--	--	--	--	--	--	--	.4
25...	1.5	--	6.1	260	0	210	6.6	350	76	--
30...	.4	--	4.2	85	0	70	5.4	26	9.1	--
SEP										
01...	1.4	--	6.2	210	0	170	3.4	200	63	--
09...	2.2	--	5.7	360	0	300	4.6	560	150	--
22...	--	--	--	--	--	--	--	--	--	.4
28...	2.5	--	5.4	410	0	340	8.3	670	170	--
DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
OCT										
16...	--	1540	--	2.09	54.1	1.1	--	--	--	--
19...	--	--	--	--	--	--	1.0	.55	--	--
23...	--	1740	--	2.37	51.7	1.6	--	--	--	--
30...	--	1270	--	1.73	78.9	2.8	--	--	--	--
NOV										
01...	--	1340	--	1.82	109	2.0	--	--	--	--
03...	--	1590	--	2.16	94.4	2.8	--	--	--	--
17...	--	--	--	--	--	--	1.2	.46	<1	3
20...	--	1730	--	2.35	84.1	.80	--	--	--	--
DEC										
05...	--	1770	--	2.41	71.7	.89	--	--	--	--
16...	--	1690	--	2.30	68.4	1.4	--	--	--	--
21...	--	--	--	--	--	--	1.3	.72	--	--
25...	--	1620	--	2.20	56.9	1.3	--	--	--	--
JAN										
04...	--	1660	--	2.26	62.7	2.1	--	--	--	--
17...	--	1780	--	2.42	81.7	3.3	--	--	--	--
21...	--	--	--	--	--	--	.40	1.7	--	--
24...	--	1540	--	2.09	83.2	3.0	--	--	--	--
FEB										
01...	--	1590	--	2.16	64.4	2.7	--	--	--	--
13...	--	1670	--	2.27	99.2	2.5	--	--	--	--
15...	--	--	--	--	--	--	2.1	1.1	5	2
23...	--	1800	--	2.45	82.6	2.1	--	--	--	--
MAR										
14...	--	1670	--	2.27	63.1	1.2	--	--	--	--
16...	--	--	--	--	--	--	.50	.89	--	--
22...	--	1930	--	2.62	67.7	1.5	--	--	--	--
26...	--	1760	--	2.39	61.6	1.4	--	--	--	--
APR										
08...	--	1970	--	2.68	79.8	1.4	--	--	--	--
13...	--	1410	--	1.92	49.5	.98	--	--	--	--
19...	--	--	--	--	--	--	7.9	1.0	--	--
26...	--	1060	--	1.44	40.1	2.7	--	--	--	--
MAY										
09...	--	603	--	.82	192	--	--	--	--	--
10...	--	--	--	--	--	--	5.0	1.3	24	3
18...	--	1190	--	1.62	2350	--	--	--	--	--
21...	--	147	--	.20	1950	--	--	--	--	--
JUN										
01...	--	348	--	.47	958	--	--	--	--	--
07...	--	901	--	1.23	633	--	--	--	--	--
13...	--	--	--	--	--	--	4.2	.96	--	--
22...	--	1510	--	2.05	188	--	--	--	--	--
JUL										
06...	--	1520	--	2.07	152	--	--	--	--	--
19...	--	--	--	--	--	--	1.6	.28	--	--
25...	--	1770	--	2.41	86.0	--	--	--	--	--

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
JUL 31...	--	905	--	1.23	56.2	--	--	--	--	--
AUG 14...	--	1600	--	2.18	130	--	--	--	--	--
17...	--	--	--	--	--	--	2.0	.54	10	1
25...	--	834	--	1.13	1590	--	--	--	--	--
30...	--	145	--	.20	501	--	--	--	--	--
SEP 01...	--	588	--	.80	191	--	--	--	--	--
09...	--	1360	--	1.85	103	--	--	--	--	--
22...	--	--	--	--	--	--	1.7	.26	--	--
28...	--	1640	--	2.23	62.0	--	--	--	--	--

[illegible]

07304500 ELK CREEK NEAR HOBART, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
JUL 31...	--	--	--	--	--	--	--	--	--	--
AUG 14...	--	--	--	--	--	--	--	--	--	--
17...	13	7	240	30	150	<.5	14	1	3	13
25...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
SEP 01...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
22...	--	--	650	--	130	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	9.0	2.0	0.0	1.0	7.0	13.0	19.5	23.0	25.0	25.0	25.0
2	18.5	10.0	2.0	0.0	3.0	8.0	13.0	20.0	23.0	24.0	25.0	25.0
3	19.0	10.5	2.5	0.0	4.0	8.0	12.5	20.0	24.0	25.0	25.0	25.0
4	20.0	10.0	3.0	0.0	4.0	7.0	12.0	19.0	24.0	25.0	23.0	24.0
5	17.0	8.5	3.5	-0.5	4.0	7.0	11.0	21.0	24.0	24.5	24.0	24.0
6	15.0	9.5	4.0	0.0	4.5	7.0	12.0	18.5	24.0	25.0	25.0	23.0
7	13.0	10.5	1.5	0.0	4.0	7.5	14.0	21.0	24.0	26.0	25.0	23.0
8	11.0	9.0	1.5	1.5	4.0	9.0	15.5	21.0	23.5	26.0	25.5	24.0
9	12.0	9.5	3.0	-0.5	5.5	10.0	16.0	22.0	23.0	25.0	25.0	25.0
10	14.0	10.0	5.0	0.0	7.0	11.0	16.0	18.5	23.5	26.0	25.0	24.0
11	15.0	8.5	2.0	0.0	7.0	12.0	16.5	17.0	24.0	26.0	26.0	26.0
12	15.0	5.5	2.0	0.0	8.0	10.0	16.0	17.0	24.0	26.0	23.0	24.0
13	15.5	4.0	3.0	0.0	8.0	9.0	16.0	18.0	25.0	26.0	24.0	23.0
14	16.0	3.0	4.0	0.5	7.5	10.0	17.0	19.0	23.0	25.0	26.0	20.0
15	16.5	4.0	4.0	0.5	7.0	12.0	16.0	19.0	24.0	26.0	26.0	19.0
16	12.0	4.0	4.0	0.0	7.0	12.0	16.0	21.0	28.0	26.0	27.0	21.0
17	10.0	4.0	3.5	0.0	7.5	12.0	16.5	21.0	25.0	26.0	26.0	22.0
18	11.0	5.0	3.5	0.0	8.0	11.5	16.0	21.0	25.0	25.5	24.5	22.0
19	9.0	8.0	5.0	0.5	8.0	11.5	17.0	20.0	25.0	25.0	24.0	20.0
20	8.0	9.0	3.5	0.5	8.0	10.0	19.0	17.0	26.0	25.5	23.0	20.0
21	9.0	8.0	1.0	0.0	8.5	10.0	17.0	18.0	26.0	26.0	23.5	21.0
22	11.0	6.0	1.0	0.0	8.5	9.0	15.0	19.0	24.0	25.0	24.0	22.0
23	12.0	6.0	2.0	1.0	9.0	10.0	15.0	20.0	24.0	26.0	25.0	22.0
24	14.0	6.5	1.5	1.0	9.0	11.5	16.0	20.0	24.0	27.0	26.0	22.0
25	10.0	8.5	2.5	1.5	9.5	13.0	16.0	21.0	24.0	26.5	25.0	21.0
26	10.0	10.0	3.0	2.0	7.0	15.0	16.5	21.0	25.0	27.0	24.0	20.0
27	10.0	6.0	3.0	3.0	6.0	15.0	17.0	23.0	25.5	26.0	24.0	21.0
28	9.0	2.0	4.0	2.5	6.0	13.0	18.0	21.0	26.0	25.0	24.0	23.0
29	9.0	0.0	3.0	0.0	---	13.0	20.0	24.0	26.0	26.0	23.0	22.0
30	8.0	0.5	2.5	0.0	---	12.0	19.0	25.0	25.5	26.0	23.0	23.0
31	9.0	---	0.0	0.0	---	12.0	---	23.0	---	27.0	24.0	---
MONTH	13.0	7.0	3.0	0.5	6.5	10.5	15.5	20.0	24.5	25.5	24.5	22.5
YEAR	MAX	28.0	MIN	-0.5	MEAN	14.5						

RED RIVER BASIN

07304500 ELK CREEK NEAR HOBART, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1990	1900	2290	2260	2080	2320	2390	907	570	1840	1690	910
2	1930	2230	2270	2240	2100	2280	2380	1170	845	1570	1410	1140
3	1900	2200	2250	2220	2120	2330	2320	432	953	1900	1610	1330
4	2000	2140	2260	2210	2160	2260	2330	452	1050	1900	607	1500
5	2170	2060	2340	2230	2190	2250	2310	318	1150	1970	636	1620
6	2180	2070	2340	2280	2200	2230	2290	340	1240	2020	776	1710
7	2140	2010	2290	2340	2140	2260	2390	612	1320	2100	1020	1820
8	2150	2020	2260	2230	2120	2250	2460	763	1390	2150	1300	1890
9	2180	2070	2240	2210	2130	2280	2390	937	1480	2130	1520	1910
10	2240	2120	2230	2320	2100	2260	1920	435	1550	2130	1800	2070
11	2260	2140	2240	2320	2080	2240	1890	652	1650	2120	1680	2070
12	2290	2190	2260	2320	---	2270	1920	822	1740	2200	1960	2080
13	2270	2230	2290	2330	2200	2240	1950	850	1760	2220	2060	2090
14	2260	2290	2280	2270	2120	2200	2020	1060	1020	2200	2140	2110
15	2190	2270	2280	2300	2500	2250	2040	1280	1960	2230	2130	2130
16	2130	2240	2240	2340	2290	2280	2140	1420	1100	2200	1680	2100
17	2190	2290	2240	2350	2270	2310	2060	1560	1330	2140	2040	2000
18	2190	2320	2240	2280	2320	2350	2120	1680	1680	2170	1530	1960
19	2240	2290	2280	2350	2250	2400	2290	467	1860	2190	956	1970
20	2260	2330	2260	2250	2210	2400	2150	496	1960	2220	697	1970
21	2270	2320	2290	2220	2210	2380	2000	213	2040	2160	672	1940
22	2300	2280	2240	2180	2260	2430	2110	428	2080	2230	622	1930
23	2350	2260	2280	2120	2330	2320	1870	570	2040	2240	796	1910
24	2330	2260	2240	2070	2250	2310	1760	651	2000	2300	1020	2000
25	2350	2270	2140	2100	2270	2300	1740	779	2040	2320	1210	2070
26	2320	2250	2150	2080	2270	2270	1490	921	1950	2280	473	2130
27	2310	2270	2190	2100	2260	2300	1520	271	1630	2220	747	2160
28	2270	2290	2240	2080	2280	2310	1620	220	1400	2040	755	2200
29	2210	2280	2270	2080	---	2300	1700	468	1570	2180	374	2150
30	1790	2300	2220	2080	---	2300	1780	768	1760	2090	220	2130
31	2200	---	2220	2120	---	2340	---	840	---	1310	550	---
MONTH	2190	2210	2250	2220	2210	2300	2050	735	1540	2100	1190	1900
YEAR	MAX	2500	MIN	213	MEAN	1900						

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 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 mi² (10,922 km²), of which 399 mi² (1,033 km²) 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: 1905-7.

GAGE.--Water-stage recorder. Datum of gage is 1,294.83 ft (394.664 m) above mean sea level (Bureau of Reclamation bench mark). 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 km²) 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 ft³/s (12.89 m³/s), 329,600 acre-ft/yr (406 hm³/yr); (since regulation by Lake Altus) 33 years (water years 1945-77), 274 ft³/s (7.760 m³/s), 198,500 acre-ft/yr (245 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/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, 35,000 ft³/s (991 m³/s) May 28, gage height, 17.26 ft (5.261 m); minimum daily, 17 ft³/s (0.48 m³/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	130	48	40	52	51	43	151	2800	134	108	166
2	65	115	47	48	50	51	43	184	3080	212	121	142
3	60	89	47	61	56	53	40	2300	2400	140	110	134
4	56	73	47	49	57	51	38	3600	1790	134	122	127
5	50	66	47	47	57	50	36	8990	1370	130	133	124
6	48	63	49	46	56	50	36	8870	690	125	127	124
7	50	58	48	47	55	49	38	5390	613	114	113	122
8	49	56	47	41	54	48	39	1810	561	112	105	120
9	46	55	47	17	50	47	38	1120	496	110	101	118
10	44	54	45	32	49	47	35	3750	340	110	101	114
11	43	53	45	45	64	45	34	3010	218	110	100	112
12	41	51	45	56	70	42	34	2420	181	108	99	108
13	66	53	45	68	74	41	34	1060	164	107	98	107
14	71	54	45	70	74	40	37	616	185	107	98	103
15	54	51	45	60	76	40	47	448	199	108	103	98
16	57	51	45	60	74	40	47	358	214	105	103	94
17	55	52	45	55	66	39	85	539	300	104	103	91
18	58	53	45	45	60	39	231	2130	272	103	101	88
19	59	53	45	50	56	38	251	8390	245	103	114	87
20	56	52	43	60	54	39	238	6340	223	103	488	83
21	55	51	44	82	53	38	548	9800	173	103	1030	82
22	54	50	44	73	50	39	1440	11000	140	102	324	80
23	55	50	43	73	49	39	472	15900	139	101	140	76
24	54	50	43	71	47	39	274	10600	149	100	126	74
25	53	49	42	70	46	39	201	4940	140	99	119	75
26	53	48	41	66	49	41	166	2020	140	102	257	76
27	58	46	43	63	50	46	152	10500	141	103	154	75
28	57	42	43	60	53	45	145	22900	144	101	278	70
29	76	45	43	55	---	42	150	25100	137	102	1070	69
30	93	52	40	56	---	41	156	9750	134	104	1040	68
31	114	---	23	55	---	41	---	5240	---	104	459	---
TOTAL	1819	1765	1369	1721	1601	1350	5128	189226	17778	3500	7545	3007
MEAN	58.7	58.8	44.2	55.5	57.2	43.5	171	6104	593	113	243	100
MAX	114	130	49	82	76	53	1440	25100	3080	212	1070	166
MIN	41	42	23	17	46	38	34	151	134	99	98	68
AC-FT	3610	3500	2720	3410	3180	2680	10170	375300	35260	6940	14970	5960

CAL YR 1976 TOTAL 64954.1 MEAN 177 MAX 7250 MIN 7.1 AC-FT 128800
WTR YR 1977 TOTAL 235809.0 MEAN 646 MAX 25100 MIN 17 AC-FT 467700

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued
(National stream-quality accounting network station)

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 since Aug. 1959.

REMARKS.--In addition to water quality monitor, samples were collected by a local observer on a daily basis. Partial analyses were made each month on those samples at or about the 5th, 15th, and 25th of the month. An additional sample was collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. Mean daily sulfate, chloride, and dissolved solids tables, and loads for those parameters were calculated from specific conductance values.

COOPERATION.--Monthly samples were collected by the U.S. Geological Survey and selected parameters were analyzed by Oklahoma State Department of Health.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 23,300 micromhos June 8, 1974; minimum daily, 434 micromhos Sept. 18, 1976.

WATER TEMPERATURE: Maximum, 38.0°C July 19, 1969, Aug. 4, 1977; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 16,800 micromhos Oct. 14; minimum daily, 610 micromhos Aug. 29.

WATER TEMPERATURE: Maximum daily, 38.0°C Aug. 4; minimum daily, 0.0°C on several days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)
OCT											
05...	--	--	0800	51	6960	8.1	--	--	--	--	--
15...	--	--	1000	52	6020	8.1	--	--	--	--	--
19...	--	--	1330	60	7000	8.4	10.0	8	14.8	136	--
19...	1028	9740	1331	60	7000	8.4	10.0	--	14.8	136	22
25...	--	--	1300	53	7920	7.8	--	--	--	--	--
NOV											
05...	--	--	1010	66	8050	7.9	--	--	--	--	--
15...	--	--	0900	52	9280	7.9	--	--	--	--	--
16...	1028	9740	1300	52	10000	8.2	4.0	--	14.1	111	28
16...	--	--	1415	52	9900	8.4	4.0	6	14.0	110	--
25...	--	--	0930	50	9590	8.0	--	--	--	--	--
DEC											
05...	--	--	0845	47	9880	7.8	--	--	--	--	--
15...	--	--	0945	46	10300	7.9	--	--	--	--	--
20...	1028	9740	1330	45	10600	8.0	3.5	--	12.4	96	15
20...	--	--	1445	44	10600	8.4	4.5	8	12.5	100	--
25...	--	--	0815	43	10300	7.9	--	--	--	--	--
JAN											
04...	--	--	1000	50	9600	7.9	--	--	--	--	--
15...	--	--	1145	78	7200	8.0	--	--	--	--	--
18...	--	--	1500	51	9400	8.3	1.0	6	--	--	--
18...	1028	9740	1501	51	9400	8.3	1.0	--	--	--	22
25...	--	--	0950	51	10400	8.1	--	--	--	--	--
FEB											
05...	--	--	1050	41	9780	8.0	--	--	--	--	--
15...	--	--	0930	80	10000	8.1	--	--	--	--	--
16...	--	--	1230	78	11700	8.0	10.0	2	13.6	125	--
16...	1028	9740	1231	78	11700	8.0	10.0	--	13.6	125	31
26...	--	--	0845	51	9840	8.1	--	--	--	--	--
MAR											
05...	--	--	0900	50	10700	8.2	--	--	--	--	--
15...	--	--	0800	41	10900	8.0	--	--	--	--	--
16...	--	--	1230	42	10200	7.9	16.0	1	10.4	108	--
16...	1028	9740	1231	42	10200	7.9	16.0	--	10.4	108	27
26...	--	--	0720	46	9400	7.7	--	--	--	--	--
APR											
05...	--	--	0800	36	12300	7.9	--	--	--	--	--
15...	--	--	0700	49	9910	7.6	--	--	--	--	--
19...	--	--	1500	331	9990	7.5	24.0	900	7.2	89	--
19...	1028	9740	1501	331	9990	7.5	24.0	--	7.2	89	69
25...	--	--	0900	203	3890	7.6	--	--	--	--	--
MAY											
04...	--	--	0800	2400	1100	7.4	--	--	--	--	--
09...	--	--	1730	1070	2000	8.0	22.0	270	8.0	94	--
09...	1028	9740	1731	1070	2000	8.0	22.0	--	8.0	94	52
15...	--	--	0930	460	3780	7.9	--	--	--	--	--

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)
MAY											
25...	--	--	0700	6430	2000	7.5	--	--	--	--	--
JUN											
05...	--	--	0800	1596	5700	7.8	--	--	--	--	--
13...	1028	9740	1200	164	5800	8.0	25.0	--	9.1	114	22
13...	--	--	1330	166	5900	8.0	26.0	35	10.6	136	--
15...	--	--	1130	200	5780	7.7	--	--	--	--	--
26...	--	--	0810	142	5580	7.8	--	--	--	--	--
JUL											
05...	--	--	1130	133	7400	7.7	--	--	--	--	--
15...	--	--	0930	108	8090	7.5	--	--	--	--	--
19...	--	--	1500	103	7600	7.9	31.0	18	8.4	117	--
19...	1028	9740	1645	105	8000	7.9	32.0	--	10.0	117	25
25...	--	--	1300	99	8400	7.5	--	--	--	--	--
AUG											
04...	--	--	1215	56	6970	7.6	--	--	--	--	--
15...	--	--	1500	108	8360	7.4	--	--	--	--	--
17...	--	--	1245	105	9750	7.8	26.5	--	8.4	106	--
17...	1028	9740	1330	105	9800	7.9	27.0	--	8.4	108	14
25...	--	--	0900	116	3380	7.7	--	--	--	--	--
SEP											
05...	--	--	0830	125	4670	7.8	--	--	--	--	--
15...	--	--	1915	99	7570	7.4	--	--	--	--	--
21...	--	--	1515	86	8300	8.3	27.0	7	8.6	112	--
21...	1028	9740	1630	84	8300	8.3	27.0	--	8.6	112	41
25...	--	--	0900	69	8730	7.8	--	--	--	--	--
DATE	FECAL COLI- FORM (COL./ 100 ML)	FECAL STREP- TOCOCCI KF AGAR (COL. PER 100 ML)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NESIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)
OCT											
05...	--	--	990	820	260	82	1100	71	15	9.4	200
15...	--	--	1100	910	310	70	920	65	12	9.7	182
19...	--	120	1100	920	310	84	1100	68	14	9.0	249
19...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	1100	920	280	95	1300	72	17	9.0	207
NOV											
05...	--	--	1100	890	280	89	1300	72	17	8.9	212
15...	--	--	1100	970	280	100	1600	76	21	9.4	175
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	7000	1100	880	350	55	1700	77	22	11	271
25...	--	--	1200	980	280	110	1700	76	22	9.6	215
DEC											
05...	--	--	1200	1100	310	110	1700	75	21	9.2	207
15...	--	--	1300	1100	320	120	1800	75	22	9.1	187
20...	--	--	--	--	--	--	--	--	--	--	--
20...	--	896	1300	1100	320	110	1800	76	22	10	230
25...	--	--	1200	1100	300	120	1800	76	22	9.0	170
JAN											
04...	--	--	1200	1000	290	110	1700	76	22	9.0	190
15...	--	--	1100	940	290	100	1500	74	19	8.2	244
18...	--	--	1300	1000	330	110	1600	73	19	8.4	329
18...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	1300	1100	330	110	1800	75	22	9.6	233
FEB											
05...	--	--	1200	1000	300	110	1800	76	23	8.8	196
15...	--	--	1200	1000	310	110	1800	76	22	9.0	226
16...	88	93	1300	1100	330	120	2100	77	25	9.1	248
16...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	1300	1100	320	110	1800	76	22	9.6	242
MAR											
05...	--	--	1300	1100	320	120	2000	77	24	10	220
15...	--	--	1300	1100	330	120	2000	77	24	11	250
16...	--	--	1300	1100	320	120	1900	76	23	10	244
16...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	1200	960	290	110	1700	76	22	9.7	270
APR											
05...	--	--	1400	1200	340	130	2300	78	27	11	250
15...	--	--	1200	960	280	110	1800	77	23	9.8	240
19...	--	--	1200	1100	340	88	1700	75	21	12	150
19...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	940	830	300	47	480	52	6.8	8.0	140
MAY											
04...	--	--	270	160	83	16	120	48	3.2	6.3	140
09...	--	--	550	440	170	30	310	55	5.8	7.8	130
09...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	830	670	250	50	520	57	7.9	7.8	190

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	FECAL COLI- FORM (COL./ 100 ML)	FECAL STREP- TOCOC KF AGAR (COL. PER 100 ML)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (MG/L)
MAY											
25...	--	--	620	500	170	47	200	41	3.5	7.1	140
JUN											
05...	--	--	1100	960	310	87	860	62	11	8.2	210
13...	--	--	--	--	--	--	--	--	--	--	--
13...	813	560	1100	900	300	81	880	64	12	8.0	220
15...	--	--	660	510	190	44	270	47	4.6	6.7	180
26...	--	--	1000	840	270	83	840	64	11	8.2	220
JUL											
05...	--	--	1100	970	320	80	1200	70	16	9.4	190
15...	--	--	1100	980	310	84	1300	71	17	9.6	170
19...	14	817	1200	1000	310	100	1400	72	18	9.8	170
19...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	1100	990	300	90	1400	73	18	9.9	160
AUG											
04...	--	--	1100	920	280	87	1200	71	16	9.9	170
15...	--	--	1200	1100	320	100	1500	73	19	10	150
17...	26	900	1400	1300	370	120	2000	75	23	12	150
17...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	590	450	170	40	520	65	9.3	8.3	170
SEP											
05...	--	--	860	700	240	63	700	64	10	8.8	190
15...	--	--	1100	990	290	100	1300	71	17	9.7	180
21...	87	350	1100	950	270	100	1400	74	18	10	170
21...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	1200	1000	310	100	1500	73	19	12	190

DATE	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
OCT										
05...	0	164	2.5	800	1700	--	--	4360	--	--
15...	0	149	2.3	940	1400	--	--	3860	--	--
19...	0	204	1.6	850	1800	.4	7.4	4430	--	4280
19...	--	--	--	--	--	--	--	--	--	--
25...	0	170	5.3	850	2200	--	--	4930	--	--
NOV										
05...	0	174	4.3	760	2200	--	--	4900	--	--
15...	0	144	3.5	870	2500	--	--	5670	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	0	222	1.7	890	2800	.3	4.6	6090	--	5940
25...	0	176	3.4	890	2600	--	--	5890	--	--
DEC										
05...	0	170	5.3	930	2800	--	--	6130	--	--
15...	0	153	3.8	1100	2900	--	--	6410	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	0	189	1.5	920	2700	.4	.9	6610	--	5970
25...	0	139	3.4	1000	2900	--	--	6390	--	--
JAN										
04...	0	156	3.8	910	2800	--	--	5940	--	--
15...	0	200	3.9	870	2400	--	--	5310	--	--
18...	0	270	2.6	920	2600	.4	6.1	5830	--	5740
18...	--	--	--	--	--	--	--	--	--	--
25...	0	191	3.0	950	3100	--	--	6480	--	--
FEB										
05...	0	161	3.1	950	2800	--	--	6120	--	--
15...	0	185	2.9	950	3000	--	--	6280	--	--
16...	0	203	4.0	740	3500	.4	.8	7370	--	6920
16...	--	--	--	--	--	--	--	--	--	--
26...	0	198	3.1	940	2800	--	--	6230	--	--
MAR										
05...	0	180	2.2	1300	3000	--	--	6710	--	--
15...	0	210	4.0	1200	3100	--	--	6860	--	--
16...	0	200	4.9	1000	3100	.4	.6	6760	--	6570
16...	--	--	--	--	--	--	--	--	7140	--
28...	0	220	8.6	890	2700	--	--	5840	--	--
APR										
05...	0	205	5.0	1100	3600	--	--	7890	--	--
15...	0	197	9.6	890	2800	--	--	6310	--	--
19...	0	120	7.6	1000	2600	.3	6.4	5980	--	5820
19...	--	--	--	--	--	--	--	--	--	--
25...	0	115	5.6	830	750	--	--	2650	--	--
MAY										
04...	0	110	8.9	150	180	--	--	667	--	--
09...	0	110	2.1	430	470	.2	9.2	1570	--	1490
09...	--	--	--	--	--	--	--	--	--	--
15...	0	156	3.8	600	840	--	--	2460	--	--

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
MAY										
25...	0	110	7.1	500	310	--	--	1360	--	--
JUN										
05...	0	170	5.3	890	1300	--	--	3770	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	0	180	3.5	850	1300	.4	13	3670	--	3540
15...	0	150	5.7	500	380	--	--	1520	--	--
26...	0	180	5.6	780	1300	--	--	3540	--	--
JUL										
05...	0	156	6.1	960	1900	--	--	4770	--	--
15...	0	139	8.6	880	2100	--	--	5190	--	--
19...	0	140	3.4	960	2100	.4	7.5	5220	--	4970
19...	--	--	--	--	--	--	--	--	--	--
25...	0	131	8.1	980	2200	--	--	5370	--	--
AUG										
04...	0	140	6.8	840	2000	--	--	4390	--	--
15...	0	120	9.6	1200	2200	--	--	5200	--	--
17...	0	120	3.8	1200	3300	.3	7.5	6890	--	7080
17...	--	--	--	--	--	--	--	--	--	--
25...	0	140	5.4	460	770	--	--	2070	--	--
SEP										
05...	0	160	4.8	670	1100	--	--	2940	--	--
15...	0	150	11	900	2000	--	--	4720	--	--
21...	0	140	1.4	900	2100	.4	6.2	4800	--	4870
21...	--	--	--	--	--	--	--	--	--	--
25...	0	160	4.8	970	2400	--	--	5450	--	--
DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)
OCT										
05...	5.93	600	--	.51	--	--	--	--	--	--
15...	5.25	542	--	.51	--	--	--	--	--	--
19...	6.02	718	.00	--	--	.48	.48	2.1	.01	--
19...	--	--	--	--	--	1.0	--	--	--	--
25...	6.70	705	--	.56	--	--	--	--	--	--
NOV										
05...	6.66	873	--	.99	--	--	--	--	--	--
15...	7.71	796	--	.70	--	--	--	--	--	--
16...	--	--	--	--	--	.80	--	--	--	--
16...	8.28	855	.12	--	--	.63	.75	3.3	.03	--
25...	8.01	795	--	.62	--	--	--	--	--	--
DEC										
05...	8.34	778	--	.35	--	--	--	--	--	--
15...	8.72	796	--	.32	--	--	--	--	--	--
20...	--	--	--	--	--	.90	--	--	--	--
20...	8.99	785	.01	--	--	.49	.50	2.2	.03	--
25...	8.69	742	--	.39	--	--	--	--	--	--
JAN										
04...	8.08	802	--	1.1	--	--	--	--	--	--
15...	7.22	1120	--	1.4	--	--	--	--	--	--
18...	7.93	803	1.2	--	--	.30	1.5	6.6	.14	--
18...	--	--	--	--	--	1.1	--	--	--	--
25...	8.81	892	--	1.2	--	--	--	--	--	--
FEB										
05...	8.32	677	--	.44	--	--	--	--	--	--
15...	8.54	1360	--	.46	--	--	--	--	--	--
16...	10.0	1550	.19	--	--	.46	.65	2.9	.11	--
16...	--	--	--	--	--	1.4	--	--	--	--
26...	8.47	858	--	.37	--	--	--	--	--	--
MAR										
05...	9.13	906	--	.28	--	--	--	--	--	--
15...	9.33	759	--	.41	--	--	--	--	--	--
16...	9.19	767	.01	--	--	.83	.84	3.7	.15	--
16...	--	--	--	--	--	.90	--	--	--	--
28...	7.94	725	--	.88	--	--	--	--	--	--
APR										
05...	10.7	767	--	.49	--	--	--	--	--	--
15...	8.58	835	--	.53	--	--	--	--	--	--
19...	8.13	5340	.36	--	--	3.3	3.7	16	.56	--
19...	--	--	--	--	--	4.4	--	--	--	--
25...	3.60	1450	--	.52	--	--	--	--	--	--
MAY										
04...	.91	4320	--	--	--	--	--	--	--	--
09...	2.14	4540	.61	--	--	1.9	2.5	11	.48	--
09...	--	--	--	--	--	3.4	--	--	--	--
15...	3.35	3060	--	--	--	--	--	--	--	--

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)
MAY										
25...	1.85	23600	--	--	--	--	--	--	--	--
JUN										
05...	5.13	16200	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	1.2	--	--	--	--
13...	4.99	1650	.78	--	--	1.2	2.0	8.8	.09	--
15...	2.07	821	--	--	--	--	--	--	--	--
26...	4.81	1360	--	--	--	--	--	--	--	--
JUL										
05...	6.49	1710	--	--	--	--	--	--	--	--
15...	7.06	1510	--	--	--	--	--	--	--	--
19...	7.10	1450	.02	--	--	1.5	1.5	6.7	.05	--
19...	--	--	--	--	--	1.4	--	--	--	--
25...	7.30	1440	--	--	--	--	--	--	--	--
AUG										
04...	5.97	664	--	--	--	--	--	--	--	--
15...	7.07	1520	--	--	--	--	--	--	--	--
17...	9.37	1950	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	1.5	--	--	--	--
25...	2.82	648	--	--	--	--	--	--	--	--
SEP										
05...	4.00	992	--	--	--	--	--	--	--	--
15...	6.42	1260	--	--	--	--	--	--	--	--
21...	6.53	1120	.00	--	.03	--	--	--	.04	.00
21...	--	--	--	--	--	1.7	--	--	--	--
25...	7.41	1020	--	--	--	--	--	--	--	--

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE D ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDE D CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE D CHRO- MIUM (CR) (UG/L)
OCT											
19...	--	--	1330	--	--	--	--	--	--	--	--
19...	1028	9740	1331	--	--	--	--	--	--	--	--
NOV											
16...	1028	9740	1300	--	--	--	--	--	--	--	--
16...	--	--	1415	2	0	2	10	9	1	10	10
DEC											
20...	1028	9740	1330	--	--	--	--	--	--	--	--
20...	--	--	1445	--	--	--	--	--	--	--	--
JAN											
18...	--	--	1500	--	--	--	--	--	--	--	--
18...	1028	9740	1501	--	--	--	--	--	--	--	--
FEB											
16...	--	--	1230	3	0	3	20	20	0	10	0
16...	1028	9740	1231	--	--	--	--	--	--	--	--
MAR											
16...	--	--	1230	--	--	--	--	--	--	--	--
16...	1028	9740	1231	--	--	--	--	--	--	--	--
APR											
19...	--	--	1500	--	--	--	--	--	--	--	--
19...	1028	9740	1501	--	--	--	--	--	--	--	--
MAY											
09...	--	--	1730	17	--	3	10	--	7	20	--
09...	1028	9740	1731	--	--	--	--	--	--	--	--
JUN											
13...	1028	9740	1200	--	--	--	--	--	--	--	--
13...	--	--	1330	--	--	--	--	--	--	--	--
JUL											
19...	--	--	1500	--	--	--	--	--	--	--	--
19...	1028	9740	1645	--	--	--	--	--	--	--	--
AUG											
17...	--	--	1245	1	0	1	10	10	0	10	10
17...	1028	9740	1330	--	--	--	--	--	--	--	--
SEP											
21...	--	--	1515	--	--	--	--	--	--	--	--
21...	1028	9740	1630	--	--	--	--	--	--	--	--

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS- PENDE D COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDE D COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDE D LEAD (PB) (UG/L)
OCT											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	200	--	--	--
NOV											
16...	--	--	--	--	--	--	--	--	--	--	--
16...	0	50	49	1	20	12	8	1500	20	100	96
DEC											
20...	--	--	--	--	--	--	--	170	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
JAN											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	200	--	--	--
FEB											
16...	10	50	50	0	20	19	1	490	50	<100	<100
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	<100	--	--	--
APR											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	6200	--	--	--
MAY											
09...	0	<50	--	0	20	--	9	11000	80	<100	--
09...	--	--	--	--	--	--	--	--	--	--	--
JUN											
13...	--	--	--	--	--	--	--	380	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
JUL											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	220	--	--	--
AUG											
17...	0	50	50	0	10	5	5	1200	20	100	98
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	920	--	--	--

DATE	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	SUS- PENDE D MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDE D MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	SUS- PENDE D SELE- NIUM (SE) (UG/L)
OCT										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	43	--	--	--	--	--	--	--	--
NOV										
16...	--	--	--	--	--	--	--	26	--	--
16...	4	60	10	50	.7	.4	.3	--	3	2
DEC										
20...	--	34	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
JAN										
18...	--	--	--	--	--	--	--	--	--	--
18...	--	60	--	--	--	--	--	--	--	--
FEB										
16...	0	100	30	70	.0	.0	.1	--	3	0
16...	--	--	--	--	--	--	--	29	--	--
MAR										
16...	--	--	--	--	--	--	--	--	--	--
16...	--	110	--	--	--	--	--	--	--	--
APR										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	920	--	--	--	--	--	--	--	--
MAY										
09...	56	560	540	20	.0	--	.0	--	1	0
09...	--	--	--	--	--	--	--	104	--	--
JUN										
13...	--	90	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
JUL										
19...	--	--	--	--	--	--	--	--	--	--
19...	--	70	--	--	--	--	--	--	--	--
AUG										
17...	2	70	50	20	.4	.4	.0	--	3	0
17...	--	--	--	--	--	--	--	23	--	--
SEP										
21...	--	--	--	--	--	--	--	--	--	--
21...	--	40	--	--	--	--	--	--	--	--

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDED ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT										
19...	--	--	--	--	--	--	5700	603	98	3
19...	--	--	--	--	--	--	--	--	--	--
NOV										
16...	--	16	--	--	--	--	--	--	--	--
16...	1	--	40	30	10	6.5	1600	43	6.0	89
DEC										
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	4.2	3400	424	50	98
JAN										
18...	--	--	--	--	--	--	1100	374	51	87
18...	--	--	--	--	--	--	--	--	--	--
FEB										
16...	3	--	40	30	10	4.7	4500	158	33	96
16...	--	11	--	--	--	--	--	--	--	--
MAR										
16...	--	--	--	--	--	--	--	104	12	82
16...	--	--	--	--	--	--	--	--	--	--
APR										
19...	--	--	--	--	--	--	--	1340	1200	90
19...	--	--	--	--	--	--	--	--	--	--
MAY										
09...	1	--	90	70	20	15	--	1020	2950	95
09...	--	8	--	--	--	--	--	--	--	--
JUN										
13...	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	42000	145	65	99
JUL										
19...	--	--	--	--	--	--	23000	82	23	51
19...	--	--	--	--	--	--	--	--	--	--
AUG										
17...	3	--	50	20	30	5.5	17000	178	50	77
17...	--	12	--	--	--	--	--	--	--	--
SEP										
21...	--	--	--	--	--	--	89000	213	49	98
21...	--	--	--	--	--	--	--	--	--	--

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 19,76 1330	NOV 16,76 1415	DEC 20,76 1445	JAN 18,77 1500	FEB 16,77 1230
TOTAL CELLS/ML	5700	1600	3400	1100	4500
DIVERSITY: DIVISION	1.0	1.0	0.2	0.5	0.6
..CLASS	1.0	1.0	0.2	0.5	0.6
...ORDER	1.6	1.5	0.3	0.6	0.8
...FAMILY	2.1	2.3	1.5	1.9	1.3
...GENUS	2.2	2.6	1.9	2.4	1.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
..CHLOROPHYCEAE										
...CHLOROCOCCALES										
...CHLORASTRACEAE										
....CHLORASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACETINACEAE										
....GOLENKINIA	--	-	--	-	--	-	--	-	--	-
...MICRACETINUM										
...DOCYSTACEAE										
....ANKISTRUDISMUS	250	4	52	3	--	-	29	3	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-
...DOCYSTIS										
....WESTELLA	160	3	42	3	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
...SCENEDESMUS	330	6	270#	17	22	1	48	4	130	3
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-
...VIRVICALES										
...CHLAMYDOMONADACEAE										
....CARTERIA										
...CHLAMYDOMONAS	990#	17	94	6	65	2	39	4	480	11

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

CHYSSOPHYTA							
..BACILLARIOPHYCEAE							
..PENNALES							
...NAVICULACEAE							
...ENTOMONEIS	--	-	510#	32	1600#	48	250# 23 130 3
..CENTRALES							
...CHAETOCERACEAE							
...CHAETOCERUS	--	-	--	-	--	-	-- -
...COSCINODISCACEAE							
...CYCLOTELLA	3000#	54	94	6	44	1	-- = 32 1
...MELUSIRA	--	-	*	0	--	-	-- -
..PENNALES							
...ACHNANTHACEAE							
...ACHNANTHES	--	-	--	-	--	-	39 4 -- -
...COCCONEIS	--	-	--	-	--	-	-- -
...CYMBELLACEAE							
...AMPHORA	--	-	10	1	--	-	-- -
...DIATOMACEAE							
...DIATOMA	--	-	--	-	--	-	-- - 32 1
...FRAGILARIACEAE							
...SYNEDRA	--	-	*	0	150	4	39 4 64 1
...NAVICULACEAE							
...AMPHIPLEURA	--	-	--	-	*	0	-- -
...CALONEIS	--	-	--	-	*	0	-- -
...GYRUSIGMA	--	-	--	-	*	0	-- -
...NAVICULA	250	4	94	6	280	8	210# 20 3100# 69
...PINNULARIA	--	-	--	-	--	-	130 3
...NITZSCHACEAE							
...NITZSCHIA	490	9	390#	25	1200#	34	410# 38 380 9
...SURIHELLACEAE							
...SURIHELLA	82	1	--	-	22	1	* 0 -- -
..CHRYSSOPHYCEAE							
..CHRYSSOMONADALES							
...MALLUMINADACEAE							
...MALLUMONAS	--	-	--	-	--	-	-- -
CYANOPHYTA (BLUE-GREEN ALGAE)							
..CYANOPHYCEAE							
..CHROCOCCALES							
...CHROCOCCACEAE							
...AGMENELLUM	--	-	--	-	--	-	-- -
...ANACYSTIS	--	-	--	-	--	-	-- -
..FORMUGONALES							
...NOSTOCACEAE							
...ANABAENA	--	-	--	-	--	-	-- -
...APHANIZUMENON	--	-	--	-	--	-	-- -
...OSCILLATORIACEAE							
...LYNGBYA	--	-	--	-	--	-	-- -
...OSCILLATORIA	--	-	--	-	*	0	-- -
...SPIRULINA	--	-	10	1	--	-	-- -

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 19,76 1330		NOV 16,76 1415		DEC 20,76 1445		JAN 18,77 1500		FEB 16,77 1230	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)										
..CRYPTOPHYCEAE										
...CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
...CHROMONAS	--	-	--	-	--	-	--	-	--	-
..EUGLENOPHYCEAE										
...EUGLENALES										
...EUGLENA	82	1	10	1	22	1	--	-	32	1
...LEPIDOCINCLIS	--	-	--	-	--	-	--	-	--	-
...PHACUS	--	-	--	-	--	-	--	-	--	-
...TRACHELUMONAS	--	-	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
..DINOPHYCEAE										
...GYMNODINIALES										
...GYMNODINIACEAE										
...GYMNODINIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	JUN 13,77 1330	JUL 19,77 1500	AUG 17,77 1245	SEP 21,77 1515
TOTAL CELLS/ML	42000	23000	17000	89000
DIVERSITY: DIVISION	1.5	1.5	1.2	1.0
..CLASS	1.5	1.5	1.2	1.0
...ORDER	2.2	2.0	1.9	1.9
....FAMILY	2.8	2.6	2.4	1.9
.....GENUS	3.5	3.2	2.6	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	290	2	--	-
....MICHACTINIACEAE								
....GULENKINIA	1500	4	--	-	--	-	--	-
....MICRACTINIUM	6900#	17	--	-	--	-	--	-
....UOCYSTACEAE								
....ANKISTRODESMUS	1000	2	2600	11	1000	6	670	1
....DICTYOSPERIUM	--	-	--	-	1900	11	1300	1
....KIRCHNERIELLA	1500	4	520	2	*	0	*	0
....UOCYSTIS	--	-	*	0	--	-	--	-
....WESTELLA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	2700	6	--	-	--	-	--	-
....CRUCIGENIA	--	-	3700#	16	--	-	--	-
....SCENEDESMUS	1900	4	2900	13	2500	15	--	-
....TETRASTRUM	--	-	--	-	--	-	890	1
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	*	0	*	0	890	1
....CHLAMYDOMONAS	670	2	310	1	--	-	*	0
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...PENNALES								
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	--	-	--	-
...CENTRALES								
....CHAETOCERACEAE								
....CHAETOCEROS	--	-	2200	10	--	-	--	-
....CUSCINODISCEACEAE								
....CYCLUTELLA	3000	7	2400	10	110	1	13000	14
....MELOSIRA	--	-	--	-	--	-	--	-
...PENNALES								
....ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	*	0	--	-
....CYMBELLACEAE								
....AMPHURA	--	-	--	-	*	0	--	-
....DIATOMACEAE								
....DIATOMA	--	-	--	-	*	0	--	-
....FRAGILARIACEAE								
....SYNEDRA	500	1	--	-	--	-	--	-
...NAVICULACEAE								
....AMPHIPLEURA	--	-	--	-	*	0	--	-
....CALONEIS	--	-	--	-	--	-	--	-
....GYROSIGMA	--	-	--	-	*	0	--	-
....NAVICULA	--	-	*	0	210	1	*	0
....PINNULARIA	--	-	--	-	--	-	--	-
....NITZSCHIIACEAE								
....NITZSCHIA	*	0	210	1	180	1	1100	1
....SURIPELLACEAE								
....SURIPELLA	--	-	--	-	140	1	--	-
CHRYSTOPHYCEAE								
...CHRYSDOMONADALES								
...MALLOMONADACEAE								
....MALLUMONAS	--	-	--	-	--	-	*	0

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

CYANOPHYTA (BLUE-GREEN ALGAE)

CYANOPHYCEAE					
..CHROCOCCALES					
...CHROCOCCACEAE					
....AGMENELLUM	1300	3	--	--	--
....ANACYSTIS	9100#	22	4800#	3800#	29000#
...HORMOGONIALES			21	23	32
...NOSTOCACEAE					
....ANABAENA	3400	8	--	--	--
....APHANIZOMENON	5900	14	--	--	--
...OSCILLATORIACEAE					
....LYNGBYA	--	--	1800	--	--
....OSCILLATORIA	1000	2	1000	6400#	40000#
....SPIRULINA	--	--	--	38	45

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	JUN 13, 77 1330		JUL 19, 77 1500		AUG 17, 77 1245		SEP 21, 77 1515	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)								
..CRYPTOPHYCEAE								
...CRYPTOMONIDIALES								
...CRYPTOCHRYSIDACEAE								
....CHROMONAS	340	1	--	--	--	--	--	--
..EUGLENOPHYCEAE								
...EUGLENALES								
....EUGLENACEAE								
....EUGLENA	--	--	--	--	--	--	--	--
....LEPTOCINCLIS	--	--	--	--	--	--	*	0
....PHACUS	--	--	--	--	--	--	*	0
....TRACHELOMONAS	*	0	--	--	*	0	--	--
PYRRHOPHYTA (FIRE ALGAE)								
..DINOPHYCEAE								
...GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	500	1	--	--	--	--	--	--

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.5	5.0	.5	---	---	---	20.5	---	26.0	28.5	28.0
2	---	11.5	6.0	.5	---	---	---	20.5	23.5	28.5	30.5	28.5
3	---	10.5	7.0	.5	---	---	---	---	24.0	30.0	30.0	28.5
4	---	10.0	7.0	2.5	---	11.0	---	---	25.0	29.5	28.0	27.5
5	---	8.5	6.5	.0	---	10.5	---	---	25.5	30.0	27.0	27.5
6	---	11.0	6.0	1.5	---	10.5	---	---	26.0	31.0	27.5	26.5
7	---	10.0	4.5	2.0	---	11.5	---	---	25.0	32.0	27.0	26.5
8	---	8.5	5.5	---	---	13.0	17.0	---	26.0	28.5	27.0	26.0
9	---	10.5	7.5	---	8.5	---	16.5	---	29.0	29.0	26.0	26.0
10	---	11.5	6.5	---	10.5	---	16.0	---	29.5	30.5	25.0	24.5
11	---	7.5	---	---	10.0	11.5	15.5	---	27.0	32.5	25.0	25.0
12	---	4.5	---	---	11.0	10.5	14.5	---	28.5	31.5	23.5	25.0
13	---	3.5	---	---	---	12.5	18.5	---	27.5	31.0	24.0	24.5
14	---	4.0	---	---	10.5	14.5	18.0	---	29.0	31.5	24.0	23.0
15	---	5.0	---	---	---	14.5	17.5	---	29.0	29.5	24.5	22.5
16	---	4.5	---	---	9.5	---	17.5	---	29.0	29.5	24.0	22.5
17	---	6.5	---	---	10.5	15.0	18.5	---	28.5	29.5	23.5	22.5
18	---	8.0	5.5	---	11.5	14.5	---	---	28.0	28.5	23.0	22.0
19	---	10.0	7.0	2.0	10.0	14.5	---	---	28.0	29.0	22.5	21.5
20	11.5	10.0	2.5	3.5	10.5	14.0	---	---	28.0	30.0	24.5	21.5
21	12.0	8.0	1.0	---	10.5	13.5	---	---	28.5	29.5	26.5	21.5
22	12.0	7.0	2.0	---	---	---	21.5	---	25.0	30.0	28.0	22.0
23	13.5	8.5	2.5	---	---	---	18.0	---	24.5	31.5	30.0	21.0
24	9.5	8.5	3.5	---	12.0	---	15.5	---	26.0	31.5	30.5	20.5
25	8.0	10.0	3.5	---	---	---	15.5	---	27.0	31.5	29.0	20.5
26	7.5	9.5	3.5	---	8.5	---	16.5	---	28.0	31.0	27.5	21.0
27	9.5	3.0	5.5	---	---	---	18.0	---	30.5	29.5	26.5	21.5
28	8.5	1.0	5.0	---	---	---	19.0	---	31.0	30.5	26.5	22.5
29	7.5	2.5	4.0	---	---	---	20.5	---	29.5	30.5	25.5	23.0
30	9.5	2.5	1.5	---	---	---	19.5	---	31.0	31.0	26.0	23.5
31	10.5	---	3.5	---	---	---	---	---	---	30.5	27.5	---
MEAN	10.0	7.5	4.5	1.5	10.5	13.0	17.5	20.5	27.5	30.0	26.5	24.0
WTR YR 1977	MEAN	18.0	MAX	32.5	MIN	.0						

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	11.0	3.0	2.0	2.0	7.0	12.0	20.0	24.0	27.0	30.0	28.0
2	20.0	11.0	2.0	0.0	6.0	11.0	15.0	19.0	25.0	27.0	33.0	32.0
3	21.0	12.0	4.0	0.0	6.0	7.0	12.0	20.0	26.0	27.0	32.0	27.0
4	21.0	10.0	4.0	4.0	3.0	7.0	10.0	20.0	25.0	25.0	38.0	24.0
5	15.0	11.0	5.0	0.0	6.0	5.0	9.0	20.0	25.0	28.0	27.0	25.0
6	15.0	11.0	5.0	0.0	5.0	7.0	12.0	21.0	25.0	32.0	27.0	24.0
7	14.0	10.0	0.0	0.0	3.0	10.0	15.0	22.0	25.0	28.0	30.0	26.0
8	12.0	10.0	2.0	2.0	6.0	11.0	18.0	23.0	24.0	29.0	31.0	30.0
9	12.0	10.0	4.0	---	6.0	11.0	16.0	25.0	25.0	30.0	30.0	25.0
10	15.0	12.0	7.0	0.0	10.0	11.0	15.0	22.0	26.0	26.0	26.0	23.0
11	16.0	11.0	1.0	0.0	10.0	11.0	15.0	19.0	26.0	26.0	28.0	26.0
12	15.0	0.5	2.0	0.0	8.0	6.0	16.0	19.0	26.0	27.0	28.0	24.0
13	17.0	0.0	5.0	1.0	8.0	7.0	17.0	21.0	26.0	32.0	35.0	24.0
14	18.0	0.0	5.0	2.0	6.0	12.0	17.0	21.0	26.0	30.0	36.0	19.0
15	18.0	0.5	5.0	2.0	6.0	11.0	17.0	22.0	27.0	26.0	36.0	27.0
16	12.0	0.5	5.0	0.0	6.0	10.0	---	23.0	27.0	35.0	26.0	29.0
17	10.0	0.5	5.0	0.0	9.0	12.0	17.0	23.0	27.0	31.0	---	27.0
18	11.0	0.5	5.0	1.0	11.0	10.0	17.0	23.0	25.0	33.0	26.0	30.0
19	9.0	12.0	7.0	5.0	7.0	11.0	18.0	23.0	26.0	28.0	25.0	20.0
20	10.0	10.0	1.0	2.0	8.0	8.0	20.0	21.0	26.0	31.0	25.0	20.0
21	12.0	8.0	0.0	0.5	12.0	7.0	17.0	19.0	30.0	32.0	25.0	21.0
22	11.0	5.0	1.0	0.5	12.0	7.0	15.0	21.0	25.0	28.0	25.0	22.0
23	15.0	7.0	3.0	0.5	10.0	9.0	15.0	23.0	24.0	35.0	31.0	27.0
24	16.0	10.0	5.0	0.5	11.0	11.0	16.0	24.0	24.0	30.0	30.0	26.0
25	13.0	12.0	2.0	0.0	11.0	14.0	17.0	23.0	27.0	33.0	26.0	24.0
26	10.0	12.0	5.0	5.0	6.0	15.0	17.0	23.0	26.0	32.0	25.0	22.0
27	12.0	2.0	6.0	5.0	5.0	16.0	20.0	---	28.0	25.0	25.0	26.0
28	10.0	1.0	5.0	2.0	6.0	12.0	21.0	23.0	27.0	30.0	24.0	26.0
29	9.0	1.0	4.0	1.0	---	12.0	21.0	25.0	27.0	27.0	26.0	24.0
30	16.0	1.0	3.0	2.0	---	11.0	19.0	25.0	26.0	29.0	27.0	25.0
31	11.0	---	0.0	2.0	---	11.0	---	25.0	---	27.0	30.0	---
MONTH	14.0	7.0	3.5	1.5	7.5	10.0	16.0	22.0	26.0	29.0	29.0	25.0
YEAR	MAX	38.0	MIN	0.0	MEAN	16.0						

RED RIVER BASIN

77

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued
 SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6060	6260	10200	10800	9600	10200	11400	7550	2110	5950	7740	2940
2	6320	13000	10200	11000	9750	9940	12000	6530	2230	3400	10900	4970
3	6550	7780	9910	9820	10800	10300	11900	1590	1870	4730	6930	5360
4	6800	7350	9940	9600	9750	10700	12200	1100	2040	5590	6970	4440
5	6960	8050	9880	6520	9780	10700	12300	618	2350	7400	7240	4670
6	7050	8970	9910	7750	9890	10500	12300	1460	2800	6060	5290	5150
7	7030	9160	10400	4960	10100	10400	12200	947	3470	6380	5460	5730
8	6980	9110	10200	4030	10300	10400	11200	1290	3490	6530	5440	6080
9	6940	9250	10600	---	10200	10200	10400	2260	3580	6940	5490	6280
10	7170	9230	10300	10100	10200	10100	10300	3110	3610	7150	5310	6850
11	7030	9260	10200	11300	9100	10000	10500	1840	4320	7600	6160	7040
12	7120	9260	9880	10000	8720	10500	10700	1080	5230	7620	6810	7220
13	7190	9350	10100	8530	9760	10300	10800	2090	5670	7950	7110	6700
14	16800	9330	10100	7470	8440	10600	11000	2800	5840	8130	7840	6980
15	6020	9280	10300	7200	10000	10900	9910	3780	5780	8090	8360	7570
16	5860	9350	10300	8660	11500	10700	9660	4560	4080	7940	8630	7560
17	6070	9430	10300	8670	9760	10500	8790	5360	5000	8030	---	7640
18	6310	9560	10200	8660	10500	10800	7820	4600	3790	8140	11000	7580
19	6800	9720	9910	8910	10400	10400	6360	2450	3940	8080	7760	7630
20	7270	9800	10300	10300	10100	10400	3820	2160	4020	8190	6310	7730
21	7460	9890	10400	11200	9680	10600	6530	994	4140	8080	1030	7730
22	7670	9750	9970	11000	9050	10400	4150	1190	4060	8250	1330	7830
23	7810	9910	10200	10500	10100	10400	3050	1960	5420	8270	1900	7900
24	7800	8280	9500	10300	9810	10400	2960	1940	6220	8230	2560	7940
25	7920	7790	10300	10400	10200	10300	3890	2000	5070	8400	3380	8730
26	8050	8070	10100	9390	9840	10100	4880	2350	5580	8800	4570	8590
27	7800	8200	9830	10000	9610	9560	5810	872	5840	9100	1900	9690
28	7960	8870	10300	9500	10100	9400	6640	670	5980	9880	1730	10300
29	7540	10000	7350	10500	---	10300	7250	1230	6500	10800	610	10400
30	7480	10200	5710	9880	---	10800	6630	1530	5400	8980	1140	8510
31	8300	---	8620	10800	---	11000	---	1770	---	7200	1060	---
MONTH	7420	9120	9850	9260	9890	10400	8590	2380	4310	7610	5270	7120
YEAR	MAX	16800	MIN	610	MEAN	7590						

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	6250	10200	10800	---	10000	---	7950	---	5930	7990	2480
2	---	13000	10100	11500	---	10000	---	6530	2230	3450	10700	4810
3	---	7770	9840	9600	---	10500	---	2190	1880	4690	7230	5200
4	---	7320	9860	9600	---	10800	---	1400	2120	5690	6470	4460
5	---	8000	---	6510	---	10400	---	918	2360	7420	7160	4610
6	---	8940	---	7760	---	10400	---	2060	2980	6070	5290	4980
7	---	9170	---	5040	---	9900	---	1350	---	6400	5460	5700
8	---	9080	---	---	---	10600	11700	1690	---	6550	5470	6070
9	---	9230	---	---	10300	10300	11000	2760	---	7040	5630	6270
10	---	9240	---	---	10400	10300	10700	---	---	7220	5180	6860
11	---	9270	---	---	9180	9800	10700	---	---	7660	6150	7040
12	---	9230	---	---	8840	10300	10800	---	---	7700	6870	7350
13	---	9360	---	---	9960	10500	11000	---	5780	7900	7130	6690
14	---	9310	---	---	8510	10700	11200	---	5770	8100	7830	6950
15	---	9270	---	---	10000	10800	10100	---	5750	8210	8360	7630
16	---	10100	---	---	11600	10700	9880	---	4180	7950	8600	7630
17	---	8990	---	---	10200	10300	8930	---	4880	8080	9800	7690
18	---	9380	10400	---	10300	10800	7930	---	3900	8060	11100	7590
19	---	9570	10000	8490	10600	9700	6460	---	3950	8110	7550	7620
20	7220	9680	10300	10400	10100	10200	4320	---	4030	8070	4970	7720
21	7210	9840	10200	---	9980	10500	6430	---	4110	---	1120	7570
22	8000	9700	10000	---	9350	---	4450	---	4120	---	1400	7800
23	7290	9920	10000	---	10400	---	4330	---	5450	---	1870	7950
24	7640	8220	9400	---	9510	---	4400	---	6260	---	2710	7970
25	8020	7710	10200	---	10100	---	5260	---	5130	---	3540	8630
26	8010	8000	10000	---	9840	---	5890	---	5840	---	2740	8550
27	7850	8070	9800	---	9610	---	5910	---	5830	---	2140	9680
28	7930	8710	10200	---	10100	---	7040	---	6040	---	2760	10300
29	7530	10000	7300	---	---	---	7250	---	6510	---	1150	10400
30	7500	10200	5830	---	---	---	6930	---	5410	8810	830	8470
31	8280	---	8750	---	---	---	---	---	---	6860	1000	---
MEAN	7710	9080	9580	8860	9940	10400	7940	2980	4540	7090	5360	7090
WTR YR 1977	MEAN	7590	MAX	13000	MIN	830						

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued
DISSOLVED SOLIDS (RESIDUE AT 180 DEG. C), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3920	6410	6780	---	6280	---	4990	---	3720	5010	1540
2	---	8170	6340	7220	---	6280	---	4100	1390	2160	6720	3010
3	---	4880	6180	6030	---	6600	---	1360	1170	2940	4540	3260
4	---	4590	6190	6030	---	6780	---	865	1320	3570	4060	2790
5	---	5020	---	4080	---	6530	---	561	1470	4660	4490	2890
6	---	5610	---	4870	---	6530	---	1280	1860	3810	3310	3120
7	---	5760	---	3160	---	6220	---	833	---	4010	3420	3570
8	---	5700	---	---	---	6660	7350	1050	---	4110	3430	3810
9	---	5800	---	---	6470	6470	6910	1720	---	4420	3530	3930
10	---	5800	---	---	6530	6470	6720	---	---	4530	3250	4300
11	---	5820	---	---	5760	6150	6720	---	---	4810	3860	4420
12	---	5800	---	---	5550	6470	6780	---	---	4830	4310	4610
13	---	5880	---	---	6260	6600	6910	---	3620	4960	4470	4200
14	---	5850	---	---	5340	6720	7040	---	3620	5080	4910	4360
15	---	5820	---	---	6280	6780	6340	---	3600	5150	5250	4790
16	---	6340	---	---	7290	6720	6200	---	2620	4990	5400	4790
17	---	5640	---	---	6410	6470	5610	---	3060	5070	6150	4830
18	---	5890	6530	---	6470	6780	4980	---	2440	5060	6970	4760
19	---	6010	6280	5330	6660	6090	4050	---	2470	5090	4740	4780
20	4530	6080	6470	6530	6340	6410	2700	---	2520	5060	3110	4840
21	4520	6180	6410	---	6270	6600	4030	---	2570	---	688	4750
22	5020	6090	6280	---	5870	---	2790	---	2580	---	865	4890
23	4570	6230	6280	---	6530	---	2710	---	3420	---	1160	4990
24	4790	5160	5900	---	5970	---	2750	---	3930	---	1690	5000
25	5030	4840	6410	---	6340	---	3300	---	3210	---	2210	5420
26	5030	5020	6280	---	6180	---	3690	---	3660	---	1710	5370
27	4930	5060	6150	---	6030	---	3700	---	3650	---	1330	6080
28	4980	5470	6410	---	6340	---	4420	---	3790	---	1720	6470
29	4720	6280	4580	---	---	---	4550	---	4080	---	707	6530
30	4710	6410	3650	---	---	---	4350	---	3390	5530	506	5320
31	5200	---	5490	---	---	---	---	---	---	4300	613	---
MEAN	4840	5700	6010	5560	6240	6510	4980	1860	2850	4450	3360	4450
WTR YR 1977	MEAN	4760	MAX	8170	MIN	506						

DISSOLVED SOLIDS (TONS PER DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1340.00	831.00	732.00	---	899.00	---	2030.00	---	1350.00	1460.00	690.00
2	---	2540.00	805.00	936.00	---	916.00	---	2040.00	11600.00	1240.00	2200.00	1150.00
3	---	1170.00	784.00	993.00	---	944.00	---	8450.00	7580.00	1110.00	1350.00	1180.00
4	---	905.00	786.00	798.00	---	934.00	---	8410.00	6380.00	1290.00	1340.00	957.00
5	---	895.00	---	518.00	---	882.00	---	13600.00	5440.00	1670.00	1610.00	968.00
6	---	954.00	---	605.00	---	882.00	---	30700.00	3470.00	1350.00	1130.00	1040.00
7	---	902.00	---	1490.00	---	823.00	---	12100.00	---	1420.00	1040.00	1180.00
8	---	862.00	---	---	---	863.00	774.00	5130.00	---	1450.00	972.00	1230.00
9	---	861.00	---	---	367.00	821.00	709.00	5200.00	---	1560.00	963.00	1250.00
10	---	846.00	---	---	917.00	821.00	635.00	---	---	1600.00	886.00	1320.00
11	---	833.00	---	---	1060.00	747.00	617.00	---	---	1700.00	1040.00	1340.00
12	---	799.00	---	---	1090.00	734.00	622.00	---	---	1710.00	1150.00	1340.00
13	---	841.00	---	---	1300.00	731.00	634.00	---	1600.00	1750.00	1180.00	1210.00
14	---	853.00	---	---	1100.00	726.00	703.00	---	1810.00	1800.00	1300.00	1210.00
15	---	801.00	---	---	1360.00	732.00	805.00	---	1930.00	1640.00	1460.00	1270.00
16	---	873.00	---	---	1520.00	726.00	787.00	---	1510.00	1410.00	1500.00	1220.00
17	---	792.00	---	---	1180.00	681.00	1290.00	---	2480.00	1420.00	1710.00	1190.00
18	---	843.00	793.00	---	1100.00	714.00	3110.00	---	1790.00	1410.00	1900.00	1130.00
19	---	860.00	763.00	14.40	1060.00	625.00	2740.00	---	1630.00	1420.00	1460.00	1120.00
20	685.00	854.00	751.00	3.35	976.00	675.00	1740.00	---	1520.00	1410.00	4100.00	1080.00
21	671.00	851.00	762.00	---	931.00	677.00	5960.00	---	1200.00	---	1910.00	1050.00
22	732.00	822.00	746.00	---	840.00	---	10800.00	---	975.00	---	757.00	1060.00
23	679.00	841.00	729.00	---	899.00	---	3450.00	---	1240.00	---	438.00	1020.00
24	698.00	697.00	685.00	---	790.00	---	2030.00	---	1580.00	---	575.00	999.00
25	720.00	640.00	727.00	---	822.00	---	1790.00	---	1210.00	---	710.00	1100.00
26	720.00	651.00	695.00	---	851.00	---	1650.00	---	1380.00	---	1190.00	1100.00
27	772.00	628.00	714.00	---	847.00	---	1520.00	---	1390.00	---	553.00	1230.00
28	766.00	620.00	744.00	---	941.00	---	1730.00	---	1470.00	---	1290.00	1220.00
29	969.00	763.00	532.00	---	---	---	1840.00	---	1510.00	---	2040.00	1220.00
30	1180.00	900.00	394.00	---	---	---	1830.00	---	1230.00	1550.00	1420.00	977.00
31	1600.00	---	341.00	---	---	---	---	---	---	1210.00	760.00	---
MEAN	849.00	903.00	699.00	677.00	998.00	786.00	2080.00	9740.00	2690.00	1480.00	1340.00	1140.00
WTR YR 1977	MEAN	1600.00	MAX	30700.00	MIN	3.35						

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued
DISSOLVED SULFATE (SU4), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	270.00	130.00	108.00	---	143.00	---	355.00	---	271.00	254.00	238.00
2	---	373.00	127.00	143.00	---	146.00	---	388.00	4320.00	338.00	327.00	261.00
3	---	207.00	126.00	160.00	---	143.00	---	3170.00	3180.00	253.00	247.00	253.00
4	---	164.00	126.00	128.00	---	138.00	---	4470.00	2460.00	264.00	257.00	223.00
5	---	155.00	---	99.00	---	135.00	---	10400.00	1920.00	302.00	294.00	221.00
6	---	158.00	---	107.00	---	135.00	---	12200.00	1040.00	265.00	243.00	231.00
7	---	149.00	---	326.00	---	131.00	---	6690.00	---	276.00	220.00	240.00
8	---	142.00	---	---	---	130.00	116.00	2350.00	---	276.00	204.00	243.00
9	---	141.00	---	---	56.70	127.00	113.00	1660.00	---	286.00	199.00	245.00
10	---	139.00	---	---	140.00	127.00	94.50	---	---	294.00	191.00	246.00
11	---	136.00	---	---	174.00	120.00	91.80	---	---	301.00	205.00	245.00
12	---	131.00	---	---	183.00	113.00	91.80	---	---	304.00	214.00	242.00
13	---	137.00	---	---	208.00	111.00	101.00	---	328.00	308.00	217.00	228.00
14	---	140.00	---	---	187.00	108.00	110.00	---	370.00	311.00	228.00	225.00
15	---	131.00	---	---	216.00	108.00	127.00	---	392.00	284.00	250.00	225.00
16	---	138.00	---	---	229.00	108.00	126.00	---	370.00	247.00	253.00	216.00
17	---	132.00	---	---	184.00	105.00	213.00	---	551.00	247.00	275.00	211.00
18	---	137.00	121.00	---	170.00	105.00	543.00	---	455.00	245.00	300.00	202.00
19	---	139.00	121.00	2.43	159.00	101.00	529.00	---	410.00	245.00	262.00	200.00
20	125.00	138.00	116.00	.51	154.00	105.00	418.00	---	379.00	245.00	909.00	193.00
21	123.00	136.00	119.00	---	148.00	103.00	1150.00	---	294.00	---	1250.00	188.00
22	127.00	132.00	119.00	---	137.00	---	2530.00	---	238.00	---	402.00	186.00
23	123.00	134.00	116.00	---	138.00	---	828.00	---	270.00	---	185.00	179.00
24	124.00	120.00	111.00	---	128.00	---	481.00	---	310.00	---	187.00	174.00
25	126.00	114.00	113.00	---	130.00	---	380.00	---	265.00	---	193.00	184.00
26	126.00	113.00	111.00	---	136.00	---	332.00	---	280.00	---	382.00	187.00
27	136.00	109.00	115.00	---	136.00	---	304.00	---	282.00	---	212.00	198.00
28	134.00	104.00	116.00	---	148.00	---	317.00	---	292.00	---	413.00	189.00
29	174.00	121.00	96.40	---	---	---	336.00	---	289.00	---	1300.00	186.00
30	211.00	140.00	79.90	---	---	---	341.00	---	257.00	258.00	1210.00	165.00
31	274.00	---	57.10	---	---	---	---	---	---	225.00	545.00	---
MEAN	150.00	149.00	112.00	119.00	158.00	121.00	421.00	4630.00	824.00	275.00	382.00	214.00
WTR YR 1977	MEAN	442.00	MAX	12200.00	MIN	.51						

DISSOLVED CHLORIDE (CL), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1600	2900	3100	---	2800	---	2200	---	1500	2200	470
2	---	3800	2900	3300	---	2800	---	1700	420	680	3000	1100
3	---	2100	2800	2700	---	3000	---	410	350	1100	1900	1300
4	---	1900	2800	2700	---	3100	---	260	400	1400	1700	1000
5	---	2200	---	1700	---	2900	---	170	440	2000	1900	1100
6	---	2500	---	2100	---	2900	---	390	560	1500	1300	1200
7	---	2500	---	1200	---	2800	---	250	---	1600	1300	1400
8	---	2500	---	---	---	3000	3400	320	---	1700	1300	1500
9	---	2600	---	---	2900	2900	3100	520	---	1900	1400	1600
10	---	2600	---	---	2900	2900	3000	---	---	1900	1200	1800
11	---	2600	---	---	2600	2800	3000	---	---	2100	1600	1900
12	---	2600	---	---	2400	2900	3100	---	---	2100	1800	2000
13	---	2600	---	---	2800	3000	3100	---	1400	2100	1900	1700
14	---	2600	---	---	2300	3000	3200	---	1400	2200	2100	1800
15	---	2600	---	---	2800	3100	2900	---	1400	2200	2300	2000
16	---	2900	---	---	3300	3000	2800	---	920	2200	2400	2000
17	---	2500	---	---	2900	2900	2500	---	1100	2200	2800	2100
18	---	2600	2900	---	2900	3100	2100	---	830	2200	3200	2000
19	---	2700	2800	2300	3000	2700	1700	---	850	2200	2000	2000
20	1900	2700	2900	2900	2900	2900	970	---	870	2200	1200	2100
21	1900	2800	2900	---	2800	3000	1700	---	900	---	210	2000
22	2200	2700	2800	---	2600	---	1000	---	900	---	260	2100
23	1900	2800	2800	---	2900	---	970	---	1300	---	350	2200
24	2000	2200	2600	---	2700	---	990	---	1600	---	510	2200
25	2200	2100	2900	---	2900	---	1300	---	1200	---	710	2400
26	2200	2200	2800	---	2800	---	1500	---	1500	---	510	2300
27	2100	2200	2800	---	2700	---	1500	---	1500	---	400	2700
28	2100	2400	2900	---	2900	---	1900	---	1500	---	520	2900
29	2000	2800	1900	---	---	---	1900	---	1700	---	220	2900
30	2000	2900	1500	---	---	---	1800	---	1300	2400	160	2300
31	2300	---	2400	---	---	---	---	---	---	1800	190	---
MEAN	2100	2500	2700	2400	2800	2900	2100	690	1100	1900	1400	1900
WTR YR 1977	MEAN	2000	MAX	3800	MIN	160						

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK--Continued
 DISSOLVED SULFATE (SO4), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	770	1000	1000	---	1000	---	870	---	750	870	530
2	---	1200	1000	1100	---	1000	---	780	520	590	1000	680
3	---	860	990	970	---	1000	---	510	490	670	830	700
4	---	830	990	970	---	1000	---	460	510	730	780	650
5	---	870	---	780	---	1000	---	430	520	840	820	660
6	---	930	---	860	---	1000	---	510	560	750	710	690
7	---	950	---	690	---	990	---	460	---	780	720	730
8	---	940	---	---	---	1000	1100	480	---	780	720	750
9	---	950	---	---	1000	1000	1100	550	---	810	730	770
10	---	950	---	---	1000	1000	1000	---	---	830	700	800
11	---	950	---	---	950	990	1000	---	---	850	760	810
12	---	950	---	---	930	1000	1000	---	---	860	800	830
13	---	960	---	---	1000	1000	1100	---	740	870	820	790
14	---	960	---	---	910	1000	1100	---	740	880	860	810
15	---	950	---	---	1000	1000	1000	---	730	890	900	850
16	---	1000	---	---	1100	1000	990	---	640	870	910	850
17	---	940	---	---	1000	1000	930	---	680	880	990	860
18	---	960	1000	---	1000	1000	870	---	620	880	1100	850
19	---	970	1000	900	1000	980	780	---	620	880	850	850
20	830	980	1000	1000	1000	1000	650	---	630	880	690	860
21	830	990	1000	---	1000	1000	780	---	630	---	450	850
22	870	980	1000	---	960	---	650	---	630	---	460	860
23	830	990	1000	---	1000	---	650	---	720	---	490	870
24	850	890	960	---	970	---	650	---	770	---	550	870
25	880	860	1000	---	1000	---	700	---	700	---	600	910
26	880	870	1000	---	990	---	740	---	740	---	550	910
27	870	880	990	---	970	---	740	---	740	---	510	980
28	870	920	1000	---	1000	---	810	---	750	---	550	1000
29	850	1000	830	---	---	---	830	---	780	---	450	1000
30	840	1000	740	---	---	---	810	---	710	920	430	900
31	890	---	920	---	---	---	---	---	---	800	440	---
MEAN	860	940	970	920	990	1000	870	560	660	820	710	820
WTR YR 1977	MEAN	850	MAX	1200	MIN	430						

DISSOLVED CHLORIDE (CL), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	562.00	376.00	335.00	---	401.00	---	897.00	---	543.00	642.00	211.00
2	---	1180.00	368.00	428.00	---	408.00	---	845.00	3490.00	389.00	980.00	422.00
3	---	505.00	355.00	445.00	---	429.00	---	2550.00	2270.00	416.00	564.00	470.00
4	---	374.00	355.00	357.00	---	427.00	---	2530.00	1930.00	507.00	560.00	343.00
5	---	392.00	---	216.00	---	391.00	---	4130.00	1630.00	718.00	682.00	368.00
6	---	425.00	---	261.00	---	391.00	---	9340.00	1040.00	531.00	446.00	402.00
7	---	391.00	---	567.00	---	370.00	---	3640.00	---	566.00	397.00	461.00
8	---	378.00	---	---	---	389.00	358.00	1560.00	---	601.00	369.00	486.00
9	---	386.00	---	---	164.00	368.00	318.00	1570.00	---	672.00	382.00	510.00
10	---	379.00	---	---	407.00	368.00	283.00	---	---	672.00	327.00	554.00
11	---	372.00	---	---	477.00	340.00	275.00	---	---	743.00	432.00	575.00
12	---	358.00	---	---	473.00	329.00	285.00	---	---	743.00	481.00	583.00
13	---	372.00	---	---	582.00	332.00	285.00	---	620.00	743.00	503.00	491.00
14	---	379.00	---	---	472.00	324.00	320.00	---	699.00	778.00	556.00	501.00
15	---	358.00	---	---	605.00	335.00	368.00	---	752.00	701.00	640.00	529.00
16	---	399.00	---	---	686.00	324.00	355.00	---	532.00	624.00	667.00	508.00
17	---	351.00	---	---	532.00	305.00	574.00	---	891.00	618.00	779.00	516.00
18	---	372.00	352.00	---	493.00	326.00	1310.00	---	610.00	612.00	873.00	475.00
19	---	386.00	340.00	6.21	478.00	277.00	1150.00	---	562.00	612.00	616.00	470.00
20	287.00	379.00	337.00	1.49	446.00	305.00	623.00	---	524.00	612.00	1580.00	471.00
21	282.00	386.00	345.00	---	416.00	308.00	2520.00	---	420.00	---	584.00	443.00
22	321.00	364.00	333.00	---	372.00	---	3890.00	---	340.00	---	227.00	454.00
23	282.00	378.00	325.00	---	399.00	---	1240.00	---	488.00	---	132.00	451.00
24	292.00	297.00	302.00	---	357.00	---	732.00	---	644.00	---	174.00	440.00
25	315.00	276.00	329.00	---	376.00	---	706.00	---	454.00	---	228.00	486.00
26	315.00	285.00	310.00	---	386.00	---	672.00	---	567.00	---	354.00	472.00
27	329.00	273.00	325.00	---	379.00	---	616.00	---	571.00	---	166.00	547.00
28	323.00	272.00	337.00	---	431.00	---	744.00	---	583.00	---	390.00	548.00
29	410.00	340.00	221.00	---	---	---	769.00	---	629.00	---	636.00	540.00
30	502.00	407.00	162.00	---	---	---	758.00	---	470.00	674.00	449.00	422.00
31	708.00	---	149.00	---	---	---	---	---	---	505.00	235.00	---
MEAN	364.00	399.00	312.00	291.00	447.00	355.00	833.00	3010.00	901.00	617.00	518.00	472.00
WTR YR 1977	MEAN	612.00	MAX	9340.00	MIN	1.49						

07305500 WEST OTTER CREEK AT SNYDER LAKE, NEAR MOUNTAIN PARK, OK

LOCATION.--Lat 34°44'02", long 98°59'10", in 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 (41.8 km).

DRAINAGE AREA.--132 mi² (342 km²).

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 as WSP 1311.

REVISED RECORDS.--WSP 1731: 1960(M). WSP 1920: 1959-60.

GAGE.--Water-stage recorder and broad crested masonry spillway. Datum of gage is 1,361.06 ft (414.851 m) above mean sea level (corrected). 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 excellent. The city of Snyder diverted about 130 acre-ft (160,000 m³) 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, 1952-71, 1973-1975) 23.0 ft³/s (0.651 m³/s), 16,660 acre-ft/yr (20.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s (40.2 m³/s) June 6, 1953, gage height, 19.50 ft (5.944 m), from floodmarks, from rating curve extended above 1,600 ft³/s (45.3 m³/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, 120 ft³/s (3.40 m³/s) May 26, gage height, 12.38 ft (3.773 m); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	14	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	8.8	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	3.5	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.43	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	17	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	46	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	34	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	29	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	25	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	19	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	23	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	47	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	35	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	29	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	25	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	17	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	346.00	26.73	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	11.2	.89	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	47	14	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	686	53	.00	.00	.00

CAL YR 1976 TOTAL 230.60 MEAN .63 MAX 44 MIN .00 AC-FT 457
WTR YR 1977 TOTAL 372.73 MEAN 1.02 MAX 47 MIN .00 AC-FT 739

RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX

LOCATION.--Lat 34°06'36", long 98°31'53", Cotton County, Hydrologic Unit 11130102, at bridge on U.S. Highways 277 and 281, 2.5 miles (4.1 km) northwest of Burkburnett, and at mile 933 (1,501 km).

DRAINAGE AREA.--20,570 mi² (53,280 km²) of which 5,936 mi² (15,374 km²) is probably noncontributing.

PERIOD OF RECORD.--Water years 1960-61, 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT												
05...	1028	9740	1610	441	7000	8.4	19.0	270	8.9	98	29	1332
14...	--	--	1200	237	8100	8.2	21.5	65	9.3	111	--	1400
NOV												
03...	1028	9740	0930	710	6800	8.0	11.5	260	10.2	95	29	1310
04...	--	--	1200	601	9290	8.1	14.0	200	8.8	91	--	1400
DEC												
08...	1028	9740	0900	227	8500	8.2	1.5	9	13.2	97	65	1413
08...	--	--	1200	217	8350	8.2	4.5	10	12.4	102	--	--
JAN												
04...	1028	9740	1500	217	8400	8.4	6.0	9	12.2	102	17	1826
06...	--	--	1250	222	8620	8.2	5.5	9	12.9	109	--	1700
FEB												
02...	1028	9740	0940	213	8750	8.2	5.5	6	11.5	94	22	1566
24...	--	--	1000	222	10600	8.2	10.5	15	10.7	102	--	1900
MAR												
02...	1028	9740	0900	186	7300	7.9	9.5	9	11.1	101	24	1778
17...	--	--	0830	165	9630	8.1	13.0	8	10.3	104	--	1800
APR												
05...	1028	9740	0930	136	10900	8.3	10.0	5	12.5	112	39	1913
20...	--	--	1410	2350	8330	7.8	23.5	1600	7.8	96	--	--
MAY												
05...	--	--	0930	3220	4510	8.0	23.0	2800	7.7	93	--	830
18...	1028	9740	0900	2620	2700	8.1	22.0	260	8.2	96	57	703
JUN												
15...	--	--	1330	915	6520	7.9	27.0	90	8.0	104	--	1100
22...	1028	9740	0930	940	6500	8.2	24.5	249	8.3	102	43	1182
JUL												
06...	1028	9740	0900	530	7500	8.1	26.0	80	8.0	100	26	1277
14...	--	--	0800	325	7220	8.1	24.0	45	7.7	95	--	1200
AUG												
04...	--	--	1400	678	4280	8.4	29.0	130	9.4	124	--	780
30...	1028	9740	1745	4360	2240	7.8	29.0	1330	7.0	93	85	420
SEP												
02...	--	--	0900	2170	2070	8.2	25.5	1200	7.9	99	--	--
20...	1028	9740	1645	165	6000	8.2	28.0	40	8.4	118	37	590

RED RIVER BASIN

83

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
UCT											
05...	380	112	1070	13	--	1916	.5	4614	2.0	<.10	--
14...	--	--	--	--	1200	2000	--	--	.94	.14	4
NOV											
03...	222	68	1150	10	--	2065	.3	5008	1.3	.25	3
04...	--	--	--	--	960	2600	--	--	--	.23	--
DEC											
08...	305	106	1190	9.8	--	219	.5	5570	.80	.09	--
08...	--	--	--	--	--	--	--	--	.86	.08	--
JAN											
04...	374	139	1130	10	1030	198	.4	5244	.90	.13	--
06...	--	--	--	--	1300	2300	--	--	--	.07	--
FEB											
02...	470	169	1280	10	1264	2535	.5	6117	17	.09	4
24...	--	--	--	--	1400	2900	--	--	.60	.08	--
MAR											
02...	414	183	1240	11	1214	2461	.4	6069	1.3	.41	--
17...	--	--	--	--	1300	2600	--	--	1.1	.13	3
APR											
05...	458	172	1540	14	1311	3079	.5	7407	2.6	.23	--
20...	--	--	--	--	--	--	--	--	4.9	1.1	--
MAY											
05...	--	--	--	--	620	1100	--	--	2.4	.08	--
18...	241	67	340	17	519	661	.3	2042	4.6	.51	10
JUN											
15...	--	--	--	--	1100	1400	--	--	.80	.20	4
22...	358	93	720	11	1000	1446	.5	4069	2.2	.44	--
JUL											
06...	386	102	1010	14	1126	1838	.4	4821	2.1	.61	--
14...	--	--	--	--	1000	1800	--	--	.79	.07	--
AUG											
04...	--	--	--	--	650	960	--	--	1.6	.19	7
30...	185	36	250	13	317	402	.3	1327	2.5	1.9	34
SEP											
02...	--	--	--	--	--	--	--	--	--	.34	--
20...	35	121	1050	12	284	--	--	5273	3.2	.23	--

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT											
05...	--	--	--	1200	--	567	--	--	--	--	--
14...	0	20	7	2100	4	110	.0	--	2	--	50
NOV											
03...	7	29	15	900	34	279	<.5	37	5	6	13
04...	--	--	--	--	--	--	--	--	--	--	--
DEC											
08...	--	--	--	200	--	30	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
JAN											
04...	--	--	--	140	--	40	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	7	44	21	250	40	20	<.5	33	3	14	6
24...	--	--	--	--	--	--	--	--	--	--	--
MAR											
02...	--	--	--	<100	--	40	--	--	--	--	--
17...	0	10	2	300	0	60	.0	--	3	--	50
APR											
05...	--	--	--	490	--	80	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
MAY											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	5	66	45	3500	54	630	<.5	71	2	12	57
JUN											
15...	10	10	20	3100	100	160	.4	--	5	--	20
22...	--	--	--	1320	--	320	--	--	--	--	--
JUL											
06...	--	--	--	1200	--	460	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
AUG											
04...	10	15	20	2100	100	300	.1	--	5	10	20
30...	4	97	50	3100	50	1500	--	105	1	8	140
SEP											
02...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	1770	--	70	--	--	--	--	--

RED RIVER BASIN

07309000 EAST CACHE CREEK NEAR ELGIN, OK

LOCATION.--Lat 34°46'55", long 98°22'00", NW 1/4 sec.33, T.4 N., R.11 W., Comanche County, Hydrologic Unit 11130202, at gaging station at bridge on U.S. Highway 277, 1.1 miles (1.76 km) upstream from Rock Creek, and 4.25 mi (6.83 km) west of Elgin.

DRAINAGE AREA.--248 mi² (642 km²).

PERIOD OF RECORD.--Water years 1956, 1958, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to September 1956, October 1957 to August 1958.

WATER TEMPERATURE: October 1955 to September 1956, October 1957 to August 1958.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. No flow was observed on June 22, July 5, Sept. 20.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANAL- YZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHMS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
05...	1028	9740	1200	640	8.2	17.0	18	7.1	76	E18	253
NOV											
02...	1028	9740	1430	720	7.8	14.0	3	8.9	88	E13	293
DEC											
07...	1028	9740	1145	540	7.7	2.0	3	11.9	89	14	232
JAN											
04...	1028	9740	1100	600	7.9	1.0	2	9.9	73	14	218
FEB											
02...	1028	9740	1150	750	7.8	6.0	4	10.8	90	11	346
MAR											
02...	1028	9740	1030	580	7.8	9.0	30	9.2	84	16	244
APR											
05...	1028	9740	1100	600	8.2	10.5	6	11.2	104	16	234
MAY											
18...	1028	9740	1115	520	8.2	24.0	3	8.0	97	16	188
AUG											
30...	1028	9740	1115	392	7.3	26.5	100	2.8	35	43	150

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUOR- IDE (F) (MG/L)	TOTAL FILTR- ABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
05...	73	19	48	5.3	--	43	.4	452	.80	<.10	--
NOV											
02...	62	15	36	3.4	--	46	.2	498	.80	.03	<1
DEC											
07...	50	15	30	6.9	--	46	.3	399	1.1	<.03	--
JAN											
04...	61	21	30	6.3	100	42	.3	368	.90	<.03	--
FEB											
02...	102	24	36	4.2	147	40	.2	553	.70	<.03	2
MAR											
02...	65	20	43	7.5	119	75	.3	399	1.2	.08	--
APR											
05...	57	21	48	8.0	114	72	.3	328	1.6	.08	--
MAY											
18...	53	19	34	7.9	101	38	.2	345	1.9	.68	<1
AUG											
30...	46	10	15	8.0	65	20	.2	255	1.7	.23	6

RED RIVER BASIN

85

07309000 EAST CACHE CREEK NEAR ELGIN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRU- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
05...	--	--	--	300	--	211	--	--	--	--	--
NOV											
02...	2	16	5	100	31	109	.5	9	1	2	7
DEC											
07...	--	--	--	100	--	36	--	--	--	--	--
JAN											
04...	--	--	--	<100	--	36	--	--	--	--	--
FEB											
02...	1	19	7	160	9	250	<.5	8	<1	6	8
MAR											
02...	--	--	--	490	--	160	--	--	--	--	--
APR											
05...	--	--	--	390	--	60	--	--	--	--	--
MAY											
16...	2	9	10	300	14	90	<.5	13	<1	4	13
AUG											
30...	<1	15	8	2300	36	480	--	12	<1	<2	35

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 mi² (1,748 km²).

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) above mean sea level (State Highway Department bench mark). Prior to Jan. 8, 1939, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow partly regulated by Lake Lawtonka, capacity, 42,300 acre-ft (52.2 hm³) prior to late 1953, and 63,000 acre-ft (77.7 hm³) thereafter on Medicine Creek, by Lake Thomas capacity, 8,300 acre-ft (10.2 hm³) on Little Medicine Creek, and since March 1961 by Lake Ellsworth, capacity, 94,500 acre-ft (117 hm³) on East Cache Creek. Low flow sustained by sewage from cities of Lawton and Walters.

AVERAGE DISCHARGE.--33 years, 167 ft³/s (4.729 m³/s), 121,000 acre-ft/yr (149 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,200 ft³/s (799 m³/s) May 18, 1951, gage height, 29172 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.--Peak discharge above base of 2,400 ft³/s (68.0 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s)	(m ³ /s)	GAGE HEIGHT (ft)	(m)	DATE	TIME	DISCHARGE (ft ³ /s)	(m ³ /s)	GAGE HEIGHT (ft)	(m)
May 21	1245	*5,720	162	26 77	8.159	Aug.19	2400	2,560	72.5	23.25	7.087

Minimum daily discharge, 16 ft³/s (0.45 m³/s) Aug.12, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	50	31	28	23	28	23	27	690	190	25	83
2	19	28	32	31	23	28	25	28	210	290	44	61
3	19	21	32	33	24	27	26	65	120	160	29	51
4	18	18	31	34	24	43	25	78	60	90	22	44
5	18	19	28	33	25	44	25	39	50	56	19	44
6	29	20	27	29	25	31	24	34	44	46	18	36
7	24	20	32	28	24	28	25	57	40	40	18	36
8	21	17	41	28	23	27	24	62	36	36	17	26
9	21	17	33	31	23	26	24	40	32	34	17	36
10	21	19	31	30	22	23	25	33	29	32	18	33
11	20	21	27	27	31	22	26	31	28	30	17	29
12	19	20	26	30	278	26	25	28	27	27	16	26
13	19	20	26	36	275	28	24	27	29	24	18	25
14	20	26	26	41	87	30	26	26	26	23	18	25
15	22	26	26	73	49	29	27	603	23	22	19	28
16	25	26	27	119	37	25	36	507	21	22	17	28
17	23	27	26	63	34	25	36	61	22	21	16	26
18	22	26	26	39	36	23	31	34	23	20	17	24
19	21	22	27	30	33	23	34	134	24	19	791	23
20	23	28	26	29	31	22	33	2740	25	18	1250	22
21	27	30	26	26	30	22	41	4710	27	17	90	20
22	26	27	25	27	28	21	689	1640	27	17	30	21
23	25	24	28	27	29	22	188	165	26	22	23	22
24	24	24	30	27	28	21	92	100	24	24	19	20
25	21	26	30	27	28	22	59	78	23	23	850	20
26	20	26	30	27	27	23	44	60	23	22	654	20
27	21	26	29	25	26	27	37	55	25	21	57	19
28	22	26	28	25	29	42	33	240	23	19	94	21
29	47	26	26	24	---	48	31	190	22	50	1550	22
30	91	26	30	23	---	34	29	78	23	100	537	20
31	141	---	32	22	---	27	---	247	---	36	126	---
TOTAL	888	732	895	1072	1352	867	1787	12217	1802	1551	6436	911
MEAN	28.6	24.4	28.9	34.6	48.3	28.0	59.6	394	60.1	50.0	208	30.4
MAX	141	50	41	119	278	48	689	4710	690	290	1550	83
MIN	18	17	25	22	22	21	23	26	21	17	16	19
AC=FT	1760	1450	1780	2130	2680	1720	3540	24230	3570	3080	12770	1810
CAL YR 1976	TOTAL	18325	MEAN	50.1	MAX	801	MIN	13	AC=FT	36350		
WTR YR 1977	TOTAL	30510	MEAN	83.6	MAX	4710	MIN	16	AC=FT	60520		

RED RIVER BASIN

87

07311000 EAST CACHE CREEK NEAR WALTERS, OK

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 (discontinued).

WATER TEMPERATURE: October 1951 to September 1953, October 1969 to March 1977 (discontinued).

REMARKS.--Samples were collected by a local observer on a daily basis. Partial analyses were made each month on those samples having maximum, minimum and mean specific conductance for the month. An additional sample was collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Monthly samples were collected by the U.S. Geological Survey and selected parameters were analyzed by Oklahoma State Department of Health.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,860 micromhos Jan. 10, 1971; minimum daily, 101 micromhos Nov. 1, 1972.

WATER TEMPERATURES: Maximum daily, 38.5°C July 29, 1970; minimum daily, 0.0°C on several days during the winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: (Oct. 1 to Mar. 20) Maximum daily, 774 micromhos Feb. 26, Mar. 11; minimum daily, 413 micromhos Oct. 27.

WATER TEMPERATURES: (Oct. 1 to Mar. 20) Maximum daily, 22.0°C Oct. 2; minimum daily, 0.0°C Jan. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHUS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)
OCT											
05...	1028	9740	1340	18	610	7.8	18.0	53	5.1	55	27
21...	--	--	1700	30	659	7.8	--	--	--	--	--
25...	--	--	1400	21	416	7.7	--	--	--	--	--
NOV											
02...	1028	9740	1645	28	425	7.1	10.0	97	6.8	62	34
06...	--	--	1400	20	711	8.1	--	--	--	--	--
20...	--	--	1000	26	662	8.0	--	--	--	--	--
DEC											
07...	1028	9740	1400	27	650	7.4	3.5	4	8.3	64	33
10...	--	--	1700	32	672	8.2	--	--	--	--	--
31...	--	--	1600	30	712	8.2	--	--	--	--	--
JAN											
01...	--	--	1100	26	686	7.8	--	--	--	--	--
04...	1028	9740	1230	32	700	7.8	3.0	2	10.3	80	33
24...	--	--	1700	32	762	7.3	--	--	--	--	--
FEB											
01...	1028	9740	1430	29	775	7.7	3.5	4	10.3	79	47
14...	--	--	1700	71	532	8.1	--	--	--	--	--
26...	--	--	1100	27	774	7.3	--	--	--	--	--
MAR											
01...	1028	9740	1400	27	780	7.9	9.5	8	7.7	69	39
06...	--	--	1230	31	635	7.8	--	--	--	--	--
20...	--	--	1430	22	771	7.1	--	--	--	--	--
APR											
04...	1028	9740	1430	26	720	7.7	16.5	18	9.3	99	31
MAY											
17...	1028	9740	1545	54	300	7.7	23.0	155	5.2	62	39
JUN											
21...	--	--	1140	27	750	7.9	27.0	--	5.1	65	--
21...	1028	9740	1141	27	750	7.9	27.0	34	5.1	65	24
JUL											
05...	--	--	1730	32	399	7.6	27.5	--	4.9	63	--
05...	1028	9740	1731	32	399	7.6	27.5	100	4.9	63	21
AUG											
30...	--	--	1245	328	255	7.7	25.0	--	5.7	70	--
30...	1028	9740	1300	319	255	7.7	25.0	240	5.7	70	59
SEP											
20...	1028	9740	1345	22	600	7.4	23.0	30	6.4	76	21
20...	--	--	1350	22	600	7.4	23.0	--	6.4	76	--

RED RIVER BASIN

07311000 EAST CACHE CREEK NEAR WALTERS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PU- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CAO3 (MG/L)
OCT											
05...	--	--	--	--	--	--	--	--	--	--	--
21...	180	15	53	12	61	41	2.0	8.8	203	0	167
25...	120	4	36	6.4	35	38	1.4	6.5	137	0	112
NOV											
02...	--	--	--	--	--	--	--	--	--	--	--
06...	200	13	59	12	68	41	2.1	10	224	0	184
20...	180	20	55	11	58	39	1.9	9.7	198	0	162
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
10...	200	29	59	12	61	39	1.9	8.9	204	0	167
31...	210	44	62	13	59	37	1.8	8.4	200	0	164
JAN											
01...	200	35	61	12	59	38	1.8	8.4	203	0	167
04...	--	--	--	--	--	--	--	--	--	--	--
24...	200	34	60	13	69	41	2.1	8.1	206	0	169
FEB											
01...	--	--	--	--	--	--	--	--	--	--	--
14...	160	13	49	9.2	46	37	1.6	6.3	179	0	147
26...	200	30	60	12	69	42	2.1	8.7	206	0	169
MAR											
01...	--	--	--	--	--	--	--	--	--	--	--
06...	180	30	53	11	61	41	2.0	7.9	180	0	150
20...	210	22	63	13	75	42	2.2	9.5	230	0	190
APR											
04...	--	--	--	--	--	--	--	--	--	--	--
MAY											
17...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	230	24	72	12	55	34	1.6	6.0	250	0	210
21...	--	--	--	--	--	--	--	--	--	--	--
JUL											
05...	110	0	35	6.2	37	40	1.5	5.9	140	0	115
05...	--	--	--	--	--	--	--	--	--	--	--
AUG											
30...	83	0	27	3.7	15	27	.7	4.2	110	0	90
30...	--	--	--	--	--	--	--	--	--	--	--
SEP											
20...	--	--	--	--	--	--	--	--	--	--	--
20...	200	32	62	12	55	36	1.7	9.0	210	0	170

RED RIVER BASIN

89

07311000 EAST CACHE CREEK NEAR WALTERS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CARBON DIOXIDE (CO ₂) (MG/L)	DIS- SOLVED SULFATE (SO ₄) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUOR- IDE (F) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TUNS PER AC-FT)	DIS- SOLVED SOLIDS (TUNS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
05...	--	--	--	.9	--	--	--	--	.70	1.9	--
21...	5.1	52	59	--	389	.53	31.5	6.6	--	--	--
25...	4.4	32	37	--	250	.34	14.2	4.3	--	--	--
NOV											
02...	--	--	--	.5	--	--	--	--	2.2	1.2	5
06...	2.8	58	62	--	425	.58	22.9	5.8	--	--	--
20...	3.2	54	55	--	387	.53	27.2	7.8	--	--	--
DEC											
07...	--	--	--	.4	--	--	--	--	5.8	3.6	--
10...	2.1	55	58	--	407	.55	35.2	7.2	--	--	--
31...	2.0	56	62	--	411	.56	33.3	8.1	--	--	--
JAN											
01...	5.1	56	60	--	405	.55	28.4	7.9	--	--	--
04...	--	--	--	.8	--	--	--	--	6.3	6.8	--
24...	17	62	67	--	430	.58	37.2	8.4	--	--	--
FEB											
01...	--	--	--	.9	--	--	--	--	.90	5.3	3
14...	2.3	50	41	--	327	.44	62.7	3.7	--	--	--
26...	17	63	64	--	446	.61	32.5	8.4	--	--	--
MAR											
01...	--	--	--	.8	--	--	--	--	8.5	5.9	--
06...	4.6	60	53	--	376	.51	31.5	5.7	--	--	--
20...	29	63	68	--	445	.61	26.4	7.1	--	--	--
APR											
04...	--	--	--	.7	--	--	--	--	5.3	5.8	--
MAY											
17...	--	--	--	.3	--	--	--	--	3.3	1.2	2
JUN											
21...	5.0	62	47	--	387	.53	28.2	--	--	--	--
21...	--	--	--	.6	--	--	--	--	1.9	.97	--
JUL											
05...	5.6	26	38	--	220	.30	19.0	--	--	--	--
05...	--	--	--	.5	--	--	--	--	1.4	1.4	--
AUG											
30...	3.5	12	8.3	--	143	.19	127	--	--	--	--
30...	--	--	--	.2	--	--	--	--	1.5	.71	11
SEP											
20...	--	--	--	.3	--	--	--	--	1.4	.10	--
20...	13	53	64	--	412	.56	24.5	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible]

07311000 EAST CACHE CREEK NEAR WALTERS, OK--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	15.0	7.0	0.0	4.0	9.0						
2	22.0	14.0	8.0	2.0	3.0	8.0						
3	19.0	15.0	9.0	5.0	5.0	8.0						
4	16.0	14.0	6.0	4.0	5.0	9.0						
5	16.0	15.0	4.0	5.0	4.0	7.0						
6	17.0	14.0	8.0	4.0	2.0	8.0						
7	17.0	12.0	7.0	5.0	6.0	10.0						
8	19.0	14.0	6.0	3.0	7.0	10.0						
9	18.0	13.0	8.0	2.0	7.0	12.0						
10	14.0	13.0	5.0	2.0	6.0	11.0						
11	16.0	12.0	4.0	4.0	9.0	12.0						
12	17.0	10.0	5.0	3.0	10.0	13.0						
13	15.0	9.0	9.0	4.0	10.0	7.0						
14	16.0	5.0	8.0	3.0	7.0	10.0						
15	14.0	9.0	9.0	1.0	8.0	13.0						
16	15.0	10.0	10.0	1.0	6.0	11.0						
17	12.0	12.0	8.0	4.0	7.0	14.0						
18	14.0	13.0	6.0	3.0	8.0	14.0						
19	15.0	14.0	6.0	3.0	6.0	12.0						
20	14.0	13.0	9.0	5.0	10.0	15.0						
21	13.0	14.0	9.0	3.0	9.0	---						
22	15.0	8.0	7.0	1.0	10.0	---						
23	13.0	10.0	7.0	1.0	9.0	---						
24	12.0	12.0	8.0	3.0	8.0	---						
25	14.0	11.0	4.0	2.0	10.0	---						
26	13.0	10.0	7.0	2.0	8.0	---						
27	14.0	10.0	6.0	3.0	7.0	---						
28	15.0	11.0	7.0	4.0	8.0	---						
29	12.0	8.0	5.0	3.0	---	---						
30	13.0	9.0	7.0	1.0	---	---						
31	12.0	---	5.0	3.0	---	---						
MEAN	15.5	11.5	7.0	3.0	7.0	10.5						
WTR YR 1977	MEAN	9.0		MAX	22.0	MIN	0.0					

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	712	678	686	697	636						
2	607	714	676	687	701	635						
3	604	711	682	691	698	635						
4	595	714	678	687	700	638						
5	594	714	680	693	698	639						
6	596	711	674	693	699	635						
7	594	712	672	690	722	773						
8	595	662	674	688	724	771						
9	594	670	675	737	714	770						
10	595	661	672	715	722	771						
11	656	661	676	716	714	774						
12	647	663	678	743	719	771						
13	646	661	698	696	712	771						
14	650	678	697	697	532	773						
15	647	674	698	694	536	771						
16	646	673	700	740	536	773						
17	648	662	697	752	535	771						
18	654	675	712	741	535	771						
19	658	671	697	744	535	771						
20	657	662	692	754	535	771						
21	659	663	685	742	764	---						
22	656	700	687	755	770	---						
23	655	702	687	749	766	---						
24	654	700	689	762	769	---						
25	416	704	690	754	772	---						
26	414	702	682	759	774	---						
27	413	705	709	754	770	---						
28	415	699	710	750	651	---						
29	415	717	710	756	---	---						
30	416	718	709	752	---	---						
31	414	---	712	754	---	---						
MEAN	581	689	690	727	679	731						

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, Hydro-logic 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 mi² (63.7 km²).

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) above mean sea level.

REMARKS.--Records fair. Minor regulation by Lake Rush, Lake Jed Johnson, and Lake Ketch, combined surface-area 132 acres (534,000 m²).

AVERAGE DISCHARGE.--13 years, 8.65 ft³/s (0.245 m³/s), 6,270 acre-ft/yr (7.73 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft³/s (385 m³/s) Aug. 28, 1977, gage height, 18.02 ft (5.492 m) from floodmarks, from rating curve extended above 250 ft³/s (7.08 m³/s) on basis of contracted-opening; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least about 1907, that of Aug. 28, 1977, according to local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/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. 21	0315	630	17.8	9.52	2.902	Aug. 28	0100	*13,600	385	18.02	5.492
May 19	2130	764	21.6	9.81	2.990						

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.02	.04	.06	.06	3.9	.66	2.0	17	.82	.00	19
2	.05	.07	.03	.07	.06	3.3	.71	2.0	9.3	1.5	.00	16
3	.03	.18	.02	.07	.06	2.9	.82	3.1	6.8	.64	.00	8.0
4	.01	.18	.02	.08	.06	2.2	1.3	2.9	4.5	.33	.00	4.8
5	.13	.21	.05	.06	.06	1.6	1.5	2.5	3.3	.19	.00	4.2
6	.09	.19	.10	.06	.06	1.5	1.4	4.4	2.6	.14	.00	4.5
7	.13	.17	.03	.07	.06	1.4	1.3	15	2.3	.09	.00	3.2
8	.15	.11	.03	.07	.06	1.3	1.2	10	2.3	.07	.00	2.4
9	.13	.10	.03	.05	.06	1.3	1.2	7.1	2.1	.11	.00	1.9
10	.11	.11	.03	.05	.06	1.3	1.1	5.3	1.9	.15	.00	1.6
11	.07	.11	.02	.06	1.0	1.8	1.0	4.2	1.8	.09	.00	1.3
12	.05	.10	.03	.09	8.0	1.3	1.0	3.4	1.6	.03	.00	.94
13	.05	.12	.02	.31	7.0	1.1	1.1	2.6	1.4	.01	.00	4.0
14	.03	.08	.02	.27	6.5	1.1	1.1	2.0	1.2	.00	.00	5.0
15	.05	.07	.02	.26	6.0	.96	1.7	1.9	1.1	.00	.00	2.6
16	.03	.06	.02	.18	6.0	.85	1.4	1.5	1.0	.00	.00	1.5
17	.02	.07	.02	.14	4.8	.88	1.7	1.2	.84	.00	.00	1.0
18	.05	.05	.02	.11	40	.88	1.5	1.0	.62	.00	.00	.80
19	.03	.04	.02	.06	42	.83	1.4	117	.51	.00	.75	.46
20	.03	.02	.03	.06	12	.78	3.7	230	.47	.00	.77	.34
21	.05	.02	.02	.06	7.8	.76	194	139	.38	.00	.33	.25
22	.05	.00	.04	.06	5.6	.77	40	48	.31	.00	.24	.14
23	.07	.07	.09	.06	4.2	.78	20	27	.58	.00	.17	.11
24	.05	.09	.09	.06	14	.78	13	17	.99	.00	.09	.07
25	.05	.06	.09	.06	16	.78	9.0	13	.90	.00	.14	.04
26	.02	.06	.07	.06	9.8	.79	6.6	8.7	1.3	.00	.05	.00
27	.07	.02	.07	.06	7.1	1.2	4.9	51	1.1	.00	.00	.00
28	.05	.02	.06	.06	4.8	1.1	3.7	34	.65	.00	779	.00
29	.18	.03	.05	.06	---	.86	3.0	18	.40	.00	26	.00
30	.11	.03	.07	.06	---	.74	2.5	12	.28	.00	25	.00
31	.03	---	.06	.06	---	.65	---	40	---	.00	21	---
TOTAL	2.04	2.46	1.31	2.84	203.20	40.39	323.49	826.8	69.53	4.17	853.54	84.15
MEAN	.066	.082	.042	.092	7.26	1.30	10.8	26.7	2.32	.13	27.5	2.81
MAX	.18	.21	.10	.31	42	3.9	194	230	17	1.5	779	19
MIN	.01	.00	.02	.05	.06	.65	.66	1.0	.28	.00	.00	.00
AC-FT	4.0	4.9	2.6	5.6	403	80	642	1640	138	8.3	1690	167

CAL YR 1976	TOTAL	2101.46	MEAN 5.74	MAX 209	MIN .00	AC-FT 4170
WTR YR 1977	TOTAL	2413.92	MEAN 6.61	MAX 779	MIN .00	AC-FT 4790

RED RIVER BASIN

93

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 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
NOV 05...	1055	.24	232	6.8	9.0	10.5	90	75	0	20
FEB 16...	0900	6.1	125	6.4	6.0	--	--	34	1	8.9
MAY 25...	1244	13	139	8.2	24.0	--	--	41	0	10

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PU- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
NOV 05...	6.0	18	34	.9	2.3	103	0	84	16
FEB 16...	2.9	9.8	38	.7	.8	40	0	33	16
MAY 25...	3.9	9.5	32	.6	3.0	51	0	42	12

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUD- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
NOV 05...	13	.4	15	153	141	.21	.10	.07	.02
FEB 16...	5.7	.4	11	77	75	.10	1.27	.03	.03
MAY 25...	5.7	.3	13	94	83	.13	3.30	.02	.11

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 mi² (1,598 km²).

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) above mean sea level (State Highway Department bench mark). Prior to Nov. 10, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--28 years, 116 ft³/s (3.285 m³/s), 84,040 acre-ft/yr (104 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,700 ft³/s (1,370 m³/s) Sept. 22, 1969, gage height, 27.51 ft (8.385 m), from rating curve extended above 13,000 ft³/s (368 m³/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 discharge, above base of 2,000 ft³/s (56.6 m³/s) and Maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 9	0115	2,340 66.3	19.87 6.056	May 21,22	2400	*6,820 193	23.18 7.065
May 16	2230	2,880 81.6	21.46 6.541				

Minimum discharge, 1.2 ft³/s (0.034 m³/s) Aug. 12-15, 17-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	634	5.6	5.7	6.0	6.8	6.2	243	105	64	5.2	261
2	11	88	6.2	5.8	6.0	6.8	5.9	210	60	936	5.5	220
3	9.8	43	6.8	6.1	6.0	6.8	5.5	583	40	189	4.9	174
4	8.7	31	6.5	6.2	6.0	6.8	5.3	1110	34	34	11	136
5	8.3	23	6.5	6.0	6.0	6.8	4.6	491	30	15	8.4	125
6	7.6	19	7.3	5.8	6.0	6.8	4.2	127	28	9.3	4.7	87
7	9.0	15	7.2	5.8	6.0	6.7	4.0	818	26	6.6	3.2	85
8	11	12	8.1	6.0	6.0	6.4	3.6	1870	23	6.0	2.4	54
9	9.6	28	8.6	6.4	6.0	6.1	3.3	1780	18	5.4	1.9	26
10	8.3	27	8.2	7.6	6.0	6.1	3.1	386	18	4.6	1.7	17
11	7.2	14	7.9	8.0	5.0	7.6	2.9	679	17	4.1	1.6	12
12	7.1	10	7.8	7.9	400	6.9	2.9	1370	21	3.6	1.4	8.7
13	6.8	8.9	7.8	9.0	200	6.3	2.8	751	20	3.4	1.2	6.2
14	6.5	7.7	7.3	10	80	5.9	2.9	227	19	3.1	1.3	4.7
15	5.8	7.1	7.5	15	35	5.9	3.0	885	13	2.5	1.3	3.8
16	5.9	7.4	7.2	35	24	5.8	3.7	2590	12	2.3	1.3	3.2
17	5.9	7.7	7.2	35	18	5.2	6.0	2350	11	2.3	1.3	3.1
18	6.4	8.2	7.1	26	14	4.9	25	409	9.1	2.2	1.2	3.1
19	5.5	8.6	7.8	18	12	4.4	75	336	7.5	1.9	1.6	2.6
20	5.1	9.2	7.9	13	11	4.3	42	2480	6.6	1.8	497	3.6
21	4.9	8.7	7.1	11	9.7	4.3	165	4890	5.8	36	693	4.2
22	4.9	7.6	6.8	9.0	6.9	4.1	653	5760	5.2	32	84	3.7
23	4.7	7.2	6.6	8.0	8.3	4.1	643	2660	5.6	5.0	40	3.0
24	4.5	7.8	6.4	7.5	8.0	4.1	96	668	5.7	2.6	24	2.6
25	4.6	8.1	6.4	7.0	7.6	4.1	38	228	6.5	1.9	16	2.5
26	4.6	7.6	6.4	7.0	7.1	4.2	25	146	9.0	1.7	11	2.3
27	6.3	6.9	6.4	6.5	7.1	5.9	18	116	7.5	2.0	8.2	1.8
28	5.7	6.4	6.4	6.5	7.1	5.6	13	565	6.1	2.5	6.7	1.6
29	25	6.1	6.4	6.5	---	6.4	11	478	6.2	3.0	768	1.6
30	391	5.6	6.3	6.0	---	7.1	9.3	112	6.0	3.3	1770	1.5
31	858	---	5.8	6.0	---	6.7	---	121	---	4.0	781	---
TOTAL	1470.7	1080.8	217.5	319.3	967.8	179.9	1883.2	35459	581.8	1391.1	4760.2	1260.8
MEAN	47.4	36.0	7.02	10.3	34.6	5.80	62.8	1144	19.4	44.9	154	42.0
MAX	858	634	8.6	35	400	7.6	653	5760	105	936	1770	261
MIN	4.5	5.6	5.6	5.7	6.0	4.1	2.8	112	5.2	1.7	1.2	1.5
AC-FT	2920	2140	431	633	1920	357	3740	70330	1150	2760	9440	2500

CAL YR 1976 TOTAL 30000.25 MEAN 82.0 MAX 5290 MIN .00 AC-FT 59510
WTR YR 1977 TOTAL 49572.10 MEAN 136 MAX 5760 MIN 1.2 AC-FT 98330

RED RIVER BASIN

95

07311505 DEEP RED RUN NEAR TAYLOR, OK

LOCATION.--Lat 34°12'32", long 98°19'48", west edge sec.14, T.4 S., R.11 W., Cotton County, Hydrologic Unit 11130203, at county road bridge, 2.2 mi (3.5 km) upstream from confluence with East Cache Creek, 2.5 mi (4.0 km) north of Taylor, and at mile 3.4 (5.5 km²).

DRAINAGE AREA.--1,121 mi² (2,903 km²).

PERIOD OF RECORD.--Water years 1959, 1976 to May 1977. Prior to October 1976, published as West Cache Creek near Taylor.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 05...	1028	9740	1450	2500	8.2	18.5	58	8.9	98	31	537
NOV 02...	1028	9740	1730	600	7.0	11.0	190	11.5	107	36	199
DEC 07...	1028	9740	1530	4000	7.9	3.5	9	12.6	97	29	761
JAN 04...	1028	9740	1400	4500	8.3	4.0	2	12.9	102	14	836
FEB 01...	1028	9740	1530	4100	8.4	5.0	3	12.7	102	22	810
MAR 01...	1028	9740	1450	1300	8.4	11.5	8	9.3	88	19	363
APR 04...	1028	9740	1530	3100	8.5	19.0	15	10.6	118	33	666
MAY 17...	1028	9740	1700	360	7.6	24.0	230	4.9	60	40	115
SEP 20...	1028	9740	1515	520	8.2	24.0	18	7.6	93	10	134

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 05...	117	54	304	10	--	534	.3	1519	1.2	.18	--
NOV 02...	32	12	83	12	--	178	.2	533	2.0	.48	2
DEC 07...	146	85	400	7.9	--	800	.4	2337	1.0	.21	--
JAN 04...	173	127	460	60	375	905	.3	2488	1.4	.41	--
FEB 01...	166	106	555	16	405	894	.3	2308	17	.20	3
MAR 01...	72	35	204	5.4	131	310	.3	930	1.0	.23	--
APR 04...	143	83	410	7.0	235	679	.4	1447	1.8	.31	--
MAY 17...	29	10	37	6.9	41	58	.2	445	2.7	.60	6
SEP 20...	29	13	67	4.9	21	77	.2	363	1.1	.09	--

RED RIVER BASIN

07311505 DEEP RED RUN NEAR TAYLOR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
05...	--	--	--	300	--	140	--	--	--	--	--
NOV											
02...	2	13	8	700	14	238	.5	13	2	1	11
DEC											
07...	--	--	--	340	--	558	--	--	--	--	--
JAN											
04...	--	--	--	<100	--	473	--	--	--	--	--
FEB											
01...	3	28	5	100	160	230	<.5	18	1	6	7
MAR											
01...	--	--	--	<100	--	110	--	--	--	--	--
APR											
04...	--	--	--	420	--	680	--	--	--	--	--
MAY											
17...	1	44	17	1170	28	340	<.5	32	<1	2	60
SEP											
20...	--	--	--	2800	--	140	--	--	--	--	--

RED RIVER BASIN

97

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 mi² (1,458 km²).

WATER-DISCHARGE RECORDS

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) above mean sea level (State Highway Department bench mark). Prior to Apr. 5, 1966, water-stage recorder at same site at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records poor prior to Mar. 9 and good thereafter. 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 ft³/s (3.030 m³/s), 77,520 acre-ft/yr (95.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft³/s (912 m³/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 cfs (1,850 m³/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, 2,590 ft³/s (73.3 m³/s) May 23, gage height, 22.76 ft (6.937 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	22	8.0	9.0	12	15	18	7.4	62	8.8	.00	.01
2	2.1	17	8.0	9.0	12	15	15	7.4	74	79	.00	.00
3	2.1	7.0	8.0	9.0	12	15	14	7.2	76	217	.00	.00
4	2.1	4.9	8.0	9.0	12	14	18	12	61	39	.00	.00
5	2.1	4.4	8.0	9.0	12	20	15	15	50	27	.00	.20
6	2.1	4.1	10	9.0	12	17	13	7.5	42	6.5	.00	.64
7	2.1	4.0	17	9.0	12	16	11	7.8	42	.00	.00	.04
8	2.1	4.0	17	9.0	12	15	11	13	37	.00	.00	.00
9	2.1	4.0	14	9.0	12	14	9.9	11	33	.00	.00	.00
10	2.1	4.0	11	9.5	15	14	9.1	10	36	.00	.00	.00
11	2.0	4.0	10	11	25	15	8.9	8.6	33	.00	.00	.00
12	2.0	4.0	9.5	12	44	15	8.7	7.1	29	.00	.00	.00
13	2.0	4.0	9.0	15	107	22	8.3	6.3	25	.00	.00	.00
14	2.0	7.0	9.0	20	87	18	7.8	5.9	21	.00	.00	.02
15	2.0	6.5	9.0	30	48	15	9.7	5.4	19	.00	.00	.00
16	2.0	8.0	9.0	60	40	13	11	237	28	.00	.00	.00
17	2.0	8.0	9.0	45	35	13	15	307	26	.00	.00	.00
18	2.0	6.0	9.0	34	30	12	19	197	17	.00	.00	.00
19	2.0	8.0	9.0	20	25	12	16	66	24	.00	.42	.00
20	2.0	8.0	9.0	15	23	12	16	353	20	.00	2.6	.00
21	2.0	7.5	9.2	14	21	12	14	1700	17	.60	1.6	.00
22	2.0	7.5	9.2	15	20	11	16	2460	22	2.0	1.3	.00
23	2.0	7.8	9.0	12	26	13	33	2560	13	1.0	1.2	.00
24	2.0	8.0	9.0	12	19	11	31	2520	14	.20	1.1	.00
25	2.0	8.0	9.0	12	18	10	23	2170	16	.00	1.0	.00
26	2.0	8.0	9.0	12	17	11	16	1370	58	.00	.91	.00
27	2.0	8.0	9.0	12	16	23	12	648	125	.00	.80	.00
28	2.5	8.0	9.0	12	16	38	9.6	483	92	.00	.74	.00
29	4.5	8.0	9.0	12	---	46	5.7	644	34	.00	2.2	.00
30	15	8.0	9.0	12	---	32	7.4	239	17	.00	6.9	.00
31	30	---	9.0	12	---	25	---	124	---	.00	.75	---
TOTAL	107.0	212.0	299.4	487.5	734	534	425.8	16268.1	1163	381.10	21.50	.91
MEAN	3.45	7.09	9.67	15.7	26.2	17.2	14.2	525	38.8	12.3	.69	.030
MAX	30	22	17	60	107	46	33	2560	125	217	6.9	.64
MIN	2.0	4.0	8.0	9.0	12	10	7.8	5.9	13	.00	.00	.00
AC-FT	212	422	545	967	1460	1060	845	32270	2310	756	43	1.8

CAL YR 1976 TOTAL 4701.60 MEAN 26.5 MAX 609 MIN .00 AC-FT 14240
WTR YR 1977 TOTAL 20635.41 MEAN 50.5 MAX 2560 MIN .00 AC-FT 40430

RED RIVER BASIN

07313500 BEAVER CREEK NEAR WAURIKA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953-66, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to September 1962.

WATER TEMPERATURE: October 1955 to September 1962.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
06...	1028	9740	1145	1000	8.3	14.0	31	9.7	96	--	317
NOV											
03...	1028	9740	1145	1100	7.7	11.0	25	10.3	95	--	426
DEC											
08...	1028	9740	1045	1250	8.0	2.0	26	11.5	84	24	535
JAN											
05...	1028	9740	1100	1300	7.3	.0	8	13.6	95	10	625
FEB											
01...	1028	9740	1300	1200	8.2	4.0	8	12.6	98	18	611
MAR											
01...	1028	9740	1215	1500	8.4	9.5	17	12.4	111	22	669
APR											
04...	1028	9740	1315	1400	8.5	16.0	61	11.2	118	25	565
MAY											
17...	1028	9740	1200	360	7.7	24.0	190	6.2	75	48	152
JUN											
21...	1028	9740	1430	1460	8.3	29.0	79	7.7	101	28	477
JUL											
06...	1028	9740	1155	600	7.9	27.5	90	6.7	86	12	209
AUG											
30...	1028	9740	1430	798	7.9	26.0	70	2.1	26	20	207
SEP											
21...	1028	9740	1200	625	7.9	24.0	100	5.0	61	25	134

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RAHLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
06...	77	31	85	6.3	--	155	.4	656	--	<.10	--
NOV											
03...	53	24	90	6.0	--	171	.3	787	--	.12	1
DEC											
08...	131	60	57	6.3	--	124	--	869	1.0	.23	--
JAN											
05...	146	64	70	3.4	280	111	--	899	.80	.04	--
FEB											
01...	128	55	60	3.5	286	94	--	844	17	<.03	3
MAR											
01...	151	68	87	4.9	280	136	--	984	1.2	.12	--
APR											
04...	140	60	80	6.2	286	108	.4	841	1.9	.20	--
MAY											
17...	41	14	20	12	64	30	.3	364	2.7	.59	<1
JUN											
21...	99	.49	100	8.0	161	141	.4	824	1.8	.25	--
JUL											
06...	52	19	36	7.3	73	--	--	346	1.3	.20	--
AUG											
30...	36	22	83	6.6	98	--	--	452	1.0	.15	--
SEP											
21...	29	13	90	4.1	53	40	.4	429	1.0	.19	--

RED RIVER BASIN

99

07313500 BEAVER CREEK NEAR WAURIKA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANG- NESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
06...	--	--	--	200	--	137	--	--	--	--	--
NOV											
03...	4	14	6	300	13	76	<.5	14	<1	3	5
DEC											
08...	--	--	--	330	--	94	--	--	--	--	--
JAN											
05...	--	--	--	130	--	65	--	--	--	--	--
FEB											
01...	2	20	7	140	140	60	<.5	9	1	6	6
MAR											
01...	--	--	--	40	--	280	--	--	--	--	--
APR											
04...	--	--	--	540	--	260	--	--	--	--	--
MAY											
17...	2	37	22	1850	44	470	<.5	45	<1	3	70
JUN											
21...	--	--	--	680	--	440	--	--	--	--	--
JUL											
06...	--	--	--	800	--	270	--	--	--	--	--
AUG											
30...	<1	8	6	6000	19	290	.7	10	--	3	16
SEP											
21...	--	--	--	2800	--	140	--	--	--	--	--

RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, at bridge on U.S. Highway 81, 1.2 mi (1.9 km) south of Terral, and at mile 872 (1,403 km).

DRAINAGE AREA.--28,723 mi² (74,392 km²).

PERIOD OF RECORD.--Water years 1960-61, 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COLLECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICHOHMS)	pH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARDNESS (CA, MG) (MG/L)
OCT												
06...	1028	9740	0950	900	7100	8.2	15.0	260	9.9	100	40	1332
31...	--	--	0845	1800	3160	7.9	10.0	--	--	--	--	590
NOV												
03...	1028	9740	1500	2600	2200	7.7	13.0	280	9.7	94	40	503
DEC												
01...	--	--	0930	388	6320	8.1	2.0	--	--	--	--	1300
08...	1028	9740	1200	605	5500	8.2	3.0	57	12.3	93	37	1316
JAN												
05...	1028	9740	0930	335	6200	8.5	1.5	4	12.9	101	36	1138
FEB												
01...	1028	9740	1130	410	6200	8.4	3.0	7	14.2	107	21	610
24...	--	--	0915	462	7600	7.8	11.0	--	--	--	--	1200
MAR												
01...	1028	9740	1100	417	6500	8.7	9.5	10	13.3	119	31	1134
31...	--	--	1615	600	3620	7.6	18.0	--	--	--	--	640
APR												
04...	1028	9740	1150	410	6500	9.0	16.0	50	10.4	107	41	1027
30...	--	--	1015	1200	4670	8.2	22.0	--	--	--	--	960
MAY												
17...	1028	9740	1300	10000	1300	--	23.0	125	6.9	81	78	267
23...	--	--	1115	32600	2280	7.4	22.0	--	--	--	--	400
JUN												
17...	--	--	1000	1790	5550	7.9	28.0	--	--	--	--	1000
21...	1028	9740	1600	2100	8000	8.2	29.5	200	7.2	95	60	1330
JUL												
06...	1028	9740	1330	1500	6400	8.4	30.0	110	8.4	112	23	1069
21...	--	--	1040	482	6520	7.4	29.0	--	--	--	--	1100
AUG												
30...	1028	9740	1545	14000	1690	7.8	27.0	1400	5.7	72	112	574
31...	--	--	0830	10000	1660	7.7	--	--	--	--	--	330
SEP												
12...	--	--	1035	659	4300	7.5	26.5	--	--	--	--	840
21...	1028	9740	1000	410	3500	8.7	24.0	40	8.8	107	19	146

07315500 RED RIVER NEAR TERRAL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL- NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
06...	351	106	1040	13	--	433	.5	4662	1.6	.25	--
31...	--	--	--	--	290	760	--	--	--	--	--
NOV											
03...	108	36	278	10	--	91	.2	1202	2.0	.56	3
DEC											
01...	--	--	--	--	780	1700	--	--	--	--	--
08...	320	121	610	8.7	--	1204	.7	3001	1.4	.82	--
JAN											
05...	279	121	920	9.0	625	157	.5	4033	1.0	.74	--
FEB											
01...	240	30	1150	9.1	802	1700	.5	4193	1.9	.58	4
24...	--	--	--	--	820	2000	--	--	--	--	--
MAR											
01...	273	102	840	10	750	1563	.5	4009	1.7	.69	--
31...	--	--	--	--	410	840	--	--	--	--	--
APR											
04...	243	100	740	11	596	1444	.4	3308	3.5	.63	--
30...	--	--	--	--	790	1100	--	--	--	--	--
MAY											
17...	148	43	155	11	161	240	.3	800	3.9	1.5	12
23...	--	--	--	--	290	470	--	--	--	--	--
JUN											
17...	--	--	--	--	730	1300	--	--	--	--	--
21...	469	12	1000	13	1111	2137	.6	5252	3.6	2.0	--
JUL											
06...	298	79	870	130	648	1551	.4	3769	2.1	.42	--
21...	--	--	--	--	880	1600	--	--	--	--	--
AUG											
30...	183	28	201	10	195	328	.3	971	4.9	2.2	30
31...	--	--	--	--	220	300	--	--	--	--	--
SEP											
12...	--	--	--	--	610	1100	--	--	--	--	--
21...	35	12	67	9.0	44	61	.6	--	1.7	1.2	--

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (MG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
06...	--	--	--	1000	--	559	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
NOV											
03...	4	20	15	1000	29	482	<.5	23	2	3	12
DEC											
01...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	490	--	92	--	--	--	--	--
JAN											
05...	--	--	--	210	--	23	--	--	--	--	--
FEB											
01...	6	45	23	280	30	30	<.5	35	2	7	12
24...	--	--	--	--	--	--	--	--	--	--	--
MAR											
01...	--	--	--	<100	--	70	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
APR											
04...	--	--	--	700	--	150	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
MAY											
17...	4	103	56	4200	50	900	<.5	85	2	6	160
23...	--	--	--	--	--	--	--	--	--	--	--
JUN											
17...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	2700	--	1020	--	--	--	--	--
JUL											
06...	--	--	--	900	--	240	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
AUG											
30...	3	65	41	2200	43	1300	--	80	1	7	120
31...	--	--	--	--	--	--	--	--	--	--	--
SEP											
12...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	3500	--	100	--	--	--	--	--

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 Mud Creek, 6.0 mi (9.7 km) northwest of Courtney, and at mile 11.5 (18.5 km).

DRAINAGE AREA.--572 mi² (1,481 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 730.00 ft (222.504 m) above mean sea level (State Highway Department bench mark). Prior to Oct. 1, 1968, auxiliary water-stage recorder 2.0 mi (3.2 km) downstream from base gage.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--17 years, 115 ft³/s (3.257 m³/s), 83,320 acre-ft/yr (103 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft³/s (946 m³/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 in May 1957, reached a stage of 30.6 ft (9.33 m).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,300 ft³/s (36.8 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) #2,730	DISCHARGE (m ³ /s) 77.3	GAGE HEIGHT (ft) 34.65	GAGE HEIGHT (m) 7.513	DATE	TIME	DISCHARGE (ft ³ /s) 1,990	DISCHARGE (m ³ /s) 56.4	GAGE HEIGHT (ft) 23.92	GAGE HEIGHT (m) 7.291
Mar. 28	1515					May 23	1930				

No flow Aug. 17, 18, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	143	.14	1.0	4.0	4.6	51	10	8.0	1.5	5.6	37
2	.32	47	.27	1.0	4.0	4.2	35	8.5	6.0	1.5	5.9	12
3	.24	19	.34	1.0	4.0	108	27	10	5.0	1.5	5.5	5.9
4	.20	10	.31	1.0	5.0	85	25	9.3	4.5	13	2.0	3.3
5	.24	6.3	.46	1.0	4.0	80	24	8.0	4.0	12	.92	2.2
6	.17	4.2	1.3	1.0	4.0	30	21	7.5	3.7	6.7	.54	1.7
7	.14	2.8	1.1	1.0	4.0	19	17	7.0	3.4	3.5	.87	2.7
8	.14	1.6	.45	1.0	4.0	13	15	6.5	3.2	2.7	.98	2.5
9	.14	1.2	.72	2.0	4.0	9.2	13	6.0	3.0	2.0	.63	1.0
10	.10	.71	.34	5.0	4.0	7.7	11	5.5	2.8	3.0	.42	.62
11	.07	.46	.17	3.0	20	16	11	5.0	2.7	9.0	.29	.41
12	.14	.52	9.9	2.0	75	82	9.8	4.7	2.5	2.1	.18	.39
13	.20	.46	6.9	5.0	400	81	9.2	4.5	2.4	1.0	.11	7.5
14	.20	.40	5.0	10	180	39	8.9	4.3	2.3	.58	.05	25
15	.24	.34	3.6	20	79	20	14	4.0	2.3	.39	.02	15
16	.20	.31	2.9	50	40	14	13	3.7	2.2	.29	.01	11
17	.17	.27	2.5	100	26	11	13	36	2.1	.21	.00	5.6
18	.20	.34	2.2	50	21	9.6	15	66	2.0	.17	.00	2.8
19	.40	.51	1.7	44	16	8.5	16	22	2.0	.18	.15	1.8
20	.34	.24	1.6	30	13	7.5	51	70	1.9	.13	.53	1.0
21	.46	.24	1.5	15	11	6.4	139	313	1.9	.88	26	.71
22	.58	.20	1.4	9.0	9.5	5.8	279	681	1.8	1.6	44	.49
23	.52	.20	1.4	7.0	7.6	5.6	176	1590	1.6	.63	12	.35
24	.58	.20	1.3	8.0	6.4	5.4	57	1220	1.7	.31	8.9	.26
25	.93	.20	1.1	6.0	5.5	5.4	32	118	1.7	.18	7.7	.25
26	1.2	.24	1.0	5.2	5.0	5.8	25	56	1.7	.12	10	.20
27	.58	.20	1.0	4.8	4.8	812	23	41	1.6	.07	4.7	.15
28	.31	.17	1.1	4.5	4.8	2340	18	30	1.6	.20	2.4	.09
29	1.3	.14	1.1	4.2	---	2020	14	20	1.6	.20	28	.02
30	.57	.14	1.0	4.0	---	776	12	13	1.6	.08	32	.00
31	184	---	1.0	4.0	---	94	---	10	---	.54	72	---
TOTAL	251.76	241.39	221.12	400.7	965.6	6725.5	1174.9	4390.5	83.0	66.26	272.40	141.94
MEAN	8.12	8.05	7.13	12.9	34.5	217	39.2	142	2.77	2.14	8.79	4.73
MAX	184	143	72	100	400	2340	279	1590	8.0	13	72	37
MIN	.07	.14	.14	1.0	4.0	4.2	8.9	3.7	1.6	.07	.00	.00
AC=FT	499	479	439	795	1920	13340	2530	8710	165	131	540	282

CAL YR 1976	TOTAL	27262.81	MEAN	74.5	MAX	3730	MIN	.00	AC=FT	54120
WTR YR 1977	TOTAL	14935.07	MEAN	40.9	MAX	2340	MIN	.00	AC=FT	29620

RED RIVER BASIN

103

07315700 MUD CREEK NEAR COURTNEY, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960, 1962-63, 1976 to May 1977.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHMS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 19...	1028	9740	1345	940	7.8	13.0	24	8.6	83	24	248
NOV 16...	1028	9740	1300	700	7.2	4.5	73	6.9	52	31	176
DEC 20...	1028	9740	1510	690	7.8	6.0	110	8.3	68	32	217
JAN 18...	1028	9740	1430	560	8.1	2.0	0	12.3	89	53	165
FEB 16...	1028	9740	1514	345	7.2	9.0	200	9.4	83	59	93
MAR 16...	1028	9740	1348	630	7.7	15.0	210	7.5	75	37	214
APR 20...	1028	9740	1450	1700	7.9	20.0	101	6.0	67	30	500
MAY 04...	1028	9740	1345	1600	7.6	22.5	87	5.6	66	39	436

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POT- AS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (F) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 19...	50	32	103	6.9	--	163	.3	598	1.0	<.12	--
NOV 16...	30	19	84	6.6	--	139	.3	465	1.1	.20	<1
DEC 20...	41	26	60	6.1	--	113	.3	460	1.1	.22	--
JAN 18...	33	26	60	5.8	32	105	.2	388	1.7	.22	--
FEB 16...	22	11	49	6.8	45	51	.2	503	3.4	.60	6
MAR 16...	44	27	66	6.1	98	88	.3	243	2.3	.29	--
APR 20...	97	64	172	6.6	270	311	.3	893	2.4	.21	--
MAY 04...	87	51	190	10	61	346	.3	997	2.5	.16	<1

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT 19...	--	--	--	200	--	414	--	--	--	--	--
NOV 16...	2	19	7	1550	12	961	<.5	6	<1	2	9
DEC 20...	--	--	--	1450	--	410	--	--	--	--	--
JAN 18...	--	--	--	800	--	120	--	--	--	--	--
FEB 16...	<1	25	20	3100	25	350	.5	30	--	2	69
MAR 16...	--	--	--	1410	--	430	--	--	--	--	--
APR 20...	--	--	--	1290	--	670	--	--	--	--	--
MAY 04...	2	8	9	1460	14	760	.5	4	<1	7	22

RED RIVER BASIN

07315900 WALNUT BAYOU NEAR BURNEYVILLE, OK

LOCATION.--Lat 33°56'30", long 97°18'20", in NW 1/4 NE 1/4 sec.21, T.7 S., R.1 W., Love County, Hydrologic Unit 11130201, near right bank on downstream side of bridge on State Highway 32, 0.8 mi (1.3 km) downstream from Simon Creek, 2.5 mi (4.0 km) northwest of Burneyville, and at mile 6.5 (10.5 km).

DRAINAGE AREA.--314 mi² (813 km²).

PERIOD OF RECORD.--Water years 1960-63, 1969-71, 1976 to May 1977.

PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to September 1971.

WATER TEMPERATURE: October 1968 to September 1971.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA,MG) (MG/L)
OCT 19...	1028	9740	1215	1200	7.7	12.0	14	11.3	107	16	379
NOV 16...	1028	9740	1150	1600	7.8	4.0	12	11.2	86	27	407
DEC 21...	1028	9740	1625	1400	8.0	6.0	10	11.9	97	19	396
JAN 18...	1028	9740	1315	1600	8.4	1.0	14	10.9	77	35	270
FEB 16...	1028	9740	1412	725	8.1	8.0	190	11.2	96	42	208
MAR 16...	1028	9740	1237	1150	8.2	16.0	47	10.5	108	33	294
APR 20...	1028	9740	1338	1050	7.9	22.0	38	7.4	87	41	288
MAY 04...	1028	9740	1235	1650	8.1	23.5	23	8.2	99	28	482

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 19...	72	35	124	4.2	--	216	.4	855	1.0	<.12	--
NOV 16...	44	15	209	4.1	--	403	.4	1133	1.1	.06	<1
DEC 21...	97	35	160	5.7	--	301	.3	908	.80	.07	--
JAN 18...	79	27	180	7.0	64	296	.3	861	1.3	.36	--
FEB 16...	57	17	84	4.7	68	124	.2	573	3.0	.38	5
MAR 16...	77	25	147	4.1	78	254	.4	756	1.4	.15	--
APR 20...	78	27	100	5.1	56	183	.3	608	2.7	.36	--
MAY 04...	121	42	178	8.0	107	366	.2	1053	2.3	.08	1

07315900 WALNUT BAYOU NEAR BURNEYVILLE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRD- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT 19...	--	--	--	300	--	599	--	--	--	--	--
NOV 16...	2	16	5	380	14	959	1.2	10	<1	4	6
DEC 21...	--	--	--	150	--	199	--	--	--	--	--
JAN 18...	--	--	--	800	--	230	--	--	--	--	--
FEB 16...	1	46	20	2100	23	240	<.5	21	--	<1	41
MAR 16...	--	--	--	390	--	170	--	--	--	--	--
APR 20...	--	--	--	1540	--	420	--	--	--	--	--
MAY 04...	2	14	5	430	18	210	.5	7	<1	5	13

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, 7.0 mi (11.0 km) north of Gainesville, and at mile 791.5 (1,273.5 km).

DRAINAGE AREA.--30,782 mi² (79,725 km²) of which 5,936 mi² (15,374 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

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 (1,913.387 m) above mean sea level. Prior to Jan. 17, 1939, and Feb. 13, 1965 to Nov. 14, 1966, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow slightly regulated by Lake Kemp, in Texas, since 1943 by Lake Altus (see sta. 07302500), since 1946 by Lake Kickapoo, and since 1967 by Lake Arrowhead and Moss Lake, also in Texas.

COOPERATION.--Gage-height record and 32 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--41 years, 2,750 ft³/s (77.88 m³/s), 1,992,000 acre-ft/yr (2.46 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168,000 ft³/s (4,758 m³/s) June 9, 1941, gage height, 24.15 ft (7.361 m); maximum gage height, 26.53 ft (8.086 m) May 21, 1951; minimum discharge, 48 ft³/s (1.36 m³/s) Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 24,000 ft³/s (680 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 25	1245	*39,300 1,110	17.91 5.459	June 1	1345	38,200 1,080	17.81 5.428

Minimum daily discharge, 315 ft³/s (8.92 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	2540	452	389	565	487	2920	1350	37000	1620	697	9710
2	1060	6400	440	385	571	484	1610	1190	30000	1400	703	6450
3	1020	5930	430	376	703	510	1230	1150	16200	1230	596	3930
4	950	3990	420	369	631	493	1020	1240	11900	1260	766	2820
5	916	2570	410	371	567	616	894	2260	9300	2130	1220	2510
6	892	1930	410	374	575	585	817	3070	8040	2220	1210	1980
7	874	1520	440	384	568	618	751	3340	6740	1350	1010	1650
8	841	1290	500	400	545	532	697	14900	5330	1140	902	1490
9	983	1140	575	420	523	481	627	21100	4560	1100	817	1320
10	958	1030	664	420	502	464	578	15700	3570	983	744	1140
11	867	915	670	400	941	502	555	9860	2980	894	677	1010
12	811	831	550	380	1570	508	526	7030	2730	863	664	918
13	742	776	504	360	2680	577	504	12400	2410	832	652	886
14	721	748	487	350	2910	563	487	14800	2130	810	645	840
15	708	696	490	797	2810	513	498	9370	1920	795	652	744
16	721	642	487	1360	2260	473	504	5570	1740	751	677	730
17	728	616	473	1410	1640	419	645	10100	1550	710	670	684
18	742	601	465	1330	1270	413	958	13300	1400	664	608	602
19	756	587	455	1030	1060	391	787	8940	1300	627	608	572
20	756	577	447	952	910	368	737	7540	1420	596	658	520
21	756	553	442	853	608	350	2030	6800	1860	572	723	477
22	756	548	434	750	724	343	4180	28600	1600	614	2990	445
23	783	536	432	700	708	343	6010	35400	1420	596	7850	412
24	812	525	425	684	678	338	10600	37100	1330	555	4040	386
25	714	520	437	648	633	331	6770	36900	1280	520	3070	365
26	619	514	425	628	586	416	5060	31000	1320	537	2640	348
27	596	509	423	615	555	8720	3090	19600	1350	620	2150	336
28	568	493	420	600	516	17200	2290	14200	1420	602	1800	328
29	588	487	408	586	---	12300	1840	14400	1380	572	2640	336
30	655	477	407	575	---	10100	1580	25500	1780	537	2390	315
31	955	---	403	581	---	6510	---	34100	---	504	9790	---
TOTAL	24938	40491	14425	19477	29009	66948	60795	449810	166960	28204	55259	44254
MEAN	804	1350	465	628	1036	2160	2027	14510	5565	910	1783	1475
MAX	1090	6400	670	1410	2910	17200	10600	38900	37000	2220	9790	9710
MIN	568	477	403	350	502	331	487	1150	1280	504	596	315
AC-FT	49460	80310	28610	38630	57540	132800	120600	892200	331200	55940	109600	87760

CAL YR 1976	TOTAL	515741	MEAN 1409	MAX 15300	MIN 245	AC-FT 1023000
WTR YR 1977	TOTAL	1000570	MEAN 2741	MAX 38900	MIN 315	AC-FT 1985000

RED RIVER BASIN

107

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953-63, 1976 to September 1977 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1952 to September 1963.

WATER TEMPERATURE: October 1952 to September 1963.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT												
19...	1028	9740	1015	714	3700	8.6	12.5	34	11.9	113	30	817
31...	--	--	1815	1130	3830	7.9	16.0	--	--	--	--	700
NOV												
16...	1028	9740	1058	637	4000	8.2	3.0	38	13.4	100	24	750
30...	--	--	1730	487	5740	8.3	7.0	--	--	--	--	1000
DEC												
20...	1028	9740	1230	444	4900	8.8	6.5	8	13.6	111	21	986
JAN												
18...	1028	9740	1100	1430	2200	8.2	.5	101	13.8	96	33	492
31...	--	--	1730	571	5460	8.0	10.0	--	--	--	--	940
FEB												
14...	--	--	1045	2970	1570	7.5	10.5	--	--	--	--	320
16...	1028	9740	1149	2260	2000	7.8	8.0	190	10.9	93	49	438
MAR												
16...	1028	9740	1034	588	3800	8.6	15.0	19	10.3	102	33	749
31...	--	--	1810	5330	1000	7.6	14.0	--	--	--	--	240
APR												
20...	1028	9740	1202	744	3300	8.4	22.0	27	9.4	111	24	528
MAY												
04...	1028	9740	1030	1070	4100	8.4	22.5	175	8.1	95	38	905
31...	--	--	2030	36100	1770	7.6	25.0	--	--	--	--	370
JUN												
14...	1028	9740	1230	2180	5500	8.2	28.0	177	7.9	102	33	911
30...	--	--	2020	1780	4680	7.8	30.0	--	--	--	--	940
JUL												
07...	--	--	0850	1370	3140	7.4	28.5	--	--	--	--	520
19...	1028	9740	1525	627	5900	8.6	31.0	30	12.0	162	40	941
AUG												
10...	1028	9740	1000	766	4800	8.4	28.0	62	6.4	83	35	751
23...	--	--	0930	9260	1550	7.5	26.5	--	--	--	--	300
SEP												
15...	1028	9740	0930	744	4300	8.6	20.5	15	8.5	96	27	520

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
19...	220	73	690	9.0	--	1158	.4	295	1.0	.20	--
31...	--	--	--	--	470	920	--	--	--	--	--
NOV											
16...	205	6.6	630	8.8	--	1250	.4	3293	1.5	.28	4
30...	--	--	--	--	680	1400	--	--	--	--	--
DEC											
20...	248	83	500	9.0	--	583	.4	3477	1.3	.35	--
JAN											
18...	127	48	300	7.5	271	531	.3	1530	1.3	.39	--
31...	--	--	--	--	610	1300	--	--	--	--	--
FEB											
14...	--	--	--	--	170	340	--	--	--	--	--
16...	115	39	330	8.5	205	551	.3	1511	3.6	.81	7
MAR											
16...	196	75	660	8.5	463	1100	.4	2781	1.6	.25	--
31...	--	--	--	--	100	170	--	--	--	--	--
APR											
20...	146	58	470	7.2	56	948	.3	1870	1.5	.30	--
MAY											
04...	278	77	620	16	709	1089	.4	3131	3.0	.37	9
31...	--	--	--	--	290	330	--	--	--	--	--
JUN											
14...	267	67	480	16	652	924	.4	2631	1.9	.38	--
30...	--	--	--	--	650	1100	--	--	--	--	--
JUL											
07...	--	--	--	--	360	760	--	--	--	--	--
19...	259	81	600	14	797	1291	.4	3617	2.4	.21	--
AUG											
10...	204	67	490	14	581	1124	.3	2858	4.5	.29	4
23...	--	--	--	--	170	310	--	--	--	--	--
SEP											
15...	125	49	370	8.6	378	781	.3	2504	<.63	.21	--

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
19...	--	--	--	500	--	68	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
NOV											
16...	3	15	15	280	20	43	.5	18	1	11	11
30...	--	--	--	--	--	--	--	--	--	--	--
DEC											
20...	--	--	--	220	--	17	--	--	--	--	--
JAN											
18...	--	--	--	700	--	50	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
FEB											
14...	--	--	--	--	--	--	--	--	--	--	--
16...	2	82	23	6700	28	300	<.5	37	--	5	61
MAR											
16...	--	--	--	300	--	100	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
APR											
20...	--	--	--	350	--	10	--	--	--	--	--
MAY											
04...	6	25	24	1220	32	230	<.5	22	2	10	39
31...	--	--	--	--	--	--	--	--	--	--	--
JUN											
14...	--	--	--	92	--	240	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
JUL											
07...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	470	--	150	--	--	--	--	--
AUG											
10...	<1	30	12	1150	25	170	<.5	18	1	5	26
23...	--	--	--	--	--	--	--	--	--	--	--
SEP											
15...	--	--	--	1060	--	70	--	--	--	--	--

RED RIVER BASIN

109

07316350 WASHITA RIVER NEAR REYDON, OK

LOCATION.--Lat 35°45'40", long 99°55'30", on west line of SW 1/4 sec.24, T.15 N., R.26 W., Roger Mills County, Hydrologic Unit 11150301, at bridge on State Highway 30, 0.7 mi (1.1 km) downstream from Trunk Creek, 1.8 mi (2.9 km) upstream from Turkey Creek, 7.0 miles (11.3 km) north of Reydon, and at mile 573.3 (922.4 km).

DRAINAGE AREA.--498 mi² (1,290 km²).

PERIOD OF RECORD.--Water years 1949, 1952, October 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. No flow was observed on Oct. 27, Nov. 23, Dec. 28, Jan. 26, Feb. 24, July 26, and Sept. 22.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA,MG) (MG/L)
MAR 22...	1028	9740	1440	1075	8.1	17.0	1	8.4	93	24	359
APR 26...	1028	9740	1415	1075	8.3	21.0	2	9.8	117	23	330
MAY 17...	1028	9740	1400	900	8.1	21.5	10	8.1	99	27	305
JUN 01...	1028	9740	1430	400	7.5	24.0	105	4.9	63	59	142
AUG 18...	1028	9740	0900	925	8.0	18.5	12	7.5	87	16	309

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PU- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
MAR 22...	98	32	100	3.8	184	167	.6	--	1.3	.07	--
APR 26...	88	30	88	7.5	108	78	.7	586	2.4	.06	--
MAY 17...	79	29	82	6.8	102	36	.5	571	2.3	.14	6
JUN 01...	44	10	28	7.9	29	25	.2	324	2.0	.41	--
AUG 18...	43	16	75	6.1	151	63	.6	544	1.9	.19	<1

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
MAR 22...	--	--	--	280	--	10	--	--	--	--	--
APR 26...	--	--	--	430	--	60	--	--	--	--	--
MAY 17...	1	6	6	350	16	90	<.5	10	<1	4	13
JUN 01...	--	--	--	590	--	150	--	--	--	--	--
AUG 18...	<1	11	4	220	25	80	<.5	8	<1	2	7

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., P.23 W., Roger Mills County, Hydrologic Unit 11130301, near left bank on downstream side of pier of 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 mi² (2,056 km²).

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) above mean sea level (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 good. Some regulation by numerous flood-retarding structures.

AVERAGE DISCHARGE.--40 years, 30.3 ft³/s (0.858 m³/s), 21,950 acre-ft/yr (27.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s (1,977 m³/s) Apr. 29, 1954, gage height, 15.24 ft (4.645 m); from rating curve extended above 27,000 ft³/s (765 m³/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.--Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
Apr. 20	0315	1,750 49.6	11.94 3.639	May 21	0900	1,840 52.1	12.08 3.682
May 16	2345	*4,660 132	14.34 4.371	May 31	1145	3,260 92.3	13.49 4.112

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	UCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.45	.26	.07	3.4	3.6	2.0	27	771	51	5.9	11
2	.00	.40	.22	.07	3.7	3.8	1.3	229	700	41	3.6	9.6
3	.00	.35	.30	.07	3.4	3.5	.84	99	674	39	4.5	8.5
4	.00	.30	.15	.10	3.3	3.2	.57	114	440	35	4.3	7.5
5	.00	.25	.14	.14	3.1	3.1	.43	85	282	28	3.8	7.4
6	.00	.20	.12	.14	3.1	3.2	.42	61	213	25	2.6	6.4
7	.00	.15	.11	.16	2.9	3.3	.42	48	174	24	2.6	6.0
8	.00	.11	.16	.45	2.9	3.4	.42	37	145	27	2.5	5.4
9	.00	.35	.21	.49	2.9	3.3	.38	29	122	19	2.2	4.9
10	.00	.41	.13	.45	2.4	3.6	.29	35	103	18	2.2	4.4
11	.00	.40	.08	.47	5.1	3.3	.17	39	87	16	3.2	4.1
12	.00	.31	.08	.40	6.4	3.1	.11	32	76	12	3.4	4.0
13	.00	.48	.09	.45	4.9	3.4	.27	30	69	10	3.7	15
14	.00	.57	.14	.42	4.2	3.5	.42	76	64	8.3	3.6	10
15	.00	.55	.10	.38	3.2	2.9	2.3	233	63	7.1	3.1	4.5
16	.00	.51	.14	.41	3.0	2.7	3.0	477	57	6.8	2.8	31
17	.00	.49	.12	.45	3.0	2.7	17	1080	52	5.8	2.7	5.9
18	.00	.58	.08	.47	3.0	2.5	12	412	47	5.2	2.8	5.2
19	.00	.56	.04	.44	2.8	2.2	11	271	42	4.6	110	4.7
20	.00	.52	.00	.40	2.8	1.7	488	512	39	4.0	67	4.6
21	.00	.47	.02	.38	2.9	1.6	51	1240	35	3.8	32	4.0
22	.00	.48	.08	.45	2.9	1.5	28	734	31	3.7	22	3.7
23	.00	.46	.33	.56	2.8	1.5	17	767	31	3.7	18	3.4
24	.00	.43	.16	1.0	2.7	1.4	11	764	44	3.6	20	3.3
25	.00	.49	.09	1.7	2.7	1.2	7.7	504	206	3.5	35	3.0
26	.00	.42	.00	2.4	3.6	1.1	6.0	429	182	3.4	22	2.8
27	.00	.24	.06	3.1	4.1	2.9	4.6	422	105	3.3	16	2.7
28	.00	.25	.12	3.1	3.9	6.3	3.7	354	80	3.8	14	2.7
29	.32	.28	.07	3.1	---	4.6	11	310	71	6.6	15	2.7
30	.63	.30	.03	3.1	---	3.2	9.5	256	64	4.5	15	2.7
31	.50	---	.02	3.2	---	3.2	---	1100	---	4.2	13	---
TOTAL	1.45	11.76	3.70	28.52	96.1	90.5	690.84	10766	5069	430.9	458.5	191.1
MEAN	.047	.39	.12	.92	3.43	2.92	23.0	348	169	13.9	14.8	6.37
MAX	.63	.58	.33	3.2	6.9	6.3	488	1240	771	51	110	31
MIN	.00	.11	.00	.07	2.7	1.1	.11	27	31	3.3	2.2	2.7
AC-FT	2.4	23	7.5	57	191	180	1370	21390	10050	855	909	379
CAL YR 1976	TOTAL	3386.66	MEAN	9.25	MAX	431	MIN	.00	AC-FT	6720		
WTR YR 1977	TOTAL	17858.37	MEAN	48.9	MAX	1240	MIN	.00	AC-FT	35420		

RED RIVER BASIN

111

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 mi² (3,592 km²).

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) above mean sea level.

REMARKS.--Records fair. Some regulation by numerous flood-retarding structures.

AVERAGE DISCHARGE.--8 years, 28.2 ft³/s (0.799 m³/s), 20,430 acre-ft/yr (25.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,540 ft³/s (71.9 m³/s) April 18, 1970, gage height, 19.23 ft (5.861 m), from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; no flow at times.

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

DATE	TIME	DISCHARGE		GAGE HEIGHT		DATE	TIME	DISCHARGE		GAGE HEIGHT	
		(ft ³ /s)	(m ³ /s)	(ft)	(m)			(ft ³ /s)	(m ³ /s)	(ft)	(m)
May 23	unknown	*1,770	50.1	17.8	5.43	June 2	1200	1,650	46.7	17.50	5.334

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.30	.60	.28	23	1100	110	17	32
2	.00	.00	.00	.00	.30	.55	.20	262	1490	103	21	27
3	.00	.00	.00	.00	.29	.50	.20	639	932	89	21	24
4	.00	.00	.00	.00	.30	.53	.20	286	781	76	28	22
5	.00	.00	.00	.07	.30	.54	.20	157	531	68	19	23
6	.00	.00	.00	.07	.34	.41	.20	135	384	63	16	25
7	.00	.00	.00	.07	.32	.36	.20	102	315	58	15	23
8	.00	.00	.00	.08	.32	.30	.18	74	275	55	13	23
9	.00	.00	.00	.09	.32	.26	.28	63	243	57	12	20
10	.00	.00	.00	.10	.38	.28	.28	246	218	56	12	19
11	.00	.00	.00	.10	.65	.44	.20	152	197	51	12	18
12	.00	.00	.00	.10	1.4	.42	.20	113	180	47	15	18
13	.00	.02	.00	.10	1.4	.35	.24	84	169	43	16	16
14	.00	.00	.00	.10	1.6	.37	.29	66	186	38	15	17
15	.00	.00	.00	.10	.89	.38	.50	104	178	37	14	18
16	.00	.00	.00	.11	.69	.35	.56	203	155	35	13	53
17	.00	.00	.10	.11	.56	.31	3.5	600	145	37	12	38
18	.00	.00	.06	.11	.55	.26	1.1	1060	136	38	12	26
19	.00	.00	.06	.12	.59	.24	1.1	742	127	37	200	21
20	.00	.00	.06	.12	.42	.20	.93	465	121	35	280	20
21	.00	.00	.06	.12	.47	.20	190	1190	112	33	177	15
22	.00	.00	.06	.13	.35	.18	161	1510	103	32	103	14
23	.00	.00	.06	.14	.29	.18	48	1500	103	30	78	13
24	.00	.00	.06	.15	.29	.18	26	930	101	26	66	12
25	.00	.00	.06	.45	.26	.18	22	887	123	23	138	12
26	.00	.00	.06	.35	.40	.18	17	754	193	22	131	11
27	.00	.00	.10	.32	.61	.33	15	1030	184	20	79	12
28	.00	.00	.26	.32	.62	.58	10	720	166	20	55	12
29	.07	.00	.07	.31	---	.55	8.2	527	128	27	49	12
30	.00	.00	.00	.30	---	.48	10	437	125	47	43	12
31	.00	---	.00	.30	---	.40	---	422	---	19	37	---
TOTAL	.07	.02	1.07	4.44	15.21	11.09	518.04	15483	9201	1432	1719	608
MEAN	.002	.001	.035	.14	.54	.36	17.3	499	307	46.2	55.5	20.3
MAX	.07	.02	.26	.45	1.6	.60	190	1510	1490	110	280	53
MIN	.00	.00	.00	.00	.26	.18	.18	23	101	19	12	11
AC=FT	.1	.04	2.1	8.8	30	22	1030	30710	18250	2840	3410	1210
CAL YR 1976 TOTAL	7262.22			MEAN 19.8	MAX 369	MIN .00	AC=FT 14400					
WTR YR 1977 TOTAL	28992.94			MEAN 79.4	MAX 1510	MIN .00	AC=FT 57510					

RED RIVER BASIN

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 1976.

WATER TEMPERATURE: October 1969 to September 1976.

INSTRUMENTATION.--Water quality monitor since July 1970.

REMARKS.--In addition to water quality monitor, samples were collected by a local observer on a weekly basis. Partial analyses were made each month on three of those samples.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,850 micromhos Apr. 23, 1976; minimum daily, 450 micromhos July 24, 1975.

WATER TEMPERATURE: Maximum daily, 33.5°C June 18, 1974; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	MA- NU- NESS (CA, MG) (MG/L)	NON- CAR- BONATE MA- NU- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SURP- TIUM RATIO
DEC											
29...	1500	.07	2460	8.0	1500	1300	340	160	57	8	.6
JAN											
29...	--	.31	2290	7.6	1400	1100	290	160	48	7	.6
FEB											
03...	1630	.29	2350	8.0	1500	1300	310	170	54	7	.6
18...	1600	.56	2430	8.0	1900	1700	400	210	68	7	.7
23...	--	.29	2850	8.1	1800	1600	400	200	71	8	.7
MAR											
11...	1545	.46	2800	8.0	1800	1700	380	210	66	7	.7
16...	--	.35	3180	7.9	2200	2000	450	250	73	7	.7
24...	1545	.18	2880	7.9	1800	1600	390	210	70	8	.7
APR											
06...	--	.20	3070	7.9	2000	1800	420	230	69	7	.7
19...	1545	1.2	3060	7.8	2000	1800	410	240	66	7	.6
27...	1545	15	1650	8.0	680	420	160	69	110	26	1.8
MAY											
07...	1545	96	871	7.5	360	220	88	35	44	20	1.0
18...	1515	1180	537	7.5	240	150	65	19	13	10	.4
26...	1000	624	809	7.6	340	180	85	32	39	19	.9
JUN											
01...	1545	1300	636	7.7	290	180	80	23	21	13	.5
08...	1500	270	1400	8.1	670	420	170	59	70	18	1.2
23...	1400	88	1860	7.7	960	720	230	94	89	17	1.2
JUL											
07...	1500	58	1840	7.6	860	710	210	81	100	20	1.5
21...	1500	33	1640	7.7	800	680	200	73	72	16	1.1
28...	1445	20	2170	7.6	1100	930	270	100	94	16	1.2
SEP											
07...	1600	23	1990	8.0	--	--	--	--	--	--	--

RED RIVER BASIN

113

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)
DEC											
29...	5.9	238	0	195	3.8	1300	33	2260	3.07	.43	.24
JAN											
29...	5.1	289	0	237	12	1200	35	2080	2.83	1.74	.29
FEB											
03...	5.0	254	0	208	4.1	1300	32	2180	2.96	1.71	.03
18...	8.5	225	0	180	3.6	1700	42	2810	3.82	4.40	.03
23...	8.4	327	0	268	4.2	1600	45	2690	3.66	2.11	.37
MAR											
11...	9.8	180	0	150	2.9	1800	40	2610	3.55	3.24	.02
16...	9.4	230	0	189	4.6	2100	40	3170	4.31	3.00	.34
24...	8.6	270	0	220	5.4	1700	42	2720	3.70	1.32	.20
APR											
06...	9.3	260	0	213	5.2	1900	44	3030	4.12	1.64	.04
19...	11	250	0	205	6.3	1800	44	3050	4.15	9.88	.02
27...	7.0	320	0	262	5.1	560	59	1260	1.71	51.0	.15
MAY											
07...	7.7	170	0	139	8.6	280	26	601	.82	156	--
18...	6.4	110	0	90	5.6	160	7.1	343	.47	1090	--
26...	6.9	200	0	160	6.0	210	23	547	.74	922	--
JUN											
01...	7.0	140	0	115	4.5	210	14	430	.58	1510	--
08...	6.4	300	0	246	3.8	490	42	1070	1.46	780	--
23...	5.7	300	0	246	9.6	800	47	1530	2.08	364	--
JUL											
07...	5.6	180	0	150	7.2	800	50	1500	2.04	235	--
21...	5.7	150	0	120	4.8	730	42	1330	1.81	119	--
28...	6.2	190	0	160	7.6	1100	42	1910	2.60	103	--
SEP											
07...	--	--	--	--	--	940	38	1700	2.31	106	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	1.0	5.5	13.5	20.5	23.5	25.0	25.0	---
2				---	2.0	7.0	14.0	18.0	25.5	25.5	26.0	---
3				---	3.5	5.0	13.5	18.5	26.0	26.5	26.0	---
4				---	3.0	5.5	10.0	21.0	27.0	25.0	26.0	---
5				---	2.5	5.5	9.5	22.0	27.5	25.5	25.5	---
6				---	4.0	7.0	12.0	21.0	26.5	26.0	25.0	---
7				---	3.0	8.5	14.5	22.5	25.0	27.0	25.5	---
8				---	4.0	10.0	15.5	24.5	24.0	26.0	25.5	---
9				---	4.5	11.0	16.0	23.5	24.5	26.0	25.0	---
10				---	6.5	11.5	16.0	19.0	25.5	26.5	25.0	---
11				---	6.0	8.0	15.5	19.0	26.0	26.0	23.0	---
12				---	7.0	6.5	15.5	20.0	26.0	26.0	22.0	---
13				---	7.0	9.0	16.5	21.5	26.0	25.5	24.0	22.5
14				---	6.0	12.0	15.5	22.0	26.0	24.5	24.5	21.0
15				---	4.5	11.0	16.0	21.5	26.5	25.5	---	20.0
16				---	5.5	9.5	17.5	22.0	26.5	26.0	---	21.0
17				---	6.0	11.5	17.0	20.0	27.0	25.5	---	21.5
18				---	6.5	10.5	17.5	21.5	27.0	26.0	---	22.0
19				---	6.0	9.5	18.0	21.5	27.0	25.5	---	20.5
20				---	6.5	8.5	18.0	20.0	27.0	26.0	---	21.0
21				---	8.0	7.5	15.0	19.0	26.5	26.0	---	23.0
22				---	9.5	8.0	14.5	20.5	25.5	26.0	---	23.0
23				---	6.0	10.0	15.0	22.5	25.0	26.0	---	22.0
24				---	7.5	12.5	16.5	23.5	25.0	26.0	---	21.0
25				---	6.0	14.0	17.5	23.5	24.0	27.0	---	20.5
26				1.5	3.5	15.0	18.5	22.5	24.5	26.0	---	21.5
27				1.5	4.5	14.5	19.5	20.0	26.5	25.0	---	22.0
28				1.0	5.0	13.5	21.0	22.5	28.5	24.5	---	23.0
29				.5	---	12.0	19.5	25.0	27.5	26.0	---	23.0
30				.5	---	10.5	20.0	26.0	26.0	26.5	---	24.0
31				1.0	---	11.0	---	25.5	---	26.0	---	---
MEAN				1.0	5.0	9.5	16.0	21.5	26.0	26.0	25.0	22.0
WTR YR 1977	MEAN	18.0		MAX	28.5		MIN	.5				

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCF-DAILY

[illegible]

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	2400	---	2940	1430	695	1560	1990	---
2				---	2400	---	2960	1230	711	1610	2010	---
3				---	2580	---	3020	1030	836	1650	2040	---
4				---	2520	2860	3080	978	911	1690	2080	---
5				---	2350	2910	3100	992	1030	1730	2110	---
6				---	2220	2850	3100	933	1170	1780	2140	---
7				---	2060	2830	3120	872	1300	1830	2230	---
8				---	---	2730	3130	1120	1400	1830	2310	---
9				---	---	2790	3130	1360	1410	1870	2350	---
10				---	---	2760	3200	1540	1460	1860	2350	---
11				---	---	2810	3190	1490	1540	1860	2350	---
12				---	---	2930	3180	1400	1570	1870	2360	---
13				---	---	2970	3130	1300	1600	1850	2390	2000
14				---	---	2980	3070	1180	1640	1780	2400	2010
15				---	---	3200	3030	1050	1660	1720	2400	2030
16				---	---	3310	3050	821	1680	1650	---	2030
17				---	---	3140	3030	661	1710	1580	---	2000
18				---	---	3240	3060	540	1730	1430	---	1990
19				---	---	3220	3080	612	1750	1480	---	1980
20				---	---	3100	2860	661	1780	1480	---	1970
21				---	---	3120	2250	624	1810	1660	---	1980
22				---	---	2990	1630	629	1830	1720	---	1970
23				---	---	2960	1480	663	1870	1780	---	1980
24				---	---	2920	1170	683	1850	1870	---	1990
25				---	---	2670	8810	643	1840	1970	---	2000
26				2330	---	2410	1280	819	1780	2080	---	2000
27				2150	---	2170	1650	792	1690	2190	---	2020
28				2300	---	1800	1620	833	1620	2270	---	2020
29				2480	---	2330	1570	869	1540	2350	---	2020
30				2510	---	2970	1500	864	1530	1940	---	2020
31				2300	---	2950	---	827	---	1950	---	---
MEAN				2350	2360	2850	2810	950	1500	1800	2230	2000
WTR YR 1977	MEAN	2010		MAX	8810	MIN	540					

DISSOLVED SULFATE (SD4), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	1300	---	1700	620	160	720	1000	---
2				---	1300	---	1700	480	170	750	1000	---
3				---	1500	---	1800	330	190	780	1100	---
4				---	1400	1700	1800	300	250	810	1100	---
5				---	1500	1700	1800	310	330	840	1100	---
6				---	1200	1700	1800	260	440	880	1100	---
7				---	1100	1600	1800	220	530	910	1200	---
8				---	---	1600	1900	400	600	910	1300	---
9				---	---	1600	1900	570	610	940	1300	---
10				---	---	1600	1900	700	650	930	1300	---
11				---	---	1600	1900	670	700	930	1300	---
12				---	---	1700	1900	600	720	940	1300	---
13				---	---	1700	1900	530	750	930	1300	1000
14				---	---	1700	1800	440	780	880	1300	1000
15				---	---	1900	1800	350	790	830	1300	1100
16				---	---	2000	1800	180	170	780	---	1100
17				---	---	1900	1800	160	830	730	---	1000
18				---	---	1900	1800	160	840	620	---	1000
19				---	---	1900	1800	160	860	660	---	1000
20				---	---	1800	1700	160	880	660	---	1000
21				---	---	1800	1200	160	900	790	---	1000
22				---	---	1800	770	160	910	830	---	1000
23				---	---	1700	660	160	940	880	---	1000
24				---	---	1700	440	160	930	940	---	1000
25				---	---	1500	6000	160	920	1000	---	1000
26				1300	---	1300	510	180	880	1100	---	1000
27				1100	---	1200	780	170	810	1200	---	1100
28				1300	---	890	760	190	760	1200	---	1100
29				1400	---	1300	720	220	700	1300	---	1100
30				1400	---	1700	670	210	700	990	---	1100
31				1300	---	1700	---	190	---	1000	---	---
MEAN				1300	1300	1600	1600	310	660	890	1200	1000
WTR YR 1977	MEAN	1000		MAX	6000	MIN	160					

RED RIVER BASIN

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

DISSOLVED SULFATE (SO4), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	1.05	---	1.29	38.50	475.00	214.00	45.90	---
2				---	1.05	---	.92	340.00	684.00	209.00	56.70	---
3				---	1.17	---	.97	569.00	478.00	187.00	62.40	---
4				---	1.13	2.43	.97	232.00	527.00	166.00	83.20	---
5				---	1.05	2.48	.97	131.00	473.00	154.00	56.40	---
6				---	1.10	1.88	.97	94.80	456.00	150.00	47.50	---
7				---	.95	1.56	.97	60.60	451.00	143.00	48.60	---
8				---	---	1.30	.92	79.90	445.00	135.00	45.60	---
9				---	---	1.12	1.44	97.00	400.00	145.00	42.10	---
10				---	---	1.21	1.44	465.00	383.00	141.00	42.10	---
11				---	---	1.90	1.03	275.00	372.00	128.00	42.10	---
12				---	---	1.93	1.03	183.00	350.00	119.00	52.60	---
13				---	---	1.61	1.23	120.00	342.00	108.00	56.20	43.20
14				---	---	1.70	1.41	78.40	392.00	90.30	52.60	45.90
15				---	---	1.95	2.43	98.30	380.00	82.90	49.10	53.50
16				---	---	1.89	2.72	98.70	71.10	73.70	---	157.00
17				---	---	1.59	17.00	259.00	325.00	72.90	---	103.00
18				---	---	1.33	5.35	458.00	308.00	63.60	---	70.20
19				---	---	1.23	5.35	321.00	295.00	65.90	---	56.70
20				---	---	.97	4.27	201.00	287.00	62.40	---	54.00
21				---	---	.97	616.00	514.00	272.00	70.40	---	40.50
22				---	---	.87	335.00	652.00	253.00	71.70	---	37.80
23				---	---	.83	85.50	648.00	261.00	71.30	---	35.10
24				---	---	.83	30.90	402.00	254.00	66.00	---	32.40
25				---	---	.73	356.00	363.00	306.00	62.10	---	32.40
26				1.23	---	.63	23.40	366.00	459.00	65.30	---	29.70
27				.95	---	1.07	31.60	473.00	402.00	64.80	---	35.60
28				1.12	---	1.39	20.50	369.00	341.00	64.80	---	35.60
29				1.17	---	1.93	15.90	313.00	242.00	94.80	---	35.60
30				1.13	---	2.20	18.10	248.00	236.00	126.00	---	35.60
31				1.05	---	1.84	---	216.00	---	51.30	---	---
MEAN				1.11	1.07	1.48	52.80	283.00	364.00	107.00	52.20	51.90
WTR YR 1977	MEAN	135.00		MAX	684.00		MIN	.63				

DISSOLVED CHLORIDE (CL), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	41	---	45	32	17	34	37	---
2				---	41	---	45	31	18	34	37	---
3				---	42	---	46	29	24	34	38	---
4				---	42	44	46	29	28	35	38	---
5				---	40	45	46	29	29	35	38	---
6				---	39	44	46	28	30	35	38	---
7				---	38	44	47	26	31	36	39	---
8				---	---	43	47	30	32	36	40	---
9				---	---	44	47	32	32	36	40	---
10				---	---	44	47	33	33	36	40	---
11				---	---	44	47	33	33	36	40	---
12				---	---	45	47	32	34	36	40	---
13				---	---	45	47	31	34	36	41	37
14				---	---	45	46	30	34	35	41	37
15				---	---	47	46	29	34	35	41	37
16				---	---	48	46	24	35	34	---	37
17				---	---	47	46	15	35	34	---	37
18				---	---	48	46	8.2	35	32	---	37
19				---	---	47	46	12	35	33	---	37
20				---	---	46	44	15	35	33	---	37
21				---	---	47	39	13	36	34	---	37
22				---	---	46	34	13	36	35	---	37
23				---	---	45	33	15	36	35	---	37
24				---	---	45	30	16	36	36	---	37
25				---	---	43	94	14	36	37	---	37
26				40	---	41	31	24	35	38	---	37
27				38	---	39	34	22	35	39	---	37
28				40	---	36	34	24	34	40	---	37
29				41	---	40	34	26	33	40	---	37
30				42	---	45	33	26	33	37	---	37
31				40	---	45	---	24	---	37	---	---
MEAN				40	40	44	44	24	32	36	39	37
WTR YR 1977	MEAN	37		MAX	94		MIN	8.2				

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

DISSOLVED CHLORIDE (CL), TONS PER DAY, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	.03	---	.03	1.99	50.50	10.10	1.70	---
2				---	.03	---	.02	21.90	72.40	9.46	2.10	---
3				---	.03	---	.02	50.00	60.40	8.17	2.15	---
4				---	.03	.06	.02	22.40	59.00	7.18	2.87	---
5				---	.03	.07	.02	12.30	41.60	6.43	1.95	---
6				---	.04	.05	.02	10.20	31.10	5.95	1.64	---
7				---	.03	.04	.03	7.16	26.40	5.64	1.58	---
8				---	---	.03	.02	5.99	23.80	5.35	1.40	---
9				---	---	.03	.04	5.44	21.00	5.54	1.30	---
10				---	---	.03	.04	21.90	19.40	5.44	1.30	---
11				---	---	.05	.03	13.50	17.60	4.96	1.30	---
12				---	---	.05	.03	9.76	16.50	4.57	1.62	---
13				---	---	.04	.03	7.03	15.50	4.18	1.77	1.60
14				---	---	.04	.04	5.35	17.10	3.59	1.66	1.70
15				---	---	.05	.06	8.14	16.30	3.50	1.55	1.80
16				---	---	.05	.07	13.20	14.60	3.21	---	5.29
17				---	---	.04	.43	24.30	13.70	3.40	---	3.80
18				---	---	.03	.14	23.50	12.90	3.28	---	2.60
19				---	---	.03	.14	24.00	12.00	3.30	---	2.10
20				---	---	.02	.11	18.80	11.40	3.12	---	2.00
21				---	---	.03	20.00	41.80	10.90	3.03	---	1.50
22				---	---	.02	14.80	53.00	10.00	3.02	---	1.40
23				---	---	.02	4.28	60.70	10.00	2.83	---	1.30
24				---	---	.02	2.11	40.20	9.82	2.53	---	1.20
25				---	---	.02	5.58	31.80	12.00	2.30	---	1.20
26				.04	---	.02	1.42	48.90	18.20	2.26	---	1.10
27				.03	---	.03	1.38	61.20	17.40	2.11	---	1.20
28				.03	---	.06	.92	46.70	15.20	2.16	---	1.20
29				.03	---	.06	.75	37.00	11.40	2.92	---	1.20
30				.03	---	.06	.89	30.70	11.10	4.70	---	1.20
31				.03	---	.05	---	27.30	---	1.90	---	---
MEAN				.03	.03	.04	1.78	25.40	22.60	4.39	1.73	1.86
WTR YR 1977	MEAN	8.75		MAX	72.40	MIN	.02					

DISSOLVED SOLIDS (RESIDUE AT 180 DEG. C), MG/L, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	2210	---	2800	1170	375	1310	1770	---
2				---	2210	---	2820	952	392	1360	1790	---
3				---	2410	---	2880	736	527	1410	1830	---
4				---	2340	2710	2950	680	608	1450	1870	---
5				---	2160	2770	2970	695	736	1490	1900	---
6				---	2020	2700	2970	632	888	1550	1930	---
7				---	1850	2680	2990	566	1030	1600	2030	---
8				---	---	2570	3000	834	1140	1600	2120	---
9				---	---	2640	3000	1090	1150	1640	2160	---
10				---	---	2600	3080	1290	1200	1630	2160	---
11				---	---	2660	3070	1230	1290	1630	2160	---
12				---	---	2790	3060	1140	1320	1640	2170	---
13				---	---	2830	3000	1030	1350	1620	2200	1780
14				---	---	2840	2940	898	1390	1550	2210	1790
15				---	---	3080	2890	758	1420	1480	2210	1820
16				---	---	3200	2920	511	1440	1410	---	1820
17				---	---	3010	2890	338	1470	1330	---	1780
18				---	---	3120	2930	208	1490	1170	---	1770
19				---	---	3100	2950	285	1510	1220	---	1760
20				---	---	2970	2710	338	1550	1220	---	1750
21				---	---	2990	2050	298	1580	1420	---	1760
22				---	---	2850	1380	304	1600	1480	---	1750
23				---	---	2820	1220	340	1640	1550	---	1760
24				---	---	2780	888	362	1620	1640	---	1770
25				---	---	2510	9130	319	1610	1750	---	1780
26				2140	---	2230	1010	509	1550	1870	---	1780
27				1950	---	1970	1410	480	1450	1990	---	1800
28				2110	---	1570	1370	524	1370	2070	---	1800
29				2300	---	2140	1320	563	1290	2160	---	1800
30				2330	---	2830	1240	557	1280	1720	---	1800
31				2110	---	2810	---	517	---	1730	---	---
MEAN				2160	2170	2710	2660	650	1240	1570	2030	1780
WTR YR 1977	MEAN	1800		MAX	9130	MIN	208					

RED RIVER BASIN

07324200 WASHITA RIVER NEAR HAMMON, OK--Continued

DISSOLVED SOLIDS (TONS PER DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---	1.79	---	2.12	72.70	1110.00	389.00	81.20	---
2				---	1.79	---	1.52	673.00	1580.00	378.00	101.00	---
3				---	1.89	---	1.56	1270.00	1330.00	339.00	104.00	---
4				---	1.90	3.88	1.59	525.00	1280.00	298.00	141.00	---
5				---	1.75	4.04	1.60	295.00	1060.00	274.00	97.50	---
6				---	1.85	2.99	1.60	230.00	921.00	264.00	83.40	---
7				---	1.60	2.60	1.61	156.00	876.00	251.00	82.20	---
8				---	---	2.08	1.46	167.00	846.00	238.00	74.40	---
9				---	---	1.85	2.27	185.00	755.00	252.00	70.00	---
10				---	---	1.97	2.33	857.00	706.00	246.00	70.00	---
11				---	---	3.16	1.66	505.00	686.00	224.00	70.00	---
12				---	---	3.16	1.65	348.00	642.00	208.00	87.90	---
13				---	---	2.67	1.94	234.00	616.00	188.00	95.00	76.90
14				---	---	2.84	2.30	160.00	698.00	159.00	89.50	82.20
15				---	---	3.16	3.90	213.00	682.00	148.00	83.50	88.50
16				---	---	3.02	4.42	280.00	603.00	133.00	---	260.00
17				---	---	2.52	27.30	548.00	576.00	133.00	---	183.00
18				---	---	2.19	8.70	595.00	547.00	120.00	---	124.00
19				---	---	2.01	8.76	571.00	518.00	122.00	---	99.80
20				---	---	1.60	6.80	424.00	506.00	115.00	---	94.50
21				---	---	1.61	1050.00	957.00	478.00	127.00	---	71.30
22				---	---	1.39	600.00	1240.00	445.00	128.00	---	66.10
23				---	---	1.37	158.00	1380.00	456.00	126.00	---	61.80
24				---	---	1.35	62.30	909.00	442.00	115.00	---	57.30
25				---	---	1.22	542.00	723.00	535.00	109.00	---	57.70
26				2.02	---	1.08	46.40	1040.00	808.00	111.00	---	52.90
27				1.68	---	1.76	57.10	1330.00	720.00	107.00	---	58.30
28				1.82	---	2.46	37.00	1020.00	614.00	112.00	---	58.30
29				1.93	---	3.18	29.20	801.00	446.00	157.00	---	58.30
30				1.89	---	3.67	33.50	657.00	432.00	218.00	---	58.30
31				1.71	---	3.03	---	589.00	---	88.70	---	---
MEAN				1.84	1.80	2.42	90.00	611.00	730.00	190.00	88.70	89.40
WTR YR 1977	MEAN	268.00		MAX	1580.00		MIN	1.08				

07324300 FOSS RESERVOIR NEAR FOSS, OK

LOCATION.--Lat 35°32'18", long 99°10'40", in S 1/2 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 mi² (3,875 km²).

RESERVOIR CONTENTS RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to October 1961, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by an earth dam. Storage began Feb. 13, 1961. Capacity, 436,500 acre-ft (538 hm³) at elevation 1,668.6 ft (508.59 m) crest of drop inlet and 256,100 acre-ft (316 hm³) at elevation 1,652.0 ft (503.530 m) conservation pool. Dead storage, 12,420 acre-ft (15.3 hm³) 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.

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 hm³) June 29, 1977, elevation, 1,644.53 ft (501.253 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 195,800 acre-ft (241 hm³) June 29, elevation, 1,644.53 ft (501.253 m); minimum, 141,400 (174 hm³) Apr. 13, elevation, 1,636.15 ft (498.699 m).

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30.....	1,637.60	149,900	--	--
Oct. 31.....	1,637.30	148,100	-1,800	274
Nov. 30.....	1,637.00	146,300	-1,800	303
Dec. 31.....	1,636.70	144,600	-1,700	306
CAL YR 76	--	--	-8,900	3,060
Jan. 31.....	1,636.50	143,400	-1,200	310
Feb. 28.....	1,636.60	144,000	+600	275
Mar. 31.....	1,636.30	142,300	-1,700	308
Apr. 30.....	1,636.30	142,300	0	330
May 31.....	1,642.60	182,100	+39,800	337
June 30.....	1,644.50	195,600	+13,500	352
July 31.....	1,644.40	194,900	-700	480
Aug. 31.....	1,644.50	195,600	+700	324
Sept. 30.....	1,644.20	193,400	-2,200	462
WTR YR 77	--	--	+43,500	4,061

† Elevation at 0800 on following day.

RED RIVER BASIN

07324300 FOSS RESERVOIR NEAR FOSS, OK

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963-1974, 1976 to current year.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. Samples were analyzed at 3 profile sites in the Reservoir - see stations 35332509911001, 353405099132501, and 353615099135001.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
12...	1028	9740	1206	2090	8.8	18.0	--	9.6	105	--	--
NOV											
09...	1028	9740	1119	2080	8.6	12.0	--	--	--	--	--
DEC											
23...	1028	9740	1045	2020	8.5	5.0	--	12.8	105	--	--
FEB											
24...	1028	9740	1055	2100	8.7	6.5	3	12.0	98	14	1196
MAR											
31...	1028	9740	1120	2130	8.5	11.5	3	10.9	104	24	1161
APR											
28...	1028	9740	1110	2170	8.8	15.5	4	8.8	94	19	1089
MAY											
25...	1028	9740	1105	2125	8.2	21.0	2	9.5	109	16	1083
JUN											
09...	1028	9740	1145	2050	7.9	24.0	1	7.3	89	14	919
JUL											
14...	1028	9740	1255	1880	8.4	26.0	1	9.2	118	16	882
AUG											
12...	1028	9740	1115	1800	8.0	25.5	2	7.8	99	15	858
SEP											
23...	1028	9740	1100	1750	8.5	23.5	5	8.9	110	17	610

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PU- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
12...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
23...	--	--	--	--	--	--	--	--	--	--	--
FEB											
24...	201	148	100	16	1048	147	--	1869	1.3	.05	4
MAR											
31...	--	167	97	15	1051	150	.4	1826	1.6	.08	--
APR											
28...	210	140	99	23	1069	49	.4	1874	1.6	.03	--
MAY											
25...	197	152	102	22	103	48	.3	1805	1.4	.04	1
JUN											
09...	178	114	--	15	819	42	.6	1565	1.0	.03	--
JUL											
14...	172	109	87	15	838	40	.4	882	1.7	.05	--
AUG											
12...	171	108	78	15	874	42	.4	1517	1.7	.03	3
SEP											
23...	66	107	84	4.0	587	40	.3	1589	2.2	.03	--

RED RIVER BASIN

121

07324300 FOSS RESERVOIR NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRU- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UC1											
12...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
23...	--	--	--	--	--	--	--	--	--	--	--
FEB											
24...	4	36	18	<100	<3	10	<.5	18	--	4	10
MAR											
31...	--	--	--	<100	--	20	--	--	--	--	--
APR											
28...	--	--	--	<200	--	<10	--	--	--	--	--
MAY											
25...	3	15	4	<200	14	10	<.5	12	1	7	4
JUN											
09...	--	--	--	<200	--	10	--	--	--	--	--
JUL											
14...	--	--	--	100	--	20	--	--	--	--	--
AUG											
12...	1	<5	6	<100	<5	30	<.5	12	<1	<2	36
SEP											
23...	--	--	--	620	--	10	--	--	--	--	--

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK

LOCATION.--Lat 34°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.--1,511 mi² (4,017 km²).

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 good, except April and May which are fair. Except for 55 mi² (142.4 km²) intervening area, flow completely regulated since 1961 by Foss Reservoir (station 07324300).

AVERAGE DISCHARGE.--16 years (water years 1962-77), 12.6 ft³/s (0.357 m³/s), 9,130 ft³/s (11.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (397 m³/s) Apr. 19, 1957, gage height, 20.40 ft (6.218 m), from rating curve extended above 3,600 ft³/s (102 m³/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, 1,240 ft³/s (35.1 m³/s) May 17, gage height, 18.59 ft (5.666 m); minimum daily, 2.3 ft³/s (0.065 m³/s) Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	7.9	8.0	7.8	8.8	5.9	4.8	10	120	10	13	18
2	2.4	7.2	8.2	7.8	8.7	6.5	4.8	100	49	10	10	17
3	2.3	7.4	7.8	8.1	11	6.5	4.6	71	43	9.1	9.4	16
4	2.7	7.4	7.5	8.4	8.6	6.5	4.6	60	50	8.7	7.9	15
5	7.1	7.9	7.4	8.7	8.4	6.5	4.6	50	48	8.5	7.9	16
6	7.3	7.9	7.4	8.6	8.5	6.5	4.4	80	44	7.9	7.2	14
7	7.4	7.4	7.4	8.7	7.7	7.0	4.4	60	38	7.6	6.7	5.0
8	8.3	7.3	7.4	8.7	5.0	7.0	4.4	45	23	7.7	6.5	4.7
9	7.3	7.8	7.8	8.5	4.7	7.0	4.2	35	21	7.6	6.4	4.4
10	7.4	8.3	8.3	8.3	4.9	7.4	4.2	50	19	7.6	6.5	4.4
11	7.4	8.5	7.8	8.1	6.2	7.4	4.0	30	18	6.7	9.9	4.6
12	6.9	8.5	7.8	7.9	6.7	6.9	4.0	18	17	6.6	10	4.8
13	7.0	8.3	7.7	8.2	5.5	7.2	4.1	14	48	6.1	8.0	7.0
14	6.5	11	7.7	8.6	5.3	7.4	4.3	11	25	6.0	7.7	7.1
15	6.5	8.1	7.8	8.1	5.3	6.5	4.0	9.8	18	6.1	7.2	7.1
16	6.0	7.7	7.8	8.1	5.1	6.1	4.0	25	16	5.9	6.5	9.4
17	5.9	8.1	7.7	8.6	5.0	7.2	4.0	639	15	5.4	6.3	7.1
18	6.3	7.7	8.0	8.7	5.1	7.0	3.8	345	14	5.4	6.7	7.1
19	6.4	7.6	8.3	8.8	5.3	6.7	5.8	329	14	5.4	55	6.8
20	6.6	7.5	8.4	8.7	5.4	6.7	10	361	14	5.1	47	6.9
21	7.2	7.6	8.3	8.5	5.5	6.5	5.1	550	13	5.1	19	6.6
22	7.0	7.3	8.3	8.1	5.7	5.9	4.5	300	13	5.0	12	6.6
23	7.0	7.6	8.0	8.2	5.7	6.5	4.5	200	14	5.1	9.4	6.5
24	6.5	8.0	8.3	8.3	5.5	6.3	4.0	170	13	5.0	8.0	6.8
25	7.0	7.3	8.3	8.2	5.7	6.7	4.0	150	41	5.0	154	6.7
26	6.8	7.4	8.3	8.3	6.6	7.0	5.6	300	16	4.6	262	6.6
27	7.8	7.8	8.5	8.3	6.5	7.0	6.6	500	14	11	16	6.6
28	8.2	7.8	8.5	8.3	5.5	6.8	6.6	300	12	7.2	76	6.5
29	8.7	7.6	8.3	8.3	---	5.9	6.6	150	11	103	29	7.3
30	9.4	7.4	8.3	8.5	---	5.8	30	120	11	31	25	7.2
31	8.5	---	7.8	8.7	---	5.4	---	100	---	15	20	---
TOTAL	204.8	235.5	247.1	259.1	177.9	205.7	170.5	5182.8	812	340.6	876.2	249.8
MEAN	6.61	7.65	7.97	8.36	6.35	6.64	5.68	167	27.1	11.0	28.3	8.33
MAX	9.4	11	8.5	8.8	11	7.4	30	639	120	103	262	18
MIN	2.3	7.2	7.4	7.8	4.7	5.4	3.8	9.8	11	4.6	6.3	4.4
AC-FT	406	467	490	514	353	408	338	10280	1610	676	1740	495

CAL YR 1976 TOTAL 5172.4 MEAN 14.1 MAX 647 MIN 2.3 AC-FT 10260
 WTH YR 1977 TOTAL 8962.0 MEAN 24.6 MAX 639 MIN 2.3 AC-FT 17780

RED RIVER BASIN

123

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. Partial analyses were made each month on three of these samples. An additional sample was collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Monthly samples were collected by the U.S. Geological Survey and selected parameters were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MMOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT										
11...	--	--	0900	6.8	2200	7.9	--	--	--	--
12...	1028	9740	1430	6.5	1850	8.3	20.0	16	9.8	109
18...	--	--	0900	5.9	2020	8.0	--	--	--	--
25...	--	--	0900	6.7	2200	7.8	--	--	--	--
NOV										
01...	--	--	0900	7.9	2050	8.3	--	--	--	--
09...	1028	9740	1315	7.4	2800	7.8	12.5	12	--	--
22...	--	--	0900	6.8	1950	8.0	--	--	--	--
29...	--	--	0900	6.7	2150	8.2	--	--	--	--
DEC										
13...	--	--	0900	7.9	2050	8.1	--	--	--	--
20...	--	--	0900	8.5	2210	7.9	--	--	--	--
27...	--	--	0900	8.3	2120	7.8	--	--	--	--
27...	1028	9740	1400	8.7	2020	7.8	7.5	3	12.6	112
JAN										
03...	--	--	0900	8.1	2050	8.4	--	--	--	--
17...	--	--	0900	8.3	2240	8.3	--	--	--	--
18...	1028	9740	1230	8.7	2200	7.9	1.0	4	13.0	99
31...	--	--	1500	8.7	2130	8.1	--	--	--	--
FEB										
07...	--	--	0900	8.5	2110	8.2	--	--	--	--
14...	--	--	0900	5.3	2130	8.3	--	--	--	--
24...	1028	9740	1245	5.4	2600	7.7	10.0	4	12.5	112
28...	--	--	0900	5.3	1950	8.1	--	--	--	--
MAR										
07...	--	--	0900	6.8	2210	8.0	--	--	--	--
14...	--	--	0900	7.2	2230	7.8	--	--	--	--
28...	--	--	0900	6.8	2090	7.7	--	--	--	--
31...	1028	9740	1315	5.4	2500	7.9	14.0	4	12.7	128
APR										
04...	--	--	0900	4.6	2260	7.7	--	--	--	--
18...	--	--	0900	3.8	2180	7.6	--	--	--	--
25...	--	--	0900	3.7	2330	7.6	--	--	--	--
28...	1028	9740	1315	6.7	2000	7.6	23.0	33	8.5	104
MAY										
02...	--	--	0900	185	470	7.4	--	--	--	--
16...	--	--	0845	13	1400	7.8	--	--	--	--
23...	--	--	1030	200	309	7.6	--	--	--	--
25...	1028	9740	1400	150	--	7.9	22.0	170	8.4	100
JUN										
06...	--	--	0930	44	691	7.9	--	--	--	--
09...	1028	9740	1500	21	1300	8.3	25.0	24	7.2	89
20...	--	--	1000	14	1600	7.9	--	--	--	--
27...	--	--	0900	14	1350	7.9	--	--	--	--
JUL										
05...	--	--	0900	8.5	1600	7.8	--	--	--	--
14...	1028	9740	1520	6.5	1950	7.7	30.0	2	8.1	111
18...	--	--	0900	5.4	1800	7.6	--	--	--	--

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible]

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)
OCT										
11...	--	1910	--	2.60	35.1	.38	--	--	--	--
12...	--	--	--	--	--	--	1.5	<.11	--	--
18...	--	1690	--	2.30	26.9	.36	--	--	--	--
25...	--	1880	--	2.56	34.0	.28	--	--	--	--
NOV										
01...	--	1760	--	2.39	37.5	.45	--	--	--	--
09...	--	--	--	--	--	--	3.0	.28	3	3
22...	--	1620	--	2.20	29.7	.34	--	--	--	--
29...	--	1810	--	2.46	32.7	.36	--	--	--	--
DEC										
13...	--	1760	--	2.39	37.5	.06	--	--	--	--
20...	--	1930	--	2.62	44.3	.31	--	--	--	--
27...	--	1810	--	2.46	40.6	.35	--	--	--	--
27...	--	--	--	--	--	--	1.1	.28	--	--
JAN										
03...	--	1770	--	2.41	38.7	.52	--	--	--	--
17...	--	1930	--	2.62	43.3	.38	--	--	--	--
18...	--	--	--	--	--	--	1.0	.86	--	--
31...	--	1820	--	2.48	42.8	.42	--	--	--	--
FEB										
07...	--	1830	--	2.49	42.0	.09	--	--	--	--
14...	--	1840	--	2.50	26.3	.09	--	--	--	--
24...	--	--	--	--	--	--	.30	.47	4	3
28...	--	1630	--	2.22	23.3	.39	--	--	--	--
MAR										
07...	--	1910	--	2.60	35.1	.24	--	--	--	--
14...	--	1940	--	2.64	37.7	.28	--	--	--	--
28...	--	1790	--	2.43	32.9	.40	--	--	--	--
31...	--	--	--	--	--	--	2.1	1.9	--	--
APR										
04...	--	1990	--	2.71	24.7	.10	--	--	--	--
18...	--	1890	--	2.57	19.4	.52	--	--	--	--
25...	--	2050	--	2.79	20.5	.75	--	--	--	--
28...	--	--	--	--	--	--	2.1	.48	--	--
MAY										
02...	--	316	--	.43	158	--	--	--	--	--
16...	--	1050	--	1.43	36.9	--	--	--	--	--
23...	--	185	--	.25	99.9	--	--	--	--	--
25...	--	--	--	--	--	--	2.1	.59	3	1
JUN										
06...	--	436	--	.54	51.8	--	--	--	--	--
09...	--	--	--	--	--	--	.98	.18	--	--
20...	--	1240	--	1.69	46.9	--	--	--	--	--
27...	--	1010	--	1.37	38.2	--	--	--	--	--
JUL										
05...	--	1260	--	1.71	28.9	--	--	--	--	--
14...	--	--	--	--	--	--	1.7	.23	--	--
18...	--	1500	--	2.04	21.9	--	--	--	--	--
JUL										
25...	--	1910	--	2.60	25.8	--	--	--	--	--
AUG										
12...	--	--	--	--	--	--	1.5	.15	5	<1
SEP										
06...	--	1370	--	1.86	55.5	--	--	--	--	--
23...	--	--	--	--	--	--	1.2	.31	--	--

RED RIVER BASIN

127

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT										
11...	--	--	--	--	--	--	--	--	--	--
12...	--	--	<100	--	10	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
NOV										
01...	--	--	--	--	--	--	--	--	--	--
09...	25	9	150	51	58	<.5	22	<2	5	5
22...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
DEC										
13...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	<100	--	53	--	--	--	--	--
JAN										
03...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
18...	--	--	100	--	40	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
FEB										
07...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
24...	37	38	190	21	160	<.5	16	--	9	15
28...	--	--	--	--	--	--	--	--	--	--
MAR										
07...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
31...	--	--	500	--	130	--	--	--	--	--
APR										
04...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
28...	--	--	660	--	170	--	--	--	--	--
MAY										
02...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
25...	47	22	1100	21	540	<.5	28	<1	7	29
JUN										
06...	--	--	--	--	--	--	--	--	--	--
09...	--	--	440	--	120	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
JUL										
05...	--	--	--	--	--	--	--	--	--	--
14...	--	--	260	--	10	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
JUL										
25...	--	--	--	--	--	--	--	--	--	--
AUG										
12...	25	7	360	<5	170	<.5	11	3	<2	17
SEP										
06...	--	--	--	--	--	--	--	--	--	--
23...	--	--	1120	--	90	--	--	--	--	--

07324400 WASHITA RIVER NEAR FOSS, OK--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

[illegible]

SPECIFIC CONDUCTANCE (MICROMHUS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

[illegible]

RED RIVER BASIN

129

07325000 WASHITA RIVER NEAR CLINTON, OK

LOCATION.--Lat 34°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 mi² (5,120 km²).

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) above mean sea level. See WSP 1920 for history of changes prior to Mar. 19, 1941.

REMARKS.--Records fair. 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 ft³/s (4.135 m³/s), 105,700 acre-ft/yr (130 hm³/yr); (since regulation by Foss Reservoir) 16 years (water years 1961-77), 54.1 ft³/s (1.532 m³/s), 39,200 acre-ft/yr (48.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft³/s (1,890 m³/s) May 16, 1951, gage height, 31.09 ft (9.476 m), from rating curve extended above 7,900 ft³/s (224 m³/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, 2,980 ft³/s (84.4 m³/s) May 21, gage height, 20.33 ft (6.197 m); minimum daily, 12 ft³/s (0.34 m³/s) Oct. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	20	22	19	25	25	19	108	335	50	50	37
2	14	19	22	19	27	26	19	137	232	45	51	30
3	13	19	22	18	27	24	19	161	149	40	110	25
4	12	18	22	15	27	26	19	115	133	35	51	23
5	12	18	21	17	27	24	18	102	120	31	56	23
6	13	17	21	19	26	24	18	121	99	30	32	25
7	15	19	21	21	26	23	18	139	85	29	30	52
8	17	19	20	24	25	23	18	96	77	29	26	35
9	16	20	20	31	24	23	16	75	66	31	25	27
10	17	18	20	31	23	23	14	93	60	28	25	30
11	15	18	20	30	25	23	14	93	53	26	27	25
12	15	18	20	31	30	23	14	55	49	25	52	23
13	14	18	20	32	31	22	14	42	47	23	33	23
14	15	18	20	34	28	22	14	38	208	23	30	26
15	14	20	20	34	25	22	16	36	256	26	32	26
16	14	20	20	27	24	21	17	54	141	22	25	30
17	14	20	20	28	24	21	20	733	95	22	22	27
18	15	20	20	25	23	21	26	669	75	21	22	24
19	15	20	20	27	23	21	25	413	65	20	172	23
20	15	19	20	30	23	21	25	425	58	19	610	22
21	15	19	20	27	23	20	26	2700	50	17	203	22
22	16	19	20	25	23	21	24	1460	45	20	131	21
23	16	19	20	27	23	21	22	606	40	21	98	20
24	17	19	19	27	22	21	21	409	37	18	80	21
25	16	20	19	26	22	21	20	322	168	18	74	21
26	17	20	19	26	24	21	19	388	106	16	292	20
27	18	19	19	26	26	23	18	857	70	17	183	19
28	18	19	19	25	26	24	18	630	65	39	100	19
29	22	18	19	25	---	23	240	403	60	130	88	21
30	25	20	19	25	---	22	123	307	55	273	67	23
31	22	---	19	25	---	19	---	278	---	66	55	---
TOTAL	491	570	623	796	702	694	694	12065	3099	1210	2832	763
MEAN	15.8	19.0	20.1	25.7	25.1	22.4	29.8	369	103	39.0	91.4	25.4
MAX	25	20	22	34	31	26	240	2700	335	273	610	52
MIN	12	17	19	15	22	19	14	36	37	16	22	19
AC-FT	974	1150	1240	1580	1390	1580	1770	23930	6150	2400	5620	1510

CAL YR 1976 TOTAL 18183.8 MEAN 49.7 MAX 1020 MIN 8.8 AC-FT 36070
WTR YR 1977 TOTAL 24739.0 MEAN 67.8 MAX 2700 MIN 12 AC-FT 49070

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 mi² (8.104 km²), 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) above mean sea level. 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 poor. Some diversion above station for irrigation. October 1942 to May 1949, occasional fluctuation caused by power plant 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 1938-60), 314 ft³/s (8,892 m³/s), 277,500 acre-ft/yr (342 hm³/yr); (Since regulation by Foss Reservoir) 16 years (water years 1962-77), 227 ft³/s (6,429 m³/s), 164,500 acre-ft/yr (203 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) May 18, 1949, gage height, 26.21 ft (7.989 m), from rating curve extended above 35,500 ft³/s (1,010 m³/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 discharge, above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 22	unknown	*9,800 278	22.77 6.940	May 28	unknown	6,860 194	21.92 6.681

Minimum daily discharge, 40 ft³/s (1.13 m³/s) Apr. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	136	64	63	75	79	49	800	1800	170	323	250
2	61	98	67	62	77	80	49	450	1370	155	443	173
3	58	85	69	60	78	78	48	250	1100	145	182	165
4	56	85	70	64	79	75	47	400	886	140	145	155
5	55	75	70	63	79	76	46	900	705	130	125	155
6	52	71	70	66	79	74	45	1170	620	126	115	206
7	51	67	69	64	77	72	43	1000	580	126	110	165
8	52	66	69	67	75	71	42	650	457	123	100	155
9	53	64	68	63	74	71	41	450	398	122	95	145
10	55	64	69	63	74	70	40	700	349	120	90	135
11	55	65	69	63	76	71	41	1600	291	120	88	130
12	54	66	69	64	80	66	43	1080	242	117	88	125
13	51	65	68	66	88	67	47	593	219	110	86	120
14	49	65	68	68	96	69	49	400	203	105	86	115
15	49	65	68	75	90	68	52	300	195	100	86	110
16	49	66	67	80	87	64	54	200	190	99	230	110
17	47	69	67	86	85	64	56	170	185	97	180	105
18	47	70	67	86	82	63	60	280	180	95	120	100
19	47	72	66	86	80	62	65	1200	175	90	160	95
20	47	72	66	88	79	60	75	3000	170	88	900	90
21	47	79	66	80	78	59	125	6000	170	84	800	90
22	47	79	66	81	72	59	100	6400	165	82	550	86
23	48	78	67	83	73	58	95	4500	160	78	350	84
24	44	77	67	86	68	57	90	3000	155	82	270	82
25	49	76	68	84	69	54	85	2200	150	80	200	82
26	50	77	70	83	72	55	80	1500	175	80	580	80
27	51	73	71	80	73	57	75	4500	200	75	450	78
28	54	73	71	78	73	54	75	5500	222	72	280	76
29	67	69	70	76	---	52	70	6500	200	101	350	75
30	87	64	68	75	---	51	180	4910	180	133	400	75
31	155	---	65	74	---	50	---	2410	---	162	400	---
TOTAL	1755	2231	2109	2277	2188	2006	1967	63013	12092	3407	8382	3612
MEAN	56.0	74.4	68.0	73.5	78.1	64.7	65.6	2033	403	110	270	120
MAX	155	136	71	88	96	80	180	6500	1800	170	900	250
MIN	47	64	64	60	68	50	40	170	150	72	86	75
AC-FT	3480	4430	4180	4520	4340	3980	3900	125000	23980	6760	16630	7160

CAL YR 1976	TOTAL	56474	MEAN 154	MAX 1430	MIN 20	AC-FT 112000
WTR YR 1977	TOTAL	105039	MEAN 288	MAX 6500	MIN 40	AC-FT 208300

RED RIVER BASIN

131

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. Partial analyses were made each month on three of those samples.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISE- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD- SURP- TION RATIO
OCT											
01...	1000	63	2400	7.8	1300	1100	350	98	120	17	1.5
11...	0930	55	2540	7.8	1300	1100	350	110	160	21	1.9
18...	1200	47	2600	8.0	1400	1100	360	110	130	17	1.5
NOV											
01...	1000	139	1640	8.1	830	650	220	69	100	21	1.5
08...	1000	67	2490	8.1	1200	1000	310	110	120	17	1.5
29...	1000	69	2540	8.1	1300	1000	330	110	130	18	1.6
DEC											
06...	1000	70	2540	7.9	1400	1200	370	110	120	16	1.4
20...	1300	66	2560	7.9	1400	1200	370	120	110	14	1.3
27...	1000	71	2600	8.0	1400	1200	370	120	120	16	1.4
JAN											
17...	0900	86	2650	7.9	1400	1200	360	120	120	16	1.4
24...	1100	86	2470	8.1	1300	1100	330	110	110	16	1.3
31...	1100	74	2560	8.2	1300	1100	350	110	120	16	1.4
FEB											
07...	1000	77	2510	8.1	1300	1100	350	110	110	15	1.3
14...	1600	96	2480	8.1	1300	1100	340	110	120	17	1.4
28...	1400	73	2540	8.1	1400	1100	350	120	120	16	1.4
MAR											
08...	0900	71	2580	7.5	1400	1100	350	120	120	16	1.4
21...	0900	59	2670	7.6	1400	1200	370	120	130	17	1.5
28...	0900	54	2520	7.6	1300	1100	350	110	130	18	1.6
APR											
04...	1000	47	2510	7.6	1300	1200	340	120	120	16	1.4
11...	1700	41	2570	7.6	1400	1200	350	120	120	16	1.4
25...	0800	85	2430	7.5	1300	1100	330	120	100	14	1.2
MAY											
02...	0800	450	819	7.3	390	280	120	23	19	9	.4
16...	1600	295	1110	7.8	480	350	120	43	55	20	1.1
23...	0700	8580	597	7.6	160	82	44	10	12	13	.4
JUN											
06...	1300	620	1180	7.6	560	400	150	46	42	14	.6
20...	0900	170	1610	7.8	610	560	220	62	72	16	1.1
27...	1300	200	1670	7.7	970	770	270	71	78	15	1.1
JUL											
05...	1700	134	2220	7.4	1200	990	310	100	110	17	1.4
16...	1500	95	2400	7.5	1200	1000	300	110	140	20	1.8
25...	1500	80	2480	7.6	1200	980	310	100	150	22	1.9
SEP											
05...	1100	155	1810	7.9	--	--	--	--	--	--	--

RED RIVER BASIN

07325500 WASHITA RIVER AT CARNEGIE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED PU- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACU3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SU4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TUNS PER AC-FT)	DIS- SOLVED SOLIDS (TUNS PER DAY)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L)
OCT											
01...	5.2	242	0	198	6.1	1100	130	2000	2.72	340	1.7
11...	4.6	275	0	226	7.0	1100	190	2210	3.01	328	1.2
18...	5.1	266	0	218	4.3	1200	150	2190	2.98	278	.96
NOV											
01...	5.4	220	0	180	2.8	690	100	1430	1.94	537	1.5
08...	6.6	249	0	204	5.2	1100	120	2060	2.80	373	1.7
29...	5.9	286	0	235	3.6	1100	130	2110	2.87	393	1.1
DEC											
06...	4.8	225	0	185	4.5	1200	120	2210	3.01	418	1.9
20...	4.3	271	0	222	5.5	1200	120	2210	3.01	394	1.2
27...	4.3	273	0	224	4.4	1200	130	2250	3.06	431	1.2
JAN											
17...	4.7	262	0	215	5.3	1200	110	2270	3.09	527	2.5
24...	4.3	303	0	249	3.9	1100	100	2140	2.91	497	2.2
31...	4.3	285	0	234	2.9	1100	120	2210	3.01	442	1.7
FEB											
07...	4.2	279	0	229	3.5	1100	110	2160	2.94	449	1.4
14...	4.6	282	0	231	3.6	1100	120	2130	2.90	552	1.0
28...	4.4	281	0	230	3.6	1200	120	2200	2.99	434	.59
MAR											
08...	4.6	280	0	230	14	1200	110	2200	2.99	422	1.0
21...	4.9	280	0	230	7.1	1300	130	2300	3.13	366	.62
28...	4.5	220	0	180	8.6	1200	130	2150	2.92	313	.54
APR											
04...	4.7	230	0	189	9.2	1200	120	2160	2.94	274	.45
11...	4.7	230	0	189	9.2	1200	120	2220	3.02	246	.39
25...	5.2	220	0	180	11	1200	76	2150	2.92	493	.79
MAY											
02...	5.7	140	0	110	11	280	16	588	.80	714	--
16...	5.8	160	0	130	4.1	350	59	786	1.07	626	--
23...	5.1	100	0	82	2.5	94	17	246	.33	5700	--
JUN											
06...	5.7	200	0	164	8.0	430	41	884	1.20	1480	--
20...	5.2	270	0	221	6.8	600	71	1270	1.73	583	--
27...	6.1	240	0	197	7.7	810	71	1560	2.12	842	--
JUL											
05...	5.1	240	0	200	15	970	120	1850	2.52	669	--
18...	4.6	220	0	180	11	1000	160	1980	2.69	508	--
25...	4.8	250	0	210	10	1000	170	2070	2.82	447	--
SEP											
05...	--	--	--	--	--	750	75	1450	1.97	607	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCF-DAILY

[illegible]

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 right abutment of bridge on downstream side of State Highway 152, 0.5 mi (0.8 km) downstream from Fivemile Creek, 2.4 mi (3.9 km) southwest of Eakly, 2.5 mi (4.0 km) upstream from Fort Cobb Reservoir, and at mile 22.9 (36.8 km).

DRAINAGE AREA.--132 mi² (342 km²).

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,369.70 ft (417.485 m) above mean sea level.

REMARKS.--Records poor prior to January and good thereafter. Minor regulation by three small reservoirs having combined surface-area 262 acres (1.06 km²) and capacity of 3,100 acre-ft (3.82 hm³).

AVERAGE DISCHARGE.--9 years, 22.8 ft³/s (0.646 m³/s), 16,520 acre-ft/yr (20.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,520 ft³/s (71.4 m³/s) Mar. 30, 1973, gage height, 17.04 ft (5.194 m); from rating curve extended above 500 ft³/s (14.2 m³/s); no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 20	2315	*1,840 52.1	15.08 4.596	Aug. 19	1730	864 24.5	10.40 3.170
May 27	0345	1,550 43.9	13.71 4.179				

Minimum daily, 3.7 ft³/s (0.10 m³/s) Aug. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	15	11	11	12	14	11	37	48	12	15	9.0
2	4.5	12	11	11	13	13	11	114	26	11	8.2	8.4
3	4.5	11	12	12	13	13	11	52	20	9.9	6.7	8.2
4	4.3	11	12	12	13	12	11	55	18	9.1	5.5	8.7
5	4.3	10	12	13	13	12	11	36	17	8.3	4.7	20
6	4.2	10	12	12	13	12	10	74	16	7.7	4.4	14
7	4.5	10	12	11	13	12	9.4	28	15	7.4	4.2	10
8	4.8	10	12	11	12	12	9.0	19	15	6.7	3.7	8.5
9	4.5	10	12	13	12	12	9.0	17	15	6.9	3.9	7.5
10	4.5	10	12	14	12	12	9.0	16	15	7.3	3.9	6.8
11	4.5	10	12	14	14	21	9.0	14	14	7.2	4.5	6.3
12	4.4	10	11	14	32	15	8.8	12	13	6.7	5.3	5.9
13	4.3	10	11	14	21	13	8.9	11	14	6.4	5.8	7.5
14	4.3	11	11	14	17	11	9.4	11	14	6.3	15	13
15	4.3	11	11	13	15	11	9.6	10	14	6.2	11	11
16	4.8	11	11	13	14	11	9.8	9.6	14	6.9	6.4	9.3
17	4.5	11	11	13	14	11	12	25	14	6.4	5.6	8.2
18	4.4	11	11	13	13	11	14	24	14	6.3	5.6	7.5
19	4.4	11	11	13	12	11	13	31	13	6.7	215	7.0
20	4.3	11	11	13	12	11	12	393	13	6.9	56	6.1
21	4.3	10	11	13	12	10	14	567	13	6.8	27	6.1
22	4.2	10	11	13	12	9.8	15	53	14	7.1	20	5.9
23	4.2	10	12	13	12	9.8	14	18	29	7.3	17	5.7
24	4.1	11	12	13	13	9.8	12	10	17	7.0	14	5.8
25	4.1	12	12	13	11	9.8	11	7.1	59	6.4	58	6.1
26	4.0	11	12	13	12	9.8	10	43	26	6.7	17	6.1
27	4.0	10	12	13	16	9.9	9.8	826	17	8.5	12	6.3
28	5.0	10	12	12	14	12	9.7	147	18	9.6	8.0	6.3
29	20	10	12	11	---	12	11	119	30	15	16	6.8
30	70	10	11	11	---	11	35	61	15	8.0	15	7.0
31	20	---	11	11	---	11	---	111	---	6.4	11	---
TOTAL	233.2	320	357	390	392	364.9	349.4	2950.7	580	241.1	605.4	245.0
MEAN	7.52	10.7	11.5	12.6	14.0	11.8	11.6	95.2	19.3	7.78	19.5	8.17
MAX	70	15	12	14	32	21	35	826	59	15	215	20
MIN	4.0	10	11	11	11	9.8	8.8	7.1	13	6.2	3.7	5.7
AC=FT	463	635	708	774	778	724	693	5850	1150	478	1200	486

CAL YR 1976	TOTAL	5175.4	MEAN 14.1	MAX 197	MIN 1.7	AC=FT 10270
WTR YR 1977	TOTAL	7028.7	MEAN 19.3	MAX 826	MIN 3.7	AC=FT 13940

RED RIVER BASIN

135

07325850 LAKE CREEK NEAR EAKLY, OK

LOCATION.--Lat 35°17'27", long 98°31'44", in NE 1/4 NW 1/4 sec.1, T.9 N., R.13 W., Caddo County, Hydrologic Unit 11130302, on downstream side of bridge on State Highway 152, 1.2 mi (1.9 km) upstream from Fort Cobb Reservoir, 2.0 mi (3.2 km) southeast of Eakly, and at mile 4.2 (6.8 km).

DRAINAGE AREA.--52.0 mi² (134.7 km²).

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,365.47 ft (416.195 m) above mean sea level.

REMARKS.--Records good except December and January which are poor.

AVERAGE DISCHARGE.--8 years, 7.47 ft³/s (0.212 m³/s), 5,410 acre-ft/yr (6.67 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft³/s (198 m³/s) May 20, 1977, gage height, 13.22 ft (4.029 m); from rating curve extended above 1,700 ft³/s (48.1 m³/s); no flow at times each year except 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 250 ft³/s (7.08 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 1	0330	443 12.5	5.99 1.826	May 26	2400	2,180 61.7	10.73 3.271
May 19	2145	258 7.31	5.03 1.533	May 31	1415	1,140 32.3	8.40 2.560
May 20	2230	*7,000 198	13.22 4.029	June 28	2145	759 21.5	7.22 2.201

Minimum discharge, 0.05 ft³/s (0.001 m³/s) Aug. 16-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	1.9	1.7	1.7	3.2	4.2	2.5	154	87	3.9	.52	.13
2	.11	1.7	1.7	1.6	4.4	3.9	2.8	58	17	3.2	.18	.10
3	.34	1.5	1.8	1.7	4.6	3.7	2.2	26	7.9	2.2	.11	.10
4	.11	1.4	2.0	2.0	4.1	3.2	2.0	43	5.4	1.8	.08	.09
5	.27	1.4	2.0	2.1	3.2	3.2	1.7	32	4.2	1.5	.07	.38
6	.09	1.5	2.3	2.0	3.5	3.2	1.9	77	3.4	1.3	.07	.35
7	.11	1.4	1.1	2.0	2.9	3.2	1.8	25	2.6	1.1	.07	.20
8	.22	1.3	1.5	1.9	3.7	3.2	1.8	15	2.4	1.0	.06	.17
9	.14	1.6	2.5	1.2	3.7	3.2	1.7	8.5	2.1	.97	.06	.45
10	.11	1.6	2.3	1.9	3.5	6.0	1.5	4.2	2.2	.95	.06	.14
11	.11	1.4	1.1	1.6	12	11	1.4	3.3	1.6	.75	.07	.11
12	.11	1.4	1.8	1.6	23	4.6	1.6	2.5	1.5	.47	.07	.11
13	.09	1.5	2.1	2.5	6.0	3.5	2.3	1.8	1.6	.42	.06	.11
14	.09	2.2	2.1	3.4	4.6	2.8	2.3	1.5	1.5	.37	.06	.11
15	.09	2.0	2.6	2.9	3.9	2.8	3.5	1.4	1.3	.31	.06	.11
16	.11	2.0	2.2	2.3	3.9	2.8	2.9	1.4	1.1	.30	.05	.12
17	.11	2.0	2.3	2.8	3.9	2.8	6.9	41	1.1	.28	.05	.12
18	.11	2.0	2.5	2.9	3.5	2.9	10	9.1	1.1	.23	.05	.11
19	.15	2.0	3.1	3.5	3.1	2.2	4.8	53	1.1	.23	.22	.11
20	.14	1.9	1.9	3.9	3.1	2.0	8.8	986	.98	.22	.16	.11
21	.15	1.6	1.8	3.9	3.2	1.9	9.1	1040	.74	.22	.08	.11
22	.17	1.6	1.9	4.2	3.9	1.8	5.6	78	.88	.19	.06	.11
23	.20	1.8	2.1	5.2	3.4	2.0	5.2	36	1.7	.17	.06	.11
24	.22	1.8	2.6	4.6	2.8	2.6	3.4	23	1.0	.17	2.0	.11
25	.22	2.0	2.9	3.5	2.9	2.3	2.8	19	5.1	.14	13	.11
26	.25	2.2	2.5	3.7	5.6	2.6	2.5	204	1.7	.13	.28	.11
27	.54	1.3	3.1	3.9	5.8	5.6	2.3	922	1.3	.68	.11	.12
28	.44	1.0	2.8	2.2	5.4	5.8	2.3	49	96	.28	.09	.12
29	3.7	1.4	2.3	2.6	---	3.1	6.9	23	54	.43	3.2	.12
30	12	1.4	1.7	3.2	---	2.2	18	22	6.0	.17	.57	.12
31	2.3	---	1.7	3.9	---	2.0	---	345	---	.11	.24	---
TOTAL	22.91	49.8	60.0	86.4	136.8	106.3	122.5	4304.7	315.50	24.19	21.82	4.37
MEAN	.74	1.66	2.13	2.79	4.89	3.43	4.08	139	10.5	.78	.70	.15
MAX	12	2.2	3.1	5.2	23	11	18	1040	96	3.9	13	.45
MIN	.09	1.0	1.1	1.2	2.8	1.8	1.4	1.4	.74	.11	.05	.09
AC=FT	45	99	131	171	271	211	243	8540	626	48	43	8.7

CAL YR 1976 TOTAL 1532.96 MEAN 4.19 MAX 88 MIN .00 AC=FT 3040
WTH YR 1977 TOTAL 5261.29 MEAN 14.4 MAX 1040 MIN .05 AC=FT 10440

RED RIVER BASIN

07325860 WILLOW CREEK NEAR ALBERT, OK

LOCATION.--Lat 35°14'00", long 98°27'57", in NE 1/4 NW 1/4 sec.28, T.9 N., R.12 W., Caddo County, Hydrologic Unit 11130302, at County road bridge 3.1 mi (5.0 km) west of Albert, 5.2 mi (8.4 km) above Fort Cobb Dam, and at mile 2.4 (3.9 km).

DRAINAGE AREA.--28.9 mi² (72.5 km²).

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,340.00 ft (408.432 m) above mean sea level.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--6 years, 4.59 m³/s (0.130 m³/s), 3,330 acre-ft/yr (4.11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) May 20, 1977, gage height, 14.14 ft (4.310 m) from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area measurement at gage height 14.14 ft (4.310 m); no flow at times each year except 1977.

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

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 6	0045	255 7.22	5.70 1.737	May 27	0030	2,800 79.3	11.30 3.444
May 20	2300	*12,000 340	14.14 4.310	May 31	1300	1,100 31.2	9.77 2.978

Minimum daily discharge, 0.10 ft³/s (0.003 m³/s) Oct. 15, July 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	1.1	1.3	1.3	1.9	2.4	1.8	2.1	18	1.0	7.4	.51
2	.12	1.0	1.3	1.2	2.0	2.2	1.8	7.0	5.2	.97	1.1	.58
3	.12	.95	1.4	1.3	2.1	2.2	1.7	2.0	1.8	.84	.76	.75
4	.12	.95	1.4	1.5	2.1	2.2	1.7	2.6	1.4	.81	.48	.79
5	.22	.95	1.4	1.6	1.8	2.1	1.7	12	1.2	.52	.51	2.2
6	.22	1.0	1.7	1.5	1.8	2.0	1.6	39	1.2	.58	.65	1.1
7	.25	1.0	1.6	1.5	1.9	2.0	1.6	4.2	1.3	.36	.40	1.1
8	.36	1.0	1.6	1.6	1.9	1.9	1.5	3.9	1.2	.33	.44	1.1
9	.32	1.0	1.6	1.0	2.0	1.8	1.5	12	1.1	.47	.45	1.1
10	.28	1.0	1.5	1.6	2.2	1.8	1.5	5.0	1.1	.39	.65	.98
11	.22	1.0	1.3	1.3	5.4	2.4	1.4	1.7	1.0	.32	.81	1.1
12	.16	1.0	1.3	1.3	6.1	1.8	1.5	1.7	1.1	.34	1.1	.79
13	.14	1.1	1.3	2.0	3.5	1.7	1.6	1.7	1.2	.40	.50	.61
14	.14	1.1	1.4	2.7	2.8	1.7	1.7	1.6	1.2	.32	.40	.55
15	.10	1.1	1.4	2.3	2.5	1.6	2.2	1.4	1.2	.25	.45	.50
16	.12	1.1	1.4	1.4	2.5	1.6	2.4	1.3	1.0	.28	.50	.45
17	.12	1.1	1.4	1.5	2.5	1.7	2.8	1.4	1.0	.22	.50	.45
18	.14	1.1	1.4	1.4	2.5	1.8	1.9	1.3	.84	.19	.81	.81
19	.14	1.1	1.4	1.5	2.3	1.7	1.7	1.8	1.0	.16	1.8	.32
20	.14	1.1	1.3	1.7	2.1	1.5	2.6	1440	.97	.19	1.0	.40
21	.16	1.1	1.1	1.7	2.1	1.6	3.4	654	.90	.32	.88	.45
22	.16	1.1	1.1	1.6	2.2	1.6	2.1	17	1.1	.32	.75	.45
23	.19	1.1	1.2	2.0	2.1	1.5	2.0	6.0	1.0	.32	.45	.32
24	.25	1.3	1.3	2.0	2.1	1.5	1.7	4.3	1.3	.16	.36	.38
25	.25	1.5	1.3	1.9	2.1	1.6	1.7	3.6	4.5	.10	.37	.43
26	.28	1.7	1.3	1.9	2.6	1.6	1.6	99	1.8	.10	.25	.46
27	.55	1.4	1.3	1.9	2.6	2.6	1.6	578	1.3	3.3	.17	.51
28	.68	1.3	1.2	1.7	2.6	2.7	1.6	28	5.6	1.0	.47	.45
29	2.2	1.3	1.3	1.5	---	2.1	1.6	15	6.3	.61	13	.61
30	3.1	1.3	1.3	1.6	---	1.8	2.1	12	1.5	.40	1.4	.58
31	1.6	---	1.1	1.7	---	1.8	---	167	---	.30	.66	---
TOTAL	12.99	33.85	41.9	50.7	70.3	58.5	55.6	3127.6	69.31	15.87	39.47	20.83
MEAN	.42	1.13	1.35	1.64	2.51	1.89	1.85	101	2.31	.51	1.27	.69
MAX	3.1	1.7	1.7	2.7	6.1	2.7	3.4	1440	18	3.3	13	2.2
MIN	.10	.95	1.1	1.0	1.8	1.5	1.4	1.3	.84	.10	.17	.32
AC-FT	26	67	83	101	139	116	110	6200	137	31	78	41

CAL YR 1976 TOTAL 656.83 MEAN 1.79 MAX 21 MIN .00 AC-FT 1300
WTH YR 1977 TOTAL 3596.92 MEAN 9.85 MAX 1440 MIN .10 AC-FT 7130

07325900 FORT COBB RESERVOIR NEAR FORT COBB, OK

LOCATION.--Lat 35°09'30", long 98°27'40", in SE 1/4 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 mi² (787 km²).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to October 1961, nonrecording gage at same datum.

REMARKS.--Reservoir is formed by earth dam. Storage began Mar. 30, 1959. Conservation pool was first filled in June 1962. Capacity, 143,700 acre-ft (177 hm³) at elevation 1,354.8 ft (412.94 m) crest of drop inlet, 80,010 acre-ft (98.7 hm³) at elevation 1,342.0 ft (409.04 m) conservation pool, and 1,664 acre-ft (2.05 hm³) 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, 102,600 acre-ft (127 hm³) Sept. 26, 1965, elevation, 1,347.10 ft (410.596 m); minimum since conservation pool was first filled, 54,650 acre-ft (67.4 hm³) Oct. 19, 1972, elevation 1,335.06 ft (406.926 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 100,600 acre-ft (124 hm³) June 1, elevation, 1346.67 ft (410.465 m); minimum, 73,360 acre-ft (90.5 m³) Jan. 1, elevation, 1340.33 ft (408.533 m).

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30	1,340.76	75,030	--	--
Oct. 31	1,340.61	74,450	-580	894
Nov. 30	1,340.39	73,590	-860	811
Dec. 31	1,340.33	73,360	-230	955
CAL YR 76	--	--	-6,980	9,671
Jan. 31	1,340.40	73,630	+270	934
Feb. 28	1,340.63	74,520	+890	673
Mar. 31	1,340.52	74,090	-430	839
Apr. 30	1,340.57	74,290	+200	1,001
May 31	1,346.67	100,600	+26,310	671
June 30	1,342.51	82,110	-18,490	861
July 31	1,341.80	79,190	-2,920	1,108
Aug. 31	1,341.43	77,700	-1,490	1,052
Sept. 30	1,340.85	75,390	-2,310	921
WTR YR 77	--	--	+360	10,720

† Elevation at 0800 on following day.

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 mi² (811 km²). Area at site used prior to Oct. 1, 1969, 319 mi² (826 km²).

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 1,259.49 ft (383.893 m) above mean sea level (Bureau of Reclamation bench mark). 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 6.92 ft (2.109 m) lower.

REMARKS.--Records fair except those for April and May which are poor. 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 ft³/s (1.42 m³/s) 36,340 acre-ft/yr (44.8 hm³/yr); (since regulation by Fort Cobb Reservoir) 19 years (water years 1959-77), 18.5 ft³/s (0.524 m³/s), 13,400 acre-ft/yr (16.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/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 ft³/s (122 m³/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 ft³/s (0.006 m³/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, 821 ft³/s (23.2 m³/s) May 27, gage height, 11.33 ft (3.453 m); minimum daily, 0.89 ft³/s (0.025 m³/s) July 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	2.3	2.6	2.3	1.9	2.3	2.0	1.7	60	3.4	3.1	2.9
2	2.5	2.2	2.5	2.3	1.9	2.3	2.0	2.2	302	3.4	2.7	2.6
3	2.3	2.3	2.5	2.3	2.0	2.3	2.0	1.8	343	3.6	2.9	2.6
4	2.4	2.3	2.6	2.2	2.2	2.3	2.5	2.2	447	3.3	2.7	2.9
5	2.8	3.0	2.6	2.2	2.2	2.3	2.4	6.5	458	3.3	2.7	3.0
6	2.5	3.1	2.5	2.2	2.2	2.3	2.4	7.2	460	3.3	2.7	3.0
7	2.7	3.1	2.5	2.1	2.2	2.3	2.3	2.2	459	3.1	2.7	2.8
8	2.7	3.8	2.6	1.8	2.3	2.3	2.2	2.2	493	2.8	2.4	2.8
9	2.6	4.6	2.8	2.1	2.3	2.3	2.4	2.2	601	3.3	2.3	2.7
10	2.5	4.1	3.3	2.4	2.7	2.3	2.3	2.6	644	3.7	2.0	2.8
11	2.4	3.6	3.1	2.3	2.8	2.3	2.0	2.2	685	3.4	1.2	2.1
12	2.4	3.6	3.3	2.1	2.6	2.3	1.5	2.1	689	2.4	1.1	2.0
13	2.2	3.7	3.3	2.2	2.3	2.2	2.1	2.1	687	1.7	1.6	3.0
14	2.3	3.5	3.3	2.2	2.3	2.5	2.1	2.1	685	1.5	1.5	2.9
15	2.3	3.4	3.2	2.2	2.3	2.5	2.4	1.9	683	.89	1.3	2.6
16	2.6	2.9	3.1	2.0	2.3	2.3	2.1	1.7	683	1.1	1.3	2.4
17	2.5	2.8	3.0	1.9	3.6	2.3	2.5	1.7	429	1.8	1.6	2.4
18	2.3	2.8	3.1	2.0	2.5	2.2	2.3	1.8	11	2.1	1.8	2.1
19	2.4	2.5	3.1	1.8	2.4	1.8	2.2	4.1	7.8	2.1	2.8	2.2
20	2.4	2.4	2.7	1.8	2.4	1.4	2.6	4.2	6.5	1.6	3.0	2.3
21	2.4	2.3	2.6	2.0	2.5	1.5	2.7	51	5.6	1.7	2.6	2.2
22	2.3	2.3	2.8	1.7	2.5	1.7	2.4	2.6	5.2	1.6	2.7	2.3
23	2.5	2.2	2.8	1.7	2.5	1.6	2.2	3.9	5.1	1.0	4.1	2.5
24	2.5	2.2	2.8	1.7	2.4	1.6	2.1	3.7	4.6	1.1	2.6	2.6
25	2.3	2.3	2.8	1.7	2.4	1.8	2.4	2.1	5.1	.92	3.6	1.8
26	2.3	2.5	2.5	1.6	2.4	1.8	1.9	11	4.3	1.5	3.2	1.9
27	2.4	2.7	2.7	1.8	2.4	2.3	1.7	210	3.8	1.8	2.9	2.0
28	2.4	2.8	2.6	1.7	2.4	2.3	1.6	4.3	4.1	2.4	3.4	2.0
29	3.0	2.9	2.4	1.7	---	2.1	1.7	3.4	4.1	3.6	3.3	2.9
30	2.8	3.0	2.1	1.8	---	2.1	1.8	3.4	3.5	2.7	3.4	3.0
31	2.4	---	1.9	1.9	---	2.0	---	4.0	---	2.7	3.3	---
TOTAL	76.7	87.2	85.7	61.7	66.9	65.6	64.8	354.1	8998.7	72.81	78.5	75.3
MEAN	2.47	2.91	2.76	1.99	2.39	2.12	2.16	11.4	300	2.35	2.53	2.51
MAX	3.0	4.6	3.3	2.4	3.6	2.5	2.7	210	689	3.7	4.1	3.0
MIN	2.2	2.2	1.9	1.6	1.9	1.4	1.5	1.7	3.5	.89	1.1	1.8
AC=FT	152	173	170	122	133	130	129	702	17850	144	156	149

CAL YR 1976 TOTAL 3912.73 MEAN 10.7 MAX 406 MIN .79 AC=FT 7760
WTR YR 1977 TOTAL 10088.01 MEAN 27.6 MAX 689 MIN .89 AC=FT 20010

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 35 ft (10.7 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 mi² (9,460 km²).

WATER-DISCHARGE RECORDS

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 discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1311: 1903, 1907-8, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,150.00 ft (350.520 m) above mean sea level. Oct. 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 (8.53 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, nonrecording gage on upstream side of bridge on U.S. Highway 281 at datum 1.88 ft (0.573 m) higher.

REMARKS.--Some regulation by low-water dams upstream and since March 1959, by Fort Cobb Reservoir (station 07235900), since February 1961, by Foss Reservoir (station 07324300), and by numerous flood-retarding structures.

COOPERATION.--Records furnished by Agricultural Research Service.

AVERAGE DISCHARGE.--22 years (water years 1902-8, 1935-37, 1963-77), 385 ft³/s (10.90 m³/s), 278,900 acre-ft/yr (344 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 29,000 ft³/s (821 m³/s) May 25, 1903, gage height, 26.8 ft (8.169 m), site and datum then in use, affected by backwater; no flow Aug. 1, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 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 ft³/s (85.0 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 24	1900	4,560 129	18.45 5.624	May 31	0500	*6,200 176	21.55 6.568

Minimum discharge, 57 ft³/s (1.61 m³/s) Apr. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	141	91	89	96	99	82	187	3910	307	223	411
2	89	159	89	86	99	99	79	835	2170	253	339	296
3	86	126	89	82	104	102	77	458	1950	226	450	226
4	81	109	91	91	104	96	72	272	1780	211	230	194
5	81	99	94	94	107	94	70	405	1620	208	176	183
6	77	94	94	99	107	91	68	899	1440	204	160	180
7	75	89	94	94	104	91	68	1180	1320	201	170	183
8	77	86	94	99	102	89	66	1190	1190	194	138	190
9	77	84	91	91	102	86	66	844	1200	190	123	173
10	77	84	89	91	99	89	64	505	1280	187	115	163
11	77	86	89	89	104	86	57	644	1230	180	115	160
12	79	81	86	89	118	86	60	1620	1170	173	118	157
13	77	84	84	89	118	86	60	980	1130	163	112	154
14	75	86	86	94	118	84	60	521	1070	157	112	150
15	72	86	84	102	129	86	64	379	1040	147	112	138
16	72	86	86	107	121	91	66	311	1030	144	121	126
17	70	86	86	121	115	91	70	261	1090	138	242	123
18	68	89	84	121	110	91	75	208	803	135	194	118
19	68	89	84	121	107	91	77	323	406	132	144	115
20	68	91	81	126	102	91	84	1200	343	126	172	115
21	68	94	81	107	102	84	115	2550	303	123	979	112
22	68	94	84	107	102	84	129	3890	286	118	853	107
23	70	96	86	115	102	86	107	4260	273	118	546	102
24	70	96	84	121	96	86	104	4520	273	115	312	102
25	68	99	86	115	96	84	99	4500	278	112	249	102
26	68	99	89	115	99	86	94	3120	307	110	234	99
27	70	96	91	112	96	89	91	3140	320	104	593	94
28	72	94	96	107	99	89	86	4670	338	104	496	94
29	86	94	96	107	---	89	86	5130	316	104	356	94
30	101	94	96	104	---	86	86	5800	286	118	439	94
31	107	---	89	99	---	82	---	6100	---	133	419	---
TOTAL	2385	2891	2744	3184	2958	2764	2382	60902	30154	4935	9042	4555
MEAN	76.9	96.4	88.5	103	106	89.2	79.4	1965	1005	159	292	152
MAX	107	159	96	126	129	102	129	6100	3910	307	979	411
MIN	68	81	81	82	96	82	57	187	273	104	112	94
AC-FT	4730	5730	5440	6320	5870	5480	4720	120800	59810	9790	17930	9030
CAL YR 1976 TOTAL	66514			MEAN 182	MAX 1240	MIN 25	AC-FT 131900					
WTR YR 1977 TOTAL	128896			MEAN 353	MAX 6100	MIN 57	AC-FT 255700					

RED RIVER BASIN

07326500 WASHITA RIVER AT ANADARKO, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952, 1965-71, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1964 to September 1971.

WATER TEMPERATURE: October 1964 to September 1971.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
05...	1028	9740	1030	1840	8.2	18.0	38	8.8	97	34	879
NOV											
02...	1028	9740	1015	1650	8.5	10.5	19	12.2	110	17	1357
DEC											
07...	1028	9740	0930	2300	8.1	2.0	3	13.0	97	11	1008
JAN											
04...	1028	9740	0930	2200	8.3	.0	2	18.2	131	11	125
FEB											
02...	1028	9740	1325	1730	8.3	4.0	2	15.0	118	65	1146
MAR											
02...	1028	9740	1215	2100	8.4	10.0	9	11.2	105	20	1204
APR											
05...	1028	9740	1230	2200	8.4	16.0	38	11.0	114	23	1151
MAY											
18...	1028	9740	1230	920	8.1	24.0	100	8.1	99	23	495
JUN											
22...	1028	9740	1430	1600	8.1	27.0	16	8.6	110	16	755
JUL											
05...	1028	9740	1415	1750	8.2	29.5	27	15.4	205	18	902
AUG											
30...	1028	9740	0945	1240	7.8	25.5	210	7.9	99	45	647
SEP											
20...	1028	9740	1045	--	8.3	22.5	19	8.5	101	35	968

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (NA) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POT- ASSIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
05...	227	75	105	5.6	--	109	.5	1594	1.0	.19	--
NOV											
02...	265	80	97	4.6	--	15	.4	1943	1.4	.28	3
DEC											
07...	253	88	116	5.3	--	220	.4	1999	1.0	.26	--
JAN											
04...	344	118	102	4.4	1055	59	.4	2075	.80	.23	--
FEB											
02...	204	101	55	5.5	952	88	.4	1791	17	.21	4
MAR											
02...	301	106	107	4.5	968	206	.4	1935	1.2	.42	--
APR											
05...	295	115	112	5.4	916	101	.4	1816	2.4	.38	--
MAY											
18...	116	44	51	10	326	53	.3	753	1.9	.31	9
JUN											
22...	195	58	61	6.4	516	52	.4	1256	1.0	.30	--
JUL											
05...	260	78	76	6.6	1591	76	.3	1415	1.1	.20	--
AUG											
30...	160	48	44	10	529	59	.3	969	1.9	.80	17
SEP											
20...	248	84	760	11	568	1055	.4	3530	2.8	.36	--

RED RIVER BASIN

141

07326500 WASHITA RIVER AT ANADARKO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT 05...	--	--	--	700	--	118	--	--	--	--	--
NOV 02...	2	21	7	200	28	84	<.5	17	3	4	3
DEC 07...	--	--	--	<100	--	81	--	--	--	--	--
JAN 04...	--	--	--	<100	--	104	--	--	--	--	--
FEB 02...	3	25	7	100	230	90	<.5	19	1	11	8
MAR 02...	--	--	--	300	--	150	--	--	--	--	--
APR 05...	--	--	--	1200	--	210	--	--	--	--	--
MAY 18...	2	23	14	1850	21	240	<.5	21	1	2	31
JUN 22...	--	--	--	540	--	190	--	--	--	--	--
JUL 05...	--	--	--	500	--	120	--	--	--	--	--
AUG 30...	2	31	21	4000	25	680	.5	34	<1	7	57
SEP 20...	--	--	--	1150	--	70	--	--	--	--	--

07327490 LITTLE WASHITA RIVER NEAR NINNEKAH, OK

LOCATION.--Lat 34°56'41", long 97°57'08", in SE 1/4 SE 1/4 sec.32, T.6 N., R.7 W., Grady County, Hydrologic Unit 11130302, at left bank on downstream side of bridge on U.S. Highway 81, 1.0 mi (1.6 km) upstream from Rock Creek, 1.5 mi (2.4 km) west of Ninneka, 5.5 mi (8.8 km) south of Chickasha, and at mile 8.4 (13.5 km).

DRAINAGE AREA.--208 mi² (539 km²).

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

REVISED RECORDS.--WRD Okla. 1971, 1964-65 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,065.94 ft (324.899 m) above mean sea level.

REMARKS.--Small diversions above station for irrigation.

COOPERATION.--Records furnished by Agricultural Research Service.

AVERAGE DISCHARGE.--14 years, 28.1 ft³/s (0.796 m³/s), 20,360 acre-ft/yr (25.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,560 ft³/s (214 m³/s) May 10, 1964, gage height, 20.65 ft (6.294 m); no flow at times in most years.

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

DATE	TIME	DISCHARGE		GAGE HEIGHT		DATE	TIME	DISCHARGE		GAGE HEIGHT	
		(ft ³ /s)	(m ³ /s)	(ft)	(m)			(ft ³ /s)	(m ³ /s)	(ft)	(m)
May 20	0115	*2,920	82.7	15.57	4.746	May 31	0415	1,830	51.8	14.01	4.270
May 20	2230	2,040	57.8	14.29	4.356	May 31	1500	2,010	56.9	14.39	4.386

Minimum discharge, 0.3 ft³/s (0.008 m³/s) Oct. 14, construction work upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	15	17	13	22	18	21	25	399	121	116	14
2	8.3	16	18	13	22	39	23	92	217	50	15	10
3	8.3	15	17	15	21	43	20	36	73	24	13	8.9
4	8.7	15	15	22	20	29	18	28	43	20	10	8.1
5	11	15	17	19	19	24	16	26	40	17	8.9	11
6	11	15	25	22	19	21	16	34	32	14	8.1	14
7	12	15	22	19	19	19	15	24	33	12	7.7	12
8	14	15	19	19	20	19	14	20	32	11	6.2	10
9	12	14	18	17	22	18	14	18	29	12	5.2	9.7
10	11	14	17	15	20	19	14	16	26	10	4.6	8.9
11	9.8	15	18	13	53	20	14	17	24	11	4.3	8.5
12	7.6	15	25	13	69	19	14	16	25	8.5	4.3	8.5
13	6.0	15	23	13	35	19	14	16	21	6.9	5.2	33
14	3.0	15	18	13	30	18	16	22	20	5.9	5.2	17
15	8.9	17	18	13	23	17	26	35	20	5.9	5.2	14
16	9.4	16	17	15	22	18	24	17	20	5.9	4.9	11
17	8.3	15	17	36	21	18	22	17	18	5.9	4.3	8.5
18	8.3	14	17	15	20	17	20	15	17	5.5	4.3	7.7
19	8.7	14	17	16	20	40	17	563	16	5.5	6.6	6.9
20	8.7	15	15	17	19	16	28	1160	15	5.5	11	6.2
21	8.7	15	14	26	19	16	146	463	12	6.4	9.3	5.9
22	9.4	15	15	22	19	16	35	115	11	10	8.1	4.6
23	9.8	15	15	20	19	16	28	57	13	5.9	7.7	4.3
24	11	15	15	21	18	16	23	48	14	5.2	60	4.6
25	12	15	14	19	17	18	19	44	14	4.3	56	4.6
26	13	15	14	19	19	22	17	41	15	4.3	14	4.6
27	14	15	14	19	20	36	17	468	15	5.9	9.7	4.0
28	13	15	16	19	18	32	18	175	12	8.5	17	4.0
29	21	14	17	16	---	26	23	67	16	20	62	4.6
30	27	15	17	16	---	21	44	48	16	14	41	4.3
31	18	---	14	17	---	21	---	1340	---	9.3	19	---
TOTAL	332.50	449	535	552	665	691	736	5063	1258	451.3	553.8	273.4
MEAN	10.7	15.0	17.3	17.8	23.8	22.3	24.5	163	41.9	14.6	17.9	9.11
MAX	27	17	25	36	69	43	146	1340	399	121	116	33
MIN	.30	14	14	13	17	16	14	15	11	4.3	4.3	4.0
AC-FT	660	891	1060	1090	1320	1370	1460	10040	2500	895	1100	542
CAL YR 1976	TOTAL	9838.90	MEAN	26.9	MAX	404	MIN	.30	AC-FT	19520		
WTR YR 1977	TOTAL	11560.00	MEAN	31.7	MAX	1340	MIN	.30	AC-FT	22930		

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 595 ft³/s (16.9 m³/s) at 1900 May 20, gage height, 4.84 ft (1.475 m), no other peak above base of 500 ft³/s (14.2 m³/s); minimum, 0.18 ft³/s (0.005 m³/s) Sept. 25.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.5	2.5	2.1	3.0	2.4	2.4	3.2	14	9.4	.80	1.0
2	1.1	2.3	2.5	2.0	3.0	13	5.6	3.7	9.7	5.9	.70	.90
3	1.2	2.3	2.5	2.1	3.0	11	2.9	3.5	7.9	3.4	.50	.80
4	1.2	2.3	2.5	2.5	3.0	5.4	2.5	14	6.3	2.5	.40	.80
5	1.3	2.2	2.7	2.7	2.9	4.4	2.4	6.8	5.2	2.4	.40	.80
6	1.3	2.3	3.8	2.5	2.7	3.7	2.0	6.1	4.6	2.3	.60	.50
7	1.5	2.1	3.0	2.9	2.7	3.5	1.8	4.6	3.8	2.2	.70	.50
8	1.7	2.0	2.7	2.2	2.7	3.1	1.8	3.7	3.4	2.1	.50	.50
9	1.7	2.0	2.5	2.0	2.7	2.9	1.8	3.2	3.0	2.0	.30	.60
10	1.6	2.0	2.4	1.9	2.7	3.4	1.7	2.7	2.7	1.9	.40	.70
11	1.5	2.2	2.5	1.9	5.8	5.4	1.8	2.5	2.6	1.7	.30	.70
12	1.4	2.3	2.5	1.7	7.3	4.0	1.7	2.3	2.6	1.5	.50	.60
13	1.4	2.3	2.5	2.0	5.0	3.7	1.7	2.2	2.6	1.4	.50	4.2
14	1.3	2.3	2.4	2.0	4.4	3.1	1.6	2.2	2.5	1.2	.50	1.8
15	1.3	2.3	2.4	2.2	3.7	3.0	2.1	2.3	2.0	1.2	.50	1.2
16	1.3	2.3	2.4	2.2	3.5	2.7	2.2	2.9	1.8	1.1	.40	1.1
17	1.4	2.4	2.4	2.2	3.4	2.7	2.5	2.4	1.7	1.0	.30	.90
18	1.4	2.4	2.4	2.2	3.4	2.6	2.7	2.1	1.3	.80	.30	.80
19	1.7	2.4	2.4	3.1	3.2	2.4	2.7	67	1.5	.70	.60	.80
20	1.7	2.4	2.4	3.1	2.9	2.3	9.7	185	1.6	.70	.60	.60
21	1.7	2.3	2.3	3.2	2.9	2.2	25	152	1.5	2.9	.60	.20
22	1.7	2.3	2.3	3.1	2.7	2.2	10	81	1.4	2.0	.50	.20
23	1.9	2.3	2.5	3.1	2.7	2.2	7.6	65	1.7	1.6	.50	.20
24	2.0	2.3	2.4	3.1	2.7	1.8	5.6	47	2.1	1.4	.50	.20
25	1.9	2.3	2.3	3.0	2.6	1.8	4.6	36	11	1.2	.90	.20
26	1.9	2.5	2.3	2.9	3.0	2.0	3.8	26	18	1.2	.80	.40
27	2.0	2.5	2.3	2.9	2.7	4.8	3.5	59	6.1	1.1	.70	.50
28	2.0	2.3	2.3	2.5	2.4	3.8	3.1	27	6.4	1.0	.50	.50
29	4.7	2.3	2.4	2.3	---	2.9	3.2	20	23	1.0	1.3	.60
30	4.2	2.3	2.3	2.3	---	2.2	3.7	15	11	.90	1.7	.50
31	2.7	---	2.1	2.3	---	2.0	---	26	---	.80	1.2	---
TOTAL	54.9	68.7	76.9	76.2	92.7	112.6	123.7	876.4	163.0	60.50	19.00	23.30
MEAN	1.77	2.29	2.48	2.46	3.31	3.63	4.12	28.3	5.43	1.95	.61	.78
MAX	4.7	2.5	3.8	3.2	7.3	13	25	185	23	9.4	1.7	4.2
MIN	1.1	2.0	2.1	1.7	2.4	1.8	1.6	2.1	1.3	.70	.30	.20
AC=FT	109	136	153	151	184	223	245	1740	323	120	38	46
CAL YR 1976	TOTAL	1652.00	MEAN	4.51	MAX	215	MIN	.70	AC=FT	3280		
WTR YR 1977	TOTAL	1747.90	MEAN	4.79	MAX	185	MIN	.20	AC=FT	3470		

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 downstream side of county road bridge, 1.0 mile (1.6 km) north of Alex, 3.8 miles (6.1 km) downstream from Winter Creek, and at mile 226.5 (362.4 km).

DRAINAGE AREA.--4,787 mi² (12,398 km²).

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.--Some regulation by Fort Cobb Reservoir (station 07325900), by Foss Reservoir (station 07324300), and by numerous flood-retarding structures.

COOPERATION.--Records furnished by Agricultural Research Service.

AVERAGE DISCHARGE.--13 years, 381 ft³/s (10.79 m³/s), 276,000 acre-ft/yr (340 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft³/s (265 m³/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.--Peak discharges above base of 3,800 ft³/s (108 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 20	0445	4,890 138	12.55 3.825	May 27	2400	5,450 154	13.92 4.243
May 21	0900	*6,240 177	14.53 4.429	June 1	0130	5,880 167	14.52 4.426

Minimum discharge, 89 ft³/s (2.52 m³/s) Apr. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	177	139	123	160	144	118	282	5660	532	221	552
2	125	167	139	126	153	149	132	238	5660	843	195	549
3	121	174	140	131	153	223	121	626	5220	542	237	430
4	122	205	137	146	150	165	121	865	3210	382	363	320
5	112	183	139	137	153	164	111	609	2390	342	437	284
6	124	169	157	129	155	160	107	532	1980	332	261	261
7	116	155	158	121	151	159	102	747	1750	315	196	246
8	121	147	148	113	153	150	104	1130	1600	291	181	225
9	122	144	142	113	151	150	104	1150	1480	275	175	231
10	121	140	142	105	150	148	102	986	1400	261	153	216
11	116	136	140	105	163	157	98	725	1430	248	141	196
12	112	134	140	105	265	148	95	658	1400	240	137	185
13	108	133	145	113	225	143	92	1380	1370	225	131	226
14	101	131	144	113	212	144	89	1260	1300	208	141	225
15	100	131	142	113	196	143	98	755	1230	196	143	187
16	101	131	140	113	187	136	116	584	1180	188	132	175
17	102	130	140	113	192	132	116	467	1160	192	126	166
18	104	130	139	121	190	134	124	372	1150	173	126	159
19	108	130	142	146	179	131	129	624	1080	160	243	150
20	106	130	139	159	171	123	161	3530	731	150	296	139
21	104	128	136	159	162	121	666	5560	573	176	236	129
22	104	126	136	159	159	119	532	4220	487	184	428	127
23	106	128	136	157	155	113	327	4010	447	157	975	119
24	109	130	136	157	148	113	249	4020	425	146	786	116
25	112	136	137	157	143	115	202	4040	433	141	992	115
26	112	139	134	159	141	121	181	4160	470	134	720	115
27	115	134	133	157	144	144	166	4870	442	126	462	113
28	115	130	131	155	146	160	153	5020	439	123	446	108
29	140	130	131	137	---	144	163	4660	520	134	866	102
30	201	134	133	134	---	132	338	4600	572	143	599	98
31	177	---	125	129	---	124	---	5270	---	127	552	---
TOTAL	3667	4292	4320	4105	4707	4409	5217	67950	47189	7666	11097	6264
MEAN	118	143	139	132	168	142	174	2192	1573	248	358	209
MAX	201	205	158	159	265	223	666	5560	5660	843	992	552
MIN	100	126	125	105	141	113	89	238	425	123	126	98
AC-FT	7270	8510	8570	8140	9340	8750	10350	134800	93600	15250	22010	12420

CAL YR 1976 TOTAL 100788 MEAN 275 MAX 1850 MIN 25 AC-FT 199900
WTR YR 1977 TOTAL 170903 MEAN 468 MAX 5660 MIN 89 AC-FT 339000

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 right bank 200 ft (61.0 m) upstream from bridge on U.S. Highway 77, 2 mi (3.2 km) northwest of Pauls Valley, 6 mi (9.7 km) downstream from Owl Creek, 7 mi (11.3 km) upstream from Washington Creek, and at mile 146.5 (235.7 km).

DRAINAGE AREA.--5,330 mi² (13,805 km²).

WATER-DISCHARGE RECORDS

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) above mean sea level. During 1899, nonrecording gage at site 9 mi (14.5 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.

REMARKS.--Records fair. Some diversion for irrigation above station. 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.--40 years, 698 ft³/s (19.77 m³/s), 505,700 acre-ft/yr (624 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,800 ft³/s (1,019 m³/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 at times 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.--Peak discharges above base of 5,000 ft³/s (142 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 20	0300	*14,100 399	17.54 5.346	May 28	1800	7,680 217	13.50 4.115
May 21	0615	13,200 374	17.03 5.191	June 3	unknown	7,680 217	13.5 4.12

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	218	215	140	213	194	182	200	6080	719	169	601
2	156	208	208	150	207	193	178	350	6580	770	160	586
3	154	203	210	140	200	195	181	280	7400	1080	230	567
4	150	191	200	140	220	199	179	472	6580	694	203	504
5	154	169	195	150	205	252	162	783	3750	510	225	364
6	147	207	315	160	195	209	158	573	2810	471	352	289
7	147	198	280	160	190	203	150	451	2540	437	364	264
8	151	185	245	160	190	197	143	706	2120	395	272	246
9	142	177	245	160	190	190	136	1080	1900	361	242	238
10	135	169	230	160	190	186	133	1110	1730	341	206	229
11	135	167	270	160	229	271	131	971	1660	310	206	232
12	131	162	225	170	341	304	129	656	1610	290	194	223
13	127	158	235	254	319	243	120	569	1730	270	183	274
14	125	160	200	265	335	215	118	1310	1540	250	183	409
15	122	160	180	215	303	201	118	1970	1440	230	171	304
16	120	160	175	220	283	191	120	1720	1340	215	160	247
17	116	160	170	224	265	184	137	1100	1290	205	171	213
18	122	155	165	218	255	176	162	877	1280	195	149	194
19	112	177	164	230	253	173	161	2130	1250	185	160	185
20	114	179	164	238	246	169	176	9310	1290	180	171	151
21	116	201	165	242	238	168	934	11200	977	175	206	152
22	118	222	165	252	228	158	888	7620	683	170	254	147
23	123	254	165	248	215	157	644	5930	628	190	194	143
24	131	262	165	254	215	154	415	5440	608	192	1120	138
25	131	244	164	254	212	152	346	4280	599	180	1130	135
26	131	230	160	250	205	156	298	5290	621	163	1040	126
27	130	240	160	242	197	265	258	6940	586	156	828	120
28	129	260	162	232	197	301	231	7550	536	163	524	118
29	148	240	158	220	---	256	210	7000	510	154	803	108
30	184	230	161	217	---	230	213	6260	472	154	1130	104
31	193	---	150	210	---	198	---	5870	---	165	747	---
TOTAL	4252	5966	6066	6335	6536	6340	7411	100278	62342	9970	12147	7613
MEAN	137	199	196	204	233	205	247	3235	2078	322	392	254
MAX	193	262	315	265	341	304	934	11200	7400	1080	1130	601
MIN	112	155	150	130	190	152	118	260	472	154	149	104
AC=FT	8430	11830	12030	12570	12960	12580	14700	196900	123700	19760	24090	15100
CAL YR 1976	TOTAL	117136	MEAN	320	MAX	2560	MIN	58	AC=FT	232300		
WTR YR 1977	TOTAL	235256	MEAN	645	MAX	11200	MIN	104	AC=FT	466600		

07328500 WASHITA RIVER NEAR PAULS VALLEY, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-63, 1976 to current year.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
19...	1028	9740	1715	1525	8.2	14.0	10	13.1	128	--	826
NOV											
17...	1028	9740	1200	1600	8.2	5.0	8	12.7	102	21	1122
DEC											
21...	1028	9740	0840	1760	8.2	1.0	9	13.0	94	8	997
JAN											
19...	1028	9740	1015	1750	8.2	3.0	8	12.2	92	18	1050
FEB											
17...	1028	9740	0930	1600	8.3	6.0	28	12.0	99	27	877
MAR											
17...	1028	9740	0845	1600	8.2	12.5	15	9.8	96	24	1061
APR											
21...	1028	9740	0915	520	7.3	16.0	39	4.4	46	137	206
MAY											
05...	1028	9740	1012	1200	7.9	22.5	125	6.2	74	82	536
JUN											
14...	1028	9740	1545	950	8.0	29.5	180	6.7	88	46	457
JUL											
20...	1028	9740	1015	1900	8.3	29.5	8	7.9	104	25	801
AUG											
09...	1028	9740	2000	1200	8.9	31.0	23	11.1	154	52	578
SEP											
15...	1028	9740	1130	1250	8.0	20.5	160	8.9	94	47	425

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PU- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLU- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
19...	192	85	98	5.4	--	103	.3	1793	2.0	.20	--
NOV											
17...	283	115	89	4.3	--	207	.3	1531	1.1	.15	5
DEC											
21...	224	78	109	5.4	--	213	.3	1560	1.0	.16	--
JAN											
19...	267	95	108	4.6	729	218	.4	1665	.90	.23	--
FEB											
17...	230	78	109	4.9	660	101	.4	5830	2.7	.27	4
MAR											
17...	225	92	110	4.1	540	165	.4	1518	1.3	.20	--
APR											
21...	142	47	30	6.2	180	42	.3	307	8.1	2.8	--
MAY											
05...	196	68	64	17	423	63	.2	1179	7.0	1.6	26
JUN											
14...	141	45	42	8.8	287	49	.3	699	2.7	.65	--
JUL											
20...	205	77	102	7.1	733	96	.3	1363	1.6	.20	--
AUG											
09...	136	53	49	6.6	492	46	.3	939	11	.20	3
SEP											
15...	83	46	43	6.2	378	58	.1	896	<.63	.53	--

RED RIVER BASIN

147

07328500 WASHITA RIVER NEAR PAULS VALLEY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT											
19...	--	--	--	200	--	56	--	--	--	--	--
NOV											
17...	3	8	<2	50	34	12	3.9	10	1	6	9
DEC											
21...	--	--	--	190	--	7	--	--	--	--	--
JAN											
19...	--	--	--	200	--	500	--	--	--	--	--
FEB											
17...	2	51	5	510	20	70	<.5	14	--	7	13
MAR											
17...	--	--	--	230	--	80	--	--	--	--	--
APR											
21...	--	--	--	3000	--	1800	--	--	--	--	--
MAY											
05...	3	68	50	7400	43	1600	.6	65	<1	6	120
JUN											
14...	--	--	--	2160	--	930	--	--	--	--	--
JUL											
20...	--	--	--	240	--	90	--	--	--	--	--
AUG											
09...	<1	35	8	550	15	120	<.5	14	<1	3	15
SEP											
15...	--	--	--	15200	--	440	--	--	--	--	--

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 mi² (1,564 km²).

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) above mean sea level.

REMARKS.--Records good. Flow regulated by Duncan, Clear Creek, Humphries and Fuqua Lakes, combined surface-area, 3,340 acres (13.5 km²), and capacity, 44,800 acre-ft (55.2 hm³), and numerous flood-retarding structures.

AVERAGE DISCHARGE.--8 years, 198 ft³/s (5.607 m³/s), 143,500 acre-ft/yr (177 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,700 ft³/s (530 m³/s) May 20, 1977, gage height, 24.70 ft (7.529 m); no flow at times.

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

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
May 2	0200	6,980 198	18.26 5.566	May 20	0600	*18,700 530	24.70 7.529

Minimum discharge, 0.33 ft³/s (0.009 m³/s) Aug. 18-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	22	7.7	13	21	24	88	64	396	94	35	24
2	1.9	18	9.7	9.5	20	25	80	55	310	103	12	16
3	1.9	15	12	10	24	54	69	55	267	55	7.3	13
4	2.4	14	11	10	22	48	58	56	227	48	5.0	9.8
5	3.4	13	12	12	20	29	49	62	200	38	3.7	8.0
6	2.9	12	34	11	19	25	43	51	176	32	3.0	8.0
7	3.7	12	59	11	18	24	39	48	147	28	1.7	9.2
8	4.8	11	31	11	18	23	36	43	127	27	1.2	9.2
9	4.4	11	22	12	17	23	34	39	114	26	1.1	8.0
10	5.0	10	18	20	17	24	31	36	105	28	.84	6.6
11	5.0	11	17	15	35	36	29	33	97	24	.84	6.0
12	4.0	10	16	14	70	70	28	32	93	21	.84	4.5
13	2.8	9.5	15	21	60	40	27	31	98	17	.72	7.3
14	1.8	9.5	15	30	55	34	26	30	91	16	.60	27
15	1.9	9.5	14	56	50	31	30	515	83	15	.84	25
16	2.4	11	14	78	45	28	33	3740	70	16	.60	12
17	1.9	12	14	47	41	28	33	305	64	15	.48	7.3
18	1.9	13	14	37	37	26	34	106	60	14	.36	5.0
19	1.9	12	14	33	34	24	38	1250	56	13	.84	3.3
20	1.9	12	14	29	30	23	86	14400	53	11	2.3	2.8
21	1.9	11	12	28	29	22	1380	8470	49	9.8	17	2.1
22	2.2	11	12	29	29	21	344	2910	44	9.8	7.3	2.0
23	2.9	10	13	31	27	20	206	1670	42	9.8	17	1.9
24	5.2	9.8	12	31	27	21	145	1180	44	8.6	25	1.4
25	6.5	9.5	12	30	30	21	109	936	49	6.0	8.6	1.4
26	5.8	10	12	28	24	25	86	796	64	6.0	3.3	1.4
27	6.2	10	12	28	24	770	72	809	56	6.0	1.4	1.1
28	6.7	9.6	12	27	24	551	64	769	44	8.0	13	1.3
29	15	9.9	12	26	---	249	57	617	39	9.8	95	1.4
30	31	8.3	12	23	---	145	115	499	37	8.0	75	1.4
31	30	---	12	23	---	106	---	478	---	6.6	40	---
TOTAL	171.2	346.6	496.4	783.5	867	2590	3469	40085	3302	729.4	381.86	227.4
MEAN	5.52	11.6	16.0	25.3	31.0	83.5	116	1293	110	23.5	12.3	7.58
MAX	31	22	59	78	70	770	1380	14400	396	103	95	27
MIN	1.8	8.3	7.7	9.5	17	20	26	30	37	6.0	.36	1.1
AC=FT	340	667	985	1550	1720	5140	6880	79510	6550	1450	757	451
CAL YR 1976	TOTAL	25613.60	MEAN	70.0	MAX	3510	MIN	1.8	AC=FT	50800		
WTR YR 1977	TOTAL	53449.36	MEAN	146	MAX	14400	MIN	.36	AC=FT	106000		

07331000 WASHITA RIVER NEAR DURWOOD, OK

LOCATION (revised).--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, 4.0 mi (6.4 km) north of Durwood, 12.0 (19.3 km) northeast of Ardmore, and at mile 63.5 (102.2 km).

DRAINAGE AREA.--7,202 mi² (18,653 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1281: 1935 (m).

GAGE.--Water-stage recorder. Datum of gage is 650.57 ft (198.294 m) above mean sea level (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. Nonrecording gage at site 500 ft (152.4) downstream now used as supplementary gage.

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.

COOPERATION.--Results of 10 discharge measurements furnished by Corps of Engineers.

AVERAGE DISCHARGE.--49 years, 1,394 ft³/s (39.48 m³/s) 1,010,000 acre-ft/yr (1.25 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft³/s (2,780 m³/s) May 19, 1957; gage height, 42.30 ft (12.893 m), from flood mark; 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 ft³/s (283 m³/s) and maximum (*):

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
Mar. 27	1415	10,700 303	16.38 4.993	May 21	1245	*35,200 997	29.41 8.964

Minimum daily discharge, 136 ft³/s (3.85 m³/s) Oct. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	345	264	175	295	312	2270	417	6660	634	208	762
2	207	302	202	175	292	309	1670	383	6760	1360	215	555
3	191	296	203	200	350	400	1430	454	6580	1040	218	520
4	189	267	203	195	315	469	1260	507	6330	890	187	505
5	212	254	210	225	301	405	1050	491	4990	795	217	483
6	184	239	351	229	290	384	599	1110	3750	576	217	474
7	171	236	405	226	292	391	476	867	3180	506	232	412
8	184	249	408	240	277	329	402	601	2790	468	320	377
9	221	234	335	243	274	302	364	1370	2470	450	329	323
10	228	220	299	247	273	291	336	1570	2240	535	270	297
11	216	212	291	219	539	800	313	1560	2040	475	245	278
12	207	208	274	259	1600	891	299	1400	1940	409	227	274
13	203	200	265	571	1310	731	289	992	1990	375	215	335
14	198	207	259	729	783	548	275	665	1970	353	203	299
15	200	211	251	606	665	434	267	1720	1770	340	202	387
16	203	209	245	536	548	377	275	9510	1660	328	189	389
17	165	208	245	450	486	343	294	5940	1560	317	175	314
18	148	207	262	433	445	329	1180	3200	1500	314	171	262
19	150	209	258	392	414	308	599	2370	1470	309	184	237
20	160	253	250	390	393	295	730	16300	1470	307	197	224
21	142	245	260	383	375	282	2720	33400	1380	301	201	214
22	137	227	260	381	351	268	4180	26000	1020	269	198	190
23	140	214	259	360	343	259	2670	13200	790	255	283	188
24	152	209	252	362	335	249	2030	10700	723	250	260	179
25	175	209	250	371	326	245	1530	9360	704	256	353	173
26	164	210	242	366	328	264	1160	8850	909	246	636	165
27	166	209	231	359	324	8160	579	6640	992	216	632	160
28	170	202	225	344	312	7150	477	9040	765	209	735	157
29	204	196	224	326	---	4380	413	8290	655	204	1490	155
30	438	206	219	369	---	3440	370	7250	624	196	2210	149
31	453	---	207	295	---	2780	---	6770	---	193	1250	---
TOTAL	6165	6893	8049	10638	12636	36125	30507	192927	71680	13376	12669	9437
MEAN	200	230	260	343	458	1165	1017	6223	2389	431	409	315
MAX	453	345	408	729	1600	8160	4180	33400	6760	1360	2210	762
MIN	137	196	202	175	273	245	267	383	624	193	171	149
AC+T	12270	13670	15970	21100	25460	71650	60510	382700	142200	26530	25130	18720
CAL YR 1976 TOTAL	226468			619		14200		68		449200		
WTR YR 1977 TOTAL	411322			1127		33400		137		815900		

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DURWOOD, 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 current year.

WATER TEMPERATURE: April 1947 to current year.

REMARKS.--Samples were collected by a local observer on a daily basis. Partial analyses were made on at least one sample each month. An additional sample was collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Monthly samples were collected by the U.S. Geological Survey and selected parameters were analyzed by Oklahoma State Department of Health.

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; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,020 micromhos Aug. 10; minimum daily, 230 micromhos May 20.

WATER TEMPERATURE: Maximum daily, 35.0°C July 24, 25, 29; minimum daily, 0.0°C on Jan. 9, 10, 11, 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)
OCT											
26...	--	--	1330	164	1450	8.0	11.0	10	9.6	88	--
26...	1028	9740	1331	164	1450	8.0	11.0	--	9.6	88	--
NOV											
24...	--	--	0700	210	2190	8.1	6.0	7	13.4	109	--
24...	1028	9740	0701	210	2190	8.1	6.0	--	13.4	109	22
DEC											
27...	1028	9740	1100	230	1500	8.5	4.0	4	12.6	99	--
27...	--	--	1230	230	1500	8.4	4.5	5	12.5	100	--
JAN											
31...	--	--	1100	298	1600	7.9	.5	8	15.2	107	--
31...	1028	9740	1101	298	1600	7.9	.5	--	15.2	107	15
FEB											
22...	--	--	1200	351	1430	8.0	14.0	10	9.4	94	--
22...	1028	9740	1201	351	1430	8.0	14.0	--	9.4	94	14
MAR											
23...	--	--	1130	262	1540	8.1	6.0	15	11.6	96	--
23...	1028	9740	1131	262	1540	8.1	6.0	--	11.6	96	32
APR											
26...	--	--	1130	1240	690	7.8	18.0	140	9.3	99	--
26...	1028	9740	1131	1240	690	7.8	18.0	130	9.3	99	27
JUN											
27...	--	--	1210	1050	940	7.8	27.0	310	8.1	102	--
27...	1028	9740	1400	1050	940	7.8	27.0	--	8.1	102	36
JUL											
26...	1028	9740	1230	250	1570	7.8	32.0	--	7.7	--	22
28...	--	--	1300	209	1580	7.8	31.0	25	8.8	119	--
AUG											
25...	--	--	1715	448	1510	8.1	32.0	130	8.1	112	--
25...	1028	9740	1820	493	1510	8.1	32.0	--	8.1	112	29
SEP											
28...	--	--	1200	160	1500	8.4	28.0	15	11.4	148	--
28...	1028	9740	1345	158	1500	8.5	30.0	--	13.0	173	49

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible][illegible]

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOL- VED- PHOS- PHORUS (P) (MG/L)
OCT										
26...	1070	1.55	505	.01	--	.92	.93	4.1	.25	--
26...	--	--	--	--	--	--	1.7	--	--	--
NOV										
24...	1040	1.63	680	.02	--	.55	.57	2.5	.14	--
24...	--	--	--	--	--	1.2	--	--	--	--
DEC										
27...	--	--	--	--	--	1.1	--	--	.13	--
27...	1080	1.58	720	.25	--	.74	.99	4.4	.03	--
JAN										
31...	1180	1.70	1010	.71	--	.72	1.4	6.3	.16	--
31...	--	--	--	--	--	1.1	--	--	--	--
FEB										
22...	943	1.36	948	.04	--	.61	.65	2.9	.14	--
22...	--	--	--	--	--	1.3	--	--	--	--
MAR										
23...	973	1.44	750	.01	--	.93	.94	4.2	.17	--
23...	--	--	--	--	--	1.7	--	--	--	--
APR										
26...	392	.57	1400	.43	--	1.2	1.6	7.2	.21	--
26...	--	--	--	--	--	3.1	--	--	.29	--
JUN										
27...	809	1.14	2370	.52	--	1.5	2.0	8.9	.54	--
27...	--	--	--	--	--	2.2	--	--	--	--
JUL										
26...	--	--	--	--	--	1.7	--	--	--	--
26...	1030	1.48	615	.10	--	1.4	1.5	6.6	.10	--
AUG										
25...	1070	1.50	1330	.00	--	1.5	1.5	6.6	.29	--
25...	--	--	--	--	--	<.65	--	--	--	--
SEP										
28...	1060	1.52	484	.01	.12	--	--	--	.32	.09
28...	--	--	--	--	--	3.4	--	--	--	--

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	TOTAL ARSENIC (AS) (UG/L)	SUS- PENDE D ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	SUS- PENDE D CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	SUS- PENDE D CHRO- MIUM (CR) (UG/L)
OCT											
26...	--	--	1330	--	--	--	--	--	--	--	--
26...	1028	9740	1331	--	--	--	--	--	--	--	--
NOV											
24...	--	--	0700	4	1	3	<10	<9	1	0	0
24...	1028	9740	0701	--	--	--	--	--	--	--	--
DEC											
27...	1028	9740	1100	--	--	--	--	--	--	--	--
27...	--	--	1230	--	--	--	--	--	--	--	--
JAN											
31...	--	--	1100	--	--	--	--	--	--	--	--
31...	1028	9740	1101	--	--	--	--	--	--	--	--
FEB											
22...	--	--	1200	2	0	2	<10	<9	1	0	0
22...	1028	9740	1201	--	--	--	--	--	--	--	--
MAR											
23...	1028	9740	1131	--	--	--	--	--	--	--	--
APR											
26...	--	--	1130	--	--	--	--	--	--	--	--
26...	1028	9740	1131	--	--	--	--	--	--	--	--
JUN											
27...	--	--	1210	--	--	--	--	--	--	--	--
27...	1028	9740	1400	--	--	--	--	--	--	--	--
JUL											
26...	1028	9740	1230	--	--	--	--	--	--	--	--
26...	--	--	1300	--	--	--	--	--	--	--	--
AUG											
25...	--	--	1715	4	2	2	10	10	0	10	10
25...	1028	9740	1820	--	--	--	--	--	--	--	--
SEP											
28...	--	--	1200	--	--	--	--	--	--	--	--
28...	1028	9740	1345	--	--	--	--	--	--	--	--

RED RIVER BASIN

153

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	SUS- PENDED COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	SUS- PENDED COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	SUS- PENDED LEAD (PB) (UG/L)
OCT											
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	300	--	--	--
NOV											
24...	0	<50	<50	0	10	7	3	450	20	100	99
24...	--	--	--	--	--	--	--	--	--	--	--
DEC											
27...	--	--	--	--	--	--	--	<100	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
JAN											
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	120	--	--	--
FEB											
22...	0	<50	<49	1	<10	<9	1	550	20	<100	<98
22...	--	--	--	--	--	--	--	--	--	--	--
MAR											
23...	--	--	--	--	--	--	--	500	--	--	--
APR											
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	2000	--	--	--
JUN											
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	2300	--	--	--
JUL											
26...	--	--	--	--	--	--	--	410	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	0	<50	<50	0	40	33	7	6200	250	100	95
25...	--	--	--	--	--	--	--	--	--	--	--
SEP											
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	1020	--	--	--

DATE	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	SUS- PENDED MANGANESE (MN) (UG/L)	DIS- SOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	SUS- PENDED MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	SUS- PENDED SELENIUM (SE) (UG/L)
OCT										
26...	--	--	--	--	--	--	--	--	--	--
26...	--	121	--	--	--	--	--	--	--	--
NOV										
24...	1	80	40	40	.0	.0	.0	--	1	0
24...	--	--	--	--	--	--	--	7	--	--
DEC										
27...	--	37	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
JAN										
31...	--	--	--	--	--	--	--	--	--	--
31...	--	50	--	--	--	--	--	--	--	--
FEB										
22...	2	100	70	30	.1	--	.0	--	1	0
22...	--	--	--	--	--	--	--	15	--	--
MAR										
23...	--	120	--	--	--	--	--	--	--	--
APR										
26...	--	--	--	--	--	--	--	--	--	--
26...	--	590	--	--	--	--	--	--	--	--
JUN										
27...	--	--	--	--	--	--	--	--	--	--
27...	--	620	--	--	--	--	--	--	--	--
JUL										
26...	--	260	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
AUG										
25...	5	620	390	230	.3	.3	.0	--	1	1
25...	--	--	--	--	--	--	--	18	--	--
SEP										
28...	--	--	--	--	--	--	--	--	--	--
28...	--	150	--	--	--	--	--	--	--	--

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	SUS- PENDE ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL PHYTO- PLANK- TON (CELLS PER ML)	SUS- PENDE SED1- MENT (MG/L)	SUS- PENDE SED1- MENT CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINE THAN .062 MM
OCT										
26...	--	--	--	--	--	--	110000	32	14	74
26...	--	--	--	--	--	--	--	--	--	--
NOV										
24...	1	--	20	20	0	4.5	25000	45	26	97
24...	--	1	--	--	--	--	--	--	--	--
DEC										
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	11000	70	43	74
JAN										
31...	--	--	--	--	--	--	4900	163	131	93
31...	--	--	--	--	--	--	--	--	--	--
FEB										
22...	1	--	70	50	20	4.9	99000	134	127	50
22...	--	6	--	--	--	--	--	--	--	--
MAR										
23...	--	--	--	--	--	--	--	--	--	--
APR										
26...	--	--	--	--	--	--	--	500	1670	75
26...	--	--	--	--	--	--	--	--	--	--
JUN										
27...	--	--	--	--	--	--	240000	581	1650	96
27...	--	--	--	--	--	--	--	--	--	--
JUL										
26...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	140000	80	45	50
AUG										
25...	0	--	70	50	20	11	430000	1050	1270	54
25...	--	6	--	--	--	--	--	--	--	--
SEP										
28...	--	--	--	--	--	--	2400000	112	48	71
28...	--	--	--	--	--	--	--	--	--	--

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 26,76 1330	NOV 24,76 0700	DEC 27,76 1230	JAN 31,77 1100	FEB 22,77 1200
TOTAL CELLS/ML	110000	25000	11000	4900	99000
DIVERSITY: DIVISION	1.5	1.6	1.8	1.7	1.1
..CLASS	1.5	1.6	1.9	1.8	1.1
..ORDER	1.8	2.0	2.5	2.3	1.5
...FAMILY	2.1	2.1	2.9	2.5	1.8
....GENUS	2.5	2.2	3.1	2.5	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
..CHLOROPHYCEAE										
...CHLOROCUCCALES										
...CHARACIACEAE										
...SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
...COELASTRUM	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE										
...PEDIASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
...GULENKINIA	--	-	*	0	--	-	--	-	--	-
...MICRACTINIUM	--	-	--	-	570	5	--	-	--	-
...ODCYSTACEAE										
...ANKISTRUDISMUS	9600	8	340	1	*	0	110	2	2800	3
...CHODATELLA	--	-	--	-	--	-	--	-	--	-
...DICTYOSPHAERIUM	8100	7	*	0	--	-	--	-	--	-
...FRANCEIA	--	-	--	-	--	-	--	-	--	-
...KIRCHNEIELLA	--	-	--	-	320	3	--	-	*	0
...ODCYSTIS	2000	2	460	2	140	1	*	0	--	-
...TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...TREPARIARIA	*	0	--	-	--	-	--	-	--	-
...WESTELLA	--	-	--	-	140	1	--	-	--	-
...SCENEDESMACEAE										
...ACTINASTRUM	2000	2	--	-	*	0	930	19	65000	66
...CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
...SCENEDESMUS	13000	11	460	2	*	0	45	1	*	0
...TETRASTRUM	--	-	--	-	140	1	--	-	*	0

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

..TETRASPORALES							
...COCCOMYXACEAE							
...ELAKATOTHRIX	--	-	--	-	--	-	--
...VOLVOCALES							
...CHLAMYDOMONADACEAE							
...CHLAMYDOMONAS	--	-	8200# 33	1600 14	560 12	920 1	
...CHLOROGONIUM	--	-	* 0	--	--	--	
...PHACUTACEAE							
...PTEROMONAS	--	-	--	-	250 2	--	-
...VOLVOCAEAE							
...PANDORINA	--	-	--	-	--	-	820 1
..ZYGNEMATALES							
...DESMIDIACEAE							
...CLOSTERIUM	--	-	--	-	--	-	--
..BACILLARIOPHYCEAE							
..PENNALES							
...NAVICULACEAE							
...ENTOMONEIS	--	-	--	-	71 1	--	-
..CENTRALES							
...COSCINODISCACEAE							
...CYCLOTELLA	48000# 42		690 3	1500 14	770# 16	9200 9	
...MELOSIRA	1000 1		--	-	--	-	--
...STEPHANODISCUS	--	-	--	-	--	-	--
...RHIZOSOLENACEAE							
...RHIZOSOLENIA	--	-	--	-	--	-	--
..PENNALES							
...ACHNANTHACEAE							
...CUCONEIS	--	-	--	-	--	-	--
...CYMBELLACEAE							
...CYMBELLA	--	-	--	-	--	-	* 0
...FRAGILARIACEAE							
...SYNEOKA	--	-	--	-	* 0	--	-
...GOMPHONEMACEAE							
...GOMPHONEMA	--	-	--	-	* 0	--	-
...NAVICULACEAE							
...GYROSIGMA	--	-	--	-	--	-	--
...NAVICULA	--	-	* 0	* 0	68 1	* 0	
...NITZSCHACEAE							
...NITZSCHIA	11000 10		8500# 35	710 6	160 3	3600 4	
...SURIPELLACEAE							
...SURIPELLA	--	-	--	-	* 0	* 0	
..CHRYSOPHYCEAE							
..CHRYSOMONADALES							
...CHROMULINACEAE							
...CHRYSOCOCCUS	--	-	--	-	* 0	--	-

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 26,76 1330	NOV 24,76 0700	DEC 27,76 1230	JAN 31,77 1100	FEB 22,77 1200	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROCOCCALES						
...CHROCOCCACEAE						
...AGMENELLUM	--	-	--	-	--	-
...ANACYSTIS	--	-	--	-	--	-
...HORMIGONALES			430	4	--	-
...NOSTOCACEAE					9600	10
...ANABAENA	--	-	--	-	--	-
...ANABAEENOPSIS	--	-	--	-	--	-
...APHANIZOIMENIN	--	-	--	-	--	-
...CYLINDRUSPERMUM	--	-	--	-	--	-
...OSCILLATORIACEAE			--	-	--	-
...LYNGBYA	--	-	--	-	--	-
...OSCILLATORIA	20000#	16	5400#	22	4400#	39
EUGLENOPHYTA (EUGLENIDS)						
..CRYPTOPHYCEAE						
...CRYPTOMONIDALES						
...CRYPTICHRYSIDACEAE						
...CHROMONAS	--	-	--	-	250	2
...CRYPTOMONIDACEAE					--	-
...CRYPTOMONAS	--	-	--	-	140	1
..EUGLENOPHYCEAE					*	0
...EUGLENALES					--	-
...EUGLENACEAE					--	-
...EUGLENA	--	-	*	0	320	3
...PHACUS	--	-	--	-	110	2
...TRACHELUMONAS	--	-	*	0	--	-

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

PYRRHOPHYTA (FIRE ALGAE)

.DINOPHYCEAE							
..GYMNODINIALES							
...GYMNODINIACEAE							
....GYMNODINIUM	--	-	--	-	*	0	--
..PERIDINIALES							
...PERIDINIACEAE							
....PERIDINIUM	--	-	--	-	--	-	--

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	JUN 27,77 1210	JUL 28,77 1300	AUG 25,77 1715	SEP 28,77 1200
TOTAL CELLS/ML	240000	140000	430000	2400000
DIVERSITY: DIVISION	1.2	1.1	0.6	0.3
..CLASS	1.3	1.1	0.6	0.3
...ORDER	1.4	1.9	1.0	0.8
...FAMILY	2.0	2.3	2.0	1.6
....GENUS	2.2	2.8	2.6	2.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	1400	1	--	-	3800	1	--	-
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	6800	2	--	-
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	*	0	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	--	-	--	-
...MICRACTINIUM	--	-	--	-	--	-	--	-
...DUCYSTACEAE								
....ANKISTRODESMUS	4100	2	5200	4	*	0	13000	1
...CHODATELLA	--	-	*	0	--	-	*	0
...DICTYOSPHAERIUM	--	-	13000	9	4800	1	*	0
...FRANCEIA	--	-	*	0	--	-	--	-
...KIRCHNERIELLA	--	-	--	-	*	0	*	0
...DUCYSTIS	--	-	1700	1	*	0	*	0
...TETRAEDRON	--	-	--	-	--	-	*	0
...TREUBARIA	--	-	--	-	*	0	*	0
...WESTELLA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	7900	5	13000	3	16000	1
...CRUCIGENIA	16000	7	--	-	--	-	*	0
...SCENEDESMUS	11000	5	5200	4	7800	2	*	0
...TETRASTRUM	--	-	--	-	--	-	--	-
..TETRASPORALES								
...COCCOMYXACEAE								
....ELAKATOTHRIX	--	-	2200	2	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	1400	1	--	-	--	-	--	-
...CHLOROGONIUM	--	-	--	-	--	-	--	-
...PHACOTACEAE								
....PTEROMUNAS	--	-	--	-	--	-	--	-
...VOLVOCAEAE								
....PANDORINA	--	-	--	-	--	-	--	-
...ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	--	-	*	0
CHRYSTOPHYTA								
.BACILLARIOPHYCEAE								
..PENNALES								
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	--	-	--	-

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

..CENTRALES							
...COSCINOIDISCEAE							
...CYCLOTETRA	4100	2	--	-	--	-	19000 1
...MELOSIRA	4100	2	--	-	--	-	--
...STEPHANODISCUS	1400	1	--	-	--	-	--
...RHIZOSOLENIA							
...RHIZOSOLENIA	--	-	--	-	2400	1	--
..PENNALES							
...ACHNANTHACEAE							
...CUCONEIS	--	-	--	-	--	-	* 0
...CYMBELLACEAE							
...CYMBELLA	--	-	--	-	--	-	--
...FRAGILARIACEAE							
...SYNEDRA	2700	1	--	-	--	-	* 0
...GIMPHONEMACEAE							
...GIMPHONEMA	--	-	--	-	--	-	--
...NAVICULACEAE							
...GYROSIGMA	1400	1	--	-	--	-	--
...NAVICULA	1400	1	--	-	* 0		--
...NITZSCHIA							
...NITZSCHIA	--	-	8100	6	* 0		* 0
...SURIPELLACEAE							
...SURIPELLA	--	-	--	-	--	-	--
...CHRYSOPLHYCEAE							
...CHRYSONOMADACEAE							
...CHRYSONOMADACEAE	--	-	--	-	--	-	--
...CHRYSOCCUS	--	-	--	-	--	-	--

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	JUN 27,77 1210	JUL 28,77 1300	AUG 25,77 1715	SEP 28,77 1200
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...CHROCOCCALES				
...CHROCOCCACEAE				
...AGMENELLUM	--	-	3900 3	14000 3
...ANACYSTIS	--	-	42000# 29	19000 4
...HUMMOGONALES				260000 11
...NOSTOCACEAE				
...ANABAENA	--	-	7400 5	--
...ANABAENOPSIS	--	-	--	520000# 22
...APHANIZOMENUM	34000 14	--	--	13000 3
...CYLINDROSPERMUM	--	-	--	120000# 28
...OSCILLATORIACEAE	--	-	--	45000 10
...LYNGBYA	--	-	45000# 31	--
...USCILIATORIA	140000# 60	--	--	270000 11
...USCILIATORIA			170000# 39	1200000# 51
EUGLENOPHYTA (EUGLENIDS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADACEAE				
...CHROMONAS	--	-	--	* 0
...CRYPTOMONADACEAE	4100 2	--	--	--
...CRYPTOMONAS				
...EUGLENACEAE				
...EUGLENA	8100 3	* 0	--	--
...PHACUS	--	-	--	--
...TRACHELOMONAS	1400 1	--	--	--
PYRRHOPHYTA (FIRE ALGAE)				
..DINOPHYCEAE				
...GYMNODINIALES				
...GYMNODINIACEAE				
...GYMNODINIUM	--	-	--	* 0
...PERIDINIALES				
...PERIDINIACEAE				
...PERIDINIUM	--	-	--	* 0

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DURWOOD, OK--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	12.0	5.0	2.0	7.0	9.0	15.0	25.0	25.0	27.0	28.0	26.0
2	20.0	14.0	5.0	4.0	8.0	10.0	20.0	23.0	26.0	---	34.0	27.0
3	26.0	14.0	---	4.0	7.0	16.0	18.0	25.0	27.0	31.0	33.0	31.0
4	22.0	13.0	8.0	1.0	8.0	12.0	17.0	23.5	30.0	34.0	33.0	32.0
5	19.0	13.0	8.0	6.0	7.0	12.0	17.0	24.0	29.0	31.0	32.0	26.0
6	---	15.0	9.0	5.0	7.5	15.0	20.0	23.0	28.0	29.0	33.0	28.0
7	16.0	13.0	8.0	5.0	8.5	17.0	22.0	25.0	30.0	32.0	31.0	26.5
8	14.0	15.0	11.0	5.0	10.0	16.0	---	27.0	27.0	30.0	33.0	25.0
9	14.0	18.0	7.0	---	12.0	15.0	20.0	28.0	30.0	28.0	31.0	29.0
10	22.0	18.0	10.0	---	12.5	15.0	21.0	25.0	30.5	31.0	34.0	25.0
11	22.0	14.0	6.0	---	11.0	15.0	22.0	22.0	28.0	33.0	33.0	29.0
12	20.0	13.0	7.0	---	10.0	13.0	23.5	25.0	31.0	34.0	32.0	31.0
13	18.0	4.0	13.0	1.0	13.0	18.0	22.0	25.0	31.0	31.0	31.0	26.5
14	21.0	6.0	11.0	5.0	12.5	20.0	23.0	25.0	26.0	31.0	31.0	23.0
15	19.0	5.0	10.0	5.0	12.0	17.5	22.0	25.0	27.0	29.5	30.0	26.0
16	15.0	10.0	10.0	2.0	10.0	18.0	21.0	24.0	---	34.0	33.0	26.0
17	15.0	9.0	10.0	3.5	12.0	19.0	24.0	22.0	28.0	32.0	32.0	28.0
18	17.0	8.0	13.0	2.0	12.0	21.0	21.0	26.0	27.0	34.0	27.0	29.0
19	15.0	12.0	13.0	3.0	10.0	18.0	23.0	25.0	30.0	34.0	25.0	27.0
20	9.0	13.0	8.0	6.0	16.0	17.0	24.0	22.0	28.0	33.0	24.0	23.5
21	18.0	14.0	3.0	7.0	18.0	13.0	20.0	22.0	28.5	29.5	27.0	23.0
22	16.0	7.0	4.0	5.0	19.0	14.0	20.0	26.0	31.0	27.0	33.0	27.0
23	17.0	12.0	8.0	6.0	16.0	17.0	17.5	23.0	30.0	33.0	30.0	28.0
24	16.0	10.0	7.0	8.0	16.0	15.0	20.5	24.0	27.0	35.0	31.0	28.0
25	16.0	14.0	9.0	8.0	18.0	14.0	18.0	22.0	30.0	35.0	33.5	32.0
26	12.0	17.0	9.0	12.0	9.0	16.0	21.0	24.0	30.0	32.0	31.0	32.0
27	12.0	9.0	10.0	14.0	10.0	16.0	20.0	25.0	30.0	28.0	32.0	31.0
28	14.0	4.0	8.0	4.0	12.0	17.0	25.0	26.0	32.0	29.0	30.0	33.0
29	13.0	8.0	7.0	9.0	---	18.0	22.5	25.0	31.0	35.0	26.0	26.0
30	10.0	7.0	7.0	10.0	---	17.0	23.0	26.0	30.0	29.0	28.0	30.0
31	15.0	---	2.0	4.0	---	20.0	---	24.0	---	34.0	30.0	---
MONTH	17.0	11.5	8.0	5.5	11.5	16.0	21.0	24.5	29.0	31.5	30.5	28.0
YEAR	MAX	35.0	MIN	1.0	MEAN	19.5						

SPECIFIC CONDUCTANCE (MICROMHUS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
UNCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1030	1130	1720	1700	1490	1550	630	1220	468	1240	1480	735
2	1060	1320	1740	1650	1510	1510	711	1300	531	1260	1500	976
3	1330	1340	1740	1680	1350	1520	750	1240	550	1140	1480	1080
4	1330	1480	1760	1700	1530	1190	802	1260	640	1180	1520	991
5	1090	1480	1790	1730	1520	1430	856	1080	669	1530	1610	985
6	1010	1490	1320	1750	1600	1480	1020	1200	681	1410	1530	1080
7	1310	1510	1480	1730	1580	1460	1020	1180	756	1100	1680	1150
8	1260	1670	1340	1620	1580	1460	1160	1250	818	1320	1640	1160
9	1120	1740	1430	---	1550	1370	1150	1030	838	1340	1780	1310
10	1150	1670	1360	---	1560	1400	1210	944	865	1070	2020	1250
11	1120	1710	1450	---	1540	718	1250	1240	902	1180	1640	1260
12	1180	1700	1480	---	783	743	1280	988	942	1270	1650	1230
13	1180	1730	1550	1300	994	1260	1340	818	977	1310	1470	1170
14	1260	1760	1480	1160	888	1110	1330	842	945	1410	1160	1180
15	1300	1760	1540	1080	1070	1140	1340	838	937	1450	1060	1330
16	1280	1580	1600	1090	1210	1080	1340	281	934	1490	1140	1210
17	1320	1650	1580	1300	1240	1220	1330	345	940	1530	1130	1010
18	1360	1640	1640	1370	1250	1320	784	446	955	1550	1140	1070
19	1460	1630	1660	1380	1260	1370	1070	518	969	1550	1150	1270
20	1560	1480	1610	1490	1380	1430	977	230	994	1560	1200	1370
21	1570	1760	1570	1550	1420	1460	726	249	1000	1520	1300	1350
22	1570	1560	1570	1580	1410	1570	532	346	1010	1540	1380	1500
23	1600	1530	1540	1530	1440	1470	538	428	1020	1570	1150	1590
24	1620	1660	1560	1560	1440	1500	840	528	1050	1530	1420	1630
25	1620	1680	1590	1520	1500	1540	681	443	1100	1500	1540	1550
26	1600	1700	1580	1500	1540	1570	694	416	1070	1560	1950	1450
27	1610	1720	1590	1530	1600	1570	406	424	1190	1590	1510	1510
28	1610	1750	1620	1570	1570	1570	438	931	442	1090	888	1540
29	1570	1770	1700	1590	---	---	477	983	516	1150	872	1580
30	1350	1780	1680	1610	---	---	523	1060	583	1190	338	1610
31	1040	---	1720	1630	---	---	546	---	516	---	507	---
MONTH	1340	1610	1580	1510	1390	1200	973	747	906	1410	1350	1270
YEAR	MAX	2020	MIN	230	MEAN	1270						

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, and at mile 725.9 (1,168.0 km).

DRAINAGE AREA.--39,719 mi² (102,872 km²), of which 5,936 mi² (15,374 km²) 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 mean sea level. Prior to Mar. 30, 1944, nonrecording gage at same site and datum. Prior to Oct. 1, 1948, auxiliary nonrecording gage in Cumberland pool at same datum.

REMARKS.--Reservoir is formed by a rolled-fill earth dam. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power-pool was first filled Mar. 15, 1945. Capacity, based on 1962 survey, 5,392,900 acre-ft (6.65 km³) at elevation 640.0 ft (195.07 m), crest of spillway, 2,733,300 acre-ft (3.37 km³) at elevation 617.0 ft (188.06 m), maximum power pool, 1,049,200 acre-ft (1.29 km³) at elevation 590.0 ft (179.83 m), minimum power pool, in Denison pool. Dead storage, 11,000 acre-ft (13.6 hm³) at elevation 610.0 ft (185.93 m) in Cumberland pool. When contents are below 2,167,900 acre-ft (2.67 km³), the reservoir is divided into two pools by protective levees around the Cumberland oilfield on the Washita River arm with bottom of 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 the 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 1962, used since Oct. 1, 1963.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,991,300 acre-ft (7.39 km³) 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 km³) Sept. 16, 1964; minimum elevation, 599.96 ft (182.868 m) Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,001,000 acre-ft (3.70 km³) May 27, elevation, 619.90 ft (188.946 m); minimum, 2,143,000 acre-ft (2.64 km³) Jan. 12, elevation, 609.66 ft (185.824 m).

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

609	2,095,000	614	2,479,000
610	2,168,000	617	2,733,000
612	2,319,000	620	3,010,000

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2517000	2466000	2387000	2234000	2155000	2243000	2678000	2688000	2902000	2740000	2663000	2659000
2	2514000	2478000	2377000	2231000	2157000	2246000	2683000	2688000	2893000	2742000	2659000	2667000
3	2507000	2489000	2372000	2217000	2164000	2250000	2696000	2688000	2877000	2746000	2651000	2672000
4	2514000	2488000	2372000	2214000	2166000	2252000	2700000	2692000	2857000	2749000	2643000	2676000
5	2512000	2501000	2377000	2206000	2168000	2254000	2689000	2695000	2835000	2747000	2637000	2682000
6	2514000	2506000	2378000	2202000	2170000	2255000	2686000	2693000	2812000	2746000	2637000	2686000
7	2516000	2510000	2364000	2189000	2170000	2256000	2681000	2701000	2805000	2743000	2632000	2686000
8	2516000	2503000	2351000	2187000	2168000	2253000	2680000	2721000	2800000	2739000	2626000	2684000
9	2516000	2500000	2349000	2170000	2171000	2252000	2672000	2742000	2794000	2736000	2618000	2683000
10	2516000	2501000	2343000	2155000	2175000	2254000	2673000	2753000	2787000	2738000	2609000	2682000
11	2517000	2495000	2333000	2150000	2196000	2262000	2665000	2764000	2783000	2732000	2604000	2679000
12	2520000	2490000	2333000	2144000	2210000	2261000	2659000	2770000	2786000	2726000	2603000	2693000
13	2522000	2484000	2321000	2147000	2220000	2262000	2649000	2778000	2790000	2720000	2604000	2700000
14	2520000	2480000	2311000	2147000	2231000	2266000	2638000	2791000	2786000	2717000	2604000	2695000
15	2520000	2473000	2308000	2157000	2231000	2271000	2635000	2801000	2786000	2714000	2604000	2687000
16	2513000	2469000	2305000	2154000	2233000	2272000	2638000	2807000	2783000	2710000	2597000	2682000
17	2504000	2464000	2302000	2153000	2234000	2277000	2641000	2819000	2779000	2710000	2590000	2678000
18	2495000	2460000	2302000	2148000	2236000	2274000	2643000	2830000	2778000	2705000	2589000	2681000
19	2495000	2454000	2311000	2146000	2240000	2275000	2638000	2841000	2779000	2697000	2593000	2673000
20	2480000	2457000	2294000	2147000	2243000	2274000	2638000	2845000	2773000	2691000	2626000	2663000
21	2470000	2457000	2280000	2150000	2238000	2273000	2634000	2841000	2767000	2696000	2628000	2655000
22	2462000	2449000	2277000	2154000	2238000	2267000	2642000	2856000	2762000	2692000	2626000	2646000
23	2461000	2445000	2272000	2160000	2243000	2268000	2651000	2907000	2760000	2689000	2626000	2636000
24	2466000	2436000	2274000	2160000	2243000	2268000	2672000	2954000	2755000	2685000	2629000	2630000
25	2457000	2434000	2275000	2155000	2244000	2269000	2682000	2983000	2758000	2675000	2630000	2626000
26	2449000	2436000	2277000	2155000	2246000	2312000	2687000	2997000	2757000	2665000	2629000	2616000
27	2455000	2430000	2274000	2155000	2248000	2503000	2688000	2993000	2751000	2666000	2627000	2609000
28	2449000	2424000	2272000	2155000	2246000	2568000	2688000	2968000	2746000	2666000	2638000	2602000
29	2461000	2408000	2267000	2153000	---	2612000	2684000	2938000	2742000	2663000	2639000	2594000
30	2461000	2393000	2259000	2158000	---	2638000	2688000	2917000	2739000	2662000	2640000	2583000
31	2465000	---	2241000	2155000	---	2659000	---	2909000	---	2661000	2647000	---
MAX	2522000	2510000	2387000	2234000	2248000	2659000	2700000	2997000	2902000	2749000	2663000	2700000
MIN	2449000	2393000	2241000	2144000	2155000	2243000	2634000	2688000	2739000	2661000	2589000	2583000
†	613.83	612.94	610.98	609.82	611.05	616.15	616.48	618.95	617.06	616.17	616.01	615.26
‡	-58,000	-72,000	-152,000	-86,000	+91,000	+413,000	+29,000	+221,000	-170,000	-78,000	-14,000	-64,000

CAL YR 1976 MAX 2794000 MIN 2241000 ‡ -211,000
WTR YR 1977 MAX 2997000 MIN 2144000 ‡ +60,000

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-ft.

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 mi² (102,875 km²), of which 5,936 mi² (15,374 km²) is probably noncontributing. At site used prior to October 1961, drainage area 39,777 mi² (103,022 km²), of which 5,936 mi² (15,374 km²) was probably noncontributing.

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) above mean sea level. 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 miles (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 miles (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 14 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 ft³/s (161 m³/s), 4,118,000 acre-ft/yr (5.08 km³/yr); (since regulation by Denison Dam) 33 years (water years 1945-1977), 4,390 ft³/s (124.3 m³/s), 3,181,000 acre-ft/yr (3.92 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft³/s (5,690 m³/s) May 21, 1935, gage height, 31.8 ft (9.69 m) 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 ft³/s (0.340 m³/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 records of U.S. Weather Bureau.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,400 ft³/s (1,170 m³/s) June 1, gage height, 17.08 ft (5.206 m); minimum daily, 67 ft³/s (1.90 m³/s) Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3870	759	4750	2800	1140	1590	160	2930	41300	1770	322	2700
2	2950	81	4390	2500	1600	910	1490	2390	41300	264	2850	2710
3	3480	106	3240	5800	1500	1250	164	2260	35100	237	3880	2010
4	342	98	310	4430	1130	113	3290	813	26500	245	4080	953
5	1390	1770	215	3600	231	107	3620	2360	26500	3070	2480	239
6	109	156	5210	3790	226	105	3890	5520	22200	3420	1490	1680
7	79	89	5630	5260	1530	877	4600	405	12800	4520	2210	2140
8	74	4620	6050	5260	1590	1200	2570	126	10200	4090	3890	2210
9	69	3750	2830	7790	222	699	4870	5530	9420	2830	3790	2070
10	71	1670	6720	5110	216	756	349	7200	9360	315	4360	1510
11	71	3900	5690	4050	289	992	5070	5020	7170	3880	3500	1240
12	69	3330	608	4080	244	87	5320	3910	3750	3430	311	2250
13	67	3640	6390	4090	205	99	5870	5180	2760	3740	156	2090
14	1550	3670	6270	3180	207	98	5840	4760	5690	2820	161	2010
15	3040	3660	2780	436	3270	95	5390	4710	4450	2790	2040	3000
16	2980	3750	2660	252	3670	98	294	5570	4780	1770	3870	3140
17	3000	3340	2660	4350	2310	1100	91	7560	4780	1600	3580	2930
18	4620	3340	215	4430	1880	87	5490	8390	3410	3170	363	370
19	3160	3540	200	4820	186	83	5210	11000	1970	4340	1230	3400
20	5820	1840	6260	1250	181	83	5480	14900	5390	3230	1280	3150
21	5460	225	5840	241	3200	1590	5290	22400	5380	2890	198	4550
22	3200	3460	2810	236	2160	2990	5470	22300	4760	3600	2040	4370
23	3140	3480	2690	241	1200	205	2450	22400	4190	2360	4790	4450
24	1710	4610	235	2010	1220	76	1510	27400	4240	2090	3940	4360
25	3810	1540	215	3780	1450	75	2450	34200	4430	5780	2240	1890
26	3040	3950	215	1910	151	238	3820	36900	3250	4770	2340	4500
27	168	3080	1300	1790	147	4470	4900	37000	5220	428	2240	4230
28	2810	1920	2100	1580	1190	1110	4540	37100	4850	292	255	3660
29	1090	6580	2100	1590	---	1780	4760	37100	3570	1410	3030	3800
30	115	6970	6050	246	---	1600	3330	37000	4330	1870	3640	3890
31	191	---	6800	2230	---	221	---	39000	---	2140	2650	---
TOTAL	61545	82924	103433	93132	32545	24784	107578	453334	323050	79161	73206	81502
MEAN	1985	2764	3337	3004	1162	799	3586	14620	10770	2554	2361	2717
MAX	5820	6970	6800	7790	3670	4470	5870	39000	41300	5780	4790	4550
MIN	67	81	200	236	147	75	91	126	1970	237	156	239
AC-FT	122100	164500	205200	184700	64550	49160	213400	899200	640800	157000	145200	161700

CAL YR 1976 TOTAL 953754 MEAN 2606 MAX 11000 MIN 56 AC-FT 1892000
WTR YR 1977 TOTAL 1516194 MEAN 4154 MAX 41300 MIN 67 AC-FT 3007000

RED RIVER BASIN

161

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1944-63, 1976 to September 1977 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1944 to September 1963.

WATER TEMPERATURE: May 1944 to September 1963.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHOH- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT												
06...	1028	9740	0800	100	1700	7.8	20.0	2	9.3	102	13	369
14...	--	--	1430	1200	1830	8.1	22.5	2	9.2	108	--	380
NOV												
03...	1028	9740	0830	95	1750	8.0	15.0	3	10.9	99	17	395
10...	--	--	0723	1100	1840	8.1	14.5	4	8.9	91	--	400
DEC												
07...	--	--	1100	8000	1840	8.1	9.5	1	9.3	85	--	400
07...	1028	9740	1615	7500	2100	8.7	8.0	2	12.8	102	8	380
JAN												
03...	1028	9740	1600	8000	1800	8.5	2.0	1	13.3	98	10	383
18...	--	--	1030	3800	1890	8.2	4.0	2	11.7	93	--	--
FEB												
01...	1028	9740	1430	800	2300	8.7	6.5	1	13.6	108	16	416
14...	--	--	1300	210	2080	8.3	7.0	1	12.2	104	--	430
MAR												
01...	1028	9740	1500	1500	1950	8.1	7.5	1	10.8	91	9	439
22...	--	--	1000	2500	1990	8.3	11.5	1	7.7	73	--	--
APR												
16...	--	--	1245	5500	1910	8.0	15.5	2	8.1	84	--	410
29...	1028	9740	1000	4700	2400	7.8	16.0	2	6.9	70	14	431
MAY												
23...	--	--	1410	22400	1900	7.6	20.0	2	5.5	62	--	420
25...	1028	9740	1508	34000	--	7.9	20.5	7	7.1	80	14	419
JUN												
14...	--	--	1245	5600	2010	7.2	22.0	3	2.0	24	--	410
23...	1028	9740	1230	4700	2000	7.5	21.0	1	3.2	36	11	413
JUL												
06...	1028	9740	1130	3300	2000	7.6	22.0	2	4.3	50	4	428
25...	--	--	1425	5780	1920	7.5	25.0	1	5.0	62	--	400
AUG												
03...	1028	9740	1330	4000	2150	7.7	24.5	1	1.8	22	9	447
23...	--	--	1200	7700	1960	7.5	26.0	2	3.3	41	--	--
SEP												
07...	1028	9740	1630	2200	2000	8.1	23.5	--	2.3	27	14	331
26...	--	--	1445	4450	1920	7.8	27.0	1	5.2	67	--	380

RED RIVER BASIN

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUOR- IDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
06...	89	34	210	6.7	--	309	.4	1164	1.2	<.14	--
14...	--	--	--	--	250	360	--	--	.55	.04	2
NOV											
03...	49	21	210	7.4	--	352	.3	1144	1.0	.03	<1
10...	--	--	--	--	250	360	--	--	.56	.04	--
DEC											
07...	--	--	--	--	250	360	--	--	.11	.02	--
07...	82	34	232	5.5	--	375	.4	1152	1.1	.10	--
JAN											
03...	77	38	219	6.2	235	346	.3	1188	.80	<.03	--
18...	--	--	--	--	--	--	--	--	.66	.03	--
FEB											
01...	100	39	240	11	266	384	.3	1147	8.6	<.03	2
14...	--	--	--	--	270	440	--	--	.64	.03	--
MAR											
01...	102	39	259	6.6	277	388	.3	1033	.80	.05	--
22...	--	--	--	--	--	--	--	--	.70	.02	--
APR											
18...	--	--	--	--	270	390	--	--	.63	.03	--
29...	105	39	230	9.4	268	374	.5	1171	1.7	.04	--
MAY											
23...	--	--	--	--	250	380	--	--	2.0	.03	1
25...	101	38	243	9.5	266	379	.3	1131	1.7	.05	2
JUN											
14...	--	--	--	--	260	410	--	--	.67	.06	--
23...	103	31	242	7.8	249	388	.2	1219	1.1	.10	--
JUL											
06...	103	32	250	34	253	405	.3	1173	1.2	.15	--
25...	--	--	--	--	250	370	--	--	.60	.08	2
AUG											
03...	108	30	232	8.1	270	391	.3	1164	1.0	.15	5
23...	--	--	--	--	--	--	--	--	.29	.13	--
SEP											
07...	89	26	240	7.0	--	--	--	--	.82	--	--
26...	--	--	--	--	280	380	--	--	.46	.07	2

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
06...	--	--	--	<100	--	68	--	--	--	--	--
14...	0	5	6	240	2	80	.1	--	0	--	20
NOV											
03...	3	14	5	100	12	9	<.5	9	<1	3	2
10...	--	--	--	--	--	--	--	--	--	--	--
DEC											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	120	--	10	--	--	--	--	--
JAN											
03...	--	--	--	<100	--	5	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
01...	3	32	<1	<100	90	<10	<.5	15	<1	4	4
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
01...	--	--	--	400	--	20	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
APR											
18...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	<200	--	50	--	--	--	--	--
MAY											
23...	10	0	<10	50	<100	60	.2	--	0	--	10
25...	2	13	2	210	2	70	<.5	10	4	4	5
JUN											
14...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	<200	--	320	--	--	--	--	--
JUL											
06...	--	--	--	200	--	760	--	--	--	--	--
25...	<10	10	10	110	<100	320	.0	--	0	--	--
AUG											
03...	1	15	4	120	12	390	.7	6	<1	3	4
23...	--	--	--	--	--	--	--	--	--	--	--
SEP											
07...	--	--	--	700	--	480	--	--	--	--	--
26...	<10	10	<10	20	<100	120	.2	--	0	<10	10

RED RIVER BASIN

163

07332390 BLUE RIVER NEAR CONNERVILLE, OK

LOCATION.--Lat 34°23'00", long 96°36'01", in SW 1/4 NW 1/4 sec.17, T.2 S., R.7 E., Johnston County, Hydrologic Unit 11140102, on left bank, 2.0 mi (3.2 km) upstream from State Highway 7, 4 mi (6.4 km) south-east of Connerville and at mile 99.9 (160.7 km).

DRAINAGE AREA.--162 mi² (420 km²).

PERIOD OF RECORD.--October 1976 to September 1977.

GAGE.--Water-stage recorder. Datum of gage is 896.75 ft (273.329 m) above mean sea level.

REMARKS.--Records good.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,100 ft³/s (201 m³/s) at 1630 Mar. 27, gage height, 12.01 ft (3.661 m), no other peaks above base of 1,800 ft³/s (51.0 m³/s); minimum daily, 36 ft³/s (1.02 m³/s) Oct. 12-15, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	43	41	40	52	59	117	96	66	57	42	40
2	37	42	41	40	53	60	110	99	66	117	42	40
3	37	41	41	40	61	183	104	95	64	60	41	40
4	40	40	41	41	57	70	102	90	62	53	41	39
5	70	40	41	41	53	64	97	88	60	51	42	40
6	40	40	98	41	53	62	98	89	58	49	41	41
7	39	40	54	41	53	62	96	86	57	49	46	40
8	37	40	47	40	53	61	95	152	56	48	42	40
9	37	40	46	43	53	62	95	153	56	49	41	40
10	37	41	46	42	53	62	95	95	55	63	41	40
11	37	41	45	42	143	72	95	89	55	50	41	40
12	36	41	44	42	128	65	94	87	54	48	41	52
13	36	41	43	68	71	63	92	87	53	47	43	66
14	36	41	41	88	64	63	92	85	53	47	42	47
15	36	41	42	83	61	61	94	84	52	46	41	44
16	37	41	42	63	60	60	92	83	53	46	42	43
17	36	42	42	52	61	61	93	82	52	46	41	42
18	36	42	42	49	60	61	106	81	51	45	40	43
19	39	40	42	49	59	59	98	83	52	46	41	43
20	37	56	40	49	59	59	147	1060	50	46	41	42
21	37	46	40	47	60	58	186	227	50	46	41	42
22	38	41	40	47	61	58	139	156	49	48	41	42
23	38	41	40	54	60	58	106	111	49	47	43	42
24	45	40	40	57	60	57	98	98	54	46	41	42
25	41	44	41	52	59	57	93	84	52	44	44	41
26	40	44	41	51	59	63	91	78	174	43	41	41
27	40	41	41	52	59	3700	89	80	86	43	40	41
28	40	41	41	50	59	585	89	76	62	44	44	41
29	45	40	41	51	---	189	89	70	138	44	48	41
30	60	40	40	51	---	141	99	68	71	44	52	41
31	46	---	40	51	---	125	---	64	---	41	42	---
TOTAL	1247	1251	1364	1557	1784	6460	3091	3976	1910	1553	1309	1276
MEAN	40.2	41.7	44.0	50.2	63.7	208	103	128	63.7	50.1	42.2	42.5
MAX	70	56	98	88	143	3700	186	1060	174	117	52	66
MIN	36	40	40	40	52	57	89	64	49	41	40	39
AC=FT	2470	2480	2710	3090	3540	12810	6130	7890	3790	3080	2600	2530
WTR YR 1977	TOTAL	26778	MEAN	73.4	MAX	3700	MIN	36	AC=FT	53110		

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 mi² (526 km²).

PERIOD OF RECORD.--Occasional low flow measurements made in water years 1956-61. October 1965 to current year. Prior to October 1975 published as Blue Creek near Milburn.

GAGE.--Water-stage recorder. Datum of gage is 649.65 ft (198.013 m), from Oklahoma State Highway Department.

REMARKS.--Records good.

AVERAGE DISCHARGE.--12 years, 149 ft³/s (4.220 m³/s), 9.97 in/yr (253 mm/yr), 108,000 acre-ft/yr (133 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft³/s (994 m³/s) Oct. 8, 1970, gage height, 27.87 ft (8.495 m); minimum, 20 ft³/s (0.57 m³/s) Mar. 15-19, Apr. 5-7, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,400 ft³/s (379 m³/s) at 1315 Mar. 27, gage height, 25.00 ft (7.620 m), no other peak above base of 2,200 ft³/s (62.3 m³/s); minimum, 30 ft³/s (0.85 m³/s) Oct. 1-4, 12-15, 17-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	42	36	43	57	61	181	126	74	64	48	39
2	31	39	36	43	57	62	174	111	74	109	43	38
3	31	38	35	43	160	175	156	111	72	70	43	38
4	39	37	35	44	90	84	148	98	70	59	43	37
5	118	36	36	44	71	68	137	94	68	55	43	39
6	39	36	163	44	65	64	133	97	66	53	43	42
7	33	36	90	44	62	63	129	91	65	51	43	40
8	33	36	57	43	61	62	125	396	64	50	43	40
9	32	36	52	43	60	61	122	243	64	50	42	39
10	32	36	50	43	59	61	119	119	64	54	42	39
11	32	36	51	43	154	76	117	101	63	61	43	39
12	31	36	50	51	310	71	115	96	62	50	44	72
13	31	35	49	79	113	62	114	89	62	48	44	201
14	31	37	48	94	91	61	112	86	62	46	47	62
15	32	37	46	89	80	60	119	82	61	47	43	46
16	33	36	46	68	76	58	114	80	61	46	42	42
17	31	35	46	63	75	58	119	78	60	45	41	40
18	31	35	45	60	73	59	194	77	58	45	40	39
19	35	35	46	60	70	57	139	76	58	44	43	38
20	33	45	44	60	68	55	251	820	57	44	48	37
21	31	49	43	60	66	55	297	407	56	43	44	37
22	32	39	43	64	66	54	147	182	55	46	42	37
23	32	37	43	66	69	54	169	118	54	45	43	36
24	34	37	43	68	65	54	132	102	57	45	43	37
25	45	38	44	66	64	55	117	93	62	45	43	37
26	35	39	44	64	63	119	109	86	156	43	42	36
27	33	36	44	63	62	7820	104	89	152	43	40	36
28	33	35	44	61	62	1300	100	84	71	44	41	36
29	43	35	44	57	---	387	97	81	121	43	57	37
30	89	36	43	58	---	244	129	78	90	43	49	36
31	53	---	43	57	---	196	---	75	---	47	45	---
TOTAL	1199	1120	1539	1785	2373	11716	4269	4466	2159	1578	1357	1372
MEAN	38.7	37.3	49.6	57.6	84.8	378	142	144	72.0	50.9	43.8	45.7
MAX	118	49	163	94	310	7820	297	820	156	109	57	201
MIN	31	35	35	43	57	54	97	75	54	43	40	36
CFSM	.19	.18	.24	.28	.42	1.86	.70	.71	.36	.25	.22	.23
IN.	.22	.21	.26	.33	.43	2.15	.78	.82	.40	.29	.25	.25
AC-FT	2380	2220	3050	3540	4710	23240	8470	8860	4280	3130	2690	2720
CAL YR 1976	TOTAL	31801	MEAN 86.9	MAX 7170	MIN 31	CFSM .43	IN 5.83	AC-FT 63080				
WTR YR 1977	TOTAL	34933	MEAN 95.7	MAX 7820	MIN 31	CFSM .47	IN 6.40	AC-FT 69290				

RED RIVER BASIN

165

07332450 BLUE RIVER AT ARMSTRONG, OK

LOCATION.--Lat 34°03'15", long 96°20'29", in NE 1/4 NE 1/4 sec.10, T.6 S., R.9 E., Bryan County, Hydrologic Unit 11140102, at bridge on U.S. Highways 69 and 75 at Armstrong, 0.1 mi (0.2 km) upstream from Missouri, Kansas and Texas Railroad Co. bridge and at mile 52.9 (85.1 km).

DRAINAGE AREA.--224 mi² (580 km²).

PERIOD OF RECORD.--October 1976 to May 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 06...	1028	9740	1130	460	7.9	18.5	14	10.2	110	--	244
NOV 03...	1028	9740	1100	420	8.3	11.0	13	12.4	103	--	213
DEC 07...	1028	9740	1500	250	8.3	6.5	89	14.0	105	30	103
JAN 03...	1028	9740	1430	460	8.5	3.0	1	13.0	98	<3	245
FEB 01...	1028	9740	1200	480	8.3	3.0	4	14.2	104	10	267
MAR 01...	1028	9740	1300	470	8.0	10.0	12	10.9	97	5	290
APR 29...	1028	9740	1100	480	7.6	21.0	27	8.3	93	11	244
MAY 25...	1028	9740	1218	330	7.7	23.5	46	7.7	92	13	153

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 06...	46	37	8.0	1.5	--	10	.2	361	--	<.14	--
NOV 03...	20	13	11	1.4	--	18	.1	248	--	.05	<1
DEC 07...	24	11	<10	2.9	--	11	--	235	1.4	.13	--
JAN 03...	44	38	<10	<1.0	7.0	7.0	--	299	.60	<.03	--
FEB 01...	60	31	<10	1.2	13	7.0	--	258	1.6	.03	1
MAR 01...	57	29	<10	1.9	23	14	--	293	.60	.06	--
APR 29...	58	25	12	2.5	13	8.0	.1	294	1.6	.10	--
MAY 25...	42	12	6.0	3.9	16	7.0	.1	215	--	.15	5

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT 06...	--	--	--	100	--	24	--	--	--	--	--
NOV 03...	<1	13	4	200	7	8	<.5	5	1	1	2
DEC 07...	--	--	--	560	--	152	--	--	--	--	--
JAN 03...	--	--	--	120	--	19	--	--	--	--	--
FEB 01...	1	14	1	160	5	20	<.5	7	<1	2	8
MAR 01...	--	--	--	640	--	100	--	--	--	--	--
APR 29...	--	--	--	430	--	160	--	--	--	--	--
MAY 25...	4	15	6	980	11	150	<.5	5	<1	2	12

RED RIVER BASIN

07332500 BLUE RIVER NEAR BLUE, OK

LOCATION.--Lat 33°59'49", long 96°14'27", on line between secs. 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 (62.4 km).

DRAINAGE AREA.--476 mi² (1,233 km²).

WATER-DISCHARGE RECORDS

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) above mean sea level. 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 miles (25.7 km) above station. Small diversion above station for municipal water supply of city of Durant.

COOPERATION.--Gage-height record and 25 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--41 years, 302 ft³/s (8.553 m³/s), 8.62 in/yr (219 mm/yr), 218,800 acre-ft/yr (270 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,400 ft³/s (974 m³/s) Feb. 17, 1938, gage height, 31.81 ft (9.696 m), site and datum then in use; 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.--Maximum discharge, 23,400 ft³/s (663 m³/s) at 1745 Mar. 27, gage height, 33.57 ft (10.232 m), no other peak above base of 4,000 ft³/s (113 m³/s); minimum, 26 ft³/s (0.74 m³/s) Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	28	91	45	42	59	84	409	156	90	135	36	46		
2	28	58	46	41	58	82	361	207	86	82	50	40		
3	27	47	46	54	98	324	326	157	85	92	41	35		
4	27	43	45	47	387	269	307	155	83	97	38	35		
5	29	42	46	46	186	155	262	159	79	67	37	36		
6	47	39	84	47	119	104	223	140	76	54	36	426		
7	74	39	305	48	97	90	203	130	73	52	35	338		
8	43	40	185	48	86	85	188	362	66	49	34	55		
9	35	40	94	45	83	82	175	1470	64	51	33	45		
10	35	41	73	39	79	80	164	516	63	53	32	36		
11	34	42	69	38	158	110	153	225	65	52	31	37		
12	34	44	66	58	1140	172	147	159	65	58	32	39		
13	34	43	63	103	612	118	141	132	65	51	35	2510		
14	33	44	60	382	234	88	136	120	64	43	243	635		
15	32	45	59	505	166	77	167	114	63	42	53	126		
16	35	46	56	500	136	72	146	107	64	40	52	81		
17	36	46	54	180	121	69	192	102	64	39	43	59		
18	37	46	52	130	114	68	1020	99	60	37	41	51		
19	37	45	52	90	110	66	470	94	58	37	35	47		
20	43	47	51	80	101	64	636	1230	56	36	52	45		
21	41	51	49	70	96	61	653	1320	55	45	66	43		
22	41	61	48	65	91	57	555	918	49	82	48	42		
23	42	61	47	76	267	57	384	345	48	39	44	42		
24	41	51	46	113	199	58	325	199	46	39	39	41		
25	47	49	48	133	107	56	226	149	52	35	39	40		
26	49	53	47	94	112	200	183	127	69	36	39	36		
27	54	52	47	79	122	15400	157	116	276	38	39	40		
28	47	50	47	73	91	15200	143	109	267	39	42	38		
29	48	48	46	65	---	6880	133	107	102	37	273	37		
30	81	46	46	61	---	1060	128	98	93	36	95	36		
31	110	---	45	58	---	523	---	94	---	33	54	---		
TOTAL	1379	1450	2069	3210	5236	41811	8763	9416	2446	1626	1767	5119		
MEAN	44.5	48.3	66.7	104	187	1349	292	304	81.5	52.5	57.0	171		
MAX	110	91	305	505	1140	15400	1020	1470	276	135	273	2510		
MIN	27	39	35	38	58	56	128	94	46	33	31	35		
CFSM	.09	.10	.16	.22	.39	2.83	.61	.64	.17	.11	.12	.36		
IN.	.11	.11	.16	.25	.41	3.27	.68	.74	.19	.13	.14	.40		
AC-FT	2740	2860	4100	6370	10390	82930	17380	18660	4850	3230	3500	10150		
CAL YR 1976	TOTAL	67603	MEAN	185	MAX	11700	MIN	26	CFSM	.39	IN	5.30	AC-FT	134500
WTH YR 1977	TOTAL	84292	MEAN	231	MAX	15400	MIN	27	CFSM	.49	IN	6.59	AC-FT	167200

07332500 BLUE RIVER NEAR BLUE, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-58, 1960-63, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1959 to September 1963.

WATER TEMPERATURE: November 1959 to September 1963.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
06...	1028	9740	1000	460	7.9	17.0	24	10.2	106	14	264
NOV											
03...	1028	9740	1000	390	8.3	11.0	23	12.2	102	13	190
DEC											
08...	1028	9740	0800	240	8.5	4.0	83	13.8	102	31	94
JAN											
04...	1028	9740	0830	460	8.6	3.0	2	13.0	96	4	234
FEB											
01...	1028	9740	1330	250	8.5	4.0	5	14.3	107	12	254
MAR											
01...	1028	9740	1400	460	7.9	10.0	24	9.6	86	7	262
APR											
29...	1028	9740	0830	480	7.4	20.0	16	8.1	88	15	240
MAY											
25...	1028	9740	1339	325	7.7	24.0	62	7.1	84	18	151
JUN											
23...	1028	9740	1030	520	8.1	26.5	4	6.5	80	5	273
JUL											
06...	1028	9740	0915	460	8.1	27.5	10	6.6	84	43	232
AUG											
03...	1028	9740	1200	460	7.3	27.5	5	6.8	86	4	251
SEP											
07...	1028	9740	1430	--	7.6	23.5	125	6.9	81	29	107

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POT- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FIL- TRABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
06...	47	34	7.0	1.7	--	14	.2	307	1.0	.22	--
NOV											
03...	19	11	12	2.0	--	21	.2	277	.00	.14	<1
DEC											
08...	24	12	<10	2.3	--	14	.2	176	1.5	.10	--
JAN											
04...	45	36	11	1.9	4.0	9.0	.1	296	.80	.23	--
FEB											
01...	54	30	<10	1.8	18	11	.1	280	.90	.24	3
MAR											
01...	57	24	<10	2.9	23	12	.1	260	1.0	.16	--
APR											
29...	62	20	10	2.0	20	10	.2	299	1.7	.13	--
MAY											
25...	41	11	10	4.0	21	8.0	.2	196	1.4	.21	3
JUN											
23...	56	31	3.0	1.8	90	9.0	.1	321	.92	.18	--
JUL											
06...	53	25	6.0	2.7	9.0	5.0	.1	237	.92	.18	--
AUG											
03...	45	30	6.0	2.6	10	7.0	.2	256	.95	.29	3
SEP											
07...	28	8.2	<5.0	2.7	11	8.0	.1	303	.65	.34	--

RED RIVER BASIN

07332500 BLUE RIVER NEAR BLUE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
06...	--	--	--	200	--	109	--	--	--	--	--
NOV											
03...	<1	11	3	300	5	8	<.5	6	2	1	3
DEC											
08...	--	--	--	420	--	152	--	--	--	--	--
JAN											
04...	--	--	--	340	--	36	--	--	--	--	--
FEB											
01...	1	18	4	220	5	30	<.5	8	1	3	3
MAR											
01...	--	--	--	900	--	100	--	--	--	--	--
APR											
29...	--	--	--	520	--	130	--	--	--	--	--
MAY											
25...	1	15	4	760	5	160	<.5	10	<1	<1	21
JUN											
23...	--	--	--	380	--	80	--	--	--	--	--
JUL											
06...	--	--	--	3000	--	100	--	--	--	--	--
AUG											
03...	1	20	4	360	<5	70	.9	3	<1	1	6
SEP											
07...	--	--	--	8000	--	260	--	--	--	--	--

07333910 MCGEE CREEK NEAR FARRIS, OK

LOCATION.--Lat 34°18'54", long 95°52'30", NW 1/4 NE 1/4 sec.7, T.3 S., R.14 E., Atoka County, Hydrologic Unit 11140103, 3.7 mi (6.0 km) northwest of Farris and at mile 3.6 (5.8 km).

PERIOD OF RECORD.--Water years 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1976 to current year.

pH: September 1976 to current year.

WATER TEMPERATURE: September 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since September 1976.

REMARKS.--In addition to water-quality monitor, samples were collected on a bi-weekly basis.

COOPERATION.--Samples were collected by the U.S. Geological Survey and analyses were furnished by the Oklahoma Water Resources Board.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	HARD- NESS (CA, MG) (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)
OCT											
05...	1028	9740	1500	.13	120	7.5	20.0	9.1	101	40	5.9
20...	1028	9740	1300	.21	170	7.2	13.0	10.7	105	43	8.6
NOV											
02...	1028	9740	1345	39	160	7.1	12.0	11.0	103	59	8.4
17...	1028	9740	1400	3.1	150	6.7	8.0	10.7	91	41	8.9
DEC											
08...	1028	9740	1000	--	80	6.9	5.5	13.0	102	27	5.2
22...	1028	9740	1445	17	110	7.6	4.0	12.8	98	--	--
JAN											
04...	1028	9740	1000	5.4	130	7.6	3.0	13.2	97	160	57
18...	1028	9740	1015	--	50	7.2	.0	--	--	20	3.7
FEB											
02...	1028	9740	1130	39	84	7.5	3.0	14.6	106	--	4.9
15...	1028	9740	1200	--	70	6.6	7.0	14.2	116	35	4.5
MAR											
02...	1028	9740	0930	97	82	7.1	9.0	10.4	91	23	4.6
15...	1028	9740	1213	39	94	7.6	14.0	9.4	92	23	47
APR											
15...	1028	9740	1200	14	108	7.3	21.0	--	--	33	--
19...	1028	9740	1800	2880	91	--	21.0	--	--	--	--
21...	1028	9740	1900	268	80	--	19.0	--	--	--	--
26...	1028	9740	1515	80	72	7.6	19.5	--	--	--	--
27...	1028	9740	0930	57	74	7.2	17.5	--	--	--	--
28...	1028	9740	1030	42	77	7.5	20.0	--	--	--	--
28...	1028	9740	1630	38	74	8.1	22.0	8.6	99	24	5.0
MAY											
11...	1028	9740	1100	9.1	102	7.0	22.0	8.0	93	--	--
26...	1028	9740	1302	12	185	7.6	27.0	7.3	92	28	5.7
JUN											
08...	1028	9740	1015	2.5	127	7.4	24.0	7.8	83	38	8.4
22...	1028	9740	1300	.24	150	7.5	30.0	8.4	110	41	9.0
JUL											
05...	1028	9740	1515	3.9	90	7.6	31.0	8.2	111	30	7.0
20...	1028	9740	1100	2.5	90	7.8	30.0	7.2	95	--	--
AUG											
02...	1028	9740	1245	180	55	6.8	26.0	7.1	88	14	5.5
17...	1028	9740	1300	3.3	76	7.1	29.5	--	--	31	7.2
30...	1028	9740	1450	1.1	90	7.5	32.5	8.0	--	14	2.2
SEP											
08...	1028	9740	1345	2.5	90	6.8	27.5	7.2	91	16	2.3
15...	1028	9740	1130	65	60	6.3	23.0	9.4	110	--	--

07333910 MCGEE CREEK NEAR FARRIS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible]

171

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

[illegible]

RED RIVER BASIN

07333910 MCGEE CREEK NEAR FARRIS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL ALUM- INUM (AL) (UG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT											
05...	1500	--	--	<1	<1	--	--	<1	1	20	19
20...	1300	--	--	<1	<1	--	--	1	1	20	20
NOV											
02...	1345	--	--	--	--	--	--	<1	--	11	--
17...	1400	--	--	<1	<1	--	--	<1	<1	20	20
DEC											
08...	1000	--	--	2	1	--	--	<1	<1	900	7
JAN											
04...	1000	--	--	<1	<1	--	--	1	1	16	13
18...	1015	--	--	1	1	--	--	<1	<1	20	20
FEB											
02...	1130	<2000	<2000	2	1	<2000	<2000	<1	1	16	38
15...	1200	<2000	<2000	1	1	<2000	<2000	2	2	38	35
MAR											
02...	0930	--	--	<1	<1	--	--	<1	<1	17	12
15...	1213	--	--	2	2	--	--	<1	<1	11	8
APR											
15...	1200	--	--	1	1	--	--	<1	<1	4	4
28...	1630	--	--	5	1	--	--	<1	<1	<5	<5
MAY											
26...	1302	--	--	<1	<1	--	--	1	1	9	9
JUN											
08...	1015	--	--	3	3	--	--	<1	<1	10	<10
22...	1300	--	--	1	<1	--	--	1	1	15	10
JUL											
05...	1515	--	--	<1	2	--	--	<1	<1	20	10
AUG											
02...	1245	9000	1000	3	<1	--	--	<1	<1	175	<10
17...	1300	1100	300	4	2	--	--	<1	1	7	7
30...	1450	--	--	2	1	--	--	<1	<1	<5	<5
SEP											
08...	1345	--	--	<1	<1	--	--	<1	1	<5	<5

DATE	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)
OCT											
05...	3	2	320	80	3	2	51	<5	<.5	<.5	6
20...	2	2	300	100	6	6	32	17	<.5	<.5	5
NOV											
02...	4	--	300	--	6	--	<5	--	<.5	--	3
17...	7	7	1100	200	<5	<5	33	28	11	<.5	4
DEC											
08...	10	9	1700	380	6	5	67	9	<.5	<.5	20
JAN											
04...	<1	<1	400	400	<5	<5	<5	<5	<.5	<.5	3
18...	9	9	280	<50	8	6	23	7	<.5	4.9	4
FEB											
02...	10	7	230	500	<3	5	<10	10	<.5	.5	3
15...	11	11	1160	250	5	5	90	<10	2.1	<.5	10
MAR											
02...	8	8	930	320	3	1	40	20	<.5	<.5	9
15...	2	2	560	220	2	<1	50	10	3.1	1.3	3
APR											
15...	7	7	990	300	16	10	70	40	<.5	<.5	--
28...	4	18	620	400	<10	<10	30	30	<.5	<.5	4
MAY											
26...	5	4	900	900	9	<5	10	10	<.5	<.5	5
JUN											
08...	3	3	390	<200	<5	<5	80	10	<.5	<.5	5
22...	26	6	300	<200	<5	<5	70	30	<.5	<.5	3
JUL											
05...	5	16	800	400	<5	9	70	70	<.5	<.5	4
AUG											
02...	12	12	2140	680	10	5	120	20	<.5	<.5	12
17...	3	4	3500	1530	10	<5	110	50	<.5	<.5	4
30...	4	4	750	500	13	<5	63	63	.7	.7	<3
SEP											
08...	3	3	900	400	<5	<5	70	<10	1.3	<.5	<3

07333910 MCGEE CREEK NEAR FARRIS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SILVER NIUM (SE) (UG/L)	DIS- SOLVED SILVER NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	TOTAL TIN (SN) (UG/L)	DIS- SOLVED TIN (SN) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT										
05...	4	--	--	--	--	--	--	14	7	--
20...	4	--	--	--	--	--	--	10	20	--
NOV										
02...	--	<2	--	--	--	300	--	5	--	4.9
17...	4	--	--	--	--	--	--	20	19	--
DEC										
08...	<1	--	--	--	--	--	--	31	15	--
JAN										
04...	<1	--	--	--	--	--	--	22	22	--
18...	4	--	--	--	--	--	--	23	23	--
FEB										
02...	3	--	--	--	--	--	--	10	11	--
15...	6	--	--	--	--	--	--	29	29	6.6
MAR										
02...	5	--	--	--	--	--	--	22	18	--
15...	3	<3	<3	2	2	--	--	22	22	--
APR										
15...	5	--	1	--	--	--	--	22	54	--
28...	4	--	--	--	--	--	--	15	15	--
MAY										
26...	4	--	--	--	--	--	--	16	16	--
JUN										
08...	2	--	--	--	--	--	--	11	11	--
22...	3	--	--	--	--	--	--	13	25	--
JUL										
05...	5	--	--	--	--	--	--	8	390	--
AUG										
02...	1	--	--	<1	<1	<50	<50	35	18	13
17...	4	--	--	--	--	<100	<100	70	44	--
30...	<3	--	--	--	--	--	--	7	21	--
SEP										
08...	<3	--	--	--	--	--	--	13	31	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												---
11												---
12												---
13												---
14												---
15												---
16												---
17												28.0
18												25.0
19												24.0
20												23.5
21												22.5
22												22.0
23												22.0
24												23.5
25												23.5
26												24.0
27												23.5
28												20.5
29												20.5
30												20.0
31												---
MEAN												23.0
WTR YR 1976	MEAN	23.0		MAX	28.0		MIN	20.0				

RED RIVER BASIN

07333910 MCGEE CREEK NEAR FARRIS, OK--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	11.0	4.5	2.5	2.0	8.5			---	28.5	---	28.0
2	21.5	11.0	4.5	2.5	2.5	9.0			---	29.5	---	28.5
3	21.5	11.5	4.5	3.0	4.0	10.0			---	30.0	27.0	28.0
4	21.5	11.5	5.0	3.0	4.0	10.0			---	30.5	27.5	28.0
5	18.0	10.5	5.5	3.0	4.5	9.5			---	30.0	28.0	27.5
6	17.5	10.0	7.0	3.0	4.5	9.5			---	30.5	28.0	27.0
7	15.0	10.5	6.5	3.0	4.5	10.0			---	30.5	28.5	27.0
8	15.0	9.5	5.5	3.5	5.0	10.5			---	30.0	29.0	26.5
9	15.0	10.0	5.5	3.0	5.5	11.5			---	---	29.5	26.5
10	16.0	11.0	6.5	2.5	6.5	12.0			---	---	29.0	26.5
11	17.5	10.5	6.5	1.5	7.0	13.0			---	---	28.5	27.0
12	18.0	8.5	6.0	2.0	8.0	12.5			---	---	28.5	27.0
13	19.0	7.5	6.0	1.0	8.0	12.5			---	29.5	28.0	24.0
14	18.5	7.5	5.5	1.0	8.0	14.5			---	28.5	28.5	24.0
15	17.5	7.5	5.5	1.0	8.0	14.5			---	---	28.0	23.5
16	16.5	7.5	5.5	.5	7.0	15.0			---	28.5	28.5	24.0
17	15.0	8.0	5.5	.5	6.5	14.5			---	28.0	28.0	25.0
18	14.5	7.5	5.0	.5	7.5	15.0			---	---	28.5	25.5
19	14.5	9.0	7.0	.5	8.5	16.0			---	---	26.0	26.0
20	12.5	10.0	7.0	1.0	8.0	13.5			---	---	25.0	24.5
21	11.5	8.5	5.0	1.0	8.5	14.5			---	---	25.5	24.5
22	13.0	8.0	4.0	1.5	10.0	14.0			32.0	---	26.0	25.0
23	14.0	7.5	4.0	1.5	11.5	13.5			30.5	---	27.5	25.0
24	15.5	7.5	4.0	2.0	12.0	13.5			28.5	---	28.5	26.0
25	14.5	8.5	4.5	2.5	12.0	14.0			27.5	---	27.5	27.0
26	12.0	11.0	5.0	3.0	12.0	14.5			26.0	---	28.5	27.5
27	13.0	9.5	5.0	3.5	9.5	14.5			25.0	---	28.0	27.0
28	12.0	7.5	5.0	4.0	8.5	---			25.5	---	27.0	26.5
29	12.0	5.5	4.5	2.5	---	---			27.5	---	26.5	26.5
30	11.5	5.0	4.5	2.5	---	---			28.5	---	27.5	27.0
31	11.0	---	2.5	2.0	---	---			---	---	29.0	---
MEAN	15.5	9.0	5.0	2.0	7.5	12.5			28.0	29.5	28.0	26.0
WTR YR 1977	MEAN	14.5		MAX	32.0		MIN	.5				

SPECIFIC CONDUCTANCE (MICROMH/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												---
11												---
12												---
13												---
14												---
15												---
16												---
17												137
18												76
19												139
20												136
21												133
22												134
23												135
24												136
25												138
26												133
27												122
28												123
29												128
30												130
31												---
MEAN												129
WTR YR 1976	MEAN	129		MAX	139		MIN	76				

07333910 MCGEE CREEK NEAR FARRIS, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHUS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	153	126	130	86	82			---	---	---	97
2	132	174	126	127	86	96			---	---	67	102
3	133	173	125	135	78	79			---	---	70	103
4	137	173	123	128	72	83			---	---	69	101
5	133	162	121	133	68	87			---	---	68	101
6	134	169	96	132	69	91			---	---	67	99
7	129	167	90	128	67	93			---	---	68	101
8	130	162	85	125	71	92			---	---	68	94
9	136	158	76	125	72	93			---	---	68	89
10	140	159	74	122	74	98			---	---	70	92
11	147	160	82	126	70	93			---	---	73	96
12	151	159	85	122	60	91			---	---	73	97
13	156	160	82	99	67	95			---	83	74	52
14	160	157	88	80	64	96			---	86	76	58
15	166	157	90	68	68	94			---	86	76	68
16	170	157	96	58	64	100			---	89	75	71
17	176	150	102	55	69	99			---	90	74	76
18	180	150	103	58	67	97			---	---	74	77
19	178	145	104	62	70	99			---	---	76	78
20	180	132	111	60	76	106			---	---	76	78
21	168	148	115	65	76	105			---	---	76	82
22	168	141	116	69	79	110			147	---	77	83
23	173	139	113	68	74	110			150	---	77	87
24	176	138	115	66	70	110			---	---	78	88
25	164	130	111	69	71	112			---	---	78	89
26	169	126	118	76	76	101			---	---	77	90
27	198	130	120	80	78	46			---	---	77	93
28	260	131	123	83	78	---			---	---	77	96
29	257	125	123	79	---	---			---	---	76	95
30	166	121	126	87	---	---			---	---	82	94
31	139	---	129	84	---	---			---	---	91	---
MEAN	163	150	106	94	72	95			149	87	74	88
WTR YR 1977	MEAN		106	MAX	260	MIN		46				

PH (UNITS), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												---
4												---
5												---
6												---
7												---
8												---
9												---
10												7.6
11												7.5
12												7.5
13												7.4
14												7.5
15												7.4
16												7.3
17												7.2
18												7.2
19												7.2
20												7.3
21												7.5
22												7.5
23												7.5
24												7.5
25												7.5
26												7.4
27												7.3
28												7.3
29												7.5
30												7.4
31												---
MEAN												7.4
WTR YR 1976	MEAN		7.4	MAX	7.6	MIN		7.2				

RED RIVER BASIN

07333910 McGEE CREEK NEAR FARRIS, OK--Continued

PH (UNITS), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	7.3	6.6	---	7.4	7.4					---	6.5
2	7.4	7.2	6.6	---	7.4	7.4					---	6.4
3	7.4	7.3	6.6	---	7.4	7.3					---	6.4
4	7.5	7.3	6.6	7.6	7.4	7.4					---	6.5
5	7.2	7.2	7.0	7.6	7.3	7.5					---	6.5
6	7.3	7.2	6.7	7.6	7.3	7.5					---	6.5
7	7.3	7.2	6.6	7.6	7.3	7.4					---	6.5
8	7.4	7.1	6.7	7.6	7.3	7.4					---	6.4
9	7.4	7.1	7.0	7.5	7.3	7.4					---	6.4
10	7.4	7.0	6.9	7.6	7.4	7.4					---	6.5
11	7.4	7.0	6.9	7.6	7.4	7.4					---	6.5
12	7.3	7.0	6.9	7.6	7.3	7.5					---	6.7
13	7.3	6.9	6.9	7.4	7.4	7.4					---	6.6
14	7.4	6.9	6.9	7.5	7.4	7.4					---	6.4
15	7.5	6.9	6.9	7.5	7.4	7.4					---	6.4
16	7.3	6.9	6.9	7.3	7.4	7.4					---	6.5
17	7.4	6.7	6.9	7.3	7.3	7.4					---	6.5
18	7.4	6.6	7.0	7.3	7.3	7.4					---	6.5
19	7.3	6.6	7.0	7.3	7.3	7.5					---	6.4
20	7.3	6.6	7.0	7.3	7.3	7.5					---	6.4
21	7.3	6.6	7.0	7.3	7.3	7.5					---	6.4
22	7.3	6.6	7.0	7.3	7.3	7.6					---	6.4
23	7.3	6.6	---	7.3	7.4	7.6					---	6.4
24	7.2	6.6	---	7.3	7.4	7.5					---	6.3
25	7.5	6.6	---	7.4	7.3	7.5					---	6.4
26	7.1	6.6	---	7.4	7.3	7.5					---	6.4
27	6.9	6.6	---	7.4	7.4	7.3					---	6.4
28	7.2	6.6	---	7.4	7.4	---					---	6.4
29	7.2	6.6	---	7.4	---	---					---	6.4
30	7.2	6.6	---	7.4	---	---					6.5	6.4
31	7.3	---	---	7.4	---	---					6.5	---
MEAN	7.3	6.9	6.9	7.4	7.4	7.4					6.5	6.5
WTR YR 1977	MEAN	7.1		MAX	7.6		MIN	6.3				

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 miles (2.1 km) downstream from McGee Creek, 2.8 miles (4.5 km) northwest of Farris, and at mile 57.7 (92.8 km).

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder. Datum of gage is 444.58 ft (135.508 m) above mean sea level. 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.

AVERAGE DISCHARGE.--40 years, 908 ft³/s (25.71 m³/s), 657,800 acre-ft/yr (811 hm³/yr).

EXTREMES FOR CURRENT YEAR. --Maximum discharge, 39,700 ft³/s (1120 m³/s) at 1545 Mar. 27, gage height 43.54 ft (13.271 m) no other peaks above base of 10,000 ft³/s (283 m³/s); minimum, 1.5 ft³/s (.042 m³/s) Oct. 4.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	540	25	24	93	251	4670	120	106	85	752	140
2	4.4	223	23	23	78	184	1450	585	62	57	581	81
3	3.0	118	22	23	707	422	1060	1280	47	43	339	50
4	1.9	71	20	22	1420	1990	803	404	39	35	128	34
5	451	51	19	22	709	1060	641	213	34	52	74	26
6	1780	41	789	23	430	451	471	142	30	53	50	45
7	412	34	3140	23	283	291	382	106	27	38	37	177
8	120	28	1770	23	200	205	324	144	23	29	28	123
9	65	24	586	27	154	155	253	145	21	24	22	72
10	47	22	312	29	124	124	201	83	20	137	17	55
11	38	20	222	29	143	435	162	64	17	61	46	40
12	32	20	336	29	2400	1290	134	58	15	33	23	29
13	27	19	363	252	3450	1230	114	65	13	51	18	1430
14	23	18	290	2290	1660	582	98	49	12	43	18	1460
15	20	16	219	3610	670	320	88	41	15	31	15	1010
16	17	14	163	2600	378	212	114	37	70	23	20	539
17	15	13	124	1200	254	154	158	33	44	17	17	195
18	13	13	98	636	190	121	2690	31	31	15	16	104
19	12	12	81	442	146	96	6850	30	23	15	16	70
20	12	17	67	286	116	79	3260	118	17	11	16	51
21	11	208	57	200	95	68	4010	707	13	122	15	39
22	10	308	50	168	81	59	3720	1940	10	110	13	32
23	9.6	139	45	252	1410	51	2920	2240	7.7	57	10	25
24	9.8	86	41	903	1430	46	1310	655	6.2	34	8.4	20
25	28	61	38	1230	507	42	977	198	5.3	22	7.1	16
26	229	51	36	663	490	75	553	121	589	14	6.1	13
27	246	42	33	407	792	26500	344	111	1140	22	13	10
28	147	36	30	296	399	26200	238	95	805	261	41	8.2
29	93	31	29	212	---	17900	175	67	501	122	86	7.2
30	448	28	27	157	---	18200	141	124	167	173	186	6.6
31	1020	---	25	119	---	13900	---	191	---	78	68	---
TOTAL	5351.4	2304	9080	16220	18809	112693	38311	10197	3910.2	1868	2686.6	5908.0
MEAN	173	76.8	293	523	672	3635	1277	329	130	60.3	86.7	197
MAX	1780	540	3140	3610	3450	26500	6850	2240	1140	261	752	1460
MIN	1.9	12	19	22	78	42	88	30	5.3	11	6.1	6.6
AC=FT	10610	4570	18010	32170	37310	223500	75990	20230	7760	3710	5330	11720
CAL YR 1977	TOTAL	216262.7	MEAN	591	MAX	25900	MIN	1.2	AC=FT	429000		
WTR YR 1976	TOTAL	227338.2	MEAN	623	MAX	26500	MIN	1.9	AC=FT	450900		

RED RIVER BASIN

07334000 MUDDY BOGGY CREEK NEAR FARRIS, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948, 1950-58, 1962-64, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to September 1948.

WATER TEMPERATURE: October 1947 to September 1948.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHUS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 05...	1028	9740	1300	230	7.9	20.0	30	9.3	103	--	62
NOV 03...	1028	9740	1300	140	7.7	12.0	85	11.1	95	31	54
DEC 08...	1028	9740	1500	134	8.6	7.0	140	11.6	94	42	29
FEB 02...	1028	9740	1430	165	7.9	4.0	73	14.2	105	32	50
MAR 02...	1028	9740	0730	125	7.6	9.0	76	10.5	92	22	34
APR 28...	1028	9740	1430	168	6.8	21.0	88	8.1	91	23	45
MAY 26...	1028	9740	0935	235	7.5	24.0	150	6.6	80	21	73
JUN 22...	1028	9740	1700	310	7.6	31.0	57	8.2	111	18	95
JUL 05...	1028	9740	1845	240	7.2	30.5	210	6.2	83	15	66
AUG 02...	1028	9740	1630	200	7.6	29.0	105	6.0	78	33	66
SEP 08...	1028	9740	1700	425	7.5	26.0	140	7.1	88	20	79

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 05...	17	7.0	20	4.0	--	14	.2	172	--	<.14	--
NOV 03...	10	4.9	15	4.1	--	25	--	157	1.5	.11	<1
DEC 08...	8.8	5.3	<10	3.1	--	25	.2	157	1.3	.17	--
FEB 02...	10	5.1	<10	2.7	27	19	.1	184	1.2	.16	3
MAR 02...	6.8	3.6	18	2.3	22	32	.1	98	1.0	.13	--
APR 28...	12	5.1	11	1.6	20	12	.1	187	2.6	.12	--
MAY 26...	18	6.9	23	4.2	32	23	.2	226	1.0	.18	<1
JUN 22...	23	8.1	21	3.0	25	27	.2	209	1.4	.12	--
JUL 05...	18	6.0	22	3.5	21	28	.2	228	1.6	.21	--
AUG 02...	16	6.1	15	11	24	16	.2	150	2.3	.35	6
SEP 08...	10	10	35	4.0	35	69	.3	279	<.65	.12	--

RED RIVER BASIN

179

07334000 MUDDY BOGGY CREEK NEAR FARRIS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CH) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT											
05...	--	--	--	1200	--	409	--	--	--	--	--
NOV											
03...	<1	17	5	3900	6	31	<.5	8	3	<1	10
DEC											
08...	--	--	--	560	--	176	--	--	--	--	--
FEB											
02...	1	29	2	990	4	70	<.5	10	<1	<1	19
MAR											
02...	--	--	--	<100	--	40	--	--	--	--	--
APR											
28...	--	--	--	1260	--	130	--	--	--	--	--
MAY											
26...	1	25	15	1220	11	140	<.5	18	1	1	40
JUN											
22...	--	--	--	2600	--	280	--	--	--	--	--
JUL											
05...	--	--	--	3000	--	200	--	--	--	--	--
AUG											
02...	1	70	8	3000	9	590	<.5	11	<1	1	23
SEP											
08...	--	--	--	7000	--	250	--	--	--	--	--

LOCATION.--Lat 34°34'45", 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 outl.t of spring, 0.5 mile (0.8 km) upstream from Big Spring Creek, 2.0 miles (3.2 km) west of Fittstown, and 12.0 miles (19.3 km) south of Ada.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 1,022 ft (311.5 m) from ground-water survey map.

REMARKS.--Records good. Records do not include diversion of about 6 to 10 ft³/s (0.17 to 0.28 m³/s) by city of Ada for municipal water supply, a part of which is discharge as effluent to Sandy Creek, tributary to Canadian River.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30 ft³/s (0.850 m³/s) May 30, 1960, gage height, 3.22 ft (0.981 m); no flow at times in 1959, 1964-67, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15 ft³/s (0.42 m³/s) Feb. 23, gage height, 3.06 ft (0.933 m); no flow Feb. 26-Mar. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	1.0	1.9	.59	1.2	.00	5.5	7.9	8.4	7.1	4.8	2.9
2	1.9	9.4	1.0	.59	1.2	.00	5.9	7.5	7.9	6.7	4.8	2.5
3	1.9	6.3	1.0	.59	1.2	.00	6.3	7.9	7.9	6.7	4.8	2.7
4	1.9	5.0	1.0	.52	1.2	.00	6.3	7.9	7.9	6.7	4.5	2.7
5	1.9	3.7	1.0	.52	1.2	.66	6.7	7.9	7.9	6.7	4.5	2.7
6	1.7	2.0	1.0	.59	1.2	1.9	6.7	7.5	7.9	6.3	4.5	2.7
7	1.7	1.9	5.9	.52	1.2	3.7	6.7	7.5	7.9	5.9	4.2	2.5
8	1.7	1.8	1.0	.52	1.2	2.3	6.7	7.5	7.9	5.9	4.2	2.5
9	1.7	1.8	.93	.52	1.4	1.9	7.1	7.5	7.9	5.9	4.2	2.3
10	1.6	1.7	.83	.47	1.0	2.7	7.1	7.5	7.5	6.3	4.2	2.3
11	1.6	1.7	.93	.47	1.3	2.7	7.1	7.5	7.5	5.9	4.2	2.3
12	1.6	1.6	.83	.42	1.4	2.7	7.5	7.5	7.1	5.9	4.2	2.5
13	1.6	1.6	.93	.47	1.6	2.9	7.5	7.5	7.1	5.5	4.0	2.5
14	1.6	1.6	.93	.47	1.4	1.7	7.5	7.5	7.1	5.5	4.0	2.3
15	1.4	1.5	.93	.52	1.4	.93	7.5	7.1	7.1	5.5	4.0	2.3
16	1.4	1.5	.93	.52	1.4	.93	7.5	7.1	7.1	5.5	3.7	2.3
17	1.4	1.5	.93	.66	1.6	1.0	7.5	7.1	6.7	5.5	3.7	2.1
18	1.4	4.8	.93	.66	1.4	1.0	7.5	7.1	6.7	5.5	3.4	2.1
19	1.4	3.7	.93	.74	1.0	.93	7.1	7.1	6.7	5.5	3.7	2.1
20	1.3	1.9	5.2	.74	1.2	.93	7.5	7.9	6.7	5.5	3.7	2.1
21	1.3	1.0	6.3	.74	1.3	.93	7.5	8.4	7.5	5.5	3.4	2.1
22	1.3	7.1	6.2	.83	1.4	.83	7.9	8.4	7.9	5.5	3.4	2.1
23	1.3	2.7	2.9	.83	3.7	.83	7.9	8.4	6.7	5.2	3.2	1.9
24	1.2	1.0	.15	.93	1.3	.83	7.9	8.4	6.7	5.2	3.2	1.9
25	1.2	1.2	.47	1.0	.93	.83	7.9	8.4	6.7	5.2	2.9	1.7
26	1.2	1.0	.47	.93	.00	.93	7.9	8.4	6.7	5.2	2.7	1.6
27	1.0	1.0	.52	1.2	.00	3.7	7.9	8.4	7.1	5.2	2.9	1.6
28	1.0	1.0	.52	1.0	.00	4.0	7.9	8.4	7.1	5.2	2.9	1.6
29	1.2	1.0	.66	1.0	---	4.2	7.9	8.4	7.1	4.8	2.9	1.7
30	1.0	9.4	.59	1.0	---	4.5	7.9	8.4	6.7	5.2	2.9	1.7
31	1.0	---	.59	1.0	---	4.8	---	8.4	---	4.8	2.9	---
TOTAL	45.5	62.4	47.40	21.56	54.33	55.26	217.8	242.4	219.1	177.0	116.6	66.3
MEAN	1.47	2.75	1.53	.70	1.23	1.78	7.26	7.82	7.30	5.71	3.76	2.21
MAX	2.1	9.4	6.3	1.2	3.7	4.8	7.9	8.4	8.4	7.1	4.8	2.9
MIN	1.0	1.0	.15	.42	.00	.00	5.5	7.1	6.7	4.8	2.7	1.6
AC=FT	90	163	94	43	68	110	432	481	435	351	231	132
CAL YR 1976	TOTAL	1566.70	MEAN	3.73	MAX	9.4	MIN	.15	AC=FT	2710		
WTH YR 1977	TOTAL	1325.65	MEAN	3.63	MAX	9.4	MIN	.00	AC=FT	2630		

07334800 CLEAR BOGGY CREEK ABOVE CANEY CREEK NEAR CANEY, OK

LOCATION.--Lat 34°15'18", long 96°12'45", in NW 1/4 SW 1/4 NW 1/4 sec.36, T.3 S., R.10 E., Atoka County, Hydrologic Unit 11140104, at bridge on U.S. Highways 69 and 75, 0.6 mi (1.0 km) upstream from Caney Creek, 1.6 mi (2.6 km) north of Caney.

PERIOD OF RECORD.--Water years 1976 to current year. From November 1975 to September 1976, published as Clear Boggy Creek near Caney.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

REVISIONS.--Records for the 1976 water year were erroneously published as Clear Boggy Creek near Caney.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 06...	1028	9740	1230	260	7.8	17.0	325	9.9	103	48	--
NOV 03...	1028	9740	1200	410	8.2	11.5	75	12.2	102	21	157
DEC 07...	1028	9740	1400	285	8.4	6.0	90	13.0	98	--	92
JAN 03...	1028	9740	1300	600	8.2	1.0	3	13.6	98	7	265
FEB 02...	1028	9740	0930	590	8.1	3.0	18	14.0	101	18	235
MAR 01...	1028	9740	1215	595	7.9	10.5	20	12.1	109	10	271
APR 29...	1028	9740	1145	498	7.8	21.0	91	8.3	93	21	199
MAY 25...	1028	9740	1117	350	7.9	23.0	125	8.2	95	27	138
JUN 22...	1028	9740	1815	870	8.2	31.5	5	8.4	115	8	296
JUL 05...	1028	9740	2000	560	8.1	31.0	22	7.3	99	3	212
AUG 02...	1028	9740	1730	830	8.6	33.5	4	9.1	128	10	277
SEP 07...	1028	9740	1145	430	7.6	25.0	120	7.3	88	25	102

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLU- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 06...	--	--	--	--	--	--	.3	--	.50	.33	--
NOV 03...	40	10	22	3.7	--	57	.1	265	1.0	.11	<1
DEC 07...	27	7.4	13	6.5	--	28	.2	220	1.4	.28	--
JAN 03...	67	23	33	2.3	25	63	.1	379	.70	.04	--
FEB 02...	71	15	13	3.0	32	40	.1	322	1.0	.09	2
MAR 01...	72	18	39	2.9	--	71	.2	389	.80	.09	--
APR 29...	59	13	30	2.2	20	36	.2	322	2.4	.14	--
MAY 25...	44	9.3	19	4.6	24	23	.2	118	1.4	.34	5
JUN 22...	86	21	60	4.1	29	114	.2	523	.92	.09	--
JUL 05...	59	15	31	3.5	21	52	.2	325	.92	.11	--
AUG 02...	69	22	62	4.6	24	117	.3	451	1.3	.11	2
SEP 07...	17	13	5.0	3.0	15	34	.2	221	<.65	.18	--

RED RIVER BASIN

07334800 CLEAR BOGGY CREEK ABOVE CANEY CREEK NEAR CANEY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
06...	--	--	--	1700	--	518	--	--	--	--	--
NOV											
03...	2	12	5	1300	4	12	<.5	4	2	1	5
DEC											
07...	--	--	--	2	--	<0	--	--	--	--	--
JAN											
03...	--	--	--	270	--	109	--	--	--	--	--
FEB											
02...	1	16	5	650	4	80	<.5	9	<1	1	9
MAR											
01...	--	--	--	950	--	70	--	--	--	--	--
APR											
29...	--	--	--	1140	--	160	--	--	--	--	--
MAY											
25...	1	25	15	1650	8	330	<.5	25	1	2	44
JUN											
22...	--	--	--	430	--	70	--	--	--	--	--
JUL											
05...	--	--	--	200	--	<20	--	--	--	--	--
AUG											
02...	1	15	4	230	20	90	<.5	7	<1	3	13
SEP											
07...	--	--	--	6000	--	210	--	--	--	--	--

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 mi² (1,865 km²).

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) above mean sea level. Prior to Mar. 13, 1945, nonrecording gage at same site and datum.

REMARKS.--Records good.

COOPERATION.--Gage-height record and 26 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--35 years, 495 ft³/s (14.02 m³/s), 9.34 in/yr (237 mm/yr), 358,600 acre-ft/yr (442 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,800 ft³/s (1,500 m³/s) Dec. 11, 1943, Dec. 11, 1946, gage height, 26.77 ft (8.159 m); no flow at times in 1954, 1956, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,200 ft³/s (600 m³/s) at 1800, Mar. 27, gage height, 23.85 ft (7.269 m), no other peak above base of 4,500 ft³/s (127 m³/s); minimum, 7.2 ft³/s (0.203 m³/s) Oct. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	316	38	47	105	107	2890	326	168	102	20	60
2	6.7	190	36	34	99	104	2490	595	153	67	16	37
3	6.7	135	36	40	99	168	2160	384	137	80	15	27
4	7.3	109	37	40	99	578	1830	298	125	78	14	21
5	786	89	38	42	99	321	1510	254	110	55	17	23
6	373	70	739	43	99	199	1300	212	96	47	17	202
7	143	60	1380	43	99	157	1060	188	86	40	14	104
8	95	54	610	45	117	136	902	534	72	34	13	58
9	66	47	361	38	121	124	799	319	63	29	12	44
10	49	40	257	67	115	118	691	166	57	31	12	35
11	39	35	195	59	178	151	588	128	52	24	13	28
12	32	34	178	54	2320	220	454	108	48	24	12	27
13	27	33	159	94	1800	274	371	94	47	25	24	1020
14	25	33	135	781	761	171	330	82	44	23	20	520
15	24	35	128	1620	480	140	331	75	42	21	28	232
16	24	33	113	1040	372	120	325	68	41	20	20	133
17	31	32	99	616	316	105	346	63	39	19	17	77
18	25	31	91	450	264	98	1940	101	36	20	16	52
19	24	31	83	321	215	90	708	69	36	21	16	40
20	25	38	75	279	179	83	582	159	34	19	18	33
21	26	188	68	216	158	77	884	2240	33	18	16	26
22	25	119	63	178	146	72	1250	2220	30	17	15	23
23	25	98	60	215	484	67	814	946	29	17	16	20
24	24	82	62	440	241	65	565	668	29	17	18	18
25	145	69	59	397	158	65	457	528	29	16	21	16
26	179	64	56	284	182	111	376	450	255	16	39	15
27	99	55	55	221	143	13700	314	384	1160	18	21	14
28	73	48	52	181	122	19200	264	324	615	16	16	13
29	74	43	51	149	---	13800	228	279	183	15	272	12
30	721	40	49	129	---	9630	208	228	129	14	79	12
31	610	---	46	112	---	4900	---	192	---	15	98	---
TOTAL	3817.0	2251	5409	8275	9571	65151	26967	12682	3978	958	945	2942
MEAN	123	75.0	174	267	342	2102	899	409	133	30.9	30.5	98.1
MAX	786	316	1380	1620	2320	19200	2890	2240	1160	102	272	1020
MIN	6.7	31	36	34	99	65	208	63	29	14	12	12
CFSM	.17	.10	.24	.37	.48	2.92	1.25	.57	.19	.04	.04	.14
IN.	.20	.12	.28	.43	.48	3.37	1.39	.66	.21	.05	.05	.15
AC=FT	7570	4460	10730	16410	18980	129200	53490	25150	7890	1900	1670	5840

CAL YR 1976 TOTAL 118320.7 MEAN 323 MAX 10900 MIN 6.7 CFSM .45 IN 6.11 AC=FT 234700
WTR YR 1977 TOTAL 142946.0 MEAN 392 MAX 19200 MIN 6.7 CFSM .54 IN 7.39 AC=FT 283500

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, near right bank on downstream side of pier 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 mi² (115,335 km²), of which 5,936 mi² (15,374 km²) 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 U.S. 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) above mean sea level. 1905-11, nonrecording gage at St. Louis-San Francisco 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 miles (149.3 km) above station.

COOPERATION.--Gage-height record and 23 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 ft³/s (262.4 m³/s) 6,713,000 acre-ft/yr (8.28 km³/yr); (since regulation of Denison Dam) 33 years, (water years 1945-77), 7,963 ft³/s (225.5 m³/s), 5,769,000 acre-ft/yr (7.11 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 400,000 ft³/s (11,300 m³/s) May 28, 1908, gage height, 43.2 ft (13.17 m), from rating curve extended above 41,000 ft³/s (1,160 m³/s) on basis of records for later years; minimum, 130 ft³/s (3.68 m³/s) Dec. 11, 12, 1956, gage height, 4.49 ft (1.369 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 118,000 ft³/s (3,340 m³/s) Mar. 28, gage height, 24.85 ft (7.574 m); minimum daily, 147 ft³/s (4.16 m³/s) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3150	2950	4700	4540	1590	1800	41400	5820	38200	5090	1740	4230
2	3270	2420	6690	6710	1580	1530	37900	4610	41900	4760	2250	3260
3	3410	1580	5510	4560	3070	3090	31700	4080	41400	3260	2690	3100
4	3080	1260	4420	2360	5730	5070	24600	4830	37300	1840	1970	3040
5	3250	687	3450	5130	8510	5680	18000	3910	26100	1060	3570	2590
6	2300	426	2280	4760	5910	4980	14700	2570	27500	840	4330	1920
7	2490	300	1100	3710	3220	2780	11500	2400	25600	1300	3370	1310
8	2650	1100	6250	3940	2140	1890	8610	5570	16800	3020	2360	1200
9	1220	514	9700	5280	2020	1510	8030	3650	11800	3900	1880	2400
10	708	1220	8270	6000	2390	1930	6160	2770	10200	4170	3010	2520
11	451	3180	5590	7500	2410	2150	6920	5550	9590	3390	3790	2390
12	359	2420	6180	5660	4950	2190	4380	7480	8310	1980	4160	2060
13	267	2120	6980	4910	9030	3050	5680	5560	7360	1800	4060	1660
14	204	3140	3510	6740	11600	3200	7140	4270	4430	3240	2650	2470
15	168	3100	5200	9380	7810	2230	7860	5090	3740	3380	1030	6460
16	147	3220	6670	10800	4310	1570	8510	4710	5120	3010	798	4440
17	1320	3160	4320	8780	3660	1240	9220	4400	5010	2520	756	3790
18	2600	3230	2990	5880	4650	1090	6380	5110	4520	2000	2480	3640
19	2820	3130	2760	5570	4240	1050	7680	7260	4390	1510	3620	3450
20	4100	2940	1490	5570	3200	1400	15200	9470	3670	1820	2780	2430
21	3570	2960	706	4850	2310	967	17700	13400	2480	3010	1760	1640
22	5030	2440	3360	3200	1560	782	17700	23200	4360	3310	8130	2950
23	5790	1330	5690	2090	2210	827	15100	28900	4910	2820	3660	3840
24	4090	1700	3920	2500	3780	2120	13300	28000	4380	3090	2240	4340
25	3460	3020	2660	3230	4640	2370	8400	27100	3970	2610	4500	4230
26	2830	3640	1350	4620	3240	1150	5270	34600	4170	2030	4570	4300
27	3080	2790	578	4940	2570	22000	4260	39100	5900	3820	3420	2840
28	4090	2430	377	4130	2480	106000	5430	37800	6020	4500	2830	3090
29	2560	3140	535	2780	---	86400	6480	36800	8110	2720	2580	4070
30	2260	2190	1810	2340	---	52900	5890	36600	7540	1140	2150	3700
31	2570	---	2210	2100	---	44700	---	36700	---	794	1900	---
TOTAL	77294	67737	121256	154560	114810	369646	381100	441310	386780	83734	91034	93320
MEAN	2493	2258	3911	4986	4100	11920	12700	14240	12890	2701	2937	3111
MAX	5790	3640	9700	10800	11600	106000	41400	39100	41900	5090	8130	6460
MIN	147	300	377	2090	1560	782	4260	2400	2480	794	756	1200
AC-FT	153300	134400	240500	306600	227700	733200	755900	875300	767200	166100	180600	185100
CAL YR 1976 TOTAL	1727755	MEAN	4721	MAX	43000	MIN	147	AC-FT	3427000			
WTR YR 1977 TOTAL	2382581	MEAN	6528	MAX	106000	MIN	147	AC-FT	4726000			

07335500 RED RIVER AT ARTHUR CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-63, 1976 to current year.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
13...	1028	9740	1445	1050	7.5	21.0	42	9.5	107	23	243
NOV											
10...	1028	9740	1245	1070	7.8	15.5	16	10.2	103	18	299
DEC											
15...	1028	9740	1230	1750	8.2	7.0	27	11.2	93	14	332
JAN											
20...	1028	9740	0830	1400	7.5	1.0	45	14.1	97	20	294
FEB											
03...	1028	9740	1100	1200	8.0	3.5	86	10.9	82	23	265
MAR											
09...	1028	9740	1600	500	8.0	14.0	75	10.2	100	22	177
APR											
12...	1028	9740	1445	1280	8.1	22.5	46	9.4	107	18	281
MAY											
10...	1028	9740	1630	910	7.5	24.0	64	8.2	98	20	238
JUN											
07...	1028	9740	1415	1900	8.0	25.0	50	7.7	93	18	428
JUL											
26...	1028	9740	1600	1630	8.4	31.0	2	8.4	115	21	399
AUG											
03...	1028	9740	1030	1260	8.2	27.0	18	7.0	88	14	283
SEP											
14...	1028	9740	1200	1650	8.3	22.0	25	6.8	79	17	278
DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
UCT											
13...	70	28	104	4.8	--	155	.2	614	1.2	.14	--
NOV											
10...	31	11	135	5.2	--	214	.2	775	1.0	.08	1
DEC											
15...	95	33	200	5.9	--	317	.4	1046	1.0	.06	--
JAN											
20...	57	21	171	5.6	189	235	.2	802	.80	.08	--
FEB											
03...	72	26	128	5.4	139	202	.2	683	2.4	.26	3
MAR											
09...	48	11	51	2.3	48	53	.2	358	1.2	.18	--
APR											
12...	79	23	127	5.3	137	194	.2	658	2.2	.13	--
MAY											
10...	64	20	96	5.1	106	149	.2	545	1.5	.10	2
JUN											
07...	103	37	241	8.8	250	368	.3	1108	.96	.13	--
JUL											
26...	98	28	207	6.1	211	335	.3	1021	1.6	.11	--
AUG											
03...	74	21	150	6.6	155	246	.3	787	1.5	.18	4
SEP											
14...	63	28	193	5.8	200	296	.3	971	<.63	.15	--

RED RIVER BASIN

07335500 RED RIVER AT ARTHUR CITY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
13...	--	--	--	800	--	180	--	--	--	--	--
NOV											
10...	2	11	7	350	22	79	<.5	11	<1	2	8
DEC											
15...	--	--	--	650	--	126	--	--	--	--	--
JAN											
20...	--	--	--	890	--	98	--	--	--	--	--
FEB											
03...	1	19	9	490	21	100	<.5	10	<1	6	19
MAR											
09...	--	--	--	1500	--	130	--	--	--	--	--
APR											
12...	--	--	--	1060	--	100	--	--	--	--	--
MAY											
10...	2	7	9	890	36	120	.9	12	<1	1	16
JUN											
07...	--	--	--	650	--	120	--	--	--	--	--
JUL											
26...	--	--	--	400	--	120	--	--	--	--	--
AUG											
03...	1	30	5	780	35	150	<.5	7	<1	3	13
SEP											
14...	--	--	--	2900	--	450	--	--	--	--	--

RED RIVER BASIN

187

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, Hydro-logic Unit 11140105, in Ouachita National Forest, on downstream side of right bank pier of bridge on State Highway 63, 0.2 mile (0.3 km) upstream from Rattlesnake Creek, 1.1 miles (1.8 km) upstream from Big Branch, 2.1 miles (3.4 km) east of Big Cedar, and at mile 157.6 (253.6 km).

DRAINAGE AREA.--40.1 mi² (103.9 km²).

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) above mean sea level (State Highway Department bench mark).

REMARKS.--Records good.

AVERAGE DISCHARGE.--12 years, 77.0 ft³/s (2.181 m³/s), 26.08 in/yr (662 mm/yr), 55,790 acre-ft/yr (68.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft³/s (609 m³/s) Dec. 10, 1971, gage height, 17.08 ft (5.206 m), from rating curve extended above 9,000 ft³/s (255 m³/s); no flow at times in most years.

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

DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)	DATE	TIME	DISCHARGE (ft ³ /s) (m ³ /s)	GAGE HEIGHT (ft) (m)
Mar. 3	1330	2,990 87.4	10.22 3.115	Mar. 27	1600	*10,300 292	14.34 4.371

No flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	56	57	13	56	29	123	20	1.9	.82	.69	.00
2	1.9	47	47	12	50	33	119	19	1.7	.75	.66	.00
3	1.8	39	93	12	125	1240	95	16	1.6	.67	.50	.00
4	2.7	33	106	13	128	441	84	13	1.5	.57	.37	.00
5	294	27	83	13	114	230	70	13	1.4	.47	.28	.00
6	95	24	124	14	98	161	59	11	1.3	.38	.19	.00
7	47	20	151	16	82	125	51	9.2	1.4	.28	.13	.00
8	30	17	122	16	71	101	45	8.8	1.4	.20	.07	.00
9	20	16	96	20	63	84	40	9.4	1.3	.18	.01	.00
10	14	14	87	19	58	73	35	6.4	1.1	.22	.00	.00
11	9.9	13	163	18	102	280	31	6.1	1.0	.15	.00	.00
12	7.7	14	178	16	232	260	28	5.4	1.3	.09	.00	.00
13	6.3	12	141	97	163	174	25	4.8	2.9	.03	.00	.00
14	5.4	12	113	181	132	131	22	4.5	1.7	.00	.00	.00
15	5.0	12	94	170	107	103	20	3.9	1.4	.00	.00	.00
16	5.4	11	76	151	91	81	19	3.5	1.3	.00	.00	.00
17	4.4	9.7	62	126	76	70	30	3.2	1.3	.00	.00	.00
18	4.3	9.1	51	101	66	63	318	3.0	1.2	.00	.00	.00
19	5.8	8.8	45	85	56	53	286	2.7	1.1	.00	.00	.00
20	5.8	15	37	73	51	45	264	4.6	1.1	.00	.00	.00
21	5.1	17	32	68	44	39	254	8.3	.92	.00	.00	.00
22	4.8	17	28	66	40	34	171	8.3	.83	.00	.00	.00
23	6.2	19	26	98	46	29	123	6.0	.73	.00	.00	.00
24	15	19	24	105	38	28	93	4.8	.64	.00	.00	.00
25	170	23	22	103	35	26	65	4.1	.81	.00	.00	.00
26	110	354	20	100	36	25	51	3.6	1.9	.00	.00	.00
27	72	185	19	96	36	4200	41	3.3	2.1	.00	.00	.00
28	53	121	18	89	32	1620	32	2.9	1.5	.00	.00	.46
29	51	91	16	79	---	359	26	2.8	1.2	.06	.00	.24
30	78	70	15	73	---	213	22	2.4	.96	.16	.00	9.7
31	67	---	14	63	---	151	---	2.1	---	.72	.00	---
TOTAL	1200.5	1325.6	2160	2106	2228	10501	2642	216.1	40.49	5.75	2.90	79.70
MEAN	38.7	44.2	69.7	67.9	79.6	339	88.1	6.97	1.35	.19	.094	2.66
MAX	294	354	178	181	232	4200	318	20	2.9	.82	.69	.46
MIN	1.8	8.8	14	12	32	25	19	2.1	.64	.00	.00	.00
CFSM	.97	1.10	1.74	1.69	1.99	8.45	2.20	.17	.03	.005	.002	.07
IN.	1.11	1.23	2.00	1.95	2.07	9.74	2.45	.20	.04	.01	.00	.07
AC-FT	2380	2630	4280	4180	4420	20830	5240	429	80	11	5.8	158
CAL YR 1976	TOTAL	14958.55	MEAN 40.9	MAX 930	MIN .00	CFSM 1.02	IN 13.88	AC-FT 29670				
WTR YR 1977	TOTAL	22508.04	MEAN 61.7	MAX 4200	MIN .00	CFSM 1.54	IN 20.88	AC-FT 44640				

RED RIVER BASIN

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 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHMS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT										
27...	--	--	1130	71	24	--	11.0	--	10.8	99
27...	1028	9740	1131	71	24	--	11.0	9	10.8	99
NOV										
29...	--	--	1730	87	20	7.3	4.0	--	12.7	99
29...	1028	9740	1731	87	20	7.3	4.0	7	12.7	99
DEC										
28...	--	--	1330	18	27	7.8	6.0	--	11.1	92
28...	1028	9740	1331	18	27	7.8	6.0	5	11.1	92
JAN										
26...	--	--	1045	100	26	6.4	4.0	--	11.8	92
26...	1028	9740	1046	100	26	6.4	4.0	6	11.8	92
FEB										
24...	--	--	1100	38	21	6.7	11.0	--	10.4	97
24...	1028	9740	1101	38	21	6.7	11.0	5	10.4	97
MAR										
22...	--	--	1700	33	--	6.9	13.0	--	10.8	105
22...	1028	9740	1701	33	--	6.9	13.0	5	10.8	105
APR										
25...	--	--	1715	62	21	7.5	17.0	--	10.2	107
25...	1028	9740	1716	62	21	7.5	17.0	7	10.2	107
MAY										
24...	1028	9740	1450	4.8	37	7.3	24.0	5	8.9	108
24...	--	--	1600	4.8	53	7.3	25.0	--	8.7	107
JUN										
01...	1028	9740	1400	1.9	40	6.4	25.5	5	7.6	95
01...	--	--	1530	1.9	32	7.0	26.0	--	7.6	96
JUL										
12...	1028	9740	1540	.08	45	6.9	32.0	4	7.4	103
12...	--	--	1640	.08	44	6.9	32.0	--	7.4	103

DATE	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL./ 100 ML)	FECAL STREP- TOCOC1 KF AGAR (COL. PER 100 ML)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
OCT										
27...	--	520	83	690	6	4	.9	.9	2.0	39
27...	0	--	--	--	--	--	--	--	--	--
NOV										
29...	--	--	--	--	4	2	.6	.6	1.8	45
29...	4	--	--	--	--	--	--	--	--	--
DEC										
28...	--	82	84	89	12	10	3.5	.8	2.5	30
28...	3	--	--	--	--	--	--	--	--	--
JAN										
26...	--	84	39	--	6	3	1.1	.9	1.8	36
26...	3	--	--	--	--	--	--	--	--	--
FEB										
24...	--	890	821	35	4	0	.1	.9	1.7	45
24...	<3	--	--	--	--	--	--	--	--	--
MAR										
22...	--	844	88	390	4	0	.8	.6	1.9	45
22...	13	--	--	--	--	--	--	--	--	--
APR										
25...	--	30	831	330	5	0	.8	.7	1.8	41
25...	4	--	--	--	--	--	--	--	--	--
MAY										
24...	7	--	--	--	--	--	--	--	--	--
24...	--	854	818	490	11	5	2.5	1.2	2.0	26
JUN										
01...	4	--	--	--	--	--	--	--	--	--
01...	--	862	810	100	17	8	2.7	2.4	2.0	20
JUL										
12...	12	--	--	--	--	--	--	--	--	--
12...	--	>800	834	67	--	--	<.7	3.6	2.5	0

RED RIVER BASIN

189

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	SODIUM AD- SURP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAN- BONATE (CO3) (MG/L)	ALKA- LINIT- AS CALCO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUOR- IDE (F) (MG/L)
OCT									
27...	.4	.7	3	0	2	--	2.7	2.5	--
27...	--	--	--	--	--	--	--	--	.1
NOV									
29...	.4	.7	3	0	2	.2	2.3	2.4	--
29...	--	--	--	--	--	--	--	--	<.1
DEC									
28...	.3	.5	2	0	2	.1	7.2	3.0	--
28...	--	--	--	--	--	--	--	--	--
JAN									
26...	.3	.4	4	0	3	2.5	4.0	1.8	--
26...	--	--	--	--	--	--	--	--	--
FEB									
24...	.4	.5	6	0	5	1.9	3.6	2.0	--
24...	--	--	--	--	--	--	--	--	--
MAR									
22...	.4	.4	5	0	4	1.0	5.2	2.5	--
22...	--	--	--	--	--	--	--	--	--
APR									
25...	.4	.6	6	0	5	.3	3.4	3.7	--
25...	--	--	--	--	--	--	--	--	.0
MAY									
24...	--	--	--	--	--	--	--	--	.0
24...	.3	1.0	8	0	7	.6	5.2	2.2	--
JUN									
01...	--	--	--	--	--	--	--	--	.1
01...	.2	.8	11	0	9	1.8	2.0	2.0	--
JUL									
12...	--	--	--	--	--	--	--	--	.1
12...	--	1.1	16	0	13	3.2	9.3	2.1	--
DATE	DIS- SOLVED FLUOR- IDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSII- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOSPH- ORUS (P) (MG/L)
OCT									
27...	.1	7.6	36	19	.05	6.90	.04	--	.16
27...	--	--	--	--	--	--	--	.70	<.03
NOV									
29...	.1	7.4	21	17	.03	4.93	.13	--	.02
29...	--	--	--	--	--	--	--	.70	<.03
DEC									
28...	.1	7.2	41	26	.06	1.99	.01	--	.00
28...	--	--	--	--	--	--	--	.50	<.03
JAN									
26...	.2	6.9	16	19	.02	4.32	.02	--	.01
26...	--	--	--	--	--	--	--	.80	<.10
FEB									
24...	.0	6.5	10	18	.01	1.03	.01	--	.00
24...	--	--	--	--	--	--	--	.50	.06
MAR									
22...	.0	7.2	27	21	.04	2.41	.07	--	.03
22...	--	--	--	--	--	--	--	1.0	.04
APR									
25...	.1	8.1	23	22	.03	3.85	.03	--	.01
25...	--	--	--	--	--	--	--	2.2	.00
MAY									
24...	--	--	--	--	--	--	--	2.1	.03
24...	.0	7.1	26	25	.04	.34	.02	--	.01
JUN									
01...	--	--	--	--	--	--	--	1.5	.04
01...	.1	7.1	21	25	.03	.11	.01	--	.02
JUL									
12...	--	--	--	--	--	--	--	1.9	.06
12...	.1	3.7	23	--	.03	.00	.04	--	.03

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COLLECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CW) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
UCT										
27...	1028	9740	1131	--	--	--	--	--	100	--
NOV										
29...	--	--	1730	--	--	--	--	--	--	--
29...	1028	9740	1731	--	--	--	--	--	<100	--
DEC										
28...	--	--	1330	--	--	--	--	--	--	--
28...	1028	9740	1331	--	--	--	--	--	100	--
JAN										
26...	--	--	1045	0	0	<10	0	<10	250	<100
26...	1028	9740	1046	--	--	--	--	--	300	--
FEB										
24...	--	--	1100	--	--	--	--	--	--	--
24...	1028	9740	1101	<1	--	<1	10	1	<100	<3
MAR										
22...	--	--	1700	--	--	--	--	--	--	--
22...	1028	9740	1701	--	--	--	--	--	210	--
APR										
25...	--	--	1715	--	--	--	--	--	--	--
25...	1028	9740	1716	--	--	--	--	--	<200	--
MAY										
24...	1028	9740	1450	2	--	<1	13	1	390	1
24...	--	--	1600	--	--	--	--	--	--	--
JUN										
01...	1028	9740	1400	--	--	--	--	--	670	--
01...	--	--	1530	1	0	<10	10	<10	500	<100
JUL										
12...	1028	9740	1540	--	--	--	--	--	530	--
12...	--	--	1640	--	--	--	--	--	--	--

DATE	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	CYANIDE (CN) (MG/L)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT DIS- CHARGE (T/DAY)	SUS- SED. SIEVE DIAM. % FINER THAN .062 MM
UCT										
27...	<5	--	--	--	--	--	--	--	--	--
NOV										
29...	--	--	--	--	--	--	--	9	2.1	26
29...	<5	--	--	--	--	--	--	--	--	--
DEC										
26...	--	--	--	--	--	--	--	1	.05	87
26...	<5	--	--	--	--	--	--	--	--	--
JAN										
26...	0	.2	--	0	<10	20	--	5	1.3	71
26...	<5	--	--	--	--	--	--	--	--	--
FEB										
24...	--	--	--	--	--	--	--	5	.51	59
24...	10	<.5	3	--	<1	5	--	--	--	--
MAR										
22...	--	--	--	--	--	--	--	5	.45	50
22...	<10	--	--	--	--	--	--	--	--	--
APR										
25...	--	--	--	--	--	--	--	2	.33	87
25...	<10	--	--	--	--	--	--	--	--	--
MAY										
24...	10	<.5	<2	<1	1	14	--	--	--	--
24...	--	--	--	--	--	--	.00	6	.08	54
JUN										
01...	40	--	--	--	--	--	--	--	--	--
01...	40	.1	--	0	<10	20	.00	22	.11	86
JUL										
12...	40	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	5	.00	50

RED RIVER BASIN

191

07335790 KIAMICHI RIVER NEAR CLAYTON, OK

LOCATION.--Lat 34°34'02", long 95°20'50", SE 1/4 NE 1/4 sec.7, T.1 N., R.19 E., Pushmataha County, Hydrologic Unit 11140105, at bridge on U.S. Highway 271, 1.1 mi (1.8 km) southeast of Clayton, and at mile 101.6 (163.5 km).

DRAINAGE AREA.--708 mi² (1,834 km).

PERIOD OF RECORD.--October 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 28...	1028	9740	1140	66	--	10.5	55	9.4	84	0	49
NOV 30...	1028	9740	1453	49	7.3	6.0	30	11.8	95	22	20
DEC 28...	1028	9740	1200	49	7.2	3.0	13	11.6	89	3	9
JAN 25...	1028	9740	1410	37	7.5	4.0	45	12.0	92	16	13
FEB 23...	1028	9740	1300	40	7.3	12.0	260	9.5	91	59	28
MAR 23...	1028	9740	1445	43	7.0	15.0	20	9.8	97	16	12
APR 26...	1028	9740	1400	64	7.1	18.5	21	9.0	97	9	11
MAY 25...	1028	9740	1100	73	6.9	24.0	12	6.7	81	8	14
JUN 02...	1028	9740	1150	87	6.8	25.0	12	6.5	79	6	25
JUL 13...	1028	9740	1430	90	6.5	30.0	17	7.1	93	19	28
AUG 24...	1028	9740	1150	84	7.0	26.0	6	6.9	86	11	26
SEP 16...	1028	9740	1130	66	7.2	24.0	27	7.0	83	15	18

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)	TOTAL FLUOR- IDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 28...	4.3	2.3	<10	3.0	--	10	.1	134	.80	.04	--
NOV 30...	2.7	1.4	<10	<1.0	--	4.0	.0	81	1.2	.06	--
DEC 28...	3.0	<1.9	<10	1.8	--	7.0	.1	56	.70	.04	--
JAN 25...	3.0	1.8	15	1.3	19	11	<.1	83	1.2	.13	--
FEB 23...	4.9	2.7	12	2.7	20	21	<.1	87	3.0	.56	7
MAR 23...	3.2	1.6	--	<1.0	31	4.0	<.1	68	1.2	.08	--
APR 26...	3.4	1.7	5.0	<1.0	18	8.0	.0	58	1.3	.04	--
MAY 25...	4.0	2.3	12	1.2	8.0	3.0	.0	39	.93	.06	3
JUN 02...	4.6	2.6	8.0	1.0	<2.0	5.0	.1	64	1.1	.08	--
JUL 13...	5.5	2.6	9.0	1.7	16	6.0	.1	76	2.2	.09	--
AUG 24...	4.1	2.5	5.0	1.9	10	5.0	.0	38	.97	.07	2
SEP 16...	2.4	2.1	<10	1.9	8.0	4.0	.0	78	<.63	.07	--

RED RIVER BASIN

07335790 KIAMICHI RIVER NEAR CLAYTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT											
28...	--	--	--	700	--	41	--	--	--	--	--
NOV											
30...	--	--	--	560	--	46	--	--	--	--	--
DEC											
28...	--	--	--	600	--	35	--	--	--	--	--
JAN											
25...	--	--	--	780	--	25	--	--	--	--	--
FEB											
23...	2	26	14	6500	29	690	<.5	29	--	4	81
MAR											
23...	--	--	--	710	--	40	--	--	--	--	--
APR											
26...	--	--	--	1140	--	70	--	--	--	--	--
MAY											
25...	1	12	3	700	135	70	<.5	3	<1	<1	11
JUN											
02...	--	--	--	970	--	290	--	--	--	--	--
JUL											
13...	--	--	--	970	--	960	--	--	--	--	--
AUG											
24...	<1	6	2	520	25	95	<.5	<3	8	<2	9
SEP											
16...	--	--	--	2080	--	120	--	--	--	--	--

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 mi² (2,947 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 419.82 ft (127.961 m) above mean sea level.

REMARKS.--Records good. Small diversion above station for municipal water supply of city of Antlers.

COOPERATION.--Gage height record, 21 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--5 years, 1,774 ft³/s (50.24 m³/s), 1,285,000 acre-ft/yr (1.58 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) Mar. 28, 1977, gage height, 38.33 ft (11.683 m); no flow Oct. 1-21, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) at 1415 Mar. 28, gage height, 38.33 ft (11.683 m), no other peak above base of 18,000 ft³/s (510 m³/s); minimum, 6.8 ft³/s (0.19 m³/s) Oct. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	7.8	535	267	82	570	907	2460	396	44	61	2630	87		
2	7.1	372	219	78	501	721	1920	454	40	47	1410	54		
3	12	270	184	75	823	1600	1610	434	39	36	290	36		
4	32	207	157	69	2340	5310	1360	349	36	30	125	30		
5	59	173	136	67	1900	5020	1110	291	32	25	76	27		
6	88	142	390	66	1320	2200	902	261	28	21	48	27		
7	312	121	2080	67	1030	1490	758	228	26	20	34	25		
8	423	105	1770	71	844	1140	654	208	23	18	27	23		
9	257	90	1030	84	720	929	550	188	21	17	23	21		
10	181	82	724	101	624	781	455	163	19	16	20	19		
11	137	75	590	120	647	1180	392	141	19	15	18	18		
12	107	73	933	122	1590	5170	342	131	18	15	17	17		
13	86	73	1270	456	2480	3600	300	117	18	15	16	1170		
14	71	68	970	3000	1830	2060	266	107	17	17	15	1250		
15	61	64	752	5710	1310	1470	241	97	16	17	14	660		
16	52	60	599	3850	1000	1130	480	91	16	16	16	413		
17	49	57	492	2340	820	900	891	82	16	16	18	238		
18	41	51	409	1500	704	759	2540	73	15	16	20	156		
19	39	51	344	1100	609	653	8940	66	16	21	19	121		
20	40	63	292	857	528	562	5750	88	17	31	26	123		
21	51	135	255	759	456	477	4570	225	17	42	30	123		
22	50	130	219	724	401	414	3690	246	17	68	29	79		
23	41	251	190	935	972	362	2190	163	15	74	25	60		
24	40	203	168	1970	4590	320	1470	114	15	56	22	52		
25	82	157	153	2170	2060	290	1060	118	14	46	21	47		
26	99	150	141	1560	1270	291	787	105	46	35	48	42		
27	279	148	131	1250	1370	29500	605	83	372	30	56	37		
28	399	558	118	1060	1290	49200	486	70	252	38	36	31		
29	283	518	109	916	---	44400	400	61	135	254	57	26		
30	355	349	98	759	---	26700	362	55	82	177	302	22		
31	425	---	90	643	---	4190	---	48	---	150	180	---		
TOTAL	4165.9	5331	15282	32561	34599	193726	47541	5253	1441	1462	5668	5036		
MEAN	134	178	493	1050	1236	6249	1585	169	48.0	47.2	183	168		
MAX	425	558	2080	5710	4590	49200	8940	454	372	254	2630	1250		
MIN	7.1	51	90	66	401	290	241	48	14	15	14	17		
CFSM	.12	.16	.43	.92	1.09	5.49	1.39	.15	.04	.04	.16	.15		
IN.	.14	.17	.50	1.06	1.13	6.33	1.55	.17	.05	.05	.19	.16		
AC=FT	8260	10570	30310	64580	66630	384300	94300	10420	2860	2900	11240	9990		
CAL YR 1976	TOTAL	273913.34	MEAN	748	MAX	32800	MIN	.60	CFSM	.66	IN	8.95	AC=FT	543300
WTR YR 1977	TOTAL	352065.90	MEAN	965	MAX	49200	MIN	7.1	CFSM	.85	IN	11.51	AC=FT	698300

RED RIVER BASIN

07336200 KIAMICHI RIVER NEAR ANTLERS, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--1976 to current year.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 12...	1028	9740	1115	85	6.3	17.0	22	8.9	93	17	19
NOV 09...	1028	9740	1245	80	6.6	13.0	27	9.8	94	17	88
DEC 14...	1028	9740	1130	65	--	5.0	40	12.3	97	9	27
JAN 20...	1028	9740	1200	44	7.1	.5	34	12.8	87	13	12
FEB 02...	1028	9740	1100	45	7.2	2.5	22	11.4	83	12	15
MAR 08...	1028	9740	1215	50	6.0	11.0	35	11.6	105	12	44
APR 13...	1028	9740	1640	70	7.0	22.0	19	8.7	100	5	18
MAY 10...	1028	9740	0800	68	6.8	22.0	11	7.0	80	8	15
JUN 07...	1028	9740	1200	85	6.9	29.0	10	6.0	78	10	26
JUL 26...	1028	9740	1400	95	7.0	31.5	12	6.8	92	21	32
AUG 02...	1028	9740	1210	41	6.2	23.0	120	6.9	80	45	19
SEP 13...	1028	9740	1430	73	7.1	26.0	87	6.7	84	23	43

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SU4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 12...	3.8	2.5	10	2.1	--	12	.1	79	1.2	<.13	--
NOV 09...	4.8	2.5	<10	3.0	--	11	.1	49	1.0	.06	<1
DEC 14...	3.3	2.0	<10	1.5	--	9.0	.1	110	.80	.04	--
JAN 20...	2.9	1.7	10	1.6	13	24	.1	80	.30	<.03	--
FEB 02...	.2	.5	<10	<1.0	10	7.0	<.1	2884	.90	.07	<1
MAR 08...	12	1.8	15	1.3	10	42	<.1	91	.90	.09	--
APR 13...	4.1	2.1	5.0	<1.0	10	4.0	.1	43	2.0	.08	--
MAY 10...	4.0	2.3	11	.5	15	6.0	.0	41	1.0	.02	<1
JUN 07...	4.5	2.7	12	.9	44	13	.1	45	.96	.09	--
JUL 26...	5.3	2.5	<5.0	2.7	7.0	7.0	.1	74	1.6	.07	--
AUG 02...	3.1	1.7	3.0	4.5	7.0	4.0	.1	--	1.9	.22	6
SEP 13...	5.2	4.7	3.0	1.4	12	4.0	.0	74	.63	.18	--

RED RIVER BASIN

195

07336200 KIAMICHI RIVER NEAR ANTLERS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
12...	--	--	--	400	--	72	--	--	--	--	--
NOV											
09...	<1	14	3	400	29	22	<.5	3	<1	<1	7
DEC											
14...	--	--	--	390	--	30	--	--	--	--	--
JAN											
20...	--	--	--	310	--	14	--	--	--	--	--
FEB											
02...	<1	17	7	1050	50	10	<.5	2	<1	<1	8
MAR											
08...	--	--	--	900	--	170	--	--	--	--	--
APR											
13...	--	--	--	1000	--	60	--	--	--	--	--
MAY											
10...	<1	3	3	1100	9	50	.9	5	<1	<1	6
JUN											
07...	--	--	--	750	--	100	--	--	--	--	--
JUL											
26...	--	--	--	800	--	120	--	--	--	--	--
AUG											
02...	<1	30	4	1820	13	200	<.5	7	<1	1	10
SEP											
13...	--	--	--	5450	--	460	--	--	--	--	--

RED RIVER BASIN

07336600 HUGO LAKE NEAR HUGO, OK

LOCATION.--Lat 34°00'42", long 95°22'49", in NW 1/4 NW 1/4 sec.25, T.6 S., R.18 E., Choctaw County, Hydrologic Unit 11140105, on upstream fact Jf 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 mi² (4,426 km²).

PERIOD OF RECORD.--January 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

REMARKS.--Reservoir is formed by rolled earth dam. Regulated storage began Jan. 18, 1974; conservation pool was first filled Mar. 12, 1974. Total capacity, 1,561,500 acre-ft (1.93 km³) at elevation 452.5 ft (137.92 m), top of dam, 966,700 acre-ft (1.19 km³) at elevation 437.5 ft (133.35 m), top of flood control pool. Dead storage 21,080 acre-ft (26.0 hm³) 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, 539,700 acre-ft (665 hm³) Mar. 31, 1977, elevation, 423.60 ft (129.113 m); minimum since conservation pool was first filled, 120,500 acre-ft (149 hm³) Sept. 12, 1977, elevation, 401.50 ft (122.377 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 539,700 acre-ft (665 hm³) Mar. 31, elevation, 423.60 ft (129.113 m); minimum, 120,500 acre-ft (149 hm³) Sept. 12, elevation, 401.50 ft (122.377 m).

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

401	115,000	414	313,300
405	164,300	419	323,200
409	223,700	424	550,300

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129600	142900	154700	153800	164300	166400	508100	163300	152200	141300	137500	127200
2	129400	143800	154700	154200	161600	166000	500400	164100	151600	140700	144600	126800
3	128800	144500	155500	154300	163900	176300	476100	164300	151200	140300	145000	126100
4	131200	145000	155700	155800	166800	184100	454200	164800	150400	139700	144500	125400
5	132000	145000	156800	155700	166700	189500	428000	165200	150200	138900	143600	124700
6	131900	145200	163000	156500	164600	187400	400800	165600	149600	138600	143000	124100
7	132300	145900	166000	156500	163000	183100	371500	166400	148800	138000	142300	123400
8	132500	145600	167900	158700	158800	177600	345000	168700	147800	137200	141500	123200
9	132800	145600	167900	161200	156800	172800	318500	168700	147100	136700	140700	122500
10	132800	145900	168100	159600	156900	167300	295300	168000	146500	135900	139700	121900
11	132800	146500	168500	160300	162700	168500	266600	167300	146000	135000	139100	121100
12	132800	146400	168700	161200	169900	177600	240300	165700	145400	134400	138300	121200
13	133100	146400	169200	169800	177000	183400	214500	164300	144700	134000	137600	121900
14	132900	146400	168700	179100	179100	183200	186500	163700	144100	133500	136500	124400
15	133500	146500	166500	192700	176400	174500	169000	162300	143500	132800	136100	124700
16	133300	146600	163500	197600	173400	159200	167700	161600	143100	132000	135500	125500
17	132900	146600	161400	207300	169000	152200	171500	161100	142600	131500	135400	125500
18	132500	146600	159500	190500	166500	151300	182700	160300	142200	130800	134500	125900
19	133500	146700	158300	183400	165200	152000	208700	161000	141300	129900	133900	126100
20	133300	147300	156200	175900	163500	151600	212600	162500	140700	129200	133300	126200
21	132900	147800	155100	171400	161600	152000	204900	164500	140200	129100	132600	125700
22	132600	148000	154600	169600	158900	152400	195900	164900	139600	128600	131900	125400
23	132900	148500	153800	170000	158900	153200	189800	164900	138800	128100	131200	125100
24	134100	148600	153500	172200	165300	153800	180600	164100	138600	127500	130400	124900
25	135200	149200	154200	174000	167600	154500	174800	159600	138400	126800	130200	124500
26	135600	151100	153800	174500	167700	156200	167500	158300	140800	126200	128900	124100
27	136200	151600	152800	174200	167300	227500	163900	157700	141500	127000	128200	123900
28	137000	151600	154300	173200	167500	361000	161900	156900	141900	126600	129100	123300
29	138800	152800	153200	170900	---	474100	161600	154900	141800	127000	128400	122900
30	140900	153500	156900	169000	---	536000	162300	153200	141400	127200	128000	122400
31	141700	---	153500	167100	---	535800	---	152600	---	127100	127800	---
MAX	141700	153500	169200	207300	179100	536000	508100	168700	152200	141300	145000	127200
MIN	128800	142900	152800	153800	156800	151300	161600	152600	138400	126200	127800	121100
†	403.26	404.20	404.20	405.20	405.23	423.45	404.85	404.13	403.24	402.08	402.14	401.67
‡	+11,600	+11,800	0	+13,600	+400	+368,300	-373,500	-9,700	-11,200	-14,300	+700	-5,400

CAL YR 1976 MAX 327800 MIN 128800‡ -24,400
WTR YR 1977 MAX 536000 MIN 121100‡ -7,700

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-ft.

RED RIVER BASIN

197

07336820 RED RIVER NEAR DE KALB, TX

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Hydrologic Unit 11140106, at bridge on U.S. Highway 259, 13 miles (21 km) north of DeKalb, and at mile 556.9.

DRAINAGE AREA.--47,348 mi² (122,631 km²).

PERIOD OF RECORD.--Water years 1976 to September 1977 (discontinued).

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO)- MHOS	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT												
13...	1028	9740	1045	895	760	7.0	19.0	32	8.5	91	27	227
16...	--	--	0810	650	917	8.3	21.0	--	--	--	--	260
NOV												
09...	--	--	1545	1040	885	8.2	15.0	18	5.2	53	--	250
10...	1028	9740	1015	1500	730	8.0	14.5	20	12.2	120	33	246
DEC												
15...	1028	9740	0930	8590	1260	8.0	6.0	45	11.7	94	18	290
15...	--	--	1315	8290	1200	7.7	7.0	--	--	--	--	260
JAN												
19...	1028	9740	1630	11200	320	7.6	1.0	120	12.5	86	29	124
20...	--	--	1125	10400	281	7.7	2.5	85	11.6	88	--	81
FEB												
02...	1028	9740	1715	4740	750	7.5	4.0	29	10.7	81	22	155
MAR												
09...	1028	9740	1045	8020	275	7.9	12.0	72	10.6	98	24	120
22...	--	--	1430	2700	509	7.9	15.5	25	7.8	80	--	170
APR												
12...	1028	9740	1800	18900	440	7.7	19.0	67	8.7	94	27	105
MAY												
10...	1028	9740	1430	8130	1420	7.8	23.0	79	8.7	100	23	320
25...	--	--	1315	29400	1480	7.6	26.0	98	7.6	95	--	320
JUN												
03...	--	--	0815	41200	1890	8.0	25.5	--	--	--	--	420
07...	1028	9740	1730	28400	1850	8.1	27.0	89	7.9	99	22	428
JUL												
25...	--	--	1830	3120	1640	8.3	33.0	20	8.4	117	--	350
26...	1028	9740	1840	3480	1500	8.3	29.5	17	8.5	109	21	374
AUG												
03...	1028	9740	0830	1930	1180	8.2	27.0	9	7.5	94	29	306
SEP												
14...	1028	9740	1000	2430	1500	8.2	24.0	20	7.1	84	15	458
27...	--	--	1315	4640	1760	7.8	26.0	35	7.9	103	--	370

RED RIVER BASIN

199

07337100 LITTLE RIVER NEAR CLOUDY, OK

LOCATION.--Lat 34°19'32", long 95°11'58", near center NW 1/4 sec.3, T.3 S., R.20 E., Pushmataha County, Hydrologic Unit 11140107, at bridge on county road, 700 ft (213 m) downstream from Cloudy Creek, 5 mi (8.0 km) northwest of Cloudy, and at mile 164.9 (265.3 km).

DRAINAGE AREA.--324 mi² (839 km²).

PERIOD OF RECORD.--1976 to current year. Prior to October 1977, published as "above Pine Creek Lake near Cloudy".

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
UCT											
12...	1028	9740	1345	58	6.1	19.5	4	9.5	105	13	7
NOV											
09...	1028	9740	1420	59	6.6	13.5	12	11.0	107	12	44
JAN											
20...	1028	9740	1100	32	6.4	.5	17	12.5	85	9	<1
FEB											
02...	1028	9740	1230	27	6.4	3.5	11	10.5	80	8	8
MAR											
06...	1028	9740	1455	--	7.4	13.0	15	11.4	109	8	7
APR											
13...	1028	9740	1450	35	7.3	22.0	13	9.8	113	6	10
MAY											
10...	1028	9740	0915	34	7.2	22.0	14	8.6	99	5	8
JUN											
08...	1028	9740	1425	48	6.4	30.0	4	7.8	103	7	20
JUL											
27...	1028	9740	1740	55	7.3	28.0	--	8.6	110	--	--
AUG											
02...	1028	9740	1350	60	6.6	28.0	58	8.5	109	22	17
SEP											
13...	1028	9740	1630	58	7.7	25.0	79	6.2	76	13	18

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PU- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
UCT											
12...	2.2	1.6	10	1.0	--	10	.2	47	.80	<.13	--
NOV											
09...	2.8	1.9	11	2.0	--	4.0	.0	33	.80	.03	<1
JAN											
20...	1.4	1.0	<10	1.0	11	7.0	.2	--	.30	<.03	--
FEB											
02...	1.6	1.0	<10	<1.0	5.0	5.0	<.1	19	10	.08	1
MAR											
08...	1.2	.9	14	<10	7.0	23	<.1	55	.70	.05	--
APR											
13...	1.8	1.2	<5.0	<1.0	6.0	2.0	<.1	33	.64	.05	--
MAY											
10...	1.8	1.5	7.0	.5	14	4.0	.0	30	1.6	.01	<1
JUN											
08...	2.0	1.5	15	1.3	5.0	8.0	<.1	25	1.2	.05	--
JUL											
27...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	3.3	1.7	4.0	2.1	7.0	4.0	.1	74	1.5	.12	2
SEP											
13...	2.3	2.1	3.0	1.3	11	6.0	.0	54	.63	.14	--

RED RIVER BASIN

07337100 LITTLE RIVER NEAR CLOUDY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT											
12...	--	--	--	100	--	8	--	--	--	--	--
NOV											
09...	<0	15	2	190	6	<5	<.5	<3	<1	<1	6
JAN											
20...	--	--	--	240	--	11	--	--	--	--	--
FEB											
02...	<1	17	20	260	3	<10	<.5	4	<1	3	6
MAR											
08...	--	--	--	300	--	10	--	--	--	--	--
APR											
13...	--	--	--	470	--	<10	--	--	--	--	--
MAY											
10...	<1	<1	2	990	<1	10	1.1	3	<1	<1	8
JUN											
08...	--	--	--	650	--	20	--	--	--	--	--
JUL											
27...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	1	25	5	550	6	40	.6	4	<1	<1	13
SEP											
13...	--	--	--	1500	--	90	--	--	--	--	--

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 mi² (1,645 km²).

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 at mean sea level.

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 km³) at elevation 509.0 ft (153.14 m), top of dam, 465,800 acre-ft (574 hm³) at elevation 480.0 ft (146.30 m), crest of spillway, 53,800 acre-ft (66.3 hm³) at elevation 438.0 ft (133.50 m) top of conservation pool, 7,140 acre-ft (8.80 hm³) 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 hm³) Dec. 16, 1971, elevation, 474.57 ft (144.039 m); minimum since conservation pool was first filled, 28,220 acre-ft (34.8 hm³) Oct. 21, 1972, elevation, 429.34 ft (130.863 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 154,400 acre-ft (190 hm³) Apr. 1, elevation, 455.24 ft (138.757 m); minimum, 44,740 acre-ft (55.2 hm³) Oct. 4, elevation, 435.42 ft (132.716 m).

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

435	43,400	447	96,650
439	57,610	451	122,300
443	75,230	456	160,800

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45160	51100	56270	55270	53900	55810	154400	56350	53120	51360	51250	50310
2	45030	51500	54960	55270	54350	55960	154100	57530	53000	51280	51650	50100
3	44870	51830	54240	55310	56940	65840	153000	58050	52930	51140	51830	49920
4	45160	52050	53900	55420	58890	75970	148000	58250	52890	51030	51900	49710
5	45690	52050	53640	55150	59130	77400	137400	56330	52780	50890	51830	49610
6	45690	52230	57610	55150	58970	77200	126200	57890	52630	50780	51750	49390
7	45650	52300	59580	55120	58330	73400	114800	56940	52450	50670	51680	49250
8	45590	52190	59860	55040	57410	67800	103500	58850	52340	50490	51570	49110
9	45520	52270	59290	55810	56470	61890	92040	57810	52230	50600	51430	49010
10	45490	52300	58730	56160	55270	55930	81040	55850	52190	50600	51320	48800
11	45490	52270	59460	56200	56240	54700	70120	54700	52050	50490	51320	48660
12	45390	52190	60640	55730	61180	58770	61510	54320	51940	50100	51360	48630
13	45290	52160	61050	59500	64580	61220	56660	54130	51900	50170	51280	48560
14	45230	52160	59950	66330	65140	62230	54200	53900	51860	50030	51170	48320
15	45160	52160	57810	68470	62860	60520	54170	53640	51680	49850	51250	48250
16	45060	52160	55310	67710	60110	57490	54790	53380	51650	49710	51210	48140
17	44900	52120	54130	65880	57290	55230	57490	53230	51570	49570	51170	48080
18	44770	52120	54390	62900	55460	54770	61560	53150	51170	49430	51100	47940
19	44930	52120	54810	59740	55150	54700	66330	53300	50960	49220	50960	47900
20	44870	52340	54550	56350	54730	54580	67570	53750	50710	49080	50890	47870
21	44870	52630	54470	54200	54170	54170	64660	55040	50560	48910	50780	47840
22	44800	52860	54770	53560	54010	54090	60810	55810	50560	48840	50740	47770
23	44840	53150	54960	53680	54730	54280	59500	55650	50170	48730	50740	47670
24	45060	53410	55120	55230	54730	54390	57810	55420	50140	48660	50850	47530
25	46150	53940	55350	56350	55230	54540	56630	54730	50310	48490	50810	47390
26	46850	55350	55420	56980	55500	54770	55650	53980	50920	48350	50710	47390
27	47360	57210	55500	57290	55650	99730	54700	53560	51170	48420	50530	47220
28	47770	58210	55540	56940	55850	137200	54090	53530	51320	48350	50670	47020
29	48390	58490	55500	56200	---	146800	53940	53450	51360	48490	50710	46920
30	49540	57490	55350	55230	---	151500	54620	53300	51430	48560	50640	46750
31	50560	---	55310	54050	---	154000	---	53190	---	48630	50460	---
MAX	50560	58490	61050	68470	65140	154000	154400	58850	53120	51360	51900	50310
MIN	44770	51100	53640	53560	53900	54090	53940	53150	50140	48350	50460	46750
†	437.13	438.97	438.41	438.08	438.55	455.19	438.23	437.85	437.37	436.58	437.10	436.03
‡	+5,300	+6,930	-2,180	-1,260	+1,800	+98,150	-99,380	-1,430	-1,760	-2,800	+1,830	-3,710

CAL YR 1976 MAX 122600 MIN 44770 ‡ -150
WTR YR 1977 MAX 154400 MIN 44770 ‡ +1,490

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-ft.

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., P.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 mi² (1,671 km²).

WATER-DISCHARGE RECORDS

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) above mean sea level. 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 mi² (25.9 km²) intervening area, flow completely regulated since June 1969 by Pine Creek Lake (station 07337300).

COOPERATION.--Gage height record and 18 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 ft³/s (25.97 m³/s), 664,400 acre-ft/yr (819 hm³/yr); (since regulation by Pine Creek Lake) 7 years (water years 1971-77), 1,026 ft³/s (29.06 m³/s), 743,300 acre-ft/yr (916 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,200 ft³/s (2,210 m³/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, 6,270 ft³/s (178 m³/s) Apr. 6, gage height, 20.82 ft (6.346 m); minimum daily, 4.0 ft³/s (0.11 m³/s) July 16, 17, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	27	902	45	779	255	993	122	28	8.8	55	30
2	18	25	897	47	255	264	1440	96	26	7.8	33	31
3	17	23	708	49	324	473	1440	147	18	8.8	20	31
4	18	16	334	68	636	678	2560	241	15	9.6	15	30
5	58	13	309	134	1240	2120	5440	245	13	8.9	16	31
6	34	9.6	369	149	1230	2070	6250	360	11	6.6	11	35
7	22	9.6	538	150	1230	2990	6220	617	12	6.4	9.4	35
8	19	9.6	1220	150	1230	4060	6140	588	16	6.3	7.2	38
9	19	9.6	1240	168	1220	4020	6040	892	21	9.2	7.4	35
10	16	9.6	1250	230	1220	3950	5930	1250	6.9	32	7.6	35
11	17	17	1310	470	1190	3020	5820	871	8.0	22	8.1	35
12	16	17	1330	627	1020	474	5380	382	8.7	10	15	31
13	21	17	1260	734	741	451	3230	162	13	8.9	13	46
14	23	17	1480	1380	1030	673	1840	160	13	8.7	9.4	39
15	22	17	2010	3000	2440	1580	198	159	9.6	7.2	8.1	34
16	20	17	2010	2910	2480	2400	65	156	19	4.0	8.7	29
17	13	18	1390	2810	2460	2190	121	124	22	4.0	10	30
18	9.6	21	231	2780	2010	789	592	30	22	4.4	10	29
19	19	22	231	2740	638	420	2260	26	18	4.3	7.2	30
20	16	29	223	2700	615	412	3810	80	17	4.0	8.7	30
21	13	24	165	2130	615	412	4660	90	13	4.7	9.6	29
22	11	17	59	906	524	258	5220	60	13	6.4	9.6	30
23	13	16	60	925	309	110	2220	148	12	6.4	10	30
24	18	15	70	951	284	133	1980	494	13	8.6	22	29
25	52	20	67	936	270	142	1590	503	17	13	34	35
26	34	29	65	923	262	161	881	503	48	6.9	18	34
27	22	19	69	920	256	180	874	334	66	11	23	30
28	16	13	64	945	253	20	700	74	27	13	25	30
29	24	194	54	1170	---	10	297	73	15	13	46	31
30	46	881	50	1180	---	10	93	73	9.6	16	15	30
31	34	---	44	1180	---	108	---	66	---	11	26	---
TOTAL	699.6	1572.0	20009	33507	26761	34833	84284	9126	554.8	291.9	518.0	972
MEAN	22.6	52.4	645	1081	956	1124	2809	294	18.5	9.42	16.7	32.4
MAX	58	881	2010	3000	2480	4060	6250	1250	68	32	55	46
MIN	9.6	9.6	44	45	253	10	65	26	8.0	4.0	7.2	29
AC-FT	1390	3120	39690	66460	53080	69090	167200	18100	1100	579	1030	1930

CAL YR 1976 TOTAL 164678.8 MEAN 450 MAX 6480 MIN 5.5 AC-FT 326600
WTR YR 1977 TOTAL 213128.3 MEAN 584 MAX 6250 MIN 4.0 AC-FT 422700

RED RIVER BASIN

203

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 Countv, 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) northwest of Broken Bow, and at mile 9.2 (14.8 km).

DRAINAGE AREA.--315 mi² (816 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 378.70 ft (115.428 m) above mean sea level.

REMARKS.--Records good.

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

AVERAGE DISCHARGE.--16 years, 456 ft³/s (12.91 m³/s), 19.66 in/yr (499 mm/yr), 330,400 acre-ft/yr (407 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,600 ft³/s (2,790 m³/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.--Maximum discharge, 30,900 ft³/s (875 m³/s) at 2145 Mar. 27, gage height, 19.41 ft (5.916 m), no other peak above base of 8,000 ft³/s (227 m³/s); minimum, 2.1 ft³/s (0.059 m³/s) Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	12	387	255	56	241	115	705	145	50	7.5	584	7.3		
2	9.9	252	201	54	214	103	553	162	43	7.0	305	6.5		
3	8.3	175	163	51	765	3400	467	135	36	5.9	125	5.7		
4	8.3	129	133	49	1430	3730	371	109	31	5.2	77	5.2		
5	1050	95	113	49	1070	1710	309	91	29	4.8	57	6.0		
6	409	75	1470	50	746	1190	251	80	25	4.3	43	7.2		
7	153	63	2120	55	560	847	210	72	21	4.0	32	5.8		
8	83	54	1210	68	443	597	182	98	16	3.6	25	5.3		
9	61	48	785	218	369	461	159	446	14	4.1	19	4.9		
10	43	43	569	632	313	370	139	251	13	11	16	4.3		
11	33	40	1970	593	713	632	122	164	12	14	15	3.6		
12	25	36	2180	456	2540	1700	108	115	11	9.6	16	3.2		
13	20	36	1370	1120	1660	1190	96	86	13	7.5	13	5.9		
14	17	36	983	3800	1200	838	86	70	12	6.0	19	4.8		
15	15	35	682	2310	862	595	79	59	11	4.9	19	4.1		
16	13	34	501	1490	615	438	79	52	11	4.0	27	3.6		
17	12	33	391	1100	482	347	100	45	9.5	5.8	32	3.2		
18	10	31	313	808	402	294	487	40	9.0	9.7	25	3.0		
19	13	30	255	579	331	246	2420	34	7.5	8.6	20	3.5		
20	16	53	215	457	272	204	1650	42	6.6	7.3	17	3.1		
21	18	247	167	383	227	171	1370	326	6.2	6.4	16	2.4		
22	21	314	140	327	193	145	918	719	5.8	8.4	14	8.2		
23	21	229	122	326	212	122	598	713	5.0	7.9	14	9.8		
24	227	174	109	833	212	105	445	476	4.2	5.3	14	9.0		
25	1150	138	99	920	206	94	328	291	5.8	4.6	13	8.0		
26	827	843	87	726	174	87	253	196	11	4.0	11	7.1		
27	385	1360	82	592	154	11400	203	145	14	5.0	10	6.4		
28	248	749	77	485	135	10700	167	110	9.5	6.2	9.3	5.5		
29	203	468	70	390	---	2610	139	87	8.0	10	8.9	4.9		
30	698	337	66	318	---	1470	117	71	8.0	15	8.6	4.6		
31	640	---	61	281	---	1020	---	60	---	14	7.8	---		
TOTAL	6449.5	6546	16959	19576	16741	46931	13111	5490	458.1	221.6	1612.6	162.1		
MEAN	208	218	547	631	598	1514	437	177	15.3	7.15	52.0	5.40		
MAX	1150	1360	2180	3800	2540	11400	2420	719	50	15	584	9.8		
MIN	8.3	30	61	49	135	87	79	34	4.2	3.6	7.8	2.4		
CFSM	.66	.69	1.74	2.00	1.90	4.81	1.39	.56	.05	.02	.17	.02		
IN.	.76	.77	2.00	2.31	1.98	5.54	1.55	.65	.05	.03	.19	.02		
AC=FT	12790	12980	33640	38830	33210	93090	26010	10890	909	440	3200	322		
CAL YR 1976	TOTAL	89096.06	MEAN	243	MAX	6290	MIN	.91	CFSM	.77	IN	10.52	AC=FT	176700
WTR YR 1977	TOTAL	134257.90	MEAN	368	MAX	11400	MIN	2.4	CFSM	1.17	IN	15.86	AC=FT	266300

RED RIVER BASIN

07337900 GLOVER CREEK NEAR GLOVER, OK--Continued

PERIOD OF RECORD.--Water years 1949, 1953, 1962-63, 1976 to current year.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT											
12...	1028	9740	1645	70	6.7	20.5	7	9.6	107	11	16
NOV											
09...	1028	9740	1600	71	6.7	12.5	14	11.0	105	9	97
DEC											
14...	1028	9740	1430	42	--	7.0	15	11.7	97	16	12
JAN											
19...	1028	9740	1330	31	7.2	1.0	12	12.6	87	5	93
FEB											
02...	1028	9740	1400	33	6.6	4.5	9	10.4	80	8	11
MAR											
08...	1028	9740	1700	--	7.7	12.5	13	10.8	102	5	10
APR											
13...	1028	9740	1135	63	7.2	21.0	5	9.1	101	1	--
MAY											
10...	1028	9740	1030	40	6.1	22.0	9	8.3	94	2	10
JUN											
08...	1028	9740	1140	78	7.0	27.5	5	6.7	85	7	33
JUL											
27...	1028	9740	1545	135	7.3	28.5	0	7.8	101	10	44
AUG											
02...	1028	9740	1530	54	6.7	27.5	18	7.3	92	24	23
SEP											
13...	1028	9740	1745	88	8.3	28.0	2	6.3	82	14	49

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (NA) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POT- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT											
12...	6.5	1.8	8.0	<1.0	--	6.0	<.1	79	.80	<.13	--
NOV											
09...	6.3	2.1	<10	<1.0	--	4.0	.0	67	.70	.03	<1
DEC											
14...	2.3	1.2	11	1.0	--	23	.1	52	.80	<.02	--
JAN											
19...	2.2	1.0	10	1.0	11	24	.1	--	.30	<.03	--
FEB											
02...	3.4	.2	<10	1.2	5.0	5.0	<.1	22	.40	<.03	<1
MAR											
08...	2.4	1.0	<10	<1.0	7.0	3.0	<.1	56	1.1	.06	--
APR											
13...	4.6	1.6	<5.0	<1.0	7.0	2.0	<.1	27	1.5	.07	--
MAY											
10...	3.0	1.4	7.0	.2	12	4.0	<.0	28	1.0	.02	<1
JUN											
08...	6.6	2.1	8.0	<.5	24	7.0	.1	33	.96	.06	--
JUL											
27...	12	2.9	5.0	1.0	3.0	4.0	.0	75	1.6	.03	--
AUG											
02...	3.7	1.2	2.0	1.3	17	<3.0	.1	57	1.5	.08	11
SEP											
13...	12	4.6	<5.0	.9	10	4.0	.0	42	<.63	.06	--

RED RIVER BASIN

205

07337900 GLOVER CREEK NEAR GLOVER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
UCT											
12...	--	--	--	200	--	10	--	--	--	--	--
NOV											
09...	<1	14	2	180	7	<5	<.5	--	<1	<1	5
DEC											
14...	--	--	--	130	--	10	--	--	--	--	--
JAN											
19...	--	--	--	<50	--	<5	--	--	--	--	--
FEB											
02...	1	20	12	450	<5	<10	<.5	5	<1	4	5
MAR											
08...	--	--	--	210	--	<10	--	--	--	--	--
APR											
13...	--	--	--	370	--	10	--	--	--	--	--
MAY											
10...	<1	4	<1	420	2	10	.9	2	<1	<1	5
JUN											
08...	--	--	--	460	--	20	--	--	--	--	--
JUL											
27...	--	--	--	250	--	110	--	--	--	--	--
AUG											
02...	<1	15	3	360	<5	30	2.5	8	<1	<1	8
SEP											
13...	--	--	--	370	--	50	--	--	--	--	--

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 mi² (3,175 km²).

WATER-DISCHARGE RECORDS

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) above mean sea level. 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 poor. Flow regulated since June 1969 by Pine Creek Lake 41.9 miles (67.4 km) upstream. (See sta. 07337300).

COOPERATION.--Gage-height record and 17 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--(prior to regulation) 22 years (water years 1947-68), 1,622 ft³/s (45.95 m³/s), 1,174,000 acre-ft/yr (1.45 km³/yr); (since regulation) 7 years (water years 1971-77), 1,895 ft³/s (53.67 m³/s), 1,373,000 acre-ft/yr (1.69 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103,000 ft³/s (2,920 m³/s) Dec. 10, 1971, gage height, 39.39 ft (12.006 m); minimum, 0.4 ft³/s (0.011 m³/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 ft³/s (2,440 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,800 ft³/s (504 m³/s) Mar. 29, gage height 30.64 ft (9.339 m); minimum daily, 15 ft³/s (.42 m³/s) July 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	724	1500	210	1200	500	4290	350	170	40	200	55
2	67	489	1400	200	800	500	2000	500	150	40	1000	50
3	59	350	1300	200	800	3730	2300	400	130	35	463	50
4	50	270	900	200	2000	9350	2470	450	110	35	300	50
5	1580	230	600	200	2570	7850	4030	600	90	35	150	50
6	1790	200	780	330	2300	5220	6000	550	79	31	100	55
7	684	180	3300	370	2070	3520	6420	550	70	31	80	55
8	386	170	3000	380	1900	3800	6650	2500	61	31	70	55
9	229	160	2700	450	1800	4390	6610	6500	54	31	60	55
10	172	150	2500	900	1700	4380	6510	3150	47	31	50	55
11	144	140	2300	1100	1700	4390	6380	1700	43	70	45	50
12	118	140	3500	1240	5410	4460	6220	1200	40	50	60	50
13	116	130	4000	1330	5460	2970	5600	700	150	40	45	50
14	85	130	3200	3870	3350	2020	3000	350	80	30	40	73
15	67	126	2590	6140	2760	1810	1500	320	40	25	40	55
16	59	125	2620	5740	3160	2380	800	300	80	20	42	50
17	53	120	2440	4670	3050	2790	350	260	200	15	55	50
18	49	120	2000	3860	2900	2280	1000	230	130	20	47	46
19	54	120	1000	3450	2550	1100	3500	200	70	25	55	46
20	70	120	850	3190	1780	900	5380	150	56	25	50	43
21	84	200	750	3040	1300	765	6690	300	45	20	50	45
22	84	400	600	2620	1050	700	6830	600	40	20	45	49
23	73	650	400	2060	862	600	5800	1100	35	25	45	45
24	73	450	370	2020	750	450	3000	1300	35	25	45	41
25	770	350	340	2190	700	350	2500	2500	30	25	50	45
26	1480	450	320	2210	620	350	2000	900	65	30	65	50
27	832	1800	300	2120	560	3300	1500	750	180	30	45	52
28	494	2500	280	2000	520	14700	1200	600	350	26	40	48
29	382	900	270	1860	---	17300	1000	300	150	30	40	45
30	595	800	250	1700	---	15400	800	250	50	30	90	43
31	976	---	230	1500	---	10400	---	200	---	40	60	---
TOTAL	11763	12694	46590	61350	55622	132655	112330	29760	2830	961	3527	1506
MEAN	379	423	1503	1979	1987	4279	3744	960	94.3	31.0	114	50.2
MAX	1790	2500	4000	6140	5460	17300	6830	6500	350	70	1000	73
MIN	49	120	230	200	520	350	350	150	30	15	40	41
AC-FT	23330	25180	92410	121700	110300	263100	222800	59030	5610	1910	7000	2990
CAL YR 1976 TOTAL	311465.8			MEAN 851	MAX 8860	MIN 7.8	AC-FT 617800					
WTR YR 1977 TOTAL	471588.0			MEAN 1292	MAX 17300	MIN 15	AC-FT 935400					

07338500 LITTLE RIVER BELOW LUKFATA CREEK NEAR IDABEL, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948-54, 1961-63, 1969-73, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to September 1954.

WATER TEMPERATURE: October 1947 to September 1954.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT 13...	1028	9740	0915	130	6.4	17.0	26	7.3	75	24	28
NOV 10...	1028	9740	0830	112	6.8	11.0	16	8.6	78	12	24
DEC 15...	1028	9740	0800	61	--	6.5	13	11.8	97	8	17
JAN 19...	1028	9740	1430	35	6.3	2.0	18	13.8	97	11	14
FEB 02...	1028	9740	1530	20	6.4	4.0	18	10.2	77	12	11
MAR 09...	1028	9740	1320	--	6.9	12.0	30	10.4	97	10	13
APR 13...	1028	9740	0850	41	6.5	18.0	32	8.8	94	18	13
MAY 10...	1028	9740	1300	45	--	21.0	40	6.5	72	22	21
JUN 08...	1028	9740	0850	128	7.0	27.0	9	5.7	71	13	36
JUL 27...	1028	9740	1200	295	7.2	28.5	3	4.8	62	19	46
AUG 03...	1028	9740	0700	164	6.9	26.0	10	5.7	70	10	43
SEP 14...	1028	9740	0830	245	7.0	24.0	7	4.3	51	11	31

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 13...	10	2.1	10	2.2	--	16	.1	123	--	.32	--
NOV 10...	9.6	2.5	10	1.2	--	11	--	71	1.0	.04	<1
DEC 15...	4.2	1.6	<10	<1.0	--	5.0	--	74	.90	<.02	--
JAN 19...	2.8	1.4	6.0	1.1	8.0	11	--	49	1.0	<.03	--
FEB 02...	4.0	1.4	<10	<1.0	10	7.0	--	65	.90	<.03	<1
MAR 09...	2.6	1.1	<10	<1.0	7.0	3.0	--	56	.90	.08	--
APR 13...	2.9	1.2	<5.0	<1.0	9.0	2.0	<.1	38	.64	.09	--
MAY 10...	5.4	1.5	<10	.5	15	5.0	.0	55	1.5	.09	<1
JUN 08...	10	2.7	24	2.8	5.0	21	.1	81	1.2	.09	--
JUL 27...	13	3.0	24	3.4	3.0	49	.0	164	3.5	.30	--
AUG 03...	12	2.8	12	2.2	7.0	24	.0	95	1.5	.08	2
SEP 14...	6.9	2.9	27	2.3	14	45	.1	145	1.0	.18	--

RED RIVER BASIN

07338500 LITTLE RIVER BELOW LUKFATA CREEK NEAR IDABEL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (Cd) (UG/L)	TOTAL CHRO- MIUM (Cr) (UG/L)	TOTAL COPPER (Cu) (UG/L)	TOTAL IRON (Fe) (UG/L)	TOTAL LEAD (Pb) (UG/L)	TOTAL MAN- GANESE (Mn) (UG/L)	TOTAL MERCURY (Hg) (UG/L)	TOTAL NICKEL (Ni) (UG/L)	TOTAL SELE- NIUM (Se) (UG/L)	TOTAL SILVER (Ag) (UG/L)	TOTAL ZINC (Zn) (UG/L)
OCT											
13...	--	--	--	500	--	162	--	--	--	--	--
NOV											
10...	<1	15	<1	290	9	100	<.5	<1	<1	2	9
DEC											
15...	--	--	--	310	--	54	--	--	--	--	--
JAN											
19...	--	--	--	<50	--	47	--	--	--	--	--
FEB											
02...	<1	14	8	610	10	40	<.5	2	<1	1	7
MAR											
09...	--	--	--	700	--	80	--	--	--	--	--
APR											
13...	--	--	--	740	--	100	--	--	--	--	--
MAY											
10...	<1	<1	9	820	12	130	.8	5	<1	2	12
JUN											
08...	--	--	--	920	--	170	--	--	--	--	--
JUL											
27...	--	--	--	690	--	820	--	--	--	--	--
AUG											
03...	<1	15	5	1060	20	670	2.5	2	<1	2	7
SEP											
14...	--	--	--	770	--	340	--	--	--	--	--

RED RIVER BASIN

209

07338840 MOUNTAIN FORK NEAR SMITHVILLE, OK

LOCATION.--Lat 34°23'19", long 94°41'42", in NW 1/4 NW 1/4 sec.16, T.2 S., R.25 E., McCurtain County, Hydrologic Unit 11140108, at low water crossing, 0.1 mi (0.2 km) east of State Highway 21, and 6.2 mi (10.0 km) along State Highway 21 southwest of Smithville, and at mile 50.4 (81.1 km).

DRAINAGE AREA.--482 mi² (1,248 km).

PERIOD OF RECORD.--October 1976 to September 1977.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA,MG) (MG/L)
OCT 27...	1028	9740	1410	36	--	12.0	27	11.1	104	16	47
NOV 30...	1028	9740	1200	26	7.8	3.0	12	13.3	99	7	6
DEC 28...	1028	9740	1400	27	7.2	5.0	7	11.8	95	<3	8
JAN 25...	1028	9740	1650	16	6.9	4.0	11	12.4	95	4	7
FEB 23...	1028	9740	1530	22	7.6	13.0	12	11.1	109	4	7
MAR 15...	1028	9740	1415	25	7.0	13.0	9	10.6	102	15	12
APR 25...	1028	9740	1320	34	6.5	18.5	9	10.4	113	7	<3
MAY 24...	1028	9740	1330	42	7.2	24.0	17	8.9	107	9	9
JUN 01...	1028	9740	1245	48	7.3	26.5	5	8.2	102	2	17
JUL 12...	1028	9740	1300	60	8.2	31.5	4	8.2	112	10	13
AUG 23...	1028	9740	1445	57	8.0	27.5	2	8.6	110	9	17
SEP 15...	1028	9740	1430	72	8.0	25.0	1	8.8	107	7	10

DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHURUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
OCT 27...	2.2	1.1	<10	<1.0	--	8.0	<.1	87	.70	<.03	--
NOV 30...	.3	.8	<10	<1.0	--	7.0	.0	57	1.5	<.03	--
DEC 28...	1.4	--	<10	<1.0	--	3.0	.1	38	.60	<.03	--
JAN 25...	1.4	.9	11	1.0	--	22	<.1	42	.70	.04	--
FEB 23...	1.1	.8	10	1.9	7.0	15	<.1	76	.60	.06	<1
MAR 15...	1.0	.9	10	<1.0	28	15	<.1	61	1.2	.06	--
APR 25...	1.9	1.0	<5.0	<1.0	14	2.0	.0	38	1.1	.01	--
MAY 24...	2.2	1.3	5.0	2.9	<3.0	3.0	.1	33	1.4	.05	3
JUN 01...	1.8	1.3	6.0	1.0	<2.0	18	.0	44	1.1	.04	--
JUL 12...	2.5	1.3	7.0	.9	16	4.0	.1	80	1.9	.04	--
AUG 23...	2.7	1.6	11	1.0	8.0	4.0	.0	31	.97	.06	2
SEP 15...	1.5	1.5	5.0	.9	5.0	4.0	.0	44	<.63	.02	--

RED RIVER BASIN

07338840 MOUNTAIN FORK NEAR SMITHVILLE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
27...	--	--	--	300	--	8	--	--	--	--	--
NOV											
30...	--	--	--	270	--	<5	--	--	--	--	--
DEC											
28...	--	--	--	<100	--	<5	--	--	--	--	--
JAN											
25...	--	--	--	<50	--	<5	--	--	--	--	--
FEB											
23...	1	11	5	150	5	20	<.5	3	--	<1	4
MAR											
15...	--	--	--	330	--	<10	--	--	--	--	--
APR											
25...	--	--	--	290	--	<10	--	--	--	--	--
MAY											
24...	<1	11	2	320	<1	10	<.5	<2	<1	<1	6
JUN											
01...	--	--	--	320	--	20	--	--	--	--	--
JUL											
12...	--	--	--	130	--	20	--	--	--	--	--
AUG											
23...	<1	7	2	140	<5	20	<.5	4	2	<2	8
SEP											
15...	--	--	--	190	--	20	--	--	--	--	--

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 mi² (1,953 km²).

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 at mean sea level.

REMARKS.--Reservoir is formed by a rolled earth and gravel structure. Regulated storage began Oct. 3, 1968; conservation pool was first filled Jan. 30, 1969. Total capacity, 1,368,000 acre-ft (1.69 km³) at elevation 627.5 ft (191.26 m), top of flood pool and spillway gages, 918,100 acre-ft (1.13 km³) at elevation 599.5 ft (182.73 m), top of power pool, and 448,200 acre-ft (553 hm³) 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 km³) Dec. 17, 1971, elevation, 616.41 ft (187.882 m); minimum since conservation pool was first filled, 672,000 acre-ft (829 hm³) Oct. 21, 1972, elevation 580.48 ft (176.930 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,080,000 acre-ft (1.33 km³) Mar. 31, elevation, 610.32 ft (186.026 m); minimum, 716,000 acre-ft (883 hm³) Jan. 13, elevation, 584.16 ft (178.052 m).

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

584	714,000	599	911,000
589	776,500	605	998,300
594	842,100	611	1,091,000

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	752400	752000	739300	763100	743400	777100	1075000	917200	895000	860800	832700	811500
2	752500	751100	736200	763500	743800	778000	1071000	912800	895100	860600	830700	809800
3	752100	750900	736300	759600	747500	815400	1065000	908900	893700	860400	831000	809600
4	753800	749900	736800	757000	753100	839100	1057000	908300	891800	860400	830700	809400
5	767800	747900	738400	755000	756900	848300	1045000	906300	891600	858300	828300	809600
6	769300	748600	740800	751600	760200	853700	1033000	905600	888300	855900	828300	809100
7	770600	749200	746900	749500	757700	855200	1020000	905600	887900	853700	828300	807900
8	769800	747200	748400	747200	755700	858200	1008000	907600	887500	852700	827600	806900
9	770500	746000	749100	741600	755900	859400	994700	902000	887200	852300	826700	806500
10	770600	745200	748900	734600	757200	861200	981100	901600	884100	852200	825600	806500
11	767400	741600	762200	726900	762900	865300	967300	901400	884100	850200	826600	806000
12	762600	736700	772600	719000	774000	873600	953800	901200	883300	848600	825200	805300
13	760400	736700	772600	716100	781600	879300	940700	899900	881600	846900	825100	805200
14	760100	736700	771500	726300	784700	882200	929800	900000	881600	843800	825200	804700
15	759100	734700	770500	736800	785600	883200	919900	900200	879700	840900	824800	804500
16	758900	732000	768600	738900	782500	883300	916800	899600	879700	840700	823100	803600
17	758800	726600	766800	735200	778800	883000	916400	898400	878200	840300	823000	803600
18	754600	726600	768400	730400	778500	882600	917400	896800	877900	837500	823000	803800
19	751800	726500	770400	730600	779600	882900	927000	895000	877900	835500	821400	803800
20	745200	727500	768300	731100	782000	883700	926900	894400	875000	833800	821600	802700
21	742100	728500	766300	731600	779300	883300	927500	896700	875400	833600	821500	800600
22	737900	728400	764800	733200	775700	882200	924200	898800	873600	832200	819700	800000
23	738600	727600	763500	735600	777200	882500	920900	898800	873500	831900	819400	799100
24	741100	726000	764000	735600	777100	881800	923800	899300	872700	832400	819100	799100
25	746800	727600	764800	735900	776200	880700	920900	899200	873100	830000	818600	799300
26	749500	735900	765100	737800	776900	882600	918600	898900	874200	830200	816800	798200
27	749400	741800	765300	739600	778000	873000	915500	896100	872800	829800	816500	796800
28	748200	744600	765100	740900	778100	1057000	916400	897900	869900	830000	816600	796800
29	747900	741000	764800	742000	---	1072000	916200	897800	866200	829100	815800	797200
30	750400	740900	764900	743600	---	1079000	916400	896500	862100	829200	817700	795900
31	753500	---	763100	742600	---	1079000	---	896100	---	829400	813600	---
MAX	770600	752000	772600	763500	785600	1079000	1075000	917200	895100	860800	832700	811500
MIN	737900	726000	736200	716100	743400	777100	915500	894400	862100	829100	813600	795900
†	587.19	586.18	587.95	586.32	589.13	610.26	599.38	597.94	593.48	593.05	591.86	590.51
‡	0	-12,600	+22,200	-20,500	+35,500	+300,900	-162,600	-20,300	-34,000	-32,700	-15,800	-17,700

CAL YR 1976 MAX 911000 MIN 726000 ‡ -30,800
WTR YR 1977 MAX 1079000 MIN 716100 ‡ +42,400

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-ft.

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 mi² (2,040 km²).

WATER-DISCHARGE RECORDS

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) above mean sea level. See WSP 1920 for history of changes prior to July 23, 1950.

REMARKS.--Records good. Except for 33 mi² (85 km²) intervening area, flow completely regulated since October 1968 by Broken Bow Lake (station 073389000).

COOPERATION.--Gage-height record and 11 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 ft³/s (36.56 m³/s), 934,600 acre-ft/yr (1.15 km³/yr); since regulation by Broken Bow Dam, 8 years (water years 1970-77), 1,404 ft³/s (39.76 m³/s), 1,017,000 acre-ft/yr (1.25 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft³/s (2,850 m³/s) May 20, 1960, gage height, 26.73 ft (8.147 m), from rating curve extended above 65,000 ft³/s (1,840 m³/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 ft³/s (2,620 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,720 ft³/s (247 m³/s) Jan. 13, gage height, 7.93 ft (2.417 m); minimum daily, 127 ft³/s (3.60 m³/s) Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	1310	1420	513	405	978	3690	152	292	1640	483	862
2	385	1610	2220	140	213	600	4130	1310	388	576	511	1110
3	170	1220	1120	1150	884	2380	4140	2490	249	177	454	772
4	229	1030	468	2240	581	955	5540	1320	697	160	589	183
5	1800	1160	130	1690	410	633	7610	1110	686	207	402	186
6	830	676	1290	2040	162	207	7440	822	763	890	808	158
7	837	150	2090	1530	1710	1200	7420	553	979	1200	185	142
8	361	640	1160	1270	2610	499	7430	186	175	998	157	231
9	514	1040	1520	4020	1120	459	7480	1920	145	376	158	318
10	141	906	2440	5010	722	560	7550	1740	596	169	403	168
11	899	1760	2310	5070	443	988	7600	261	846	266	416	157
12	2520	2530	581	5090	768	433	7660	163	227	717	213	147
13	1840	1530	2390	5520	286	173	7440	448	711	764	321	273
14	977	197	3140	3770	409	146	6400	369	562	1250	163	176
15	456	984	2660	1190	1370	1210	5560	152	463	1570	155	163
16	352	1480	2630	1210	2530	621	2690	141	653	913	346	165
17	132	2220	2300	4030	3030	1180	1390	400	485	190	764	253
18	941	1780	951	4310	2130	1240	2840	786	560	644	175	175
19	2370	338	189	2370	347	690	3100	884	171	1140	153	160
20	3150	684	704	830	138	471	4730	1090	343	868	248	149
21	2520	259	1550	1070	892	564	4540	810	604	562	160	134
22	1970	432	1420	267	1570	919	4260	215	373	458	204	164
23	1060	915	1290	173	947	488	4080	278	615	586	593	253
24	176	1060	551	1290	584	918	1530	193	353	176	145	314
25	817	613	141	1710	1300	829	1200	188	604	508	158	134
26	1440	218	127	948	409	642	2100	278	230	828	283	135
27	1490	383	132	430	147	2760	2250	298	394	300	591	351
28	1980	144	148	415	416	3570	1040	355	1060	468	171	458
29	1190	2340	405	450	---	641	425	155	1680	249	165	171
30	1190	1810	203	157	---	230	355	369	2170	792	242	280
31	221	---	868	1040	---	1300	---	445	---	186	224	---
TOTAL	33158	31419	38548	60943	26533	28684	134020	19881	18074	19828	10090	8342
MEAN	1070	1047	1243	1966	948	925	4467	641	602	640	325	278
MAX	3150	2530	3140	5520	3030	3570	7800	2490	2170	1640	808	1110
MIN	132	144	127	140	138	146	355	141	145	160	153	134
AC-FT	65770	62320	76460	120900	52630	56890	265800	39430	35850	39330	20010	16550
CAL YR 1976	TOTAL	306420	MEAN	837	MAX	4620	MIN	94	AC-FT	607800		
WTR YR 1977	TOTAL	429520	MEAN	1177	MAX	7800	MIN	127	AC-FT	852000		

07339000 MOUNTAIN FORK NEAR EAGLETOWN, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948, 1953, 1955, 1961-63, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to September 1948, March 1955 to September 1955, November 1960 to September 1963.

WATER TEMPERATURE: October 1947 to September 1948, March 1955 to September 1955, November 1960 to September 1963.

TURBIDITY: March 1955 to September 1955.

REMARKS.--Samples were collected in open-mouthed samplers at a single point. Specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

COOPERATION.--Samples were collected by the U.S. Geological Survey and were analyzed by Oklahoma State Department of Health.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	CHEM- ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	HARD- NESS (CA, MG) (MG/L)
UCT											
12...	1028	9740	1815	<50	6.5	18.0	2	9.2	97	10	16
NOV											
10...	1028	9740	0700	36	6.8	13.0	2	9.1	87	10	11
DEC											
14...	1028	9740	1530	39	--	8.0	2	11.8	100	8	11
JAN											
19...	1028	9740	1300	36	7.5	4.0	3	14.0	104	7	11
FEB											
02...	1028	9740	1445	32	6.5	5.5	3	10.6	84	9	11
MAR											
08...	1028	9740	1835	--	7.6	13.0	4	10.2	97	5	12
APR											
13...	1028	9740	1015	32	6.8	13.5	9	10.8	103	8	9
MAY											
10...	1028	9740	1130	26	6.1	16.0	6	9.9	100	4	10
JUN											
08...	1028	9740	1025	44	6.6	21.0	4	8.8	98	7	19
JUL											
27...	1028	9740	1415	43	6.6	18.0	2	9.6	101	10	22
AUG											
02...	1028	9740	1645	44	6.9	21.5	3	9.1	103	7	13
SEP											
13...	1028	9740	1845	33	7.8	24.0	2	7.6	92	3	14
DATE	TOTAL CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (NA) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PU- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL FLUO- RIDE (F) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)
UCT											
12...	<2.6	1.2	<5.0	<1.0	--	10	<.1	29	.70	<.13	--
NOV											
10...	2.9	1.3	<10	<1.0	--	7.0	.0	30	.80	.04	<1
DEC											
14...	2.7	1.2	<10	<1.0	--	3.0	.1	62	.50	<.02	--
JAN											
19...	2.5	1.2	2.0	1.1	5.0	4.0	.2	--	.70	<.03	--
FEB											
02...	2.7	1.2	<10	<1.0	7.0	5.0	<.1	21	.70	<.03	<1
MAR											
08...	2.7	1.1	<10	<1.0	7.0	3.0	<.1	51	.70	.04	--
APR											
13...	2.1	1.0	<5.0	<1.0	6.0	2.0	<.1	23	.64	.05	--
MAY											
10...	2.1	1.3	5.0	.2	12	4.0	.0	10	1.2	.00	<1
JUN											
08...	2.1	1.0	6.0	<.5	7.0	6.0	<.1	20	.96	.06	--
JUL											
27...	2.3	.9	5.0	.5	5.0	3.0	<.0	25	1.1	.03	--
AUG											
02...	2.5	.9	2.0	.7	5.0	<3.0	.0	32	1.3	.03	<1
SEP											
13...	2.8	1.8	<5.0	.5	10	2.0	.1	17	<.63	.02	--

RED RIVER BASIN

07339000 MOUNTAIN FORK NEAR EAGLETOWN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL CUPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT											
12...	--	--	--	<100	--	41	--	--	--	--	--
NOV											
10...	<1	25	<1	50	11	63	<.5	<1	<1	<1	8
DEC											
14...	--	--	--	100	--	170	--	--	--	--	--
JAN											
19...	--	--	--	<50	--	172	--	--	--	--	--
FEB											
02...	<1	13	9	<100	6	<10	.7	<1	<1	2	5
MAR											
08...	--	--	--	280	--	80	--	--	--	--	--
APR											
13...	--	--	--	370	--	50	--	--	--	--	--
MAY											
10...	<1	<1	5	250	4	10	.7	3	<1	<1	5
JUN											
08...	--	--	--	<200	--	30	--	--	--	--	--
JUL											
27...	--	--	--	<200	--	40	--	--	--	--	--
AUG											
02...	1	10	1	120	11	40	<.5	<1	<1	1	3
SEP											
13...	--	--	--	400	--	80	--	--	--	--	--

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

[illegible]

Geohydrology of the Arbuckle aquifer, south-central Oklahoma

Baseflow in streams in the Arbuckle Mountain area, south-central Oklahoma, is contributed by springs which discharge from formations that make up the Arbuckle aquifer. Baseflow measurements were made during the winter and summer to obtain an estimate of the amount of water that enters the aquifer as recharge during the rainy season and leaves the area as discharge during dry periods. Discharge from several springs near the headwater, of the major streams were measured or estimated.

Site No. and Stream	Tributary to	Location	Drainage area (sq mi)	Measured previous (water years)	Date	Measurements Discharge (cfs)
341534096483701 Mill Creek	Washita River	Lat. 34°15'34", long 96°48'37" NW 1/4 NW 1/4 NW 1/4, sec. 32, T.3 S., R.5 E., Johnston Coun- ty, Hydrologic Unit 11130304 at concrete ford on access road to Daube ranch, 3.2 mi (5.1 km) northwest of Ravia	89.2	1949-50 1955 1971 1976	2-23-77 9-23-77	22.3 3.92
341540096485101 Daube Spring	Mill Creek	Lat. 34°15'40", long 96°48'51", SW 1/4 SE 1/4 SE 1/4, sec. 30, T.3 S., R.5 E., Johnston Coun- ty, Hydrologic Unit 11130304, 2.6 mi (4.2 km) west of State Highway 12 and 4.5 mi (7.2 km) south of Troy.			9-23-77	0.26
341750096544601 Oil Creek	Washita River	Lat 34° 7'50", long 96°54'46", SE 1/4 SW 1/4 NW 1/4, sec 17, T.3 S., R.4 E., Johnston Coun- ty, Hydrologic Unit 11130304, at rock ford 0.2 mi (0.3 km) north of lake on Goddard Ranch, 3.0 mi (4.8 km) east of State Highway 18 and 14.5 mi (23.3 km) south of Sulphur.	28.6		2-23-77 9-22-77	16.7 3.36
341835096342901 Blue River	Red River	Lat 34°18'35", long 96°34'29", SW 1/4 NW 1/4 SE 1/4, sec. 9, T.3 S., R.7 E., Pontotoc Coun- ty, Hydrologic Unit 11140102, on Pexton Ranch, 7 mi (11 km) southeast of Reagan.	190	1976	2-23-77	69.5
34192096422001 Pennington Creek	Washita River	Lat 24°19'20", long 96°42'20", SW 1/4 NW 1/4 SW 1/4, sec. 5, T.3 S., R.6 E., Johnston Coun- ty, Hydrologic Unit 11130304, at concrete ford on county road, 1.5 mi (2.4 km) south of Tisho- mingo National Fish Hatchery, 0.5 mi (0.8 km) east of Reagan.	74.5		2-22-77 9-22-77	32.6 22.3
341927096541801 Unnamed Spring	Oil Creek	Lat 34°19'27", long 96°54'18", NW 1/4 NW 1/4 SE 1/4, sec.5, T.3 S., R.4 E., Johnston Coun- ty, Hydrologic Unit 11130304, 3 mi (4.8 km) east of State Highway 18 and 3.6 mi (5.8 km) southeast of Nebo.			5-25-77	0.95
341927097021401 Cool Creek	Washita River	Lat. 34°19'27", long 97°02'14", NW 1/4 NW 1/4 SW 1/4, sec. 6, T.3 S., R.3 E., Carter County Hydrologic Unit 11130303 at gravel ford on dirt road, 2.5 mi (4.0 km) north of Gene Autry.	10.9		3-8-77 9-21-77	2.88 0.11
342035096554101 Buck Irving Spring	Oil Creek	Lat 34°20'35", long 96°55'41", NW 1/4 SE 1/4 NW 1/4 sec. 31, T.2 S., R.4 E., Murray County, Hydrologic Unit 11130304, near old grain silo, 1.8 mi (2.9 km) southeast of Nebo.			5-25-77	1.61
342058096420501 Keel Creek	Pennington Creek	Lat 34°20'58", long 96°42'05", NE 1/4 SW 1/4 SW 1/4, sec.29, T.2 S., R.6 E., Johnston Coun- ty, Hydrologic Unit 11130304, at bridge crossing on State Highway 7, 0.5 mi (0.8 km) east of National Fish Hatchery at Reagan.	4.0		2-23-77 9-21-77	1.0 0.32

Geohydrology of the Arbuckle aquifer, south-central Oklahoma.--Continued

Site No. and Stream	Tributary to	Location	Drainage area (sq mi)	Measured previous (water years)	Measurements Date	Discharge (cfs)
342108096553901 Blue Hole Spring	Oil Creek	Lat 34°21'08", long 96°55'39", SW 1/4 NE 1/4 SW 1/4 sec. 30, T.2 S., R.4 E., Murray County, Hydrologic Unit 11130304, 1.45 mi (2.33 km) southeast of Nebo.			5-25-77	3.02
342111096563401 Oil Creek	Washita River	Lat 34°21'11", long 96°56'34", NE 1/4 NE 1/4 NW 1/4 sec. 25, T.2 S., R.3 E., Murray County, Hydrologic Unit 11130303, at driveway crossing 0.4 mi (0.6 km) east of State Highway 18, 10.0 mi (16.0 km) south of Sulphur.	9.96		2-23-77	0.74
342140096471801 Rock Creek	Washita River	Lat 34°21'40", long 96°47'18", SW 1/4 SE 1/4 SW 1/4 sec. 21, T.2 S., R.5 E., Johnston County, Hydrologic Unit 11130304, at bridge on State Highway 7, 1.0 mi (1.6 km) east of State High- way 12 and 3.5 mi (5.6 km) south of Mill Creek.	9.06		2-02-77 2-23-77 9-22-77	1.61 2.25 0.15
342146096392701 Buzzard Creek	Washita River	Lat 34°21'46", long 96°39'27", SW 1/4 NE 1/4 NE 1/4 sec. 3, T.3 S., P.6 E., Johnston Coun- ty, Hydrologic Unit 11130304, at bridge on State Highway 99, 8.7 mi (14.0 km) south of Con- nerville.	4.3		2-22-77	2.4
342212096432001 Pennington Creek	Washita River	Lat 34°22'12", long 96°43'20", SW 1/4 SW 1/4 NW 1/4 sec. 19, T.2 S., R.6 E., Johnston Coun- ty, Hydrologic Unit 11130304, above confluence with Spring Creek, 1.75 mi (2.82 km) north of Reagan.	44.5	1975	2-22-77	18.4
342215096430501 Spring Creek	Pennington Creek	Lat 34°22'15", long 96°43'05", NW 1/4 SE 1/4 NW 1/4 sec. 19, T.2 S., R.6 E., Johnston Coun- ty, Hydrologic Unit 11130304, above confluence with Penning- ton Creek, 1.75 mi (2.28 km) north of Reagan.	19.6	1976	2-22-77	8.0
342233096444501 Unnamed Spring	Pennington Creek	Lat 34°22'33", long 96°44'45", NE 1/4 NW 1/4 NE 1/4 sec. 23, T.2 S., R.5 E., Johnston Coun- ty, Hydrologic Unit 11130304, in the southeast part of Gray's Ranch, 2.4 mi (3.9 km) north- west of Reagan.			6-02-77	0.15
342251096463501 Sixmile Creek	Rock Creek	Lat 34°22'51", long 96°46'35", SW 1/4 NW 1/4 SW 1/4 sec. 16, T.2 S., R.5 E., Johnston Coun- ty, Hydrologic Unit 11130304, at bridge on county road 1.9 mi (3.1 km) southeast of Mill Creek.			2-02-77	1.05
342254096425501 Unnamed Spring	Spring Creek	Lat 34°22'54", long 96°42'55", NE 1/4 NE 1/4 SW 1/4 sec. 18, T.2 S., R.6 E., Johnston Coun- ty, Hydrologic Unit 11130304, on Daube Inc. property, 2.0 mi (3.2 km) north of Tishomingo National Fish Hatchery at Rea- gan.			12-08-76	3.90
342318096325401 Rutherford Spring	Delaware Creek	Lat 34°23'18", long 96°32'54", NW 1/4 NW 1/4 NW 1/4 sec. 14, T.2 S., R.7 E., Johnston Coun- ty, Hydrologic Unit 11140104, 2 mi (3.2 km) north of State High- way 7 and 6.5 mi (10.5 km) south- east of Connerville.			1-04-77	0.76
342417096514701 Mill Creek	Washita River	Lat 34°24'17", long 96°51'47", NW 1/4 NW 1/4 NW 1/4, sec. 11, T.2 S., R.4 E., Johnston Coun- ty, Hydrologic Unit 11130304, at county highway bridge 2.0 mi (3.2 km) west of Mill Creek.	46.4	1952-55 1958-63 1965-71 1976	2-23-77 9-22-77	6.3 3.03

Geohydrology of the Arbuckle aquifer, south-central Oklahoma.--Continued

Site No. and Stream	Tributary to	Location	Drainage area (sq mi)	Measured previous (water years)	Measurements Date	Discharge (cfs)
342417096514701 Mill Creek	Washita River	Lat 34°24'17", long 96°51'47", NW 1/4 NW 1/4 NW 1/4, sec. 11, T.2 S., R.4 E., Johnston Coun- ty, Hydrologic Unit 11130304, at county highway bridge 2.0 mi (3.2 km) west of Mill Creek.	46.4	1952-55 1958-63 1965-71 1976	2-23-77 9-22-77	6.3 3.03
34241909636450 Diamond Spring Creek	Blue River	Lat 34°24'19", long 96°36'45", NE 1/4 NE 1/4 NW 1/4, sec. 7, T.2 S., R.7 E., Johnston Coun- ty, Hydrologic Unit 11140102, 250 ft (76 m) downstream from springhouse, 1.3 mi (2.1 km) east of State Highway 99 and 3.0 mi (4.8 km) south of Con- nerville.	8.6		2-23-77	3.5
342425096252801 Delaware Creek	Clear Boggy Creek	Lat 34°24'25", long 96°25'28", NE 1/4 SW 1/4 SW 1/4, sec. 2, T.2 S., R.8 E., Johnston Coun- ty, Hydrologic Unit 11140104, at bridge on State Highway 48, 2.0 mi (3.2 km) north of Wa- panucka.	45.8	1958-73	2-23-77	24.8
342512096453001 Pennington Creek	Washita River	Lat 34°25'12", long 96°45'30", SE 1/4 SE 1/4 SE 1/4 sec. 34, T.1 S., R.5 E., Johnston Coun- ty, Hydrologic Unit 11130304, at bridge on county road near entrance to Gray's Ranch, 3.6 mi (5.8 km) northeast of Mill Creek.	32.8		2-22-77 9-22-77	11.0 7.53
342517096314901 Houghtubby Branch	Delaware Creek	Lat 34°25'17", long 96°31'49", SW 1/4 SW 1/4 SE 1/4 sec. 36, T.1 S., R.7 E., Johnston Coun- ty, Hydrologic Unit 11140104, at bridge on county road, 0.5 mi (0.8 km) west of southwest corner of Coal County and 1.2 mi (1.9 km) northwest of Brom- ide.			2-22-77	0.06
342534096270501 Walnut Branch	Delaware Creek	Lat 34°25'34", long 96°27'05", 10.2 NW 1/4 NW 1/4 SW 1/4 sec. 34, T.1 S., R.8 E., Coal County, Hydrologic Unit 11140104, 0.5 mi (0.8 km) north of Coal and Johnston County line and 1.6 mi (2.6 km) east of Bromide.			2-23-77	5.14
342555097084801 Honey Creek	Washita River	Lat 34°25'55", long 97°08'48", SE 1/4 NW 1/4 NE 1/4, sec. 36, T.1 S., R.1 E., Murray County, Hydrologic Unit 11130303, at ford in Turner Falls Park, 5 mi (8 km) south of Davis.	16.4	1949 1952-55	2-22-77	14.0
342604097062301 Falls Creek	Washita River	Lat 34°26'04", long 97°06'23", NW 1/4 NW 1/4 SW 1/4 sec. 33 T.1 S., R.2 E., Murray County, Hydrologic Unit 11130303, at bridge outside gate at Falls Creek Assembly, 5.0 mi (8.0 km) south of Davis.	6.82		2-24-77 9-21-77	3.64 1.37
342613096521101 Colvert Spring	Mill Creek	Lat 34°26'13", long 96°52'11", NE 1/4 SW 1/4 SE 1/4 sec. 27, T.1 S., R.4 E., Johnston Coun- ty, Hydrologic Unit 11130304, 3.3 mi (5.3 km) northwest of Mill Creek.			2-04-77	1.82
342648097075901 Honey Creek	Washita River	Lat 34°26'48", long 97°07'59", NW 1/4 SE 1/4 SW 1/4 sec. 30, T.1 S., R.2 E., Murray Coun- ty, Hydrologic Unit 11130303, at bridge crossing on State Highway 77D, at Cedar Village, 3.5 mi (5.6 km) south of Davis.			9-22-77	1.67
342652096563501 Buckhorn Creek	Rock Creek	Lat 34°26'52", long 96°56'35", SE 1/4 SE 1/4 SW 1/4 sec. 24, T.1 S., R.3 E., Murray County, Hydrologic Unit 11130303, at concrete ford 0.5 mi (0.8 km) east of State Highway 18, and 4.0 mi (6.4 km) south of Sul- phur.	1.85		2-22-77	4.83

Geohydrology of the Arbuckle aquifer, south-central Oklahoma.--Continued

Site No. and Stream	Tributary to	Location	Drainage area (sq mi)	Measured previous water (years)	Measurements Date	Discharge (cfs)
342654096332301 Delaware Creek	Clear Boggy Creek	Lat 34°26'54", long 96°33'23", SW 1/4 SW 1/4 SE 1/4 sec. 22, T.1 S., R.7 E., Johnston Coun- ty, Hydrologic Unit 11140104, at ford on county road 4.6 mi (7.4 km) east of Connerville.	8.3		2-22-77 9-21-77	4.19
342654096364801 Little Blue Creek	Blue River	Lat 34°26'54", long 96°36'48", SW 1/4 SE 1/4 SW 1/4 sec. 19, T.1 S., R.7 E., Johnston Coun- ty, Hydrologic Unit 11140102, at bridge on county road, 1.3 mi (2.1 km) east of Connerville.	18.9		2-23-77	3.94
342712096273101 Cummings Spring	Blue River	Lat 34°27'12", long 96°27'31", SE 1/4 NE 1/4 SW 1/4 sec. 24, T.1 S., R.6 E., Johnston County, Hydrologic Unit 11140102, at ca- bin, 0.5 mi (0.8 km) northeast of Connerville.		6-19-56	5-26-77	3.09
342715096380801 Blue River	Red River	Lat 34°27'15", long 96°38'08", NW 1/4 NW 1/4 SW 1/4 sec 24, T.1 S., R.6 E., Johnston County, Hydrologic Unit 11140102, down- stream from bridge at State High- way 99, 0.25 mi (0.40 km) north of Connerville.	123		2-22-77 9-22-77	35.9 26.9
342718096380401 Anderson Spring	Blue River	Lat 34°27'18", long 96°38'04", NW 1/4 NW 1/4 SE 1/4 sec. 24 T.1 S., R.6 E., Johnston County, Hydrologic Unit 11140102, 400 ft (122 m) east of State Highway 99, 0.3 mi (0.48 km) north of Con- nerville.			5-26-77	0.95
342731096563001 Lowrance Spring	Little Buckhorn Creek	Lat 34°27'31", long 96°56'30", NE 1/4 SE 1/4 NW 1/4 sec 24, T.1 S., R.3 E., Murray County, Hydrologic Unit 11130303, 0.5 mi (0.8 km) east of State High- way 18 and 4 mi (6.4 km) south- east of Sulphur.		1949,1952 1953-54	2-22-77	3.78
342908096373701 Unnamed Spring	Little Blue Creek	Lat 34°29'08", long 96°37'37", SE 1/4 SE 1/4 SE 1/4 sec. 12, T.1 S., R.6 E., Johnston Coun- ty, Hydrologic Unit 11140102, 100 ft (30 m) west of State High- way 99, 500 ft (152 m) south of bridge over Little Blue Creek at Pontotoc.			1-07-77	1.47
342914096370701 Little Blue Creek	Blue River	Lat 34°29'14", long 96°37'07", NW 1/4 SW 1/4 NE 1/4 sec. 12, T.1 S., R.6 E., Johnston County, Hydrologic Unit 11140102, at bridge on State Highway 99, at Pontotoc.	11.6		2-22-77	0.87
343137096320201 Goose Creek	Clear Boggy Creek	Lat 34°31'37", long 96°32'02", NW 1/4 NE 1/4 SE 1/4 sec. 26, T.1 N., R.7 E., Pontotoc County, Hydrologic Unit 11140104, at ford, upstream from large pond, 6.8 mi (10.9 km) southeast of Harden City.	2.7		2-24-77 9-21-77	1.15 0.28
343239096331301 Coal Creek	Clear Boggy Creek	Lat 34°32'39", long 96°33'13", NE 1/4 SW 1/4 NE 1/4 sec. 22, T.1 N., R.7 E., Pontotoc County, Hydrologic Unit 11140104, 0.5 mi (0.8 km) east of Cobbler Knob, 4.7 mi (7.6 km) southeast of Har- den City.	5.8		2-23-77 9-21-77	1.9 0.03
343241096360201 Canyon Spring	Canyon Creek	Lat 34°32'41", long 96°36'02", NE 1/4 SE 1/4 NE 1/4 sec. 19, T.1 N., R.7 E., Pontotoc County, Hydrologic Unit 11140104, 4.3 mi (6.9 km) south of Harden City.			1-26-77	0.60
343445096380001 Sheep Creek	Clear Boggy Creek	Lat 34°34'45", long 96°38'00", SW 1/4 SW 1/4 SE 1/4 sec. 1 T.1 N., R.6 E., Pontotoc County, Hydrologic Unit 11140104, at bridge on State Highway 99, 2.4 mi (3.9 km) south of Pittstown.	1.34		2-23-77 9-21-77	4.3 3.15
343554096250801 Blue River	Red River	Lat 34°35'54", long 96°25'08", NW 1/4 NW 1/4 NW 1/4 sec. 5, T.2 S., R.7 E., Pontotoc County, Hydrologic Unit 11140102, at up- stream side of road crossing, 1.7 mi (2.7 km) southeast of Con- nerville.	151	1976	2-23-77 9-22-77	46.0 34.5

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD SITES

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

353325099111001 FOSS RESERVOIR AT SITE NO. 1 NEAR FOSS, OK

WATER-QUALITY RECORDS

LOCATION.--Lat 35°33'25" long 99°11'10", in SW 1/4 sec. 35, T.13N., R.19W., Custer County, Hydrologic Unit 11130301., over old river channel, 600 feet from left edge of water on a bearing of 250° from concrete structure at north end of dam.

PERIOD OF RECORD.--October 1976 to September 1977.

REMARKS.--Samples were collected monthly in a Kemmerer sampler at depths one foot from the surface, mid-depth, and one foot from the bottom.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAMP- LING DEPTH (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
OCT												
12...	1156	149600	51	17.5	2070	8.8	7.8	85	49	1100	1760	2.39
12...	1158	149600	43	18.0	2070	8.8	9.5	104	--	--	--	--
12...	1200	149600	25	18.0	2070	8.8	9.5	104	50	1100	1780	2.42
12...	1202	149600	16	18.0	2090	8.8	9.3	102	--	--	--	--
12...	1204	149600	8.2	18.0	2090	8.8	9.6	105	--	--	--	--
12...	1206	149600	1.6	18.0	2090	8.8	9.6	105	50	1000	1760	2.39
NOV												
09...	1105	147800	52	11.5	2090	8.6	--	--	50	1000	1780	2.42
09...	1115	147800	39	11.5	2090	8.6	--	--	--	--	--	--
09...	1117	147800	26	11.5	2090	8.6	--	--	51	1000	1780	2.42
09...	1118	147800	13	11.5	2090	8.6	--	--	--	--	--	--
09...	1119	147800	3.3	12.0	2080	8.6	--	--	50	1000	1790	2.43
DEC												
23...	1037	144900	46	5.0	2020	8.2	12.8	105	50	1000	1800	2.45
23...	1042	144900	34	5.0	2020	8.4	12.8	105	--	--	--	--
23...	1043	144900	23	5.0	2020	8.4	12.9	106	49	1000	1800	2.45
23...	1044	144900	11	5.0	2020	8.4	12.8	105	--	--	--	--
23...	1045	144900	3.3	5.0	2020	8.5	12.8	105	50	1000	1800	2.45
FEB												
24...	1035	154200	49	6.5	2100	8.2	12.2	100	48	1100	1820	2.48
24...	1038	154200	39	6.5	2100	8.3	12.2	100	--	--	--	--
24...	1040	154200	25	6.5	2100	8.3	12.2	100	54	1000	1820	2.48
24...	1050	154200	13	6.5	2100	8.7	12.4	101	--	--	--	--
24...	1051	154200	3.3	6.5	2100	8.7	12.0	98	55	1000	1820	2.48
MAR												
31...	1112	154100	52	11.0	2150	8.4	10.0	94	48	1100	1840	2.50
31...	1113	154100	39	11.0	2140	8.4	10.0	94	--	--	--	--
31...	1115	154100	26	11.0	2150	8.4	10.0	94	48	1100	1830	2.49
31...	1117	154100	13	11.0	2150	8.5	10.1	95	--	--	--	--
31...	1119	154100	3.3	11.5	2140	8.5	10.2	97	45	1100	1840	2.50
APR												
28...	1056	156700	52	15.0	2180	8.8	8.2	85	51	1000	1850	2.52
28...	1058	156700	39	15.0	2180	8.8	8.3	86	--	--	--	--
28...	1100	156700	26	15.0	2180	8.8	8.4	88	51	1000	1850	2.52
28...	1102	156700	13	15.5	2170	8.8	8.8	94	--	--	--	--
28...	1104	156700	3.3	15.5	2170	8.8	8.8	94	51	1000	1830	2.49
MAY												
25...	1101	158300	52	19.0	2150	7.3	7.7	88	49	1000	1770	2.41
25...	1103	158300	43	19.5	2130	7.2	9.0	102	--	--	--	--
25...	1105	158300	28	20.5	2110	7.6	9.1	106	48	1000	1770	2.41

353325099111001 FOSS RESERVOIR AT SITE NO. 1 NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAMP- LING DEPTH (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
MAY												
25...	1107	158300	16	20.5	2120	7.8	9.2	107	--	--	--	--
25...	1109	158300	3.3	21.0	2120	8.2	9.5	110	49	1000	1770	2.41
JUN												
09...	1211	157100	59	19.5	2140	7.3	4.1	46	49	1000	1740	2.37
09...	1213	157100	44	20.5	2100	7.2	5.8	66	--	--	--	--
09...	1215	157100	30	21.5	2080	7.4	6.0	70	46	960	1640	2.23
09...	1217	157100	16	22.0	2100	7.4	6.5	76	--	--	--	--
09...	1219	157100	3.3	24.0	2050	7.8	7.3	89	43	870	1510	2.05
JUL												
14...	1301	161300	59	20.0	2090	7.7	2.3	26	46	970	1700	2.31
14...	1303	161300	44	21.0	2050	7.7	2.1	25	--	--	--	--
14...	1305	161300	29	25.5	1880	8.3	8.8	111	41	880	1510	2.05
14...	1307	161300	16	25.5	1930	8.4	8.8	111	--	--	--	--
14...	1309	161300	3.3	26.0	1880	8.4	9.2	118	41	860	1510	2.05
AUG												
12...	1047	155200	55	23.0	2060	7.8	1.7	20	43	910	1570	2.14
12...	1049	155200	50	24.5	--	--	3.0	38	--	--	--	--
12...	1051	155200	45	25.5	1960	8.2	7.1	90	--	--	--	--
12...	1053	155200	35	26.0	1950	8.3	7.4	95	--	--	--	--
12...	1055	155200	25	26.0	1880	8.3	7.8	100	>43	1100	1500	2.04
12...	1057	155200	15	26.0	1880	8.3	7.9	101	--	--	--	--
12...	1059	155200	5.0	26.0	1880	8.4	8.0	102	--	--	--	--
12...	1101	155200	1.0	26.0	1880	8.4	8.2	105	42	880	1500	2.04
SEP												
29...	1145	150700	60	22.5	1780	8.4	5.8	71	42	870	1500	2.04
29...	1146	150700	55	22.5	1780	8.4	6.0	73	--	--	--	--
29...	1147	150700	50	22.5	1780	8.4	6.6	80	--	--	--	--
29...	1148	150700	45	22.5	1780	8.4	6.6	80	--	--	--	--
29...	1149	150700	40	22.5	1780	8.4	6.7	82	--	--	--	--
29...	1150	150700	35	22.5	1780	8.4	6.7	82	--	--	--	--
29...	1151	150700	30	23.0	1770	8.4	6.7	82	42	860	1500	2.04
29...	1152	150700	25	23.0	1770	8.5	7.2	88	--	--	--	--
29...	1153	150700	20	23.0	1770	8.5	7.3	89	--	--	--	--
29...	1154	150700	15	23.0	1770	8.5	7.3	89	--	--	--	--
29...	1155	150700	10	23.0	1770	8.5	7.4	90	--	--	--	--
29...	1156	150700	5.0	23.0	1770	8.5	7.4	90	--	--	--	--
29...	1157	150700	1.0	23.0	1770	8.5	7.4	90	41	860	1490	2.03

RED RIVER BASIN

353405099132501 FOSS RESERVOIR AT SITE NO. 2 NEAR FOSS, OK

WATER-QUALITY RECORDS

LOCATION.--Lat 35°34'05" long 99°13'25", in SE 1/4 sec. 28, T.13N., R.19W., Custer County, Hydrologic Unit 11130301, over old river channel, 900 feet from left edge water on a bearing 155° from campgrounds on north shore.

PERIOD OF RECORD.--October 1976 to September 1977.

REMARKS.--Samples were collected monthly in a Kemmerer sampler at depths of one foot from the surface, mid-depth, and one foot from the bottom.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAMP- LING DEPTH (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
OCT												
12...	1326	149600	33	17.5	2090	8.3	8.4	91	50	980	1760	2.39
12...	1328	149600	26	17.5	2090	8.4	9.1	99	--	--	--	--
12...	1330	149600	16	18.0	2070	8.4	9.7	106	50	1100	1770	2.41
12...	1332	149600	8.2	18.0	2100	8.4	9.8	108	--	--	--	--
12...	1334	149600	1.6	18.0	2100	8.5	10.0	110	50	1100	1760	2.39
NOV												
09...	1147	147800	46	11.0	2110	7.9	--	--	49	1000	1780	2.42
09...	1149	147800	33	11.0	2110	7.9	--	--	--	--	--	--
09...	1201	147800	23	11.0	2110	8.1	--	--	50	1000	1780	2.42
09...	1203	147800	13	11.5	2090	8.1	--	--	--	--	--	--
09...	1205	147800	3.3	12.0	2080	8.2	--	--	50	1000	1770	2.41
DEC												
23...	1104	144900	36	5.0	2020	8.6	12.8	105	49	1000	1810	2.46
23...	1107	144900	26	5.0	2020	8.7	12.8	105	--	--	--	--
23...	1108	144900	18	5.0	2020	8.7	12.9	106	48	1000	1800	2.45
23...	1109	144900	8.2	5.0	2020	8.7	12.9	106	--	--	--	--
23...	1110	144900	3.3	5.0	2020	8.6	12.8	105	50	940	1810	2.46
FEB												
24...	1120	154200	39	6.5	2120	8.6	12.6	103	55	1000	1810	2.46
24...	1122	154200	29	6.5	2100	8.6	12.0	98	--	--	--	--
24...	1123	154200	20	6.5	2090	8.6	11.9	97	55	1000	1820	2.48
24...	1125	154200	9.8	6.5	2090	8.6	12.0	98	--	--	--	--
24...	1126	154200	3.3	6.5	2090	8.6	12.0	98	48	1100	1830	2.49
MAR												
31...	1156	154100	39	11.0	2140	8.5	9.6	90	47	1100	1840	2.50
31...	1158	154100	30	11.0	2140	8.5	9.6	90	--	--	--	--
31...	1200	154100	20	11.0	2140	8.5	9.7	92	46	1100	1830	2.49
31...	1202	154100	9.8	11.0	2140	8.5	10.0	94	--	--	--	--
31...	1204	154100	3.3	11.5	2140	8.5	10.0	95	48	1100	1860	2.53
APR												
28...	1131	156700	36	15.5	2200	8.8	8.4	89	50	1000	1840	2.50
28...	1133	156700	26	16.0	2160	8.8	8.9	96	--	--	--	--
28...	1135	156700	18	16.0	2160	8.8	8.9	96	50	1300	1830	2.49
28...	1137	156700	8.2	16.0	2160	8.8	8.9	96	--	--	--	--
28...	1139	156700	3.3	16.0	2160	8.8	8.9	96	51	1000	1830	2.49
MAY												
25...	1140	158300	43	20.5	2140	8.3	9.2	107	49	1000	1780	2.42
25...	1148	158300	33	20.5	2120	8.3	9.2	107	--	--	--	--
25...	1150	158300	23	20.5	2120	8.3	9.3	108	47	1000	1760	2.39
25...	1152	158300	13	21.0	2110	8.4	9.6	113	--	--	--	--

353405099132501 FOSS RESERVOIR AT SITE NO. 2 NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAMP- LING DEPTH (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
MAY												
25...	1154	158300	3.3	21.0	2120	8.4	9.6	113	47	1000	1750	2.38
JUN												
09...	1251	157100	49	20.0	2160	7.8	3.8	43	49	1000	1740	2.37
09...	1253	157100	38	20.0	2130	8.1	5.7	64	--	--	--	--
09...	1255	157100	26	21.0	2100	8.2	6.0	69	43	830	1440	1.96
09...	1257	157100	15	24.0	1770	8.3	6.7	82	--	--	--	--
09...	1259	157100	3.3	24.5	1780	8.4	7.2	89	41	800	1420	1.93
AUG												
12...	1136	155200	40	25.5	1860	8.3	8.4	106	42	960	1490	2.03
12...	1138	155200	30	25.5	1860	8.3	8.4	106	--	--	--	--
12...	1140	155200	20	25.5	1860	8.4	8.2	104	42	900	1500	2.04
12...	1142	155200	10	25.5	1860	8.4	8.4	106	--	--	--	--
12...	1144	155200	1.0	25.5	1860	8.4	8.6	109	45	1100	1490	2.03
SEP												
29...	1218	150700	40	22.0	1800	8.8	5.9	72	41	870	1500	2.04
29...	1220	150700	35	22.5	1780	8.8	8.2	100	--	--	--	--
29...	1221	150700	30	23.0	1770	8.9	8.4	102	--	--	--	--
29...	1223	150700	25	23.0	1770	8.9	8.6	105	--	--	--	--
29...	1224	150700	20	23.0	1770	8.9	8.6	105	41	870	1400	1.90
29...	1225	150700	15	23.0	1770	8.9	8.6	105	--	--	--	--
29...	1226	150700	10	23.0	1770	8.9	8.8	107	--	--	--	--
29...	1227	150700	5.0	23.0	1770	8.9	8.8	107	--	--	--	--
29...	1228	150700	1.0	23.0	1770	8.9	8.9	108	41	870	1500	2.04

RED RIVER BASIN

353615099135001 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.13N., R19W., Custer County, Hydrologic Unit 11130301, over old river channel, 600 feet from left edge of water on a bearing of 240° from small tributary on north shore.

PERIOD OF RECORD.--October 1976 to September 1977.

REMARKS.--Samples were collected monthly in a Kemmerer sampler at depths one foot from the surface, mid-depth, and one foot from the bottom.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAMP- LING DEPTH (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
OCT												
12...	1256	149600	26	18.0	2110	8.2	8.2	90	--	--	--	--
12...	1258	149600	21	18.0	2100	8.4	8.6	105	50	1100	1770	2.41
12...	1300	149600	16	18.0	2100	8.4	8.4	92	--	--	--	--
12...	1302	149600	9.8	18.0	2100	8.4	9.5	104	50	1100	1780	2.42
12...	1304	149600	1.6	18.0	2110	8.5	9.7	106	50	1100	1780	2.42
NOV												
09...	1215	147800	25	11.0	2110	8.4	--	--	50	1000	1800	2.45
09...	1217	147800	16	11.0	2100	8.5	--	--	--	--	--	--
09...	1219	147800	11	11.0	2100	8.5	--	--	49	1000	1800	2.45
09...	1221	147800	6.6	11.0	2100	8.5	--	--	--	--	--	--
09...	1223	147800	3.3	12.0	2080	8.5	--	--	49	1000	1780	2.42
DEC												
23...	1130	144900	25	4.0	2050	8.7	13.0	103	49	1000	1820	2.48
23...	1131	144900	20	4.0	2050	8.7	13.0	103	--	--	--	--
23...	1132	144900	13	4.0	2050	8.6	13.0	103	50	1000	1820	2.48
23...	1133	144900	6.6	4.0	2050	8.6	13.1	104	--	--	--	--
23...	1134	144900	3.3	4.0	2050	8.6	12.8	102	50	1000	1810	2.46
FEB												
24...	1145	154200	23	7.5	2100	8.6	11.4	96	48	1000	1810	2.46
24...	1146	154200	16	7.5	2100	8.6	11.2	94	--	--	--	--
24...	1147	154200	11	8.5	2060	8.7	10.8	93	48	1100	1810	2.46
24...	1148	154200	8.2	8.0	2070	8.6	11.0	93	--	--	--	--
24...	1150	154200	3.3	8.0	2090	8.6	11.1	94	54	1000	1810	2.46
MAR												
31...	1241	154100	25	11.5	2160	8.4	9.8	93	48	1100	1830	2.49
31...	1243	154100	20	11.5	2160	8.4	9.8	93	--	--	--	--
31...	1245	154100	13	12.0	2130	8.5	9.6	93	46	1100	1850	2.52
31...	1247	154100	6.6	12.5	2100	8.5	9.8	96	--	--	--	--
31...	1249	154100	3.3	12.5	2100	8.5	10.0	98	48	1100	1840	2.50
APR												
28...	1156	156700	20	17.0	2220	8.8	8.5	92	50	1000	1850	2.52
28...	1158	156700	15	17.5	2200	8.8	8.5	93	--	--	--	--
28...	1200	156700	9.8	17.5	2200	8.8	8.6	94	51	1000	1860	2.53
28...	1202	156700	6.6	17.5	2200	8.8	8.6	94	--	--	--	--
28...	1204	156700	3.3	17.5	2200	8.8	8.7	96	51	1000	1840	2.50
MAY												
25...	1231	158300	26	20.5	1940	7.7	6.1	71	42	900	1550	2.11
25...	1233	158300	20	21.0	1880	7.8	7.0	81	--	--	--	--
25...	1235	158300	13	21.0	1110	8.0	8.5	99	25	450	831	1.13
25...	1237	158300	8.2	21.5	1160	8.2	9.0	106	--	--	--	--

353615099135001 FOSS RESERVOIR AT SITE NO. 3 NEAR FOSS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAMP- LING DEPTH (FT)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
MAY												
25...	1239	158300	3.3	21.5	1120	8.2	9.1	107	23	460	829	1.13
JUN												
09...	1336	157100	33	22.0	1950	7.7	2.3	27	44	870	1550	2.11
09...	1338	157100	26	23.0	1900	7.8	2.0	24	--	--	--	--
09...	1340	157100	18	24.5	1860	8.3	6.2	76	37	670	1220	1.66
09...	1342	157100	9.8	25.0	1850	8.4	7.5	92	--	--	--	--
09...	1344	157100	3.3	25.0	1840	8.4	7.6	94	38	670	1200	1.63
AUG												
12...	1216	155200	30	25.5	1860	8.3	8.0	101	42	930	1470	2.00
12...	1218	155200	20	26.0	1840	8.3	8.0	102	--	--	--	--
12...	1220	155200	15	--	--	--	--	--	43	890	1480	2.01
12...	1222	155200	10	26.0	1840	8.3	7.9	101	--	--	--	--
12...	1224	155200	1.0	26.0	1850	8.4	8.4	108	42	850	1480	2.01
SEP												
29...	1245	150700	25	22.5	1780	8.5	7.0	85	43	870	1490	2.03
29...	1246	150700	20	23.0	1770	8.6	7.5	91	--	--	--	--
29...	1305	150700	15	23.0	1770	8.6	7.3	89	43	870	--	--
29...	1310	150700	10	23.0	1770	8.6	8.0	98	--	--	--	--
29...	1315	150700	5.0	23.0	1770	8.7	8.6	105	--	--	--	--
29...	1330	150700	1.0	23.5	1750	8.7	8.6	106	42	870	1480	2.01

GROUND-WATER LEVELS

CADD0 COUNTY

351308098341601. LOCAL NUMBER, 09N13W28DDD 1.
 LOCATION.--LAT 35 13'08", LONG 098 34'16". HYDROLOGIC UNIT 11130302,
 OWNER: U.S. GEOLOGICAL SURVEY.
 AQUIFER.--RUSH SPRINGS SANDSTONE.
 WELL CHARACTERISTICS.--DRILLED WELL, DIAMETER 6 IN (0.15M),
 DEPTH 335 FT (102M).
 DATUM.--MEASURING POINT: TOP OF CASING 2.00 FT (0.61M) ABOVE LAND-SURFACE
 DATUM.
 REMARKS.--
 PERIOD OF RECORD.--1948 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD.--HIGHEST WATER LEVEL, 34.71 FT (10.580M)
 BELOW LAND-SURFACE DATUM, AUG. 13, 1949; LOWEST, 45.18 FT (13.771M)
 BELOW LAND-SURFACE DATUM, NOV. 20, 1972.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 5, 1976	41.74	NOV. 20, 1976	41.89	DEC. 31, 1976	42.08
OCT. 10	41.72	NOV. 25	41.88	JAN. 5, 1977	42.09
OCT. 15	41.71	NOV. 30	41.89	JAN. 10	42.07
OCT. 20	41.73	DEC. 10	41.92	FEB. 10	42.00
OCT. 25	41.81	DEC. 15	41.97	FEB. 15	42.09
NOV. 5	41.68	DEC. 20	42.00	APR. 20	42.24
NOV. 10	41.85	DEC. 25	41.93	MAY 25	41.00
NOV. 15	41.82				

WTR YEAR 1977 MAX 42.24 APR 20, 1977 MIN 41.00 MAY 25, 1977

352423098341701. LOCAL NUMBER, 11N13W21DDD 1.
 LOCATION.--LAT 35 24'23", LONG 098 34'17", HYDROLOGIC UNIT 11130302,
 OWNER: CADD0 ELECTRIC CO-OP.
 AQUIFER.--RUSH SPRINGS SANDSTONE.
 WELL CHARACTERISTICS.--DRILLED UNUSED INDUSTRIAL WELL, DIAMETER
 DEPTH
 DATUM.--MEASURING POINT: TOP OF CASING 0.70 FT (0.21M) ABOVE LAND-SURFACE
 DATUM.
 REMARKS.--
 PERIOD OF RECORD.--1965 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD.--HIGHEST WATER LEVEL, 58.06 FT (17.697M)
 BELOW LAND-SURFACE DATUM, AUG. 2, 1965; LOWEST, 67.60 FT (20.604M)
 BELOW LAND-SURFACE DATUM, NOV. 15, 1974.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 5, 1976	66.02	FEB. 25, 1977	67.03	JUNE 20, 1977	65.97
OCT. 10	65.78	FEB. 28	66.90	JUNE 25	65.85
OCT. 15	65.94	MAR. 5	67.06	JULY 5	65.67
OCT. 20	65.91	MAR. 10	67.03	JULY 10	65.69
OCT. 25	65.96	APR. 20	66.47	JULY 15	65.80
DEC. 10	66.98	APR. 25	66.45	JULY 20	66.02
DEC. 15	66.90	APR. 30	66.38	JULY 25	66.07
DEC. 20	67.10	MAY 5	66.42	JULY 31	66.08
DEC. 25	67.05	MAY 10	66.36	AUG. 5	65.51
DEC. 31	67.12	MAY 15	66.43	AUG. 10	66.10
JAN. 5, 1977	67.14	MAY 25	66.40	AUG. 15	66.15
JAN. 10	67.08	MAY 31	66.62	AUG. 20	66.16
FEB. 10	67.01	JUNE 5	66.32	AUG. 25	66.03
FEB. 15	67.14	JUNE 10	66.20	SEP. 25	66.46
FEB. 20	67.00	JUNE 15	66.05	SEP. 30	66.36

WTR YEAR 1977 MAX 67.14 JAN 5, 1977 MIN 65.51 AUG 5, 1977
 FEB 15, 1977

GROUND-WATER LEVELS

227

CUMANCHE COUNTY

343540098342001. LOCAL NUMBER, 01N13W04BAA 1.
 LOCATION.--LAT 34 35'40", LONG 098 34'20", HYDROLOGIC UNIT 11130203,
 OWNER: U.S. GEOLOGICAL SURVEY.
 AQUIFER.--LOWER ARBUCKLE GROUP.
 WELL CHARACTERISTICS.--TEST WELL, DIAMETER 6 IN (0.15M), DEPTH
 997 FT (304M).
 DATUM.--MEASURING POINT: TOP OF CASING 1.8 FT (0.55M) ABOVE LAND-SURFACE
 DATUM.
 REMARKS.--
 PERIOD OF RECORD.--1972 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD.--HIGHEST WATER LEVEL, 71.03 FT (21.650M)
 BELOW LAND-SURFACE DATUM, SEP. 25, 1974; LOWEST, 88.62 FT (27.011M)
 BELOW LAND-SURFACE DATUM, MAY 10, 1972.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 5, 1976	74.25	FEB. 15, 1977	73.74	JUNE 25, 1977	73.90
OCT. 10	74.25	FEB. 20	74.15	JUNE 30	73.99
NOV. 10	74.34	FEB. 25	73.85	JULY 5	73.99
NOV. 15	74.35	FEB. 28	74.16	JULY 10	74.08
NOV. 20	74.31	MAR. 5	74.20	JULY 15	74.18
NOV. 25	74.27	MAR. 10	74.04	JULY 20	74.09
DEC. 5	74.07	MAR. 15	74.30	JULY 25	74.20
DEC. 10	74.20	MAR. 20	74.33	JULY 31	74.15
DEC. 15	74.21	MAR. 25	74.21	AUG. 15	74.82
DEC. 20	74.27	MAR. 31	74.32	AUG. 20	75.18
DEC. 25	74.19	APR. 5	74.40	AUG. 25	75.17
DEC. 31	74.28	APR. 10	74.44	AUG. 31	75.02
JAN. 5, 1977	74.28	APR. 15	74.37	SEP. 5	75.12
JAN. 10	74.22	MAY 31	73.77	SEP. 10	75.25
JAN. 20	74.37	JUNE 5	73.70	SEP. 15	74.49
JAN. 25	74.24	JUNE 10	73.68	SEP. 20	74.68
JAN. 31	74.38	JUNE 15	73.75	SEP. 25	74.63
FEB. 5	74.39	JUNE 20	73.70	SEP. 30	74.70
FEB. 10	74.66				

WTR YEAR 1977 MAX 75.25 SEPT 10, 1977 MIN 73.68 JUNE 10, 1977

GROUND-WATER LEVELS

GRADY COUNTY

344656098031401. LOCAL NUMBER, 04N08W33B88 1.
 LOCATION.--LAT 34 46'56", LONG 098 03'14" HYDROLOGIC UNIT 11130208,
 OWNER: U.S. GEOLOGICAL SURVEY.
 AQUIFER.--RUSH SPRINGS SANDSTONE.
 WELL CHARACTERISTICS.--DRILLED TEST WELL, DIAMETER 6 IN (0.15M), DEPTH,
 254 FT (77.4M).
 DATUM.--MEASURING POINT: TOP OF CASING 3.35 FT (1.02M) ABOVE LAND-SURFACE
 DATUM.
 REMARKS.--
 PERIOD OF RECORD.--1948 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD.--HIGHEST WATER LEVEL, 78.95 FT
 (24.064M) BELOW LAND-SURFACE DATUM, APR. 10, 1963; LOWEST, 85.67 FT
 (26.112M) BELOW LAND-SURFACE DATUM, FEB. 29, 1968.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 5, 1976	80.52	FEB. 5, 1977	81.03	MAY 25, 1977	81.37
OCT. 10	80.46	FEB. 10	80.99	JUNE 25	81.30
OCT. 15	80.53	FEB. 15	81.10	JUNE 30	81.29
OCT. 20	80.62	FEB. 20	81.01	JULY 5	81.90
OCT. 25	80.58	FEB. 25	80.96	JULY 10	81.50
OCT. 31	80.72	FEB. 28	81.12	JULY 15	81.48
NOV. 5	80.66	MAR. 5	81.15	JULY 20	81.44
NOV. 10	80.61	MAR. 10	80.87	JULY 25	81.45
NOV. 15	80.66	MAR. 15	81.22	JULY 31	81.66
NOV. 20	80.76	MAR. 20	81.16	AUG. 5	81.53
NOV. 25	80.59	MAR. 25	81.12	AUG. 10	81.56
NOV. 30	80.77	MAR. 31	81.31	AUG. 15	81.58
DEC. 5	80.71	APR. 5	81.32	AUG. 20	81.57
DEC. 10	80.86	APR. 10	81.25	AUG. 25	81.66
DEC. 25	80.89	APR. 15	81.22	AUG. 31	81.59
DEC. 31	80.95	APR. 25	81.25E	12 5	81.60
JAN. 5, 1977	81.04	APR. 30	81.28	SEP. 10	81.66
JAN. 10	80.99	MAY 5	81.27	SEP. 15	81.60
JAN. 15	81.06	MAY 10	81.37	SEP. 20	81.53
JAN. 20	80.92	MAY 15	81.36	SEP. 25	81.50
JAN. 25	80.93	MAY 20	81.31	SEP. 30	81.46
JAN. 31	81.01				

E ESTIMATED.

WTR YEAR 1977 MAX 81.90 JULY 5, 1977 MIN 80.46 OCT 10, 1976

GROUND-WATER LEVELS

229

PONTOTOC COUNTY

343457096404501. LOCAL NUMBER, 01N06E04CAD 1.
 LOCATION.--LAT 34 34'57", LONG 096 40'45", HYDROLOGIC UNIT 11140102,
 OWNER: J.H. BRENTZ.
 AQUIFER.--ARBUCKLE GROUP.
 WELL CHARACTERISTICS.--DRILLED OIL TEST WELL, DIAMETER 18 IN (0.46M),
 DEPTH 707 FT (215M).
 DATUM.--MEASURING POINT: BASE OF RECORDER SHELTER AT LAND-SURFACE DATUM.
 REMARKS.--
 PERIOD OF RECORD.--1959 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD.--HIGHEST WATER LEVEL, 83.49 FT (25.48M)
 BELOW LAND-SURFACE DATUM, APR. 30, 1973; LOWEST, 126.05 FT (38.420M)
 BELOW LAND-SURFACE DATUM, DEC. 31, 1966.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 5, 1976	116.97	FEB. 15, 1977	117.10	JUNE 15, 1977	106.86
OCT. 10	117.12	FEB. 20	116.48	JUNE 20	107.39
OCT. 15	117.37	FEB. 25	116.10	JUNE 25	107.89
OCT. 25	117.74	FEB. 28	116.20	JUNE 30	107.69
OCT. 31	117.86	MAR. 5	116.18	JULY 5	107.80
NOV. 5	117.76	MAR. 10	115.92	JULY 10	108.07
NOV. 10	117.73	MAR. 15	115.98	JULY 15	108.45
NOV. 15	117.86	MAR. 20	115.86	JULY 20	108.83
NOV. 20	118.02	MAR. 25	115.84	JULY 25	109.22
NOV. 25	118.09	MAR. 31	110.89	JULY 31	109.85
NOV. 30	118.20	APR. 5	107.90	AUG. 5	110.28
DEC. 5	118.33	APR. 10	106.75	AUG. 10	110.74
DEC. 10	118.30	APR. 15	106.45	AUG. 15	111.22
DEC. 15	118.20	APR. 20	106.40	AUG. 20	111.64
DEC. 20	118.37	APR. 25	106.44	AUG. 25	112.08
DEC. 25	118.45	APR. 30	106.47	AUG. 31	112.58
DEC. 31	118.42	MAY 5	106.54	SEP. 5	112.90
JAN. 5, 1977	118.49	MAY 10	106.82	SEP. 10	113.31
JAN. 10	118.58	MAY 15	107.06	SEP. 15	113.57
JAN. 15	118.60	MAY 20	106.14	SEP. 20	113.88
JAN. 31	117.53	MAY 25	105.92	SEP. 25	114.20
FEB. 5	117.44	JUNE 5	106.01	SEP. 30	114.48
FEB. 10	117.42	JUNE 10	106.36		

WTR YEAR 1977 MAX 118.60 JAN 15, 1977 MIN 105.92 MAY 25, 1977

GROUND-WATER LEVELS

ROGER MILLS COUNTY

354527099470501. LOCAL NUMBER, 15N24W19DDA 1.
 LOCATION,--LAT 35 45'27", LONG 099 47'05", HYDROLOGIC UNIT 11130301,
 OWNER: CHESTER WRIGHT.
 AQUIFER,--OGALLALA FORMATION.
 WELL CHARACTERISTICS,--DRILLED UNUSED IRRIGATION WELL, DIAMETER 12 IN
 (0.30M), DEPTH 122 FT (37.2M).
 DATUM,--MEASURING POINT: TOP OF WOOD RECORDER BASE AT LAND-SURFACE DATUM.
 REMARKS,--
 PERIOD OF RECORD,--1970 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD,--HIGHEST WATER LEVEL, 55.53 FT (16.926M)
 BELOW LAND-SURFACE DATUM, NOV. 25, SEPT. 30, 1977;
 LOWEST, 57.27 FT (17.435M) BELOW LAND-SURFACE DATUM, JUNE 5, 1973.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 15, 1976	55.80	FEB. 10, 1977	55.83	JUNE 5, 1977	55.95
OCT. 20	55.78	FEB. 15	55.91	JUNE 10	55.91
OCT. 25	55.74	FEB. 20	55.82	JUNE 15	55.94
OCT. 31	55.86	FEB. 25	55.82	JUNE 20	55.90
NOV. 5	55.70	FEB. 28	55.95	JUNE 25	55.89
NOV. 10	55.69	MAR. 5	55.99	JUNE 30	55.90
NOV. 15	55.74	MAR. 10	55.70	JULY 10	55.77
NOV. 20	55.86	MAR. 15	56.15	JULY 15	55.83
NOV. 25	55.53	MAR. 20	55.94	JULY 20	55.76
NOV. 30	55.76	MAR. 25	55.77	JULY 25	55.74
DEC. 5	55.70	MAR. 31	56.03	JULY 31	55.85
DEC. 10	55.93	APR. 5	56.10	AUG. 5	55.67
DEC. 15	55.79	APR. 10	55.88	AUG. 10	55.77
DEC. 20	55.95	APR. 15	55.89	AUG. 15	55.72
DEC. 25	55.85	APR. 20	55.92	AUG. 20	55.71
DEC. 31	55.87	APR. 25	55.89	AUG. 25	55.69
JAN. 5, 1977	55.93	APR. 30	55.86	AUG. 31	55.72
JAN. 10	55.83	MAY 5	55.80	SEP. 5	55.70
JAN. 15	56.04	MAY 10	55.84	SEP. 15	55.62
JAN. 20	55.87	MAY 15	55.86	SEP. 20	55.61
JAN. 25	55.82	MAY 20	55.90	SEP. 25	55.65
JAN. 31	55.85	MAY 25	55.93	SEP. 30	55.53
FEB. 5	55.91	MAY 31	56.19		

WTR YEAR 1977 MAX 56.15 MAR 15, 1977 MIN 55.53 NOV 25, 1976
 SEPT 30, 1977

GROUND-WATER LEVELS

231

WASHITA COUNTY

352125099102901. LOCAL NUMBER, 10N19W11DAA 1.
 LOCATION,--LAT 35 21'25", LONG 099 10'29", HYDROLOGIC UNIT 11120302,
 OWNER: U.S. GEOLOGICAL SURVEY.
 AQUIFER,--ELK CITY SANDSTONE.
 WELL CHARACTERISTICS,--DRILLED WELL, DIAMETER 8 IN (0.20M),
 DEPTH 220 FT (67.1M).
 DATUM,--MEASURING POINT: TOP OF CASING 2.20 FT (0.67M) ABOVE
 LAND-SURFACE DATUM.
 REMARKS,--
 PERIOD OF RECORD,--1961 TO CURRENT YEAR.
 EXTREMES FOR PERIOD OF RECORD,--HIGHEST WATER LEVEL, 15.92 FT (4.852 M),
 BELOW LAND-SURFACE DATUM AUG. 25, 1975;
 LOWEST, 25.17 FT (7.672M) BELOW LAND-SURFACE DATUM, MAR. 31, 1968.

WATER LEVEL IN FEET BELOW LAND SURFACE DATUM
 WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
 MEAN VALUE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT. 5, 1976	17.26	FEB. 15, 1977	19.79	JUNE 5, 1977	19.05
OCT. 10	17.67	FEB. 20	19.84	JUNE 10	18.91
OCT. 15	17.44	FEB. 25	19.75	JUNE 15	18.89
OCT. 20	19.05	FEB. 28	19.97	JUNE 20	18.77
OCT. 25	19.04	MAR. 5	19.09	JUNE 25	18.78
OCT. 31	19.16	MAR. 10	18.52	JUNE 30	18.73
NOV. 5	18.98	MAR. 15	18.49	JULY 5	18.65
NOV. 10	18.96	MAR. 20	19.15	JULY 10	18.72
DEC. 10	19.45	MAR. 25	18.79	JULY 15	18.93
DEC. 15	19.29	MAR. 31	19.19	JULY 20	18.90
DEC. 20	19.57	APR. 5	19.90	JULY 25	18.93
DEC. 25	19.40	APR. 10	19.68	AUG. 10	18.89
DEC. 31	19.55	APR. 15	19.63	AUG. 15	18.87
JAN. 5, 1977	19.61	APR. 20	19.60	AUG. 20	18.92
JAN. 10	19.59	APR. 25	19.62	AUG. 25	18.80
JAN. 15	19.85	APR. 30	19.57	AUG. 31	18.85
JAN. 20	19.59	MAY 5	19.36	SEP. 5	18.90
JAN. 25	19.32	MAY 15	19.54	SEP. 15	18.87
JAN. 31	19.51	MAY 20	19.53	SEP. 20	18.94
FEB. 5	19.72	MAY 25	19.46	SEP. 25	19.00
FEB. 10	19.64	MAY 31	19.41	SEP. 30	18.97

WTR YEAR 1977 MAX 19.97 FEB 28, 1977 MIN 17.26 OCT 5, 1976

INDEX

	Page		Page
Accuracy of field data and computed results.....	12	Courtney, Mud Creek near.....	102-103
Acre-foot, definition of.....	3	Cow Creek at Waurika.....	215
Adenosine triphosphate, definition of.....	3	Crest-stage partial-record stations.....	215
Albert, Willow Creek near.....	136	Cubic foot per second, definition of.....	4
Alex, Washita River at.....	144	Cubic feet per second per square mile, definition of.....	4
Winter Creek near.....	143	Deep Red Run near Randlett.....	94
Algae, definition of.....	3	near Taylor.....	95-96
Algal growth potential, definition of.....	3	Definition of terms.....	3-8
Altus, Lake, at Lugert.....	34	De Kalb, TX, Red River near.....	197-198
Anadarko, Washita River at.....	139-141	Denison, TX, Lake Texoma near.....	159
Antlers, Kiamichi River near.....	193-195	Red River at Denison Dam, near.....	160-162
Aquifer, definition of.....	3	Discharge, definition of.....	4
Arbuckle aquifer, geohydrology of, south central Oklahoma.....	216-219	Dissolved, definition of.....	4
Armstrong, Blue River at.....	165	Diversity index, definition of.....	4
Arthur City, TX, Red River at.....	184-186	Downstream order and station number.....	8
Artesian, definition of.....	3	Drainage area, definition of.....	5
Artificial substrate, definition of.....	7	Drainage basin, definition of.....	5
Ash, mass, definition of.....	3	Dry mass, definition of.....	4
Bacteria, definition of.....	3	Durwood, Washita River near.....	149-158
Bear Creek near Vinson.....	215	Eagletown, Mountain Fork near.....	212-214
Beaver Creek near Waurika.....	97-99	Eakly, Cobb Creek near.....	134
Bed material, definition of.....	3	Lake Creek near.....	135
Big Cedar, Kiamichi River near.....	187-190	East Cache Creek near Elgin.....	84-85
Biochemical oxygen demand, definition of.....	3	near Walters.....	86-91
Biomass, Definition of.....	3	Elgin, East Cache Creek near.....	84-85
Blue, Blue River near.....	166-168	Elk Creek near Hobart.....	57-64
Blue Beaver Creek near Cache.....	92-93	Explanation of ground-water level records.	14
Blue River at Armstrong.....	165	Explanation of stage and water-discharge records.....	10-12
at Milburn.....	164	Explanation of water quality records.....	13
near Blue.....	166-168	Farris, McGee Creek near.....	169-176
near Connerville.....	163	Muddy Boggy Creek near.....	177-179
Bottom material, definition of.....	4	Fecal coliform bacteria, definition of....	3
Brier Creek near Powell.....	215	Fecal streptococcal bacteria, definition of.....	3
Broken Bow, Broken Bow Lake near.....	211	Fittstown, Byrds' Mill Spring near.....	180
Broken Bow Lake near Broken Bow.....	211	Fort Cobb, Cobb Creek near.....	138
Burkburnett, TX, Red River near.....	82-83	Fort Cobb Reservoir near.....	137
Burneyville, Walnut Bayou near.....	104-105	Fort Cobb Reservoir near Fort Cobb.....	137
Byrds' Mill Spring near Fittstown.....	180	Foss, Foss Reservoir near.....	119-121
Cache, Blue Beaver Creek near.....	92-93	at Site No. 1.....	220-221
Caddo County, ground-water levels in.....	226	at Site No. 2.....	222-223
Caney, Clear Boggy Creek near.....	183	at Site No. 3.....	224-225
Clear Boggy Creek above Caney Creek near.....	181-182	Washita River near.....	122-128
Carl, Elm Fork of North Fork Red River near.....	44-45	Foss Reservoir near Foss.....	119-121
Elm Fork of North Fork Red River at Salton Crossing near.....	37-43	Frazier Creek near Oleta.....	215
Carnegie, Washita River at.....	130-133	Gage height, definition of.....	5
Carter, North Fork Red River near.....	32-33	Gaging station, definition of.....	5
Cells/volume, definition of.....	4	Gaging station records.....	22-214
Cfs-day, definition of.....	4	Gainesville, TX, Red River near.....	106-108
Chemical oxygen demand, definition of....	4	Geohydrology of Arbuckle aquifer, south central Oklahoma.....	216-219
Cheyenne, Washita River near.....	110	Glover Creek near Glover.....	203-205
Chlorophyll, definition of.....	4	Glover, Glover Creek near.....	203-205
Clayton, Kiamichi River near.....	191-192	Grady, County, ground-water levels in....	228
Clear Boggy Creek above Caney Creek.....	181-182	Ground-water, level data.....	226-231
near Caney.....	183	Hammon, Washita River near.....	111-118
Clinton, Washita River near.....	129	Hardness, definition of.....	5
Cloudy, Little River near.....	199-200	Headrick, North Fork Red River near.....	65-80
Cobb Creek near Eakly.....	134	Hobart, Elk Creek near.....	57-64
near Fort Cobb.....	138	Hollis, Red River near.....	22-23
Collection of data (ground-water).....	14	Honey Creek near Davis.....	215
and computation of data (surface-water) and examination of data (water-quality).....	10-12	Hoover, Wildhorse Creek near.....	148
Color unit, definition of.....	4	Hugo, Hugo Lake near.....	196
Comanche County, ground-water levels in..	227	Hugo Lake near Hugo.....	196
Computation, accuracy of results.....	12	Hydrologic bench-mark station, definition of.....	9
Connerville, Blue River near.....	163	Hydrologic conditions.....	2
Contents, definition of.....	4	Hydrologic Unit, definition of.....	5
Continuing water-quality record site, definition of.....	13	Idabel, Little River below Lukfata Creek, near.....	206-208
Control, definition of.....	4	Instantaneous discharge, definition of....	4
Control structure, definition of.....	4	Introduction.....	1
Cooperation.....	1		
Cottonwood Creek tributary near Loco.....	215		

	Page		Page
Kiamichi River near Antlers.....	193-195	Radiochemical program, definition of.....	9
near Big Cedar.....	187-190	Randlett, Deep Red Run near.....	94
near Clayton.....	191-192	Red River at Arthur City, TX.....	184-186
Lake Creek near Eakly.....	135	at Denison Dam near Denison, TX.....	160-162
Lakes and reservoirs:		near Burkburnett, TX.....	82-83
Altus, Lake, at Lugert.....	34	near De Kalb, TX.....	197-198
Broken Bow Lake near Broken Bow.....	211	near Gainesville, TX.....	106-108
Fort Cobb Reservoir near Fort Cobb.....	137	near Hollis.....	22-23
Foss Reservoir near Foss.....	119-121	near Quanah, TX.....	24
Hugo Lake near Hugo.....	196	near Terral.....	100-101
Pine Creek Lake near Wright City.....	201	North Fork, below Altus Dam, near	
Texoma, Lake, near Denison, TX.....	159	Lugert.....	35-36
Land-surface datum, definition of.....	14	Elm Fork of, at Salton Crossing	
Little River below Lukfata Creek near		near Carl.....	37-43
Idabel.....	206-208	near Carl.....	44-55
near Cloudy.....	199-200	near Magnum.....	56
near Wright City.....	202	near Carter.....	32-33
Little Washita River near Ninnekah.....	142	near Headrick.....	65-80
Lugert, Lake Altus at.....	34	near Texola.....	31
North Fork Red River below Altus Dam,		Salt Fork, at Mangum.....	29-30
near.....	35-36	near Vinson.....	27-28
Mangum, Elm Fork of North Fork Red		near Wellington, TX.....	25-26
River near.....	56	Reservoirs. See Lakes and reservoirs.	
Salt Fork Red River at.....	29-30	Reydon, Washita River near.....	109
McGee Creek near Farris.....	169-176	Rock Creek near Boswell.....	215
Metamorphic stage, definition of.....	5	Roger Mills County, ground-water levels	
Methylene blue active substance,		in.....	230
definition of.....	5	Runoff in inches, definition of.....	7
Micrograms per gram, definition of.....	5	Sediment.....	13
per liter, definition of.....	5	Sediment, definition of.....	7
Milburn, Blue River at.....	164	Short Creek near Sayre.....	215
Milligrams per liter, definition of.....	5	Solute, definition of.....	7
Mountain Fork, near Eagletown.....	212-214	Solutes.....	13
near Smithville.....	209-210	Smithville, Mountain Fork near.....	209-210
tributary near Smithville.....	215	Special networks and programs.....	9
Mountain Park, West Otter Creek at		Specific conductance, definition of.....	7
Snyder Lake, near.....	81	Stage discharge relation, definition of..	7
Mud Creek near Courtney.....	102-103	Station numbers, definition of.....	8
Muddy Boggy Creek near Farris.....	177-179	Streamflow, definition of.....	7
National stream-quality accounting		Substrate, definition of.....	7
network, definition of.....	9	Surface area, definition of.....	7
Nine Mile Beaver Creek near Elgin.....	215	Surficial bed material, definition of....	8
Ninnekah, Little Washita River near.....	142	Suspended, definition of.....	8
Numbering system for wells and		Taxonomy, definition of.....	8
miscellaneous sites.....	9	Taylor, Deep Red Run near.....	95-96
Organic mass, definition of.....	4	Temperatures.....	13
Organism, definition of.....	5	Tenmile Creek near Miller.....	215
count/area, definition of.....	5	Terms and abbreviations, definition of..	3-8
count/volume, definition of.....	5	Terral, Red River near.....	100-101
Other data available.....	12	Texola, North Fork Red River near.....	31
Partial-record stations.....	215	Texoma, Lake, near Denison, TX.....	159
Partial-record station, definition of....	5	Time weighted average, definition of....	8
Particle size, definition of.....	5	Tons per acre-foot, definition of.....	8
Particle-size, classification, definition		Tons per day, definition of.....	8
of.....	6	Total coliform bacteria, definition of..	3
Pauls Valley, Washita River near.....	145-147	Total load, definition of.....	8
Percent composition, definition of.....	6	Tritium network, definition of.....	9
Pesticide program, definition of.....	10	Vinson, Salt Fork Red River near.....	27-28
Pesticides, definitions of.....	6	Walnut Bayou near Burneyville.....	104-105
Phytoplankton, definition of.....	6	Walters, East Cache Creek near.....	86-91
Picoccurie, definition of.....	6	Washita County, ground-water levels in..	231
Pine Creek Lake near Wright City.....	201	Washita River, at Alex.....	144
Plankton, definition of.....	6	at Anadarko.....	139-141
Polychlorinated biphenyls, definition of..	6	at Carnegie.....	130-133
Pontotoc County, ground-water levels in..	229	near Cheyenne.....	110
Primary productivity, definition of.....	6	near Clinton.....	129
Publications on techniques of water		near Durwood.....	149-158
resources investigations.....	15	near Foss.....	122-128
Quanah, TX, Red River near.....	24	near Hammon.....	111-118
		near Pauls Valley.....	145-147
		near Reydon.....	109

	INDEX	235
Water analysis, definition of.....	Page	rage
temperature, definition of.....	13	148
Water year, definition of.....	13	136
Waurika, Beaver Creek near.....	8	143
Weighted average, definition of.....	97-99	8
Wellington, TX, Salt Fork Red River near.	8	202
West Otter Creek at Snyder Lake near	25-26	201
Mountain Park.....	81	8
Wet mass, definition of.....	4	215
	Wildhorse Creek near Hoover.....	
	Willow Creek near Albert.....	
	Winter Creek near Alex.....	
	WRD, definition of.....	
	Wright City, Little River near.....	
	Pine Creek Lake near.....	
	WSP, definition of.....	
	Yanubbee Creek near Broken Bow.....	

INDEX

235

	Page		Page
Water analysis, definition of.....	13	Wildhorse Creek near Hoover.....	148
temperature, definition of.....	13	Willow Creek near Albert.....	136
Water year, definition of.....	8	Winter Creek near Alex.....	143
Waurika, Beaver Creek near.....	97-99	WRD, definition of.....	8
Weighted average, definition of.....	8	Wright City, Little River near.....	202
Wellington, TX, Salt Fork Red River near.	25-26	Pine Creek Lake near.....	201
West Otter Creek at Snyder Lake near		WSP, definition of.....	8
Mountain Park.....	81		
Wet mass, definition of.....	4	Yanubbee Creek near Broken Bow.....	215

FACTORS FOR CONVERTING U.S. CUSTOMARY UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the U.S. customary units published herein to the International System of Units (SI). Subsequent reports will contain both the U.S. customary and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

Multiply U.S. customary units	By	To obtain SI units
<i>Length</i>		
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)
<i>Area</i>		
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)
<i>Volume</i>		
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)
<i>Flow</i>		
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)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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