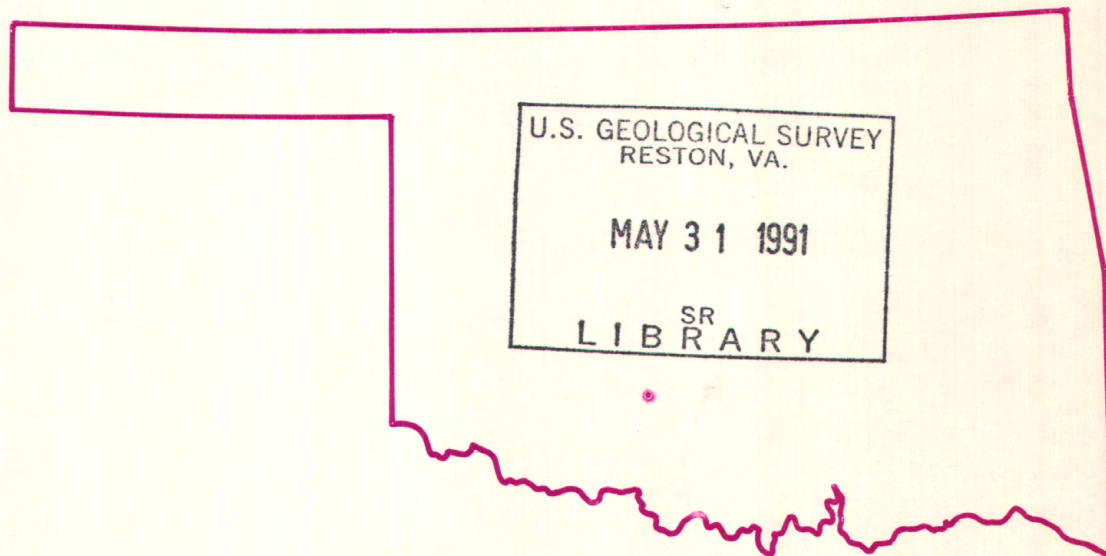


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Water Resources Data Oklahoma Water Year 1989



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-89-1
Prepared in cooperation with the State of Oklahoma
and with other agencies

CALENDAR FOR WATER YEAR 1989

1988

OCTOBER

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Water Resources Data Oklahoma Water Year 1989

by R.L. Blazs, D.L. Boyle, T.E. Coffey, D.M. Walters, and D.K. White



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-89-1
Prepared in cooperation with the State of Oklahoma
and with other agencies

U.S. DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in Oklahoma write to
District Chief, Water Resources Division
U.S. Geological Survey
202 N.W. 66 St., Building 7
Oklahoma City, Oklahoma 73116

1990

PREFACE

This hydrologic-data report for Oklahoma is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface-water data-collection network in each state, Puerto Rico, and the Trust Territories. These records of streamflow and water quality provide the hydrologic information needed by state, local, and federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines.

The data were collected, computed, and processed by the following personnel:

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This report was prepared in cooperation with the State of Oklahoma and with other agencies under the general supervision of Robert L. Blazs, Hydrologic Records Section Chief, and Kathy D. Peter, District Chief, Oklahoma.

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17. Document Analysis a. Descriptors *Oklahoma, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperature, Sampling sites, Water analyses. b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
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WATER RESOURCES DATA - OKLAHOMA, 1990

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Oklahoma each water year (Oct. 1 to Sept. 30). These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Oklahoma."

This report includes records on surface water in the State. Specifically, it contains: (1) Discharge records for 133 streamflow-gaging stations, and 7 partial-record or miscellaneous streamflow stations, (2) stage and content records for 30 lakes and reservoirs; and (3) water-quality records for 46 streamflow-gaging stations, and 2 lakes.

This series of annual reports for Oklahoma began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantity and quality of surface water.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Oklahoma were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface Water Supply of the United States, Parts 7A and 7B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report OK-89-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of title page or by telephone (405) 231-4256.

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 the data through cooperative agreement with the Survey are:

Oklahoma Water Resources Board, Robert S. Kerr, Jr.,
Chairman and James R. Barnett, Executive Director.
Oklahoma Department of Transportation, Neal A. McCaleb, Chief Engineer.
Oklahoma Geological Survey, Charles J. Mankin, Director.
Oklahoma State Department of Health, Environmental Health Services, Mark S. Coleman,
Deputy Commissioner.
Oklahoma City Water Department, James D. Couch, Director of Water Services.

The following Federal agencies assisted in the data collection program by providing funds or services:

Corps of Engineers, U.S. Army
Bureau of Reclamation, U.S. Department of Interior
Bureau of Land Management, U.S. Department of Interior

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; Mountain Park Master Conservancy District; Oklahoma Gas and Electric Company; the cities of Ada, Altus, Claremore, Lawton, Oklahoma City, Sapulpa, and Tulsa.

Organizations that supplied data are acknowledged in the station descriptions.

WATER RESOURCES DATA - OKLAHOMA, 1989

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow

Large variations in streamflow characterize hydrologic conditions in Oklahoma. In the extreme southeastern part of the State, mean annual precipitation exceeds 52 inches and mean annual runoff exceeds 20 inches. In the southeast, stream channels are deeply incised in mountainous terrain, and streamflow generally is perennial. In the extreme northwestern part of the Panhandle, mean annual precipitation is less than 16 inches and mean annual runoff is less than 0.1 inch. In northwestern Oklahoma, streams generally have shallow, ill-defined channels, and ephemeral flow.

Precipitation data from monthly reports of the National Weather Service, averaged over the State, indicate that monthly precipitation was above normal during November, January, February, March, May, June, August, and September of the water year. Precipitation for June was much greater than normal; total rainfall in Oklahoma City for June was 14.47 inches, the most since record keeping began in 1890. Monthly precipitation was well below normal during October and April; April was the driest in 98 years. Precipitation in December and July was about average.

A comparison of daily, monthly, and annual streamflow for the 1989 water year and the period of record at six selected stations (fig. 1-6) reflects the unusually wet summer and early fall, and dry month of April. These stations were selected at representative locations within Oklahoma. All locations, except the Washita River near Dickson and North Canadian River at Woodward, depict natural flow conditions.

Streamflow in eastern Oklahoma was far below normal in all streams during October and April. Streamflow was above normal the remainder of the year (fig. 1, 2). In central Oklahoma, streamflow was below normal during mid-April through mid-May and above normal in February, March and June through September (fig. 3, 4). In western Oklahoma, streamflow generally was above normal from mid-May through September (fig. 5, 6). All selected sites statewide show above normal streamflow for June through September. In spite of the month-to-month variation, streamflow on an annual basis was about normal, with all annual peak flows in the medium flow range. However, some flooding occurred during June in Central Oklahoma.

A comparison of streamflow for the 1989 water year with streamflow for the period of record at the six selected stations is presented in the following table:

Station identification	Statistics of discharge during 1989 water year (cubic feet per second)			Statistics of discharge during period of record (cubic feet per second)		
	Maximum	Minimum	Average	Maximum	Minimum	Average
07161000 Cimarron River at Perkins	29,700	263	1,727	162,000	.8	1,309 (1940-89)
07191000 Big Cabin Creek near Big Cabin	8,810	1.1	303	52,000	.10	327 (1948-89)
07237500 North Canadian River at Woodward	3,090	22	228	42,000	0	194 (Prior to reg 1939-78)
07301500 North Fork Red River near Carter	5,700	25	197	53,400	0	122 (Since reg by Lake Optima 1979-89)
07331000 Washita River near Dickson	31,400	468	2,256	105,000	0	1,573 (1945-62, 1965-89)
07337900 Glover Creek near Glover	25,100	1.0	620	98,600	0	459 (Prior to reg 1929-58)
						1,471 (Since reg by Ft Cobb 1962-89)
						459 (1962-89)

The average discharge streamflow statistic illustrates normal or slightly higher-than-normal runoff in Oklahoma for the 1989 water year.

Conservation storage in six selected reservoirs in the State, with a combined conservation storage capacity of 8,014,000 acre-feet, increased from 89 percent at the start of the water year to 96 percent at the end of the water year.

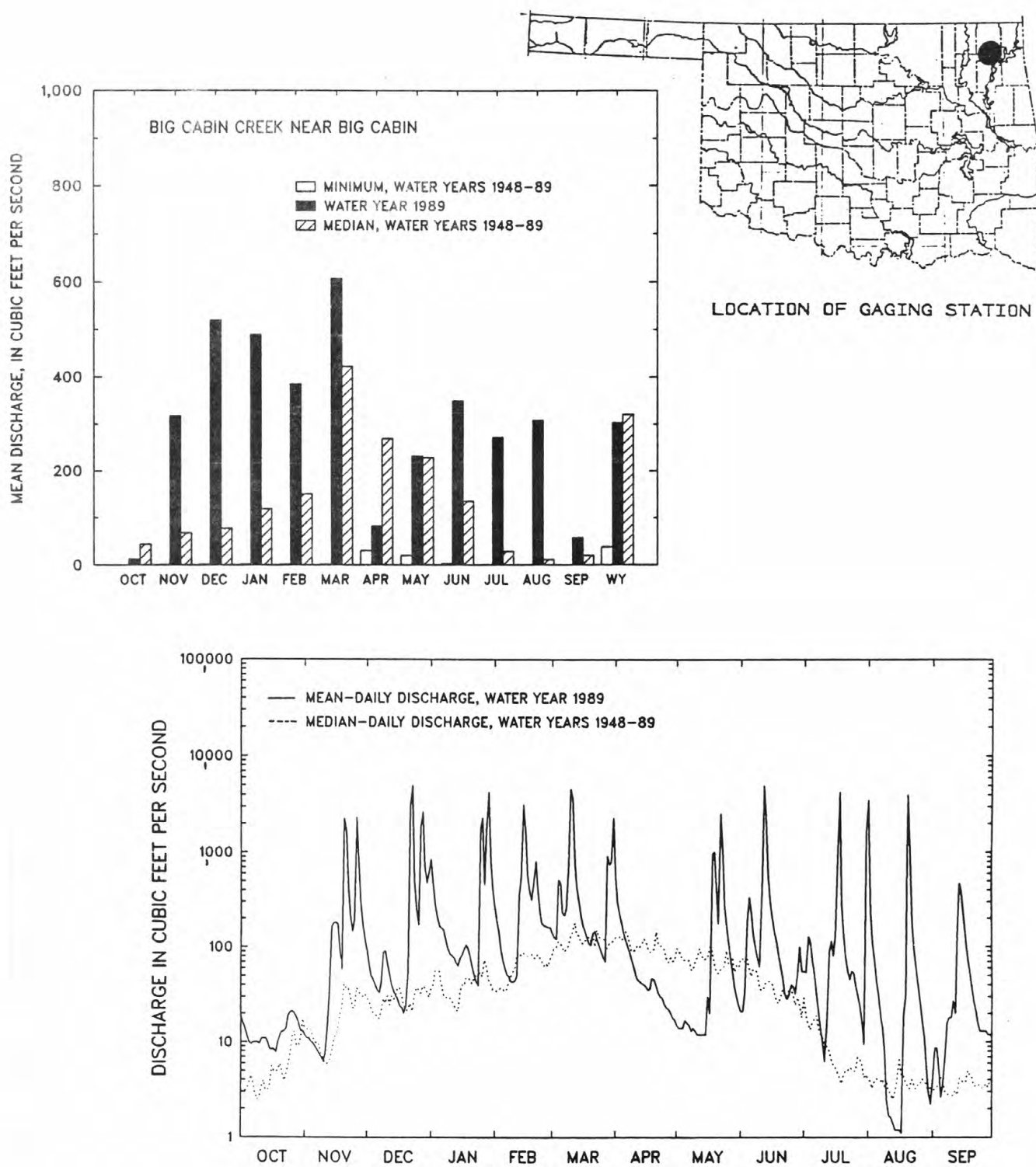


Figure 1.--Comparison of daily, monthly, and annual discharges for water year 1989 and period of record for Big Cabin Creek near Big Cabin, Oklahoma.

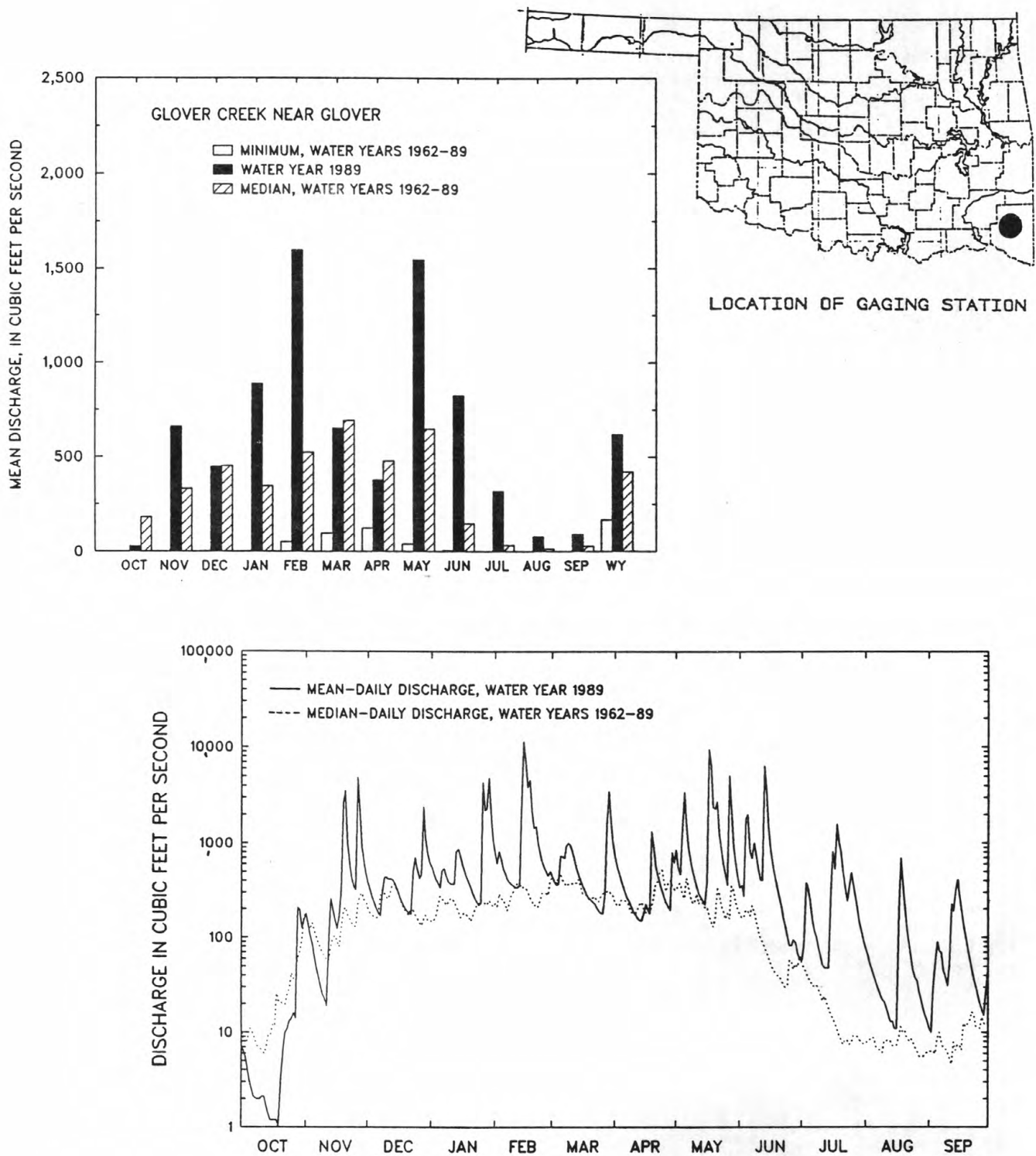


Figure 2.--Comparison of daily, monthly, and annual discharges for water year 1989 and period of record for Glover Creek near Glover, Oklahoma.

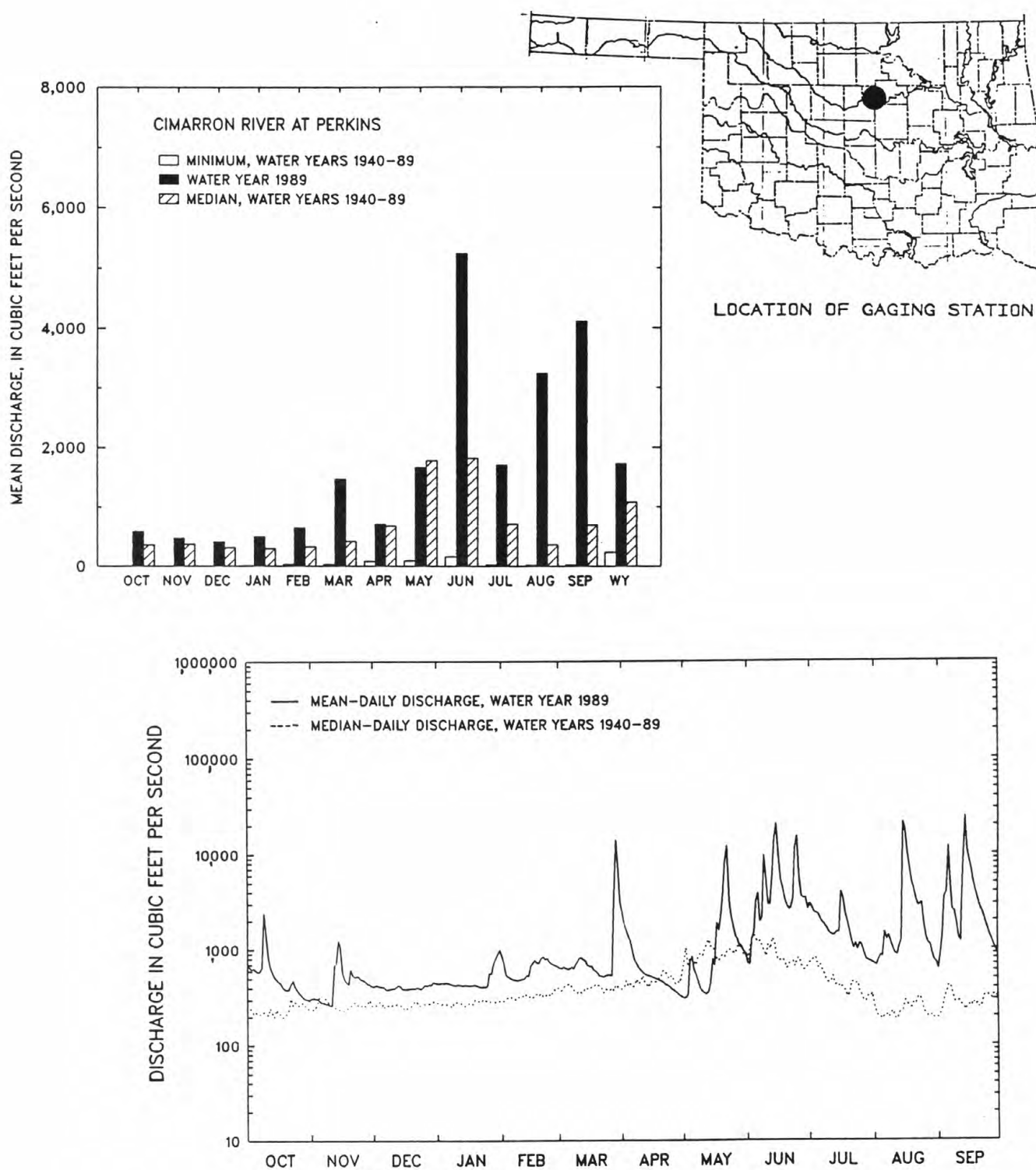


Figure 3.--Comparison of daily, monthly, and annual discharges for water year 1989 and period of record for Cimarron River at Perkins, Oklahoma.

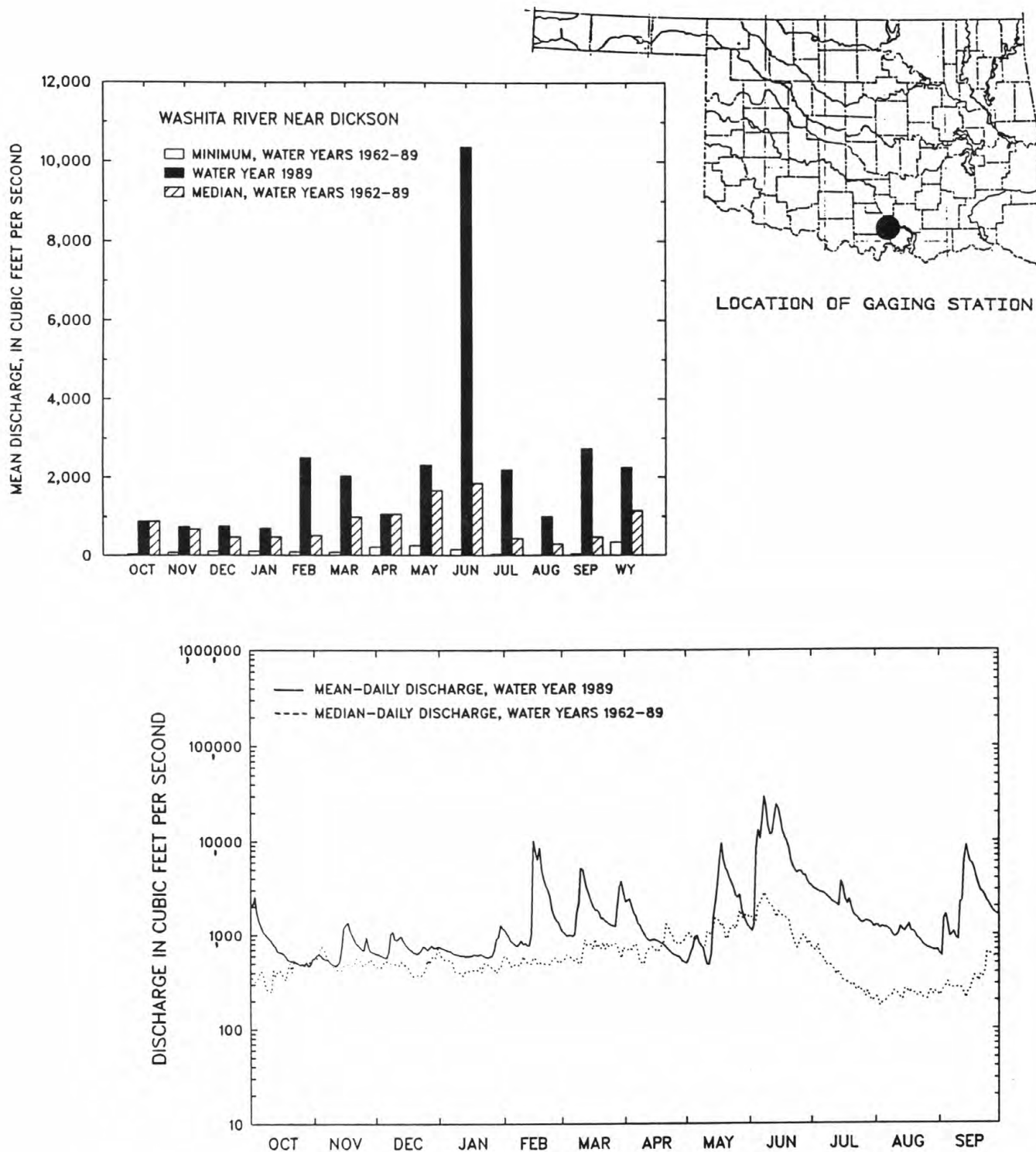


Figure 4.--Comparison of daily, monthly, and annual discharges for water year 1989 and period of record for Washita River near Dickson, Oklahoma.

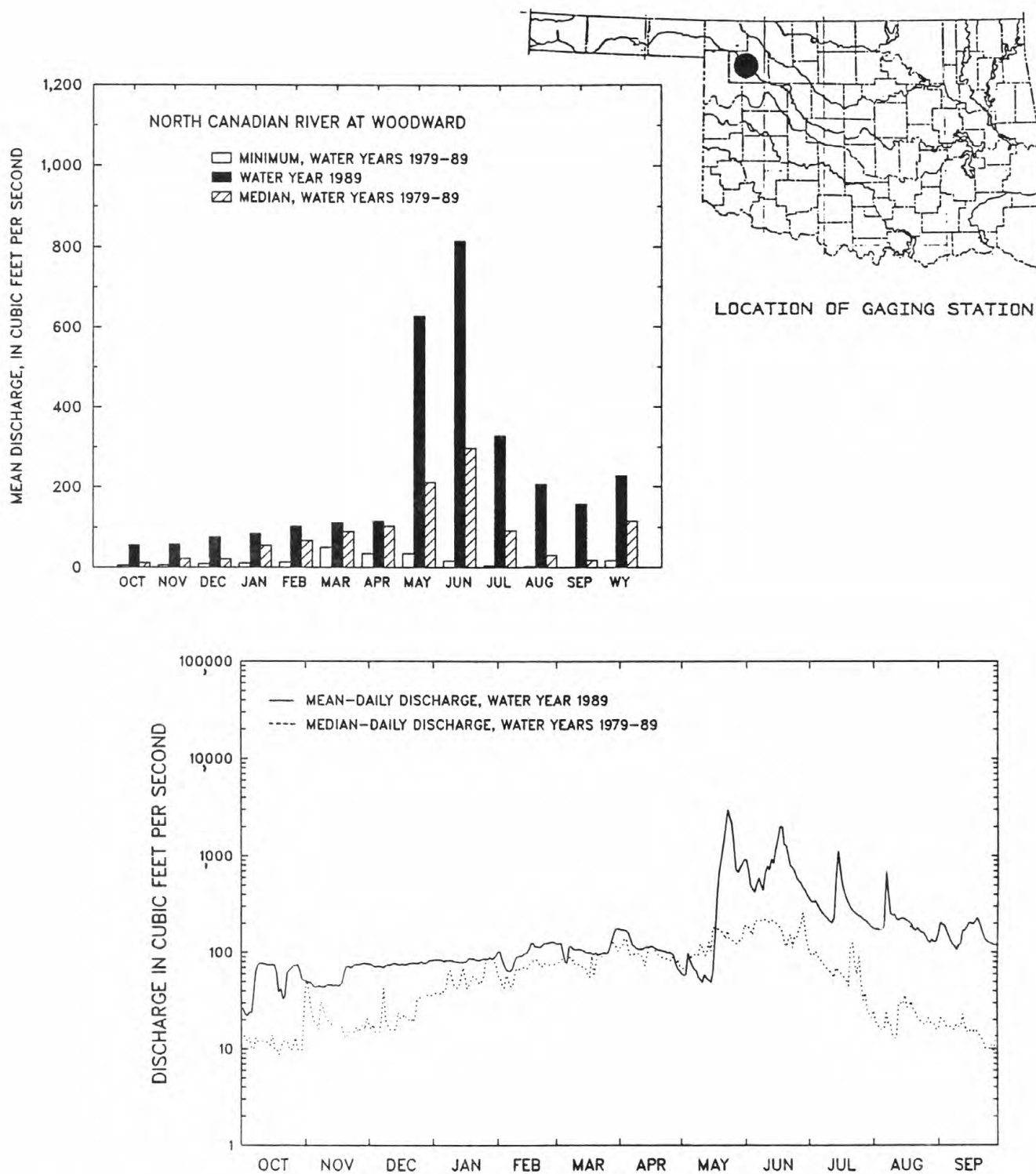


Figure 5.--Comparison of daily, monthly, and annual discharges for water year 1989 and period of record for North Canadian River at Woodward, Oklahoma.

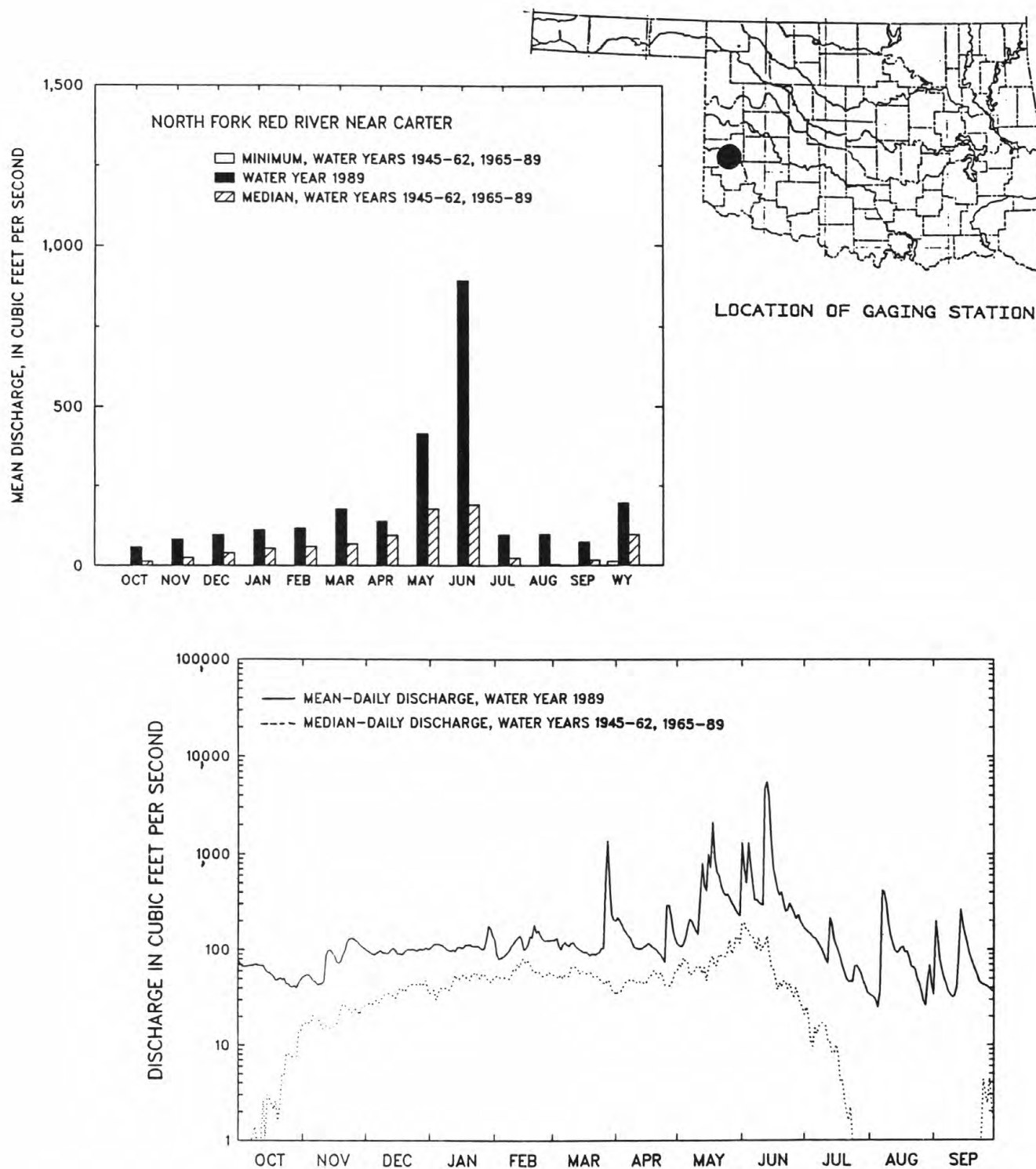


Figure 6.--Comparison of daily, monthly, and annual discharges for water year 1989 and period of record for North Fork Red River near Carter, Oklahoma.

Chemical Quality of Streamflow

The concentrations of selected dissolved chemical constituents measured at surface-water sampling stations in the State during the 1989 water year generally were within the ranges measured during previous years. Concentrations of dissolved solids, chloride, sulfate, and suspended sediment are shown in the following tables for sampling sites on selected principal streams in the State. Maximum and minimum concentrations of these constituents for the 1989 water year are compared to maximum and minimum concentrations for water years 1970 through 1985.

The maximum dissolved-solids concentration measured in these streams in 1989 was 11,700 milligrams per liter (mg/L) in the Cimarron River near Buffalo. This concentration is considered normal for the station. Dissolved-solids concentrations, in mg/L, are listed in the following table:

Station identification	1989 water year		1970-85 water years	
	Maximum	Minimum	Maximum	Minimum
07152500 Arkansas River at Ralston	1,760	354	2,550	139
07157950 Cimarron River near Buffalo	11,700	1,930	49,200	601
07161000 Cimarron River at Perkins	4,960	692	15,700	338
07164500 Arkansas River at Tulsa	1,330	500	2,400	108
07193500 Neosho River below Fort Gibson near Fort Gibson	162	138	213	102
07231500 Canadian River near Calvin	973	202	1,880	85
07234000 Beaver River near Beaver	4,110	3,480	4,320	164
07237500 North Canadian River at Woodward	1,130	896	3,110	626
07242000 North Canadian River near Wetumka	801	315	1,650	119
07243500 Deep Fork near Beggs	488	131	1,720	86
07301110 Salt Fork Red River near Elmer	3,850	2,470	4,450	192
07305000 North Fork Red River near Headrick	4,790	3,420	17,100	208
07331000 Washita River near Dickson	1,180	663	1,460	139
07335700 Kiamichi River near Big Cedar	34	16	45	8

The maximum dissolved-chloride concentration measured at the selected stations in 1989 was 6,700 mg/L in the Cimarron River near Buffalo. Dissolved-chloride concentrations, in mg/L, are listed in the following table:

Station identification	1989 water year		1970-85 water years	
	Maximum	Minimum	Maximum	Minimum
07152500 Arkansas River at Ralston	530	110	1,300	19
07157950 Cimarron River near Buffalo	6,700	860	29,000	180
07161000 Cimarron River at Perkins	2,400	260	8,600	110
07164500 Arkansas River at Tulsa	600	180	1,100	15
07193500 Neosho River below Fort Gibson near Fort Gibson	10	7.9	24	4.5
07231500 Canadian River near Calvin	230	26	750	18
07234000 Beaver River near Beaver	1,600	1,300	1,800	14
07237500 North Canadian River at Woodward	320	190	640	140
07242000 North Canadian River near Wetumka	200	73	640	17
07243500 Deep Fork near Beggs	130	14	800	7.3
07301110 Salt Fork Red River near Elmer	660	510	1,000	15
07305000 North Fork Red River near Headrick	1,900	1,100	8,000	40
07331000 Washita River near Dickson	90	38	250	6.0
07335700 Kiamichi River near Big Cedar	2.4	1.5	9.6	1.0

The maximum dissolved-sulfate concentration measured in 1989 was in the Salt Fork Red River near Elmer; this concentration of 1,800 mg/L equaled the maximum for 1970-85 water years. Dissolved-sulfate concentrations, in mg/L, are listed in the following table:

Station identification	1989 water year		1970-85 water years	
	Maximum	Minimum	Maximum	Minimum
07152500 Arkansas River at Ralston	220	48	300	8.7
07157950 Cimarron River near Buffalo	860	240	2,400	7.1
07161000 Cimarron River at Perkins	450	110	690	12
07164500 Arkansas River at Tulsa	160	65	210	19
07193500 Neosho River below Fort Gibson near Fort Gibson	15	8	50	7.7
07231500 Canadian River near Calvin	280	21	380	7.0
07234000 Beaver River near Beaver	920	580	1,100	18
07237500 North Canadian River at Woodward	310	222	930	110
07242000 North Canadian River near Wetumka	180	45	280	6.2
07243500 Deep Fork near Beggs	34	7	170	2.4
07301110 Salt Fork Red River near Elmer	1,800	1,000	1,800	72
07305000 North Fork Red River near Headrick	990	820	2,000	24
07331000 Washita River near Dickson	560	330	760	9.6
07335700 Kiamichi River near Big Cedar	4.8	2.0	9.3	.8

The maximum suspended-sediment concentration measured in 1989 at the selected stations was in the Canadian River near Calvin. The concentration was within the historic concentration range for this station. Suspended-sediment concentrations, in mg/L, are listed in the following table:

Station identification	1989 water year		1970-85 water years	
	Maximum	Minimum	Maximum	Minimum
07152500 Arkansas River at Ralston	539	27	13,500	10
07157950 Cimarron River near Buffalo	207	3	12,800	2
07161000 Cimarron River at Perkins	2,410	54	17,000	15
07164500 Arkansas River at Tulsa	34	8	5,280	3
07193500 Neosho River below Fort Gibson near Fort Gibson	34	30	496	1
07231500 Canadian River near Calvin	9,150	53	30,900	9
07234000 Beaver River near Beaver	64	9	14,900	7
07237500 North Canadian River at Woodward	324	55	3,770	6
07242000 North Canadian River near Wetumka	4,910	174	14,900	12
07243500 Deep Fork near Beggs	332	115	1,470	10
07301110 Salt Fork Red River near Elmer	69	12	12,100	7
07305000 North Fork Red River near Headrick	56	15	5,520	3
07331000 Washita River near Dickson	2,770	235	17,300	12
07335700 Kiamichi River near Big Cedar	54	3	154	1

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

EXPLANATION OF THE RECORDS

The surface-water and water-quality records published in this report are for the 1989 water year that began Oct. 1, 1988, and ended Sept. 30, 1989. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The locations of the stations where the data were collected are shown in figures 7-9. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for surface-water stations where only miscellaneous measurements are made.

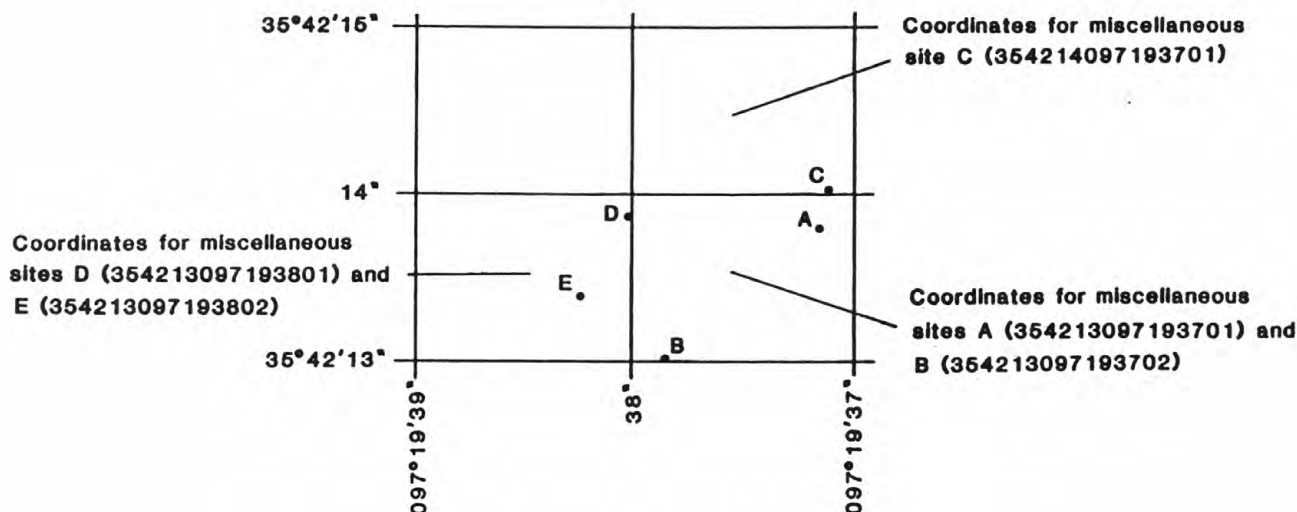
Downstream Order System

Since Oct. 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this 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.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 07152500, which appears just to the left of the station name, includes the two-digit Part number "07" plus the six-digit downstream-order number "152500." The Part number designates the major river basin; for example, part "07" is the Lower Mississippi River basin.

Latitude-Longitude System

The identification numbers for miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the sites within a 1-second grid. This site-identification number, once assigned, is a pure number, and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure below.)



System for numbering miscellaneous sites (latitude and longitude)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharge may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Location of all complete-record, crest-stage partial-record, and low-flow partial-record stations for which data are given in this report are shown in figures 7-8.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. It is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

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

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

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 from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information.

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--This paragraph is used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also 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 or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversions, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated."

Accuracy of the Records

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

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

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

Other Records Available

Records of discharge, not published by the Geological Survey, are collected in Oklahoma at several sites by the U.S. Army Corps of Engineers. The National Water Data Exchange (NAWDEX), U.S. Geological Survey, Reston, VA 22092, maintains an index of these sites as well as an index of records of discharge collected by other agencies but not published by the Geological Survey. Information on records at specific sites can be obtained from that office upon request.

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Oklahoma District office. Also, most of the daily mean discharges are in computer-readable form.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 9.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed on p. 17 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District Office.

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. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for 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 U.S. Geological Survey District Office whose address is given on the back of the title page of this report.

Water temperature

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

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.

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

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

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Arvada, Colo. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, and water temperature then follow in sequence.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

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

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

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

Remark Codes

The following remark codes may appear with the water-quality data in this report:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organisms may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
A	Biological organism estimated as dominant

ACCESS TO WATSTORE DATA

The National WATER Data STorage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's District offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

DEFINITIONS OF TERMS

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

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

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

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

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

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 all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C ± 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Bed material is the sediment mixture 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 105 °C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

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

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 green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloro-platinate 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.

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

Cubic feet per second per square mile [$(\text{ft}^3/\text{s})/\text{mi}^2$]* 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.

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

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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

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

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used 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 computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO_3).

HWM is a high-water mark or flood mark.

Hydrologic Benchmark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part of 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 eight-digit number.

Micrograms per gram ($\mu\text{g/g}$) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter ($\mu\text{g/L}$, g/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

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

*Until appropriate changes can be made to the WATSTORE and Prime computer systems, the unit abbreviations "CFS" and "CFSM" will appear in some computer-generated table headings and summaries.

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

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

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

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

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

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

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 a particle 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 the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
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 distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

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

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

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

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

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

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

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

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

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

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

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 release (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 macrophytes 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 [$\text{mg O}/(\text{m}^2 \cdot \text{time})$] for periphyton and macrophytes and [$\text{mg O}/(\text{m}^3 \cdot \text{time})$] 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 within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

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.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

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).

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

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) \times discharge (ft^3/s) \times 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

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 mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

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

Solute is any substance 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 microsiemens 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 microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

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

Substrate is the physical surface upon which an organism lives.

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

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

Surface area of a lake is that area outlined on the latest U.S. Geological Survey 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 the 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 undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

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

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

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 μ m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

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

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

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

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 of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period

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

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

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

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, Oct. 1 through Sept. 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending Sept. 30, 1986, is called the "1986 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

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

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3. Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

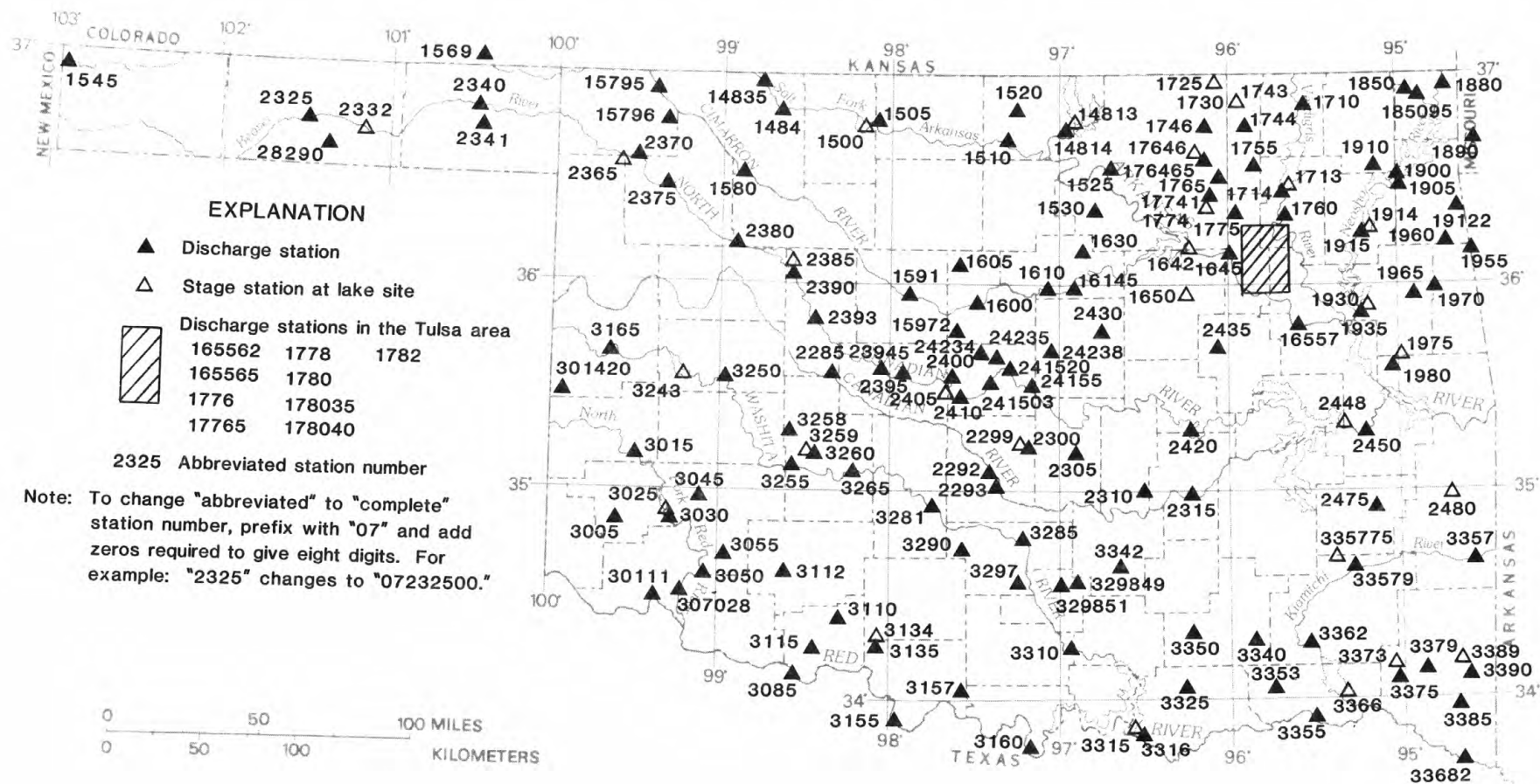


Figure 7.—Location of continuous-record surface-water stations, water year 1989.

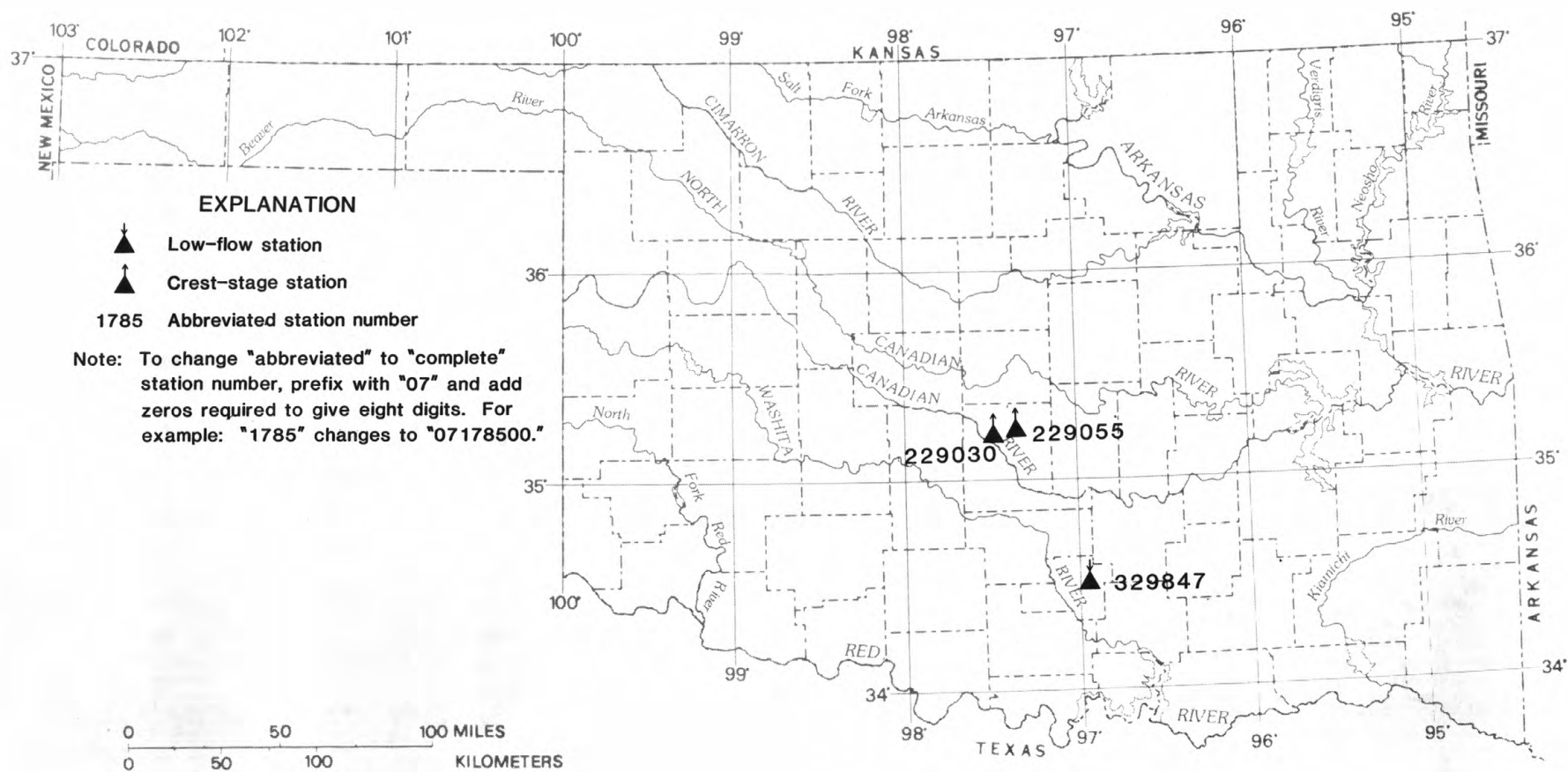


Figure 8.—Location of partial-record stations, water year 1989.

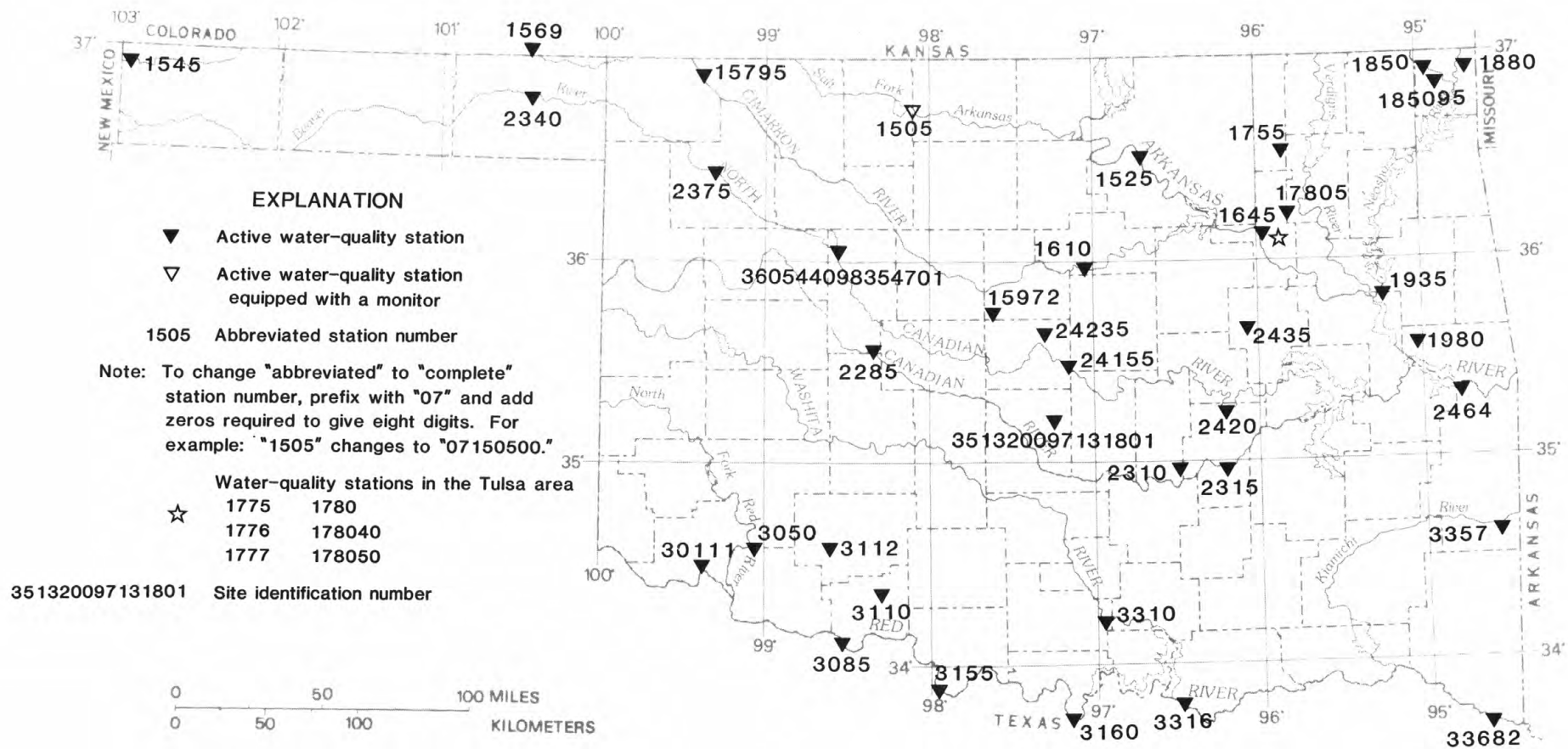


Figure 9.—Location of water-quality stations, water year 1989

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ARKANSAS RIVER BASIN

29

07148130 KAW LAKE NEAR PONCA CITY, OK

LOCATION (REVISED).-- Lat 36°41'58", long 96°55'18", in NE 1/4 SE 1/4 sec.25, T.26 N., R.3 E., Osage County, Hydrologic Unit 11060001, 1,700 ft east of centerline of spillway on dam on Arkansas River, about 8 mi east of Ponca City, and at mile 653.7.

DRAINAGE AREA.-- 46,530 mi², of which 7,607 mi² is probably noncontributing.

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

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

REMARKS.-- Reservoir is formed by a rolled, earth dam. Spillway is concrete, gravity ogee-weir type controlled by eight 50-foot tainter gates. Outlet works consist of two sluice gates. Regulated storage began April 22, 1976; conservation pool first filled July 6, 1976. Capacity, 1,348,000 acre-ft, at elevation 1,044.5 ft, top of flood control pool, 428,000 acre-ft, at elevation 1,010.0 ft, top of conservation pool, and 250,700 acre-ft, at elevation 997.5 ft, crest of controlled spillway. Dead storage 85,100 acre-ft below elevation 978.0 ft. Figures given herein represent total contents. Reservoir is designed for flood control, water-quality control, recreation, fish and wildlife, and water supply.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,387,000 acre-ft, Oct. 6, 1986, elevation, 1,045.52 ft; minimum since conservation pool first filled, 223,100 acre-ft, Mar. 25, 1977, elevation, 995.06 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 647,800 acre-ft, June 14, elevation, 1,021.06 ft; minimum, 381,400 acre-ft, Feb. 6, 7, elevation, 1,007.11 ft.

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

1,006	364,300	1,018	580,900
1,009	411,800	1,021	646,400
1,012	463,700	1,024	716,700
1,015	520,000	1,027	792,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429800	426600	433200	433900	389400	388500	426700	425400	477000	534000	403800	467300
2	430000	427100	432200	434800	389700	388100	428400	425500	469700	533800	403000	458100
3	430700	427700	432200	434600	386700	391800	430200	425400	464600	534200	403400	446100
4	430800	428100	430700	433900	384100	391300	430500	427200	459400	541400	404300	433400
5	431900	427900	429600	434300	382400	391500	430800	426900	457900	544200	407700	482800
6	433400	427900	429300	433800	381600	390500	431000	426900	467300	540600	412500	571000
7	433600	428600	430800	433600	381600	391000	430800	427200	476300	534300	411800	615200
8	434300	428400	428800	433200	381900	392000	430500	428100	477600	526500	409400	603100
9	434800	429100	428100	432000	381900	392300	430300	427400	478000	517700	406600	582600
10	435700	429300	427900	431700	382400	393100	428600	427400	478700	508200	404900	595100
11	434600	430800	427600	432900	382800	393900	428100	427200	539600	498800	404900	597500
12	432900	431900	427200	431500	383300	395200	428100	427400	596000	490200	404700	577700
13	430700	432400	427100	431000	384400	395300	427900	427700	632700	481400	406100	565900
14	430300	432600	428400	430800	385000	397000	428300	428100	647100	476500	405400	575600
15	430500	433900	426900	430300	386300	395600	427400	429600	642800	467700	404100	589600
16	430500	432900	426900	430100	386700	396800	427600	429800	635600	458500	403800	591300
17	431500	432200	426400	429600	387800	396700	427600	432000	625300	452800	404100	586000
18	430000	433200	426400	427100	388600	397900	427600	436200	613900	448200	404300	581100
19	429100	437400	424200	423800	389500	398400	426900	439100	604100	443600	408900	568800
20	428400	435800	426700	420100	391100	400200	426600	440900	598100	438100	4013500	560500
21	428300	436000	426600	416300	391800	398900	426600	442600	591500	432600	4018100	557000
22	428100	435800	426900	412800	391500	399400	426200	451000	588400	426700	423000	554800
23	427900	436200	427400	409700	390600	399900	425500	472300	581100	420900	422000	545900
24	427700	436200	428300	406900	389700	400500	425700	489800	575400	415500	417300	545900
25	427700	436000	427900	404700	389900	401200	425500	494900	569800	411800	418900	542200
26	427100	436000	431000	401200	389700	400400	426600	496400	562600	410500	420400	531800
27	428400	436000	430700	398400	388300	404900	425400	495400	553800	408700	422300	518100
28	426700	433900	431000	396500	388500	408200	425900	492800	544200	407400	419600	509300
29	426500	434300	431900	393700	---	411900	425500	489100	537000	408200	418400	503400
30	426000	433200	432600	391300	---	419100	427400	485900	534600	404900	435500	493900
31	426200	---	433100	390700	---	423200	---	481600	---	404300	457200	---
MAX	435700	437400	433200	434800	391800	423200	431000	496400	647100	544200	457200	615200
MIN	426000	426600	424200	390700	381600	388100	425400	425400	457900	404300	403000	433400
(+)	1009.86	1010.27	1010.26	1007.70	1007.56	1009.68	1009.93	1012.98	1015.74	1008.54	1011.64	1013.64
(++)	-3,300	+7,000	-100	-42,400	-2,200	+34,700	+4,200	+54,200	+53,000	-130,300	+52,900	+36,700

CAL YR 1988 MAX 702800 MIN 385600 (++) -130,900
WTR YR 1989 MAX 647100 MIN 381600 (++) +64,400

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

e Estimated

ARKANSAS RIVER BASIN

07148140 ARKANSAS RIVER NEAR PONCA CITY, OK

LOCATION.-- Lat 36°41'36", long 96°55'48", in NW 1/4 NE 1/4 sec.36, T.26 N., R.3 E., Kay County, Hydrologic Unit 11060001, 3,000 ft downstream from Kaw Lake, 8 mi east of Ponca City, and at mile 653.1.

DRAINAGE AREA.-- 46,530 mi², of which 7,607 mi² is probably noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage is 923.66 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1987, gage at site 3,000 ft upstream at National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Flow completely regulated by Kaw Lake. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 13 years, 3,141 ft³/s, 2,276,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 39,300 ft³/s, Oct. 11, 1986; no flow May 13, 1979, Sept. 14-24, 1986, Oct. 1-4, 1986.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 23,900 ft³/s, Sept. 7, gage height, 13.97 ft; minimum daily discharge, 133 ft³/s, Nov. 8, 1987.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	140	756	163	1040	398	506	217	4500	4620	754	12300
2	138	136	749	163	752	170	521	210	5450	4470	621	11000
3	137	134	749	325	576	171	521	209	5410	4450	510	10800
4	137	134	749	483	586	167	521	207	5400	4460	503	10600
5	136	134	749	514	603	163	521	206	5450	5980	259	10800
6	136	134	623	517	456	170	521	206	5070	7200	283	17300
7	136	134	492	509	239	167	661	206	4640	7180	890	18200
8	136	133	476	501	165	166	811	205	4630	7140	1640	20800
9	136	134	484	504	164	165	815	201	3310	7060	2010	21300
10	136	133	491	510	168	166	815	198	2410	7060	1390	21200
11	604	134	491	511	164	168	737	198	2760	7050	508	22400
12	1020	140	460	501	162	168	546	198	2670	6820	505	21600
13	1040	134	381	501	161	164	536	198	2630	6760	505	21900
14	709	195	376	501	161	166	536	197	5100	6680	945	21500
15	277	253	360	501	161	163	536	205	9560	6570	1430	16500
16	274	307	371	505	161	166	547	204	9580	6460	777	11000
17	277	365	377	677	186	170	555	201	9490	6470	575	10600
18	376	342	379	1620	267	164	557	220	9380	5870	391	10600
19	482	247	380	2150	271	164	563	356	8280	4670	475	10900
20	486	248	322	2290	271	163	565	491	5870	4670	541	11000
21	368	357	253	1940	353	160	572	496	5840	4670	548	6740
22	277	482	224	2250	620	163	585	566	5810	4590	1550	5570
23	276	491	164	2260	738	165	594	849	5800	4510	3820	6190
24	276	491	164	2270	765	168	538	1540	5780	4510	5470	3150
25	273	487	164	2270	771	170	455	3480	5760	3190	5490	4490
26	273	486	165	2020	766	170	396	3510	6440	2070	5590	7240
27	273	486	162	2090	764	183	320	3510	7910	2070	5590	8590
28	268	578	161	2230	641	242	267	3530	7680	1810	6430	6230
29	268	744	161	2230	---	179	218	3550	7580	1330	6950	4300
30	268	752	163	1990	---	234	217	3540	6480	1330	8540	65400
31	216	---	163	1350	---	349	---	3530	---	1040	11800	---
TOTAL	9947	9065	12159	36846	12112	5742	16053	32634	176670	152760	77290	370200
MEAN	321	302	392	1189	433	185	535	1053	5889	4928	2493	12340
MAX	1040	752	756	2290	1040	398	815	3550	9580	7200	11800	22400
MIN	136	133	161	163	161	160	217	197	2410	1040	259	3150
AC-FT	19730	17980	24120	73080	24020	11390	31840	64730	350400	303000	153300	734300

CAL YR 1988 TOTAL 750593 MEAN 2051 MAX 10700 MIN 129 AC-FT 1489000
WTR YR 1989 TOTAL 911478 MEAN 2497 MAX 22400 MIN 133 AC-FT 1808000

e Estimated

07148350 SALT FORK ARKANSAS RIVER NEAR WINCHESTER, OK

LOCATION.-- Lat 36°57'42", long 98°46'55", in NE 1/4 SE 1/4 sec.26, T.29 N., R.15 W., Woods County, Hydrologic Unit 11060002, near left bank on downstream side of pier of county road bridge, 1.0 mi northeast of Winchester, 2.5 mi upstream from Greenleaf Creek (formerly Greenwood Creek), 4.9 mi downstream from Yellowstone Creek, 5.0 mi downstream from State line, 19.0 mi northwest of Alva, and at mile 156.2.

DRAINAGE AREA.-- 856 mi².

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

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

GAGE.-- Water-stage recorder. Datum of gage is 1,410.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good except for periods of estimated record, which are poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 30 years, 97.3 ft³/s, 70,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 52,000 ft³/s, Aug. 19, 1981, gage height, 13.95 ft, from rating curve extended above 17,400 ft³/s; no flow at times.

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

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 18	1745	6,010	11.21	June 11	1900	*7,020	*11.68

Minimum daily discharge, 14 ft³/s, Oct. 18-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	22	32	44	40	54	295	21	89	218	128	140
2	37	21	33	45	e18	54	e224	21	91	227	100	120
3	18	21	34	45	e16	52	e179	22	87	171	66	104
4	17	20	33	44	e15	e35	e143	30	102	149	57	246
5	20	18	33	44	e17	e32	e117	35	190	133	49	250
6	24	18	34	40	e19	e34	e98	35	198	120	44	170
7	30	18	35	37	e20	e37	e83	31	152	111	42	126
8	28	18	35	e29	e20	e54	e71	27	141	103	36	104
9	27	19	e32	e31	e21	62	e61	21	137	92	32	358
10	24	20	e33	e47	e23	54	e61	19	121	83	30	602
11	21	21	e38	41	e26	46	e63	17	5200	74	33	246
12	20	22	e37	e43	e24	42	e65	17	3000	69	38	302
13	19	23	39	e39	e33	38	60	18	2290	284	225	1700
14	17	24	39	e30	e42	38	58	19	812	2450	590	829
15	16	27	37	e32	62	37	56	412	446	783	575	441
16	15	27	e33	e30	52	37	56	274	323	342	349	319
17	15	26	e34	e36	71	36	53	2430	252	238	218	247
18	14	26	e38	42	66	33	48	4430	212	194	168	204
19	14	28	40	44	73	34	42	1480	186	163	143	176
20	16	32	40	44	74	34	38	582	176	137	126	157
21	18	36	37	42	70	34	38	317	149	126	114	143
22	18	38	37	40	60	36	37	410	130	114	136	127
23	18	41	37	42	53	37	32	309	146	104	172	111
24	18	43	37	39	51	36	31	226	182	96	127	101
25	17	41	37	42	52	34	32	178	157	91	106	98
26	18	38	41	43	48	34	30	148	127	105	89	100
27	18	38	44	41	51	59	28	128	1310	95	75	97
28	18	37	e30	51	54	165	24	122	804	83	188	95
29	19	35	e25	54	---	114	21	113	329	75	542	95
30	20	34	e29	52	---	908	20	97	223	78	181	94
31	21	---	e40	48	---	461	---	87	---	63	177	---
TOTAL	648	832	1103	1281	1171	2761	2164	12076	17762	7171	4956	7902
MEAN	20.9	27.7	35.6	41.3	41.8	89.1	72.1	390	592	231	160	263
MAX	53	43	44	54	74	908	295	4430	5200	2450	590	1700
MIN	14	18	25	29	15	32	20	17	87	63	30	94
AC-FT	1290	1650	2190	2540	2320	5480	4290	23950	35230	14220	9830	15670

CAL YR 1988 TOTAL 26631.39 MEAN 72.8 MAX 997 MIN .55 AC-FT 52820
WTR YR 1989 TOTAL 59827 MEAN 164 MAX 5200 MIN 14 AC-FT 118700

e Estimated

ARKANSAS RIVER BASIN

07148400 SALT FORK ARKANSAS RIVER NEAR ALVA, OK

LOCATION.-- Lat 36°48'54", long 98°38'52", in SW 1/4 SW 1/4 sec.18, T.27 N., R.13 W., Woods County, Hydrologic Unit 11060002, at bridge on U.S. Highway 281, 1.0 mi northeast of Alva, 23.0 mi upstream from Medicine Lodge River, and at mile 141.0.

DRAINAGE AREA.-- 1,009 mi².

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

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

REMARKS.-- Records fair except for periods with ice effect, which are poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 14 years (water years 1938-51), 109 ft³/s, 78,970 acre-ft/yr; 10 years (water years 1980-89), 138 ft³/s, 99,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 27,000 ft³/s, Oct. 23, 1941, from rating curve extended above 13,000 ft³/s. Maximum gage height, 15.24 ft, Oct. 10, 1985; no flow at times in several years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 12	0430	*7,970	*14.07	No peak greater than base discharge.			

Minimum daily discharge, 6.4 ft³/s, Feb. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	21	32	41	45	51	330	17	138	241	144	181
2	53	21	31	43	45	48	222	17	134	277	204	150
3	32	20	31	43	e42	51	173	17	132	220	111	125
4	26	21	31	40	e32	e30	139	38	138	185	93	296
5	24	20	31	38	e21	e22	115	40	204	163	83	312
6	26	21	33	33	e12	e28	105	40	254	146	75	233
7	33	20	33	32	e7.2	e32	95	32	227	135	72	176
8	33	20	34	e26	e6.4	39	84	29	198	125	67	145
9	31	21	33	e18	e8.3	65	72	25	188	117	61	140
10	28	22	32	e12	e12	57	65	18	195	109	53	485
11	26	22	35	e19	e16	50	71	14	4050	101	52	282
12	22	22	38	37	21	42	73	15	4860	96	57	250
13	19	23	37	e33	35	35	74	15	3080	124	135	987
14	17	23	39	e29	38	32	72	18	1070	1140	541	818
15	18	24	35	e29	47	33	71	339	681	811	452	474
16	16	26	35	e33	57	34	66	695	508	419	412	364
17	15	24	32	e34	69	34	64	2150	403	303	264	296
18	15	23	34	41	68	28	59	3660	329	243	211	252
19	14	27	36	39	68	25	53	2130	274	206	179	220
20	17	32	38	37	83	29	50	835	234	176	159	195
21	17	31	38	37	80	29	48	558	207	154	144	180
22	18	33	37	38	73	28	46	529	185	139	139	169
23	17	33	34	38	62	30	39	483	184	127	187	152
24	17	37	33	37	56	32	35	376	207	121	151	135
25	17	37	32	44	54	33	32	298	207	104	131	134
26	16	35	36	40	52	37	33	246	181	100	116	136
27	16	34	41	38	50	86	47	209	689	112	103	132
28	16	33	39	49	53	186	29	185	804	100	136	197
29	17	32	33	55	---	165	22	168	426	92	403	359
30	18	32	30	56	---	665	18	152	292	89	288	356
31	19	---	39	53	---	563	---	139	---	100	218	---
TOTAL	666	790	1072	1142	1212.9	2619	2402	13487	20679	6575	5441	8331
MEAN	21.5	26.3	34.6	36.8	43.3	84.5	80.1	435	689	212	176	278
MAX	53	37	41	58	83	665	330	3660	4860	1140	541	987
MIN	13	20	30	12	6.4	22	18	14	132	89	52	125
AC-FT	1320	1570	2130	2270	2410	5190	4760	26750	41020	13040	10790	16520

CAL YR 1988 TOTAL 38051.14 MEAN 98.5 MAX 1160 MIN .75 AC-FT 71510
WTR YR 1989 TOTAL 64416.9 MEAN 176 MAX 4860 MIN 6.4 AC-FT 127800

e Estimated

07150000 GREAT SALT PLAINS LAKE NEAR JET, OK

LOCATION.-- Lat 36°44'40", long 98°08'08", in NW 1/4 SE 1/4 sec.11, T.26 N., R.9 W., Alfalfa County, Hydrologic Unit 11080004, at right end of Great Salt Plains Dam on Salt Fork Arkansas River, 4.5 mi upstream from Wagon Creek, 5.5 mi northeast of Jet, and at mile 103.3.

DRAINAGE AREA.-- 3,200 mi², of which 8 mi² is probably noncontributing.

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

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Reservoir is formed by earth dam. Outlet works consist of a 310-foot uncontrolled concrete spillway containing a series of three weirs to form a cascade. Storage began in June 1941; conservation pool was first filled Oct. 21, 1941. Capacity, 257,700 acre-ft at elevation 1,138.5 ft, crest of upper weir, and 31,420 acre-ft at elevation 1,125.0 ft, crest of intermediate weir and conservation pool. Reservoir is used for flood control and as a wildlife refuge. Figures given herein represent total contents. Revised capacity table, based on survey in 1971, used since Oct. 1, 1972. U.S. Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 189,400 acre-ft, July 2, 1951, elevation, 1,134.38 ft; minimum, 17,180 acre-ft, Sept. 6, 1973, elevation, 1,123.16 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 67,370 acre-ft, June 15 and 16, elevation 1,128.34 ft; minimum, 26,450 acre-ft, Oct. 1, elevation 1,124.39 ft.

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

1,124	23,280	1,127	51,180
1,125	31,420	1,128	62,940
1,126	40,700	1,129	75,970

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26620	29870	33090	34020	34580	34020	46880	33640	38470	41120	38430	44680
2	26780	29950	33370	33830	33460	35130	47200	33180	38290	41540	36710	44050
3	27270	29950	32720	34150	34580	35600	46990	34200	38570	40800	37540	42900
4	27510	30360	33370	34020	34390	33830	44580	34760	38660	40330	36060	45000
5	27680	30610	33550	34110	34110	34390	42380	34300	40800	39490	35870	45100
6	28080	30040	33550	33930	34020	34200	40050	34390	38750	38840	35970	43420
7	28730	29870	32350	33650	33830	34020	41120	33830	40610	38190	35410	42270
8	29300	29790	33550	33550	33740	34110	39120	33550	40240	37270	35130	40510
9	29630	30280	33740	33550	33650	34110	37920	33370	40140	36710	34390	40420
10	29790	30200	33090	33370	33550	34300	38100	33180	39220	35970	34580	39490
11	29870	29950	33650	33460	33550	34110	37920	33090	40240	36150	34200	38660
12	29870	30850	33930	33830	33650	34390	37080	33740	40460	35040	35220	40610
13	30120	30770	34200	33930	33650	34110	36900	33830	50000	35780	46360	43040
14	30280	31260	33090	33830	33930	33830	34020	33740	63980	35600	52710	45420
15	30040	31420	33550	33930	34020	33910	35780	35870	67370	38010	54710	46780
16	29950	31090	34110	34110	34110	33280	35780	36060	64760	39770	55410	46880
17	29630	30440	34020	34020	34480	32530	34950	39590	61180	40240	53650	45840
18	29470	30770	34110	34020	34670	33090	34580	42800	57530	39980	51770	44260
19	29550	31980	37640	33830	34850	33000	35040	45000	53410	39490	49080	43110
20	29710	32160	33370	33930	35870	33460	34760	48870	50030	38750	47200	41750
21	29870	32160	33550	34580	35870	33930	34760	50660	47300	38100	45420	40910
22	30520	32440	34390	33740	35220	33740	34850	50450	45520	37170	44370	38940
23	29950	32630	34390	33930	35220	33460	34670	48660	44260	37080	42480	39030
24	29950	33090	33460	33830	35410	33740	34850	47410	42590	36430	41330	38570
25	29380	33090	33180	34670	35320	33740	42590	46670	41330	37270	39960	38190
26	29630	33460	33830	34670	34110	29830	33370	45210	40240	37170	39310	37640
27	29470	33830	34110	34670	35320	35180	35040	43530	41120	36620	38470	37270
28	29140	33000	33740	35500	34850	36520	34020	42270	41430	36430	39590	36990
29	29220	33280	33930	35690	---	40420	34110	41590	42060	36150	39770	36800
30	29470	33280	34020	35320	---	40330	33550	39540	41960	35970	42590	36430
31	29790	---	34020	34760	---	43840	---	38840	---	35130	44680	---
MAX	30520	33830	37640	35690	35870	43840	47200	50660	67370	41540	55410	46880
MIN	26620	29790	32350	33370	33460	29830	33370	33090	38290	35040	34200	36430
(+)	1124.80	1125.20	1125.28	1125.36	1125.37	1126.30	1125.23	1125.80	1126.12	1125.40	1126.38	1125.54
(++)	+3,340	+3,490	+740	+740	+90	+8,990	-10,290	+5,290	+3,120	-6,830	+9,550	-8,250
CAL YR 1988	MAX 68540	MIN 25400	(++)	-3,150								
WTR YR 1989	MAX 67370	MIN 26620	(++)	+9,980								

ARKANSAS RIVER BASIN

07150500 SALT FORK ARKANSAS RIVER NEAR JET, OK

LOCATION.-- Lat 36°45'09", long 98°07'43", in NE 1/4 NE 1/4 sec.11, T.26 N., R.9 W., Alfalfa County, Hydrologic Unit 11060004, near center of span on downstream side of bridge on State Highway 38, 0.6 mi downstream from Great Salt Plains Dam, 4 mi upstream from Wagon Creek, 6.7 mi northeast of Jet, and at mile 102.7.

DRAINAGE AREA.-- 3,202 mi², of which 8 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,092.20 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 17, 1938, nonrecording gage at site 2.5 mi upstream at datum 13.46 ft higher. Mar. 17, 1938 to Apr. 26, 1953, water-stage recorder at site 200 ft upstream, datum 5.00 ft higher prior to Oct. 1, 1950.

REMARKS.-- No estimated daily discharges. Records good. Flow regulated since June 1941 by Great Salt Plains Lake (station 07150000). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Since regulation by Great Salt Plains Lake, 48 years (water years 1942-89), 400 ft³/s, 289,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 25,900 ft³/s, May 19, 1938, gage height, 13.80 ft, present datum; no flow at times in 1939-41, 1944, and 1955-56.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 3,770 ft³/s, June 15, gage height, 6.90 ft; minimum daily discharge, .84 ft³/s, Nov. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	17	42	96	154	155	1320	144	693	1020	343	1360
2	16	16	44	98	117	148	1480	97	662	982	473	1330
3	15	13	43	114	176	241	1410	93	575	973	551	1200
4	17	2.7	45	126	187	167	1320	178	606	913	479	1320
5	18	2.2	55	276	187	148	1160	209	900	830	353	1360
6	17	2.3	58	82	189	170	1020	162	898	732	355	1320
7	16	2.1	33	123	186	113	918	170	902	652	283	1180
8	15	2.1	36	75	182	109	682	142	888	578	278	1070
9	14	1.9	81	86	144	118	609	83	803	499	238	928
10	14	1.7	55	69	68	145	575	109	817	443	185	815
11	16	1.4	62	107	69	124	516	75	881	356	173	716
12	16	.93	88	72	67	125	436	79	1150	300	200	716
13	16	.84	98	88	70	134	400	103	1880	298	678	1100
14	15	.99	70	93	84	159	366	123	2920	313	1920	1290
15	16	104	50	94	92	114	300	183	3650	490	2220	1470
16	16	6.4	109	124	109	116	338	257	3640	771	2390	1540
17	17	3.7	92	97	123	133	243	432	3240	814	2300	1480
18	17	1.9	97	108	141	62	254	815	2790	901	2130	1340
19	17	1.5	169	101	156	75	238	1160	2370	842	1960	1210
20	17	2.7	137	102	213	45	206	1460	2040	736	1700	1090
21	17	3.2	54	122	256	100	211	1800	1740	638	1530	983
22	18	6.6	152	117	220	99	244	1920	1440	554	1330	847
23	17	11	77	98	206	82	217	1840	1310	476	1220	674
24	17	27	92	103	208	107	187	1740	1180	426	1050	645
25	18	23	45	134	212	81	212	1560	1050	430	969	581
26	17	44	77	157	148	129	194	1400	942	500	872	524
27	17	82	81	150	189	237	215	1250	957	457	721	468
28	17	59	97	195	163	331	193	1160	955	422	633	436
29	16	79	100	228	---	317	161	1030	1010	403	702	407
30	16	65	97	214	---	631	144	867	1070	372	974	386
31	17	---	96	205	---	992	---	717	---	315	1300	---
TOTAL	510	585.16	2432	3854	4316	5707	15769	21358	43959	18436	30510	29786
MEAN	16.5	19.5	78.5	124	154	184	526	689	1465	595	984	993
MAX	18	104	169	276	256	992	1480	1920	3650	1020	2390	1540
MIN	14	.84	33	69	67	45	144	75	575	298	173	386
AC-FT	1010	1160	4820	7640	8560	11320	31280	42360	87190	36570	60520	59080

CAL YR 1988 TOTAL 156360.96 MEAN 427 MAX 3820 MIN .84 AC-FT 310100
WTR YR 1989 TOTAL 177222.16 MEAN 486 MAX 3650 MIN .84 AC-FT 351500

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1951-63, 1968 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1954 to September 1959, October 1961 to September 1963, July 1968 to September 1989 (discontinued).

WATER TEMPERATURE: October 1954 to September 1959, October 1961 to September 1963, July 1968 to September 1989 (discontinued).

CHLORIDES: October 1955 to September 1959.

INSTRUMENTATION.-- Water-quality monitor since July 1968.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Prior to September 1988, once-daily observer readings were published. Water-quality monitor data for these periods are available on request at the District office. In addition to the water-quality monitor record, samples were collected quarterly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily (observed), 57,000 microsiemens, Jan. 28, 1977; minimum recorded, 1,000 microsiemens, Oct. 2, 1986.

WATER TEMPERATURE: Maximum daily (observed), 36.0°C, Aug. 11, 1980; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT PERIOD.--

Water year 1987:

SPECIFIC CONDUCTANCE: Maximum recorded, 17,200 microsiemens, Feb. 4; minimum recorded, 1,000 microsiemens, Oct. 2.

WATER TEMPERATURE: Maximum recorded, 32.0°C, Aug. 22; minimum recorded, 0.0°C, Jan. 11, 16, 17, 18, 19.

Water year 1988:

SPECIFIC CONDUCTANCE: Maximum recorded, 23,700 microsiemens, Sept. 27; minimum recorded, 1,050 microsiemens, Oct. 2.

WATER TEMPERATURE: Maximum recorded, 35.0°C, July 18; minimum recorded, 0.0°C, on several days during winter period.

Water year 1989:

SPECIFIC CONDUCTANCE: Maximum recorded, 23,400 microsiemens, Nov. 15; minimum recorded, 1,600 microsiemens, Sept. 1.

WATER TEMPERATURE: Maximum recorded, 32.5°C, July 6; minimum recorded, 0.0°C, Feb. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BAR- OMETRIC PRES- SURE (MM OF HG)
OCT 03...	1915	1028	1028	3.01	15	13200	--	16.0	22.5	--
DEC 01...	1300	1028	80020	3.19	36	*12300	8.3	12.0	8.0	739
FEB 13...	1500	1028	80020	3.37	74	12900	8.6	5.0	3.0	727
APR 13...	1330	1028	1028	4.16	396	5200	8.6	17.0	13.5	--
JUN 02...	1500	1028	80020	4.50	703	4710	8.3	25.5	25.5	730
JUL 25...	1400	1028	80020	4.16	391	3710	8.2	27.0	25.5	735

* SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO
OCT 03...	--	--	--	--	--	--	--	--	--	--
DEC 01...	13.0	--	<10	800	650	180	85	2400	87	37
FEB 13...	16.8	138	74	860	700	210	82	2100	84	31
APR 13...	--	--	--	--	--	--	--	--	--	--
JUN 02...	9.0	117	35	510	370	140	38	800	77	15
JUL 25...	9.5	122	30	540	440	150	40	590	70	11

ARKANSAS RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
OCT 03...	--	--	--	--	--	--	--	--	--	--
DEC 01...	8.9	183	0	150	760	3800	7290	7320	9.91	713
FEB 13...	8.1	183	9	164	720	3600	7170	6830	9.75	1430
APR 13...	--	--	--	--	--	--	--	--	--	--
JUN 02...	7.3	162	0	133	450	1200	2770	2710	3.77	5260
JUL 25...	7.2	121	0	99	510	900	2360	2260	3.21	2490

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	3900	1200	2360	3200	2900	3070	3600	3400	3520	4600	4400	4500
2	2700	1000	1650	3400	3100	3200	3900	3500	3740	4600	4400	4540
3	3200	2900	3070	3400	3200	3360	3800	3700	3750	4600	4300	4430
4	3300	2400	2960	3400	3100	3250	3800	3700	3750	4300	4200	4260
5	2400	1600	2090	3500	3100	3340	3800	3700	3770	4300	4200	4280
6	3000	2300	2790	3600	3100	3360	3900	3700	3820	4300	4000	4150
7	---	---	---	3200	1700	2530	3900	3700	3810	4200	3900	4040
8	---	---	---	3000	2200	2790	3900	3600	3770	4200	4000	4080
9	---	---	---	3200	2800	2970	3800	3600	3690	4100	4000	4060
10	2600	2500	2550	3400	3100	3250	4100	3800	3950	4200	3800	3930
11	2700	2500	2570	3800	3400	3620	4100	3300	3820	4300	4100	4200
12	3100	2600	2710	3700	3500	3600	3500	3200	3360	4300	4200	4220
13	3400	2800	3210	3800	3600	3720	3500	3200	3440	4200	4100	4180
14	2700	1700	2260	3600	3600	3740	3600	3400	3470	4300	4100	4210
15	2400	1900	2140	3700	3600	3670	3800	3600	3710	4500	4300	4390
16	2200	1800	1940	3700	3600	3680	3900	3700	3790	4900	4300	4600
17	2000	1700	1850	3700	3600	3690	3900	3700	3780	5700	4600	5170
18	2500	2000	2240	3700	3600	3640	4100	3800	3920	5700	5200	5500
19	2500	2200	2360	3800	3600	3710	4100	3900	3970	5600	5500	5580
20	2300	2000	2110	3700	3600	3690	3900	3700	3820	5600	5400	5490
21	2300	1900	2090	3700	3500	3650	4000	3800	3920	5400	5200	5330
22	2700	2100	2320	3600	3200	3340	3800	3700	3750	5300	4900	5190
23	2700	2500	2590	3600	3300	3520	3900	3800	3860	5200	5100	5140
24	2900	2600	2750	3700	3600	3650	4000	3900	3940	5100	5000	5090
25	2800	2600	2710	3700	3600	3630	4000	3900	3940	5100	5000	5090
26	3300	2800	3070	3700	3500	3600	3900	3800	3860	5200	5000	5090
27	3200	2700	3060	3700	3600	3620	4200	3800	3990	5100	5000	5070
28	2900	2700	2820	3700	3600	3630	4600	4300	4470	5100	5000	5060
29	2900	2800	2870	3700	3600	3660	4500	4000	4340	5100	4600	4940
30	3100	2800	2970	3700	3600	3630	4200	3700	3920	4600	4000	4190
31	3100	2900	2980	---	---	---	4600	4300	4460	4200	3900	4000
MONTH	---	---	---	3800	1700	3460	4600	3200	3840	5700	3800	4650
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5400	4100	4730	4500	3200	4120	2000	1900	1960	3000	2600	2860
2	4200	3900	4050	3600	2400	2920	2500	1900	2160	3000	2600	2800
3	11000	3900	6410	3700	2700	3210	2900	2400	2740	3200	2800	3020
4	17200	7000	13000	3900	3300	3560	2800	2500	2600	3100	2900	3050
5	8500	5100	6150	3200	2300	2720	2600	2400	2500	3000	2600	2860
6	5500	5200	5260	3100	2700	2900	2600	2400	2480	3100	2700	2940
7	5300	4900	5140	3300	3000	3120	2600	2400	2500	3500	3100	3310
8	5100	4800	4920	3500	3000	3230	2500	2300	2420	3400	2900	3140
9	5200	5000	5060	4100	3400	3790	2300	2000	2160	3200	2600	2990
10	5200	4900	5070	4300	4100	4240	2400	2200	2290	2700	1400	2050
11	5100	4800	4980	4500	4300	4410	2300	2100	2210	2800	2300	2560
12	5000	4800	4900	4400	4100	4250	2400	2200	2300	2900	2500	2620
13	5000	4800	4910	4200	3700	4020	2700	2300	2510	2900	2700	2830
14	5200	4900	5030	3700	2800	3230	5400	2600	3270	3200	2600	2780
15	5400	4900	5190	3600	3400	3550	4800	3400	3940	3400	3200	3310
16	6800	5300	5920	3800	3500	3620	3300	2700	2920	3400	3200	3290
17	7100	5600	6510	3800	3600	3700	3000	2700	2850	3300	3200	3290
18	5600	3900	4930	3700	3200	3620	3100	2900	3010	3300	3000	3120
19	4300	3800	4130	3600	3000	3220	3000	2500	2840	3100	2700	2980
20	4300	4000	4150	3800	1400	2720	2800	2700	2770	2900	2700	2790
21	4300	3000	3660	3100	1500	2430	3200	2700	2920	2900	2600	2750
22	3400	3000	3230	3300	3000	3120	3400	3100	3260	3010	2900	2930
23	4000	3300	3640	3600	2900	3240	3300	2800	3080	3110	2910	3020
24	4000	3700	3810	3900	3100	3480	3200	2900	3040	3110	3010	3050
25	4200	3800	3990	2600	1900	2230	3100	3000	3060	3210	3110	3160
26	4000	3800	3870	2600	2000	2360	3100	2300	2850	3210	2510	3020
27	4300	3800	3970	2300	1700	2060	3000	2100	2670	3520	2610	2990
28	4800	4200	4470	3000	2300	2520	2900	2700	2770	4320	3520	4020
29	---	---	---	3200	2700	3050	2900	2700	2830	4430	1410	2710
30	---	---	---	2600	1900	2160	3100	2600	2860	2520	1310	1740
31	---	---	---	2100	1900	2000	---	---	---	2010	1010	1480
MONTH	17200	3000	5040	4500	1400	3190	5400	1900	2730	4430	1010	2890

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	2620	1510	1960	3830	3620	3740	4030	3500	3780	4430	3910	4130
2	2120	1410	1680	3830	3520	3670	4030	3500	3760	4010	3280	3780
3	2930	2020	2580	3730	3420	3580	4130	3820	4000	3590	2960	3280
4	2930	2830	2870	4260	3530	3880	4340	4130	4220	6540	3490	4250
5	3140	2530	2870	4570	4050	4340	4450	4230	4280	4850	4120	4300
6	2630	1520	2090	4160	1460	3130	4760	4340	4490	4850	4120	4300
7	3040	1520	1940	2390	1460	1950	4650	4340	4530	4430	4120	4330
8	3450	2840	3280	2090	1350	1680	4760	4340	4530	4540	4430	4490
9	3450	2940	3200	2400	1560	1920	4760	4230	4530	5270	4530	4790
10	3450	3250	3370	2920	1460	2180	4550	4230	4420	4960	4640	4850
11	3560	3050	3400	2820	1780	2470	4650	4440	4580	5170	4850	4970
12	3050	2540	2850	3140	2720	2930	4550	4340	4480	5270	4950	5100
13	3260	2750	3010	3350	3040	3220	4440	4130	4300	5480	5270	5370
14	3360	2850	3060	3360	3250	3330	4340	4130	4210	5480	5270	5360
15	3360	3160	3250	3470	3260	3370	4340	4020	4200	5270	1790	3580
16	3370	3260	3280	3370	2210	3080	4970	3810	4240	4530	3690	4130
17	3880	3270	3380	2740	2110	2400	5700	5070	5310	4850	4320	4610
18	3370	2960	3180	4110	2530	3170	6860	5390	5790	4950	4640	4780
19	2970	2860	2930	3690	2010	2780	5910	5180	5500	5060	4850	4930
20	3170	2760	2990	3490	2540	3090	6230	5280	5460	4950	4740	4870
21	3180	2870	3040	3500	2540	3020	6960	5170	5700	4850	4740	4810
22	3180	2970	3050	3390	2550	2950	6960	5380	5700	4950	4740	4830
23	2980	2770	2910	3290	2870	3090	6230	5490	5840	4840	4630	4780
24	3190	2980	3130	3190	2760	3030	5700	5380	5570	4840	4630	4780
25	3400	3080	3250	3400	2870	3130	5590	5380	5440	4950	4840	4870
26	3500	3190	3430	3820	3080	3600	5490	5280	5350	4950	4320	4790
27	3300	2060	2850	3920	3400	3660	5380	5280	5310	4530	3790	4110
28	3200	2160	2700	3710	2970	3270	5590	4960	5400	4840	3790	4550
29	3610	3200	3380	3610	3080	3330	4960	2540	3940	5260	4950	5160
30	4030	3610	3830	3920	3180	3450	3700	2750	3220	5050	4800	4480
31	---	---	---	3920	3290	3640	4010	3060	3580	---	---	---
MONTH	4030	1410	2960	4570	1350	3100	6960	2540	4700	6540	1790	4580

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	4100	1260	2490	3820	3410	3470	4200	3550	3910	5220	4910	5100
2	2840	1050	1730	3620	3190	3420	3770	3440	3590	5320	5220	5270
3	3370	3050	3230	3730	3510	3600	3710	3440	3570	5420	5310	5360
4	3470	2520	3120	3840	3520	3690	4630	3770	4100	5310	5200	5240
5	2520	1890	2200	3940	3730	3810	4840	4410	4680	5610	5200	5360
6	3160	2420	2970	3840	3630	3730	4940	4410	4710	5820	5610	5720
7	3160	2940	3020	3730	3090	3450	4940	4620	4780	6230	5710	5780
8	3470	2950	3180	3740	3090	3420	4830	4610	4740	5910	5810	5860
9	3790	3470	3650	3740	3520	3640	4720	4280	4390	6010	5900	5940
10	3790	3370	3570	3740	3520	3660	4390	3790	3990	6100	5890	5950
11	3900	3690	3780	3850	3630	3740	3850	3630	3750	6000	5890	5910
12	3900	3590	3730	3950	3740	3830	3950	3630	3830	5890	5780	5870
13	3690	3380	3500	3850	3640	3770	4160	3950	4020	5880	5770	5830
14	3800	3690	3760	3960	3640	3750	4470	3830	4200	5870	5680	5780
15	3910	3700	3790	4070	3850	3890	4360	3940	4150	5860	5660	5710
16	3810	3700	3800	3960	3750	3880	5000	4140	4270	5650	5440	5570
17	3910	3700	3800	3860	3530	3760	4350	4140	4250	5550	5440	5460
18	3810	3700	3750	3750	3530	3690	4350	4240	4290	5540	5330	5450
19	3810	3700	3720	3860	3640	3730	4350	4020	4210	5530	4720	5320
20	3920	3700	3780	3860	3640	3730	4550	4020	4230	4710	4090	4280
21	3920	3810	3840	3860	3650	3770	4650	4330	4490	4800	4290	4570
22	3920	2970	3530	4080	3330	3630	4330	3900	4120	5100	4800	4950
23	3290	2860	3040	3430	3000	3210	4180	3690	3940	5100	3900	4520
24	3500	3290	3400	3650	3430	3600	4740	4220	4350	4180	3780	3960
25	3720	3400	3600	3650	3540	3610	5580	4630	5070	5290	3660	4410
26	3720	3610	3690	3760	3650	3720	5890	5470	5760	5690	4980	5300
27	3820	3610	3700	3870	3550	3670	5990	5670	5790	5480	4560	5090
28	3720	3400	3590	3980	3760	3900	5670	5350	5530	4870	4360	4580
29	3400	3080	3200	4300	3780	4050	5350	5060	5230	5160	4450	4810
30	3400	3080	3150	3980	3550	3820	5130	4810	4990	5260	3540	4570
31	3400	3190	3320	---	---	---	5020	4810	4940	5350	4850	5140
MONTH	4100	1050	3380	4300	3000	3690	5990	3440	4450	6230	3540	5250

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	5550	4940	5340	4500	4300	4440	4600	4400	4510	4870	2920	3980
2	5650	5240	5420	4500	4200	4380	4400	3200	4000	5740	3200	4090
3	5640	5440	5520	5300	3900	4310	3100	1700	2490	5340	2810	3690
4	5630	5430	5530	5200	4600	4870	3300	2000	2530	3680	3190	3450
5	5530	5320	5460	5300	4200	4820	5000	2400	3650	3570	3380	3450
6	5520	5420	5480	4200	3000	3470	4400	2900	3520	3760	3470	3570
7	5520	5410	5460	3900	2200	3210	3100	2700	2860	4630	3270	3690
8	5410	5300	5380	3800	2840	3490	3000	2200	2610	6850	3460	3990
9	5400	5100	5280	3700	2800	3120	3400	2700	3100	3650	3450	3520
10	5200	4900	5050	3900	2800	3290	3600	3100	3400	4120	3260	3620
11	5100	4400	4900	3900	2700	3100	3900	3500	3670	4020	3440	3850
12	5200	5100	5130	4300	2700	3570	3700	3500	3570	3630	3340	3470
13	5200	5000	5140	4100	3400	3840	3600	3300	3410	3910	2860	3420
14	5000	4800	4920	4100	3600	3820	3600	3300	3440	3710	3050	3360
15	5000	4700	4860	4150	3700	3850	3600	3200	3350	4570	3620	4110
16	4900	4300	4580	4300	4000	4170	3690	3490	3560	4940	4080	4180
17	4500	4200	4320	4000	3700	3920	3690	3480	3580	4460	4080	4190
18	4500	4400	4460	4100	3800	3950	3580	3280	3490	4550	4170	4270
19	4500	4300	4400	3900	2700	3140	3770	3480	3600	4920	4160	4310
20	4700	4300	4470	3900	3300	3560	4160	3470	3720	4250	3960	4190
21	4400	3900	4240	4100	3800	3880	4260	3260	3600	4060	3860	3950
22	4200	2900	3460	5400	3800	4080	3160	2070	2550	4140	3950	4030
23	4000	3500	3790	5200	3800	4130	3740	2470	2980	4320	4040	4140
24	4200	3900	4090	5300	3900	4160	4330	3640	3880	5640	4130	4860
25	4300	4000	4170	4000	3400	3680	4620	3830	4110	6200	5720	5860
26	4200	4000	4080	3700	3600	3670	5400	3820	4360	6470	5620	5830
27	4300	4000	4170	4000	3200	3600	4110	3720	3850	8830	3740	5790
28	4400	4200	4310	4800	3900	4440	4300	3610	3940	7860	3270	4380
29	4400	4200	4340	4800	4400	4630	5960	3610	4160	7650	4010	4720
30	---	---	---	4500	4400	4440	5760	3890	4360	7270	4000	4480
31	---	---	---	4600	4400	4490	---	---	---	5120	4190	4680
MONTH	5650	2900	4750	5400	2200	3920	5960	1700	3530	8830	2810	4160
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5290	4650	4770	5200	4910	5070	6400	5900	6110	9800	9400	9620
2	4740	4090	4370	5020	4820	4940	7200	6500	6930	11900	9500	9820
3	4470	4090	4190	5710	5020	5220	7800	7400	7590	10800	9800	10200
4	4470	4370	4460	7660	5900	6960	8000	7800	7860	10600	9900	10400
5	4570	4470	4510	7370	6600	6840	8200	7900	8060	10700	10000	10400
6	4950	4670	4830	6800	5830	6330	8400	7800	8150	10700	10200	10400
7	4860	4490	4700	5730	5240	5390	8500	7800	8060	11900	10400	10900
8	4390	3460	3890	5840	5440	5720	8700	7900	8330	11200	10600	10800
9	4030	3740	3910	5750	5360	5590	9500	8200	8760	11200	10800	11000
10	4410	4030	4240	5850	5560	5720	10200	9400	9770	11300	10900	11100
11	4510	4320	4380	5870	5660	5750	11700	9900	10800	12000	10900	11200
12	4510	4230	4430	6270	5870	5960	13000	9100	11600	11400	11000	11100
13	4520	3950	4270	6470	6270	6350	8700	8200	8470	11600	11100	11300
14	4630	4140	4320	6380	6180	6280	9000	8200	8590	11300	11000	11100
15	4910	4340	4650	6380	5110	5660	9100	8600	8800	11400	10800	11100
16	4630	4340	4510	6600	5500	6080	9100	8700	8840	11400	11000	11100
17	4730	4540	4620	7200	6600	6890	9200	8600	8860	12200	11100	11300
18	4730	4540	4640	7110	6810	6990	10100	8700	8960	11300	9800	10900
19	4740	4460	4590	7110	6320	6720	16500	8700	9230	11200	10300	10900
20	4460	3890	4120	7030	6430	6700	10300	8800	9060	12000	10700	11000
21	5040	4270	4530	6940	6630	6770	10600	8700	9180	17200	10900	11900
22	5050	4760	4900	7140	6840	7010	9700	8900	9170	15900	12100	13800
23	5150	4860	5010	7650	7050	7380	9300	9000	9140	15700	10900	11800
24	5160	4960	5050	7660	7460	7530	10300	8900	9150	12300	11100	11600
25	5360	5160	5230	7560	6580	7160	10000	8900	9240	13600	12200	12600
26	5650	4980	5330	6580	6180	6360	9400	9000	9220	22200	12900	14900
27	5370	5170	5250	6890	6090	6540	11400	9100	9500	23700	13200	14700
28	5370	5090	5200	6900	6700	6790	9500	9000	9210	22200	12900	13900
29	5380	5000	5150	6900	6800	6820	9600	9000	9270	13400	12900	13200
30	5190	4620	4850	6900	6400	6760	9900	9100	9340	13500	13100	13200
31	---	---	---	6300	6000	6160	11000	9300	9660	---	---	---
MONTH	5650	3460	4630	7660	4820	6340	16500	5900	8870	23700	9400	11600
YEAR	23700	1050	5380									

ARKANSAS RIVER BASIN
07150500 ARKANSAS RIVER NEAR JET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13500	10000	12100	14800	14000	14300	13200	12800	13000	9530	8790	9210
2	13600	10000	11700	14900	14000	14400	13000	12600	12800	9560	9010	9240
3	13400	12200	12800	14300	14000	14100	12800	12300	12500	10000	8940	9510
4	14000	13300	13800	17800	14100	15800	12900	12400	12600	11500	9080	9640
5	13900	13600	13700	20400	16900	18700	12700	12400	12500	12200	9300	10900
6	14000	13700	13800	20500	15400	18800	12700	12500	12600	11700	10300	10900
7	14200	13700	14000	22900	19200	20700	13800	12600	13000	10900	10500	10700
8	14600	13900	14200	23100	17400	20700	14100	12700	13400	11700	10900	11300
9	14200	14000	14100	21700	18000	20400	13700	13000	13300	12400	11800	12200
10	14800	14200	14400	21800	19300	20700	13800	13100	13400	12200	9900	11600
11	15100	14400	14700	21700	10200	14700	13600	13400	13500	10700	9920	10200
12	14700	14200	14400	18800	10000	11100	13600	13400	13500	12400	9940	11200
13	15300	14300	14700	11800	10700	11300	13700	13500	13600	12500	11000	12100
14	15000	14300	14700	15800	11200	12500	13600	13400	13500	11500	9890	10700
15	14800	13800	14200	23400	12700	14300	13700	13300	13500	11500	9900	10700
16	14100	13600	13800	13700	6400	10800	13300	13200	13300	12600	11000	11900
17	14500	13500	13800	17000	5600	11600	13400	13200	13300	12600	10200	11700
18	14600	13500	14000	16800	7500	11600	13400	13200	13300	11200	10100	10400
19	13700	13300	13500	20200	14500	18300	13300	12500	13000	11800	10100	10500
20	13700	13400	13500	19600	14400	17900	13300	12000	12900	21200	10100	15600
21	14000	13700	13800	16000	12400	15000	12400	11800	12000	17700	13500	15500
22	14800	13900	14200	16100	14900	15400	12800	12200	12600	14000	12400	13300
23	14400	13900	14200	15800	14100	14900	12800	11100	12100	13500	11200	12100
24	14000	13400	13700	14400	13700	14100	11500	10700	11000	12600	11700	12000
25	14000	13100	13600	14200	13800	13900	12200	11500	11900	12400	11200	11600
26	13600	12900	13200	13900	13600	13700	12500	12200	12300	11300	9140	11100
27	14000	13100	13500	13900	13500	13600	12500	12300	12500	11400	10900	11200
28	14100	13200	13700	13700	13500	13600	12600	12300	12500	10900	10600	10700
29	13700	13200	13400	14000	12500	13100	12600	12300	12500	10800	10600	10700
30	13900	13500	13700	13000	12600	12700	12600	9680	11800	10500	8190	9240
31	14100	13500	13700	---	---	---	10100	9170	9600	8120	7510	7850
MONTH	15300	10000	13800	23400	5600	15100	14100	9170	12700	21200	7510	11100
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	8610	8000	8370	10400	10000	10200	9200	4100	7890	6500	6000	6110
2	10000	8500	9200	10600	10200	10400	7600	4200	5420	7500	6100	6290
3	10300	9970	10100	10300	9800	10100	7500	5700	6610	7000	6500	6650
4	10800	10200	10600	10300	10000	10100	7100	6100	6720	7200	6800	7020
5	11300	10800	11000	10400	10100	10200	7400	6700	7050	7300	6800	7070
6	11600	11200	11400	10300	10200	10300	6800	6200	6510	7800	7300	7560
7	11800	11600	11700	10300	10200	10300	6600	5400	6200	7400	6100	6730
8	12000	11800	11900	10300	10000	10200	5900	4300	5310	6300	5800	5990
9	12100	11900	12000	10200	10000	10000	6200	5600	5800	6900	6100	6520
10	12200	12000	12100	10200	10000	10100	6400	5900	6110	---	---	---
11	12400	12100	12200	10200	9900	10000	6500	5200	6180	---	---	---
12	12500	12300	12300	10100	9900	9990	5200	4600	4840	---	---	---
13	13000	11700	12600	10100	9900	10000	5300	4900	5110	---	---	---
14	12500	12400	12400	10100	9800	9970	5600	3500	4810	---	---	---
15	12500	12300	12400	10200	9800	9990	5100	3600	4490	---	---	---
16	12400	12300	12400	10100	9800	9930	5100	4300	4770	---	---	---
17	12400	12200	12300	10000	9300	9680	5500	4700	5040	---	---	---
18	12200	12000	12200	10100	9700	9870	6300	5400	5770	---	---	---
19	12100	11800	11900	9900	9600	9760	---	---	---	---	---	---
20	11900	11000	11500	10300	9700	9990	---	---	---	---	---	---
21	10900	10100	10600	9700	9600	9640	---	---	---	---	---	---
22	10200	9600	9920	9700	9400	9600	---	---	---	---	---	---
23	10200	9800	9960	9700	9600	9630	---	---	---	---	---	---
24	9900	9800	9850	9700	9400	9570	---	---	---	---	---	---
25	10000	9800	9920	9700	9500	9600	---	---	---	---	---	---
26	10100	9900	10000	10700	8900	9550	---	---	---	---	---	---
27	10100	9900	10000	9300	8400	8810	---	---	---	---	---	---
28	10100	9900	10000	8900	8700	8780	5700	5300	5480	---	---	---
29	---	---	---	8900	8600	8720	5700	5600	5650	---	---	---
30	---	---	---	9400	8400	8700	6100	5600	5860	---	---	---
31	---	---	---	10200	9300	9820	---	---	---	---	---	---
MONTH	13000	8000	11100	10700	8400	9790	---	---	---	---	---	---

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	5300	5000	5140	3900	3800	3800	2500	1600	1960
2	5800	4600	4790	5200	4600	4840	4200	3800	3930	2600	2400	2540
3	4900	4700	4860	4700	3900	4470	4300	4100	4170	3000	2600	2740
4	4900	4700	4830	4700	4000	4370	4100	2700	3280	3200	3000	3100
5	5000	4600	4750	4500	3800	4250	4400	3300	4200	3500	3100	3290
6	5000	4300	4730	4400	3700	4200	4400	4200	4340	3600	2840	3310
7	5000	3900	4440	4300	3800	4020	4400	4200	4320	2900	2600	2760
8	4600	4000	4140	4000	3100	3580	4470	4300	4340	2800	2600	2660
9	5200	4600	4970	3100	2600	2790	4500	4300	4410	3360	2700	3040
10	5400	5100	5220	3300	2500	2860	4600	4300	4470	3800	3400	3460
11	5500	5000	5240	4600	3300	4280	4670	4400	4540	3900	3700	3770
12	---	---	---	4700	4400	4510	4700	4600	4630	3900	3700	3770
13	---	---	---	4600	4300	4420	4700	4400	4550	3900	3400	3660
14	---	---	---	4600	4400	4570	5000	4600	4810	4000	3900	3960
15	---	---	---	4800	4600	4680	5000	4700	4870	4000	3200	3710
16	---	---	---	4700	4400	4520	4800	4300	4590	3800	3200	3570
17	---	---	---	4700	4300	4540	4600	4000	4400	4100	3800	3920
18	---	---	---	4400	4300	4350	4100	3500	3800	4000	2000	3390
19	---	---	---	4900	4300	4540	3500	1700	2630	3200	2100	2810
20	---	---	---	4800	4300	4440	3000	1800	2540	2600	2200	2390
21	---	---	---	4400	4200	4260	2800	2000	2540	2760	2300	2520
22	---	---	---	4300	4100	4150	2500	2000	2250	3400	2800	3090
23	---	---	---	4100	3900	4010	2800	2400	2600	3400	3200	3280
24	---	---	---	3900	3800	3840	2800	2700	2770	3500	3300	3400
25	4100	3800	3940	3800	3700	3750	2900	2800	2830	3500	3300	3380
26	4100	3510	3960	3800	3700	3770	2800	2600	2720	3400	3200	3280
27	4000	3500	3820	3900	3700	3800	2900	2600	2750	3300	3150	3220
28	4000	3800	3900	3900	3800	3840	3170	2900	3000	3200	3100	3190
29	4800	4000	4280	3900	3800	3870	3200	3100	3150	3200	3100	3170
30	5200	4600	4920	4000	3720	3890	3200	3000	3070	3200	3100	3170
31	---	---	---	3900	3700	3780	3300	2470	3080	---	---	---
MONTH	---	---	---	5300	2500	4140	5000	1700	3660	4100	1600	3180

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.0	19.0	20.0	18.0	13.5	15.0	7.5	5.5	6.5	4.5	3.5	4.0
2	20.0	18.5	19.5	13.0	12.0	12.0	5.5	5.0	5.0	4.0	3.5	4.0
3	18.5	17.5	18.0	12.0	11.0	11.5	5.5	4.0	5.0	4.0	3.5	3.5
4	18.0	16.5	17.5	11.5	10.0	11.0	5.5	4.5	5.0	3.5	3.0	3.5
5	17.5	16.5	17.0	10.5	9.5	10.0	5.5	4.5	5.0	3.5	3.0	3.5
6	17.5	16.5	16.5	11.0	10.0	10.5	6.5	5.0	5.5	4.5	3.0	4.0
7	---	---	---	12.0	10.5	11.5	7.0	6.5	6.5	4.0	3.5	4.0
8	---	---	---	12.5	11.5	12.0	6.5	5.5	6.0	3.5	3.0	3.5
9	---	---	---	12.0	10.5	11.5	5.5	5.0	5.0	3.0	2.5	3.0
10	19.0	18.0	18.5	10.5	8.0	10.0	5.0	3.5	4.0	3.0	1.5	2.0
11	18.5	16.5	18.0	8.0	6.0	6.5	3.5	2.5	3.0	1.5	.0	1.0
12	16.0	13.0	14.5	6.0	3.0	5.0	3.5	2.0	3.0	2.5	1.0	1.5
13	13.0	11.5	12.5	3.0	1.0	2.0	4.5	3.0	3.5	3.5	2.0	2.5
14	13.5	12.0	12.5	2.0	1.0	1.5	5.0	4.0	4.5	4.0	3.0	3.5
15	13.5	12.0	13.0	3.0	1.5	2.0	6.0	5.0	5.5	4.0	2.5	3.5
16	15.0	13.0	13.5	3.5	2.5	3.0	6.5	6.0	6.0	2.5	.0	1.5
17	16.5	14.0	15.0	5.0	3.0	4.0	6.5	6.0	6.5	.0	.0	.0
18	16.5	14.5	15.5	6.0	4.5	5.0	6.5	6.0	6.5	.0	.0	.0
19	17.0	15.5	16.0	6.0	4.5	5.5	6.5	5.5	6.0	1.0	.0	.5
20	18.0	16.5	17.0	7.0	5.5	6.0	6.0	5.5	5.5	1.0	.5	.5
21	17.5	16.0	16.5	8.0	6.5	7.0	5.5	5.0	5.0	1.5	.5	1.0
22	17.0	15.5	16.0	9.0	7.5	8.0	4.5	4.0	4.5	2.0	1.0	1.5
23	17.5	16.5	17.0	8.5	7.5	8.0	4.5	3.5	4.0	2.0	1.5	1.5
24	17.0	15.5	16.0	7.5	6.5	7.0	4.5	3.5	4.0	2.5	1.5	2.0
25	15.5	14.5	15.0	7.0	6.5	6.5	5.0	4.0	4.5	3.0	2.0	2.5
26	15.0	13.5	14.5	6.5	5.5	6.0	5.5	4.5	5.0	3.0	2.0	2.5
27	16.5	13.5	15.0	6.5	5.0	5.5	5.0	4.5	5.0	3.5	2.5	3.0
28	17.0	14.0	15.5	7.0	5.0	6.0	5.0	4.0	5.0	4.0	3.0	3.5
29	16.0	14.5	15.0	7.0	5.5	6.5	5.0	4.0	4.5	4.5	3.5	4.0
30	15.5	13.5	14.5	7.5	6.5	7.0	5.0	3.5	4.5	5.0	3.5	4.0
31	16.5	14.5	15.5	---	---	---	5.0	4.5	5.0	4.5	3.0	4.0
MONTH	---	---	---	16.0	1.0	7.4	7.5	2.0	5.0	5.0	.0	2.5

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	3.5	4.5	7.5	5.5	6.5	8.5	5.5	7.0	24.0	21.5	23.0
2	6.5	4.0	5.0	8.5	6.0	7.0	8.0	6.5	7.5	23.5	21.5	22.5
3	6.5	6.0	6.5	9.5	7.5	8.0	11.0	7.5	9.0	23.0	21.5	22.5
4	7.0	6.0	6.5	10.5	8.0	9.0	10.0	8.5	9.5	22.5	21.0	22.0
5	7.0	6.0	6.5	13.5	10.0	11.5	10.0	9.0	9.5	22.5	20.0	21.0
6	6.0	5.5	5.5	13.0	12.0	12.5	10.0	9.0	9.5	21.0	19.0	20.0
7	7.0	5.0	5.5	14.0	12.0	13.0	11.5	9.5	10.5	20.5	18.5	19.5
8	7.0	6.0	6.5	14.0	12.5	13.5	14.0	10.5	12.0	22.0	19.0	20.0
9	7.0	5.5	6.5	12.5	9.0	11.0	16.0	13.0	14.5	23.0	19.5	21.0
10	8.0	6.0	7.0	9.0	7.5	8.0	17.0	14.5	15.5	24.0	21.5	23.0
11	10.0	7.0	8.0	9.5	6.5	8.0	17.0	14.5	16.0	25.5	22.5	24.0
12	10.0	8.5	9.0	10.0	8.0	9.0	16.0	14.5	15.0	25.5	24.0	24.5
13	10.0	9.0	9.5	11.5	8.5	10.0	14.5	12.0	13.5	26.0	23.5	25.0
14	9.5	9.0	9.5	14.0	10.5	12.0	11.5	9.5	10.5	25.5	24.5	25.0
15	10.0	8.0	9.0	13.0	11.5	12.0	12.5	9.5	11.0	25.5	24.0	24.5
16	7.5	6.5	7.0	12.0	11.0	11.5	16.0	12.0	14.0	28.0	24.0	25.5
17	6.0	5.0	5.5	12.5	12.0	12.0	20.5	14.5	17.0	27.0	25.0	26.0
18	6.0	4.0	5.0	12.0	11.5	12.0	20.0	16.5	18.0	29.0	25.0	26.5
19	5.5	4.5	5.0	12.5	11.0	12.0	22.5	18.0	20.0	28.5	26.5	27.0
20	5.5	4.5	5.0	14.5	12.0	13.0	21.5	20.0	21.0	26.5	24.5	25.5
21	7.0	5.0	5.5	14.0	13.0	14.0	20.0	17.0	18.5	26.5	23.0	24.5
22	7.5	5.5	6.5	14.5	13.0	13.5	21.0	15.5	18.0	25.5	23.5	24.5
23	7.5	6.0	7.0	14.0	13.5	14.0	20.0	17.5	18.5	24.0	21.5	22.5
24	7.0	7.0	7.0	13.0	9.0	11.0	21.0	18.5	19.5	21.5	20.5	21.0
25	7.0	7.0	7.0	9.0	7.0	7.5	21.5	19.5	20.5	23.0	20.5	21.5
26	7.5	7.0	7.5	8.5	7.0	7.5	23.5	20.5	22.0	23.0	22.0	22.5
27	9.0	7.5	8.0	8.5	7.0	8.0	22.5	21.0	22.0	22.0	20.5	21.5
28	8.5	6.5	7.5	8.5	7.0	8.0	23.0	20.0	21.5	20.5	20.0	20.0
29	---	---	---	7.0	3.5	5.5	22.5	20.0	21.5	20.0	19.0	19.5
30	---	---	---	5.0	2.0	3.5	25.5	20.5	22.5	22.5	20.0	21.0
31	---	---	---	6.5	4.0	5.5	---	---	---	24.5	22.0	23.0
MONTH	10.0	3.5	6.7	14.5	2.0	10.0	25.5	5.5	15.5	29.0	18.5	22.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	25.0	22.5	24.0	27.5	23.0	25.0	29.5	28.0	29.0	26.0	22.5	24.0
2	26.5	24.5	25.5	28.5	23.5	25.5	30.5	29.0	29.5	28.0	23.5	25.5
3	26.5	24.0	24.5	26.0	24.5	25.0	31.0	29.0	30.0	26.0	24.0	25.0
4	25.0	23.5	24.0	26.0	24.5	25.0	30.0	28.0	29.0	25.0	23.5	24.0
5	25.0	22.5	24.0	29.5	25.5	27.0	31.5	27.0	29.0	24.0	23.5	23.5
6	25.5	23.0	24.5	29.0	27.0	28.0	30.5	26.5	28.0	23.5	23.0	23.5
7	25.5	23.5	24.5	29.5	27.5	28.5	31.0	27.0	28.5	25.5	22.5	23.5
8	26.0	24.0	25.0	29.0	27.5	28.0	30.5	27.0	28.5	26.0	24.5	25.5
9	26.0	24.5	25.5	28.5	27.0	27.5	31.0	26.5	28.0	26.0	24.0	25.0
10	25.0	24.5	25.0	27.5	26.0	27.0	31.0	26.5	28.0	24.0	22.5	23.0
11	27.0	24.0	25.0	27.5	25.5	26.5	30.0	26.0	28.0	23.5	22.0	22.5
12	30.5	25.5	27.5	27.0	26.0	26.5	31.5	26.5	28.5	23.0	21.5	22.5
13	31.0	27.0	28.5	26.0	24.5	25.5	30.5	27.5	29.0	24.0	21.5	22.5
14	31.0	27.5	28.5	27.5	24.0	26.0	31.5	29.0	30.0	25.0	23.0	24.0
15	28.0	26.5	27.5	27.5	24.5	26.0	31.0	29.0	29.5	25.0	24.0	24.5
16	29.5	27.0	28.0	28.5	26.0	27.0	29.0	27.0	28.0	24.0	22.5	23.5
17	29.5	28.0	29.0	27.0	26.0	26.5	30.5	26.0	28.0	24.5	22.5	23.5
18	31.0	26.5	28.0	27.5	24.5	26.0	31.0	24.5	27.5	24.0	22.5	23.0
19	28.0	25.5	26.5	28.5	26.0	27.0	30.0	25.0	27.0	25.0	21.5	23.0
20	28.5	25.0	26.5	28.5	26.5	27.5	29.5	26.0	27.0	25.0	23.0	23.5
21	27.5	26.0	26.5	28.5	27.0	27.5	28.0	25.0	26.5	23.5	22.5	23.0
22	28.5	25.0	26.5	28.0	26.5	27.5	32.0	24.0	27.0	23.0	21.5	22.5
23	29.5	27.0	28.5	28.5	26.5	27.5	25.0	21.5	23.0	22.5	21.0	22.0
24	28.0	27.0	27.5	30.0	27.0	28.5	23.5	22.0	23.0	25.0	21.5	23.0
25	27.0	25.5	26.5	30.5	28.0	29.0	25.0	22.0	23.5	25.5	22.5	24.0
26	27.5	25.5	26.0	29.5	27.5	28.5	25.0	23.5	24.5	24.5	22.0	23.0
27	27.5	25.5	26.5	29.5	28.0	29.0	23.5	21.5	22.5	22.5	21.5	22.0
28	27.5	25.0	26.5	29.0	27.5	28.5	25.5	21.0	23.0	22.5	21.0	22.0
29	26.5	25.0	25.5	29.5	27.5	28.5	24.0	22.5	23.5	22.0	21.0	21.5
30	25.0	24.0	24.0	29.0	27.5	28.5	26.5	22.5	24.0	22.0	20.5	21.0
31	---	---	---	29.0	28.0	28.5	25.5	23.0	24.0	---	---	---
MONTH	31.0	22.5	26.2	30.5	23.0	27.2	32.0	21.0	26.9	28.0	20.5	23.3

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	21.0	19.0	20.0	18.0	17.0	17.5	5.5	4.5	5.0	1.5	.5	1.0
2	20.0	18.5	19.5	19.5	18.0	18.5	6.5	5.0	5.5	2.5	1.0	2.0
3	18.5	17.5	18.0	19.5	18.0	19.0	7.5	6.0	6.5	3.0	2.0	2.5
4	18.0	16.5	17.5	19.0	18.5	19.0	8.5	7.0	7.5	3.5	2.5	3.0
5	17.5	16.5	17.0	18.5	17.0	17.5	9.0	7.5	8.5	3.0	1.5	2.5
6	17.5	15.5	16.5	16.5	15.5	16.0	9.5	8.5	9.0	1.5	.0	1.0
7	17.0	16.0	16.5	15.5	13.5	14.5	9.5	9.0	9.0	1.0	.0	.5
8	16.5	15.0	16.0	14.5	13.0	14.0	9.5	9.0	9.0	1.0	.0	.5
9	16.5	15.5	16.0	13.0	9.5	11.0	9.0	8.0	8.5	1.0	.0	.5
10	15.5	13.0	14.0	9.5	8.5	9.0	8.5	7.0	7.5	1.0	.5	.5
11	13.0	12.0	12.5	9.0	8.0	8.5	8.0	7.5	8.0	1.5	.5	1.0
12	14.5	11.5	13.0	9.5	8.0	9.0	8.0	7.0	7.5	1.5	1.0	1.0
13	14.5	13.0	14.0	9.5	8.5	9.0	7.5	6.0	7.0	2.0	1.0	1.5
14	15.5	14.0	14.5	10.5	9.0	9.5	6.0	2.0	4.0	2.5	1.5	2.0
15	16.0	14.5	15.0	12.0	10.5	11.5	2.0	.0	1.0	3.0	1.5	2.0
16	15.5	15.0	15.0	12.0	10.5	11.5	.5	.0	.5	3.0	2.5	3.0
17	15.5	14.0	15.0	10.5	9.0	9.5	2.0	.5	1.0	4.0	3.0	3.5
18	16.0	14.0	15.0	9.5	8.0	8.5	2.5	2.0	2.0	4.0	3.5	4.0
19	16.0	13.5	14.5	8.0	7.0	7.0	2.5	2.0	2.5	4.0	3.5	4.0
20	13.5	12.5	13.5	8.0	6.5	7.5	2.5	2.0	2.0	4.0	2.5	3.0
21	13.5	12.0	13.0	8.5	7.0	7.5	3.5	2.0	2.5	2.5	1.5	1.5
22	13.0	11.0	12.0	9.5	8.0	8.5	4.0	2.5	3.5	2.5	1.5	2.0
23	14.5	13.0	13.5	9.5	8.5	9.5	6.0	3.5	4.5	2.5	2.0	2.5
24	15.0	14.5	14.5	9.5	9.5	9.5	6.0	5.0	5.5	2.5	2.0	2.0
25	14.5	14.0	14.0	9.5	9.0	9.0	5.0	1.5	3.0	2.0	.5	1.5
26	15.5	14.0	14.5	8.5	8.0	8.5	1.5	.0	1.0	2.0	.5	1.5
27	15.0	14.5	14.5	8.0	6.5	7.0	1.0	.0	.5	2.5	1.0	1.5
28	14.5	13.5	14.0	8.0	5.0	5.5	1.0	.5	1.0	3.5	1.5	2.0
29	16.5	14.0	15.0	5.0	4.5	5.0	1.0	.5	1.0	8.0	3.0	5.5
30	16.0	15.0	15.5	5.5	4.5	5.0	1.5	.5	1.0	12.5	8.0	10.5
31	17.5	16.0	16.5	---	---	---	1.5	.5	1.0	11.5	9.5	11.0
MONTH	21.0	11.0	15.2	19.5	4.5	10.7	9.5	.0	4.4	12.5	.0	2.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.5	5.0	7.5	11.5	10.5	11.0	11.5	10.5	11.0	18.5	17.0	17.5
2	5.0	3.0	4.0	11.0	8.0	10.5	10.5	9.5	10.0	18.0	16.5	17.0
3	3.0	1.5	2.5	8.0	4.5	6.5	12.0	9.0	10.5	16.5	15.0	15.5
4	1.5	1.0	1.5	5.5	3.5	4.5	13.5	11.0	12.0	18.5	14.5	16.0
5	1.0	.0	.5	5.0	4.5	6.0	13.5	12.5	13.0	20.5	16.5	18.0
6	1.5	.0	.5	5.0	4.0	4.5	16.0	12.0	14.0	20.5	18.0	19.0
7	2.5	1.0	2.0	8.0	5.0	6.5	17.0	15.0	16.0	22.0	18.5	20.0
8	3.5	2.0	2.5	8.5	7.0	8.0	18.0	15.0	16.5	22.5	20.0	21.0
9	4.5	3.0	3.5	10.0	7.5	8.5	17.0	13.5	15.5	22.5	19.5	21.0
10	4.0	.0	2.5	11.0	8.5	9.5	13.5	12.5	13.0	24.5	20.5	22.5
11	1.0	.0	.5	11.5	9.5	10.5	13.0	11.0	12.0	24.5	22.5	24.0
12	2.0	.5	1.5	11.0	8.0	9.0	14.5	11.5	13.0	26.5	22.5	24.5
13	3.5	1.5	2.5	8.0	6.5	6.5	16.5	13.5	15.0	26.0	23.0	24.5
14	4.0	3.0	3.5	8.5	4.5	5.5	16.0	14.5	15.0	25.5	22.5	24.0
15	5.0	2.5	3.5	8.5	5.0	6.0	15.0	14.0	14.5	25.0	22.5	23.5
16	5.5	3.5	4.5	5.5	4.5	5.0	16.0	13.5	14.5	25.0	23.0	24.0
17	6.0	5.0	5.5	4.0	3.0	3.5	16.0	15.0	15.5	25.5	22.0	23.5
18	6.0	5.0	5.5	4.5	2.0	3.0	15.5	13.5	14.5	26.0	24.0	25.0
19	6.5	4.5	5.5	6.5	3.0	4.5	15.5	13.5	14.5	26.0	24.5	25.5
20	7.0	5.0	6.0	11.0	6.5	8.0	17.0	14.5	16.5	25.5	24.0	24.5
21	8.5	6.0	7.0	11.5	10.0	11.0	18.0	15.5	16.5	25.5	23.5	24.5
22	9.5	8.0	8.5	14.5	11.0	12.5	20.0	17.0	18.5	24.5	22.0	23.0
23	9.0	7.5	8.5	15.0	12.5	13.5	19.0	17.0	18.0	21.5	20.0	20.5
24	8.5	7.0	8.0	15.0	13.0	14.5	17.5	16.5	17.0	23.0	19.5	21.0
25	9.5	7.5	8.5	16.0	13.5	14.5	16.5	15.5	16.0	24.0	21.5	22.5
26	11.0	8.5	9.5	16.0	14.0	15.0	17.0	15.5	16.0	25.0	22.0	23.5
27	12.0	10.0	11.0	16.0	13.5	15.0	17.5	15.0	16.0	24.5	22.5	23.5
28	12.5	10.5	11.5	17.0	15.0	16.0	17.5	15.5	16.5	24.0	22.5	23.5
29	12.5	11.0	11.5	15.5	12.5	14.0	17.0	15.5	16.5	24.0	22.5	23.5
30	---	---	---	14.0	11.5	13.0	18.0	15.0	16.5	24.5	23.0	23.5
31	---	---	---	13.0	11.5	12.0	---	---	---	24.5	23.0	24.0
MONTH	12.5	.0	5.2	17.0	2.0	9.2	20.0	9.0	14.8	26.5	14.5	22.0

ARKANSAS RIVER BASIN

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	25.0	22.0	23.5	29.5	27.0	28.0	29.0	27.0	28.0	25.0	20.0	23.0
2	25.0	23.5	24.5	27.0	25.5	26.5	28.0	26.0	27.0	22.5	21.0	22.0
3	26.0	23.5	24.5	27.5	25.0	26.0	29.0	26.0	27.5	26.0	20.5	23.0
4	26.0	24.5	25.0	29.5	26.0	27.5	30.0	26.0	28.0	25.0	18.5	22.0
5	26.0	24.0	25.0	30.5	28.5	29.5	31.5	26.0	28.5	26.5	18.5	22.5
6	26.0	23.5	25.0	30.5	29.0	29.5	31.5	26.0	28.5	26.0	18.0	22.0
7	27.0	24.0	25.5	30.0	28.5	29.0	31.0	26.0	28.0	24.5	18.5	21.5
8	31.0	25.5	27.5	30.0	27.5	28.5	31.5	25.0	28.5	25.5	18.0	22.0
9	27.5	26.0	27.0	29.0	27.5	28.5	30.0	26.5	28.0	28.0	19.5	23.5
10	27.0	25.0	26.0	29.5	27.0	28.0	33.5	26.0	29.5	27.0	20.5	24.0
11	26.5	24.0	25.0	30.5	27.5	28.0	33.5	27.0	30.0	27.0	21.0	24.0
12	25.0	23.5	24.0	30.0	27.0	28.5	33.5	26.0	29.5	29.0	21.5	25.0
13	24.5	23.0	23.5	30.0	26.5	28.0	31.5	26.0	28.5	28.5	21.0	24.5
14	24.5	23.5	24.0	32.0	28.5	30.0	32.0	25.0	28.5	26.0	23.0	24.5
15	27.5	23.5	25.0	30.0	27.5	29.0	32.0	25.5	29.0	26.0	22.5	24.0
16	29.0	26.5	27.5	31.0	26.5	28.5	31.5	25.0	28.5	28.0	22.5	25.0
17	28.0	26.0	27.0	32.0	27.0	29.0	32.5	26.0	29.0	27.5	23.0	25.5
18	28.5	27.0	28.0	35.0	27.5	30.5	31.0	26.0	28.5	25.0	23.5	24.0
19	28.5	27.5	28.0	29.0	26.0	28.0	30.5	26.0	28.5	28.5	21.5	23.5
20	30.0	27.5	28.5	30.0	25.0	27.0	33.5	26.0	29.5	26.0	19.0	22.5
21	30.0	27.0	28.5	31.5	24.0	27.0	32.0	26.5	29.5	28.5	21.0	24.5
22	29.5	26.5	28.0	29.0	24.0	26.0	31.5	25.5	28.5	29.0	22.0	26.5
23	31.0	26.5	28.0	26.5	24.5	25.5	31.5	26.0	28.5	24.5	19.5	21.5
24	31.5	26.5	29.0	26.5	25.5	26.0	33.0	24.5	28.5	25.5	18.5	21.5
25	32.5	27.5	29.5	29.0	25.5	26.5	31.5	24.5	28.0	25.5	18.0	22.0
26	32.5	27.5	29.0	29.0	25.5	27.5	29.5	23.5	26.5	26.0	19.0	22.5
27	32.0	27.5	29.0	26.5	25.0	26.0	26.0	22.5	24.0	26.0	20.0	23.0
28	32.0	28.0	29.5	26.5	25.0	26.0	23.0	20.5	22.0	27.0	20.5	23.5
29	31.5	28.0	29.0	28.0	25.5	26.5	26.0	19.0	22.5	24.5	18.0	21.0
30	32.0	28.0	29.0	29.5	27.0	28.0	26.5	18.5	22.5	24.5	17.5	21.0
31	---	---	---	29.5	29.0	29.5	26.0	19.5	22.5	---	---	---
MONTH	32.5	22.0	26.7	35.0	24.0	27.8	33.5	18.5	27.5	29.0	17.5	23.1
YEAR	35.0	.0	15.8									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.0	18.0	19.0	17.5	11.0	14.0	9.0	4.5	6.0	6.0	4.0	5.0
2	22.5	16.5	19.5	18.0	12.5	15.0	9.5	4.5	6.5	5.0	4.5	5.0
3	23.5	16.0	19.5	18.0	12.0	15.0	9.5	5.5	7.0	5.5	4.0	4.5
4	20.0	15.5	17.0	18.5	13.5	16.0	9.0	5.5	7.0	5.5	4.5	5.0
5	15.5	13.0	14.0	14.5	10.0	12.5	9.0	6.0	7.0	8.0	5.5	7.0
6	15.0	13.0	14.0	15.5	7.5	11.5	10.0	6.5	8.0	9.0	6.5	7.5
7	14.0	13.0	13.5	16.5	10.0	12.5	8.5	5.5	7.5	7.0	5.5	6.5
8	15.0	13.0	14.0	16.0	9.0	12.5	6.5	3.5	5.0	5.5	3.0	5.0
9	17.5	13.0	14.5	18.5	13.0	15.5	5.0	3.5	4.5	4.5	2.5	3.5
10	20.5	11.5	15.5	15.5	9.5	12.5	6.0	3.5	4.5	5.5	2.5	3.5
11	18.5	12.0	15.5	12.5	9.5	11.0	4.5	3.0	3.5	5.5	3.0	4.0
12	18.5	11.5	15.5	15.5	9.0	12.0	5.0	3.5	4.0	5.5	3.0	4.0
13	19.5	13.0	16.0	17.0	8.5	12.5	6.5	3.5	5.0	4.5	2.5	3.0
14	21.0	13.5	17.0	19.0	10.5	14.5	8.5	5.5	6.5	4.5	2.5	3.0
15	21.0	15.5	18.0	18.5	12.5	16.0	6.0	4.0	5.0	4.5	2.5	3.5
16	23.0	15.5	19.0	13.5	7.5	10.5	4.5	3.5	4.0	4.0	2.5	3.5
17	24.5	17.0	20.0	12.0	6.0	9.0	4.5	3.0	3.5	6.0	4.0	4.5
18	18.5	14.5	16.5	15.5	7.0	10.5	5.5	3.0	4.0	6.0	4.0	5.0
19	19.5	14.0	17.0	11.0	3.5	8.0	6.5	4.5	5.5	6.5	4.5	5.5
20	19.0	16.0	17.5	8.5	2.0	4.5	8.0	5.5	6.5	7.0	5.0	6.0
21	21.5	15.0	17.5	10.0	5.0	7.0	8.5	4.5	6.0	6.0	5.0	5.5
22	21.5	15.0	18.0	12.0	6.0	8.5	7.5	5.5	6.5	6.0	4.5	5.0
23	20.0	15.0	17.5	11.5	7.5	9.5	7.5	6.0	7.0	7.0	4.5	5.5
24	20.5	14.0	17.0	11.5	7.0	9.0	7.0	5.0	6.0	7.5	5.5	6.5
25	19.0	14.5	16.5	9.5	7.0	8.0	7.5	4.0	5.5	6.5	5.5	6.0
26	18.0	12.5	15.5	8.5	7.5	8.0	8.5	6.0	7.5	6.0	5.0	5.5
27	19.5	14.5	16.5	8.0	5.5	7.0	8.0	6.5	7.5	6.0	5.0	5.5
28	14.5	9.5	12.5	6.5	5.0	6.5	6.5	4.0	5.5	6.5	6.0	6.0
29	17.0	12.5	14.5	7.0	4.5	5.5	5.0	3.5	4.5	7.0	6.0	6.5
30	14.0	11.0	13.0	6.5	4.5	5.0	5.0	3.5	4.0	8.0	6.5	7.0
31	17.5	12.5	14.5	---	---	---	5.5	3.5	4.0	9.0	7.5	8.5
MONTH	24.5	9.5	16.3	19.0	2.0	10.6	10.0	3.0	5.6	9.0	2.5	5.2

07150500 ARKANSAS RIVER NEAR JET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	9.0	5.0	7.0	7.5	6.0	7.0	18.5	16.5	17.0	21.0	19.0	20.0
2	5.0	1.0	3.5	7.5	6.5	7.0	20.0	16.0	17.5	20.0	17.0	19.0
3	.5	.0	.5	11.0	7.5	9.5	19.5	17.5	18.5	19.0	16.0	17.0
4	1.0	.5	.5	8.5	2.5	5.5	18.5	17.0	18.0	19.5	16.0	17.5
5	1.5	.5	1.0	2.5	.5	1.5	18.5	16.0	17.5	20.0	18.5	19.5
6	1.5	.5	1.0	2.5	.5	1.5	18.5	16.5	17.5	20.0	18.5	19.5
7	2.5	.5	1.0	5.0	1.5	3.0	18.5	16.5	17.5	20.5	18.5	19.5
8	2.0	.5	1.0	6.0	3.0	4.0	18.0	16.0	16.5	23.5	20.0	21.5
9	3.0	.5	1.5	7.5	4.5	6.0	16.0	13.0	14.5	23.5	20.5	21.5
10	4.5	1.0	2.0	11.5	7.5	9.0	14.0	12.0	13.0	22.5	19.0	20.5
11	4.0	1.5	2.5	14.5	11.5	12.5	13.0	11.0	12.0	22.5	18.5	20.0
12	3.0	2.0	2.5	15.0	12.5	13.5	15.0	11.0	12.5	19.0	18.0	19.0
13	3.5	2.5	3.0	16.0	14.0	15.0	15.5	13.5	14.5	18.0	17.5	17.5
14	3.5	2.5	3.0	15.5	13.5	15.0	20.0	14.0	16.0	20.0	17.0	18.0
15	3.5	3.0	3.5	13.5	12.0	13.0	19.0	16.5	17.5	19.0	17.5	18.0
16	4.0	2.5	3.5	14.5	12.0	13.0	20.5	18.0	19.0	20.0	18.0	19.0
17	4.0	3.5	4.0	16.5	13.0	15.0	20.5	19.0	20.0	21.0	19.5	20.5
18	6.5	4.0	4.5	16.5	11.5	13.5	22.0	19.5	21.0	20.5	19.5	20.0
19	5.0	5.0	5.0	14.0	11.5	12.5	---	---	---	21.5	19.0	20.0
20	5.0	4.5	5.0	12.5	9.5	11.0	---	---	---	21.5	19.0	20.0
21	6.0	4.0	5.0	10.5	8.0	9.0	---	---	---	23.0	20.5	21.5
22	5.0	3.5	4.0	10.5	8.0	9.0	25.0	22.0	23.5	26.0	22.0	23.5
23	4.0	2.5	3.5	14.0	9.0	10.5	25.5	23.0	24.5	25.5	23.0	24.5
24	5.0	2.5	4.0	14.5	10.0	12.5	25.5	24.0	24.5	27.5	25.0	26.0
25	7.0	4.5	5.5	18.5	13.5	15.5	26.0	23.5	24.5	26.5	24.0	25.0
26	8.5	7.0	7.5	20.0	16.0	18.0	27.0	23.5	25.0	24.0	22.0	23.0
27	7.5	6.5	7.0	20.0	19.0	19.5	26.0	24.5	25.5	22.5	21.0	22.0
28	7.5	7.0	7.0	22.5	18.0	20.0	25.5	23.5	24.0	24.0	21.5	23.0
29	---	---	---	22.5	21.0	22.0	23.5	21.0	22.0	25.0	22.5	23.5
30	---	---	---	21.0	18.5	19.0	22.5	19.0	20.5	25.0	22.5	24.0
31	---	---	---	19.5	16.5	18.0	---	---	---	25.5	23.0	24.5
MONTH	9.0	.0	3.5	22.5	.5	11.6	---	---	---	27.5	16.0	20.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	24.5	23.5	24.0	29.5	27.5	28.5	30.0	28.0	29.0	27.5	26.5	27.0
2	26.0	23.5	24.5	29.0	27.0	27.5	29.0	27.5	28.0	27.5	26.0	26.5
3	25.5	23.0	24.0	30.5	26.5	28.0	29.5	27.0	28.0	28.0	26.0	27.0
4	24.5	22.0	23.0	30.0	27.5	28.5	29.0	26.5	27.5	27.5	26.0	26.5
5	25.5	21.5	23.5	31.5	28.0	29.0	30.5	26.5	28.5	27.5	26.0	26.5
6	25.0	22.5	23.5	32.5	27.5	29.0	30.0	28.0	29.0	27.5	25.5	26.5
7	22.5	21.0	21.5	31.5	28.0	29.5	28.5	26.0	27.0	28.0	26.0	27.0
8	24.0	21.0	22.5	31.0	27.5	29.5	27.0	24.5	26.0	28.0	26.0	27.0
9	23.5	22.5	23.0	31.0	28.5	30.0	27.0	24.5	25.5	27.0	23.5	25.0
10	23.5	22.0	23.0	30.5	28.0	29.0	25.0	22.0	23.5	23.5	22.0	22.5
11	25.0	22.5	23.5	29.0	27.0	28.0	23.5	21.5	22.0	23.0	22.0	22.5
12	28.5	23.0	25.5	29.5	27.0	28.5	22.5	22.0	22.5	22.5	18.0	20.0
13	26.5	24.0	25.0	29.5	28.0	28.5	22.0	20.5	21.5	18.0	15.5	16.5
14	24.0	22.5	23.0	28.5	27.0	27.5	21.0	20.5	20.5	16.0	15.0	15.5
15	22.5	21.0	22.0	30.0	27.0	28.5	21.5	20.5	21.0	19.5	15.0	16.5
16	22.5	21.0	22.0	29.5	27.0	28.0	22.0	21.0	21.5	19.0	16.5	17.5
17	23.5	21.5	22.5	28.0	27.0	27.5	24.0	22.0	22.5	20.5	18.0	19.0
18	26.0	23.0	24.0	29.0	27.0	28.0	25.0	23.5	24.0	22.5	19.5	20.5
19	26.5	23.5	25.0	28.0	26.5	27.0	27.5	24.5	26.0	22.5	20.5	21.5
20	28.0	25.0	26.5	27.0	25.5	26.0	27.0	26.0	26.5	23.0	21.0	22.0
21	27.5	26.0	27.0	26.5	25.0	25.5	27.5	26.0	26.5	24.5	21.5	22.5
22	27.0	24.0	25.5	29.0	25.0	26.5	28.5	26.5	27.5	23.5	20.5	22.0
23	24.0	22.5	23.0	28.0	25.5	26.0	31.5	26.5	28.5	20.5	17.0	18.0
24	25.5	22.5	24.0	26.5	24.5	25.5	31.0	27.5	29.0	17.5	15.5	16.5
25	27.0	24.0	25.5	26.0	24.5	25.5	30.0	27.5	28.5	19.0	15.5	17.0
26	29.0	26.0	27.5	27.0	24.5	26.0	29.5	27.5	28.5	18.5	17.5	18.0
27	28.5	25.5	27.0	28.5	26.0	27.5	30.0	27.5	28.5	18.0	17.0	17.5
28	27.5	26.0	27.0	28.5	27.0	28.0	31.5	28.0	29.5	21.5	16.5	18.5
29	28.0	26.5	27.5	29.0	27.0	28.0	30.5	27.0	28.5	21.5	18.0	19.5
30	30.0	27.0	28.5	32.5	27.5	29.5	27.5	26.0	27.0	21.0	18.0	19.5
31	---	---	---	32.0	30.0	30.5	28.0	26.5	27.0	---	---	---
MONTH	30.0	21.0	24.5	32.5	24.5	27.9	31.5	20.5	26.1	28.0	16.0	21.4

ARKANSAS RIVER BASIN

07151000 SALT FORK ARKANSAS RIVER AT TONKAWA, OK

LOCATION.-- Lat 36°40'19" (revised), long 97°18'33", in NW 1/4 SE 1/4 sec.4, T.25 N., R.1 W., Kay County, Hydrologic Unit 11060004, on left bank near end of bridge on U.S. Highway 77 in Tonkawa, 4 mi downstream from Thompson Creek, 7.8 mi upstream from Chikaskia River, and at mile 33.8.

DRAINAGE AREA.-- 4,528 mi², of which 8 mi² is probably noncontributing.

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 930.22 ft above National Geodetic Vertical Datum of 1929. September 1903 to October 1905, nonrecording gage near present site at different datum. Jan. 2, 1936 to Jan. 22, 1939, nonrecording gage, and Jan. 23, 1939 to June 20, 1960, water-stage recorder at site 100 ft upstream at same datum.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation since June 1941 by Great Salt Plains Lake, 69.5 mi upstream (station 07150000). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE -- Since regulation by Great Salt Plains Dam, 48 years (water years 1942-89), 811 ft³/s, 587,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 97,300 ft³/s, Oct. 11, 1973, gage height, 28.98 ft; no flow Aug. 31 to Oct. 12, and Oct. 14-16, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of June 10, 1923, reached a stage of 26.8 ft, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 11,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 12	2100	*12,600	*17.10	No other peaks greater than base discharge.			

Minimum daily discharge, 67 ft³/s, Nov. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	77	102	139	272	226	1720	226	891	1500	1950	e960
2	92	77	101	138	251	227	1410	224	818	1400	1180	e910
3	101	77	100	134	e239	219	1620	217	784	1380	689	e930
4	104	75	94	134	e237	211	1620	233	798	1420	3060	e1550
5	107	74	93	141	e237	173	1520	223	855	1390	2320	3120
6	113	74	92	147	e234	273	1380	213	1090	1290	1030	4810
7	111	70	95	207	e233	237	1230	265	e990	1080	1010	3330
8	111	70	99	193	e234	263	1070	248	e890	886	636	2020
9	112	69	98	165	e236	206	944	217	e835	769	427	1590
10	111	67	91	161	e236	188	769	203	e760	691	351	1290
11	106	72	90	152	240	185	711	179	4000	610	296	e1130
12	99	86	105	146	240	190	884	156	11900	551	249	e1100
13	94	80	100	146	229	190	832	152	11800	471	250	4590
14	92	76	105	150	203	185	558	147	8100	468	2700	7870
15	89	75	109	144	205	186	506	182	5320	1460	9330	4160
16	89	72	114	148	198	203	476	361	4680	820	7880	2700
17	89	71	104	151	192	193	457	487	4510	674	6780	2430
18	85	109	107	150	190	183	472	567	4210	802	5800	2170
19	77	e96	121	162	191	209	405	1730	3820	830	3820	1930
20	77	e92	121	157	202	e183	e435	1870	3360	873	3100	1690
21	79	e90	131	154	214	e160	e400	1520	2900	813	e2690	1510
22	82	e88	193	149	233	139	e375	2200	2450	731	e2180	1290
23	80	87	139	159	259	139	e358	2570	2220	676	e1870	e1140
24	77	e96	141	173	256	151	316	2370	2120	721	e1630	e1090
25	77	e120	155	172	248	147	286	2090	3040	1210	e1540	e1020
26	77	e130	146	181	242	145	253	1920	2340	616	e1290	e960
27	77	e115	186	179	241	196	234	1690	2220	509	e1120	e910
28	77	e100	173	218	224	938	261	1470	2750	542	e950	e860
29	76	97	129	277	---	e1030	251	1310	2150	513	e860	e840
30	75	102	132	285	---	788	244	1200	1750	489	e790	e810
31	76	---	138	285	---	1580	---	1040	---	441	e740	---
TOTAL	2799	2584	3704	5305	6418	9543	21597	27480	94351	26626	68518	60710
MEAN	90.3	86.1	119	171	229	308	720	886	3145	859	2210	2024
MAX	113	130	193	285	272	1580	1720	2570	11900	1500	9330	7870
MIN	75	67	90	134	190	139	234	147	760	441	249	810
AC-FT	5550	5130	7350	10520	12730	18930	42840	54510	187100	52810	135900	120400

CAL YR 1988 TOTAL 375216 MEAN 1025 MAX 15900 MIN 50 AC-FT 744200
WTR YR 1989 TOTAL 329635 MEAN 903 MAX 11900 MIN 67 AC-FT 653800

e Estimated

07152000 CHIKASKIA RIVER NEAR BLACKWELL, OK

LOCATION.-- Lat 36°48'41", long 97°16'41", in NE 1/4 NW 1/4 sec.23, T.27 N., R.1 W., Kay County, Hydrologic Unit 11060005, near left bank on downstream side of State Highway 11 bridge at northeast edge of Blackwell, 0.1 mi downstream from Bitter Creek, and at mile 28.3.

DRAINAGE AREA.-- 1,859 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 967.41 ft above National Geodetic Vertical Datum of 1929. See WSP 1921 for history of changes prior to April, 1952.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation at low flow by Lake Blackwell, capacity 3,600 acre-ft, 12.6 mi upstream from station. Small diversion made from reservoir for municipal supply of city of Blackwell. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 54 years, 522 ft³/s, 378,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 85,000 ft³/s, June 22, 1942, gage height, 33.3 ft, from floodmark present datum; maximum gage height, 34.28 ft, Oct. 3, 1986, no flow at times in 1954, and 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of June 10, 1923, reached a stage of about 34 ft, present site and datum, from information provided by local residents, discharge 100,000 ft³/s.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 12	0600	*9,660	*24.19	Sept. 14	1600	9,020	23.34
July 14	1300	9,420	23.88				

Minimum daily discharge, 39 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	54	85	105	121	113	1250	85	158	224	527	993
2	40	56	86	106	115	112	709	83	182	593	911	804
3	41	61	85	106	114	113	354	86	253	2800	1720	609
4	44	64	85	106	110	112	241	100	180	1610	3100	570
5	48	63	85	106	90	99	189	113	243	591	499	2890
6	59	58	89	105	83	76	159	110	621	292	200	1880
7	72	57	93	102	64	60	144	100	407	212	159	926
8	69	57	94	98	e61	90	132	103	277	183	102	504
9	69	60	91	91	e58	117	135	99	325	173	103	1090
10	69	63	86	79	e61	127	133	76	210	163	93	5380
11	67	68	85	87	e67	120	123	69	4930	135	93	1940
12	67	92	87	109	85	116	124	83	8860	111	92	906
13	62	90	90	114	100	110	124	88	6260	154	110	2090
14	58	89	96	98	107	111	120	98	2830	7130	3280	8130
15	56	91	98	102	116	104	115	108	1030	6490	5860	3740
16	55	89	95	99	117	105	109	128	532	1060	1240	1340
17	52	81	91	98	118	113	104	153	329	547	779	913
18	51	81	89	103	136	99	104	212	241	324	506	675
19	50	82	90	103	144	95	101	915	209	231	308	523
20	50	114	97	103	156	98	106	859	191	208	282	433
21	51	103	98	104	156	98	118	405	180	188	275	373
22	54	111	112	103	142	98	106	358	173	168	228	325
23	58	112	96	102	126	103	104	783	205	165	221	272
24	56	105	96	104	118	103	107	965	223	1850	203	246
25	56	100	94	113	118	100	104	755	273	402	208	227
26	56	99	99	116	121	100	102	497	222	200	188	221
27	56	98	182	116	122	126	103	317	2470	170	173	217
28	57	92	e108	125	116	194	102	214	3510	161	177	212
29	53	90	e100	134	---	220	94	174	1040	156	219	209
30	52	83	95	133	---	638	82	147	366	121	2790	207
31	52	---	97	127	---	2310	---	127	---	132	2760	---
TOTAL	1719	2463	2974	3297	3042	6180	5598	8390	36930	26944	27406	38645
MEAN	55.5	82.1	95.9	106	109	199	187	271	1231	869	884	1288
MAX	72	114	182	134	158	2310	1250	965	8860	7130	5860	8130
MIN	39	54	85	79	58	60	82	69	158	111	92	207
AC-FT	3410	4890	5900	6540	6030	12260	11100	16640	73250	53440	54360	76650

CAL YR 1988 TOTAL 177012 MEAN 484 MAX 17600 MIN 15 AC-FT 351100
WTR YR 1989 TOTAL 163588 MEAN 448 MAX 8860 MIN 39 AC-FT 324500

e Estimated

07152500 ARKANSAS RIVER AT RALSTON, OK

LOCATION (REVISED).-- Lat 36°30'15", long 96°43'41", in NE 1/4 NE 1/4 sec.2, T.23 N., R.5 E., Pawnee County, Hydrologic Unit 11060006, on right upstream abutment of bridge on State Highway 18 at Ralston, 2 mi downstream from Salt Creek, 2 mi upstream from Grayhorse Creek, and at mile 594.0. Prior to Feb. 10, 1988, gage was near left bank on downstream side of pier of bridge.

DRAINAGE AREA.-- 54,465 mi², of which 7,615 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 776.70 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1925 to Nov. 13, 1935, nonrecording gage at site of former highway bridge 1,200 ft downstream at same datum. Nov. 14, 1935 to Feb. 23, 1939, nonrecording gage near left bank on downstream side of bridge at same datum. Feb. 24, 1939 to Feb. 10, 1988, gage was near left bank on downstream side of pier of bridge at same datum.

REMARKS.-- Records fair. Flow regulated since April 1976 by Kaw Lake (station 07148130) 59.7 mi upstream; some regulation by Great Salt Plains Lake (station 07150000) since 1941. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Kaw Lake, 50 years (water years 1926-75), 4,828 ft³/s, 3,496,000 acre-ft/yr; since regulation by Kaw Lake, 13 years (water years 1977-89), 5,477 ft³/s, 3,968,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 211,000 ft³/s, Oct. 13, 1973, gage height, 22.98 ft; minimum discharge, 14 ft³/s, Oct. 12, 1956.

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

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 42,400 ft³/s, Sept. 13, gage height, 12.28 ft, minimum daily discharge, 391 ft³/s, Oct. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e490	532	1290	650	2830	1560	6220	1070	5130	9140	2660	16700
2	e480	515	1300	627	e2280	1400	6390	1070	5380	6990	2480	15600
3	e460	498	1290	617	e1450	1180	3860	1070	7610	6810	3370	13800
4	440	505	1270	613	e1310	1000	3240	1090	7490	6930	2930	13400
5	410	505	1250	699	e1210	910	3000	1080	7960	7790	4040	17500
6	410	512	1230	797	e1130	941	2920	1050	8170	7720	6800	27700
7	463	520	1210	841	e1090	876	2730	1040	7400	6880	3510	26600
8	501	527	1080	855	e1070	1090	2520	1040	6680	8280	2900	25100
9	444	534	1000	890	e1040	884	2460	1050	6800	7980	3000	23200
10	429	569	973	945	e1020	885	2420	1060	6100	7720	3020	23500
11	418	545	956	956	e1000	880	2290	1060	9220	7500	2900	25900
12	391	579	959	952	e980	862	2150	1050	14800	7400	2210	26000
13	524	620	934	955	e965	821	1960	1060	24900	7250	1980	36200
14	780	615	895	991	e960	695	1820	1050	23100	7110	2260	31200
15	840	635	837	1020	e965	682	1740	1070	19300	8590	3160	32000
16	686	652	810	1070	1350	662	1690	1110	17100	14300	14800	24200
17	568	707	805	1090	1260	656	1630	1300	15100	13400	13000	16900
18	525	726	811	1130	1210	625	1570	2130	14200	9400	8990	15700
19	516	793	808	1260	1200	633	1520	2190	13500	7230	7750	13000
20	555	1070	782	1870	1340	616	1500	1940	11900	5940	9160	14700
21	619	1350	778	2240	1640	611	1460	3080	9170	5630	5060	12000
22	638	1230	746	2330	1520	605	1410	4270	8620	5390	4230	9520
23	577	1280	706	2380	1450	579	1360	4230	10100	5310	4520	8540
24	533	1350	688	2380	1640	575	1350	5230	8890	5140	5580	8740
25	524	1540	648	2500	1650	560	1330	4890	8900	4990	7460	7860
26	524	1710	628	2690	1590	570	1280	5490	8630	5600	7300	7860
27	527	1690	716	2550	1570	694	1250	5870	10300	4080	7630	9240
28	520	1450	745	2960	1540	9960	1180	5620	11300	3500	7220	10700
29	522	1310	711	3540	---	5600	1140	5390	14300	3180	7790	8480
30	519	1290	760	3190	---	8250	1110	5190	12100	2820	8610	7820
31	526	---	696	3180	---	7430	---	5070	---	2700	10800	---
TOTAL	16359	26359	28312	48768	38260	53292	66500	78910	334150	214500	176920	529660
MEAN	528	879	913	1573	1368	1719	2217	2545	11140	6919	5707	17660
MAX	840	1710	1300	3540	2830	9960	6390	5870	24900	14300	14800	36200
MIN	391	498	628	613	960	560	1110	1040	5130	2700	1980	7820
AC-FT	32450	52280	56160	96730	75890	105700	131900	156500	662800	425500	350900	1051000

CAL YR 1988 TOTAL 1686543 MEAN 4608 MAX 39700 MIN 324 AC-FT 3345000
WTR YR 1989 TOTAL 1611990 MEAN 4416 MAX 36200 MIN 391 AC-FT 3197000

e Estimated

ARKANSAS RIVER BASIN

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07152500 ARKANSAS RIVER AT RALSTON, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1950 to September 1963, July 1968 to May 1989 (discontinued).

WATER TEMPERATURE: January 1950 to September 1963, July 1968 to May 1989 (discontinued).

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,510 microsiemens, Sept. 14, 1955; minimum daily, 157 microsiemens, Nov. 21, 1979.

WATER TEMPERATURE: Maximum daily, 37.0 °C, July 28, 1956; minimum daily, -0.5 °C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
OCT											
04...	1050	1028	1028	--	2.75	453	1500	8.6	14.5	16.0	--
NOV											
30...	1035	1028	1028	--	3.15	1270	1100	8.4	14.5	7.5	--
DEC											
29...	1145	1028	80020	--	2.73	712	2100	8.2	6.0	4.0	4.4
JAN											
31...	1240	1028	80020	--	4.34	3300	1550	8.3	24.0	13.0	20
MAR											
14...	1130	1028	80020	--	2.72	666	3180	8.3	21.5	17.0	8.6
14...	1131	1028	1028	50.0	2.72	666	3190	8.3	21.5	17.0	--
14...	1132	1028	1028	100	2.72	666	3190	8.3	21.5	17.0	--
14...	1133	1028	1028	220	2.72	666	3180	8.3	21.5	17.0	--
14...	1134	1028	1028	380	2.72	666	3180	8.3	21.5	17.0	--
14...	1135	1028	1028	750	2.72	666	3190	8.3	21.5	17.0	--
APR											
25...	1100	1028	80020	--	3.50	1320	2210	8.5	28.5	25.0	12
JUN											
06...	1220	1028	80020	--	5.97	8300	1500	7.7	31.0	28.0	73
JUL											
25...	1030	1028	1028	--	5.34	4900	1060	8.5	28.5	28.0	--
SEP											
06...	1215	1028	80020	--	11.30	34200	803	7.7	32.5	27.0	100
06...	1216	1028	1028	65.0	11.30	34200	790	7.8	--	27.0	--
06...	1217	1028	1028	165	11.30	34200	810	7.7	--	27.0	--
06...	1218	1028	1028	265	11.30	34200	808	7.7	--	27.0	--
06...	1219	1028	1028	365	11.30	34200	795	7.7	--	27.0	--
06...	1220	1028	1028	465	11.30	34200	805	7.7	--	27.0	--
06...	1221	1028	1028	565	11.30	34200	805	7.7	--	27.0	--
06...	1222	1028	1028	665	11.30	34200	812	7.8	--	27.0	--
06...	1223	1028	1028	765	11.30	34200	801	7.8	--	27.0	--
06...	1224	1028	1028	865	11.30	34200	805	7.8	--	27.0	--
06...	1225	1028	1028	965	11.30	34200	803	7.7	--	27.0	--

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1710	1230	---	1290	2050	---	2310	---	---	---	---
2	1600	1800	1280	2260	1480	---	1350	2470	---	---	---	---
3	1390	---	---	2260	---	---	1130	2330	---	---	---	---
4	1420	1720	1570	---	---	---	1610	---	---	---	---	---
5	1490	1790	1740	2870	---	2640	2990	2190	---	---	---	---
6	1480	1800	---	2420	---	2670	2620	2080	---	---	---	---
7	1530	1800	---	---	---	2680	---	---	---	---	---	---
8	---	1810	1730	2350	---	2640	2970	2160	---	---	---	---
9	---	1810	1810	---	---	2470	---	2190	---	---	---	---
10	1660	1800	---	2580	---	2840	2990	2220	---	---	---	---
11	1670	1790	---	2760	---	---	2730	2470	---	---	---	---
12	1520	1600	---	---	2030	3100	---	---	---	---	---	---
13	1620	1630	1770	---	2020	2850	2310	---	---	---	---	---
14	1360	1580	2130	---	2120	2680	2360	---	---	---	---	---
15	---	1620	1840	---	1990	---	---	---	---	---	---	---
16	1480	1600	1900	2120	1670	2750	2650	---	---	---	---	---
17	1460	1520	---	2170	1880	---	---	---	---	---	---	---
18	1480	1470	2130	2090	1950	---	2260	---	---	---	---	---
19	1610	---	2150	2140	2030	---	2240	---	---	---	---	---
20	---	---	2210	1860	1870	2990	2170	---	---	---	---	---
21	1460	1200	2220	1790	900	2980	2050	---	---	---	---	---
22	---	1250	---	1800	1110	2860	---	---	---	---	---	---
23	---	1290	2420	1500	1150	2800	1990	---	---	---	---	---
24	1560	---	---	1510	---	---	2030	---	---	---	---	---
25	1600	1260	---	1440	---	---	2110	---	---	---	---	---
26	1630	---	---	1300	---	---	2180	---	---	---	---	---
27	1620	---	2820	1300	---	2470	---	---	---	---	---	---
28	1610	1210	2720	---	2050	320	2300	---	---	---	---	---
29	---	1230	2740	740	---	390	---	---	---	---	---	---
30	1620	1260	3500	900	---	---	---	---	---	---	---	---
31	1610	---	---	1170	---	280	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

ARKANSAS RIVER BASIN

07153000 BLACK BEAR CREEK AT PAWNEE, OK

LOCATION.-- Lat 36°20'37", long 96°47'57", on east line of SE 1/4 NE 1/4 sec.31, T.22 N., R.5 E., Pawnee County, Hydrologic Unit 11060000, on downstream side of left pier of bridge on State Highway 18 in north Pawnee, 300 ft downstream from Skedee Creek, and at mile 23.4.

DRAINAGE AREA.-- 576 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 45 years, 190 ft³/s, 137,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 30,200 ft³/s, Oct. 3, 1959, gage height, 31.43 ft; no flow at times in many years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of May 19, 1943, reached a stage of 28.19 ft, from floodmark, discharge 17,800 ft³/s.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	1600	*3,400	*10.04	No peak greater than base discharge.			
Minimum daily discharge, 7.2 ft ³ /s, Oct. 24.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	15	27	21	67	56	1470	29	52	164	33	11
2	45	14	23	21	45	51	805	29	140	135	200	16
3	34	13	21	21	34	49	540	30	1020	151	154	16
4	31	15	19	19	14	56	385	32	1340	125	96	57
5	31	18	18	20	13	44	286	32	1210	110	88	1080
6	42	12	17	19	12	34	226	32	572	92	587	493
7	78	9.3	17	19	10	26	180	32	389	67	167	263
8	100	17	17	17	11	34	146	33	244	52	144	160
9	100	19	16	16	11	36	115	33	172	46	89	111
10	62	17	17	16	12	35	93	33	134	43	56	77
11	41	25	17	16	13	32	75	33	292	41	40	56
12	31	42	17	16	15	29	67	34	262	41	25	53
13	25	41	17	16	16	29	58	34	1170	41	22	649
14	22	41	17	18	19	33	52	40	1550	41	132	1430
15	19	39	17	16	31	27	48	118	736	112	305	606
16	17	28	17	12	42	25	45	331	408	77	322	344
17	22	20	16	11	41	25	43	413	282	49	290	222
18	27	20	15	11	35	24	41	325	202	35	402	150
19	22	24	16	9.5	30	23	39	233	149	34	218	109
20	15	203	16	10	127	24	36	212	112	34	167	82
21	13	285	16	10	400	23	35	140	88	33	140	63
22	18	282	18	9.9	269	21	34	1590	70	31	238	56
23	12	440	17	10	139	31	35	2280	835	28	91	40
24	7.2	378	17	9.5	90	30	35	882	1670	27	53	28
25	10	235	15	78	67	28	33	427	813	40	35	23
26	13	144	17	222	59	28	30	276	505	123	25	19
27	17	103	27	99	58	471	29	177	327	55	19	16
28	16	66	39	278	58	2960	29	124	474	35	15	15
29	17	49	35	492	---	2990	29	98	445	35	15	13
30	16	34	28	214	---	2900	29	65	250	35	14	12
31	16	---	24	108	---	2750	---	49	---	34	11	---
TOTAL	993.2	2648.3	610	1854.9	1738	12924	5068	8196	15913	1966	4193	6270
MEAN	32.0	88.3	19.7	59.8	62.1	417	169	264	530	63.4	135	209
MAX	100	440	39	492	400	2990	1470	2280	1670	164	587	1430
MIN	7.2	9.3	15	9.5	10	21	29	29	52	27	11	11
AC-FT	1970	5250	1210	3680	3450	25630	10050	16260	31560	3900	8320	12440

CAL YR 1988 TOTAL 99634.8 MEAN 272 MAX 5270 MIN 3.6 AC-FT 197600
WTR YR 1989 TOTAL 62374.4 MEAN 171 MAX 2990 MIN 7.2 AC-FT 123700

07154500 CIMARRON RIVER NEAR KENTON, OK

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

DRAINAGE AREA.-- 1,106 mi², of which 68 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

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

GAGE.-- Water-stage recorder. Datum of gage is 4,262.08 ft above National Geodetic Vertical Datum of 1929. April 1904 to July 1905 nonrecording gage at site 0.9 mi upstream at different datum. Oct. 1, 1950 to Sept. 19, 1967, water-stage recorder at same site and at datum 5.00 ft higher.

REMARKS.-- Records fair, except for estimated periods which are poor. Extensive diversions for irrigation upstream from station.

AVERAGE DISCHARGE.-- 39 years (water years 1951-89), 19.8 ft³/s, 14,350 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 43,400 ft³/s, Oct. 17, 1965, gage height, 22.32 ft, present datum; from rating curve extended above 7,000 ft³/s, on basis of contracted-opening measurement of peak flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 8	2400	3,010	13.56	July 1	0215	*4,660	*15.02

No flow July 30, 31, and Aug. 12, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	3.3	2.2	5.8	2.3	1.7	.79	2.6	.12	677	7.8	.12
2	6.3	3.2	2.4	5.9	2.1	1.7	.44	1.2	.12	16	.89	.09
3	6.9	3.1	3.5	6.5	2.0	1.7	.29	.68	.15	5.2	.08	.05
4	7.2	3.1	2.1	5.2	e2.1	1.7	.33	.67	.59	3.3	.02	.03
5	8.2	3.1	3.5	5.7	e2.3	1.6	.55	.61	.48	1.9	.01	.14
6	8.3	3.1	3.8	3.7	e2.5	1.7	.51	.34	.18	1.2	.02	.11
7	8.4	3.2	2.3	3.4	e2.7	1.8	1.3	.25	.13	1.0	6.6	.19
8	8.5	3.2	2.5	4.0	e2.8	1.8	.97	.22	118	.87	.57	.14
9	8.0	3.1	3.8	2.8	e2.4	1.8	1.1	.20	540	.66	.07	.07
10	7.5	3.2	4.2	4.0	e2.2	1.8	1.6	.26	23	.49	.02	.07
11	7.0	3.3	4.2	3.9	e2.6	1.8	1.0	.21	4.7	.45	.01	.12
12	7.5	3.3	4.4	3.9	3.4	1.8	.86	.29	3.3	1.4	.0	1.7
13	6.9	3.3	4.7	e4.2	2.9	1.8	.99	.45	1.6	20	.08	3.7
14	6.5	3.8	4.8	e4.6	2.6	e1.3	1.0	.27	1.7	19	.58	1.9
15	6.1	4.3	7.5	5.0	2.5	e.50	.44	.50	2.0	184	.70	.94
16	4.7	3.7	7.9	4.3	2.3	.64	.35	11	1.7	21	.29	.68
17	4.2	3.4	8.0	7.3	2.1	1.0	.34	6.0	1.2	8.0	.77	.40
18	3.9	3.1	7.3	8.7	2.0	.47	.34	121	.76	e3.7	.54	.22
19	3.8	3.3	8.1	6.4	1.9	.43	.36	11	.36	e2.2	.24	.13
20	3.9	3.7	8.1	5.9	1.8	.44	.59	4.5	.21	e1.1	.16	.07
21	4.3	3.8	8.0	5.2	1.8	.51	.47	2.8	.12	e.62	.85	.13
22	3.9	3.8	7.5	3.5	1.8	.53	.29	1.9	.37	e.36	.47	.34
23	3.8	3.8	6.7	2.0	1.7	.54	.24	1.1	.54	e.21	.18	.19
24	3.9	4.6	6.5	2.2	1.6	.49	.23	.72	38	e.13	.06	.13
25	4.0	3.8	6.4	2.5	1.6	.34	.22	.54	51	e.08	.02	.10
26	4.1	3.6	7.1	2.3	1.6	.26	.21	.44	5.6	e.05	.0	.07
27	4.2	3.5	6.4	2.3	1.6	.24	.39	.46	4.2	.03	156	.05
28	4.3	3.7	e7.4	2.8	1.5	.23	.72	.43	3.0	.02	7.7	.03
29	4.3	3.7	e6.8	3.0	---	1.0	.35	.30	20	.01	1.4	.02
30	4.1	3.3	e7.6	2.4	---	.83	1.5	.19	40	.00	.43	.01
31	3.6	---	7.0	2.4	---	.33	---	.12	---	.0	.18	---
TOTAL	172.8	104.4	172.7	131.8	60.7	32.78	18.77	171.25	863.13	969.98	186.54	11.94
MEAN	5.57	3.48	5.57	4.25	2.17	1.06	.63	5.52	28.8	31.3	6.02	.40
MAX	8.5	4.6	8.1	8.7	3.4	1.8	1.6	121	540	677	156	3.7
MIN	3.6	3.1	2.1	2.0	1.5	.23	.21	.12	.12	.00	.00	.01
AC-FT	343	207	343	261	120	65	37	340	1710	1920	370	24

CAL YR 1988 TOTAL 3656.09 MEAN 9.99 MAX 444 MIN .01 AC-FT 7250
WTR YR 1989 TOTAL 2896.79 MEAN 7.94 MAX 677 MIN .00 AC-FT 5750

e Estimated

ARKANSAS RIVER BASIN
07154500 CIMARRON RIVER NEAR KENTON, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- October 1987 to current year.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT											
19...	0930	1028	80020	5.99	3.8	1900	8.5	10.5	11.5	650	11.1
NOV											
15...	1400	1028	80020	6.03	4.4	2130	8.4	2.0	7.0	640	10.9
DEC											
20...	1400	1028	80020	6.15	8.7	1990	8.4	9.5	4.5	648	12.2
JAN											
17...	1530	1028	80020	6.08	6.2	2050	8.4	18.0	3.0	647	13.1
FEB											
15...	1530	1028	80020	5.94	2.9	2180	8.5	4.0	4.5	657	13.5
MAR											
15...	1600	1028	80020	5.73	0.48	2520	8.4	11.0	13.0	648	9.8
APR											
19...	1600	1028	80020	5.74	0.37	2750	8.4	30.0	25.0	652	8.9
MAY											
22...	1430	1028	80020	5.88	1.9	930	8.5	29.0	26.0	651	--
JUN											
29...	1700	1028	80020	7.16	57	960	8.5	31.0	27.5	653	6.9
JUL											
26...	1830	1028	80020	5.57	0.05	1450	8.6	29.5	28.5	654	8.2
AUG											
22...	1600	1028	80020	5.72	0.51	1470	8.8	28.5	30.0	651	9.4
SEP											
19...	1400	1028	80020	5.61	0.09	2180	8.7	27.0	25.0	649	9.7
DATE		OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS C03
OCT											
19...	120	520	210	69	85	180	43	3	5.2	381	7
NOV											
15...	108	590	240	80	95	230	46	4	5.4	417	7
DEC											
20...	112	580	200	89	87	190	41	3	4.5	415	22
JAN											
17...	116	600	250	88	93	210	43	4	5.1	427	4
FEB											
15...	122	640	260	93	99	260	47	4	4.9	437	12
MAR											
15...	111	640	240	93	100	320	52	5	1.0	468	10
APR											
19...	128	700	290	84	120	420	56	7	6.5	466	22
MAY											
22...	--	260	74	47	35	110	47	3	4.6	198	15
JUN											
29...	103	250	70	45	34	110	48	3	4.8	212	5
JUL											
26...	125	380	160	60	55	200	53	4	6.9	241	10
AUG											
22...	147	350	170	46	58	210	56	5	6.7	224	0
SEP											
19...	140	530	240	64	90	310	56	6	6.8	320	17

ARKANSAS RIVER BASIN

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07154500 CIMARRON RIVER NR KENTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS N)
OCT											
19...	308	640	31	0.50	7.7	1230	1200	1.67	12.7	<0.100	0.010
NOV											
15...	354	730	39	0.50	7.1	1430	1400	1.94	17.1	<0.100	0.040
DEC											
20...	376	640	31	0.50	14	1270	1280	1.73	30.0	0.700	0.010
JAN											
17...	358	700	35	0.50	13	1380	1360	1.88	23.2	0.400	0.030
FEB											
15...	378	780	45	0.50	13	1500	1520	2.04	11.9	0.500	0.020
MAR											
15...	400	930	54	0.60	9.6	1780	1750	2.42	2.21	<0.100	0.020
APR											
19...	418	1000	73	0.60	5.3	2140	1960	2.91	2.14	<0.100	0.060
MAY											
22...	186	300	17	0.50	8.7	644	635	0.88	3.37	0.200	0.030
JUN											
29...	182	300	16	0.40	9.8	623	629	0.85	95.9	<0.100	<0.010
JUL											
26...	214	540	35	0.50	12	1030	1040	1.40	0.13	<0.100	<0.010
AUG											
22...	216	570	34	0.40	2.8	1020	1040	1.39	1.40	<0.100	0.090
SEP											
19...	290	870	52	0.50	1.0	1550	1570	2.11	0.39	<0.100	0.010

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BORON, DIS- SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT										
19...	0.01	0.49	0.50	--	--	0.020	2	250	<10	1
NOV										
15...	0.05	0.46	0.50	--	--	0.040	2	270	<10	4
DEC										
20...	0.01	0.29	0.30	1.0	4.4	0.020	3	230	<10	2
JAN										
17...	0.04	0.57	0.60	1.0	4.4	0.010	2	230	<10	2
FEB										
15...	0.03	0.68	0.70	1.2	5.3	0.030	2	230	<10	2
MAR										
15...	0.03	0.58	0.60	--	--	0.040	3	280	<10	2
APR										
19...	0.08	0.54	0.60	--	--	0.020	2	410	<10	2
MAY										
22...	0.04	0.57	0.60	0.80	3.5	0.040	3	140	<10	3
JUN										
29...	--	--	0.40	--	--	0.030	4	150	<10	7
JUL										
26...	--	--	0.70	--	--	0.050	4	190	10	2
AUG										
22...	0.12	0.31	0.40	--	--	0.050	3	240	<10	<1
SEP										
19...	0.01	0.99	1.0	--	--	0.010	2	--	<10	<1

ARKANSAS RIVER BASIN

07154500 CIMARRON RIVER NR KENTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
19...	10	5	<100	5	<0.10	4	10	68	0.70	93
NOV										
15...	10	10	<100	16	<0.10	5	<10	101	1.2	96
DEC										
20...	10	6	<100	23	<0.10	5	<10	39	0.92	88
JAN										
17...	10	9	<100	48	<0.10	6	<10	8	0.13	81
FEB										
15...	10	30	<100	90	<0.10	1	<10	11	0.09	89
MAR										
15...	10	20	<100	120	<0.10	4	10	94	0.12	88
APR										
19...	10	20	<100	20	<0.10	4	<10	74	0.07	42
MAY										
22...	<10	6	<100	11	<0.10	3	20	1640	8.6	100
JUN										
29...	20	10	<100	1	0.10	4	40	354	54	99
JUL										
26...	70	6	<100	9	<0.10	2	10	61	0.01	72
AUG										
22...	10	10	<100	5	<0.10	2	20	16	0.02	88
SEP										
19...	<10	60	<100	10	<0.10	3	<10	15	0.00	77

ARKANSAS RIVER BASIN

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07156900 CIMARRON RIVER NEAR FORGAN, OK

LOCATION.-- Lat 37°00'40", long 100°29'29", in SE 1/4 SE 1/4 sec.8, T.35 S., R.29 W., Meade County, KS, Hydrologic Unit 11040006, on downstream side of bridge on Kansas State Highway 23, 0.8 mi north of Oklahoma-Kansas State Line, 7.8 mi north of Forgan, and at mile 375.7.

DRAINAGE AREA.-- 8,536 mi², of which 4,316 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1965 to September 1986, October 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 2,326.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair except for estimated winter periods which are poor. Natural flow affected by irrigational developement.

AVERAGE DISCHARGE.-- 23 years (water years 1966-86, 88-89), 68.1 ft³/s, 49,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 21,200 ft³/s, Oct. 20, 1965, gage height, 8.10 ft; minimum discharge, 13 ft³/s, June 19, 20 1988.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 18	1300	*403	*3.76	No peak greater than base discharge.			

Minimum daily discharge, 17 ft³/s, Feb. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	34	47	44	47	48	49	45	45	76	42	37
2	31	35	46	44	e41	46	47	44	45	57	40	39
3	33	38	45	45	e32	49	46	44	46	49	40	36
4	33	37	48	46	e23	e44	45	45	55	44	35	34
5	34	38	51	45	e19	e41	44	45	51	46	33	33
6	38	38	51	44	e17	e43	48	43	49	45	34	31
7	37	37	56	43	e18	e44	46	41	120	39	32	29
8	35	36	55	42	e23	44	44	38	108	34	33	32
9	36	36	54	43	e39	46	46	39	72	37	34	33
10	38	35	55	44	e43	47	47	37	72	32	35	30
11	36	38	53	44	e47	51	45	37	123	39	33	33
12	36	38	53	42	e50	52	47	42	78	41	31	44
13	35	36	49	40	e48	50	46	42	65	72	37	47
14	35	36	48	45	e52	49	51	42	66	78	34	40
15	34	37	45	44	e50	46	47	55	63	81	34	36
16	34	40	46	42	e51	46	48	75	52	53	34	34
17	32	39	45	42	53	49	44	125	48	47	39	29
18	32	39	43	42	54	51	44	278	45	51	39	30
19	31	40	44	42	56	53	41	110	45	48	41	33
20	34	41	49	42	60	58	40	71	43	45	41	32
21	33	41	46	40	56	61	41	87	45	44	40	35
22	31	42	44	41	46	60	41	61	66	39	43	36
23	31	44	43	44	44	59	44	48	77	35	38	37
24	37	44	41	45	47	61	45	47	65	37	32	38
25	35	42	43	48	50	59	45	48	57	38	34	35
26	35	45	44	41	48	52	44	46	55	39	32	35
27	34	48	40	42	48	56	42	44	57	34	30	35
28	31	46	32	48	49	60	45	44	51	34	33	33
29	32	47	33	45	---	57	44	43	49	34	37	35
30	34	47	34	50	---	58	44	43	77	34	43	36
31	37	---	39	48	---	53	---	44	---	36	36	---
TOTAL	1057	1194	1422	1357	1211	1593	1350	1853	1890	1418	1119	1047
MEAN	34.1	39.8	45.9	43.8	43.2	51.4	45.0	59.8	63.0	45.7	36.1	34.9
MAX	38	48	56	50	60	61	51	278	123	81	43	47
MIN	31	34	32	40	17	41	40	37	43	32	30	29
AC-FT	2100	2370	2820	2690	2400	3160	2680	3680	3750	2810	2220	2080

CAL YR 1988 TOTAL 13891 MEAN 38.0 MAX 85 MIN 13 AC-FT 27550
WTR YR 1989 TOTAL 16511 MEAN 45.2 MAX 278 MIN 17 AC-FT 32750

e Estimated

ARKANSAS RIVER BASIN

07156900 CIMARRON RIVER NEAR FORGAN, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- May 1987 to current year.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)
OCT											
18...	1400	1028	80020	--	3.01	37	4080	8.5	18.0	18.5	704
NOV											
16...	1130	1028	80020	--	3.08	41	3900	8.3	5.5	6.0	702
DEC											
21...	1000	1028	80020	--	3.02	49	4020	8.1	8.0	2.0	699
JAN											
18...	1100	1028	80020	--	3.06	41	3920	8.2	4.5	1.0	705
FEB											
16...	1430	1028	80020	--	3.07	54	3640	8.4	2.0	4.5	711
MAR											
16...	1100	1028	80020	--	3.05	45	3830	8.4	16.0	9.5	698
APR											
20...	1300	1028	80020	--	3.00	40	3340	8.3	28.0	22.0	697
MAY											
18...	1600	1028	1028	--	3.66	286	2380	7.8	24.0	18.0	--
24...	1100	1028	80020	--	2.99	50	3380	8.4	30.5	24.0	688
JUN											
30...	1300	1028	80020	--	3.16	81	2720	8.4	28.0	29.0	700
JUL											
27...	1230	1028	80020	--	2.93	35	3290	8.3	27.5	28.5	703
AUG											
23...	1030	1028	1028	15.0	2.98	39	3750	8.3	--	25.0	--
23...	1031	1028	1028	30.0	2.98	39	3750	8.3	--	25.0	--
23...	1032	1028	1028	45.0	2.98	39	3710	8.3	--	25.0	--
23...	1033	1028	1028	60.0	2.98	39	3650	8.3	--	25.0	--
23...	1100	1028	80020	--	2.98	39	3710	8.3	25.0	25.0	698
SEP											
20...	0900	1028	80020	--	2.95	33	3710	8.1	15.5	16.0	698

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3
OCT											
18...	9.9	116	400	210	93	40	610	77	13	4.9	221
NOV											
16...	12.8	113	420	200	100	41	540	73	11	5.1	265
DEC											
21...	12.3	98	440	230	110	40	580	74	12	4.8	256
JAN											
18...	12.5	96	410	190	100	40	560	74	12	4.9	273
FEB											
16...	15.2	128	400	180	100	37	540	74	12	4.8	246
MAR											
16...	11.7	113	400	180	100	37	650	78	14	4.7	251
APR											
20...	9.5	120	370	180	87	37	530	75	12	4.7	230
MAY											
18...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	410	190	100	39	580	75	12	5.6	251
JUN											
30...	8.1	116	300	100	74	29	430	75	11	6.2	185
JUL											
27...	8.8	125	380	220	88	39	560	76	12	5.8	201
AUG											
23...	9.3	--	--	--	--	--	--	--	--	--	--
23...	9.3	--	--	--	--	--	--	--	--	--	--
23...	9.6	--	--	--	--	--	--	--	--	--	--
23...	9.6	--	--	--	--	--	--	--	--	--	--
23...	9.5	127	390	200	92	38	620	77	14	5.6	210
SEP											
20...	9.7	109	410	220	100	38	580	75	13	5.0	230

07158900 CIMARRON RIVER NEAR FORGAN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 18...	4	189	--	970	0.80	19	2110	1870	2.87	211	0.400
NOV 16...	0	217	190	900	0.80	24	1980	1930	2.69	220	0.800
DEC 21...	0	210	180	930	0.80	25	2010	2000	2.73	263	0.900
JAN 18...	0	224	190	900	0.80	25	2000	1980	2.72	219	1.00
FEB 16...	10	214	180	870	0.70	24	1930	1890	2.62	279	1.00
MAR 16...	10	222	180	910	0.80	21	1980	2040	2.69	242	0.600
APR 20...	0	189	190	910	0.80	14	1950	1890	2.65	210	0.200
MAY 18...	--	--	--	--	--	--	--	--	--	--	--
24...	11	224	180	900	0.90	21	2000	1980	2.72	272	<0.100
JUN 30...	29	200	140	840	0.80	15	1480	1460	2.01	322	<0.100
JUL 27...	0	165	190	910	0.80	12	1950	1900	2.65	186	4.40
AUG 23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	10	188	190	970	0.90	17	1990	2050	2.71	211	<0.100
SEP 20...	0	189	190	860	0.80	15	2100	1900	2.86	187	0.200

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BORON, DIS- SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 18...	0.010	0.01	0.39	0.40	0.80	3.5	0.010	1	170	<10	<1
NOV 16...	0.030	0.04	0.47	0.50	1.3	5.8	0.020	2	160	<10	2
DEC 21...	0.030	0.04	0.27	0.30	1.2	5.3	0.020	1	140	<10	2
JAN 18...	0.040	0.05	0.36	0.40	1.4	6.2	<0.010	1	140	<10	2
FEB 16...	0.030	0.04	0.47	0.50	1.5	6.6	0.030	2	80	<10	2
MAR 16...	0.030	0.04	0.37	0.40	1.0	4.4	0.020	2	150	<10	2
APR 20...	0.030	0.04	0.27	0.30	0.50	2.2	0.010	2	170	<10	2
MAY 18...	--	--	--	--	--	--	--	--	--	--	--
24...	0.020	0.03	0.58	0.60	--	--	0.010	3	170	<10	2
JUN 30...	0.020	0.03	0.48	0.50	--	--	0.040	2	170	<10	2
JUL 27...	<0.010	--	--	0.30	4.7	21	0.020	<1	160	10	2
AUG 23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.030	0.04	0.57	0.60	--	--	0.120	1	190	10	<1
SEP 20...	0.020	0.03	--	<0.20	--	--	<0.010	1	180	<10	<1

ARKANSAS RIVER BASIN

07156900 CIMARRON RIVER NEAR FORGAN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
18...	<10	20	<100	<10	0.20	4	10	81	8.1	51
NOV										
16...	10	20	<100	<10	<0.10	4	<10	65	7.2	31
DEC										
21...	10	20	<100	<10	<0.10	5	10	158	21	25
JAN										
18...	10	20	<100	<10	<0.10	5	<10	214	23	12
FEB										
16...	10	20	<100	20	<0.10	4	<10	312	45	18
MAR										
16...	10	60	<100	20	<0.10	4	20	172	21	26
APR										
20...	10	10	<100	<10	<0.10	4	<10	156	17	44
MAY										
18...	--	--	--	--	--	--	--	--	--	--
24...	<10	20	<100	10	<0.10	4	10	111	15	49
JUN										
30...	10	10	<100	<10	0.10	3	20	167	36	58
JUL										
27...	10	20	<100	<10	0.10	4	20	39	3.7	70
AUG										
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	20	20	<100	<10	<0.10	3	20	133	14	32
SEP										
20...	<10	40	<100	10	<0.10	3	<10	39	3.5	35

07157950 CIMARRON RIVER NEAR BUFFALO, OK

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

DRAINAGE AREA.-- 12,004 mi², of which 4,813 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.-- Water-stage recorder. Datum of gage is 1,599.67 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1979, at site 6.9 mi upstream at elevation 1,650 ft.

REMARKS.-- Records fair except for estimated winter periods, which are poor.

AVERAGE DISCHARGE.-- 29 years, 140 ft³/s, 101,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 26,400 ft³/s, Sept. 26, 1973, gage height, 5.57 ft, datum then in use; no flow at times most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 18	0115	5,790	8.34	June 12	1600	*7,360	*8.63

Minimum daily discharge, 1.1 ft³/s, Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.8	9.4	33	70	81	81	10	34	161	96	466
2	2.7	2.8	13	50	e40	80	65	9.0	33	140	83	258
3	1.1	2.9	15	55	e20	e60	55	9.5	44	134	87	200
4	2.3	2.8	16	56	e19	e15	46	46	56	118	65	1470
5	4.6	2.3	18	56	e18	e30	39	20	62	99	44	775
6	4.6	2.1	19	52	e19	e55	38	14	86	85	36	329
7	9.6	2.3	21	53	e22	57	33	11	144	72	914	206
8	5.3	2.6	21	40	e25	70	33	9.2	248	59	478	148
9	4.8	2.8	17	e21	e26	65	31	6.9	387	48	200	1880
10	3.8	3.1	21	e22	e28	62	36	5.8	253	35	127	769
11	2.7	4.3	19	e30	e31	68	33	4.6	1230	27	98	306
12	2.3	4.8	23	e32	e31	56	34	6.8	4900	19	83	352
13	1.8	4.8	34	e34	35	47	35	7.9	2190	244	138	1400
14	1.4	4.9	32	e35	31	44	35	7.9	1300	2250	246	855
15	1.6	5.5	31	e36	53	35	33	138	671	1660	537	443
16	1.8	4.8	22	37	64	33	32	111	404	672	285	274
17	1.7	4.6	26	59	122	32	30	1350	285	416	201	201
18	1.5	4.5	25	68	107	27	28	4360	220	287	172	156
19	1.5	7.8	32	71	134	27	24	2010	177	219	157	141
20	2.4	19	42	64	154	30	22	868	151	172	148	129
21	2.7	14	39	55	131	28	20	443	128	140	133	117
22	2.4	10	42	55	119	31	18	332	114	121	126	109
23	1.9	9.3	36	56	82	27	15	355	168	105	119	97
24	2.1	9.2	35	54	89	27	14	247	337	95	142	93
25	1.8	8.7	34	57	79	25	32	164	297	97	125	89
26	1.7	9.1	39	57	75	25	14	110	220	127	108	85
27	1.8	9.1	38	63	78	53	29	82	462	151	97	82
28	1.8	7.3	e23	84	82	73	12	69	351	116	111	79
29	1.9	9.8	e15	88	---	56	9.6	57	270	87	104	77
30	2.3	8.0	e20	86	---	98	9.8	48	197	72	163	74
31	2.7	---	e25	82	---	103	---	42	---	58	1100	---
TOTAL	82.5	186.0	802.4	1641	1784	1520	936.4	10954.6	15419	8086	6523	11660
MEAN	2.66	6.20	25.9	52.9	63.7	49.0	31.2	353	514	261	210	389
MAX	9.6	19	42	88	154	103	81	4360	4900	2250	1100	1880
MIN	1.1	2.1	9.4	21	18	15	9.6	4.6	33	19	36	74
AC-FT	164	369	1590	3250	3540	3010	1860	21730	30580	16040	12940	23130

CAL YR 1988 TOTAL 26585.15 MEAN 72.6 MAX 636 MIN .02 AC-FT 52730
WTR YR 1989 TOTAL 59594.9 MEAN 163 MAX 4900 MIN 1.1 AC-FT 118200

e Estimated

ARKANSAS RIVER BASIN

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to January 1982.

WATER TEMPERATURE: July 1968 to January 1982.

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

REMARKS.-- Samples were collected on an approximate six-week basis and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCTANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)
OCT 13...	1202	1028	1028	3.90	2.0	30100	8.2	20.0	17.5	--	--	--
NOV 29...	1100	1028	80020	4.17	12	*18800	8.2	9.5	6.0	2.5	719	11.6
DEC 29...	1100	1028	80020	4.17	9.6	11800	8.1	3.0	0.0	--	720	13.0
JAN 31...	1100	1028	80020	4.56	79	9600	8.3	11.0	6.0	5.8	708	12.6
MAR 21...	1400	1028	80020	4.40	25	*18800	8.3	14.5	13.0	--	723	9.4
MAY 02...	1300	1028	80020	4.13	8.8	20000	8.2	24.0	19.5	0.70	716	9.0
18...	1600	1028	1028	7.89	3990	4800	--	--	19.0	--	--	--
JUL 18...	1130	1028	80020	5.24	291	3360	8.4	31.0	27.0	87	717	7.5

* SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 29...	--	K6	44	980	790	260	80	4000	90	56	7.5	238
DEC 29...	99	--	--	920	690	240	76	1900	82	27	6.4	273
JAN 31...	113	K1	K5	800	400	140	59	1600	85	29	5.7	240
MAR 21...	--	--	--	860	660	210	80	4100	91	61	7.2	237
MAY 02...	112	39	120	1000	860	260	89	--	--	--	7.6	194
18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	101	360	270	430	240	110	38	580	74	12	10	238

DATE	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKA-LINITY TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 29...	0	195	860	6500	0.50	17	11700	11800	15.9	366	0.100	0.44
DEC 29...	0	224	620	2900	--	19	6010	5900	8.17	156	--	--
JAN 31...	0	197	380	2700	0.70	16	5090	5020	6.92	1090	--	--
MAR 21...	0	194	620	6600	--	14	11700	11800	15.9	793	--	--
MAY 02...	0	159	820	6700	0.60	12	11700	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	0	195	240	860	0.60	18	1930	1980	2.62	1520	--	--

07157950 CIMARRON RIVER NR BUFFALO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 29...	0.010	0.03	0.110	0.100	0.090	0.13	0.12	0.50	0.60	<0.010	<0.010	<0.010
DEC 29...	<0.010	--	0.150	--	0.120	--	0.15	--	--	--	--	0.030
JAN 31...	<0.010	--	<0.100	0.020	0.030	0.03	0.04	0.50	0.60	<0.010	<0.010	<0.010
MAR 21...	<0.010	--	<0.100	--	0.050	--	0.06	--	--	--	--	0.020
MAY 02...	0.070	0.23	<0.100	0.060	--	0.08	--	0.34	0.40	0.010	--	--
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	<0.010	--	<0.100	0.040	0.040	0.05	0.05	1.2	1.2	0.140	0.040	0.040
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 29...	--	<10	2	100	<10	1	<2	<1	3	70	<5	50
DEC 29...	0.09	--	2	87	<0.5	<1	<5	<3	<10	21	<10	84
JAN 31...	--	<10	2	<100	<10	<1	1	<1	1	20	<5	70
MAR 21...	0.06	--	2	100	<5	<10	<50	<10	<100	<30	<100	59
MAY 02...	--	<20	3	200	<10	1	<2	<1	2	70	<5	60
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	0.12	10	6	300	<10	<1	<1	<1	2	20	<1	50
DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 29...	110	0.1	4	2	2	1.0	3800	56	10	3	0.09	75
DEC 29...	100	<0.1	<10	<10	--	7.0	3200	<6	25	--	--	--
JAN 31...	30	<0.1	6	2	2	<1.0	2700	35	<10	57	12	28
MAR 21...	65	<0.1	<100	<100	--	<10	3300	<60	<30	14	0.95	30
MAY 02...	80	0.5	3	2	<1	<1.0	3900	70	20	30	0.71	38
JUL 18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	<10	<0.1	6	1	2	<1.0	1600	27	10	207	163	85

ARKANSAS RIVER BASIN

07157960 BUFFALO CREEK NEAR LOVEDALE, OK

LOCATION.-- Lat 36°46'14", long 99°22'00", in SW 1/4 SW 1/4 sec.33, T.27 N., R.20 W., Harper County, Hydrologic Unit 11050001, near center of channel on downstream side of pier of bridge on State Highway 34, 1.2 mi east of Lovedale, 1.3 mi upstream from Sleeping Bear Creek, and at mile 7.6.

DRAINAGE AREA.-- 408 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 1,602.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good, except for periods of estimated record, which were affected by ice, and are poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 23 years, 13.4 ft³/s, 9,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 15,800 ft³/s, Aug. 9, 1967, gage height, 14.80 ft, from rating curve extended above 7,000 ft³/s on basis of slope-area determination of peak flow; maximum gage height, 16.17 ft, May 10, 1979; no flow most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 17	2330	1,450	9.84	June 13	0900	1,290	9.56
June 11	1745	1,750	10.29	Aug. 7	1545	*3,360	*11.91

Minimum daily discharge, 5.7 ft³/s, May 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	10	11	11	13	13	18	6.7	28	35	32	50
2	6.8	10	11	11	e11	13	17	6.7	28	34	25	37
3	6.7	11	10	11	e9.0	13	15	6.6	31	32	22	32
4	7.0	11	10	11	e8.0	e12	13	7.8	39	31	21	34
5	7.5	10	10	11	e7.0	e11	13	7.6	37	30	20	32
6	8.1	10	11	11	e7.0	e11	12	7.1	68	29	20	28
7	9.5	10	11	11	e7.5	e13	12	6.8	324	27	1300	25
8	10	10	10	11	e8.0	12	12	6.8	95	26	252	23
9	9.9	10	11	e10	e10	12	12	6.1	57	25	104	22
10	9.3	9.9	10	e10	e15	12	12	5.9	47	24	71	21
11	8.9	10	10	12	e15	12	12	5.7	798	23	54	21
12	8.6	10	11	12	e16	11	12	6.0	403	22	45	26
13	8.4	10	11	e11	13	11	12	6.2	653	27	47	77
14	8.2	10	10	e10	e13	11	13	6.4	175	324	86	69
15	8.4	11	10	e10	13	11	13	6.1	107	160	62	48
16	8.6	9.7	10	e10	e13	11	12	21	85	80	51	36
17	8.8	9.7	10	e11	14	11	12	614	70	60	44	31
18	8.7	9.9	10	12	15	11	11	853	60	49	40	27
19	9.1	11	10	11	15	11	11	203	54	41	37	25
20	9.7	12	11	11	16	11	10	102	49	36	35	23
21	10	12	11	11	16	11	9.7	69	45	33	33	22
22	10	13	11	11	15	12	8.9	56	43	30	32	20
23	10	13	10	11	14	12	8.0	49	47	29	32	19
24	9.9	13	10	11	13	11	7.6	44	48	27	31	19
25	9.9	12	11	12	13	11	7.7	39	45	26	29	19
26	9.9	12	11	12	13	11	8.3	36	43	27	27	19
27	10	12	11	12	13	13	8.3	34	49	25	25	19
28	9.8	11	11	13	13	19	8.2	33	46	24	25	18
29	9.8	11	11	13	---	18	7.3	31	40	23	25	18
30	9.9	11	11	13	---	19	7.0	30	37	22	45	18
31	10	---	11	13	---	20	---	29	---	21	135	---
TOTAL	277.8	325.2	327	350	348.5	390	335.0	2341.5	3651	1402	2807	878
MEAN	8.96	10.8	10.5	11.3	12.4	12.6	11.2	75.5	122	45.2	90.5	29.3
MAX	10	13	11	13	16	20	18	853	798	324	1300	77
MIN	6.4	9.7	10	10	7.0	11	7.0	5.7	28	21	20	18
AC-FT	551	645	649	694	691	774	664	4640	7240	2780	5570	1740

CAL YR 1988 TOTAL 7882.6 MEAN 21.5 MAX 164 MIN 5.9 AC-FT 15640
WTR YR 1989 TOTAL 13433.0 MEAN 36.8 MAX 1300 MIN 5.7 AC-FT 26640

e Estimated

07158000 CIMARRON RIVER NEAR WAYNOKA, OK

LOCATION.-- Lat 36°31'02", long 98°52'45", in NW 1/4 NE 1/4 sec.35, T.24 N., R.16 W., Woods County, Hydrologic Unit 11050001, near left bank on downstream side of bridge on U.S. Highway 281, 4.0 mi south of Waynoka, and at mile 247.0.

DRAINAGE AREA.-- 13,334 mi², of which 4,830 mi² is probably noncontributing.

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

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

REMARKS.-- Records good except for periods affected by ice, which are poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Extensive diversions for irrigation above station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.-- 52 years, (water years 1938-89), 317 ft³/s, 229,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 94,500 ft³/s, May 16, 1957, gage height, 15.10 ft, from rating curve extended above 45,000 ft³/s on basis of contracted-opening measurement of peak flow; no flow at times in most years.

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

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 18	0545	14,600	9.63	June 13	0930	*16,300	*9.83

Minimum daily discharge, 12 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	20	33	59	96	129	256	21	37	334	133	1090
2	15	21	34	59	e60	129	202	20	31	265	459	546
3	17	22	35	59	e34	131	159	20	40	210	293	360
4	19	22	38	65	e30	e60	126	41	109	180	187	331
5	25	19	41	73	e27	e45	106	96	125	166	132	2060
6	34	15	43	68	e25	e46	89	65	85	140	383	859
7	61	14	44	61	e24	e80	80	39	128	119	273	442
8	68	14	42	e54	e24	e96	71	30	437	103	2160	324
9	57	17	41	e45	e25	120	63	22	252	85	849	280
10	45	18	42	e40	e30	114	71	17	392	71	391	1720
11	36	22	42	e42	e45	107	75	14	986	57	256	813
12	31	25	47	e50	e58	104	74	24	5670	47	286	527
13	22	25	46	e49	e64	105	70	28	10500	196	257	1150
14	16	26	47	e46	e66	97	70	36	4980	919	710	2150
15	15	28	48	e48	e72	84	64	32	1990	3770	445	1140
16	15	29	49	e54	e76	75	58	146	1080	1890	675	744
17	16	26	48	e58	102	73	56	2310	737	847	460	541
18	13	21	46	60	131	70	51	7200	556	541	338	419
19	14	26	49	68	134	67	47	3180	420	372	271	340
20	22	46	48	67	144	69	41	1870	317	278	233	291
21	25	59	51	69	171	69	40	871	263	234	204	263
22	28	52	56	65	162	69	37	481	227	196	208	233
23	20	49	54	64	148	66	32	335	281	165	270	202
24	18	45	53	63	130	66	27	299	319	150	233	186
25	15	42	53	70	123	67	25	228	407	229	270	182
26	14	42	58	77	120	66	27	145	411	184	224	175
27	15	42	64	72	124	109	50	102	1260	158	157	166
28	14	39	e62	90	132	315	46	75	1490	169	145	157
29	16	36	e52	115	---	270	35	56	647	150	230	149
30	16	35	e54	107	---	231	25	41	463	124	252	144
31	19	---	e56	100	---	310	---	32	---	96	462	---
TOTAL	753	897	1474	2017	2377	3439	2173	17876	34640	12445	11766	17984
MEAN	24.3	29.9	47.5	65.1	84.9	111	72.4	577	1155	401	380	599
MAX	68	59	64	115	171	315	256	7200	10500	3770	2180	2150
MIN	12	14	33	40	24	45	25	14	31	47	132	144
AC-FT	1490	1780	2920	4000	4710	6820	4310	35460	68710	24680	23340	35670

CAL YR 1988 TOTAL 89500.76 MEAN 190 MAX 2960 MIN .00 AC-FT 137900
WTR YR 1989 TOTAL 107841 MEAN 295 MAX 10500 MIN 12 AC-FT 213900

e Estimated

ARKANSAS RIVER BASIN

07159100 CIMARRON RIVER NEAR DOVER, OK

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

DRAINAGE AREA.-- 15,713 mi², of which 4,926 mi² is probably noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage is 999.19 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' telemeter at station.

AVERAGE DISCHARGE.-- 16 years, 883 ft³/s, 639,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 123,000 ft³/s, Oct. 3, 1986, gage height, 26.10 ft from high-water mark (HWM); minimum daily, 4.3 ft³/s, Sept. 23, 1980.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 12,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 19	1330	13,300	16.76	Aug. 14	2400	*16,400	*17.59
June 14	1700	13,700	16.84				

Minimum daily discharge, 62 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	157	190	222	368	323	1340	129	401	1080	235	860
2	72	157	188	213	307	294	1090	163	390	884	307	852
3	75	158	185	209	e280	295	892	128	456	706	311	1250
4	73	157	181	213	e240	247	718	212	516	576	378	3260
5	e140	146	179	212	e190	e200	606	372	906	489	408	3490
6	e272	144	181	209	e210	e225	531	251	1180	424	646	1250
7	316	143	185	208	228	254	476	246	948	374	607	2240
8	523	145	190	209	230	314	423	227	1390	334	421	1470
9	423	148	189	215	250	245	392	193	1080	288	414	956
10	412	141	193	215	316	215	361	149	1070	248	789	764
11	363	154	193	219	328	215	345	130	946	207	741	645
12	295	188	190	210	274	214	343	141	2210	173	472	1560
13	240	240	e185	202	307	210	333	154	5490	158	434	7240
14	218	215	e180	196	283	201	329	179	11400	767	10000	6980
15	207	190	e180	201	278	178	327	172	6430	2360	11400	4730
16	206	178	e186	214	256	180	307	223	3830	1500	4510	3380
17	195	171	189	213	263	178	300	413	2220	2360	1600	2040
18	177	172	197	208	293	160	296	888	1540	1240	1900	1470
19	169	168	206	216	300	156	265	9950	1170	745	1680	1150
20	190	209	204	217	363	151	246	6400	947	522	792	967
21	226	221	204	215	494	146	234	3720	791	433	719	835
22	209	220	202	217	475	150	220	2800	661	366	1630	740
23	184	220	200	229	483	149	200	1910	2550	330	656	645
24	174	230	197	230	463	145	180	1430	2220	297	491	575
25	169	231	203	273	386	146	168	1160	844	290	844	524
26	164	224	213	315	354	143	154	941	762	339	763	484
27	162	212	220	309	331	283	147	845	730	387	573	453
28	154	205	222	359	341	5450	137	679	966	356	588	430
29	156	198	211	477	---	2810	123	556	1700	344	484	414
30	154	193	215	454	---	1320	123	466	1940	236	426	396
31	154	---	226	390	---	1250	---	406	---	207	951	---
TOTAL	6534	5535	6084	7689	8891	16447	11606	35633	57684	19000	46150	52050
MEAN	211	184	196	248	318	531	387	1149	1923	613	1489	1735
MAX	523	240	226	477	494	5450	1340	9950	11400	2360	11400	7240
MIN	62	141	179	196	190	143	123	128	390	158	235	396
AC-FT	12960	10980	12070	15250	17640	32620	23020	70680	114400	37690	91540	103200

CAL YR 1988 TOTAL 409701 MEAN 1119 MAX 16500 MIN 30 AC-FT 812600
WTR YR 1989 TOTAL 273303 MEAN 749 MAX 11400 MIN 62 AC-FT 542100

e Estimated

ARKANSAS RIVER BASIN

69

07159720 COTTONWOOD CREEK NEAR NAVINA, OK

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

DRAINAGE AREA.-- 247 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1977 to September 1980, March 1982 to September 1989 (discontinued).

GAGE.-- Water-stage recorder. Datum of gage is 962.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Low flow sustained in part by sewage effluent.

AVERAGE DISCHARGE.-- 10 years (water years 1978-80, 1983-89), 150 ft³/s, 108,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 40,300 ft³/s, Sept. 13, 1989, gage height, 25.02 ft, from high-water mark (HWM), from rating extended above slope-area measurement; minimum daily discharge, 8.0 ft³/s, Oct. 14, 15, 1977.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 8	1600	5,670	20.51	July 14	2300	3,350	19.38
June 12	2300	2,600	18.78	Aug. 14	2100	31,200	23.27
June 14	0100	9,740	21.68	Sept. 5	0500	2,260	18.38
June 23	2000	4,300	19.94	Sept. 13	1000	*40,300	*25.02 (HWM)

Minimum daily discharge, 28 ft³/s, Dec. 8-10, Jan. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	30	e29	30	50	43	77	e53	e500	140	124	85
2	32	30	e29	30	43	42	69	e52	1490	121	256	444
3	32	30	e30	30	35	43	59	e51	e350	187	118	292
4	33	30	e30	30	e34	43	58	e51	e250	124	97	750
5	32	30	e30	30	e33	42	54	e52	e300	102	74	1220
6	32	32	e29	30	e34	41	56	e51	450	87	453	319
7	292	32	e29	30	e34	44	54	e50	2360	80	213	213
8	344	36	e28	30	e35	61	53	e50	4710	75	99	169
9	81	34	e28	30	e35	50	53	e49	910	72	75	141
10	45	38	e28	31	39	44	52	e48	485	68	64	129
11	32	38	e35	30	45	43	53	e49	545	64	62	140
12	31	267	e32	29	45	43	52	e50	1310	59	60	208
13	32	e450	31	31	45	43	52	e52	3130	57	60	19900
14	32	e200	29	31	57	42	52	e60	6380	1330	9230	6050
15	32	e100	29	33	123	42	53	e55	1100	1170	8460	e3260
16	34	49	31	30	97	40	52	e52	405	208	1230	e1200
17	33	e40	31	31	60	41	53	e58	410	145	583	e900
18	31	e35	30	29	129	42	49	e64	404	118	519	e600
19	32	e34	30	29	80	40	52	e58	366	95	487	e400
20	69	e33	30	30	65	39	e54	e56	345	82	459	e300
21	91	e33	30	28	93	40	e54	e54	325	74	434	e220
22	39	e32	31	30	66	38	e54	e54	305	66	368	e190
23	35	e31	30	30	48	38	e53	e53	2290	99	213	e170
24	30	e30	29	29	44	39	e53	e53	1460	259	144	e160
25	31	e30	29	30	43	41	e52	e52	513	128	115	e150
26	32	e30	30	42	44	40	e52	e51	338	94	97	e140
27	32	e31	33	43	43	50	e51	e51	413	80	88	e132
28	31	e31	43	81	43	684	e52	e50	367	74	80	e130
29	32	e30	32	134	---	315	e54	e49	227	75	74	e127
30	31	e30	29	60	---	146	e54	e50	170	66	70	e125
31	31	---	29	54	---	102	---	e60	---	60	68	---
TOTAL	1729	1876	943	1165	1642	2401	1634	1638	32608	5459	24472	38242
MEAN	55.8	62.5	30.4	37.6	55.1	77.5	54.5	52.8	1087	176	789	1275
MAX	344	450	43	134	129	684	77	64	6380	1330	9230	19900
MIN	30	30	28	28	33	38	49	48	170	57	60	65
AC-FT	3430	3720	1870	2310	3060	4760	3240	3250	64680	10830	48540	75850

CAL YR 1988 TOTAL 36137 MEAN 98.7 MAX 2380 MIN 19 AC-FT 71680
WTR YR 1989 TOTAL 113709 MEAN 312 MAX 19900 MIN 28 AC-FT 225500

e Estimated

ARKANSAS RIVER BASIN

07159720 COTTONWOOD CREEK NEAR NAVINA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1978 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to November 1980.

WATER TEMPERATURE: October 1977 to November 1980.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
OCT											
27...	1325	1028	80020	--	6.27	31	*1170	8.0	22.0	16.0	18
DEC											
13...	1130	1028	80020	--	6.51	30	*1250	8.0	14.0	8.5	6.0
JAN											
31...	1255	1028	80020	--	6.50	55	1120	7.7	19.5	9.0	94
FEB											
27...	1300	1028	80020	--	6.58	43	1270	8.1	4.0	9.0	17
APR											
13...	1400	1028	80020	--	6.46	53	1370	8.0	22.0	14.5	22
JUN											
02...	1345	1028	80020	--	17.00	1490	447	8.0	28.0	22.0	150
02...	1400	1028	1028	12.0	17.00	1490	450	8.0	--	22.0	--
02...	1408	1028	1028	26.0	17.00	1490	445	8.0	--	22.0	--
02...	1420	1028	1028	44.0	17.00	1490	449	8.0	--	22.0	--
02...	1426	1028	1028	62.0	17.00	1490	451	8.0	--	22.0	--
JUL											
06...	1400	1028	80020	--	7.19	90	1160	8.0	33.5	27.0	47
AUG											
24...	1145	1028	80020	--	7.93	146	* 937	8.1	33.0	25.5	59

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO
OCT										
27...	730	8.8	--	300	110	69	32	110	43	3
DEC										
13...	740	12.6	--	340	120	79	35	120	43	3
JAN										
31...	730	8.0	72	330	330	76	34	100	39	2
FEB										
27...	720	11.1	102	400	140	92	41	120	39	3
APR										
13...	740	10.8	110	400	150	89	42	120	39	3
JUN										
02...	730	8.1	97	150	41	37	14	34	32	1
02...	--	8.1	--	--	--	--	--	--	--	--
02...	--	8.2	--	--	--	--	--	--	--	--
02...	--	8.1	--	--	--	--	--	--	--	--
02...	--	8.1	--	--	--	--	--	--	--	--
JUL										
06...	730	5.6	74	370	120	86	37	91	35	2
AUG										
24...	730	8.3	--	310	310	75	31	77	34	2

ARKANSAS RIVER BASIN

71

07159720 COTTONWOOD CREEK NR NAVINA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
OCT 27...	7.5	235	0	193	--	--	733	--	--	--
DEC 13...	6.7	273	0	224	220	130	793	725	1.08	63.8
JAN 31...	4.6	--	--	--	190	120	676	649	0.92	100
FEB 27...	5.1	310	0	254	230	130	816	771	1.11	94.1
APR 13...	5.8	294	0	241	220	130	852	751	1.16	123
JUN 02...	5.0	133	0	109	61	32	285	248	0.39	1150
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
JUL 06...	5.4	305	0	250	160	91	692	620	0.94	167
AUG 24...	5.0	--	--	--	140	78	580	549	0.79	229

ARKANSAS RIVER BASIN

07160000 CIMARRON RIVER NEAR GUTHRIE, OK

LOCATION (REVISED).-- Lat 35°55'14", long 97°25'32", near center of east line of sec. 29, T. 17 N., R. 2 W., Logan County, Hydrologic Unit 11050002, on downstream side left bank of State Highway 77 bridge, 1.6 mi downstream from Cottonwood Creek, 2.5 mi north of Guthrie, 6.1 mi upstream from Skeleton Creek, and at mile 122.4.

DRAINAGE AREA.-- 16,892 mi², of which 4,926 mi² is probably noncontributing.

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

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 896.50 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers' bench mark). Prior to Mar. 19, 1939, nonrecording gage at railway bridge 1,200 ft upstream at datum 4.00 ft higher. From Mar. 19, 1939 to Sept. 30, 1976, recording gage 125 ft upstream from railway bridge at datum 4.00 ft higher. From Sept. 14, 1967 to Sept. 30, 1976, supplementary water-stage recorder at present site and datum.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 45 years (water years 1938-76, 1984-89), 986 ft³/s, 714,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 158,000 ft³/s, May 17, 1957, gage height, 18.58 ft, site and datum then in use; minimum discharge, 0.1 ft³/s, Nov. 2, 1939.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 14	2000	18,200	9.94	Sept. 13	2030	28,400	11.68
Aug. 15	Unknown	*29,500	*11.86 (HWM)				

Minimum daily discharge, 200 ft³/s, Mar. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	478	261	458	434	e470	e440	1690	244	718	2620	763	1230
2	419	263	444	434	e400	e400	1510	236	2650	1840	1040	1820
3	416	267	427	434	e420	e360	1310	236	2120	1590	1400	3570
4	397	267	426	430	e410	e330	1090	410	2150	1460	967	2810
5	391	260	417	430	e390	e300	901	478	4710	1200	1020	12000
6	361	e249	410	433	e370	e280	766	541	3480	1050	e1200	4800
7	463	e242	413	428	e350	e300	665	488	2880	933	e1100	2430
8	3020	e239	418	426	e360	e350	583	408	9980	848	e1200	2800
9	2370	e236	423	426	e390	e400	514	387	7950	785	e1000	1980
10	1040	e232	429	426	e410	e370	472	366	3470	719	e900	1430
11	728	270	434	426	e450	e350	448	336	2850	660	e860	1180
12	588	885	434	426	e400	e320	420	305	3320	609	e1000	1480
13	510	2130	431	426	e450	e300	438	431	6560	571	e2600	14300
14	449	1090	427	423	e440	e280	475	625	15000	865	e5000	20300
15	402	743	425	415	e440	e270	475	513	14300	3700	24700	10500
16	391	603	413	428	e450	e260	466	1030	6380	3560	14300	7530
17	386	544	403	438	e460	e260	442	1280	4500	2850	6720	5700
18	379	500	402	437	e470	e250	442	2550	3400	3270	5200	4280
19	338	485	399	431	e480	e240	437	2470	2730	2290	4620	3440
20	354	501	405	426	e490	e230	409	7580	2250	1680	3990	2730
21	509	583	414	426	e510	e220	387	4800	1900	1310	3020	2250
22	529	591	409	426	534	e220	371	3350	1650	1100	2540	1920
23	432	555	403	426	498	e215	332	2790	3240	1040	3000	1640
24	362	521	403	438	437	e215	323	2090	10600	1670	1780	1380
25	321	507	406	514	e475	e210	323	1680	5710	1230	1380	1220
26	290	508	395	608	e450	e200	307	1430	2790	929	1360	1110
27	266	501	433	754	e420	e800	301	1400	2380	983	1290	1030
28	256	488	431	677	e410	e4000	289	1170	2290	970	1090	970
29	e247	465	461	731	---	e9230	275	964	2200	951	1000	919
30	e242	461	441	573	---	3540	258	812	2580	927	966	877
31	e248	---	430	434	---	2130	---	710	---	796	852	---
TOTAL	17582	15447	13064	14584	12294	27270	17119	42110	136698	45006	97858	119626
MEAN	567	515	421	470	439	860	571	1358	4557	1452	3157	3988
MAX	3020	2130	461	764	534	9230	1690	7580	15000	3700	24700	20300
MIN	242	232	395	415	350	200	258	236	718	571	763	877
AC-FT	34870	30640	25910	28930	24390	54090	33960	83530	271100	89270	194100	237300

CAL YR 1988 TOTAL 525397 MEAN 1436 MAX 26200 MIN 88 AC-FT 1042000
WTR YR 1989 TOTAL 558658 MEAN 1531 MAX 24700 MIN 200 AC-FT 1108000

e Estimated

ARKANSAS RIVER BASIN

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07160500 SKELETON CREEK NEAR LOVELL, OK

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

DRAINAGE AREA.-- 410 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 909.76 ft above National Geodetic Vertical Datum of 1929 (Oklahoma State Highway Department datum). Prior to Dec. 5, 1949, nonrecording gage at site 60 ft downstream at datum 4.70 ft higher. Prior to Oct. 1, 1979, gage at present site and datum 5.00 ft higher.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 40 years, 130 ft³/s, 94,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 75,200 ft³/s, May 16, 1957, gage height, 34.58 ft, at datum then in use; no flow at times in 1953-54, 1956.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 29	0130	*2,630	*19.03	No other peaks greater than base discharge.			

Minimum daily discharge, 6.0 ft³/s, Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	e29	e33	e23	44	44	298	17	12	100	89	72
2	94	e29	e32	e21	32	34	173	16	83	90	332	23
3	120	e30	e33	e21	15	32	128	18	67	230	112	17
4	51	e29	e32	20	12	29	102	267	142	170	224	13
5	41	e28	e31	21	8.8	22	82	252	611	87	90	34
6	36	e27	e31	18	9.7	9.6	70	103	438	60	29	46
7	60	e27	e30	19	9.6	15	66	48	177	48	10	17
8	98	e27	e29	19	13	35	57	32	353	42	8.5	9.8
9	111	e27	e28	13	14	33	49	24	272	33	7.1	8.8
10	65	e27	e27	15	17	21	44	23	470	26	6.5	7.7
11	48	e32	e26	17	18	20	44	24	443	18	6.0	37
12	43	e64	e27	22	24	18	50	16	911	15	8.5	27
13	36	e140	e27	21	30	14	39	32	1520	17	9.1	401
14	e35	e64	e26	20	21	12	37	46	758	21	472	703
15	e35	e43	e26	21	26	12	36	92	283	41	1060	246
16	e34	e38	e25	21	41	11	35	256	159	51	324	135
17	e34	e36	e25	16	46	13	31	235	110	24	973	91
18	e34	e35	e24	15	34	9.5	32	241	85	14	340	68
19	e34	e35	e24	16	32	8.8	25	443	66	11	159	51
20	e33	e50	e23	14	43	7.7	24	243	56	9.1	109	44
21	e36	e44	22	14	83	9.0	26	110	47	7.8	79	42
22	e38	e41	22	17	113	9.3	102	69	39	6.9	81	32
23	e35	e39	26	15	63	9.4	59	318	1040	17	82	30
24	e34	e37	25	12	42	14	46	164	1750	506	80	27
25	e34	e36	24	31	36	9.1	38	77	680	201	50	26
26	e32	e36	27	69	33	9.0	34	41	237	75	31	26
27	e31	e35	e24	103	37	48	31	26	378	31	19	32
28	e29	e34	e22	54	37	1850	27	18	760	16	15	28
29	e29	e33	e22	113	---	1690	30	14	260	9.7	11	26
30	e28	e33	e24	133	---	357	25	12	142	46	25	25
31	e28	---	e24	69	---	578	---	10	---	14	75	---
TOTAL	1440	1185	821	1003	934.1	4983.4	1838	3287	12349	2037.5	4916.7	2345.3
MEAN	46.5	39.5	26.5	32.4	33.4	161	61.3	106	412	65.7	159	78.2
MAX	120	140	33	133	113	1850	296	443	1750	506	1060	703
MIN	28	27	22	12	8.8	7.7	24	10	12	6.9	6.0	7.7
AC-FT	2860	2350	1630	1990	1850	9880	3650	6520	24490	4040	9750	4650

CAL YR 1988 TOTAL 83351.4 MEAN 228 MAX 7670 MIN 9.2 AC-FT 165300
WTR YR 1989 TOTAL 37140.0 MEAN 102 MAX 1850 MIN 6.0 AC-FT 73670

e Estimated

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK

LOCATION (REVISED).-- Lat 35°57'27", long 97°01'54", in SW 1/4 SW 1/4 sec.7, T.17 N., R.3 E., Payne County, Hydrologic Unit 11050003, on right bank at downstream side of bridge on U.S. Highway 177, 1.0 mi south of Perkins, 1.5 mi upstream from Dugout Creek, 4.0 mi downstream from Wildhorse Creek, and at mile 87.3.

DRAINAGE AREA.-- 17,852 mi² of which 4,926 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WSP 1341: Drainage area.

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

REMARKS.-- Records poor. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 50 years, 1,309 ft³/s, 948,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 162,000 ft³/s, Oct. 4, 1986, gage height, 28.75 ft, from floodmark; minimum discharge, 0.8 ft³/s, Dec. 8, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of Oct. 4, 5, 1926, reached a stage of 17.0 ft from floodmarks, information provided by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 15	1000	24,500	15.85	Aug. 15	1500	*29,700	*16.45
June 25	0200	18,600	14.40	Sept. 14	0700	29,400	16.42

Minimum daily discharge, 263 ft³/s, Nov. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	711	311	415	446	840	648	2440	311	713	2990	e698	e622
2	659	313	422	446	729	637	1820	313	700	2770	e660	e884
3	621	310	421	449	e545	662	1590	337	1280	2440	e770	e1350
4	637	310	410	447	e525	643	1380	755	1520	2410	e860	e3500
5	602	292	410	450	e505	e625	1230	837	3210	2320	e840	e3900
6	586	279	404	448	e490	e630	956	612	3860	2060	1510	e12000
7	595	281	383	440	e485	e660	785	540	1970	1910	1250	e4600
8	657	272	387	430	e480	631	710	458	2150	1790	1380	2600
9	2390	274	391	428	e480	702	649	394	9590	1670	1170	e2450
10	1420	264	396	426	e490	756	612	367	5460	1510	1010	e1800
11	834	263	400	433	e495	817	578	354	2960	1440	895	e1290
12	664	684	411	426	e500	814	556	341	2980	1390	862	1200
13	577	712	428	423	540	781	540	362	5980	1430	1050	6700
14	526	1230	414	427	530	759	532	444	14500	1520	1240	24500
15	485	1040	389	427	671	688	521	794	20600	1520	21400	11000
16	462	569	391	421	727	672	511	684	9740	3990	17900	8590
17	448	486	389	426	778	670	501	1900	5420	3400	10100	6950
18	405	453	392	426	729	619	486	1570	4340	2340	7480	5230
19	391	435	396	431	722	600	479	2230	3390	1960	5100	4150
20	380	618	395	421	808	576	467	3990	2900	1530	4370	3430
21	387	537	395	411	845	533	455	8140	2610	1220	3410	2890
22	435	516	404	407	797	527	431	12100	2710	1020	2850	2510
23	476	530	400	411	809	519	423	3160	3370	1150	2910	2260
24	418	516	391	412	750	537	410	2190	11400	984	e3050	1880
25	383	489	406	421	711	544	389	1700	15300	1150	e1800	1590
26	354	478	426	569	699	542	378	1380	5560	e1100	e1300	1380
27	337	463	422	568	681	536	364	1260	3550	e910	e1150	1220
28	317	441	432	717	666	3130	351	1060	3440	783	1100	1080
29	308	434	428	804	---	14000	331	1070	3480	e760	e915	966
30	302	418	457	908	---	7800	322	948	2650	e740	e760	862
31	297	---	448	990	---	3090	---	909	---	e725	e725	---
TOTAL	18064	14218	12653	15289	18027	45348	21197	51510	157333	52932	100535	123384
MEAN	583	474	408	493	644	1463	707	1662	5244	1707	3243	4113
MAX	2390	1230	457	990	845	14000	2440	12100	20600	3990	21400	24500
MIN	297	263	383	407	480	519	322	311	700	725	680	622
AC-FT	35830	28200	25100	30330	35760	89950	42040	102200	312100	105000	199400	244700

CAL YR 1988 TOTAL 705387 MEAN 1927 MAX 48100 MIN 104 AC-FT 1399000
WTR YR 1989 TOTAL 630490 MEAN 1727 MAX 24500 MIN 263 AC-FT 1251000

e Estimated

ARKANSAS RIVER BASIN

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1952 to September 1963, June 1965 to January 1982.

WATER TEMPERATURE: October 1962 to September 1963, June 1965 to January 1982.

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
OCT 17...	1330	1028	1028	--	9.63	450	--	8.1	24.5	14.0	--
DEC 06...	1330	1028	80020	--	9.38	418	7100	8.4	13.0	9.0	3.9
JAN 04...	1330	1028	80020	--	9.24	446	*8380	8.5	10.0	8.0	1.2
MAR 28...	1000	1028	80020	--	11.86	4150	3370	7.8	19.0	18.5	920
MAY 03...	0930	1028	80020	--	8.69	322	7560	8.5	18.5	14.5	12
JUN 09...	1130	1028	80020	--	13.84	10600	1210	7.7	24.5	22.5	880
09...	1131	1028	1028	100	--	--	1210	7.7	--	22.5	--
09...	1132	1028	1028	170	--	--	1220	7.7	--	22.5	--
09...	1133	1028	1028	240	--	--	1220	7.7	--	22.5	--
09...	1134	1028	1028	310	--	--	1240	7.7	--	22.5	--
09...	1135	1028	1028	380	--	--	1200	7.7	--	22.5	--
JUL 28...	1130	1028	1028	--	9.36	783	5310	8.2	26.5	26.0	--
AUG 28...	1200	1028	80020	--	9.69	1100	5190	8.0	31.5	30.5	56

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
OCT 17...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	740	10.8	99	K12	K8	--	--	--	--	--	--
JAN 04...	740	13.4	--	K2	K2	660	390	160	64	1500	83
MAR 28...	740	4.4	49	K32000	K9100	320	200	74	32	600	80
MAY 03...	740	11.2	116	200	96	620	390	140	65	1300	82
JUN 09...	735	9.2	111	K10000	9800	170	74	46	14	170	67
09...	--	8.9	--	--	--	--	--	--	--	--	--
09...	--	9.1	--	--	--	--	--	--	--	--	--
09...	--	9.6	--	--	--	--	--	--	--	--	--
09...	--	9.6	--	--	--	--	--	--	--	--	--
09...	--	9.4	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 28...	740	7.1	99	K6	K10	590	390	150	51	930	77

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 17...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	5.0	344	0	282	430	2000	0.40	--	3910	--
JAN 04...	25	4.7	327	0	268	450	2400	0.30	6.1	4960	4750
MAR 28...	15	4.5	146	0	120	190	990	0.30	5.4	2010	1970
MAY 03...	23	5.6	261	7	226	430	2100	0.40	6.0	4430	4190
JUN 09...	6	5.6	120	0	98	110	260	0.30	9.9	692	678
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 28...	17	8.5	241	0	198	410	1500	0.40	14	3340	3190

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)
OCT 17...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	1.17	5.2	0.030	0.10	1.20	0.080	--	0.10
JAN 04...	6.75	5970	0.670	3.0	0.020	0.07	0.690	0.070	0.060	0.09
MAR 28...	2.73	22500	0.290	1.3	0.020	0.07	0.310	0.240	0.180	0.31
MAY 03...	6.02	3850	0.100	0.44	0.010	0.03	0.110	0.050	0.040	0.06
JUN 09...	0.94	19800	0.500	2.2	0.040	0.13	0.540	0.330	0.200	0.42
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--
AUG 28...	4.54	9920	0.320	1.4	0.010	0.03	0.330	0.040	0.040	0.05

ARKANSAS RIVER BASIN

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07161000 CIMARRON RIVER AT PERKINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)
OCT 17...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	0.62	0.70	0.380	0.350	0.310	0.95	<10	4	--
JAN 04...	0.08	0.73	0.80	0.270	0.240	0.210	0.64	--	--	--
MAR 28...	0.23	5.2	5.4	0.930	0.110	0.080	0.25	230	2	300
MAY 03...	0.05	1.4	1.4	0.340	0.200	0.150	0.46	10	5	200
JUN 09...	0.26	0.47	0.80	0.210	0.140	0.100	0.31	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--
AUG 28...	0.05	0.16	0.20	0.310	0.190	0.170	0.52	20	5	500
DATE	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT 17...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	1	--	<5	--	--	0.1
JAN 04...	--	--	--	--	--	--	--	--	--	--
MAR 28...	<10	<1.0	<1	<1	4	170	<5	10	140	0.2
MAY 03...	<10	<1.0	<1	<1	3	20	<5	40	50	0.7
JUN 09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--
AUG 28...	<10	1.0	3	1	12	30	<1	30	<10	0.2

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 17...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	2	2	<1.0	--	--	--	54	61	37
JAN 04...	--	--	--	--	--	--	--	269	324	2
MAR 28...	<1	5	<1	<1.0	1000	14	20	2410	27000	94
MAY 03...	4	1	1	<1.0	2100	34	20	60	52	59
JUN 09...	--	--	--	--	--	--	--	2350	67300	84
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
JUL 28...	--	--	--	--	--	--	--	--	--	--
AUG 28...	4	24	1	<1.0	1600	18	40	75	223	91

ARKANSAS RIVER BASIN

79

07161450 CIMARRON RIVER NEAR RIPLEY, OK

LOCATION.-- Lat 35°59'09", long 96°54'43", in SE 1/4 SE 1/4 sec.31, T.18 N., R.4 E., Payne County, Hydrologic Unit 11050003, on right bank at downstream side of bridge on State Highway 33, 2.2 mi upstream from Stillwater Creek, 2.5 mi south of Ripley, 2.8 mi downstream from Sand Creek, 7.0 mi east of Perkins, and at mile 79.2.

DRAINAGE AREA.-- 17,979 mi² of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 795.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 52,000 ft³/s, Apr. 2, 1988, gage height 20.42, minimum daily discharge, 127 ft³/s, Sept. 14, 1988.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 29	1700	19,800	16.28	Aug. 15	1700	*31,200	*18.31
June 15	0900	21,500	16.91	Sept. 14	0700	31,000	18.23
June 25	0600	21,500	16.92				

Minimum discharge, 269 ft³/s, Nov. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1000	315	438	541	864	868	4520	367	998	3870	784	628
2	e940	315	431	530	654	859	3400	352	1050	4180	694	888
3	e890	313	421	519	e585	870	2880	358	2910	3420	1060	1380
4	e905	310	405	506	e555	949	2310	1180	3930	2740	1330	3580
5	e900	303	392	503	e538	e940	1910	1490	6710	2590	959	3990
6	e835	289	389	484	e525	e930	1610	914	6920	2340	2290	12500
7	742	285	401	476	e518	965	1380	785	4310	2150	1680	4650
8	e700	289	404	456	e510	1170	1250	628	4290	2020	2200	2500
9	2550	287	390	454	e505	1120	1100	510	13200	1900	1480	2800
10	2010	279	397	449	e500	1140	1010	438	7020	1840	1130	1860
11	e1200	358	402	455	499	1090	924	418	4470	1890	948	1300
12	1000	1990	417	470	519	970	881	400	4500	1910	1060	1260
13	835	1190	421	441	535	908	831	433	8920	2010	1420	6850
14	701	2800	413	480	566	882	810	514	16700	2300	1220	26800
15	604	1670	398	466	737	828	778	1760	20700	2630	21700	13500
16	547	995	395	444	793	780	738	1790	13700	7530	17600	9740
17	496	706	389	448	877	760	722	4720	8420	8840	11700	8290
18	468	591	393	463	822	739	707	4410	5900	7790	9030	6410
19	455	631	397	459	738	683	689	e5050	4340	10800	6060	5100
20	448	1200	429	453	891	699	659	e7450	3620	e5600	5200	4200
21	438	889	429	424	1130	686	637	e12300	3200	e2450	4250	3430
22	481	658	474	426	972	651	587	16000	3010	e1600	3200	2870
23	626	663	473	419	986	633	552	5430	5190	e1380	2860	2440
24	514	625	479	429	956	620	532	3480	13100	e1280	3180	2000
25	442	571	477	452	867	614	495	2600	19000	e1370	1900	1670
26	398	547	471	696	864	587	474	2020	8600	e1270	1410	1460
27	368	534	525	732	865	776	443	1720	5950	e990	1250	1280
28	350	494	530	978	882	7020	424	1610	4720	952	1110	1160
29	335	479	528	952	---	17200	404	1400	5220	e885	920	1080
30	327	453	569	861	---	11700	384	1200	3870	e835	766	1000
31	316	---	570	1030	---	5900	---	1050	---	e810	731	---
TOTAL	22821	21009	13647	16896	20253	64537	34041	82777	215268	92172	111202	136616
MEAN	736	700	440	545	723	2082	1135	2670	7176	2973	3587	4554
MAX	2550	2800	570	1030	1130	17200	4520	16000	20700	10800	21700	26800
MIN	316	269	389	419	499	587	384	352	998	810	694	628
AC-FT	45270	41670	27070	33510	40170	128000	67520	164200	427000	182800	220600	271000

CAL YR 1988 TOTAL 784546 MEAN 2144 MAX 48400 MIN 127 AC-FT 1556000
WTR YR 1989 TOTAL 831239 MEAN 2277 MAX 26800 MIN 269 AC-FT 1649000

e Estimated

ARKANSAS RIVER BASIN

07163000 COUNCIL CREEK NEAR STILLWATER, OK

LOCATION.-- Lat 36°06'58", long 96°52'03", in NE 1/4 NW 1/4 sec.22, T.19 N., R.4 E., Payne County, Hydrologic Unit 11050003, on right bank downstream side of bridge on State Highway 51, 10.0 mi east of Stillwater, and at mile 10.0.

DRAINAGE AREA.-- 31 mi².

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

REVISED RECORDS.-- WSP 1211: Drainage area.

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

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 55 years, 11.8 ft³/s, 8,549 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 25,000 ft³/s, Oct. 2, 1959, gage height, 28.9 ft, present datum, from floodmarks, from rating curve extended above 2,500 ft³/s on basis of slope-area measurements at gage heights 13.4 ft and 17.5 ft; no flow at times most years.

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

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 28	0115	*1,620	*14.40	Sept. 13	0845	1,240	13.18
May 22	0730	1,410	13.73				

Minimum daily discharge, 0.14 ft³/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.7	.85	1.0	3.0	2.3	15	1.6	2.9	1.4	.35	.53
2	e1.0	1.9	1.0	.86	2.6	2.0	9.8	2.5	6.0	1.7	.34	.87
3	e.94	2.0	1.1	.76	2.0	2.1	7.5	4.3	11	2.0	.41	.85
4	e.92	2.0	1.1	.76	1.5	2.4	5.5	3.3	91	1.8	.49	163
5	e.88	1.9	1.2	.81	1.3	2.1	4.5	3.2	19	1.6	.46	16
6	1.8	1.9	1.2	.76	1.2	2.3	4.2	2.4	7.9	1.3	229	2.8
7	8.6	2.0	1.2	.76	1.2	4.2	4.1	2.0	5.1	1.1	4.7	1.4
8	4.4	2.9	1.2	.76	1.3	28	3.6	1.8	4.6	1.1	1.4	1.1
9	1.6	4.0	1.2	.80	1.4	19	3.2	1.7	4.5	1.0	.85	.75
10	1.3	4.4	1.1	.85	1.6	8.4	2.9	1.6	3.9	.98	.49	.66
11	1.3	6.3	1.2	.98	2.0	5.6	2.9	1.6	4.7	.72	.37	.65
12	1.4	88	1.3	.94	2.3	4.3	3.0	1.5	18	.68	.37	40
13	1.5	8.6	1.4	.77	2.7	3.4	2.8	1.6	125	1.1	.93	433
14	1.5	1.9	1.4	.98	3.3	2.8	2.9	3.4	28	2.9	48	21
15	1.5	1.4	1.4	1.1	7.4	2.4	3.0	33	8.2	1.6	8.0	3.5
16	1.5	1.4	1.2	1.1	10	1.9	3.2	15	4.8	1.1	1.9	1.1
17	1.7	1.7	1.2	1.1	6.5	1.8	3.0	152	3.4	.78	1.7	.49
18	1.6	1.8	1.3	1.2	4.9	1.7	2.6	33	2.5	.68	71	.29
19	1.4	3.9	1.4	1.1	4.7	1.8	2.4	12	2.0	.58	29	.22
20	1.4	136	1.3	1.1	21	1.8	2.5	6.3	1.8	.57	3.1	.18
21	1.4	35	1.3	1.0	22	1.7	2.7	4.7	1.6	.50	1.4	.14
22	1.5	16	1.6	1.1	5.7	1.7	2.8	375	8.4	.50	1.0	.19
23	e1.4	3.8	1.5	1.3	2.2	1.8	2.5	28	161	.73	.90	.32
24	e1.4	1.5	1.3	1.2	1.5	2.0	2.3	13	15	.76	.87	.35
25	e1.3	.59	1.3	1.2	1.5	2.1	2.2	7.9	4.8	.66	.80	.40
26	e1.3	.41	1.4	1.3	1.6	2.1	2.0	5.8	3.5	.58	.61	.50
27	e1.3	.30	1.3	1.1	1.8	96	2.0	4.8	9.7	.57	.51	.62
28	e1.3	.29	1.4	6.0	2.3	429	2.0	4.2	4.9	.51	.43	.66
29	e1.3	.42	1.1	18	---	23	1.9	3.8	2.0	.44	.37	.66
30	e1.2	.62	1.1	6.7	---	303	1.7	3.3	1.5	.43	.37	.60
31	e1.2	---	1.0	4.0	---	35	---	2.9	---	.37	.44	---
TOTAL	51.94	334.63	38.55	59.39	120.5	997.7	110.7	737.2	566.7	30.74	456.10	692.83
MEAN	1.68	11.2	1.24	1.92	4.30	32.2	3.69	23.8	18.9	.99	14.7	23.1
MAX	8.6	136	1.6	16	22	429	15	375	161	2.9	229	433
MIN	.88	.29	.85	.76	1.2	1.7	1.7	1.5	1.5	.37	.34	.14
AC-FT	103	664	76	118	239	1980	220	1460	1120	61	905	1370

CAL YR 1988 TOTAL 4259.86 MEAN 11.6 MAX 1430 MIN .00 AC-FT 8450
WTR YR 1989 TOTAL 4196.98 MEAN 11.5 MAX 433 MIN .14 AC-FT 8320

e Estimated

ARKANSAS RIVER BASIN

81

07164200 KEYSTONE LAKE NEAR SAND SPRINGS, OK

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

DRAINAGE AREA.-- 74,506 mi², of which 12,541 mi² is probably noncontributing.

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

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

REMARKS.-- Reservoir is formed by rolled-fill earth dam. Spillway is concrete ogee-type weir controlled by 18 40-foot taintor gates. Outlet works consist of nine sluices. Regulated storage began Sept. 11, 1964; power pool was first filled Nov. 20, 1964. Capacity, 1,738,000 acre-ft, at elevation 754.0 ft, top of flood control pool, 557,600 acre-ft, at elevation 723.0 ft, top of power pool, 260,900 acre-ft, at elevation 706.0 ft, minimum power pool. Figures given herein represent total contents. Reservoir is designed for flood control, power development, and conservation. Revised capacity table, based on survey in 1977, used since Oct. 1, 1983.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,886,000 acre-ft, Nov. 6, 1974, elevation, 754.86 ft; maximum elevation, 755.85 ft, Oct. 6, 1986; minimum since power pool was first filled, 297,800 acre-ft, Jan. 19, 1965, elevation, 705.07 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 829,000 acre-ft, Sept. 16, elevation 732.66 ft; minimum, 507,500 acre-ft, Oct. 28, elevation, 720.79 ft.

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

715	395,300	730	745,800
720	490,500	735	907,200
725	606,700	740	1,088,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	540200	512000	551800	546100	573400	585600	617500	546900	603100	675900	585900	595800
2	542500	511400	550800	548500	573400	589400	583600	550800	601100	672200	580000	608000
3	540200	513400	554800	548200	567400	595300	571900	550100	603100	666500	580500	615700
4	542200	512500	558300	549600	562400	597300	565400	555500	600000	658200	578500	622400
5	543400	513400	558100	550400	557800	600100	559300	553400	620300	652200	581000	636700
6	546600	514300	559000	551800	548500	590400	559300	557100	631900	645200	596600	661800
7	543400	513600	556900	550000	543600	584400	557200	560000	640100	640400	601100	662600
8	547300	514500	548900	553200	542900	585400	562800	558800	642000	639100	601900	654700
9	550600	514900	540600	550800	542500	589600	571500	556900	644900	636400	588400	647600
10	554300	515000	542900	548200	541500	589900	563500	553400	659800	632700	581700	640100
11	549400	516000	546200	549200	545200	586900	553600	548500	675300	627100	572900	632100
12	541300	524500	547500	548500	549300	586400	546600	545000	682300	624500	579700	634000
13	542200	529900	548700	548500	550800	585600	539300	547500	718800	620300	584200	688200
14	531300	531100	551000	550800	554100	585500	539600	549900	763800	617500	584400	776700
15	527200	539700	552500	549600	542900	584700	542900	548900	798000	616200	592800	825800
16	531100	538600	552900	550100	546600	580000	540400	549600	818400	624300	637200	825100
17	525900	541100	555300	550100	551300	577200	537400	559000	815200	640900	660700	797000
18	522900	542000	557600	543200	555300	579000	540200	571900	801800	647400	654400	761300
19	522500	548500	554100	538800	559500	581000	544800	570300	787600	652200	643300	727100
20	517800	554800	551100	532000	562600	570500	544800	566600	776700	653600	642800	715300
21	513200	556400	547100	536500	566400	557800	545400	568600	758300	661200	642300	717900
22	515800	556900	546400	541800	569500	554300	549200	596300	745900	668900	636100	713600
23	518300	554800	546100	539700	568300	548500	552900	611300	751000	663700	625300	701400
24	517400	553900	548700	540600	567900	538100	551300	614400	757100	657700	614100	690000
25	516500	554100	550800	544100	573400	540100	552900	617200	760700	651200	606700	682600
26	513200	556200	546800	550800	578500	542400	547500	618500	748600	646800	604400	663100
27	511000	556900	546600	552700	580000	542400	546100	615200	720900	641200	601400	652000
28	507700	555300	541300	559000	583700	578500	548900	613100	691600	641900	598100	650300
29	509500	556400	537900	570700	---	603900	548700	611800	675000	621100	595300	644900
30	511400	554800	539500	573700	---	645500	547100	605900	674500	608700	594300	634300
31	510500	---	542900	573000	---	648700	---	604600	---	595600	590600	---
MAX	554300	556900	559000	573700	583700	648700	617500	618500	818400	675900	660700	825800
MIN	507700	511400	537900	532000	541500	538100	537400	545000	601100	595600	572900	595800
(+)	720.93	722.88	722.37	723.64	724.08	726.60	722.55	724.92	727.54	724.56	724.36	726.06
(++)	-25,800	+44,300	-11,900	+30,100	+10,700	+65,000	-101,600	+57,500	+69,900	-78,900	-5,000	+43,700

CAL YR 1988 MAX 1044000 MIN 449100 (++) -253,200
WTR YR 1989 MAX 825800 MIN 507700 (++) +98,000

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK

LOCATION.-- Lat 36°08'26", long 96°00'22", in NE 1/4 SW 1/4 sec.11, T.19 N., R.12 E., Tulsa County, Hydrologic Unit 11110101, at right abutment on downstream side of 11th Street bridge in Tulsa, 10.1 mi upstream from Polecat Creek, 15.1 mi downstream from Keystone Dam, and at mile 523.7.

DRAINAGE AREA.-- 74,615 mi², of which 12,541 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 615.23 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 2, 1939, nonrecording gage and Feb. 2, 1939 to Sept. 30, 1952, water-stage recorder at datum 3.00 ft higher.

REMARKS.-- Records fair. Except for 109 mi² intervening area, flow completely regulated by Keystone Lake (station 07164200) since September 1964. Prior to September 1964, minor regulation by John Martin Lake in Colorado and by Great Salt Plains Lake (station 07150000). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Keystone Lake, 39 years (water years 1926-64), 6,554 ft³/s, 4,745,000 acre-ft/yr; since regulation by Keystone Lake, 25 years (water years 1965-89), 7,868 ft³/s, 5,700,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 307,000 ft³/s, Oct. 5, 1986, gage height, 25.21 ft; minimum, 27 ft³/s, Oct. 12, 13, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Maximum stage since 1904, 22.8 ft, June 13, 1923, present datum, from reports of National Weather Service.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 41,600 ft³/s, Sept. 17, gage height, 9.27 ft; minimum daily discharge, 70 ft³/s, Feb. 19, Apr. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2810	507	1630	262	2590	280	29600	1790	5600	14000	10700	13100
2	212	227	3580	217	5360	1520	29200	329	9550	14000	5820	13400
3	1960	1370	2360	599	4140	529	22700	157	10300	13700	8670	12100
4	512	267	147	1330	3580	992	7280	1020	9550	13500	4320	13300
5	407	1390	95	330	3650	1180	10100	600	10700	13600	7400	13600
6	886	187	1410	1570	6130	2570	3950	2020	6850	13600	6850	17300
7	2870	664	4440	960	4830	6420	7690	85	12600	13600	6110	29100
8	830	412	4890	2200	3360	3350	2350	77	11200	11300	8450	35000
9	200	855	6550	2100	2330	1790	346	3070	10300	11300	8160	33400
10	249	775	3630	2730	1960	2780	5330	2220	8320	11100	8230	32400
11	2500	1020	270	972	1540	2100	7370	2500	10500	12200	9010	31600
12	8670	1070	201	2870	124	3630	8740	3480	13700	10500	3030	31600
13	432	379	1110	1490	1060	1770	7410	2150	14100	11900	83	27100
14	6410	1080	1500	572	387	790	3070	105	13600	10500	3610	19600
15	4650	575	369	2170	6890	1410	3700	833	15700	9830	3990	25900
16	2180	847	656	1580	e1500	2920	1850	3900	21600	10400	11800	40800
17	2800	523	588	1330	e100	3610	5200	1790	23900	11500	15900	40900
18	3810	1250	242	3270	e00	1440	1770	1890	27200	13100	21500	40700
19	1220	2920	1700	11300	e70	363	746	6770	26600	12100	21600	40000
20	3110	2920	2430	4900	e1000	4080	418	7660	21800	7800	23500	31700
21	3850	4060	3520	5750	e1250	6630	3330	5440	21800	6940	15800	16700
22	1690	4130	3290	1170	1800	6320	741	7150	21000	1250	14000	16400
23	179	4110	3120	2290	2290	4930	356	12100	13900	9710	14100	16200
24	1220	4350	997	2930	3170	6420	2120	11300	13400	10900	13900	16300
25	781	4330	326	4480	2770	2130	115	10000	16400	10800	13700	14500
26	2140	2760	976	1430	252	257	3700	8090	23000	11000	13700	16400
27	3140	2000	4090	1070	171	2420	3210	6890	31200	10600	11600	16400
28	2370	3730	4880	3760	2230	5240	77	11100	31100	10200	12600	13300
29	1420	2120	3460	5240	---	7050	e70	8150	27300	10900	12000	13600
30	215	2260	3490	5310	---	14100	1200	8660	19700	11200	10900	15100
31	1050	---	431	8880	---	16800	---	7720	---	10500	12100	---
TOTAL	64773	53088	86378	85142	64614	115821	173739	139046	502470	343530	333133	698300
MEAN	2089	1770	2141	2747	2308	3736	5791	4485	16750	11080	10750	23280
MAX	8670	4350	6550	11300	6890	16800	29600	12100	31200	14000	23500	40900
MIN	179	187	95	217	70	257	70	77	5600	1250	83	12100
AC-FT	128500	105300	131700	168900	128200	229700	344600	275800	996600	681400	660800	1385000

CAL YR 1988 TOTAL 2925381 MEAN 7993 MAX 46000 MIN 75 AC-FT 5802000
WTR YR 1989 TOTAL 2640034 MEAN 7233 MAX 40900 MIN 70 AC-FT 5237000

e Estimated

ARKANSAS RIVER BASIN

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1977 to July 1985, October 1987 to September 1988.

WATER TEMPERATURE: March 1977 to July 1985, October 1987 to September 1988

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

REMARKS.-- Interruptions in daily record were due to malfunctions of the recording instrument. Prior to September 1985, once-daily observer's readings were published. Water-quality monitor records for these periods are available upon request at the District office. Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,820 microsiemens, Feb. 16, 1978; minimum daily, 518 microsiemens, July 27, 1977.

WATER TEMPERATURE: Maximum daily, 32.0°C, July 3-6, 14, 1978; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 3,500 microsiemens, May 19; minimum, 913 microsiemens Nov. 21.

WATER TEMPERATURE: Maximum, 31.5°C, Aug. 4, 5; minimum, 0.0°C, Feb. 4, 5, March 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
05...	1215	1028	80020	1.90	191	*1560	8.2	11.0	17.0	8.8	760	8.7
NOV												
30...	1145	1028	80020	2.23	780	1870	7.8	13.5	9.5	7.6	755	11.2
FEB												
27...	1345	1028	80020	1.85	174	2320	8.3	4.0	8.0	3.4	740	12.2
APR												
04...	1930	1028	80020	4.96	13700	*2100	8.2	21.5	15.0	8.0	750	10.6
JUN												
26...	1700	1028	80020	8.58	21700	1850	7.8	29.5	25.5	16	740	9.4
SEP												
26...	1500	1028	80020	5.08	14200	886	7.7	29.0	20.5	33	750	9.2

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS- IT FIELD MG/L AS HC03
OCT												
05...	--	20	300	240	100	59	22	220	66	6	3.4	168
NOV												
30...	99	200	110	240	100	80	21	230	87	7	8.0	165
FEB												
27...	107	42	K32	310	130	79	27	370	71	9	12	211
APR												
04...	--	K6	K4	280	140	72	24	330	72	9	4.5	174
JUN												
26...	119	K4	K4	220	96	58	17	270	73	8	5.7	146
SEP												
26...	104	35	200	140	51	41	10	120	63	4	5.5	113

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS NO3)
OCT 05...	0	138	130	320	2.2	3.6	870	845	1.18	449	0.490	2.2
NOV 30...	0	135	130	360	1.2	4.2	910	898	1.24	1920	0.680	3.0
FEB 27...	4	180	160	600	1.7	4.1	1330	1360	1.81	825	0.300	1.3
APR 04...	0	143	140	490	0.30	2.7	1160	1150	1.58	42900	0.140	0.62
JUN 26...	0	120	120	420	0.30	6.6	1020	973	1.39	59800	0.490	2.2
SEP 26...	0	93	85	180	0.50	6.7	500	489	0.68	19200	0.850	3.8
DATE	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 05...	0.010	0.03	0.500	0.110	0.110	0.14	0.14	1.3	1.4	0.090	--	0.090
NOV 30...	0.010	0.03	0.690	0.070	0.090	0.09	0.12	0.63	0.60	0.150	0.130	0.110
FEB 27...	0.020	0.07	0.320	0.370	0.360	0.48	0.46	1.0	1.4	0.190	0.120	0.070
APR 04...	0.010	0.03	0.150	0.150	0.130	0.19	0.17	0.55	0.70	0.060	0.030	0.010
JUN 26...	0.020	0.07	0.510	0.080	0.050	0.10	0.06	0.42	0.50	0.100	0.080	0.080
SEP 26...	0.030	0.10	0.880	0.020	0.030	0.03	0.04	0.58	0.60	0.160	0.100	0.110
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 05...	0.28	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	0.34	<10	2	120	<0.5	<1.0	1	<3	4	4	<5	14
FEB 27...	0.21	20	2	200	<10	<1.0	2	<1	2	20	<5	20
APR 04...	0.03	--	--	--	--	--	--	--	--	--	--	--
JUN 26...	0.25	20	3	130	<0.5	<1.0	<1	<3	5	12	1	11
SEP 26...	0.34	30	2	92	<0.5	<1.0	1	<3	2	31	<1	7

ARKANSAS RIVER BASIN

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07164500 ARKANSAS RIVER AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 05...	--	--	--	--	--	--	--	--	--	21	11	73
NOV 30...	10	0.1	<10	5	<1	<1.0	670	<6	16	10	21	90
FEB 27...	110	<0.1	3	<1	<1	<1.0	960	7	10	8	3.8	56
APR 04...	--	--	--	--	--	--	--	--	--	28	1040	59
JUN 26...	7	<0.1	<10	5	<1	<1.0	640	<6	8	26	1520	63
SEP 26...	5	0.1	<10	1	<1	<1.0	390	<6	23	34	1300	74

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1590	1560	1570	1530	1470	1500	1650	1610	1630	1970	1810	1930
2	1570	1550	1560	1560	1530	1540	1620	1600	1610	1930	1880	1900
3	1590	1540	1550	1600	1550	1570	1620	1590	1620	2130	1770	1920
4	1640	1590	1620	1620	1460	1560	1640	1570	1600	2350	2130	2280
5	1610	1380	1530	1560	1310	1470	1620	1550	1580	2370	2300	2330
6	1530	1510	1520	1630	1560	1590	1680	1560	1640	2360	2200	2320
7	1520	1480	1500	1630	1440	1560	1720	1600	1690	2320	2140	2270
8	1540	1490	1520	1640	1610	1620	1800	1690	1730	2320	2260	2280
9	1550	1540	1540	1660	1570	1630	1720	1680	1690	2430	2180	2310
10	1550	1510	1530	1640	1620	1620	1740	1690	1710	2680	2390	2500
11	1550	1460	1520	1640	1400	1600	1710	1680	1700	2640	2550	2590
12	1470	1440	1450	1390	1110	1290	1700	1640	1680	2670	2380	2540
13	1530	1420	1470	1270	1220	1230	1900	1640	1800	2370	2240	2320
14	1580	1540	1560	1470	1250	1360	2050	1880	1990	2340	2140	2260
15	1620	1540	1570	1590	1380	1470	2070	2040	2060	2490	2180	2340
16	1600	1570	1580	1610	1550	1570	2080	1980	2040	2490	2370	2460
17	1620	1580	1590	1600	1590	1590	2020	2000	2010	2560	2380	2480
18	1580	1540	1560	1610	1580	1600	2030	1950	1990	2740	2420	2620
19	1550	1520	1540	1610	1050	1500	2170	1850	1950	2700	2520	2610
20	1550	1520	1540	1360	928	1160	2220	2120	2190	2690	2560	2630
21	1540	1500	1520	1450	913	1050	2170	1990	2050	2690	2500	2590
22	1520	1500	1510	1560	1460	1510	2020	1960	2000	2520	2340	2420
23	1520	1490	1510	1610	1560	1570	2000	1890	1960	3150	2260	2500
24	1510	1460	1490	1640	1610	1620	2090	1950	2040	3240	3100	3190
25	1470	1440	1460	1680	1570	1660	2090	1990	2040	3100	1790	2260
26	1460	1420	1440	1710	1640	1680	2230	1930	2020	2310	1970	2100
27	1450	1420	1430	1720	1700	1710	2230	1790	2040	2550	1970	2220
28	1440	1430	1440	1710	1620	1660	2020	1910	1960	2680	1910	2420
29	1460	1440	1450	1680	1620	1650	2010	1970	1990	2630	2460	2560
30	1470	1450	1460	1680	1650	1670	2030	1970	2000	2450	2080	2300
31	1480	1450	1460	---	---	---	2000	1900	1970	2740	2630	2690
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	2710	2490	2610	2510	2410	2470	2160	2110	2130	---	---	---
2	2650	2570	2600	2700	2370	2600	2190	2080	2130	---	---	---
3	2570	2130	2400	2810	2740	2630	2130	2070	2100	2160	2050	2110
4	2100	2050	2060	2610	2410	2480	2140	2060	2100	---	---	---
5	2140	2040	2070	2590	2260	2510	2060	2020	2050	---	---	---
6	2200	2130	2150	2580	2190	2460	2030	1960	2000	2100	2020	2050
7	2280	2150	2190	2280	2160	2230	1990	1920	1950	---	---	---
8	2290	2240	2270	2330	2200	2270	2000	1950	1980	---	---	---
9	2240	2150	2190	2250	1910	2110	2020	1990	2000	---	---	---
10	2210	2170	2190	2360	1550	2090	2000	1920	1970	2500	2400	2430
11	2240	2210	2220	2540	2270	2480	1920	1830	1880	2590	1170	2390
12	2240	2150	2210	2760	2350	2680	1990	1870	1920	2630	2520	2560
13	2160	1960	2080	---	---	---	2100	1990	2030	3290	2600	2670
14	2210	1830	2080	---	---	---	2120	2090	2100	2600	2340	2520
15	2090	1710	1890	---	---	---	2220	2100	2190	---	---	---
16	2160	530	1810	3210	3080	3170	2580	2070	2230	---	---	---
17	2220	2140	2190	3090	2890	3000	2630	2530	2600	2700	2460	2650
18	2150	2010	2090	2980	2860	2950	2640	2600	2620	---	---	---
19	2000	1830	1910	2940	2660	2820	---	---	---	3500	2600	2740
20	1830	1670	1760	---	---	---	2600	2430	2530	2620	2350	2530
21	2660	1640	2410	2590	2310	2380	2660	2530	2600	2500	2440	2470
22	2690	2530	2600	2340	2250	2310	2580	2430	2540	2510	2190	2360
23	2700	2550	2640	2370	2270	2330	2500	2440	2460	2390	2290	2360
24	2710	2640	2670	2380	2260	2340	2570	2300	2450	---	---	---
25	2710	2630	2680	2420	2340	2390	---	---	---	---	---	---
26	2630	2470	2560	---	---	---	---	---	---	3140	2790	2940
27	2490	2280	2340	---	---	---	2400	2310	2360	3130	2810	2970
28	2510	2180	2430	2380	1810	2230	---	---	---	3320	2970	3150
29	---	---	---	2450	2330	2400	---	---	---	3290	3190	3240
30	---	---	---	2450	1910	2200	2810	2310	2430	3210	3110	3170
31	---	---	---	2170	2010	2090	---	---	---	3120	2900	3000

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	2910	2720	2800	1750	1670	1710	1850	1700	1770	1110	1080	1090
2	2770	2550	2690	1870	1670	1760	1770	1640	1680	1090	1050	1070
3	2670	2370	2500	1830	1740	1780	1760	1660	1720	1090	1070	1080
4	2670	2560	2620	1780	1730	1750	1770	1710	1730	1070	1050	1060
5	2750	2610	2690	1780	1710	1750	1770	1590	1700	1100	1050	1070
6	2930	2590	2720	1710	1640	1660	1650	1550	1580	1120	1090	1110
7	3140	2320	2890	1680	1620	1650	1550	1330	1490	1100	1060	1080
8	2930	2540	2790	1760	1670	1700	1350	1220	1300	1150	1070	1110
9	3050	2810	2890	1890	1760	1840	1490	1300	1350	1200	1160	1180
10	3040	2800	2930	1880	1760	1840	1570	1340	1480	1210	1150	1180
11	3050	2590	2810	1750	1580	1650	1700	1440	1600	1200	1130	1170
12	2780	2560	2670	1590	1550	1570	1680	1540	1630	1130	1080	1110
13	2770	2190	2510	1560	1500	1530	---	---	---	1070	997	1020
14	2560	2340	2490	1690	1510	1590	1800	1430	1660	1050	975	997
15	2520	2240	2440	1790	1680	1730	1810	1690	1750	1060	1020	1040
16	2280	2220	2250	1670	1620	1640	1740	1560	1640	1160	1080	1140
17	2280	2200	2230	1680	1560	1640	1610	1510	1550	1180	1090	1130
18	2210	1900	2060	1770	1670	1730	1650	1510	1580	1090	1030	1060
19	1910	1880	1890	1730	1600	1670	1570	1360	1490	1110	966	1000
20	1910	1880	1890	1790	1620	1700	1390	1030	1230	1050	947	985
21	2030	1870	1930	1820	1640	1730	1330	1170	1260	1100	1020	1060
22	2070	1940	2020	1880	1760	1790	1250	1180	1210	1150	1050	1100
23	2240	1980	2100	2100	1900	2020	1180	1120	1150	1140	965	1060
24	2330	2190	2260	1890	1790	1850	1120	1070	1100	1080	981	1050
25	2310	1920	2180	1780	1730	1750	1100	1070	1090	1150	1070	1110
26	2020	1840	1890	1990	1760	1860	1090	1070	1080	1150	1090	1110
27	1980	1690	1840	2160	2000	2070	1090	1040	1070	1360	1090	1210
28	1780	1670	1730	2260	2050	2130	1070	1020	1050	1450	1370	1420
29	1710	1650	1690	2070	1960	2020	1080	1030	1050	1430	1380	1410
30	1760	1670	1700	2080	1920	2010	1060	1010	1040	1430	1370	1400
31	---	---	---	1920	1850	1880	1120	985	1070	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	22.5	21.0	21.5	18.0	15.5	17.0	11.0	9.0	10.0	8.5	6.5	7.5
2	22.5	19.5	20.5	18.5	15.5	17.0	11.5	10.0	10.5	8.5	7.5	8.0
3	---	---	---	18.0	16.5	17.5	12.0	10.5	11.5	10.0	7.5	9.0
4	22.0	19.5	21.0	19.0	16.5	18.0	11.5	9.5	10.5	8.0	7.0	7.5
5	19.0	14.5	17.0	17.0	12.5	14.0	11.0	8.0	9.5	11.0	7.0	9.0
6	17.0	15.5	16.5	14.0	11.5	13.0	10.5	8.5	10.0	9.5	8.0	9.0
7	19.5	15.0	16.5	15.5	12.0	14.0	11.0	8.5	10.5	11.0	7.0	9.5
8	19.0	17.5	18.5	15.5	14.0	15.0	8.5	7.5	8.0	7.0	5.0	5.5
9	17.5	16.5	17.0	18.5	14.0	15.5	9.0	7.5	8.5	6.5	4.5	5.5
10	19.5	15.5	17.5	16.5	14.0	15.5	8.5	7.5	8.5	7.5	5.5	6.5
11	19.5	18.0	19.0	14.0	13.0	13.5	7.5	6.0	7.0	---	---	---
12	21.0	17.5	19.5	15.0	13.0	14.0	6.5	5.5	6.5	9.0	5.5	6.5
13	---	---	---	15.0	13.0	14.0	9.0	5.5	7.5	6.0	4.5	5.5
14	20.0	16.5	18.5	16.5	13.0	15.0	10.0	8.5	9.5	7.0	5.0	6.0
15	20.5	17.5	19.0	18.5	14.5	17.5	9.0	5.0	7.0	5.5	5.0	5.5
16	21.0	18.5	20.0	14.0	11.5	12.5	6.0	3.5	5.0	7.0	5.0	6.0
17	23.0	20.5	22.0	12.5	11.0	11.5	7.0	5.5	6.0	8.0	5.5	6.5
18	20.5	17.0	18.0	12.0	10.5	11.0	8.5	5.5	7.0	9.5	6.5	8.0
19	17.5	15.5	17.0	12.0	8.0	11.0	10.0	7.5	8.5	9.0	6.0	7.0
20	18.5	17.0	17.5	8.5	7.5	8.0	10.0	9.0	9.5	7.5	5.5	6.5
21	20.5	17.5	19.0	11.5	7.5	9.0	9.0	7.0	8.5	7.0	5.0	6.0
22	19.0	17.0	18.5	12.5	10.0	11.5	10.5	8.5	9.5	8.0	6.0	7.0
23	19.0	17.0	18.5	12.5	10.5	11.5	9.0	7.0	8.0	8.5	5.0	7.5
24	19.5	15.5	18.0	13.5	10.5	12.0	8.0	7.0	7.5	9.5	7.0	8.0
25	18.5	17.0	18.0	14.5	13.0	13.5	9.0	7.0	8.0	9.0	7.5	8.0
26	18.0	16.0	17.0	13.0	11.5	12.0	11.0	8.0	9.0	---	---	---
27	17.5	16.5	17.0	11.0	9.5	10.5	10.5	6.0	8.0	8.5	5.0	6.5
28	16.5	14.0	15.0	10.5	8.5	9.5	7.0	5.0	6.0	7.5	7.0	7.0
29	15.5	14.5	15.0	10.5	9.0	9.5	6.5	5.5	6.0	8.0	7.0	7.5
30	14.5	14.0	14.5	10.5	9.0	10.0	8.0	6.0	7.0	10.5	7.0	8.5
31	17.5	13.5	15.0	---	---	---	---	8.5	7.0	8.0	9.5	6.5
												8.0

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	
FEBRUARY			MARCH			APRIL			MAY				
1	9.5	5.5	7.5	9.5	5.5	7.0	13.5	11.0	12.0	---	---	---	
2	5.5	3.5	4.5	9.0	5.5	7.0	14.5	12.0	13.0	---	---	---	
3	3.0	.5	1.5	---	---	---	15.5	12.5	14.0	17.0	14.0	15.5	
4	1.5	.0	1.0	9.5	2.0	5.0	15.5	13.0	14.0	19.5	16.0	17.0	
5	2.5	.0	1.5	2.0	.0	.5	15.5	12.5	14.0	---	---	---	
6	3.5	1.0	2.0	2.5	.0	1.0	16.5	12.5	14.5	19.5	16.5	18.0	
7	4.5	1.5	3.0	6.0	1.5	4.0	16.5	13.0	15.0	---	---	---	
8	5.0	3.0	4.0	8.0	3.5	5.5	15.0	13.0	14.0	---	---	---	
9	5.0	2.0	3.5	9.0	4.5	6.5	13.5	10.5	12.5	21.0	17.5	19.0	
10	6.5	3.5	5.0	11.0	6.0	8.5	15.0	9.0	12.0	22.5	16.5	19.0	
11	6.5	4.5	5.5	---	---	---	15.0	11.5	13.0	20.0	17.0	18.5	
12	7.0	5.5	6.0	12.0	6.5	9.5	16.0	12.5	14.5	18.5	17.5	17.5	
13	7.0	5.0	6.0	---	---	---	15.0	13.0	14.0	19.5	17.0	18.0	
14	5.0	4.5	5.0	---	---	---	16.0	13.5	14.5	---	---	---	
15	5.0	3.5	4.0	12.0	6.0	9.0	---	---	---	---	---	---	
16	4.0	2.5	3.5	11.0	7.0	9.0	---	---	---	---	---	---	
17	4.5	4.0	4.5	13.0	8.5	10.5	19.5	15.0	16.5	---	---	---	
18	7.5	4.0	5.5	11.0	7.0	9.0	18.0	15.5	16.5	23.0	19.0	20.5	
19	7.0	6.0	6.5	11.0	8.5	9.5	---	---	---	22.5	18.0	20.0	
20	7.5	7.0	7.0	10.0	6.5	9.0	19.0	17.0	18.0	23.5	19.5	21.0	
21	6.5	4.5	5.5	9.0	5.5	7.5	20.5	15.0	17.5	23.5	20.0	21.0	
22	6.0	3.0	4.5	10.5	6.0	8.5	23.0	18.5	20.5	25.0	20.0	22.0	
23	5.0	1.5	3.5	11.0	7.5	9.5	---	---	---	25.0	19.5	22.0	
24	6.5	2.5	4.5	11.5	8.5	10.0	---	---	---	---	---	---	
25	8.5	4.0	6.5	14.5	9.0	11.5	---	---	---	---	---	---	
26	---	---	---	---	---	---	---	---	---	23.0	21.0	22.0	
27	8.5	7.5	8.0	---	---	---	22.0	18.0	20.0	24.5	19.5	22.0	
28	7.5	4.5	5.5	15.5	11.5	13.5	---	---	---	25.5	21.0	23.0	
29	---	---	---	14.5	10.5	12.0	---	---	---	25.0	22.0	23.5	
30	---	---	---	12.0	10.5	11.5	20.0	17.0	18.5	25.5	21.5	23.5	
31	---	---	---	---	13.5	10.0	11.5	---	---	---	25.5	22.0	23.5
											25.5	22.0	23.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	
JUNE			JULY			AUGUST			SEPTEMBER				
1	23.5	22.0	22.5	28.5	25.0	26.5	30.0	27.0	28.5	29.0	26.5	28.0	
2	26.0	22.0	23.5	26.5	25.0	26.0	29.5	27.0	28.5	29.0	26.5	27.5	
3	25.0	22.0	23.5	29.0	25.5	27.0	30.0	27.0	28.0	29.0	26.5	27.5	
4	25.0	22.0	23.5	29.5	25.5	27.5	31.5	26.5	29.0	27.5	27.0	27.0	
5	24.5	22.5	23.5	30.5	26.0	28.0	31.5	27.0	29.0	28.0	26.5	27.0	
6	25.5	22.0	24.0	30.0	26.0	28.0	30.0	26.5	28.0	29.5	26.5	28.0	
7	23.5	22.5	23.0	30.0	26.0	28.0	28.5	25.0	27.0	29.0	27.0	28.0	
8	26.5	22.5	24.5	30.0	26.0	28.0	29.5	25.0	27.0	29.0	27.5	28.0	
9	25.0	23.0	24.0	30.5	26.5	28.5	29.5	25.0	27.0	27.5	26.5	27.5	
10	26.0	23.0	24.5	30.5	26.5	28.5	28.0	25.5	27.0	27.5	26.0	26.5	
11	26.0	23.0	24.5	29.5	26.5	28.0	29.0	25.5	27.0	26.5	25.5	26.5	
12	27.0	23.5	25.0	29.5	26.5	28.0	28.0	25.5	27.0	25.5	24.5	25.5	
13	25.0	23.5	24.0	30.0	27.0	28.5	26.5	23.5	25.5	24.5	23.0	24.0	
14	26.0	23.0	24.5	---	---	---	27.5	24.0	25.5	24.0	23.0	23.5	
15	25.0	22.5	23.5	---	---	---	29.0	25.0	27.0	24.5	23.5	24.0	
16	26.0	22.5	24.0	---	---	---	28.0	26.0	27.0	24.0	22.0	23.5	
17	25.5	23.0	24.0	---	---	---	28.5	26.0	27.0	22.5	20.5	21.5	
18	26.0	23.5	24.5	---	---	---	28.0	26.0	27.0	21.5	20.0	20.5	
19	26.5	23.5	25.0	---	---	---	27.5	25.5	26.5	21.5	19.5	20.5	
20	27.0	23.5	25.0	29.5	26.0	27.5	28.0	23.5	26.0	21.5	19.5	20.5	
21	27.0	24.0	25.0	29.5	26.0	28.0	28.5	25.5	27.0	22.0	19.0	20.5	
22	25.5	24.0	24.5	29.5	26.5	28.0	29.0	25.5	27.0	21.0	19.5	20.5	
23	27.0	23.0	24.5	30.0	26.5	28.0	29.5	25.5	27.5	20.0	18.0	19.5	
24	27.5	24.0	25.5	29.5	26.5	28.0	29.5	26.0	27.5	21.5	18.0	19.5	
25	27.5	24.0	25.5	30.0	26.5	28.0	29.0	26.0	27.0	22.0	18.5	20.0	
26	26.5	24.5	25.5	29.5	27.0	28.0	29.0	26.0	27.5	22.0	19.0	20.5	
27	26.0	24.5	25.5	30.5	27.0	28.5	29.5	26.0	27.5	22.0	19.0	20.5	
28	27.0	25.0	26.0	29.5	27.0	28.0	29.5	26.5	28.0	22.5	19.0	20.5	
29	27.5	25.0	26.0	31.0	27.0	29.0	29.0	26.5	27.5	22.0	19.0	20.5	
30	28.5	25.0	26.5	31.5	27.0	29.0	29.5	26.5	28.0	22.0	19.0	20.5	
31	---	---	---	29.0	27.0	28.0	30.0	26.5	28.0	---	---	---	

ARKANSAS RIVER BASIN

89

07165000 HEYBURN LAKE NEAR HEYBURN, OK

LOCATION.-- Lat 35°56'49", long 96°17'54", in SE 1/4 SE 1/4 sec.13, T.17 N., R.9 E., Creek County, Hydrologic Unit 11110101, at intake structure at right abutment of Heyburn Dam on Polecat Creek, 2.5 mi northwest of Heyburn, 3.5 mi upstream from bridge on U.S. Highway 66, 11.0 mi southwest of Sapulpa, and at mile 48.6.

DRAINAGE AREA.-- 123 mi².

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

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

REMARKS.-- Reservoir is formed by an earth dam. Outlet works consist of an 8-foot, 3-inch diameter concrete conduit extending from an uncontrolled concrete drop inlet at the upstream side of dam at a concrete stilling basin near downstream toe of dam and three, 36-inch gated lowflow pipes which drain into the conduit below the drop inlet. Spillway is 200-foot channel in a natural saddle about 1,000 ft west of right abutment. Storage began Sept. 29, 1950; conservation pool was first filled Mar. 10, 1951. Capacity, 147,600 acre-ft, at elevation 802.0 ft maximum pool, 55,400 acre-ft, at elevation 784.0 ft, spillway crest and top of flood control pool, and 7,105 acre-ft, at elevation 761.5, conservation pool. Dead storage, 293 acre-ft, below elevation 740.0 ft, invert of lowflow sluices. Reservoir was designed for flood control and conservation. Figures given herein represent total contents. Revised capacity table, based on survey in 1978, used since Oct. 1, 1984.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 32,210 acre-ft, Nov. 4, 1974, elevation, 776.85 ft; minimum since conservation pool was first filled, 4,070 acre-ft, May 8, 9, 1981, elevation 757.95 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 9,340 acre-ft, Jan. 25, elevation, 763.77 ft; minimum, 6,340 acre-ft, Sept. 30, elevation 760.59 ft.

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

760	5,880	770	17,820
765	10,770	775	27,970

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7290	6940	7390	7490	7870	7540	7990	7190	7250	7250	6950	6980
2	7260	6930	7360	7470	7730	7510	7840	7330	7360	7360	6920	6970
3	7230	6930	7330	7440	7620	7590	7730	7420	7360	7360	6910	6950
4	7190	6920	7310	7420	7530	7960	7670	7710	7330	7330	6880	6950
5	7190	6890	7280	7410	7470	7900	7580	7670	7290	7290	6930	6940
6	7200	6870	7270	7380	7430	7810	7510	7590	7290	7270	7540	6930
7	7220	6860	7280	7370	7390	7780	7470	7500	7510	7230	7440	6920
8	7220	6850	7270	7360	7360	8230	7440	7450	7450	7210	7360	6890
9	7220	6860	7270	7340	7360	9070	7430	7410	7420	7180	7310	6860
10	7200	6860	7250	7320	7340	8900	7400	7380	7390	7140	7270	6850
11	7190	7020	7250	7330	7340	8500	7370	7350	7470	7120	7240	6800
12	7180	8020	7250	7300	7340	8200	7370	7340	7510	7120	7210	6890
13	7150	7840	7250	7300	7420	8000	7350	7340	7890	7100	7200	8180
14	7130	7680	7320	7320	8090	7860	7350	7390	7850	7100	7270	7420
15	7140	7590	7310	7320	8880	7720	7350	7620	7700	7090	7270	6710
16	7130	7500	7290	7320	8510	7660	7350	7780	7590	7090	7270	6590
17	7120	7440	7290	7320	8240	7580	7340	7720	7520	7110	7260	6510
18	7100	7390	7280	7320	8070	7530	7360	8170	7460	7110	7230	6480
19	7090	7790	7280	7270	7920	7480	7350	8010	7410	7100	7200	6480
20	7090	8430	7280	7240	8040	7460	7330	7830	7360	7070	7210	6470
21	7090	8160	7280	7230	8110	7440	7330	7700	7340	7050	7200	6470
22	7070	7900	7320	7230	7950	7420	7320	8830	7330	7040	7190	6450
23	7050	7720	7370	7220	7790	7390	7310	8430	7550	7040	7170	6410
24	7040	7620	7380	7220	7700	7370	7290	8100	7510	7030	7140	6410
25	7020	7610	7350	9300	7650	7370	7290	7860	7440	7010	7120	6400
26	7010	7800	7370	8720	7580	7370	7280	7730	7390	7000	7100	6380
27	7000	7690	7540	8280	7570	7410	7270	7630	7360	6980	7080	6360
28	6980	7560	7570	9140	7560	8550	7270	7520	7330	7030	7060	6360
29	6970	7500	7560	8770	---	8300	7240	7450	7290	7020	7040	6350
30	6970	7440	7530	8340	---	8310	7220	7410	7270	7000	7010	6340
31	6950	---	7510	8060	---	8170	---	7380	---	6970	6990	---
MAX	7290	8430	7570	9300	8880	9070	7990	8830	7890	7360	7540	8180
MIN	6950	6850	7250	7220	7340	7370	7220	7190	7250	6970	6880	6340
(+)	761.32	761.87	761.95	762.53	762.01	762.65	761.63	761.81	761.68	761.34	761.37	760.59
(++)	-370	+490	+70	+550	-500	+610	-950	+160	-110	-300	+20	-650

CAL YR 1988 MAX 16510 MIN 6160 (++) -730
WTR YR 1989 MAX 9300 MIN 6340 (++) -980

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

ARKANSAS RIVER BASIN

07165562 HAIKEY CREEK AT 101ST STREET SOUTH AT TULSA, OK.

LOCATION.-- Lat 36°01'01", long 95°50'55", in NW 1/4 NW 1/4 sec.29, T.18 N., R.14 E., Tulsa County, Hydrologic Unit 11110101, near right downstream abutment of 101st Street South bridge, 1.0 mi downstream from right bank unnamed tributary, 2.0 mi upstream from Little Haikey Creek, and at mile 6.4.

DRAINAGE AREA.-- 17.8 mi².

PERIOD OF RECORD.-- January 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 617.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 5,890 ft³/s, Aug. 20, 1989, gage height, 17.28 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 5,890 ft³/s, Aug. 20, gage height, 17.28 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.00	2.1	5.0	3.7	4.0	7.2	4.7	2.2	2.3	2.3	.07
2	.00	.00	2.1	2.4	4.2	3.4	5.2	5.5	20	33	2.2	21
3	.00	.00	2.1	1.7	4.1	3.2	4.3	7.2	53	9.4	3.6	4.7
4	.00	.00	2.1	1.1	3.1	8.0	3.9	22	26	3.2	3.2	4.5
5	3.1	.00	2.1	1.1	2.9	4.6	3.0	5.6	7.4	2.4	2.2	4.8
6	11	.00	2.1	1.5	2.8	4.1	3.9	4.3	3.7	2.3	14	1.1
7	6.3	.00	2.5	1.8	2.8	4.8	3.9	3.8	3.1	2.1	3.6	.03
8	2.0	.00	3.3	1.7	3.2	37	4.3	3.7	3.0	1.9	1.8	.00
9	.37	.00	3.0	1.5	3.3	147	3.1	3.7	2.7	1.8	1.1	.00
10	.00	.18	2.7	1.4	3.6	259	1.8	3.8	1.9	1.8	.16	.00
11	.15	2.1	2.4	1.4	4.0	65	3.2	3.7	151	1.8	.00	.00
12	.00	301	2.9	1.4	5.9	16	4.2	3.5	319	1.8	.00	81
13	.00	5.7	3.2	1.4	117	7.6	4.3	3.7	398	1.8	.00	569
14	.00	2.5	2.9	3.0	189	5.6	9.2	4.0	26	5.7	4.8	16
15	.00	3.8	2.7	3.7	237	4.2	6.0	5.4	6.3	3.2	3.7	7.1
16	.00	4.0	2.4	2.1	29	3.4	4.6	8.4	3.7	3.5	2.1	3.5
17	.00	1.6	2.2	.72	13	3.7	4.8	36	2.8	105	1.7	2.1
18	.00	.37	2.2	1.3	15	3.8	16	201	1.7	12	.87	1.5
19	.00	11	2.2	1.5	7.4	3.6	7.2	14	1.3	5.4	.07	1.1
20	.00	91	6.5	1.4	77	3.8	4.5	5.1	1.1	4.4	1460	.40
21	.00	5.0	1.8	1.9	36	2.9	5.1	4.3	1.3	3.8	14	.00
22	.00	2.2	51	2.2	8.8	2.2	4.4	48	1.2	3.2	3.9	.00
23	.00	1.7	9.8	2.4	5.3	2.8	4.5	5.9	27	3.2	2.1	.00
24	.00	1.7	2.3	2.4	4.6	3.2	4.8	3.7	4.5	5.2	1.6	.00
25	.00	125	1.4	228	4.2	3.1	4.8	3.5	2.3	3.9	.50	.13
26	.00	81	1.1	22	3.9	3.8	5.0	4.7	1.9	3.4	.01	.00
27	.00	3.9	258	4.0	9.7	4.4	4.7	4.5	2.5	2.6	.00	.00
28	.00	2.2	17	172	6.3	234	5.0	3.4	7.3	2.5	.00	.00
29	.00	1.7	4.0	26	---	13	4.6	3.1	2.1	2.5	5.3	.00
30	.00	2.1	3.8	5.2	---	59	4.5	2.8	2.1	2.4	3.7	.00
31	.00	---	5.6	3.2	---	24	---	2.4	---	2.4	.48	---
TOTAL	23.07	649.75	409.5	506.42	806.8	944.2	152.0	435.4	1086.1	239.9	1538.99	718.03
MEAN	.74	21.7	13.2	16.3	28.8	30.5	5.07	14.0	36.2	7.74	49.6	23.9
MAX	11	301	258	228	237	259	16	201	398	105	1460	569
MIN	.00	.00	1.1	.72	2.8	2.2	1.8	2.4	1.1	1.8	.00	.00
AC-FT	46	1290	812	1000	1600	1870	301	864	2150	476	3050	1420
CFSM	.04	1.22	.74	.92	1.62	1.71	.28	.79	2.03	.43	2.79	1.34
IN.	.05	1.36	.86	1.06	1.69	1.97	.32	.91	2.27	.50	3.22	1.50

WTR YR 1989 TOTAL 7510.16 MEAN 20.6 MAX 1460 MIN .00 AC-FT 14900 CFSM 1.16 IN. 15.70

ARKANSAS RIVER BASIN

91

07165665 LITTLE HAIKEY CREEK AT 101ST STREET SOUTH AT TULSA, OK.

LOCATION.-- Lat 36°01'03", long 95°51'38", in SE 1/4 SW 1/4 sec.19, T.18 N., R.14 E., Tulsa County, Hydrologic Unit 11110101, near right downstream abutment of 101st Street South bridge, and at mile 2.0.

DRAINAGE AREA.-- 5.45 mi².

PERIOD OF RECORD.-- October 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 626.21 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 1,090 ft³/s, Aug. 20, 1989, gage height 16.20 ft.; no flow at times each year.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,090 ft³/s, Aug. 20, gage height, 16.20 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.05	.00	1.2	.75	.96	1.1	2.2	.99	.89	.77	.11	.48
2	e.00	.00	.65	.50	.92	.96	2.0	3.4	8.5	25	.09	14
3	e.00	.00	.46	.42	.67	1.0	1.9	2.3	16	3.1	.08	1.6
4	e.00	.00	.44	.34	.53	2.4	1.6	7.4	10	1.5	.07	4.1
5	e.30	.00	.44	.30	.52	1.1	1.3	1.6	2.6	1.2	.08	1.1
6	e3.00	.00	.40	.42	.58	1.6	1.3	1.3	1.5	1.0	.09	.63
7	e.09	.00	1.4	.95	.57	2.8	1.4	1.2	1.6	.96	.04	.50
8	e.02	.00	.49	.42	.57	14	1.3	1.2	2.1	.93	.00	.47
9	e.01	.20	.19	.44	.54	31	1.3	1.3	1.2	.89	.00	.33
10	e.02	4.4	.11	.23	.52	44	1.2	1.2	1.0	.81	.00	.34
11	e.14	1.3	.26	.23	.65	11	1.1	1.1	30	.77	.01	.35
12	.01	84	.79	.26	3.4	4.3	1.1	1.1	33	.77	.01	75
13	.00	2.3	.42	.26	26	2.7	1.1	1.6	67	.77	.03	109
14	.00	1.6	.22	2.2	42	2.1	3.6	1.3	6.2	.77	4.0	5.0
15	.00	7.2	.13	1.0	44	1.6	1.4	5.0	2.7	.86	.21	2.4
16	.00	1.8	.11	.54	4.6	1.5	1.2	3.2	2.1	4.2	.04	1.3
17	.00	.87	.11	.55	3.1	1.5	1.2	35	1.8	15	.03	1.0
18	.00	.70	.10	.42	2.8	1.4	1.4	34	1.5	2.0	.19	.96
19	.00	22	.13	.32	1.8	1.1	1.5	4.6	1.3	1.1	.62	.98
20	.00	33	.85	.30	19	1.1	1.3	2.1	1.2	.70	224	2.7
21	.00	1.7	.37	.24	5.7	1.3	1.6	1.7	1.2	.56	2.8	.89
22	.00	.94	14	.26	2.1	1.2	1.2	15	1.2	.46	1.6	.59
23	.00	.74	1.0	.26	1.4	1.2	1.0	2.2	10	.54	.93	.82
24	.00	.61	.38	.26	1.3	1.2	1.0	1.6	1.9	.44	.62	.51
25	.00	42	.26	49	1.3	1.2	1.4	1.3	6.6	.61	.59	.48
26	.00	6.5	.18	3.6	1.3	1.2	2.4	2.9	1.7	.61	.56	.52
27	.00	1.2	47	1.3	4.0	1.2	1.1	1.4	1.2	.89	.57	.52
28	.00	.82	1.9	31	1.6	33	.89	1.0	1.5	.39	.50	.79
29	.00	.92	.93	4.0	---	2.9	.89	.93	.97	.83	5.2	.72
30	.00	1.1	.64	1.7	---	15	1.3	.83	.89	.23	.97	.72
31	.00	---	1.4	1.1	---	4.2	---	.83	---	.14	.58	---
TOTAL	3.64	215.90	76.96	103.57	172.43	191.86	43.18	140.58	219.35	68.80	244.62	228.58
MEAN	.12	7.20	2.48	3.34	6.16	6.19	1.44	4.53	7.31	2.22	7.89	7.62
MAX	3.0	84	47	49	44	44	3.6	35	67	25	224	109
MIN	.00	.00	.10	.23	.52	.96	.89	.83	.89	.14	.00	.33
AC-FT	7.2	428	153	205	342	381	86	279	435	136	485	453
CFSM	.02	1.32	.46	.61	1.13	1.14	.26	.83	1.34	.41	1.45	1.40
IN.	.02	1.47	.53	.71	1.18	1.31	.29	.96	1.50	.47	1.67	1.56

CAL YR 1988 TOTAL 1792.10 MEAN 4.90 MAX 185 MIN .00 AC-FT 3550 CFSM .90 IN. 12.23
WTR YR 1989 TOTAL 1709.47 MEAN 4.68 MAX 224 MIN .00 AC-FT 3390 CFSM .86 IN. 11.67

e Estimated

ARKANSAS RIVER BASIN

07165570 ARKANSAS RIVER NEAR HASKELL, OK

LOCATION (REVISED).-- Lat 35°49'15", long 95°38'19", in SW 1/4 NW 1/4 sec.32, T.16 N., R.16 E., Wagoner County, Hydrologic Unit 11110101, near left, downstream abutment of old bridge downstream from State Highway 104, 2.0 mi east of Haskell, 23.5 mi upstream from Verdigris River, and at mile 483.7.

DRAINAGE AREA.-- 75,473 mi², of which 12,541 mi² probably is noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage is 530.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated by Keystone Lake (station 07164200) 55.1 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 17 years, 9,925 ft³/s, 7,191,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 259,000 ft³/s, Oct. 5, 1986, gage height, 22.82 ft; minimum daily, 87 ft³/s, Sept. 13, 1988.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 44,300 ft³/s, Sept. 16, gage height, 12.67 ft; minimum daily discharge, 262 ft³/s, Nov. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7300	587	2480	1450	7220	2150	24000	1260	8180	17300	9460	12100
2	3390	1130	2440	840	3200	1040	31100	2480	7060	14200	8670	13400
3	1100	401	3050	569	4670	1580	29300	1610	10700	14700	5330	12000
4	1600	1010	2500	457	4790	846	16000	828	11000	13700	4870	12200
5	1490	567	895	1620	12700	1690	10700	1960	10600	13500	4410	14000
6	769	1310	519	673	14100	2740	10400	1170	11200	13400	6210	12600
7	1420	521	1460	1470	16800	4300	6160	2520	8970	13300	3580	22400
8	1980	262	2100	789	14100	8630	7690	720	12600	12300	5540	35000
9	1910	925	4470	2090	8770	4880	3690	351	11200	10900	7480	34900
10	731	496	6200	1530	2900	6030	1680	2810	10800	10900	7700	32600
11	467	1120	2520	2400	2330	9460	5520	2910	9940	11100	7570	32700
12	2260	2910	e1800	1700	1890	5500	7570	3300	14200	11200	8010	32600
13	7580	4030	e1360	2310	1450	5000	8070	3830	21200	10300	3180	38200
14	2570	1460	e2020	1710	3870	3900	7460	3270	24400	10600	1090	19900
15	5390	984	e1550	1060	6230	3050	4230	850	15500	9790	3320	20700
16	4650	1250	1030	1440	13200	2960	3930	1040	18600	10000	5140	36600
17	2840	815	515	1800	5900	3170	2510	4450	22500	10200	10900	43700
18	2290	1010	1170	1290	2680	4000	5300	5080	27200	11400	17100	43300
19	3600	589	491	2640	1880	2460	3060	4460	29100	12600	20900	42800
20	2020	1430	815	4160	1400	985	2050	9050	26400	9370	31300	36800
21	2660	1860	2580	4590	1990	3560	929	14200	22700	8000	24000	23000
22	3730	2230	3440	3300	2690	6860	3230	7260	22500	5340	15100	17200
23	2440	4030	3730	750	2590	5910	1880	10800	19900	2410	14500	16500
24	841	3940	3060	1340	2810	5050	681	12500	14900	8910	14400	16400
25	740	4010	1770	3360	3510	6450	1630	11700	14100	9360	14300	16400
26	1320	5060	727	7010	2810	3280	2160	9530	20600	9380	13800	14600
27	2000	3670	1140	3780	1070	1070	3620	8540	29700	9470	12100	16300
28	2430	2760	5410	2220	701	3760	4100	8490	34000	9270	11600	14900
29	2380	3560	4910	6250	---	8780	1780	10600	33300	9410	11700	13100
30	1830	2430	3770	3820	---	9570	480	8880	24800	9200	10900	13800
31	699	---	3460	2290	---	15900	---	9240	---	9250	11300	---
TOTAL	76427	56357	73382	70708	148251	144561	210710	165689	547650	330760	325460	710700
MEAN	2465	1879	2367	2281	5295	4663	7024	5345	18250	10670	10500	23690
MAX	7580	5060	6200	7010	16800	16900	31100	14200	34000	17300	31300	43700
MIN	467	262	491	457	701	846	480	351	7060	2410	1090	12000
AC-FT	151600	111800	145600	140200	294100	286700	417900	328600	1086000	656100	645500	1410000

CAL YR 1988 TOTAL 3568160 MEAN 9749 MAX 49800 MIN 87 AC-FT 7077000
WTR YR 1989 TOTAL 2860655 MEAN 7837 MAX 43700 MIN 262 AC-FT 5674000

e Estimated

ARKANSAS RIVER BASIN

93

07171000 VERDIGRIS RIVER NEAR LENAPAH, OK

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

DRAINAGE AREA.-- 3,639 mi².

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

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

GAGE.-- Water-stage recorder. Datum of gage is 644.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation since April 1949 by Fall River Reservoir in Kansas. Flow regulated since 1960 by Toronto Lake in Kansas. Flow has been further regulated since 1966 by Elk Reservoir in Kansas. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation, 11 years (water years 1939-49), 2,599 ft³/s, 1,833,000 acre-ft/yr; since regulation, 23 years (water years 1967-89), 2,750 ft³/s, 1,992,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 137,000 ft³/s, May 20, 1943, gage height, 40.44 ft, from floodmarks; no flow at times in 1939-40, and 1956.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 40,800 ft³/s, June 12, gage height, 35.10 ft; minimum daily discharge, 16.0 ft³/s, Oct. 30

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	332	21	173	311	272	148	12700	63	6280	477	2010	7210
2	233	23	141	260	219	135	5380	59	4180	259	1660	8120
3	134	22	126	222	170	125	4180	59	2310	186	1240	7330
4	95	22	116	189	127	132	3720	62	2530	154	1100	6700
5	77	24	101	169	99	136	3390	67	3810	139	721	6600
6	71	23	92	157	82	182	2550	66	2470	127	391	7870
7	70	27	88	142	75	236	1470	63	2780	108	325	8100
8	71	30	91	130	66	218	613	61	3230	94	287	4820
9	72	31	96	119	60	705	513	68	3650	84	161	3960
10	72	32	93	113	58	823	436	75	3030	79	113	7520
11	69	38	86	108	57	448	312	67	34000	74	97	8240
12	e67	879	81	102	62	258	248	64	40000	133	80	2090
13	63	631	78	95	82	189	216	63	35900	e4660	69	4490
14	58	236	77	e90	114	151	199	61	12100	e3560	65	9710
15	54	155	76	e85	700	125	192	63	7040	e3100	61	11200
16	53	303	73	e81	1010	112	178	72	7510	e2380	55	11200
17	50	269	70	e78	498	103	170	70	7810	e1820	54	10800
18	47	153	67	e76	305	95	165	187	7490	2950	53	10200
19	43	116	65	e73	230	86	162	1720	7240	2030	61	9050
20	41	2160	66	e72	253	84	152	2000	7070	1800	9360	7410
21	39	2570	70	e74	843	94	147	3170	6900	1790	1710	5380
22	33	793	71	e76	693	98	140	12600	6740	1720	837	3510
23	29	416	137	77	351	96	133	18200	6660	1740	473	1920
24	e26	261	208	75	245	97	125	16500	5870	1710	429	1210
25	e24	197	136	79	212	92	116	9690	5400	1040	1540	822
26	e22	1070	104	147	196	81	111	10500	4900	494	2160	746
27	e19	1580	774	159	179	76	102	10800	3650	278	3140	669
28	e18	667	1660	436	162	3820	93	9870	2770	e177	3760	430
29	e17	317	900	1710	---	11000	81	8950	e1820	129	3680	415
30	e16	225	588	734	---	8480	71	8720	918	103	5030	411
31	19	---	396	387	---	17700	---	7770	---	530	6060	---
TOTAL	2034	13291	6900	6626	7420	46125	38085	121780	246058	33925	46762	168133
MEAN	65.6	443	223	214	265	1488	1269	3928	8202	1094	1508	5804
MAX	332	2570	1660	1710	1010	17700	12700	18200	40000	4660	9360	11200
MIN	16	21	65	72	57	76	71	59	918	74	53	411
AC-FT	4030	26360	13690	13140	14720	91490	75500	241600	468100	67290	92750	333500

CAL YR 1988 TOTAL 900888.0 MEAN 2481 MAX 38400 MIN 8.2 AC-FT 1787000
WTR YR 1989 TOTAL 737119 MEAN 2020 MAX 40000 MIN 16 AC-FT 1462000

e Estimated

ARKANSAS RIVER BASIN

07171300 OOLOGAH LAKE NEAR OOLOGAH, OK

LOCATION (REVISED).-- Lat 36°25'23", long 95°40'44" in NE 1/4 NW 1/4 sec.2, T.22 N., R.15 E., Rogers County, Hydrologic Unit 11070103, in gage tower 1,000 ft from left end of dam on Verdigris River, 2.0 mi southeast of Oologah, and at mile 90.3.

DRAINAGE AREA.-- 4,339 mi².

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

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

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,751,000 acre-ft, Oct. 9, 1986, elevation, 664.90 ft; minimum since conservation pool first filled 33,750 acre-ft, Aug. 28, and Oct. 27, 1969, elevation, 602.87 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 889,100 acre-ft, June 14, elevation, 647.82 ft; minimum, 474,500 acre-ft, Nov. 9, elevation, 635.19 ft.

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

635	469,400	655	1,203,000
640	614,100	660	1,462,000
645	782,400	665	1,757,000
650	978,000		

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	488200	481500	527500	549400	570300	554800	632300	551900	632900	668500	565100	562600
2	488500	481500	527000	551100	574900	551900	638800	551100	626100	663500	565100	567200
3	488000	481500	528400	551400	568900	561400	638800	550200	615100	657400	564800	567800
4	488200	481800	527300	551400	560000	568100	632900	549100	604000	651200	566000	570600
5	488200	480400	528100	552200	554500	565700	631000	549700	598500	645300	568100	571500
6	488800	480200	527300	550800	552800	562000	628000	549400	593900	641100	568400	574900
7	488800	479900	532400	554500	552200	562900	616600	548200	592700	636500	563500	579200
8	488800	478000	529600	554200	553400	564500	612000	549400	593000	631900	558300	581900
9	488800	480400	527000	551900	551900	570000	603100	548800	594200	626100	555700	586500
10	488800	479400	529800	551700	552500	576700	592700	547900	597900	622400	554200	590800
11	488800	479600	529000	556000	553100	570000	582900	547400	657400	617200	554000	598800
12	488800	485300	527800	555400	553700	576700	574000	547400	770600	616600	552800	596300
13	488800	487400	526700	552500	556800	577900	563500	545900	855900	618700	553400	600000
14	488800	484200	533000	554800	557400	579200	559400	545900	887900	614100	552200	616600
15	488800	490700	531000	554800	564800	573700	559100	547900	886200	617200	551700	635900
16	488800	490100	528700	556300	565100	571500	556000	548200	831600	606500	551400	656100
17	489600	489900	528700	554000	564800	576100	557700	549700	797200	609200	549900	675000
18	489300	491500	527300	555400	578900	565400	558300	551900	786400	610100	549100	692000
19	488000	498700	524400	555700	577300	560900	556800	562000	743200	611100	549100	708400
20	487400	501700	528700	556300	578900	560900	556000	566300	731700	611100	571500	717500
21	487400	508300	527300	554800	578900	553400	555100	570600	724400	610800	574600	720600
22	487700	510000	530400	554500	577000	549400	553100	599400	720300	611400	571500	725500
23	486900	511200	531600	554200	556000	544800	551900	627700	710500	614100	567800	708800
24	486100	511800	532400	556300	552800	541300	552800	650900	700800	612900	563200	696600
25	485800	515200	529800	563200	554200	540500	553400	656100	690700	611700	562000	684500
26	483100	518900	529800	562900	557700	539600	553700	653500	684800	609200	564100	670400
27	483700	523200	539300	563200	554500	545300	553700	653500	686700	608900	568700	655100
28	483700	522100	543000	567800	555700	550200	554800	650500	683200	598800	567800	640100
29	483700	527300	544200	574000	---	567500	553700	646600	678300	581900	566600	625500
30	482600	527300	546500	575200	---	584400	553100	642400	673700	566000	562900	611100
31	481800	---	548500	570900	---	612300	---	640400	---	562600	560300	---
MAX	489600	527300	548500	575200	578900	612300	638800	656100	887900	668500	574600	725500
MIN	481800	478000	524400	549400	551900	539600	551900	545900	592700	562600	549100	562600
(+)	635.46	637.09	637.83	638.59	638.08	639.94	637.99	640.83	641.85	638.32	638.24	639.90
(++)	-6,200	+45,500	+21,200	+22,400	-15,200	+56,600	-59,200	+87,300	+33,300	-111,100	-2,300	+50,800
CAL YR 1988	MAX 946600	MIN 456800	(++)	-292,000								
WTR YR 1989	MAX 887900	MIN 478000	(++)	+123,100								

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

ARKANSAS RIVER BASIN

95

07171400 VERDIGRIS RIVER NEAR OOLOGAH, OK

LOCATION (REVISED).-- Lat 36°25'14", long 95°41'03", in NW 1/4 NW 1/4 sec.2, T.22 N., R.15 E., Rogers County, Hydrologic Unit 11070105, on right bank 0.2 mi downstream from Oologah Dam, 1.2 mi upstream from Fourmile Creek, 2 mi southeast of Oologah, and at mile 90.0.

DRAINAGE AREA.-- 4,339 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 552.00 ft above National Geodetic Vertical Datum of 1929. The datum published in WSP 1921 was in error; the datum is unchanged for period of record.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation by several dams in Kansas prior to May 1963, and completely regulated thereafter by Oologah Lake (station 07171300). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Since regulation by Oologah Lake, 25 years (water years 1965-89), 3,014 ft³/s, 2,184,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 53,700 ft³/s, Oct. 14, 1986, maximum gage height, 38.23 ft, Oct. 8, 1986, backwater from Caney River; no flow at time in several years.

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

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 24,400 ft³/s, June 16, gage height, 32.29 ft; minimum daily discharge, 5.8 ft³/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	e6.6	7.8	12	2120	96	3240	118	9440	2850	676	5230
2	6.7	e6.8	7.8	13	2110	96	3230	120	9440	2840	683	5220
3	5.9	e6.8	8.3	13	2100	94	4170	119	9420	2830	690	5220
4	6.1	e7.0	9.0	13	2090	96	5140	119	9370	2830	687	5220
5	6.5	e7.0	9.4	14	2080	94	5130	116	8110	2360	687	5230
6	5.8	e7.5	9.8	15	814	94	5120	115	4750	1890	692	5240
7	e5.9	e7.5	9.8	16	108	94	5110	115	3880	1880	1400	4380
8	e5.9	7.5	10	15	108	94	5100	115	2900	1870	2480	2870
9	e5.9	7.9	10	14	107	102	5080	115	2620	1870	1490	2870
10	e6.0	6.2	10	13	106	478	5070	112	1970	1870	389	2880
11	e6.0	7.0	10	13	106	1120	5060	111	2070	1880	118	4220
12	e6.0	e7.0	11	12	103	1070	5040	109	2080	1880	115	e6090
13	e6.4	7.0	11	12	103	1060	5020	108	2180	2430	115	e2330
14	e6.4	6.9	11	12	107	1050	2230	105	3730	2910	114	e75
15	e6.2	7.9	11	11	714	1040	391	100	15100	2910	111	e75
16	e6.0	7.0	12	13	1230	1030	390	99	24300	2910	108	e75
17	e6.2	6.9	13	11	1180	1640	394	97	24200	2920	104	e75
18	e6.6	6.7	13	10	1160	2260	398	96	24100	2950	104	e75
19	e6.6	7.0	13	10	1150	2260	398	95	20200	2060	104	e75
20	e6.4	e7.2	13	10	1150	2250	402	92	11900	1300	107	1700
21	e6.2	7.2	13	11	1570	2250	258	91	9400	1290	296	3070
22	e6.2	7.5	13	11	2250	2250	138	96	9380	1290	1760	4820
23	e6.0	7.2	12	11	2240	2240	138	2250	9360	1280	2450	5890
24	e6.4	7.7	11	12	1470	1830	136	5290	9350	1290	2440	5880
25	e6.6	7.7	10	12	372	820	134	7510	9320	1280	1610	6530
26	e6.8	e7.9	11	320	366	820	129	9530	7810	1280	754	7640
27	e6.6	8.0	11	575	365	813	116	9500	4840	1280	751	7610
28	e6.6	8.0	12	575	202	953	115	9490	4770	4300	2510	7570
29	e6.4	8.5	14	e575	---	2210	115	9490	4130	7460	4510	7160
30	e6.4	8.4	12	1360	---	3390	115	9470	2870	7440	5220	7530
31	e6.6	---	12	2150	---	3300	---	9480	---	4020	5220	---
TOTAL	195.5	219.5	340.9	5864	27581	36994	67507	74353	262990	79450	38475	122850
MEAN	6.31	7.32	11.0	189	985	1193	2250	2398	8766	2563	1241	4095
MAX	7.2	8.5	14	2150	2250	3390	5140	9530	24300	7460	5220	7640
MIN	5.8	6.2	7.8	10	103	94	115	91	1970	1280	104	75
AC-FT	388	435	676	11630	54710	73380	133900	147500	521600	157600	76320	243700

CAL YR 1988 TOTAL 1118374.6 MEAN 3056 MAX 23600 MIN 5.2 AC-FT 2218000
WTR YR 1989 TOTAL 716819.9 MEAN 1984 MAX 24300 MIN 5.8 AC-FT 1422000

e Estimated

ARKANSAS RIVER BASIN

07172500 HULAH LAKE NEAR HULAH, OK

LOCATION.-- Lat 36°55'39", long 96°05'18", in SW 1/4 SE 1/4 sec.2, T.28 N., R.11 E., Osage County, Hydrologic Unit 11070106, in stair tower at right end of Hulah Dam on Caney River, 0.5 mi downstream from Hickory Creek, 2.0 mi west of Hulah, 15.7 mi upstream from Little Caney River, and at mile 96.2.

DRAINAGE AREA.-- 732 mi².

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

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

REMARKS.-- Reservoir is formed by an earth dam. Spillway is 472-foot concrete ogee-type weir controlled by 10 taintor gates. Outlet works consist of nine rectangular sluices, two 24-inch gated pipes, and one 10-inch water-supply pipe. Closure for diversion made Feb. 6, 1950; regulated storage began Oct. 25, 1950; conservation pool was first filled Sept. 24, 1951. Capacity, 289,000 acre-ft, at elevation 765.0 ft, top of taintor gates, 61,360 acre-ft, at elevation 740.0 ft, crest of spillway, and 31,120 acre-ft, at elevation 733.0 ft, conservation pool. Figures given herein represent total contents. Reservoir is used for flood control, conservation, and municipal water supply. Revised capacity table, based on survey in 1973, used since Oct. 1, 1977. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 350,100 acre-ft, Oct. 3, 1986, elevation, 769.41 ft; minimum since conservation pool was first filled, 11,250 acre-ft, Mar. 20, 1957, elevation, 723.22 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 164,000 acre-ft, June 15, elevation 753.95 ft; minimum, 29,160 acre-ft, Nov. 11, elevation 732.44 ft.

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

725	9,940	745	90,970
730	21,400	750	128,700
735	38,680	755	174,200
740	61,360	760	227,400

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31050	29750	32060	31950	32640	31190	58820	31170	32130	89840	31990	33930
2	30980	29710	31630	31950	32600	31300	53700	31260	33900	84850	32020	33640
3	30910	29640	31480	31860	32130	31740	48360	31230	36670	79890	32020	33260
4	30840	29610	31260	31770	31700	31770	42900	31410	39690	74890	31950	32790
5	30940	29570	31160	31810	31340	31880	37260	31410	40820	69830	32100	95500
6	31120	29400	31160	31630	31260	31550	34010	31340	39930	64670	31810	108400
7	31160	29330	31340	31410	31260	31590	32890	31260	38640	59620	31550	106900
8	31190	29290	31260	31300	31300	31660	32500	31260	37100	54660	31410	101100
9	31190	29290	31260	31230	31160	31700	32130	31190	35710	49710	31660	94450
10	31190	29220	31260	31260	31230	31770	31660	31160	37060	44760	31590	86730
11	31120	29820	31340	31370	31260	31810	31370	31160	108400	39930	31480	78480
12	31050	29780	31370	31260	31450	31920	31590	31160	135600	37030	31450	70340
13	31010	29710	31370	31260	31700	31920	31770	31120	158800	34910	31550	76500
14	30940	29710	31480	31300	31900	32100	31880	31120	163400	33750	31480	74300
15	30870	30170	31410	31300	32020	31880	32060	31590	162300	33150	31450	70680
16	30800	29780	31450	31340	31630	31920	32170	31550	159800	32460	31410	66440
17	30800	29750	31450	31340	31230	32060	32310	31740	157800	34460	31340	61880
18	30730	29710	31450	31340	31370	31810	32460	39490	154600	34750	31340	56450
19	30630	31480	31630	31370	31550	31810	32530	41400	150700	34050	34050	50310
20	30560	29960	31480	31340	32100	32100	32750	40340	146100	33230	39770	44130
21	30490	30420	31480	31340	32530	31840	32530	38880	141300	32680	39690	41070
22	30450	30840	31520	31300	32500	31840	32210	41610	136400	32460	37970	39650
23	30350	34750	31520	31300	32310	31840	31880	42650	131500	32210	36210	37620
24	30310	34910	31450	31340	32130	31810	31590	42360	126500	32100	34270	35830
25	30200	34980	31370	31590	31950	31810	31300	41650	121200	32130	33040	34380
26	30170	34980	31520	31630	31880	31840	31300	40580	115800	32170	32880	33410
27	30060	34600	32210	31700	31520	36710	31300	39290	110800	32170	32280	32570
28	29990	34010	32280	32060	31260	40050	31340	37890	105500	32170	31990	32170
29	29890	33410	32210	32710	---	54560	31260	36200	100300	32170	33970	32240
30	29820	32750	32060	32890	---	65910	31260	34490	95010	32130	35750	32280
31	29780	---	31990	32750	---	63550	---	32710	---	32100	34720	---
MAX	31190	34980	32280	32890	32640	65910	58820	42650	163400	89840	39770	108400
MIN	29780	29220	31160	31230	31160	31190	31260	31120	32130	32100	31340	32170
(+)	732.62	733.45	733.24	733.45	733.04	740.42	733.04	733.44	745.59	733.27	733.98	733.32
(++)	-1,300	+2,970	-760	+760	-1,490	+32,290	-32,290	+1,450	+62,300	-62,910	+2,620	-2,440

CAL YR 1988 MAX 153400 MIN 25560 (++) -32,090
WTR YR 1989 MAX 163400 MIN 29220 (++) +1,200

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

07173000 CANEY RIVER NEAR HULAH, OK

LOCATION (REVISED).-- Lat 36°55'37", long 96°05'06", in SW 1/4 SE 1/4 sec.2, T.28 N., R.11 E., Osage County, Hydrologic Unit 11070106, on left bank 1,200 ft downstream from Hulah Dam, 2.1 mi upstream from Opossum Creek, 2.5 mi west of Hulah, and at mile 95.9.

DRAINAGE AREA.-- 733 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow completely regulated since February 1950 by Hulah Lake (station 07172500). About 5 to 9 ft³/s is diverted from gage pool for municipal water supply by the city of Bartlesville.

AVERAGE DISCHARGE.-- Prior to regulation by Hulah Lake, 13 years (water years 1938-50), 413 ft³/s, 299,200 acre-ft/yr; since regulation by Hulah Lake, 39 years (water years 1951-89), 397 ft³/s, 287,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 58,000 ft³/s, from rating curve extended above 7,000 ft³/s, on basis of relating stage to release records at maximum and lower stages, Oct. 3, 1986, gage height, 26.80 ft; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- A stage of 40.2 ft occurred at original site and datum, date unknown, from floodmark, information provided by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 5,120 ft³/s, Sept. 9, gage height, 7.65 ft; minimum daily discharge, 4.0 ft³/s, Mar. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	14	255	62	124	58	3260	10	505	2820	9.2	e620
2	8.5	10	163	62	124	7.8	3200	10	9.3	2790	e18	e325
3	9.2	7.6	85	62	124	4.2	3150	11	12	2760	e18	e325
4	9.6	7.3	85	62	124	4.1	3090	16	9.2	2730	e12	e324
5	9.5	7.2	43	62	134	4.1	3040	13	383	2690	e8.0	e690
6	9.5	7.2	6.5	61	56	4.1	1900	10	890	2650	e7.0	1410
7	9.5	7.2	6.4	61	5.4	4.1	607	10	886	2610	e6.8	2650
8	9.5	7.0	6.4	61	5.1	4.1	243	10	872	2570	e6.6	4700
9	9.1	6.6	6.4	41	5.2	4.1	242	10	797	2530	6.4	5090
10	8.5	6.2	6.4	5.8	6.1	4.1	242	10	686	2480	6.4	5020
11	8.2	6.7	6.4	5.8	6.6	4.1	162	10	175	2440	6.9	4960
12	8.2	7.3	6.4	5.6	6.0	4.1	12	11	72	1830	6.9	4880
13	8.2	6.6	6.4	5.6	6.0	4.1	9.5	11	587	862	7.2	3440
14	8.2	6.6	6.4	5.6	6.5	4.0	9.8	11	1720	491	7.2	2500
15	8.2	11	5.7	5.6	109	4.3	12	12	3190	244	7.3	2710
16	8.2	9.9	5.2	5.6	259	4.3	10	11	4180	251	7.5	2630
17	7.9	6.9	5.1	5.6	174	4.3	10	11	3030	144	7.6	2590
18	7.6	6.9	5.1	5.6	16	4.3	10	13	3010	208	8.2	3170
19	7.6	7.6	5.1	5.6	15	4.3	10	488	3000	363	9.3	3640
20	11	22	5.1	5.6	15	4.3	13	928	3000	363	15	3390
21	16	8.0	5.0	5.6	63	4.3	73	929	2970	198	543	1830
22	16	7.8	9.0	5.6	128	4.3	117	922	2960	131	1060	e900
23	16	7.6	4.9	5.6	128	4.3	117	924	2960	131	1040	e895
24	14	9.1	4.7	5.6	128	4.3	117	929	2930	44	992	e890
25	12	144	4.7	5.9	128	4.3	121	928	2950	9.3	e580	e680
26	12	268	7.1	5.9	128	4.4	52	919	2940	9.5	e250	e480
27	12	268	7.8	5.8	128	15	10	913	2900	9.4	e248	e480
28	12	264	57	6.7	128	26	10	909	2890	9.2	e100	e250
29	12	259	106	7.0	---	931	10	909	2870	9.2	e5.0	e90
30	12	257	92	63	---	2080	10	907	2840	9.2	e560	e90
31	12	---	62	124	---	2600	---	899	---	9.2	e920	---
TOTAL	320.9	1664.3	1080.2	836.7	2279.9	5818.7	19869.3	11704	56203.5	34195.0	6479.5	61849
MEAN	10.4	55.5	34.8	27.0	81.4	188	662	378	1873	1103	209	2055
MAX	16	268	255	124	259	2600	3260	929	4180	2820	1060	5090
MIN	7.6	6.2	4.7	5.6	5.1	4.0	9.5	10	9.2	9.2	5.0	90
AC-FT	637	3300	2140	1660	4520	11540	39410	23210	111500	67830	12850	122300

CAL YR 1988 TOTAL 190489.8 MEAN 520 MAX 3580 MIN 1.0 AC-FT 377800
WTR YR 1989 TOTAL 202101.0 MEAN 554 MAX 5090 MIN 4.0 AC-FT 400900

e Estimated

ARKANSAS RIVER BASIN

07174300 COPAN LAKE NEAR COPAN, OK

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

DRAINAGE AREA.-- 505 mi².

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

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

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 278,700 acre-ft, Oct. 4, 1986, elevation, 735.35 ft; minimum since conservation pool first filled, 30,830 acre-ft, Oct. 14, 1983, elevation, 707.17 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 201,100 acre-ft, June 17, elevation, 729.83 ft; minimum, 41,380 acre-ft, Nov. 9, 11, elevation, 709.57 ft.

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

705	22,830	725	148,400
710	43,400	730	203,200
715	71,170	735	273,200
720	105,900	740	359,600

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43450	42130	43750	44700	44450	43500	71550	43210	52460	131600	45450	45890
2	43350	42130	43600	44600	44800	43400	70190	43260	51720	126700	45050	45750
3	43260	42080	43750	44520	44350	44100	68080	43180	52830	121600	45050	45550
4	43160	42080	43500	44300	44000	44100	64780	43600	53040	116800	45000	45350
5	43260	41940	43550	44350	43950	44050	60980	43550	53950	112000	45150	46590
6	43310	41800	43550	44100	43750	43850	57400	43400	54280	106800	45150	47490
7	43310	41850	43850	44100	43650	43900	54280	43310	53350	105200	44900	47540
8	43260	41700	43500	43900	43700	43950	51980	43400	52090	98120	44650	47340
9	43260	41850	43500	43650	43700	43950	49820	43350	50400	90790	44550	47190
10	43350	41660	43500	43650	43850	44100	47340	43210	50240	85530	44250	47540
11	43260	41940	43550	43950	43750	44100	45450	43160	109000	80350	44150	47640
12	43160	42220	43500	43700	43950	44300	44150	43070	164700	75950	44300	47590
13	43020	42220	43550	43400	44000	44150	43180	43070	186900	71620	44150	49550
14	42980	41750	43750	43650	44400	44300	43190	43020	195300	67690	44100	50550
15	43070	42460	43350	43650	44700	43950	43070	43400	198800	64840	44050	50710
16	42980	42220	43450	43600	44550	44000	43120	43400	200500	62440	44050	50080
17	43160	42180	43350	43650	44350	44350	43310	43500	201100	62440	44100	49180
18	42080	42180	43310	43650	44100	43900	43400	45150	199300	63320	43900	48140
19	42790	43210	42930	43650	43850	43900	43310	47790	195500	62330	44850	46990
20	42740	44250	43350	43550	43900	44200	43350	49020	191000	60570	46890	45800
21	42690	45000	43310	43500	44100	43900	43400	49760	185600	58900	46940	44950
22	42650	45100	43500	43450	44200	43900	43400	55060	179800	57340	46440	45000
23	42650	44750	43400	43550	43800	43850	43450	59010	174500	55670	46190	44300
24	42600	44450	43400	43500	43600	43900	43400	61270	169000	54110	45800	44100
25	42550	44650	43210	43900	43700	43800	43650	61920	163700	52300	45450	44100
26	42410	45100	43700	43700	43700	43700	43600	61450	157400	50870	45500	44100
27	42600	45000	44300	43750	43600	44350	43600	60690	151800	49230	45300	44100
28	42360	44550	44600	44100	43500	50980	43650	59460	146900	48090	45000	44050
29	42320	44400	44800	44300	---	57560	43400	58120	141700	46940	45250	44050
30	42180	44100	44800	44450	---	64250	43350	56620	136600	45940	45600	44000
31	42130	---	44700	44500	---	70740	---	54500	---	45400	45890	---
MAX	43450	45100	44800	44700	44800	70740	71550	61920	201100	131600	46940	50710
MIN	42130	41660	42930	43400	43500	43400	43070	43020	50240	45400	43900	44000
(+)	709.73	710.14	710.26	710.22	710.02	714.93	709.99	712.15	723.72	710.40	710.50	710.12
(++)	-1,270	+1,970	+600	-200	-1,000	+27,240	-27,390	+11,150	+82,100	-91,200	+490	-1,890

CAL YR 1988 MAX 137100 MIN 35550 (++) -28,580
WTR YR 1989 MAX 201100 MIN 41660 (++) +600

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENT, IN ACRE-Feet

ARKANSAS RIVER BASIN

99

07174400 CANEY RIVER ABOVE COON CREEK AT BARTLESVILLE, OK

LOCATION.-- Lat 36°45'20", long 95°58'19", in NE 1/4 NE 1/4 sec.12, T.26 N, R.12 E, Washington County, Hydrologic Unit 11070103, at right bank in city of Bartlesville water intake tower, 0.2 mi upstream from State Highway 123 bridge and low-water dam, 0.5 mi downstream from Atchison, Topeka, and Santa Fe railroad bridge, 1.0 mi upstream from confluence with Coon Creek, 2.7 mi downstream from confluence with Butler Creek, 5.0 mi upstream from confluence with Sand Creek, and at mile 69.2.

DRAINAGE AREA.-- 1,392 mi².

PERIOD OF RECORD.-- October 1985 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 653.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- No estimated daily discharges. Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Considerable regulation by Hulah Lake (station 07172500) 27.0 mi upstream, and Copan Lake (station 07174300) 12.0 mi upstream. Diversion at gage for municipal water supply by the city of Bartlesville. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 94,500 ft³/s, Oct. 4, 1986, gage height, 27.70 ft; minimum daily discharge, 6.6 ft³/s, Oct. 5-10, 1987.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 8,700 ft³/s, June 11, gage height, 12.16 ft; minimum daily discharge, 15 ft³/s, Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	19	496	168	283	269	4680	29	2280	5580	148	1160
2	24	19	487	166	283	123	4910	29	1500	5500	94	822
3	23	22	242	162	267	43	4870	32	1150	5470	93	483
4	21	24	114	160	236	33	4800	39	972	5410	91	477
5	22	20	109	160	233	30	4720	36	988	5340	43	1180
6	27	18	74	160	250	30	4570	36	1580	5440	28	2720
7	28	18	27	160	178	30	3280	34	2130	5450	27	2270
8	33	18	22	160	64	36	1880	30	2160	5380	28	4210
9	34	18	20	160	29	50	1580	30	2150	5310	28	5280
10	31	19	19	145	28	53	1550	30	2010	5230	28	5470
11	28	25	19	72	28	49	1510	30	6140	5160	28	5470
12	25	53	19	31	28	43	968	30	6540	5020	28	5390
13	23	30	19	27	30	41	692	32	1980	3770	28	6350
14	22	29	19	26	34	38	392	32	3230	3130	28	3680
15	20	25	19	26	74	34	94	38	5070	2140	18	3850
16	17	21	19	26	395	34	36	47	6190	2010	16	3900
17	17	21	19	27	525	35	34	47	6510	2030	15	3790
18	17	22	19	28	387	34	34	81	6180	511	18	3770
19	17	23	18	28	234	33	34	104	6230	1090	23	4240
20	17	452	21	28	241	32	36	1240	6240	1370	1040	4320
21	17	602	22	28	318	32	39	1570	6270	1370	596	3950
22	18	201	31	28	348	32	117	1730	6250	1140	1470	1750
23	19	196	29	28	394	32	190	2040	6240	1060	1730	1230
24	20	218	28	28	390	32	193	2160	6160	1030	1620	1180
25	25	227	27	33	324	32	193	2110	6050	906	1380	1150
26	24	767	24	34	288	32	193	1980	5940	848	630	686
27	20	650	83	38	279	37	102	1970	5850	835	457	586
28	19	552	131	45	277	615	38	1950	5780	782	445	571
29	19	517	173	124	---	493	31	1950	5870	559	258	201
30	19	505	257	111	---	2680	30	1950	5810	540	129	102
31	19	---	230	189	---	3710	---	2200	---	494	931	---
TOTAL	689	5331	2836	2806	6447	8797	41794	23616	131010	89883	11494	79038
MEAN	22.2	178	91.5	84.1	230	284	1393	762	4367	2899	371	2635
MAX	34	767	496	189	525	3710	4910	2200	6540	5580	1730	5470
MIN	17	18	18	26	28	30	30	29	972	494	15	102
AC-FT	1370	10570	5630	5170	12790	17450	82900	46840	259900	178300	22800	156800

CAL YR 1988 TOTAL 404198 MEAN 1104 MAX 8000 MIN 17 AC-FT 801700
WTR YR 1989 TOTAL 403541 MEAN 1106 MAX 6540 MIN 15 AC-FT 800400

ARKANSAS RIVER BASIN

07174800 SAND CREEK AT OKESA, OK

LOCATION (REVISED).-- Lat 36°43'00", long 96°07'55", in SW 1/4 NW 1/4 sec.21, T.26 N., R.11 E., Osage County, Hydrologic Unit 11070106, on downstream side of left abutment of county road bridge, 0.5 mi northeast of Okesa, 9 mi southwest of Bartlesville, and at mile 17.2.

DRAINAGE AREA.-- 139 mi².

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

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

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 30 years, 81.8 ft³/s, 59,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 19,500 ft³/s, Mar. 10, 1974, gage height, 28.6 ft; from floodmarks; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 28	0745	5,580	15.10	Sept. 5	2245	*13,200	*23.33
June 11	1300	8,060	18.12				

Minimum daily discharge, .82 ft³/s, Aug. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	5.1	41	38	47	33	194	10	11	11	3.1	30
2	16	5.7	36	35	38	30	128	9.8	12	11	2.7	22
3	13	6.1	33	33	32	28	96	11	74	11	2.7	18
4	11	7.0	30	30	25	28	77	15	63	11	2.6	17
5	10	9.5	28	28	21	29	62	22	43	11	2.4	5080
6	16	11	25	26	19	28	51	18	50	9.7	2.5	2560
7	174	11	25	24	17	25	42	16	41	9.0	2.2	203
8	125	11	24	22	17	31	37	15	29	8.5	1.8	115
9	67	11	23	22	16	44	33	13	23	7.4	1.5	74
10	45	13	23	20	16	41	30	12	19	7.0	1.3	55
11	33	13	21	19	16	34	28	11	3460	6.2	1.1	47
12	28	29	21	18	16	30	27	10	546	5.8	.93	42
13	20	60	20	17	17	27	26	10	295	5.7	.82	1150
14	17	31	20	16	21	25	25	10	205	5.6	1.1	390
15	15	22	20	16	62	21	25	10	120	5.0	1.2	202
16	15	19	20	16	77	18	23	14	75	5.0	1.2	121
17	13	23	18	16	58	17	22	15	53	13	1.2	80
18	11	17	17	15	45	17	21	302	41	27	1.2	59
19	8.8	16	18	15	40	16	20	217	33	15	1.2	46
20	8.5	844	19	15	72	16	19	111	28	11	215	39
21	8.1	533	19	14	182	16	19	54	23	9.3	157	34
22	7.5	261	21	13	120	15	19	107	20	8.3	103	30
23	6.2	157	28	13	69	15	18	147	35	7.6	51	26
24	5.7	103	22	13	48	15	17	63	31	6.4	35	23
25	5.0	103	20	15	42	15	16	38	28	5.7	29	21
26	4.7	255	18	23	40	15	15	28	26	5.1	19	20
27	4.9	164	65	28	38	15	14	20	20	4.7	14	18
28	5.4	94	108	44	36	2250	13	16	17	4.2	12	17
29	5.3	63	70	107	---	313	11	14	15	4.0	11	16
30	5.1	49	49	89	---	1270	11	12	13	4.0	51	16
31	5.1	---	42	59	---	551	---	10	---	3.6	54	---
TOTAL	728.1	2946.4	944	859	1247	5028	1139	1360.8	5449	258.8	783.75	10571
MEAN	23.5	98.2	30.5	27.7	44.5	162	38.0	43.9	182	8.35	25.3	352
MAX	174	844	108	107	182	2250	194	302	3460	27	215	5080
MIN	4.7	5.1	17	13	16	15	11	9.8	11	3.6	.82	16
AC-FT	1440	5840	1870	1700	2470	9970	2260	2700	10810	513	1550	20970

CAL YR 1988 TOTAL 35416.53 MEAN 96.8 MAX 8230 MIN .00 AC-FT 70250
WTR YR 1989 TOTAL 31314.85 MEAN 85.8 MAX 5080 MIN .82 AC-FT 62110

ARKANSAS RIVER BASIN

101

07175500 CANEY RIVER NEAR RAMONA, OK

LOCATION (REVISED).-- Lat 36°30'32", long 95°50'30" (revised), in NE 1/4 NW 1/4 sec.5, T.23 N., R.14 E., Washington County, Hydrologic Unit 11070106, on left bank near downstream abutment of county road bridge, 1 mi upstream from Buck Creek, 2.2 mi downstream from Double Creek, 4.5 mi southeast of Ramona, and at mile 32.0.

DRAINAGE AREA.-- 1,955 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- September 1945 to current year. Monthly discharge only for some periods, published in WSP 1311. Previous reports have included Caney River near Collinsville from Oct. 1935 to Feb. 1939; this record has been separated from Ramona.

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

GAGE.-- Water-stage recorder. Datum of gage is 586.43 ft above National Geodetic Vertical Datum of 1929. Sept. 1, 1945 to Feb. 15, 1946, nonrecording gage at present site and datum.

REMARKS.-- Records fair. Flow regulated since February 1950 by Hulah Lake (station 07172500), and since April 1983 by Copan Lake (station 07174300). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Since regulation by Hulah Lake, 32 years (water years 1951-82), 925 ft³/s, 670,200 acre-ft/yr; since regulation by Copan Lake, 6 years (water years 1984-89), 2,166 ft³/s, 1,569,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 85,600 ft³/s, Oct. 5, 1986, gage height, 31.16 ft; no flow Sept. 11 to Nov. 3, 1956.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 11,400 ft³/s, June 13, gage height, 25.87 ft; minimum daily discharge, 21 ft³/s, Nov. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	28	681	410	453	393	7270	53	2090	5390	455	995
2	64	28	647	349	460	373	6430	51	2030	5310	214	998
3	65	28	595	318	395	252	6320	51	1260	5240	156	526
4	61	27	342	295	345	388	6120	70	1100	5170	151	438
5	57	29	227	280	310	244	5920	81	975	5090	148	1760
6	64	28	215	270	385	185	5750	71	1040	5040	130	7650
7	107	25	182	258	335	176	5250	79	1700	5130	95	8660
8	213	21	124	243	252	332	3430	76	2030	5110	81	3570
9	338	21	106	236	145	1200	1960	69	1990	5030	76	4400
10	225	25	99	230	99	1210	1720	65	1940	4950	72	5080
11	168	26	95	215	85	614	1670	61	3180	4850	68	5140
12	126	612	92	157	88	374	1550	57	10000	4820	66	5070
13	103	522	91	105	111	275	990	56	11100	4480	66	6450
14	89	240	94	93	179	222	734	56	6970	3300	68	7140
15	79	166	92	93	614	187	431	55	5050	2490	77	4780
16	73	170	85	96	775	154	196	71	5960	1830	66	4090
17	63	122	82	101	881	134	122	84	6730	2780	55	3600
18	56	89	80	101	858	119	108	193	6840	2870	50	3610
19	50	86	77	96	583	109	99	582	6470	649	46	3650
20	47	e1670	78	91	446	104	94	604	6400	1080	532	4000
21	44	3590	80	84	825	104	96	1400	6330	1150	1830	3980
22	41	2000	85	81	1000	102	98	1720	6270	1070	997	3050
23	41	911	118	80	753	97	153	1900	8240	844	1600	1420
24	43	659	140	80	631	97	229	2130	6200	791	1590	1130
25	44	609	129	244	556	93	227	2010	6070	861	1410	1090
26	44	1450	108	275	461	92	226	1950	5960	865	1120	988
27	43	1830	480	167	420	98	213	1900	5950	826	541	614
28	38	1240	1280	636	406	2500	142	1870	5870	809	424	532
29	33	910	692	1420	---	4540	78	1840	5650	723	392	482
30	31	759	508	844	---	2770	61	1820	5510	563	315	236
31	29	---	475	512	---	7700	---	1840	---	537	273	---
TOTAL	2548	17921	8179	8460	12851	25238	57687	22865	144905	89638	13164	95327
MEAN	82.2	597	264	273	459	814	1923	738	4830	2892	425	3178
MAX	338	3590	1280	1420	1000	7700	7270	2130	11100	5390	1830	8660
MIN	29	21	77	80	85	92	61	51	975	537	46	236
AC-FT	5050	35550	16220	16780	25490	50060	114400	45350	287400	177800	26110	189100

CAL YR 1988 TOTAL 518536 MEAN 1417 MAX 18800 MIN 21 AC-FT 1029000
WTR YR 1989 TOTAL 498783 MEAN 1367 MAX 11100 MIN 21 AC-FT 989300

e Estimated

ARKANSAS RIVER BASIN

07175500 CANEY RIVER NEAR RAMONA, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to April 1982.

WATER TEMPERATURE: October 1966 to April 1982.

REMARKS.-- Samples were collected on an approximate six-week basis and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)
OCT												
12...	1255	1028	80020	3.24	126	366	8.1	21.0	16.0	18	750	8.7
NOV												
09...	1120	1028	80020	2.63	20	688	8.1	20.0	13.0	--	740	11.2
DEC												
14...	1155	1028	80020	3.18	96	509	8.0	10.0	4.0	5.6	740	12.0
14...	1210	1028	80020	3.18	96	509	8.0	10.0	4.0	--	740	12.0
APR												
19...	1140	1028	80020	3.17	100	451	8.0	19.0	19.0	34	740	8.4
JUL												
26...	1000	1028	80020	5.61	871	242	7.4	27.0	25.5	38	740	--
26...	1015	1028	80020	5.61	871	242	7.4	27.0	25.5	--	740	--

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS. / 100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HC03)
OCT												
12...	90	170	92	130	32	41	7.6	23	27	0.9	3.3	124
NOV												
09...	110	--	--	220	57	69	12	52	33	2	4.8	202
DEC												
14...	94	K44	K21	170	28	53	9.2	35	30	1	2.8	173
14...	94	--	--	180	33	55	9.1	35	31	1	--	173
APR												
19...	93	52	120	150	39	48	7.8	31	30	1	2.9	138
JUL												
26...	--	150	50	92	50	30	4.1	11	20	0.5	3.5	51
26...	--	--	--	93	51	30	4.2	11	20	0.5	3.6	51

DATE	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N03)
OCT												
12...	0	102	27	36	0.20	9.9	213	212	0.29	72.5	--	--
NOV												
09...	0	166	32	94	--	2.7	350	369	0.48	18.5	0.450	2.0
DEC												
14...	0	142	30	57	0.20	7.2	293	283	0.40	76.3	0.629	2.8
14...	0	142	--	--	--	7.2	--	--	--	--	--	--
APR												
19...	0	113	25	56	0.20	6.2	278	249	0.38	74.9	0.390	1.7
JUL												
26...	0	42	7.0	47	0.20	5.8	215	137	0.29	506	0.180	0.80
26...	0	42	7.0	46	--	5.9	196	134	0.27	461	--	--

ARKANSAS RIVER BASIN

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07175500 CANEY RIVER NEAR RAMONA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 12...	<0.010	--	0.490	0.040	0.030	0.05	0.04	0.46	0.50	0.160	0.100	0.100
NOV 09...	0.020	0.07	0.470	--	0.020	--	0.03	--	--	--	--	0.080
DEC 14...	0.021	0.07	0.650	0.100	0.100	0.13	0.13	0.40	0.50	0.150	0.090	0.080
DEC 14...	--	--	--	--	--	--	--	--	--	--	--	--
APR 19...	0.010	0.03	0.400	0.010	0.020	0.01	0.03	0.49	0.50	0.040	0.040	0.030
JUL 26...	0.010	0.03	0.190	0.050	0.060	0.06	0.08	0.55	0.60	0.070	0.060	0.080
JUL 26...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 12...	0.31	70	1	75	<0.5	1	30	<3	2	250	<5	5
NOV 09...	0.25	--	2	96	<0.5	<1	<5	<3	<10	11	<10	11
DEC 14...	0.25	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	1	70	<0.5	<1	10	<3	<10	92	<10	6
APR 19...	0.09	80	1	77	<0.5	<1	20	<3	12	330	6	<4
JUL 26...	0.25	30	1	150	<0.5	6	<2	<3	5	220	<2	<4
JUL 26...	--	--	1	90	<0.5	2	<5	<3	10	78	<10	<4
DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 12...	28	<0.1	<10	4	<1	1.0	310	<6	30	156	53	93
NOV 09...	18	<0.1	20	<10	--	<1.0	540	<6	13	14	0.74	73
DEC 14...	--	--	--	--	--	--	--	--	--	8	2.1	69
DEC 14...	140	0.3	<10	<10	--	<1.0	440	<6	400	--	--	--
APR 19...	58	0.2	<10	13	<1	<1.0	410	<6	700	70	19	93
JUL 26...	76	0.2	<10	6	<1	<1.0	210	<6	950	99	233	88
JUL 26...	73	0.2	<10	10	--	<1.0	220	<6	280	--	--	--

ARKANSAS RIVER BASIN

07176000 VERDIGRIS RIVER NEAR CLAREMORE, OK

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

DRAINAGE AREA.-- 6,534 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation since 1949 by dams in Kansas, and since February 1950 by Hulah Lake (station 07172500). Flow regulated since May 1963 by Oologah Lake (station 07171300), 14.3 mi upstream from station, and since April 1983 by Copan Lake (station 07174300). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Oologah Lake, 27 years (water years 1936-62), 3,723 ft³/s, 2,695,000 acre-ft/yr; since regulation by Oologah Lake, 25 years (water years 1965-89), 4,429 ft³/s, 3,209,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 182,000 ft³/s, May 21, 1943, gage height, 55.05 ft; no flow at times in 1936, 1939-40, 1956.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 27,200 ft³/s, June 18, gage height, 25.51 ft; minimum daily discharge, 40 ft³/s, Nov. 8-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e200	e49	821	637	2740	510	10700	250	11600	8740	1070	6040
2	e100	e50	758	552	2670	e480	9740	230	11700	8650	1250	6640
3	e75	e49	734	464	2640	e360	9740	209	11400	8680	970	6330
4	e72	e48	639	404	2550	e510	10900	257	10800	8560	e1000	6070
5	e70	49	396	373	2470	e345	10800	250	10100	8140	e1200	6010
6	e80	e49	567	341	1620	e280	10600	255	6340	7450	1470	9020
7	e130	e45	300	326	454	e275	10400	239	5670	7460	2680	13000
8	e240	e40	e250	301	454	e480	9450	232	5270	7490	e3100	9250
9	e330	e40	e200	280	394	e1430	7910	204	5140	7450	1500	7710
10	e230	45	150	270	292	e1830	7140	191	4330	7360	850	8410
11	e175	45	e130	265	231	2520	7030	169	4940	7320	e350	9960
12	e135	352	125	239	212	1830	6980	161	10400	7260	e300	11700
13	e115	1130	e125	180	245	1570	6610	164	12700	7610	e200	10800
14	106	556	e130	143	348	1460	4390	170	13100	7590	190	8650
15	96	340	e135	122	1880	1370	1130	150	17000	6770	191	7020
16	e115	264	e130	e125	2730	1300	855	156	26000	6310	224	4860
17	e160	243	e130	e130	2220	1650	653	205	26700	5710	365	4430
18	e85	211	e125	e130	2190	2470	578	215	27100	6090	221	4150
19	e80	166	e120	e125	2060	2470	560	387	24900	4550	185	3970
20	e75	1810	e115	e120	1800	2470	499	790	17700	2440	2000	5170
21	e74	3470	e150	e110	2160	2450	483	e1500	14900	2790	3180	7080
22	e70	3340	280	e105	3440	2450	237	1700	14900	2820	4190	8280
23	e75	1580	668	e100	3290	2420	245	2470	14900	2660	3710	8210
24	e74	904	319	e250	2710	2200	288	4400	14900	2530	4340	7110
25	e75	741	244	598	1110	995	395	9100	14700	2500	3570	7470
26	e75	1770	216	1490	1020	988	414	11500	14100	2400	2300	e7500
27	e70	1920	392	1060	937	989	419	11500	11300	2270	1840	e7550
28	e65	1730	1430	1200	812	2580	420	11500	11100	2500	2720	7600
29	e60	1190	1370	3010	---	6020	272	11500	10600	e6500	5200	7970
30	e55	941	823	2510	---	8670	249	11400	8890	e4500	5860	8190
31	e55	---	694	3080	---	9370	---	11400	---	3000	5770	---
TOTAL	3417	23167	12666	19040	45679	64742	130087	92854	393180	176100	61996	226150
MEAN	110	772	409	614	1631	2088	4336	2995	13110	5681	2000	7538
MAX	330	3470	1430	3080	3440	9370	10900	11500	27100	8740	5860	13000
MIN	55	40	115	100	212	275	237	150	4330	2270	185	3970
AC-FT	6780	45950	25120	37770	90600	128400	258000	184200	779900	349300	123000	448600

CAL YR 1988 TOTAL 1721712 MEAN 4704 MAX 30000 MIN 29 AC-FT 3415000
WTR YR 1989 TOTAL 1249078 MEAN 3422 MAX 27100 MIN 40 AC-FT 2478000

e Estimated

07176460 BIRCH LAKE NEAR BARNSDALL, OK

LOCATION.-- Lat 36°32'00", long 96°09'43", in NW 1/4 NE 1/4 sec.30, T.24 N., R.11 E., Osage County, Hydrologic Unit 11070107, 450 ft north of dam on Birch Creek, 1.5 mi south of Barnsdall and at mile 0.8.

DRAINAGE AREA.-- 66.0 mi².

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

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

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 47,400 acre-ft, Oct. 6, 1986, elevation, 769.04 ft; minimum since conservation pool was first filled, 13,080 acre-ft, Oct. 26-29, 1977, elevation, 744.68 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 28,450 acre-ft, June 14, elevation, 757.86 ft; minimum, 18,610 acre-ft, Nov. 11, elevation, 749.99 ft.

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

735	5,714	755	24,620
740	9,040	760	31,550
745	13,390	765	39,740
750	18,620	770	49,360

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19480	18840	19440	19340	19580	19110	21350	19140	19080	19440	19080	19950
2	19440	18830	19330	19340	19520	19120	20780	19190	19210	19770	19070	19800
3	19400	18820	19270	19340	19500	19160	20180	19180	19540	19770	19060	19050
4	19340	18810	19200	19340	19390	19140	19750	19250	19640	19850	19010	19500
5	19370	18770	19150	19350	19350	19180	19390	19250	20740	19510	19060	21760
6	19390	18750	19140	19330	19330	19170	19240	19240	20650	19430	19010	21880
7	19410	18730	19100	19320	19320	19210	19250	19240	20410	19390	18960	21520
8	19410	18700	19090	19290	19320	19520	19240	19230	20160	19370	18930	20920
9	19410	18700	19080	19270	19320	19730	19210	19200	19920	19350	18890	20260
10	19410	18680	19070	19250	19320	19780	19210	19200	19780	19310	18880	19610
11	19370	18790	19050	19250	19330	19670	19230	19190	25890	19260	18820	19270
12	19340	19180	19050	19210	19330	19520	19230	19200	27800	19250	18800	19370
13	19310	19200	19050	19190	19340	19360	19230	19190	28370	19240	18800	22470
14	19260	19210	19030	19200	19400	19180	19240	19190	27800	19210	18790	22340
15	19260	19260	19010	19180	19500	19110	19250	19350	26590	18620	18780	21880
16	19210	19240	19010	19160	19390	19120	19260	19910	25350	19140	18780	21290
17	19200	19210	18990	19160	19290	19120	19250	20020	24040	19410	18750	20680
18	19160	19210	18990	19170	19290	19110	19260	20420	22880	19440	18730	20040
19	19100	19350	19030	19160	19310	19120	19260	20500	21710	19430	18730	19680
20	19100	20090	18990	19150	19530	19120	19260	20530	20800	19400	21720	19660
21	19070	20280	18980	19180	19650	19120	19270	20530	20180	19350	21680	19640
22	19060	20300	19050	19140	19520	19140	19270	21030	19600	19350	21340	19610
23	19030	20180	19070	19140	19360	19150	19280	20740	19460	18770	20850	19570
24	19020	20060	19080	19140	19250	19100	19260	20410	19480	19310	20350	19530
25	19560	20140	19070	19190	19200	19170	19250	20050	19460	19280	19960	19520
26	18970	20190	19100	19210	19120	19190	19260	19810	19450	19250	19700	19500
27	18940	20060	19400	19230	19120	19440	19250	19590	19500	19240	19420	19490
28	18910	19910	19490	19440	19110	20790	19210	19400	19500	19200	19290	19460
29	18900	19770	19400	19580	---	20780	19180	19190	19500	19170	20070	19450
30	18880	19600	19330	19610	---	22120	19170	19080	19460	19160	20180	19430
31	18870	---	19340	19610	---	21880	---	19050	---	19110	20110	---
MAX	19560	20300	19490	19610	19650	22120	21350	21030	28370	19770	21720	22470
MIN	18870	18680	18980	19140	19110	19100	19170	19050	19080	18620	18730	19050
(+)	750.22	750.87	750.84	750.88	750.44	752.80	750.50	750.38	750.75	750.44	751.31	750.72
(++)	-640	+730	-260	+270	-500	+2,770	-2,710	-120	+410	-350	+1,000	-680

CAL YR 1988 MAX 28650 MIN 16810 (++) -1,060
WTR YR 1989 MAX 28370 MIN 18620 (++) -80

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

ARKANSAS RIVER BASIN

07176465 BIRCH CREEK BELOW BIRCH LAKE NEAR BARNSDALL, OK

LOCATION (REVISED).-- Lat 36°32'00", long 96°09'43", NW 1/4 NE 1/4 sec. 30, T.24 N., R.11 E., Osage County, Hydrologic Unit 11070107, on right bank 300 ft downstream from Birch Dam, 1.5 mi south of Barnsdall, and at mile 0.7.

DRAINAGE AREA.-- 66.0 mi².

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

REVISED RECORDS.-- WDR OK-86-1: 1984-85.

GAGE.-- Water-stage recorder. Datum of gage is 690.00 ft, National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow completely regulated since March 1977 by Birch Lake (station 07176460).

AVERAGE DISCHARGE.-- 12 years, 46.7 ft³/s, 33,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 2,070 ft³/s, Oct. 7, 1986, gage height, 13.37 ft; maximum gage height, 26.40 ft, June 10, 1985 (backwater from Bird Creek); no flow at times in several years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 794 ft³/s, June 14, gage height, 9.88 ft; maximum gage height 15.93 ft, (backwater from Bird Creek) Sept. 5; minimum daily discharge, .13 ft³/s, Apr. 13-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	10	84	12	22	13	342	1.8	8.2	6.8	6.9	84
2	12	10	56	12	22	12	341	1.8	5.1	7.7	6.8	84
3	12	10	31	12	22	10	333	1.8	5.2	33	6.8	84
4	12	11	31	12	22	9.4	241	1.8	5.4	62	6.8	84
5	12	11	24	12	22	9.4	184	1.8	6.1	62	6.9	e46
6	12	11	14	11	13	9.1	77	1.8	99	28	7.1	e19
7	12	11	12	11	6.9	8.4	.17	1.8	171	7.1	7.1	218
8	12	11	11	11	5.6	8.5	.19	1.8	172	7.1	7.1	361
9	12	11	10	11	5.6	8.6	.18	1.8	121	7.1	7.1	359
10	12	11	10	11	5.6	42	.21	1.9	76	7.1	7.1	353
11	12	11	10	11	5.6	94	.18	2.0	e76	7.1	7.3	172
12	12	12	8.5	11	5.6	94	.16	2.2	53	7.1	7.4	12
13	12	12	7.3	11	5.6	94	.13	2.3	14	7.1	7.4	e12
14	12	12	7.1	11	5.6	93	.13	2.3	439	7.1	7.4	211
15	12	14	6.8	12	39	33	.13	3.5	762	7.1	7.4	366
16	13	13	6.7	12	84	.62	.19	5.0	749	7.0	7.4	366
17	13	10	6.5	7.9	59	.67	.18	4.8	736	7.2	7.4	366
18	14	10	6.3	2.7	13	.62	.30	5.3	730	5.6	7.3	363
19	14	10	6.0	5.1	13	.62	.28	5.1	722	5.4	7.1	191
20	14	11	5.4	5.1	13	.62	.24	5.1	504	5.4	e7.1	11
21	12	11	5.4	5.1	47	.62	.68	5.1	331	5.4	125	7.4
22	9.0	58	5.5	5.1	92	.62	1.8	73	331	5.4	287	3.2
23	9.5	90	5.6	5.1	94	.62	1.8	174	152	5.4	287	4.3
24	10	90	5.6	5.1	68	.62	1.8	174	9.5	5.4	285	4.8
25	12	90	5.6	5.1	34	.62	1.8	174	9.4	5.4	209	4.8
26	13	90	5.6	5.1	33	.62	1.8	126	8.3	5.5	154	4.8
27	13	90	6.4	5.1	23	e.62	1.8	92	6.5	5.9	154	4.8
28	12	88	40	5.1	14	e.62	1.8	92	6.5	5.9	67	4.8
29	10	84	69	5.1	---	73	1.8	91	6.5	5.9	16	4.8
30	10	84	50	12	---	125	1.8	42	6.6	6.0	17	4.8
31	10	---	12	22	---	262	---	13	---	7.0	46	---
TOTAL	368.5	997	564.3	283.7	795.1	1006.51	1537.55	1111.8	6321.3	357.2	1789.9	3810.5
MEAN	11.9	33.2	18.2	9.15	28.4	32.5	51.3	35.9	211	11.5	57.7	127
MAX	14	90	84	22	94	262	342	174	762	62	287	366
MIN	9.0	10	5.4	2.7	5.6	.62	.13	1.8	5.1	5.4	6.8	3.2
AC-FT	731	1980	1120	583	1580	2000	3050	2210	12540	709	3550	7560

CAL YR 1988 TOTAL 15605.9 MEAN 42.6 MAX 1430 MIN 2.3 AC-FT 30950
WTR YR 1989 TOTAL 18943.36 MEAN 51.9 MAX 762 MIN .13 AC-FT 37570

e Estimated

ARKANSAS RIVER BASIN

107

07176500 BIRD CREEK NEAR AVANT, OK

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

DRAINAGE AREA.-- 364 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 651.28 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow slightly regulated since 1958 by Bluestem Lake. Some regulation since March 1977 by Birch Lake (station 07176460), located on Birch Creek, 12.1 mi upstream. Small diversions upstream for municipal water supply for the cities of Pawhuska and Barnsdall.

AVERAGE DISCHARGE.-- 44 years, 223 ft³/s, 161,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 32,400 ft³/s, Oct. 2, 1959, gage height, 31.40 ft; maximum gage height, 32.03 ft, Mar. 11, 1974; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 28	1300	6,590	8.73	Sept. 5	2130	*13,100	*19.19
June 11	1130	11,500	16.66	Sept. 13	1745	7,140	9.33
Aug. 20	0715	8,590	11.45				

Minimum daily discharge, 14 ft³/s, Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	18	168	84	113	75	961	31	174	29	15	215
2	34	18	149	75	94	71	714	25	93	156	15	171
3	26	19	99	69	78	61	617	28	170	168	15	152
4	22	23	89	66	58	64	515	40	239	134	18	147
5	20	27	84	62	50	126	396	61	463	119	84	5010
6	24	29	65	55	45	128	337	71	219	102	123	5640
7	77	31	59	49	27	110	200	61	290	44	29	931
8	208	28	54	63	23	89	193	52	285	25	19	761
9	156	28	52	78	20	78	189	44	260	20	17	592
10	111	33	52	81	20	73	189	36	163	18	16	522
11	83	37	48	81	21	69	170	31	8330	16	16	426
12	65	252	46	81	22	68	129	29	4620	16	16	166
13	54	221	43	81	27	62	80	29	1530	58	14	4240
14	48	118	42	81	35	77	58	29	1170	73	19	1930
15	44	71	41	81	144	297	57	33	1320	88	20	1110
16	40	57	41	81	259	235	57	84	1190	85	258	770
17	34	47	41	81	217	150	57	131	1110	357	201	646
18	30	46	41	74	112	151	57	1820	1070	171	54	608
19	27	45	40	69	85	109	55	759	1040	137	34	528
20	26	884	40	69	116	92	49	347	882	100	5030	178
21	26	887	37	69	382	87	47	171	558	85	865	139
22	24	362	39	55	313	83	49	932	556	78	1240	110
23	21	297	65	36	212	52	49	1010	569	61	531	107
24	20	245	70	29	171	28	49	549	336	48	496	105
25	20	230	55	28	111	21	49	435	144	46	380	105
26	18	598	45	34	101	20	47	373	80	46	239	105
27	18	390	245	60	99	85	42	296	76	46	223	105
28	18	278	295	133	82	3610	39	288	69	42	189	105
29	18	219	235	291	---	1010	37	280	50	29	611	94
30	18	185	172	234	---	2980	31	261	37	20	1320	47
31	18	---	102	151	---	2240	---	190	---	15	298	---
TOTAL	1382	5723	2654	2581	3037	12401	5519	8526	27093	2432	12403	25765
MEAN	44.6	191	85.6	83.3	108	400	184	275	903	78.5	400	859
MAX	208	887	295	291	382	3610	961	1820	8330	357	5030	5640
MIN	18	18	37	28	20	20	31	25	37	15	14	47
AC-FT	2740	11350	5260	5120	6020	24600	10950	16910	53740	4820	24600	51100
CAL YR 1988	TOTAL 90005.4	MEAN 246	MAX 13200	MIN 8.8	AC-FT 178500							
WTR YR 1989	TOTAL 109516	MEAN 300	MAX 8330	MIN 14	AC-FT 217200							

ARKANSAS RIVER BASIN

07177400 SKIATOOK LAKE NEAR SKIATOOK, OK

LOCATION.-- Lat 36°21'02", long 96°05'18", in NE 1/4 SE 1/4 sec.26, T.22 N., R.11 E., Osage County, Hydrologic Unit 11070107, near right end of dam, 5.0 mi west of Skiatook and at mile 14.3.

DRAINAGE AREA.-- 354 mi².

PERIOD OF RECORD.-- October 1984 to current year.

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

REMARKS.-- Reservoir is formed by rolled earthfill dam. Spillway is a concrete uncontrolled structure in right abutment. Outlet works consists of a controlled intake structure with a 10-foot, 6-inch diameter tunnel, a 2-foot, 6-inch by 5-foot low-flow sluice and a 36-inch water-supply pipe. Regulated storage began Oct. 31, 1984. Capacity, 893,000 acre-ft, at elevation 750.8 ft, maximum pool; 513,500 acre-ft at elevation 729.0 ft, top of flood control pool; 331,200 acre-ft, at elevation 714.0 ft, top of conservation pool; 11,800 acre-ft, at elevation 657.0 ft, top of inactive pool. Figures given herein represent total contents. Reservoir is designed for flood control, water supply, water quality, recreation and conservation.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 349,000 acre-ft, Aug. 22, 1989, elevation 716.51 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 349,000 acre-ft, Aug. 22, elevation 716.51 ft; minimum, 215,300 acre-ft, Nov. 11, elevation 702.27 ft.

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

895	162,100	710	282,800
700	197,600	715	333,000
705	237,800	720	387,600

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222400	217400	229700	232600	235600	241200	271200	267600	274800	314600	318500	326000
2	222300	217400	229900	232600	235500	241300	271800	266500	275100	315500	317800	325800
3	221900	217200	230000	232800	235100	241800	271800	266800	278000	316400	317800	325800
4	221300	217200	229700	232400	234900	241700	272000	267100	276700	316400	317200	325200
5	221100	216600	229700	232900	235000	241800	271800	266800	280500	316200	320800	325800
6	221300	216300	229700	232800	235000	242000	271900	266200	280800	316100	321300	326800
7	221600	216400	229600	232600	235200	242100	271800	266100	280700	315500	320400	326900
8	221600	215900	229400	232200	235000	243900	271700	266100	281000	315100	320100	326800
9	221400	216100	229500	232300	235100	245200	271100	265300	280800	314500	319700	326000
10	221500	215700	229500	232300	235400	246200	271100	265200	280700	314000	319100	326000
11	221100	216700	229200	232800	235400	246800	271300	264800	299900	313400	318800	325400
12	220700	219200	229500	232300	235300	246900	271300	264200	306700	313200	318400	326400
13	220400	219300	229700	232300	235400	246800	271300	264200	310800	313100	317900	339000
14	220100	219600	229500	232300	236000	246900	271200	264200	311900	312600	317900	339200
15	220100	220100	229000	232300	237000	246500	271100	265700	312000	312400	317900	337600
16	220300	220300	229100	232500	237200	246800	270900	266700	312300	311800	319400	335700
17	220100	220100	229200	232700	237600	247000	270900	266900	312400	322100	319900	333400
18	219400	220200	229200	232800	238000	246300	270600	270000	312500	323000	319400	331000
19	219300	220800	229800	232800	238000	246400	270200	271000	312700	322900	319000	328700
20	219300	224000	229300	232500	238700	246300	270000	271300	312700	322600	344800	326300
21	219300	226100	229200	232500	240000	246200	270400	271200	312400	322200	346100	325300
22	219100	226700	229700	232500	240100	246500	270200	275200	312300	321800	348200	324800
23	219000	226800	229800	232600	240000	246600	269800	275500	313600	321500	345400	323200
24	218800	227200	229600	232700	240600	246800	269500	275700	314200	321200	341500	322900
25	218700	228500	229500	232900	240800	246900	269500	275500	314600	321100	337300	323000
26	218400	229400	230500	233000	240700	246900	269400	275400	314600	320800	333800	322700
27	218000	229600	231500	233000	240800	250000	269100	275300	315200	320400	329900	322500
28	217700	229700	231800	234500	240900	259200	268700	275200	315500	320000	326900	322300
29	217600	229800	232000	235400	---	260000	267900	275400	315000	319800	326100	322100
30	217400	229800	232300	236000	---	260900	267600	275000	314800	319500	326800	321900
31	217600	---	232400	236200	---	270600	---	275000	---	318600	326500	---
MAX	222400	229800	232400	236200	240900	270600	272000	275700	315500	323000	348200	339200
MIN	217400	215700	229000	232200	234900	241200	267600	264200	274800	311800	317200	321900
(+)	702.55	704.05	704.36	704.81	705.36	708.69	708.36	709.16	713.22	713.59	714.37	713.92
(++)	-5,100	+12,200	+2,600	+3,800	+4,700	+29,700	-3,000	+7,400	+39,800	+3,800	+7,900	-4,600

CAL YR 1988 MAX 301600 MIN 214800 (++) +1,500
WTR YR 1989 MAX 348200 MIN 216700 (++) +99,200

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

ARKANSAS RIVER BASIN

109

07177410 HOMINY CREEK BELOW SKIATOOK LAKE NEAR SKIATOOK, OK

LOCATION.-- Lat 36°21'09", long 96°05'18", in NE 1/4 SE 1/4 sec.26, T.22 N., R.11 E., Osage County, Hydrologic Unit 11070107, located 300 ft downstream from Skiatook Lake stilling basin on the left bank of outlet channel, about 5.0 mi west of Skiatook, and at mile 14.0 on Hominy Creek.

DRAINAGE AREA.-- 354 mi².

PERIOD OF RECORD.-- October 1984 to current year. Published as Hominy Creek near Skiatook, October 1984 to September 1986.

GAGE.-- Water-stage recorder. Datum of gage is 810.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated by Skiatook Lake (07177400).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 4,330 ft³/s, Oct. 29, 1986, gage height 22.80 ft; maximum gage height, 25.44 ft, Apr. 30, 1985 (backwater from Bird Creek); minimum daily discharge, 0.03 ft³/s, Nov. 10-14, 1984, and Feb. 22-24, 1986.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,000 ft³/s, Aug. 24, gage height, 16.17 ft; maximum gage height, 22.53 ft, Aug. 20 (backwater from Bird Creek); minimum daily discharge, 1.3 ft³/s, June 24, 25, Aug. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	35	12	13	17	15	14	118	18	135	134	137
2	e124	35	12	13	17	15	13	125	51	135	134	136
3	e124	35	12	13	17	16	13	124	79	111	134	136
4	e124	35	12	13	17	16	13	124	79	83	134	136
5	124	35	12	13	17	16	13	124	79	41	135	136
6	124	35	12	13	17	16	13	124	79	82	135	51
7	124	35	12	13	17	16	13	124	79	134	134	5.4
8	124	35	13	14	20	16	14	124	79	134	133	5.4
9	124	35	13	14	23	17	14	124	79	134	133	5.4
10	124	35	13	14	27	16	14	124	79	134	133	5.6
11	124	35	13	14	32	16	13	124	21	134	133	5.2
12	125	35	13	14	32	16	34	124	1.5	134	133	87
13	125	35	13	15	32	17	58	124	1.5	134	133	78
14	90	35	13	15	32	17	86	124	1.5	134	133	536
15	20	35	13	15	32	17	110	126	1.4	134	132	1170
16	19	35	13	15	31	17	110	124	1.5	134	133	1150
17	19	35	13	15	21	17	110	124	1.5	71	132	1140
18	20	35	13	15	14	17	110	69	1.4	1.5	132	1140
19	20	35	14	11	14	17	110	16	1.4	24	132	1140
20	20	36	13	1.4	14	17	110	16	1.4	78	60	1060
21	25	35	13	1.5	14	17	110	16	1.4	121	1.3	588
22	35	21	14	1.8	14	17	110	17	1.4	134	585	136
23	35	12	14	15	15	17	110	17	1.4	134	1630	137
24	35	12	13	19	15	17	110	16	1.3	134	1980	138
25	35	13	14	18	15	17	110	16	1.3	135	1980	105
26	35	12	14	17	15	17	110	16	52	134	1970	81
27	35	12	14	17	15	16	110	16	98	134	1980	82
28	35	12	13	18	15	15	110	16	112	134	1480	82
29	35	12	13	17	---	14	110	16	112	134	373	101
30	35	12	13	17	---	15	110	16	124	134	137	138
31	35	---	13	17	---	14	---	16	---	134	137	---
TOTAL	2198	854	402	421.7	561	503	2085	2384	1237.9	3563.5	14825.3	9848.0
MEAN	70.9	28.5	13.0	13.6	20.0	16.2	69.5	76.9	41.3	115	478	328
MAX	125	36	14	19	32	17	110	126	124	135	1980	1170
MIN	19	12	12	1.4	14	14	13	16	1.3	1.5	1.3	5.2
AC-FT	4360	1690	797	836	1110	998	4140	4730	2460	7070	29410	19530

CAL YR 1988 TOTAL 77784.30 MEAN 213 MAX 1910 MIN .58 AC-FT 154300
WTR YR 1989 TOTAL 38883.4 MEAN 107 MAX 1980 MIN 1.3 AC-FT 77130

e Estimated

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK

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

DRAINAGE AREA.-- 905 mi².

WATER-DISCHARGE RECORDS

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

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

GAGE.-- Water-stage recorder. Datum of gage is 579.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow slightly regulated since March 1977 by Birch Lake (station 07176460). Flow slightly regulated since October 1984 by Skiatook Lake (station 07177400). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Skiatook Lake, 46 years (water years 1939-84), 484 ft³/s, 350,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 90,000 ft³/s Oct. 3, 1959, gage height, 32.60 ft, from rating curve extended above 49,000 ft³/s; no flow at times in 1939, 1954-57, 1964-66, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in 1915 reached a stage similar to flood of Oct. 31, 1941, 30.14 ft, from information provided by local residents.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 13,300 ft³/s, Aug. 20, gage height, 25.73 ft; minimum daily discharge, 49 ft³/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	53	218	167	226	149	1440	132	169	208	164	420
2	171	54	197	142	171	131	969	147	142	375	162	368
3	172	53	168	130	138	126	786	149	165	812	162	331
4	164	56	123	116	108	256	685	154	278	306	163	318
5	168	56	113	108	96	218	513	155	416	251	169	670
6	176	58	107	100	88	150	447	164	492	162	993	7470
7	181	59	91	87	79	134	314	171	293	244	272	4260
8	271	59	84	78	66	262	226	165	329	200	185	950
9	367	61	80	100	60	1190	210	157	309	183	172	721
10	295	55	75	110	65	942	280	152	260	182	168	598
11	248	56	72	109	72	493	196	149	3300	174	163	545
12	218	546	70	105	77	376	168	147	8720	175	165	362
13	199	592	70	102	93	345	169	147	5470	176	161	3480
14	188	258	67	105	144	310	144	147	1850	213	162	5610
15	99	171	62	106	761	277	169	205	1240	226	165	2700
16	70	141	61	105	664	212	168	393	1100	313	236	2200
17	64	115	61	106	452	154	166	223	1030	3050	635	1900
18	56	98	62	107	308	142	162	684	964	1970	289	1780
19	53	111	61	99	191	136	156	1680	923	332	211	1720
20	51	1660	60	92	174	133	153	593	894	222	8050	1510
21	49	1990	58	82	542	134	156	270	613	212	8180	1180
22	55	862	105	77	638	128	158	384	527	225	1310	339
23	57	494	189	63	391	122	156	1210	541	531	2230	289
24	54	365	122	61	271	91	154	683	471	248	2560	280
25	55	352	108	550	218	68	153	465	252	203	2500	269
26	50	1100	87	323	165	61	150	384	144	195	2360	209
27	52	898	273	129	163	558	146	305	472	192	2270	206
28	52	471	903	522	172	4730	143	260	437	189	2110	200
29	51	327	449	1100	---	3310	137	250	243	186	875	197
30	54	253	305	555	---	2910	136	242	204	e180	1350	236
31	52	---	231	341	---	5070	---	201	---	172	689	---
TOTAL	3957	11424	4732	5977	6593	23318	8930	10568	32248	12307	39281	41318
MEAN	128	381	153	193	235	752	298	341	1075	397	1267	1377
MAX	367	1990	903	1100	761	5070	1440	1680	8720	3050	8180	7470
MIN	49	53	58	61	60	61	136	132	142	162	161	197
AC-FT	7850	22660	9390	11860	13060	46250	17710	20960	63960	24410	77910	81950

CAL YR 1988 TOTAL 248111 MEAN 678 MAX 16300 MIN 49 AC-FT 492100
WTR YR 1989 TOTAL 200653 MEAN 550 MAX 8720 MIN 49 AC-FT 398000

e Estimated

ARKANSAS RIVER BASIN

111

07177500 BIRD CREEK NEAR SPERRY, OK --Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.-- April 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1987 to current year.

pH: April 1987 to current year.

WATER TEMPERATURE: April 1987 to current year.

DISSOLVED OXYGEN: April 1987 to current year.

INSTRUMENTATION.-- Water-quality monitor since April 1987.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 1840 microsiemens, May 25, 1987; minimum recorded, 80 microsiemens, Aug. 20, 1989.

pH: Maximum recorded, 8.6 units, Aug. 27, 1988; minimum recorded, 5.7 units Sept. 2, 1987.

WATER TEMPERATURE: Maximum recorded, 35.5°C, July 14-16, 1988; minimum recorded, 0.0°C, several days in winter months.

DISSOLVED OXYGEN: Maximum recorded, 14.5 mg/l, Jan. 14, 1988; minimum recorded, 2.0 mg/l, June 29, 1987.

EXTREMES FOR CURRENT YEAR.--

WATER YEAR 1988

SPECIFIC CONDUCTANCE: Maximum recorded, 1840 microsiemens, May 25; minimum recorded, 100 microsiemens, Nov. 15.

pH: Maximum recorded, 8.4 units, Aug. 27; minimum recorded, 6.2 units, Nov. 15.

WATER TEMPERATURE: Maximum recorded, 35.5°C, July 14, 15, 16; minimum recorded, 0.0°C on several days in January.

DISSOLVED OXYGEN: Maximum recorded, 14.5 mg/l, Jan. 14; minimum recorded, 3.4 mg/l, Sept. 14.

WATER YEAR 1989

SPECIFIC CONDUCTANCE: Maximum recorded, 901 microsiemens, May 25; minimum recorded, 80 microsiemens, Aug. 20.

pH: Maximum recorded, 8.4 units, May 18; minimum recorded, 7.1 units, July 17.

WATER TEMPERATURE: Maximum recorded, 30.5°C, July 6; minimum recorded, 0.0°C, on several days during February.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 12.3 mg/l, Nov. 19; minimum recorded, 3.3 mg/l, Aug. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)
MAY											
20...	1200	1028	84042	1.99	177	365	7.8	20.0	24.0	70	120
JUN											
01...	1330	1028	84042	2.06	200	466	7.8	30.0	25.0	60	21
15...	1330	1028	84042	1.93	158	365	8.2	31.0	25.5	--	--
28...	1040	1028	84042	1.90	149	371	8.2	28.0	28.5	--	--
AUG											
09...	0850	1028	84042	1.88	158	380	8.1	28.0	29.5	40	15
SEP											
20...	1235	1028	84042	3.80	1200	194	8.1	28.0	22.0	>70	240
DATE	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)
MAY											
20...	740	6.3	77	--	--	--	--	115	0	94	--
JUN											
01...	740	7.4	92	--	--	--	--	99	0	81	--
15...	750	7.5	93	31	8.0	26	<3.6	100	0	82	<20
28...	750	7.9	104	29	8.0	27	2.5	104	0	85	<20
AUG											
09...	740	7.0	95	29	8.0	28	2.8	102	0	84	<20
SEP											
20...	750	6.6	77	--	--	--	--	71	0	58	--

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CHLORIDE, DIS- SOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)
MAY 20...	--	0.1	235	22	<0.500	<0.500	<0.500	<0.100	--	0.66	0.66
JUN 01...	--	0.1	217	31	<0.500	<0.500	<0.500	0.110	0.14	0.46	0.57
JUN 15...	49	--	--	--	--	--	--	--	--	--	--
JUN 28...	54	--	--	--	--	--	--	--	--	--	--
AUG 09...	61	0.2	225	30	<0.500	<0.500	<0.500	<0.100	--	0.44	0.44
SEP 20...	--	0.2	110	550	<0.500	<0.500	<0.500	0.112	0.14	1.5	1.6

DATE	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)
MAY 20...	0.020	--	<0.005	--	--	--	--	--	--	--	--
JUN 01...	0.070	--	<0.005	--	--	--	--	--	--	--	--
JUN 15...	--	--	--	<60	<60	90	<100	<5	<5.0	<10	<10
JUN 28...	--	--	--	<60	<60	90	<100	<5	<5.0	<10	<10
AUG 09...	<0.005	--	<0.005	<60	<60	100	110	<5	<5.0	<10	<10
SEP 20...	0.430	0.34	0.110	--	--	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY 20...	--	--	--	--	--	--	--	--	--	--
JUN 01...	--	--	--	--	--	--	--	--	--	--
JUN 15...	1500	<100	<45	<45	130	49	<0.50	<0.5	<70	<70
JUN 28...	1200	<100	<45	<45	150	47	<0.50	<0.5	<70	<70
AUG 09...	<1100	370	<45	<45	140	140	<0.50	<0.5	<70	<70
SEP 20...	--	--	--	--	--	--	--	--	--	--

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY 20...	--	--	--	--	--	--	--	--	--	--
JUN 01...	--	--	--	--	--	--	--	32	17	81
JUN 15...	<7	<7.0	300	260	7	9	<5.0	--	--	--
JUN 28...	<7	<7.0	290	280	<5	5	<5.0	27	11	90
AUG 09...	<7	<7.0	300	300	6	--	<5.0	44	19	88
SEP 20...	--	--	--	--	--	--	--	415	1340	99

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
NOV 01...	0955	1028	84042	1.48	53	419	7.9	14.0	13.0	40	7.0	750
DEC 13...	1135	1028	84042	1.58	70	451	8.1	8.0	4.0	50	16	750
JAN 24...	0940	1028	84042	1.52	61	540	8.4	10.5	6.0	30	8.0	740
MAR 08...	0955	1028	80020	1.96	171	521	--	4.0	2.0	90	29	750
08...	0956	1028	84042	1.96	171	521	--	4.0	2.0	>70	28	750
APR 18...	1000	1028	84042	1.93	153	380	8.4	22.0	17.5	30	16	740
MAY 31...	0820	1028	84042	2.06	201	337	7.8	27.0	23.6	>70	27	740
JUL 05...	1530	1028	84042	2.13	251	320	7.7	34.5	28.0	>70	42	745
AUG 22...	0820	1028	84042	3.15	818	227	7.6	28.0	22.0	>70	140	740
SEP 26...	0940	1028	84042	2.02	201	363	7.9	20.0	18.0	50	12	750

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, TOTAL (MG/L AS F)
NOV 01...	9.4	91	33	8.0	31	3.0	115	0	94	<20	54	0.2
DEC 13...	--	--	--	--	--	--	140	0	115	--	--	0.2
JAN 24...	11.7	97	58	11	33	2.3	200	0	164	28	60	0.2
MAR 08...	--	--	--	--	--	--	111	0	91	--	--	--
08...	--	--	--	--	--	--	111	0	91	--	--	0.2
APR 18...	--	--	--	--	--	--	120	0	98	--	--	0.2
MAY 31...	7.4	90	34	7.0	21	2.2	113	0	93	<20	37	0.2
JUL 05...	6.8	89	--	--	--	--	100	0	82	--	--	0.3
AUG 22...	7.4	87	23	5.0	13	3.7	88	0	72	<20	44	0.2
SEP 26...	7.8	80	--	--	--	--	135	0	110	--	--	0.2

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)
NOV 01...	--	--	249	12	<0.500	<0.500	<0.500	<0.100	--	0.36	0.36
DEC 13...	--	--	270	16	<0.500	<0.500	<0.500	<0.100	--	0.42	0.42
JAN 24...	--	--	320	13	<0.500	<0.500	<0.500	<0.100	--	0.36	0.36
MAR 08...	0.20	333	--	30	0.079	0.021	0.100	0.090	0.12	0.51	0.60
08...	--	--	284	28	--	<0.500	--	<0.100	--	0.56	0.56
APR 18...	--	--	1620	25	<0.500	<0.500	<0.500	<0.100	--	0.46	0.46
MAY 31...	--	--	183	50	0.700	<0.500	0.700	0.112	0.14	0.57	0.68
JUL 05...	--	--	202	34	<0.500	<0.500	<0.500	0.605	0.78	0.22	0.82
AUG 22...	--	--	172	304	1.30	<0.500	1.30	<0.100	--	1.1	1.1
SEP 26...	--	--	207	17	<0.500	<0.500	<0.500	0.109	0.14	0.11	0.22

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N03)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
NOV 01...	--	--	0.060	0.12	0.040	<60	<60	90	<100	<5	<5.0
DEC 13...	--	--	<0.005	--	<0.005	--	--	--	--	--	--
JAN 24...	--	--	0.153	0.15	0.048	<60	<60	100	<100	<5	<5.0
MAR 08...	0.70	3.1	0.080	0.15	0.050	--	--	--	--	--	--
MAR 08...	--	--	--	0.89	0.289	--	--	--	--	--	--
APR 18...	--	--	0.173	0.31	0.102	--	--	--	--	--	--
MAY 31...	1.4	6.1	0.660	0.77	0.250	<60	<60	90	76	<5	<5.0
JUL 05...	--	--	0.296	0.50	0.164	--	--	--	--	--	--
AUG 22...	2.4	11	0.234	0.63	0.207	<60	<60	100	<100	<5	<5.0
SEP 26...	--	--	0.316	0.68	0.221	--	--	--	--	--	--

[illegible]

DATE	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDIMENT, SUS-PENDED (MG/L)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<70	<7	<7.0	330	340	7	<5	<5.0	19	2.7	86
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 24...	<70	<7	<7.0	490	490	<5	--	5.0	--	--	--
MAR 08...	--	--	--	--	--	--	--	--	31	14	94
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	30	12	91
MAY 31...	<70	<7	<7.0	290	280	<5	--	<5.0	56	30	95
JUL 05...	--	--	--	--	--	--	--	--	72	49	92
AUG 22...	<70	<7	<7.0	200	170	70	--	6.9	264	583	96
SEP 26...	--	--	--	--	--	--	--	--	21	11	82

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

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07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JAN 24...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
MAY 31...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JUL 05...	--	<20	<75.0	<2.0	--	<2.0	<10.0	--	<2.0	<10.0
AUG 22...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	627	595	606
2	---	---	---	---	---	---	---	---	---	650	617	632
3	---	---	---	---	---	---	---	---	---	703	660	679
4	---	---	---	---	---	---	---	---	---	735	692	713
5	---	---	---	---	---	---	---	---	---	766	724	751
6	---	---	---	---	---	---	---	---	---	893	766	828
7	---	---	---	---	---	---	---	---	---	852	789	809
8	---	---	---	---	---	---	470	450	465	789	716	751
9	---	---	---	---	---	---	481	460	470	737	716	726
10	---	---	---	---	---	---	491	471	480	749	727	737
11	---	---	---	---	---	---	491	471	482	770	749	761
12	---	---	---	---	---	---	481	471	475	781	770	775
13	---	---	---	---	---	---	493	471	477	792	771	781
14	---	---	---	---	---	---	482	472	474	814	781	799
15	---	---	---	---	---	---	483	472	474	846	814	827
16	---	---	---	---	---	---	483	472	473	857	825	846
17	---	---	---	---	---	---	568	472	535	879	847	865
18	---	---	---	---	---	---	589	557	573	911	879	897
19	---	---	---	---	---	---	589	568	580	922	901	910
20	---	---	---	---	---	---	590	568	582	954	912	930
21	---	---	---	---	---	---	612	589	593	976	944	959
22	---	---	---	---	---	---	622	591	604	956	934	946
23	---	---	---	---	---	---	623	570	595	1030	935	988
24	---	---	---	---	---	---	634	612	623	1030	988	1010
25	---	---	---	---	---	---	667	623	643	1840	609	964
26	---	---	---	---	---	---	688	656	676	577	503	544
27	---	---	---	---	---	---	699	677	690	599	335	440
28	---	---	---	---	---	---	1060	688	788	641	167	294
29	---	---	---	---	---	---	689	521	586	314	209	246
30	---	---	---	---	---	---	595	521	552	294	262	281
31	---	---	---	---	---	---	---	---	---	294	273	283
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	305	284	297	773	473	671	600	520	554	470	440	455
2	327	305	317	689	376	499	660	590	624	460	440	454
3	444	285	340	385	279	312	690	630	669	470	450	458
4	285	264	272	413	115	276	730	670	709	480	460	472
5	280	250	261	307	163	254	760	690	728	500	480	491
6	270	260	264	364	287	314	790	730	762	530	500	515
7	280	270	272	373	316	344	810	770	790	560	520	540
8	280	270	276	354	343	349	840	800	820	600	550	573
9	280	270	279	353	334	343	880	840	859	630	590	604
10	290	280	280	401	343	375	920	860	890	660	600	629
11	340	280	295	403	392	397	940	910	922	660	640	647
12	430	340	390	404	368	393	970	930	950	700	650	668
13	379	369	378	533	116	196	990	890	946	740	700	720
14	388	369	380	422	195	347	1210	650	988	770	730	753
15	388	378	386	402	335	359	690	640	669	770	690	751
16	427	387	407	357	338	348	660	600	626	1120	630	875
17	436	426	432	360	339	343	620	590	606	1040	640	763
18	483	435	453	400	360	382	640	610	625	690	620	652
19	532	493	514	400	390	392	680	630	654	750	680	715
20	569	531	551	400	390	394	660	640	735	800	740	778
21	577	558	567	400	390	393	840	740	780	820	760	800
22	604	576	589	390	380	386	740	590	701	770	730	752
23	594	566	587	390	380	384	580	540	564	780	740	757
24	621	584	605	390	370	379	610	580	599	800	760	777
25	630	611	623	---	---	---	650	610	630	850	790	815
26	731	619	686	---	---	---	650	620	641	870	840	859
27	777	702	741	380	360	372	910	580	678	890	870	880
28	785	756	768	---	---	---	550	400	439	920	90	398
29	766	719	751	390	370	380	450	420	441	240	120	200
30	765	718	745	---	---	---	470	450	458	310	220	245
31	---	---	---	---	---	---	470	450	459	---	---	---

07177500 BIRD CREK NEAR SPERRY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	307	286	296	700	560	616	340	280	306	250	240	245
2	309	298	303	780	660	748	350	330	341	290	260	268
3	310	299	306	780	770	775	370	320	344	310	290	300
4	311	300	307	1100	770	944	360	300	341	330	310	320
5	312	301	307	800	520	634	360	310	337	340	320	330
6	313	302	306	500	410	438	360	310	345	370	330	346
7	314	303	311	430	400	421	360	310	334	400	360	377
8	316	304	313	440	410	424	400	360	381	430	400	408
9	328	305	321	490	410	446	390	350	377	430	420	424
10	350	328	336	470	430	439	340	330	337	450	420	434
11	351	339	343	440	430	438	340	330	337	460	430	446
12	351	330	342	440	430	438	370	330	348	---	---	---
13	353	341	346	440	430	436	390	370	380	---	---	---
14	386	353	369	450	430	440	390	370	380	---	---	---
15	409	387	397	850	170	421	420	390	397	---	---	---
16	442	398	414	320	150	237	460	410	438	---	---	---
17	498	443	466	310	280	292	430	400	410	---	---	---
18	509	445	485	310	290	299	540	432	432	---	---	---
19	523	478	500	360	310	335	480	140	260	---	---	---
20	612	523	556	370	350	363	270	140	232	---	---	---
21	613	569	587	390	360	374	220	150	177	---	---	---
22	581	526	558	420	380	400	210	170	191	---	---	---
23	595	527	570	440	410	427	240	210	227	490	390	450
24	651	583	620	490	100	378	290	240	254	390	370	379
25	708	640	674	220	140	180	310	180	253	390	370	379
26	720	677	699	190	150	170	220	170	199	460	360	399
27	702	667	679	230	180	199	200	160	179	370	360	367
28	---	---	---	280	210	259	230	190	200	380	370	376
29	680	660	674	290	260	274	320	230	270	380	370	379
30	700	670	687	290	270	282	320	270	297	410	388	392
31	700	670	696	---	---	---	280	250	267	430	410	420
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	440	420	434	590	570	577	353	177	257	400	380	390
2	450	430	441	770	340	589	200	178	188	400	390	393
3	500	450	475	300	220	260	254	200	216	400	390	394
4	530	500	513	310	250	272	352	254	294	470	410	444
5	570	530	550	280	250	263	332	258	295	470	460	463
6	590	570	578	270	250	260	295	249	270	510	460	484
7	590	580	585	290	270	277	299	243	284	530	510	519
8	590	570	579	320	290	305	302	279	293	550	520	536
9	580	570	576	310	290	300	304	292	298	560	540	550
10	580	570	577	300	280	292	355	267	309	560	550	555
11	590	580	585	300	290	290	298	259	286	560	550	555
12	590	580	589	300	290	292	291	271	282	570	550	559
13	610	590	593	300	290	292	285	273	274	590	570	579
14	630	600	614	290	290	291	288	275	285	950	600	703
15	660	630	641	300	280	290	300	288	295	910	490	639
16	670	660	666	300	280	290	303	291	300	490	480	488
17	690	670	682	340	290	303	307	293	300	550	490	507
18	690	670	683	401	350	372	330	296	313	590	550	580
19	1280	460	686	411	371	392	331	280	303	590	410	478
20	480	420	447	381	352	369	290	280	287	430	400	412
21	470	430	443	362	342	351	300	290	298	440	420	429
22	440	410	432	373	352	359	310	300	303	430	410	420
23	400	380	389	394	353	366	310	300	310	450	410	423
24	390	360	376	476	405	431	320	310	312	480	440	461
25	390	360	370	558	467	491	320	310	316	480	450	462
26	520	400	466	489	457	470	350	320	330	490	450	476
27	540	520	531	500	459	478	380	350	359	480	450	464
28	560	540	547	502	441	481	360	350	356	460	390	418
29	580	560	567	711	247	331	380	350	359	390	380	388
30	---	---	---	362	321	350	390	380	385	390	380	383
31	---	---	---	394	331	366	---	---	---	390	370	378

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	380	370	376	390	370	382	370	360	362	360	350	359
2	540	370	405	390	370	379	370	360	362	370	350	360
3	560	480	522	390	370	379	380	360	367	360	350	355
4	470	410	440	410	360	387	380	365	372	360	360	360
5	430	400	412	420	400	405	400	360	385	360	350	355
6	440	430	432	420	400	409	390	380	386	360	350	353
7	430	410	422	420	390	402	395	380	389	360	350	352
8	410	390	396	420	390	399	400	380	388	360	350	352
9	400	390	391	410	380	395	456	380	395	360	340	350
10	400	380	386	410	380	392	640	424	488	350	340	348
11	390	380	383	---	---	---	430	390	404	350	340	346
12	390	380	381	---	---	---	390	370	379	350	340	342
13	390	380	383	---	---	---	370	360	367	350	340	345
14	390	380	383	450	410	437	370	350	362	350	340	348
15	390	380	385	420	380	393	370	360	364	350	340	342
16	390	380	387	390	370	379	380	360	366	480	330	371
17	390	380	386	390	370	372	380	370	378	530	350	403
18	390	380	386	400	370	385	390	370	380	380	330	344
19	390	380	386	390	360	377	380	370	379	460	270	324
20	390	380	382	450	250	328	390	380	384	260	200	220
21	390	380	384	360	340	354	390	380	382	220	200	210
22	390	380	382	350	340	348	390	380	381	240	210	223
23	380	380	380	350	340	348	390	370	380	420	200	285
24	380	370	379	360	340	350	380	370	378	290	200	249
25	390	370	380	360	350	352	380	370	378	310	290	294
26	390	370	379	360	350	353	380	370	376	320	300	311
27	380	370	379	360	350	354	380	370	375	320	310	319
28	390	370	380	383	340	354	370	360	367	330	320	326
29	390	370	382	440	360	390	370	360	366	340	330	330
30	390	370	381	400	350	363	370	370	365	330	320	329
31	---	---	---	370	350	360	370	350	361	---	---	---

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	330	330	330	440	430	432	350	340	345	430	400	411
2	330	320	330	440	430	436	360	350	356	410	390	400
3	340	320	330	450	440	442	380	360	364	420	400	407
4	340	330	332	450	420	435	380	370	378	420	400	411
5	340	330	331	430	430	430	400	380	388	410	400	407
6	510	330	384	430	420	428	400	390	397	420	410	412
7	370	340	351	430	420	427	410	390	404	430	410	420
8	370	330	352	430	420	426	420	410	416	440	420	434
9	340	300	317	430	420	422	430	420	421	450	430	440
10	330	310	317	430	420	427	430	420	426	440	430	435
11	331	320	327	450	400	434	450	430	438	440	430	437
12	340	320	331	770	260	407	450	440	446	---	---	---
13	330	320	326	390	270	354	460	440	449	---	---	---
14	340	320	329	390	370	384	450	440	447	---	---	---
15	350	330	336	400	380	389	460	440	449	---	---	---
16	380	350	361	450	390	422	450	440	450	---	---	---
17	400	380	389	440	420	426	450	440	448	---	---	---
18	410	400	403	420	400	413	460	440	451	---	---	---
19	420	400	408	420	410	417	460	450	454	---	---	---
20	420	410	413	480	190	337	460	450	456	---	---	---
21	430	410	418	370	290	329	460	450	456	---	---	---
22	430	420	428	340	290	306	520	450	459	---	---	---
23	440	410	427	340	330	337	600	370	447	---	---	---
24	420	410	414	380	340	358	430	360	395	---	---	---
25	420	400	410	397	360	370	390	360	372	---	---	---
26	420	410	414	520	250	311	420	390	408	---	---	---
27	420	410	415	350	290	319	510	400	439	433	328	369
28	430	420	420	350	300	321	420	310	373	588	290	464
29	430	420	422	310	280	294	460	380	435	473	230	356
30	430	420	423	340	300	324	430	400	408	443	119	399
31	430	420	429	---	---	---	430	410	412	472	416	444

ARKANSAS RIVER BASIN

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07177600 BIRD CREEK NEAR SPERRY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	496	470	483	477	448	469	264	208	246	404	344	387
2	510	486	498	458	448	453	274	255	262	404	360	379
3	510	496	505	477	448	465	292	264	281	386	359	375
4	513	494	505	610	429	502	311	292	301	402	358	379
5	517	499	511	467	438	450	321	302	313	410	358	397
6	623	504	521	514	448	472	339	311	327	418	366	397
7	528	515	521	514	504	510	357	329	342	427	400	414
8	530	519	523	523	504	512	375	356	364	417	382	399
9	534	519	527	523	362	418	384	373	380	407	373	392
10	532	510	517	362	314	334	410	373	383	399	355	389
11	517	506	509	333	314	323	446	391	421	389	345	377
12	506	485	495	352	324	341	473	399	441	380	336	337
13	675	484	511	380	352	363	472	426	458	345	336	338
14	901	525	692	408	376	392	471	396	438	344	327	336
15	684	283	406	399	370	384	414	366	387	497	317	336
16	402	283	345	399	380	392	430	366	396	455	326	372
17	450	393	415	417	399	407	430	374	411	409	351	381
18	488	450	471	436	417	429	429	373	400	562	354	412
19	488	459	473	465	436	449	445	381	411	497	422	463
20	517	488	495	465	455	461	435	371	400	554	403	456
21	612	469	527	484	465	476	425	379	391	393	341	367
22	526	449	484	520	474	491	414	369	396	378	290	345
23	469	440	451	568	521	545	413	341	390	309	232	271
24	459	420	448	578	559	567	431	367	399	333	259	283
25	429	410	421	577	558	568	420	367	392	379	305	332
26	448	429	438	577	558	568	410	366	392	387	323	360
27	489	439	455	587	568	576	401	364	385	359	309	332
28	496	477	486	710	227	494	408	355	390	338	317	326
29	---	---	---	331	189	287	399	371	385	340	320	332
30	---	---	---	283	236	249	397	370	386	340	320	335
31	---	---	---	245	142	196	---	---	---	350	330	342

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	390	340	358	350	295	324	367	354	361	350	290	319
2	390	360	373	339	266	318	399	358	378	390	290	322
3	440	370	390	335	232	278	368	344	357	390	300	327
4	410	360	383	323	232	288	379	339	345	370	300	325
5	380	350	365	330	263	316	356	335	341	360	160	332
6	400	299	333	370	330	350	410	200	275	160	100	115
7	329	298	312	430	340	366	330	250	298	220	140	182
8	317	288	310	360	330	347	330	310	320	250	200	227
9	335	306	323	350	330	343	340	330	334	270	250	260
10	343	313	328	380	320	354	340	320	331	280	260	272
11	380	131	260	380	340	348	330	320	324	290	270	275
12	181	130	155	350	340	347	330	310	319	320	270	287
13	227	130	180	380	340	355	340	320	325	480	170	260
14	233	187	213	400	350	377	350	320	331	---	---	---
15	275	232	253	420	370	387	340	330	334	---	---	---
16	271	242	252	490	340	395	410	330	336	280	250	270
17	275	231	251	370	140	247	370	230	309	310	270	287
18	270	234	247	210	160	194	330	310	321	310	260	288
19	290	222	248	270	200	230	340	320	333	320	270	294
20	270	221	238	370	280	312	340	80	162	320	280	299
21	315	224	249	420	330	372	175	127	143	320	280	304
22	318	227	266	430	360	385	227	173	190	360	300	320
23	317	281	290	380	250	312	240	214	226	330	300	313
24	285	269	275	450	290	353	316	230	272	330	300	320
25	292	273	284	470	360	406	320	290	296	340	330	336
26	329	296	307	460	400	419	390	280	315	360	340	353
27	508	258	348	490	410	430	380	300	316	380	360	367
28	375	301	329	470	410	431	360	290	317	380	360	371
29	398	294	353	---	---	---	360	300	332	380	370	373
30	372	291	325	---	---	---	350	230	289	380	340	360
31	---	---	---	---	---	---	320	230	272	---	---	---

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	8.1	7.8	8.0
2	---	---	---	---	---	---	---	---	---	8.1	7.8	7.9
3	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
4	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
5	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
6	---	---	---	---	---	---	---	---	---	8.2	8.0	8.1
7	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
8	---	---	---	---	---	---	8.0	7.8	7.9	8.2	7.9	8.1
9	---	---	---	---	---	---	8.0	7.9	7.9	8.2	8.1	8.1
10	---	---	---	---	---	---	8.0	7.9	8.0	8.4	8.1	8.2
11	---	---	---	---	---	---	8.1	7.9	8.0	8.3	8.1	8.2
12	---	---	---	---	---	---	8.1	7.9	8.0	8.3	8.1	8.2
13	---	---	---	---	---	---	8.0	7.9	8.0	8.2	8.0	8.1
14	---	---	---	---	---	---	8.0	7.9	8.0	8.2	8.0	8.1
15	---	---	---	---	---	---	8.1	7.9	8.0	8.2	8.1	8.1
16	---	---	---	---	---	---	8.1	8.0	8.0	8.3	8.1	8.1
17	---	---	---	---	---	---	8.0	7.8	8.0	8.4	8.0	8.1
18	---	---	---	---	---	---	8.1	7.9	7.9	8.3	8.2	8.3
19	---	---	---	---	---	---	8.1	7.8	8.0	8.4	8.2	8.3
20	---	---	---	---	---	---	8.1	7.9	8.0	8.3	8.2	8.2
21	---	---	---	---	---	---	8.2	7.9	8.0	8.4	8.1	8.2
22	---	---	---	---	---	---	8.3	8.0	8.1	8.4	8.2	8.3
23	---	---	---	---	---	---	8.3	7.9	8.1	8.3	8.1	8.2
24	---	---	---	---	---	---	8.2	7.8	8.1	8.2	8.1	8.1
25	---	---	---	---	---	---	8.2	7.8	7.9	8.2	7.9	8.1
26	---	---	---	---	---	---	8.2	7.8	7.9	8.1	7.9	8.0
27	---	---	---	---	---	---	8.2	7.9	8.1	7.9	7.7	7.8
28	---	---	---	---	---	---	8.2	7.8	8.1	7.9	7.7	7.8
29	---	---	---	---	---	---	8.2	7.9	8.1	8.1	7.6	7.7
30	---	---	---	---	---	---	8.1	7.9	8.0	7.9	7.4	7.7
31	---	---	---	---	---	---	---	---	---	7.4	6.8	7.1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.8	8.2	8.6	7.8	7.0	7.6	7.5	7.1	7.3	8.1	5.8	5.9
2	8.7	8.2	8.4	7.9	7.4	7.6	7.5	7.1	7.4	8.5	5.7	5.8
3	7.6	6.8	7.1	7.7	7.5	7.6	7.4	7.1	7.2	6.6	6.3	6.5
4	8.1	7.5	7.8	8.3	7.4	7.6	7.7	7.1	7.4	6.6	6.4	6.5
5	8.2	8.1	8.2	8.5	8.2	8.3	7.3	7.0	7.2	6.6	6.3	6.5
6	8.3	8.1	8.2	8.3	7.9	8.1	7.0	6.5	6.7	6.7	6.3	6.5
7	8.1	7.9	8.0	8.2	7.9	7.9	7.0	6.5	6.7	7.2	6.4	6.7
8	7.9	7.6	7.8	8.1	7.8	7.9	7.5	6.8	7.2	7.0	6.5	6.7
9	7.7	7.6	7.6	8.0	7.4	7.8	8.1	7.1	7.6	7.1	6.6	6.8
10	7.6	7.6	7.6	7.6	7.2	7.4	7.8	7.5	7.6	7.2	6.9	7.1
11	7.7	7.6	7.6	---	---	---	7.6	7.3	7.4	7.5	7.3	7.4
12	8.2	7.5	7.6	---	---	---	7.9	7.3	7.5	7.6	7.5	7.6
13	8.1	7.7	8.0	---	---	---	8.1	7.6	8.0	7.7	7.5	7.6
14	7.7	7.5	7.6	---	---	---	8.4	8.0	8.3	7.8	7.6	7.7
15	7.6	7.5	7.5	---	---	---	8.3	7.5	7.9	7.9	7.7	7.8
16	7.6	7.5	7.6	---	---	---	8.4	7.6	8.1	8.2	7.5	7.9
17	7.6	7.3	7.6	---	---	---	---	---	---	7.7	7.4	7.6
18	7.3	7.1	7.2	7.8	7.5	7.7	---	---	---	7.8	7.5	7.7
19	7.6	7.2	7.3	7.6	7.2	7.3	7.8	7.1	7.4	7.9	7.8	7.9
20	7.7	7.5	7.6	7.7	7.2	7.5	7.3	6.9	7.2	7.9	7.8	7.9
21	7.6	7.4	7.6	7.8	7.4	7.6	6.8	5.7	6.4	8.0	7.8	7.9
22	7.9	7.5	7.6	7.8	7.5	7.7	6.9	5.8	6.1	8.1	7.8	7.9
23	7.7	7.4	7.5	8.1	7.7	7.9	7.1	6.6	6.9	8.0	7.8	7.9
24	7.8	7.4	7.5	8.2	7.5	7.9	7.2	6.8	7.0	8.3	7.9	8.0
25	7.7	7.3	7.5	---	---	---	7.5	7.1	7.4	8.3	7.8	8.1
26	7.6	7.1	7.3	---	---	---	7.4	7.1	7.3	8.2	7.6	7.9
27	7.2	6.9	7.1	---	---	---	7.9	7.3	7.8	8.0	7.5	7.7
28	7.1	6.8	7.0	---	---	---	7.9	7.3	7.7	8.4	7.4	7.7
29	7.0	6.8	6.9	---	---	---	7.3	6.6	7.1	8.1	7.7	8.0
30	7.0	6.8	6.9	---	---	---	7.0	6.1	6.8	8.2	7.0	7.9
31	---	---	---	---	---	---	6.7	6.0	6.2	---	---	---

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	7.7	6.8	6.9	8.1	7.7	7.9	8.4	8.4	8.4	8.4	8.3	8.3
2	7.8	7.2	7.4	7.8	7.5	7.7	8.4	8.4	8.4	8.3	8.3	8.3
3	7.1	6.7	6.9	7.8	7.5	7.7	8.5	8.4	8.4	8.3	8.3	8.3
4	6.7	6.6	6.6	7.8	7.6	7.7	8.5	8.4	8.4	8.3	8.3	8.3
5	6.6	6.5	6.6	7.9	7.7	7.8	8.4	8.4	8.4	8.3	8.3	8.3
6	6.8	6.6	6.6	7.8	7.5	7.6	8.4	8.4	8.4	8.3	8.2	8.2
7	7.2	6.8	7.0	7.6	7.4	7.5	8.5	8.1	8.4	8.2	8.1	8.2
8	7.3	7.1	7.2	7.4	7.1	7.1	---	---	---	8.2	8.1	8.1
9	7.2	6.9	7.0	7.5	7.1	7.4	---	---	---	8.2	8.1	8.2
10	7.1	6.9	7.0	7.1	6.8	7.0	---	---	---	8.1	8.1	8.1
11	7.0	6.9	7.0	6.9	6.6	6.7	---	---	---	8.1	8.1	8.1
12	7.2	6.8	6.9	6.7	6.5	6.6	---	---	---	8.1	8.0	8.1
13	7.0	6.8	6.9	6.5	6.4	6.5	---	---	---	8.2	7.9	8.1
14	7.2	7.0	7.1	6.5	6.4	6.4	---	---	---	8.2	8.2	8.2
15	7.2	6.7	6.9	8.4	6.1	6.4	---	---	---	8.2	8.1	8.2
16	7.6	6.9	7.2	8.3	8.0	8.3	---	---	---	8.3	8.1	8.2
17	7.6	7.4	7.5	8.3	8.2	8.2	---	---	---	8.4	8.2	8.3
18	7.8	7.5	7.6	8.4	8.2	8.3	---	---	---	8.5	8.4	8.5
19	7.8	7.5	7.7	8.4	8.2	8.2	8.5	8.1	8.3	8.4	8.3	8.3
20	7.8	7.7	7.8	8.3	8.2	8.2	8.4	8.1	8.1	---	---	---
21	7.9	7.7	7.8	8.3	8.1	8.1	8.3	8.1	8.2	---	---	---
22	8.1	7.6	7.8	8.2	8.1	8.1	8.4	8.3	8.4	---	---	---
23	8.0	7.6	7.8	8.2	8.1	8.1	8.4	8.4	8.4	7.5	7.4	7.5
24	8.0	7.7	7.9	8.4	7.9	8.1	8.4	8.4	8.4	7.4	7.4	7.4
25	7.9	7.8	7.8	8.2	8.0	8.1	8.4	8.1	8.4	7.5	7.4	7.5
26	8.1	7.8	7.9	8.1	8.0	8.1	8.3	8.1	8.2	7.6	7.4	7.5
27	8.1	7.8	7.9	8.1	8.0	8.0	8.2	8.0	8.2	7.5	7.5	7.5
28	8.1	7.6	7.9	8.3	8.1	8.3	8.4	8.2	8.3	7.5	7.5	7.5
29	8.0	7.7	7.9	8.4	8.3	8.4	8.5	8.4	8.4	7.6	7.5	7.5
30	8.0	7.8	7.9	8.4	8.4	8.4	8.4	8.4	8.4	7.6	7.5	7.6
31	8.0	7.7	7.9	---	---	---	8.4	8.4	8.4	7.6	7.6	7.6

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	7.6	7.6	7.6	7.6	7.4	7.5	7.4	6.8	7.1	7.8	7.7	7.7
2	7.7	7.6	7.6	7.6	7.1	7.4	7.1	6.9	7.0	7.8	7.7	7.8
3	7.7	7.6	7.6	7.3	7.0	7.2	7.1	6.9	7.0	7.8	7.7	7.8
4	7.7	7.6	7.7	7.4	7.2	7.3	7.5	7.2	7.3	7.9	7.8	7.8
5	7.7	7.6	7.7	7.4	7.3	7.3	7.5	7.3	7.4	7.9	7.8	7.8
6	7.7	7.7	7.7	7.4	7.3	7.3	7.4	7.3	7.4	7.9	7.8	7.8
7	7.7	7.7	7.7	7.4	7.3	7.3	7.7	7.3	7.4	7.9	7.8	7.8
8	7.7	7.7	7.7	7.5	7.4	7.4	7.7	7.7	7.7	8.1	7.9	7.9
9	7.7	7.6	7.7	7.5	7.4	7.4	7.7	7.7	7.7	8.1	7.9	8.0
10	7.7	7.6	7.6	7.4	7.4	7.4	7.7	7.6	7.7	8.1	7.9	8.0
11	7.7	7.7	7.7	7.4	7.3	7.4	7.7	7.6	7.7	8.1	7.9	8.0
12	7.7	7.7	7.7	7.4	7.3	7.3	7.7	7.6	7.7	8.1	7.9	8.0
13	7.7	7.7	7.7	7.3	7.3	7.3	7.6	7.5	7.6	8.0	7.8	7.9
14	7.7	7.7	7.7	7.4	7.3	7.3	7.6	7.5	7.6	8.0	7.8	7.9
15	7.7	7.6	7.6	7.3	7.3	7.3	7.6	7.6	7.6	8.0	7.8	7.9
16	7.7	7.6	7.6	7.3	7.2	7.3	7.6	7.6	7.6	7.9	7.7	7.8
17	7.6	7.6	7.6	7.6	7.2	7.2	7.6	7.5	7.5	7.8	7.7	7.8
18	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.5	7.9	7.7	7.9
19	7.7	7.4	7.5	7.8	7.6	7.7	7.6	7.5	7.6	8.0	7.9	7.9
20	7.8	7.5	7.7	7.6	7.5	7.6	7.6	7.6	7.6	7.9	7.9	7.9
21	7.7	7.6	7.7	7.5	7.4	7.4	7.6	7.5	7.5	8.0	7.9	7.9
22	7.6	7.6	7.6	7.4	7.4	7.4	7.6	7.5	7.5	7.9	7.9	7.9
23	7.6	7.6	7.6	7.5	7.4	7.4	7.6	7.5	7.6	8.0	7.9	7.9
24	7.7	7.6	7.6	7.4	7.2	7.4	7.5	7.5	7.5	8.0	7.9	7.9
25	7.6	7.6	7.6	7.2	7.1	7.2	7.5	7.4	7.5	8.0	7.9	7.9
26	7.5	7.4	7.5	7.2	7.1	7.2	7.6	7.4	7.5	8.1	7.9	8.0
27	7.6	7.4	7.5	7.2	7.2	7.2	7.6	7.5	7.6	8.1	8.0	8.0
28	7.6	7.4	7.5	7.2	7.2	7.2	7.6	7.6	7.6	8.0	7.9	8.0
29	7.6	7.4	7.5	7.2	6.7	6.8	7.6	7.6	7.6	8.0	7.9	7.9
30	---	---	---	7.1	6.7	6.9	7.7	7.6	7.6	7.9	7.8	7.8
31	---	---	---	6.9	6.7	6.8	---	---	---	7.8	7.7	7.7

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	
		JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	7.6	7.7	7.8	7.6	7.7	8.0	7.9	7.9	7.8	7.6	7.7	
2	8.0	7.7	7.8	7.8	7.6	7.7	8.0	7.8	7.9	7.8	7.6	7.7	
3	8.1	8.0	8.1	7.9	7.7	7.8	8.1	7.7	7.9	7.8	7.6	7.7	
4	8.0	7.8	7.8	7.9	7.7	7.8	8.0	7.9	8.0	7.9	7.7	7.8	
5	7.9	7.7	7.8	7.9	7.7	7.8	8.0	7.9	7.9	7.9	7.7	7.8	
6	7.9	7.8	7.8	7.8	7.7	7.7	8.0	7.9	8.0	7.9	7.7	7.8	
7	7.9	7.7	7.8	7.8	7.7	7.7	8.0	7.9	8.0	7.9	7.7	7.8	
8	7.9	7.7	7.8	7.8	7.6	7.8	8.0	7.9	7.9	7.9	7.8	7.9	
9	8.0	7.7	7.9	7.7	7.6	7.6	8.1	7.9	8.0	7.9	7.8	7.8	
10	7.9	7.8	7.9	7.7	7.5	7.6	8.1	7.9	8.0	7.9	7.7	7.8	
11	7.9	7.8	7.9	---	---	---	8.0	7.9	8.0	7.9	7.8	7.9	
12	7.9	7.8	7.8	---	---	---	7.9	7.8	7.8	7.9	7.8	7.9	
13	7.9	7.7	7.8	---	---	---	8.0	7.6	7.8	8.0	7.8	7.9	
14	7.9	7.7	7.8	8.0	7.8	7.9	8.0	7.8	7.9	8.0	7.9	7.9	
15	7.9	7.7	7.8	7.9	7.8	7.8	8.1	7.9	7.9	8.0	7.9	7.9	
16	7.9	7.7	7.8	7.9	7.8	7.9	8.1	7.9	8.0	8.0	7.9	7.9	
17	7.9	7.7	7.8	7.9	7.8	7.8	8.1	7.8	8.0	8.0	7.9	7.9	
18	7.9	7.7	7.8	8.0	7.8	7.9	8.1	7.9	8.0	8.0	7.9	8.0	
19	7.9	7.7	7.7	7.9	7.8	7.9	8.1	7.9	8.0	7.9	7.6	7.8	
20	7.9	7.7	7.7	7.9	7.5	7.6	8.1	7.9	8.0	7.9	7.7	7.8	
21	7.8	7.6	7.7	7.8	7.7	7.8	8.0	7.9	8.0	7.8	7.7	7.7	
22	7.8	7.6	7.7	7.8	7.7	7.7	8.1	7.9	8.0	7.8	7.7	7.7	
23	7.8	7.6	7.7	7.8	7.7	7.8	8.1	7.9	8.0	7.9	7.6	7.7	
24	7.8	7.6	7.7	7.9	7.7	7.8	8.1	8.0	8.1	7.9	7.6	7.8	
25	7.8	7.6	7.7	7.9	7.8	7.9	8.2	8.0	8.1	7.9	7.9	7.9	
26	7.8	7.6	7.7	7.9	7.8	7.9	8.1	8.0	8.1	7.9	7.8	7.8	
27	7.8	7.6	7.7	7.9	7.8	7.8	8.5	7.9	8.0	7.8	7.7	7.8	
28	7.8	7.6	7.7	7.9	7.8	7.9	8.0	7.8	7.9	7.7	7.7	7.7	
29	7.8	7.6	7.7	8.0	7.8	7.9	7.9	7.6	7.8	7.7	7.6	7.7	
30	7.8	7.6	7.7	8.0	7.9	7.9	7.8	7.6	7.7	7.7	7.5	7.6	
31	---	---	---	8.0	7.9	7.9	7.8	7.6	7.7	---	---	---	

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.7	7.5	7.6	7.9	7.8	7.8	7.9	7.9	7.9	8.1	8.1	8.1
2	7.7	7.6	7.7	7.9	7.8	7.8	7.9	7.9	7.9	8.1	8.0	8.1
3	7.8	7.7	7.7	7.9	7.8	7.8	7.9	7.8	7.8	8.1	8.0	8.1
4	7.8	7.7	7.8	8.0	7.8	7.8	7.8	7.8	7.8	8.1	8.0	8.0
5	7.9	7.8	7.8	7.9	7.8	7.8	7.8	7.7	7.7	8.0	7.9	8.0
6	7.9	7.8	7.9	7.9	7.8	7.8	7.7	7.7	7.7	8.0	8.0	8.0
7	7.9	7.9	7.9	7.9	7.7	7.8	7.7	7.6	7.7	8.1	8.0	8.0
8	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8	8.0	8.0	8.0
9	7.9	7.9	7.9	7.9	7.7	7.8	7.8	7.8	7.8	8.1	8.0	8.0
10	7.9	7.9	7.9	7.8	7.7	7.8	7.8	7.8	7.8	8.1	8.1	8.1
11	7.9	7.8	7.9	7.9	7.8	7.8	7.9	7.8	7.9	8.1	8.1	8.1
12	7.9	7.9	7.9	7.9	7.6	7.8	7.9	7.9	7.9	---	---	---
13	7.9	7.8	7.9	7.8	7.7	7.8	7.9	7.9	7.9	---	---	---
14	7.9	7.8	7.9	7.9	7.8	7.8	7.9	7.9	7.9	---	---	---
15	7.9	7.7	7.8	7.8	7.7	7.8	7.9	7.9	7.9	---	---	---
16	7.8	7.7	7.8	7.8	7.7	7.7	7.9	7.9	7.9	---	---	---
17	7.8	7.7	7.7	7.7	7.7	7.7	7.9	7.9	7.9	---	---	---
18	7.8	7.6	7.7	7.7	7.7	7.7	8.0	7.9	7.9	---	---	---
19	7.8	7.6	7.7	7.8	7.7	7.7	8.0	7.9	8.0	---	---	---
20	7.7	7.6	7.7	7.9	7.6	7.7	8.0	7.9	8.0	---	---	---
21	7.7	7.6	7.6	7.9	7.8	7.9	8.0	7.9	8.0	---	---	---
22	7.8	7.6	7.7	7.9	7.9	7.9	8.1	7.9	8.0	---	---	---
23	7.7	7.7	7.7	8.0	7.9	7.9	8.1	7.9	8.0	---	---	---
24	7.7	7.6	7.7	8.0	8.0	8.0	8.0	7.9	7.9	---	---	---
25	7.7	7.6	7.7	8.1	8.0	8.0	8.0	7.9	8.0	---	---	---
26	7.8	7.7	7.7	8.0	7.7	7.9	8.1	8.0	8.1	---	---	---
27	7.8	7.7	7.7	7.9	7.8	7.9	8.2	8.0	8.1	7.9	7.7	7.8
28	7.8	7.7	7.8	7.9	7.8	7.9	8.1	8.0	8.1	8.1	7.9	7.9
29	7.8	7.7	7.8	7.8	7.7	7.8	8.2	8.1	8.1	8.1	7.8	8.0
30	7.8	7.7	7.8	7.9	7.8	7.8	8.2	8.1	8.1	8.1	8.0	8.1
31	7.9	7.8	7.8	---	---	---	8.2	8.1	8.1	8.1	8.1	8.1

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	8.1	8.1	8.1	8.1	8.0	8.1	7.9	7.8	7.9	7.9	7.9	7.9
2	8.1	8.0	8.1	8.2	8.0	8.1	7.9	7.8	7.9	7.9	7.8	7.9
3	8.1	8.1	8.1	8.2	8.0	8.1	7.9	7.9	7.9	7.9	7.8	7.9
4	8.1	8.0	8.1	8.1	7.9	8.0	8.0	7.9	7.9	7.9	7.8	7.9
5	8.1	8.0	8.0	8.1	7.9	8.0	8.0	7.9	7.9	8.0	7.9	7.9
6	8.0	7.9	7.9	8.1	8.0	8.1	8.1	7.9	8.0	8.0	7.9	7.9
7	7.9	7.9	7.9	8.1	8.0	8.0	8.2	8.1	8.1	8.0	7.9	8.0
8	7.9	7.8	7.9	8.2	8.0	8.0	8.3	8.0	8.1	8.0	7.9	7.9
9	7.9	7.8	7.8	8.2	8.0	8.1	8.2	8.0	8.1	7.9	7.8	7.9
10	7.8	7.8	7.8	8.0	7.9	8.0	8.3	8.0	8.1	8.0	7.9	7.9
11	7.9	7.8	7.8	8.0	7.9	7.9	8.3	8.2	8.2	8.0	7.9	7.9
12	7.9	7.8	7.8	8.0	7.9	7.9	8.3	8.2	8.3	8.0	7.7	7.9
13	7.8	7.8	7.8	8.0	7.9	7.9	8.2	8.1	8.2	8.1	8.0	8.0
14	7.9	7.8	7.8	8.0	7.8	7.9	8.2	8.1	8.1	8.1	8.0	8.0
15	8.0	7.9	7.9	8.0	7.9	7.9	8.1	8.0	8.1	8.1	8.0	8.0
16	8.1	7.9	8.0	8.0	7.9	7.9	8.1	8.0	8.0	8.1	7.9	8.0
17	8.2	8.1	8.2	8.0	7.8	7.9	8.1	8.0	8.0	8.3	7.9	8.1
18	8.3	8.2	8.2	7.9	7.8	7.8	8.0	7.9	8.0	8.4	8.2	8.2
19	8.2	8.2	8.2	7.9	7.7	7.8	8.1	7.9	8.0	8.3	8.1	8.2
20	8.2	8.1	8.2	7.8	7.5	7.7	8.0	7.9	8.0	8.3	8.1	8.2
21	8.3	8.2	8.2	7.9	7.8	7.9	8.0	7.9	7.9	8.1	7.9	8.0
22	8.3	8.2	8.3	8.0	7.6	7.9	8.0	7.9	8.0	8.0	7.8	7.9
23	8.3	8.2	8.2	8.0	7.9	7.9	8.0	7.9	8.0	7.9	7.8	7.8
24	8.2	8.2	8.2	8.0	7.9	8.0	8.0	7.9	7.9	7.8	7.8	7.8
25	8.2	8.1	8.2	8.0	7.8	7.9	8.0	7.9	7.9	7.9	7.8	7.9
26	8.2	8.1	8.1	7.9	7.8	7.8	7.9	7.8	7.9	8.0	7.8	7.9
27	8.1	8.0	8.1	7.9	7.8	7.9	7.9	7.8	7.9	8.0	8.0	8.0
28	8.1	8.0	8.1	8.1	7.6	7.9	7.9	7.8	7.8	8.0	8.0	8.0
29	---	---	---	8.0	7.5	7.9	7.9	7.8	7.9	8.0	7.9	7.9
30	---	---	---	8.0	7.8	7.9	7.9	7.8	7.9	8.1	8.0	8.0
31	---	---	---	7.8	7.6	7.7	---	---	---	8.0	8.0	8.0

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.0	7.8	7.9	7.7	7.6	7.7	7.9	7.8	7.9	7.8	7.7	7.7
2	8.0	7.8	7.9	7.7	7.4	7.6	7.9	7.8	7.9	7.8	7.7	7.7
3	8.0	7.8	7.9	7.7	7.5	7.8	7.9	7.8	7.9	7.9	7.8	7.8
4	8.0	7.8	7.9	7.6	7.5	7.6	7.8	7.8	7.8	7.9	7.8	7.9
5	8.0	7.9	8.0	7.7	7.6	7.6	7.8	7.7	7.7	8.0	7.6	7.9
6	8.0	7.8	7.9	7.9	7.6	7.7	7.8	7.5	7.6	7.7	7.3	7.5
7	8.0	7.9	7.9	7.9	7.6	7.8	7.7	7.6	7.7	7.7	7.4	7.6
8	8.0	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.7	7.8
9	8.0	7.9	8.0	7.8	7.7	7.7	7.8	7.7	7.8	7.9	7.9	7.9
10	8.0	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.9	7.9
11	8.0	7.2	7.7	7.8	7.7	7.8	7.8	7.7	7.7	7.9	7.8	7.8
12	7.8	7.4	7.6	7.8	7.7	7.7	7.9	7.8	7.8	7.8	7.8	7.8
13	7.6	7.4	7.5	7.8	7.7	7.8	7.9	7.8	7.9	7.9	7.6	7.7
14	7.8	7.6	7.7	7.9	7.8	7.8	7.9	7.8	7.9	---	---	---
15	7.9	7.8	7.8	8.0	7.8	7.8	7.9	7.8	7.9	---	---	---
16	7.8	7.7	7.7	7.9	7.7	7.8	8.1	7.8	7.9	7.8	7.6	7.7
17	7.7	7.7	7.7	7.8	7.1	7.4	8.0	7.8	7.9	7.6	7.5	7.5
18	7.8	7.7	7.7	7.5	7.3	7.4	8.0	7.9	7.9	7.5	7.4	7.5
19	7.8	7.7	7.8	7.5	7.4	7.5	8.0	7.9	8.0	7.4	7.4	7.4
20	7.8	7.7	7.7	7.7	7.5	7.6	8.0	7.2	7.4	7.4	7.4	7.4
21	7.8	7.7	7.8	7.9	7.7	7.7	7.6	7.3	7.4	7.4	7.4	7.4
22	7.8	7.7	7.7	7.9	7.7	7.8	7.8	7.6	7.7	7.6	7.4	7.6
23	7.8	7.7	7.7	7.8	7.4	7.6	7.6	7.5	7.6	7.7	7.6	7.7
24	7.8	7.7	7.7	7.8	7.6	7.7	7.6	7.5	7.5	7.9	7.7	7.8
25	7.7	7.7	7.7	7.8	7.7	7.8	7.6	7.5	7.6	7.9	7.8	7.9
26	7.8	7.6	7.7	7.9	7.8	7.8	7.5	7.4	7.5	8.0	7.9	7.9
27	7.9	7.4	7.6	7.9	7.8	7.8	7.4	7.4	7.4	8.1	7.9	8.0
28	7.8	7.7	7.7	7.9	7.8	7.8	7.4	7.4	7.4	8.2	7.9	8.0
29	7.7	7.7	7.7	---	---	---	7.5	7.4	7.4	8.1	8.0	8.1
30	7.7	7.6	7.6	---	---	---	7.6	7.4	7.5	8.1	8.0	8.0
31	---	---	---	---	---	---	7.7	7.5	7.6	---	---	---

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	26.0	24.5	25.0
2	---	---	---	---	---	---	---	---	---	26.5	25.5	26.0
3	---	---	---	---	---	---	---	---	---	28.0	25.0	26.5
4	---	---	---	---	---	---	---	---	---	27.5	25.0	26.5
5	---	---	---	---	---	---	---	---	---	27.0	25.0	26.0
6	---	---	---	---	---	---	---	---	---	27.0	25.5	26.5
7	---	---	---	---	---	---	---	---	---	27.5	25.5	26.5
8	---	---	---	---	---	---	16.5	13.0	14.5	28.5	27.0	27.5
9	---	---	---	---	---	---	17.5	14.5	15.5	30.0	27.5	28.5
10	---	---	---	---	---	---	18.5	16.0	17.0	30.0	28.5	29.0
11	---	---	---	---	---	---	18.0	15.5	17.0	31.5	29.5	30.5
12	---	---	---	---	---	---	18.0	17.0	17.5	32.0	29.0	30.5
13	---	---	---	---	---	---	17.5	16.0	16.5	---	---	---
14	---	---	---	---	---	---	16.0	15.0	15.5	---	---	---
15	---	---	---	---	---	---	17.5	14.5	15.5	---	---	---
16	---	---	---	---	---	---	18.5	15.5	17.0	---	---	---
17	---	---	---	---	---	---	21.5	17.0	19.0	---	---	---
18	---	---	---	---	---	---	23.5	19.5	21.0	---	---	---
19	---	---	---	---	---	---	24.5	21.5	22.5	---	---	---
20	---	---	---	---	---	---	25.0	22.5	23.5	---	---	---
21	---	---	---	---	---	---	24.5	22.5	23.5	---	---	---
22	---	---	---	---	---	---	23.0	21.5	22.5	32.0	29.5	30.0
23	---	---	---	---	---	---	23.0	20.5	22.0	29.0	27.5	28.5
24	---	---	---	---	---	---	23.5	20.5	22.0	28.0	26.5	27.0
25	---	---	---	---	---	---	24.5	21.0	22.5	26.5	24.5	25.5
26	---	---	---	---	---	---	25.5	22.5	24.0	26.5	24.5	25.0
27	---	---	---	---	---	---	25.5	23.5	25.0	26.5	22.5	24.5
28	---	---	---	---	---	---	26.0	23.5	25.0	23.5	20.5	21.5
29	---	---	---	---	---	---	25.0	22.5	24.0	22.0	21.5	22.0
30	---	---	---	---	---	---	25.0	22.5	24.0	23.5	22.5	23.0
31	---	---	---	---	---	---	---	---	---	24.5	23.5	24.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	25.5	23.5	24.5	28.5	27.5	28.0	---	---	---	26.5	24.5	25.0
2	26.0	25.0	25.5	28.0	26.5	27.0	---	---	---	26.5	24.0	25.0
3	26.0	24.5	25.5	28.0	25.5	26.5	---	---	---	27.0	24.5	25.5
4	23.0	19.0	20.0	28.0	23.5	26.5	---	---	---	27.0	25.0	26.0
5	19.0	17.5	18.5	27.0	24.5	26.0	---	---	---	27.5	25.5	26.5
6	18.5	17.0	18.0	30.5	26.5	28.5	---	---	---	27.0	26.5	27.0
7	18.0	16.0	17.0	30.5	29.5	30.0	---	---	---	27.0	26.0	26.5
8	18.0	16.0	17.0	30.0	29.0	29.5	---	---	---	27.5	25.5	26.5
9	17.5	16.0	17.0	29.5	28.5	29.0	---	---	---	27.0	25.5	26.5
10	17.0	16.0	16.5	29.5	27.5	29.0	---	---	---	27.5	25.5	26.5
11	19.5	16.5	17.5	30.5	28.0	29.5	---	---	---	27.5	26.0	26.5
12	27.5	20.0	23.0	30.5	29.0	29.5	---	---	---	26.5	25.5	26.0
13	29.0	26.0	27.5	29.0	25.0	26.0	---	---	---	26.0	24.5	25.5
14	30.0	27.5	28.5	29.0	26.0	27.5	---	---	---	28.0	25.0	26.0
15	30.5	28.0	29.5	28.5	27.0	27.5	---	---	---	27.5	26.0	27.0
16	31.0	28.0	29.5	29.0	27.5	28.0	---	---	---	26.0	24.5	25.5
17	31.0	29.0	30.0	28.5	26.5	27.5	---	---	---	27.5	24.5	25.5
18	32.5	30.0	31.0	30.5	26.5	28.0	---	---	---	26.5	25.5	26.0
19	33.0	30.0	31.0	---	---	---	29.5	28.0	29.0	26.0	24.5	25.5
20	32.0	29.0	30.5	---	---	---	30.0	28.0	29.0	26.0	24.0	25.0
21	32.5	29.5	31.0	---	---	---	31.0	28.5	29.5	26.0	24.5	25.0
22	33.5	31.0	31.5	---	---	---	30.5	28.5	29.5	25.5	23.5	24.5
23	32.5	30.5	31.5	---	---	---	29.0	28.0	29.0	25.0	23.5	24.0
24	33.0	30.0	31.5	---	---	---	28.0	26.5	27.0	25.5	23.5	24.5
25	33.0	29.5	31.0	---	---	---	29.5	26.5	27.5	26.5	24.0	25.5
26	33.5	29.0	31.0	---	---	---	29.5	27.5	28.5	27.5	25.0	26.0
27	33.0	29.0	30.5	---	---	---	28.0	25.5	26.5	27.5	26.0	26.5
28	33.5	29.0	31.0	---	---	---	25.0	24.0	24.5	26.5	22.0	24.0
29	32.0	29.5	30.5	---	---	---	25.5	24.5	25.0	24.0	22.5	23.5
30	30.0	28.5	29.5	---	---	---	26.0	24.0	25.0	24.5	22.5	24.0
31	---	---	---	---	---	---	26.5	24.5	25.5	---	---	---

ARKANSAS RIVER BASIN

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07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	21.0	19.5	20.0	18.5	18.0	18.5	9.5	9.0	9.5	3.5	2.5	3.0
2	20.5	19.5	20.0	19.5	18.0	18.5	9.5	8.5	9.0	2.5	1.5	2.0
3	19.5	18.5	19.0	19.5	18.0	18.5	10.5	9.5	10.0	3.0	2.0	2.5
4	19.0	18.0	18.5	19.5	18.0	19.0	10.0	9.5	10.0	3.0	2.0	2.5
5	19.5	18.0	19.0	19.0	17.0	18.0	10.5	9.5	10.0	2.0	1.0	1.5
6	19.5	18.5	19.0	17.0	15.5	16.5	11.0	11.0	11.0	.5	.0	.5
7	19.5	18.5	19.0	15.5	14.5	15.0	13.5	11.0	11.5	.0	.0	.0
8	19.5	18.0	19.0	15.0	14.5	14.5	12.0	11.0	11.5	.0	.0	.0
9	19.0	18.0	18.5	14.5	13.5	14.5	11.5	10.5	11.0	.5	.0	.0
10	18.5	16.0	17.0	13.0	11.5	12.5	10.5	9.5	10.0	.5	.0	.0
11	16.0	15.5	16.0	11.5	10.0	10.5	10.5	9.5	10.0	.5	.0	.0
12	17.0	15.5	16.5	11.0	9.5	10.0	10.0	9.0	9.5	.5	.0	.5
13	17.5	16.5	17.0	11.5	9.5	10.5	9.5	8.0	8.5	.5	.0	.0
14	18.0	16.5	17.0	12.0	10.0	11.0	8.0	4.5	6.0	.5	.0	.0
15	17.5	16.0	17.0	13.5	11.5	12.5	4.0	3.5	4.0	.5	.0	.5
16	17.5	16.5	17.5	14.0	12.5	13.0	3.5	2.0	2.5	1.5	.0	.5
17	17.0	16.0	16.5	12.5	11.5	12.0	2.5	1.5	2.0	3.0	1.5	2.5
18	17.0	16.0	16.5	11.5	10.0	10.5	3.0	2.0	2.5	3.5	2.5	3.0
19	17.0	16.0	16.5	10.0	9.5	9.5	3.5	2.0	2.5	5.0	3.5	4.5
20	17.0	15.0	15.5	9.5	8.5	9.0	4.0	3.5	4.0	5.0	3.0	4.0
21	15.5	14.0	14.5	9.0	8.0	8.5	5.0	4.0	4.5	---	---	---
22	15.0	14.0	14.5	9.5	8.5	9.0	5.0	4.5	5.0	---	---	---
23	14.5	14.0	14.5	10.5	9.5	10.0	6.5	5.0	5.5	4.0	2.5	3.5
24	15.5	14.5	15.0	12.0	9.5	10.5	7.5	6.5	7.0	4.5	3.5	4.0
25	16.0	15.5	15.5	11.0	10.0	10.5	7.0	3.5	5.5	4.0	3.0	3.5
26	17.5	15.5	16.0	10.0	9.5	9.5	3.5	2.5	3.0	3.5	2.5	3.0
27	16.5	15.0	15.5	9.5	8.5	9.0	3.0	2.5	3.0	4.0	2.5	3.0
28	16.0	14.5	15.0	9.5	8.5	9.5	3.0	3.0	3.0	5.0	3.5	4.0
29	16.5	14.5	15.5	9.5	9.0	9.5	3.0	3.0	3.0	6.5	4.5	5.5
30	17.0	15.0	16.0	10.0	9.5	9.5	3.5	3.0	3.0	8.5	6.0	7.5
31	18.5	17.0	17.5	---	---	---	3.5	3.5	3.5	9.5	8.5	9.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.5	6.5	8.0	10.5	9.5	10.0	12.0	11.0	11.5	19.0	16.5	17.5
2	6.5	4.0	5.0	11.0	9.0	10.0	11.5	10.5	11.0	18.5	17.5	18.0
3	4.0	3.0	3.5	8.5	6.0	7.5	13.0	11.0	12.0	17.5	16.5	17.0
4	3.5	2.5	3.0	6.0	5.0	5.5	15.0	12.5	13.5	19.0	17.0	17.5
5	3.5	2.0	2.5	5.5	5.0	5.5	14.0	13.0	13.5	20.5	17.5	18.5
6	2.0	1.0	1.5	5.5	5.0	5.0	14.0	13.0	13.5	21.0	18.5	19.5
7	2.0	.5	1.0	7.5	5.0	6.0	15.5	14.0	14.5	20.5	19.5	20.0
8	2.0	1.0	1.5	8.5	7.0	7.5	14.0	12.5	13.0	22.5	19.5	21.0
9	4.0	1.5	2.5	8.5	7.0	8.0	13.5	12.5	13.0	23.0	20.0	21.5
10	3.5	2.5	3.0	9.0	7.0	8.0	13.0	12.0	12.5	23.5	20.5	22.0
11	2.5	1.0	1.5	9.5	8.0	9.0	12.5	12.0	12.5	24.0	21.5	23.0
12	2.0	.0	1.0	9.0	8.0	8.5	13.5	12.0	12.5	24.0	22.5	23.5
13	3.5	.5	2.0	8.0	7.0	7.5	14.0	12.5	13.0	25.0	24.0	24.5
14	4.5	3.0	4.0	8.0	6.5	7.0	13.5	12.5	13.0	25.5	24.0	25.0
15	4.5	3.5	4.0	8.0	6.0	7.0	13.0	12.5	12.5	25.5	24.5	25.0
16	6.0	4.0	5.0	8.0	6.0	7.0	13.5	12.0	13.0	28.0	26.5	27.5
17	6.5	5.0	5.5	7.0	6.5	7.0	13.0	12.5	13.0	28.5	27.0	28.0
18	5.5	5.0	5.0	7.5	6.5	7.0	14.5	12.5	13.0	29.5	27.5	28.5
19	5.5	4.5	5.0	8.5	6.5	7.5	14.0	13.0	13.5	29.5	27.0	27.5
20	5.5	5.0	5.0	9.5	7.5	8.5	14.5	13.0	13.5	27.0	24.5	25.0
21	6.0	4.5	5.0	11.0	8.5	10.0	15.0	13.5	14.0	25.5	23.0	24.5
22	7.5	5.5	6.5	12.0	9.0	10.5	16.0	14.5	15.0	24.5	23.0	24.0
23	7.0	5.0	6.0	12.5	11.5	11.5	15.5	14.0	15.0	24.5	23.5	24.0
24	5.5	4.0	5.0	15.5	12.5	14.0	15.0	13.5	14.5	25.0	23.5	24.5
25	6.0	4.5	5.5	16.0	14.0	15.0	14.5	13.5	14.0	26.0	24.0	25.0
26	8.0	5.5	6.5	16.0	14.0	15.0	15.5	14.0	14.5	26.5	24.0	25.0
27	9.5	8.0	9.0	16.0	13.5	15.0	17.0	15.0	16.0	26.5	23.5	25.0
28	10.0	8.5	9.5	15.5	14.5	15.0	17.5	15.5	16.5	26.5	24.0	25.5
29	10.5	9.5	10.0	15.5	10.5	13.0	17.0	15.5	16.5	26.0	24.0	25.0
30	---	---	---	12.5	11.0	11.5	18.0	16.0	16.5	26.0	24.0	25.0
31	---	---	---	13.0	12.0	12.5	---	---	---	26.5	24.5	25.5

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	26.5	24.5	25.5	34.0	32.5	33.0	30.0	28.5	29.5	25.5	24.0	25.0
2	27.0	24.0	25.5	33.0	30.0	31.5	30.0	28.5	29.5	25.5	24.0	25.0
3	28.5	26.0	27.0	32.0	29.0	30.5	30.0	28.5	29.5	26.0	24.5	25.5
4	28.0	26.0	27.0	33.5	31.0	32.5	30.0	28.5	29.0	25.5	24.0	25.0
5	28.0	25.0	26.5	33.5	31.5	32.5	30.0	28.0	29.0	24.5	23.0	24.0
6	28.5	25.0	26.5	33.0	32.0	32.5	30.5	28.5	29.5	24.5	23.0	24.0
7	29.0	26.0	27.5	32.0	30.5	31.5	31.0	29.0	30.0	24.0	22.5	23.5
8	30.5	27.0	28.5	31.5	30.5	31.0	31.5	29.5	30.5	24.0	22.5	23.5
9	30.5	28.0	29.5	32.0	29.5	31.0	31.5	29.5	30.5	24.5	23.0	24.0
10	28.5	26.5	27.0	---	---	---	30.5	28.5	29.5	25.0	23.5	24.5
11	27.5	24.5	26.0	---	---	---	30.5	28.5	29.5	25.0	23.5	24.5
12	28.0	25.5	27.0	---	---	---	29.5	28.0	28.5	25.0	24.0	24.5
13	29.0	26.0	28.0	---	---	---	30.0	27.5	28.5	25.5	24.0	25.0
14	29.5	27.0	28.5	34.5	32.0	33.5	30.0	28.5	29.5	25.5	24.5	25.0
15	30.0	27.5	29.0	34.5	33.0	34.0	30.0	28.5	29.5	25.0	24.0	24.5
16	30.0	28.5	29.5	34.5	33.0	33.5	30.5	29.0	30.0	25.0	24.0	24.5
17	29.5	28.0	29.0	34.0	32.5	33.0	30.5	29.0	29.5	25.0	24.0	24.5
18	30.5	28.0	29.5	34.5	33.0	33.5	30.0	28.5	29.5	25.5	24.5	25.0
19	31.0	29.0	30.0	34.0	32.0	33.0	30.0	28.0	29.0	25.0	23.0	24.0
20	32.0	29.0	30.5	32.5	29.0	30.5	30.0	28.0	29.0	23.0	22.0	22.5
21	32.0	29.5	31.5	32.0	29.5	30.5	30.5	28.5	29.5	24.0	22.0	23.0
22	32.5	29.5	31.5	32.5	29.5	31.0	30.5	29.0	30.0	25.0	23.0	24.0
23	32.5	30.0	31.5	32.0	30.0	31.0	30.5	29.0	29.5	24.5	21.5	23.0
24	32.5	30.5	32.0	29.0	27.0	28.0	29.5	28.0	29.0	21.5	21.0	21.5
25	33.0	31.0	32.0	29.5	27.5	28.5	29.5	27.5	28.5	21.0	20.0	20.5
26	32.5	31.0	32.0	29.5	28.0	29.0	29.5	28.0	28.5	22.0	20.0	21.0
27	32.5	30.5	32.0	29.5	27.0	28.0	29.0	22.5	27.5	23.0	21.0	22.0
28	33.5	31.5	32.5	27.0	25.5	26.0	27.5	25.0	26.0	23.5	22.0	22.5
29	33.5	31.5	32.5	29.0	25.5	27.0	25.0	23.5	24.5	23.0	22.0	22.5
30	34.0	32.0	33.5	30.0	27.5	28.5	25.5	24.0	24.5	22.5	21.0	21.5
31	---	---	---	30.5	28.0	29.5	25.5	24.0	24.5	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.0	20.0	20.5	16.5	14.5	15.5	7.5	6.0	6.5	4.5	3.5	4.0
2	21.0	20.0	20.5	17.0	15.5	16.0	7.5	6.0	6.5	5.0	4.0	4.5
3	21.0	19.5	20.0	18.0	16.0	17.0	8.0	6.5	7.0	5.5	5.0	5.0
4	20.0	19.0	19.5	18.0	16.0	16.5	8.0	6.5	7.0	5.5	4.5	5.0
5	19.5	17.0	18.5	16.0	14.5	15.5	7.0	6.0	6.5	7.0	5.5	6.0
6	17.0	16.5	17.0	14.5	13.0	13.5	7.0	6.5	7.0	7.5	6.5	7.0
7	17.0	17.0	17.0	14.0	12.0	13.0	7.5	7.0	7.5	7.5	7.0	7.5
8	17.0	15.5	16.5	13.5	12.0	12.5	7.0	6.0	6.5	7.0	5.5	6.0
9	16.0	15.5	15.5	14.5	12.5	13.5	6.0	5.0	5.5	5.5	5.0	5.0
10	17.5	15.5	16.5	15.0	13.5	14.0	5.5	5.0	5.0	5.0	4.0	4.5
11	18.0	16.5	17.0	14.0	13.0	13.5	5.0	4.0	4.5	6.0	4.5	5.0
12	17.5	16.0	16.5	13.0	12.0	12.5	4.5	4.0	4.0	---	---	---
13	17.5	16.0	17.0	12.5	11.5	12.0	4.5	4.0	4.0	---	---	---
14	18.5	16.5	17.5	13.5	11.5	12.5	6.0	4.0	5.0	---	---	---
15	18.5	17.5	18.0	14.5	13.5	14.0	5.5	4.0	5.0	---	---	---
16	19.5	18.0	18.5	14.0	12.5	13.0	4.5	3.5	4.0	---	---	---
17	20.5	18.5	19.5	12.5	11.0	11.5	4.5	3.0	3.5	---	---	---
18	20.0	18.5	19.5	11.5	10.5	10.5	4.5	3.0	3.5	---	---	---
19	18.5	17.5	18.0	10.5	9.5	10.0	5.5	3.5	4.5	---	---	---
20	18.0	17.0	17.5	9.0	6.0	7.0	7.0	5.5	6.0	---	---	---
21	18.5	17.0	17.5	7.0	6.5	6.5	6.5	5.5	6.0	---	---	---
22	18.5	17.0	17.5	6.5	5.5	6.0	7.5	5.5	6.5	---	---	---
23	18.5	17.5	18.0	7.0	5.5	6.0	7.5	6.5	7.0	---	---	---
24	18.0	16.5	17.5	8.0	6.5	7.0	7.5	6.5	7.0	---	---	---
25	17.5	16.5	17.0	10.0	7.5	9.0	7.0	5.5	6.0	---	---	---
26	17.5	16.0	16.5	10.5	9.5	10.0	7.0	6.0	6.5	---	---	---
27	16.5	16.0	16.0	9.5	8.0	9.0	7.5	6.0	7.0	7.0	6.0	6.5
28	16.0	15.0	15.5	7.5	7.0	7.5	5.5	4.5	5.0	7.0	6.0	6.5
29	15.5	14.5	15.0	7.5	6.5	7.0	4.5	3.5	4.0	6.5	6.0	6.5
30	15.0	14.5	15.0	7.5	6.5	7.0	4.0	3.5	3.5	7.0	6.0	6.5
31	16.0	14.5	15.0	---	---	---	4.0	3.0	3.5	8.0	6.5	7.0

ARKANSAS RIVER BASIN

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07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.5	6.5	7.5	7.0	5.5	6.0	14.0	13.5	14.0	20.5	18.5	19.5
2	6.5	4.0	5.5	7.5	5.5	6.5	15.0	14.0	14.5	19.5	16.0	17.5
3	3.5	1.5	2.5	9.5	8.0	8.5	16.5	15.5	15.5	17.0	15.5	16.0
4	1.5	.0	.5	9.5	5.5	7.5	17.0	16.0	16.0	18.5	16.5	17.5
5	.5	.0	.5	6.0	2.5	4.5	17.0	15.5	16.0	20.5	18.0	19.0
6	.5	.0	.5	2.5	1.0	2.0	17.0	14.5	16.0	20.0	18.5	19.0
7	1.0	.0	.5	3.0	1.0	2.0	17.0	15.0	16.0	19.5	17.5	18.5
8	1.0	.0	.5	5.0	2.0	3.0	17.0	15.5	16.5	21.0	19.0	20.0
9	1.0	.5	.5	5.0	3.0	4.0	16.0	14.5	15.0	21.0	20.0	20.5
10	1.5	.5	1.0	7.5	5.0	6.0	15.0	13.0	14.0	20.0	18.0	19.0
11	2.0	.5	1.5	10.5	7.5	8.5	14.5	12.0	13.0	19.5	18.5	19.0
12	2.0	1.5	2.0	12.5	10.0	10.5	15.5	13.0	14.0	19.0	18.0	18.5
13	3.0	2.0	2.5	13.5	11.0	12.0	15.0	13.5	14.5	18.0	17.5	17.5
14	2.5	2.0	2.5	14.0	12.0	13.0	15.5	14.0	15.0	20.0	18.0	18.5
15	2.5	1.5	2.0	14.0	11.5	12.5	16.5	14.5	15.5	20.0	18.5	19.5
16	2.5	2.0	2.0	13.0	10.5	11.5	17.0	11.5	15.5	20.0	17.5	18.5
17	2.5	2.5	2.5	14.0	11.5	12.5	18.5	16.0	17.0	19.5	19.0	19.5
18	4.0	2.5	3.0	14.5	12.0	13.5	18.5	17.5	18.0	20.5	18.5	19.5
19	4.0	3.0	3.5	13.5	11.5	12.5	18.0	15.5	16.5	20.5	19.0	20.0
20	4.0	4.0	4.0	12.0	10.5	11.5	17.5	15.5	16.0	22.5	20.5	21.5
21	5.0	4.0	4.5	10.5	8.5	9.5	18.5	14.5	16.0	23.0	21.5	22.0
22	5.0	3.5	4.5	10.5	6.5	9.0	20.5	18.0	19.0	24.5	22.0	23.0
23	4.0	2.5	3.5	11.0	9.0	10.0	21.0	19.0	20.0	24.0	23.0	23.5
24	4.5	2.5	3.5	12.0	10.5	11.0	21.0	20.0	20.5	25.0	23.5	24.0
25	6.5	3.5	4.5	14.0	12.0	13.0	21.0	19.5	20.5	26.0	24.5	25.0
26	8.0	5.5	6.5	16.5	14.0	15.0	22.5	20.5	21.5	25.0	24.0	24.5
27	8.0	6.0	7.0	17.0	15.5	16.0	23.0	21.5	22.5	25.0	23.0	23.5
28	7.0	5.5	6.0	17.0	15.0	16.0	23.0	21.5	22.0	25.5	23.0	24.0
29	---	---	---	16.0	15.0	15.5	22.5	20.0	21.0	26.0	23.5	25.0
30	---	---	---	16.0	15.5	16.0	20.0	18.5	19.5	27.0	24.0	25.5
31	---	---	---	15.0	14.0	14.5	---	---	---	26.5	25.0	26.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	26.0	24.5	25.0	27.0	26.0	26.5	27.0	25.5	26.5	28.5	27.0	27.5
2	25.5	24.0	25.0	26.5	23.5	25.0	27.5	26.5	27.0	27.5	26.5	27.0
3	25.5	23.5	24.5	26.5	23.5	25.0	27.0	26.0	26.5	27.5	26.0	27.0
4	24.5	23.0	24.0	27.5	25.0	26.5	28.5	26.0	27.0	27.0	26.0	26.5
5	24.0	23.0	23.5	29.5	26.5	27.5	29.5	27.0	28.5	26.0	24.0	25.5
6	24.0	22.5	23.0	30.5	27.0	28.5	29.0	23.5	26.0	24.5	23.0	23.5
7	23.0	22.0	23.0	30.0	28.0	28.5	26.5	25.5	26.0	26.0	24.5	25.0
8	24.0	22.0	23.0	28.0	26.5	27.5	25.5	24.0	25.0	27.0	26.0	26.5
9	24.5	23.0	23.5	28.0	26.5	27.0	26.0	24.5	25.0	26.5	25.0	26.5
10	24.5	23.0	23.5	28.0	26.5	27.5	25.5	24.0	25.0	25.0	24.0	24.5
11	24.0	20.0	22.5	28.0	26.5	27.5	25.5	23.5	24.5	24.0	23.0	23.5
12	21.5	20.0	20.5	27.0	26.0	26.5	26.0	24.5	25.0	23.0	21.5	22.5
13	22.5	21.5	22.0	27.5	25.0	26.5	25.5	24.5	25.0	21.0	17.0	18.0
14	23.0	22.0	22.5	28.0	26.5	27.0	25.0	24.0	24.5	---	---	---
15	22.5	22.0	22.5	27.5	26.5	27.0	25.5	24.0	25.0	---	---	---
16	22.5	21.0	22.0	27.5	26.0	27.0	25.5	23.5	25.0	17.5	16.0	17.0
17	23.0	22.0	22.5	27.0	22.5	24.5	25.0	23.0	24.0	18.0	17.0	17.5
18	24.0	22.0	23.5	24.5	23.5	24.0	26.5	24.0	25.5	18.5	17.0	17.5
19	25.0	24.0	24.5	26.0	23.5	25.0	26.5	25.5	26.0	18.5	17.0	18.0
20	25.5	24.0	25.0	27.0	24.5	26.0	26.5	21.5	23.0	18.0	17.0	17.5
21	26.5	25.0	26.0	27.0	25.0	26.0	25.0	22.0	24.0	18.5	16.5	17.5
22	26.5	25.0	26.0	26.5	25.0	26.0	26.5	21.0	25.5	21.0	18.5	19.5
23	26.0	24.0	25.0	26.0	21.5	24.0	20.5	18.5	19.0	20.5	19.0	20.0
24	27.0	24.0	25.5	25.5	24.0	24.5	19.0	18.0	18.5	19.0	18.0	18.5
25	28.0	25.0	26.5	26.5	24.5	25.5	19.0	18.0	18.5	19.0	17.0	18.0
26	28.5	27.0	27.5	27.0	25.5	26.5	18.5	17.5	18.0	19.0	17.0	18.0
27	28.5	24.0	26.0	27.5	26.0	26.5	18.5	17.0	18.0	19.0	17.0	18.0
28	27.5	25.0	26.0	27.5	26.5	27.0	19.0	17.0	18.0	19.0	17.5	18.5
29	27.5	26.0	26.5	---	---	---	20.0	18.0	18.5	19.5	17.0	18.5
30	27.5	26.0	26.5	---	---	---	27.5	20.0	25.0	20.5	18.5	19.0
31	---	---	---	---	---	---	28.0	26.5	27.0	---	---	---

ARKNASAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	10.8	8.9	10.0
2	---	---	---	---	---	---	---	---	---	10.6	8.7	9.6
3	---	---	---	---	---	---	---	---	---	10.2	8.6	9.3
4	---	---	---	---	---	---	---	---	---	8.9	7.9	8.5
5	---	---	---	---	---	---	---	---	---	8.3	7.5	7.9
6	---	---	---	---	---	---	---	---	---	8.8	7.8	8.2
7	---	---	---	---	---	---	---	---	---	9.7	7.9	8.7
8	---	---	---	---	---	---	---	---	---	9.9	8.3	9.2
9	---	---	---	---	---	---	---	---	---	10.0	9.0	9.5
10	---	---	---	---	---	---	---	---	---	9.8	8.3	9.1
11	---	---	---	---	---	---	---	---	---	9.0	8.1	8.6
12	---	---	---	---	---	---	---	---	---	8.5	7.7	8.1
13	---	---	---	---	---	---	---	---	---	8.1	7.4	7.7
14	---	---	---	---	---	---	---	---	---	8.2	7.1	7.5
15	---	---	---	---	---	---	13.8	12.3	12.9	8.4	6.7	7.4
16	---	---	---	---	---	---	13.7	12.3	12.9	8.2	6.4	7.2
17	---	---	---	---	---	---	13.8	11.9	12.7	8.5	6.4	7.1
18	---	---	---	---	---	---	13.3	10.9	12.0	8.2	6.2	6.9
19	---	---	---	---	---	---	13.0	10.4	11.6	7.5	6.0	6.6
20	---	---	---	---	---	---	12.6	10.1	11.3	7.0	5.5	6.1
21	---	---	---	---	---	---	12.0	9.7	10.9	7.3	5.2	6.1
22	---	---	---	---	---	---	12.9	10.1	11.4	6.9	5.6	6.2
23	---	---	---	---	---	---	13.0	10.6	11.6	6.9	5.1	5.9
24	---	---	---	---	---	---	12.9	10.5	11.6	7.2	5.7	6.3
25	---	---	---	---	---	---	12.6	10.4	11.4	7.1	5.6	6.6
26	---	---	---	---	---	---	12.2	10.1	11.1	6.7	6.4	6.5
27	---	---	---	---	---	---	11.8	9.8	10.8	7.9	5.7	6.9
28	---	---	---	---	---	---	11.6	9.6	10.7	7.3	6.1	6.7
29	---	---	---	---	---	---	11.2	9.1	10.2	7.1	6.7	6.9
30	---	---	---	---	---	---	11.4	9.1	10.2	7.6	7.2	7.4
31	---	---	---	---	---	---	---	---	---	7.5	7.3	7.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	7.6	7.2	7.4	5.3	3.6	4.5	7.9	5.2	6.5	8.3	5.3	7.0
2	7.7	7.1	7.3	6.0	3.0	4.5	7.7	4.8	6.4	8.7	5.5	7.2
3	7.2	6.8	7.0	5.5	3.8	4.6	7.7	4.5	6.3	9.1	5.2	7.9
4	8.4	7.4	8.1	---	---	---	7.4	4.6	6.2	9.3	6.4	8.3
5	8.5	8.3	8.4	---	---	---	7.8	3.7	6.1	9.4	5.6	8.3
6	8.7	8.4	8.6	---	---	---	7.8	3.3	6.0	9.5	5.9	8.0
7	9.0	8.7	8.9	---	---	---	8.3	4.8	6.6	8.8	6.0	7.5
8	9.0	8.8	8.9	---	---	---	9.1	5.3	7.1	9.2	3.6	6.4
9	9.1	9.0	9.0	---	---	---	8.8	6.1	7.3	8.6	2.7	6.6
10	9.3	9.1	9.1	---	---	---	8.9	4.4	6.6	8.9	3.5	6.8
11	9.4	9.0	9.2	---	---	---	8.8	5.1	6.8	8.5	4.3	7.3
12	8.8	7.6	8.2	---	---	---	9.2	5.5	7.2	8.5	4.1	7.2
13	8.4	7.0	7.6	---	---	---	7.6	4.9	6.1	8.9	5.0	6.6
14	8.3	6.8	7.5	---	---	---	7.1	5.7	6.4	9.9	6.0	7.7
15	8.2	6.8	7.4	---	---	---	7.3	5.7	6.3	10.6	7.0	8.5
16	8.1	6.6	7.3	---	---	---	9.9	5.9	7.6	8.0	5.5	6.9
17	8.1	6.3	7.2	---	---	---	9.7	5.9	7.9	5.4	4.6	5.1
18	8.1	6.6	7.3	---	---	---	9.2	6.8	8.3	5.6	4.3	4.9
19	7.4	5.8	6.6	---	---	---	7.0	5.0	6.0	8.8	4.7	6.4
20	6.7	5.1	5.8	---	---	---	6.5	5.7	6.0	10.9	6.3	8.0
21	7.4	6.3	6.8	---	---	---	6.8	5.7	6.2	9.8	6.4	8.1
22	7.1	6.5	6.9	---	---	---	7.1	4.8	6.0	10.0	6.6	8.5
23	7.2	4.3	5.6	---	---	---	8.1	5.8	6.4	10.0	7.2	8.9
24	5.0	3.2	4.1	7.2	5.9	6.5	9.7	5.4	6.9	11.7	7.8	9.3
25	5.4	3.9	4.6	---	---	---	11.5	6.9	8.9	11.4	8.1	9.5
26	4.5	3.2	3.9	7.2	6.0	6.6	11.6	5.9	8.4	10.7	7.7	8.9
27	4.3	2.5	3.2	6.9	6.0	6.4	7.4	5.6	6.4	9.5	6.5	8.2
28	4.3	2.1	3.2	7.6	6.2	6.9	6.9	6.6	6.7	11.2	3.0	7.0
29	3.8	2.0	2.6	7.7	6.4	6.6	6.5	6.1	6.3	8.6	6.8	7.7
30	5.1	2.4	3.3	6.8	6.6	6.7	6.6	6.0	6.3	10.1	8.7	9.4
31	---	---	---	7.7	5.5	6.3	7.6	5.7	6.5	---	---	---

ARKANSAS RIVER BASIN

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07177500 BIRD CREEK NEAR SPERRY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	10.8	9.6	10.1	7.1	5.7	6.6	9.9	9.8	9.9	13.0	12.6	12.9
2	10.3	9.9	10.1	7.5	6.5	7.0	10.0	9.8	9.9	13.2	13.0	13.1
3	10.4	10.0	10.2	8.1	6.2	7.0	9.9	9.7	9.8	13.2	12.9	13.1
4	13.9	9.0	10.1	6.6	5.7	6.0	9.9	9.6	9.8	13.1	12.9	13.0
5	9.7	9.0	9.4	6.7	5.9	6.4	9.7	9.4	9.6	13.5	13.1	13.2
6	9.5	9.3	9.4	7.9	6.7	7.4	9.4	9.3	9.3	13.8	13.5	13.7
7	9.9	9.2	9.4	8.2	7.3	7.7	9.3	8.3	9.1	13.9	13.6	13.8
8	9.5	9.0	9.3	8.2	7.4	7.8	8.8	7.7	8.5	13.8	13.6	13.7
9	9.7	9.0	9.4	8.6	7.8	8.1	8.8	8.5	8.6	13.8	13.7	13.7
10	9.8	9.1	9.5	9.2	7.8	8.5	9.0	8.6	8.7	13.8	13.7	13.8
11	10.5	9.6	9.9	9.7	8.5	9.2	8.9	8.4	8.7	13.8	13.5	13.7
12	10.3	9.7	9.9	10.0	9.2	9.5	8.9	8.4	8.6	13.7	13.5	13.6
13	10.6	9.4	9.7	9.9	8.9	9.4	9.0	8.5	8.8	14.4	13.7	13.9
14	11.4	9.2	9.5	9.8	8.5	9.1	9.6	8.9	9.2	14.5	14.2	14.4
15	12.0	9.4	10.5	8.9	7.8	8.5	10.6	9.5	10.1	14.3	13.9	14.1
16	12.2	9.5	10.8	8.5	7.5	8.1	11.0	10.4	10.7	13.9	13.6	13.8
17	13.0	10.4	11.4	8.9	8.4	8.7	11.2	10.9	11.0	13.6	13.3	13.5
18	13.3	9.8	11.4	9.5	8.9	9.2	12.7	10.9	11.5	13.4	12.8	13.1
19	11.0	9.1	10.0	9.9	9.2	9.6	12.6	11.6	12.2	12.8	12.1	12.4
20	14.0	10.0	11.7	9.9	9.4	9.7	11.8	11.1	11.5	---	---	---
21	14.1	10.7	12.2	9.9	9.6	9.8	11.2	10.8	10.9	---	---	---
22	12.1	9.5	10.6	9.9	9.5	9.7	11.3	11.2	11.3	---	---	---
23	10.3	9.3	9.8	9.6	9.3	9.5	11.2	10.9	11.1	13.8	13.3	13.6
24	9.1	7.9	8.5	9.4	8.3	9.1	11.0	10.8	10.9	13.5	13.3	13.4
25	7.8	7.4	7.6	8.9	8.4	8.6	11.9	10.8	11.2	13.5	13.3	13.4
26	9.3	7.3	8.2	9.6	8.6	9.2	12.4	11.8	12.1	13.8	13.3	13.6
27	9.2	8.1	8.6	9.7	9.6	9.7	12.5	12.3	12.4	14.1	13.7	13.8
28	9.6	7.0	8.1	9.8	9.5	9.7	12.5	12.2	12.4	13.7	13.4	13.6
29	7.5	6.7	7.0	9.9	9.8	9.9	12.7	12.5	12.6	13.4	12.8	13.1
30	7.4	6.4	6.9	9.9	9.8	9.8	12.7	12.5	12.6	12.8	12.1	12.5
31	7.1	5.7	6.6	---	---	---	12.6	12.5	12.6	12.1	11.7	11.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	12.0	11.6	11.8	13.1	11.3	12.0	10.3	9.2	9.8	10.2	9.4	9.8
2	12.8	11.9	12.4	11.8	10.3	10.8	9.1	8.7	8.9	9.7	9.2	9.4
3	13.0	12.7	12.8	---	---	---	8.7	8.3	8.5	9.9	9.3	9.6
4	13.6	13.0	13.3	---	---	---	10.0	8.7	9.1	10.3	9.1	9.6
5	13.8	13.2	13.5	13.1	12.9	12.9	---	---	---	10.3	9.0	9.6
6	14.1	13.6	13.8	13.2	12.9	13.1	---	---	---	9.8	8.8	9.3
7	14.1	13.9	14.0	13.0	12.8	12.9	11.9	10.6	10.8	9.4	8.5	8.9
8	13.9	13.8	13.9	12.8	12.5	12.6	10.9	10.8	10.9	9.9	8.4	9.1
9	13.8	13.4	13.6	12.6	12.4	12.5	11.0	10.8	10.9	10.1	8.4	9.2
10	13.3	12.9	13.0	12.4	12.2	12.3	11.0	10.3	10.8	9.7	8.2	9.0
11	13.8	13.0	13.4	12.1	11.9	12.1	10.9	10.4	10.6	9.4	8.2	8.9
12	14.2	13.7	13.9	12.2	11.9	12.0	10.9	10.8	10.9	9.0	7.9	8.6
13	14.0	13.7	13.9	12.4	12.1	12.2	10.9	10.8	10.9	8.7	7.7	8.1
14	13.6	13.0	13.2	12.5	12.3	12.4	10.9	10.8	10.9	8.5	7.3	7.8
15	13.0	12.4	12.8	12.5	12.2	12.4	11.1	10.8	11.0	8.0	6.7	7.4
16	13.0	12.4	12.8	12.5	12.3	12.4	11.0	10.7	10.9	7.9	6.9	7.5
17	12.7	12.1	12.5	12.5	12.2	12.3	10.8	10.7	10.8	7.9	6.9	7.4
18	12.5	11.8	12.2	12.3	12.0	12.2	10.7	9.3	10.3	7.4	6.7	7.1
19	12.2	11.6	11.8	12.2	11.8	12.0	10.5	9.4	10.0	8.2	6.4	7.3
20	12.1	11.5	11.9	11.8	11.5	11.7	10.6	10.5	10.5	7.7	7.2	7.4
21	12.6	12.1	12.3	11.5	11.2	11.4	10.5	10.3	10.4	7.9	7.0	7.5
22	12.1	11.6	11.9	11.4	11.0	11.3	10.4	9.9	10.3	7.9	7.4	7.6
23	12.6	11.6	12.2	11.0	10.4	10.8	10.5	9.9	10.2	7.8	7.3	7.5
24	14.2	12.2	13.1	12.0	9.9	10.3	10.7	10.4	10.6	7.8	7.0	7.4
25	14.1	13.5	13.7	10.7	9.6	10.0	10.6	10.4	10.5	7.9	7.0	7.5
26	13.5	12.7	13.0	13.9	9.7	10.4	10.5	10.0	10.4	8.1	7.1	7.6
27	13.6	12.0	12.7	12.6	10.0	10.6	10.7	9.6	10.1	8.2	7.1	7.6
28	13.5	11.9	12.5	10.2	9.6	9.9	10.9	9.9	10.2	7.9	6.9	7.4
29	13.3	11.6	12.3	10.4	9.0	9.6	12.8	9.7	10.1	7.9	7.1	7.5
30	---	---	---	10.4	10.0	10.2	10.4	9.5	9.9	8.0	7.2	7.6
31	---	---	---	10.3	9.9	10.1	---	---	---	8.1	7.2	7.6

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.8	7.2	7.7	6.5	5.1	5.8	7.2	6.1	6.6	8.1	7.3	7.8
2	7.7	6.6	7.3	6.5	5.3	5.9	6.9	6.0	6.5	8.1	7.3	7.7
3	7.7	6.6	7.1	6.9	5.7	6.4	8.3	5.9	6.2	7.9	7.2	7.6
4	---	---	---	6.7	5.5	6.1	6.0	5.4	5.7	8.0	7.2	7.7
5	---	---	---	6.8	5.5	6.3	6.2	5.4	5.8	7.9	7.2	7.6
6	---	---	---	6.9	5.9	6.4	6.2	5.4	5.8	7.9	7.3	7.6
7	---	---	---	7.3	6.0	6.7	6.2	5.4	5.8	7.9	7.2	7.6
8	---	---	---	7.3	6.1	6.8	6.1	5.2	5.7	8.0	7.2	7.6
9	---	---	---	7.5	6.3	6.9	6.0	5.3	5.6	7.9	7.2	7.6
10	7.8	6.5	7.2	7.2	6.1	6.7	5.8	4.8	5.2	7.9	7.1	7.6
11	7.7	6.8	7.3	---	---	---	6.0	5.4	5.6	7.8	7.1	7.4
12	7.7	6.7	7.2	---	---	---	6.1	5.4	5.8	7.5	6.9	7.2
13	7.5	6.5	7.0	---	---	---	6.4	5.7	6.1	7.4	6.7	7.1
14	7.5	6.5	7.0	6.6	5.8	6.1	6.2	5.5	5.9	7.4	6.8	7.1
15	7.5	6.4	7.0	6.6	5.5	6.1	6.6	5.6	6.1	7.3	6.8	7.1
16	7.4	6.3	6.8	6.8	5.7	6.3	6.5	5.5	6.0	7.2	6.6	6.9
17	7.4	6.2	6.9	6.7	5.8	6.2	6.4	5.6	6.1	6.8	6.3	6.5
18	7.6	6.3	7.0	6.8	6.0	6.3	6.6	5.6	6.1	6.8	6.5	6.7
19	7.5	6.1	6.8	6.7	5.9	6.3	6.7	5.8	6.3	6.7	3.4	5.2
20	7.3	6.1	6.8	6.8	4.8	6.1	6.6	5.7	6.2	7.3	6.6	7.0
21	7.3	6.0	6.7	7.2	6.7	6.9	6.5	5.7	6.1	7.4	7.1	7.3
22	7.2	6.0	6.6	7.2	6.8	7.0	6.6	5.6	6.1	7.1	6.7	7.0
23	7.0	5.8	6.4	7.4	6.7	7.0	6.6	5.8	6.2	7.1	6.1	6.8
24	6.8	5.6	6.2	7.6	6.8	7.2	7.1	5.9	6.5	7.7	7.0	7.4
25	6.8	5.6	6.2	7.7	6.6	7.1	7.0	6.1	6.7	8.0	7.7	7.9
26	6.7	5.6	6.2	7.4	6.5	6.9	8.7	6.2	6.9	8.0	7.8	7.9
27	6.4	5.7	6.1	7.0	6.3	6.5	8.7	6.3	7.3	7.7	7.5	7.6
28	6.4	5.3	5.9	7.0	6.6	6.8	6.8	6.3	6.6	7.5	7.3	7.4
29	6.3	5.2	5.8	7.6	6.5	6.8	7.7	6.7	7.2	7.6	7.1	7.4
30	6.6	5.1	5.9	7.2	6.5	6.8	8.0	6.9	7.4	8.0	7.4	7.6
31	---	---	---	7.4	6.3	6.8	8.1	7.2	7.7	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	8.4	7.3	8.0
19	---	---	---	---	---	---	---	---	---	8.0	6.7	7.7
20	---	---	---	---	---	---	---	---	---	8.1	7.7	8.0
21	---	---	---	---	---	---	---	---	---	7.7	7.2	7.5
22	---	---	---	---	---	---	---	---	---	7.3	6.9	7.1
23	---	---	---	---	---	---	---	---	---	7.4	7.1	7.2
24	---	---	---	---	---	---	---	---	---	7.4	7.0	7.2
25	---	---	---	---	---	---	---	---	---	7.1	6.8	6.9
26	---	---	---	---	---	---	---	---	---	7.5	6.9	7.2
27	---	---	---	---	---	---	---	---	---	7.8	7.4	7.6
28	---	---	---	---	---	---	---	---	---	7.9	7.5	7.6
29	---	---	---	---	---	---	---	---	---	8.0	7.4	7.6
30	---	---	---	---	---	---	---	---	---	8.4	7.2	7.7
31	---	---	---	---	---	---	---	---	---	7.9	7.1	7.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	7.6	6.8	7.2	7.3	6.7	7.0	6.8	6.3	6.5	6.4	6.3	6.3
2	8.0	6.8	7.4	7.2	6.6	6.9	6.7	6.2	6.5	6.5	6.3	6.4
3	7.5	6.6	7.0	6.9	6.1	6.8	6.8	6.2	6.5	6.6	6.4	6.5
4	7.5	6.8	7.1	6.8	6.6	6.7	6.9	6.3	6.6	6.5	6.3	6.4
5	7.6	7.2	7.4	7.2	6.5	6.8	6.8	6.0	6.4	6.7	3.7	6.4
6	7.5	7.1	7.3	7.4	6.4	6.8	6.4	3.3	5.4	4.9	4.2	4.7
7	7.2	6.8	7.1	7.6	6.0	6.9	6.2	5.3	5.8	6.1	3.6	4.8
8	7.5	7.1	7.4	7.5	6.8	7.1	6.8	6.2	6.5	6.4	6.0	6.3
9	7.5	7.3	7.4	7.3	6.7	7.0	7.0	6.5	6.7	6.6	6.4	6.5
10	7.9	7.3	7.5	7.3	6.5	6.9	7.0	6.5	6.8	6.8	6.7	6.8
11	7.4	4.7	6.2	7.3	6.6	6.9	7.3	6.7	7.0	6.9	6.8	6.9
12	6.1	5.1	5.6	7.1	6.8	6.9	7.3	6.6	6.9	6.9	6.8	6.9
13	6.8	4.8	5.8	7.4	6.8	7.1	7.1	6.5	6.7	7.1	6.6	7.0
14	7.5	6.9	7.3	7.4	6.5	6.9	7.2	6.5	6.9	---	---	---
15	7.9	7.5	7.7	7.9	6.4	7.0	7.2	6.6	6.9	---	---	---
16	8.1	7.9	8.0	7.0	6.0	6.5	7.1	6.3	6.8	8.5	8.3	8.5
17	8.0	7.6	7.9	6.8	5.2	6.2	6.8	6.0	6.5	8.4	8.1	8.3
18	8.0	7.6	7.8	---	---	---	6.8	6.5	6.7	8.3	8.1	8.2
19	8.1	7.7	7.9	---	---	---	6.7	6.3	6.5	8.1	8.0	8.1
20	8.1	7.6	7.8	6.8	6.3	6.5	6.8	5.5	6.0	8.1	7.9	8.0
21	8.0	7.5	7.7	7.6	6.3	6.8	5.5	4.6	5.0	8.1	7.7	7.9
22	7.7	7.2	7.4	7.7	6.6	7.1	6.8	5.4	5.7	8.1	7.6	7.8
23	7.9	7.3	7.6	7.3	6.5	6.9	7.6	7.0	7.4	8.4	7.6	7.9
24	7.9	7.3	7.6	7.2	6.5	6.8	8.6	7.5	7.9	8.7	8.0	8.3
25	7.7	7.2	7.4	7.3	6.6	6.9	8.5	8.4	8.4	8.9	8.2	8.4
26	7.5	6.7	7.0	7.3	6.5	6.8	8.4	8.3	8.4	9.2	8.3	8.6
27	7.4	6.1	6.6	7.2	6.4	6.8	8.4	8.3	8.3	9.2	8.2	8.6
28	7.0	6.6	6.8	6.9	6.2	6.6	8.3	7.8	8.1	9.4	8.0	8.6
29	7.0	6.6	6.8	---	---	---	8.1	7.5	7.9	9.4	8.4	8.9
30	7.1	6.6	6.8	---	---	---	7.6	5.8	6.4	8.8	8.3	8.6
31	---	---	---	---	---	---	6.4	6.4	6.4	---	---	---

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET NEAR TULSA, OK.

LOCATION.-- Lat 36°14'57", long 95°56'35", in NE 1/4 NE 1/4 sec.5, T.20 N., R.13 E., Tulsa County, Hydrologic Unit 11070107, on downstream side at right abutment of county bridge, 1.4 mi upstream from Flatrock Creek, 1.6 mi downstream from Delaware Creek, 2.0 mi northeast of Turley, and at mile 21.8.

DRAINAGE AREA.-- 967 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- June 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 567.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Flow slightly regulated since March 1977 by Birch Lake (station 07176460). Flow regulated to some extent since October 1984 by Skiatook Lake (station 07177400).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 19,600 ft³/s, Apr. 3, 1988, gage height 32.99 ft; minimum daily discharge, 12 ft³/s, Sept. 27, 1987

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 15,000 ft³/s, Aug. 20, gage height, 31.22 ft; minimum daily discharge, 52 ft³/s, Nov. 2, 3, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174	54	239	185	273	179	1790	135	178	197	160	377
2	176	52	215	159	211	158	984	145	159	338	156	331
3	178	52	188	144	152	154	786	150	183	842	156	298
4	171	53	153	130	101	451	674	155	292	310	156	282
5	172	52	142	120	88	308	522	147	374	241	173	583
6	189	53	135	110	e86	196	456	155	546	152	897	7380
7	191	54	119	100	e80	174	338	166	300	214	280	4470
8	248	55	110	90	e70	273	237	161	339	186	189	820
9	359	58	104	105	66	1410	222	153	319	171	172	615
10	298	61	97	119	73	1210	211	147	279	168	166	515
11	253	61	93	116	76	573	202	143	2590	158	159	471
12	223	580	91	113	83	423	176	139	8810	160	151	331
13	204	663	87	111	104	363	169	138	6380	159	148	3610
14	193	298	82	110	151	328	149	138	2230	198	154	5600
15	118	182	76	112	923	298	168	162	1230	216	155	2740
16	75	152	72	114	814	238	171	448	1030	303	183	2260
17	68	135	72	114	504	170	170	224	942	2880	556	1960
18	62	113	71	114	355	159	169	475	863	2610	282	1830
19	57	120	70	107	233	149	167	1900	815	374	202	1770
20	54	1790	68	101	201	146	163	627	789	226	8720	1550
21	53	2250	69	91	510	147	162	299	582	205	10100	1170
22	58	975	103	90	658	144	163	295	472	220	1490	342
23	70	524	231	77	418	136	162	1220	483	588	2280	276
24	70	403	139	68	292	106	158	714	408	279	2590	266
25	60	352	121	750	235	77	156	469	244	202	2550	259
26	59	1160	98	624	183	66	154	392	135	189	2420	202
27	60	972	186	206	177	63	153	319	1020	187	2330	189
28	57	508	950	554	194	3550	152	257	547	196	2200	187
29	56	356	465	1470	---	3870	141	251	255	188	865	182
30	56	279	326	634	---	2920	137	242	207	167	1300	211
31	56	---	248	393	---	5570	---	215	---	160	638	---
TOTAL	4118	12417	5220	7331	7311	24009	9462	10581	33001	12684	41978	41077
MEAN	133	414	168	236	261	774	315	341	1100	409	1354	1369
MAX	359	2250	950	1470	923	5570	1790	1900	8810	2880	10100	7380
MIN	53	52	68	68	68	63	137	135	135	152	148	182
AC-FT	8170	24630	10350	14540	14500	47620	18770	20990	65460	25160	83260	81480
CFSM	.14	.43	.17	.24	.27	.80	.33	.35	1.14	.42	1.40	1.42

CAL YR 1988 TOTAL 253973 MEAN 694 MAX 16100 MIN 52 AC-FT 503800 CFSM .72
WTR YR 1989 TOTAL 209189 MEAN 573 MAX 10100 MIN 52 AC-FT 414900 CFSM .59

e Estimated

07177600 BIRD CREEK AT 66TH STREET NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR- ATION)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV 01...	750	9.0	88	34	8.0	34	2.8	114	0	94	<20
DEC 13...	740	10.1	81	--	--	--	--	139	0	114	--
JAN 24...	740	11.3	96	59	12	40	2.3	199	0	163	29
MAR 08...	750	--	--	--	--	--	--	117	0	96	--
APR 18...	740	--	--	--	--	--	--	119	0	98	--
MAY 31...	740	7.2	91	33	7.0	22	2.4	111	0	91	<20
JUL 05...	745	6.3	81	--	--	--	--	99	0	81	--
AUG 22...	740	6.6	79	23	5.0	16	3.2	73	0	60	<20
SEP 26...	750	8.4	87	--	--	--	--	130	0	107	--
DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
NOV 01...	64	0.2	253	19	<0.500	<0.500	<0.500	<0.100	--	0.40	0.40
DEC 13...	--	0.2	281	17	<0.500	<0.500	<0.500	<0.100	--	0.46	0.46
JAN 24...	80	0.2	351	15	<0.500	<0.500	<0.500	<0.100	--	0.32	0.32
MAR 08...	--	0.2	301	35	1.50	<0.500	1.50	<0.100	--	0.49	0.49
APR 18...	--	0.2	255	28	<0.500	<0.500	<0.500	<0.100	--	0.46	0.46
MAY 31...	38	0.2	168	44	0.500	<0.500	0.500	<0.100	--	0.46	0.46
JUL 05...	--	0.2	216	32	<0.500	<0.500	<0.500	0.363	0.47	0.34	0.70
AUG 22...	43	0.2	152	286	<0.500	<0.500	<0.500	<0.100	--	0.97	0.97
SEP 26...	--	0.2	255	18	<0.500	<0.500	<0.500	<0.100	--	0.11	0.11
DATE	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
NOV 01...	--	--	0.400	0.06	0.020	<60	<60	100	<100	<5	<5.0
DEC 13...	--	--	0.062	0.09	0.029	--	--	--	--	--	--
JAN 24...	--	--	0.112	0.09	0.031	<60	<60	100	<100	<5	<5.0
MAR 08...	2.0	8.8	0.613	0.82	0.266	--	--	--	--	--	--
APR 18...	--	--	0.028	0.07	0.022	--	--	--	--	--	--
MAY 31...	0.95	4.2	0.583	0.64	0.209	<60	<60	90	84	<5	<5.0
JUL 05...	--	--	0.188	0.43	0.141	--	--	--	--	--	--
AUG 22...	--	--	0.317	0.38	0.125	<60	--	100	--	<5	--
SEP 26...	--	--	0.310	0.59	0.194	--	--	--	--	--	--

07177600 BIRD CREEK AT 66TH STREET NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)
NOV 01...	<10	<10	1200	<95	<45	<45	210	180	<0.50	<0.5	<70
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 24...	<10	<10	1100	11	<45	<45	250	190	<0.50	<0.5	<70
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	<10	<10	2500	82	<45	<45	160	12	<0.50	<0.5	<70
JUL 05...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	11	--	9400	--	<45	--	330	--	<0.50	--	<70
SEP 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<70	<7	<7.0	350	370	20	<5	<5.0	26	3.8	79
DEC 13...	--	--	--	--	--	--	--	--	12	2.8	74
JAN 24...	<70	<7	<7.0	530	520	<5	--	<5.0	--	--	--
MAR 08...	--	--	--	--	--	--	--	--	35	19	92
APR 18...	--	--	--	--	--	--	--	--	35	16	91
MAY 31...	<70	<7	<7.0	290	290	<5	--	<5.0	64	40	84
JUL 05...	--	--	--	--	--	--	--	--	101	70	84
AUG 22...	--	<7	--	210	--	40	--	7.4	214	499	95
SEP 26...	--	--	--	--	--	--	--	--	26	14	95

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
JUN 15...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
JUN 28...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
AUG 09...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
JUN 15...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
JUN 28...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
AUG 09...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

07177600 BIRD CREEK AT 86TH STREET NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
JUN 28...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
AUG 09...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--

DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<60
JUN 28...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
AUG 09...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--

DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
JUN 28...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
AUG 09...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
NOV 01...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JAN 24...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
MAY 31...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JUL 05...	--	--	<0.6	--	--	<4.0	--	--	<14	--
AUG 22...	--	<0.030	--	--	<0.2	--	--	<0.70	--	--

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
NOV 01...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JAN 24...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
MAY 31...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JUL 05...	--	<2.0	--	--	<1.2	--	--	<0.6	--	--
AUG 22...	<0.05	--	--	<0.060	--	--	<0.030	--	--	<0.030

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JAN 24...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
MAY 31...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JUL 05...	<0.6	--	--	<0.6	--	--	<0.4	--	--	<4.0
AUG 22...	--	--	<0.030	--	--	<0.020	--	--	<0.40	--
DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JAN 24...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<60
MAY 31...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JUL 05...	--	<2.0	--	<2.0	--	--	<2.0	--	--	<60
AUG 22...	<0.70	--	<0.10	--	--	<0.10	--	--	<0.3	--
DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JAN 24...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
MAY 31...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JUL 05...	--	--	<75.0	--	--	--	<10.0	--	--	<10.0
AUG 22...	--	<20	--	<2.0	--	<2.0	--	--	<2.0	--

ARKANSAS RIVER BASIN

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07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	298	243	293	769	686	710	311	300	309	302	279	286
2	308	297	300	676	613	638	321	311	313	336	302	315
3	308	296	303	810	687	767	322	311	318	382	336	357
4	318	296	306	943	780	798	322	311	320	394	371	388
5	307	295	302	1040	708	917	333	322	324	407	394	397
6	317	295	302	687	497	604	333	322	324	442	407	418
7	328	284	304	487	466	472	344	323	330	499	442	462
8	316	294	305	476	466	472	388	334	363	511	477	497
9	316	304	309	487	466	478	388	366	375	524	512	513
10	337	315	323	498	477	487	377	366	371	549	524	532
11	337	325	330	499	487	491	378	367	376	562	526	544
12	336	325	332	499	488	497	410	367	387	747	573	618
13	335	324	333	499	489	498	443	410	430	943	472	653
14	367	335	354	510	499	504	465	432	449	484	461	473
15	409	367	388	721	372	530	508	465	484	597	483	526
16	---	---	---	447	245	348	563	508	539	537	376	452
17	---	---	---	394	351	379	563	498	525	397	296	352
18	---	---	---	490	372	408	607	498	530	596	352	477
19	---	---	---	511	373	447	641	152	348	551	313	405
20	---	---	---	426	405	414	239	130	163	313	267	284
21	---	---	---	437	416	434	207	152	169	343	288	318
22	---	---	---	469	437	452	252	196	221	421	353	374
23	---	---	---	501	469	481	285	241	264	488	422	456
24	---	---	---	544	181	449	329	274	294	412	378	387
25	---	---	---	224	149	187	374	198	310	391	379	384
26	---	---	---	203	171	187	243	198	224	470	358	407
27	---	---	---	235	203	219	221	187	201	382	359	370
28	---	---	---	289	235	275	266	210	237	393	370	382
29	---	---	---	300	289	294	356	266	302	394	382	384
30	---	---	---	310	300	303	367	322	344	428	383	402
31	759	728	741	---	---	---	334	279	312	441	428	436
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	464	440	453	667	646	654	398	151	255	400	390	395
2	476	453	464	926	420	701	161	129	156	410	390	399
3	533	464	500	344	172	230	215	161	184	410	390	400
4	567	533	550	291	237	255	312	226	274	480	400	450
5	599	567	583	269	237	250	312	291	301	500	470	482
6	631	599	614	258	226	243	301	291	293	530	480	501
7	642	621	633	280	248	266	301	291	297	580	540	560
8	642	631	636	312	280	299	301	291	300	590	570	580
9	643	621	630	323	301	310	301	291	299	600	590	594
10	632	621	630	312	301	309	388	291	317	610	590	602
11	643	622	632	312	301	310	301	280	286	610	600	606
12	643	621	632	312	301	311	291	269	285	630	610	613
13	644	632	641	323	301	312	291	280	289	640	300	530
14	675	643	665	323	312	316	301	291	294	---	---	---
15	730	675	703	323	312	316	301	291	298	990	690	819
16	762	719	743	323	312	316	312	291	303	690	540	571
17	773	762	767	355	312	325	312	291	301	---	---	---
18	794	762	778	420	355	386	366	301	320	---	---	---
19	1150	527	793	452	377	408	355	291	322	---	---	---
20	548	418	457	377	355	372	291	280	288	---	---	---
21	462	441	455	366	344	356	301	280	290	---	---	---
22	462	441	452	377	355	365	300	280	289	---	---	---
23	451	387	401	398	355	366	300	290	297	---	---	---
24	398	365	383	570	398	449	310	300	301	---	---	---
25	388	366	373	614	506	536	310	300	304	---	---	---
26	527	388	453	527	484	510	350	300	315	---	---	---
27	592	538	571	517	495	504	390	350	357	---	---	---
28	624	592	603	517	441	502	360	350	351	---	---	---
29	657	614	635	517	161	271	380	350	357	---	---	---
30	---	---	---	344	248	319	400	380	391	---	---	---
31	---	---	---	398	334	359	---	---	---	---	---	---

07177600 BIRD CREEK AT 86TH STREET, NEAR TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	400	390	396	---	---	---	439	344	359
2	---	---	---	410	390	394	---	---	---	357	345	353
3	---	---	---	410	370	391	---	---	---	378	346	356
4	---	---	---	450	380	395	---	---	---	369	347	354
5	---	---	---	420	400	411	---	---	---	369	348	354
6	---	---	---	420	410	418	---	---	---	361	339	354
7	---	---	---	420	410	413	---	---	---	362	341	350
8	---	---	---	420	400	411	---	---	---	362	351	353
9	420	410	416	410	370	401	---	---	---	363	342	352
10	420	410	412	410	390	399	---	---	---	354	342	348
11	410	400	405	400	390	394	---	---	---	354	343	347
12	410	400	404	410	390	397	---	---	---	355	344	349
13	410	400	405	530	400	490	---	---	---	356	345	348
14	420	400	406	480	450	466	---	---	---	367	346	349
15	410	400	403	450	390	417	---	---	---	358	336	347
16	410	400	407	400	380	391	---	---	---	467	336	359
17	410	400	404	390	370	383	---	---	---	533	359	412
18	410	400	408	690	370	500	---	---	---	381	338	358
19	410	400	405	---	---	---	---	---	---	---	---	---
20	410	390	401	---	---	---	---	---	---	284	208	230
21	490	380	424	---	---	---	---	---	---	219	208	211
22	410	390	395	---	---	---	---	---	---	241	208	221
23	400	390	393	---	---	---	---	---	---	439	231	294
24	400	390	394	---	---	---	363	351	355	330	253	278
25	400	390	392	---	---	---	365	344	356	319	297	308
26	400	390	395	---	---	---	367	346	359	331	308	318
27	400	390	395	---	---	---	358	346	355	343	320	332
28	400	390	399	---	---	---	359	339	347	343	332	341
29	400	350	394	---	---	---	361	349	357	354	332	343
30	400	390	398	---	---	---	363	351	357	344	332	343
31	---	---	---	---	---	---	374	343	354	---	---	---

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	360	337	349	450	430	435	368	345	363	460	396	429
2	349	338	347	450	430	443	380	368	374	494	378	429
3	350	338	347	460	440	448	392	380	388	496	379	428
4	350	339	349	471	450	454	416	392	407	476	423	445
5	351	339	350	480	440	455	428	416	423	503	415	456
6	533	351	406	460	440	448	440	410	426	493	396	453
7	397	350	373	460	440	446	570	400	431	485	398	445
8	370	320	358	450	440	446	460	420	437	521	432	471
9	340	300	321	450	440	444	510	430	449	522	446	485
10	330	310	317	450	440	444	550	430	455	514	437	480
11	370	320	327	480	440	450	510	410	456	507	451	486
12	340	320	333	770	340	494	490	430	462	521	441	489
13	340	310	328	400	280	354	490	390	463	545	457	501
14	380	310	331	390	360	380	520	440	476	530	446	483
15	350	330	337	440	380	402	530	370	474	626	424	513
16	380	350	356	450	400	415	620	380	475	583	435	519
17	---	---	---	460	430	440	520	420	478	604	371	501
18	---	---	---	441	412	428	530	430	472	710	424	525
19	---	---	---	474	422	433	620	380	495	825	264	519
20	---	---	---	484	192	354	500	440	476	814	391	560
21	---	---	---	445	290	337	500	440	481	677	412	549
22	---	---	---	320	284	297	699	460	511	707	486	606
23	---	---	---	347	325	340	700	461	570	707	496	611
24	---	---	---	379	347	361	491	382	430	727	464	612
25	---	---	---	391	369	385	433	364	393	854	264	567
26	---	---	---	484	278	335	447	364	400	558	232	318
27	---	---	---	358	300	321	490	407	444	484	221	347
28	440	420	429	363	312	337	460	327	395	589	253	405
29	440	420	430	323	292	306	484	359	417	389	221	291
30	440	420	430	356	303	329	464	382	417	---	---	---
31	440	430	433	---	---	---	458	394	418	---	---	---

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	430	381	402	542	519	529	---	---	---	---	---	---
2	422	391	406	543	487	512	---	---	---	---	---	---
3	---	---	---	500	478	495	---	---	---	---	---	---
4	---	---	---	1190	423	564	---	---	---	---	---	---
5	---	---	---	446	435	442	---	---	---	---	---	---
6	---	---	---	504	447	465	---	---	---	---	---	---
7	---	---	---	538	504	523	---	---	---	---	---	---
8	---	---	---	561	516	540	---	---	---	---	---	---
9	---	---	---	528	348	410	---	---	---	---	---	---
10	---	---	---	349	304	325	---	---	---	---	---	---
11	---	---	---	339	316	325	---	---	---	---	---	---
12	---	---	---	373	339	350	---	---	---	---	---	---
13	---	---	---	397	362	376	---	---	---	390	380	384
14	---	---	---	420	380	400	---	---	---	390	380	389
15	---	---	---	420	399	409	---	---	---	540	380	401
16	---	---	---	429	419	420	---	---	---	590	380	443
17	409	386	397	450	429	440	---	---	---	440	400	416
18	464	419	445	471	450	464	---	---	---	580	400	435
19	476	454	466	502	470	486	---	---	---	500	440	470
20	509	476	491	512	491	501	---	---	---	480	420	444
21	597	478	521	522	512	516	---	---	---	420	370	392
22	533	435	480	563	521	530	---	---	---	420	360	391
23	458	425	443	603	563	584	---	---	---	360	290	312
24	448	437	444	625	605	611	---	---	---	340	290	310
25	438	416	429	635	614	627	---	---	---	360	340	350
26	461	428	448	645	625	635	---	---	---	370	350	364
27	506	462	471	645	635	644	---	---	---	360	330	344
28	551	507	529	812	228	427	---	---	---	350	330	339
29	---	---	---	581	259	321	---	---	---	340	330	338
30	---	---	---	---	---	---	---	---	---	350	330	339
31	---	---	---	---	---	---	---	---	---	360	340	344

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	400	350	361	---	---	---	393	320	362	320	270	299
2	400	370	388	---	---	---	397	335	359	320	300	307
3	570	390	454	---	---	---	413	342	377	320	300	308
4	480	390	438	---	---	---	410	310	380	330	310	319
5	420	370	399	---	---	---	430	340	386	340	270	328
6	390	310	351	380	340	361	420	210	297	160	100	134
7	340	310	323	440	310	380	360	260	300	230	130	181
8	330	310	324	400	330	366	370	310	341	250	170	217
9	350	320	331	400	340	360	390	320	349	320	230	265
10	350	340	344	430	340	370	430	320	358	340	230	278
11	410	120	286	430	290	370	---	---	---	310	240	282
12	200	120	154	410	320	382	---	---	---	330	260	298
13	230	150	194	450	340	377	---	---	---	590	170	299
14	240	210	222	470	280	374	---	---	---	260	170	205
15	280	240	281	450	350	408	---	---	---	270	230	250
16	280	270	275	530	370	425	---	---	---	280	260	275
17	290	260	276	430	100	267	---	---	---	300	280	290
18	280	260	270	220	120	189	370	310	335	300	290	298
19	300	270	288	300	210	233	470	250	358	300	280	298
20	350	250	279	349	240	316	360	80	179	320	300	305
21	320	230	279	387	339	367	190	90	142	330	310	314
22	350	230	284	444	374	393	310	190	242	360	330	334
23	340	250	300	393	255	339	300	260	277	350	320	329
24	---	---	---	379	302	336	300	280	287	350	330	335
25	---	---	---	416	349	385	310	290	299	360	340	350
26	---	---	---	451	356	417	320	290	301	380	350	366
27	---	---	---	448	372	419	310	300	304	390	380	383
28	---	---	---	461	398	429	310	290	304	400	390	392
29	---	---	---	584	346	435	320	300	310	400	390	395
30	---	---	---	473	324	413	330	220	275	400	370	389
31	---	---	---	416	340	369	310	230	261	---	---	---

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	7.7	7.6	---	---	---	---	---	---	8.6	8.2
2	---	---	7.9	7.7	---	---	---	---	---	---	8.2	7.9
3	---	---	8.0	7.8	---	---	---	---	---	---	8.0	7.8
4	---	---	7.9	7.9	---	---	---	---	---	---	8.1	8.0
5	---	---	7.9	7.8	---	---	---	---	7.6	7.5	8.1	8.0
6	---	---	7.9	7.8	---	---	---	---	7.6	7.5	8.1	8.0
7	---	---	7.9	7.9	---	---	---	---	7.7	7.6	8.2	8.1
8	---	---	7.9	7.8	---	---	---	---	7.7	7.6	8.2	8.2
9	---	---	7.9	7.7	---	---	---	---	7.7	7.6	8.2	8.2
10	---	---	7.8	7.7	---	---	---	---	7.7	7.7	8.2	8.2
11	---	---	7.8	7.7	---	---	---	---	7.8	7.7	8.2	8.2
12	---	---	7.8	7.7	---	---	---	---	7.9	7.8	8.2	8.2
13	---	---	7.9	7.8	---	---	---	---	7.9	7.8	8.2	8.2
14	---	---	7.8	7.8	---	---	---	---	7.9	7.8	8.3	8.2
15	---	---	8.2	7.7	---	---	---	---	8.0	7.9	8.3	8.2
16	---	---	8.0	7.8	---	---	---	---	8.0	7.8	8.3	8.2
17	---	---	7.9	7.8	---	---	---	---	8.0	7.9	8.2	8.2
18	---	---	7.8	7.7	---	---	---	---	8.0	7.9	8.4	8.2
19	---	---	7.7	7.7	---	---	---	---	7.9	7.7	8.4	8.3
20	---	---	7.7	7.6	---	---	---	---	8.1	7.8	8.3	8.2
21	---	---	7.6	7.5	---	---	---	---	8.1	8.1	8.2	8.2
22	---	---	7.5	7.4	---	---	---	---	8.1	8.0	8.3	8.2
23	---	---	7.4	7.3	---	---	---	---	8.1	8.0	8.3	8.2
24	---	---	7.9	7.3	---	---	---	---	8.2	8.1	8.3	8.2
25	---	---	8.0	7.8	---	---	---	---	8.2	8.1	8.3	8.2
26	---	---	7.9	7.9	---	---	---	---	8.2	8.1	8.4	8.2
27	---	---	7.9	7.8	---	---	---	---	8.3	8.0	8.8	8.3
28	---	---	7.9	7.8	---	---	---	---	8.4	8.1	8.4	8.1
29	---	---	7.9	7.9	---	---	---	---	8.4	8.1	8.1	7.9
30	---	---	7.9	7.7	---	---	---	---	---	---	8.2	8.0
31	7.6	7.6	---	---	---	---	---	---	---	---	8.1	8.1
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.2	7.8	---	---	---	---	---	---	---	---	7.5	7.5
2	7.9	7.8	---	---	---	---	---	---	---	---	7.5	7.5
3	7.9	7.7	---	---	---	---	---	---	---	---	7.5	7.5
4	8.0	7.7	---	---	---	---	---	---	---	---	7.5	7.5
5	8.1	8.0	---	---	---	---	---	---	---	---	7.5	7.5
6	8.1	8.1	---	---	---	---	---	---	---	---	7.5	7.5
7	---	---	---	---	---	---	---	---	---	---	7.5	7.5
8	---	---	---	---	---	---	---	---	---	---	7.5	7.5
9	---	---	---	---	---	---	---	---	---	---	7.5	7.5
10	---	---	---	---	---	---	---	---	---	---	7.5	7.5
11	---	---	---	---	---	---	---	---	---	---	7.5	7.4
12	---	---	---	---	---	---	---	---	---	---	7.5	7.5
13	---	---	---	---	---	---	---	---	---	---	7.5	7.4
14	---	---	---	---	---	---	---	---	---	---	7.5	7.4
15	---	---	---	---	---	---	---	---	---	---	7.5	7.5
16	---	---	---	---	---	---	---	---	---	---	7.5	7.5
17	---	---	---	---	---	---	---	---	---	---	7.5	7.5
18	---	---	---	---	---	---	---	---	---	---	7.5	7.5
19	---	---	---	---	---	---	---	---	---	---	8.0	7.5
20	---	---	---	---	---	---	---	---	---	---	8.0	7.5
21	---	---	---	---	---	---	---	---	---	---	7.7	7.6
22	8.4	8.2	---	---	---	---	---	---	---	---	7.6	7.5
23	8.4	8.4	---	---	---	---	---	---	---	---	7.7	7.5
24	8.4	8.0	---	---	---	---	---	---	7.7	7.7	7.7	7.6
25	8.2	7.9	---	---	---	---	---	---	7.8	7.7	7.7	7.7
26	8.1	7.9	---	---	---	---	---	---	7.8	7.4	7.7	7.6
27	8.0	7.8	---	---	8.0	7.7	---	---	7.5	7.5	7.6	7.6
28	---	---	---	---	8.1	7.7	---	---	7.5	7.5	7.7	7.5
29	---	---	---	---	8.1	7.9	---	---	8.0	7.5	7.7	7.5
30	---	---	---	---	8.1	7.9	---	---	8.0	7.4	7.7	7.5
31	---	---	---	---	---	---	---	---	7.5	7.4	---	---

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	7.7	7.5	---	---	---	---	---	---	---	---	---	---
2	7.7	7.2	---	---	---	---	---	---	---	---	---	---
3	7.7	7.5	---	---	---	---	---	---	---	---	---	---
4	7.7	7.5	---	---	---	---	---	---	---	---	---	---
5	7.7	7.5	---	---	---	---	---	---	---	---	---	---
6	7.7	7.6	---	---	---	---	---	---	---	---	---	---
7	8.1	7.5	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	7.5	7.4	---	---	---	---	---	---	---	---	8.0	7.9
16	7.5	7.5	---	---	---	---	---	---	---	---	8.1	7.9
17	7.6	7.5	---	---	---	---	---	---	---	---	8.0	7.9
18	7.6	7.4	---	---	---	---	---	---	---	---	8.1	7.9
19	7.6	7.5	---	---	---	---	---	---	---	---	8.0	7.9
20	7.6	7.5	---	---	---	---	---	---	---	---	8.0	7.9
21	7.6	7.5	---	---	---	---	---	---	---	---	8.2	7.9
22	7.6	6.9	---	---	---	---	---	---	---	---	8.3	8.0
23	7.7	7.5	---	---	---	---	---	---	---	---	8.3	8.1
24	7.7	6.6	---	---	8.6	8.1	---	---	---	---	8.2	8.0
25	7.7	7.0	---	---	8.4	8.3	---	---	---	---	8.2	7.9
26	7.8	7.2	---	---	8.4	8.2	---	---	---	---	8.1	7.7
27	7.8	7.6	---	---	8.3	8.2	---	---	---	---	7.9	7.6
28	---	---	---	---	8.4	8.2	---	---	---	---	7.9	7.4
29	---	---	---	---	---	---	---	---	---	---	7.7	7.5
30	---	---	---	---	---	---	---	---	---	---	7.7	7.4
31	---	---	---	---	---	---	---	---	---	---	7.6	7.5
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.7	7.6	---	---	7.7	7.7	7.7	7.2	8.0	7.8	---	---
2	7.7	7.7	---	---	7.7	7.6	7.9	7.6	---	---	---	---
3	7.7	7.6	---	---	7.7	7.5	7.9	7.4	---	---	---	---
4	7.8	7.7	---	---	---	---	7.8	7.4	8.0	7.7	---	---
5	7.8	7.7	---	---	7.8	7.7	8.0	7.7	---	---	---	---
6	7.9	7.7	---	---	7.9	7.7	8.1	8.0	7.9	7.3	---	---
7	7.9	7.8	---	---	---	---	---	---	---	---	---	---
8	8.1	7.8	---	---	---	---	8.1	8.0	7.8	7.6	---	---
9	8.0	7.8	---	---	7.8	7.7	---	---	7.9	7.8	---	---
10	8.1	7.8	---	---	---	---	---	---	---	---	---	---
11	8.2	8.0	---	---	---	---	---	---	7.8	7.8	---	---
12	8.3	8.1	---	---	7.6	7.3	---	---	---	---	---	---
13	8.1	7.7	8.0	7.9	7.6	7.3	---	---	---	---	---	---
14	8.0	7.5	7.9	7.9	7.8	7.6	---	---	---	---	---	---
15	8.0	7.3	7.9	7.8	7.9	7.8	---	---	7.9	7.8	---	---
16	7.9	7.2	7.8	7.6	7.8	7.7	---	---	---	---	---	---
17	7.9	7.6	7.7	7.8	7.8	7.7	8.1	7.6	---	---	---	---
18	7.8	7.4	8.0	7.6	7.8	7.7	7.8	7.6	---	---	---	---
19	7.9	7.6	8.1	7.8	7.8	7.8	7.8	7.6	---	---	---	---
20	7.7	7.6	8.2	8.1	7.8	7.7	7.9	7.7	---	---	---	---
21	7.8	7.4	8.2	8.0	7.8	7.6	7.9	7.7	---	---	---	---
22	7.8	7.5	8.0	7.6	7.8	7.7	7.9	7.8	---	---	---	---
23	7.9	7.3	---	---	---	---	7.9	7.6	---	---	7.8	7.6
24	7.7	7.3	---	---	8.0	7.7	7.8	7.6	---	---	7.9	7.7
25	8.3	7.3	---	---	7.7	7.3	7.8	7.7	---	---	7.9	7.8
26	8.2	7.5	---	---	7.7	7.3	7.7	7.6	---	---	8.0	7.8
27	---	---	7.8	7.7	7.8	7.4	7.8	7.5	---	---	7.9	7.7
28	---	---	7.7	7.7	7.7	7.2	---	---	---	---	8.1	7.7
29	---	---	7.8	7.4	7.7	7.3	7.8	7.5	---	---	7.7	7.3
30	---	---	---	7.7	7.7	7.2	7.9	7.8	---	---	7.7	7.6
31	---	---	---	---	---	---	7.9	7.8	---	---	---	---

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	20.0	17.0	18.0	18.5	17.5	18.0	9.5	9.0	9.5	3.5	2.5	3.0
2	18.0	17.0	17.5	18.5	18.0	18.5	9.5	8.5	9.0	2.5	2.0	2.5
3	17.0	16.0	17.0	19.0	18.0	18.5	10.5	9.5	10.0	3.0	2.0	2.5
4	17.0	16.0	16.5	19.0	18.0	18.5	10.0	9.5	10.0	3.0	2.5	3.0
5	17.0	16.0	17.0	19.0	17.5	18.0	10.5	9.5	10.0	2.5	1.0	2.0
6	17.5	16.5	17.0	17.0	16.0	16.5	11.0	10.5	11.0	1.0	.5	.5
7	17.5	16.5	17.0	16.0	14.5	15.5	11.5	11.0	11.0	.5	.5	.5
8	17.5	16.5	17.0	15.0	14.5	15.0	12.0	11.5	11.5	.5	.5	.5
9	17.5	17.0	17.0	15.0	13.0	14.0	11.5	10.5	11.0	.5	.5	.5
10	17.0	14.5	16.0	13.0	12.0	12.5	10.5	9.5	10.0	.5	.5	.5
11	14.5	14.0	14.5	12.0	10.5	11.0	10.5	9.5	10.0	.5	.0	.5
12	15.5	14.0	14.5	10.5	10.0	10.5	10.0	9.5	10.0	.5	.0	.5
13	16.0	15.5	15.5	10.5	10.0	10.5	9.5	8.5	9.0	.5	.0	.0
14	16.5	15.5	16.0	11.5	10.5	11.0	8.0	4.5	6.5	.5	.0	.5
15	16.5	16.0	16.5	13.0	11.5	12.5	4.5	3.5	4.0	.5	.0	.5
16	---	---	---	13.5	12.5	13.0	3.5	2.5	3.0	1.5	.5	.5
17	---	---	---	12.5	11.5	12.0	2.5	2.0	2.5	3.0	1.5	2.5
18	---	---	---	11.5	10.0	10.5	3.0	2.5	3.0	3.5	2.5	3.0
19	---	---	---	10.0	9.5	10.0	4.0	2.5	3.0	5.0	4.0	4.5
20	---	---	---	9.5	9.0	9.5	4.5	4.0	4.5	5.0	4.5	4.5
21	---	---	---	9.0	8.0	8.5	5.0	4.5	5.0	4.5	4.0	4.0
22	---	---	---	10.5	8.5	9.5	5.5	5.0	5.0	4.0	3.0	3.5
23	---	---	---	10.5	9.5	10.0	6.5	5.5	6.0	4.0	3.0	3.5
24	---	---	---	12.0	10.5	11.0	7.5	7.0	7.5	4.5	3.5	4.0
25	---	---	---	11.5	10.0	11.0	7.5	3.5	6.0	4.5	3.5	4.0
26	---	---	---	10.0	9.5	10.0	3.5	3.0	3.5	4.0	3.0	3.0
27	---	---	---	9.5	9.0	9.0	3.5	2.5	3.0	4.0	2.5	3.5
28	---	---	---	9.5	8.5	9.5	3.5	3.0	3.5	5.5	3.5	4.5
29	---	---	---	9.5	9.0	9.5	3.5	3.0	3.5	6.5	5.0	6.0
30	---	---	---	10.0	9.5	9.5	3.5	3.0	3.5	9.0	6.5	7.5
31	18.0	17.0	17.5	---	---	---	4.0	3.5	3.5	10.0	9.0	9.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	9.5	7.5	8.5	11.5	9.5	10.5	12.5	11.5	12.0	19.0	17.5	18.0
2	7.0	5.0	6.0	11.5	10.0	11.0	11.5	11.0	11.5	18.5	18.0	18.5
3	5.0	4.0	4.5	9.5	7.0	8.5	13.0	11.5	12.0	18.0	17.0	17.5
4	4.0	3.5	4.0	7.0	6.0	6.5	15.5	13.0	14.0	19.0	17.0	18.0
5	3.5	2.5	3.5	6.5	6.0	6.0	15.0	14.0	14.5	20.0	18.0	19.0
6	2.5	2.0	2.5	6.0	5.5	6.0	14.5	13.0	14.0	20.5	19.0	20.0
7	2.0	1.5	2.0	7.5	6.0	6.5	14.5	13.0	13.5	20.5	20.0	20.0
8	2.5	2.0	2.0	8.5	7.5	8.0	14.5	13.0	14.0	22.5	20.0	21.0
9	4.0	2.5	3.0	9.0	7.5	8.5	14.0	13.5	14.0	22.5	21.0	21.5
10	4.0	3.0	3.5	9.0	7.5	8.5	13.5	12.5	13.0	23.5	21.5	22.0
11	2.5	2.0	2.0	10.0	8.5	9.0	13.0	12.5	13.0	23.5	22.0	23.0
12	2.5	1.5	2.0	9.5	8.5	9.0	14.0	12.5	13.5	24.5	22.5	23.5
13	3.5	1.5	2.5	8.5	7.5	8.0	14.5	13.0	14.0	26.0	23.0	24.5
14	5.0	3.0	4.5	8.0	6.5	7.5	14.5	13.5	14.0	27.0	23.5	25.5
15	5.5	4.0	4.5	8.0	6.5	7.5	14.0	13.0	13.5	26.0	24.0	25.0
16	7.0	4.0	5.0	8.0	6.5	7.5	14.5	12.5	13.5	26.5	23.5	25.0
17	7.0	5.5	6.0	7.5	7.0	7.0	14.0	13.0	13.5	26.5	23.5	25.0
18	6.5	5.5	6.0	7.5	6.5	7.0	15.0	13.0	13.5	27.5	24.5	26.0
19	6.0	5.0	5.5	8.5	7.0	8.0	15.0	14.0	14.5	---	---	---
20	6.0	5.5	6.0	10.0	7.5	9.0	15.0	13.5	14.0	---	---	---
21	6.5	5.0	6.0	11.0	9.0	10.0	15.5	14.0	15.0	---	---	---
22	8.0	6.0	7.0	12.0	9.5	11.0	16.5	15.0	16.0	---	---	---
23	7.5	6.0	6.5	12.0	11.5	11.5	16.0	15.0	15.5	---	---	---
24	6.0	5.5	6.0	15.5	12.5	14.0	15.5	14.0	15.0	---	---	---
25	6.5	5.0	6.0	16.0	14.0	15.0	15.5	14.0	15.0	---	---	---
26	8.5	6.0	7.0	15.5	14.0	15.0	16.0	14.5	15.0	---	---	---
27	10.5	8.0	9.0	16.0	14.0	15.0	17.5	15.5	16.5	---	---	---
28	11.0	8.5	10.0	16.0	15.0	15.5	17.5	16.0	17.0	---	---	---
29	11.5	9.5	10.5	15.5	10.5	13.0	17.5	16.5	17.0	---	---	---
30	---	---	---	12.5	11.0	11.5	18.0	16.5	17.0	---	---	---
31	---	---	---	12.5	12.0	12.5	---	---	---	---	---	---

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	27.0	24.5	26.0
2	---	---	---	---	---	---	---	---	---	27.0	24.0	26.0
3	---	---	---	---	---	---	---	---	---	27.5	26.0	27.5
4	---	---	---	---	---	---	---	---	---	27.0	24.5	26.0
5	---	---	---	---	---	---	---	---	---	26.0	23.5	25.5
6	---	---	---	---	---	---	---	---	---	25.5	24.5	25.0
7	---	---	---	---	---	---	---	---	---	25.0	24.0	24.5
8	---	---	---	---	---	---	---	---	---	25.0	24.0	24.5
9	28.5	26.0	27.5	---	---	---	---	---	---	25.5	24.5	25.0
10	27.0	25.5	26.5	---	---	---	---	---	---	26.0	24.5	25.5
11	26.0	23.5	24.5	---	---	---	---	---	---	26.5	24.5	25.5
12	26.5	24.0	25.0	---	---	---	---	---	---	26.5	25.0	25.5
13	27.0	25.0	26.0	---	---	---	---	---	---	26.5	24.5	25.5
14	27.0	26.0	26.5	---	---	---	---	---	---	26.5	25.5	26.0
15	27.5	25.0	26.5	---	---	---	---	---	---	25.5	24.5	25.5
16	27.5	25.0	26.5	---	---	---	---	---	---	25.5	22.0	25.0
17	---	---	---	---	---	---	---	---	---	25.5	20.0	24.0
18	---	---	---	---	---	---	---	---	---	25.5	21.5	25.0
19	---	---	---	---	---	---	---	---	---	26.0	22.5	25.0
20	---	---	---	---	---	---	---	---	---	24.0	23.0	23.5
21	---	---	---	---	---	---	---	---	---	24.5	23.0	23.5
22	---	---	---	---	---	---	---	---	---	25.0	23.5	24.5
23	---	---	---	---	---	---	---	---	---	25.5	22.0	24.0
24	---	---	---	---	---	---	---	---	---	22.0	21.5	22.0
25	---	---	---	---	---	---	---	---	---	21.5	21.0	21.0
26	---	---	---	---	---	---	---	---	---	21.5	20.0	21.0
27	---	---	---	---	---	---	---	---	---	22.5	21.0	22.0
28	---	---	---	---	---	---	28.5	27.0	28.0	23.5	22.0	22.5
29	---	---	---	---	---	---	27.0	25.5	26.0	23.0	22.5	23.0
30	---	---	---	---	---	---	27.0	25.5	26.0	22.5	21.0	21.5
31	---	---	---	---	---	---	27.0	25.5	26.5	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.0	20.5	20.5	14.5	13.5	14.0	7.5	6.5	7.0	5.5	5.0	5.0
2	21.0	20.0	20.5	15.0	14.5	14.5	7.5	6.5	7.0	6.0	5.0	5.5
3	20.5	19.5	20.0	15.5	15.0	15.5	8.0	7.0	7.5	6.5	5.5	6.0
4	20.0	19.0	19.5	16.0	16.0	16.0	7.5	7.5	7.5	6.5	6.0	6.0
5	19.0	17.0	18.5	16.0	14.5	15.0	7.0	6.5	7.0	8.0	6.0	7.0
6	17.0	16.5	16.5	14.5	13.5	14.0	7.5	6.5	7.0	8.5	7.0	8.0
7	16.5	16.5	16.5	13.5	13.5	13.5	8.0	7.5	7.5	8.5	7.5	8.0
8	16.5	15.5	16.5	13.5	12.5	13.0	7.5	6.5	7.0	7.5	6.5	7.0
9	15.5	15.0	15.5	14.5	13.0	13.5	6.5	5.5	6.0	6.5	5.5	6.0
10	16.5	15.0	16.0	14.5	13.5	14.0	6.0	5.0	6.0	6.0	5.0	5.5
11	17.0	16.0	16.5	14.0	13.5	13.5	6.0	5.0	5.5	7.0	5.0	6.0
12	16.5	15.5	16.0	13.5	12.5	13.0	5.5	4.5	5.0	6.5	5.5	6.0
13	16.5	15.5	16.0	12.5	12.0	12.5	6.0	4.5	5.0	5.5	4.5	5.0
14	17.0	16.0	16.5	13.5	12.0	12.5	6.5	5.0	6.0	5.5	4.0	5.0
15	18.0	17.0	17.5	14.5	13.5	14.0	6.5	5.5	5.5	4.5	4.0	4.5
16	19.0	17.5	18.0	14.0	12.5	13.5	5.5	4.0	4.5	4.5	3.5	4.0
17	19.5	18.0	18.5	12.5	11.5	12.0	5.0	4.0	4.5	5.0	3.5	4.5
18	19.5	17.5	18.5	11.5	11.0	11.0	5.5	4.0	4.5	5.5	4.0	5.0
19	17.5	16.5	17.0	11.0	9.5	10.5	6.5	5.0	5.5	6.0	4.5	5.5
20	17.0	16.0	16.5	9.5	6.5	7.5	7.0	6.5	7.0	6.5	5.0	6.0
21	17.0	16.0	16.5	7.5	7.0	7.0	7.0	6.5	7.0	6.0	4.5	5.5
22	17.0	16.5	16.5	7.0	6.5	7.0	8.5	7.0	7.5	6.5	4.5	5.5
23	17.5	16.5	17.0	7.5	6.0	6.5	8.5	7.5	8.0	7.0	5.5	6.0
24	16.5	15.5	16.0	8.5	7.0	7.5	8.5	8.0	8.0	7.5	6.5	7.0
25	16.5	15.5	16.0	10.0	8.5	9.0	7.5	7.0	7.5	8.5	7.5	8.0
26	16.0	15.0	15.5	11.0	10.0	10.5	9.0	7.0	8.0	8.5	8.0	8.5
27	15.5	15.0	15.0	10.0	8.5	9.5	9.0	7.0	8.0	8.0	7.0	7.5
28	15.0	14.0	14.5	8.5	7.5	8.0	7.0	6.0	6.5	8.0	7.5	7.5
29	14.0	13.5	14.0	7.5	7.0	7.5	5.5	5.0	5.5	8.0	7.5	7.5
30	13.5	13.5	13.5	7.5	7.0	7.5	5.5	4.5	5.0	8.0	7.0	7.5
31	14.0	13.5	13.5	---	---	---	5.0	4.5	5.0	9.5	7.5	8.5

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.5	7.0	8.5	7.0	5.5	6.0	15.0	14.0	14.5	---	---	---
2	7.0	5.0	6.5	7.5	6.0	7.0	16.5	14.5	15.5	---	---	---
3	---	---	---	9.5	7.5	8.5	17.5	16.0	16.5	---	---	---
4	---	---	---	8.5	5.0	6.5	18.0	16.5	17.0	---	---	---
5	---	---	---	5.0	2.0	4.0	17.5	16.0	16.5	---	---	---
6	---	---	---	3.0	1.0	2.0	17.5	15.5	16.5	---	---	---
7	---	---	---	3.0	1.5	2.5	17.5	16.0	16.5	---	---	---
8	---	---	---	4.5	2.0	3.0	17.5	16.5	17.0	---	---	---
9	---	---	---	5.5	3.0	4.0	17.0	15.0	16.0	---	---	---
10	---	---	---	8.0	5.5	6.5	15.5	14.0	14.5	---	---	---
11	---	---	---	12.0	9.0	10.5	14.5	13.0	14.0	---	---	---
12	---	---	---	13.5	11.5	12.5	16.0	14.0	15.0	---	---	---
13	---	---	---	14.5	12.5	13.5	15.5	15.0	15.0	18.5	15.0	17.0
14	---	---	---	15.0	13.5	14.5	16.5	15.0	15.5	---	---	---
15	---	---	---	14.5	12.5	13.5	17.5	15.5	16.0	20.5	15.0	19.0
16	---	---	---	13.5	12.0	13.0	18.0	16.5	17.0	19.5	15.0	18.5
17	3.0	2.5	2.5	15.5	13.0	14.0	18.5	17.0	18.0	20.0	17.0	19.5
18	4.0	2.5	3.0	14.5	13.5	14.0	19.0	18.5	18.5	21.0	19.0	19.5
19	4.0	3.0	3.5	13.5	13.0	13.0	18.5	17.0	18.0	21.0	19.5	20.5
20	4.5	4.0	4.0	12.5	11.0	12.5	17.5	16.5	17.0	23.0	21.0	22.0
21	5.0	4.0	4.5	11.5	10.0	11.0	18.5	16.0	17.0	23.0	22.0	22.5
22	5.0	4.0	4.5	11.5	10.0	11.0	21.0	18.0	19.5	25.0	22.5	23.5
23	4.0	3.0	3.5	12.5	10.0	11.5	21.5	20.0	20.5	24.5	23.5	24.0
24	4.5	2.5	3.5	14.5	11.5	13.0	22.0	19.0	21.0	26.0	24.0	25.0
25	6.0	3.5	5.0	17.0	13.0	14.5	22.5	20.5	21.5	26.5	25.0	25.5
26	7.0	6.0	6.5	17.5	15.5	16.5	23.5	21.0	22.0	26.0	24.5	25.0
27	7.0	6.0	6.5	18.0	17.0	17.0	---	---	---	25.0	23.0	24.0
28	6.5	6.0	6.0	18.0	16.0	16.5	---	---	---	25.0	23.0	24.5
29	---	---	---	17.0	16.5	16.5	---	---	---	26.0	23.5	25.0
30	---	---	---	17.0	15.5	16.5	---	---	---	27.0	24.0	26.0
31	---	---	---	15.5	14.5	15.0	---	---	---	26.5	24.0	26.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	26.0	24.0	25.5	---	---	---	28.0	26.0	27.0	28.0	26.5	27.0
2	26.0	22.5	25.0	---	---	---	28.0	26.0	27.0	28.0	27.0	27.0
3	25.0	24.0	24.5	---	---	---	27.5	25.5	27.0	27.5	25.5	26.5
4	24.5	23.0	24.0	---	---	---	---	---	---	27.0	25.5	26.0
5	24.5	22.5	23.5	---	---	---	---	---	---	26.5	25.5	26.0
6	---	---	---	30.0	28.0	29.0	---	---	---	24.5	22.5	23.5
7	---	---	---	30.0	28.5	29.0	---	---	---	25.5	24.5	24.5
8	---	---	---	29.0	27.0	28.0	26.5	24.0	25.5	26.5	24.5	25.5
9	---	---	---	28.5	27.0	28.0	26.5	24.5	25.5	26.0	24.5	25.0
10	---	---	---	29.0	27.0	27.5	26.0	25.0	25.5	24.5	22.5	24.5
11	24.5	21.0	22.5	29.0	27.5	27.5	26.0	24.0	25.0	24.5	23.0	23.5
12	22.0	21.0	21.5	28.0	26.5	27.0	26.5	25.0	25.5	23.0	22.0	22.5
13	23.0	22.0	22.5	28.0	26.0	27.0	25.5	24.5	25.5	22.0	17.5	19.5
14	23.5	22.5	23.0	28.5	26.5	27.5	25.5	24.5	24.5	19.0	16.5	17.5
15	23.0	22.5	23.0	28.0	26.5	27.5	26.5	25.0	25.0	17.5	16.5	17.0
16	23.0	22.0	22.5	27.5	26.5	27.0	25.5	25.0	25.5	18.0	16.5	17.5
17	23.5	22.5	23.0	27.5	23.5	25.0	25.5	23.5	24.5	18.5	17.0	18.0
18	25.0	23.5	24.0	25.0	23.5	24.5	26.5	23.5	24.5	19.0	17.5	18.0
19	26.0	24.5	25.0	26.0	24.0	25.0	27.0	23.0	25.0	19.0	18.0	18.5
20	26.5	25.0	25.5	27.0	25.0	26.0	26.0	22.0	23.5	19.0	18.0	19.0
21	27.0	25.5	26.5	27.0	25.5	26.5	25.5	23.0	24.0	19.0	17.0	18.0
22	27.0	26.0	26.5	27.0	25.5	26.5	27.0	24.5	26.5	20.5	19.0	19.5
23	26.0	24.5	25.5	26.5	22.5	24.5	22.0	19.5	20.5	21.0	20.0	20.5
24	---	---	---	26.0	24.5	25.0	20.0	19.0	19.5	20.0	18.5	19.0
25	---	---	---	26.5	23.0	25.5	20.0	18.5	19.5	19.0	17.5	18.5
26	---	---	---	27.5	24.0	26.5	19.5	18.5	19.0	19.0	18.0	18.5
27	---	---	---	28.0	23.5	27.0	19.5	18.0	18.5	19.0	18.0	18.5
28	---	---	---	27.5	26.5	26.5	20.0	18.0	19.0	19.5	18.0	18.5
29	---	---	---	28.5	25.0	27.0	19.5	19.0	19.5	19.5	18.0	19.0
30	---	---	---	29.5	26.0	28.0	27.5	19.5	24.5	19.5	18.5	19.0
31	---	---	---	29.0	27.5	28.0	28.0	26.5	26.5	---	---	---

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	7.0	6.1	6.8	12.5	12.2	12.3	---	---	---
2	---	---	---	6.9	6.3	6.6	12.6	12.3	12.5	---	---	---
3	---	---	---	7.3	6.5	6.8	12.3	12.2	12.3	---	---	---
4	---	---	---	7.9	6.8	7.4	12.4	12.2	12.3	---	---	---
5	---	---	---	8.1	6.2	7.2	12.3	11.9	12.2	---	---	---
6	---	---	---	9.3	6.9	8.0	11.9	11.7	11.7	---	---	---
7	---	---	---	9.3	7.9	8.6	11.7	11.6	11.7	---	---	---
8	---	---	---	9.0	8.3	8.7	11.6	11.3	11.4	---	---	---
9	---	---	---	9.4	8.4	8.8	11.8	11.4	11.6	---	---	---
10	---	---	---	10.5	9.0	9.6	12.1	11.7	11.9	---	---	---
11	---	---	---	11.1	9.9	10.4	12.1	11.7	11.9	---	---	---
12	---	---	---	11.4	10.5	10.9	12.1	11.7	11.9	---	---	---
13	---	---	---	11.4	10.5	11.0	12.3	12.0	12.1	---	---	---
14	---	---	---	11.4	10.4	10.8	13.0	12.3	12.6	---	---	---
15	---	---	---	10.9	8.3	9.7	14.3	13.1	13.9	13.9	13.5	13.8
16	---	---	---	9.2	7.8	8.5	15.1	14.4	14.8	13.6	13.0	13.4
17	---	---	---	9.7	9.2	9.5	15.5	15.1	15.3	13.1	12.9	13.0
18	---	---	---	10.3	9.8	10.1	15.4	14.9	15.1	13.1	12.7	12.9
19	---	---	---	10.7	10.3	10.5	15.5	14.5	15.0	12.6	12.1	12.4
20	---	---	---	11.0	10.6	10.8	14.5	13.9	14.3	12.2	12.1	12.2
21	---	---	---	10.9	10.8	10.9	---	---	---	12.6	12.2	12.4
22	---	---	---	10.7	10.4	10.6	---	---	---	12.8	12.6	12.7
23	---	---	---	10.4	10.0	10.2	---	---	---	12.8	12.5	12.7
24	---	---	---	10.2	8.9	9.6	---	---	---	12.7	12.5	12.6
25	---	---	---	10.5	8.8	10.2	---	---	---	12.8	12.5	12.7
26	---	---	---	11.9	10.2	11.2	---	---	---	13.1	12.7	12.9
27	---	---	---	12.2	11.9	12.1	---	---	---	13.1	12.9	13.0
28	---	---	---	12.1	11.8	12.0	---	---	---	12.8	12.6	12.8
29	---	---	---	12.2	12.0	12.2	---	---	---	12.6	12.1	12.4
30	---	---	---	12.2	12.1	12.1	---	---	---	12.1	11.5	11.9
31	6.8	5.9	6.5	---	---	---	---	---	---	11.5	11.1	11.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.5	11.1	11.3	---	---	---	11.0	9.9	10.5	9.3	7.3	8.2
2	12.4	11.6	12.0	13.1	10.8	11.1	9.8	9.3	9.4	8.1	6.7	7.1
3	12.5	12.4	12.4	12.0	11.0	11.4	10.1	9.0	9.3	7.7	7.2	7.4
4	13.1	12.5	12.8	12.6	12.0	12.2	10.5	9.5	9.9	8.0	7.0	7.4
5	13.4	12.9	13.1	12.8	12.7	12.8	---	---	---	8.0	6.8	7.3
6	13.8	13.3	13.5	13.0	12.9	12.9	---	---	---	8.2	6.0	6.8
7	13.8	13.5	13.6	13.0	12.7	12.8	---	---	---	6.7	5.5	5.9
8	13.7	13.5	13.6	12.6	12.5	12.5	---	---	---	8.7	5.4	6.7
9	13.5	13.1	13.4	12.5	12.4	12.5	---	---	---	8.9	6.8	7.5
10	13.1	12.8	12.9	12.5	12.3	12.4	---	---	---	7.9	6.3	6.9
11	13.7	13.0	13.4	12.3	12.1	12.2	---	---	---	8.0	5.8	6.8
12	14.0	13.5	13.7	12.4	12.1	12.2	---	---	---	7.7	5.4	6.6
13	14.0	13.6	13.8	12.7	12.4	12.5	---	---	---	---	---	---
14	13.5	13.0	13.2	12.9	12.6	12.8	---	---	---	---	---	---
15	13.3	12.8	13.0	13.0	12.7	12.8	---	---	---	---	---	---
16	---	---	---	13.0	12.8	12.9	---	---	---	---	---	---
17	---	---	---	13.0	12.9	12.9	---	---	---	---	---	---
18	---	---	---	13.0	12.7	12.9	---	---	---	---	---	---
19	---	---	---	12.9	12.5	12.7	---	---	---	---	---	---
20	---	---	---	12.5	12.1	12.4	---	---	---	---	---	---
21	---	---	---	12.1	11.8	12.0	---	---	---	---	---	---
22	12.9	12.6	12.7	12.0	11.5	11.8	---	---	---	---	---	---
23	13.2	12.5	12.9	11.7	11.2	11.4	---	---	---	---	---	---
24	13.5	13.0	13.3	11.2	10.4	10.8	---	---	---	---	---	---
25	---	---	---	10.9	10.3	10.6	---	---	---	---	---	---
26	---	---	---	11.3	10.3	10.8	---	---	---	---	---	---
27	---	---	---	11.5	10.5	10.9	---	---	---	---	---	---
28	---	---	---	10.7	9.9	10.5	---	---	---	---	---	---
29	---	---	---	10.9	9.3	10.0	---	---	---	---	---	---
30	---	---	---	10.9	10.6	10.8	9.6	7.7	8.9	---	---	---
31	---	---	---	10.8	10.6	10.8	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

[illegible]

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	7.5	6.4	7.0
20	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
21	---	---	---	---	---	---	---	---	---	7.4	7.1	7.3
22	---	---	---	---	---	---	---	---	---	7.1	6.8	7.0
23	---	---	---	---	---	---	---	---	---	7.1	6.8	6.9
24	---	---	---	---	---	---	---	---	---	7.2	7.1	7.1
25	---	---	---	---	---	---	---	---	---	7.1	7.0	7.0
26	---	---	---	---	---	---	---	---	---	7.3	7.0	7.2
27	---	---	---	---	---	---	---	---	---	7.6	7.3	7.4
28	---	---	---	---	---	---	---	---	---	7.6	7.3	7.4
29	---	---	---	---	---	---	---	---	---	7.6	7.2	7.4
30	---	---	---	---	---	---	---	---	---	7.8	7.1	7.4
31	---	---	---	---	---	---	---	---	---	7.6	7.0	7.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.3	7.0	7.1	8.5	6.5	7.8	7.0	6.2	6.5	6.5	6.4	6.5
2	7.9	7.1	7.4	8.6	7.2	8.1	8.2	6.3	6.8	7.1	6.5	6.6
3	7.3	6.9	7.1	8.7	6.5	7.7	6.6	6.2	6.4	6.9	6.6	6.7
4	7.4	7.0	7.2	8.6	6.4	7.6	6.9	6.2	6.4	6.8	6.6	6.7
5	7.7	7.3	7.5	8.5	6.0	7.1	6.8	5.9	6.3	7.1	4.7	6.8
6	7.6	5.8	7.0	6.4	5.7	6.0	6.2	4.2	5.1	5.0	4.2	4.8
7	5.6	5.5	5.6	6.6	5.8	6.2	6.2	5.3	5.8	6.3	3.9	4.8
8	5.8	5.5	5.7	7.0	6.2	6.5	7.0	6.2	6.6	7.0	6.4	6.8
9	5.7	5.6	5.6	6.8	6.2	6.4	7.3	6.6	6.8	7.2	6.9	7.0
10	5.9	5.6	5.7	6.8	6.1	6.4	7.4	6.7	7.0	7.6	7.2	7.4
11	---	---	---	7.0	6.2	6.5	7.8	6.9	7.2	7.7	7.6	7.7
12	---	---	---	6.7	6.2	6.4	7.7	6.9	7.2	7.9	7.8	7.8
13	5.7	4.0	4.7	7.1	6.3	6.7	8.0	7.0	7.3	8.1	7.7	7.9
14	6.5	5.8	6.2	7.0	6.4	6.7	8.2	7.0	7.5	8.8	7.9	8.3
15	6.8	6.5	6.6	7.5	6.5	6.9	7.9	7.1	7.4	9.2	8.9	9.1
16	7.1	6.8	7.0	7.0	6.4	6.7	9.5	7.1	7.5	9.2	8.8	9.0
17	7.0	6.9	6.9	7.0	4.9	6.0	7.4	6.8	7.1	8.9	8.6	8.8
18	7.0	6.8	6.9	6.2	5.3	5.7	7.4	7.2	7.3	8.9	8.5	8.6
19	7.1	6.8	6.9	6.5	6.1	6.3	7.4	7.0	7.2	8.5	8.2	8.4
20	7.1	6.7	6.9	6.7	6.2	6.4	7.8	5.9	6.6	8.3	8.2	8.3
21	7.0	6.6	6.8	7.2	6.3	6.7	5.8	4.4	4.9	8.3	8.2	8.2
22	6.7	6.4	6.6	7.4	6.6	7.0	6.7	5.3	6.0	8.4	8.1	8.2
23	7.1	6.4	6.8	7.0	6.4	6.7	8.4	7.4	8.1	8.8	8.0	8.3
24	7.7	6.3	6.8	6.7	6.3	6.5	8.5	7.4	8.0	9.0	8.4	8.7
25	8.1	5.6	7.0	6.9	6.4	6.6	7.6	7.4	7.5	9.3	8.6	8.9
26	8.2	6.1	7.4	7.8	6.2	6.6	7.6	7.5	7.5	9.6	8.6	9.0
27	8.5	6.6	7.8	7.1	6.4	6.7	7.8	7.5	7.6	9.7	8.6	9.1
28	8.5	6.1	7.5	6.8	6.1	6.5	7.7	7.4	7.6	9.1	8.5	8.8
29	8.4	6.4	7.6	6.6	6.1	6.3	7.7	7.0	7.4	9.2	8.1	8.6
30	8.5	6.6	7.6	6.8	6.1	6.3	7.5	5.5	6.3	8.7	8.1	8.4
31	---	---	---	6.6	6.0	6.2	6.4	6.0	6.3	---	---	---

ARKANSAS RIVER BASIN

07177650 FLAT ROCK CREEK AT CININNATI AVENUE AT TULSA, OK.

LOCATION.-- Lat 36°12'55", long 95°59'42" in SE 1/4 NE 1/4 sec.14, T.20 N., R.12 E., Tulsa County, Hydrologic Unit 11070107, near right upstream abutment of Cincinnati Avenue bridge, 0.5 mi north of Cincinnati Avenue-36th Street North intersection, 2.0 mi south of Turley, and at mile 5.6.

DRAINAGE AREA.-- 8.2 mi².

PERIOD OF RECORD.-- December 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 615.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH, were made during the year and are available at the District office.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 2,270 ft³/s, Aug. 20, 1989, gage height, 10.61 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,270 ft³/s, Aug. 20, gage height, 10.61 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.56	1.7	2.8	2.7	6.2	.19	.43	.29	e.10	.30
2	.07	.00	.45	1.6	2.3	2.3	4.2	.26	.77	.26	e.10	.33
3	.06	.00	.38	1.4	1.7	15	3.3	.29	.83	4.0	e.20	.29
4	.06	.00	.36	1.1	1.3	68	2.5	.54	.46	1.5	e.80	.42
5	1.0	.00	.29	1.1	1.2	6.1	1.9	.32	.36	.75	e5.0	.30
6	2.3	.00	.29	.99	1.1	5.4	1.6	.25	.21	.33	e.80	.29
7	2.0	.00	.60	.80	1.1	5.6	1.4	.16	.28	.14	e.19	.29
8	.96	.00	.56	.61	1.1	32	1.3	.13	.19	.00	.00	.27
9	.36	.09	.48	.52	1.1	64	1.0	.11	.07	.00	e.00	.19
10	.19	.00	.42	.50	1.4	24	.92	.06	.02	.00	e.00	.19
11	.06	.78	.38	.50	1.4	6.9	.80	.06	5.1	.00	e.00	.19
12	.06	23	.36	.44	1.6	4.4	.80	.14	21	.01	e.00	.47
13	.02	1.5	.36	.36	3.3	3.5	.69	.13	24	.00	e.00	3.0
14	.00	.67	.36	.71	28	3.0	.69	.13	4.1	.04	.00	1.3
15	.00	.68	.35	.69	71	2.3	.69	2.9	1.4	.00	.00	1.1
16	.00	.75	.22	.69	12	2.1	.61	1.8	.65	.00	.00	.85
17	.00	.32	.19	.69	5.3	1.8	.55	.37	.35	e70	.00	.64
18	.00	.26	.19	.69	4.5	1.6	.75	9.0	.22	e15	.00	.48
19	.00	34	.19	1.1	3.6	1.5	.50	1.8	.08	e3.5	.00	.44
20	.00	45	.19	.70	6.2	1.5	.69	.52	.00	e2.0	399	.35
21	.00	3.5	.19	.62	12	1.5	.51	.33	.00	e.10	e10	.29
22	.00	2.1	1.9	.62	4.2	1.3	.46	3.9	.26	e.10	e2.0	.29
23	.00	1.7	1.8	.61	2.8	1.2	.41	.93	1.1	e13	e.80	.25
24	.00	1.2	1.1	.56	2.5	1.2	.36	.39	2.2	e12	e.60	.19
25	.00	12	.73	58	2.3	1.1	.32	.29	.43	e5.6	e.45	.15
26	.00	7.2	.69	9.2	2.1	1.0	.29	.20	.19	e.10	e.32	.13
27	.00	2.3	4.7	3.8	3.1	1.1	.29	.13	80	e.25	e.28	.12
28	.00	1.5	3.2	58	3.7	55	.27	.05	2.5	e2.2	e.70	.06
29	.00	1.1	1.9	17	---	5.7	.26	.00	1.3	e.35	e.50	.06
30	.00	.78	1.7	5.0	---	137	.26	.00	1.1	e.10	e.43	.06
31	.00	---	1.6	3.7	---	22	---	.00	---	e.10	.33	---
TOTAL	7.14	140.43	26.69	174.00	184.7	481.8	34.52	25.38	149.60	157.46	422.60	13.29
MEAN	.23	4.68	.86	5.61	6.60	15.5	1.15	.82	4.99	5.08	13.6	.44
MAX	2.3	45	4.7	58	71	137	6.2	9.0	80	70	399	3.0
MIN	.00	.00	.19	.36	1.1	1.0	.26	.00	.00	.00	.00	.06
AC-FT	14	279	53	345	366	956	68	50	297	312	838	26
CFSM	.03	.57	.10	.68	.80	1.90	.14	.10	.61	.62	1.66	.05
IN.	.03	.64	.12	.79	.84	2.19	.16	.12	.68	.71	1.92	.06

CAL YR 1988 TOTAL 2368.84 MEAN 6.47 MAX 575 MIN .00 AC-FT 4700 CFSM .79 IN. 10.75
WTR YR 1989 TOTAL 1817.61 MEAN 4.98 MAX 399 MIN .00 AC-FT 3610 CFSM .61 IN. 8.25

e Estimated

ARKANSAS RIVER BASIN

153

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 76 AT TULSA, OK

LOCATION.-- Lat 36°13'32", long 95°56'40", in NE 1/4 SE 1/4 sec.8, T.20 N., R.13 E., Tulsa County, Hydrologic Unit 11070107, near right downstream abutment, 1.8 mi downstream from Dirty Butter Creek, 6.0 mi northeast from downtown Tulsa, and at mile 1.3.

WATER DISCHARGE RECORDS

DRAINAGE AREA.-- 22.6 mi², (U.S. Corps of Engineers).

PERIOD OF RECORD.-- April 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 571.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor.

EXTREMES FOR PERIOD OF RECORD.-- Maximum known discharge, 3,700 ft³/s, Mar. 2, 1988, but may have been higher during period of backwater Aug. 20, 1989, gage height 15.98 ft. Maximum gage height 28.10 ft. April 3, 1988 (backwater from Bird Creek); minimum daily discharge 0.03 ft³/s, Aug. 18, 1988.

EXTREMES FOR CURRENT YEAR.-- April to September 1987: Maximum discharge during period, 2,580 ft³/s, May 28, gage height, 13.86 ft; maximum gage height, 16.58 ft, Sept. 29 (backwater from Bird Creek); minimum daily discharge, 0.32 ft³/s, June 29.

Water year 1988: maximum discharge, 3,700 ft³/s, Mar. 2, gage height, 15.98 ft; maximum gage height, 26.14 ft, April 3 (backwater from Bird Creek); minimum daily discharge, 0.03 ft³/s, Aug. 18.

Water year 1989: maximum known discharge, 3,430 ft³/s, Aug. 20, but may have been higher during period of backwater Aug. 20, gage height 15.49 ft; maximum gage height 23.70 ft, Aug. 20 (backwater from Bird Creek); minimum daily discharge, 0.45 ft³/s, Oct. 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	3.0	4.8	1.4	1.7	e1.0
2	---	---	---	---	---	---	---	3.1	3.6	60	1.1	e1.1
3	---	---	---	---	---	---	---	1.4	35	5.2	.74	e1.1
4	---	---	---	---	---	---	---	12	e10	221	.65	e1.1
5	---	---	---	---	---	---	---	18	e4.0	e25	.90	e1.0
6	---	---	---	---	---	---	---	3.5	1.9	5.6	1.4	e1.3
7	---	---	---	---	---	---	---	2.0	1.1	3.6	1.4	e1.1
8	---	---	---	---	---	---	---	1.6	.75	2.8	.99	e.90
9	---	---	---	---	---	---	---	1.3	1.9	2.3	1.0	e.80
10	---	---	---	---	---	---	---	1.1	3.3	2.1	1.3	e.75
11	---	---	---	---	---	---	---	1.4	17	1.7	1.3	e.70
12	---	---	---	---	---	---	---	1.1	2.9	1.9	1.2	20
13	---	---	---	---	---	---	---	1.5	1.4	e50	39	e4.0
14	---	---	---	---	---	---	---	1.5	.87	3.0	6.0	e1.5
15	---	---	---	---	---	---	---	1.7	.87	2.1	2.1	e1.1
16	---	---	---	---	---	---	---	1.2	.71	1.7	1.5	e.90
17	---	---	---	---	---	---	---	1.1	.50	4.9	1.4	e.60
18	---	---	---	---	---	---	---	1.0	.46	25	1.5	e10
19	---	---	---	---	---	---	---	.81	6.1	e3.0	23	e2.3
20	---	---	---	---	---	---	---	.88	2.7	e2.3	2.5	e1.4
21	---	---	---	---	---	---	---	.93	1.0	e1.9	1.5	e1.2
22	---	---	---	---	---	---	---	17	.74	e1.8	.77	e1.1
23	---	---	---	---	---	---	---	2.1	31	.89	1.7	e1.0
24	---	---	---	---	---	---	---	1.5	24	.40	1.5	e.90
25	---	---	---	---	---	---	---	1.3	30	6.5	1.5	e.85
26	---	---	---	---	---	---	---	1.3	3.0	1.3	2.5	e.80
27	---	---	---	---	---	---	---	1.3	151	.49	1.3	e.75
28	---	---	---	---	---	---	---	1.3	e500	.34	1.1	e39
29	---	---	---	---	---	---	---	1.2	e50.0	.32	.92	e8.0
30	---	---	---	---	---	---	---	1.1	e15	9.4	.92	e2.0
31	---	---	---	---	---	---	---	5.9	---	1.6	e1.2	---
TOTAL	---	---	---	---	---	---	---	887.02	121.24	441.34	196.05	106.25
MEAN	---	---	---	---	---	---	---	28.6	4.04	14.2	6.32	3.54
MAX	---	---	---	---	---	---	---	500	35	221	48	39
MIN	---	---	---	---	---	---	---	.81	.32	.92	.54	.60
AC-FT	---	---	---	---	---	---	---	1760	240	875	389	211

e Estimated

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 75 AT TULSA, OK--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.5	1.8	1.9	3.9	1.2	9.3	e400	e1.8	1.5	.40	1.1	.48
2	e1.3	1.5	1.8	3.1	1.1	767	e40.0	e1.8	12	.39	1.0	.65
3	e1.2	1.5	1.7	2.7	1.1	e1000	e20.0	e1.9	6.5	.37	.79	2.8
4	e1.1	1.7	1.6	1.8	1.4	e400	e10.0	e1.8	1.7	.40	.51	.99
5	e1.0	1.8	1.5	1.5	1.4	e90	e8.0	e1.8	1.3	.37	6.7	.58
6	e.96	1.8	1.5	5.1	1.1	e50	e6.0	e1.9	1.2	.29	3.2	.35
7	e.90	1.8	1.5	6.8	1.1	e20	e5.5	e1.8	1.7	.34	.52	.32
8	e.96	8.4	1.4	2.2	1.2	e10	e5.0	e1.7	1.4	.65	.37	.32
9	e.90	1.5	1.4	2.0	1.2	e9.0	e4.5	e1.7	1.3	.32	6.6	.24
10	e.88	1.4	1.3	1.8	1.3	e8.0	e30	e1.8	1.3	.67	2.3	.20
11	e1.1	1.5	1.3	1.9	1.2	e7.5	e9.0	e1.7	1.2	.52	1.4	.18
12	e.96	1.5	1.3	41	1.0	e7.0	e5.0	e1.7	1.1	1.6	.65	.22
13	e.90	1.5	1.3	20	1.2	5.5	e4.5	e1.7	1.1	1.5	.48	.36
14	e.98	1.5	4.1	5.3	1.3	5.1	e4.0	e1.6	1.1	.89	.39	.91
15	e.94	77	5.7	6.8	1.2	5.6	e3.5	e1.7	1.2	.57	.30	2.2
16	e.82	13	2.2	26	1.1	4.8	e3.0	1.8	1.3	.35	.21	40
17	e.80	5.4	1.7	e15	1.1	e10	e2.5	1.6	1.5	2.8	.10	1.7
18	e.78	2.2	40	e10	16	e20	e10	1.6	1.3	1.5	.03	34
19	e30	2.8	e400	e7.0	56	14	e5.0	1.5	1.1	45	.07	e50
20	e4.0	1.7	e100	e4.0	7.6	8.4	e3.5	12	1.0	5.5	.40	6.2
21	e1.8	1.6	e20	1.8	2.4	6.8	e3.0	3.9	.90	1.7	.50	1.7
22	e1.5	2.0	e10	1.6	2.0	4.9	e2.9	12	.65	1.2	.36	1.5
23	e1.6	1.6	2.2	1.7	1.6	3.1	e2.7	24	.54	.99	.38	80
24	e5.0	e200	11	1.6	1.3	14	e2.5	8.0	.44	.80	.27	21
25	e2.5	e25	e300	1.3	1.3	13	e2.3	2.6	.50	.33	.24	1.9
26	e1.5	e10	e150	1.3	1.4	3.4	e2.2	5.6	.57	.29	.22	1.4
27	e1.2	6.5	e50	1.3	1.3	2.2	e2.1	1.6	.71	.25	.30	1.2
28	e1.0	6.1	e30	1.4	1.3	176	e2.1	1.8	.57	62	40	.87
29	e.90	2.9	e20	1.4	1.3	e400	e2.0	1.5	.42	3.6	1.6	16
30	e.80	2.3	7.4	1.4	---	e300	e1.9	1.6	.42	1.6	.97	1.2
31	11	---	e5.0	1.3	---	42	---	1.5	---	1.3	.68	---
TOTAL	80.78	389.3	1178.8	184.0	113.7	3416.6	602.7	109.0	47.52	138.49	72.64	269.47
MEAN	2.61	13.0	38.0	5.94	3.92	110	20.1	3.52	1.58	4.47	2.34	8.98
MAX	30	200	400	41	56	1000	400	24	12	62	40	80
MIN	.78	1.4	1.3	1.3	1.0	2.2	1.9	1.5	.42	.25	.03	.18
AC-FT	160	772	2340	365	226	6780	1200	216	94	275	144	534

WTR YR 1988 TOTAL 6603.00 MEAN 18.0 MAX 1000 MIN .03 AC-FT 13100

e Estimated

ARKANSAS RIVER BASIN

165

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 75 AT TULSA, OK--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	.65	1.4	5.6	8.5	7.8	e20	e.92	9.3	3.3	.91	.64
2	.71	e.62	1.4	4.3	6.2	6.8	14	2.1	25	64	1.2	3.5
3	.50	e.58	1.3	3.9	5.1	9.1	11	6.7	14	15	1.0	1.1
4	.47	e.54	1.2	2.9	3.0	119	9.0	14	14	5.7	.95	7.4
5	24	e.52	1.1	2.5	2.6	20	7.1	3.3	18	3.5	6.0	2.9
6	22	e.50	1.1	2.5	4.0	24	5.6	1.8	6.6	2.3	23	e1.3
7	12	e.49	11	2.4	2.9	30	4.6	1.7	15	1.7	1.8	e.78
8	1.8	e.47	2.4	2.0	4.0	61	4.4	1.5	14	1.6	1.1	.57
9	1.3	8.7	1.5	1.8	5.3	119	3.5	1.4	4.9	1.2	.79	2.1
10	1.1	4.1	1.4	1.7	4.5	59	3.1	1.3	3.4	1.1	.70	1.3
11	.91	9.5	1.3	1.7	4.6	27	2.7	1.1	e30	1.0	.65	.61
12	.64	139	2.3	1.7	6.1	18	e2.6	2.3	e50	3.0	.77	24
13	.79	4.0	1.5	1.4	26	15	e2.4	3.4	e60	2.1	.63	e80
14	.70	1.4	1.5	8.5	55	13	e2.2	1.6	e15	18	9.4	e20
15	.47	7.7	1.3	5.5	123	9.8	e2.1	31	8.0	1.7	1.5	e10
16	.47	3.9	1.3	2.8	30	8.7	e1.9	14	4.9	1.5	1.1	e5.0
17	.49	1.3	1.3	2.5	17	8.2	e1.8	4.7	3.5	e200	.75	e3.0
18	2.5	1.1	1.3	2.5	15	7.0	3.6	35	2.4	e20	.58	e2.0
19	.86	57	1.5	2.8	11	5.8	e3.2	e10	1.8	6.7	.81	e1.6
20	.48	e100	1.3	2.3	20	6.4	e5.0	5.2	1.5	1.6	e600	e1.0
21	.59	e10	1.1	1.7	28	6.8	e3.0	3.8	1.5	.92	e30	.85
22	.88	3.7	28	1.7	12	6.2	e1.9	36	17	.64	e10	.83
23	.45	2.2	7.0	1.7	7.8	5.9	e1.5	9.0	31	31	e4.5	.87
24	.45	1.8	3.1	1.7	7.2	5.4	e1.4	5.2	8.6	3.9	e3.8	.65
25	.46	42	2.1	151	6.9	4.3	e1.3	4.1	3.4	1.5	e3.1	.68
26	.64	28	1.7	29	6.4	4.3	e1.2	4.9	2.1	.99	e2.8	.79
27	.80	4.7	38	13	18	4.6	e1.1	2.3	64	.73	e2.5	.82
28	.74	2.2	12	100	12	e100	e1.1	1.4	8.9	35	e2.2	.72
29	.75	1.9	5.8	45	---	e20	e1.0	1.3	4.8	6.7	2.1	.65
30	.93	1.6	4.7	16	---	e300	e.95	1.2	17	1.5	21	.65
31	.77	---	6.6	11	---	e50	---	.98	---	.90	.70	---
TOTAL	80.55	440.17	148.5	433.1	452.1	1082.1	124.25	213.20	459.6	438.78	736.14	176.11
MEAN	2.60	14.7	4.79	14.0	16.1	34.9	4.14	6.88	15.3	14.2	23.7	5.87
MAX	24	139	38	151	123	300	20	36	64	200	600	80
MIN	.45	.47	1.1	1.4	2.6	4.3	.95	.92	1.5	.64	.58	.57
AC-FT	160	873	295	859	897	2150	246	423	912	870	1460	349

CAL YR 1988 TOTAL 5623.34 MEAN 15.4 MAX 1000 MIN .03 AC-FT 11150
WTR YR 1989 TOTAL 4784.60 MEAN 13.1 MAX 600 MIN .45 AC-FT 9490

e Estimated

ARKANSAS RIVER BASIN

07177700 FLATROCK CREEK AT US HWY 75 NEAR TULSA, OK --Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.-- June 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1987 to current year.

pH: June 1987 to current year.

WATER TEMPERATURE: June 1987 to September 1988.

DISSOLVED OXYGEN: June 1987 to current year.

INSTRUMENTATION.-- Water-quality monitor since June 1987.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected every six weeks and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. Records for specific conductance, pH, water temperature, and dissolved oxygen for June 1987 to September 1988, daily water temperature for the 1989 water year are available upon request from District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 4,700 microsiemens, July 31, 1987; minimum recorded, 80 microsiemens, Aug. 20, 1989.

pH: Maximum recorded, 8.7 units, Mar. 7, 1989; minimum recorded, 6.2 units, June 26, 1989.

WATER TEMPERATURE: Maximum recorded, 35.0°C, Aug. 7, 1988; minimum recorded, 1.0°C, Feb. 8, 1989.

DISSOLVED OXYGEN: Maximum recorded, 19.7 mg/l, Jan. 4, 1989; minimum recorded, 1.6 mg/l, June 20, 1987.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
MAY											
20...	1000	1028	84042	4.06	1.5	1830	7.7	21.0	22.0	50	110
JUN											
01...	1130	1028	84042	4.07	1.5	626	7.6	25.0	22.0	40	12
15...	1000	1028	84042	3.98	1.2	847	7.5	30.0	24.0	--	--
28...	0830	1028	84042	3.87	0.57	1300	7.7	30.0	27.0	--	--
AUG											
09...	1045	1028	84042	3.78	0.30	380	7.6	31.0	30.0	60	28
SEP											
20...	1045	1028	84042	4.31	7.8	664	7.4	25.0	21.0	>70	20
DATE	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CaCO3	SULFATE DIS-SOLVED (MG/L AS SO4)
MAY											
20...	742	7.0	83	--	--	--	--	232	0	190	--
JUN											
01...	740	5.6	66	--	--	--	--	195	0	160	--
15...	750	6.0	73	56	17	96	4.4	213	0	175	64
28...	740	6.6	86	66	21	140	4.7	228	0	187	42
AUG											
09...	740	6.8	93	32	7.0	29	3.3	122	0	100	29
SEP											
20...	740	7.8	91	--	--	--	--	91	0	75	--
DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2-N03 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
MAY											
20...	--	0.4	1060	80	<0.500	<0.500	<0.500	<0.100	0.88	0.88	
JUN											
01...	--	0.5	494	26	<0.500	<0.500	<0.500	<0.100	0.37	0.37	
15...	170	--	--	--	--	--	--	--	--	--	
28...	240	--	--	--	--	--	--	--	--	--	
AUG											
09...	38	0.4	213	37	<0.500	<0.500	<0.500	<0.100	0.78	0.78	
SEP											
20...	--	0.3	464	39	<0.500	<0.500	<0.500	<0.100	0.41	0.41	

07177700 FLAT ROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)
MAY 20...	0.050	<0.005	--	--	--	--	--	--	--	--
JUN 01...	0.070	<0.005	--	--	--	--	--	--	--	--
15...	--	--	<60	<60	200	170	<5	<5.0	<10	<10
28...	--	--	<60	<60	200	190	<5	<5.0	<10	<10
AUG 09...	0.100	<0.005	<60	<60	90	<100	<5	<5.0	<10	<10
SEP 20...	0.130	<0.005	--	--	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY 20...	--	--	--	--	--	--	--	--	--	--
JUN 01...	--	--	--	--	--	--	--	--	--	--
15...	1300	<100	<45	<45	480	330	<0.50	<0.5	<70	<70
28...	1600	<100	<45	<45	470	190	<0.50	<0.5	<70	<70
AUG 09...	1800	72	<45	<45	140	49	<0.50	<0.5	<70	<70
SEP 20...	--	--	--	--	--	--	--	--	--	--

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY 20...	--	--	--	--	--	--	--	--	--	--
JUN 01...	--	--	--	--	--	--	--	22	0.09	900
15...	<7	<7.0	600	630	9	--	<5.0	--	--	--
28...	<7	<7.0	770	790	20	<5	<5.0	35	0.05	73
AUG 09...	<7	<7.0	280	280	20	8	<5.0	52	0.04	86
SEP 20...	--	--	--	--	--	--	--	79	1.7	37

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)
NOV 01...	0845	1028	84042	3.88	1.4	781	7.8	8.0	11.0	40	7.0
DEC 13...	1400	1028	84042	4.06	3.8	853	8.0	19.0	8.5	20	4.0
JAN 24...	0830	1028	84042	4.00	2.8	954	7.8	10.0	6.0	10	3.0
MAR 08...	1100	1028	84042	4.67	25	895	7.5	9.5	1.5	50	20
APR 18...	1000	1028	84042	4.14	5.1	1170	7.8	24.0	21.0	30	8.0
MAY 31...	1000	1028	84042	4.01	1.8	897	7.7	25.0	25.0	30	6.0
JUL 05...	1100	1028	84042	4.23	6.3	597	7.8	31.0	27.0	>70	17
AUG 22...	0830	1028	84042	--	10	704	7.7	29.0	26.5	>70	53
SEP 26...	1040	1028	84042	4.00	1.2	1080	7.6	24.0	13.5	20	2.9

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	BARO-METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)
NOV 01...	750	9.6	89	59	15	64	4.3	202	0	166	60
DEC 13...	750	9.7	84	--	--	--	--	223	0	183	--
JAN 24...	740	11.9	99	62	19	89	3.1	175	0	144	87
MAR 08...	760	15.5	111	--	--	--	--	111	0	91	--
APR 18...	750	8.0	92	--	--	--	--	221	0	181	--
MAY 31...	750	9.0	111	64	18	86	3.9	200	0	164	79
JUL 05...	750	6.8	87	--	--	--	--	136	0	111	--
AUG 22...	750	6.1	78	58	13	58	4.0	168	0	137	48
SEP 26...	760	8.6	83	--	--	--	--	209	0	171	--

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN NITRATE TOTAL (MG/L AS N)	NITRO- GEN NITRITE TOTAL (MG/L AS N)	NITRO- GEN NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)
NOV 01...	94	0.4	437	11	<0.500	<0.500	<0.500	<0.100	--	0.34	0.34
DEC 13...	--	0.4	496	14	<0.500	<0.500	<0.500	<0.100	--	0.28	0.28
JAN 24...	170	0.4	579	4	<0.500	<0.500	<0.500	<0.100	--	0.17	0.17
MAR 08...	--	0.2	509	29	1.90	<0.500	1.90	<0.100	--	1.1	1.1
APR 18...	--	0.3	710	13	<0.500	<0.500	<0.500	0.120	0.15	0.29	0.41
MAY 31...	130	0.5	492	14	0.500	<0.500	0.500	0.112	0.14	0.34	0.45
JUL 05...	--	0.3	342	24	<0.500	<0.500	<0.500	0.242	0.31	0.70	0.94
AUG 22...	130	0.3	435	126	0.800	<0.500	0.800	<0.100	--	0.86	0.86
SEP 26...	--	0.3	598	7	<0.500	<0.500	<0.500	0.109	0.14	0.11	0.22

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
NOV 01...	--	--	0.740	0.06	0.020	<60	<60	100	--	<5	<5.0
DEC 13...	--	--	0.069	0.05	0.017	--	--	--	--	--	--
JAN 24...	--	--	0.064	0.05	0.017	<60	<60	100	100	<5	<5.0
MAR 08...	3.0	13	0.590	0.74	0.242	--	--	--	--	--	--
APR 18...	--	--	0.078	0.23	0.076	--	--	--	--	--	--
MAY 31...	0.95	4.2	0.596	0.75	0.246	<60	<60	100	--	<5	<5.0
JUL 05...	--	--	0.148	0.34	0.112	--	--	--	--	--	--
AUG 22...	1.7	7.4	0.186	0.26	0.084	<60	<60	100	110	<5	<5.0
SEP 26...	--	--	0.313	0.55	0.180	--	--	--	--	--	--

07177700 FLAT ROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)
NOV 01...	<10	<10	430	40	<45	<45	69	65	<0.50	<0.5	<70
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 24...	<10	<10	220	<10	<45	<45	70	67	<0.50	<0.5	<70
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	<10	<10	690	22	<45	<45	110	40	<0.50	<0.5	<70
JUL 05...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	22	<10	4700	82	<45	<45	260	110	<0.50	<0.5	<70
SEP 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<70	<7	<7.0	520	540	20	12	8.7	12	0.05	65
DEC 13...	--	--	--	--	--	--	--	--	4	0.04	84
JAN 24...	<70	<7	<7.0	590	580	10	<5	<5.0	27	0.20	73
MAR 08...	--	--	--	--	--	--	--	--	25	1.7	91
APR 18...	--	--	--	--	--	--	--	--	14	0.19	80
MAY 31...	<70	<7	<7.0	810	600	20	11	<5.0	21	0.10	93
JUL 05...	--	--	--	--	--	--	--	--	32	0.54	78
AUG 22...	<70	<7	<7.0	490	440	50	14	6.6	91	2.5	95
SEP 26...	--	--	--	--	--	--	--	--	10	0.03	71

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
JUN 15...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
JUN 28...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
AUG 09...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
JUN 15...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
JUN 28...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
AUG 09...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
JUN 28...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
AUG 09...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOX- APHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<80
JUN 28...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
AUG 09...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
JUN 28...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
AUG 09...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
NOV 01...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JAN 24...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
MAY 31...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JUL 05...	--	--	<0.6	--	--	<4.0	--	--	<14	--
AUG 22...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN DIS- SOLVED (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
NOV 01...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JAN 24...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
MAY 31...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JUL 05...	--	<2.0	--	--	<1.2	--	--	<0.6	--	--
AUG 22...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

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07177700 FLAT ROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JAN 24...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
MAY 31...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JUL 05...	<0.6	--	--	<0.6	--	--	<0.4	--	--	<4.0
AUG 22...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JAN 24...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<60
MAY 31...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JUL 05...	--	<2.0	--	<2.0	--	--	<2.0	--	--	<60
AUG 22...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JAN 24...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
MAY 31...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JUL 05...	--	--	<75.0	--	--	--	<10.0	--	--	<10.0
AUG 22...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

ARKANSAS RIVER BASIN

07177700 FLATROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

07177700 FLATROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	548	400	469	602	534	568	---	---	---
2	---	---	---	591	171	470	657	589	625	---	---	---
3	---	---	---	468	340	410	720	657	688	---	---	---
4	---	---	---	564	468	518	770	710	737	---	---	---
5	---	---	---	640	513	593	810	500	755	---	---	---
6	---	---	---	694	629	659	340	200	285	---	---	---
7	---	---	---	728	684	709	410	330	372	---	---	---
8	---	---	---	773	717	747	500	420	453	---	---	---
9	---	---	---	806	752	781	550	480	499	---	---	---
10	---	---	---	840	785	811	570	510	539	---	---	---
11	---	---	---	853	819	835	610	560	577	---	---	---
12	---	---	---	929	788	850	640	580	605	---	---	---
13	---	---	---	984	929	959	690	640	658	---	---	---
14	---	---	---	931	196	405	800	400	601	---	---	---
15	---	---	---	436	392	412	460	400	429	---	---	---
16	---	---	---	480	424	447	450	390	418	---	---	---
17	---	---	---	479	120	282	470	400	428	---	---	---
18	---	---	---	469	218	389	470	430	446	---	---	---
19	---	---	---	590	480	538	520	440	465	---	---	---
20	---	---	---	668	593	625	520	80	179	899	851	879
21	---	---	---	734	650	700	600	120	242	935	902	921
22	---	---	---	796	735	768	830	620	704	969	935	951
23	342	161	245	1110	284	624	880	830	859	1000	969	982
24	468	283	382	609	494	552	880	730	853	1030	1000	1020
25	501	458	476	691	598	647	870	560	737	1070	1030	1050
26	505	471	488	763	692	725	1030	560	830	1110	1060	1080
27	505	178	368	846	763	801	950	710	813	1150	1100	1120
28	540	415	493	903	154	674	---	---	---	1180	1140	1150
29	638	541	588	400	257	329	---	---	---	1220	1160	1190
30	450	264	375	493	400	439	---	---	---	1260	1210	1230
31	---	---	---	535	468	501	---	---	---	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.9	6.3	6.5	7.4	7.3	7.4	8.3	8.2	8.2	8.2	8.1	8.2
2	6.3	6.0	6.2	7.4	7.4	7.4	8.3	8.1	8.2	8.1	8.0	8.1
3	6.0	5.7	5.9	7.4	7.3	7.4	8.3	8.2	8.2	8.1	8.0	8.0
4	6.9	5.9	6.5	7.4	7.3	7.4	8.4	8.3	8.3	8.2	8.0	8.1
5	8.1	6.5	7.1	7.5	7.3	7.4	8.5	8.0	8.3	8.2	8.1	8.1
6	8.0	7.8	7.9	7.5	7.4	7.4	8.3	8.2	8.2	8.3	8.2	8.2
7	7.8	7.7	7.7	7.5	7.2	7.4	8.2	8.0	8.1	8.3	8.2	8.2
8	7.8	7.6	7.7	7.4	7.2	7.3	8.1	8.0	8.1	8.3	8.2	8.3
9	7.8	7.6	7.7	7.7	6.8	7.3	8.1	8.0	8.1	8.3	8.2	8.3
10	7.6	7.3	7.5	7.7	7.0	7.3	8.1	8.0	8.1	8.3	8.2	8.2
11	7.3	7.2	7.3	7.6	7.0	7.2	8.1	8.0	8.1	8.3	8.2	8.3
12	7.2	7.1	7.2	8.4	7.4	8.0	8.2	8.1	8.2	8.4	8.2	8.3
13	7.1	7.0	7.1	8.1	8.0	8.0	8.2	8.1	8.1	8.4	8.1	8.2
14	7.0	6.8	6.9	8.1	8.0	8.0	8.0	8.0	8.0	8.3	8.1	8.2
15	6.8	6.7	6.8	8.3	7.9	8.0	8.1	8.0	8.0	8.1	8.0	8.1
16	6.7	6.6	6.6	8.3	8.1	8.3	8.1	8.1	8.1	8.0	7.9	8.0
17	6.6	6.4	6.5	8.3	7.1	8.1	8.2	8.1	8.1	8.0	7.9	7.9
18	7.0	6.5	6.9	7.6	7.3	7.5	8.2	8.1	8.1	8.1	7.9	8.0
19	7.1	6.9	7.0	8.1	7.5	7.6	8.1	8.0	8.0	8.2	7.9	8.1
20	7.1	7.0	7.0	8.0	7.8	7.9	8.0	7.9	7.9	8.2	8.0	8.1
21	7.1	6.9	7.0	7.9	7.8	7.9	7.9	7.9	7.9	8.2	8.0	8.1
22	---	---	---	8.1	7.9	8.0	7.9	7.7	7.8	8.1	8.0	8.1
23	---	---	---	8.1	7.9	8.0	7.9	7.7	7.8	8.0	7.9	8.0
24	---	---	---	8.1	8.0	8.0	8.0	7.8	7.9	8.2	7.8	8.0
25	---	---	---	8.1	7.8	8.0	8.1	7.9	8.0	8.2	7.8	7.9
26	---	---	---	8.0	7.8	7.9	8.0	7.9	7.9	8.0	7.8	7.9
27	---	---	---	8.3	8.0	8.1	8.1	7.8	7.9	8.1	8.0	8.1
28	7.3	7.0	7.2	8.4	8.2	8.2	8.1	8.0	8.1	8.1	7.7	8.0
29	7.3	7.2	7.2	8.4	8.2	8.2	8.2	8.1	8.1	7.9	7.7	7.7
30	7.3	7.2	7.3	8.4	8.1	8.2	8.2	8.1	8.2	8.0	7.8	7.9
31	7.3	7.2	7.3	---	---	---	8.3	8.2	8.2	8.1	7.8	7.9

07177700 FLATROCK CREEK AT US HWY 76 NEAR TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	7.3	6.4	6.8	---	---	---	17.9	14.4	15.7
2	---	---	---	6.7	5.9	6.3	---	---	---	16.8	14.3	15.4
3	---	---	---	6.2	5.3	5.8	---	---	---	19.3	14.1	16.0
4	---	---	---	5.8	4.7	5.3	---	---	---	19.7	14.9	17.0
5	---	---	---	6.8	4.9	5.9	---	---	---	18.8	14.5	16.2
6	---	---	---	6.4	5.9	6.1	---	---	---	18.4	13.0	15.3
7	---	---	---	6.0	5.5	5.8	---	---	---	17.2	13.2	14.9
8	9.5	8.7	9.0	6.4	5.1	5.8	---	---	---	15.9	12.9	14.7
9	10.6	8.9	9.6	6.1	4.2	5.6	---	---	---	16.9	14.2	15.3
10	10.9	9.2	9.8	---	---	---	---	---	---	16.5	14.5	15.3
11	11.0	8.8	9.6	---	---	---	---	---	---	16.6	13.3	14.7
12	11.7	9.3	10.1	---	---	---	---	---	---	15.7	13.0	14.2
13	12.2	9.4	10.3	8.9	8.5	8.7	---	---	---	15.7	13.9	14.6
14	12.5	9.2	10.6	9.0	8.3	8.6	---	---	---	---	---	---
15	12.9	8.7	10.3	8.3	7.4	7.8	---	---	---	---	---	---
16	11.4	8.0	9.4	8.8	7.5	8.2	---	---	---	---	---	---
17	9.7	7.5	8.4	10.1	8.8	9.2	---	---	---	---	---	---
18	8.9	6.8	7.7	9.4	8.8	9.0	---	---	---	---	---	---
19	9.1	7.1	7.9	10.3	8.8	9.2	---	---	---	---	---	---
20	9.9	6.8	8.0	---	---	---	---	---	---	---	---	---
21	9.6	6.6	7.8	---	---	---	---	---	---	---	---	---
22	9.0	6.8	7.8	---	---	---	---	---	---	---	---	---
23	6.9	5.7	6.4	---	---	---	11.4	9.3	10.4	---	---	---
24	7.1	6.1	6.6	---	---	---	13.4	10.8	11.9	---	---	---
25	6.9	5.4	6.2	---	---	---	14.8	11.9	13.1	14.2	12.3	13.3
26	7.2	5.8	6.4	---	---	---	14.8	12.0	13.0	14.2	12.4	13.3
27	6.3	5.4	6.0	---	---	---	12.4	10.2	11.7	14.8	13.0	13.9
28	7.4	5.6	6.5	---	---	---	14.6	12.2	13.5	14.2	12.6	13.4
29	6.9	6.1	6.6	---	---	---	16.6	13.9	15.1	12.6	11.7	12.2
30	7.5	6.3	6.9	---	---	---	17.1	15.0	15.8	14.0	11.9	12.8
31	7.3	6.3	6.8	---	---	---	17.4	14.9	15.7	13.4	11.5	12.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	15.3	11.5	13.1	---	---	---	8.9	5.9	7.2
2	---	---	---	15.7	11.1	12.9	---	---	---	7.4	6.2	6.8
3	---	---	---	12.8	9.5	10.9	---	---	---	8.8	6.8	7.7
4	---	---	---	13.2	12.2	12.8	---	---	---	---	---	---
5	---	---	---	13.9	11.9	13.2	---	---	---	---	---	---
6	---	---	---	13.7	10.6	13.0	---	---	---	---	---	---
7	---	---	---	14.0	9.1	11.8	11.8	8.3	9.7	---	---	---
8	---	---	---	13.6	11.6	12.7	10.7	7.9	9.1	---	---	---
9	---	---	---	13.4	11.1	12.5	10.5	8.2	9.2	---	---	---
10	---	---	---	12.3	9.8	11.3	11.3	8.9	9.8	---	---	---
11	---	---	---	12.5	9.4	10.6	11.3	8.9	9.8	---	---	---
12	---	---	---	13.2	8.9	10.6	11.1	8.4	9.5	7.7	5.8	6.8
13	---	---	---	14.1	8.6	10.8	10.7	7.9	9.1	9.2	6.5	7.4
14	---	---	---	---	---	---	10.7	7.7	8.9	9.5	6.0	7.5
15	---	---	---	---	---	---	10.7	7.6	8.8	---	---	---
16	---	---	---	17.5	11.4	13.9	10.3	7.0	8.2	---	---	---
17	15.4	14.6	15.0	15.7	10.5	12.6	9.9	6.3	7.8	---	---	---
18	16.2	14.4	15.2	14.9	10.2	12.1	7.8	6.1	6.8	---	---	---
19	15.2	13.6	14.4	14.0	11.0	12.2	9.9	6.4	7.8	---	---	---
20	14.3	12.8	13.7	12.2	10.6	11.3	8.5	6.4	7.4	---	---	---
21	15.0	12.7	13.8	14.9	11.3	12.8	10.1	6.6	7.9	---	---	---
22	16.5	13.3	14.7	15.4	11.5	13.0	10.3	5.4	7.5	---	---	---
23	17.0	14.7	15.6	14.9	10.7	12.5	10.0	4.8	7.2	---	---	---
24	16.7	13.9	15.2	14.3	9.9	11.7	9.0	4.7	6.7	---	---	---
25	15.8	12.1	13.9	13.6	9.0	10.9	8.7	4.8	6.5	---	---	---
26	15.7	11.0	12.9	12.6	8.1	9.8	8.3	4.7	6.2	6.8	4.7	5.7
27	11.9	10.9	11.4	11.1	7.5	9.0	8.0	4.4	5.9	9.2	5.3	6.7
28	15.1	11.8	13.1	---	---	---	7.9	4.3	5.9	9.7	4.9	6.8
29	---	---	---	---	---	---	8.4	4.8	6.4	9.4	4.8	6.6
30	---	---	---	---	---	---	8.8	5.8	7.1	8.8	4.5	6.2
31	---	---	---	---	---	---	---	---	---	7.2	4.0	5.4

ARKANSAS RIVER BASIN

07177700 FLATROCK CREEK AT US HWY 75 NEAR TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	6.1	3.4	4.6	---	---	---	---	---	---	9.4	8.5	9.0
2	7.3	3.1	4.4	---	---	---	---	---	---	9.4	6.6	7.9
3	---	---	---	---	---	---	---	---	---	9.1	8.1	8.6
4	---	---	---	---	---	---	8.5	5.5	6.7	9.4	6.4	8.3
5	---	---	---	---	---	---	8.4	5.2	6.5	9.3	6.2	8.3
6	---	---	---	---	---	---	5.1	3.5	4.4	7.1	3.9	4.8
7	---	---	---	---	---	---	7.9	3.4	5.5	9.0	2.6	4.5
8	---	---	---	---	---	---	11.1	5.9	7.8	9.2	8.1	8.7
9	---	---	---	---	---	---	10.4	4.8	7.1	9.7	7.1	8.6
10	---	---	---	---	---	---	11.3	5.3	8.1	10.1	7.7	9.5
11	---	---	---	---	---	---	10.2	6.7	8.3	10.1	9.3	9.8
12	---	---	---	---	---	---	9.8	6.7	7.9	10.6	6.3	9.7
13	---	---	---	---	---	---	8.1	6.4	7.1	---	---	---
14	---	---	---	---	---	---	7.7	6.3	7.0	---	---	---
15	---	---	---	---	---	---	9.9	6.0	7.6	---	---	---
16	---	---	---	---	---	---	10.0	6.1	7.8	---	---	---
17	---	---	---	---	---	---	12.0	6.4	8.6	---	---	---
18	---	---	---	---	---	---	10.3	6.4	7.8	---	---	---
19	---	---	---	---	---	---	10.3	6.0	7.6	---	---	---
20	---	---	---	8.0	6.2	6.9	8.3	5.9	7.1	11.9	7.8	9.3
21	---	---	---	9.3	6.3	7.5	5.8	4.0	4.9	11.7	7.6	9.3
22	---	---	---	10.8	6.5	8.1	7.1	4.9	6.4	11.0	7.4	8.8
23	5.3	3.1	4.2	---	---	---	7.5	6.1	6.6	10.7	8.0	9.3
24	---	---	---	---	---	---	6.4	3.0	5.5	10.8	8.9	9.6
25	---	---	---	---	---	---	5.3	2.3	3.2	10.9	8.9	9.6
26	---	---	---	---	---	---	7.3	2.1	5.4	10.9	8.7	9.5
27	---	---	---	---	---	---	5.4	2.8	4.7	11.1	8.5	9.5
28	---	---	---	---	---	---	7.4	1.8	3.1	11.2	8.5	9.5
29	---	---	---	---	---	---	9.1	6.2	8.6	11.5	8.4	9.5
30	---	---	---	---	---	---	10.8	7.5	8.7	11.0	8.1	9.3
31	---	---	---	---	---	---	9.3	8.2	8.8	---	---	---

ARKANSAS RIVER BASIN

167

07177800 COAL CREEK AT TULSA, OK

LOCATION.-- Lat 36°11'40", long 95°54'50", in SE 1/4 SW 1/4 sec.22, T.20 N., R.13 E., Tulsa County, Hydrologic Unit 11070107, near right downstream abutment of bridge on State Highway 11, .2 mile Northwest of intersection of SH 11 and Apache Street in Tulsa, and at mile 4.1.

DRAINAGE AREA.-- 7.53 mi².

PERIOD OF RECORD.-- January 29, 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 596.84 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair, several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the district office.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 2,930 ft³/s Aug. 20, 1989, gage height 13.11 ft; minimum daily discharge .23 ft³/s July 5, 1988.

EXTREMES FOR CURRENT PERIOD.-- January to September 1988: Maximum discharge during period, 1,140 ft³/s, July 19, gage height, 10.62 ft; minimum daily discharge .23 ft³/s, July 5.

Water year 1989--maximum discharge, 2,930 ft³/s Aug. 20, gage height 13.11 ft; minimum daily discharge, .43 ft³/s Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.89	27	153	1.6	2.2	.70	1.7	1.2
2	---	---	---	---	.89	189	26	1.2	15	.61	1.8	35
3	---	---	---	---	1.1	105	13	1.2	1.8	.38	1.8	4.0
4	---	---	---	---	1.4	25	7.6	1.3	.67	.31	1.7	.80
5	---	---	---	---	1.0	38	6.6	1.3	.48	.23	21	.49
6	---	---	---	---	.78	22	5.0	1.3	.57	.31	5.5	.42
7	---	---	---	---	.78	13	3.7	1.5	.63	.44	2.4	.38
8	---	---	---	---	.78	7.4	2.6	2.0	.87	.87	1.8	.35
9	---	---	---	---	.78	5.2	2.3	2.1	1.0	.36	1.7	.39
10	---	---	---	---	.90	6.6	35	2.1	1.9	.28	1.5	.40
11	---	---	---	---	1.0	5.8	3.5	2.6	1.5	.32	1.6	.43
12	---	---	---	---	.79	5.1	3.1	2.6	1.1	.61	1.6	.49
13	---	---	---	---	.83	4.2	2.3	1.7	1.5	.66	1.7	.43
14	---	---	---	---	.83	2.1	1.6	1.5	1.5	.43	2.0	3.0
15	---	---	---	---	.83	1.3	1.2	1.6	1.5	.34	1.8	2.4
16	---	---	---	---	.83	.92	1.2	1.7	1.2	2.4	1.9	32
17	---	---	---	---	.84	21	20	1.9	1.4	4.0	1.3	2.2
18	---	---	---	---	42	4.7	4.4	2.0	1.3	.66	1.4	55
19	---	---	---	---	22	2.1	1.5	2.7	.77	68	15	84
20	---	---	---	---	6.3	2.0	1.1	9.3	1.5	5.5	6.4	2.7
21	---	---	---	---	5.8	1.6	1.1	.99	1.9	1.8	21	1.8
22	---	---	---	---	5.7	2.6	1.1	16	1.2	1.3	4.6	2.6
23	---	---	---	---	5.1	1.8	1.2	17	1.6	1.1	3.0	92
24	---	---	---	---	4.7	7.3	1.1	2.7	1.7	8.4	1.6	12
25	---	---	---	---	4.0	2.0	2.7	1.0	1.8	4.4	1.2	2.9
26	---	---	---	---	4.0	1.4	1.2	.92	1.5	1.2	.87	1.4
27	---	---	---	---	3.9	1.1	1.8	.99	1.8	1.0	.95	1.2
28	---	---	---	---	4.0	81	1.8	1.1	1.8	82	51	1.3
29	---	---	---	---	3.8	121	1.5	1.3	1.4	5.3	3.4	39
30	---	---	---	---	.89	21	1.7	1.6	.69	2.3	1.7	3.3
31	---	---	---	---	.89	15	---	1.8	---	1.9	1.2	---
TOTAL	---	---	---	---	126.55	743.22	309.9	88.60	53.78	198.11	166.12	383.78
MEAN	---	---	---	---	4.36	24.0	10.3	2.86	1.79	6.39	5.36	12.8
MAX	---	---	---	---	42	189	153	17	15	82	51	92
MIN	---	---	---	---	.78	.92	1.1	.92	.48	.23	.87	.35
AC-FT	---	---	---	---	251	1470	615	176	107	393	329	761
CFSM	---	---	---	---	.58	3.18	1.37	.38	.24	.85	.71	1.70
IN.	---	---	---	---	.63	3.67	1.53	.44	.27	.98	.82	1.90

ARKANSAS RIVER BASIN

07177800 COAL CREEK AT TULSA, OK-- Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	5.5	1.8	3.7	3.0	1.6	6.0	.96	6.1	1.4	1.3	.94
2	1.2	6.6	1.7	2.5	4.7	1.5	3.2	4.1	18	36	1.0	2.5
3	.91	8.2	1.7	2.4	2.0	14	2.1	1.9	12	2.8	.93	.60
4	.89	9.0	3.5	2.1	1.5	18	1.6	13	10	1.2	.93	9.0
5	39	8.3	1.9	2.5	1.4	5.2	1.3	.92	22	.95	.79	.79
6	22	7.2	1.7	2.3	1.3	3.3	1.2	.63	3.2	.84	2.7	.57
7	18	7.2	15	2.2	1.3	11	1.3	.57	18	1.1	1.4	.51
8	3.9	9.4	2.9	1.9	1.5	28	2.0	.58	5.0	.69	1.2	.53
9	3.0	35	1.6	1.8	1.3	34	1.2	.60	2.3	.67	1.2	.53
10	2.4	4.9	1.6	1.8	1.2	22	1.1	.60	2.4	.86	1.3	.50
11	4.8	24	1.6	1.8	1.2	12	1.0	.60	100	.73	1.7	.46
12	2.4	109	4.0	1.8	6.7	6.5	1.0	1.5	38	2.9	1.7	61
13	2.9	1.5	1.9	1.7	20	3.9	1.0	1.8	66	1.2	2.0	101
14	2.1	1.1	1.9	15	43	5.3	2.0	.95	9.4	27	15	2.4
15	2.4	24	1.5	3.5	47	2.4	1.4	30	3.6	1.2	3.0	1.9
16	2.9	2.7	1.4	2.6	11	2.1	1.0	6.3	2.2	1.1	2.2	.56
17	4.8	1.4	1.4	2.5	8.0	3.1	1.0	20	1.4	129	2.0	.55
18	9.4	1.3	1.4	2.3	4.5	2.4	2.3	41	2.0	4.7	11	.57
19	1.9	39	1.4	2.1	2.8	1.6	1.1	5.6	1.2	2.4	2.5	.64
20	2.0	43	1.7	1.9	18	1.6	4.7	2.0	1.2	e2.2	508	.66
21	2.0	8.6	2.0	1.8	6.9	1.7	1.7	1.6	1.4	e1.9	5.8	.66
22	1.6	3.7	37	1.7	2.8	2.2	.96	44	4.9	e1.7	1.7	.66
23	1.9	2.5	3.9	1.7	1.9	1.5	.95	4.7	33	e1.6	.85	.66
24	2.6	2.2	2.1	1.9	1.7	1.5	.95	3.3	2.0	e1.5	.45	.64
25	2.8	31	1.8	129	1.6	1.5	.95	2.4	2.4	e1.4	.51	1.2
26	3.1	6.6	2.4	13	1.5	1.5	1.1	6.9	.91	1.3	.71	1.4
27	3.9	2.6	45	4.2	12	1.5	1.5	2.3	17	1.0	.69	1.7
28	4.9	2.1	5.7	55	2.3	42	1.1	2.1	2.0	15	1.1	1.8
29	4.3	2.1	4.6	11	---	5.1	1.0	2.1	1.0	4.2	3.8	1.2
30	4.3	1.9	3.7	4.8	---	93	1.0	2.1	1.0	1.5	1.2	.43
31	4.9	---	5.4	3.3	---	15	---	2.4	---	1.3	.97	---
TOTAL	164.90	411.6	165.2	285.8	212.1	346.0	48.71	207.51	389.61	251.34	579.43	196.56
MEAN	5.32	13.7	5.33	9.22	7.57	11.2	1.62	6.69	13.0	8.11	18.7	6.55
MAX	39	109	45	129	47	93	6.0	44	100	129	508	101
MIN	.89	1.1	1.4	1.7	1.2	1.5	.95	.57	.91	.67	.45	.43
AC-FT	327	816	328	567	421	686	97	412	773	499	1150	390
CFSM	.71	1.82	.71	1.22	1.01	1.48	.22	.89	1.72	1.08	2.48	.87
IN.	.81	2.03	.82	1.41	1.05	1.71	.24	1.03	1.92	1.24	2.86	.97

WTR YR 1989 TOTAL 3258.76 MEAN 8.93 MAX 508 MIN .43 AC-FT 6460 CFSM 1.19 IN. 16.10

e Estimated

ARKANSAS RIVER BASIN

169

07178000 BIRD CREEK NEAR OWASSO, OK.

LOCATION.-- Lat 36°14'55", long 95°52'06", in NW 1/4 NW 1/4 sec.6, T.20 N., R.14 E. (revised), Tulsa County, Hydrologic Unit 11070107, at bridge on Mingo Road 2 mi southwest of Owasso, 1.5 mi downstream from Coal Creek, 1.4 mi upstream from Mingo Creek, and at mile 14.1.

DRAINAGE AREA.-- 1022 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- 1936 to October 1939, April 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 560.17 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 15,200 ft³/s, Apr. 3, 1988, gage height 22.14 ft; minimum daily discharge, 18 ft³/s, Sept. 27, 1987

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 13,800 ft³/s, Aug. 21, gage height, 20.70 ft³/s; maximum gage height, 22.01 ft, Aug. 20 (backwater from Mingo Creek); minimum daily discharge, 59 ft³/s, Oct. 20-21, Nov. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	75	250	219	299	208	1980	129	195	225	171	464
2	168	77	229	176	221	180	1140	136	184	406	166	404
3	170	77	210	154	173	169	895	150	219	955	166	357
4	163	78	160	134	126	726	770	177	316	399	164	346
5	187	77	146	127	106	430	609	163	405	276	165	360
6	262	75	142	119	101	257	494	160	632	180	913	6450
7	227	77	148	110	89	226	404	171	347	219	344	e6000
8	237	61	128	97	79	329	259	171	420	210	205	e1000
9	372	59	115	103	65	1480	238	165	356	183	175	e700
10	310	82	105	119	69	1430	227	158	317	183	167	e600
11	258	65	99	130	73	741	223	152	1930	171	162	561
12	225	771	101	111	78	503	204	149	8080	170	161	448
13	204	816	100	104	139	431	190	151	6810	172	159	2740
14	193	354	95	109	242	380	173	153	2120	210	172	5260
15	135	215	91	119	1100	328	180	202	1270	216	163	2480
16	69	174	89	106	1020	280	187	535	1090	290	165	2140
17	66	143	88	e120	618	196	181	249	990	3210	571	1900
18	63	113	87	e118	435	168	178	527	910	3030	322	1790
19	60	120	85	e112	282	159	172	1860	861	488	218	1730
20	59	1510	82	e110	241	153	160	732	834	278	e5490	1590
21	59	2080	77	e104	506	151	172	349	655	235	e12200	1280
22	63	1160	123	e98	759	150	165	394	520	243	2180	479
23	76	581	252	95	494	149	162	1240	574	655	2110	332
24	74	423	146	81	335	125	161	822	517	374	2270	316
25	73	345	117	977	274	95	156	523	312	242	2270	310
26	72	1090	94	935	211	81	153	418	170	213	2190	259
27	73	1070	165	268	213	77	150	349	1050	201	2120	243
28	73	578	1040	556	225	2420	145	280	693	266	2070	237
29	73	386	604	1570	---	3610	135	266	308	294	1140	232
30	73	293	407	743	---	2750	133	256	261	210	1200	258
31	74	---	297	453	---	3470	---	231	---	181	848	---
TOTAL	4384	13025	5872	8377	8571	21852	10396	11418	33346	14585	40817	41266
MEAN	141	434	189	270	306	705	347	368	1112	470	1317	1376
MAX	372	2080	1040	1570	1100	3610	1980	1860	8080	3210	12200	6450
MIN	59	59	77	81	65	77	133	129	170	170	159	232
AC-FT	8700	25840	11650	16620	17000	43340	20620	22650	66140	28930	80960	81850

CAL YR 1988 TOTAL 273365 MEAN 747 MAX 14400 MIN 59 AC-FT 542200
WTR YR 1989 TOTAL 213909 MEAN 586 MAX 12200 MIN 59 AC-FT 424300

e Estimated

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK --Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.-- May 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1987 to current year.

pH: May 1987 to current year.

WATER TEMPERATURE: May 1987 to current year.

DISSOLVED OXYGEN: May 1987 to current year.

INSTRUMENTATION.-- Water-quality monitor since May 1987.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 1,010 microsiemens, Feb. 19, 1988; minimum recorded, 48 microsiemens, July 18, 1989.

pH: Maximum recorded, 8.9 units, May 17, 1988; minimum recorded, 5.5 units June 14, 15, 1987.

WATER TEMPERATURE: Maximum recorded, 35.0°C, Aug. 2, 3, 1987; minimum recorded, 0.0°C, several days during winter periods.

DISSOLVED OXYGEN: Maximum recorded, 16.3 mg/l, Jan. 17, 1988; minimum recorded, 1.3 mg/l Aug. 14, 1987.

EXTREMES FOR CURRENT YEAR.--

WATER YEAR 1988:

SPECIFIC CONDUCTANCE: Maximum recorded, 1,010 microsiemens, Feb. 19; minimum recorded, 100 microsiemens, Dec. 20.

pH: Maximum recorded (more than 20 percent missing record), 8.9 units, May 17; minimum recorded, 6.6 units, Mar. 30.

WATER TEMPERATURE: Maximum recorded, 32.5°C, Aug. 9; minimum recorded, 0.0°C, several days during January.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 14.8 mg/l, Mar. 20; minimum recorded, 3.1 mg/l, June 21.

WATER YEAR 1989:

SPECIFIC CONDUCTANCE: Maximum recorded, 959 microsiemens, May 7; minimum recorded, 48 microsiemens, July 18.

pH: Maximum recorded (more than 20 percent missing record), 8.4 units, Jan. 15; minimum recorded, 7.1 units, Sept. 7.

WATER TEMPERATURE: Maximum recorded, 30.5°C, Aug. 5; minimum recorded, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum recorded, 15.6 mg/l, Feb. 10; minimum recorded, 3.5 mg/l, Aug. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
MAY											
20...	1700	1028	84042	4.89	191	640	8.0	24.5	26.0	40	73
JUN											
14...	1230	1028	84042	4.80	154	412	7.9	33.0	26.5	50	19
15...	1230	1028	84042	4.80	154	411	7.9	36.0	26.5	--	--
28...	1100	1028	84042	4.78	149	396	7.3	31.0	29.0	--	--
AUG											
09...	0830	1028	84042	4.77	144	401	7.8	30.0	30.0	50	18
SEP											
20...	0930	1028	84042	6.79	1640	245	7.3	22.0	23.0	>70	250
DATE	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)
MAY											
20...	740	6.9	88	--	--	--	--	169	0	139	--
JUN											
14...	750	7.7	98	--	--	--	--	105	0	86	--
15...	760	7.9	99	31	8.0	28	3.5	105	0	86	<20
28...	740	5.8	78	31	8.0	29	2.6	103	0	84	<20
AUG											
09...	740	5.2	71	31	8.0	31	3.4	104	0	85	<20
SEP											
20...	740	6.1	73	--	--	--	--	171	0	70	--

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)
MAY 20...	--	0.3	377	21	1.80	<0.500	1.80	<0.100	--	0.77	0.77
JUN 14...	--	0.2	245	38	<0.500	<0.500	<0.500	<0.100	--	0.60	0.60
15...	58	--	--	--	--	--	--	--	--	--	--
28...	58	--	--	--	--	--	--	--	--	--	--
AUG 09...	60	0.2	234	40	<0.500	<0.500	<0.500	<0.100	--	1.2	1.2
SEP 20...	--	0.2	145	707	<0.500	<0.500	<0.500	0.285	0.37	1.4	1.7

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N03)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
MAY 20...	2.6	11	0.660	1.47	0.480	--	--	--	--	--	--
JUN 14...	--	--	0.070	--	<0.010	--	--	--	--	--	--
15...	--	--	--	--	--	<60	<60	90	<100	<5	<5.0
28...	--	--	--	--	--	<60	<60	100	<100	<5	<5.0
AUG 09...	--	--	0.040	--	<0.005	<60	<60	100	100	<5	<5.0
SEP 20...	--	--	0.620	0.74	0.240	--	--	--	--	--	--

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ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
NOV 01...	1030	1028	84042	4.53	71	394	7.6	16.0	14.0	40	11	750
DEC 13...	1100	1028	84042	4.64	98	416	7.5	16.5	6.5	50	14	750
JAN 24...	1100	1028	84042	4.55	73	532	8.0	14.0	6.0	40	10	750
MAR 08...	1430	1028	84042	5.03	246	530	7.6	11.0	3.5	>70	32	760
APR 18...	1200	1028	84042	4.88	170	436	7.8	22.0	17.5	40	20	750
MAY 31...	1300	1028	84042	5.05	242	935	7.8	26.0	26.0	>70	30	750
JUL 05...	1300	1028	84042	5.13	280	315	7.6	34.0	26.0	>70	57	740
AUG 22...	1330	1028	80020	6.23	1130	217	7.2	34.0	28.0	120	130	740
22...	1331	1028	84042	6.23	1130	217	7.2	34.0	28.0	>70	120	740
SEP 26...	1345	1028	84042	4.98	246	361	7.4	24.0	18.5	60	12	760

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
NOV 01...	7.2	71	--	--	34	--	7.0	--	27	--	--
DEC 13...	8.4	70	--	--	--	--	--	--	--	--	--
JAN 24...	11.8	96	--	--	--	--	--	--	--	--	--
MAR 08...	14.4	109	--	--	--	--	--	--	--	--	--
APR 18...	9.4	100	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	--	--	33	--	7.0	--	22	--	--
JUL 05...	5.8	74	--	--	--	--	--	--	--	--	--
AUG 22...	4.5	59	57	0	--	17	--	3.5	--	12	30
22...	4.5	59	--	--	22	--	5.0	--	16	--	--
SEP 26...	8.7	93	--	--	--	--	--	--	--	--	--

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, TOTAL (MG/L AS F)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
NOV 01...	--	2.4	--	115	0	95	<20	46	0.2	--	--
DEC 13...	--	--	--	128	0	105	--	--	0.2	--	--
JAN 24...	--	--	--	181	0	148	--	--	0.2	--	--
MAR 08...	--	--	--	125	0	102	--	--	0.2	--	--
APR 18...	--	--	--	128	0	105	--	--	0.2	--	--
MAY 31...	--	2.0	--	114	0	94	<20	37	0.2	--	--
JUL 05...	--	--	--	90	0	74	--	--	0.2	--	--
AUG 22...	0.7	--	3.1	71	0	58	10	19	--	0.10	6.5
22...	--	3.5	--	71	0	58	<20	42	0.2	--	--
SEP 26...	--	--	--	123	0	101	--	--	0.2	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR DWASSO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
NOV 01...	<45	<45	--	140	85	<0.50	<0.5	--	--	<70	<70
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 24...	--	<45	--	--	130	--	<0.5	--	--	--	<70
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	<45	<45	--	160	<10	<0.50	<0.5	--	--	<70	<70
JUL 05...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	37	20	<4	360	24	<0.10	<0.1	<10	<10	<1	<1
SEP 26...	<45	<45	--	310	16	<0.50	<0.5	--	--	<70	<70

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (T/DAY)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<7	<7.0	290	300	--	7	--	<5.0	19	3.6	85
DEC 13...	--	--	--	--	--	--	--	--	693	183	98
JAN 24...	--	<7.0	--	420	--	--	<5	--	10	2.0	91
MAR 08...	--	--	--	--	--	--	--	--	55	37	89
APR 18...	--	--	--	--	--	--	--	--	30	14	84
MAY 31...	<7	<7.0	290	280	--	<5	<10	<5.0	48	31	95
JUL 05...	--	--	--	--	--	--	--	--	86	65	98
AUG 22...	1	<1.0	200	150	<6	60	28	11	224	683	96
SEP 26...	<7	<7.0	180	150	--	40	19	7.0	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
JUN 15...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
JUN 28...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
AUG 09...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
JUN 15...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
JUN 28...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
AUG 09...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR DWASSO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MATERIAL (UG/KG)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MATERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)
NOV 01...	--	<0.03	<0.030	--	--	--	<0.03	<0.030	--	<0.03	<0.030
JAN 24...	--	<0.03	--	<0.6	--	--	<0.03	--	<0.6	<0.03	--
MAY 31...	--	<0.03	<0.030	--	--	--	<0.03	<0.030	--	<0.03	<0.030
JUL 05...	--	--	--	<0.6	--	--	--	--	<0.6	--	--
AUG 22...	<0.010	<0.01	<0.010	--	<0.01	<0.01	<0.01	<0.010	--	<0.01	<0.010
22...	--	<0.03	<0.030	--	--	--	<0.03	<0.030	--	<0.03	<0.030

DATE	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MATERIAL (UG/KG)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	MALA-THION, TOTAL IN BOT-TOM MATERIAL (UG/KG)	METH-OXY-CHLOR DISSOLV (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
NOV 01...	--	<0.02	<0.020	--	<0.40	<0.40	--	--	<0.70	--
JAN 24...	<0.6	<0.02	--	<0.4	<0.40	--	<4.0	--	--	<2.0
MAY 31...	--	<0.02	<0.020	--	<0.40	<0.40	--	--	<0.70	--
JUL 05...	<0.6	--	--	<0.4	--	--	<4.0	--	--	<2.0
AUG 22...	--	<0.01	<0.010	--	0.01	0.01	--	<0.01	<0.01	--
22...	--	<0.02	<0.020	--	<0.40	<0.40	--	--	<0.70	--

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL-TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL IN BOT-TOM MATERIAL (UG/KG)
NOV 01...	--	<0.10	--	--	--	--	--	<0.10	<0.10	--
JAN 24...	--	--	<2.0	--	--	--	--	<0.10	--	<2.0
MAY 31...	--	<0.10	--	--	--	--	--	<0.10	<0.10	--
JUL 05...	--	--	<2.0	--	--	--	--	--	--	<2.0
AUG 22...	<0.01	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--
22...	--	<0.10	--	--	--	--	--	<0.10	<0.10	--

DATE	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOX-APHENE, TOTAL IN BOT-TOM MATERIAL (UG/KG)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, DIS-SOLVED (UG/L)	2,4-D, TOTAL (UG/L)
NOV 01...	--	--	--	<0.30	<0.3	--	--	--	<20	<20
JAN 24...	--	--	--	<0.30	--	<60	--	--	<20	--
MAY 31...	--	--	--	<0.30	<0.3	--	--	--	<20	<20
JUL 05...	--	--	--	--	--	<60	--	--	--	--
AUG 22...	<0.10	<0.1	<0.01	<1.0	<1	--	<0.01	<0.01	0.04	0.04
22...	--	--	--	<0.30	<0.3	--	--	--	<20	<20

ARKANSAS RIVER BASIN

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07178000 BIRD CREEK NEAR DWASSO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP DISSOLV (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SEVIN, TOTAL (UG/L)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	--	--	<2.0	<2.0	<2.0	--	--	<2.0	<2.0	--
JAN 24...	<75.0	--	--	<2.0	--	<10.0	--	<2.0	--	<10.0
MAY 31...	--	--	<2.0	<2.0	<2.0	--	--	<2.0	<2.0	--
JUL 05...	<75.0	--	--	--	--	<10.0	--	--	--	<10.0
AUG 22...	--	<0.01	<0.01	0.01	0.01	--	0.50	<0.01	<0.01	--
22...	--	--	<2.0	<2.0	<2.0	--	--	<2.0	<2.0	--

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	840	770	797
17	---	---	---	---	---	---	---	---	---	840	800	821
18	---	---	---	---	---	---	---	---	---	840	800	822
19	---	---	---	---	---	---	---	---	---	850	830	841
20	---	---	---	---	---	---	---	---	---	860	840	850
21	---	---	---	---	---	---	---	---	---	880	860	855
22	---	---	---	---	---	---	---	---	---	870	850	832
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	490	370	459
2	---	---	---	---	---	---	---	---	---	470	410	446
3	---	---	---	---	---	---	---	---	---	480	440	467
4	---	---	---	---	---	---	---	---	---	500	470	485
5	---	---	---	---	---	---	---	---	---	550	490	510
6	---	---	---	---	---	---	---	---	---	570	500	529
7	---	---	---	---	---	---	---	---	---	580	510	551
8	---	---	---	---	---	---	---	---	---	580	500	554
9	---	---	---	---	---	---	---	---	---	590	500	563
10	---	---	---	---	---	---	---	---	---	590	540	571
11	---	---	---	---	---	---	---	---	---	590	510	560
12	---	---	---	---	---	---	---	---	---	570	500	562
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	810	600	728	---	---	---
15	---	---	---	---	---	---	890	710	800	---	---	---
16	---	---	---	---	---	---	900	870	887	---	---	---
17	---	---	---	---	---	---	910	880	896	---	---	---
18	---	---	---	---	---	---	910	900	905	---	---	---
19	---	---	---	---	---	---	940	790	861	---	---	---
20	---	---	---	---	---	---	790	680	730	---	---	---
21	---	---	---	---	---	---	680	540	600	---	---	---
22	---	---	---	---	---	---	610	540	580	---	---	---
23	---	---	---	---	---	---	600	570	586	---	---	---
24	---	---	---	---	---	---	580	570	573	---	---	---
25	---	---	---	---	---	---	680	580	612	---	---	---
26	---	---	---	---	---	---	710	640	687	---	---	---
27	---	---	---	---	---	---	640	200	441	---	---	---
28	---	---	---	---	---	---	750	400	640	---	---	---
29	---	---	---	---	---	---	750	610	683	---	---	---
30	---	---	---	---	---	---	600	510	565	---	---	---
31	---	---	---	---	---	---	540	480	502	---	---	---

0718000 BIRD CREEK NEAR OWASSO, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	540	480	504	330	300	306	300	280	287
2	---	---	---	570	530	553	330	300	317	340	290	303
3	310	230	299	640	560	588	350	300	331	380	310	346
4	---	---	---	710	640	688	340	300	330	400	370	384
5	---	---	---	690	590	651	350	310	337	400	390	399
6	---	---	---	710	580	632	360	330	345	420	400	405
7	---	---	---	790	700	759	350	310	340	480	400	438
8	---	---	---	950	710	847	360	340	353	510	480	490
9	---	---	---	850	600	701	410	340	379	550	400	519
10	---	---	---	600	500	535	410	390	400	570	540	555
11	---	---	---	530	490	507	410	390	398	590	570	578
12	---	---	---	510	490	501	410	390	400	630	570	581
13	---	---	---	510	490	500	410	400	401	870	680	756
14	---	---	---	510	500	508	440	400	412	880	500	544
15	---	---	---	510	240	481	580	440	467	510	500	503
16	360	300	348	690	210	364	580	500	541	610	400	537
17	370	340	356	470	390	419	640	570	593	410	300	367
18	370	340	361	400	340	371	630	500	574	510	340	427
19	380	340	367	370	340	355	690	170	420	600	400	512
20	390	370	382	390	340	375	200	100	144	400	290	319
21	410	380	393	410	380	395	210	140	171	350	250	312
22	410	400	405	420	400	405	230	200	209	400	230	353
23	460	400	432	430	400	404	280	210	255	510	390	445
24	510	460	476	450	310	383	360	280	303	510	410	472
25	540	500	513	290	140	191	410	240	313	410	260	357
26	530	470	497	210	180	195	290	190	220	410	270	364
27	510	470	487	240	200	208	250	180	205	450	280	393
28	540	500	514	310	210	265	230	190	203	410	390	404
29	540	500	506	310	270	301	310	210	280	410	400	408
30	500	480	494	320	240	306	380	300	352	410	400	406
31	490	470	480	---	---	---	340	300	325	450	400	420
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	470	450	460	610	580	595	420	140	283	430	400	405
2	460	300	365	730	357	580	230	110	152	410	400	404
3	470	380	447	390	170	237	230	100	170	410	400	401
4	530	460	488	280	210	259	---	---	---	430	400	409
5	570	510	542	280	240	254	---	---	---	510	440	474
6	600	560	584	270	200	244	---	---	---	510	500	506
7	620	580	602	280	250	267	---	---	---	530	500	509
8	640	600	624	310	270	292	---	---	---	600	530	570
9	650	640	643	320	270	305	---	---	---	630	590	603
10	650	580	627	320	240	303	---	---	---	610	550	601
11	610	600	605	340	300	305	---	---	---	640	600	620
12	640	600	630	324	300	306	---	---	---	690	630	644
13	650	640	644	340	260	305	---	---	---	670	650	659
14	660	640	648	340	270	309	---	---	---	680	660	667
15	670	640	656	350	270	316	---	---	---	710	670	693
16	690	660	681	330	280	296	---	---	---	760	700	729
17	707	680	689	380	250	310	---	---	---	970	780	885
18	720	700	706	450	270	371	---	---	---	810	640	740
19	1010	590	768	480	400	420	---	---	---	640	600	617
20	830	350	577	410	380	391	---	---	---	690	580	657
21	490	440	471	400	300	372	---	---	---	670	470	549
22	480	470	475	380	340	366	---	---	---	580	490	525
23	480	400	451	400	350	373	---	---	---	610	440	500
24	410	400	404	453	370	400	---	---	---	540	480	489
25	400	380	389	580	450	516	---	---	---	550	490	514
26	410	380	395	570	510	532	---	---	---	560	500	536
27	460	400	424	530	500	509	---	---	---	540	500	517
28	560	460	505	510	471	501	380	360	372	520	410	502
29	590	560	578	470	200	296	380	360	373	510	440	481
30	---	---	---	380	200	298	410	370	390	440	400	410
31	---	---	---	395	340	353	---	---	---	410	400	406

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	410	400	402	440	280	397	370	350	367	380	360	374
2	400	350	366	440	400	407	390	320	369	370	360	369
3	---	---	---	410	310	399	380	370	374	390	340	368
4	---	---	---	430	360	406	380	310	368	380	300	368
5	---	---	---	440	340	403	390	350	378	370	350	365
6	---	---	---	450	350	414	400	320	384	370	340	360
7	---	---	---	480	340	407	430	340	407	360	350	357
8	---	---	---	480	370	420	410	330	401	358	346	353
9	---	---	---	470	400	430	420	400	409	356	315	346
10	---	---	---	450	370	412	420	400	408	354	283	343
11	---	---	---	440	400	405	573	400	436	352	262	337
12	---	---	---	410	300	400	610	450	525	350	290	338
13	---	---	---	420	310	400	450	410	433	348	258	335
14	---	---	---	541	400	497	410	380	405	346	307	332
15	410	350	401	543	414	499	400	370	385	335	324	330
16	420	370	404	498	389	464	390	350	380	---	---	---
17	420	390	405	462	345	418	390	370	383	---	---	---
18	430	330	400	437	369	421	392	311	377	---	---	---
19	410	330	397	636	383	457	403	384	395	---	---	---
20	410	400	405	596	364	490	409	318	389	---	---	---
21	410	330	397	362	280	318	422	350	397	---	---	---
22	420	350	401	420	320	373	434	345	409	---	---	---
23	460	400	426	470	350	409	429	397	415	---	---	---
24	410	390	403	450	370	398	431	351	413	---	---	---
25	410	360	398	460	370	415	434	380	408	---	---	---
26	410	360	397	460	370	405	400	340	387	---	---	---
27	410	330	397	450	370	396	400	310	384	---	---	---
28	410	380	401	380	310	352	390	340	371	---	---	---
29	430	340	398	433	280	358	400	340	370	---	---	---
30	440	340	394	660	390	455	380	350	367	380	330	346
31	---	---	---	400	370	381	390	350	378	---	---	---

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	347	291	339	429	390	412	352	303	325	469	418	446
2	344	317	336	429	395	419	375	329	354	471	459	467
3	344	330	337	429	407	417	386	271	353	472	432	461
4	342	327	338	432	371	415	382	353	373	474	422	449
5	338	321	332	429	400	421	395	361	383	485	464	473
6	365	306	324	432	288	406	391	361	380	477	427	470
7	460	309	361	441	397	421	380	340	368	478	428	468
8	440	353	396	444	288	413	450	370	393	460	429	441
9	378	332	359	427	280	371	450	380	396	462	431	438
10	332	278	318	406	335	391	390	380	386	474	432	445
11	329	214	307	446	302	418	390	380	385	---	---	---
12	340	317	326	663	232	396	400	380	390	---	---	---
13	386	308	345	582	284	383	410	370	397	---	---	---
14	379	340	349	385	351	374	440	380	410	---	---	---
15	377	325	346	403	375	392	410	400	406	---	---	---
16	364	252	343	401	265	377	400	380	393	---	---	---
17	370	246	348	431	379	414	390	370	382	---	---	---
18	385	261	353	447	414	429	380	360	369	---	---	---
19	410	366	389	454	423	446	380	360	372	---	---	---
20	427	283	390	422	152	341	380	359	366	---	---	---
21	480	375	448	369	234	304	380	340	360	---	---	---
22	454	307	416	320	270	298	382	312	355	---	---	---
23	449	329	415	359	284	319	544	343	438	---	---	---
24	439	290	403	365	327	346	585	484	528	---	---	---
25	456	280	412	392	362	377	536	397	453	---	---	---
26	451	302	419	474	258	355	418	397	410	587	336	386
27	439	297	398	328	278	308	399	310	360	360	328	338
28	424	283	401	350	299	322	491	322	420	460	350	378
29	419	290	406	331	301	322	414	353	385	470	240	313
30	422	412	418	312	262	299	485	414	456	420	350	392
31	424	380	417	---	---	---	456	416	428	430	350	396

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	450	400	435	593	518	561	270	195	240	476	336	445
2	407	393	398	586	557	575	287	240	266	921	464	500
3	450	400	435	595	434	571	313	259	286	474	346	455
4	460	450	455	524	292	453	326	269	309	511	444	467
5	510	490	500	905	434	553	378	268	303	558	332	474
6	530	500	518	434	408	424	355	214	315	478	325	438
7	550	450	520	506	423	464	372	245	341	959	398	562
8	570	520	549	696	494	567	392	300	360	501	411	460
9	580	480	557	632	356	469	404	380	391	414	310	391
10	600	400	468	349	305	330	424	378	408	590	297	405
11	570	538	551	356	322	339	434	274	405	420	400	412
12	573	529	563	384	338	362	464	265	421	410	390	402
13	576	510	558	416	360	389	472	344	441	400	290	387
14	603	515	562	444	384	418	491	375	465	410	390	398
15	720	384	569	439	403	427	520	456	490	385	312	374
16	357	292	318	451	399	420	510	371	491	541	361	429
17	405	348	387	516	458	487	494	461	480	466	397	420
18	453	361	418	484	440	462	480	332	460	434	397	412
19	501	458	481	483	455	471	494	396	463	480	424	444
20	504	494	499	488	476	482	513	485	501	495	368	461
21	611	506	551	521	489	500	570	450	504	470	340	436
22	587	483	513	552	506	519	572	512	541	430	340	395
23	476	437	458	569	481	540	525	393	512	415	290	343
24	476	420	452	602	485	560	525	595	520	334	290	310
25	480	436	464	639	592	617	520	413	504	390	260	346
26	467	443	455	662	633	648	518	393	501	400	300	365
27	492	455	474	680	505	645	524	488	502	400	310	374
28	564	491	522	722	207	441	731	472	556	380	290	347
29	---	---	---	316	223	287	525	425	495	380	310	361
30	---	---	---	323	151	235	488	396	476	380	360	371
31	---	---	---	207	149	175	---	---	---	393	275	350
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	363	258	339	364	347	352	450	395	413	300	249	266
2	378	327	356	357	282	336	425	390	396	512	303	379
3	397	312	374	377	233	306	397	385	389	462	325	408
4	493	351	422	297	264	272	414	386	411	464	330	419
5	490	320	422	305	265	282	400	380	392	385	330	355
6	460	310	405	316	298	307	419	206	316	346	100	168
7	395	329	356	342	313	327	300	259	276	252	124	176
8	354	268	327	377	336	352	334	266	289	257	242	249
9	350	260	321	395	323	331	350	337	341	285	258	275
10	370	250	316	333	319	322	354	337	344	296	284	290
11	234	154	203	337	314	319	385	353	358	333	294	306
12	219	126	164	352	316	329	375	346	352	296	285	293
13	241	151	193	354	314	319	360	339	347	438	171	268
14	239	198	221	363	319	327	356	338	340	287	161	208
15	268	235	249	369	306	324	395	340	364	272	188	249
16	272	234	261	366	322	337	370	354	359	301	274	288
17	273	231	268	376	75	259	367	257	323	316	298	308
18	295	217	270	151	48	113	361	326	346	339	312	324
19	416	188	252	236	142	190	355	332	346	343	325	333
20	300	229	260	274	232	249	355	75	182	349	324	336
21	300	280	290	343	279	313	162	70	120	355	338	345
22	310	290	297	411	343	366	236	166	200	361	342	354
23	---	---	---	392	319	367	328	222	268	374	356	363
24	---	---	---	325	271	303	303	290	298	361	346	353
25	---	---	---	415	315	366	304	300	302	368	345	357
26	---	---	---	416	371	393	308	297	302	384	366	375
27	---	---	---	438	407	423	311	304	307	400	376	387
28	---	---	---	486	416	442	311	303	308	414	399	407
29	---	---	---	441	350	392	322	310	316	428	411	420
30	---	---	---	469	416	433	335	236	296	432	421	426
31	---	---	---	547	453	486	323	224	273	---	---	---

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	8.1	7.9	7.9
17	---	---	---	---	---	---	---	---	---	8.2	7.9	8.0
18	---	---	---	---	---	---	---	---	---	8.2	7.9	8.0
19	---	---	---	---	---	---	---	---	---	8.2	7.9	8.0
20	---	---	---	---	---	---	---	---	---	8.2	7.9	8.0
21	---	---	---	---	---	---	---	---	---	8.2	7.9	8.0
22	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
23	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
24	---	---	---	---	---	---	---	---	---	7.9	7.7	7.7
25	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
26	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
27	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
28	---	---	---	---	---	---	---	---	---	8.0	7.7	7.7
29	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
30	---	---	---	---	---	---	---	---	---	7.8	7.8	7.8
31	---	---	---	---	---	---	---	---	---	7.8	7.7	7.8
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.7	7.6	7.7	8.1	8.0	8.0	7.5	7.1	7.4	---	---	---
2	7.6	7.4	7.5	8.1	7.9	8.0	7.1	6.7	6.8	---	---	---
3	7.4	7.1	7.3	7.9	7.8	7.9	6.9	6.7	6.8	---	---	---
4	7.6	7.4	7.6	8.2	7.8	7.9	7.0	6.8	6.9	---	---	---
5	7.4	6.9	7.1	8.2	7.7	8.0	7.4	6.9	7.0	---	---	---
6	6.9	6.7	6.8	8.2	7.9	8.1	7.7	7.0	7.3	---	---	---
7	6.8	6.6	6.7	8.0	7.5	7.6	7.8	7.3	7.6	---	---	---
8	6.6	6.4	6.5	8.2	7.9	8.1	7.7	7.3	7.5	---	---	---
9	6.6	6.4	6.5	8.2	7.9	8.1	7.6	7.2	7.4	---	---	---
10	6.5	6.3	6.4	8.1	7.8	7.9	7.8	7.3	7.6	---	---	---
11	6.5	6.3	6.4	7.9	7.7	7.8	7.7	7.5	7.6	---	---	---
12	6.4	5.9	6.2	7.8	7.2	7.6	7.8	7.6	7.6	---	---	---
13	6.4	6.1	6.3	8.1	7.2	7.7	7.8	7.4	7.7	---	---	---
14	6.4	5.5	5.6	8.0	7.7	7.8	7.7	7.5	7.6	---	---	---
15	5.9	5.5	5.6	7.8	7.3	7.6	7.6	7.3	7.4	---	---	---
16	7.4	6.0	6.1	7.3	6.7	7.2	7.5	7.2	7.3	---	---	---
17	8.3	7.5	7.9	6.8	6.3	6.6	7.4	7.2	7.4	---	---	---
18	8.5	8.0	8.1	6.9	6.1	6.6	7.4	7.2	7.2	---	---	---
19	8.3	8.0	8.1	7.2	6.4	6.7	7.6	7.1	7.4	---	---	---
20	8.2	7.9	8.0	7.7	6.9	7.4	7.4	7.0	7.2	---	---	---
21	8.1	7.9	8.0	8.0	7.5	7.7	---	---	---	---	---	---
22	8.1	7.9	8.0	8.2	7.9	8.1	---	---	---	---	---	---
23	8.1	7.9	8.0	8.1	7.9	8.0	---	---	---	---	---	---
24	8.2	7.9	8.0	8.2	7.8	8.0	---	---	---	---	---	---
25	8.1	8.0	8.1	8.1	7.9	8.0	---	---	---	---	---	---
26	8.1	7.9	8.1	8.1	7.9	8.0	---	---	---	---	---	---
27	8.1	7.8	7.9	8.1	7.9	7.9	---	---	---	---	---	---
28	8.5	7.9	8.1	7.9	7.8	7.9	---	---	---	---	---	---
29	8.5	8.1	8.2	7.9	7.7	7.8	---	---	---	---	---	---
30	8.2	8.0	8.1	7.9	7.6	7.7	---	---	---	---	---	---
31	---	---	---	7.8	7.5	7.7	---	---	---	---	---	---

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	7.4	7.3	7.4	8.4	8.4	8.4	8.1	7.9	8.0
2	---	---	---	7.5	7.3	7.4	8.4	8.3	8.4	8.0	7.9	7.9
3	7.8	7.8	7.8	7.5	7.4	7.4	8.4	8.3	8.3	8.0	7.9	8.0
4	---	---	---	7.6	7.5	7.5	8.3	8.2	8.3	8.0	7.9	8.0
5	---	---	---	7.6	7.4	7.6	8.3	8.2	8.2	8.0	7.9	8.0
6	---	---	---	7.5	7.5	7.5	8.2	8.1	8.2	8.0	7.9	7.9
7	---	---	---	7.6	7.5	7.5	8.2	8.2	8.2	7.9	7.8	7.9
8	---	---	---	7.6	7.5	7.6	8.2	8.1	8.1	7.9	7.7	7.9
9	---	---	---	7.7	7.6	7.7	8.1	8.0	8.1	7.9	7.9	7.9
10	---	---	---	7.7	7.6	7.6	8.2	8.1	8.1	7.9	7.9	7.9
11	---	---	---	7.6	7.5	7.6	8.2	8.1	8.1	8.0	7.9	7.9
12	---	---	---	7.5	7.5	7.5	8.2	8.0	8.1	8.0	7.9	7.9
13	---	---	---	7.5	7.5	7.5	8.1	8.0	8.1	8.0	8.0	8.0
14	---	---	---	7.5	7.5	7.5	8.2	8.0	8.0	8.0	7.9	8.0
15	---	---	---	8.3	7.5	7.5	8.2	8.1	8.2	8.0	8.0	8.0
16	7.9	7.8	7.9	8.4	8.1	8.1	8.2	8.1	8.1	8.3	8.0	8.1
17	7.7	7.6	7.6	8.3	8.1	8.2	8.1	8.1	8.1	8.1	7.9	8.1
18	7.6	7.5	7.6	8.2	8.2	8.2	8.2	8.1	8.1	8.2	8.0	8.1
19	7.6	7.5	7.5	8.2	8.2	8.2	8.3	8.0	8.2	8.4	8.1	8.2
20	7.6	7.5	7.5	8.3	8.2	8.2	8.1	7.9	7.9	8.4	8.2	8.3
21	7.6	7.5	7.5	8.3	8.2	8.3	8.1	7.8	7.9	8.3	8.2	8.3
22	7.6	7.5	7.5	8.3	8.2	8.2	8.0	7.9	8.0	8.4	8.3	8.3
23	7.6	7.5	7.6	8.4	7.9	8.3	8.1	8.0	8.1	8.3	8.2	8.2
24	7.6	7.4	7.5	8.5	8.4	8.4	8.1	8.0	8.1	8.2	8.1	8.1
25	7.4	7.3	7.3	8.3	8.1	8.2	8.2	7.6	8.0	8.2	8.1	8.2
26	7.3	7.2	7.3	8.2	8.1	8.1	8.0	7.8	7.9	8.3	8.2	8.2
27	7.3	7.1	7.2	8.2	8.1	8.2	7.9	7.8	7.9	8.3	8.2	8.2
28	7.2	7.0	7.1	8.3	8.2	8.2	8.0	7.8	8.0	8.2	8.2	8.2
29	7.2	7.0	7.1	8.4	8.3	8.3	8.1	8.0	8.1	8.2	8.2	8.2
30	7.3	7.1	7.2	8.4	8.4	8.4	8.1	8.1	8.1	8.2	8.1	8.1
31	7.4	7.2	7.2	---	---	---	8.1	8.1	8.1	8.2	8.1	8.1
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.2	8.1	8.1	8.3	8.2	8.2	6.9	6.6	6.7	8.2	8.0	8.0
2	8.1	8.1	8.1	8.4	8.1	8.3	7.6	6.7	6.8	8.2	8.0	8.1
3	8.1	8.1	8.1	8.2	8.0	8.1	---	---	---	8.3	7.6	8.2
4	8.2	8.1	8.2	8.3	8.1	8.2	---	---	---	8.4	7.5	8.2
5	8.3	8.2	8.2	8.2	8.0	8.2	---	---	---	8.4	8.1	8.2
6	8.3	8.2	8.3	8.2	8.1	8.1	---	---	---	8.5	8.0	8.2
7	8.3	8.2	8.2	8.1	8.0	8.0	---	---	---	8.5	8.0	8.1
8	8.3	8.2	8.2	8.2	8.1	8.1	---	---	---	8.4	7.9	8.1
9	8.3	8.2	8.2	8.1	7.3	7.7	---	---	---	8.6	8.3	8.4
10	8.3	8.1	8.2	8.0	7.6	7.9	---	---	---	8.7	8.0	8.5
11	8.2	8.1	8.1	7.9	7.9	7.9	---	---	---	8.6	8.1	8.1
12	8.2	8.1	8.1	8.0	7.7	7.8	---	---	---	8.2	7.8	8.1
13	8.2	8.1	8.1	8.0	7.8	8.0	---	---	---	---	---	---
14	8.3	8.1	8.2	8.0	7.9	8.0	---	---	---	---	---	---
15	8.3	8.2	8.2	8.0	7.5	7.9	---	---	---	---	---	---
16	8.2	8.1	8.2	7.7	7.5	7.7	---	---	---	---	---	---
17	8.1	8.0	8.1	7.7	7.5	7.6	---	---	---	8.9	8.2	8.4
18	8.2	7.9	8.0	7.9	7.7	7.8	---	---	---	8.5	8.0	8.2
19	8.4	8.1	8.3	7.9	7.4	7.9	---	---	---	8.6	8.0	8.2
20	8.1	7.9	8.0	7.5	7.3	7.4	---	---	---	8.3	7.2	8.1
21	8.0	7.9	8.0	7.4	7.2	7.3	---	---	---	8.5	8.1	8.3
22	7.9	7.7	7.8	7.3	7.1	7.2	---	---	---	8.2	7.9	8.0
23	7.9	7.8	7.9	7.2	7.2	7.2	---	---	---	8.5	8.0	8.2
24	8.0	7.9	8.0	7.2	7.1	7.1	---	---	---	8.1	7.9	8.0
25	8.1	8.0	8.1	7.2	7.2	7.2	---	---	---	8.2	7.8	7.9
26	8.1	7.9	8.0	7.3	7.1	7.2	---	---	---	8.1	7.9	7.9
27	8.0	7.9	7.9	7.3	7.1	7.2	---	---	---	8.3	7.7	8.0
28	8.2	8.0	8.1	7.6	7.1	7.2	7.9	7.7	7.8	8.4	7.9	8.2
29	8.3	8.1	8.2	7.8	6.6	6.9	8.1	7.7	7.9	8.4	8.0	8.1
30	---	---	---	6.8	6.6	6.7	8.1	7.8	8.0	8.4	7.9	8.1
31	---	---	---	6.8	6.7	6.7	---	---	---	8.3	7.9	8.2

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.2	8.0	8.1	7.9	7.5	7.7	7.9	7.6	7.7	8.4	8.1	8.1
2	8.2	8.0	8.0	7.8	7.6	7.7	8.0	7.6	7.7	8.2	8.0	8.1
3	8.2	7.8	8.0	---	---	---	8.0	7.6	7.8	8.2	8.0	8.1
4	---	---	---	---	---	---	7.9	7.6	7.7	8.2	8.0	8.0
5	---	---	---	---	---	---	7.7	7.5	7.6	8.1	7.9	8.0
6	---	---	---	---	---	---	7.8	7.1	7.6	8.2	7.8	7.9
7	---	---	---	---	---	---	7.8	7.5	7.6	8.0	7.7	7.9
8	---	---	---	---	---	---	7.8	7.1	7.6	8.0	7.8	7.8
9	---	---	---	---	---	---	7.8	7.2	7.6	7.9	7.7	7.8
10	---	---	---	---	---	---	8.0	7.2	7.7	7.8	7.7	7.7
11	---	---	---	---	---	---	7.8	7.2	7.6	7.7	7.6	7.6
12	---	---	---	---	---	---	7.9	7.2	7.5	7.7	7.6	7.6
13	---	---	---	---	---	---	7.6	7.2	7.4	7.8	7.6	7.6
14	---	---	---	---	---	---	7.6	7.2	7.4	7.9	7.6	7.6
15	---	---	---	---	---	---	8.0	7.2	7.7	7.8	7.6	7.7
16	---	---	---	---	---	---	8.0	7.2	7.7	---	---	---
17	---	---	---	---	---	---	7.9	7.3	7.6	---	---	---
18	---	---	---	---	---	---	7.9	7.0	7.3	---	---	---
19	---	---	---	---	---	---	7.9	7.6	7.7	---	---	---
20	---	---	---	---	---	---	7.9	7.4	7.7	---	---	---
21	---	---	---	---	---	---	7.8	7.3	7.6	---	---	---
22	---	---	---	---	---	---	7.8	7.1	7.5	---	---	---
23	---	---	---	---	---	---	7.8	7.2	7.5	---	---	---
24	---	---	---	---	---	---	7.8	7.2	7.7	---	---	---
25	---	---	---	---	---	---	8.3	7.7	8.0	---	---	---
26	---	---	---	---	---	---	8.3	7.9	8.0	---	---	---
27	---	---	---	---	---	---	8.3	7.9	8.0	---	---	---
28	---	---	---	---	---	---	8.0	7.9	7.9	---	---	---
29	---	---	---	---	---	---	8.1	7.4	7.9	---	---	---
30	7.8	7.5	7.6	7.8	7.5	7.7	8.3	8.0	8.1	7.6	7.6	7.6
31	---	---.*	---	---	---	---	---	---	---	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.6	7.6	8.2	8.0	8.1	7.8	7.7	7.8	8.1	8.1	8.1
2	7.7	7.6	7.7	8.2	8.0	8.1	7.9	7.8	7.9	8.1	8.1	8.1
3	7.9	7.7	7.8	8.0	7.9	8.0	7.9	7.8	7.8	8.1	8.0	8.1
4	7.8	7.7	7.8	8.1	7.9	8.0	7.8	7.7	7.7	8.1	8.0	8.1
5	8.0	7.7	7.9	8.0	7.9	7.9	7.8	7.7	7.8	8.2	8.1	8.1
6	8.0	7.9	8.0	8.1	7.9	8.0	8.0	7.8	7.9	8.2	8.1	8.1
7	7.9	7.9	7.9	7.9	7.8	7.9	8.0	7.9	8.0	8.2	8.1	8.1
8	8.0	7.9	7.9	7.8	7.7	7.8	8.0	8.0	8.0	8.2	8.1	8.1
9	8.1	7.9	8.0	7.8	7.6	7.7	8.0	8.0	8.0	8.3	8.1	8.2
10	8.1	8.1	8.1	7.8	7.7	7.7	8.0	8.0	8.0	8.3	8.1	8.2
11	8.1	8.0	8.1	7.7	7.6	7.7	8.1	8.0	8.0	8.4	8.2	8.3
12	8.1	8.1	8.1	7.8	7.6	7.7	8.1	8.0	8.0	8.4	8.3	8.3
13	8.2	8.0	8.1	7.6	7.5	7.5	8.0	8.0	8.0	8.3	8.2	8.3
14	8.1	7.8	8.1	7.6	7.6	7.6	8.1	8.0	8.0	8.4	8.2	8.3
15	8.0	7.6	7.9	7.6	7.6	7.6	8.1	8.0	8.0	8.4	8.3	8.4
16	7.8	7.3	7.6	7.7	7.6	7.6	8.1	8.0	8.0	---	---	---
17	7.6	7.3	7.4	7.7	7.6	7.6	8.1	8.0	8.0	---	---	---
18	7.7	7.4	7.6	7.7	7.6	7.6	8.1	8.0	8.0	---	---	---
19	7.7	7.5	7.7	7.6	7.6	7.6	8.1	8.0	8.1	---	---	---
20	7.7	7.1	7.4	7.8	7.6	7.6	8.1	7.9	8.0	---	---	---
21	7.8	7.2	7.4	7.8	7.7	7.8	8.1	7.9	8.0	---	---	---
22	7.8	7.4	7.7	7.8	7.8	7.8	8.3	8.0	8.1	---	---	---
23	7.8	7.4	7.7	7.9	7.8	7.9	8.1	8.1	8.1	---	---	---
24	7.9	7.6	7.7	7.9	7.9	7.9	8.1	8.0	8.1	---	---	---
25	7.9	7.6	7.7	7.9	7.9	7.9	8.1	8.0	8.0	---	---	---
26	7.9	7.7	7.9	7.9	7.6	7.9	8.0	7.9	7.9	7.9	7.6	7.7
27	7.9	7.8	7.9	7.8	7.8	7.8	8.0	7.9	8.0	7.6	7.5	7.5
28	8.0	7.8	7.9	7.9	7.9	7.9	8.1	8.0	8.0	7.7	7.5	7.6
29	7.9	7.4	7.9	7.9	7.8	7.9	8.1	8.0	8.1	7.8	7.6	7.7
30	7.9	7.9	7.9	7.8	7.7	7.8	8.2	8.1	8.1	7.9	7.8	7.8
31	8.0	7.9	8.0	---	---	---	8.1	8.1	8.1	7.9	7.8	7.8
MAX	8.2	8.1	8.1	8.2	8.0	8.1	8.3	8.1	8.1	---	---	---
MIN	7.6	7.1	7.4	7.6	7.5	7.5	7.8	7.7	7.7	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	8.0	7.9	7.9	8.2	8.1	8.2	7.8	7.8	7.8	---	---	---
2	8.0	8.0	8.0	8.2	8.0	8.1	7.9	7.8	7.8	---	---	---
3	8.1	8.0	8.0	8.1	8.0	8.0	7.9	7.9	7.9	---	---	---
4	8.2	8.1	8.1	8.2	8.0	8.1	7.9	7.9	7.9	---	---	---
5	8.2	8.1	8.1	8.1	8.0	8.0	---	---	---	---	---	---
6	8.2	8.1	8.1	8.1	8.0	8.1	---	---	---	---	---	---
7	8.1	8.1	8.1	8.2	8.1	8.2	---	---	---	---	---	---
8	8.1	8.1	8.1	8.3	8.1	8.2	---	---	---	---	---	---
9	8.2	8.1	8.2	8.4	8.1	8.2	---	---	---	---	---	---
10	8.1	8.1	8.1	8.2	8.0	8.0	---	---	---	---	---	---
11	8.1	8.1	8.1	8.0	7.9	8.0	---	---	---	8.1	7.8	7.9
12	8.1	8.1	8.1	7.9	7.8	7.8	---	---	---	8.0	7.9	7.9
13	8.1	8.1	8.1	8.0	7.8	7.8	---	---	---	8.0	7.9	8.0
14	8.1	8.1	8.1	8.0	8.0	8.0	---	---	---	7.9	7.8	7.8
15	8.1	8.0	8.1	8.1	8.0	8.1	---	---	---	7.8	7.7	7.7
16	8.1	7.9	8.0	8.1	7.8	8.0	---	---	---	---	---	---
17	8.1	8.1	8.1	7.9	7.6	7.8	---	---	---	---	---	---
18	8.2	8.1	8.2	7.7	7.5	7.7	---	---	---	---	---	---
19	8.3	8.2	8.2	7.5	7.4	7.5	---	---	---	---	---	---
20	8.3	8.2	8.3	7.6	7.5	7.6	---	---	---	---	---	---
21	8.4	8.2	8.3	7.7	7.6	7.6	---	---	---	8.1	7.5	7.6
22	8.4	8.4	8.4	7.6	7.5	7.6	---	---	---	7.8	7.6	7.7
23	8.4	8.4	8.4	7.6	7.5	7.6	---	---	---	7.9	7.4	7.8
24	8.4	8.3	8.3	7.6	7.3	7.6	---	---	---	8.0	7.4	7.7
25	8.4	8.3	8.3	7.6	7.3	7.6	---	---	---	---	---	---
26	8.3	8.2	8.3	7.6	7.4	7.6	---	---	---	---	---	---
27	8.3	8.2	8.2	7.6	7.4	7.4	---	---	---	---	---	---
28	8.3	8.2	8.2	---	---	---	8.1	7.9	8.0	---	---	---
29	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
30	---	---	---	7.7	7.6	7.7	8.3	8.2	8.3	---	---	---
31	---	---	---	7.8	7.7	7.8	---	---	---	---	---	---
MAX	8.4	8.4	8.4	---	---	---	---	---	---	---	---	---
MIN	8.0	7.9	7.9	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	7.7	7.6	7.8	---	---	---
2	---	---	---	7.6	7.5	7.5	---	---	---	---	---	---
3	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
4	---	---	---	7.6	7.4	7.5	8.0	7.8	7.9	---	---	---
5	---	---	---	7.6	7.4	7.4	8.1	7.8	7.9	---	---	---
6	---	---	---	7.6	7.4	7.4	8.1	7.5	7.7	---	---	---
7	---	---	---	7.5	7.3	7.4	7.7	7.6	7.6	7.3	7.1	7.2
8	---	---	---	7.6	7.4	7.5	7.7	7.6	7.6	7.5	7.3	7.4
9	---	---	---	7.6	7.5	7.5	7.7	7.7	7.7	7.6	7.5	7.6
10	---	---	---	7.6	7.4	7.5	8.1	7.7	7.9	7.8	7.5	7.6
11	---	---	---	7.8	7.4	7.5	8.1	7.8	7.9	7.6	7.5	7.6
12	---	---	---	---	---	---	8.0	7.7	7.7	7.6	7.5	7.5
13	---	---	---	7.6	7.4	7.4	---	---	---	7.7	7.5	7.6
14	---	---	---	---	---	---	---	---	---	7.8	7.5	7.7
15	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
16	---	---	---	7.7	7.6	7.6	---	---	---	7.6	7.5	7.6
17	---	---	---	---	---	---	---	---	---	7.6	7.5	7.5
18	---	---	---	7.8	7.4	7.4	8.0	7.8	7.9	7.5	7.5	7.5
19	---	---	---	7.5	7.3	7.3	8.0	7.9	7.9	7.6	7.5	7.5
20	---	---	---	7.5	7.2	7.4	8.0	7.4	7.7	7.5	7.5	7.5
21	---	---	---	7.7	7.5	7.6	7.7	7.4	7.5	7.5	7.5	7.5
22	---	---	---	7.8	7.6	7.7	---	---	---	7.5	7.3	7.5
23	---	---	---	7.9	7.6	7.7	---	---	---	7.6	7.3	7.4
24	---	---	---	7.7	7.5	7.6	---	---	---	7.8	7.4	7.7
25	---	---	---	7.8	7.5	7.6	---	---	---	7.9	7.5	7.7
26	---	---	---	---	---	---	---	---	---	8.0	7.8	7.9
27	---	---	---	---	---	---	---	---	---	8.0	7.8	7.9
28	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
29	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
30	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
31	---	---	---	7.8	7.5	7.6	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	27.5	23.5	25.5
17	---	---	---	---	---	---	---	---	---	28.0	24.0	25.5
18	---	---	---	---	---	---	---	---	---	28.5	24.5	26.5
19	---	---	---	---	---	---	---	---	---	28.5	25.0	26.5
20	---	---	---	---	---	---	---	---	---	27.0	25.0	26.0
21	---	---	---	---	---	---	---	---	---	28.5	24.5	26.5
22	---	---	---	---	---	---	---	---	---	26.0	24.5	25.0
23	---	---	---	---	---	---	---	---	---	24.5	23.0	24.0
24	---	---	---	---	---	---	---	---	---	24.0	21.5	22.5
25	---	---	---	---	---	---	---	---	---	22.5	20.5	21.5
26	---	---	---	---	---	---	---	---	---	23.5	22.0	22.5
27	---	---	---	---	---	---	---	---	---	23.0	21.5	22.5
28	---	---	---	---	---	---	---	---	---	21.5	18.5	19.0
29	---	---	---	---	---	---	---	---	---	19.5	18.5	19.0
30	---	---	---	---	---	---	---	---	---	21.0	19.0	20.0
31	---	---	---	---	---	---	---	---	---	21.5	20.5	21.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	22.0	20.5	21.5	25.5	23.5	24.5	34.0	30.0	32.0	---	---	---
2	23.0	21.5	22.5	24.5	22.0	23.5	35.0	30.0	32.0	---	---	---
3	22.5	22.0	22.5	23.5	21.5	22.5	35.0	30.0	32.5	---	---	---
4	22.0	17.5	19.5	23.5	19.5	22.0	33.5	30.0	31.5	---	---	---
5	17.5	16.5	17.0	21.0	18.5	20.0	34.0	29.0	31.0	---	---	---
6	16.5	15.5	16.0	23.0	21.0	22.0	35.0	28.5	31.5	---	---	---
7	16.0	15.0	15.5	24.0	22.0	23.0	34.0	29.0	31.5	---	---	---
8	15.5	15.0	15.0	26.0	23.0	24.0	33.5	29.5	31.5	---	---	---
9	15.5	15.0	15.0	25.5	24.5	25.0	33.0	30.0	31.0	---	---	---
10	15.0	14.5	15.0	26.0	24.5	25.0	34.0	29.0	31.0	---	---	---
11	16.0	14.5	15.0	26.5	24.5	25.5	33.5	29.5	31.5	---	---	---
12	19.0	16.0	17.5	27.5	25.5	26.0	33.5	29.0	31.0	---	---	---
13	22.5	19.0	20.5	28.0	21.5	24.0	31.0	28.5	30.0	---	---	---
14	26.0	22.5	25.0	25.0	21.5	23.0	29.5	29.0	29.5	---	---	---
15	27.0	25.5	26.0	25.5	24.0	24.5	31.5	28.5	29.5	---	---	---
16	27.5	25.5	26.5	25.5	23.5	24.5	33.0	28.5	30.5	---	---	---
17	28.5	26.0	27.0	25.0	25.0	25.0	32.0	29.0	30.0	---	---	---
18	28.5	26.0	27.0	25.5	24.0	24.5	32.0	28.5	29.5	---	---	---
19	28.0	26.0	27.0	26.5	24.0	25.5	30.5	27.0	29.0	---	---	---
20	28.0	25.0	26.0	28.0	26.0	27.0	31.0	28.0	29.0	---	---	---
21	28.0	25.5	26.5	29.0	27.0	28.0	---	---	---	---	---	---
22	28.0	25.5	26.5	29.5	27.0	28.5	---	---	---	---	---	---
23	27.5	26.0	26.5	29.5	27.5	28.5	---	---	---	---	---	---
24	28.5	25.5	27.0	30.5	28.0	29.5	---	---	---	---	---	---
25	27.5	25.5	26.5	31.0	29.0	30.0	---	---	---	---	---	---
26	27.0	24.5	26.0	31.0	29.0	30.0	---	---	---	---	---	---
27	27.0	23.5	25.0	31.5	29.0	30.0	---	---	---	---	---	---
28	27.5	24.0	25.5	31.0	29.5	30.0	---	---	---	---	---	---
29	26.5	24.5	25.5	31.5	29.0	30.5	---	---	---	---	---	---
30	25.5	24.0	25.0	33.0	29.5	31.0	---	---	---	---	---	---
31	---	---	---	34.5	29.5	32.0	---	---	---	---	---	---

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	18.0	16.5	17.0	8.5	8.0	8.5	3.0	2.5	2.5
2	---	---	---	18.5	17.0	17.5	8.5	8.0	8.5	2.0	1.5	2.0
3	17.0	16.5	16.5	19.5	17.0	18.0	9.5	8.5	9.0	2.5	1.5	2.0
4	---	---	---	19.0	17.0	18.0	9.5	9.0	9.0	2.5	2.0	2.0
5	---	---	---	18.0	16.5	17.0	9.5	8.5	9.0	2.0	1.0	1.5
6	---	---	---	17.0	15.5	16.5	10.5	9.5	10.0	1.0	.0	.5
7	---	---	---	16.0	15.5	15.5	11.0	10.5	10.5	.0	.0	.0
8	---	---	---	16.0	15.0	15.5	11.5	10.5	11.0	.0	.0	.0
9	---	---	---	15.0	13.0	14.0	11.0	10.0	10.5	.0	.0	.0
10	---	---	---	13.0	11.5	12.0	10.0	9.5	10.0	.0	.0	.0
11	---	---	---	12.0	10.5	11.0	9.5	9.0	9.5	.5	.0	.0
12	---	---	---	12.0	10.0	11.0	9.5	8.5	9.0	.5	.0	.0
13	---	---	---	11.5	9.5	10.5	8.5	8.0	8.5	.5	.0	.0
14	---	---	---	11.5	9.5	10.5	8.0	5.0	6.5	.5	.0	.0
15	---	---	---	13.5	10.5	11.5	5.0	3.0	4.5	.5	.0	.0
16	17.0	15.5	16.5	13.5	12.0	12.5	3.0	2.0	2.5	1.0	.0	.5
17	17.5	14.5	16.0	12.5	11.5	12.0	2.5	1.5	2.0	3.0	1.0	2.0
18	16.5	14.0	15.5	11.5	10.0	10.5	2.5	2.0	2.0	3.5	2.5	3.0
19	16.5	15.0	15.5	10.0	9.5	9.5	3.0	2.5	3.0	4.5	3.5	4.0
20	16.5	14.0	15.0	10.0	9.0	9.0	4.0	3.0	3.5	5.0	4.5	4.5
21	15.5	13.0	14.0	9.5	8.5	9.0	4.5	3.5	4.0	4.5	3.5	4.0
22	14.5	13.0	13.5	10.0	8.5	9.0	4.5	4.5	4.5	3.5	3.0	3.5
23	14.5	14.0	14.0	10.5	9.0	9.5	6.0	4.5	5.0	3.5	3.0	3.5
24	14.5	14.5	14.5	13.0	10.0	11.0	7.0	6.0	6.5	4.5	3.0	3.5
25	14.5	14.0	14.5	11.0	10.0	10.5	7.0	3.0	5.5	4.0	3.0	3.5
26	17.0	14.5	15.5	10.0	9.0	9.5	3.0	2.5	3.0	3.5	2.5	3.0
27	15.5	14.5	15.0	9.0	8.5	9.0	3.0	2.0	2.5	3.0	2.0	2.5
28	16.0	13.5	14.5	8.5	7.5	8.5	---	---	---	4.5	3.0	3.5
29	17.0	14.0	15.0	8.5	8.5	8.5	3.0	2.5	3.0	6.0	4.0	5.0
30	17.5	15.0	16.0	9.0	8.5	9.0	3.0	2.5	2.5	7.5	5.5	7.0
31	17.5	16.0	17.0	---	---	---	3.0	3.0	3.0	9.0	7.5	8.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	9.0	7.5	8.5	11.0	9.5	10.0	12.0	11.0	11.5	18.5	17.0	17.5
2	7.0	5.0	6.0	11.0	10.0	10.5	11.0	10.0	10.5	18.5	17.5	18.0
3	5.0	4.0	4.5	10.0	7.0	8.5	12.5	10.0	11.0	18.0	17.0	17.5
4	4.0	3.5	3.5	7.0	6.0	6.0	---	---	---	18.5	16.5	17.5
5	3.5	2.5	3.0	6.0	5.5	6.0	---	---	---	19.5	17.0	18.5
6	2.5	1.5	2.0	6.0	5.5	5.5	---	---	---	19.5	18.5	19.0
7	2.0	1.0	1.5	7.0	6.0	6.5	---	---	---	20.0	19.0	19.5
8	2.5	1.5	2.0	8.0	7.0	7.5	---	---	---	22.0	19.0	20.5
9	3.5	2.0	2.5	8.5	7.5	8.0	---	---	---	22.5	20.0	21.0
10	3.0	2.0	2.5	8.5	7.5	8.0	---	---	---	23.0	20.5	21.5
11	2.5	1.0	2.0	9.5	8.5	9.0	---	---	---	23.0	21.0	22.0
12	2.5	1.0	1.5	9.5	8.5	9.0	---	---	---	24.5	21.5	23.0
13	3.5	1.5	2.5	8.5	7.5	8.0	---	---	---	25.5	22.5	24.0
14	4.0	3.0	3.5	7.5	6.5	7.0	---	---	---	26.0	23.0	24.5
15	5.0	3.0	4.0	7.0	6.5	7.0	---	---	---	25.5	23.5	24.5
16	6.0	4.0	5.0	7.5	7.0	7.0	---	---	---	27.0	24.5	25.5
17	5.0	4.5	5.0	7.0	6.5	7.0	---	---	---	27.5	24.0	25.5
18	5.5	5.0	5.0	7.0	6.0	6.5	---	---	---	27.5	24.5	26.0
19	5.5	5.0	5.5	7.5	6.5	7.0	---	---	---	27.0	25.0	26.0
20	5.5	5.5	5.5	9.0	7.5	8.5	---	---	---	26.0	25.0	25.5
21	6.0	5.0	5.5	10.5	9.0	9.5	---	---	---	25.0	23.5	24.0
22	7.5	6.0	6.5	11.5	10.0	11.0	---	---	---	23.5	22.0	23.0
23	7.5	6.5	7.0	12.0	11.0	11.5	---	---	---	22.0	21.5	21.5
24	6.5	5.5	6.0	14.0	11.5	12.5	---	---	---	22.0	21.0	21.5
25	6.5	5.0	6.0	15.5	14.0	14.5	---	---	---	23.0	21.0	22.0
26	8.0	5.5	6.5	15.5	14.0	15.0	---	---	---	24.0	21.0	22.5
27	9.0	7.0	8.0	15.5	14.0	15.0	---	---	---	24.0	21.5	23.0
28	10.0	8.0	9.0	15.5	14.5	15.0	17.0	16.0	16.5	24.5	22.0	23.0
29	11.0	9.0	10.0	15.0	10.5	13.0	17.0	16.0	16.5	24.5	22.5	23.5
30	---	---	---	12.0	10.0	11.0	17.5	16.0	16.5	24.0	22.5	23.5
31	---	---	---	12.0	11.5	12.0	---	---	---	24.5	22.5	23.5

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.5	23.0	24.0	30.5	29.0	30.0	31.0	29.0	30.0	26.0	23.5	24.5
2	24.5	23.0	23.5	29.5	28.5	29.0	31.5	29.0	30.0	26.0	24.0	25.0
3	---	---	---	30.0	27.5	28.5	31.5	29.0	30.0	26.5	24.5	25.5
4	---	---	---	30.0	28.0	29.0	31.5	29.0	30.0	26.0	24.0	25.0
5	---	---	---	30.5	28.0	29.0	31.5	29.0	30.0	26.0	24.0	25.0
6	---	---	---	30.5	29.0	29.5	31.5	29.5	30.5	25.5	23.5	24.5
7	---	---	---	30.0	28.0	29.0	32.0	29.5	30.5	24.5	23.0	23.5
8	---	---	---	29.5	28.0	28.5	32.5	30.0	31.0	24.5	22.5	23.5
9	---	---	---	29.5	27.5	28.5	32.5	30.5	31.5	25.0	22.5	24.0
10	---	---	---	29.5	27.5	28.5	32.0	30.5	31.0	25.5	23.0	24.0
11	---	---	---	28.5	27.5	28.0	31.0	29.5	30.0	26.0	23.5	24.5
12	---	---	---	29.0	27.0	28.0	30.0	29.0	29.5	26.5	24.5	25.5
13	---	---	---	29.5	27.5	28.5	30.5	28.5	29.5	26.5	24.5	25.5
14	---	---	---	31.0	29.0	30.0	30.5	29.0	29.5	26.5	22.5	24.5
15	27.5	25.0	26.5	31.5	29.5	30.5	31.0	29.0	30.0	---	---	---
16	27.0	25.5	26.5	31.5	29.5	30.5	31.5	29.5	30.5	---	---	---
17	27.5	24.0	26.5	31.0	29.0	30.0	31.5	29.5	30.5	---	---	---
18	28.5	26.0	27.0	31.0	29.5	30.5	31.0	29.0	29.5	---	---	---
19	28.5	26.5	27.5	30.5	29.0	29.5	31.0	29.0	29.5	---	---	---
20	29.0	27.0	28.0	29.0	26.5	28.0	31.0	29.0	30.0	---	---	---
21	29.5	27.5	28.5	27.0	25.0	26.0	31.5	29.0	30.0	---	---	---
22	30.0	27.5	28.5	28.0	26.0	27.0	31.5	29.0	30.0	---	---	---
23	30.5	27.5	29.0	29.0	22.0	27.0	31.0	28.0	29.5	---	---	---
24	30.5	28.0	29.5	29.5	27.0	28.0	31.0	29.0	29.5	---	---	---
25	30.5	28.5	29.5	30.5	27.5	27.5	31.0	28.5	29.5	---	---	---
26	30.5	29.0	29.5	30.0	28.5	29.0	30.0	28.0	28.5	---	---	---
27	31.0	28.5	29.5	29.5	28.0	28.5	28.5	25.0	27.5	---	---	---
28	31.0	28.5	29.5	28.0	28.0	27.0	28.5	25.5	28.0	---	---	---
29	31.0	28.5	29.5	27.5	25.0	26.0	25.5	23.5	24.5	---	---	---
30	31.5	29.0	30.0	29.5	26.0	28.0	25.5	23.5	24.5	22.0	21.0	21.5
31	---	---	---	30.0	28.5	29.0	25.5	23.5	24.5	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.5	20.5	21.0	16.5	14.0	15.0	7.0	6.0	6.5	4.5	3.5	4.0
2	21.0	20.0	20.5	16.5	14.5	15.5	7.0	6.5	6.5	4.5	4.0	4.5
3	21.0	19.5	20.0	17.0	15.0	16.0	7.5	6.5	7.0	5.5	4.5	5.0
4	20.5	19.5	20.0	17.5	16.0	16.5	7.5	6.5	7.0	5.5	4.5	5.0
5	19.0	17.0	18.5	16.0	15.0	16.0	7.5	6.0	7.0	6.5	5.0	6.0
6	17.0	15.5	16.0	16.0	14.5	15.0	7.0	6.5	7.0	7.0	6.0	6.5
7	15.5	15.5	15.5	16.5	14.5	15.5	7.5	7.0	7.0	8.0	7.0	7.0
8	16.0	15.5	15.5	16.0	14.0	15.0	7.0	6.5	7.0	6.5	6.0	6.0
9	16.0	15.0	16.0	15.5	14.0	15.0	6.5	5.5	6.0	6.0	5.0	5.5
10	16.5	15.0	15.5	14.5	13.0	13.5	6.0	5.0	5.5	5.5	4.5	5.0
11	17.0	15.5	16.0	13.5	12.5	13.0	5.5	5.0	5.0	7.5	5.0	5.5
12	17.0	15.5	16.0	13.0	12.5	13.0	5.0	4.5	5.0	6.0	5.0	5.5
13	17.0	15.5	16.0	12.5	12.0	12.0	5.5	4.5	5.0	5.0	4.5	5.0
14	17.0	15.5	16.5	13.0	12.0	12.5	6.0	5.0	5.5	4.5	4.0	4.0
15	18.0	16.5	17.0	14.0	13.0	13.5	5.5	4.5	5.0	4.0	3.5	4.0
16	19.5	17.0	18.0	13.5	12.0	13.0	5.0	4.0	4.5	---	---	---
17	20.5	18.0	19.0	12.5	11.5	12.0	5.0	4.0	4.5	---	---	---
18	19.5	17.5	18.5	11.5	11.0	11.0	5.0	4.0	4.5	---	---	---
19	18.5	16.5	17.5	11.0	9.5	10.5	6.5	4.5	5.0	---	---	---
20	18.0	17.0	17.5	9.5	5.5	7.5	6.5	6.0	6.5	---	---	---
21	18.5	17.0	17.5	6.5	5.5	6.5	7.0	6.0	6.5	---	---	---
22	18.5	16.5	17.0	6.5	6.0	6.0	7.5	6.5	7.0	---	---	---
23	18.0	17.0	17.5	6.5	6.0	6.0	7.5	6.5	7.0	---	---	---
24	18.0	16.0	17.0	7.5	6.0	6.5	7.0	6.5	6.5	---	---	---
25	18.0	16.0	17.0	9.0	7.5	8.0	6.5	6.0	6.5	---	---	---
26	17.5	15.5	16.5	10.5	9.0	10.0	7.5	6.5	7.0	7.5	7.0	7.5
27	16.5	16.0	16.0	10.0	8.5	9.0	7.5	6.5	7.0	7.0	6.5	6.5
28	16.0	14.5	15.5	8.5	7.0	7.5	6.5	4.5	5.5	6.5	6.5	6.5
29	15.5	15.0	15.0	7.5	6.5	7.0	4.5	4.0	4.5	6.5	6.0	6.0
30	15.0	14.5	15.0	7.0	6.5	6.5	4.0	3.5	4.0	6.5	5.5	6.0
31	16.0	14.5	15.0	---	---	---	4.0	3.5	4.0	7.5	6.0	7.0

ARKANSAS RIVER BASIN

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07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.0	6.5	7.0	7.0	5.5	6.0	14.5	11.5	13.5	22.0	20.0	21.0
2	6.5	4.5	5.5	7.5	6.0	6.5	15.5	12.5	14.0	20.0	18.5	19.0
3	4.5	2.0	3.0	8.5	7.0	8.0	16.5	15.0	16.0	18.5	17.5	18.0
4	2.0	.5	1.5	8.0	5.0	6.0	16.5	16.0	16.5	18.0	16.5	17.0
5	1.0	.0	.5	4.5	2.0	3.0	20.0	16.0	16.5	20.0	17.0	18.5
6	.5	.0	.0	3.0	1.5	2.0	17.0	15.5	16.0	20.5	18.5	19.5
7	1.0	.0	.0	3.0	1.0	2.0	17.0	15.5	16.0	21.0	18.5	19.5
8	1.5	.0	.5	3.5	1.5	2.5	17.0	15.5	16.0	20.0	19.5	19.5
9	1.5	.0	.5	5.0	3.0	3.5	16.0	14.5	15.5	21.0	20.0	20.5
10	2.0	.5	1.0	7.0	5.0	6.0	15.0	13.5	14.5	21.5	19.0	20.0
11	2.5	.5	1.5	9.5	7.5	8.5	15.0	13.0	14.0	19.5	18.0	19.0
12	2.0	1.0	1.5	11.5	9.5	10.5	15.0	13.5	14.0	18.5	17.5	18.0
13	2.0	1.5	1.5	13.0	11.0	12.0	15.0	13.5	14.5	18.0	17.0	17.5
14	2.5	1.5	2.0	14.0	12.0	13.0	16.0	14.0	15.0	19.0	17.0	18.0
15	2.5	2.0	2.5	13.5	12.0	12.5	17.0	14.5	15.5	19.5	17.5	18.5
16	2.0	1.5	1.5	13.0	11.5	12.0	18.0	15.5	17.0	19.0	18.0	18.5
17	2.5	2.0	2.0	14.0	12.0	13.0	19.0	17.0	18.0	18.5	18.0	18.5
18	3.0	2.0	2.5	14.0	12.0	13.0	19.0	18.0	18.5	19.5	18.5	19.0
19	3.5	3.0	3.0	12.5	12.0	12.5	20.0	17.5	18.5	19.5	18.5	19.0
20	3.5	3.5	3.5	12.0	10.5	11.5	18.0	17.5	18.0	21.5	19.5	20.5
21	4.5	3.5	4.0	11.5	9.5	10.0	19.0	16.5	17.5	22.0	21.0	21.5
22	4.5	4.0	4.0	11.5	9.0	10.0	20.5	17.0	18.5	23.5	21.5	22.5
23	4.0	3.0	3.5	12.0	9.0	10.5	21.5	19.0	20.0	24.0	23.0	23.5
24	4.0	2.5	3.0	13.0	10.0	11.5	22.5	20.5	21.5	25.0	23.5	24.5
25	5.0	3.0	4.0	15.0	11.5	13.0	23.5	21.0	22.0	25.5	25.0	25.0
26	6.5	5.0	5.5	15.5	13.0	14.5	24.5	22.0	23.0	25.5	24.0	25.0
27	6.5	5.5	6.0	16.5	14.5	15.0	25.0	22.5	23.5	25.0	23.0	24.0
28	6.5	5.5	6.0	16.5	15.0	15.5	25.5	23.0	24.0	25.5	23.5	24.5
29	---	---	---	16.0	15.5	15.5	24.0	22.5	23.0	26.0	24.0	25.0
30	---	---	---	16.0	14.5	15.5	23.0	21.5	22.0	26.5	25.0	25.5
31	---	---	---	14.5	11.5	13.5	---	---	---	26.5	25.5	26.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	26.0	25.0	25.5	27.0	26.0	26.5	29.0	27.0	28.0	---	---	---
2	25.0	24.5	25.0	26.0	23.5	25.0	28.0	25.5	27.5	---	---	---
3	26.0	24.5	25.0	25.0	22.0	24.0	28.0	26.5	27.0	---	---	---
4	25.0	24.0	24.5	26.0	21.5	25.0	30.0	26.0	28.0	---	---	---
5	24.5	23.5	24.0	27.0	23.0	26.0	30.5	28.0	29.0	---	---	---
6	24.0	23.5	23.5	27.5	25.5	26.5	29.0	22.0	25.5	---	---	---
7	23.5	23.0	23.5	28.5	26.5	27.5	24.5	23.0	23.5	26.0	24.5	25.0
8	24.0	22.0	23.0	28.5	26.0	27.5	24.5	23.0	23.5	27.0	25.5	26.5
9	24.0	23.0	23.5	28.0	25.0	27.0	24.5	22.5	23.5	26.5	26.0	26.5
10	25.0	23.0	24.0	28.0	26.5	27.0	24.0	22.5	23.5	25.5	24.5	25.0
11	24.5	21.5	23.0	28.0	26.0	27.0	24.5	22.5	23.5	24.5	23.0	24.0
12	21.5	19.0	20.5	27.5	26.0	27.0	25.0	23.0	24.0	23.0	21.5	22.5
13	23.0	15.0	19.5	27.0	25.5	26.5	24.0	23.5	24.0	21.5	16.5	18.5
14	22.5	19.0	21.0	26.5	23.0	26.0	25.0	23.5	24.0	17.5	16.0	16.5
15	22.5	22.0	22.5	26.5	23.0	25.5	25.0	23.5	24.5	16.0	15.5	16.0
16	22.5	21.5	22.0	26.5	25.0	25.5	25.0	24.5	24.5	17.0	16.5	16.5
17	23.0	21.5	22.0	25.5	18.5	22.5	26.0	24.5	25.0	18.0	17.0	17.5
18	24.0	22.5	23.0	---	---	---	26.0	24.5	25.5	18.0	17.5	18.0
19	24.0	22.0	23.0	---	---	---	27.0	25.5	26.0	18.0	17.5	18.0
20	24.5	23.0	23.5	---	---	---	---	---	---	18.0	17.5	17.5
21	25.5	24.0	25.0	---	---	---	---	---	---	17.5	17.0	17.5
22	26.0	25.5	25.5	---	---	---	---	---	---	18.5	17.5	18.0
23	---	---	---	---	---	---	---	---	---	18.5	18.0	18.0
24	---	---	---	---	---	---	---	---	---	19.0	18.0	18.5
25	---	---	---	27.0	24.5	25.0	---	---	---	18.5	17.0	18.0
26	---	---	---	27.5	22.5	26.0	---	---	---	18.5	17.0	18.0
27	---	---	---	28.5	25.5	27.5	---	---	---	18.5	17.5	18.0
28	---	---	---	28.5	25.5	27.5	---	---	---	19.0	17.5	18.0
29	---	---	---	28.5	25.0	27.0	---	---	---	19.0	17.5	18.5
30	---	---	---	29.5	25.5	28.0	---	---	---	19.5	18.0	18.5
31	---	---	---	29.5	28.0	28.5	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

[illegible]

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	8.5	5.2	6.8	---	---	---
2	---	---	---	---	---	---	9.0	5.2	7.1	---	---	---
3	---	---	---	---	---	---	8.9	5.6	7.3	---	---	---
4	---	---	---	---	---	---	8.9	5.4	7.2	---	---	---
5	---	---	---	---	---	---	8.4	4.8	6.8	---	---	---
6	---	---	---	---	---	---	9.3	4.8	7.2	---	---	---
7	---	---	---	---	---	---	10.2	5.5	7.8	---	---	---
8	---	---	---	---	---	---	10.2	5.2	7.7	---	---	---
9	---	---	---	6.8	6.2	6.4	10.9	5.6	8.1	---	---	---
10	---	---	---	7.4	6.1	6.6	9.0	4.1	7.1	---	---	---
11	---	---	---	7.4	6.0	6.6	9.5	5.5	7.6	---	---	---
12	---	---	---	7.6	5.8	6.5	10.7	4.7	7.8	---	---	---
13	---	---	---	6.2	5.0	5.5	8.2	3.5	5.0	---	---	---
14	---	---	---	6.4	4.9	5.7	3.9	1.3	2.7	---	---	---
15	---	---	---	6.8	6.4	6.6	6.7	2.3	4.0	---	---	---
16	---	---	---	6.9	6.5	6.7	11.3	4.2	7.1	---	---	---
17	---	---	---	6.9	6.6	6.7	9.7	4.8	7.0	---	---	---
18	---	---	---	6.9	4.9	6.2	9.9	4.7	6.5	---	---	---
19	---	---	---	7.3	5.2	6.3	6.6	4.4	5.5	---	---	---
20	---	---	---	8.0	6.2	7.0	7.0	4.1	5.2	---	---	---
21	---	---	---	7.8	6.2	6.9	---	---	---	---	---	---
22	---	---	---	7.7	6.1	6.9	---	---	---	---	---	---
23	---	---	---	7.7	6.2	6.9	---	---	---	---	---	---
24	---	---	---	7.1	6.2	6.6	---	---	---	---	---	---
25	---	---	---	6.8	5.6	6.2	---	---	---	---	---	---
26	---	---	---	7.0	5.6	6.2	---	---	---	---	---	---
27	---	---	---	7.2	5.5	6.3	---	---	---	---	---	---
28	---	---	---	7.0	5.5	6.1	---	---	---	---	---	---
29	---	---	---	7.0	5.6	6.2	---	---	---	---	---	---
30	---	---	---	8.0	5.4	6.5	---	---	---	---	---	---
31	---	---	---	8.4	5.2	6.6	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	9.4	8.0	8.5	11.3	10.7	10.9	---	---	---
2	---	---	---	9.7	6.8	8.3	11.2	10.9	11.0	---	---	---
3	9.2	8.8	9.0	8.6	5.5	6.7	11.0	10.7	10.9	---	---	---
4	---	---	---	8.7	6.1	7.1	11.2	10.7	10.8	---	---	---
5	---	---	---	8.5	6.5	7.4	11.1	10.7	10.8	---	---	---
6	---	---	---	8.6	6.7	7.5	11.1	10.4	10.8	---	---	---
7	---	---	---	8.0	6.9	7.3	10.7	10.3	10.4	---	---	---
8	---	---	---	8.4	7.2	7.7	10.7	10.2	10.4	---	---	---
9	---	---	---	9.1	7.8	8.5	10.7	10.2	10.4	---	---	---
10	---	---	---	11.8	9.0	10.2	10.9	10.2	10.5	---	---	---
11	---	---	---	11.5	9.0	10.1	11.4	10.5	10.8	---	---	---
12	---	---	---	12.2	10.0	10.9	11.5	10.7	11.1	---	---	---
13	---	---	---	13.2	10.6	11.7	11.6	11.1	11.3	---	---	---
14	---	---	---	12.8	11.0	11.8	11.3	11.0	11.2	---	---	---
15	---	---	---	11.3	7.5	10.7	12.4	11.3	11.8	---	---	---
16	9.0	8.3	8.6	10.3	9.0	9.4	13.2	12.2	12.7	---	---	---
17	8.8	8.1	8.5	9.9	9.0	9.5	---	---	---	---	---	---
18	8.9	8.0	8.4	10.1	9.6	9.9	---	---	---	---	---	---
19	8.4	7.5	7.8	10.5	10.1	10.3	---	---	---	---	---	---
20	9.2	7.4	8.0	10.7	10.4	10.5	---	---	---	---	---	---
21	9.4	7.6	8.3	10.9	10.5	10.6	---	---	---	---	---	---
22	10.2	8.0	9.1	10.8	10.5	10.6	---	---	---	---	---	---
23	10.3	9.1	9.7	10.9	10.3	10.6	---	---	---	---	---	---
24	9.5	7.1	8.6	10.4	9.5	10.0	---	---	---	---	---	---
25	7.5	6.7	7.1	10.8	9.3	10.2	---	---	---	---	---	---
26	8.2	6.8	7.3	11.9	10.2	11.0	---	---	---	---	---	---
27	7.8	6.6	7.1	11.5	10.8	11.1	---	---	---	---	---	---
28	9.0	6.6	7.7	10.9	10.6	10.8	---	---	---	---	---	---
29	10.0	7.5	8.5	10.9	10.7	10.8	---	---	---	---	---	---
30	10.3	7.6	8.8	10.9	10.7	10.8	---	---	---	---	---	---
31	9.6	8.0	8.7	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	13.2	5.5	9.7	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO. OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	11.8	11.0	11.4	9.8	7.2	8.0	---	---	---
2	---	---	---	12.0	10.8	11.3	---	---	---	---	---	---
3	---	---	---	12.1	10.9	11.5	---	---	---	13.8	9.0	10.1
4	---	---	---	12.4	11.0	11.4	---	---	---	9.9	8.9	9.2
5	---	---	---	12.7	11.6	12.1	---	---	---	9.8	8.8	9.3
6	---	---	---	12.7	11.4	12.0	---	---	---	9.4	8.8	9.1
7	---	---	---	13.0	11.6	12.3	---	---	---	9.3	8.5	8.9
8	---	---	---	12.6	11.6	12.1	---	---	---	9.3	8.6	9.0
9	---	---	---	12.2	11.6	11.9	---	---	---	9.5	8.6	9.1
10	---	---	---	---	---	---	---	---	---	9.2	8.6	9.0
11	14.3	12.0	13.2	---	---	---	---	---	---	9.4	8.5	8.9
12	---	---	---	---	---	---	---	---	---	9.2	8.3	9.0
13	11.9	10.8	11.4	---	---	---	---	---	---	9.0	7.8	8.4
14	11.2	10.7	11.0	---	---	---	---	---	---	---	---	---
15	11.2	10.6	10.9	---	---	---	---	---	---	---	---	---
16	11.3	10.7	11.0	---	---	---	---	---	---	8.1	7.4	7.6
17	11.4	10.8	11.0	---	---	---	---	---	---	8.1	7.3	7.7
18	11.4	10.8	11.0	---	---	---	---	---	---	8.2	7.5	7.8
19	11.4	10.4	11.0	---	---	---	---	---	---	8.0	7.5	7.7
20	11.6	10.8	11.2	14.8	12.7	14.2	---	---	---	8.0	7.1	7.7
21	11.8	10.8	11.3	12.5	9.1	10.6	---	---	---	8.1	7.5	7.8
22	11.8	10.9	11.3	10.6	9.0	10.0	---	---	---	7.9	7.4	7.7
23	11.6	10.9	11.3	9.5	8.6	9.0	---	---	---	7.8	7.5	7.6
24	11.9	11.0	11.5	9.6	8.4	9.1	---	---	---	7.7	7.1	7.4
25	11.9	11.4	11.7	8.4	7.6	8.0	---	---	---	7.8	7.3	7.5
26	12.0	11.4	11.7	9.1	7.7	8.3	---	---	---	8.0	7.3	7.5
27	11.9	11.2	11.5	9.6	7.9	8.6	---	---	---	8.5	7.3	7.7
28	11.9	11.2	11.4	8.6	7.2	8.1	12.6	10.9	11.8	8.6	7.8	8.3
29	11.8	11.2	11.4	10.5	5.1	7.3	11.9	10.4	11.2	8.6	7.8	8.2
30	---	---	---	10.0	8.4	9.2	14.5	11.5	13.0	8.6	5.2	7.9
31	---	---	---	10.2	8.3	8.8	---	---	---	8.6	6.2	8.1
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	12.6	7.1	8.4	---	---	---	---	---	---
2	---	---	---	9.5	6.0	7.8	---	---	---	---	---	---
3	---	---	---	13.5	7.6	9.0	---	---	---	---	---	---
4	---	---	---	12.8	7.6	9.1	---	---	---	---	---	---
5	---	---	---	12.6	7.7	8.8	---	---	---	---	---	---
6	---	---	---	8.5	4.8	8.0	---	---	---	---	---	---
7	---	---	---	8.6	7.8	8.1	---	---	---	---	---	---
8	---	---	---	8.7	7.8	8.3	---	---	---	---	---	---
9	---	---	---	9.6	6.4	8.4	---	---	---	---	---	---
10	---	---	---	9.0	6.7	8.2	---	---	---	---	---	---
11	---	---	---	8.3	7.7	8.1	---	---	---	---	---	---
12	---	---	---	8.0	6.2	7.6	---	---	---	---	---	---
13	---	---	---	7.6	6.3	7.2	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	9.5	4.7	7.1	6.7	6.0	6.2	---	---	---	---	---	---
16	11.8	6.6	7.6	6.3	5.7	5.9	---	---	---	---	---	---
17	9.3	3.5	6.5	6.9	5.6	5.8	---	---	---	---	---	---
18	8.4	4.0	6.5	8.2	5.2	6.9	---	---	---	---	---	---
19	8.5	3.2	5.8	6.1	4.5	5.5	---	---	---	---	---	---
20	7.6	4.4	6.1	6.1	5.0	5.4	---	---	---	---	---	---
21	7.4	3.1	5.3	7.4	4.7	5.6	---	---	---	---	---	---
22	7.3	4.0	6.1	---	---	---	---	---	---	---	---	---
23	7.3	3.9	5.7	---	---	---	---	---	---	---	---	---
24	7.3	3.8	6.0	---	---	---	---	---	---	---	---	---
25	7.5	4.8	6.3	---	---	---	---	---	---	---	---	---
26	7.5	4.8	6.5	5.5	5.0	5.2	8.3	6.4	7.4	---	---	---
27	8.2	5.4	6.7	5.7	5.0	5.3	8.0	7.1	7.6	---	---	---
28	8.2	5.7	6.9	5.7	5.5	5.6	8.9	7.4	7.9	---	---	---
29	8.3	5.4	6.9	6.8	5.0	5.9	---	---	---	---	---	---
30	10.8	5.8	8.5	8.4	6.1	7.2	---	---	---	6.8	5.2	6.2
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

07178000 BIRD CREEK NEAR OWASSO, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.4	6.5	6.9	8.4	6.5	8.0	10.1	9.6	10.1	12.0	11.0	11.4
2	7.9	6.9	7.4	8.6	7.6	8.2	10.9	9.7	10.2	11.8	11.3	11.4
3	8.0	7.4	7.7	8.6	7.1	8.3	10.9	8.5	10.2	11.6	11.0	11.3
4	8.2	7.6	7.9	8.7	8.2	8.5	10.3	9.9	10.1	11.5	10.9	11.2
5	8.4	7.6	8.1	8.7	6.3	8.2	10.4	9.9	10.2	12.1	11.3	11.6
6	9.0	7.9	8.4	8.8	7.9	8.3	11.2	9.8	10.1	11.7	11.3	11.4
7	9.0	8.8	8.9	8.6	7.9	8.3	10.2	9.9	10.0	11.7	11.2	11.3
8	9.1	8.6	8.8	8.7	8.0	8.4	10.3	9.7	9.9	11.5	11.2	11.4
9	9.1	8.6	8.9	9.9	7.5	8.2	10.8	9.4	9.9	12.0	11.5	11.7
10	9.3	8.7	8.9	7.9	7.6	7.7	12.2	9.5	10.3	12.3	11.8	12.0
11	9.3	8.7	9.0	8.1	7.9	8.0	10.4	9.8	10.1	12.5	9.3	11.5
12	9.3	6.9	8.7	8.3	8.1	8.2	11.0	10.0	10.4	9.3	8.3	8.9
13	9.3	8.7	9.0	8.5	8.2	8.4	11.6	10.4	10.8	9.1	8.3	8.7
14	9.2	8.7	9.0	8.6	8.3	8.4	11.2	10.0	10.8	10.0	9.3	9.6
15	9.3	8.7	9.0	8.7	8.4	8.5	11.0	10.1	10.4	10.0	9.2	9.6
16	9.5	7.2	9.0	8.7	6.7	8.4	11.5	10.2	10.7	---	---	---
17	9.4	8.6	9.0	9.0	7.9	8.3	11.7	10.5	11.1	---	---	---
18	9.4	7.8	8.7	9.0	8.2	8.6	11.8	10.5	11.2	---	---	---
19	8.2	7.0	7.8	9.3	8.2	8.7	12.3	11.5	12.0	---	---	---
20	8.4	7.4	7.9	9.7	9.1	9.4	12.2	11.2	11.9	---	---	---
21	8.2	7.1	7.8	9.7	9.2	9.5	12.6	11.2	12.0	---	---	---
22	8.3	7.2	7.8	9.4	8.9	9.0	14.2	11.5	12.5	---	---	---
23	8.5	7.0	7.9	9.5	9.0	9.2	12.3	11.0	11.5	---	---	---
24	8.2	7.0	7.7	9.8	8.9	9.1	11.4	10.9	11.1	---	---	---
25	8.2	7.0	7.6	10.0	9.0	9.4	11.5	10.8	11.0	---	---	---
26	8.0	6.9	7.6	10.1	9.3	9.6	11.3	11.0	11.1	11.3	9.7	10.3
27	7.8	7.2	7.6	10.4	8.9	9.9	11.5	10.9	11.2	10.5	9.5	9.8
28	8.2	6.4	7.5	10.1	9.5	9.7	12.4	11.0	11.5	10.4	9.6	10.1
29	7.8	7.2	7.6	9.9	9.4	9.6	11.7	10.9	11.2	10.4	10.2	10.3
30	7.8	7.2	7.6	10.5	9.5	10.0	11.5	10.9	11.1	10.6	10.0	10.3
31	8.0	6.8	7.4	---	---	---	11.6	11.0	11.3	12.1	10.5	10.9
MONTH	9.5	6.4	8.2	10.5	6.3	8.7	14.2	8.5	10.8	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.0	10.8	10.9	10.0	9.7	9.8	9.4	6.2	8.2	9.0	8.6	8.8
2	11.5	11.1	11.2	10.1	9.7	9.8	9.5	8.5	8.9	9.0	8.6	8.8
3	11.8	10.8	11.4	10.3	9.8	9.9	9.6	8.8	9.1	9.0	8.7	8.9
4	11.5	10.2	11.1	10.0	9.8	9.9	9.8	7.1	9.0	9.0	8.6	8.8
5	13.6	10.5	12.0	11.3	9.8	10.6	9.3	7.9	9.0	9.0	8.3	8.7
6	12.6	11.1	11.9	11.3	10.0	10.7	9.4	8.4	8.9	8.6	8.1	8.4
7	13.0	11.2	12.1	11.2	9.9	10.5	9.8	8.4	8.9	8.5	8.0	8.3
8	12.9	11.5	12.4	11.1	10.0	10.4	8.6	8.3	8.5	8.6	7.9	8.2
9	14.2	12.0	12.8	11.0	10.1	10.4	10.6	8.7	9.6	8.6	7.8	8.1
10	15.6	12.2	13.5	10.9	10.0	10.3	10.2	8.4	8.8	8.5	7.7	8.0
11	13.8	9.3	11.8	10.3	9.9	10.0	9.4	8.5	8.8	7.9	7.5	7.7
12	10.0	9.0	9.4	10.8	9.8	10.0	9.4	8.6	8.9	7.7	7.5	7.8
13	12.2	9.1	10.2	10.7	9.4	9.8	10.1	8.7	9.1	7.8	7.6	7.7
14	11.2	9.8	10.2	10.9	9.4	9.9	10.3	8.9	9.6	8.0	6.5	7.6
15	11.6	10.0	10.3	10.6	9.4	9.6	9.9	8.8	9.0	7.7	7.2	7.4
16	11.3	9.9	10.5	10.8	9.6	10.0	10.0	8.7	8.9	7.8	7.5	7.7
17	10.9	9.8	10.1	11.1	9.7	10.0	9.1	8.6	8.8	7.8	7.5	7.6
18	11.2	9.5	10.2	9.8	9.7	9.8	9.2	8.8	8.9	7.9	7.5	7.6
19	9.8	9.7	9.8	10.0	9.8	9.9	9.0	8.7	8.9	8.0	7.1	7.5
20	11.0	9.8	10.2	10.1	10.0	10.0	9.1	8.8	9.0	7.2	6.7	6.9
21	11.0	9.7	10.4	10.3	10.0	10.1	9.1	8.9	9.0	7.2	6.4	6.8
22	10.8	9.5	10.0	10.6	10.1	10.2	9.0	8.7	8.9	6.9	6.4	6.6
23	11.0	9.5	9.9	10.5	10.2	10.4	9.2	8.7	8.9	6.7	6.3	6.5
24	9.9	9.6	9.7	10.5	10.3	10.4	9.1	8.7	8.9	6.7	5.6	6.0
25	11.0	9.7	10.3	10.5	10.3	10.4	9.0	8.6	8.8	5.8	5.5	5.6
26	10.6	9.7	9.9	10.3	10.2	10.3	9.0	8.7	8.8	5.7	5.5	5.6
27	10.1	9.6	9.9	10.4	10.3	10.3	9.9	8.8	9.2	5.8	5.5	5.6
28	10.2	9.7	9.8	10.6	7.1	9.3	9.4	8.9	9.2	5.7	5.6	5.7
29	---	---	---	8.6	7.5	8.0	9.1	8.7	8.9	5.7	5.4	5.6
30	---	---	---	8.7	7.9	8.4	9.2	8.6	8.9	5.7	5.4	5.6
31	---	---	---	8.8	6.1	7.9	---	---	---	5.6	5.3	5.6
MONTH	15.6	9.0	10.8	11.3	6.1	9.9	10.6	6.2	8.9	9.0	5.3	7.3

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR DWASSO, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	5.8	5.4	5.6	6.2	3.7	5.6	6.6	5.6	6.2	5.2	5.1	5.2
2	5.8	5.7	5.7	6.4	5.3	6.0	6.8	5.7	6.2	5.2	5.1	5.2
3	5.9	5.6	5.7	6.5	6.0	6.3	6.9	5.8	6.2	5.3	5.0	5.1
4	6.0	5.9	5.9	6.3	6.0	6.2	6.9	5.9	6.2	5.1	4.9	5.0
5	6.0	5.9	5.9	6.2	5.8	6.0	7.1	5.7	6.2	5.0	4.8	4.9
6	6.2	6.0	6.0	6.4	4.8	6.0	6.1	3.5	5.1	6.0	5.0	5.4
7	6.2	6.2	6.2	6.3	4.8	5.9	4.7	4.3	4.5	5.4	4.0	4.5
8	6.5	5.6	6.1	7.0	3.9	6.1	5.4	4.5	5.0	6.6	5.5	6.1
9	5.6	5.3	5.5	7.1	6.1	6.5	6.2	5.0	5.7	7.1	6.6	6.8
10	5.4	5.0	5.3	7.2	6.1	6.5	6.6	5.9	6.2	7.7	7.1	7.4
11	5.4	5.0	5.2	6.9	5.0	6.2	7.3	5.7	6.5	8.3	7.7	8.0
12	9.2	7.1	8.1	7.0	6.0	6.3	7.2	6.1	6.6	8.9	8.3	8.5
13	7.0	6.0	6.5	7.2	6.1	6.2	6.7	6.3	6.5	9.7	6.4	8.5
14	5.9	5.3	5.6	7.5	5.3	6.3	7.0	6.1	6.5	8.5	5.4	7.2
15	6.0	5.6	5.8	7.2	5.3	6.4	6.3	6.2	6.3	8.5	8.0	8.4
16	6.4	6.0	6.1	7.6	6.5	7.0	7.0	6.4	6.6	8.4	8.2	8.3
17	6.4	6.2	6.3	7.1	5.1	6.4	6.8	6.2	6.4	8.2	8.1	8.2
18	6.4	6.2	6.3	5.8	5.3	5.7	6.4	6.0	6.2	8.1	8.0	8.1
19	6.5	6.2	6.4	6.1	4.7	5.7	6.6	6.0	6.2	8.0	8.0	8.0
20	6.5	6.3	6.4	6.3	5.5	6.0	7.0	5.3	6.0	8.0	7.9	8.0
21	6.7	6.3	6.5	6.6	5.8	5.9	5.5	4.2	4.8	8.0	7.9	7.9
22	6.5	6.2	6.4	7.5	6.2	6.8	6.0	4.1	5.0	7.8	7.3	7.6
23	---	---	---	7.2	6.3	6.9	7.8	5.9	7.2	8.0	7.3	7.7
24	---	---	---	6.1	5.7	6.0	8.1	7.9	8.0	8.4	7.8	8.0
25	---	---	---	6.3	5.7	6.1	8.0	7.9	7.9	8.9	8.1	8.4
26	---	---	---	7.1	6.2	6.6	7.9	7.8	7.9	9.4	8.5	8.9
27	---	---	---	7.2	6.2	6.7	7.9	7.7	7.9	10.0	8.6	9.1
28	---	---	---	7.1	6.2	6.6	7.7	7.5	7.7	10.0	8.8	9.3
29	---	---	---	6.9	4.8	5.4	7.5	6.9	7.2	10.0	8.8	9.3
30	---	---	---	6.6	5.1	5.7	7.1	5.1	6.4	9.7	8.7	9.1
31	---	---	---	6.7	5.3	5.9	5.3	5.1	5.2	---	---	---
MONTH	---	---	---	7.6	3.7	6.2	8.1	3.5	6.3	10.0	4.0	7.4

ARKANSAS RIVER BASIN

195

07178035 MINGO CREEK AT 36TH STREET NORTH AT TULSA, OK.

LOCATION.-- Lat 36°12'22", long 95°51'32", in SW 1/4 SE 1/4 sec.18, T.20 N., R.14 E., Tulsa County, Hydrologic Unit 11070107, near left downstream abutment of 36th Street North bridge, 0.3 mi downstream from small unnamed tributary on the right, and at mile 3.3.

DRAINAGE AREA.-- 56.0 mi².

PERIOD OF RECORD.-- September 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 577.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor.

EXTREMES FOR PERIOD OF RECORD.-- Maximum daily discharge, 3,800 ft³/s, Aug. 20, 1989; maximum gage height 22.14 ft, (backwater from construction); minimum daily discharge, 1.1 ft³/s, Aug. 27, 1988.

EXTREMES FOR CURRENT YEAR.-- Maximum daily discharge, 3,800 ft³/s, Aug. 20, maximum gage height, 22.14 ft (backwater from construction); minimum daily discharge, 1.7 ft³/s, Aug. 10, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	e3.6	12	e45	e26	e22	e50	e4.4	e23	e5.0	e5.0	e2.5
2	8.8	e3.7	10	e35	e19	e20	e35	e8.5	e140	e325	e4.0	e40
3	6.2	e4.1	9.5	e27	e15	e27	e25	e30	e100	e60	e3.0	e17
4	4.9	e3.5	8.6	e21	e12	e90	e20	97	e80	e10	e3.1	e45
5	e120	e3.2	8.1	e18	e11	e18	e16	e10	e30	e8.0	e4.0	e27
6	193	e2.6	9.3	e15	e10	e23	e14	e4.5	e14	e6.0	e12	e40
7	103	e2.3	42	e13	e9.8	e58	e12	e3.0	e18	e4.8	e4.5	e115
8	31	e3.0	22	e12	e9.4	e240	e11	e2.8	e28	e4.0	e2.3	e2.0
9	18	55	10	e11	e9.0	e450	e10	e2.9	e8.8	e3.7	e1.8	e1.9
10	13	45	8.3	e10	e13	e470	e9.6	e2.7	e7.0	e3.5	e1.7	e1.8
11	9.6	6.6	7.2	e9.4	e16	e150	e9.0	e2.5	e700	e3.4	e1.7	e4.0
12	8.0	910	17	e9.0	e30	65	e9.8	e4.0	e140	e10	e1.8	e180
13	6.6	35	13	e8.4	e520	40	e12	e8.2	e80	e9.0	e2.0	e1750
14	5.8	16	10	e50	e540	30	e32	e7.6	e60	e140	e45	e110
15	4.7	102	7.0	e30	e800	e25	e14	e150	e37	e10	e10	e64
16	5.1	46	5.3	e20	e160	e20	e9.0	e85	e20	e35	e3.5	e30
17	5.6	14	5.6	e15	e84	e22	e7.6	e70	e14	e800	e2.6	e20
18	10	9.9	6.0	e13	e90	e18	e28	e600	e10	e100	e4.0	e14
19	4.6	205	5.4	e11	e50	e15	e17	e90	e8.0	e19	e30	e9.0
20	4.3	656	8.4	e9.0	e350	e17	e13	e21	e6.4	e11	e3800	e7.0
21	e4.2	57	6.7	e8.0	e200	e16	e22	e11	e5.6	e8.0	e820	e6.0
22	e4.0	30	e550	e7.6	e65	e13	e13	e270	e7.0	e6.0	e30	e5.6
23	e3.6	20	e90	e7.2	e40	e12	e7.2	e20	e350	e40	e9.0	e5.2
24	e3.2	15	e30	e7.8	e34	e11	e5.8	e14	e30	e10	e6.0	e5.2
25	3.3	256	e22	e900	e22	e11	e5.2	e9.0	e15	e5.4	e4.5	e5.0
26	3.3	299	e17	e150	e45	e12	e8.4	e18	e100	e4.6	e7.0	e4.5
27	e3.6	38	591	e42	e100	e13	e5.8	e10	e50	e5.4	e4.0	e3.5
28	e3.8	21	e110	e550	e32	e450	e5.4	e4.7	e15	e20	e2.6	e2.5
29	e4.2	17	e50	e150	---	e45	e4.9	e4.3	e8.0	e15	e12	e2.1
30	e3.5	13	e43	e60	---	e840	e4.5	e3.8	e5.4	e4.0	e6.5	e2.1
31	e3.3	---	e52	e40	---	e160	---	e3.5	---	e8.4	e3.5	---
TOTAL	614.2	2892.5	1786.4	2304.4	3312.2	3403	434.2	1572.4	2110.2	1694.2	4847.1	2521.9
MEAN	19.8	96.4	57.6	74.3	118	110	14.5	50.7	70.3	54.7	156	84.1
MAX	193	910	591	900	800	840	50	800	700	800	3800	1750
MIN	3.2	2.3	5.3	7.2	9.0	11	4.5	2.5	5.4	3.4	1.7	1.8
AC-FT	1220	5740	3540	4570	6570	6750	861	3120	4190	3360	9610	5000
CFSM	.35	1.72	1.03	1.33	2.11	1.96	.26	.91	1.26	.98	2.79	1.50
IN.	.41	1.92	1.19	1.53	2.20	2.26	.29	1.04	1.40	1.13	3.22	1.68

CAL YR 1988 TOTAL 26944.3 MEAN 73.6 MAX 2070 MIN 1.1 AC-FT 53440 CFSM 1.31 IN. 17.90
WTR YR 1989 TOTAL 27492.7 MEAN 75.3 MAX 3800 MIN 1.7 AC-FT 54530 CFSM 1.35 IN. 18.26

e Estimated

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 48TH STREET NORTH AT TULSA, OK.

LOCATION.-- Lat 36°13'14", long 95°51'30", in SW 1/4 SE 1/4 sec.7, T.20 N., R.14 E. Tulsa County, Hydrologic Unit 11070107, near left downstream abutment of 48th Street North bridge, 0.1 mi downstream from small left bank tributary, 0.2 mi upstream from small right bank tributary, 9.0 mi northeast of downtown Tulsa post office, and at mile 1.9.

DRAINAGE AREA.-- 59.9 mi².

WATER DISCHARGE RECORDS

PERIOD OF RECORD.-- April 1987 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 562.60 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.-- Records fair, except for periods of estimated record, which were poor.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 9,920 ft³/s, Aug. 20, 1989, gage height 21.92 ft, (from high-water mark); minimum daily, 1.7 ft³/s, Sept. 14, 1988.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 9,920 ft³/s, Aug. 20, maximum gage height, 21.92 ft, (from high-water mark); minimum daily discharge, 1.8 ft³/s, Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	3.7	21	51	29	24	58	4.4	27	5.3	5.9	2.6
2	9.3	3.8	16	38	25	22	39	9.2	85	335	5.2	47
3	6.1	4.2	12	30	16	29	31	35	158	64	3.1	20
4	4.7	3.6	11	24	14	92	24	100	105	15	3.2	52
5	6.3	3.1	11	20	12	20	19	11	99	9.0	4.0	29
6	198	2.8	11	18	e12	25	17	4.6	16	7.4	14	43
7	107	2.4	49	15	e11	58	14	3.0	20	5.6	5.1	128
8	39	3.0	28	13	e11	248	12	2.9	33	4.9	2.5	2.1
9	20	45	14	12	e10	481	11	3.0	9.3	4.2	1.9	2.1
10	14	55	11	12	14	490	11	2.8	7.1	3.9	1.9	1.9
11	11	8.8	9.7	12	16	173	10	2.5	754	3.7	1.8	4.0
12	9.9	957	21	9.8	34	72	11	3.9	e146	11	1.9	212
13	8.7	49	16	8.9	536	48	11	8.8	e150	9.1	1.9	1850
14	8.0	22	13	54	553	37	35	4.6	e90	146	53	138
15	6.9	109	9.9	34	843	27	15	178	37	12	11	73
16	7.0	68	9.0	20	177	23	10	92	25	38	3.8	37
17	7.3	22	9.0	18	88	24	8.0	72	17	843	2.8	25
18	9.9	14	8.4	14	96	21	33	692	12	111	4.6	19
19	5.9	225	7.0	12	55	16	17	102	9.1	28	28	12
20	4.9	717	9.4	9.9	354	19	15	23	7.6	15	e4000	8.6
21	4.3	75	15	8.4	e200	19	24	13	6.7	11	e900	6.6
22	4.2	39	559	8.1	e120	14	8.5	288	7.3	6.5	34	5.8
23	4.0	27	93	7.7	e80	14	6.2	31	364	44	13	5.6
24	3.3	21	32	8.3	e50	13	5.6	15	34	12	7.4	5.6
25	3.4	252	23	904	e30	12	6.8	10	16	6.0	5.0	5.6
26	3.4	350	18	153	e45	12	6.1	19	106	4.8	7.4	4.6
27	3.5	51	718	45	e100	13	5.8	13	53	5.7	3.8	4.0
28	4.1	29	128	557	e60	484	5.4	6.4	17	22	2.7	2.9
29	4.3	24	62	161	---	50	4.7	4.9	8.4	20	14	2.4
30	3.5	22	43	64	---	868	4.6	4.2	5.9	4.2	7.2	2.4
31	3.3	---	55	43	---	174	---	4.0	---	8.7	3.7	---
TOTAL	538.2	3208.4	2040.4	2385.1	3591	3622	478.7	1763.2	2425.4	1816.0	5153.8	2751.8
MEAN	17.4	107	65.8	76.9	128	117	16.0	56.9	80.8	58.6	166	91.7
MAX	198	957	718	904	843	868	58	692	754	843	4000	1850
MIN	3.3	2.4	7.0	7.7	10	12	4.6	2.5	5.9	3.7	1.8	1.9
AC-FT	1070	6360	4050	4730	7120	7180	950	3500	4810	3600	10220	5460
CFSM	.29	1.79	1.10	1.28	2.14	1.95	.27	.95	1.35	.98	2.78	1.53
IN.	.33	1.99	1.27	1.48	2.23	2.25	.30	1.10	1.51	1.13	3.20	1.71

CAL YR 1988 TOTAL 28755.0 MEAN 78.6 MAX 2480 MIN 1.7 AC-FT 57040 CFSM 1.31 IN. 17.86
WTR YR 1989 TOTAL 29774.0 MEAN 81.6 MAX 4000 MIN 1.8 AC-FT 59060 CFSM 1.36 IN. 18.49

e Estimated

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK --Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.-- May 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1987 to current year.

pH: May 1987 to current year.

WATER TEMPERATURE: May 1987 to current year.

DISSOLVED OXYGEN: May 1987 to current year.

INSTRUMENTATION.-- Water-quality monitor since May 1987.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 1,370 microsiemens, Mar. 8, 1989; minimum recorded, 60 microsiemens, Aug. 20, 1989.

pH: Maximum recorded, 9.4 units, Jan. 14, 1989; minimum recorded, 5.9 units, Oct. 25, 1988.

WATER TEMPERATURE: Maximum recorded, 33.5°C, Aug. 8, 9, 1988; minimum recorded, 0.0°C, several days during winter months.

DISSOLVED OXYGEN: Maximum recorded, 16.8 mg/l, Dec. 19, 1988; minimum recorded, 0.6 mg/l, May 28, 29, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER YEAR 1988:

SPECIFIC CONDUCTANCE: Maximum recorded (more than 20 percent missing record), 1,160 microsiemens, Jan. 12; minimum recorded, 80 microsiemens, Mar. 28.

pH: Maximum recorded (more than 20 percent missing record), 9.4 units, Jan. 14; minimum recorded, 5.9 units, several days in October.

WATER TEMPERATURE: Maximum recorded (more than 20 percent missing record), 33.5°C, Aug. 8, 9; minimum recorded, 0.0°C several days during February.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 16.1 mg/l, Oct. 18; minimum recorded, 1.0 mg/l, Aug. 6, 7.

WATER YEAR 1989:

SPECIFIC CONDUCTANCE: Maximum recorded, 1,370 microsiemens, Mar. 8; minimum recorded, 60 microsiemens, Aug. 20.

pH: Maximum recorded, 9.4 units, Jan. 14; minimum recorded, 6.9 units, April 27.

WATER TEMPERATURE: Maximum recorded, 32.5°C, Aug. 5; minimum recorded, 0.0°C, several days in February.

DISSOLVED OXYGEN: Maximum recorded, 16.8 mg/l, Dec. 19; minimum recorded, 0.6 mg/l, May 28-29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)
MAY											
20...	1200	1028	84042	4.92	4.1	744	7.9	23.0	24.5	30	6.0
JUN											
14...	1400	1028	84042	5.07	10	583	8.3	33.5	27.0	30	10
15...	1430	1028	84042	4.77	2.7	610	8.2	35.5	29.0	--	--
28...	1300	1028	84042	4.90	5.1	708	7.8	40.5	29.0	--	--
AUG											
09...	1100	1028	84042	4.73	2.4	330	8.0	30.5	28.0	40	17
SEP											
20...	1030	1028	84042	5.37	28	336	7.9	23.5	23.0	>70	110
DATE		BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)
MAY											
20...	740	6.3	78	--	--	--	--	181	0	148	--
JUN											
14...	755	--	--	--	--	--	--	138	0	113	--
15...	750	8.0	106	63	10	31	5.8	133	0	133	130
28...	745	6.0	80	77	12	42	5.6	124	0	102	150
AUG											
09...	750	6.2	81	40	5.0	14	3.9	111	0	91	47
SEP											
20...	750	6.0	71	--	--	--	--	115	0	94	--

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	CHLORIDE, DIS- SOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
MAY 20...	--	1.0	465	13	<0.500	<0.500	<0.500	<0.100	0.77	0.77	--
JUN 14...	--	1.1	367	24	0.700	<0.500	0.700	<0.100	0.68	0.68	1.4
15...	33	--	--	--	--	--	--	--	--	--	--
28...	42	--	--	--	--	--	--	--	--	--	--
AUG 09...	13	0.5	204	26	<0.500	<0.500	<0.500	<0.100	0.39	0.39	--
SEP 20...	--	0.4	189	172	<0.500	<0.500	<0.500	<0.100	0.84	0.83	--
DATE	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
MAY 20...	--	0.020	--	<0.005	--	--	--	--	--	--	--
JUN 14...	6.1	0.070	0.03	0.010	--	--	--	--	--	--	--
15...	--	--	--	--	<60	<60	100	110	<5	<5.0	<10
28...	--	--	--	--	<60	<60	100	--	<5	<5.0	<10
AUG 09...	--	0.220	0.43	0.140	<60	<60	80	<100	<5	<5.0	<10
SEP 20...	--	0.280	0.31	0.100	--	--	--	--	--	--	--
DATE	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
15...	<10	810	<100	<45	<45	140	<20	<0.50	<0.5	<70	<70
28...	<10	500	<100	<45	<45	78	<20	<0.50	<0.5	<70	<70
AUG 09...	<10	840	18	<45	<45	49	20	<0.50	<0.5	<70	<70
SEP 20...	--	--	--	--	--	--	--	--	--	--	--
DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
MAY 20...	--	--	--	--	--	--	--	--	--	--	
JUN 14...	--	--	--	--	--	--	--	19	0.53	65	
15...	<7	<7.0	320	340	10	<5	<5.0	60	0.44	75	
28...	<7	<7.0	370	380	<5	<5	<5.0	18	0.25	94	
AUG 09...	<7	<7.0	230	220	20	6	<5.0	30	0.19	81	
SEP 20...	--	--	--	--	--	--	--	95	7.1	92	

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)
NOV 01...	1230	1028	84042	4.82	3.7	720	8.2	25.0	15.0	20	3.0
DEC 13...	1045	1028	84042	5.13	15	655	8.2	13.0	5.0	30	4.0
JAN 24...	1245	1028	84042	5.07	9.0	670	8.2	16.5	8.0	10	3.0
MAR 08...	1000	1028	84042	5.82	72	1230	8.0	8.5	1.5	>70	38
APR 18...	1515	1028	84042	5.20	15	580	8.1	21.0	20.5	30	17
MAY 31...	1300	1028	84042	4.78	3.7	658	8.4	28.0	27.0	20	6.0
31...	1330	1028	80020	4.78	3.7	658	8.4	28.0	27.0	--	--
JUL 05...	1425	1028	84042	4.97	9.0	470	8.1	35.5	30.0	40	11
AUG 22...	1320	1028	84042	5.40	28	430	7.8	34.5	28.0	>70	19
SEP 26...	1015	1028	84042	4.88	4.0	843	7.6	16.5	16.0	30	2.5

DATE	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)
NOV 01...	745	7.8	79	--	--	90	--	14	--	43	--
DEC 13...	755	13.0	103	--	--	--	--	--	--	--	--
JAN 24...	760	10.6	91	--	--	84	--	12	--	36	--
MAR 08...	760	--	--	--	--	--	--	--	--	--	--
APR 18...	745	7.9	90	--	--	--	--	--	--	--	--
MAY 31...	750	11.4	146	--	--	66	--	12	--	49	--
31...	750	11.4	146	220	62	--	67	--	12	--	50
JUL 05...	745	10.8	147	--	--	--	--	--	--	--	--
AUG 22...	755	--	--	--	--	53	--	7.0	--	17	--
SEP 26...	750	--	--	--	--	--	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HC03)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, TOTAL (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
NOV 01...	--	--	7.5	--	216	0	177	150	33	1.4	--
DEC 13...	--	--	--	--	246	0	202	--	--	0.6	--
JAN 24...	--	--	6.3	--	249	0	204	120	32	0.8	--
MAR 08...	--	--	--	--	156	0	128	--	--	0.3	--
APR 18...	--	--	--	--	194	0	159	--	--	0.5	--
MAY 31...	--	--	5.9	--	189	0	155	120	33	0.9	--
31...	33	1	--	6.5	189	0	155	130	32	--	4.2
JUL 05...	--	--	--	--	176	0	144	--	--	0.4	--
AUG 22...	--	--	5.4	--	159	0	130	50	33	0.3	--
SEP 26...	--	--	--	--	188	0	154	--	--	0.5	--

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRATES TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
NOV 01...	499	--	--	--	4	1.10	<0.500	1.10	<0.100	--	0.52
DEC 13...	409	--	--	--	9	0.800	<0.500	0.800	<0.100	--	0.28
JAN 24...	451	--	--	--	6	1.00	<0.500	1.00	<0.100	--	0.37
MAR 08...	676	--	--	--	59	2.00	<0.500	2.00	0.100	0.13	1.7
APR 18...	367	--	--	--	24	0.900	<0.500	0.900	<0.100	--	0.54
MAY 31...	405	--	--	--	11	1.00	<0.500	1.00	0.112	0.14	0.68
31...	--	395	0.54	3.95	--	--	--	--	--	--	--
JUL 05...	288	--	--	--	18	<0.500	<0.500	<0.500	0.363	0.47	0.57
AUG 22...	250	--	--	--	28	0.500	<0.500	0.500	<0.100	--	0.43
SEP 26...	521	--	--	--	1	<0.500	<0.500	<0.500	<0.100	--	0.11

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N03)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)
NOV 01...	0.52	1.6	7.2	0.040	--	<0.005	<60	<60	100	--	--
DEC 13...	0.28	1.1	4.8	0.051	0.12	0.039	--	--	--	--	--
JAN 24...	0.37	1.4	6.0	0.108	0.16	0.051	<60	<60	90	<100	--
MAR 08...	1.8	3.8	17	0.545	--	<0.005	--	--	--	--	--
APR 18...	0.54	1.4	6.4	0.146	0.28	0.090	--	--	--	--	--
MAY 31...	0.79	1.8	7.9	0.558	0.57	0.186	<60	<60	100	110	--
JUN 31...	--	--	--	--	--	--	1	1	200	110	<0.5
JUL 05...	0.94	--	--	0.145	0.27	0.089	--	--	--	--	--
AUG 22...	0.43	0.93	4.1	0.123	0.09	0.029	<60	<60	90	100	--
SEP 26...	0.11	--	--	0.275	0.46	0.149	--	--	--	--	--

[illegible]

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)
NOV 01...	<45	--	21	15	<0.50	<0.5	--	--	<70	<70	<7
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 24...	<45	--	53	52	<0.50	<0.5	--	--	<70	<70	<7
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	<45	--	100	62	<0.50	<0.5	--	--	<70	<70	<7
MAY 31...	<10	13	120	65	0.20	0.2	<10	<10	<1	<1	<1
JUL 05...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	<45	--	80	32	<0.50	<0.5	--	--	<70	<70	<7
SEP 26...	--	--	--	--	--	--	--	--	--	--	--

DATE	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<7.0	520	520	--	120	95	<5.0	10	0.10	78
DEC 13...	--	--	--	--	--	--	--	8	0.32	61
JAN 24...	<7.0	500	500	--	150	13	<5.0	--	--	--
MAR 08...	--	--	--	--	--	--	--	55	11	88
APR 18...	--	--	--	--	--	--	--	31	1.3	98
MAY 31...	<7.0	430	430	--	10	20	<5.0	--	--	--
MAY 31...	<1.0	440	440	<6	30	23	--	24	0.24	81
JUL 05...	--	--	--	--	--	--	--	16	0.39	91
AUG 22...	<7.0	310	290	--	20	16	<5.0	--	--	--
SEP 26...	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
JUN 15...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
JUN 28...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
AUG 09...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
JUN 15...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
JUN 28...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
AUG 09...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
JUN 28...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
AUG 09...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--

DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<60
JUN 28...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
AUG 09...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--

DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JUN 15...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
JUN 28...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
AUG 09...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, DIS- SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS- SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS- SOLVED (UG/L)
NOV 01...	--	<0.03	<0.030	--	<0.2	<0.2	--	--	--	--	--	<0.70
JAN 24...	--	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	--	--	--	--	<0.70
MAY 31...	--	<0.03	<0.030	--	<0.2	<0.2	--	--	--	--	--	<0.70
MAY 31...	<0.10	<0.01	<0.010	--	<0.1	<0.1	--	<0.01	<0.010	<0.01	<0.010	<0.01
JUL 05...	--	--	<0.030	<0.6	--	<0.2	<4.0	--	--	--	--	--
AUG 22...	--	<0.03	<0.030	--	<0.2	<0.2	--	--	--	--	--	<0.70

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN DIS- SOLVED (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN DISSOLV (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)
NOV 01...	<0.70	--	<0.05	<0.05	--	<0.06	<0.060	--	--	--	<0.03	<0.030
JAN 24...	<0.70	<14	<0.05	<0.05	<2.0	<0.06	<0.060	<1.2	--	--	<0.03	<0.030
MAY 31...	<0.70	--	<0.05	<0.05	--	<0.06	<0.060	--	--	--	<0.03	<0.030
MAY 31...	<0.010	--	0.07	0.06	--	<0.01	<0.010	--	<0.01	<0.010	<0.01	<0.010
JUL 05...	<0.70	<14	--	<0.05	<2.0	--	<0.060	<1.2	--	--	--	<0.030
AUG 22...	<0.70	--	<0.05	<0.05	--	<0.06	<0.060	--	--	--	<0.03	<0.030

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	--	--	--	<0.03	<0.030	--	<0.03	<0.030	--	<0.02	<0.020	--
JAN 24...	<0.6	--	--	<0.03	<0.030	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4
MAY 31...	--	--	--	<0.03	<0.030	--	<0.03	<0.030	--	<0.02	<0.020	--
31...	--	<0.01	<0.01	<0.01	<0.010	--	<0.01	<0.010	--	<0.01	<0.010	--
JUL 05...	<0.6	--	--	--	<0.030	<0.6	--	<0.030	<0.6	--	<0.020	<0.4
AUG 22...	--	--	--	<0.03	<0.030	--	<0.03	<0.030	--	<0.02	<0.020	--

DATE	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR DISSOLV (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, DIS- SOLVED (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL- TRI- THION DISSOLV (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, DIS- SOLVED (UG/L)
NOV 01...	<0.40	<0.40	--	--	<0.70	--	--	<0.10	--	--	--	--
JAN 24...	<0.40	<0.40	<4.0	--	<0.70	<2.0	--	<0.10	<2.0	--	--	--
MAY 31...	<0.40	<0.40	--	--	<0.70	--	--	<0.10	--	--	--	--
31...	<0.01	<0.01	--	<0.01	<0.01	--	<0.01	<0.01	--	<0.01	<0.01	<0.01
JUL 05...	--	<0.40	<4.0	--	<0.70	<2.0	--	<0.10	<2.0	--	--	--
AUG 22...	<0.40	<0.40	--	--	<0.70	--	--	<0.10	--	--	--	--

DATE	MIREX, TOTAL (UG/L)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE DISSOLV (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOX- APHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION DISSOLV (UG/L)	TOTAL TRI- THION (UG/L)
NOV 01...	--	<0.10	<0.10	--	--	--	<0.30	<0.3	--	--	--
JAN 24...	--	<0.10	<0.10	<2.0	--	--	<0.30	<0.3	<60	--	--
MAY 31...	--	<0.10	<0.10	--	--	--	<0.30	<0.3	--	--	--
31...	<0.01	<0.01	<0.01	--	<0.10	<0.1	<1.0	<1	--	<0.01	<0.01
JUL 05...	--	--	<0.10	<2.0	--	--	--	<0.3	<60	--	--
AUG 22...	--	<0.10	<0.10	--	--	--	<0.30	<0.3	--	--	--

DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SEVIN, TOTAL (UG/L)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<20	<20	--	<2.0	<2.0	<2.0	--	--	<2.0	<2.0	--
JAN 24...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	--	<2.0	<2.0	<10.0
MAY 31...	<20	<20	--	<2.0	<2.0	<2.0	--	--	<2.0	<2.0	--
31...	--	<0.01	--	0.03	--	<0.01	--	<0.50	--	<0.01	--
JUL 05...	--	<20	<75.0	<2.0	--	<2.0	<10.0	--	--	<2.0	<10.0
AUG 22...	<20	<20	--	<2.0	<2.0	<2.0	--	--	<2.0	<2.0	--

07170040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	340	290	325	670	630	649	660	640	648
2	---	---	---	363	340	347	700	670	686	670	660	661
3	---	---	---	450	370	405	729	690	705	690	660	678
4	---	---	---	460	400	421	740	720	732	710	690	700
5	---	---	---	420	400	410	760	740	749	710	700	702
6	---	---	---	440	390	423	790	760	777	710	680	693
7	---	---	---	460	290	435	790	750	774	740	710	723
8	---	---	---	500	290	353	790	760	777	740	720	734
9	---	---	---	310	290	300	760	710	738	750	730	742
10	---	---	---	330	290	315	730	710	720	780	740	761
11	---	---	---	360	320	336	730	700	716	770	760	768
12	---	---	---	380	340	353	740	710	727	1160	420	746
13	---	---	---	400	350	378	750	730	743	530	430	475
14	---	---	---	411	360	396	750	350	612	620	480	556
15	---	---	---	480	130	312	950	340	472	660	610	629
16	---	---	---	410	200	297	990	740	861	660	620	643
17	570	540	552	390	320	341	890	790	847	---	---	---
18	600	480	554	480	380	427	850	330	666	---	---	---
19	810	150	595	530	440	481	350	160	250	---	---	---
20	610	430	473	537	500	513	430	180	312	---	---	---
21	440	420	430	570	540	555	550	440	499	---	---	---
22	440	420	428	590	480	541	630	480	593	---	---	---
23	490	430	452	610	590	605	660	630	647	---	---	---
24	500	130	284	610	110	304	660	340	570	---	---	---
25	250	180	210	380	140	293	450	190	370	---	---	---
26	320	250	275	508	380	453	360	160	260	---	---	---
27	320	290	301	586	400	530	400	190	290	---	---	---
28	380	320	354	630	540	597	480	330	401	---	---	---
29	400	370	379	620	590	603	570	480	526	---	---	---
30	420	390	402	630	590	611	610	480	575	---	---	---
31	600	170	378	---	---	---	640	610	629	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	390	180	292	729	718	726
2	---	---	---	---	---	---	520	400	467	766	726	746
3	---	---	---	---	---	---	630	480	556	744	732	739
4	---	---	---	---	---	---	1110	630	720	751	738	746
5	---	---	---	---	---	---	---	---	---	896	738	755
6	---	---	---	---	---	---	618	606	615	834	743	758
7	---	---	---	---	---	---	652	600	627	761	741	748
8	---	---	---	---	---	---	668	624	651	---	---	---
9	---	---	---	---	---	---	670	472	644	---	---	---
10	---	---	---	---	---	---	583	224	356	---	---	---
11	---	---	---	---	---	---	431	316	374	---	---	---
12	---	---	---	---	---	---	535	421	478	---	---	---
13	---	---	---	---	---	---	619	535	579	---	---	---
14	---	---	---	---	---	---	633	610	618	---	---	---
15	---	---	---	---	---	---	648	624	636	---	---	---
16	---	---	---	---	---	---	672	648	656	---	---	---
17	---	---	---	700	260	530	675	285	627	---	---	---
18	---	---	---	450	280	376	547	418	456	---	---	---
19	470	270	372	560	450	508	505	442	473	---	---	---
20	570	480	529	620	480	558	569	515	543	---	---	---
21	630	480	585	640	610	626	763	570	627	---	---	---
22	670	630	652	670	630	653	797	614	660	---	---	---
23	690	660	680	680	650	669	659	641	652	---	---	---
24	700	670	681	660	290	444	676	642	665	---	---	---
25	720	680	696	470	370	415	691	538	627	---	---	---
26	720	690	702	540	480	509	714	681	699	---	---	---
27	710	670	693	600	480	575	758	725	745	---	---	---
28	710	540	697	650	80	342	797	756	771	---	---	---
29	---	---	---	440	230	334	755	733	740	---	---	---
30	---	---	---	570	480	519	742	720	731	---	---	---
31	---	---	---	590	120	414	---	---	---	---	---	---

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	650	630	638	620	480	581	620	520	575	660	630	646
2	670	640	657	685	610	642	670	610	644	690	600	651
3	700	660	680	740	330	699	680	660	674	760	660	716
4	768	700	733	630	210	537	700	680	688	650	290	406
5	828	770	805	640	480	607	710	680	688	360	300	324
6	870	830	849	680	630	654	710	670	690	380	360	378
7	880	810	853	836	680	727	700	680	687	420	380	396
8	840	790	820	1370	546	1060	710	670	687	510	400	446
9	800	740	770	540	320	485	690	680	683	528	469	498
10	750	710	738	450	320	387	730	690	702	576	477	516
11	750	720	741	507	350	429	730	680	703	594	475	516
12	760	620	716	593	520	556	710	680	699	533	462	493
13	740	310	471	620	600	610	730	680	701	640	462	555
14	440	240	353	650	620	638	760	690	727	729	629	679
15	327	240	284	650	630	647	720	620	663	727	206	581
16	487	330	414	690	620	653	650	610	623	384	245	317
17	560	490	533	710	600	682	640	620	634	473	142	391
18	600	490	570	680	640	668	640	570	623	341	132	247
19	650	570	601	700	670	685	650	580	605	388	319	346
20	670	370	524	700	680	688	600	550	578	467	388	430
21	500	400	441	710	680	695	620	560	592	525	456	483
22	590	490	549	730	700	719	600	570	579	554	224	328
23	640	590	620	750	730	740	580	570	570	431	343	399
24	680	630	668	740	730	731	580	560	571	474	432	453
25	700	680	690	750	730	738	590	570	571	496	474	488
26	710	690	702	760	740	747	610	590	602	537	427	479
27	690	450	610	760	740	756	620	600	613	591	529	558
28	555	490	519	670	210	379	630	610	619	624	591	612
29	---	---	---	550	430	484	630	610	624	634	576	603
30	---	---	---	570	210	382	640	620	633	588	558	574
31	---	---	---	520	350	450	---	---	---	629	591	610
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	613	492	565	480	420	450	---	---	---	540	420	518
2	645	215	552	480	140	328	---	---	---	600	360	497
3	348	226	277	370	230	311	480	460	470	500	440	472
4	340	258	302	440	370	405	500	470	478	520	240	421
5	493	212	304	470	430	447	520	160	490	480	380	417
6	396	303	353	480	460	469	470	230	400	460	420	452
7	540	330	396	510	470	490	480	430	451	440	420	430
8	460	370	433	510	480	494	530	480	510	460	420	447
9	470	430	453	550	490	510	570	530	555	480	420	452
10	480	460	465	500	470	485	570	560	567	440	420	428
11	470	130	262	520	480	504	580	560	568	420	380	402
12	390	190	341	560	400	507	600	580	585	420	81	367
13	390	180	294	620	560	588	580	500	526	284	101	178
14	453	291	381	650	220	338	620	340	464	447	284	374
15	576	464	519	350	190	326	380	340	348	550	447	497
16	628	576	607	370	180	319	380	340	360	593	531	573
17	670	628	644	350	110	223	380	340	352	655	593	619
18	692	661	673	380	250	327	380	180	332	658	636	644
19	714	673	696	470	390	420	420	300	376	679	659	680
20	717	685	703	590	470	534	380	60	152	664	642	652
21	718	687	695	620	570	605	340	200	280	687	647	664
22	720	580	669	570	540	558	420	360	382	710	668	680
23	702	172	368	540	150	424	440	420	433	732	671	697
24	390	290	350	440	370	398	480	460	468	776	694	736
25	430	380	399	450	420	439	500	480	490	799	759	792
26	490	200	409	450	440	445	500	360	468	802	742	784
27	320	140	245	470	440	459	520	500	509	804	743	781
28	370	330	356	470	160	451	520	500	519	781	734	752
29	400	360	384	---	---	---	520	120	419	733	709	728
30	430	390	413	---	---	---	500	460	485	726	699	713
31	---	---	---	---	---	---	500	480	499	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	8.0	7.5	7.7
9	---	---	---	---	---	---	---	---	---	8.1	7.6	7.7
10	---	---	---	---	---	---	---	---	---	8.3	7.5	7.8
11	---	---	---	---	---	---	---	---	---	8.5	7.6	8.0
12	---	---	---	---	---	---	---	---	---	8.9	7.7	8.3
13	---	---	---	---	---	---	---	---	---	9.0	8.0	8.6
14	---	---	---	---	---	---	---	---	---	8.7	7.9	8.3
15	---	---	---	---	---	---	---	---	---	8.5	7.8	8.1
16	---	---	---	---	---	---	---	---	---	8.3	7.6	7.9
17	---	---	---	---	---	---	---	---	---	8.4	7.7	8.0
18	---	---	---	---	---	---	---	---	---	8.1	7.6	7.8
19	---	---	---	---	---	---	---	---	---	7.6	7.1	7.3
20	---	---	---	---	---	---	---	---	---	7.1	6.9	7.0
21	---	---	---	---	---	---	---	---	---	7.3	7.0	7.2
22	---	---	---	---	---	---	---	---	---	8.0	7.2	7.7
23	---	---	---	---	---	---	---	---	---	7.9	7.1	7.4
24	---	---	---	---	---	---	---	---	---	8.3	7.4	7.7
25	---	---	---	---	---	---	---	---	---	8.4	7.7	8.0
26	---	---	---	---	---	---	---	---	---	7.7	7.0	7.4
27	---	---	---	---	---	---	---	---	---	8.4	6.6	7.0
28	---	---	---	---	---	---	---	---	---	8.3	8.0	8.0
29	---	---	---	---	---	---	---	---	---	8.2	8.1	8.1
30	---	---	---	---	---	---	---	---	---	8.1	7.8	8.1
31	---	---	---	---	---	---	---	---	---	8.6	6.6	7.6
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	6.4	5.9	6.0	5.9	5.8	5.9	---	---	---	---	---	---
2	6.2	6.0	6.1	6.6	5.1	5.9	---	---	---	---	---	---
3	6.2	6.1	6.1	5.1	5.0	5.0	---	---	---	---	---	---
4	6.2	6.1	6.1	7.9	5.0	5.3	---	---	---	---	---	---
5	6.2	6.0	6.1	5.1	5.0	5.0	---	---	---	---	---	---
6	6.1	6.1	6.1	5.2	5.0	5.1	---	---	---	---	---	---
7	6.1	6.0	6.1	5.6	5.2	5.5	---	---	---	---	---	---
8	6.1	5.9	6.0	6.4	5.6	6.0	---	---	---	---	---	---
9	6.8	5.9	6.2	8.0	6.4	7.8	---	---	---	---	---	---
10	6.3	6.0	6.2	7.5	6.6	7.1	---	---	---	---	---	---
11	7.1	5.9	6.5	6.6	6.4	6.4	---	---	---	---	---	---
12	7.3	6.6	6.8	6.4	6.1	6.2	---	---	---	---	---	---
13	7.4	7.0	7.1	7.0	5.7	6.0	---	---	---	---	---	---
14	7.8	7.1	7.6	6.2	5.9	6.1	---	---	---	---	---	---
15	7.7	6.9	7.2	6.2	6.1	6.2	---	---	---	---	---	---
16	7.5	6.8	7.2	6.4	6.1	6.3	---	---	---	---	---	---
17	6.9	6.7	6.8	7.2	6.1	6.4	---	---	---	---	---	---
18	6.8	6.7	6.7	8.4	4.6	7.1	---	---	---	---	---	---
19	7.4	6.3	6.7	4.6	4.6	4.6	---	---	---	---	---	---
20	7.1	6.5	6.6	4.8	4.6	4.7	---	---	---	---	---	---
21	6.9	6.7	6.8	5.1	4.9	5.0	---	---	---	---	---	---
22	7.0	6.8	6.9	6.7	5.1	5.3	---	---	---	---	---	---
23	7.1	6.8	6.9	7.6	6.7	7.1	---	---	---	---	---	---
24	7.1	6.7	6.9	---	---	---	---	---	---	---	---	---
25	7.6	6.1	6.7	---	---	---	---	---	---	---	---	---
26	6.6	6.2	6.4	---	---	---	---	---	---	---	---	---
27	6.5	6.2	6.3	---	---	---	---	---	---	---	---	---
28	6.4	6.1	6.3	---	---	---	---	---	---	---	---	---
29	6.4	6.1	6.2	---	---	---	---	---	---	---	---	---
30	7.0	5.9	6.2	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

ARKANSAS RIVER BASIN

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07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	6.5	6.4	6.4	7.9	7.4	7.6	8.0	7.8	7.9
2	---	---	---	6.5	6.4	6.4	7.9	7.5	7.8	8.2	8.0	8.1
3	---	---	---	6.6	6.4	6.5	8.0	7.9	7.9	8.2	8.1	8.2
4	---	---	---	6.7	6.5	6.6	8.0	7.8	8.0	8.1	8.1	8.1
5	---	---	---	6.8	6.6	6.7	8.0	7.7	7.9	8.1	8.0	8.1
6	---	---	---	6.9	6.8	6.8	7.9	7.8	7.9	8.2	8.1	8.1
7	---	---	---	6.9	6.7	6.8	8.1	7.9	8.0	8.2	8.1	8.2
8	---	---	---	7.5	6.6	6.9	8.1	7.7	7.9	8.3	8.2	8.2
9	---	---	---	6.8	6.6	6.7	7.9	7.8	7.8	8.2	8.1	8.2
10	---	---	---	6.8	6.6	6.7	8.1	7.9	8.0	8.2	8.1	8.2
11	---	---	---	6.8	6.6	6.7	8.1	7.9	8.0	8.2	8.2	8.2
12	---	---	---	6.8	6.7	6.7	8.1	7.9	8.0	8.8	8.1	8.3
13	---	---	---	6.8	6.7	6.8	7.9	7.9	7.9	8.3	7.7	8.0
14	---	---	---	7.1	6.8	7.0	8.1	7.7	7.9	8.1	7.8	7.9
15	---	---	---	8.5	6.7	7.3	7.9	7.4	7.6	8.2	8.0	8.1
16	---	---	---	---	---	---	7.7	7.4	7.5	---	---	---
17	8.0	7.8	7.9	---	---	---	7.8	7.5	7.5	---	---	---
18	7.8	7.5	7.7	---	---	---	8.0	7.6	7.8	---	---	---
19	7.5	7.1	7.4	---	---	---	8.3	7.5	7.9	---	---	---
20	7.4	7.1	7.2	---	---	---	8.0	7.6	7.7	---	---	---
21	7.1	6.9	7.1	---	---	---	8.0	7.6	7.7	---	---	---
22	7.1	6.9	6.9	---	---	---	8.0	7.7	7.8	---	---	---
23	7.0	6.8	6.9	---	---	---	7.8	7.7	7.7	---	---	---
24	7.7	6.0	7	---	---	---	8.1	7.7	7.8	---	---	---
25	6.0	5.9	5.9	---	---	---	---	---	---	---	---	---
26	6.1	5.9	5.9	---	---	---	---	---	---	---	---	---
27	6.0	5.9	5.9	---	---	---	---	---	---	---	---	---
28	6.0	5.9	5.9	7.8	7.4	7.5	---	---	---	---	---	---
29	6.1	5.9	6.0	7.6	7.5	7.6	---	---	---	---	---	---
30	6.4	5.9	6.1	7.9	7.7	7.8	---	---	---	---	---	---
31	7.5	6.1	6.5	---	---	---	7.9	7.4	7.8	---	---	---
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
2	---	---	---	---	---	---	---	---	---	8.1	7.7	7.8
3	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
4	---	---	---	---	---	---	---	---	---	7.9	7.8	7.8
5	---	---	---	---	---	---	---	---	---	7.9	7.8	7.8
6	---	---	---	---	---	---	8.2	8.1	8.2	8.0	7.9	7.9
7	---	---	---	---	---	---	8.1	7.9	8.0	8.1	7.9	8.0
8	---	---	---	---	---	---	8.0	7.8	7.9	8.3	8.1	8.2
9	---	---	---	---	---	---	8.0	7.7	7.8	8.3	8.2	8.2
10	---	---	---	---	---	---	8.2	7.7	8.1	8.4	8.2	8.3
11	---	---	---	---	---	---	8.2	7.9	8.0	8.4	8.3	8.4
12	---	---	---	---	---	---	8.0	7.8	7.9	8.6	8.0	8.4
13	---	---	---	---	---	---	8.0	7.7	7.8	8.1	7.2	7.9
14	---	---	---	---	---	---	7.9	7.7	7.8	7.2	7.1	7.1
15	---	---	---	---	---	---	7.7	7.6	7.7	7.1	7.1	7.1
16	---	---	---	---	---	---	7.7	7.5	7.6	7.2	7.1	7.1
17	---	---	---	8.8	8.2	8.3	8.5	7.4	7.6	7.3	7.2	7.2
18	---	---	---	8.3	8.2	8.2	8.2	7.8	8.0	7.3	7.1	7.2
19	8.1	7.9	7.9	8.4	8.2	8.2	7.8	7.5	7.7	7.3	7.1	7.3
20	8.1	8.0	8.1	8.4	8.1	8.2	7.6	7.4	7.5	8.2	7.3	7.4
21	8.3	8.0	8.2	8.3	8.1	8.2	7.6	7.4	7.5	7.4	7.2	7.3
22	8.3	8.1	8.2	8.2	7.9	8.1	7.6	7.3	7.4	8.9	7.3	7.4
23	8.4	8.1	8.3	8.0	7.8	7.9	7.5	7.4	7.4	8.5	8.0	8.2
24	8.5	8.2	8.3	8.3	7.7	7.9	7.6	7.4	7.5	8.1	7.9	8.1
25	8.4	8.1	8.2	7.7	7.5	7.6	7.7	7.4	7.6	8.1	7.9	8.0
26	8.4	8.0	8.1	7.6	7.5	7.6	8.0	7.6	7.8	8.1	7.7	7.9
27	8.2	7.9	8.1	7.7	7.6	7.6	8.2	7.7	7.9	8.0	7.5	7.7
28	8.1	7.9	7.9	---	---	---	8.2	7.7	7.9	8.1	7.6	7.7
29	---	---	---	---	---	---	7.8	7.7	7.7	7.9	7.5	7.6
30	---	---	---	---	---	---	7.8	7.6	7.7	7.7	7.4	7.5
31	---	---	---	---	---	---	---	---	---	7.7	7.4	7.5

0717040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.6	7.4	7.5	7.9	7.7	7.8	8.1	7.6	7.7	8.0	7.8	7.8
2	8.2	7.4	7.6	7.9	7.6	7.7	7.8	7.6	7.7	8.6	7.8	7.9
3	7.7	7.5	7.6	7.8	7.3	7.6	8.2	7.7	7.9	8.5	7.9	8.0
4	7.7	7.5	7.6	7.6	7.0	7.3	8.1	7.8	7.9	8.1	7.9	8.0
5	7.7	7.5	7.6	7.3	6.9	7.1	8.4	7.8	8.0	8.2	7.9	8.0
6	7.7	7.7	7.7	7.5	7.0	7.2	8.3	7.4	7.7	8.0	7.3	7.5
7	7.8	7.7	7.8	7.9	7.1	7.2	7.6	7.4	7.5	7.9	7.4	7.7
8	7.9	7.8	7.8	7.3	7.1	7.2	7.6	7.3	7.4	8.4	7.7	7.9
9	7.9	7.8	7.9	7.3	7.1	7.2	7.7	7.3	7.5	---	---	---
10	---	---	---	7.6	7.2	7.3	8.0	7.4	7.6	---	---	---
11	---	---	---	7.7	7.2	7.4	7.9	7.4	7.6	---	---	---
12	---	---	---	7.4	7.2	7.3	7.6	7.5	7.5	---	---	---
13	---	---	---	7.4	7.2	7.3	7.9	7.4	7.5	---	---	---
14	---	---	---	8.0	7.2	7.8	7.8	7.4	7.5	---	---	---
15	---	---	---	7.7	7.5	7.6	7.8	7.5	7.6	---	---	---
16	---	---	---	8.3	7.5	7.6	8.0	7.5	7.7	---	---	---
17	---	---	---	8.1	7.3	7.7	7.9	7.4	7.7	---	---	---
18	---	---	---	7.4	7.3	7.4	7.9	7.4	7.6	---	---	---
19	---	---	---	8.7	7.4	7.6	8.5	7.3	7.6	---	---	---
20	---	---	---	8.4	7.6	7.7	8.4	7.2	7.5	---	---	---
21	---	---	---	7.8	7.5	7.7	8.1	7.2	7.3	---	---	---
22	---	---	---	7.7	7.5	7.6	8.0	7.2	7.3	---	---	---
23	7.9	7.7	7.8	7.8	7.5	7.6	7.4	7.2	7.3	---	---	---
24	8.0	7.6	7.7	8.5	7.4	7.5	7.6	7.3	7.4	---	---	---
25	7.8	7.6	7.7	8.5	7.6	7.9	8.1	7.5	7.7	---	---	---
26	7.9	7.6	7.8	7.7	7.4	7.5	7.9	7.7	7.8	---	---	---
27	7.9	7.8	7.9	7.9	7.4	7.4	7.8	7.6	7.7	---	---	---
28	8.2	7.9	8.0	8.3	7.9	8.2	8.1	7.6	8.0	---	---	---
29	8.0	7.8	7.9	8.0	7.6	7.8	7.9	7.6	7.7	---	---	---
30	8.0	7.7	7.8	7.7	7.6	7.6	7.8	7.6	7.8	---	---	---
31	---	---	---	7.7	7.6	7.6	7.9	7.8	7.8	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	8.0	8.0	8.0	8.2	8.0	8.1
2	---	---	---	---	---	---	8.1	8.0	8.1	8.1	7.9	8.0
3	---	---	---	---	---	---	8.2	8.1	8.2	8.1	8.0	8.0
4	---	---	---	8.4	7.6	7.8	8.2	8.2	8.2	8.2	8.1	8.1
5	---	---	---	8.5	7.7	7.9	8.3	8.2	8.2	8.5	8.1	8.3
6	---	---	---	8.1	7.8	7.9	8.3	8.1	8.2	8.4	8.2	8.3
7	---	---	---	8.0	7.6	7.8	8.6	8.1	8.2	8.4	8.2	8.3
8	---	---	---	7.9	7.6	7.7	8.3	8.0	8.1	8.4	8.2	8.4
9	---	---	---	8.3	7.6	7.7	8.2	8.0	8.0	8.5	8.3	8.4
10	---	---	---	8.0	7.5	7.6	8.3	7.9	8.1	8.5	8.0	8.3
11	---	---	---	7.8	7.5	7.5	8.3	8.0	8.1	8.5	8.0	8.1
12	---	---	---	8.4	7.8	8.1	8.4	8.1	8.2	8.5	8.1	8.2
13	---	---	---	8.0	7.8	7.9	8.4	8.1	8.2	8.5	7.9	8.2
14	---	---	---	8.0	7.8	7.9	8.6	8.2	8.3	9.4	8.2	8.5
15	---	---	---	8.3	7.7	7.9	8.7	8.3	8.4	8.2	7.8	7.8
16	---	---	---	7.9	7.5	7.7	8.5	8.3	8.4	8.4	7.8	7.8
17	---	---	---	7.7	7.6	7.6	8.5	8.3	8.4	8.1	7.8	7.9
18	---	---	---	7.9	7.6	7.7	8.6	8.4	8.5	8.1	7.9	8.0
19	---	---	---	8.5	7.6	7.8	8.7	8.5	8.6	8.4	8.0	8.2
20	---	---	---	8.1	8.0	8.0	8.7	8.1	8.5	8.4	8.1	8.3
21	---	---	---	8.0	7.7	7.9	8.3	8.0	8.1	8.5	8.2	8.3
22	---	---	---	7.8	7.7	7.8	8.7	8.0	8.1	8.4	8.2	8.4
23	---	---	---	7.9	7.8	7.8	8.0	7.7	7.9	8.6	8.3	8.4
24	---	---	---	8.0	7.8	7.9	7.9	7.7	7.8	8.5	8.2	8.3
25	---	---	---	8.5	7.9	8.0	8.1	7.8	8.0	9.1	8.0	8.2
26	---	---	---	8.3	7.9	8.2	8.2	7.9	8.1	8.1	8.0	8.0
27	---	---	---	8.0	7.9	7.9	8.5	8.0	8.2	8.1	7.9	8.0
28	---	---	---	8.0	7.9	7.9	8.1	8.0	8.1	8.3	8.0	8.1
29	---	---	---	8.1	7.9	8.0	8.1	7.9	8.0	8.2	8.1	8.1
30	---	---	---	8.0	8.0	8.0	8.0	7.9	8.0	8.3	8.2	8.2
31	---	---	---	---	---	---	8.2	7.9	8.0	8.3	8.1	8.2

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.2	8.0	8.1	8.5	8.0	8.3	8.1	8.0	8.0	8.1	7.7	7.9
2	8.2	8.0	8.1	8.6	8.1	8.4	8.1	7.9	8.0	8.0	7.7	7.8
3	8.3	8.1	8.2	9.0	8.5	8.6	8.2	7.9	8.0	7.7	7.5	7.6
4	8.2	8.1	8.2	8.8	8.3	8.3	8.2	7.9	8.0	7.6	7.2	7.5
5	8.2	8.1	8.2	8.3	8.0	8.1	8.5	7.9	8.0	7.5	7.2	7.3
6	8.2	8.1	8.2	8.5	8.0	8.2	8.7	8.1	8.3	7.4	7.2	7.4
7	8.1	8.1	8.1	8.8	8.2	8.5	8.6	8.1	8.3	7.5	7.4	7.4
8	8.1	8.0	8.1	8.7	8.3	8.5	8.7	8.0	8.3	8.1	7.4	7.6
9	8.1	8.0	8.1	8.8	8.4	8.5	8.1	8.0	8.1	8.0	7.6	7.7
10	8.1	8.0	8.0	8.9	8.5	8.5	8.3	8.1	8.1	7.8	7.6	7.7
11	8.0	8.0	8.0	8.7	8.5	8.6	8.3	8.1	8.1	7.8	7.5	7.7
12	8.4	7.9	8.0	8.7	8.4	8.5	8.4	8.1	8.1	7.9	7.4	7.6
13	8.5	8.1	8.4	8.4	7.8	8.4	8.2	8.1	8.2	7.6	7.3	7.4
14	8.6	8.2	8.3	8.2	7.7	7.8	8.5	8.1	8.2	7.6	7.3	7.4
15	8.5	8.5	8.5	7.7	7.6	7.7	8.2	8.0	8.1	8.5	7.4	7.5
16	8.5	8.4	8.5	7.7	7.6	7.6	8.4	7.9	8.0	8.3	7.9	8.1
17	8.7	8.4	8.5	7.8	7.6	7.7	8.1	7.9	8.0	8.5	7.5	7.7
18	8.7	8.4	8.5	7.7	7.6	7.6	8.3	7.8	8.1	8.6	8.2	8.3
19	8.5	8.4	8.5	7.6	7.5	7.6	8.3	7.8	8.0	8.3	8.0	8.1
20	8.9	8.4	8.6	7.8	7.5	7.6	8.0	7.7	7.9	8.1	7.9	8.0
21	8.6	8.5	8.5	7.6	7.5	7.6	8.0	7.6	7.8	8.1	7.9	8.1
22	8.5	8.5	8.5	7.5	7.5	7.5	8.0	7.6	7.7	8.3	7.9	8.1
23	8.6	8.4	8.5	7.6	7.5	7.5	7.6	7.4	7.5	8.2	7.8	8.0
24	8.6	8.5	8.5	7.6	7.5	7.5	7.4	7.1	7.2	8.1	7.9	8.0
25	8.5	8.5	8.5	7.5	7.4	7.4	7.1	7.0	7.1	8.1	7.6	7.8
26	8.5	8.3	8.4	7.4	7.3	7.3	7.1	6.9	7.0	8.1	7.6	7.9
27	8.7	8.3	8.4	7.5	7.3	7.4	7.3	6.9	7.1	8.1	7.7	7.9
28	8.4	8.3	8.3	8.4	7.3	8.0	7.6	7.1	7.4	8.0	7.4	7.8
29	---	---	---	7.9	7.7	7.7	7.8	7.4	7.6	7.9	7.6	7.8
30	---	---	---	8.3	7.7	8.1	8.0	7.7	7.8	8.1	7.6	8.0
31	---	---	---	8.1	8.0	8.1	---	---	---	8.3	7.7	7.9
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.1	7.8	7.9	7.9	7.6	7.8	7.8	7.2	7.5	7.9	7.4	7.6
2	8.4	7.7	7.9	8.4	7.7	8.0	7.9	7.6	7.7	7.9	7.5	7.6
3	8.4	7.9	8.1	7.9	7.5	7.7	7.7	7.3	7.4	7.8	7.5	7.6
4	8.1	7.8	8.0	7.8	7.5	7.6	7.9	7.3	7.6	7.8	7.3	7.6
5	8.3	7.7	8.0	8.0	7.7	7.9	7.9	7.3	7.6	7.8	7.4	7.6
6	7.7	7.3	7.7	8.2	7.9	8.0	7.6	7.1	7.4	7.9	7.3	7.6
7	8.2	7.7	7.8	8.3	7.6	7.9	7.6	7.4	7.5	7.7	7.2	7.4
8	7.9	7.7	7.8	8.2	7.6	7.9	7.6	7.4	7.5	8.0	7.4	7.7
9	7.8	7.4	7.6	8.3	7.8	8.0	7.9	7.4	7.6	7.8	7.4	7.7
10	7.7	7.2	7.5	8.4	7.7	7.9	7.7	7.5	7.6	7.8	7.5	7.7
11	8.3	7.2	7.9	8.2	7.5	7.9	7.8	7.4	7.6	7.8	7.5	7.7
12	8.0	7.7	7.9	8.3	7.5	7.7	7.7	7.4	7.6	8.4	7.5	7.8
13	8.1	7.5	8.0	7.9	7.6	7.7	7.6	7.4	7.6	8.2	7.8	7.8
14	8.0	7.7	7.9	8.2	7.6	7.8	7.7	7.3	7.5	7.8	7.7	7.8
15	7.9	7.5	7.7	7.9	7.5	7.6	7.5	7.1	7.4	7.8	7.6	7.7
16	7.9	7.5	7.7	7.8	7.6	7.6	7.6	7.4	7.5	7.6	7.4	7.5
17	8.0	7.7	7.9	8.5	7.4	8.1	7.7	7.3	7.5	7.4	7.2	7.3
18	7.8	7.6	7.8	8.0	7.8	7.9	7.7	7.2	7.5	7.4	7.2	7.3
19	7.8	7.4	7.7	8.0	7.8	7.9	7.6	7.4	7.5	7.9	7.4	7.6
20	8.2	7.5	7.6	8.0	7.8	7.9	8.4	7.5	7.7	8.0	7.9	7.9
21	8.2	7.7	7.8	7.9	7.5	7.7	7.6	7.4	7.5	8.1	7.9	8.0
22	7.9	7.6	7.7	7.9	7.4	7.5	7.7	7.5	7.6	8.1	7.8	8.0
23	8.3	7.7	7.9	7.9	7.4	7.6	7.7	7.4	7.6	8.1	7.9	8.0
24	7.9	7.7	7.8	7.6	7.3	7.5	7.8	7.4	7.6	8.1	7.9	8.0
25	8.0	7.5	7.8	7.6	7.4	7.5	7.8	7.4	7.7	8.1	7.8	8.0
26	8.3	7.8	8.0	7.7	7.4	7.5	7.8	7.5	7.7	8.1	7.8	8.0
27	8.1	7.7	7.8	7.6	7.3	7.5	7.9	7.4	7.7	8.2	7.7	8.0
28	7.9	7.6	7.7	7.9	7.2	7.3	7.9	7.4	7.7	8.1	7.5	8.0
29	8.0	7.7	7.9	7.9	7.7	7.8	7.9	7.3	7.6	8.1	7.6	7.9
30	8.0	7.7	7.9	7.8	7.4	7.6	7.6	7.3	7.4	7.9	7.4	7.8
31	---	---	---	7.7	7.3	7.6	7.7	7.3	7.5	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

[illegible]

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	19.5	17.5	18.5	7.0	5.5	6.5	3.5	2.5	3.0
2	---	---	---	19.5	17.5	18.5	7.5	5.0	6.5	2.5	.5	2.0
3	---	---	---	19.5	17.0	18.5	8.5	6.0	7.5	3.5	2.0	2.5
4	---	---	---	19.5	17.0	18.5	8.5	6.5	7.5	3.5	2.5	3.0
5	---	---	---	18.0	15.5	17.0	9.0	6.5	8.0	3.0	.5	1.5
6	---	---	---	16.0	14.0	15.0	10.5	9.0	9.5	.5	.0	.5
7	---	---	---	14.5	14.0	14.5	10.5	10.0	10.0	.5	.0	.0
8	---	---	---	14.5	13.0	13.5	12.0	10.5	11.0	.5	.0	.0
9	---	---	---	13.5	10.5	12.0	11.0	9.0	10.0	.5	.0	.0
10	---	---	---	10.5	8.5	10.0	10.0	8.5	9.5	.5	.0	.0
11	---	---	---	10.0	7.5	9.0	10.0	8.0	9.0	1.0	.0	.5
12	---	---	---	11.0	8.0	9.0	9.0	7.5	8.5	.5	.0	.0
13	---	---	---	10.5	8.0	9.5	8.0	7.0	7.5	.5	.0	.0
14	---	---	---	11.5	9.0	10.5	7.0	.5	4.0	1.0	.0	.5
15	---	---	---	14.5	11.0	12.5	2.5	.0	1.0	2.0	.0	1.0
16	---	---	---	13.5	12.0	13.0	1.5	.5	1.0	---	---	---
17	17.5	13.0	15.0	12.0	10.5	11.0	2.0	.5	1.5	---	---	---
18	16.5	12.5	14.5	10.5	8.0	9.5	4.0	1.5	3.0	---	---	---
19	17.0	15.0	15.5	9.0	7.5	8.5	7.0	3.5	5.5	---	---	---
20	16.5	14.0	14.5	8.5	6.5	7.5	7.5	6.0	6.5	---	---	---
21	14.5	12.0	13.5	8.5	6.0	7.5	7.5	5.5	6.5	---	---	---
22	15.0	12.5	13.5	10.0	7.5	8.5	7.5	6.0	7.0	---	---	---
23	14.5	13.0	13.5	10.5	8.0	9.5	8.5	6.0	7.5	---	---	---
24	15.5	13.5	15.0	16.0	10.5	13.0	10.0	8.0	9.0	---	---	---
25	16.0	15.5	15.5	12.0	9.5	10.5	8.0	2.0	4.5	---	---	---
26	17.5	15.5	16.0	9.5	8.5	9.0	2.5	1.5	2.0	---	---	---
27	15.5	14.0	15.0	8.5	7.5	8.0	4.5	2.0	3.0	---	---	---
28	15.0	12.0	14.0	7.5	6.5	7.0	4.0	2.5	3.0	---	---	---
29	17.5	13.5	15.5	7.0	6.0	6.5	3.5	2.5	3.0	---	---	---
30	18.5	15.0	16.5	8.0	6.5	7.0	3.5	3.0	3.5	---	---	---
31	19.0	16.0	18.0	---	---	---	4.0	3.0	4.0	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	15.0	11.5	13.5	20.5	17.0	19.0
2	---	---	---	---	---	---	12.5	11.5	12.0	19.0	17.5	18.0
3	---	---	---	---	---	---	18.0	12.0	14.0	19.0	16.5	17.5
4	---	---	---	---	---	---	21.0	16.0	17.5	20.0	16.5	18.5
5	---	---	---	---	---	---	---	---	---	21.5	16.5	19.5
6	---	---	---	---	---	---	18.5	15.5	17.0	20.5	18.5	19.5
7	---	---	---	---	---	---	18.0	14.5	16.5	20.0	18.5	19.5
8	---	---	---	---	---	---	19.0	16.5	18.0	22.5	19.0	21.0
9	---	---	---	---	---	---	19.0	16.0	18.0	22.5	19.0	20.5
10	---	---	---	---	---	---	15.5	9.5	12.0	23.5	19.0	21.5
11	---	---	---	---	---	---	13.5	11.5	12.5	23.5	19.5	21.5
12	---	---	---	---	---	---	15.5	10.5	13.0	24.5	20.0	22.5
13	---	---	---	---	---	---	17.0	13.5	15.5	26.0	21.0	23.5
14	---	---	---	---	---	---	18.5	16.0	17.0	26.5	22.0	24.0
15	---	---	---	---	---	---	17.5	15.5	16.5	26.0	22.0	24.0
16	---	---	---	---	---	---	18.0	14.5	16.0	27.5	22.5	25.0
17	---	---	---	7.0	5.0	6.5	17.0	15.0	16.0	27.0	22.0	24.5
18	---	---	---	6.5	4.0	5.0	16.0	13.5	15.0	28.0	22.5	25.0
19	7.0	4.0	5.5	10.0	5.5	7.5	16.0	11.5	14.0	27.5	23.5	25.5
20	7.5	6.0	7.0	13.0	7.5	11.5	17.5	14.0	15.5	24.5	22.0	23.5
21	8.5	5.0	6.5	15.0	12.5	14.5	21.0	15.5	18.0	25.5	22.5	24.0
22	9.5	7.0	8.5	17.0	15.5	16.0	22.5	18.5	20.5	24.0	16.5	22.0
23	10.5	7.5	8.5	17.0	15.0	16.0	21.0	18.0	19.5	20.5	18.0	19.0
24	9.5	6.5	8.0	19.0	15.0	17.0	20.5	16.5	18.5	21.0	19.5	20.5
25	10.0	7.0	8.5	16.5	13.0	15.0	19.0	16.5	18.0	22.5	19.0	21.0
26	11.5	9.0	10.0	16.5	14.5	15.5	18.5	16.0	17.0	23.5	19.0	21.5
27	12.5	9.5	11.0	17.5	15.0	16.0	18.5	14.5	16.5	24.5	20.0	22.0
28	12.5	9.5	11.0	16.5	10.5	14.5	19.5	15.0	17.5	25.0	21.0	23.0
29	---	---	---	11.0	8.5	10.0	17.5	16.0	16.5	25.0	22.0	23.5
30	---	---	---	14.0	10.0	12.5	20.0	16.0	18.0	26.0	22.5	24.0
31	---	---	---	12.5	11.5	12.0	---	---	---	27.0	23.5	25.0

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.0	24.0	25.5	31.0	28.0	29.5	30.5	26.0	28.5	25.5	21.0	23.0
2	24.5	20.5	23.0	28.5	26.0	27.0	31.0	27.5	29.0	25.5	21.5	23.5
3	26.5	22.0	24.0	29.5	24.5	27.0	31.5	27.5	29.5	25.0	23.5	24.0
4	27.5	24.0	26.0	32.0	26.5	29.0	33.0	27.5	29.5	24.0	22.0	23.0
5	27.0	23.0	25.0	32.5	27.0	29.5	32.5	26.5	29.5	24.0	20.5	22.5
6	28.0	23.0	25.5	30.5	28.0	29.0	30.0	26.5	28.0	25.0	20.5	22.5
7	29.5	24.0	27.0	30.5	27.0	28.5	32.0	27.5	29.5	23.5	20.0	21.5
8	30.5	26.0	28.0	30.0	26.5	28.0	33.5	29.0	31.0	24.0	20.0	22.0
9	29.5	26.5	28.0	29.5	26.0	28.0	33.5	29.0	30.5	25.0	20.5	22.5
10	---	---	---	29.5	26.5	28.0	33.0	27.5	30.0	26.0	21.0	23.0
11	---	---	---	28.5	26.5	27.5	30.5	27.5	29.0	26.5	21.5	23.5
12	---	---	---	28.0	25.5	27.0	30.0	27.0	28.5	26.5	22.5	24.0
13	---	---	---	31.0	26.5	28.5	30.5	27.0	29.0	26.5	22.5	24.5
14	---	---	---	32.5	28.0	30.0	31.0	28.0	29.5	27.0	22.5	24.5
15	---	---	---	32.5	28.0	30.0	33.0	28.0	30.0	24.5	23.5	24.0
16	---	---	---	32.5	28.0	30.0	33.0	27.5	30.0	24.5	21.0	23.0
17	---	---	---	29.5	26.5	28.0	32.0	28.0	29.5	24.0	22.5	23.5
18	---	---	---	30.5	28.0	29.0	31.0	27.5	28.5	24.0	23.5	23.5
19	---	---	---	31.0	26.5	28.5	31.0	26.5	29.0	23.5	22.5	23.0
20	---	---	---	27.0	25.5	26.0	28.0	26.0	27.0	23.5	21.5	22.5
21	---	---	---	27.5	24.5	26.0	30.0	26.5	28.0	24.5	21.5	23.0
22	---	---	---	28.5	24.0	26.0	30.5	27.5	29.0	25.0	22.0	24.0
23	31.5	26.5	29.0	29.0	25.0	27.0	30.0	27.5	29.0	24.0	20.5	22.5
24	31.5	27.0	29.5	31.0	23.5	27.5	29.5	26.0	27.5	20.5	19.0	20.0
25	31.0	27.5	29.5	27.0	23.5	25.5	30.0	27.0	28.0	20.0	18.5	19.0
26	31.5	28.0	29.5	28.0	25.5	26.5	29.5	25.5	27.5	21.5	18.5	20.0
27	30.5	27.5	29.0	26.5	25.5	26.0	28.0	25.5	26.5	22.0	19.5	20.5
28	31.0	27.5	29.0	26.0	22.5	24.0	25.5	22.0	23.0	23.0	20.0	21.5
29	31.5	27.5	29.5	27.5	24.5	26.0	23.0	21.0	22.0	22.0	18.5	19.5
30	32.0	28.0	30.0	29.0	25.5	27.5	24.0	20.5	22.5	20.5	19.5	20.0
31	---	---	---	30.5	26.5	28.5	24.5	21.5	23.0	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.5	18.5	19.0	15.5	12.0	13.5	8.0	6.0	7.0	6.0	4.5	5.5
2	19.5	17.5	18.5	16.5	13.5	15.0	8.5	6.5	7.5	7.0	5.0	6.0
3	18.5	16.5	18.0	17.0	14.5	15.5	9.0	6.5	7.5	7.5	6.5	7.0
4	19.0	17.0	18.0	17.0	15.0	16.0	8.0	6.5	7.5	7.0	6.0	6.5
5	17.5	12.5	15.0	15.0	12.0	13.5	8.0	6.0	7.0	9.0	6.5	8.0
6	13.5	12.5	13.0	13.0	10.5	12.0	8.0	6.5	7.5	9.0	7.5	8.5
7	14.5	13.5	14.0	14.5	10.5	12.5	10.0	7.5	8.5	9.5	8.0	9.0
8	14.5	13.5	14.0	13.5	10.5	12.0	8.5	6.0	7.5	7.5	5.5	6.5
9	14.5	13.5	14.0	17.0	12.5	14.0	6.0	5.0	5.5	6.5	5.0	5.5
10	16.0	13.0	14.5	17.0	14.5	15.5	5.5	4.0	5.0	6.0	4.5	5.0
11	15.5	13.5	14.5	14.5	12.0	13.5	4.5	4.0	4.5	9.0	4.5	6.0
12	15.0	12.5	14.0	13.5	12.0	12.5	4.5	3.5	4.0	6.0	5.0	5.5
13	15.5	13.0	14.5	13.5	12.5	13.0	5.5	3.0	4.5	5.0	3.5	4.5
14	16.0	14.0	15.0	14.0	12.0	13.0	7.0	4.5	5.5	5.0	2.5	3.5
15	18.0	15.5	16.5	17.5	14.0	15.5	5.5	4.0	5.0	4.0	3.0	4.0
16	19.5	16.5	18.0	15.5	11.0	13.0	4.0	3.0	3.5	4.5	2.0	3.0
17	20.5	18.5	19.5	11.0	9.5	10.0	4.5	2.5	3.5	5.5	3.0	4.0
18	19.5	16.5	17.5	9.5	9.0	9.5	5.5	3.0	4.5	6.5	4.0	5.0
19	17.0	14.5	16.0	10.0	7.5	9.0	8.0	5.0	6.0	7.0	4.5	6.0
20	16.5	15.5	16.5	8.0	5.5	7.0	8.5	7.0	7.5	6.5	5.0	6.0
21	17.5	15.5	16.5	8.0	6.5	7.0	8.0	6.0	7.0	6.5	4.0	5.5
22	17.5	15.0	16.5	7.5	5.5	6.5	12.0	7.0	9.5	6.0	4.0	5.0
23	17.5	15.0	16.5	8.0	6.5	7.5	10.0	7.5	8.5	7.0	5.0	6.0
24	17.0	13.5	15.5	10.0	7.0	8.5	7.5	6.5	7.0	8.5	6.0	7.0
25	17.0	14.0	15.5	14.5	9.5	11.5	7.5	6.0	6.5	9.0	7.5	8.5
26	16.0	13.5	15.0	13.5	11.0	12.0	9.0	6.5	7.5	9.0	6.5	7.5
27	15.0	14.0	14.5	10.5	8.5	10.0	10.5	4.0	7.0	7.5	6.0	6.5
28	14.5	12.0	13.5	8.5	6.5	7.5	4.0	2.5	3.5	8.0	6.0	6.5
29	13.5	13.0	13.0	8.0	6.5	7.0	4.0	3.0	3.5	7.5	7.0	7.0
30	13.5	12.5	13.0	7.5	6.0	7.0	5.0	2.5	3.5	8.5	7.0	7.5
31	15.0	12.5	13.5	---	---	---	5.5	3.5	4.5	11.0	7.0	9.0

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.0	8.0	8.5	7.5	4.5	6.0	15.5	12.5	14.5	21.0	18.5	20.0
2	8.0	2.5	5.5	9.0	6.5	7.5	18.0	13.0	15.5	19.0	15.5	17.0
3	2.5	.0	1.0	11.5	7.0	10.0	19.0	15.5	17.0	16.5	14.5	15.5
4	1.0	.0	.5	9.5	2.5	5.5	18.5	16.0	17.5	17.5	14.5	16.0
5	1.0	.0	.5	2.0	.0	.5	17.0	15.0	16.0	20.0	16.5	18.0
6	1.0	.0	.5	1.0	.0	.5	17.5	14.5	16.0	20.0	17.0	18.5
7	1.5	.0	.5	2.0	.0	1.0	17.5	14.5	16.0	21.0	17.0	19.0
8	2.0	.5	1.0	4.0	.0	1.5	17.0	14.5	15.5	23.0	19.0	20.5
9	2.0	.0	1.0	8.5	1.5	4.0	14.5	12.5	13.5	21.5	18.5	20.5
10	3.0	.5	1.5	12.5	4.0	7.0	14.0	11.0	12.5	21.5	16.5	19.0
11	3.5	1.0	2.0	13.5	9.5	11.0	14.5	10.5	12.0	20.5	16.5	19.0
12	3.5	1.5	2.0	15.0	13.5	14.5	15.0	11.0	13.0	19.0	18.0	18.5
13	4.0	1.5	3.5	16.0	13.0	14.5	14.5	12.5	13.5	19.0	17.5	18.0
14	4.0	2.5	3.5	17.0	12.5	14.5	16.0	13.0	14.5	22.0	17.5	19.5
15	3.5	3.0	3.5	14.5	11.0	13.0	18.0	13.5	16.0	23.0	19.0	20.0
16	3.5	3.0	3.5	13.0	10.5	12.0	20.5	16.0	18.0	20.5	18.5	19.5
17	4.0	3.5	4.0	15.5	12.0	13.5	21.0	17.5	19.0	20.0	19.0	19.5
18	5.5	3.0	4.0	14.0	11.5	12.5	20.5	19.0	19.5	22.0	19.0	20.0
19	6.5	4.5	5.5	12.0	10.5	11.5	21.5	18.0	19.5	22.0	19.5	21.0
20	6.0	5.0	5.5	10.5	8.0	9.5	19.0	17.0	18.0	23.5	20.5	22.0
21	6.0	4.5	5.5	10.0	6.5	8.0	21.5	16.0	18.5	24.5	23.5	24.0
22	6.0	3.5	5.0	11.0	7.0	9.0	23.5	18.5	21.0	23.5	20.0	22.0
23	4.5	1.5	3.0	12.5	7.5	10.0	24.0	20.0	22.0	28.0	23.5	25.5
24	5.0	1.5	3.5	14.0	9.5	11.5	24.5	21.0	23.0	28.0	25.5	27.0
25	8.0	3.5	5.5	16.5	12.0	14.0	25.0	21.5	23.5	27.0	25.0	26.0
26	9.0	7.0	8.0	17.5	15.0	16.0	26.5	22.5	24.5	25.0	23.0	24.0
27	9.0	5.0	7.0	18.0	16.0	17.0	26.5	23.5	25.0	25.0	21.5	23.0
28	6.5	4.5	5.5	17.5	15.0	16.0	26.5	23.5	25.0	26.0	22.5	24.0
29	---	---	---	18.5	17.0	18.0	24.0	20.5	22.0	27.0	24.0	25.0
30	---	---	---	17.5	13.0	15.5	22.5	19.5	21.0	27.5	24.0	25.5
31	---	---	---	13.0	10.5	12.0	---	---	---	26.5	24.5	25.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	25.5	23.5	24.5	29.0	26.0	27.5	28.5	26.0	27.5	30.0	27.5	28.5
2	26.5	22.5	24.0	27.5	22.5	25.0	28.5	26.5	27.5	28.0	26.5	27.5
3	23.0	22.0	22.5	26.5	23.5	25.0	29.5	26.5	27.5	28.5	26.5	27.5
4	23.5	22.0	22.5	27.5	24.5	26.0	30.5	26.5	28.5	28.0	25.0	26.5
5	23.5	20.5	22.0	30.0	25.5	27.5	32.5	26.0	29.0	26.5	25.0	25.5
6	24.0	20.5	22.5	30.0	27.0	28.5	29.0	26.0	27.5	28.0	25.0	26.5
7	23.0	21.5	22.5	30.5	26.5	28.5	27.0	25.0	26.0	28.5	26.0	27.0
8	23.5	21.0	22.5	30.5	26.5	28.5	26.5	22.5	24.5	29.5	26.5	27.5
9	23.5	21.5	22.5	31.0	27.0	29.0	27.0	22.0	24.5	27.5	24.0	26.0
10	24.5	22.0	23.0	31.5	27.5	29.5	25.0	22.0	24.0	24.0	22.5	23.5
11	23.5	21.0	22.0	31.0	27.5	29.0	26.5	21.5	24.0	23.5	22.5	23.0
12	24.5	22.5	23.5	29.0	27.0	28.0	25.5	22.0	24.0	22.5	18.0	21.0
13	24.5	21.5	23.0	30.5	26.5	28.5	24.5	23.0	23.5	18.5	16.5	17.0
14	22.5	21.5	22.0	28.5	26.5	27.5	23.5	22.5	23.0	16.5	16.0	16.0
15	22.5	20.0	21.5	28.5	25.0	27.0	25.5	22.0	23.5	18.0	16.0	17.0
16	22.5	20.0	21.5	27.5	25.5	26.5	25.5	23.5	24.5	20.5	16.5	18.5
17	23.5	20.5	22.0	26.0	22.5	24.0	26.0	23.0	24.5	21.5	19.0	20.0
18	25.5	21.5	23.5	24.0	23.5	24.0	27.5	23.5	25.5	23.0	20.5	21.5
19	27.0	22.5	25.0	26.0	23.0	24.5	27.5	24.5	26.0	23.0	20.5	21.5
20	28.5	24.0	26.0	26.5	23.5	25.0	26.5	21.0	23.0	23.0	20.5	21.5
21	29.0	25.0	27.0	26.0	23.5	25.0	26.5	25.0	25.5	23.0	20.5	22.0
22	27.5	25.5	26.5	26.5	23.5	25.0	29.0	25.5	27.0	22.0	20.5	21.0
23	25.0	20.5	23.0	25.0	21.5	24.0	29.0	27.0	28.0	20.0	17.5	18.5
24	28.5	24.0	26.0	25.0	23.0	24.0	30.0	27.0	28.5	17.5	15.0	16.5
25	29.0	26.0	27.5	27.0	23.5	25.0	30.0	27.5	29.0	17.5	14.5	16.0
26	29.0	26.0	27.5	28.0	25.0	26.5	30.0	26.5	28.5	17.5	15.0	16.5
27	27.5	23.5	26.5	28.5	25.5	27.0	31.0	27.5	29.5	18.0	15.0	17.0
28	27.0	24.5	26.0	29.0	26.0	27.0	31.0	28.0	29.5	18.5	15.0	17.0
29	29.0	25.5	27.0	30.0	26.0	28.0	29.5	26.5	28.0	19.5	16.5	18.0
30	29.0	26.0	27.5	31.5	27.5	29.5	29.0	26.5	27.5	20.0	17.0	18.5
31	---	---	---	29.5	26.5	28.0	30.0	27.0	28.5	---	---	---

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	7.6	4.6	5.9
9	---	---	---	---	---	---	---	---	---	8.1	3.8	5.8
10	---	---	---	---	---	---	---	---	---	9.3	3.9	6.4
11	---	---	---	---	---	---	---	---	---	10.4	4.1	7.2
12	---	---	---	---	---	---	---	---	---	12.9	4.6	8.4
13	---	---	---	---	---	---	---	---	---	15.2	6.4	10.7
14	---	---	---	---	---	---	---	---	---	12.6	5.8	9.4
15	---	---	---	---	---	---	---	---	---	11.7	5.6	8.6
16	---	---	---	---	---	---	---	---	---	11.5	5.0	8.2
17	---	---	---	---	---	---	---	---	---	11.6	4.8	8.1
18	---	---	---	---	---	---	---	---	---	10.2	4.5	7.5
19	---	---	---	---	---	---	---	---	---	10.2	4.2	7.1
20	---	---	---	---	---	---	---	---	---	9.9	4.2	6.5
21	---	---	---	---	---	---	---	---	---	8.6	4.1	6.0
22	---	---	---	---	---	---	---	---	---	7.5	3.7	4.6
23	---	---	---	---	---	---	---	---	---	6.3	3.3	4.1
24	---	---	---	---	---	---	---	---	---	6.1	4.2	5.0
25	---	---	---	---	---	---	---	---	---	6.5	5.4	6.0
26	---	---	---	---	---	---	---	---	---	5.3	4.2	4.7
27	---	---	---	---	---	---	---	---	---	6.5	4.1	4.8
28	---	---	---	---	---	---	---	---	---	7.5	6.4	6.7
29	---	---	---	---	---	---	---	---	---	7.1	5.4	6.7
30	---	---	---	---	---	---	---	---	---	5.7	5.0	5.2
31	---	---	---	---	---	---	---	---	---	6.3	4.2	5.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	5.4	4.7	5.0	---	---	---	---	---	---	---	---	---
2	6.3	3.7	4.3	---	---	---	---	---	---	---	---	---
3	5.6	4.1	5.2	---	---	---	---	---	---	---	---	---
4	6.8	5.0	5.8	---	---	---	---	---	---	---	---	---
5	7.9	5.3	6.3	---	---	---	---	---	---	---	---	---
6	9.1	5.2	6.8	---	---	---	---	---	---	---	---	---
7	9.6	5.2	7.0	---	---	---	---	---	---	---	---	---
8	10.3	5.4	7.6	---	---	---	---	---	---	---	---	---
9	11.7	5.5	8.1	---	---	---	---	---	---	---	---	---
10	7.1	4.8	6.1	9.7	5.0	7.2	---	---	---	---	---	---
11	7.0	4.6	5.5	9.7	5.1	7.5	---	---	---	---	---	---
12	6.7	4.9	5.6	9.7	5.2	7.3	---	---	---	---	---	---
13	7.7	4.5	5.8	7.8	4.9	5.6	---	---	---	---	---	---
14	8.8	4.4	6.3	6.4	4.7	5.4	---	---	---	---	---	---
15	9.6	4.4	6.6	8.3	4.7	6.3	---	---	---	---	---	---
16	10.1	4.6	7.1	8.7	4.7	6.6	---	---	---	---	---	---
17	11.0	4.8	7.8	7.5	4.8	6.2	---	---	---	---	---	---
18	11.8	5.4	8.5	7.1	5.3	6.3	---	---	---	---	---	---
19	9.5	4.9	7.0	5.9	4.9	5.4	---	---	---	---	---	---
20	---	---	---	7.0	5.2	6.0	---	---	---	---	---	---
21	---	---	---	8.8	5.4	6.9	---	---	---	---	---	---
22	---	---	---	10.3	5.4	7.6	---	---	---	---	---	---
23	---	---	---	10.1	5.7	7.9	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

07170040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	---	---	---	10.8	9.9	10.3
2	---	---	---	---	---	---	---	---	---	11.1	10.1	10.6
3	---	---	---	---	---	---	---	---	---	11.2	9.6	10.4
4	---	---	---	---	---	---	---	---	---	10.7	9.4	9.8
5	---	---	---	---	---	---	---	---	---	10.6	9.1	9.8
6	---	---	---	---	---	---	---	---	---	10.6	9.7	8.9
7	---	---	---	---	---	---	---	---	---	11.1	9.6	9.4
8	---	---	---	---	---	---	---	---	---	11.2	9.7	10.4
9	---	---	---	---	---	---	---	---	---	11.6	10.6	11.1
10	---	---	---	---	---	---	---	---	---	11.8	10.7	11.1
11	---	---	---	---	---	---	---	---	---	11.8	11.1	11.5
12	---	---	---	---	---	---	---	---	---	11.9	10.6	11.2
13	---	---	---	---	---	---	---	---	---	11.6	10.1	10.8
14	---	---	---	---	---	---	---	---	---	11.8	11.1	11.4
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	14.1	5.9	10.0	---	---	---	---	---	---	---	---	---
18	16.1	7.6	10.6	---	---	---	---	---	---	12.4	11.8	12.1
19	11.4	8.4	9.9	---	---	---	---	---	---	---	---	---
20	7.8	3.8	4.9	---	---	---	---	---	---	13.4	12.6	13.0
21	7.4	4.1	5.5	---	---	---	---	---	---	13.9	13.1	13.4
22	8.5	4.2	5.7	---	---	---	---	---	---	14.4	13.0	13.7
23	7.1	3.7	5.0	---	---	---	---	---	---	13.9	12.8	13.5
24	9.4	5.1	7.6	---	---	---	---	---	---	13.7	12.8	13.2
25	8.4	6.5	7.4	---	---	---	---	---	---	14.6	13.0	13.8
26	7.4	6.0	6.5	---	---	---	10.3	8.6	9.4	13.8	13.1	13.5
27	7.2	5.6	6.3	---	---	---	10.5	8.7	9.6	14.0	12.6	13.4
28	7.7	5.9	6.7	---	---	---	11.6	9.9	10.7	---	---	---
29	7.7	5.8	6.5	---	---	---	12.1	10.8	11.4	---	---	---
30	8.6	5.4	6.5	---	---	---	11.6	10.5	11.0	---	---	---
31	7.7	4.5	5.5	---	---	---	10.8	9.6	10.2	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	9.8	8.3	8.8	15.7	5.4	10.6
2	---	---	---	---	---	---	9.8	7.9	8.9	12.7	5.3	8.5
3	---	---	---	---	---	---	9.8	8.0	8.8	10.6	5.8	8.3
4	---	---	---	---	---	---	9.2	8.1	8.7	11.4	5.7	8.6
5	---	---	---	---	---	---	---	---	---	11.5	5.7	8.7
6	---	---	---	---	---	---	10.1	7.4	8.6	11.2	5.5	8.4
7	---	---	---	---	---	---	11.1	7.9	9.2	9.9	5.9	7.6
8	---	---	---	---	---	---	11.4	7.5	9.2	10.8	5.8	8.1
9	---	---	---	---	---	---	11.6	7.2	8.9	12.8	5.1	8.6
10	---	---	---	---	---	---	10.6	7.4	9.5	13.0	6.0	9.0
11	---	---	---	---	---	---	11.1	8.5	9.7	12.0	6.0	9.0
12	---	---	---	---	---	---	11.9	8.9	10.2	12.7	5.7	8.8
13	---	---	---	---	---	---	12.3	8.0	9.9	12.1	4.4	7.9
14	---	---	---	---	---	---	12.6	7.2	9.5	11.8	3.9	7.6
15	---	---	---	---	---	---	13.1	7.4	9.7	11.4	3.6	7.5
16	---	---	---	---	---	---	13.5	7.2	9.9	12.4	3.4	7.7
17	---	---	---	12.2	9.6	11.0	10.9	7.0	8.4	12.5	3.7	7.9
18	---	---	---	11.5	10.5	10.9	7.0	5.1	6.3	12.4	3.4	7.9
19	14.7	12.9	13.9	13.7	9.5	10.6	10.2	6.9	8.3	11.7	3.4	7.6
20	13.0	12.1	12.6	15.5	8.7	11.3	10.6	7.3	8.6	---	---	---
21	---	---	---	15.8	8.4	11.9	11.6	6.2	8.6	---	---	---
22	---	---	---	14.5	8.1	11.1	10.7	5.5	7.7	---	---	---
23	---	---	---	11.4	7.4	8.9	11.4	5.0	7.8	7.7	6.0	6.9
24	---	---	---	12.8	6.2	8.1	11.6	5.1	7.8	6.2	5.0	5.9
25	---	---	---	7.9	6.5	6.7	8.4	5.7	6.9	6.7	4.9	5.7
26	9.8	9.0	8.6	8.7	6.6	7.5	9.8	5.4	7.2	7.2	4.1	5.8
27	9.6	8.8	9.2	9.7	7.4	8.3	9.1	4.9	6.5	8.0	3.9	5.8
28	9.5	8.9	9.1	9.8	7.7	7.9	10.6	5.3	7.9	8.9	3.7	6.3
29	---	---	---	10.6	9.6	7.2	10.4	4.5	7.2	9.7	4.0	7.0
30	---	---	---	10.5	8.2	10.4	13.5	4.8	10.4	11.0	4.4	7.7
31	---	---	---	10.2	8.9	10.6	---	---	---	11.5	4.6	8.0

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	9.1	4.3	6.4	7.8	3.0	5.2	7.3	3.5	5.8	7.8	4.4	5.8
2	6.6	2.2	4.0	7.1	3.4	5.2	8.6	3.6	6.0	7.8	4.4	5.8
3	5.6	2.2	3.5	8.0	3.0	5.6	8.7	3.9	6.2	5.6	3.5	4.8
4	7.7	2.2	5.1	8.3	3.3	5.8	9.4	3.8	6.1	5.4	3.8	4.5
5	8.2	2.7	4.5	8.5	3.5	5.9	9.3	3.2	5.8	6.7	4.2	5.4
6	9.5	2.8	6.3	8.1	1.7	5.5	4.0	1.0	1.9	7.5	4.2	5.6
7	10.0	3.4	7.1	8.9	2.4	5.9	5.3	1.0	2.7	8.3	4.6	6.2
8	9.6	3.4	6.6	9.0	3.6	5.6	7.2	1.2	3.8	10.7	5.2	7.2
9	9.5	3.6	6.4	8.1	4.0	5.7	8.6	2.0	4.4	---	---	---
10	---	---	---	8.3	2.7	5.5	9.5	2.1	5.3	---	---	---
11	---	---	---	8.9	3.0	5.3	8.0	3.0	5.3	---	---	---
12	---	---	---	6.1	2.0	3.9	8.3	3.1	5.2	---	---	---
13	---	---	---	7.2	2.2	4.6	7.7	2.8	5.0	---	---	---
14	---	---	---	6.3	2.1	4.2	8.2	3.0	5.5	---	---	---
15	---	---	---	6.6	2.1	4.3	9.3	3.2	5.8	---	---	---
16	---	---	---	6.8	2.3	4.3	9.6	3.5	6.1	---	---	---
17	---	---	---	---	---	---	9.2	3.7	5.8	3.4	2.1	2.9
18	---	---	---	---	---	---	8.8	3.6	5.6	5.8	2.5	4.8
19	---	---	---	---	---	---	8.4	3.5	5.6	6.1	5.3	5.7
20	---	---	---	---	---	---	5.3	2.5	3.5	5.6	4.9	5.2
21	---	---	---	4.0	2.5	3.4	4.6	2.2	3.0	5.8	4.5	5.1
22	---	---	---	5.3	2.2	3.4	4.3	2.4	3.1	6.3	4.3	5.1
23	7.7	3.2	5.4	6.2	2.4	4.0	5.6	2.3	3.1	7.8	4.0	5.4
24	7.9	3.4	5.6	7.8	2.8	5.0	5.7	3.2	4.2	7.0	6.3	6.5
25	7.8	3.8	5.6	5.4	2.1	3.4	6.3	3.5	4.7	6.7	5.9	6.3
26	7.5	3.6	5.5	3.6	1.8	2.6	9.1	3.2	5.7	6.9	5.7	6.2
27	7.5	3.6	5.4	3.9	2.1	2.8	8.1	3.2	5.2	7.5	5.7	6.4
28	7.4	4.1	5.7	6.8	2.8	5.4	6.9	4.1	5.5	8.8	5.4	6.6
29	7.1	2.8	4.9	5.7	4.5	5.3	6.1	4.6	5.4	7.4	5.6	6.6
30	8.0	2.9	5.2	5.7	3.9	4.8	6.7	4.2	5.2	5.9	3.5	5.0
31	---	---	---	6.7	3.4	4.8	7.6	4.0	5.5	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	5.0	4.0	4.5	11.9	5.2	7.5	12.1	9.9	11.1	11.4	10.4	11.0
2	6.1	4.5	5.3	12.4	4.9	7.6	12.1	10.5	11.1	11.6	9.1	10.6
3	6.4	4.9	5.6	12.3	4.7	7.7	12.5	10.4	11.2	12.9	9.7	10.6
4	---	---	---	14.2	4.6	8.2	14.4	10.2	11.7	12.5	9.6	10.9
5	---	---	---	13.8	4.3	8.5	13.5	10.3	11.7	13.6	7.0	10.8
6	9.8	8.9	9.2	14.9	5.7	9.4	13.3	10.3	11.5	13.9	8.4	10.9
7	9.3	8.8	9.1	15.6	6.1	9.8	10.8	7.9	9.8	13.4	8.5	10.6
8	9.3	8.3	8.8	14.3	6.3	9.7	10.5	7.4	9.1	15.8	8.8	11.5
9	9.5	8.0	8.7	13.9	4.1	8.9	11.3	8.8	9.8	15.4	10.0	12.2
10	10.0	8.0	9.1	---	---	---	15.7	8.4	10.9	15.5	9.5	12.7
11	10.5	8.3	9.2	---	---	---	14.4	9.5	11.8	13.7	10.1	12.2
12	10.7	8.2	9.5	---	---	---	13.2	9.8	11.4	16.3	10.5	13.0
13	11.7	8.3	9.9	---	---	---	14.5	10.6	12.2	14.0	9.2	11.7
14	12.5	8.4	10.4	---	---	---	15.4	10.9	12.6	14.1	8.8	10.5
15	13.1	8.3	10.4	---	---	---	15.8	10.0	12.4	---	---	---
16	12.2	7.9	10.0	8.0	6.7	7.2	15.5	9.4	12.4	---	---	---
17	13.1	7.0	9.8	9.4	8.1	8.7	16.2	9.5	12.7	---	---	---
18	10.1	5.3	8.1	9.7	8.3	9.1	16.2	10.2	13.5	---	---	---
19	8.2	3.8	5.9	11.8	8.1	9.6	16.8	10.6	13.5	---	---	---
20	7.8	4.5	5.7	13.1	11.5	12.5	16.3	9.5	12.7	---	---	---
21	8.8	4.3	6.0	11.5	10.7	11.1	16.0	10.4	12.9	---	---	---
22	9.0	4.4	6.2	11.2	8.8	10.7	10.9	8.2	9.0	---	---	---
23	9.1	4.0	5.9	10.7	8.6	9.8	9.4	8.8	9.1	---	---	---
24	9.8	3.8	6.1	10.3	8.0	9.2	9.8	7.7	9.3	14.6	10.4	12.3
25	10.0	4.0	6.2	9.6	8.1	8.8	11.0	8.8	9.9	12.1	10.0	10.4
26	10.1	3.8	6.2	8.8	8.2	8.5	11.8	8.9	10.2	10.2	9.8	10.0
27	6.0	3.6	4.6	9.8	8.8	9.3	12.5	8.6	10.6	10.6	9.9	10.3
28	8.8	3.2	5.7	11.1	9.8	10.4	13.4	11.6	12.3	10.9	9.9	10.5
29	7.5	4.3	5.5	12.0	10.1	10.9	12.8	11.7	12.1	10.7	10.1	10.3
30	9.3	3.9	6.0	14.1	9.7	11.5	12.6	11.4	12.0	10.4	10.0	10.1
31	11.3	3.9	6.9	---	---	---	12.2	11.2	11.6	10.4	9.3	9.9

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.3	9.1	9.6	14.9	9.3	11.7	10.3	9.3	9.8	12.2	6.1	9.0
2	11.1	9.3	10.0	14.8	11.0	12.5	10.2	8.7	9.4	8.8	6.7	7.6
3	12.7	11.1	11.9	13.5	10.3	11.4	10.5	8.0	9.0	7.8	4.8	6.7
4	13.3	12.0	12.5	11.9	9.8	10.8	10.9	7.3	9.0	7.5	4.1	5.9
5	13.9	12.2	12.9	12.9	11.3	12.1	10.8	7.9	9.1	6.8	3.7	5.0
6	13.7	12.2	12.7	14.1	12.3	13.0	11.2	7.8	9.0	8.0	3.9	5.8
7	13.6	11.8	12.6	14.7	12.5	13.4	12.2	7.7	9.4	8.7	3.3	6.3
8	13.7	11.6	12.4	14.0	11.8	12.6	12.6	7.3	9.4	6.5	1.9	4.5
9	13.9	11.8	12.6	12.5	10.8	11.9	11.6	7.4	9.1	6.7	1.0	3.5
10	13.8	11.8	12.5	11.9	9.1	11.2	13.6	7.9	10.3	8.2	3.1	5.5
11	13.9	11.4	12.4	10.3	9.0	9.5	14.7	8.8	11.3	8.1	1.8	4.8
12	13.2	10.6	12.0	9.5	7.9	8.6	15.5	9.1	11.6	5.6	.9	3.7
13	11.5	11.0	11.3	11.1	8.0	9.2	14.0	8.8	10.9	5.7	1.3	2.4
14	11.9	11.0	11.4	12.4	7.6	9.6	11.4	8.1	9.1	8.4	2.4	4.0
15	11.9	11.5	11.7	12.8	7.6	9.9	12.3	7.3	9.3	8.1	2.9	5.3
16	11.8	11.3	11.6	13.3	8.4	10.4	12.9	7.2	9.3	7.0	2.6	5.5
17	11.7	11.2	11.4	12.4	8.6	10.1	12.4	6.0	8.8	7.8	1.0	2.9
18	11.7	10.9	11.3	11.6	7.6	9.4	9.6	5.8	6.9	8.2	7.0	7.5
19	10.9	10.5	10.7	9.9	7.9	8.7	8.8	4.8	6.4	7.0	4.0	6.3
20	10.8	9.9	10.6	10.4	8.3	9.4	7.9	4.5	5.9	6.0	3.0	4.5
21	11.1	10.4	10.8	13.6	9.6	11.3	9.1	5.3	6.9	5.1	3.5	4.5
22	11.8	10.7	11.2	15.0	10.1	12.1	9.6	4.7	6.6	8.3	4.1	6.2
23	13.1	11.5	12.1	16.1	10.5	12.7	10.2	3.6	6.6	6.2	4.1	5.0
24	13.3	11.8	12.4	15.6	10.2	12.2	10.5	3.3	6.7	5.9	3.4	4.6
25	13.3	10.4	12.0	15.3	8.8	11.3	11.0	3.6	6.9	5.7	1.8	3.9
26	13.3	9.9	11.4	13.1	7.7	9.8	11.0	3.5	7.2	5.9	3.1	4.8
27	11.0	9.5	10.4	11.6	7.4	8.9	10.6	3.6	7.3	6.3	1.1	4.7
28	11.5	10.2	10.8	9.3	7.4	8.6	10.5	3.5	7.3	6.5	.6	3.0
29	---	---	---	8.6	7.4	8.0	10.4	5.1	7.8	5.5	.6	2.5
30	---	---	---	10.1	7.2	8.8	11.4	5.8	8.7	7.2	.8	3.6
31	---	---	---	10.8	9.6	10.2	---	---	---	7.2	1.3	4.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	6.3	2.4	4.8	6.1	3.6	4.5	7.5	3.4	5.2	8.1	4.6	6.4
2	8.7	2.5	4.4	6.8	3.5	4.8	8.1	4.2	6.0	6.8	4.7	5.4
3	8.2	6.2	7.1	5.0	4.3	4.7	8.5	4.7	6.3	6.2	4.4	5.2
4	8.7	6.8	7.8	5.3	3.9	4.5	9.2	4.9	6.8	6.3	4.5	5.1
5	9.4	6.9	8.1	6.5	4.0	4.9	9.4	4.9	7.0	5.8	4.8	5.3
6	7.1	3.3	5.2	6.3	3.9	4.7	6.9	5.0	5.8	6.4	4.6	5.4
7	6.7	4.7	5.6	6.4	3.7	4.8	8.4	4.4	6.3	6.3	3.9	5.1
8	6.0	5.2	5.6	6.9	3.8	5.1	8.6	5.0	6.6	6.4	4.5	5.4
9	5.8	4.4	5.2	7.4	4.4	5.7	9.3	5.4	7.1	5.2	4.4	4.8
10	6.1	4.6	5.2	7.2	4.2	5.6	9.6	5.7	7.5	6.7	4.7	5.5
11	8.0	4.7	6.8	7.0	3.2	5.1	10.1	6.1	8.0	6.0	4.7	5.3
12	7.2	5.8	6.4	4.9	3.2	4.1	8.9	6.1	7.6	8.0	5.0	5.8
13	8.2	5.6	6.9	5.9	2.6	4.0	7.5	5.7	6.6	8.6	8.0	8.3
14	7.3	6.8	7.1	4.0	2.3	3.2	6.5	5.2	5.8	8.5	8.2	8.3
15	7.1	6.7	6.9	5.1	2.2	2.9	5.8	4.2	5.0	8.6	7.9	8.4
16	7.5	6.5	7.1	4.6	3.1	3.6	5.6	4.2	4.7	8.5	7.5	8.0
17	7.5	6.4	6.9	---	---	---	6.4	4.2	5.2	8.4	7.2	7.7
18	7.9	5.9	6.8	---	---	---	6.9	4.1	5.4	8.7	6.9	7.7
19	8.3	5.6	6.7	---	---	---	5.3	3.0	4.3	9.7	6.8	7.9
20	8.6	5.3	6.7	---	---	---	7.7	3.8	6.4	10.3	6.7	8.2
21	8.8	5.0	6.6	---	---	---	5.8	5.2	5.5	10.7	6.8	8.5
22	7.6	4.7	5.8	8.4	5.7	6.8	6.1	4.7	5.7	10.3	6.6	8.4
23	6.6	4.9	5.9	8.0	5.3	6.5	6.4	4.7	5.5	11.1	7.2	9.1
24	5.4	4.1	4.8	5.8	4.3	5.0	7.9	5.2	6.3	11.2	7.8	9.5
25	5.7	4.1	4.6	6.3	4.1	5.0	8.9	5.6	7.0	11.3	8.3	9.8
26	6.3	4.1	4.8	6.5	4.1	5.0	8.4	5.1	6.4	11.4	8.3	9.9
27	5.6	3.2	3.8	7.1	4.1	5.5	8.3	4.4	6.3	11.2	8.1	9.7
28	4.2	3.1	3.6	7.4	4.4	5.5	8.8	4.8	6.8	11.0	8.0	9.4
29	5.2	3.6	4.1	5.7	3.8	4.8	7.8	5.2	6.2	11.5	8.2	9.7
30	5.5	3.5	4.2	7.3	3.2	5.1	8.0	5.0	6.1	11.2	8.3	9.8
31	---	---	---	6.8	3.8	5.1	8.4	4.7	6.4	---	---	---

07178050 BIRD CREEK NEAR CATOOSA, OK

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

DRAINAGE AREA.-- 1,080 mi².

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)
NOV 01...	1030	1028	84042	4.59	490	7.8	19.5	16.0	20	6.0	750
DEC 13...	1220	1028	84042	4.50	495	7.7	18.5	5.0	40	9.0	750
JAN 24...	0945	1028	84042	4.65	580	8.2	14.5	9.0	30	7.0	750
MAR 08...	0830	1028	80020	5.35	640	8.0	8.0	2.0	--	33	760
08...	0831	1028	84042	5.35	640	8.0	8.0	2.0	50	24	760
APR 18...	1100	1028	84042	5.10	487	7.8	20.0	18.0	40	17	745
18...	1110	1028	80020	5.10	487	7.8	20.0	18.0	--	16	745
MAY 31...	0900	1028	84042	5.26	384	7.9	24.5	25.0	>70	30	750
31...	0930	1028	80020	5.26	384	7.9	24.5	25.0	--	35	750
JUL 05...	1115	1028	84042	5.45	337	7.8	32.5	27.0	>70	56	745
05...	1120	1028	80020	5.45	337	7.8	32.5	27.0	--	57	745
AUG 22...	1050	1028	84042	10.54	205	7.5	30.0	25.0	>70	110	750
22...	1055	1028	80020	10.54	205	7.5	30.0	25.0	--	120	750
SEP 26...	1110	1028	84042	--	396	7.9	19.0	17.0	60	8.5	755

[illegible]

ARKANSAS RIVER BASIN

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07178050 BIRD CREEK NEAR CAT00SA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, TOTAL (MG/L AS F)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)
NOV 01...	--	5.0	--	121	0	99	35	45	0.5	--	284
DEC 13...	--	--	--	154	0	126	--	--	0.4	--	287
JAN 24...	--	4.3	--	262	0	215	66	59	0.5	--	348
MAR 08...	2	--	3.9	130	0	107	59	92	--	370	--
08...	--	--	--	130	0	107	--	--	0.3	--	377
APR 18...	--	--	--	138	0	113	--	--	0.3	--	283
18...	1	--	3.5	138	0	113	38	53	--	281	--
MAY 31...	--	4.0	--	110	0	90	24	41	0.3	--	236
31...	1	--	3.4	110	0	90	26	39	--	228	--
JUL 05...	--	--	--	110	0	90	--	--	0.3	--	208
05...	1	--	4.2	110	0	90	23	41	--	215	--
AUG 22...	--	4.5	--	84	0	69	20	40	0.2	--	136
22...	0.9	--	3.8	84	0	69	14	15	--	190	--
SEP 26...	--	--	--	124	0	102	--	--	0.2	--	231

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN NITRATE TOTAL (MG/L AS N)	NITRO- GEN NITRITE TOTAL (MG/L AS N)	NITRO- GEN NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
NOV 01...	--	--	13	5.19	0.710	5.90	0.180	0.23	1.0	1.2	7.1
DEC 13...	--	--	18	2.80	<0.500	2.80	1.46	1.9	0.76	2.2	5.0
JAN 24...	--	--	12	4.20	<0.500	4.20	<0.100	--	0.77	0.77	5.0
MAR 08...	340	0.50	--	--	--	--	--	--	--	--	--
08...	--	--	36	1.20	1.70	2.90	<0.100	--	0.73	0.73	3.6
APR 18...	--	--	35	1.90	<0.500	1.90	<0.100	--	0.72	0.72	2.6
18...	252	0.38	--	--	--	--	--	--	--	--	--
MAY 31...	--	--	52	2.20	<0.500	2.20	0.224	0.29	0.46	0.68	2.9
31...	193	0.31	--	--	--	--	--	--	--	--	--
JUL 05...	--	--	94	1.40	<0.500	1.40	0.242	0.31	0.93	1.2	2.6
05...	183	0.29	--	--	--	--	--	--	--	--	--
AUG 22...	--	--	250	0.700	<0.500	0.700	<0.100	--	1.3	1.3	2.0
22...	113	0.26	--	--	--	--	--	--	--	--	--
SEP 26...	--	--	15	0.800	<0.500	0.800	0.109	0.14	0.11	0.22	1.0

DATE	NITRO- GEN, TOTAL (MG/L AS N03)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 01...	32	2.29	6.78	2.21	<60	<60	70	<100	<5	<5.0	<10
DEC 13...	22	0.900	2.18	0.710	--	--	--	--	--	--	--
JAN 24...	22	1.50	4.45	1.45	<60	<60	80	<100	<5	<5.0	<10
MAR 08...	--	--	--	--	--	--	--	--	--	--	--
08...	16	0.522	1.03	0.336	--	--	--	--	--	--	--
APR 18...	12	0.758	1.07	0.348	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
MAY 31...	13	0.700	0.99	0.323	<60	<60	90	86	<5	<5.0	<10
31...	--	--	--	--	--	--	--	--	--	--	--
JUL 05...	11	0.467	1.18	0.385	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	8.8	0.156	0.35	0.115	<60	<60	100	<100	<5	<5.0	17
22...	--	--	--	--	--	--	--	--	--	--	--
SEP 26...	4.5	0.418	0.95	0.310	--	--	--	--	--	--	--

[illegible]

ARKANSAS RIVER BASIN

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07178050 BIRD CREEK NEAR CATOOSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<70	<7	<7.0	290	270	40	--	<5.0	13	88
DEC 13...	--	--	--	--	--	--	--	--	10	79
JAN 24...	<70	<7	<7.0	390	380	80	--	<5.0	--	--
MAR 08...	--	--	--	--	--	--	--	--	47	94
08...	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	42	80
MAY 31...	<70	<7	<7.0	300	290	10	--	<0.5	--	--
31...	--	--	--	--	--	--	--	--	--	--
JUL 05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	110	94
AUG 22...	<70	<7	<7.0	160	140	70	45	8.9	--	--
22...	--	--	--	--	--	--	--	--	214	95
SEP 26...	--	--	--	--	--	--	--	--	--	--

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
NOV 01...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JAN 24...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
MAY 31...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JUL 05...	--	--	<0.6	--	--	<4.0	--	--	<14	--
AUG 22...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
NOV 01...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JAN 24...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
MAY 31...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JUL 05...	--	<2.0	--	--	<1.2	--	--	<0.6	--	--
AUG 22...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

ARKANSAS RIVER BASIN

07178050 BIRD CREEK NEAR CATOOSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JAN 24...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
MAY 31...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JUL 05...	<0.6	--	--	<0.6	--	--	<0.4	--	--	<4.0
AUG 22...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JAN 24...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<60
MAY 31...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JUL 05...	--	<2.0	--	<2.0	--	--	<2.0	--	--	<60
AUG 22...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JAN 24...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
MAY 31...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JUL 05...	--	--	<75.0	--	--	--	<10.0	--	--	<10.0
AUG 22...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

ARKANSAS RIVER BASIN

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07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK

LOCATION.-- Lat 36°13'23", long 95°49'09", in NW 1/4 SW 1/4 sec.9, T.20 N., R.14 E., Tulsa County, Hydrologic Unit 11070107, near left downstream abutment of bridge, 2.3 mi downstream from Elm Creek, 5 mi northwest of Catoosa High School, and at mile 9.6.

DRAINAGE AREA.-- 1,103 mi²

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- August 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 545.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. U.S. Geological Survey's satellite telemeter at station. Some regulation by Skiatook Lake (station 07177400).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 17,300 ft³/s, Aug. 20, 1989, gage height, 27.55 ft; minimum daily discharge, 92 ft³/s, Feb. 9, 1989.

EXTREMES FOR CURRENT PERIOD.-- August to September 1988: Maximum discharge during period, 4,980 ft³/s, Sept. 19; minimum daily discharge, 176 ft³/s, Aug. 14.

Water year 1989: Maximum discharge during period, 17,300 ft³/s, Aug. 20, 1989; minimum daily discharge, 92 ft³/s, Aug. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	e215	200
2	---	---	---	---	---	---	---	---	---	---	e195	272
3	---	---	---	---	---	---	---	---	---	---	e185	450
4	---	---	---	---	---	---	---	---	---	---	e176	223
5	---	---	---	---	---	---	---	---	---	---	e195	209
6	---	---	---	---	---	---	---	---	---	---	e251	206
7	---	---	---	---	---	---	---	---	---	---	187	200
8	---	---	---	---	---	---	---	---	---	---	184	202
9	---	---	---	---	---	---	---	---	---	---	186	202
10	---	---	---	---	---	---	---	---	---	---	280	199
11	---	---	---	---	---	---	---	---	---	---	196	193
12	---	---	---	---	---	---	---	---	---	---	187	196
13	---	---	---	---	---	---	---	---	---	---	183	194
14	---	---	---	---	---	---	---	---	---	---	176	193
15	---	---	---	---	---	---	---	---	---	---	177	244
16	---	---	---	---	---	---	---	---	---	---	186	415
17	---	---	---	---	---	---	---	---	---	---	190	282
18	---	---	---	---	---	---	---	---	---	---	189	883
19	---	---	---	---	---	---	---	---	---	---	235	3340
20	---	---	---	---	---	---	---	---	---	---	497	1830
21	---	---	---	---	---	---	---	---	---	---	219	663
22	---	---	---	---	---	---	---	---	---	---	269	372
23	---	---	---	---	---	---	---	---	---	---	214	1060
24	---	---	---	---	---	---	---	---	---	---	214	1900
25	---	---	---	---	---	---	---	---	---	---	200	725
26	---	---	---	---	---	---	---	---	---	---	195	473
27	---	---	---	---	---	---	---	---	---	---	191	361
28	---	---	---	---	---	---	---	---	---	---	482	312
29	---	---	---	---	---	---	---	---	---	---	292	694
30	---	---	---	---	---	---	---	---	---	---	211	365
31	---	---	---	---	---	---	---	---	---	---	205	---
TOTAL	---	---	---	---	---	---	---	---	---	---	6962	17048
MEAN	---	---	---	---	---	---	---	---	---	---	225	568
MAX	---	---	---	---	---	---	---	---	---	---	497	3340
MIN	---	---	---	---	---	---	---	---	---	---	176	193
AC-FT	---	---	---	---	---	---	---	---	---	---	13610	33810

e Estimated

ARKANSAS RIVER BASIN

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CAT00SA, OK--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	306	142	268	449	e320	e228	1760	248	367	385	260	567
2	290	141	278	377	e242	e216	1370	260	350	790	250	539
3	290	140	312	350	e183	e202	1100	316	584	1300	243	473
4	279	142	233	318	e151	e920	959	412	579	633	243	480
5	429	136	198	299	e132	e590	777	307	683	453	241	481
6	647	133	248	287	e113	e325	685	291	831	345	1010	e8200
7	494	136	267	274	e102	e250	602	304	528	369	491	e7020
8	410	123	158	248	99	276	441	302	650	365	294	1130
9	541	117	147	258	92	e1670	406	294	542	329	254	857
10	473	237	153	290	123	e1490	393	284	495	328	240	722
11	405	132	130	308	143	1190	341	279	2850	312	235	667
12	360	1490	112	248	142	748	363	278	9420	315	232	685
13	330	668	175	e223	200	617	338	289	8930	324	225	4060
14	310	527	219	e214	e260	543	349	284	3220	485	302	7050
15	254	408	144	e245	e1170	397	334	412	1560	380	256	3530
16	154	324	129	e222	e1060	369	330	835	1330	533	240	2620
17	149	211	143	218	e710	312	315	430	1200	4230	650	2320
18	143	226	174	229	e500	270	327	1290	1100	4820	450	2150
19	139	224	230	197	e400	243	338	2300	978	740	345	2060
20	126	e1550	229	204	e272	236	303	964	1020	438	10500	1880
21	131	e2210	191	158	e705	203	343	552	860	367	13600	1510
22	133	e1200	673	172	e880	177	302	792	700	359	3560	678
23	147	e590	377	185	e510	220	291	1410	1070	780	2560	482
24	146	e460	323	162	e405	188	286	1040	752	559	2830	439
25	141	e400	218	e1100	e340	158	283	706	516	362	2830	451
26	138	e1150	280	e1040	323	132	277	596	387	318	2690	399
27	141	e1130	824	e400	e242	130	272	530	1380	300	2560	e323
28	141	e590	1410	e605	e232	3850	272	433	999	340	2500	e312
29	141	409	870	e1660	---	4970	254	420	512	466	1360	292
30	138	286	638	e900	---	4320	247	417	439	311	1320	359
31	141	---	516	e515	---	3880	---	390	---	269	1010	---
TOTAL	8067	15632	10267	12355	10051	29320	14658	17665	44832	22305	53781	52736
MEAN	260	521	331	399	359	946	489	570	1494	720	1735	1758
MAX	647	2210	1410	1660	1170	4970	1760	2300	9420	4820	13600	8200
MIN	126	117	112	158	92	130	247	248	350	269	225	292
AC-FT	16000	31010	20360	24510	19940	58160	29070	35040	88920	44240	106700	104600

WTR YR 1989 TOTAL 291669 MEAN 799 MAX 13600 MIN 92 AC-FT 578500

e Estimated

ARKANSAS RIVER BASIN

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07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK --Continued
WATER QUALITY RECORDS

PERIOD OF RECORD.-- AUGUST 1988 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1988 to current year.

pH: August 1988 to current year.

WATER TEMPERATURE: August 1988 to current year.

DISSOLVED OXYGEN: August 1988 to current year.

INSTRUMENTATION.-- Water-quality monitor since August 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected bimonthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. Data for specific conductance, pH, water temperature, and dissolved oxygen, for August to September 1988 are available upon request from the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 706 microsiemens, July 16, 1989; minimum recorded, 56 microsiemens, July 18, 1989.

pH: Maximum recorded, 9.4 units, July 17, 1989; minimum recorded, 6.4 units, July 27, 1989.

WATER TEMPERATURE: Maximum recorded, 31.0°C, Aug. 17, 1988; minimum recorded, 2.0°C, Feb. 6, Mar. 7.

DISSOLVED OXYGEN: Maximum recorded, 13.0 mg/l, Jan. 9, 1989; minimum recorded, 3.8 mg/l, June 12, 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
NOV												
01...	1245	1028	84042	4.63	150	505	7.7	20.5	18.0	30	7.0	750
DEC												
13...	1215	1028	84042	4.88	220	537	7.8	18.0	7.5	40	8.0	750
JAN												
24...	1315	1028	84042	4.77	187	605	8.2	17.0	8.5	20	7.0	750
MAR												
08...	1450	1028	84042	5.19	255	671	7.8	9.5	3.5	>70	27	755
APR												
18...	1115	1028	84042	5.13	300	513	7.5	25.0	19.0	40	16	745
18...	1125	1028	80020	5.13	300	513	7.5	25.0	19.0	25	15	745
MAY												
31...	1220	1028	84042	5.43	403	424	7.8	29.5	25.0	>70	30	745
JUL												
05...	1400	1028	84042	5.58	458	405	7.3	33.5	27.0	>70	56	750
AUG												
22...	1300	1028	84042	9.13	2060	207	7.2	35.5	25.5	>70	110	750
SEP												
26...	1315	1028	84042	5.47	399	408	7.9	23.0	18.0	60	9.9	760
26...	1355	1028	80020	5.47	399	408	7.9	23.0	18.0	25	9.5	760

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOV- ERABLE (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, TOTAL (MG/L AS F)
NOV												
01...	8.4	87	41	8.0	39	4.9	122	0	100	34	45	0.5
DEC												
13...	11.3	96	--	--	--	--	168	0	138	--	--	0.4
JAN												
24...	11.4	99	55	10	40	4.4	176	0	144	64	61	0.4
MAR												
08...	12.8	97	--	--	--	--	145	0	119	--	--	0.3
APR												
18...	8.0	88	--	--	--	--	142	0	116	--	--	0.4
18...	8.0	88	--	--	--	--	142	0	116	--	--	--
MAY												
31...	6.8	84	37	8.0	28	3.3	112	0	92	22	41	0.3
JUL												
05...	--	--	--	--	--	--	96	0	78	--	--	0.3
AUG												
22...	4.5	56	23	5.0	12	4.0	72	0	59	<20	42	0.2
SEP												
26...	9.0	95	--	--	--	--	123	0	101	--	--	0.3
26...	9.0	95	--	--	--	--	123	0	101	--	--	--

ARKANSAS RIVER BASIN

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	FLUORIDE, DIS- SOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2-N03 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)
NOV 01...	--	--	288	14	4.30	0.700	5.00	0.190	0.24	0.98	1.2
DEC 13...	--	--	307	16	3.90	<0.500	3.90	2.39	3.1	1.2	3.5
JAN 24...	--	--	351	13	4.20	<0.500	4.20	<0.100	--	0.90	0.90
MAR 08...	--	--	391	40	1.30	1.70	3.00	<0.100	--	0.66	0.66
APR 18...	--	--	307	37	3.30	<0.500	3.30	<0.100	--	0.82	0.82
18...	0.30	303	--	33	2.68	0.020	2.70	0.039	0.05	0.36	0.40
MAY 31...	--	--	234	62	2.50	<0.500	2.50	0.112	0.14	0.68	0.79
JUL 05...	--	--	228	86	1.50	<0.500	1.50	0.242	0.31	1.0	1.3
AUG 22...	--	--	272	312	<0.500	<0.500	<0.500	<0.100	--	1.1	1.1
SEP 26...	--	--	217	16	1.00	<0.500	1.00	0.218	0.28	0.11	0.33
26...	0.30	228	--	16	1.29	0.010	1.30	0.017	0.02	0.58	0.60

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
NOV 01...	6.2	27	2.45	7.08	2.31	<60	<60	70	<100	<5	<5.0
DEC 13...	7.4	33	1.32	3.37	1.10	--	--	--	--	--	--
JAN 24...	5.1	23	1.55	4.83	1.51	<60	<60	70	<100	<5	<5.0
MAR 08...	3.7	16	0.499	1.45	0.474	--	--	--	--	--	--
APR 18...	4.1	18	1.25	2.58	0.841	--	--	--	--	--	--
18...	3.1	14	1.10	2.97	0.970	--	--	--	--	--	--
MAY 31...	3.3	15	0.668	1.01	0.328	<60	<60	90	<100	<5	<5.0
JUL 05...	2.8	12	0.510	1.27	0.415	--	--	--	--	--	--
AUG 22...	--	--	0.148	0.32	0.105	<60	<60	100	<100	<5	<5.0
SEP 28...	1.3	5.9	0.458	0.99	0.323	--	--	--	--	--	--
28...	1.9	8.4	0.520	1.47	0.480	--	--	--	--	--	--

[illegible]

07178200 BIRD CREEK AT STATE HIGHWAY 268 NEAR CATOOSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 01...	<70	<7	<7.0	300	310	7	--	<5.0	17	6.9	91
DEC 13...	--	--	--	--	--	--	--	--	13	7.7	83
JAN 24...	<70	<7	<7.0	390	400	6	<5	<5.0	14	7.1	83
MAR 08...	--	--	--	--	--	--	--	--	43	30	89
APR 18...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	52	42	89
MAY 31...	<70	<7	<7.0	300	290	10	9	<5.0	75	82	90
JUL 05...	--	--	--	--	--	--	--	--	71	88	93
AUG 22...	<70	<7	<7.0	170	150	40	17	7.3	288	1600	94
SEP 26...	--	--	--	--	--	--	--	--	--	--	--
SEP 26...	--	--	--	--	--	--	--	--	21	23	87

DATE	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, DIS- SOLVED (UG/L)
NOV 01...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JAN 24...	<0.03	<0.030	<0.6	<0.2	<0.2	<4.0	<0.70	<0.70	<14	<0.05
MAY 31...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05
JUL 05...	--	--	<0.6	--	--	<4.0	--	--	<14	--
AUG 22...	<0.03	<0.030	--	<0.2	<0.2	--	<0.70	<0.70	--	<0.05

DATE	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, DIS- SOLVED (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, DIS- SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, DIS- SOLVED (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)
NOV 01...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JAN 24...	<0.05	<2.0	<0.06	<0.060	<1.2	<0.03	<0.030	<0.6	<0.03	<0.030
MAY 31...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030
JUL 05...	--	<2.0	--	--	<1.2	--	--	<0.6	--	--
AUG 22...	<0.05	--	<0.06	<0.060	--	<0.03	<0.030	--	<0.03	<0.030

ARKANSAS RIVER BASIN

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE DIS- SOLVED (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, DIS- SOLVED (UG/L)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JAN 24...	<0.6	<0.03	<0.030	<0.6	<0.02	<0.020	<0.4	<0.40	<0.40	<4.0
MAY 31...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
JUL 05...	<0.6	--	--	<0.6	--	--	<0.4	--	--	<4.0
AUG 22...	--	<0.03	<0.030	--	<0.02	<0.020	--	<0.40	<0.40	--
DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, DIS- SOLVED (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, DIS- SOLVED (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JAN 24...	<0.70	<2.0	<0.10	<2.0	<0.10	<0.10	<2.0	<0.30	<0.3	<60
MAY 31...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
JUL 05...	--	<2.0	--	<2.0	--	--	<2.0	--	--	<60
AUG 22...	<0.70	--	<0.10	--	<0.10	<0.10	--	<0.30	<0.3	--
DATE	2,4-D, DIS- SOLVED (UG/L)	2,4-D, TOTAL (UG/L)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP TOTAL (UG/L)	2,4,5-T DIS- SOLVED (UG/L)	2,4,5-T TOTAL (UG/L)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, DIS- SOLVED (UG/L)	SILVEX, TOTAL (UG/L)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 01...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JAN 24...	<20	<20	<75.0	<2.0	<2.0	<2.0	<10.0	<2.0	<2.0	<10.0
MAY 31...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--
JUL 05...	--	--	<75.0	--	--	--	<10.0	--	--	<10.0
AUG 22...	<20	<20	--	<2.0	<2.0	<2.0	--	<2.0	<2.0	--

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	417	388	401	---	---	---	---	---	---	493	478	484
2	417	387	405	503	457	487	---	---	---	504	487	494
3	414	388	405	511	469	495	---	---	---	510	493	503
4	422	394	410	523	478	505	---	---	---	512	498	506
5	489	391	424	516	483	504	---	---	---	522	507	513
6	364	317	345	539	482	513	---	---	---	529	514	523
7	406	358	384	535	485	512	---	---	---	531	512	524
8	449	403	430	533	487	511	---	---	---	539	512	528
9	430	400	415	555	496	525	---	---	---	532	508	523
10	---	---	---	---	---	---	---	---	---	522	505	518
11	---	---	---	---	---	---	---	---	---	523	498	515
12	---	---	---	---	---	---	---	---	---	513	485	503
13	---	---	---	---	---	---	---	---	---	520	498	505
14	---	---	---	---	---	---	---	---	---	560	500	516
15	---	---	---	---	---	---	---	---	---	572	513	541
16	---	---	---	---	---	---	---	---	---	537	507	517
17	---	---	---	---	---	---	---	---	---	535	515	528
18	---	---	---	---	---	---	---	---	---	540	525	533
19	---	---	---	---	---	---	---	---	---	549	530	539
20	---	---	---	---	---	---	---	---	---	561	542	551
21	---	---	---	---	---	---	---	---	---	576	559	565
22	---	---	---	---	---	---	---	---	---	590	576	583
23	---	---	---	---	---	---	---	---	---	599	581	591
24	---	---	---	---	---	---	---	---	---	606	589	598
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	489	463	475	589	553	570	---	---	---	---	---	---
2	512	491	502	618	582	601	---	---	---	---	---	---
3	527	507	515	594	559	584	---	---	---	---	---	---
4	543	527	535	582	308	378	---	---	---	---	---	---
5	553	539	547	---	---	---	---	---	---	---	---	---
6	570	556	564	---	---	---	---	---	---	---	---	---
7	618	569	591	---	---	---	---	---	---	---	---	---
8	628	586	605	---	---	---	---	---	---	---	---	---
9	643	595	618	---	---	---	---	---	---	---	---	---
10	652	598	622	---	---	---	---	---	---	---	---	---
11	639	614	624	---	---	---	---	---	---	---	---	---
12	733	618	639	---	---	---	---	---	---	---	---	---
13	736	450	582	---	---	---	---	---	---	---	---	---
14	518	389	471	---	---	---	---	---	---	---	---	---
15	491	388	444	---	---	---	---	---	---	---	---	---
16	451	389	404	---	---	---	---	---	---	---	---	---
17	472	414	448	---	---	---	---	---	---	---	---	---
18	516	474	498	---	---	---	---	---	---	---	---	---
19	548	491	528	---	---	---	---	---	---	---	---	---
20	599	477	545	---	---	---	---	---	---	---	---	---
21	548	485	514	---	---	---	---	---	---	---	---	---
22	553	499	531	---	---	---	---	---	---	---	---	---
23	538	488	512	---	---	---	---	---	---	---	---	---
24	570	488	533	---	---	---	---	---	---	---	---	---
25	577	516	559	625	551	588	---	---	---	381	343	358
26	574	552	561	604	558	586	---	---	---	436	374	391
27	595	544	561	573	532	561	---	---	---	408	385	399
28	578	513	548	535	303	424	---	---	---	404	369	387
29	---	---	---	409	302	353	---	---	---	382	350	370
30	---	---	---	536	259	331	---	---	---	377	349	369
31	---	---	---	---	---	---	---	---	---	372	345	364

07170200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	404	357	377	459	427	444	494	444	469	308	272	292
2	417	358	383	453	288	402	461	423	441	412	311	343
3	441	270	330	396	308	355	419	388	400	419	358	382
4	479	343	408	430	324	392	415	391	401	397	352	365
5	456	388	427	450	386	417	444	403	421	413	361	383
6	405	384	394	472	426	449	416	240	351	397	118	205
7	407	350	383	510	458	474	327	249	291	252	150	179
8	376	340	354	489	454	470	343	315	326	267	256	260
9	390	351	367	496	429	460	362	324	340	312	269	288
10	442	365	394	443	414	431	341	317	326	331	309	318
11	407	192	312	438	403	424	357	329	341	347	326	336
12	---	---	---	703	411	535	355	328	343	358	334	346
13	---	---	---	798	559	597	346	323	338	279	160	212
14	---	---	---	687	466	539	405	334	370	290	206	245
15	---	---	---	529	446	484	417	360	392	292	228	273
16	---	---	---	706	412	562	411	367	380	310	293	302
17	---	---	---	626	99	360	399	281	359	318	309	313
18	---	---	---	199	58	131	415	285	367	321	311	315
19	---	---	---	274	185	222	445	392	414	319	308	315
20	---	---	---	374	264	308	413	94	186	328	313	319
21	---	---	---	371	320	347	175	92	130	337	326	331
22	---	---	---	399	357	378	238	162	202	385	339	359
23	---	---	---	460	349	405	284	230	264	405	381	390
24	---	---	---	417	354	386	333	284	296	409	380	397
25	---	---	---	479	412	443	313	297	300	404	376	394
26	---	---	---	534	463	501	306	298	302	431	388	414
27	---	---	---	557	499	526	308	303	306	440	417	430
28	---	---	---	572	515	539	308	289	299	450	427	439
29	---	---	---	543	445	502	328	301	311	456	431	445
30	---	---	---	537	437	488	329	253	306	452	432	446
31	---	---	---	536	474	498	337	240	284	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.2	7.8	7.9	7.9	7.3	7.5	8.4	7.8	8.1	8.4	8.1	8.2
2	8.3	7.7	7.9	7.4	7.4	7.4	8.2	7.8	8.0	8.4	8.1	8.4
3	8.3	7.8	8.0	7.8	7.4	7.7	8.2	7.9	8.2	8.4	8.1	8.1
4	8.3	7.9	8.1	7.9	7.5	7.8	8.2	7.9	8.1	8.3	8.0	8.3
5	---	---	---	7.9	7.5	7.8	8.1	7.9	8.1	8.2	7.9	8.0
6	---	---	---	7.9	7.6	7.6	8.1	7.8	8.1	8.2	7.9	8.1
7	8.1	7.9	7.9	8.0	7.7	7.9	8.2	7.9	8.1	8.2	7.9	8.0
8	8.2	7.9	7.9	8.0	7.6	7.9	8.2	7.9	7.9	8.2	7.9	7.9
9	8.2	7.9	7.9	7.9	7.6	7.9	8.2	7.9	7.9	8.3	7.9	8.2
10	8.2	7.9	8.1	8.1	7.5	7.9	8.1	7.8	7.9	8.2	7.8	8.1
11	7.9	7.9	7.9	7.9	7.4	7.8	8.1	7.8	8.1	8.4	7.7	8.1
12	8.2	7.9	8.1	8.1	7.8	7.9	8.1	7.8	8.1	8.5	8.1	8.4
13	8.1	7.8	8.1	7.9	7.5	7.8	8.1	7.7	8.0	8.4	8.0	8.1
14	8.1	7.7	7.9	7.9	7.6	7.6	8.1	7.7	7.8	8.5	8.1	8.3
15	8.0	7.6	7.7	8.0	7.6	7.7	8.1	7.8	7.8	8.6	8.1	8.1
16	8.0	7.7	7.7	8.0	7.6	7.9	8.1	7.8	7.9	8.4	8.0	8.1
17	7.9	7.6	7.8	8.1	7.6	7.9	8.1	7.8	8.0	8.4	8.0	8.1
18	7.9	7.6	7.9	8.1	8.0	8.1	8.1	7.6	7.9	8.4	8.0	8.3
19	7.9	7.6	7.7	8.1	7.8	8.0	7.9	7.6	7.8	8.4	8.0	8.3
20	7.9	7.5	7.7	8.2	7.7	7.9	7.9	7.5	7.7	8.4	8.0	8.2
21	7.9	7.6	7.6	8.3	7.7	7.9	8.2	7.6	7.9	8.4	8.0	8.3
22	7.9	7.5	7.8	8.3	7.9	8.0	8.2	7.8	7.9	8.3	7.9	8.2
23	7.9	7.4	7.7	8.3	7.9	8.1	8.2	7.8	8.0	8.4	7.9	8.2
24	7.9	7.4	7.7	8.3	7.9	8.2	8.2	7.9	8.1	8.4	8.0	8.2
25	7.8	7.3	7.7	8.2	7.8	8.1	8.2	7.9	7.9	8.1	7.9	8.0
26	7.7	7.3	7.5	8.3	7.9	8.0	8.3	7.9	8.0	8.2	7.7	7.9
27	7.5	7.3	7.4	8.4	8.1	8.4	8.4	7.9	8.2	8.0	7.7	7.8
28	7.6	7.4	7.4	8.4	8.1	8.4	8.2	7.9	8.1	8.1	7.7	7.9
29	7.6	7.4	7.5	8.5	8.1	8.4	8.3	8.0	8.0	8.0	7.7	7.9
30	7.6	7.5	7.5	8.4	8.0	8.4	8.3	8.0	8.1	8.1	7.9	8.1
31	7.6	7.5	7.5	---	---	---	8.3	8.0	8.1	8.2	7.8	8.1

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CAT00SA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	8.2	7.9	8.1	---	---	---	---	---	---	---	---	---
2	8.2	7.9	7.9	---	---	---	---	---	---	---	---	---
3	8.1	7.9	7.9	8.2	7.8	8.0	---	---	---	---	---	---
4	8.1	7.9	7.9	8.2	7.6	7.7	---	---	---	---	---	---
5	8.1	7.8	7.9	7.9	7.6	7.6	---	---	---	---	---	---
6	8.1	7.8	7.9	8.0	7.6	7.7	---	---	---	---	---	---
7	8.1	7.9	8.0	8.1	7.7	7.8	---	---	---	---	---	---
8	8.1	7.8	7.9	8.1	7.8	8.0	---	---	---	---	---	---
9	8.1	7.8	8.1	8.1	7.7	8.0	---	---	---	---	---	---
10	8.1	7.7	7.8	8.0	7.6	7.9	---	---	---	---	---	---
11	8.0	7.6	7.7	8.0	7.6	7.9	---	---	---	---	---	---
12	7.6	7.6	7.6	7.9	7.6	7.9	---	---	---	---	---	---
13	7.9	7.5	7.6	8.0	7.6	7.7	---	---	---	---	---	---
14	7.8	7.3	7.4	---	---	---	---	---	---	---	---	---
15	7.9	7.5	7.6	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	8.3	7.9	8.1	---	---	---	---	---	---
26	---	---	---	8.2	7.8	8.1	---	---	---	---	---	---
27	---	---	---	8.1	7.8	8.0	---	---	---	---	---	---
28	---	---	---	8.1	7.2	7.8	---	---	---	---	---	---
29	---	---	---	7.8	7.3	7.8	---	---	---	---	---	---
30	---	---	---	7.9	7.4	7.5	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	7.9	7.6	7.8
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.9	7.6	7.7	8.3	7.9	8.1	7.9	7.6	7.7	---	---	---
2	8.2	7.5	7.8	8.9	7.6	8.1	7.9	7.6	7.7	8.0	7.7	7.8
3	8.1	7.4	7.6	8.6	7.6	8.1	7.9	7.5	7.7	8.0	7.7	7.9
4	7.8	7.5	7.6	8.2	7.6	7.8	7.8	7.2	7.5	8.0	7.7	7.7
5	7.8	7.5	7.5	8.1	7.6	7.9	7.4	6.9	7.2	8.0	7.8	7.9
6	7.9	7.6	7.9	7.9	7.6	7.9	8.0	7.1	7.6	---	---	---
7	7.9	7.5	7.7	8.0	7.6	7.8	7.5	7.1	7.3	---	---	---
8	7.8	7.5	7.6	8.1	7.7	7.9	7.7	7.4	7.4	---	---	---
9	8.4	7.5	7.7	8.1	7.8	7.9	8.1	7.5	7.7	---	---	---
10	---	---	---	8.1	7.8	8.0	8.1	7.7	7.8	---	---	---
11	---	---	---	8.1	7.7	7.9	7.9	7.6	7.6	---	---	---
12	---	---	---	8.0	7.7	7.9	7.8	7.6	7.8	---	---	---
13	---	---	---	8.1	7.7	7.9	7.8	7.5	7.8	---	---	---
14	---	---	---	8.1	7.7	7.9	8.2	7.5	7.9	---	---	---
15	7.9	7.4	7.5	8.0	7.7	7.9	8.0	7.3	7.5	---	---	---
16	7.9	7.6	7.7	8.0	7.6	7.9	7.8	7.1	7.4	---	---	---
17	8.0	7.4	7.7	9.4	7.7	8.2	7.7	7.2	7.5	---	---	---
18	8.0	7.4	7.6	9.2	8.0	8.9	7.7	7.0	7.3	---	---	---
19	8.1	7.3	7.6	8.9	7.6	8.0	7.5	7.2	7.4	7.9	7.5	7.8
20	7.6	7.0	7.3	8.4	7.3	8.0	---	---	---	7.8	7.6	7.8
21	7.4	6.7	6.9	7.9	7.3	7.6	---	---	---	7.8	7.6	7.7
22	7.1	6.7	6.9	7.9	7.4	7.7	---	---	---	7.9	7.8	7.7
23	8.0	6.7	7.5	8.2	7.4	7.7	---	---	---	8.1	7.7	7.9
24	7.7	7.4	7.6	7.4	7.0	7.2	---	---	---	8.2	7.9	7.9
25	7.7	7.2	7.5	7.4	6.9	7.2	---	---	---	8.1	7.8	7.9
26	8.0	7.3	7.5	7.2	6.5	6.8	---	---	---	8.2	7.7	8.0
27	8.0	7.6	7.8	6.9	6.4	6.7	---	---	---	8.1	7.8	7.9
28	7.8	7.4	7.6	7.4	6.6	6.9	---	---	---	8.2	7.9	8.0
29	7.9	7.6	7.6	7.5	7.1	7.3	---	---	---	8.2	7.8	8.1
30	8.2	7.6	7.9	7.9	7.4	7.6	---	---	---	8.3	7.9	8.1
31	---	---	---	7.9	7.6	7.7	---	---	---	---	---	---

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	21.5	21.0	21.0	16.5	15.0	16.0	8.5	7.5	8.0	6.5	5.0	5.5
2	21.5	20.5	21.0	17.0	15.5	16.5	9.0	7.5	8.0	7.0	6.0	6.0
3	21.0	20.0	20.5	17.5	16.0	17.0	9.5	8.0	8.5	7.5	6.5	7.0
4	20.5	20.0	20.0	18.0	16.5	17.5	9.5	8.0	8.5	7.5	6.5	7.0
5	20.5	15.5	19.0	17.5	15.5	16.5	9.0	8.0	8.5	9.0	7.5	8.0
6	16.0	15.0	15.5	15.5	14.5	15.0	9.5	8.5	9.0	9.0	8.5	8.5
7	16.0	15.5	16.0	16.0	14.0	15.0	9.5	9.0	9.5	9.0	8.5	9.0
8	16.5	16.0	16.0	15.5	14.5	15.5	9.0	8.0	8.5	9.0	7.0	8.0
9	16.5	16.0	16.5	16.5	14.5	15.5	8.5	7.0	8.0	7.5	7.0	7.0
10	17.0	15.5	16.0	16.5	15.0	15.5	8.0	7.0	7.5	7.5	6.5	7.0
11	17.0	16.0	16.5	15.5	15.0	15.0	8.5	6.5	7.5	8.0	7.0	7.5
12	17.5	16.0	16.5	15.0	12.5	13.5	7.5	6.5	7.0	8.0	6.5	7.5
13	17.5	16.0	17.0	13.0	12.5	13.0	7.5	7.0	7.0	7.0	5.5	6.0
14	18.0	16.5	17.0	14.5	12.5	13.0	8.5	7.5	8.0	6.5	5.5	6.0
15	18.0	17.0	17.5	15.5	14.0	15.0	8.5	6.5	7.5	6.0	4.5	5.0
16	20.0	18.0	19.0	15.5	13.5	14.0	7.0	6.0	6.5	6.0	4.5	5.0
17	21.0	19.0	20.0	13.5	12.5	13.0	6.5	5.5	6.5	6.5	5.0	5.5
18	20.5	19.0	20.0	13.0	12.0	12.5	7.0	6.0	6.5	7.0	6.0	6.0
19	18.5	18.0	18.0	13.0	9.0	12.0	8.5	6.5	7.5	7.0	6.0	6.5
20	18.5	17.5	18.0	9.5	6.5	8.0	9.0	8.0	8.5	7.0	6.0	7.0
21	19.0	17.5	18.5	7.0	6.0	6.5	9.0	8.0	8.5	7.0	6.0	6.5
22	19.0	18.0	18.5	7.0	6.5	7.0	12.0	8.5	9.5	7.0	6.0	6.5
23	19.0	18.0	18.5	8.0	6.5	7.0	10.0	7.5	8.5	7.5	6.5	7.0
24	18.0	17.5	17.5	9.0	7.0	8.0	8.5	8.0	8.0	8.5	7.5	8.5
25	18.0	17.0	17.5	13.0	8.5	9.5	8.5	7.0	7.5	9.0	8.0	8.5
26	17.5	17.0	17.5	13.5	10.5	11.5	9.5	8.0	8.5	8.5	7.5	8.0
27	17.5	16.5	17.0	10.5	9.5	10.0	10.0	5.5	8.0	8.5	7.0	7.5
28	16.5	16.0	16.5	9.5	8.0	8.5	6.0	5.0	5.5	8.5	6.5	7.5
29	16.0	15.5	16.0	8.5	7.5	8.0	5.5	4.5	5.0	7.0	6.5	7.0
30	16.0	15.5	15.5	8.5	7.5	8.0	5.5	4.0	5.0	8.0	6.5	7.0
31	16.0	15.0	15.5	---	---	---	5.5	4.5	5.0	9.0	7.0	8.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.0	7.5	8.5	8.5	6.5	7.5	---	---	---	---	---	---
2	7.5	6.0	7.0	9.0	7.5	8.0	---	---	---	---	---	---
3	5.5	3.5	4.0	10.5	9.0	9.5	---	---	---	---	---	---
4	3.5	2.0	2.5	10.0	5.0	6.0	---	---	---	---	---	---
5	3.0	2.0	2.5	5.0	2.5	3.5	---	---	---	---	---	---
6	3.0	2.0	2.5	4.0	2.0	3.0	---	---	---	---	---	---
7	3.5	2.5	3.0	4.5	2.0	3.0	---	---	---	---	---	---
8	4.0	3.5	3.5	5.0	2.0	3.5	---	---	---	---	---	---
9	4.0	3.5	3.5	6.0	3.5	4.0	---	---	---	---	---	---
10	4.5	4.0	4.5	9.0	5.0	6.5	---	---	---	---	---	---
11	5.5	4.5	5.0	10.5	8.5	9.5	---	---	---	---	---	---
12	5.5	4.0	5.0	13.0	10.0	11.5	---	---	---	---	---	---
13	5.5	3.5	4.0	14.0	11.5	12.5	---	---	---	---	---	---
14	4.0	3.0	4.0	---	---	---	---	---	---	---	---	---
15	3.5	3.0	3.0	---	---	---	---	---	---	---	---	---
16	3.0	2.5	2.5	---	---	---	---	---	---	---	---	---
17	3.5	3.0	3.5	---	---	---	---	---	---	---	---	---
18	5.0	3.5	4.0	---	---	---	---	---	---	---	---	---
19	5.5	4.5	4.5	---	---	---	---	---	---	---	---	---
20	6.0	5.0	5.5	---	---	---	---	---	---	---	---	---
21	6.0	5.0	5.5	---	---	---	---	---	---	---	---	---
22	5.5	4.5	5.0	---	---	---	---	---	---	---	---	---
23	5.0	3.5	4.5	---	---	---	---	---	---	---	---	---
24	5.5	3.5	4.5	---	---	---	---	---	---	---	---	---
25	7.0	4.5	5.5	14.5	13.5	14.0	---	---	---	25.5	24.5	25.0
26	8.5	6.5	7.0	16.0	14.5	15.5	---	---	---	25.0	24.0	24.5
27	8.5	7.0	7.5	16.5	16.0	16.0	---	---	---	24.5	22.5	23.5
28	7.5	6.5	7.0	16.5	15.5	16.0	---	---	---	25.0	23.0	24.0
29	---	---	---	16.5	15.5	16.0	---	---	---	25.5	24.0	24.5
30	---	---	---	16.5	14.5	15.5	---	---	---	26.0	24.0	25.0
31	---	---	---	---	---	---	---	---	---	26.0	25.0	25.5

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	25.5	25.0	25.0	29.0	27.5	28.5	---	---	---	28.5	25.0	26.5
2	25.0	24.0	24.5	28.5	25.0	27.0	---	---	---	27.5	27.0	27.5
3	24.5	23.0	24.0	27.5	24.5	26.0	28.0	27.0	27.5	27.5	26.5	27.0
4	24.5	23.0	24.0	28.0	24.5	26.5	28.5	27.0	28.0	27.5	26.0	26.5
5	24.0	23.0	23.5	29.0	26.5	28.0	29.0	27.5	28.5	28.0	25.5	25.5
6	25.0	23.5	24.0	29.5	27.5	28.5	29.0	24.0	27.0	26.0	23.0	24.0
7	24.0	23.0	23.5	30.0	28.0	29.0	26.5	25.0	25.5	24.5	23.5	24.0
8	24.0	22.5	23.5	---	---	---	26.0	24.0	25.0	26.0	24.5	25.0
9	24.0	23.0	23.5	---	---	---	26.0	24.5	25.5	25.5	24.5	25.5
10	24.5	23.0	23.5	---	---	---	26.0	24.5	25.0	24.5	23.5	24.0
11	24.0	20.5	22.5	---	---	---	26.0	24.5	25.0	23.5	22.0	22.5
12	22.0	20.0	21.0	---	---	---	26.0	25.5	25.5	22.5	19.0	21.5
13	23.0	20.5	22.0	---	---	---	26.0	25.5	26.0	24.0	17.5	20.0
14	23.5	21.5	23.0	---	---	---	26.0	25.5	25.5	24.5	19.5	22.5
15	23.0	22.5	23.0	---	---	---	26.5	25.0	26.0	20.0	19.0	19.5
16	23.0	21.5	22.0	28.0	25.0	27.0	27.0	25.0	26.0	20.5	18.5	19.5
17	22.5	21.0	21.5	28.0	23.0	25.0	27.5	21.5	26.0	20.0	18.0	18.5
18	24.0	22.0	23.0	24.5	23.0	24.0	28.0	22.0	25.0	20.5	18.0	19.0
19	26.5	23.5	25.0	26.5	24.0	25.0	28.5	23.0	24.0	20.0	19.5	20.0
20	27.0	25.0	26.0	26.5	24.5	25.5	29.0	23.5	25.5	20.0	19.5	19.5
21	28.0	25.0	26.5	27.0	25.0	26.5	27.0	25.0	26.0	20.0	18.5	19.5
22	27.5	26.5	27.0	27.5	25.5	26.5	---	---	---	21.5	19.0	20.0
23	25.5	22.5	25.0	27.5	24.5	26.5	27.0	20.5	23.5	21.0	19.5	20.0
24	27.5	25.0	26.0	25.0	23.0	23.5	20.5	19.5	20.0	21.0	19.0	20.0
25	28.5	26.0	27.0	26.5	24.5	25.0	20.0	19.5	20.0	20.5	19.0	20.0
26	28.5	26.0	27.5	---	---	---	20.0	19.0	19.5	20.5	18.0	18.5
27	28.0	23.5	26.0	---	---	---	19.5	19.0	19.5	19.5	18.0	18.5
28	28.0	24.0	26.0	---	---	---	20.0	19.0	19.5	19.5	18.0	18.5
29	28.5	26.5	27.5	29.0	26.0	27.5	22.0	19.5	20.5	20.0	18.0	19.0
30	29.0	27.5	28.5	---	---	---	26.0	21.0	23.0	20.5	19.0	19.5
31	---	---	---	---	---	---	27.5	25.0	26.5	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	10.8	8.9	9.3	12.2	11.7	11.9
2	---	---	---	---	---	---	9.6	9.1	9.4	11.8	11.4	11.6
3	---	---	---	---	---	---	10.2	9.2	9.8	11.9	11.0	11.4
4	---	---	---	---	---	---	11.0	9.6	10.5	11.8	11.1	11.6
5	---	---	---	---	---	---	11.2	10.3	10.8	12.1	10.9	11.5
6	---	---	---	---	---	---	11.2	10.4	10.8	12.0	10.9	11.8
7	6.9	6.6	6.7	---	---	---	11.3	10.5	10.9	12.4	10.8	11.8
8	7.1	6.8	6.9	---	---	---	11.5	10.6	11.0	12.0	10.5	11.2
9	7.1	6.7	6.9	7.3	7.0	7.2	11.8	10.7	11.1	13.0	8.6	9.3
10	7.1	6.6	6.9	7.6	7.2	7.4	11.6	10.8	11.1	12.2	9.2	9.7
11	7.3	6.7	7.0	8.6	7.7	7.9	11.7	10.9	11.4	---	---	---
12	7.2	6.3	6.9	8.4	8.0	8.1	11.6	10.7	11.2	---	---	---
13	7.2	5.9	6.9	8.8	8.0	8.2	10.7	9.3	9.8	---	---	---
14	7.1	6.0	6.7	8.3	8.0	8.2	10.0	9.6	9.8	---	---	---
15	7.1	5.9	6.4	8.7	8.3	8.5	10.0	9.6	9.8	---	---	---
16	7.3	5.9	6.6	8.8	8.6	8.7	9.9	9.3	9.6	---	---	---
17	7.2	6.3	6.8	9.9	8.2	8.7	9.9	9.3	9.6	---	---	---
18	7.5	6.2	6.9	8.4	8.0	8.2	10.1	9.3	9.7	---	---	---
19	7.2	6.1	6.6	8.2	7.2	7.9	10.1	9.5	9.8	---	---	---
20	7.2	6.0	6.7	8.4	7.3	7.9	10.3	9.9	10.1	---	---	---
21	7.1	6.0	6.7	8.7	8.1	8.4	10.9	9.7	10.2	---	---	---
22	7.3	6.1	6.8	8.6	7.9	8.2	10.7	8.5	10.0	---	---	---
23	7.4	6.4	6.9	8.7	8.3	8.5	10.6	9.2	9.8	---	---	---
24	7.4	5.9	6.6	8.8	8.2	8.6	10.3	9.8	10.0	---	---	---
25	7.5	6.3	6.8	8.8	8.5	8.7	11.5	9.8	10.6	---	---	---
26	7.4	6.1	6.8	9.2	8.9	9.1	11.3	10.1	10.6	---	---	---
27	7.5	6.4	6.9	9.2	8.9	9.0	11.1	9.2	10.1	---	---	---
28	7.6	6.1	7.1	9.1	8.9	9.0	11.5	10.4	11.0	---	---	---
29	7.4	6.1	7.0	9.2	8.8	9.1	12.0	11.4	11.7	---	---	---
30	7.6	6.9	7.3	9.3	8.8	9.1	12.5	11.9	12.1	---	---	---
31	7.6	6.2	7.0	---	---	---	12.3	11.8	12.1	---	---	---

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	12.5	11.2	11.7	---	---	---	6.4	6.2	6.3
26	---	---	---	12.5	10.6	11.6	---	---	---	6.4	6.2	6.3
27	---	---	---	11.2	9.9	10.7	---	---	---	6.8	6.4	6.6
28	---	---	---	10.6	8.7	8.6	---	---	---	6.7	6.6	6.6
29	---	---	---	9.1	7.5	8.4	---	---	---	6.8	6.4	6.6
30	---	---	---	10.5	9.0	9.8	---	---	---	6.9	6.4	6.6
31	---	---	---	---	---	---	---	---	---	6.9	6.3	6.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	6.8	6.2	6.5	6.9	6.2	6.6	7.3	6.3	6.7	6.6	5.8	6.2
2	6.8	6.3	6.5	7.1	6.5	6.7	7.3	6.0	6.6	6.9	6.6	6.7
3	6.5	5.0	5.7	7.0	6.0	6.7	6.7	6.0	6.4	6.9	6.5	6.7
4	6.4	5.3	6.0	7.0	6.7	6.8	6.8	6.1	6.5	7.0	6.7	6.8
5	6.6	6.2	6.3	7.0	6.7	6.8	7.0	6.1	6.6	7.1	6.6	6.8
6	6.8	6.4	6.6	6.9	6.5	6.7	7.0	4.2	5.7	---	---	---
7	6.6	6.4	6.5	7.2	6.7	6.9	5.6	5.0	5.2	---	---	---
8	6.6	6.3	6.4	7.6	6.5	6.9	6.0	5.5	5.6	---	---	---
9	6.9	5.9	6.4	7.5	6.7	7.1	6.3	5.8	6.0	---	---	---
10	6.3	5.8	6.0	7.7	6.7	7.1	6.7	6.2	6.3	---	---	---
11	6.2	4.2	5.5	7.7	6.7	7.2	6.9	6.4	6.6	---	---	---
12	5.1	3.8	4.5	7.6	6.5	7.0	7.0	6.5	6.8	---	---	---
13	6.6	4.2	5.3	7.6	6.6	7.1	7.1	6.4	6.6	---	---	---
14	7.7	6.7	7.3	7.6	4.8	6.3	6.9	6.4	6.6	8.5	8.2	8.4
15	8.2	7.7	8.0	7.5	6.2	6.7	7.0	6.3	6.5	9.1	8.6	8.9
16	8.5	8.2	8.3	7.8	6.4	7.1	7.1	6.4	6.7	9.1	8.8	9.0
17	8.5	8.2	8.4	7.7	5.6	6.9	7.1	6.0	6.6	8.8	8.8	8.8
18	8.3	8.1	8.2	6.4	5.2	5.9	6.4	6.1	6.2	8.8	8.2	8.5
19	8.3	7.9	8.1	6.7	6.3	6.5	6.4	5.9	6.1	8.2	8.1	8.1
20	8.2	7.8	7.9	7.2	6.6	6.8	---	---	---	8.2	8.1	8.1
21	8.1	7.6	7.8	7.3	6.6	6.9	---	---	---	8.2	8.0	8.1
22	7.7	7.3	7.5	7.7	6.8	7.1	---	---	---	8.1	7.8	7.9
23	7.4	6.4	7.1	7.7	6.8	7.2	7.3	5.9	6.8	8.2	7.7	7.9
24	7.9	6.6	7.3	6.8	6.3	6.5	7.6	7.3	7.5	8.6	8.0	8.3
25	7.8	7.0	7.4	7.1	6.3	6.5	7.7	7.5	7.6	8.8	8.1	8.4
26	7.4	6.7	7.0	7.6	6.6	7.0	7.7	7.6	7.7	9.5	8.2	8.9
27	6.9	4.6	5.5	7.7	6.8	7.2	7.8	7.7	7.7	9.7	8.7	9.2
28	6.5	5.5	6.0	7.7	6.6	7.1	7.8	7.7	7.7	10.1	8.8	9.5
29	6.8	6.5	6.6	7.1	5.1	6.2	7.6	7.0	7.4	10.2	8.8	9.5
30	7.0	6.5	6.7	6.7	5.1	5.7	7.3	5.7	6.8	10.2	8.8	9.5
31	---	---	---	6.7	5.5	6.0	5.8	5.5	5.7	---	---	---

07185000 NEOSHO RIVER NEAR COMMERCE, OK

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

DRAINAGE AREA.-- 5,876 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 748.97 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers' datum). Since February 1989, supplementary water-stage recorder 1000 ft to the left at same datum used when flow exceeds 21 ft GH.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated to some extent since 1963 by John Redmond Reservoir in Kansas, 190 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 50 years, 3,652 ft³/s, 2,646,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 267,000 ft³/s, July 15, 1951, computed by flood-routing methods from hydrograph defined at Miami, mile 144.2, by several discharge measurements, gage-height record, and by comparison with computed inflow into Lake O' The Cherokees; maximum gage height, 34.03 ft, July 16, 1951, from floodmark; no flow at times in 1953-54, and 1956.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 23	2300	22,300	15.40	June 13	1300	*30,700	*18.54

Minimum daily discharge, 52 ft³/s, May 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	649	84	744	1510	1080	373	10800	85	353	714	837	12500
2	520	80	586	1240	772	350	5280	75	390	759	631	8760
3	321	75	489	1010	e600	318	2550	75	2520	1760	1810	8160
4	239	71	414	780	e540	534	1650	79	2980	1040	1030	7890
5	182	66	356	629	e500	532	1210	80	2780	805	649	7690
6	155	59	320	562	e450	551	947	77	3730	2720	460	8730
7	147	57	310	555	e410	473	753	72	5470	3240	340	9670
8	136	56	343	496	e360	437	634	73	3130	1720	271	5860
9	132	59	377	405	e325	721	539	71	2030	787	231	5070
10	132	113	324	344	e285	3320	465	64	1700	452	202	11400
11	127	83	287	306	205	3290	408	58	10200	303	179	18200
12	120	3750	264	286	202	1400	346	55	27000	559	183	16900
13	112	4220	246	267	259	793	310	55	29400	2000	153	6170
14	104	1920	233	265	327	575	283	55	14700	572	149	8660
15	97	917	224	255	1720	432	266	60	4220	1550	154	7440
16	94	1500	208	246	2880	338	248	70	2680	2290	160	6880
17	93	1410	193	240	1920	290	238	52	2660	4530	170	6040
18	84	945	184	237	1120	258	234	481	2880	4840	171	4420
19	77	611	180	224	733	221	217	1040	3620	2860	534	3840
20	72	2460	185	212	628	224	204	1350	3620	2520	8580	4230
21	69	6090	185	192	1220	252	194	1050	3480	2230	4840	5830
22	64	3680	692	179	2050	304	182	5280	3280	1470	4440	5380
23	71	1880	1190	171	1270	388	159	19200	2590	1140	3990	2140
24	276	1130	742	165	766	394	151	15700	1730	2000	3850	999
25	186	814	575	802	596	335	145	3710	1230	1770	12400	772
26	114	3010	423	2550	503	306	136	1780	934	1300	17900	704
27	90	5260	1500	1420	436	284	121	1070	818	1190	11600	663
28	94	3530	5120	1300	402	1060	108	734	788	1050	14700	620
29	107	1780	3950	4200	---	5850	100	539	807	946	15200	593
30	101	1030	2170	3310	---	7340	90	404	749	845	4820	571
31	93	---	1660	1770	---	11800	---	330	---	1190	10200	---
TOTAL	4858	46720	24674	26128	22559	43743	28968	53824	142469	51152	120614	186802
MEAN	157	1557	796	843	806	1411	966	1736	4749	1650	3891	6227
MAX	649	6090	5120	4200	2880	11800	10800	19200	29400	4840	17900	18200
MIN	64	56	180	165	202	221	90	52	353	303	149	571
AC-FT	9640	92670	48940	51820	44750	86760	57460	106800	282600	101500	239200	370500

CAL YR 1988 TOTAL 966106 MEAN 2640 MAX 44300 MIN 56 AC-FT 1916000
WTR YR 1989 TOTAL 752511 MEAN 2062 MAX 29400 MIN 52 AC-FT 1493000

e Estimated

ARKANSAS RIVER BASIN

07185000 NEOSHO RIVER NEAR COMMERCE, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1948-54, 1960-73, June 1988-June 1989 (discontinued).

REMARKS.-- Samples were collected periodically and specific conductance, and air and water temperature, and pH were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)
OCT 04...	1245	1028	80020	2.51	220	345	8.4	24.5	27.0	120	34	9.3
DEC 01...	1100	1028	80020	3.14	755	306	8.0	9.0	6.5	130	35	10
FEB 14...	1020	1028	1028	2.68	279	440	8.5	3.0	2.0	--	--	--
MAR 29...	1400	1028	80020	7.60	7920	515	8.1	22.0	20.0	230	69	13
29...	2200	1028	80020	8.39	9180	417	7.9	17.5	19.0	170	50	9.8
30...	0015	1028	80020	8.18	8840	*354	8.0	17.5	19.0	140	43	7.8
30...	0900	1028	80020	6.71	6530	*338	7.8	19.0	18.5	140	42	7.6
MAY 10...	1100	1028	80020	2.21	59	655	8.0	21.5	18.0	290	81	21
24...	1330	1028	80020	11.58	14800	193	7.5	32.0	22.5	84	26	4.5
24...	1645	1028	80020	9.88	11700	201	7.6	30.5	23.0	88	27	4.9

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)
OCT 04...	9.7	14	0.4	3.5	58	6.8	0.20	9.7	203	178	0.28	121
DEC 01...	11	15	0.4	4.0	70	8.4	0.20	9.4	199	193	0.27	408
FEB 14...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	21	16	0.6	4.5	82	19	0.20	2.1	320	311	0.44	6840
29...	19	19	0.6	4.9	61	19	0.20	3.9	252	247	0.34	6250
30...	14	17	0.5	4.8	53	14	0.20	6.2	208	204	0.28	4960
30...	13	17	0.5	4.3	51	13	0.20	6.3	193	196	0.26	3400
MAY 10...	28	17	0.7	4.4	160	16	0.30	5.2	419	407	0.57	66.7
24...	7.0	15	0.3	3.9	30	6.6	0.20	8.2	155	122	0.21	6190
24...	7.3	15	0.3	3.8	28	6.0	0.20	8.5	145	123	0.20	4580

DATE	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)
OCT 04...	5500	150	2	2	67	30	<1	2.0	5	3	1	2
DEC 01...	5000	30	1	<1	57	30	<1	<1.0	14	2	3	1
FEB 14...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	30000	30	4	1	91	30	<1	4.0	38	2	10	1
29...	71000	<10	4	<1	86	40	1	1.0	76	<1	10	20
30...	27000	310	3	1	70	30	<1	2.0	29	3	9	3
30...	46000	280	3	1	77	20	<1	1.0	49	3	8	1
MAY 10...	1100	10	1	1	120	30	<1	<1.0	4	1	1	<1
24...	7900	230	2	1	100	70	<1	<1.0	9	2	5	1
24...	11000	260	2	1	110	50	1	<1.0	12	1	5	<1

ARKANSAS RIVER BASIN

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07185000 NEOSHO RIVER NR COMMERCE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT 04...	7	9	1300	460	<5	<5	5	110	48	0.20	0.2
DEC 01...	7	4	4200	180	<5	<5	<4	130	30	0.30	0.3
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	35	14	30000	42	18	<5	14	1900	15	0.20	<0.1
29...	48	23	55000	9	25	<5	<4	2200	6	0.10	<0.1
30...	25	15	23000	310	17	<5	11	1100	19	0.10	0.1
30...	24	14	36000	280	15	<5	11	990	20	<0.10	0.1
MAY 10...	7	4	1200	21	2	<1	10	240	26	<0.10	<0.1
24...	6	5	9400	110	18	1	<4	350	5	0.10	0.2
24...	8	7	9900	210	16	1	<4	360	11	<0.10	<0.1

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 04...	6	5	<1	<1	--	<1.0	30	17	--	--	--
DEC 01...	16	4	<1	<1	<1	<1.0	40	29	87	177	92
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 29...	25	10	<1	<1	1	3.0	200	140	2050	43900	88
29...	33	10	<1	<1	1	<1.0	330	52	40	991	78
30...	24	9	<1	<1	<1	2.0	140	150	33	788	85
30...	20	9	<1	<1	<1	2.0	180	73	--	--	--
MAY 10...	8	3	<1	<1	<1	<1.0	20	22	50	8.0	79
24...	19	3	<1	<1	<1	<1.0	40	30	512	20500	95
24...	21	4	<1	<1	1	1.0	50	38	451	14200	94

ARKANSAS RIVER BASIN

07185095 TAR CREEK AT 22ND STREET BRIDGE AT MIAMI, OK

LOCATION.-- Lat 36°54'00", long 94°52'05", in NW 1/4 NE 1/4 sec.19, T.28 N., R.23 E., Ottawa County, Hydrologic Unit 11070206, near downstream left abutment of 22nd Street bridge in Miami, 0.5 mi east of intersection of Main and 22nd Street.

DRAINAGE AREA.-- 44.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- January 1984 to current year.

REVISED RECORDS.-- WDR OK-89-1; 1985 (M).

GAGE.-- Water-stage recorder. Datum of gage is 762.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 5 years, 67.2 ft³/s, 48,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 9,040 ft³/s, Feb. 23, 1985, gage height, 14.13 ft; minimum daily discharge, 0.07 ft³/s, Aug. 15, 1984.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,100 ft³/s, July 31, gage height, 10.20 ft; minimum daily discharge, 2.0 ft³/s, Aug. 11, 15.

REVISIONS.--The maximum discharge for the water year 1985 has been revised to 9,040, Feb. 23, 1985, gage height, 14.13 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	16	e102	e65	44	12	e160	e7.2	4.6	14	186	4.9
2	14	17	e74	e50	29	14	e55	e7.1	4.5	787	39	3.7
3	10	17	e45	e45	21	16	e25	e8.6	6.8	196	13	3.0
4	8.3	18	e25	31	16	98	e16	e11	43	43	7.5	2.7
5	7.5	18	e18	37	13	60	e13	e8.7	41	18	5.1	48
6	8.5	17	e12	38	11	35	e10	e8.2	17	12	3.6	23
7	12	18	e7.0	32	10	33	e9.5	e12	11	8.4	2.6	6.6
8	12	19	e5.2	22	9.2	43	e9.0	7.7	31	6.5	2.2	4.2
9	11	18	e4.7	19	8.1	178	e8.4	7.2	15	5.7	2.2	147
10	10	37	e5.4	18	8.8	511	e8.2	6.0	25	5.1	2.1	30
11	9.9	44	e7.0	16	10	559	e7.8	5.3	25	4.5	2.0	17
12	10	862	e6.5	13	12	181	e7.6	5.2	28	26	2.1	26
13	12	400	e5.5	12	75	94	e7.3	5.6	18	46	2.1	254
14	11	106	e5.0	14	118	60	e7.1	5.4	12	22	2.1	228
15	10	48	e4.6	15	409	33	e11	5.3	9.6	12	2.0	133
16	12	89	e4.3	14	230	30	e9.9	7.7	7.3	9.6	2.1	30
17	13	54	e4.1	15	88	30	e9.0	6.9	5.5	146	2.2	14
18	11	34	e3.9	14	49	28	e8.5	29	5.0	75	2.1	9.0
19	9.5	34	e3.8	13	36	28	e13	34	4.3	29	29	7.1
20	9.3	427	e12	11	50	36	e10	23	4.0	16	195	6.0
21	10	504	e65	10	69	58	e8.4	72	4.0	12	52	5.1
22	11	249	e400	11	41	e43	e8.7	389	4.0	9.5	16	4.6
23	19	189	e450	10	26	e30	e8.3	159	4.5	8.7	7.2	3.9
24	23	150	e150	9.3	22	e20	e8.0	39	4.9	7.3	4.7	3.4
25	23	141	e70	326	20	e15	e7.8	16	4.2	6.8	3.4	3.2
26	16	523	e45	377	18	e10	e7.6	10	3.7	6.3	2.8	3.0
27	14	320	e90	106	17	e9.7	e7.4	6.2	9.3	6.0	2.5	2.9
28	13	198	e200	313	14	52	e7.3	5.2	13	5.7	2.3	2.8
29	13	149	e160	542	---	89	e7.3	4.7	6.9	5.4	2.1	2.7
30	13	122	e130	178	---	e200	e7.2	4.1	4.3	5.0	164	2.5
31	14	---	e90	88	---	e265	---	3.8	---	760	14	---
TOTAL	391.0	4838	2205.0	2464.3	1474.1	2870.7	483.3	920.1	376.4	2314.5	775.0	1031.3
MEAN	12.6	161	71.1	79.5	52.6	92.6	16.1	29.7	12.5	74.7	25.0	34.4
MAX	23	862	450	542	409	559	160	389	43	787	195	254
MIN	7.5	16	3.8	9.3	8.1	9.7	7.1	3.8	3.7	4.5	2.0	2.5
AC-FT	776	9600	4370	4890	2920	5690	959	1830	747	4590	1540	2050

CAL YR 1988 TOTAL 19521.85 MEAN 53.3 MAX 1690 MIN .95 AC-FT 38720
WTR YR 1989 TOTAL 20143.7 MEAN 55.2 MAX 862 MIN 2.0 AC-FT 39960

e Estimated

ARKANSAS RIVER BASIN

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07185095 TAR CREEK AT 22ND STREET BRIDGE AT MIAMI, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- June 1988 to May 1989 (discontinued).

REMARKS.-- Samples were collected periodically and specific conductance, air and water temperatures, and pH were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT												
05...	1400	1028	80020	3.68	7.6	*1860	6.2	18.5	26.5	1100	320	64
DEC												
01...	1230	1028	80020	4.57	120	1510	**5.9	13.0	7.5	790	230	53
MAR												
28...	2300	1028	80020	4.65	144	1270	6.8	18.5	19.0	670	200	41
29...	0000	1028	80020	4.72	160	1170	6.9	19.0	18.5	630	190	37
29...	0200	1028	80020	4.58	131	1070	6.9	16.0	18.0	560	170	33
29...	0245	1028	80020	4.52	120	1030	6.8	15.5	18.0	550	170	31
MAY												
09...	0900	1028	80020	4.52	120	2520	5.1	17.0	16.5	1400	440	84

*SPECIFIC CONDUCTANCE, LAB (US/CM)

**PH, LAB (STANDARD UNITS)

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
OCT												
05...	33	6	0.4	4.9	1200	12	1.0	12	1720	1680	2.34	35.4
DEC												
01...	25	6	0.4	4.0	840	7.5	0.80	11	1280	1230	1.74	415
MAR												
28...	21	6	0.4	5.1	670	8.6	0.80	7.3	1000	998	1.36	389
29...	19	6	0.3	3.5	630	7.3	0.70	6.9	958	939	1.30	414
29...	18	6	0.3	3.5	560	7.6	0.70	6.4	866	841	1.18	306
29...	17	6	0.3	3.6	540	6.9	0.60	6.5	850	818	1.16	275
MAY												
09...	53	7	0.6	7.2	1600	17	1.1	17	2320	--	--	--

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BORON, DIS- SOLVED (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)
OCT												
05...	40	20	2	<1	52	140	--	14	3	4	70	80
DEC												
01...	140	10	1	<1	29	90	--	19	59	3	50	60
MAR												
28...	390	20	1	<1	34	60	--	12	3	3	40	50
29...	310	20	1	<1	35	50	--	14	2	3	40	40
29...	270	10	1	<1	37	50	--	12	2	2	30	40
29...	270	20	<1	<1	36	60	--	11	1	2	30	30
MAY												
09...	410	100	1	<1	100	250	15	15	170	3	100	90

ARKANSAS RIVER BASIN

07185095 TAR CREEK AT 22ND STREET BRIDGE, MIAMI, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT 05...	1	2	10000	6400	<5	<5	70	1700	1700	<0.10	<0.1
DEC 01...	4	2	--	28000	<5	<5	53	--	1100	<0.10	0.1
MAR 28...	48	6	16000	8400	21	<5	44	900	880	<0.90	<0.3
29...	10	3	16000	6200	16	<5	48	800	830	<0.10	<0.1
29...	5	3	--	4100	12	<5	31	730	730	<0.10	0.1
29...	26	3	11000	4400	21	<5	35	700	700	<0.10	<0.1
MAY 09...	18	5	27000	12000	6	<1	100	2300	2400	<0.10	<0.1

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 05...	500	500	<1	<1	--	<1.0	20000	19000	--	--	--
DEC 01...	400	400	<1	<1	<1	<1.0	17000	17000	55	18	90
MAR 28...	200	200	<1	<1	--	5.0	15000	13000	52	20	93
29...	200	200	<1	<1	--	7.0	14000	12000	51	22	83
29...	200	--	<1	<1	<1	<1.0	8100	9000	41	15	70
29...	200	200	<1	<1	--	2.0	12000	9300	36	12	70
MAY 09...	700	600	<1	<1	<1	<1.0	26000	12000	93	30	77

07188000 SPRING RIVER NEAR QUAPAW, OK

LOCATION (REVISED).-- Lat 36°56'04", long 94°44'49", in NE 1/4 SW 1/4 sec. 5, T.28 N., R.24 E., Ottawa County, Hydrologic Unit 11070207, near downstream right abutment of county road bridge, 0.1 mi upstream from Rock Creek, 3.0 mi southeast of Quapaw, and at mile 13.9. Records include flow of Rock Creek.

DRAINAGE AREA.-- 2,510 mi², includes that of Rock Creek.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- July 1939 to May 1989 (discontinued).

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Occasional releases from floodgates at old Riverton Hydroelectric plant, 15 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 50 years, 2,050 ft³/s, 11.09 in/yr, 1,485,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 190,000 ft³/s, May 19, 1943, gage height, 43.4 ft, from floodmark, from rating curve extended above 54,000 ft³/s, on basis of slope-area measurement of peak flow; minimum daily discharge, 5.8 ft³/s, July 8, 1954.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge 18,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 12	1300	*12,500	*13.43	No peaks above base discharge			
Minimum daily discharge, 248 ft ³ /s, Nov. 9.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	933	e290	1700	4820	3300	e1690	4750	947	475	471	6960	2660
2	939	e282	1550	4930	2800	e1630	3650	928	592	4720	5710	1580
3	798	e276	1400	4450	2400	e1570	3220	939	604	3150	2630	1070
4	675	e268	1280	3570	1880	2110	2970	959	788	830	1400	550
5	604	e262	1190	2950	1870	2530	2700	953	1230	649	1230	669
6	573	e255	1120	2820	1710	2410	2470	906	875	392	1040	845
7	496	e252	1100	2760	1600	2080	2050	871	1070	386	848	588
8	363	e250	1190	2510	1510	1930	1990	856	826	376	770	618
9	460	e248	1190	2190	1410	2210	2000	866	881	363	719	1450
10	453	366	1130	1990	1340	6400	1890	867	613	334	656	4370
11	429	411	1050	1820	1300	11700	1800	845	1240	289	396	2690
12	406	7630	931	1680	1280	9680	1720	797	5070	309	499	1540
13	385	6620	744	1590	1480	7570	1660	777	3030	420	499	1550
14	368	3600	878	1510	1860	4710	1600	759	1600	366	496	3160
15	353	2030	826	1450	4000	3860	1550	758	887	324	558	3420
16	366	2360	774	1400	5970	3420	1490	748	844	1590	344	2450
17	376	2110	743	1350	4570	3070	1450	724	695	1680	408	1630
18	354	1620	712	1290	3330	2810	1400	772	639	1930	413	1370
19	333	1280	703	1230	2830	2590	1350	889	584	3490	624	1110
20	328	2430	701	1160	2590	2520	1310	882	385	5250	7160	1030
21	327	5980	686	1110	2670	3310	1280	1820	459	2770	3480	923
22	333	4670	4170	1060	2920	4250	1250	3780	448	1300	1950	836
23	509	3270	10000	1030	2570	3050	1220	4110	453	767	1010	760
24	603	2440	6220	999	2260	2530	1190	3710	528	1100	1010	722
25	430	2120	4250	2210	2110	2390	1050	3020	479	1050	602	639
26	378	4610	2620	5900	1860	2230	1050	1470	485	1090	865	444
27	347	5690	6500	4340	e1800	2110	1080	1010	628	994	1510	501
28	330	3900	11400	3880	e1730	2410	1050	869	509	760	1140	520
29	317	2690	7610	9950	---	3510	1010	785	467	655	813	514
30	313	1930	5070	6640	---	4040	990	730	476	589	2690	477
31	301	---	4110	4520	---	4980	---	618	---	2290	7920	---
TOTAL	14180	70140	83548	89109	66950	111300	54190	38965	27660	40684	56350	40684
MEAN	457	2338	2695	2874	2391	3590	1806	1257	922	1312	1818	1356
MAX	939	7630	11400	9950	5970	11700	4750	4110	5070	5250	7920	4370
MIN	301	248	686	999	1280	1570	990	618	385	289	344	444
AC-FT	28130	139100	165700	176700	132800	220800	107500	77290	54880	80700	111800	80700
CFSM	.18	.93	1.07	1.15	.95	1.43	.72	.50	.37	.52	.72	.54
IN.	.21	1.04	1.24	1.32	.99	1.65	.80	.58	.41	.60	.84	.60

CAL YR 1988 TOTAL 761498 MEAN 2081 MAX 27100 MIN 180 AC-FT 1510000 CFSM .83 IN. 11.29
WTR YR 1989 TOTAL 693760 MEAN 1901 MAX 11700 MIN 248 AC-FT 1376000 CFSM .76 IN. 10.28

e Estimated

ARKANSAS RIVER BASIN

07188000 SPRING RIVER NEAR QUAPAW, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- June 1988 to May 1989 (discontinued).

REMARKS.-- Samples were collected periodically and specific conductance, air and water temperatures, and pH were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)
OCT 06...	1145	1028	80020	5.65	557	*412	8.0	22.0	28.5	180	60	6.7
NOV 30...	1230	1028	80020	7.45	2190	320	7.8	16.0	11.0	130	35	10
MAY 09...	1200	1028	80020	5.89	866	370	8.0	17.5	17.0	160	58	4.7

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)
OCT 06...	12	13	0.4	3.9	68	12	0.20	11	255	240	0.35	383
NOV 30...	11	15	0.4	4.0	70	8.4	0.20	9.4	199	193	0.27	1180
MAY 09...	10	11	0.3	2.9	26	9.4	0.10	7.0	310	201	0.42	725

DATE	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)
OCT 06...	1100	20	1	1	63	30	1	2.0	3	2	1	1
NOV 30...	5000	30	<1	<1	57	30	<1	<1.0	14	2	3	1
MAY 09...	420	20	1	<1	58	40	<1	<1.0	4	2	1	<1

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT 06...	3	4	840	24	<5	<5	8	160	120	0.10	<0.1
NOV 30...	7	4	4200	180	<5	<5	<4	130	30	0.30	0.3
MAY 09...	4	5	490	32	6	1	5	180	82	<0.10	<0.1

DATE	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 06...	10	4	<1	<1	--	<1.0	300	230	--	--	--
NOV 30...	16	4	<1	<1	<1	<1.0	40	29	31	183	90
MAY 09...	6	5	<1	<1	<1	<1.0	120	130	22	51	70

07189000 ELK RIVER NEAR TIFF CITY, MO

LOCATION (REVISED).-- Lat 36°37'53", long 94°35'12", in NE 1/4 NE 1/4 sec.22, T.22 N., R.34 W., McDonald County, Hydrologic Unit 11070208, near right abutment of bridge on State Highway 43, 0.8 mi downstream from Blackfoot Branch, 2.8 mi upstream from Buffalo Creek, 3.0 mi southeast of Tiff City, and at mile 15.8.

DRAINAGE AREA.-- 872 mi².

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

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

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

REMARKS.-- No estimated daily discharges. Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 50 years, 803 ft³/s, 12.50 in/yr, 581,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 137,000 ft³/s, Apr. 19, 1941, gage height, 28.4 ft, from floodmark, from rating curve extended above 60,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily discharge, 5.1 ft³/s, Sept. 5-6, 1954.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 12	1100	9,940	11.75	Aug. 1	0200	*10,400	*12.02

Minimum daily discharge, 93 ft³/s, Nov. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	106	568	1150	1690	886	2480	378	448	302	4900	235
2	181	103	499	1320	1360	838	2020	369	434	283	1490	214
3	165	99	442	1340	1210	807	1690	361	793	269	993	199
4	152	99	398	1210	1090	842	1410	382	830	251	771	191
5	142	97	363	1080	986	864	1260	356	982	234	626	182
6	139	96	332	969	891	866	1120	339	716	220	518	175
7	138	95	317	857	805	829	1020	325	602	210	429	166
8	133	93	305	754	730	812	949	329	525	201	357	160
9	131	95	291	668	660	880	881	342	474	191	311	177
10	125	104	276	600	606	1730	817	343	412	183	286	318
11	120	109	264	548	565	7100	764	322	429	175	266	330
12	115	225	252	503	549	9330	724	307	697	174	247	923
13	111	505	244	462	823	5780	687	300	1080	182	234	873
14	106	559	235	427	4850	3720	662	291	1240	180	220	968
15	102	490	227	401	5420	2670	638	296	1070	172	211	1060
16	108	457	219	377	6830	2040	607	326	910	163	205	913
17	114	494	211	356	4340	1690	584	316	779	1120	207	767
18	118	444	204	336	2970	1460	576	321	674	1360	199	642
19	115	413	200	321	2260	1300	573	434	593	759	191	543
20	109	651	193	305	1870	1190	549	756	521	569	374	469
21	109	1150	190	291	1650	1110	523	829	460	428	338	415
22	108	1090	202	281	1460	1030	511	4450	411	361	282	367
23	113	875	287	274	1300	965	498	3240	398	320	249	323
24	119	716	378	267	1180	887	486	1750	392	292	223	295
25	125	613	386	282	1100	833	470	1240	352	277	203	275
26	127	597	379	430	1030	806	452	1010	331	260	191	258
27	124	794	461	840	981	771	439	856	332	235	234	244
28	118	851	847	1020	939	791	424	737	348	217	248	231
29	115	756	1130	2810	---	898	409	650	367	202	212	220
30	111	652	1070	3120	---	1040	392	569	329	189	208	209
31	108	---	996	2190	---	1970	---	504	---	1630	243	---
TOTAL	3894	13428	12366	25789	50145	56735	24616	23008	17929	11599	15666	12342
MEAN	126	448	399	832	1791	1830	820	742	598	374	505	411
MAX	193	1150	1130	3120	6830	9330	2480	4450	1240	1630	4900	1060
MIN	102	93	190	267	549	771	392	291	329	163	191	160
AC-FT	7720	26630	24530	51150	99460	112500	48820	45640	35560	23010	31070	24480
CFSM	.14	.51	.46	.95	2.05	2.10	.94	.85	.69	.43	.58	.47
IN.	.17	.57	.53	1.10	2.14	2.42	1.05	.98	.76	.49	.67	.53

CAL YR 1988 TOTAL 253215 MEAN 692 MAX 16000 MIN 58 AC-FT 502300 CFSM .79 IN. 10.80
WTR YR 1989 TOTAL 267516 MEAN 733 MAX 9330 MIN 93 AC-FT 530600 CFSM .84 IN. 11.41

ARKANSAS RIVER BASIN

07190000 LAKE O' THE CHEROKEES AT LANGLEY, OK

LOCATION.-- Lat 36°28'07", long 95°02'28", in SW 1/4 SW 1/4 sec.14, T.23 N., R.21 E., Mayes County, Hydrologic Unit 11070209, on upstream side of pier at intake structure near right end of Pensacola Dam on Neosho River at Langley, 9.9 mi upstream from Big Cabin Creek, and at mile 77.0.

DRAINAGE AREA.-- 10,298 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1.10 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers' bench mark). Prior to Nov. 14, 1941, nonrecording gage at same site and datum.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 2,213,000 acre-ft, May 25, 1957, gage height, 755.27 ft, minimum since power-pool was first filled, 642,900 acre-ft, Sept. 28, 1954, gage height, 713.41 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 1,684,000 acre-ft, June 15, gage height, 745.26 ft; minimum, 1,436,000 acre-ft, Dec. 19, gage height, 739.61 ft.

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

740	1,452,000	750	1,917,000
745	1,672,000	755	2,198,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1560000	1456000	1453000	1518000	1523000	1553000	1586000	1523000	1562000	1639000	1648000	1656000
2	1560000	1458000	1453000	1517000	1537000	1552000	1589000	1522000	1565000	1639000	1639000	1655000
3	1557000	1457000	1460000	1515000	1541000	1555000	1585000	1522000	1560000	1639000	1624000	1650000
4	1553000	1457000	1463000	1508000	1544000	1557000	1580000	1524000	1565000	1636000	1615000	1644000
5	1548000	1456000	1460000	1502000	1550000	1556000	1576000	1523000	1562000	1634000	1618000	1638000
6	1546000	1457000	1462000	1494000	1552000	1549000	1574000	1523000	1566000	1637000	1615000	1636000
7	1541000	1457000	1465000	1488000	1555000	1545000	1569000	1525000	1564000	1641000	1610000	1633000
8	1538000	1457000	1455000	1477000	1560000	1548000	1569000	1529000	1553000	1642000	1611000	1624000
9	1536000	1458000	1448000	1477000	1561000	1552000	1562000	1533000	1555000	1640000	1614000	1617000
10	1532000	1460000	1448000	1481000	1552000	1572000	1551000	1534000	1561000	1636000	1615000	1624000
11	1527000	1464000	1445000	1483000	1556000	1622000	1546000	1537000	1565000	1632000	1616000	1643000
12	1523000	1482000	1441000	1481000	1559000	1653000	1539000	1539000	1613000	1632000	1617000	1663000
13	1516000	1491000	1443000	1480000	1556000	1670000	1534000	1541000	1656000	1628000	1619000	1662000
14	1513000	1488000	1450000	1482000	1562000	1673000	1533000	1543000	1678000	1631000	1617000	1666000
15	1508000	1479000	1444000	1478000	1577000	1688000	1536000	1544000	1671000	1633000	1615000	1671000
16	1522000	1476000	1445000	1477000	1596000	1660000	1534000	1550000	1667000	1628000	1617000	1669000
17	1505000	1470000	1444000	1478000	1601000	1652000	1523000	1550000	1664000	1651000	1615000	1663000
18	1501000	1464000	1445000	1482000	1599000	1638000	1511000	1553000	1664000	1648000	1610000	1653000
19	1499000	1473000	1436000	1484000	1592000	1626000	1500000	1556000	1661000	1638000	1604000	1640000
20	1494000	1473000	1450000	1481000	1589000	1613000	1504000	1557000	1658000	1632000	1633000	1627000
21	1493000	1481000	1452000	1481000	1580000	1597000	1506000	1565000	1654000	1629000	1629000	1618000
22	1489000	1479000	1468000	1484000	1578000	1589000	1504000	1574000	1655000	1626000	1620000	1611000
23	1490000	1471000	1482000	1484000	1570000	1576000	1504000	1605000	1653000	1623000	1609000	1591000
24	1490000	1462000	1484000	1486000	1562000	1566000	1506000	1626000	1650000	1619000	1597000	1569000
25	1472000	1455000	1480000	1491000	1556000	1561000	1512000	1624000	1644000	1620000	1602000	1561000
26	1467000	1453000	1473000	1491000	1556000	1553000	1515000	1610000	1632000	1614000	1615000	1562000
27	1468000	1456000	1483000	1484000	1549000	1542000	1519000	1593000	1628000	1610000	1622000	1556000
28	1464000	1453000	1506000	1483000	1551000	1541000	1522000	1577000	1627000	1608000	1628000	1555000
29	1464000	1457000	1518000	1500000	---	1543000	1526000	1564000	1626000	1607000	1641000	1552000
30	1462000	1457000	1519000	1511000	---	1552000	1525000	1560000	1629000	1608000	1635000	1554000
31	1459000	---	1518000	1516000	---	1567000	---	1562000	---	1635000	1646000	---
MAX	1560000	1491000	1519000	1518000	1601000	1673000	1589000	1626000	1678000	1651000	1648000	1671000
MIN	1459000	1453000	1436000	1477000	1523000	1541000	1500000	1522000	1553000	1607000	1597000	1552000
(+)	740.17	740.13	741.56	741.52	742.31	742.68	741.73	742.57	744.06	744.20	744.44	742.39
(++)	-101,000	-2,000	+61,000	-2,000	+35,000	+16,000	-42,000	+37,000	+67,000	+6,000	+11,000	-92,000

CAL YR 1988 MAX 1896000 MIN 1436000 ++ -368,000
WTR YR 1989 MAX 1678000 MIN 1436000 ++ -6,000

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

ARKANSAS RIVER BASIN

247

07190500 NEOSHO RIVER NEAR LANGLEY, OK

LOCATION.-- Lat 36°26'15", long 95°02'44", in SE 1/4 sec. 27, T.23 N., R.21 E., Mayes County, Hydrologic Unit 11070209, in concrete stilling well on left bank, 0.5 mi upstream from bridge on State Highway 82, 1.5 mi south of Langley, 3.8 mi downstream from Pensacola Dam, 6.3 mi upstream from Big Cabin Creek, and at mile 73.4.

DRAINAGE AREA.-- 10,335 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 607.65 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Feb. 16, 1940, nonrecording gage at site 0.1 mi upstream at same datum. Feb. 10, 1954 to Sept. 30, 1963, water-stage recorder at site 0.5 mi downstream at same datum. Auxiliary water-stage recorders at sites 2.0 and 3.0 mi upstream at same datum.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Low flow values of 25 ft³/s consist of estimated base flow (since July 1964). Flow regulated since 1940 by Lake O' The Cherokees (station 07190000).

AVERAGE DISCHARGE.-- 50 years, 7,208 ft³/s, 5,222,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 300,000 ft³/s, May 20, 1943, gage height, 45.5 ft, from floodmarks, from computation of outflow from Lake O' The Cherokees; minimum daily, 9 ft³/s, Mar. 25, 1940 (caused by closure of Pensacola Dam).

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 13,100 ft³/s, June 12, maximum gage height, 15.30 ft, June 15; minimum daily discharge, 25 ft³/s, at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2130	2590	6040	9690	5970	3090	e11100	e1800	1530	e75	7850	11900
2	1790	126	2520	9610	1210	3120	e11200	e2100	3320	e6300	11800	11900
3	1910	98	25	9570	1780	2110	e11800	e790	5290	e5600	11600	12000
4	3220	146	25	9480	1070	5480	e9700	e1200	3960	e3800	10400	12000
5	3240	296	3190	9670	e1200	6940	e6400	e1800	6660	e2100	4120	11900
6	2560	67	1950	9710	1790	7490	e6600	e950	3200	e1500	873	11900
7	1870	512	1780	8650	1310	6020	e6200	e110	7550	e1300	2600	11900
8	1950	354	6590	9140	1510	2810	e5200	e50	11000	e1300	286	12000
9	2020	553	4270	4660	4160	2380	e7300	e145	3260	e1900	259	12000
10	1960	470	2160	e3800	3040	7150	e7800	e65	311	e2200	51	11800
11	2720	427	3230	2440	745	5450	e6800	e60	8310	e2200	246	11700
12	2980	3550	2650	2890	1800	9310	e6400	e75	12500	e2700	44	11700
13	2530	9520	349	2970	6140	9340	e5000	e55	12500	e3700	25	11800
14	2360	8620	266	1760	6220	10200	e3600	e75	12600	e400	2340	12000
15	2040	8260	2460	4590	8640	10700	e1400	e440	11900	e1470	1720	12000
16	1070	7650	428	2410	8610	11700	e2200	e560	7010	e6500	919	12200
17	2920	7090	2280	2060	10100	11600	e6700	e660	4950	e8500	2070	12100
18	2130	7150	25	458	10200	11700	e9500	e1600	5240	e12200	2870	12000
19	2690	2280	438	1180	10200	11700	e7900	e2400	4660	e12000	3290	12000
20	2870	5240	25	3030	10200	11800	e480	e2500	5620	e11600	8610	12000
21	2630	9710	38	1300	10100	11800	e830	e2200	5890	e7700	11100	12100
22	2320	11300	1880	536	9660	10500	e2300	9550	e5800	e4900	11500	12100
23	2660	11100	8150	1560	9520	10800	e990	11800	e4700	e5000	11500	12100
24	3150	9450	7270	398	9590	9930	e540	12000	e4400	e4700	11100	12100
25	2250	9230	7600	5510	8260	7670	e200	12200	e5200	e3200	11300	8530
26	1930	9450	6910	9870	4940	7600	125	12300	e7500	e6100	11400	1490
27	1040	10900	8990	11100	7480	8200	294	11600	e5200	1350	11300	3840
28	930	11000	9660	11300	4000	8320	317	9480	e2700	3320	11300	2590
29	731	4910	9690	11300	---	8800	277	8300	e2300	1370	11500	2880
30	714	3430	9720	11500	---	11300	819	2230	e500	37	12000	25
31	1310	---	9730	7700	---	11600	---	1390	---	2490	11900	---
TOTAL	66625	155479	120309	179842	159445	256610	143772	110685	175561	127512	197873	306555
MEAN	2149	5183	3881	5801	5694	8278	4792	3570	5852	4113	6383	10220
MAX	3240	11300	9730	11500	10200	11800	11600	12300	12600	12200	12000	12200
MIN	714	67	25	398	745	2110	125	50	311	37	25	25
AC-FT	132200	308400	238600	356700	316300	509000	286200	219500	348200	252900	392500	608100

CAL YR 1988 TOTAL 2418792 MEAN 6609 MAX 62800 MIN 25 AC-FT 4798000
WTR YR 1989 TOTAL 2000268 MEAN 5480 MAX 12600 MIN 25 AC-FT 3968000

e Estimated

ARKANSAS RIVER BASIN

07191000 BIG CABIN CREEK NEAR BIG CABIN, OK

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

DRAINAGE AREA.-- 450 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 622.00 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Sept. 30, 1972, water-stage recorder at site 4.5 mi downstream at same datum.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Low flow sustained in part by sewage from city of Vinita. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 42 years, 327 ft³/s, 9.53 in/yr, 236,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 52,000 ft³/s, Oct. 3, 1959, gage height, 34.55 ft, at former site; maximum gage height, 46.65 ft, Feb. 23, 1985; minimum discharge, 0.10 ft³/s, Oct. 4, 5, 1954, Sept. 12-17, 26-28, Oct. 4-9, 1956, and Oct. 5-7, 1963.

PERIOD OF RECORD.-- Flood of May 18, 1943, reached a stage of 34.96 ft at former site; discharge, 63,000 ft³/s, by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Dec. 23	0100	*8,810	*29.28	No peaks above base			

Minimum daily discharge, 1.1 ft³/s, Aug. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	e12	92	845	264	141	538	15	21	55	3510	3.8
2	16	e11	e65	450	191	125	294	14	21	54	231	8.6
3	14	e11	e50	280	144	119	220	14	33	127	111	8.6
4	12	e10	e45	204	94	508	180	14	183	111	69	5.3
5	10	e9.8	e40	165	72	474	142	17	331	70	44	2.6
6	9.5	e9.0	e35	159	59	231	117	16	221	49	30	3.5
7	10	e8.2	33	151	51	214	101	15	133	32	18	7.0
8	10	e7.6	42	122	49	254	87	13	97	20	14	16
9	10	e7.0	89	97	43	761	74	14	78	14	7.1	18
10	9.6	e6.2	91	85	43	4530	62	13	61	9.4	2.5	18
11	11	e7.6	66	81	44	3630	50	12	391	6.2	1.7	27
12	11	e15	50	77	50	764	45	12	4910	15	1.6	20
13	11	e35	40	69	351	422	43	12	2070	87	1.4	132
14	10	164	34	63	544	301	41	12	589	114	1.2	465
15	8.4	179	31	76	3120	220	40	12	297	80	1.2	367
16	8.4	181	28	82	1680	167	38	30	193	129	1.2	213
17	8.4	172	24	94	579	147	35	20	144	842	1.1	118
18	7.8	94	23	105	381	126	36	971	112	4210	18	75
19	10	58	20	96	311	108	47	1010	84	282	32	53
20	12	2260	24	78	465	103	45	390	62	130	3950	36
21	13	1650	55	62	803	140	40	177	46	79	1050	27
22	13	419	3010	50	416	147	33	2540	32	55	183	21
23	14	214	4940	43	235	120	30	1060	28	45	96	16
24	19	145	506	39	178	103	29	280	31	55	62	13
25	21	192	250	1750	167	90	25	163	40	53	40	13
26	21	2310	171	2290	163	78	23	112	38	39	26	13
27	20	716	1840	461	160	70	22	76	32	31	17	13
28	18	303	2660	1670	160	911	20	52	52	24	11	12
29	e16	173	708	4250	---	741	18	37	99	17	5.8	12
30	e13	122	475	788	---	798	17	29	55	9.4	2.9	11
31	e13	---	618	402	---	2290	---	24	---	1600	2.2	---
TOTAL	399.1	9501.4	16155	15184	10817	18833	2492	7176	10482	8444.0	9541.9	1748.4
MEAN	12.9	317	521	490	386	608	83.1	231	349	272	308	58.3
MAX	21	2310	4940	4250	3120	4530	538	2540	4910	4210	3950	465
MIN	7.8	6.2	20	39	43	70	17	12	21	6.2	1.1	2.6
AC-FT	792	18850	32040	30120	21460	37360	4940	14230	20790	16750	18930	3470
CFSM	.03	.70	1.16	1.09	.86	1.35	.18	.51	.78	.61	.68	.13
IN.	.03	.79	1.34	1.26	.89	1.56	.21	.59	.87	.70	.79	.14

CAL YR 1988 TOTAL 100308.66 MEAN 274 MAX 11600 MIN .86 AC-FT 199000 CFSM .61 IN. 8.29
WTR YR 1989 TOTAL 110773.8 MEAN 303 MAX 4940 MIN 1.1 AC-FT 219700 CFSM .67 IN. 9.16

e Estimated

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK

LOCATION.-- Lat 36°20'07", long 94°38'27" (revised), in NE 1/4 NW 1/4 sec.4, T.21 N., R.25 E., Delaware County, Hydrologic Unit 11070209, on right bank 1.8 mi upstream from Cherokee Creek, 4.8 mi northeast of Row, 6.5 mi southeast of Sycamore, and at mile 35.0.

DRAINAGE AREA.-- 133 mi².

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

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

GAGE.-- Water-stage recorder. Elevation of gage is 875 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.-- No estimated daily discharges. Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 28 years, 109 ft³/s, 11.13 in/yr, 78,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 39,800 ft³/s, July 27, 1975, gage height, 22.07 ft; minimum, 1.2 ft³/s, Aug. 9, 1964.

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

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 15	1930	*1,020	*7.58	No peak greater than base discharge.			
Minimum discharge, 9.8 ft ³ /s, Sept. 10.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	14	43	133	235	98	441	54	55	43	20	11
2	21	14	40	169	190	91	380	53	50	41	25	11
3	20	14	37	176	166	86	309	52	47	38	30	11
4	19	14	35	152	154	92	243	52	47	37	34	11
5	18	13	33	131	141	92	199	51	62	34	34	10
6	17	13	31	113	128	88	172	50	62	32	31	10
7	17	13	30	96	112	80	153	49	59	29	29	10
8	17	13	28	83	102	81	140	49	55	27	26	10
9	17	13	27	74	94	99	129	48	51	25	23	10
10	17	13	26	66	85	291	118	48	48	23	20	9.8
11	16	13	25	59	78	864	108	48	49	22	18	9.9
12	16	17	24	53	74	810	102	47	69	21	16	10
13	15	21	23	48	334	576	98	46	223	20	15	12
14	15	27	22	45	777	466	95	44	486	19	14	14
15	14	31	21	43	912	396	92	42	390	19	13	18
16	14	35	20	41	800	325	89	42	280	19	14	23
17	14	37	20	39	568	263	88	44	199	20	13	27
18	14	39	19	37	461	223	86	45	149	21	14	28
19	14	41	19	35	349	194	84	82	115	28	18	27
20	14	44	18	34	280	174	80	148	98	37	20	24
21	14	48	18	33	237	156	77	123	86	39	20	21
22	14	65	19	32	202	142	74	190	74	37	21	18
23	14	80	21	31	173	132	72	252	68	33	21	15
24	14	71	25	31	153	122	69	191	64	32	20	13
25	15	63	28	34	138	115	67	144	60	29	18	13
26	15	55	32	70	126	111	64	115	55	28	16	12
27	16	50	49	233	118	106	62	96	52	26	14	12
28	16	47	59	254	108	124	60	85	49	25	13	11
29	16	46	63	485	---	156	58	76	47	23	13	11
30	15	45	81	420	---	239	57	68	45	21	12	10
31	15	---	95	312	---	518	---	61	---	21	12	---
TOTAL	495	1009	1031	3562	7293	7310	3866	2495	3194	869	607	432.7
MEAN	16.0	33.6	33.3	115	260	236	129	80.5	106	28.0	19.6	14.4
MAX	22	80	95	485	912	864	441	252	486	43	34	28
MIN	14	13	18	31	74	80	57	42	45	19	12	9.8
AC-FT	982	2000	2040	7070	14470	14500	7670	4950	6340	1720	1200	858
CFSM	.12	.25	.25	.86	1.96	1.77	.97	.61	.80	.21	.15	.11
IN.	.14	.28	.29	1.00	2.04	2.04	1.08	.70	.89	.24	.17	.12

CAL YR 1988 TOTAL 31641 MEAN 86.5 MAX 1650 MIN 10 AC-FT 62760 CFSM .65 IN. 8.65
WTR YR 1989 TOTAL 32163.7 MEAN 88.1 MAX 912 MIN 9.8 AC-FT 63800 CFSM .66 IN. 9.00

ARKANSAS RIVER BASIN

07191400 LAKE HUDSON NEAR LOCUST GROVE, OK

LOCATION (REVISED).-- Lat 36°13'48", long 95°10'55", in SE 1/4 NW 1/4 sec.9, T.20 N., R. 20 E., Mayes County, Hydrologic Unit 11070209, at left side of Robert S. Kerr dam on Neosho River, 2.0 mi northwest of Locust Grove, 3.5 mi downstream from Saline Creek, and at mile 47.3.

DRAINAGE AREA.-- 11,534 mi².

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

GAGE.-- Remote-controlled indicator and non-recording gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.-- Reservoir is formed by earth dam and concrete spillway controlled by seventeen 22-foot taintor gates. Storage began Nov. 12, 1963; power pool first filled June 12, 1964. Capacity, 444,500 acre-ft at elevation 636.0 ft, top of taintor gages, 200,300 acre-ft at elevation 619.0 ft, power pool, and 48,630 acre-ft at elevation 599.0 ft, top of spillway crest. Figures given herein represent total contents. Reservoir was designed for flood control and power development.

COOPERATION.-- Records provided by Grand River Dam Authority.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 443,600 acre-ft, Oct. 4, 1986, elevation, 635.95 ft; minimum since power pool first filled, 153,200 acre-ft, Mar. 24, 1988, elevation, 614.31 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 229,700 acre-ft, June 15, elevation, 621.59 ft; minimum, 195,500 acre-ft, Sept. 24, elevation, 618.55 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	619.17	202,200	-
Oct. 31.....	619.36	204,300	+2,100
Nov. 30.....	619.34	204,100	-200
Dec. 31.....	619.31	203,700	-400
CAL YR 88.....	-	-	-81,900
Jan. 31.....	619.24	203,000	-700
Feb. 29.....	619.31	203,700	+700
Mar. 31.....	619.39	204,600	+900
Apr. 30.....	619.27	203,300	-1,300
May 31.....	619.51	205,900	+2,600
June 30.....	619.39	204,600	-1,300
July 31.....	619.56	206,500	+1,900
Aug. 31.....	620.19	213,500	+7,000
Sept. 30.....	619.17	202,200	-11,300
WTR YR 89.....	-	-	0

ARKANSAS RIVER BASIN

251

07191500 NEOSHO RIVER NEAR CHOUTEAU, OK

LOCATION.-- Lat 36°13'45", long 95°10'59", in SE 1/4 NW 1/4 sec.9, T.20 N., R.20 E., Mayes County, Hydrologic Unit 11070200, on left bank, 300 ft downstream from Robert S. Kerr Dam, 2.2 mi northwest of Locust Grove, 10.0 mi northeast of Chouteau, and at mile 47.2.

DRAINAGE AREA.-- 11,534 mi².

PERIOD OF RECORD.-- October 1937 to September 1950, October 1963 to current year.

REVISED RECORDS.-- WSP 1117: Drainage area. WDR OK-86-1: 1979.

GAGE.-- Water-stage recorder. Datum of gage is 554.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 3, 1941, nonrecording gage at bridge on State Highway 33, 8.2 mi downstream, at datum 17.63 ft lower. Apr. 3, 1941 to Sept. 30, 1950, and Oct. 1963 to Apr. 6, 1964, at site 2.5 mi downstream, at datum 2.17 ft lower. Supplemental water-stage recorder Oct. 4, 1963, to July 10, 1973, at site 8.2 mi downstream.

REMARKS.-- Records poor. Daily discharge determined from release records. Some regulation since 1940 by Lake O' The Cherokees (station 07190000), and completely regulated since 1963 by Lake Hudson (station 07191400).

AVERAGE DISCHARGE.-- Since regulation by Lake Hudson, 26 years (water years 1964-89), 8,400 ft³/s, 6,086,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 400,000 ft³/s, May 20, 1943, gage height, 45.00 ft, site and datum then in use, from rating curve extended above 140,000 ft³/s, on basis of slope-area measurement of peak flow; minimum daily discharge, 12 ft³/s, Nov. 13, 1963 (caused by closure of Robert S. Kerr Dam).

EXTREMES FOR CURRENT YEAR.-- Maximum daily discharge, 20,800 ft³/s, June 13, minimum daily discharge, 205 ft³/s, many times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e576	e1970	e6550	e11100	e8560	e4240	e15400	e2030	e2710	e205	e13700	e17700
2	e2580	e205	e6550	e11600	e2020	e3030	e13100	e616	e4110	e7310	e11800	e12700
3	e3760	e283	e4020	e10700	e2470	e3170	e13700	e2480	e7270	e4940	e9510	e10800
4	e1280	e205	e205	e7760	e535	e8260	e11200	e2350	e6030	e4580	e9480	e11500
5	e5280	e205	e3460	e11100	e205	e9150	e10600	e1190	e7210	e2260	e3180	e14900
6	e3870	e205	e2090	e10900	e4250	e8240	e6750	e232	e3990	e1610	e818	e11200
7	e1510	e205	e1260	e9300	e980	e7930	e6230	e205	e9360	e1240	e3240	e8960
8	e2110	e205	e7560	e9150	e2820	e1750	e4370	e205	e10300	e1520	e566	e11500
9	e1970	e394	e2460	e6100	e7010	e4150	e10700	e205	e5780	e205	e205	e13100
10	e3010	e205	e5350	e606	e2380	e11800	e7640	e556	e205	e1730	e205	e14300
11	e1630	e626	e1230	e444	e1860	e17800	e7870	e789	e9850	e205	e205	e12700
12	e2940	e5260	e3090	e6520	e3130	e18000	e6010	e205	e18100	e3980	e205	e10000
13	e556	e12500	e205	e3020	e3880	e16900	e7180	e205	e20800	e4720	e205	e13500
14	e2020	e9650	e205	e1870	e9040	e12900	e1110	e205	e5870	e205	e1590	e7680
15	e205	e8950	e3170	e5320	e14300	e13400	e2850	e205	e12000	e205	e2140	e13500
16	e7140	e8080	e205	e1520	e13800	e14600	e3550	e273	e15400	e3810	e205	e13200
17	e2680	e6650	e980	e2370	e15600	e11200	e10900	e364	e11500	e13800	e1780	e12000
18	e2470	e205	e205	e1570	e12400	e13600	e9700	e2770	e6200	e16400	e3920	e9780
19	e434	e3820	e586	e1050	e13100	e15700	e7760	e5870	e6690	e10200	e3770	e17000
20	e3150	e6520	e205	e3640	e12300	e11100	e1500	e1820	e9100	e11200	e12500	e8810
21	e5690	e12700	e414	e848	e12700	e12200	e1590	e1960	e5760	e9080	e13400	e13900
22	e1770	e13300	e3820	e535	e12700	e11700	e2770	e12900	e6870	e4500	e10500	e12400
23	e2920	e11700	e13300	e1180	e8880	e11100	e333	e14800	e6410	e5270	e11700	e12900
24	e2940	e10400	e12300	e475	e12600	e7580	e205	e13800	e4540	e808	e9530	e15000
25	e1430	e10900	e8340	e9040	e3470	e9510	e2170	e11500	e6830	e6690	e11700	e7480
26	e2660	e12400	e6460	e16200	e10900	e9740	e205	e10800	e6380	e6560	e11700	e205
27	e205	e12900	e10700	e12200	e10400	e9840	e205	e13100	e6240	e4820	e11100	e205
28	e205	e10900	e14400	e12400	e3790	e9980	e205	e10600	e4090	e2220	e9100	e3150
29	e1220	e5560	e11500	e15800	---	e8580	e205	e8130	e788	e475	e12200	e205
30	e205	e2090	e10200	e16700	---	e16500	e205	e3510	e205	e205	e15500	e205
31	e2980	---	e10900	e9130	---	e14400	---	e970	---	e4870	e9140	---
TOTAL	71396	169193	151920	210148	206060	327050	165213	124845	220588	135803	204794	310480
MEAN	2303	5640	4901	6779	7359	10550	5507	4027	7353	4381	6606	10350
MAX	7140	13300	14400	16700	15600	18000	15400	14800	20800	16400	15500	17700
MIN	205	205	205	444	205	1750	205	205	205	205	205	205
AC-FT	141600	335600	301300	416800	408700	648700	327700	247600	437500	269400	408200	615800

CAL YR 1988 TOTAL 2850778 MEAN 7789 MAX 68000 MIN 160 AC-FT 5655000
WTR YR 1989 TOTAL 2297490 MEAN 6294 MAX 20800 MIN 205 AC-FT 4557000

e Estimated

ARKANSAS RIVER BASIN

07193000 FORT GIBSON LAKE NEAR FORT GIBSON, OK

LOCATION.-- Lat 35°52'12", long 95°13'38", in NE 1/4 NW 1/4 sec.18, T.16 N., R.20 E., Cherokee County, Hydrologic Unit 11070209, in control tower near left end of Fort Gibson Dam on Neosho River, 4.0 mi north of Fort Gibson, and at mile 7.7.

DRAINAGE AREA.-- 12,492 mi².

PERIOD OF RECORD.-- October 1949 to current year. Prior to October 1970, published as Fort Gibson Reservoir near Fort Gibson.

REVISED RECORDS.-- WSP 1731: 1950 (M).

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 13, 1950, nonrecording gage at same site and datum.

REMARKS.-- Reservoir is formed by concrete-gravity and earth-fill dam. Spillway is concrete ogee-type weir controlled by thirty 40-foot taintor gates; outlet works consists of ten, 5-foot, 8-inch by 7-foot sluice gates. Regulated storage began Sept. 5, 1949; power pool was first maintained in 1953. Capacity, 1,284,000 acre-ft at elevation 582.0 ft, flood control pool, 365,200 acre-ft at elevation 554.0 ft (maximum power pool), and 311,300 acre-ft at elevation 551.0 ft (minimum power pool). Figures given herein represent total contents. Reservoir was designed for flood control and power development. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,286,000 acre-ft, Oct. 5, 1986, elevation, 582.04 ft; minimum since first use of power pool, 303,800 acre-ft, May 26, 1955, elevation, 550.56 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 498,800 acre-ft, June 14, elevation, 560.26 ft; minimum, 333,500 acre-ft, Nov. 9, elevation 552.28.

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

550	294,600	565	622,100
555	384,500	570	777,000
560	492,600	575	964,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369800	350900	375700	393900	404500	373900	416600	363400	359300	356500	372200	402100
2	373700	347200	382900	396700	383300	367700	422700	364600	366500	369900	374100	403300
3	369900	341800	382900	394500	366300	369000	424300	363700	376300	368600	372400	400300
4	363900	337000	382500	382100	364100	384500	418700	363300	372000	363500	371300	400700
5	372200	337300	386500	372800	365600	389900	397100	364400	375500	358000	366000	403300
6	374700	336400	387500	371700	366700	389500	379800	363100	372200	357600	359100	395500
7	367700	336200	384100	374100	365200	388100	368600	362900	373600	357800	359300	381000
8	369000	335500	390500	370300	367500	386600	361400	360300	372600	360600	358200	375300
9	369900	337700	392300	367500	370100	386300	369900	360600	364400	362200	358000	380000
10	371500	336200	401900	357400	365600	412600	365800	360800	364300	362700	357800	386100
11	372600	339800	403700	357200	367300	442200	362500	361800	388500	360600	357600	388500
12	370700	349100	403500	367500	371100	453400	358500	362700	422000	360300	357400	386500
13	361200	373600	366700	365000	392100	447000	361000	362900	484400	366500	357600	395900
14	354800	392300	374300	366500	403500	425600	355300	363500	496200	364800	359300	386900
15	356600	399100	370900	366900	428800	427900	359500	364400	488400	362500	363300	389300
16	367300	393700	363100	363100	433200	388300	365600	364400	485300	364800	362700	393700
17	369000	392300	364600	360600	428200	379600	376700	366700	479100	387100	363300	393500
18	372200	399900	364600	358000	415300	382300	381000	374700	462600	400100	366900	383700
19	369200	401300	363100	359300	402900	390500	371300	380600	445700	399500	370300	388100
20	369800	401300	365000	361000	391500	386500	364200	382000	434300	398500	385100	372400
21	374100	406700	361200	362900	384100	380400	367500	381000	419700	393700	389900	372800
22	373600	403700	366900	363900	376900	373400	372000	395700	413200	380600	386100	373700
23	378400	396300	361200	363300	365600	366700	373200	401900	403700	368400	389100	374100
24	371800	385900	386100	361000	371700	358000	365800	402100	391300	358200	385700	378600
25	369400	389700	380200	376100	365800	358200	367500	393700	381400	368400	385300	378200
26	370500	401700	373200	392300	369800	366900	363300	385900	380200	369000	386100	365600
27	362300	413000	380400	394300	373700	367700	363500	384900	378400	367900	387300	355000
28	348500	408000	389900	407800	374700	376800	364600	378000	373700	358500	383900	353900
29	348400	389900	391700	425800	---	376300	364600	362700	362500	347100	385900	350500
30	374600	370300	389500	437300	---	393500	364600	355500	355900	342200	393700	350700
31	348000	---	391300	419500	---	405500	---	354600	---	352000	388100	---
MAX	373400	413000	403700	437300	433200	453400	424300	402100	496200	400100	393700	403300
MIN	347600	335500	361200	357200	364100	358000	355300	354600	355900	342200	357400	350500
(+)	553.08	554.27	555.34	556.72	554.50	556.05	553.97	553.44	553.51	553.30	555.18	553.23
(++)	-20,600	+22,300	+21,000	+28,200	-44,000	+30,800	-40,900	-10,000	+1,300	-3,900	+36,100	-37,400

CAL YR 1988 MAX 751500 MIN 335500 {++} -396,500
WTR YR 1989 MAX 496200 MIN 335500 {++} -17,900

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENT, IN ACRE-Feet

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK

LOCATION (REVISED).-- Lat 35°51'10", long 95°13'44", in NW 1/4 NW 1/4 sec.19, T.16 N., R.20 E., Cherokee County, Hydrologic Unit 11070209, on left bank 1.1 mi downstream from Fort Gibson Dam, 3.5 mi north of Fort Gibson, and at mile 6.6.

DRAINAGE AREA.-- 12,495 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- May 1950 to current year. Prior to October 1970, published as Neosho River below Fort Gibson Reservoir near Fort Gibson.

GAGE.-- Water-stage recorder. Datum of gage is 483.75 ft above National Geodetic Vertical Datum of 1929. May 11, 1950 to Aug. 20, 1951, nonrecording gage and Aug. 21, 1951 to June 11, 1952, water-stage recorder, at site 4.4 mi downstream at datum 7.94 ft lower and used as auxiliary gage since June 10, 1971.

REMARKS.-- Records good. Flow completely regulated by Fort Gibson Lake (station 07193000). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 39 years, 8,403 ft³/s, 6,088,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 223,000 ft³/s, May 26, 1957, gage height, 37.60 ft, minimum 12 ft³/s, Oct. 10, 1957, Aug. 23, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in May 1943 reached a stage of 43.0 ft, from high-water profile by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 27,300 ft³/s, Mar. 14, gage height, 12.61 ft, minimum daily discharge, 15 ft³/s, at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	15	4670	e11600	e19500	6090	11700	e1430	15	15	3920	12500
2	15	2750	207	e11600	e17200	6410	11800	e1280	15	15	11200	12400
3	5870	3560	54	e12600	e13200	4520	13500	e2040	2220	6450	12500	12400
4	4990	3230	62	e15600	e2040	2690	19600	e3740	9580	7990	11300	12600
5	859	15	231	e17400	e15	9510	18700	e1020	7190	5460	6860	15200
6	3100	15	2680	e12200	e3820	9850	16300	e1020	6270	1810	4440	16900
7	5680	25	4580	e9170	e2420	9600	13600	e15	7640	772	2360	16400
8	1630	126	4900	e11600	e2010	8690	8060	e2040	12300	15	2000	14100
9	1380	51	1980	e9790	e6410	3540	8220	e15	12100	15	32	12300
10	1940	15	102	e6760	e5960	6250	9070	e15	429	1240	240	12000
11	1760	26	15	e1820	e1520	12200	10900	e15	5700	1390	183	12400
12	4840	40	3080	e15	e1010	18100	8480	e15	12100	3580	15	12300
13	6420	26	10400	e4920	e7180	22700	6760	e15	11800	1750	15	12300
14	5030	89	8200	e1020	e10300	26500	4980	e15	11800	1190	15	12700
15	95	6470	5060	e5470	e12500	25700	1180	e15	18100	1430	15	12500
16	77	11500	4820	e3440	e19600	25200	e15	e160	18700	1760	1410	12400
17	3330	7640	58	e3860	e23300	19800	e5900	e15	16300	5610	1120	12300
18	388	4560	20	e4080	e23200	13600	e9050	2580	16200	11600	1690	14100
19	3980	6400	1240	e377	e23000	13500	e12500	4090	16300	12000	2340	16800
20	2810	6090	81	e2290	e22700	14800	e5600	2360	16300	12000	7080	16600
21	2570	9080	2130	e15	e20100	17000	e15	2230	13700	12400	12700	14500
22	3280	16900	2150	e15	e18900	17000	e15	6370	11700	12300	12500	12500
23	776	17100	e7690	e1020	e16400	16900	e15	12400	11900	12700	12400	12400
24	7270	17000	e12100	e2820	e11100	14200	e4610	15000	11900	8220	12100	12600
25	3100	12100	e12800	e5720	9940	10700	e1190	17100	12100	1210	12000	9830
26	2400	8720	e10900	e12800	9420	6560	e2930	15600	8620	6670	12300	7080
27	5910	8780	e10400	e13900	9650	11400	e15	14800	7080	6620	12300	5900
28	8170	13400	e12800	e12600	5890	8010	e15	14900	7530	7320	12300	3560
29	941	17500	e12700	e12500	---	12300	e15	13800	7970	6950	12100	2370
30	996	14000	e12600	e15500	---	12200	e15	11300	3850	2800	12300	15
31	2310	---	e12000	e20900	---	11800	---	2150	---	15	12300	---
TOTAL	92128	187223	160710	243402	318285	397120	204750	147545	297409	153297	204035	351955
MEAN	2972	6241	5184	7852	11370	12810	6825	4760	9914	4945	6582	11730
MAX	8170	17500	12800	20900	23300	26500	19600	17100	18700	12700	12700	16900
MIN	15	15	15	15	15	2690	15	15	15	15	15	15
AC-FT	182700	371400	318800	482800	631300	787700	406100	292700	589900	304100	404700	698100

CAL YR 1988 TOTAL 3237814 MEAN 8846 MAX 63000 MIN 15 AC-FT 6422000
WTR YR 1989 TOTAL 2757859 MEAN 7556 MAX 26500 MIN 15 AC-FT 5470000

e Estimated

ARKANSAS RIVER BASIN

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1952 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1951 to September 1963, October 1973 to January 1982.

WATER TEMPERATURE: October 1951 to September 1963, October 1973 to January 1982.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
12...	1345	1028	80020	7.78	5450	268	7.7	22.0	19.0	4.2	760	6.8
JAN												
19...	1515	1028	80020	5.24	15	274	8.0	24.5	10.0	7.0	750	14.2
FEB												
24...	1330	1028	80020	8.76	8680	262	8.2	12.0	4.5	13	755	12.8
APR												
05...	1900	1028	80020	10.61	15500	254	8.1	20.0	14.0	5.0	755	11.2
JUL												
19...	1230	1028	80020	9.61	11800	262	7.8	28.5	26.0	1.0	750	5.8
SEP												
27...	1400	1028	80020	7.42	5000	280	7.6	24.0	20.5	2.8	755	8.1

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03
OCT												
12...	74	K8	54	110	10	35	5.5	9.4	14	0.4	11	122
JAN												
19...	128	K14	K8	120	30	39	6.0	9.6	14	0.4	3.2	112
FEB												
24...	100	K14	49	110	31	36	5.4	8.1	13	0.3	2.7	99
APR												
05...	110	K18	K3	110	32	36	4.8	7.7	13	0.3	2.9	95
JUL												
19...	73	29	94	110	24	35	4.7	7.4	13	0.3	2.9	101
SEP												
27...	91	K12	K2	120	28	39	5.3	8.9	14	0.4	3.2	112

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)
OCT												
12...	0	100	32	10	0.20	2.5	148	166	0.20	2180	--	--
JAN												
19...	0	92	34	9.0	0.10	2.3	162	160	0.22	6.56	0.300	1.3
FEB												
24...	0	81	33	8.4	0.10	3.6	143	148	0.19	3350	0.430	1.9
APR												
05...	0	78	34	8.0	0.10	1.7	143	144	0.19	5980	0.470	2.1
JUL												
19...	0	83	30	7.9	0.10	3.6	138	142	0.19	4400	0.110	0.49
SEP												
27...	0	92	34	8.7	0.20	5.1	151	160	0.21	2040	--	--

ARKANSAS RIVER BASIN

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07193500 NEOSHO RIVER BLW FT GIBSON LAKE NEAR FT GIBSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 12...	--	--	--	0.030	--	0.04	--	0.57	0.60	0.090	0.030	--
JAN 19...	0.010	0.03	0.310	0.030	0.050	0.04	0.06	0.77	0.80	0.050	0.020	0.010
FEB 24...	0.010	0.03	0.440	0.030	0.030	0.04	0.04	0.37	0.40	0.050	0.020	0.010
APR 05...	0.020	0.07	0.490	0.010	<0.010	0.01	--	0.29	0.30	0.040	0.010	<0.010
JUL 19...	0.010	0.03	0.120	0.060	0.080	0.08	0.10	2.2	2.3	0.050	0.020	<0.010
SEP 27...	0.010	0.03	<0.100	0.030	0.050	0.04	0.06	0.47	0.50	0.050	0.020	0.020
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 12...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 19...	0.03	20	<1	51	<0.5	3.0	2	<3	8	30	<5	5
FEB 24...	0.03	40	<1	48	<0.5	<1.0	1	<3	2	56	<5	4
APR 05...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 19...	--	<10	1	48	<0.5	<1.0	1	<3	2	8	1	<4
SEP 27...	0.06	10	<1	58	<0.5	<1.0	1	<3	1	7	1	4
DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 12...	--	--	--	--	--	--	--	--	--	8	118	79
JAN 19...	5	0.2	<10	<1	<1	1.0	190	<6	40	8	0.32	95
FEB 24...	5	<0.1	<10	1	<1	<1.0	150	<6	9	11	258	78
APR 05...	--	--	--	--	--	--	--	--	--	9	377	81
JUL 19...	33	0.7	<10	1	<1	<1.0	120	<6	7	9	287	36
SEP 27...	14	0.1	<10	1	<1	<1.0	150	<6	12	15	203	49

ARKANSAS RIVER BASIN

07195500 ILLINOIS RIVER NEAR WATTS, OK

LOCATION (REVISED).-- Lat 36°07'48", long 94°34'19", in NW 1/4 NE 1/4 sec.18, T.19 N., R.26 E., Adair County, Hydrologic Unit 11110103, near right bank on downstream side of pier of bridge on U.S. Highway 59, 1.5 mi north of Watts, 4.5 mi downstream from Cincinnati Creek, and at mile 106.2.

DRAINAGE AREA.-- 635 mi².

PERIOD OF RECORD.-- August 1955 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 893.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation at low flow by Lake Frances Dam, 0.8 mile upstream from station. Since July 2, 1957, small diversion for municipal water supply for the city of Siloam Springs, Ark., upstream from station. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 34 years, 591 ft³/s, 12.65 in/yr, 428,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 68,000 ft³/s, July 25, 1960, gage height, 25.96 ft, from rating curve extended above 51,000 ft³/s; minimum, 8.6 ft³/s, Oct. 26, 1955, Sept. 19, Oct. 14, 1956.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 6,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 14	0900	*9,840	*13.49	Feb. 15	1600	8,240	12.20

Minimum discharge, 96 ft³/s, Oct. 15-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	122	258	430	853	717	1900	285	346	587	285	216
2	118	116	234	449	747	662	1480	294	330	527	294	286
3	117	113	224	412	1010	626	1260	303	313	443	253	247
4	114	113	220	383	880	663	1090	325	510	390	214	230
5	110	113	215	346	e750	997	933	325	1260	351	194	228
6	109	113	211	307	e630	837	833	301	1220	322	183	261
7	108	114	205	290	560	742	769	287	743	300	169	258
8	108	112	197	264	464	719	704	298	607	282	162	171
9	108	112	197	246	431	895	661	1830	807	264	160	109
10	109	115	193	223	388	2380	609	937	575	249	154	109
11	108	115	187	213	373	5290	587	608	628	241	151	113
12	105	148	182	191	367	3550	563	494	2370	250	149	115
13	104	221	185	194	1180	2360	541	433	3990	251	148	126
14	100	227	212	192	6410	1780	529	396	4630	241	149	347
15	97	257	205	184	6730	1420	513	382	2210	225	149	453
16	96	258	179	179	5540	1190	493	635	1490	215	152	341
17	98	269	162	176	2750	1030	460	605	1140	258	198	276
18	105	263	162	169	2050	1030	457	646	905	357	197	234
19	106	261	157	168	1700	1040	487	1690	741	343	179	205
20	106	274	144	160	1500	879	468	1320	644	279	176	190
21	106	556	131	162	1760	816	441	1000	571	250	187	175
22	106	440	118	158	1410	748	423	1440	510	245	186	163
23	112	343	115	157	1170	690	394	1710	459	233	170	163
24	132	296	116	144	1010	647	376	1020	450	271	157	149
25	151	257	119	158	929	606	365	753	464	281	148	146
26	153	377	122	341	850	591	364	626	542	251	153	141
27	147	708	124	751	799	574	349	1110	678	226	197	138
28	141	476	127	614	773	1560	328	737	877	210	190	136
29	138	348	415	2260	---	2810	317	549	700	205	169	135
30	133	290	453	1530	---	2390	308	453	543	194	159	135
31	128	---	418	1080	---	2840	---	395	---	196	159	---
TOTAL	3590	7527	6187	12531	44014	43059	19002	22187	31253	8937	5591	5986
MEAN	116	251	200	404	1572	1389	633	716	1042	288	180	200
MAX	153	708	453	2260	6730	5290	1900	1830	4630	587	294	453
MIN	96	112	115	144	367	574	308	285	313	194	148	109
AC-FT	7120	14930	12270	24860	87300	85410	37690	44010	61990	17730	11090	11870
CFSM	.18	.40	.31	.64	2.48	2.19	1.00	1.13	1.64	.45	.28	.31
IN.	.21	.44	.36	.73	2.58	2.52	1.11	1.30	1.83	.52	.33	.35

CAL YR 1988 TOTAL 194470 MEAN 531 MAX 11200 MIN 85 AC-FT 385700 CFSM .84 IN. 11.39
WTR YR 1989 TOTAL 209864 MEAN 575 MAX 6730 MIN 96 AC-FT 416300 CFSM .91 IN. 12.29

e Estimated

ARKANSAS RIVER BASIN

257

07196000 FLINT CREEK NEAR KANSAS, OK

LOCATION.-- Lat 36°11'11", long 94°42'24", in SW 1/4 NW 1/4 sec.25, T.20 N., R.24 E., Delaware County, Hydrologic Unit 11110103, at bridge on State Highway 33, 6.0 mi southeast of Kansas, 6.0 mi downstream from Sager Creek, and at mile 2.2.

DRAINAGE AREA.-- 110 mi².

PERIOD OF RECORD.-- August 1955 to September 1976, April 1979 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 854.59 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Small diversion above station for irrigation.

AVERAGE DISCHARGE.-- 31 years, (water years 1956-76, 80-89), 117 ft³/s 14.44 in/yr, 84,770 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 44,400 ft³/s, June 8, 1974, gage height, 19.42 ft; minimum daily discharge, 0.6 ft³/s, Oct. 11-13, 1956.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 13	1730	*2,770	*8.81	No other peak greater than base discharge.			

Minimum daily discharge, 20 ft³/s, Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	22	39	159	190	131	210	51	40	74	e22	24
2	21	22	38	158	172	122	188	e50	39	72	e22	24
3	20	22	36	135	170	117	170	e49	38	71	e25	24
4	21	23	33	111	147	122	158	e47	39	43	e27	24
5	21	22	32	96	131	123	137	e46	42	38	e30	24
6	22	22	32	84	115	117	124	e45	43	35	e29	27
7	24	22	33	73	104	104	108	e44	41	34	e28	27
8	23	22	32	62	93	105	107	e44	42	34	e28	27
9	22	23	31	56	84	124	100	e43	39	35	e27	27
10	22	24	31	52	77	369	94	e43	37	36	27	28
11	22	24	30	49	89	915	89	e43	49	38	26	30
12	22	73	29	45	79	684	85	e43	102	51	25	37
13	22	67	30	43	508	486	81	e42	930	45	24	57
14	21	47	30	42	781	387	78	e40	839	40	24	72
15	21	38	29	39	1240	315	77	e39	416	35	26	49
16	21	56	29	38	807	263	71	e40	288	30	27	39
17	21	50	29	38	526	227	69	e41	212	30	27	38
18	21	39	28	36	417	200	71	e60	163	30	26	36
19	22	41	27	35	350	176	73	141	134	28	25	30
20	22	78	28	35	321	161	67	111	113	26	37	31
21	22	83	28	34	303	143	66	93	96	e27	36	30
22	21	65	36	33	259	132	64	98	87	e30	32	27
23	23	56	45	33	227	124	60	110	81	e28	30	26
24	27	49	41	33	206	115	59	86	74	e27	29	25
25	25	45	39	60	189	108	59	70	67	e26	28	26
26	24	65	37	224	172	103	56	64	70	e25	28	27
27	24	61	48	210	166	101	56	58	142	e25	26	27
28	23	50	76	231	154	151	54	50	108	e24	26	27
29	23	46	81	489	---	171	52	45	81	e23	29	27
30	23	41	76	330	---	175	59	43	69	e23	25	27
31	22	---	84	241	---	231	---	41	---	e22	25	---
TOTAL	689	1298	1217	3304	8068	6802	2742	1820	4521	1105	846	944
MEAN	22.2	43.3	39.3	107	288	219	91.4	58.7	151	35.6	27.3	31.5
MAX	27	83	84	489	1240	915	210	141	930	74	37	72
MIN	20	22	27	33	77	101	52	39	37	22	22	24
AC-FT	1370	2570	2410	6550	16000	13490	5440	3610	8970	2190	1680	1870
CFSM	.20	.39	.36	.97	2.62	1.99	.83	.53	1.37	.32	.25	.29
IN.	.23	.44	.41	1.12	2.73	2.30	.93	.62	1.53	.37	.29	.32

CAL YR 1988 TOTAL 35485 MEAN 97.0 MAX 2040 MIN 18 AC-FT 70380 CFSM .88 IN. 12.00
WTR YR 1989 TOTAL 33356 MEAN 91.4 MAX 1240 MIN 20 AC-FT 66160 CFSM .83 IN. 11.28

e Estimated

ARKANSAS RIVER BASIN

07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK

LOCATION (REVISED).-- Lat 35°55'22", long 94°55'24", in SE 1/4 NE 1/4 sec. 26, T.17 N., R.22 E., Cherokee County, Hydrologic Unit 11110103, near center of channel on downstream side of pier of bridge, 0.2 mi downstream from U.S. Highway 62, 2.2 mi northeast of Tahlequah, 6.5 mi upstream from Baron Fork, and at mile 55.8.

DRAINAGE AREA.-- 959 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 664.14 ft, U.S. Army Corps of Engineers datum. Prior to Feb. 23, 1939, nonrecording gage.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 54 years, 899 ft³/s, 12.73 in/yr, 651,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 150,000 ft³/s, May 10, 1950, gage height, 27.94 ft, from rating curve extended above 77,000 ft³/s, on basis of slope-area measurement of peak flow; minimum daily, 0.1 ft³/s, Oct. 10-14, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of January 1916 reached a stage of about 26 ft.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 16	1600	*10,800	*11.83	No other peaks greater than base discharge.			
Minimum discharge, 160 ft ³ /s, Oct 2-4.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	202	430	e620	1860	1080	3470	437	560	719	321	254
2	162	200	386	e620	1500	994	2530	431	506	668	314	253
3	162	198	357	e800	1290	919	2040	424	476	648	335	285
4	162	194	333	e710	1330	884	1720	439	472	566	320	309
5	164	189	318	638	1280	907	1480	443	589	506	295	302
6	170	190	311	581	1050	1170	1270	441	1200	457	273	292
7	171	190	306	520	904	1060	1130	432	1350	420	258	292
8	172	188	301	476	794	946	1020	415	1960	398	245	301
9	174	191	293	438	712	953	937	440	816	376	233	300
10	174	198	288	406	652	1380	863	1450	901	359	227	270
11	174	195	283	380	601	4660	797	1110	923	341	223	240
12	174	264	280	355	569	7850	758	821	1390	333	222	229
13	173	261	274	336	719	5470	720	672	3940	328	221	300
14	172	279	269	320	3150	3770	692	603	8120	327	221	331
15	171	311	265	312	9380	2800	669	548	6440	321	220	333
16	172	315	267	304	10200	2210	647	544	3510	311	220	486
17	170	330	269	293	7430	1840	632	674	2410	489	237	448
18	168	338	262	286	4320	1580	600	805	1840	410	242	387
19	169	354	253	281	3250	1460	598	826	1480	392	248	346
20	174	407	246	275	2690	1400	602	1850	1200	409	280	312
21	178	419	240	271	2400	1210	594	1640	1020	376	318	289
22	178	491	244	266	2450	1100	573	1430	872	351	296	273
23	187	577	247	265	2040	1000	562	1720	766	327	285	258
24	187	499	239	260	1740	921	539	1970	679	323	279	246
25	188	448	235	268	1520	861	519	1390	631	328	272	238
26	194	422	237	505	1370	807	500	1110	613	328	268	228
27	206	399	248	781	1260	769	489	918	619	318	254	222
28	211	622	e320	1230	1170	874	476	1160	827	301	252	217
29	209	616	e450	1720	---	2070	453	996	914	285	269	213
30	209	508	e550	3400	---	3060	442	772	908	274	272	209
31	206	---	e700	2570	---	3090	---	644	---	352	262	---
TOTAL	5544	9985	9701	20487	67631	59095	28322	27555	47012	12341	8182	8663
MEAN	179	333	313	661	2415	1906	944	889	1567	398	264	289
MAX	211	622	700	3400	10200	7850	3470	1970	8120	719	335	486
MIN	162	188	235	260	569	769	442	415	472	274	220	209
AC-FT	11000	19810	19240	40640	134100	117200	56180	54660	93250	24480	16230	17180
CFSM	.19	.35	.33	.69	2.52	1.99	.98	.93	1.63	.42	.28	.30
IN.	.22	.39	.38	.79	2.62	2.29	1.10	1.07	1.82	.48	.32	.34

CAL YR 1988 TOTAL 300034 MEAN 820 MAX 16300 MIN 117 AC-FT 595100 CFSM .85 IN. 11.84
WTR YR 1989 TOTAL 304518 MEAN 834 MAX 10200 MIN 162 AC-FT 604000 CFSM .87 IN. 11.81

e Estimated

07197000 BARON FORK AT ELDON, OK

LOCATION.-- Lat 35°55'16", long 94°50'18", in SE 1/4 sec. 27, T.17 N., R.23 E., Cherokee County, Hydrologic Unit 11110103, on downstream side of second pier from left bank of bridge on State Highway 51, 0.4 mi southeast of Eldon, 6.0 mi downstream from Tyner Creek, and at mile 8.8.

DRAINAGE AREA.-- 307 mi².

PERIOD OF RECORD.-- October 1948 to current year. Prior to October 1970 published as Barren Fork at Eldon.

GAGE.-- Water-stage recorder. Datum of gage is 701.14 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 14, 1948, nonrecording gage at same site and datum.

REMARKS.-- No estimated daily discharges. Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 41 years, 328 ft³/s, 13.44 in/yr, 220,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 55,500 ft³/s, Oct. 1, 1986, gage height, 25.78 ft; minimum, 1.7 ft³/s, Oct. 25, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of Apr. 15, 1945, reached a stage of 23.8 ft, from information provided by local resident.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 14	0315	*8,100	*13.04	June 12	2345	7,150	12.47

Minimum daily discharge, 25 ft³/s, Oct. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	33	131	208	410	364	1190	144	252	253	96	64
2	34	32	113	207	353	337	951	140	226	230	94	65
3	32	31	98	198	403	317	790	141	210	212	89	62
4	31	31	87	185	429	310	664	146	248	196	81	57
5	30	30	81	173	355	327	565	148	793	179	75	56
6	33	30	74	159	310	320	495	143	851	164	70	53
7	34	30	69	150	279	296	442	137	480	155	64	50
8	35	30	66	139	251	286	402	129	411	148	60	48
9	34	30	64	128	228	320	370	777	434	138	57	45
10	33	33	62	118	209	788	341	527	336	130	56	50
11	31	34	62	108	196	2870	318	327	444	123	53	55
12	30	58	62	100	188	2560	301	251	2590	122	51	68
13	28	71	60	94	503	1650	288	215	3560	122	50	169
14	28	71	58	90	3950	1180	276	200	2750	130	50	461
15	27	69	56	87	4080	897	266	193	1590	116	50	321
16	27	74	54	83	3420	717	258	185	1100	111	49	252
17	26	75	52	79	1850	606	246	180	836	144	51	211
18	25	72	51	76	1370	554	239	221	675	273	50	180
19	25	78	51	73	1090	561	228	1260	561	239	49	156
20	26	114	49	69	921	487	219	896	479	187	77	136
21	26	220	48	68	916	433	212	718	417	161	92	121
22	26	199	51	65	767	392	207	673	369	144	81	109
23	29	162	57	63	645	364	197	932	330	134	75	97
24	30	135	76	61	566	341	189	617	301	124	73	91
25	31	116	99	63	509	320	181	473	279	120	69	85
26	32	145	95	71	463	302	175	555	273	115	67	81
27	32	281	95	211	427	407	170	1010	264	108	65	75
28	32	223	136	249	394	1890	161	575	359	99	62	72
29	32	182	252	760	---	2230	155	426	331	92	60	69
30	32	152	231	717	---	2450	148	345	272	89	57	66
31	33	---	211	515	---	1860	---	290	---	97	56	---
TOTAL	939	2841	2751	5367	25482	26536	10644	12974	22021	4653	2029	3423
MEAN	30.3	94.7	88.7	173	910	856	355	419	734	150	65.5	114
MAX	35	281	252	760	4080	2870	1190	1280	3560	273	96	461
MIN	25	30	48	61	188	286	148	129	210	89	49	45
AC-FT	1860	5640	5460	10650	50540	52630	21110	25730	43680	9230	4020	6790
CFSM	.10	.31	.29	.56	2.96	2.79	1.16	1.36	2.39	.49	.21	.37
IN.	.11	.34	.33	.65	3.09	3.22	1.29	1.57	2.67	.56	.25	.41

CAL YR 1988 TOTAL 98514 MEAN 269 MAX 5770 MIN 13 AC-FT 195400 CFSM .88 IN. 11.94
WTR YR 1989 TOTAL 119880 MEAN 328 MAX 4080 MIN 25 AC-FT 237300 CFSM 1.07 IN. 14.50

ARKANSAS RIVER BASIN

07197500 TENKILLER FERRY LAKE NEAR GORE, OK

LOCATION.-- Lat 35°35'48" (revised), long 95°02'57", in SE 1/4 SW 1/4 sec.14, T.13 N., R.21 E., Sequoyah County, Hydrologic Unit 11110103, at gage tower on right bank, 0.6 mi upstream from Tenkiller Ferry Dam on Illinois River, 6.0 mi northeast of Gore, and at mile 12.8.

DRAINAGE AREA.-- 1,610 mi².

PERIOD OF RECORD.-- July 1952 to current year. Prior to October 1970, published as Tenkiller Ferry Reservoir near Gore.

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1953, nonrecording gage at same site and datum.

REMARKS.-- Reservoir is formed by earth dam. Spillway consists of 590 ft concrete modified ogee-type weir in right abutment controlled by ten taintor gates. Outlet works consist of a 19-foot diameter tunnel in right abutment controlled by two vertical lift gates. A similar tunnel conducts water to two hydroelectric turbines. Closure was made for diversion in July 1950 and regulated storage began in July 1952; conservation pool was first filled Apr. 9, 1953. Capacity, 1,231,000 acre-ft at elevation 667.0 ft, flood-control pool, 791,900 acre-ft at elevation, 642.0 ft, spillway crest, 628,700 acre-ft at elevation 630.0 ft, maximum power pool, and 283,100 acre-ft at elevation 594.5 ft, conservation and minimum power pool. Figures given herein represent total contents. Reservoir is used for flood control and for power development.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,218,000 acre-ft, June 5, 1957, elevation, 666.36 ft; minimum since conservation pool was first filled, 305,700 acre-ft, Oct. 21, 1954, elevation, 597.50 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 742,500 acre-ft, Feb. 18, elevation 638.56 ft; minimum, 609,000 acre-ft, Nov. 11, elevation 628.40 ft.

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

630	628,700	642	791,900
634	680,300	646	852,000
638	734,700	650	915,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	618000	611400	632000	649300	667100	697200	691000	645200	663300	693300	658300	649900
2	618000	611400	632700	650200	667100	693700	694300	646900	662500	691700	657100	649900
3	617900	611600	633800	650900	668800	689300	695800	647800	663500	688800	655900	650100
4	617800	611700	634200	650600	668800	688400	694400	649300	665500	683500	654500	650700
5	618100	611700	634700	651200	670300	686500	692100	649900	667500	680800	652400	650800
6	618000	611700	635300	651200	668100	686000	689300	649900	669300	679100	652000	651000
7	618300	609800	636700	650500	667200	682900	686200	650800	670200	678100	651300	651200
8	618100	609500	636700	649500	668100	679800	684200	649800	669800	675500	650800	651500
9	618200	610000	637000	649300	668300	679100	682500	650400	669300	674700	650200	652700
10	617600	609200	638000	646500	661500	682200	679300	651600	669500	672000	649600	653100
11	616900	609800	638100	646700	658400	692300	687200	652300	679000	669600	649500	654400
12	616800	611900	638500	646100	656800	708300	682400	652800	690800	666900	649400	652900
13	616600	612200	638600	646500	667900	714500	684200	652700	705100	664300	649100	657500
14	616500	612700	639500	647300	663300	709500	680900	651900	720800	661800	649500	658100
15	616400	614400	639800	648000	708100	699400	658400	649900	733900	660200	649600	659600
16	616600	614500	640000	648400	728600	688300	655900	647400	736900	658300	649600	660900
17	617000	614700	640400	648100	740200	682100	652300	647800	737100	661800	650200	662100
18	616900	615400	640600	648100	742500	684600	649300	652300	736000	662700	650300	661700
19	615800	616000	641000	648000	741400	669000	646500	653400	733000	662000	650200	661100
20	615000	618800	641500	647500	739300	667100	643000	662000	729600	660900	650700	661100
21	613900	619600	641800	647900	733400	676400	644300	667900	725700	660900	651200	660900
22	613800	620700	643500	648200	725400	671700	646700	670600	721500	660500	651700	660600
23	614400	621900	643900	647700	716100	667600	647300	669300	717000	660100	652100	660700
24	613100	623000	644600	647100	709800	662900	644900	668500	712500	659200	652400	660900
25	613400	624900	644800	648100	707400	659700	643100	668500	707700	658300	654100	659900
26	612700	625900	645000	649400	704500	656700	642400	671500	702600	658900	654500	659300
27	612700	627100	645800	651200	702300	654500	641400	672600	700400	655900	654900	658500
28	612100	628300	645600	655900	700000	650000	642300	670500	698400	654800	653600	657200
29	612200	629800	645400	661000	---	668100	643400	669400	697100	655300	651500	656700
30	612300	631000	645600	665100	---	677700	644300	667900	694700	655700	651400	657000
31	611400	---	647700	666300	---	684900	---	665100	---	658000	649400	---
MAX	618300	631000	647700	666300	742500	714500	695800	672600	737100	693300	658300	662100
MIN	611400	609200	632000	646100	656800	654500	641400	645200	662500	654800	649100	649900
(+)	628.60	630.19	631.51	632.93	635.49	634.35	631.25	632.84	635.10	632.30	631.64	632.22
(++)	-6,500	+19,600	+16,700	+18,800	+33,700	-15,100	-40,600	+20,800	+29,600	-36,700	-8,600	+7,600

CAL YR 1988 MAX 908000 MIN 609200 (++) -272,900
WTR YR 1989 MAX 742500 MIN 609200 (++) +39,100

(+) ELEVATION IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

ARKANSAS RIVER BASIN

261

07198000 ILLINOIS RIVER NEAR GORE, OK

LOCATION.-- Lat 35°34'23", long 95°04'07", in NE 1/4 SW 1/4 sec. 27, T.13 N., R.21 E., Sequoyah County, Hydrologic Unit 11110104, on right bank 4.5 mi downstream from Tenkiller Ferry Dam, 4.5 mi northeast of Gore, and at mile 8.5.

DRAINAGE AREA.-- 1,626 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- March 1924 to April 1926, April 1939 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.-- Water-stage recorder. Datum of gage is 468.00 ft above National Geodetic Vertical Datum of 1929. See WSP 1921 for history of changes prior to Feb. 19, 1952. Feb. 19, 1952 to Aug. 15, 1989, datum 5.00 ft higher.

REMARKS.-- Records good. Except for 16 mi² intervening area, flow completely regulated since July 1952 by Tenkiller Ferry Lake (station 07197500). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 51 years (water years 1925, 1940-89), 1,534 ft³/s, 1,111,000 acre-ft/yr adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 180,000 ft³/s May 11, 1950, gage height, 34.6 ft, from floodmark, present site and datum, from rating curve extended above 42,000 ft³/s by velocity-area studies; minimum discharge, 2.0 ft³/s, Sept. 16, 1959.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 10,400 ft³/s, Mar. 14, gage height, 10.57 ft; minimum daily discharge, 52 ft³/s, May 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174	202	67	98	2320	3150	2540	59	1720	2160	569	163
2	166	160	58	546	2600	3420	2500	78	1480	2080	1060	130
3	243	129	68	832	2350	3840	2870	52	1200	2050	1150	145
4	290	69	152	1200	983	3260	3870	234	1630	2210	1140	134
5	165	70	64	702	983	2970	3830	367	2610	2170	1420	123
6	193	68	72	829	2670	1850	3720	302	2210	1850	639	126
7	181	1110	63	1300	1700	3260	3830	61	2300	2190	530	132
8	184	219	79	1240	1890	3250	2650	971	2130	972	499	112
9	179	291	67	716	2250	2560	2580	821	2100	889	528	163
10	643	543	102	2030	2540	2800	3070	1410	1130	1770	506	137
11	684	78	62	649	2360	4090	3900	1170	1780	1680	298	161
12	160	76	152	815	1860	4100	3840	945	2850	1850	290	1010
13	147	61	160	214	1100	5760	3900	1430	3050	1820	287	1930
14	151	62	76	116	2530	9080	3250	1290	4280	1710	145	819
15	154	145	94	57	4770	10300	2480	2370	4570	1200	95	205
16	95	94	144	229	5760	10200	2100	1470	4850	1290	219	125
17	153	89	58	415	6600	7190	2770	1010	4270	631	99	185
18	168	87	61	435	6570	2370	2820	530	4270	550	131	913
19	624	60	79	420	6460	4010	2370	2190	4250	84	174	834
20	673	75	58	440	6430	3980	2530	1150	4060	1180	99	806
21	812	77	85	77	7670	3990	420	1030	3840	746	122	576
22	98	58	90	64	8530	4140	54	3100	3860	644	104	521
23	95	79	84	586	8500	4070	65	4300	3640	819	124	153
24	880	55	66	695	6400	4080	2010	3490	3600	973	131	136
25	99	58	64	653	3890	3170	1550	2680	3850	1020	136	772
26	318	58	233	81	3890	3180	1060	3030	3320	1100	112	616
27	368	56	650	85	3290	2920	1250	2570	2850	1000	121	582
28	288	58	651	314	3150	2970	280	3070	2320	936	887	924
29	117	61	570	175	---	2780	56	2730	2020	108	1190	581
30	110	58	594	2290	---	2220	56	2880	2210	114	509	130
31	621	---	111	2580	---	2560	---	1510	---	554	1170	---
TOTAL	9233	4306	4934	20883	110046	127520	68221	48300	88250	38350	14484	13134
MEAN	298	144	159	674	3930	4114	2274	1558	2942	1237	467	438
MAX	880	1110	651	2580	8530	10300	3900	4300	4850	2210	1420	1930
MIN	95	55	58	57	983	1850	54	52	1130	84	95	112
AC-FT	18310	8540	9790	41420	218300	252900	135300	95800	175000	76070	28730	26050

CAL YR 1988 TOTAL 578763 MEAN 1581 MAX 12000 MIN 55 AC-FT 1148000
WTR YR 1989 TOTAL 547661 MEAN 1500 MAX 10300 MIN 52 AC-FT 1086000

ARKANSAS RIVER BASIN

07198000 ILLINOIS RIVER NEAR GORE, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1948, 1952, 1954 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to September 1948, October 1953 to September 1963.

WATER TEMPERATURE: October 1947 to September 1948, October 1953 to September 1963.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
NOV 02...	1300	1028	80020	1.79	32	264	--	26.0	14.5	4.3
DEC 15...	1800	1028	80020	1.77	29	202	7.1	11.0	8.0	3.0
FEB 01...	0800	1028	80020	2.19	84	237	7.5	24.0	8.0	1.7
MAR 16...	1600	1028	80020	10.47	10200	190	7.9	31.0	9.0	4.1
APR 18...	1200	1028	80020	6.89	3810	193	7.1	29.0	12.0	3.0
MAY 16...	0900	1028	80020	2.25	69	196	8.0	28.0	11.5	1.2
JUL 21...	1100	1028	80020	1.83	40	296	--	29.0	18.5	1.0
AUG 25...	0900	1028	80020	6.54	24	290	7.5	24.0	21.0	2.4

DATE	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO
NOV 02...	744	8.9	89	84	--	30	2.1	14	26	0.7
DEC 15...	764	9.1	77	75	--	27	1.8	8.2	19	0.4
FEB 01...	741	9.1	79	76	--	27	2.2	14	28	0.7
MAR 16...	753	--	--	80	--	29	1.8	4.5	11	0.2
APR 18...	752	9.1	86	80	--	29	1.8	4.4	10	0.2
MAY 16...	749	9.1	85	79	--	29	1.6	4.8	11	0.2
JUL 21...	747	9.0	98	95	--	34	2.4	15	24	0.7
AUG 25...	749	8.3	95	99	11	36	2.2	16	25	0.7

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
NOV 02...	2.3	--	--	--	8.5	24	140	125	0.19	12.0
DEC 15...	1.9	--	--	--	8.7	12	102	100	0.14	8.01
FEB 01...	2.4	--	--	--	11	24	122	118	0.17	27.7
MAR 16...	2.1	--	--	--	9.8	6.1	100	97	0.14	2750
APR 18...	2.6	--	--	--	9.2	6.7	109	96	0.15	1120
MAY 16...	2.5	--	--	--	9.0	6.5	116	95	0.16	21.6
JUL 21...	7.6	--	--	--	9.0	32	173	149	0.24	18.6
AUG 25...	2.7	107	0	88	7.0	25	168	142	0.23	10.9

07228500 CANADIAN RIVER AT BRIDGEPORT, OK

LOCATION.-- Lat. 35°32'37", long 98°19'03", SE 1/4 NW 1/4 sec.1, T.12 N., R.11 W., Caddo County, Hydrologic Unit 11090202, on downstream side of pier near center of bridge on U.S. Highway 281, 3.3 mi east of Bridgeport, 1.6 mi downstream from Lumpmouth Creek, and at mile 263.3.

DRAINAGE AREA.-- 25,276 mi², of which 4,801 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1944 to September 1964; October 1969 to current year.

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,360.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1947, at site 3.8 mi upstream at datum 24.25 ft higher. Oct. 1, 1947 to Sept. 30, 1948, nonrecording gage and Oct. 1, 1948 to September 1964, Oct. 1, 1969 to Dec. 17, 1980 at site 4.0 mi upstream and at datum 24.25 ft higher.

REMARKS.-- Records poor. Flow regulated since October 1964 by Lake Meredith (station 07227900) located in Texas.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Meredith in Texas, 20 years (water years 1945-64), 469 ft³/s, 339,800 acre-ft/yr; since regulation by Lake Meredith, 20 years (water years 1970-89), 301 ft³/s, 218,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, about 150,000 ft³/s, June 23, 1948, gage height, 14.60 ft, at former site and datum, from floodmarks, from rating curve extended above 50,000 ft³/s; no flow at times in 1946, 1951-56, 1964, 1970, 1984, and 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in May 1914 reached a stage of about 19.4 ft, a higher stage probably occurred during flood in October 1904.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 15,500 ft³/s, June 7, gage height, 15.09 ft; minimum daily discharge, 8.7 ft³/s, July 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e250	91	110	78	e150	e250	1010	e105	858	e290	50	59
2	e280	82	115	78	e138	e210	825	e98	769	e250	65	942
3	e250	88	101	81	e130	e195	708	e96	2930	e235	99	381
4	e220	85	95	79	e120	e180	e540	e98	9250	e220	51	1150
5	e180	73	87	74	e110	e170	e400	e96	3620	e198	14	1050
6	e160	67	90	73	e103	e160	e400	e90	1530	176	9.4	627
7	802	74	91	70	e98	e150	e350	e92	11800	e160	52	422
8	802	68	91	70	e97	e142	e310	e90	10100	e140	97	285
9	501	57	82	e70	e96	e135	e340	e87	3600	e126	35	202
10	426	67	82	e68	e110	e130	e300	e83	1320	e114	98	213
11	399	84	87	e70	e104	270	e270	e80	e770	e105	157	490
12	348	366	90	e68	141	e235	e250	329	e1000	e94	151	513
13	286	247	90	e71	151	220	e235	565	1470	e88	148	5460
14	239	172	91	e73	207	e170	e228	476	e1000	e115	564	1760
15	210	147	84	84	285	e152	e210	412	e800	e150	487	1120
16	e200	126	70	76	427	e148	e195	1040	e650	e100	318	800
17	e190	111	72	76	e300	e140	e185	876	1470	e80	290	e600
18	e180	102	72	75	e250	e136	e175	1730	e1000	e70	261	e500
19	e165	104	72	81	e220	e132	e169	3240	e800	e62	389	e400
20	e150	135	67	84	e180	e130	e160	2810	e700	e50	284	e320
21	e170	141	70	75	e200	e125	e150	2340	e600	e45	254	e270
22	e150	169	66	71	e190	e118	e140	1340	e540	e42	280	e220
23	e135	179	56	74	e180	e112	e135	e990	2350	e37	202	e200
24	e120	194	64	79	e170	e108	e128	e850	1400	e70	145	e170
25	e110	215	65	186	e150	e104	e124	e790	e1100	493	105	e155
26	e98	218	65	222	e140	e100	e120	e700	e800	222	148	e140
27	e90	208	100	171	e130	309	e130	e650	e600	77	88	e130
28	e77	166	93	e140	e170	6760	e118	e620	e400	57	60	e122
29	73	144	73	e120	---	1980	e110	e580	e350	28	39	e115
30	79	94	79	e110	---	1380	e108	e560	e320	9.5	49	e110
31	94	---	81	e130	---	1200	---	536	---	8.7	51	---
TOTAL	7234	4074	2551	2877	4747	15751	8603	22449	63897	3912.2	5020.4	18906
MEAN	233	136	82.3	92.8	170	508	287	724	2130	126	162	630
MAX	802	366	115	222	427	6760	1010	3240	11800	493	564	5460
MIN	73	57	56	68	96	100	108	80	320	8.7	9.4	59
AC-FT	14350	8080	5060	5710	9420	31240	17060	44530	126700	7760	9960	37500

CAL YR 1988 TOTAL 173000.5 MEAN 473 MAX 9610 MIN 2.6 AC-FT 343100
WTR YR 1989 TOTAL 160021.6 MEAN 438 MAX 11800 MIN 8.7 AC-FT 317400

e Estimated

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1949-61, 1964, 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1948 to September 1960, October 1969 to April 1982.

WATER TEMPERATURE: October 1948 to September 1960, October 1969 to April 1982.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT												
28...	1440	1028	80020	10.21	77	1970	8.4	17.0	11.5	730	9.6	93
DEC												
28...	1200	1028	80020	10.25	92	2070	8.4	7.0	4.0	730	13.0	104
FEB												
14...	1415	1028	80020	10.38	237	*1830	8.4	2.0	1.0	730	13.6	101
MAR												
27...	1300	1028	80020	10.86	246	1830	8.3	22.5	20.5	720	8.6	102
APR												
19...	1440	1028	80020	10.33	169	2190	8.4	23.0	22.5	730	9.0	109
JUL												
08...	1330	1028	80020	11.04	176	2430	8.5	23.0	24.0	730	9.8	123
AUG												
29...	0900	1028	80020	10.62	41	1420	7.7	33.5	30.5	725	8.9	126

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HC03)	CAR- BONATE WATER DIS IT FIELD (MG/L AS C03)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS S04)
OCT												
28...	700	480	190	53	140	--	2	--	242	7	213	--
DEC												
28...	680	480	180	56	180	36	3	3.9	228	7	199	510
FEB												
14...	670	430	180	54	150	33	3	3.5	202	49	246	500
MAR												
27...	600	420	150	54	170	--	3	--	208	3	176	--
APR												
19...	750	580	190	67	200	37	3	5.5	190	12	176	600
JUL												
08...	820	480	160	54	250	46	4	7.3	190	6	166	470
AUG												
29...	610	480	170	45	87	24	2	5.2	165	0	135	560

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N02)
OCT												
28...	--	19	--	--	--	--	0.390	0.390	1.7	0.010	0.020	0.07
DEC												
28...	260	16	1370	1330	1.86	340	0.680	0.600	2.7	0.020	0.020	0.07
FEB												
14...	200	17	1300	1260	1.77	832	0.780	0.750	3.3	0.020	0.020	0.07
MAR												
27...	--	12	--	--	--	--	0.190	0.160	0.71	0.010	0.010	0.03
APR												
19...	280	15	1530	1470	2.08	698	--	--	--	0.010	<0.010	--
JUL												
08...	380	20	1600	1440	2.18	760	--	--	--	--	--	--
AUG												
29...	100	15	1130	1070	1.54	125	--	--	--	<0.010	<0.010	--

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)
OCT 28...	0.400	0.410	0.070	0.070	0.09	0.09	0.21	0.070	0.030	0.09	4	4
DEC 28...	0.700	0.620	0.100	0.110	0.13	0.14	0.15	0.050	0.040	0.12	3	2
FEB 14...	0.800	0.770	0.170	0.180	0.22	0.23	0.15	0.050	0.030	0.09	2	2
MAR 27...	0.200	0.170	0.030	0.020	0.04	0.03	0.12	0.040	<0.010	--	4	3
APR 19...	<0.100	<0.100	0.050	0.040	0.06	0.05	0.06	0.020	0.020	0.06	4	3
JUL 06...	--	--	--	--	--	--	--	--	--	--	5	5
AUG 29...	<0.100	<0.100	0.130	0.140	0.17	0.18	0.09	0.030	<0.010	--	5	5

DATE	BARIIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 28...	180	<0.5	--	<1.0	--	<5	<3	<10	31	--	20	49
DEC 28...	130	<0.5	1	<1.0	9	<5	<3	<10	9	<5	<10	57
FEB 14...	110	<0.5	<1	<1.0	3	<5	<3	<10	11	5	<10	55
MAR 27...	120	<0.5	1	1.0	4	<5	<3	20	11	6	<10	51
APR 19...	160	<2	1	<1.0	4	<20	<9	<30	37	<5	--	59
JUL 06...	220	<0.5	1	<1.0	19	<5	6	<10	34	13	<10	66
AUG 29...	180	<0.5	<1	<1.0	2	<5	<3	20	23	6	10	40

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	PCB, DIS- SOLVED (UG/L)	PCB TOTAL (UG/L)	PCN DISSOLV (UG/L)
OCT 28...	30	<0.10	<0.1	<10	20	<1.0	1900	<6	59	--	--	--
DEC 28...	37	<0.10	<0.1	<10	<10	1.0	2100	<6	11	--	--	--
FEB 14...	48	<0.10	<0.1	<10	<10	2.0	2000	<6	9	--	--	--
MAR 27...	45	0.20	0.2	<10	10	2.0	1900	8	19	--	--	--
APR 19...	26	<0.10	--	<30	<30	<3.0	2300	<6	60	--	--	--
JUL 06...	8	0.20	0.1	<10	<10	<1.0	2000	18	44	<0.1	<0.1	<0.10
AUG 29...	9	0.10	0.1	<10	<10	<1.0	1700	17	49	<0.1	<0.1	<0.10

DATE	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, DIS- SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, DIS- SOLVED (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, DIS- SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS- SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS- SOLVED (UG/L)	DDT, TOTAL (UG/L)
JUL 06...	<0.10	<0.01	<0.010	<0.1	<0.1	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010
AUG 29...	<0.10	<0.01	<0.010	<0.1	<0.1	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

267

07229200 CANADIAN RIVER AT PURCELL, OK

LOCATION.-- Lat 35°00'50", long 97°20'50", in NW 1/4 sec.7, T.6 N., R.1 W., Cleveland County, Hydrologic Unit 11090202, near left bank on downstream side of pier of U.S. Highway 77, 0.5 mi east of Purcell, 1.0 mi upstream from Walnut Creek, and at mile 184.9.

DRAINAGE AREA.-- 25,939 mi², of which 4,801 mi² probably is noncontributing.

PERIOD OF RECORD.-- October 1959 to June 1961, October 1979 to September 1983, October 1985 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,017.14 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Flow regulated since October 1964 by Lake Meredith (station 07227900) located in Texas. U.S. Army Corps of Engineers' satellite telemeter located at site. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- Since regulation by Lake Meredith, 8 years (water years 1980-83, 1986-89), 808 ft³/s, 584,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 102,000 ft³/s, May 29, 1987, gage height, 14.75 ft (from HWM), no flow at times in 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in 1904 reached a stage of 14.18 ft and flood in 1914 reached a stage of 12.98 ft, from information by the Atchison, Topeka, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.-- Maximum daily discharge, 44,200 ft³/s, June 14; minimum daily discharge, 66 ft³/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e380	119	342	e278	483	e355	1020	341	1080	916	e240	e66
2	e170	125	353	e280	425	e430	898	387	6790	1140	e227	e200
3	e130	121	353	281	e350	493	904	469	2410	1100	e330	e600
4	e120	113	348	267	e300	457	770	607	17200	872	e235	e1400
5	102	105	365	276	e285	e430	663	523	13600	803	e215	e800
6	98	99	403	274	304	e480	605	452	5650	776	e200	e800
7	95	97	489	273	286	552	606	400	12300	776	e190	e519
8	155	96	509	262	291	e1370	598	383	16800	779	e183	e350
9	432	116	530	261	323	e800	561	362	11500	709	e170	e290
10	355	107	483	266	334	519	534	335	6370	583	e165	e225
11	267	104	491	270	350	347	540	312	4720	535	e158	e180
12	220	e350	526	252	356	329	546	715	7030	486	e250	e160
13	203	e750	430	239	466	350	543	1360	18000	454	e500	e7000
14	188	630	432	264	887	e360	642	1380	22100	1240	e1500	e2500
15	166	545	414	316	990	367	587	1040	4980	793	e1100	e1700
16	151	455	401	287	558	336	556	1140	2680	e600	e800	e1200
17	146	405	401	278	658	337	521	2360	2260	e500	e800	e800
18	135	324	388	291	761	314	527	3090	2120	e460	e400	e650
19	129	335	408	290	664	301	514	2210	1670	e430	e300	e540
20	265	490	416	272	674	318	497	2970	1410	e410	e220	393
21	241	390	e370	262	498	315	497	2670	1340	e390	e200	e370
22	186	310	335	261	418	307	488	2300	1400	e500	e170	e330
23	155	287	382	261	372	310	456	1780	1600	e700	e150	e310
24	139	273	305	264	379	319	430	1440	3080	e500	e140	e290
25	131	286	278	450	426	320	411	1000	1450	e440	e130	e270
26	122	301	266	397	416	320	394	722	1170	e380	e115	e258
27	114	304	331	428	e380	389	377	566	1160	e350	e96	230
28	109	332	376	647	e370	1680	363	521	918	e310	e93	223
29	106	352	332	672	---	5220	361	499	1320	e290	e85	216
30	110	332	286	544	---	2220	386	465	986	e260	e76	214
31	119	---	e280	535	---	1320	---	450	---	e250	e70	---
TOTAL	5439	8653	12023	10198	13004	21965	16795	33229	175894	18712	9308	22964
MEAN	175	288	388	329	464	709	560	1072	5863	604	300	765
MAX	432	750	530	672	990	5220	1020	3090	22100	1240	1500	7000
MIN	95	96	266	239	285	301	361	312	918	250	70	66
AC-FT	10790	17160	23850	20230	25790	43670	33310	65910	348900	37120	18460	45550

CAL YR 1988 TOTAL 279147 MEAN 763 MAX 13000 MIN 21 AC-FT 553700
WTR YR 1989 TOTAL 348184 MEAN 954 MAX 22100 MIN 66 AC-FT 690600

e Estimated

ARKANSAS RIVER BASIN

07229300 WALNUT CREEK AT PURCELL, OK

LOCATION.-- Lat 34°59'56", long 97°22'00", NW 1/4 NW 1/4 sec.13, T.6 N., R.2 W., McClain County, Hydrologic Unit 11090202, on downstream side of right bank pier of bridge on U.S. Highway 77, at south edge of Purcell, and at mile 1.0.

DRAINAGE AREA.-- 202 mi².

PERIOD OF RECORD.-- Water years 1951-55, 1958-65 (occasional low-flow measurements). October 1965 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,014.57 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1984, datum 3.00 ft higher.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 24 years (water years 1966-89), 73.3 ft³/s, 53,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 67,700 ft³/s, Oct. 20, 1983, gage height, 21.40 ft (datum then in use), from rating curve extended above 20,000 ft, on basis of multiple contracted opening measurement at peak; no flow at times in 1966-67, and 1984.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 4	0045	4,320	11.76	Sept. 2	1145	4,750	12.12
June 12	1045	5,230	12.50	Sept. 13	0945	3,590	11.09
June 13	1245	*9,990	*15.96				

Minimum daily discharge, 16 ft³/s, Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e26	47	44	64	75	50	54	33	79	77	27	20
2	e23	47	46	61	70	48	53	34	167	109	29	1880
3	e20	48	46	60	e67	53	52	43	371	99	36	132
4	e18	48	46	58	e62	53	47	55	2350	73	32	59
5	e16	50	47	58	e58	64	43	48	507	66	27	50
6	20	50	50	58	e54	61	42	37	202	62	29	37
7	22	50	58	57	e52	69	42	33	1150	59	25	31
8	28	50	59	57	e50	76	41	32	795	58	26	28
9	27	52	56	57	e49	105	39	31	356	57	26	26
10	24	60	55	57	e48	90	40	29	262	55	25	28
11	22	61	54	58	e60	60	40	29	501	50	28	32
12	21	58	55	58	82	54	42	157	2020	48	29	32
13	e19	56	54	58	125	49	43	232	6240	47	29	1490
14	e18	e54	54	66	365	46	55	479	3140	111	233	202
15	e18	e53	54	71	209	40	50	123	471	62	127	87
16	e17	e51	54	62	61	38	44	502	330	53	134	69
17	e17	e50	55	61	107	39	44	199	263	45	42	60
18	42	e49	56	62	97	36	44	163	222	42	34	53
19	55	e48	57	60	58	35	45	70	197	37	32	48
20	49	e50	57	59	79	40	43	62	169	33	46	43
21	42	e48	57	59	65	42	43	57	146	32	28	42
22	42	e46	143	59	53	43	42	54	133	32	24	43
23	54	e45	105	59	46	42	39	50	133	84	23	38
24	69	e43	75	59	49	41	37	43	119	50	24	38
25	56	42	62	132	49	39	36	37	109	34	30	39
26	52	46	59	100	48	40	35	33	102	32	25	38
27	49	46	70	70	48	54	34	34	95	38	23	34
28	47	42	80	162	52	216	34	33	87	32	22	35
29	46	43	67	127	---	184	33	31	83	53	21	36
30	50	44	61	95	---	72	32	30	80	34	21	36
31	49	---	68	84	---	64	---	29	---	28	20	---
TOTAL	1058	1477	1904	2208	2238	1943	1268	2822	20879	1692	1277	4786
MEAN	34.1	49.2	61.4	71.2	79.9	62.7	42.3	91.0	696	54.6	41.2	160
MAX	69	61	143	162	365	216	55	502	6240	111	233	1880
MIN	16	42	44	57	46	35	32	29	79	28	20	20
AC-FT	2100	2930	3780	4380	4440	3850	2520	5600	41410	3360	2530	9490

CAL YR 1988 TOTAL 29370.2 MEAN 80.2 MAX 6450 MIN 1.5 AC-FT 58260
WTR YR 1989 TOTAL 43552 MEAN 119 MAX 6240 MIN 16 AC-FT 86390

e Estimated

ARKANSAS RIVER BASIN

269

07229900 LAKE THUNDERBIRD NEAR NORMAN, OK

LOCATION.-- Lat 35°13'15", long 97°13'05", in NW 1/4 SE 1/4 sec.29, T.9 N., R.1 E., Cleveland County, Hydrologic Unit 11090203, near center of dam on Little River, just downstream from Hog Creek, 13 mi east of Norman, and at mile 98.4.

DRAINAGE AREA.-- 256 mi².

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

GAGE.-- Nonrecording gage at outlet structure and at pump house. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.-- Reservoir is formed by earth dam. Regulated storage began Mar. 1, 1965; minimum conservation pool first filled September 1965. Capacity, 196,200 acre-ft at elevation 1,049.4 ft, crest of drop inlet; 119,600 acre-ft at elevation 1,039.0 ft, top of conservation pool; 13,640 acre-ft at elevation 1,010.0 ft, minimum conservation pool. Dead storage, 1,200 acre-ft below elevation 997.0 ft, sill of gated outlet. Figures given herein represent total contents. Reservoir is used for flood control, irrigation (inactive), and municipal water supplies diverted to Del City, Midwest City, and Norman. U.S. Army Corps of Engineers satellite telemeter at station.

COOPERATION.-- Elevations and data on diversions furnished by Central Oklahoma Master Conservancy District.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 172,900 acre-ft, Mar. 5, 1985, elevation, 1,046.61 ft; minimum since conservation pool first reached, 15,370 acre-ft, Nov. 30, 1965, elevation, 1,011.0 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 151,400 acre-ft, June 14, elevation, 1,043.79 ft; minimum, 106,400 acre-ft, Nov. 10, 11 elevation, 1,036.74 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30.....	1037.15	108,700	-	-
Oct. 31.....	1036.86	107,000	-1,700	1,121
Nov. 30.....	1037.06	108,100	+1,100	1,066
Dec. 31.....	1037.23	109,100	+1,000	1,072
CAL YR 88.....	-	-	-10,800	17,953
Jan. 31.....	1037.65	111,600	+2,500	1,092
Feb. 28.....	1038.83	118,600	+7,000	1,045
Mar. 31.....	1039.56	123,000	+4,400	1,104
Apr. 30.....	1038.91	119,100	-3,900	1,418
May 31.....	1039.10	120,200	+1,100	1,488
June 30.....	1041.33	134,400	+14,200	1,244
July 31.....	1039.12	120,300	-14,100	1,676
Aug. 31.....	1038.94	119,200	-1,100	1,570
Sept. 30.....	1039.07	120,000	+800	1,356
WTR YR 89.....	-	-	+11,300	15,252

ARKANSAS RIVER BASIN

351307097132401 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 1

LOCATION.-- Lat 35°13'07", long 97°13'24".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC											
20...	1103	1028	1028	1.00	108000	415	7.8	7.0	730	11.7	101
20...	1107	1028	1028	5.00	108000	410	8.1	7.5	730	11.6	101
20...	1109	1028	1028	10.0	108000	410	8.1	7.5	730	11.6	101
20...	1110	1028	1028	15.0	108000	406	8.1	7.5	730	11.6	101
20...	1112	1028	1028	20.0	108000	406	8.2	7.5	730	11.6	101
20...	1113	1028	1028	25.0	108000	405	8.2	7.5	730	11.6	101
20...	1114	1028	1028	30.0	108000	405	8.2	7.5	730	11.6	101
20...	1117	1028	1028	37.0	108000	400	8.2	7.5	730	10.2	88
MAR											
31...	1006	1028	1028	1.00	123000	416	8.5	13.0	740	11.6	114
31...	1009	1028	1028	5.00	123000	415	8.5	11.5	740	9.0	85
31...	1010	1028	1028	10.0	123000	412	8.5	12.0	740	8.4	81
31...	1012	1028	1028	15.0	123000	411	8.5	12.0	740	8.0	77
31...	1013	1028	1028	20.0	123000	408	8.5	12.0	740	7.2	69
31...	1015	1028	1028	25.0	123000	408	8.5	12.0	740	7.2	69
31...	1021	1028	1028	32.0	123000	408	8.5	12.0	740	7.2	69
JUN											
26...	1029	1028	1028	1.00	140000	401	8.6	26.0	730	6.8	88
26...	1043	1028	1028	5.00	140000	392	8.7	26.0	730	8.8	114
26...	1045	1028	1028	10.0	140000	405	8.8	25.5	730	9.0	115
26...	1050	1028	1028	15.0	140000	403	8.6	25.0	730	8.6	109
26...	1052	1028	1028	20.0	140000	408	8.4	25.0	730	7.8	98
26...	1054	1028	1028	25.0	140000	405	8.3	24.5	730	6.8	85
26...	1058	1028	1028	30.0	140000	405	8.1	23.5	730	6.0	74
26...	1100	1028	1028	35.0	140000	408	8.0	23.0	730	4.2	51
26...	1101	1028	1028	40.0	140000	402	8.0	22.0	730	3.5	42
26...	1103	1028	1028	43.0	140000	400	7.9	23.5	730	4.2	52
SEP											
21...	1012	1028	1028	1.00	121000	364	8.6	22.0	740	8.8	104
21...	1014	1028	1028	5.00	121000	366	8.6	22.0	740	8.6	102
21...	1015	1028	1028	10.0	121000	369	8.5	21.5	740	8.5	99
21...	1016	1028	1028	15.0	121000	366	8.4	22.0	740	7.8	92
21...	1017	1028	1028	20.0	121000	367	8.4	21.5	740	7.4	87
21...	1032	1028	1028	25.0	121000	350	8.5	22.0	740	7.4	87
21...	1033	1028	1028	30.0	121000	348	8.3	21.5	740	6.8	79
21...	1034	1028	1028	35.0	121000	333	8.1	20.5	740	6.3	72
21...	1035	1028	1028	40.0	121000	317	7.9	20.0	740	5.2	59
21...	1037	1028	1028	46.0	121000	312	8.0	19.5	740	3.1	35

ARKANSAS RIVER BASIN

271

351317097145101 LAKE THUNDERBIRD LITTLE RIVER CROSS SECTION

LOCATION.-- Lat 35°13'17", long 97°14'51".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC											
20...	1329	1028	1028	1.00	108000	397	8.2	7.5	730	12.2	107
20...	1330	1028	1028	5.00	108000	398	8.2	7.5	730	11.9	104
20...	1331	1028	1028	10.0	108000	397	8.1	7.5	730	11.7	101
20...	1332	1028	1028	15.0	108000	396	8.1	7.5	730	11.7	102
20...	1333	1028	1028	20.0	108000	395	8.1	7.0	730	11.6	100
20...	1334	1028	1028	25.0	108000	397	8.1	7.0	730	11.6	100
20...	1336	1028	1028	31.0	108000	399	8.2	7.0	730	11.6	100
MAR											
31...	1251	1028	1028	1.00	123000	401	8.5	14.0	740	8.2	82
31...	1255	1028	1028	5.00	123000	400	8.5	13.0	740	8.0	78
31...	1257	1028	1028	10.0	123000	402	8.5	12.5	740	6.7	65
31...	1258	1028	1028	15.0	123000	402	8.5	12.5	740	6.2	60
31...	1259	1028	1028	20.0	123000	402	8.5	12.5	740	5.6	54
31...	1300	1028	1028	25.0	123000	398	8.5	12.0	740	5.4	52
31...	1302	1028	1028	30.0	123000	397	8.5	11.5	740	5.3	50
31...	1304	1028	1028	34.0	123000	399	8.5	11.5	740	5.2	49
JUN											
26...	1257	1028	1028	1.00	140000	382	8.9	30.0	730	11.2	155
26...	1300	1028	1028	5.00	140000	388	8.9	28.5	730	11.8	159
26...	1302	1028	1028	10.0	140000	393	8.8	27.0	730	10.0	131
26...	1303	1028	1028	15.0	140000	400	8.4	25.5	730	7.6	97
26...	1305	1028	1028	20.0	140000	400	8.4	25.0	730	7.4	94
26...	1306	1028	1028	25.0	140000	401	8.2	24.0	730	6.2	77
26...	1308	1028	1028	30.0	140000	398	8.1	23.5	730	5.8	71
26...	1310	1028	1028	35.0	140000	398	8.0	23.0	730	4.2	51
26...	1312	1028	1028	38.0	140000	401	8.0	23.0	730	3.6	44
SEP											
21...	1328	1028	1028	1.00	121000	350	8.7	24.0	740	10.2	125
21...	1329	1028	1028	5.00	121000	348	8.7	23.5	740	11.6	140
21...	1330	1028	1028	10.0	121000	347	8.6	22.5	740	12.3	147
21...	1331	1028	1028	15.0	121000	346	8.6	23.0	740	8.6	103
21...	1332	1028	1028	20.0	121000	349	8.4	22.5	740	8.7	103
21...	1333	1028	1028	25.0	121000	347	8.4	22.0	740	8.7	103
21...	1334	1028	1028	30.0	121000	341	8.1	21.5	740	5.5	65
21...	1336	1028	1028	35.0	121000	348	8.6	22.5	740	3.8	45

ARKANSAS RIVER BASIN

351255097151001 LAKE THUNDERBIRD CLEAR CREEK CROSS SECTION

LOCATION.-- Lat 35°12'55", long 97°15'10".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC											
20...	1355	1028	1028	1.00	108000	398	8.1	7.5	730	12.0	105
20...	1358	1028	1028	5.00	108000	398	8.2	7.5	730	11.8	102
20...	1359	1028	1028	10.0	108000	398	8.1	7.0	730	11.8	102
20...	1400	1028	1028	15.0	108000	397	8.2	7.0	730	12.2	105
20...	1401	1028	1028	20.0	108000	397	8.1	7.0	730	11.8	102
20...	1402	1028	1028	25.0	108000	397	8.2	7.0	730	12.0	103
20...	1403	1028	1028	32.0	108000	397	8.1	7.0	730	11.7	101
MAR											
31...	1332	1028	1028	1.00	123000	404	8.6	13.5	740	7.0	69
31...	1333	1028	1028	5.00	123000	404	8.5	13.0	740	4.6	45
31...	1334	1028	1028	10.0	123000	404	8.5	13.0	740	3.6	35
31...	1335	1028	1028	15.0	123000	403	8.5	12.5	740	3.3	32
31...	1336	1028	1028	20.0	123000	405	8.5	12.5	740	3.2	31
31...	1337	1028	1028	25.0	123000	405	8.5	12.5	740	3.2	31
31...	1341	1028	1028	31.0	123000	401	8.5	12.0	740	2.9	28
JUN											
26...	1318	1028	1028	1.00	140000	387	8.9	29.0	730	10.0	136
26...	1320	1028	1028	5.00	140000	385	8.9	28.0	730	10.8	145
26...	1322	1028	1028	10.0	140000	384	8.7	27.0	730	8.2	108
26...	1323	1028	1028	15.0	140000	389	8.4	26.0	730	7.0	90
26...	1324	1028	1028	20.0	140000	382	8.1	24.5	730	5.8	73
26...	1325	1028	1028	25.0	140000	394	8.1	24.0	730	5.0	62
26...	1326	1028	1028	28.0	140000	394	8.2	24.0	730		
SEP											
21...	1349	1028	1028	1.00	121000	340	8.6	23.5	740	9.0	110
21...	1350	1028	1028	5.00	121000	337	8.6	23.5	740	9.2	111
21...	1351	1028	1028	10.0	121000	343	8.6	23.0	740	10.3	124
21...	1352	1028	1028	15.0	121000	340	8.6	22.5	740	10.9	130
21...	1353	1028	1028	20.0	121000	341	8.6	22.5	740	10.2	122
21...	1354	1028	1028	24.0	121000	347	8.4	22.5	740	10.6	126

ARKANSAS RIVER BASIN

273

351442097140201 LAKE THUNDERBIRD HUG CREEK CROSS SECTION

LOCATION.-- Lat 35°14'42", long 97°14'02".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC											
20...	1310	1028	1028	1.00	108000	396	8.1	8.0	730	11.6	102
20...	1311	1028	1028	5.00	108000	399	8.1	7.5	730	11.6	102
20...	1312	1028	1028	10.0	108000	399	8.2	7.5	730	11.7	102
20...	1313	1028	1028	15.0	108000	400	8.1	7.5	730	11.8	102
20...	1314	1028	1028	20.0	108000	399	8.1	7.0	730	11.6	100
20...	1315	1028	1028	25.0	108000	400	8.2	7.0	730	11.5	100
MAR											
31...	1226	1028	1028	1.00	123000	399	8.5	13.5	740	10.4	102
31...	1228	1028	1028	5.00	123000	406	8.5	13.5	740	8.8	87
31...	1229	1028	1028	10.0	123000	398	8.5	12.5	740	8.8	86
31...	1230	1028	1028	15.0	123000	398	8.5	12.0	740	5.8	56
31...	1231	1028	1028	20.0	123000	398	8.5	12.0	740	5.2	50
31...	1232	1028	1028	25.0	123000	393	8.5	11.5	740	4.9	46
31...	1235	1028	1028	30.0	123000	399	8.5	11.5	740	4.9	46
31...	1236	1028	1028	37.0	123000	398	8.5	11.5	740	4.6	44
JUN											
26...	1353	1028	1028	1.00	140000	390	8.8	30.0	730	9.6	133
26...	1354	1028	1028	5.00	140000	389	8.7	28.5	730	9.6	130
26...	1355	1028	1028	10.0	140000	389	8.3	26.0	730	7.4	96
26...	1357	1028	1028	15.0	140000	398	8.2	25.0	730	6.4	81
26...	1359	1028	1028	20.0	140000	403	8.0	24.5	730	5.0	63
26...	1400	1028	1028	25.0	140000	376	7.9	24.0	730	4.6	57
26...	1401	1028	1028	30.0	140000	367	7.7	23.5	730	3.6	44
26...	1403	1028	1028	33.0	140000	393	7.7	23.0	730	3.1	38
SEP											
21...	1254	1028	1028	1.00	121000	354	8.6	23.5	740	9.9	120
21...	1255	1028	1028	5.00	121000	344	8.7	23.0	740	12.0	145
21...	1256	1028	1028	10.0	121000	344	8.7	23.0	740	12.5	150
21...	1257	1028	1028	15.0	121000	345	8.6	23.0	740	11.2	135
21...	1258	1028	1028	25.0	121000	343	8.6	22.5	740	6.9	83
21...	1259	1028	1028	30.0	121000	343	8.4	22.5	740	6.5	78
21...	1300	1028	1028	35.0	121000	340	8.1	21.5	740	5.1	60
21...	1301	1028	1028	40.0	121000	332	8.0	21.5	740	2.3	27

ARKANSAS RIVER BASIN

351318097155901 LAKE THUNDERBIRD LITTLE RIVER ABOVE CLEAR CREEK

LOCATION.-- Lat 35°13'18", long 97°15'59".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature, and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC											
20...	1414	1028	1028	1.00	108000	395	8.1	7.5	730	11.8	103
20...	1417	1028	1028	5.00	108000	396	8.1	7.5	730	11.7	102
20...	1418	1028	1028	10.0	108000	397	8.1	7.5	730	11.6	101
20...	1419	1028	1028	15.0	108000	397	8.2	7.0	730	11.6	100
20...	1420	1028	1028	20.0	108000	397	8.3	7.0	730	11.6	100
20...	1421	1028	1028	25.0	108000	398	8.2	7.0	730	11.5	99
MAR											
31...	1316	1028	1028	1.00	123000	413	8.6	14.5	740	8.6	87
31...	1318	1028	1028	5.00	123000	408	8.6	13.0	740	7.4	73
31...	1319	1028	1028	10.0	123000	406	8.6	12.5	740	6.0	58
31...	1321	1028	1028	15.0	123000	406	8.5	12.0	740	5.1	49
31...	1322	1028	1028	20.0	123000	404	8.5	12.5	740	4.6	44
31...	1324	1028	1028	27.0	123000	399	8.5	11.5	740	4.0	38
JUN											
26...	1333	1028	1028	1.00	140000	378	8.9	29.0	730	12.2	166
26...	1335	1028	1028	5.00	140000	387	8.7	27.5	730	8.9	118
26...	1336	1028	1028	10.0	140000	388	8.6	27.0	730	9.0	119
26...	1338	1028	1028	15.0	140000	396	8.0	25.0	730	6.4	81
26...	1339	1028	1028	20.0	140000	396	8.0	24.5	730	5.2	65
26...	1340	1028	1028	25.0	140000	398	7.9	24.0	730	5.8	72
26...	1343	1028	1028	30.0	140000	376	7.7	23.5	730	5.0	61
SEP											
21...	1401	1028	1028	1.00	121000	351	8.8	24.0	740	9.4	116
21...	1402	1028	1028	5.00	121000	345	8.8	23.5	740	10.5	128
21...	1403	1028	1028	10.0	121000	344	8.8	23.5	740	11.1	134
21...	1404	1028	1028	15.0	121000	343	8.7	23.0	740	10.3	124
21...	1405	1028	1028	20.0	121000	345	8.3	22.5	740	7.5	89
21...	1406	1028	1028	25.0	121000	342	8.2	22.0	740	4.5	53
21...	1407	1028	1028	27.0	121000	341	8.1	22.0	740	3.9	46

ARKANSAS RIVER BASIN

275

351333097131201 LAKE THUNDERBIRD DAMSITE CROSS SECTION NO. 3

LOCATION.-- Lat 35°13'33", long 97°13'12".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC											
20...	1158	1028	1028	1.00	108000	399	8.2	7.5	730	11.6	101
20...	1201	1028	1028	5.00	108000	400	8.2	7.5	730	11.5	100
20...	1202	1028	1028	10.0	108000	400	8.1	7.5	730	11.3	98
20...	1203	1028	1028	15.0	108000	399	8.2	7.0	730	11.4	99
20...	1204	1028	1028	20.0	108000	398	8.0	7.5	730	11.4	99
20...	1206	1028	1028	25.0	108000	398	8.2	7.0	730	11.4	99
20...	1209	1028	1028	30.0	108000	398	8.2	7.5	730	11.4	99
20...	1210	1028	1028	35.0	108000	398	8.2	7.5	730	11.4	99
20...	1212	1028	1028	40.0	108000	398	8.2	7.0	730	11.0	95
MAR											
31...	1110	1028	1028	1.00	123000	403	8.5	12.0	740	8.6	82
31...	1112	1028	1028	5.00	123000	404	8.5	12.0	740	8.1	78
31...	1114	1028	1028	10.0	123000	405	8.5	12.0	740	5.6	54
31...	1115	1028	1028	15.0	123000	401	8.5	12.0	740	5.1	49
31...	1117	1028	1028	20.0	123000	404	8.5	12.0	740	4.8	46
31...	1118	1028	1028	25.0	123000	404	8.5	11.5	740	4.6	44
31...	1121	1028	1028	30.0	123000	404	8.5	11.5	740	4.3	41
31...	1123	1028	1028	35.0	123000	402	8.5	11.5	740	4.2	40
31...	1124	1028	1028	40.0	123000	403	8.5	11.0	740	4.2	39
31...	1126	1028	1028	45.0	123000	404	8.5	11.0	740	4.0	37
JUN											
26...	1155	1028	1028	1.00	140000	399	8.8	28.0	730	10.4	140
26...	1157	1028	1028	5.00	140000	397	8.8	27.0	730	9.2	121
26...	1159	1028	1028	10.0	140000	398	8.7	26.0	730	8.4	108
26...	1201	1028	1028	15.0	140000	399	8.6	25.5	730	7.4	94
26...	1202	1028	1028	20.0	140000	402	8.4	25.0	730	6.4	81
26...	1203	1028	1028	25.0	140000	401	8.2	24.0	730	5.2	64
26...	1204	1028	1028	30.0	140000	400	8.1	23.5	730	4.8	59
26...	1205	1028	1028	35.0	140000	401	8.1	23.5	730	4.6	56
26...	1206	1028	1028	40.0	140000	398	8.0	23.0	730	4.0	49
26...	1208	1028	1028	44.0	140000	398	8.0	22.5	730	2.8	34
SEP											
21...	1224	1028	1028	1.00	121000	358	8.6	22.5	740	9.5	113
21...	1226	1028	1028	5.00	121000	344	8.6	22.5	740	8.3	99
21...	1227	1028	1028	10.0	121000	342	8.6	22.5	740	8.8	105
21...	1228	1028	1028	15.0	121000	342	8.4	22.5	740	8.4	100
21...	1229	1028	1028	20.0	121000	348	8.2	21.5	740	8.3	97
21...	1230	1028	1028	25.0	121000	347	8.3	22.0	740	7.3	86
21...	1231	1028	1028	30.0	121000	345	8.3	22.0	740	4.9	58
21...	1232	1028	1028	35.0	121000	343	8.3	22.0	740	5.3	63
21...	1233	1028	1028	40.0	121000	343	8.3	22.0	740	5.3	62
21...	1234	1028	1028	45.0	121000	324	8.0	20.5	740	3.8	43
21...	1235	1028	1028	50.0	121000	310	7.9	20.5	740	3.5	40

ARKANSAS RIVER BASIN

351320097131801 LAKE THUNDERBIRD DAMSITE CROSS SECTION SITE NO. 2

LOCATION.-- Lat 35°13'20", long 97°13'18".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Samples were collected in a Kemmerer sampler. Specific conductance, pH, water temperature and dissolved oxygen were measured quarterly in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
DEC										
20...	1128	1028	80020	1.00	108000	400	8.4	7.5	6.5	730
20...	1129	1028	1028	5.00	108000	401	7.7	7.5	--	730
20...	1133	1028	1028	10.0	108000	401	8.0	7.5	--	730
20...	1134	1028	1028	15.0	108000	398	8.1	7.5	--	730
20...	1135	1028	80020	20.0	108000	400	8.1	7.5	6.0	730
20...	1143	1028	1028	25.0	108000	399	8.2	7.5	--	730
20...	1144	1028	1028	30.0	108000	399	8.1	7.5	--	730
20...	1145	1028	1028	35.0	108000	400	8.2	7.0	--	730
20...	1147	1028	80020	42.0	108000	399	8.1	7.5	7.1	730
MAR										
31...	1034	1028	80020	1.00	123000	409	8.5	12.5	13	740
31...	1041	1028	1028	5.00	123000	406	8.5	12.5	--	740
31...	1042	1028	1028	10.0	123000	405	8.5	12.0	--	740
31...	1043	1028	80020	15.0	123000	404	8.5	12.0	13	740
31...	1046	1028	80020	20.0	123000	404	8.5	12.5	12	740
31...	1048	1028	1028	25.0	123000	403	8.5	12.0	--	740
31...	1052	1028	1028	30.0	123000	404	8.5	12.0	--	740
31...	1053	1028	1028	35.0	123000	401	8.5	11.5	--	740
31...	1055	1028	80020	39.0	123000	402	8.5	11.5	16	740
JUN										
26...	1114	1028	80020	1.00	140000	399	8.7	27.0	0.90	730
26...	1115	1028	1028	5.00	140000	397	8.7	26.5	--	730
26...	1118	1028	1028	10.0	140000	399	8.7	26.0	--	730
26...	1121	1028	1028	15.0	140000	400	8.5	25.5	--	730
26...	1123	1028	1028	20.0	140000	405	8.3	25.0	--	730
26...	1126	1028	80020	25.0	140000	404	8.2	24.0	6.0	730
26...	1128	1028	1028	30.0	140000	401	8.2	23.5	--	730
26...	1129	1028	1028	35.0	140000	400	8.1	23.0	--	730
26...	1132	1028	1028	40.0	140000	400	8.0	22.5	--	730
26...	1134	1028	1028	45.0	140000	393	8.0	22.5	--	730
26...	1137	1028	1028	50.0	140000	391	8.0	22.0	--	730
26...	1139	1028	80020	52.0	140000	389	8.0	21.5	730	730
SEP										
21...	1056	1028	80020	1.00	121000	345	8.7	22.0	1.9	740
21...	1106	1028	1028	5.00	121000	344	8.7	22.0	--	740
21...	1108	1028	1028	10.0	121000	343	8.7	22.0	--	740
21...	1109	1028	1028	15.0	121000	349	8.6	21.5	--	740
21...	1111	1028	1028	20.0	121000	347	8.5	21.5	--	740
21...	1116	1028	80020	25.0	121000	344	8.4	21.5	8.5	740
21...	1118	1028	1028	30.0	121000	354	8.2	21.0	--	740
21...	1119	1028	1028	35.0	121000	340	8.2	20.5	--	740
21...	1120	1028	1028	40.0	121000	320	8.0	20.0	--	740
21...	1121	1028	1028	45.0	121000	306	8.0	19.5	--	740
21...	1123	1028	80020	51.0	121000	301	7.8	19.5	1800	740

ARKANSAS RIVER BASIN

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351320097131801 LAKE THUNDERBIRD DAMSITE CROSSECTION N01 SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO
DEC									
20...	12.5	109	180	0	35	22	16	16	0.5
20...	13.2	115	--	--	--	--	--	--	--
20...	12.8	111	--	--	--	--	--	--	--
20...	12.6	109	--	--	--	--	--	--	--
20...	12.4	108	180	--	35	22	16	16	0.5
20...	12.3	107	--	--	--	--	--	--	--
20...	12.2	106	--	--	--	--	--	--	--
20...	12.1	105	--	--	--	--	--	--	--
20...	11.2	97	180	--	35	22	16	16	0.5
MAR									
31...	8.5	82	180	0	36	23	16	16	0.5
31...	8.2	79	--	--	--	--	--	--	--
31...	7.4	71	--	--	--	--	--	--	--
31...	5.2	50	180	--	36	23	16	16	0.5
31...	4.4	42	180	--	36	23	16	16	0.5
31...	4.0	38	--	--	--	--	--	--	--
31...	3.9	37	--	--	--	--	--	--	--
31...	3.9	37	--	--	--	--	--	--	--
31...	3.9	37	180	--	36	23	16	16	0.5
JUN									
26...	11.2	147	170	--	35	21	15	15	0.5
26...	10.2	133	--	--	--	--	--	--	--
26...	8.6	111	--	--	--	--	--	--	--
26...	9.2	117	--	--	--	--	--	--	--
26...	7.8	98	--	--	--	--	--	--	--
26...	6.2	77	170	--	35	21	15	15	0.5
26...	5.0	62	--	--	--	--	--	--	--
26...	5.2	64	--	--	--	--	--	--	--
26...	4.2	51	--	--	--	--	--	--	--
26...	3.2	39	--	--	--	--	--	--	--
26...	3.8	45	--	--	--	--	--	--	--
26...	2.4	28	170	--	34	20	15	16	0.5
SEP									
21...	9.0	107	160	0	32	19	14	16	0.5
21...	9.2	109	--	--	--	--	--	--	--
21...	7.6	90	--	--	--	--	--	--	--
21...	8.1	94	--	--	--	--	--	--	--
21...	8.7	102	--	--	--	--	--	--	--
21...	8.1	95	160	--	32	19	14	16	0.5
21...	7.4	85	--	--	--	--	--	--	--
21...	6.9	79	--	--	--	--	--	--	--
21...	6.1	69	--	--	--	--	--	--	--
21...	5.0	56	--	--	--	--	--	--	--
21...	3.2	36	160	--	31	19	14	16	0.5

ARKANSAS RIVER BASIN

351320097131801 LAKE THUNDERBIRD DAMSITE CROSSSECTION N01 SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
DEC									
20...	2.7	220	0	180	12	20	212	216	0.29
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	2.7	--	--	--	13	19	211	215	0.29
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	2.7	--	--	--	13	19	223	215	0.30
MAR									
31...	3.0	242	0	198	12	21	227	230	0.31
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	3.0	--	--	--	12	21	227	220	0.31
31...	3.1	--	--	--	12	19	221	218	0.30
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	3.2	--	--	--	12	19	221	218	0.30
JUN									
26...	3.4	--	--	--	10	18	221	206	0.30
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	3.4	--	--	--	10	18	229	206	0.31
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	3.5	--	--	--	9.0	17	212	201	0.29
SEP									
21...	3.3	186	4	159	8.0	17	196	189	0.27
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	3.1	--	--	--	8.0	16	200	187	0.27
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	3.2	--	--	--	8.0	14	171	185	0.23

351320097131801 LAKE THUNDERBIRD DAMSITE CROSSECTION N01 SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, N02+N03 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
DEC									
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
MAR									
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
JUN									
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
SEP									
21...	--	--	<0.010	--	<0.100	0.020	0.03	0.010	0.03
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	<0.010	--	<0.100	<0.010	--	0.010	0.03
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	0.150	0.66	0.080	0.26	0.230	0.330	0.42	0.030	0.09

ARKANSAS RIVER BASIN

07230000 LITTLE RIVER BELOW LAKE THUNDERBIRD NEAR NORMAN, OK

LOCATION.-- Lat 35°13'18", long 97°12'49", in NE 1/4 SE 1/4 sec.29, T.9 N., R.1 E., Cleveland County, Hydrologic Unit, 11090203, at right bank of outlet channel, 170 ft upstream from State Highway 9, 1,200 ft downstream from Lake Thunderbird, 1.0 mi upstream from Prairie Creek, 13.0 mi east of Norman, and at mile 96.2.

DRAINAGE AREA.-- 257 mi².

PERIOD OF RECORD.-- October 1952 to current year. Prior to October 1964, published as Little River below Hog Creek near Norman.

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder and concrete control. Datum of gage is 965.62 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1956, nonrecording gage 800 ft downstream at same datum. Nov. 28, 1956 to Oct. 14, 1964, water-stage recorder at site 800 ft downstream at same datum. Oct. 15, 1964 to Sept. 1, 1965, nonrecording gage at site 170 ft downstream at same datum.

REMARKS.-- No estimated daily discharges. Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated by Lake Thunderbird since March 1965 (station 07229900). In prior years, occasional small diversions above station for irrigation.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Thunderbird, 12 years (water years 1953-64), 58.9 ft³/s, 42,640 acre-ft/yr; since regulation by Lake Thunderbird, 24 years (water years 1966-89), 44.5 ft³/s, 32,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 34,600 ft³/s, May 25, 1957, gage height, 28.85 ft, from high-water mark, at site then in use, from rating curve extended above 15,000 ft³/s; no flow at times in 1954-56, 1964.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 702 ft³/s, June 28, gage height, 6.33 ft; minimum daily discharge, 0.53 ft³/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.69	.69	.69	.76	.78	.72	.59	.59	690	122	1.1
2	.67	.69	.69	.72	.78	.78	.69	.61	.53	564	.78	1.2
3	.67	.69	.69	.69	.78	.78	.69	.61	.69	593	.73	1.1
4	.69	.67	.69	.69	.78	.78	148	.69	1.1	685	.67	1.1
5	.69	.63	.69	.69	.78	.78	309	.59	.58	684	.61	1.0
6	.69	.69	.69	.69	.78	.78	306	.58	297	682	.70	1.0
7	.80	.69	.75	.69	.78	.78	229	.80	133	620	.61	1.0
8	.69	.69	.69	.69	.78	.78	182	.61	317	573	.61	1.0
9	.69	.69	.69	.69	.78	.78	182	.59	498	572	.61	1.1
10	.69	.69	.69	.69	.78	.78	83	.57	312	400	.61	1.1
11	.68	.76	.70	.69	.78	.78	.73	.58	311	273	.61	1.1
12	.69	1.0	.70	.69	.78	.78	.70	.83	57	114	.61	1.1
13	.69	.69	.69	.70	.78	.78	.69	.62	1.1	.71	.61	2.2
14	.69	.69	.69	.78	1.0	.78	.80	.61	159	2.1	1.9	283
15	.69	.70	.68	.69	.78	.78	.69	.61	509	.69	200	565
16	.69	.68	.69	.69	.78	.78	.70	.76	620	.68	424	563
17	.69	.69	.69	.69	.78	.78	.69	.82	618	.70	424	562
18	.67	.69	.69	.62	.78	.78	.69	.66	617	.69	496	562
19	.69	.91	.69	.60	.78	.71	.69	.57	616	117	551	333
20	.87	.73	.69	.61	.78	.69	.69	.55	613	272	550	1.2
21	.69	.69	.69	.61	.78	.71	.69	.53	611	224	548	1.1
22	.69	.69	.81	.61	.78	.69	.60	.53	608	194	460	.95
23	.69	.69	.69	.61	.78	.69	.61	.55	608	73	322	.95
24	.69	.69	.69	.62	.78	.69	.61	.54	607	.83	150	.97
25	.69	.69	.69	.76	.78	.69	.60	.53	604	236	1.1	.95
26	.69	.69	.69	.61	.78	.69	.61	.58	604	421	1.1	.96
27	.69	.69	.71	.67	.78	.75	.61	.61	601	421	1.1	.97
28	.69	.69	.69	.77	.78	.74	.61	.61	655	420	1.1	.96
29	.69	.69	.69	.69	---	.73	.59	.53	696	417	1.1	.97
30	.70	.69	.69	.72	---	.74	.60	.53	693	415	1.1	.97
31	.69	---	.69	.69	---	.70	---	.53	---	336	1.1	---
TOTAL	21.65	21.26	21.60	21.05	22.02	23.26	1454.30	18.72	11968.59	10002.40	4264.36	2894.05
MEAN	.70	.71	.70	.68	.79	.75	48.5	.60	399	323	138	96.5
MAX	.87	1.0	.81	.78	1.0	.78	309	.83	696	690	551	565
MIN	.67	.63	.68	.60	.76	.69	.59	.53	.53	.68	.61	.95
AC-FT	43	42	43	42	44	46	2880	37	23740	19840	8460	5740

CAL YR 1988 TOTAL 25635.52 MEAN 70.0 MAX 727 MIN .40 AC-FT 50850
WTR YR 1989 TOTAL 30733.26 MEAN 84.2 MAX 696 MIN .53 AC-FT 60960

07230500 LITTLE RIVER NEAR TECUMSEH, OK

LOCATION.-- Lat. 35°10'21", long 96°55'54", NE 1/4 NE 1/4 sec.13, T.8 N., R.3 E., Pottawatomie County, Hydrologic Unit 11090203, on downstream side of center pier of bridge on U.S. Highway 177, 1.5 mi downstream from Dance Creek, 5.0 mi south of Tecumseh, and at mile 77.2.

DRAINAGE AREA.-- 456 mi².

PERIOD OF RECORD.-- October 1943 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 898.52 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated or diverted since 1965 by Lake Thunderbird, 19.2 mi upstream (station 07229900). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Thunderbird, 21 years (water years 1944-64), 149 ft³/s, 107,900 acre-ft/yr; since regulation by Lake Thunderbird, 24 years (water years 1966-89), 119 ft³/s, 86,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 32,400 ft³/s, May 25, 1957, gage height, 18.84 ft, maximum gage height, 19.68 ft, May 18, 1949; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in 1932 reached a stage of 25.58 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 3,580 ft³/s, July 14, gage height, 15.05 ft; minimum daily discharge, 2.7 ft³/s, Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.9	9.4	16	e18	32	e33	e49	16	13	828	255	e23
2	e5.8	8.9	15	e17	27	e32	e46	22	17	785	40	43
3	e5.7	8.8	15	e15	e23	e31	e43	28	35	584	32	33
4	e5.6	8.4	e14	e14	e21	e30	50	42	535	838	24	e26
5	4.7	7.5	e13	e13	e20	e28	305	35	150	824	21	e21
6	6.0	6.4	e14	e12	e18	e27	324	20	99	815	19	e17
7	23	5.7	15	e12	e17	e26	285	19	1450	774	e17	12
8	24	6.5	19	e11	26	107	156	19	429	656	e16	9.6
9	15	10	19	e11	28	267	150	19	758	654	e16	8.6
10	10	9.8	17	e10	29	212	141	18	405	568	e15	11
11	8.1	9.7	17	e9.6	25	107	104	17	401	267	e15	14
12	6.5	265	17	e9.4	25	90	e70	35	670	230	e15	13
13	5.0	74	17	e9.2	208	e70	e54	105	916	181	e14	673
14	4.0	26	17	e8.8	621	e60	e45	61	347	1950	562	223
15	3.5	39	15	e19	548	e56	e40	43	521	329	395	682
16	3.5	27	14	e17	181	e50	e36	127	776	102	571	691
17	3.7	17	e13	e15	252	e47	e32	106	757	60	534	682
18	2.9	14	e12	e13	195	e45	e27	168	741	45	545	676
19	2.7	15	e12	e11	125	e43	e25	55	731	34	702	625
20	30	63	e11	e10	143	e41	e23	33	729	294	690	76
21	30	40	e11	e9.4	135	e39	e21	26	724	256	686	45
22	14	25	62	e9.0	97	e38	e20	23	719	142	628	e36
23	9.9	21	72	e8.6	e76	e37	e19	21	714	1020	419	e33
24	7.9	20	27	e8.0	e58	e36	e18	18	713	262	258	e32
25	7.3	27	20	211	e45	e35	e18	15	706	144	47	e31
26	6.5	25	18	145	e41	e34	e17	13	705	532	33	e28
27	e4.8	20	34	46	e37	e33	17	14	702	525	30	e27
28	e4.5	18	27	268	e35	88	17	13	727	511	29	e26
29	e4.3	17	21	160	---	72	17	12	850	499	28	e25
30	7.3	17	20	61	---	e60	17	13	835	489	e26	e24
31	9.3	---	e19	39	---	e54	---	12	---	444	e25	---
TOTAL	281.4	861.1	633	1220.0	3088	1928	2186	1168	17875	15642	6707	4866.2
MEAN	9.08	28.7	20.4	39.4	110	62.2	72.9	37.7	596	505	216	162
MAX	30	265	72	268	621	267	324	168	1450	1950	702	691
MIN	2.7	5.7	11	8.0	17	26	17	12	13	34	14	8.6
AC-FT	558	1710	1260	2420	6130	3820	4340	2320	35460	31030	13300	9650

CAL YR 1988 TOTAL 51605.84 MEAN 141 MAX 5600 MIN .88 AC-FT 102400
WTR YR 1989 TOTAL 56455.7 MEAN 155 MAX 1950 MIN 2.7 AC-FT 112000

e Estimated

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NEAR SASAKWA, OK

LOCATION.-- Lat 34°59'02", long 96°33'01", NE 1/4 sec.22, T.6 N., R.7 E. Seminole County, Hydrologic Unit 11090203, near left abutment on downstream side of county road bridge, 2.8 mi northwest of Sasakwa, 8.7 mi downstream from Salt Creek, and at mile 24.1.

DRAINAGE AREA.-- 865 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- September 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 744.34 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 11, 1946, nonrecording gage at same site and datum. Prior to Oct. 1, 1979, gage at same site and datum, 4.87 ft higher.

REMARKS.-- Records poor. Flow regulated by Lake Thunderbird (station 07229900) 72.3 mi upstream since March 1965.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Thunderbird, 22 years (water years 1943-64), 410 ft³/s, 296,800 acre-ft/yr; since regulation by Lake Thunderbird, 24 years (water years 1966-89), 307 ft³/s, 222,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 44,600 ft³/s, May 11, 1950, gage height, 33.48 ft; no flow at times most years after 1952.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 7,470 ft³/s, Aug. 16, gage height, 22.40 ft; minimum daily discharge, 4.5 ft³/s, Oct. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	8.1	19	39	91	121	e90	25	24	e900	e590	e70
2	24	7.8	18	34	70	112	e80	26	22	e920	e480	e425
3	18	8.1	17	31	56	e110	e78	31	89	e880	e200	e450
4	12	9.2	16	28	e35	e105	e76	51	1300	780	e100	e225
5	8.6	8.8	15	26	e30	e100	e70	67	1360	1000	88	e140
6	7.6	7.4	15	25	33	e98	e215	60	e600	942	e70	e100
7	8.1	7.2	17	24	34	e150	e350	43	2700	945	e50	e75
8	16	8.2	19	23	35	259	e400	32	3010	895	e45	e70
9	40	7.7	21	21	31	768	e240	28	2230	799	e50	e60
10	30	7.8	23	21	38	e1600	e200	25	1300	825	e55	e70
11	20	7.2	25	20	43	e800	e210	22	e950	755	57	221
12	14	165	24	20	48	e500	e135	22	e1400	e450	64	e130
13	10	360	22	21	903	279	e65	35	2930	e350	64	2420
14	8.0	147	22	21	2000	201	e70	108	2780	878	e180	2160
15	6.7	65	22	21	3810	149	e72	171	1460	1990	e1200	855
16	5.6	44	21	23	2370	114	e68	884	e1200	e800	2870	e900
17	5.0	52	19	27	e1290	99	e60	e750	e1000	e300	3930	e850
18	4.5	38	17	29	e1000	91	e52	e1000	e990	159	1960	e800
19	4.6	32	16	27	e800	84	e45	e600	e950	e130	1080	e700
20	7.6	41	16	28	e700	78	e43	e300	e900	e100	968	e650
21	15	49	18	26	e600	e80	e48	e180	e850	e190	845	e300
22	28	65	19	23	473	e70	e42	e220	e840	e325	e800	e120
23	33	44	41	21	323	e68	e38	e150	e830	e425	e725	e88
24	23	31	66	21	241	e60	e40	e90	e810	e1500	e550	e70
25	15	34	60	22	201	e65	e36	e80	e805	e600	e400	e65
26	10	168	36	278	175	61	35	e60	e790	e290	e200	e60
27	8.2	74	60	214	151	65	34	e50	e780	e600	e95	e58
28	7.7	42	134	119	136	e115	32	e40	e770	e660	e80	e52
29	7.0	28	72	784	---	e340	29	37	768	e620	e70	e50
30	6.8	22	45	301	---	e270	26	32	e920	e600	e78	e48
31	6.6	---	37	145	---	e120	---	28	---	e600	e108	---
TOTAL	457.8	1586.5	972	2463	15717	7132	2977	5247	35358	21208	18052	12282
MEAN	14.8	52.9	31.4	79.5	561	230	99.2	169	1179	684	582	409
MAX	47	360	134	784	3810	1600	400	1000	3010	1990	3930	2420
MIN	4.5	7.2	15	20	30	60	26	22	22	100	45	48
AC-FT	908	3150	1930	4890	31170	14150	5900	10410	70130	42070	35810	24360

CAL YR 1988 TOTAL 110888.1 MEAN 303 MAX 7160 MIN 1.6 AC-FT 219900
WTR YR 1989 TOTAL 123452.1 MEAN 338 MAX 3930 MIN 4.5 AC-FT 244900

e Estimated

07231000 LITTLE RIVER NEAR SASAKWA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1951 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to April 1982.

WATER TEMPERATURE: October 1955 to April 1982.

REMARKS.-- Samples were collected at six-week intervals and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 09...	1330	1028	80020	4.83	7.8	1640	7.9	25.5	16.5	740	9.9	105
DEC 14...	1500	1028	80020	5.16	22	1570	8.1	15.5	10.0	740	12.1	111
FEB 09...	1330	1028	80020	5.27	31	1390	8.1	10.5	4.0	760	14.5	111
MAR 13...	1500	1028	80020	7.30	276	777	7.9	24.0	16.5	740	9.2	97
MAY 01...	1400	1028	80020	5.23	24	1990	8.4	18.0	23.5	750	13.4	161
JUN 08...	1600	1028	80020	13.84	2920	348	7.8	24.0	21.0	740	6.8	79
JUL 18...	1330	1028	80020	6.68	159	871	8.1	36.5	29.0	740	7.5	101
SEP 11...	1200	1028	80020	6.78	190	384	8.1	27.5	24.0	740	7.5	92

DATE	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)
NOV 09...	390	100	80	47	180	--	4	--	359	0	294	--
DEC 14...	360	--	77	41	160	49	4	2.6	--	--	--	37
FEB 09...	380	100	81	44	150	--	3	--	346	0	284	--
MAR 13...	220	56	50	22	86	46	3	3.2	195	0	160	21
MAY 01...	430	180	79	57	260	--	5	--	307	0	252	--
JUN 08...	110	20	26	11	25	32	1	3.1	110	0	90	9.0
JUL 18...	200	64	47	19	92	--	3	--	161	0	132	--
SEP 11...	110	25	29	8.8	37	42	2	3.5	102	0	83	12

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CON- STI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)
NOV 09...	--	11	--	--	--	--	4	500	<0.5	<1.0	<5	<3
DEC 14...	300	11	806	794	1.10	48.3	<1	410	<0.5	<1.0	<5	<3
FEB 09...	--	12	--	--	--	--	1	410	<0.5	<1.0	<5	<3
MAR 13...	170	8.8	462	458	0.63	344	1	200	<0.5	1.0	<5	<3
MAY 01...	--	9.4	--	--	--	--	1	450	<0.5	2.0	<5	<3
JUN 08...	39	7.5	192	175	0.26	1510	<1	140	<0.5	<1.0	<5	<3
JUL 18...	--	8.6	--	--	--	--	1	290	<0.5	<1.0	<5	<3
SEP 11...	64	6.3	223	211	0.30	114	<1	66	<0.5	<1.0	<5	<3

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NR SASAKWA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 09...	<10	15	<10	17	110	0.1	<10	<10	3.0	780	<6	14
DEC 14...	<10	11	<10	15	98	0.4	<10	<10	<1.0	730	<6	5
FEB 09...	<10	12	<10	14	85	0.2	<10	<10	<1.0	790	<6	11
MAR 13...	<10	99	<10	12	6	0.2	<10	<10	<1.0	490	<6	20
MAY 01...	<10	7	10	20	64	0.2	<10	<10	1.0	1200	<6	290
JUN 08...	<10	110	10	<4	5	0.5	<10	<10	<1.0	210	<6	<3
JUL 18...	<10	17	<10	10	9	0.3	<10	<10	<1.0	530	<6	16
SEP 11...	<10	140	<10	<4	16	0.9	<10	10	<1.0	190	<6	10

07231500 CANADIAN RIVER AT CALVIN, OK

LOCATION (REVISED).-- Lat 34°58'40", long 96°14'36", in NW 1/4 SW 1/4 sec.22, T.6 N., R.10 E., Hughes County, Hydrologic Unit 11090202, on downstream left bank at north end of bridge on U.S. Highway 75, 0.5 mi northeast of Calvin, 2.6 mi upstream from Shawnee Creek, 8.4 mi downstream from Little River, and at mile 94.1.

DRAINAGE AREA.-- 27,952 mi², of which 4,801 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- January 1905 to December 1908 (gage heights and discharge measurements only, except for period July 1905 to December 1906), October 1938 to September 1942, July 1944 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1904 are contained in reports of National Weather Service.

REVISED RECORDS.-- WSP 1341: Drainage area. WSP 1391: 1941.

GAGE.-- Water-stage recorder and nonrecording gage. Datum of gage is 682.72 ft above National Geodetic Vertical Datum of 1929. January 1905 to December 1908, nonrecording gage at site 0.7 mi upstream at datum 4.00 ft higher. Oct. 1, 1938 to Aug. 12, 1944, nonrecording gage at site 0.2 mi downstream and at same datum. Aug. 13, 1944 to July 31, 1977, water-stage recorder at site 0.2 mi downstream and datum 2.00 ft higher. Aug. 1, 1977 to Nov. 15, 1988, water-stage recorder 0.2 mi downstream and at present datum.

REMARKS.-- Records poor. Occasional slight regulation by dams in New Mexico and Texas since 1984; Lake Thunderbird (station 07229000) since March 1965. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 50 years (water years 1906, 1939-42, 1945-89), 1,651 ft³/s, 1,196,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 174,000 ft³/s May 11, 1950, gage height, 17.35 ft, maximum gage height, 21.00 ft, Aug. 7, 1906, from floodmark, site and datum then in use; no flow at times in several years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 25,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 5	0300	34,200	10.03	June 14	1000	*42,700	*10.84
June 8	0700	28,200	9.39	Aug. 16	1900	34,400	10.27

Minimum daily discharge 120 ft³/s, Oct. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	524	134	e250	651	822	1010	2430	254	428	4820	898	250
2	417	139	e240	610	629	977	2150	249	2130	3330	849	5090
3	315	152	e230	572	338	1040	1480	257	7180	3290	687	7270
4	e270	153	e220	572	250	1100	1120	367	21500	3030	293	1170
5	e240	143	e210	562	230	1200	880	401	26500	3500	207	1230
6	e210	142	e200	535	254	2530	593	517	11700	3020	235	700
7	e290	153	e190	535	281	2320	581	460	16200	2760	195	688
8	e330	146	e250	543	426	2320	581	402	25100	2970	172	891
9	e250	130	393	526	403	2370	581	316	16800	2210	189	615
10	e220	136	e380	526	608	6880	572	246	8790	2390	161	610
11	e210	146	e360	590	591	5160	639	232	5200	1760	139	1730
12	e190	202	e350	629	630	2420	581	243	9530	1400	143	1780
13	e190	961	392	600	697	1770	535	306	20800	1090	139	11500
14	e180	1330	414	572	5300	1460	566	1410	38500	2030	192	16900
15	e170	638	e380	562	18300	939	654	3830	14600	5040	4040	7130
16	e160	563	364	553	10800	857	683	3740	6290	3590	14000	4330
17	e150	452	e330	553	3880	733	620	6310	5160	4360	15900	3750
18	e140	361	e320	571	6950	584	580	7910	4730	1890	4040	3270
19	e130	365	e310	572	3880	551	483	5790	4770	798	1890	2450
20	e200	412	e300	572	2610	514	451	3910	4540	583	1180	2430
21	394	437	e320	581	2410	502	469	3710	3920	472	1150	2180
22	606	353	e400	571	2320	484	477	3980	3390	592	1130	1710
23	446	461	e520	562	2000	486	455	3790	3130	606	1120	1360
24	e330	412	582	526	1550	468	426	3030	3400	4960	1110	1010
25	e230	372	839	544	1290	430	417	1930	5660	3470	900	815
26	150	1040	583	638	1150	441	399	1390	5480	1540	637	710
27	136	807	548	482	1050	532	378	1230	4880	976	396	625
28	124	523	904	1200	1040	1580	329	858	4600	1130	295	549
29	123	351	907	2860	---	5700	290	763	3660	972	241	508
30	120	e280	772	2490	---	7020	276	680	3950	939	204	461
31	127	---	704	1270	---	3110	---	533	---	860	225	---
TOTAL	7572	11894	13162	23130	70689	57568	20676	59044	292598	70378	52937	83712
MEAN	244	396	425	746	2525	1857	689	1905	9753	2270	1708	2790
MAX	606	1330	907	2860	18300	7020	2430	7910	38500	5040	15900	16900
MIN	120	130	190	482	230	430	276	232	428	472	139	250
AC-FT	15020	23590	26110	45880	140200	114200	41010	117100	580400	139600	105000	166000

CAL YR 1988 TOTAL 524473 MEAN 1433 MAX 45500 MIN 120 AC-FT 1040000
WTR YR 1989 TOTAL 763360 MEAN 2091 MAX 38500 MIN 120 AC-FT 1514000

e Estimated

07231500 CANADIAN RIVER AT CALVIN, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1950-53, 1960-61, 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1965 to January 1982.

WATER TEMPERATURE: July 1965 to January 1982.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)
NOV 16...	1000	1028	80020	--	3.18	554	633	7.8	9.5	11.5	660
DEC 13...	1400	1028	80020	--	3.28	392	1450	8.1	18.5	9.0	43
MAR 15...	1500	1028	80020	--	3.81	934	1050	8.4	11.0	19.0	72
MAY 03...	1130	1028	80020	--	3.18	252	1540	8.4	15.0	15.5	27
JUN 14...	1230	1028	80020	--	10.74	47900	394	8.3	25.0	23.0	1600
JUL 19...	0914	1028	1028	--	4.09	785	889	8.2	25.0	--	--
SEP 13...	1330	1028	80020	--	7.92	14600	362	7.9	13.5	19.0	920
13...	1331	1028	1028	55.0	7.92	14600	278	7.9	--	--	--
13...	1332	1028	1028	110	7.92	14600	280	8.0	--	--	--
13...	1333	1028	1028	163	7.92	14600	285	8.0	--	--	--
13...	1334	1028	1028	165	7.92	14600	292	8.0	--	--	--
13...	1335	1028	1028	219	7.92	14600	298	8.0	--	--	--
13...	1336	1028	1028	274	7.92	14600	300	8.1	--	--	--
13...	1337	1028	1028	329	7.92	14600	299	8.1	--	--	--
13...	1338	1028	1028	383	7.92	14600	299	8.1	--	--	--
13...	1339	1028	1028	438	7.92	14600	294	8.0	--	--	--
13...	1340	1028	1028	492	7.92	14600	286	8.1	--	--	--

[illegible]

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

07232250 BEAVER RIVER NEAR FELT, OK

LOCATION.-- Lat 36°37'47", long 102°40'52", NE 1/4 NE 1/4 sec.24, T.2 N., R.3 E., Cimarron County, Hydrologic Unit 11100101, on downstream side of pier of bridge on U.S. Highway 64, 8.0 miles northeast of Felt, 11.0 miles southwest of Boise City, and at mile 754.9.

DRAINAGE AREA.-- 879 mi².

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

GAGE.-- Water-stage recorder. Datum of gage 4,246.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor.

AVERAGE DISCHARGE.-- 9 years, 0.89 ft³/s, 645 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 6,160 ft³/s, Aug. 13, 1981, gage height, 10.96 ft. on the basis of step-backwater measurement at gage site; no flow most days.

EXTREMES FOR CURRENT PERIOD.--

Water year	Date	Discharge ft/s	Gage height (ft)	Water year	Date	Discharge ft/s	Gage height (ft)
1981	Aug. 13	6,160	10.96	1986	Aug. 23	107	8.10
1982	June 26	791	8.83	1987	No flow during entire year.		
1983	No flow during entire year.			1988	No flow during entire year.		
1984	July 5	13	7.57	1989	No flow during entire year.		
1985	No flow during entire year.						

No flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	e3.1	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	104	.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	230	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	72	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e1.0	.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	345	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	48	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	980	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	587	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e4.9	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	2.8	.00	65	.00	.00
29	.00	.00	.00	.00	---	.00	.00	1.2	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	73	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	.00	20	.00	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.10	104.00	79.40	2267.90	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	3.23	3.47	2.56	73.2	.000
MAX	.00	.00	.00	.00	.00	.00	.00	73	104	65	980	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	199	206	157	4500	.00

WTR YR 1981 TOTAL 2551.40 MEAN 6.99 MAX 980 MIN .00 AC-FT 5060

e Estimated

ARKANSAS RIVER BASIN

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07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	182.00	0.00	46.00	136.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.005	6.07	.000	1.48	4.53
MAX	.00	.00	.00	.00	.00	.00	.00	.15	182	.00	46	95
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.3	361	.00	91	270

CAL YR 1981 TOTAL 2551.40 MEAN 6.99 MAX 980 MIN .00 AC-FT 5060
WTR YR 1982 TOTAL 364.15 MEAN 1.00 MAX 182 MIN .00 AC-FT 722

e Estimated

ARKANSAS RIVER BASIN

07232250 BEAVER RIVER NEAR FELT, OK,--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
CAL YR 1982	TOTAL	364.15	MEAN	1.00	MAX	182	MIN	.00	AC-FT	722		
WTR YR 1983	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		

ARKANSAS RIVER BASIN

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07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.60	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	e3.1	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.12	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.1	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.3	.00	.00

CAL YR 1983 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1984 TOTAL 3.70 MEAN .010 MAX 3.1 MIN .00 AC-FT 7.3

e Estimated

ARKANSAS RIVER BASIN

07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00

CAL YR 1984	TOTAL 3.70	MEAN .010	MAX 3.1	MIN .00	AC-FT 7.3
WTR YR 1985	TOTAL 0.00	MEAN .000	MAX .00	MIN .00	AC-FT .00

ARKANSAS RIVER BASIN

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07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.4	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.2	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	12	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.4	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	0.00	22.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.60	.000	.71	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	12	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	36	.00	44	.00

CAL YR 1985	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00
WTR YR 1986	TOTAL	40.00	MEAN	.11	MAX	18	MIN	.00	AC-FT	79

ARKANSAS RIVER BASIN

07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00

CAL YR 1986	TOTAL	40.00	MEAN	.11	MAX	18	MIN	.00	AC-FT	79
WTR YR 1987	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00

ARKANSAS RIVER BASIN

297

07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
CAL YR 1987	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		
WTR YR 1988	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		

ARKANSAS RIVER BASIN

07232250 BEAVER RIVER NEAR FELT, OK,--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00

CAL YR 1988	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00
WTR YR 1989	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00

07232500 BEAVER RIVER NEAR GUYMON, OK
(Headwater of the North Canadian River)

LOCATION.-- Lat 36°43'17", long 101°29'21", SW 1/4 SW 1/4 sec.18, T.3 N., R.15 E., Texas County, Hydrologic Unit 11100101, near right bank on downstream side of roadway on U.S. Highway 64 at Dry Sand Draw, 1.2 mi upstream from Goff Creek, 2.5 mi north of Guymon, and at mile 650.7.

DRAINAGE AREA.-- 2,139 mi², which includes that of Dry Sand Draw, and of which 964 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1970, published as North Canadian River near Guymon.

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 2,970.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Natural flow affected by irrigation development. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 52 years, 20.3 ft³/s, 14,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 55,400 ft³/s, June 15, 1964, gage height, 13.68 ft; maximum gage height, 13.82 ft, Sept 23, 1941, from floodmark; no flow in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 9	2345	*8.6	*5.76	No peak greater than base discharge.			

No flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	.00	.00	.60	.0	.00	.86	.00	.00	.00	.00	.00
2	1.4	.00	.00	.60	.00	.00	.86	.00	.00	.00	.00	.00
3	1.2	.00	.00	1.2	.00	.00	.83	.00	.00	.00	.00	.00
4	1.1	.00	.00	1.6	.00	.00	.68	.02	.00	.00	.00	.00
5	1.1	.00	.00	1.5	.00	.00	.68	.0	.00	.00	.00	.00
6	.89	.00	.00	1.1	.00	.00	.75	.00	.00	.00	.00	.00
7	.62	.00	.00	.77	.00	2.9	.68	.00	.00	.00	.00	.00
8	.70	.00	.00	.28	.00	.03	.68	.00	.00	.00	.00	.00
9	.32	.00	.00	.26	.00	.00	.65	.01	1.1	.00	.00	.00
10	.01	.00	.04	.69	.41	.00	.75	.00	2.7	.00	.00	.00
11	.00	.00	.28	1.3	e.80	.00	.86	.00	.52	.00	.00	.0
12	.00	.00	.32	.66	e.55	.00	.96	.04	.06	.00	.00	.0
13	.00	.00	.42	.34	e.30	e.30	1.1	.00	.00	.00	.00	.00
14	.00	.00	.37	.61	e.15	e.65	1.1	.0	.00	.00	.00	.00
15	.00	.00	.18	.90	e.05	1.2	.98	.04	.00	.00	.00	.00
16	.00	.00	.25	.93	1.9	1.2	.97	.06	.00	.00	.00	.00
17	.00	.00	.30	1.3	e1.0	1.3	.79	.64	.00	.00	.00	.00
18	.00	.00	.49	1.1	e1.5	1.2	.63	1.1	.00	.00	.00	.00
19	.00	.00	.82	.56	e1.2	1.2	.50	.38	.00	.00	.00	.00
20	.00	.00	.54	.26	.61	1.2	.49	.00	.00	.00	.00	.00
21	.00	.00	.40	.35	.04	1.4	.34	.00	.00	.00	.00	.00
22	.00	.00	.46	.25	.03	1.1	.14	e.03	.00	.00	.00	.00
23	.00	.00	.43	.22	.48	1.2	.00	.05	.00	.00	.00	.00
24	.00	.00	.31	.16	.00	1.2	.00	.05	.00	.00	.00	.00
25	.00	.00	.46	.32	.00	1.2	.00	.05	.00	.00	.00	.00
26	.00	.00	.70	.37	.00	1.2	.00	.03	.00	.00	.00	.00
27	.00	.00	.32	.41	.00	1.1	.00	.01	.00	.00	.00	.00
28	.00	.00	.04	.69	.00	1.1	.00	.00	.00	.00	.00	.00
29	.00	.00	.07	.55	---	1.1	.00	.00	.00	.00	.00	.00
30	.00	.00	.22	.37	---	.97	.00	.00	.00	.00	.00	.00
31	.00	---	.25	.31	---	.86	---	.00	---	.00	.00	---
TOTAL	8.84	0.00	7.67	20.56	9.02	23.61	16.28	2.51	4.38	0.00	0.00	0.00
MEAN	.29	.00	.25	.66	.32	.76	.54	.081	.15	.00	.00	.00
MAX	1.5	.00	.82	1.6	1.9	2.9	1.1	1.1	2.7	.00	.00	.00
MIN	.00	.00	.00	.16	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	18	.0	15	41	18	47	32	5.0	8.7	.0	.0	.0

CAL YR 1988 TOTAL 1665.31 MEAN 4.55 MAX 968 MIN .00 AC-FT 3300
WTR YR 1989 TOTAL 92.87 MEAN .25 MAX 2.9 MIN .00 AC-FT 184

e Estimated

ARKANSAS RIVER BASIN

07232900 COLDWATER CREEK NR GUYMON, OK

LOCATION.-- Lat 36°34'19", long 101°22'52", NW 1/4 NW 1/4 sec.7, T.1 N., R.16 E., Texas County, Hydrologic Unit 11100103, near left bank on downstream side of pier of bridge on county road, 0.3 mi downstream from Frisco Creek, 4.0 mi east and 7.5 mi south of Guymon, and at mile 18.0.

DRAINAGE AREA.-- 1,903 mi², of which 1,178 mi² is probably noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage 2,870.83 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Natural flow affected by flood retarding structures.

AVERAGE DISCHARGE.-- 9 years, 2.27 ft³/s, 1,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 5,800 ft³/s, June 20, 1982, gage height, 14.34 ft; no flow each year.

EXTREMES FOR CURRENT PERIOD.-- Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 18	0530	*1,840	*13.21	No other peak greater than base discharge.			

No flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	38
14	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	32
15	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	1.8
16	.00	.00	.00	.00	.00	.00	.00	113	e.00	e.00	.00	.72
17	.00	.00	.00	.00	.00	.00	.00	663	e.00	e.00	.00	.07
18	.00	.00	.00	.00	.00	.00	e.00	1500	e.00	e.00	.00	.00
19	.00	.00	.00	.00	.00	.00	e.00	346	e.00	e.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	35	e.00	e.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	e8.0	e.00	e.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	e1.0	e.00	e.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	e.00	e.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	e.00	e.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	e.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2666.00	0.00	0.00	0.00	72.59
MEAN	.00	.00	.00	.00	.00	.00	.00	86.0	.00	.00	.00	2.42
MAX	.00	.00	.00	.00	.00	.00	.00	1500	.00	.00	.00	38
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	.0	.0	.0	.0	5290	.0	.0	.0	144

CAL YR 1988 TOTAL 0.00 MEAN .00 MAX .00 MIN .00 AC-FT .0
WTR YR 1989 TOTAL 2738.59 MEAN 7.50 MAX 1500 MIN .00 AC-FT 5430

e Estimated

07233200 OPTIMA LAKE NEAR HARDESTY, OK

LOCATION.-- Lat 36°39'23", long 101°08'13", in NE 1/4 NE 1/4 sec.8, T.2 N., R.18 E., Texas County, Hydrologic Unit 11100102, in control tower for dam on Beaver River, 4.5 mi northeast of Hardesty, and at mile 623.2.

DRAINAGE AREA.-- 5,029 mi², of which 2,688 mi² is probably noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.-- Reservoir is formed by earth dam having a concrete gate tower with a 12- by 16-foot, 5-inch oblong conduit. Discharges are controlled by two drum-hoist operated tractor-type service gates and a 36-inch low-flow control pipe. Closure for storage was made Oct. 2, 1978. Capacity, 618,500 acre-ft at elevation 2,814.2 ft, maximum pool; 382,500 acre-ft at elevation 2,796.0 ft, uncontrolled spillway crest; 229,500 acre-ft at elevation 2,779.0 ft, top of flood-control pool; 129,000 acre-ft at elevation 2,763.5 ft, top of conservation pool. Figures given herein represent total contents. Reservoir is used for flood control, sediment control, and water supply. Capacity table based on original survey.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 7,610 acre-ft, May 30 to June 2, 1980, elevation, 2,722.90 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 4,780 acre-ft, May 20-22, elevation, 2,720.05 ft; minimum, 1,970 acre-ft, May 13-15, elevation, 2,716.15 ft.

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

2,714	1,060	2,718	3,110
2,715	1,430	2,719	3,870
2,716	1,890	2,720	4,730
2,717	2,450	2,721	5,670

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2710	2510	2340	2310	2280	2280	2250	2060	4600	4510	4000	3640
2	2680	2510	2340	2310	2280	2280	2250	2060	4600	4510	4000	3640
3	2680	2510	2340	2310	2280	2280	2250	2060	4640	4470	4000	3600
4	2680	2510	2340	2310	2280	2280	2220	2060	4640	4470	3950	3600
5	2680	2510	2340	2310	2280	2280	2220	2030	4640	4430	3950	3600
6	2680	2510	2340	2310	2280	2280	2220	2030	4640	4430	3950	3560
7	2680	2510	2340	2310	2280	2280	2220	2030	4600	4380	3950	3560
8	2680	2510	2340	2310	2280	2280	2220	2030	4640	4290	3910	3560
9	2680	2480	2340	2280	2280	2280	2220	2030	4640	4380	3910	3560
10	2680	2480	2340	2280	2280	2280	2220	2000	4640	4340	3870	3600
11	2650	2480	2340	2280	2280	2280	2200	2000	4640	4300	3870	3600
12	2650	2480	2340	2280	2280	2280	2200	2000	4640	4300	3870	3640
13	2610	2450	2340	2280	2280	2280	2200	1970	4640	4300	3870	3640
14	2650	2450	2340	2280	2280	2280	2200	1970	4640	4300	3830	3640
15	2610	2450	2340	2280	2280	2280	2200	1970	4640	4260	3870	3600
16	2610	2450	2340	2280	2280	2280	2200	2030	4640	4260	3870	3600
17	2610	2420	2340	2280	2280	2280	2200	2170	4600	4260	3830	3560
18	2610	2420	2340	2280	2280	2280	2170	2940	4600	4260	3830	3560
19	2610	2420	2340	2280	2280	2280	2170	4380	4560	4210	3790	3490
20	2610	2420	2340	2280	2280	2280	2170	4780	4510	4210	3790	3490
21	2580	2390	2340	2280	2280	2280	2140	4780	4510	4210	3790	3490
22	2580	2390	2340	2280	2280	2280	2140	4780	4560	4170	3790	3450
23	2580	2390	2340	2280	2280	2280	2140	4730	4560	4170	3750	3450
24	2580	2390	2340	2280	2280	2280	2140	4730	4560	4170	3720	3450
25	2550	2390	2340	2280	2280	2280	2110	4730	4560	4130	3720	3410
26	2550	2390	2340	2280	2280	2280	2110	4690	4560	4130	3680	3410
27	2550	2360	2310	2280	2280	2280	2110	4690	4560	4130	3680	3370
28	2550	2360	2310	2280	2280	2280	2080	4690	4560	4130	3680	3340
29	2550	2360	2310	2280	---	2280	2080	4640	4560	4080	3680	3340
30	2550	2360	2310	2280	---	2280	2080	4640	4510	4040	3640	3300
31	2550	---	2310	2280	---	2250	---	4600	---	4040	3640	---
MAX	2710	2510	2340	2310	2280	2280	2250	4780	4640	4510	4000	3640
MIN	2550	2360	2310	2280	2280	2250	2080	1970	4510	4040	3640	3300
(+)	2,717.15	2,716.85	2,716.75	2,716.70	2,716.70	2,716.65	2,716.35	2,719.85	2,719.75	2,719.20	2,718.70	2,718.25
(++)	-160	-190	-50	-30	0	-30	-170	+2,520	-90	-470	-400	-340

CAL YR 1988 MAX 2810 MIN 537 (++) +1,600
WTR YR 1989 MAX 4780 MIN 1970 (++) +590

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK
(Headwater of the North Canadian River)

LOCATION.-- Lat 36°49'20", long 100°31'08", SW 1/4 sec.7, T.4 N., R.24 E., Beaver County, Hydrologic Unit 11100102, near right bank on downstream side of pier of bridge on U.S. Highway 270 at Beaver, 1.1 mi downstream from Home Creek, 5.0 mi upstream from Clear Creek, and at mile 578.0.

DRAINAGE AREA.-- 7,955 mi², of which 4,270 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- March 1904 to December 1905 (gage heights only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as Beaver Creek at Beaver 1904-5, and October 1937 to September 1970 as North Canadian River at Beaver.

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 2,368.16 ft, National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Mar. 29, 1904 to Dec. 31, 1905, nonrecording gage at same vicinity at different datum. Mar. 1, 1938 to Sept. 30, 1946, water-stage recorder at present site at datum 3.0 ft higher.

REMARKS.-- Records good except for periods of ice effect, which are poor. Natural flow affected by irrigation development upstream from station. Minor regulation by Optima Dam (station 07233200) 47.0 mi upstream, since Oct. 1978. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Optima Dam, 41 years (water years 1938-78), 103 ft³/s, 74,620 acre-ft/yr; since regulation by Optima Dam, 11 years (water years 1979-89), 22.9 ft³/s, 16,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 70,000 ft³/s, Oct. 8, 1946, maximum gage height, 14.55 ft by slope-area measurement of peak flow in overflow section and extension of rating curve for main channel above 42,000 ft³/s; no flow at times most years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 4,450 ft³/s, June 11, gage height, 10.20 ft; minimum daily discharge, 0.15 ft³/s, May 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	.28	.95	3.0	4.9	7.6	7.5	2.4	57	214	53	18
2	.21	.30	1.1	3.6	e3.0	7.9	7.2	2.4	55	104	53	15
3	.21	.29	1.2	3.2	e2.2	7.8	6.8	2.0	62	75	31	13
4	.21	.29	1.0	3.9	e2.0	e4.5	6.3	2.6	112	61	25	15
5	.24	.29	1.2	4.0	e1.9	e3.5	6.1	2.2	103	54	20	12
6	.26	.33	1.5	3.5	e1.8	e3.4	6.1	1.3	85	49	19	10
7	.26	.33	1.5	3.2	e1.9	e6.0	6.0	1.2	857	46	18	8.6
8	.26	.33	.92	e1.6	e2.0	9.0	5.6	.85	207	42	17	7.7
9	.24	.26	e.80	e1.4	e2.0	8.1	5.2	.31	119	38	16	7.4
10	.21	.26	e.80	e1.3	e2.2	7.8	5.4	.18	113	35	14	7.8
11	.21	.30	e1.0	e1.4	e3.0	7.7	5.7	.15	2220	34	14	8.8
12	.23	.26	e1.3	e1.5	e4.5	7.8	6.0	.74	1810	34	15	14
13	.20	.29	e1.7	e1.5	e4.9	7.8	6.1	.71	486	103	18	18
14	.19	.30	2.3	e1.2	e5.4	7.8	6.2	.84	277	94	16	18
15	.20	.29	1.8	e1.4	e5.6	6.7	6.0	2.5	551	67	15	30
16	.21	.30	1.2	e1.6	e6.2	6.8	6.0	.67	1280	59	14	55
17	.20	.33	1.6	e2.5	e7.0	6.8	5.4	1150	540	42	18	40
18	.20	.33	2.2	4.2	e7.2	6.4	5.0	1700	258	35	21	32
19	.22	.33	3.3	4.2	e10	6.7	4.9	1830	189	32	17	26
20	.27	.31	3.0	3.7	12	6.6	5.0	1700	150	28	15	21
21	.25	.32	2.4	4.0	10	6.2	4.7	1250	121	26	14	18
22	.24	.33	2.5	4.3	9.0	6.7	4.4	377	124	25	13	16
23	.23	.33	2.3	4.4	8.4	6.9	4.0	237	196	23	12	14
24	.26	.29	1.9	4.1	8.3	6.8	3.5	190	183	30	11	14
25	.24	.28	2.5	5.4	8.2	6.8	3.3	137	131	33	10	13
26	.22	.42	3.4	4.6	8.0	6.5	3.1	110	106	32	9.0	12
27	.23	.44	2.7	4.7	7.9	6.1	2.8	97	97	32	8.3	12
28	.26	.43	e1.4	6.5	7.6	9.6	2.4	87	87	23	7.9	11
29	.27	.73	e1.2	6.3	---	8.8	2.3	76	88	20	7.7	9.9
30	.26	.66	2.0	5.8	---	8.6	2.3	67	206	18	26	9.1
31	.29	---	2.5	6.0	---	7.7	---	61	---	18	32	---
TOTAL	7.22	10.23	55.17	108.0	157.1	219.4	151.3	9156.38	10870	1526	579.9	506.3
MEAN	.23	.34	1.78	3.48	5.61	7.08	5.04	295	362	49.2	18.7	16.9
MAX	.29	.73	3.4	6.5	12	9.6	7.5	1830	2220	214	53	55
MIN	.19	.26	.80	1.2	1.8	3.4	2.3	.15	55	18	7.7	7.4
AC-FT	14	20	109	214	312	435	300	18160	21560	3030	1150	1000

CAL YR 1988 TOTAL 5633.45 MEAN 15.4 MAX 474 MIN .17 AC-FT 11170
WTR YR 1989 TOTAL 23347.00 MEAN 64.0 MAX 2220 MIN .15 AC-FT 46310

e Estimated

ARKANSAS RIVER BASIN

303

07234000 BEAVER RIVER AT BEAVER, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1952, 1958-59, 1962-63, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to January 1982.

WATER TEMPERATURE: October 1967 to January 1982.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
18...	1122	1028	1028	2.18	0.22	6910	8.2	10.5	11.5	--	--	--
NOV												
30...	1400	1028	80020	2.28	0.39	*6190	8.3	7.0	7.5	3.1	703	11.6
JAN												
18...	1430	1028	1028	2.61	9.1	5900	8.3	14.0	6.0	--	--	--
FEB												
01...	1100	1028	80020	2.44	4.0	6450	8.2	-7.0	0.5	3.0	697	13.4
MAR												
16...	1418	1028	1028	2.50	7.6	6510	8.4	22.0	19.0	--	--	--
MAY												
03...	1030	1028	80020	2.27	2.0	6720	8.1	10.0	13.0	1.1	702	9.8
17...	1312	1028	1028	8.05	1390	365	--	20.0	15.5	--	--	--
JUN												
12...	0102	1028	1028	10.06	4180	485	--	18.0	21.0	--	--	--
JUL												
19...	1000	1028	80020	3.22	32	5700	8.3	23.0	22.0	4.7	702	7.5

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS. / 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. / PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03
OCT												
18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
30...	--	K37	190	1300	1000	290	140	850	59	10	7.7	313
JAN												
18...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
01...	104	64	62	890	660	190	100	920	69	13	8.0	279
MAR												
16...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
03...	103	420	160	1000	840	220	120	980	67	13	9.1	254
17...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
12...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
19...	95	130	160	940	690	210	100	840	66	12	12	302

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	0	257	920	1500	0.80	26	3980	3890	5.41	4.19	<0.010	<0.100
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 01...	0	229	630	1600	1.1	19	3670	3610	4.99	40.0	<0.010	<0.100
MAR 16...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	0	208	680	1600	1.4	16	4110	3760	5.59	22.3	<0.010	<0.100
JUN 17...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 19...	0	248	580	1300	1.3	26	3480	3220	4.73	298	<0.010	<0.100

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	0.090	0.080	0.12	0.10	0.41	0.50	0.030	<0.010	0.020	0.06	<10
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 01...	0.040	0.030	0.05	0.04	0.56	0.60	0.010	<0.010	<0.010	--	<10
MAR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	0.050	0.050	0.06	0.06	0.45	0.50	0.010	0.010	0.010	0.03	<10
JUN 17...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
JUL 19...	0.040	0.050	0.05	0.06	0.56	0.60	0.110	0.040	0.040	0.12	<10

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	2	<100	<10	<1.0	<1	<1	<1	40	<5	120	160
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 01...	2	<100	<10	1.0	2	<1	2	30	<5	160	140
MAR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	3	200	<10	1.0	<1	2	2	60	<5	170	110
JUN 17...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
JUL 19...	6	500	<10	<1.0	<1	1	1	20	<1	150	30

ARKANSAS RIVER BASIN

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07234000 BEAVER RIVER AT BEAVER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 18...	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	<0.1	5	1	<1	1.0	5000	19	10	62	0.06	28
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 01...	<0.1	6	1	<1	1.0	4200	19	<10	10	0.11	34
MAR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	0.5	4	2	<1	<1.0	4300	20	10	9	0.05	45
MAY 17...	--	--	--	--	--	--	--	--	--	--	--
JUN 12...	--	--	--	--	--	--	--	--	--	--	--
JUL 19...	<0.1	4	2	<1	<1.0	3800	33	<10	64	5.5	50

07234100 CLEAR CREEK NEAR ELMWOOD, OK

LOCATION.-- Lat 36°38'42", long 100°30'07", SW 1/4 SW 1/4 sec.8, T.2 N., R.24 E., Beaver County, Hydrologic Unit 11100201, on downstream side of concrete pier of county road bridge, 2.0 mi north, 1.2 mi east of Elmwood (revised), and at mile 16.9.

DRAINAGE AREA.-- 170 mi².

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

REVISED RECORDS.-- WSP 2121: 1966.

GAGE.-- Water-stage recorder. Datum of gage is 2,541.26 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Low flows sustained by nearby springs; natural flows affected by diversion ponds and occasional diversion for irrigation.

AVERAGE DISCHARGE.-- 24 years, 6.91 ft³/s, 5,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 20,700 ft³/s, May 17, 1989, gage height, 14.20 ft, from floodmark; no flow at times during diversions for irrigation, 1974.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 17	0500	*20,700	*14.20	June 13	0600	1,830	8.17
June 11	0530	1,100	6.88				

Minimum daily discharge, 1.4 ft³/s, Oct. 2-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.9	1.9	1.9	1.8	1.7	2.4	2.5	7.3	15	2.8	3.2
2	1.4	1.9	1.9	1.9	1.7	1.8	2.5	2.5	7.2	6.0	2.6	e3.1
3	1.4	1.9	1.9	1.9	2.0	1.7	2.5	2.5	7.8	5.5	2.6	e2.9
4	1.4	1.9	1.8	1.8	1.6	1.6	2.6	2.6	7.9	e5.4	2.6	e2.9
5	1.5	1.8	1.9	1.9	1.7	1.6	2.5	2.6	6.5	e5.3	e2.6	e2.8
6	1.5	1.8	1.9	2.0	1.7	1.7	2.6	2.4	6.9	e5.2	e2.8	e2.8
7	1.6	1.9	1.9	2.0	1.7	1.7	2.6	2.4	35	e5.0	e3.0	e2.7
8	1.6	1.8	1.8	1.9	1.8	1.7	2.4	2.3	9.9	e4.9	e2.9	e2.6
9	1.6	1.9	1.9	1.9	1.8	1.8	2.5	2.1	6.3	e4.7	e2.8	e2.7
10	1.5	1.9	1.9	1.8	1.8	1.8	2.8	2.1	5.2	e4.8	e2.7	e2.7
11	1.5	2.0	1.9	1.7	1.9	1.8	2.7	2.2	200	e4.6	e2.8	e2.9
12	1.5	1.9	1.9	1.8	1.9	1.9	2.7	2.7	8.3	9.8	e2.8	e2.9
13	1.5	1.9	1.9	1.7	1.9	1.9	2.7	2.5	686	6.9	e3.0	e3.1
14	1.5	1.9	1.9	1.7	1.9	1.8	2.6	2.5	e84	3.5	e3.1	e2.6
15	1.5	1.9	1.9	1.7	1.9	1.8	2.6	2.5	e17	3.7	e2.8	e2.5
16	1.5	2.0	1.8	1.7	1.8	1.9	2.5	425	e11	3.1	e2.7	e2.6
17	1.5	2.1	1.9	1.7	2.2	1.9	2.4	6660	e8.9	3.4	e2.6	e2.5
18	1.5	2.1	2.0	1.7	2.0	1.9	2.4	1440	e7.7	3.4	e2.6	e2.5
19	1.6	2.0	2.1	1.7	2.0	2.0	2.3	251	e7.2	3.1	e2.6	e2.5
20	1.7	2.0	2.1	1.7	2.0	2.0	2.2	41	e6.8	3.1	e2.5	e2.4
21	1.8	2.0	2.1	1.7	1.8	2.0	2.2	18	e6.6	3.1	e2.6	e2.4
22	1.8	2.0	2.1	1.8	1.8	2.0	2.2	14	e6.8	3.2	e2.6	e2.3
23	1.7	2.0	2.1	1.8	1.8	2.1	2.1	12	e7.2	3.3	e2.5	e2.2
24	1.8	2.0	2.1	1.8	1.8	2.1	2.1	11	e6.2	4.2	2.6	e2.3
25	1.7	1.9	2.1	2.0	1.9	2.2	2.2	9.9	e6.1	3.1	2.7	e2.3
26	1.7	2.0	2.2	1.9	1.8	2.1	2.3	9.2	e6.0	3.0	2.6	e2.4
27	1.8	2.0	2.1	1.9	1.9	2.6	2.3	8.6	e5.8	2.9	2.7	e2.3
28	1.8	2.0	2.1	2.1	1.8	2.5	2.3	8.2	e5.8	2.9	3.0	e2.3
29	1.8	2.0	2.1	1.9	---	2.3	2.3	7.9	6.1	2.7	3.0	e2.2
30	1.8	1.9	2.1	1.9	---	2.4	2.4	7.8	60	2.6	11	e2.3
31	1.9	---	2.0	1.9	---	2.4	---	7.7	---	2.7	3.8	---
TOTAL	49.9	58.3	61.3	56.8	51.7	60.7	72.9	8987.7	1253.5	140.1	94.0	77.9
MEAN	1.61	1.94	1.98	1.83	1.85	1.96	2.43	289	41.8	4.52	3.03	2.60
MAX	1.9	2.1	2.2	2.1	2.2	2.6	2.8	6660	686	15	11	3.2
MIN	1.4	1.8	1.8	1.7	1.6	1.6	2.1	2.1	5.2	2.6	2.5	2.2
AC-FT	99	116	122	113	103	120	145	17790	2490	278	186	155

CAL YR 1988 TOTAL 798.71 MEAN 2.18 MAX 79 MIN .85 AC-FT 1580
WTR YR 1989 TOTAL 10944.8 MEAN 30.0 MAX 6660 MIN 1.4 AC-FT 21710

e Estimated

ARKANSAS RIVER BASIN

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07236500 FORT SUPPLY LAKE NEAR FORT SUPPLY, OK

LOCATION.-- Lat 36°33'14", long 99°34'16", in NE 1/4 SE 1/4 sec.17, T.24 N., R.22 W., Woodward County, Hydrologic Unit 11100203, in control tower at left end of Fort Supply Dam on Wolf Creek, 1.5 mi south of Fort Supply and at mile 5.5.

DRAINAGE AREA.-- 1,735 mi², of which 241 mi² is probably noncontributing.

PERIOD OF RECORD.-- June 1942 to current year. Prior to October 1970, published as Fort Supply Reservoir near Fort Supply.

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Reservoir is formed by an earth dam. Outlet works consist of a 540-foot uncontrolled gravity-type concrete weir, one 36-inch diameter gated bypass, and one 18-foot oval-shaped conduit controlled by three vertical-lift sluice gates. Regulated storage began May 4, 1942; conservation pool first filled in June 1942. Capacity, 100,700 acre-ft at elevation 2,028.0 ft, crest of spillway, 13,890 acre-ft at elevation 2,004.0 ft, conservation pool designated in 1985. No storage below elevation 1,987.0 ft. Figures given herein represent total contents. Reservoir is used for flood control and conservation. Revised capacity table, based on survey in 1969, used since Oct. 1, 1972. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 99,500 acre-ft, June 25, 1957, elevation, 2,028.97 ft; no contents at times November 1942 to January 1943.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 18,640 acre-ft, May 27, elevation, 2,006.34 ft; minimum, 13,470 acre-ft, July 12, elevation 2,003.77 ft, affected by seiche.

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

2,003	12,080	2,006	17,890
2,004	13,890	2,007	20,100
2,005	15,830	2,008	22,490

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13990	13840	14050	14010	14050	14010	14050	13750	14160	13840	13730	13800
2	14050	13820	14060	14050	13870	14120	14050	13730	14060	13780	13750	13820
3	14120	13840	14030	14050	13840	13730	13800	13950	14240	13780	13780	14030
4	14160	13840	14050	14120	13760	13710	13840	13990	14240	13760	13750	13930
5	14240	13820	14050	14030	13690	13730	13850	14010	14300	13760	13670	14060
6	14240	13870	14050	14060	13650	13760	13800	14030	14360	13760	13820	14050
7	14320	13840	13970	14010	13690	13780	13780	14080	14390	13760	14280	14030
8	14300	13890	14030	14030	13730	13840	13760	14030	14470	13750	14470	14030
9	14260	13850	14030	13990	13800	13930	13760	14010	14610	13750	14470	14030
10	14200	13890	14010	14050	13850	13890	13820	14050	14740	13730	14320	14080
11	14160	13950	14030	13950	13890	13890	13800	14060	14590	13650	14200	14160
12	14140	13910	14030	13970	13950	13870	13820	14180	14550	13600	14140	14470
13	14100	13930	14050	14030	13970	13970	13820	14200	14720	13890	14160	14570
14	13990	14030	13990	13990	14030	13870	13760	14240	14960	14050	14140	14780
15	13890	13870	14010	13990	14030	13930	13890	14280	15090	14080	14080	14780
16	13840	13990	14010	14030	13970	14010	13820	14410	15210	14140	14030	14800
17	13800	14080	14030	14030	14030	13850	13780	15190	15150	14120	13950	14700
18	13890	13890	14080	14030	14080	13870	13760	16240	15290	14060	13990	14550
19	13950	14050	14140	14030	14140	13970	13760	16590	15230	13990	13870	14320
20	14120	14080	14050	14050	14180	13820	13750	16630	14960	13910	13870	14180
21	14140	14100	14140	14080	14200	13870	13760	17020	14530	13850	13850	14080
22	14050	14100	14060	14120	14160	13870	13840	17660	14300	13800	13850	13990
23	14030	14100	14030	14050	14160	13950	13710	18160	14120	13760	13840	14010
24	13970	14100	14050	14030	14080	13840	13650	18270	14140	13730	13820	14030
25	13890	14120	14180	14050	14050	13970	13650	18460	14080	13730	13820	14010
26	13870	14120	14050	14060	13990	13930	13710	18580	14010	13730	13800	14030
27	13750	14100	14060	14080	14030	14120	13650	18380	14010	13730	13780	14030
28	13750	14160	14080	14120	14010	14140	13670	17870	13910	13730	13840	14030
29	13750	14060	14080	14160	---	14080	13690	16940	13870	13690	13820	14030
30	13780	14060	14030	14160	---	14160	13690	15790	13850	13650	13850	14050
31	13780	---	14050	14120	---	14240	---	14670	---	13640	13820	---
MAX	14320	14160	14180	14160	14200	14240	14050	18580	15290	14140	14470	14800
MIN	13750	13820	13970	13950	13650	13710	13650	13730	13650	13600	13670	13800
(+)	2003.94	2004.09	2004.08	2004.12	2004.06	2004.18	2003.89	2004.40	2003.98	2003.86	2003.96	2004.08
(++)	-150	+280	-10	+70	-110	+230	-550	+980	-820	-210	+180	+230

CAL YR 1988 MAX 15170 MIN 13470 (++) -250
WTR YR 1989 MAX 18580 MIN 13600 (++) +120

ARKANSAS RIVER BASIN

07237000 WOLF CREEK NEAR FORT SUPPLY, OK

LOCATION.-- Lat 36°34'00", long 99°33'05", SE 1/4 SE 1/4 sec.9, T.24 N., R.22 W., Woodward County, Hydrologic Unit 11100203, on left bank on downstream side of U.S. Highway 270, 1.0 mi southeast of Fort Supply, 1.6 mi downstream from Fort Supply Dam, and at mile 3.9.

DRAINAGE AREA.-- 1,739 mi², of which 241 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1937 to current year. Prior to October 1, 1941, published as "Near Supply".

REVISED RECORDS.-- WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,958.38 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). See WSP 1921 for history of changes prior to Sept. 30, 1962.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow completely regulated since May 1942 by Fort Supply Lake (station 07236500).

AVERAGE DISCHARGE.-- Prior to regulation by Fort Supply Lake, 5 years (water years 1938-42), 104 ft³/s, 73,350 acre-ft/yr; since regulation by Fort Supply Lake, 47 years (water years 1943-89), 55.2 ft³/s, 39,990 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 14,200 ft³/s, June 24, 1939, gage height, 15.60 ft, present datum, from rating curve extended above 8,000 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.-- A stage of 19.6 ft, present datum, was reached prior to October 1937, from information provided by Oklahoma State Highway Department.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 646 ft³/s, May 29, gage height, 8.59 ft; minimum daily discharge, 2.3 ft³/s, Oct. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	28	50	55	72	63	83	22	392	56	20	24
2	2.3	28	49	55	72	63	83	22	134	55	21	24
3	2.3	27	48	55	72	62	83	22	71	50	23	25
4	2.4	27	48	54	e70	61	83	22	68	43	24	24
5	5.2	27	49	54	e70	61	65	22	67	38	25	20
6	29	27	49	54	e40	56	50	22	95	35	25	12
7	60	26	50	54	e18	49	49	21	82	34	28	13
8	60	26	51	54	18	48	48	21	50	33	20	3.4
9	60	25	51	54	17	48	48	23	49	33	30	5.6
10	60	25	51	52	26	48	48	17	76	33	89	5.3
11	59	25	51	52	48	48	48	17	118	33	80	7.6
12	59	24	51	51	49	48	49	16	119	33	55	5.6
13	59	24	51	51	49	48	49	16	80	36	54	3.2
14	59	24	51	51	48	48	49	16	84	32	54	31
15	59	23	50	51	59	48	49	33	135	30	54	66
16	59	23	50	51	71	48	50	55	97	29	54	67
17	35	35	50	51	68	48	50	59	103	36	56	68
18	3.7	50	50	51	52	47	50	57	41	45	59	93
19	2.7	52	50	54	52	47	50	299	91	45	59	119
20	2.7	52	50	54	51	47	50	354	221	44	59	93
21	29	51	50	53	57	46	49	170	216	44	59	60
22	57	51	49	53	70	46	49	53	215	44	40	45
23	57	51	50	53	71	46	49	28	187	45	40	30
24	57	51	50	53	70	46	49	27	86	37	41	30
25	57	51	50	53	70	46	49	27	86	27	35	33
26	58	51	50	53	71	46	38	27	85	27	25	32
27	58	51	50	53	69	46	25	149	84	27	25	31
28	44	51	52	53	64	61	23	335	86	26	27	33
29	29	51	55	53	---	82	23	504	72	25	25	34
30	29	51	55	61	---	83	22	626	57	25	24	34
31	29	---	55	72	---	83	---	617	---	24	24	---
TOTAL	1186.0	1108	1566	1668	1564	1667	1510	3699	3347	1124	1254	1071.7
MEAN	38.3	36.9	50.5	53.8	55.9	53.8	50.3	119	112	36.3	40.5	35.7
MAX	60	52	55	72	72	83	83	626	392	56	89	119
MIN	2.3	23	48	51	17	46	22	16	41	24	20	3.2
AC-FT	2350	2200	3110	3310	3100	3310	3000	7340	6640	2230	2490	2130

CAL YR 1988 TOTAL 22309.43 MEAN 61.0 MAX 191 MIN .57 AC-FT 44250
WTR YR 1989 TOTAL 20764.7 MEAN 56.9 MAX 626 MIN 2.3 AC-FT 41190

e Estimated

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK

LOCATION.-- Lat 36°26'12", long 99°16'41", SW 1/4 SW 1/4 sec.30, T.23 N., R.19 W., Woodward County, Hydrologic Unit 11100301, near right bank on downstream side of pier of bridge on State Highway 15, 200 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 6.0 mi east of Woodward, 7.2 mi upstream from Indian Creek, 27.5 mi downstream from Wolf Creek, and at mile 460.2.

DRAINAGE AREA.-- 11,589 mi², of which 4,812 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1903 to September 1905 (gage heights only), October 1905 to June 1906, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as Canadian River (North Fork) near Woodward 1903-06. Gage-height records collected in this vicinity since 1919 are contained in reports of National Weather Service.

REVISED RECORDS.-- WSP 1341: Drainage area. WSP 1731: 1951(M).

GAGE.-- Water-stage recorder. Datum of gage is 1,829.95 ft above National Geodetic Vertical Datum of 1929. Prior to July 1906, nonrecording gage at railway bridge 200 ft upstream at different datum. Oct. 1, 1938 to Oct. 26, 1943, nonrecording gage and Oct. 27, 1943 to July 12, 1951, water-stage recorder, at site 7.8 mi upstream at datum 37.01 ft higher than present datum.

REMARKS.-- Records good except for estimated winter periods which are poor. Some regulation since May 1942 by Fort Supply Lake (station 07236500) on Wolf Creek, 33.0 mi upstream. Flow regulated since October 1978 by Optima Lake (station 07233200), 163.0 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Optima Lake, 40 years (water years 1939-78), 194 ft³/s, 140,600 acre-ft/yr; since regulation by Optima Lake, 11 years (water years 1979-89), 127 ft³/s, 92,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 42,000 ft³/s Oct. 10, 1946, gage height, 9.80 ft, site and datum then in use; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of Oct. 12, 1923, reached a stage of 11.0 ft, site and datum then in use; from reports of National Weather Service.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 3,090 ft³/s, May 23, gage height, 10.72 ft; minimum daily discharge, 22 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	51	76	84	102	123	173	60	907	360	177	157
2	26	49	75	84	102	124	172	58	707	338	174	203
3	23	49	72	84	e84	124	170	60	497	333	175	196
4	22	47	71	84	e74	e100	167	98	452	343	168	189
5	24	44	72	82	e66	e80	159	83	424	309	167	166
6	24	44	72	81	e64	e78	138	74	513	283	186	149
7	37	45	71	83	e64	116	120	67	589	263	679	131
8	63	44	70	82	e68	117	116	64	494	248	412	122
9	73	44	73	83	e80	108	110	58	442	235	253	115
10	77	44	75	82	e90	107	108	52	667	223	245	106
11	77	46	74	80	e92	107	108	49	782	210	247	120
12	76	46	76	80	e92	108	109	59	719	201	220	123
13	75	46	77	79	e94	106	113	54	917	228	217	168
14	74	45	76	79	e98	104	113	52	841	554	224	168
15	74	46	75	79	100	100	115	49	1190	1120	228	184
16	75	45	74	80	109	99	116	62	1520	754	221	203
17	74	46	76	82	126	99	114	146	2000	512	212	201
18	62	48	74	87	124	98	110	401	1980	413	207	195
19	39	60	75	86	115	96	107	697	1310	363	195	209
20	42	71	77	86	115	99	105	944	1270	323	177	228
21	33	72	77	84	112	95	105	1330	971	294	168	204
22	35	70	78	83	117	97	103	1920	791	272	179	174
23	61	71	78	83	124	98	102	2950	757	257	167	153
24	65	75	77	85	125	100	99	2590	700	248	161	135
25	68	75	78	86	126	98	100	2160	591	239	159	128
26	73	75	80	85	128	99	98	1420	551	235	146	125
27	73	76	78	85	129	114	94	729	520	220	132	123
28	74	77	77	89	127	133	76	675	470	214	126	119
29	66	77	79	86	---	158	68	749	443	206	136	119
30	53	76	83	88	---	175	64	819	394	193	128	119
31	51	---	83	93	---	176	---	915	---	184	131	---
TOTAL	1716	1704	2349	2594	2847	3436	3452	19442	24409	10175	6417	4732
MEAN	55.4	56.8	75.8	83.7	102	111	115	627	814	328	207	158
MAX	77	77	83	93	129	176	173	2950	2000	1120	679	228
MIN	22	44	70	79	64	78	64	49	394	184	126	106
AC-FT	3400	3380	4660	5150	5650	6820	6850	38580	48420	20180	12730	9390
CAL YR 1988	TOTAL 55395	MEAN 151	MAX 556	MIN 16	AC-FT 109900							
WTR YR 1989	TOTAL 83273	MEAN 228	MAX 2950	MIN 22	AC-FT 165200							

e Estimated

ARKANSAS RIVER BASIN

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1955, 1958-59, 1961-63, 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to January 1982.

WATER TEMPERATURE: October 1974 to January 1982.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FW L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
OCT 11...	1255	1028	1028	--	3.35	77	1470	8.3	17.0	15.5	--	--
NOV 29...	1500	1028	80020	--	3.43	76	*1450	7.9	10.5	7.0	27	714
JAN 31...	1500	1028	80020	--	3.54	94	1500	8.2	24.0	11.0	18	700
MAR 13...	1200	1028	80020	--	3.61	101	1810	8.2	10.5	13.0	--	--
22...	1000	1028	80020	--	3.58	101	*1590	8.3	6.0	6.0	31	714
MAY 04...	1200	1028	80020	--	3.56	104	1450	8.0	24.5	18.0	98	710
19...	1230	1028	1028	--	6.73	702	470	--	27.0	20.0	--	--
21...	1530	1028	1028	--	8.60	1350	330	--	31.0	24.5	--	--
23...	1530	1028	1028	--	10.71	2990	430	7.8	31.5	27.0	--	--
JUL 18...	1430	1028	80020	--	5.47	414	1760	8.2	29.0	29.5	130	712
SEP 06...	1200	1028	80020	--	3.90	154	1870	8.2	28.0	26.0	97	711
06...	1201	1028	1028	10.0	--	--	1870	8.2	--	26.5	--	--
06...	1202	1028	1028	20.0	--	--	1870	8.2	--	26.0	--	--
06...	1203	1028	1028	30.0	--	--	1870	8.2	--	26.0	--	--
06...	1204	1028	1028	40.0	--	--	1870	8.2	--	26.5	--	--

*SPECIFIC CONDUCTANCE, LAB (US/CM)

[illegible]

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible][illegible]

ARKANSAS RIVER BASIN

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

07238000 NORTH CANADIAN RIVER NEAR SEILING, OK

LOCATION.-- Lat 36°11'00", long 98°55'15", in NW 1/4 sec.28, T.20 N., R.16 W., Major County, Hydrologic Unit 11100301, near center of span on downstream side of pier of bridge on U.S. Highway 60, 2.0 mi upstream from Seiling Creek, 2.2 mi north of Seiling, 2.8 mi downstream from Deep Creek, and at mile 422.6.

DRAINAGE AREA.-- 12,261 mi², of which 4,847 mi is probably noncontributing.

PERIOD OF RECORD.-- July 1946 to current year.

REVISED RECORDS.-- WSP 1341: Drainage area. WSP 1731: 1951 (M).

GAGE.-- Water-stage recorder. Datum of gage is 1,675.53 ft above National Geodetic Vertical Datum of 1929. July 1, 1946 to Aug. 17, 1964, at site 60 ft downstream and prior to Oct. 1, 1954, at datum 5.00 ft higher.

REMARKS.-- Records good except for estimated winter periods which are poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation since May 1942 by Fort Supply Lake (station 07236500) on Wolf Creek, 70.6 mi upstream. Flow regulated since October 1978 by Optima Lake (07233200), 201.0 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Optima Lake, 32 years (water years 1947-78), 215 ft³/s, 155,800 acre-ft/yr; since regulation by Optima Lake, 11 years (water years 1979-89), 164 ft³/s, 118,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 33,000 ft³/s, May 19, 1951, gage height, 15.61 ft, present datum; maximum gage height, 16.00 ft, Oct. 11, 1946, present datum; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,510 ft³/s, May 27, gage height, 11.81 ft; minimum daily discharge, 36 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	68	102	105	120	158	226	86	986	495	218	169
2	38	69	101	105	124	158	219	84	968	453	215	192
3	37	69	101	107	70	159	209	83	827	423	218	230
4	36	70	98	106	e66	145	201	96	777	412	215	318
5	37	68	98	107	e62	e110	197	115	689	409	209	255
6	37	66	101	102	e62	e95	190	101	617	373	296	224
7	42	66	100	101	e62	e115	171	93	1180	342	299	197
8	48	65	96	101	e67	146	150	87	1150	317	773	175
9	69	66	96	98	e78	145	140	81	752	299	535	217
10	78	67	99	102	e90	138	136	75	620	285	342	170
11	78	69	101	107	e100	136	135	72	763	269	317	206
12	77	74	102	104	e110	137	139	80	907	258	312	244
13	76	74	104	101	e125	136	139	90	862	262	296	541
14	75	74	103	103	e140	135	145	93	1050	302	292	442
15	75	75	101	102	147	128	145	86	954	562	293	326
16	76	73	100	103	136	124	144	85	1080	957	294	292
17	76	73	101	106	146	122	147	166	1230	789	281	288
18	73	72	102	108	159	118	143	680	1420	560	273	272
19	69	75	103	110	157	117	135	620	1760	460	266	258
20	64	90	101	108	150	118	131	740	1990	403	252	266
21	59	97	101	108	151	119	130	834	1580	361	227	284
22	52	102	102	109	144	117	127	1040	1280	330	212	265
23	48	104	101	109	142	119	123	1180	1050	313	227	227
24	64	104	102	107	147	121	118	1420	963	298	213	207
25	73	103	100	110	149	122	114	1970	824	298	204	190
26	75	104	102	113	151	122	112	2400	707	303	196	182
27	78	103	102	115	154	137	114	2410	694	284	183	178
28	78	103	99	123	159	237	109	1690	645	261	170	173
29	79	104	98	127	---	233	95	901	588	246	208	167
30	77	103	102	123	---	220	88	848	547	232	191	165
31	70	---	105	119	---	229	---	857	---	226	177	---
TOTAL	1955	2450	3124	3349	3368	4416	4372	19163	29460	11782	8404	7320
MEAN	63.1	81.7	101	108	120	142	146	618	982	380	271	244
MAX	79	104	105	127	159	237	226	2410	1990	957	773	541
MIN	36	65	96	98	62	95	88	72	547	226	170	165
AC-FT	3880	4860	6200	6640	6680	8760	8670	38010	58430	23370	16670	14520

CAL YR 1988 TOTAL 74445 MEAN 203 MAX 760 MIN 14 AC-FT 147700
WTR YR 1989 TOTAL 99163 MEAN 272 MAX 2410 MIN 36 AC-FT 198700

e Estimated

07238500 CANTON LAKE NEAR CANTON, OK

LOCATION.-- Lat 36°05'03", long 98°36'05", in SE 1/4 NE 1/4 sec.32, T.19 N., R.13 W., Blaine County, Hydrologic Unit 11100301, near right end of Canton Dam on North Canadian River, 2.0 mi northwest of Canton, and at mile 394.3.

DRAINAGE AREA.-- 12,483 mi², of which 4,883 mi² is probably noncontributing.

PERIOD OF RECORD.-- April 1948 to current year. Prior to October 1970, published as Canton Reservoir near Canton.

REVISED RECORDS.-- WSP 1341: Drainage area.

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

REMARKS.-- Reservoir is formed by an earth dam. The outlet works consists of a concrete gravity, chute-type weir spillway controlled by 16 taintor gates with net length of 640 ft, three sluice gates and two 24-inch valved pipes. Regulated storage began Apr. 15, 1948; conservation pool was first filled July 4, 1948. Capacity, 377,100 acre-ft at elevation 1,638.0 ft (flood-control pool), 109,700 acre-ft at elevation 1,615.2 ft. (Normal water-supply pool designated in 1965), 93,180 acre-ft at elevation 1,613.0 ft (crest of spillway), and 14,140 acre-ft at elevation 1,596.5 ft (conservation pool). Figures given herein represent total contents. Reservoir was designed for flood control, irrigation, and conservation, but owing to a lack of facilities, it is not being used for irrigation at this time. Revised capacity table, based on survey in 1980, used since Oct. 1, 1981. U.S. Army Corps of Engineers' satellite telemeter at site.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 258,600 acre-ft, May 25, 1951, elevation, 1,628.05 ft; minimum since conservation pool was first filled, 867 acre-ft, May 5, 1955, elevation, 1,585.66 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 155,700 acre-ft, June 25, elevation, 1,620.46 ft; minimum, 79,680 acre-ft, Oct. 1, elevation, 1,611.05 ft.

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

1,611	79,350	1,617	124,400
1,613	93,180	1,619	142,000
1,615	108,200	1,621	161,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80290	81960	85090	90110	96530	103100	113100	112200	130500	151100	117800	112000
2	80290	82360	85360	90320	97710	103500	113400	112300	131500	150200	117000	112300
3	80150	82530	85430	90390	96750	103900	113700	112100	132700	149100	115900	112100
4	80220	82500	85640	90390	96670	104100	113700	112900	134400	148000	115200	113200
5	80220	82440	85710	90890	96670	104400	113700	112800	135300	147200	115400	113300
6	80100	82380	85980	90890	96750	104400	113700	112500	136100	146400	115800	113600
7	80420	82440	86400	91180	96820	104600	113400	112200	138000	145100	115400	113500
8	80430	82240	86190	91250	96970	104800	113500	112300	139800	143600	114800	113200
9	80550	82620	86260	91460	97120	105100	113700	111900	141600	141900	114700	113500
10	80550	82620	86470	90960	97260	105400	113400	111600	142700	140300	114500	113200
11	80620	82910	86670	92180	97410	105800	113400	111600	142800	138800	114200	113600
12	80610	83040	86810	91960	97640	106200	113400	112300	143500	138800	115200	114700
13	80200	83110	86540	92110	97930	106300	113400	112500	145200	139000	116600	115500
14	80420	82830	87300	92320	98230	106600	113500	112600	145800	138100	117300	116000
15	80890	82830	87300	92530	98600	106700	113200	112700	145900	137300	117400	116000
16	80930	83040	87370	92610	98830	106700	113400	113000	146200	136300	117000	115600
17	81130	82630	87440	92890	99050	107100	113600	114400	146700	136200	116500	114800
18	81050	83310	87300	92960	99430	107300	113600	115000	147500	135700	115800	114000
19	81210	84000	87720	93390	99720	107300	113500	115900	148000	134500	115200	113300
20	81690	83650	87860	93390	100000	107600	113400	116900	148700	133000	115000	112700
21	81760	83790	88070	93390	100400	107900	113400	117600	150000	131400	114400	112500
22	81830	83790	88210	93540	100700	107900	113200	118700	151700	130100	113700	112800
23	81860	83790	88560	93830	101000	108100	113100	118700	154000	128500	113000	112300
24	81730	84060	88560	94120	101300	108300	113200	119200	155600	127500	112600	112500
25	81860	84470	88420	94780	101600	108400	113600	120100	155500	126200	112200	112700
26	81720	84540	89050	94710	101900	108400	113300	121300	155000	124900	111800	112700
27	82030	84680	89260	95070	102400	111500	113000	123000	154700	123600	111400	112700
28	81850	84610	89260	95650	102800	111200	112900	125200	154000	122400	111600	113000
29	81960	84890	89750	95800	---	111700	112700	127200	153200	121000	111700	113200
30	82070	85020	89750	96020	---	112500	112700	128000	152200	119800	111800	113300
31	82230	---	89820	96310	---	112600	---	129000	---	118400	111800	---
MAX	82230	85020	89820	96310	102800	112600	113700	129000	155600	151100	117800	116000
MIN	80100	81960	85090	90110	96530	103100	112700	111600	130500	118400	111400	112000
(+)	1611.43	1611.84	1612.53	1613.43	1614.30	1615.56	1615.58	1617.54	1620.09	1616.28	1615.46	1615.65
(++)	+2,210	+2,790	+4,800	+6,490	+6,490	+9,800	+100	+16,300	+23,200	-33,800	-6,600	+1,500

CAL YR 1988 MAX 119900 MIN 78040 (++) -21,380
WTR YR 1989 MAX 155600 MIN 80100 (++) +33,280

ARKANSAS RIVER BASIN

360544098354701 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 1

LOCATION.-- Lat 36°05'44", long 98°35'47".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Samples were collected in a Kemmerer sampler. Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
NOV										
01...	1100	1028	80020	1.00	82100	1780	8.6	14.5	13	718
01...	1115	1028	1028	5.00	82100	1780	8.6	14.5	--	718
01...	1200	1028	80020	10.0	82100	1780	8.6	14.5	15	718
01...	1215	1028	1028	15.0	82100	1780	8.6	14.5	--	718
01...	1223	1028	1028	20.0	82100	1780	8.6	14.5	--	718
01...	1230	1028	80020	24.0	82100	1770	8.5	14.5	17	718
MAR										
24...	1330	1028	80020	1.00	108000	1790	8.5	9.5	18	712
24...	1335	1028	1028	5.00	108000	1800	8.6	9.0	--	712
24...	1345	1028	1028	10.0	108000	1830	8.6	9.0	--	712
24...	1350	1028	80020	15.0	108000	1820	8.6	9.0	16	712
24...	1400	1028	1028	20.0	108000	1900	8.7	9.0	--	712
24...	1405	1028	1028	25.0	108000	1890	8.7	9.0	--	712
24...	1410	1028	80020	28.0	108000	1870	8.7	8.5	17	712
JUN										
28...	1340	1028	80020	1.00	154000	1520	8.7	27.0	5.7	718
28...	1345	1028	1028	5.00	154000	1520	8.7	27.0	--	718
28...	1350	1028	1028	10.0	154000	1520	8.7	26.5	--	718
28...	1355	1028	80020	15.0	154000	1520	8.5	26.0	5.5	718
28...	1400	1028	1028	20.0	154000	1500	8.3	24.0	--	718
28...	1405	1028	1028	25.0	154000	1540	8.3	23.5	--	718
28...	1409	1028	80020	33.0	154000	1550	8.2	23.0	13	718
SEP										
19...	1412	1028	80020	1.00	114000	1610	8.5	20.5	9.8	722
19...	1415	1028	1028	5.00	114000	1600	8.5	20.5	--	722
19...	1418	1028	1028	10.0	114000	1600	8.5	20.5	--	722
19...	1421	1028	80020	15.0	114000	1600	8.5	20.5	8.9	722
19...	1424	1028	1028	20.0	114000	1600	8.5	21.0	--	722
19...	1427	1028	1028	25.0	114000	1600	8.5	20.0	--	722
19...	1430	1028	80020	28.0	114000	1600	8.5	20.0	31	722

ARKANSAS RIVER BASIN

317

360544098354701 CANTON LAKE CROSECTION N01 NEAR DAM SITE N01--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO
NOV									
01...	10.2	107	420	270	89	47	190	49	4
01...	10.0	105	--	--	--	--	--	--	--
01...	9.2	96	420	--	90	48	190	49	4
01...	8.8	92	--	--	--	--	--	--	--
01...	8.3	87	--	--	--	--	--	--	--
01...	7.6	80	440	--	93	50	190	48	4
MAR									
24...	10.7	101	460	280	110	46	180	45	4
24...	10.5	98	--	--	--	--	--	--	--
24...	10.4	97	--	--	--	--	--	--	--
24...	10.4	97	470	--	110	47	180	45	4
24...	10.4	97	--	--	--	--	--	--	--
24...	10.5	98	--	--	--	--	--	--	--
24...	10.5	97	470	--	110	47	180	45	4
JUN									
28...	10.0	134	390	210	95	38	160	46	4
28...	10.2	137	--	--	--	--	--	--	--
28...	10.1	134	--	--	--	--	--	--	--
28...	7.2	95	410	--	98	39	160	46	3
28...	6.2	79	--	--	--	--	--	--	--
28...	5.9	74	--	--	--	--	--	--	--
28...	5.8	72	410	--	97	40	170	47	4
SEP									
19...	8.1	96	400	220	99	38	180	49	4
19...	8.0	94	--	--	--	--	--	--	--
19...	8.0	94	--	--	--	--	--	--	--
19...	8.0	94	400	--	98	38	170	47	4
19...	7.9	94	--	--	--	--	--	--	--
19...	7.8	91	--	--	--	--	--	--	--
19...	7.5	88	390	--	96	37	170	48	4

ARKANSAS RIVER BASIN

360544098354701 CANTON LAKE CROSSECTION N01 NEAR DAM SITE N01--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
NOV									
01...	6.1	162	10	149	330	280	1070	1030	1.46
01...	--	--	--	--	--	--	--	--	--
01...	6.1	--	--	--	330	250	1080	1010	1.47
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	6.1	--	--	--	330	280	1070	1040	1.46
MAR									
24...	5.9	204	13	189	330	270	1100	1060	1.50
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	5.9	--	--	--	330	270	1110	1050	1.51
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	5.9	--	--	--	330	270	1110	1050	1.51
JUN									
28...	7.1	197	11	180	250	220	946	878	1.29
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	7.0	--	--	--	250	220	946	885	1.29
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	6.9	--	--	--	260	230	971	914	1.32
SEP									
19...	7.2	215	5	184	250	260	975	945	1.33
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	7.0	--	--	--	250	260	997	933	1.36
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	7.2	--	--	--	240	250	981	910	1.33

ARKANSAS RIVER BASIN

319

360558098351501 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 2

LOCATION.-- Lat 36°05'58", long 98°35'16".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1244	1028	1028	1.00	82100	1780	8.8	14.5	718	9.9	104
01...	1247	1028	1028	5.00	82100	1780	8.8	14.5	718	9.4	99
01...	1250	1028	1028	10.0	82100	1780	8.6	14.5	718	9.5	100
01...	1253	1028	1028	15.0	82100	1770	8.8	14.5	718	9.2	98
01...	1256	1028	1028	20.0	82100	1780	8.6	14.5	718	8.8	90
01...	1259	1028	1028	22.0	82100	1780	8.5	14.5	718	8.0	83
MAR											
24...	1425	1028	1028	1.00	108000	1860	8.6	9.5	712	10.7	101
24...	1428	1028	1028	5.00	108000	1870	8.6	9.0	712	10.6	99
24...	1431	1028	1028	10.0	108000	1860	8.8	9.0	712	10.4	97
24...	1433	1028	1028	15.0	108000	1860	8.6	9.0	712	10.3	96
24...	1435	1028	1028	20.0	108000	1830	8.6	9.0	712	10.2	95
24...	1438	1028	1028	26.0	108000	1860	8.6	8.5	712	10.2	94
JUN											
28...	1420	1028	1028	1.00	154000	1520	8.6	26.5	718	10.1	134
28...	1423	1028	1028	5.00	154000	1530	8.6	26.5	718	9.6	128
28...	1426	1028	1028	10.0	154000	1530	8.4	25.0	718	7.0	91
28...	1429	1028	1028	15.0	154000	1530	8.4	25.0	718	6.6	85
28...	1433	1028	1028	20.0	154000	1550	8.3	23.5	718	6.0	75
28...	1437	1028	1028	25.0	154000	1550	8.2	23.0	718	5.5	69
28...	1440	1028	1028	34.0	154000	1550	8.2	23.0	718	4.9	61
SEP											
19...	1442	1028	1028	1.00	114000	1610	8.6	21.0	722	8.0	95
19...	1445	1028	1028	5.00	114000	1600	8.5	20.5	722	8.1	96
19...	1448	1028	1028	10.0	114000	1610	8.5	20.5	722	8.0	94
19...	1451	1028	1028	15.0	114000	1610	8.5	20.5	722	8.0	94
19...	1454	1028	1028	20.0	114000	1610	8.5	20.5	722	7.8	92
19...	1457	1028	1028	27.0	114000	1610	8.5	20.0	722	7.7	90

ARKANSAS RIVER BASIN

360612098344001 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 3

LOCATION.-- Lat 36°06'12", long 98°34'40".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1310	1028	1028	1.00	82100	1780	8.6	15.0	718	9.8	104
01...	1314	1028	1028	5.00	82100	1770	8.6	15.0	718	9.4	100
01...	1318	1028	1028	10.0	82100	1770	8.6	15.0	718	9.5	101
01...	1321	1028	1028	15.0	82100	1780	8.6	15.0	718	9.5	101
01...	1325	1028	1028	20.0	82100	1770	8.6	15.0	718	9.2	97
MAR											
24...	1452	1028	1028	1.00	108000	1810	8.6	10.0	712	10.8	103
24...	1455	1028	1028	5.00	108000	1800	8.6	10.0	712	10.8	103
24...	1459	1028	1028	10.0	108000	1810	8.6	10.0	712	10.8	103
24...	1502	1028	1028	17.0	108000	1810	8.6	9.5	712	10.6	100
JUN											
28...	1447	1028	1028	1.00	154000	1530	8.6	28.5	718	10.0	133
28...	1450	1028	1028	5.00	154000	1540	8.5	25.0	718	9.4	122
28...	1453	1028	1028	10.0	154000	1550	8.3	24.0	718	7.0	89
28...	1456	1028	1028	15.0	154000	1550	8.3	23.5	718	6.3	79
28...	1458	1028	1028	20.0	154000	1560	8.3	23.5	718	5.9	74
28...	1500	1028	1028	28.0	154000	1560	8.2	23.0	718	5.2	65
SEP											
19...	1500	1028	1028	1.00	114000	1610	8.5	20.5	722	8.1	96
19...	1503	1028	1028	5.00	114000	1610	8.5	20.5	722	8.2	97
19...	1506	1028	1028	10.0	114000	1610	8.5	20.5	722	8.2	97
19...	1509	1028	1028	15.0	114000	1610	8.5	20.5	722	8.1	96
19...	1512	1028	1028	20.0	114000	1610	8.5	20.5	722	8.0	94
19...	1515	1028	1028	25.0	114000	1610	8.5	20.5	722	7.9	93

ARKANSAS RIVER BASIN

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360744098364101 CANTON LAKE CROSS SECTION NO. 2 SITE NO. 1

LOCATION.-- Lat 36°07'44", long 98°36'41".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1347	1028	1028	1.00	82100	1780	8.6	14.5	718	9.4	98
01...	1350	1028	1028	5.00	82100	1780	8.6	14.5	718	9.2	98
01...	1355	1028	1028	10.0	82100	1780	8.6	14.0	718	9.1	94
MAR											
24...	1518	1028	1028	1.00	108000	1800	8.7	10.5	712	11.2	108
24...	1520	1028	1028	5.00	108000	1800	8.6	10.0	712	11.2	107
24...	1522	1028	1028	10.0	108000	1800	8.6	9.5	712	11.1	105
24...	1524	1028	1028	17.0	108000	1800	8.6	9.0	712	10.8	101
JUN											
28...	1515	1028	1028	1.00	154000	1510	8.6	27.0	718	9.4	126
28...	1519	1028	1028	5.00	154000	1500	8.6	26.5	718	9.4	125
28...	1523	1028	1028	10.0	154000	1500	8.6	26.5	718	8.9	118
28...	1527	1028	1028	15.0	154000	1510	8.3	24.5	718	5.5	71
28...	1530	1028	1028	22.0	154000	1550	8.2	23.5	718	5.4	68
SEP											
19...	1525	1028	1028	1.00	114000	1610	8.7	21.5	722	9.2	111
19...	1528	1028	1028	5.00	114000	1610	8.7	21.5	722	9.1	110
19...	1531	1028	1028	10.0	114000	1610	8.7	21.0	722	9.0	107
19...	1534	1028	1028	15.0	114000	1610	8.6	21.0	722	8.9	106
19...	1537	1028	1028	19.0	114000	1610	8.6	21.0	722	8.2	98

ARKANSAS RIVER BASIN

360808098362101 CANTON LAKE CROSS SECTION NO. 2 SITE NO. 2

LOCATION.-- Lat 36°08'08", long 98°36'21".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1400	1028	1028	1.00	82100	1770	8.6	14.0	718	9.5	98
01...	1402	1028	1028	5.00	82100	1770	8.6	14.0	718	9.4	97
01...	1405	1028	1028	10.0	82100	1780	8.6	14.0	718	9.4	97
MAR											
24...	1535	1028	1028	1.00	108000	1800	8.7	11.0	712	11.3	110
24...	1538	1028	1028	5.00	108000	1800	8.6	10.0	712	11.2	107
24...	1540	1028	1028	10.0	108000	1800	8.6	9.5	712	11.2	106
24...	1542	1028	1028	15.0	108000	1800	8.6	9.5	712	11.0	104
24...	1545	1028	1028	10.0	108000	1800	8.6	9.5	712	10.8	102
JUN											
28...	1535	1028	1028	1.00	154000	1500	8.6	27.0	718	9.0	121
28...	1538	1028	1028	5.00	154000	1480	8.5	26.5	718	8.8	117
28...	1541	1028	1028	10.0	154000	1400	8.2	25.5	718	5.4	70
28...	1543	1028	1028	15.0	154000	1550	8.3	24.0	718	5.6	71
28...	1545	1028	1028	23.0	154000	1550	8.2	23.5	718	5.1	64
SEP											
19...	1540	1028	1028	1.00	114000	1610	8.6	21.5	722	9.0	108
19...	1543	1028	1028	5.00	114000	1610	8.6	21.5	722	9.2	111
19...	1546	1028	1028	10.0	114000	1610	8.6	21.0	722	9.0	107
19...	1549	1028	1028	15.0	114000	1610	8.6	21.0	722	9.0	107
19...	1552	1028	1028	20.0	114000	1610	8.6	21.0	722	8.3	99

ARKANSAS RIVER BASIN

323

360828098360501 CANTON LAKE CROSS SECTION NO. 2 SITE NO. 3

LOCATION.-- Lat 36°08'28", long 98°36'05".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.--

Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1410	1028	1028	1.00	82100	1750	8.7	14.0	718	10.4	108
01...	1413	1028	1028	5.00	82100	1760	8.7	14.0	718	10.3	107
01...	1417	1028	1028	10.0	82100	1770	8.7	14.0	718	10.2	106
MAR											
24...	1550	1028	1028	1.00	108000	1790	8.7	13.0	712	11.0	112
24...	1552	1028	1028	5.00	108000	1790	8.7	11.0	712	11.2	109
24...	1554	1028	1028	12.0	108000	1800	8.7	10.5	712	11.1	107
JUN											
28...	1551	1028	1028	1.00	154000	1540	8.5	27.0	718	8.0	107
28...	1553	1028	1028	5.00	154000	1530	8.4	26.0	718	7.7	101
28...	1555	1028	1028	10.0	154000	1530	8.3	24.5	718	5.8	72
28...	1558	1028	1028	16.0	154000	1550	8.2	23.5	718	5.0	63
SEP											
19...	1555	1028	1028	1.00	114000	1610	8.6	21.5	722	9.3	112
19...	1558	1028	1028	5.00	114000	1610	8.6	21.0	722	9.2	110
19...	1601	1028	1028	10.0	114000	1610	8.6	21.0	722	9.2	110
19...	1604	1028	1028	15.0	114000	1610	8.6	21.0	722	8.7	104

ARKANSAS RIVER BASIN

360809098391601 CANTON LAKE CROSS SECTION NO. 3 SITE NO. 1

LOCATION.-- Lat 36°08'09", long 98°39'16".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1400	1028	1028	1.00	82100	1770	8.6	14.0	718	9.5	98
01...	1402	1028	1028	5.00	82100	1770	8.6	14.0	718	9.4	97
01...	1405	1028	1028	10.0	82100	1780	8.6	14.0	718	9.4	97
MAR											
24...	1535	1028	1028	1.00	108000	1800	8.7	11.0	712	11.3	110
24...	1538	1028	1028	5.00	108000	1800	8.6	10.0	712	11.2	107
24...	1540	1028	1028	10.0	108000	1800	8.6	9.5	712	11.2	106
24...	1542	1028	1028	15.0	108000	1800	8.6	9.5	712	11.0	104
24...	1545	1028	1028	18.0	108000	1800	8.6	9.5	712	10.8	102
JUN											
28...	1535	1028	1028	1.00	154000	1500	8.6	27.0	718	9.0	121
28...	1538	1028	1028	5.00	154000	1480	8.5	28.5	718	8.8	117
28...	1541	1028	1028	10.0	154000	1400	8.2	25.5	718	5.4	70
28...	1543	1028	1028	15.0	154000	1550	8.3	24.0	718	5.6	71
28...	1545	1028	1028	23.0	154000	1550	8.2	23.5	718	5.1	64
SEP											
19...	1540	1028	1028	1.00	114000	1610	8.6	21.5	722	9.0	108
19...	1543	1028	1028	5.00	114000	1610	8.6	21.5	722	9.2	111
19...	1546	1028	1028	10.0	114000	1610	8.6	21.0	722	9.0	107
19...	1549	1028	1028	15.0	114000	1610	8.6	21.0	722	9.0	107
19...	1552	1028	1028	20.0	114000	1610	8.6	21.0	722	8.3	99

1

360809098391601 - CANTON LAKE CROSECTION N03 UPPER LAKE SITE N01

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1420	1028	1028	1.00	82100	1760	8.6	14.5	718	9.9	104
01...	1423	1028	1028	5.00	82100	1760	8.6	14.5	718	9.6	101
MAR											
24...	1612	1028	1028	1.00	108000	1840	8.7	11.0	712	11.1	108
24...	1614	1028	1028	5.00	108000	1840	8.7	10.5	712	11.1	107
24...	1616	1028	1028	8.00	108000	1840	8.6	10.5	712	10.8	104
JUN											
28...	1612	1028	1028	1.00	154000	1420	8.5	27.5	718	9.8	133
28...	1616	1028	1028	5.00	154000	1410	8.5	27.0	718	9.6	129
28...	1618	1028	1028	12.0	154000	1380	8.3	26.5	718	2.0	27
SEP											
19...	1610	1028	1028	1.00	114000	1590	8.8	21.5	722	9.8	118
19...	1613	1028	1028	5.00	114000	1590	8.8	21.5	722	9.6	116
19...	1616	1028	1028	9.00	114000	1600	8.7	21.5	722	9.3	112

ARKANSAS RIVER BASIN

325

360828098390701 CANTON LAKE CROSS SECTION NO. 3 SITE NO. 2

LOCATION.-- Lat 36°08'28", long 98°39'07".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1427	1028	1028	1.00	82100	1740	8.7	14.0	718	10.3	107
01...	1430	1028	1028	5.00	82100	1750	8.7	14.0	718	10.1	105
MAR											
24...	1623	1028	1028	1.00	108000	1810	8.7	11.0	712	11.1	108
24...	1625	1028	1028	5.00	108000	1820	8.7	10.5	712	11.1	107
24...	1628	1028	1028	8.00	108000	1830	8.6	10.5	712	10.8	104
JUN											
28...	1625	1028	1028	1.00	154000	1410	8.5	27.5	718	9.6	130
28...	1628	1028	1028	5.00	154000	1400	8.5	27.5	718	9.2	125
28...	1631	1028	1028	14.0	154000	1380	8.0	26.0	718	7.6	100
SEP											
19...	1620	1028	1028	1.00	114000	1610	8.7	21.5	722	9.4	113
19...	1623	1028	1028	5.00	114000	1610	8.7	21.5	722	9.2	111
19...	1626	1028	1028	11.0	114000	1600	8.6	21.5	722	9.1	110

ARKANSAS RIVER BASIN

360844098390000 CANTON LAKE CROSS SECTION NO. 3 SITE NO. 3

LOCATION.-- Lat 36°08'44", long 98°39'00".

PERIOD OF RECORD.-- Water years 1980 to current year.

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAM- PLING DEPTH (FEET)	RESER- VOIR STORAGE (AC-FT)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV											
01...	1437	1028	1028	1.00	82100	1710	8.7	14.5	718	10.5	110
01...	1440	1028	1028	5.00	82100	1690	8.7	14.0	718	10.1	105
MAR											
24...	1631	1028	1028	1.00	108000	1790	8.6	11.5	712	11.1	110
24...	1633	1028	1028	5.00	108000	1790	8.6	9.5	712	11.2	106
24...	1635	1028	1028	8.00	108000	1860	8.6	9.5	712	11.1	105
JUN											
28...	1638	1028	1028	1.00	154000	1410	8.5	27.5	718	9.0	122
28...	1640	1028	1028	5.00	154000	1390	8.4	27.5	718	8.9	120
28...	1642	1028	1028	10.0	154000	1370	8.3	27.0	718	5.9	79
28...	1644	1028	1028	16.0	154000	1520	8.1	24.5	718	3.9	50
SEP											
19...	1630	1028	1028	1.00	114000	1590	8.7	21.5	722	9.5	114
19...	1633	1028	1028	5.00	114000	1580	8.7	21.5	722	9.4	113
19...	1636	1028	1028	12.0	114000	1590	8.7	21.5	722	8.6	104

07239000 NORTH CANADIAN RIVER AT CANTON, OK

LOCATION.-- Lat 36°04'45", long 98°35'25", in NE 1/4 SW 1/4 sec.33, T.19 N., R.13 W., Blaine County, Hydrologic Unit 11100301, on right bank 2,700 ft downstream from Canton Lake, 1.5 mi northwest of Canton, 4.8 mi upstream from Minnehaha Creek, and at mile 393.8.

DRAINAGE AREA.-- 12,484 mi², of which 4,883 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1914 are contained in reports of National Weather Service.

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,562.50 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1937 to Jan. 5, 1955, water-stage recorder at site 2.5 mi downstream at datum 1.91 ft lower prior to Oct. 1, 1950 and at datum 6.91 ft lower thereafter.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow partly regulated by Fort Supply Lake (station 07238500) for period May 1942 to April 1948 and completely regulated thereafter by Canton Lake (station 07238500). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Canton Lake, 11 years (water years 1938-48), 256 ft³/s, 185,500 acre-ft/yr; since regulation by Canton Lake, 41 years (water years 1949-89), 161 ft³/s, 116,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 24,800 ft³/s, Oct. 12, 1946, gage height, 12.83 ft, site and datum then in use; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of Oct. 13, 1923, reached a stage of 16.8 ft, at site 300 ft upstream from former site at datum 1.91 ft lower than present datum, from reports of National Weather Service.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,090 ft³/s, July 12; gage height, 8.89 ft; minimum daily discharge, 2.7 ft³/s, Mar. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	3.6	4.5	4.1	4.6	3.8	5.0	83	171	975	703	49
2	4.3	3.8	4.4	4.1	4.6	3.9	5.1	36	301	963	618	51
3	4.0	3.8	4.4	4.0	5.3	3.6	72	4.6	583	951	580	51
4	4.0	4.0	4.4	4.1	4.7	4.6	125	6.3	292	940	404	51
5	3.8	3.9	4.0	4.0	5.3	5.8	125	69	246	756	208	50
6	3.6	3.5	3.5	4.1	5.2	5.1	124	110	419	654	256	50
7	5.0	3.7	3.8	4.2	4.8	4.1	124	108	14	937	343	103
8	3.5	3.9	4.0	3.8	4.3	4.1	117	108	14	978	427	136
9	3.6	4.1	3.8	3.9	3.8	5.2	112	108	14	967	423	137
10	3.5	3.1	3.8	4.4	3.6	5.1	111	108	256	953	427	137
11	3.6	3.2	3.8	5.2	3.8	4.9	110	46	654	939	381	137
12	3.8	3.1	3.8	4.8	3.9	4.4	110	4.9	662	984	347	107
13	4.1	3.1	3.9	5.0	4.1	2.7	110	4.6	259	766	160	32
14	e3.9	3.5	4.0	5.0	4.1	3.2	85	4.7	331	706	32	31
15	e4.0	4.3	4.2	5.0	4.1	3.7	85	5.0	664	800	121	271
16	e3.7	3.9	4.1	5.0	4.3	3.4	85	5.9	665	790	426	564
17	e3.9	4.1	4.1	5.0	4.8	3.6	86	6.6	667	784	517	551
18	e3.4	3.8	4.1	5.2	4.7	4.3	86	7.2	670	903	508	540
19	e3.6	4.1	4.1	5.2	4.7	4.1	86	11	837	1020	494	532
20	e5.4	3.8	4.1	5.2	4.7	4.9	86	16	960	1000	491	436
21	e4.1	3.8	4.1	4.7	4.1	5.3	86	17	968	989	488	332
22	e3.9	3.8	4.1	4.8	4.3	5.2	85	234	980	972	478	218
23	e3.8	3.8	4.2	4.8	4.4	5.1	85	572	400	957	469	34
24	e4.1	3.8	4.1	4.7	4.3	4.9	85	575	162	944	341	34
25	e3.9	4.1	4.4	5.1	3.9	4.8	85	588	990	930	248	50
26	e3.7	4.2	4.5	4.7	3.6	4.6	85	600	999	913	243	63
27	e3.8	4.0	4.4	4.7	4.4	6.5	85	608	1000	895	239	54
28	e3.6	4.1	3.8	5.4	3.9	5.3	85	629	994	875	139	47
29	e3.4	4.4	3.5	5.0	---	5.0	84	658	989	853	50	39
30	3.4	4.4	4.8	4.8	---	5.6	83	672	984	831	48	39
31	3.8	---	4.3	4.4	---	5.4	---	558	---	809	49	---
TOTAL	120.9	114.7	127.0	144.4	122.3	142.2	2697.1	6561.8	17145	27734	10658	4926
MEAN	3.90	3.82	4.10	4.66	4.37	4.59	89.9	212	571	895	344	164
MAX	5.4	4.4	4.8	5.4	5.3	6.5	125	672	1000	1020	703	564
MIN	3.4	3.1	3.5	3.8	3.6	2.7	5.0	4.6	14	654	32	31
AC-FT	240	228	252	286	243	282	5350	13020	34010	55010	21140	9770

CAL YR 1988 TOTAL 76753.5 MEAN 210 MAX 1180 MIN 3.1 AC-FT 152200
WTR YR 1989 TOTAL 70493.4 MEAN 193 MAX 1020 MIN 2.7 AC-FT 139800

e Estimated

ARKANSAS RIVER BASIN

07239300 NORTH CANADIAN RIVER BELOW WEAVERS CREEK NEAR WATONGA, OK

LOCATION.-- Lat 35°48'43", long 98°25'14", NE 1/4, NE 1/4, sec.1, T.15 N., R.12 W., Blaine County, Hydrologic Unit 11100301, near right abutment on downstream side of U.S. Highway 281 (revised), 2.0 mi south of intersection of U.S. Highway 281 and State Highway 33 and at mile 361.2.

DRAINAGE AREA.-- 12,736 mi², of which 4,899 mi² is probably noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage is 1,453.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- No estimated daily discharges. Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 6 years, 212 ft³/s, 153,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 9,740 ft³/s, Oct. 3, 1986, gage height, 19.24; minimum daily discharge, 5.0 ft³/s, Sept. 26-27, 1985.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,980 ft³/s, June 6, gage height, 15.19 ft; minimum daily discharge, 14 ft³/s, Nov. 5-8, Feb. 3, 5-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	17	16	19	24	24	46	108	506	962	811	77
2	20	16	16	19	19	23	41	107	280	949	693	78
3	19	16	16	19	14	23	37	77	436	941	659	72
4	18	16	16	19	15	19	68	50	692	928	608	497
5	19	14	16	19	14	17	134	46	296	919	413	182
6	20	14	16	19	14	18	140	80	732	708	341	100
7	220	14	17	19	14	26	140	140	1210	758	423	86
8	61	14	17	18	17	24	138	145	317	913	458	131
9	35	15	16	16	19	22	130	144	154	952	489	178
10	29	15	17	19	23	21	128	143	107	938	484	182
11	25	16	17	20	25	20	127	144	368	925	493	180
12	22	23	18	18	26	19	129	105	833	913	457	323
13	21	22	18	17	24	19	126	68	811	938	472	684
14	19	19	17	19	24	19	126	57	320	892	271	221
15	19	20	17	19	25	18	123	43	473	800	123	117
16	20	16	17	19	24	18	121	44	685	814	214	384
17	19	15	17	20	26	18	119	50	678	797	522	634
18	17	16	16	19	31	16	119	60	681	789	646	621
19	18	17	18	19	29	17	118	61	684	904	569	619
20	21	19	18	18	29	18	117	43	833	988	556	618
21	21	19	16	18	28	18	117	37	915	982	554	531
22	19	19	18	19	25	18	118	30	926	972	550	477
23	18	19	18	19	22	18	117	232	1480	957	542	300
24	17	19	17	19	22	18	115	553	460	942	536	116
25	16	18	17	25	22	18	115	570	420	929	404	96
26	16	18	18	28	22	18	118	584	958	923	356	95
27	17	18	19	24	22	133	118	597	1000	901	345	105
28	16	17	20	32	24	627	116	600	985	884	337	94
29	17	17	19	35	---	156	113	624	979	863	197	83
30	17	16	19	29	---	75	112	662	971	842	97	74
31	17	---	19	26	---	58	---	649	---	824	82	---
TOTAL	862	514	536	648	623	1556	3386	6853	20190	27747	13702	7955
MEAN	27.5	17.1	17.3	20.9	22.2	50.2	113	221	673	895	442	265
MAX	220	23	20	35	31	627	140	662	1480	988	811	684
MIN	16	14	16	16	14	16	37	30	107	708	82	72
AC-FT	1690	1020	1060	1290	1240	3090	6720	13590	40050	55040	27180	15780

CAL YR 1988 TOTAL 92654 MEAN 253 MAX 1000 MIN 10 AC-FT 183800
WTR YR 1989 TOTAL 84562 MEAN 232 MAX 1480 MIN 14 AC-FT 167700

ARKANSAS RIVER BASIN

329

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK

LOCATION.-- Lat 35°36'59", long 98°03'57", in NW 1/4 SW 1/4 of sec.9, T.13 N., R.8 W., Canadian County, Hydrologic Unit 11100301, near left bank on downstream side of county road bridge, 1 mi north and 3 mi east of Calumet, and at mile 293.9.

DRAINAGE AREA.-- 12,962 mi², of which 4,899 is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,326.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Some regulation by Fort Supply Lake (station 07236500) for period May 1942 to April 1948 and by Canton Lake (station 07238500) thereafter. U.S. Geological Survey's satellite telemeter located at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 2,980 ft³/s, Sept. 13, 1989, gage height, 12.99 (from HWM) ft; minimum daily discharge, 27 ft³/s, Jan. 22-24, Mar. 25, 26, 1989.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,980 ft³/s, Sept. 13, gage height, 12.99 ft (from HWM); minimum daily discharge, 27 ft³/s, Jan. 22-24, Mar. 25, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	41	36	33	48	41	178	131	686	958	789	127
2	89	41	37	32	44	41	151	131	594	981	779	380
3	87	40	37	32	42	41	142	131	337	893	729	258
4	84	39	37	32	44	39	135	129	948	899	702	631
5	81	38	37	31	46	40	132	105	871	878	656	717
6	80	37	36	31	44	42	166	90	488	864	530	437
7	238	37	38	30	45	37	168	85	1890	710	399	228
8	625	37	37	30	44	41	169	137	2730	758	472	163
9	240	36	36	30	42	40	165	140	1160	868	469	154
10	151	36	36	30	38	39	161	141	645	868	531	192
11	e105	36	36	29	37	36	156	140	458	855	521	194
12	89	154	36	29	40	34	154	146	625	844	527	401
13	e78	104	37	29	39	33	152	142	1480	847	508	2250
14	e70	76	37	29	40	32	151	124	1390	977	571	2370
15	e64	61	36	28	42	31	149	105	600	1030	577	857
16	e62	51	34	28	42	30	147	89	593	828	329	670
17	e60	48	34	29	45	30	146	82	736	818	261	672
18	e58	44	34	29	49	29	144	89	734	789	507	769
19	53	42	33	29	57	28	144	93	736	778	655	735
20	52	41	32	29	60	29	142	107	740	849	656	709
21	52	41	32	28	59	29	142	82	820	945	620	691
22	51	43	33	27	57	28	140	68	901	885	613	613
23	50	44	31	27	51	28	138	62	1280	874	604	513
24	47	44	31	27	45	28	138	105	1700	871	586	361
25	45	44	31	43	42	27	135	409	747	860	559	200
26	43	44	31	49	41	27	135	516	634	854	421	168
27	42	44	32	51	40	36	134	549	1050	846	377	153
28	41	44	32	52	40	1380	133	589	1150	838	359	156
29	41	43	32	60	---	1020	132	593	1030	832	347	149
30	41	39	33	66	---	494	131	611	971	804	245	134
31	41	---	33	57	---	255	---	626	---	789	160	---
TOTAL	2949	1469	1067	1086	1263	4065	4410	6527	28704	26670	16059	16052
MEAN	95.1	49.0	34.4	35.0	45.1	131	147	211	957	860	518	535
MAX	625	154	38	66	60	1380	178	626	2730	1030	789	2370
MIN	41	36	31	27	37	27	131	62	337	710	160	127
AC-FT	5850	2910	2120	2150	2510	8060	8750	12950	56930	52900	31850	31840

WTR YR 1989 TOTAL 110321 MEAN 302 MAX 2730 MIN 27 AC-FT 218800

e Estimated

07239450 NORTH CANADIAN RIVER NEAR CALUMET. OK--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- August 1988 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to September 1989.

pH: October 1988 to September 1989.

WATER TEMPERATURE: October 1988 to September 1989.

DISSOLVED OXYGEN: October 1988 to September 1989.

INSTRUMENTATION.-- Water-quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instruments. Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 1,880 microsiemens, Aug. 22, 1989; minimum recorded, 275 microsiemens, Sept. 13, 1989.

pH: Maximum recorded, 9.4 units, Sept. 25, 1989; minimum recorded, 7.1 units, Nov. 6, 1988.

WATER TEMPERATURE: Maximum recorded, 31.5°C, May 23, 1989; minimum recorded, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum recorded, 15.0 mg/l, March 23, 1989; minimum recorded, 3.1 mg/l, July 15, 1989.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 1.880 microsiemens, Aug. 22; minimum recorded, 275 microsiemens, Sept. 13.

pH: Maximum recorded (more than 20 percent missing record), 9.4 units, Sept. 25; minimum recorded, 7.1 units, Nov. 6.

WATER TEMPERATURE: Maximum recorded (more than 20 percent missing record), 39.4 units, Sept. 26; minimum recorded, 7.1 units, Nov. 6. days during winter months.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 15.0 mg/l, March 23; minimum recorded, 3.1 mg/l, July 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, (PERCENT SATURATION)
AUG 08 ...	1500	1028	80020	--	--	--	--	--	--	--	--
SEP 07 ...	1230	1028	80020	5.91	1280	8.2	26.5	20.5	730	9.9	115

[illegible]

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
AUG 08...	18	1000	1050	1.47	<0.010	<0.100	0.020	0.03	0.020	0.06
SEP 07...	--	--	--	--	<0.010	<0.100	0.020	0.03	0.020	0.06

[illegible]

ARKANSAS RIVER BASIN

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07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
AUG 08...	4	<0.1	<10	<10	<1	<1.0	1200	9	29	11
SEP 07...	--	--	--	--	--	--	--	--	--	6.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
OCT											
18...	1200	1028	80020	--	6.38	57	1700	8.3	13.0	15.5	--
18...	1201	1028	9999	--	6.38	57	1700	8.3	13.0	15.5	2.6
NOV											
30...	1200	1028	80020	--	6.20	38	1590	8.2	7.0	5.5	--
30...	1201	1028	9999	--	6.20	38	1590	8.2	7.0	5.5	2.2
DEC											
20...	1100	1028	80020	--	6.14	32	1520	8.0	12.5	5.5	--
20...	1101	1028	9999	--	6.14	32	1520	8.0	12.5	5.5	1.3
JAN											
17...	1300	1028	80020	--	6.10	29	1570	8.3	11.0	6.0	--
17...	1301	1028	9999	--	6.10	29	1570	8.3	11.0	6.0	2.7
FEB											
14...	1230	1028	80020	--	6.24	41	1340	8.4	2.5	1.5	--
14...	1231	1028	9999	--	6.24	41	1340	8.4	2.5	1.5	160
MAR											
28...	1130	1028	80020	--	10.94	1660	384	8.0	20.0	17.0	--
28...	1131	1028	9999	--	10.94	1660	384	8.0	20.0	17.0	730
APR											
12...	1100	1028	80020	--	7.22	156	1660	8.6	21.0	9.0	--
12...	1101	1028	9999	--	7.22	156	1660	8.6	21.0	9.0	19
MAY											
10...	1040	1028	80020	--	7.06	140	1720	8.5	21.5	20.0	--
10...	1041	1028	9999	--	7.06	140	1720	8.5	21.5	20.0	45
JUN											
19...	1000	1028	1028	5.00	9.28	728	1530	8.3	27.0	24.5	--
19...	1001	1028	1028	10.0	9.28	728	1510	8.4	27.0	24.5	--
19...	1002	1028	1028	30.0	9.28	728	1500	8.4	27.0	24.5	--
19...	1003	1028	1028	50.0	9.28	728	1490	8.4	27.0	24.5	--
19...	1004	1028	1028	70.0	9.28	728	1490	8.3	27.0	24.5	--
19...	1100	1028	80020	--	9.28	728	1490	8.4	27.0	24.5	--
19...	1101	1028	9999	--	9.28	728	1490	8.4	27.0	24.5	40
JUL											
05...	1310	1028	1028	--	9.98	877	1520	8.4	33.0	29.0	--
18...	0900	1028	80020	--	9.63	798	1490	--	25.0	27.5	--
18...	0901	1028	9999	--	9.63	798	1490	--	25.0	27.5	35
AUG											
21...	1230	1028	80020	--	8.70	615	1520	8.4	29.5	26.5	--
21...	1231	1028	9999	--	8.70	615	1520	8.4	29.5	26.5	37

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT											
18...	730	8.8	93	--	--	--	--	--	--	--	--
18...	730	8.8	93	--	--	10	--	--	--	--	--
NOV											
30...	740	12.1	99	--	3.0	--	--	520	120	52	160
30...	740	12.1	99	--	--	100	10	--	--	--	--
DEC											
20...	730	13.2	110	--	3.2	--	--	--	--	--	--
20...	730	13.2	110	--	--	1300	1200	--	--	--	--
JAN											
17...	730	14.9	126	--	2.2	--	--	--	--	--	--
17...	730	14.9	126	--	--	10	--	--	--	--	--
FEB											
14...	730	13.4	100	--	1.8	--	--	470	110	48	140
14...	730	13.4	100	--	--	30	1900	--	--	--	--
MAR											
28...	720	5.6	61	--	10	--	--	--	--	--	--
28...	720	5.6	61	--	--	83000	37000	--	--	--	--
APR											
12...	720	13.6	125	--	3.3	--	--	--	--	--	--
12...	720	13.6	125	--	--	20	100	--	--	--	--
MAY											
10...	730	9.0	104	--	5.0	--	--	490	110	51	190
10...	730	9.0	104	--	--	60	40	--	--	--	--
JUN											
19...	740	8.8	109	--	--	--	--	--	--	--	--
19...	740	8.9	111	--	--	--	--	--	--	--	--
19...	740	8.9	111	--	--	--	--	--	--	--	--
19...	740	8.9	111	--	--	--	--	--	--	--	--
19...	740	8.9	111	--	--	--	--	--	--	--	--
19...	740	8.7	108	--	2.0	--	--	--	--	--	--
19...	740	8.7	108	--	--	200	100	--	--	--	--
JUL											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	720	6.6	89	--	2.0	--	--	--	--	--	--
18...	720	6.6	89	3.1	--	100	100	--	--	--	--
AUG											
21...	720	7.8	103	--	3.0	--	--	410	100	38	170
21...	720	7.8	103	1.2	--	200	400	--	--	--	--

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)
OCT											
18...	--	--	--	<0.010	--	<0.100	--	--	--	0.21	0.070
18...	2	--	--	--	--	<0.020	0.200	0.26	0.01	0.21	0.070
NOV											
30...	--	--	--	--	--	--	--	--	--	--	--
30...	8	--	--	<0.020	--	<0.020	0.00	0.0	1.4	1.4	0.220
DEC											
20...	--	--	--	0.010	0.03	<0.100	--	--	--	--	--
20...	2	--	--	<0.010	--	--	0.430	0.55	0.48	0.91	0.050
JAN											
17...	--	0.120	0.53	0.020	0.07	0.140	0.060	0.08	--	--	--
17...	1	--	--	--	--	--	--	--	--	--	--
FEB											
14...	--	0.450	2.0	0.040	0.13	0.490	0.210	0.27	--	--	--
14...	394	--	--	--	--	--	0.210	0.27	0.11	0.32	0.120
MAR											
28...	--	0.480	2.1	0.050	0.16	0.530	0.850	1.1	--	--	--
28...	1630	--	--	--	--	--	--	--	--	1.8	0.210
APR											
12...	--	--	--	0.020	0.07	<0.100	0.100	0.13	--	--	--
12...	56	--	--	--	--	--	--	--	--	--	--
MAY											
10...	--	--	--	<0.010	--	<0.100	0.040	0.05	--	--	--
10...	180	--	--	<0.010	--	<0.050	0.060	0.08	0.45	0.51	0.060
JUN											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	0.830	3.7	0.010	0.03	0.840	0.050	0.08	--	--	--
19...	134	--	--	<0.010	--	--	0.080	0.10	1.2	1.3	0.290
JUL											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	<0.010	--	<0.100	0.020	0.03	--	--	--
18...	148	--	--	--	--	0.060	--	--	--	3.0	--
AUG											
21...	--	--	--	<0.010	--	0.280	0.070	0.09	--	--	--
21...	64	0.380	1.7	0.010	0.03	0.390	0.070	0.09	0.73	0.80	0.290

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
18...	--	--	--	--	--	--	--	--	--	--	5.9
18...	--	--	--	--	--	--	--	--	--	--	--
NOV											
30...	50	60	<0.1	<10	<10	<1	<1.0	1200	<6	35	6.2
30...	--	--	--	--	--	--	--	--	--	--	--
DEC											
20...	--	--	--	--	--	--	--	--	--	--	5.1
20...	--	--	--	--	--	--	--	--	--	--	--
JAN											
17...	--	--	--	--	--	--	--	--	--	--	6.2
17...	--	--	--	--	--	--	--	--	--	--	--
FEB											
14...	44	93	<0.1	<10	<10	<1	<1.0	1000	<6	9	4.9
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
28...	--	--	--	--	--	--	--	--	--	--	47
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
10...	53	5	<0.1	<10	<10	<1	1.0	1300	8	8	7.1
10...	--	--	--	--	--	--	--	--	--	--	--
JUN											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	9.5
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
05...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	11
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	45	3	<0.1	10	<10	<1	<1.0	1100	9	60	8.7
21...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
SEP												
25...	0800	1028	80020	7.22	200	1540	8.6	10.5	15.0	--	730	10.4
25...	0801	1028	9999	7.22	200	1540	8.6	10.5	15.0	19	730	10.4

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)
SEP												
25...	108	7.0	--	--	--	<0.010	0.220	0.040	0.05	0.090	0.28	7.9
25...	108	--	50	400	96	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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DATE	TRI- THION, TOTAL, TOM MA- 2 4-D, TOTAL (UG/L)	2 4-D, TOM MA- TOTAL (UG/KG)	2 4-DP TOM MA- TOTAL (UG/L)	2 4,5-T TOM MA- TOTAL (UG/L)	2 4,5-T TOM MA- TOTAL (UG/KG)	SILVEX, TOM MA- TOTAL (UG/L)	SILVEX, TOM MA- TOTAL (UG/KG)
08.	< 0.1	< 0.01	< 0.1	< 0.01	< 0.1	< 0.01	< 0.1
AUG							

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NOV 30	FEB 14	MAY 10	AUG 21	DATE
CHLOR-NAPH-THA-POLY-LENES, TOTAL, ALDRIN, TOM MA-ALDRIN, TOTAL, (UG/L)	<0.10	<0.10	<0.10	<0.10	DI-AZINON, TOM MA-AZINON, TOTAL, (UG/L)
CHLOR-DANE, TOM MA-CHLOR-DANE, TOTAL, (UG/KG)	<0.1	<0.1	<0.1	<0.1	DI-ELDRIN, TOM MA-ELDRIN, TOTAL, (UG/L)
CHLOR-DANE, TOM MA-CHLOR-DANE, TOTAL, (UG/L)	<0.1	<0.1	<0.1	<0.1	DI-SYSTEM, TOM MA-DI-SYSTEM, TOTAL, (UG/L)
CHLOR-DANE, TOM MA-CHLOR-DANE, TOTAL, (UG/KG)	<1.0	<0.001	<1.0	<1.0	DI-ELDRIN, TOM MA-ELDRIN, TOTAL, (UG/KG)
DDD, TOM MA-DDD, TOTAL, (UG/L)	<0.001	<0.001	<0.001	<0.001	ENDO-SULFAN, TOM MA-ENDO-SULFAN, TOTAL, (UG/L)
DDD, TOM MA-DDD, TOTAL, (UG/KG)	<0.1	--	<0.1	0.1	ENDO-ELDRIN, TOM MA-ENDO-ELDRIN, TOTAL, (UG/L)
DDE, TOM MA-DDE, TOTAL, (UG/L)	<0.001	<0.001	<0.001	<0.001	ETHION, TOM MA-ETHION, TOTAL, (UG/KG)
DDE, TOM MA-DDE, TOTAL, (UG/KG)	<0.1	--	<0.1	0.1	ETHION, TOM MA-ETHION, TOTAL, (UG/L)
DDT, TOM MA-DDT, TOTAL, (UG/L)	<0.001	<0.001	<0.001	<0.001	DDT, TOM MA-DDT, TOTAL, (UG/KG)
DDT, TOM MA-DDT, TOTAL, (UG/KG)	<0.1	--	<0.1	0.1	DDT, TOM MA-DDT, TOTAL, (UG/L)

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07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	1740	1730	1730	1620	1600	1610	1520	1490	1500
2	---	---	---	1750	1730	1730	1630	1610	1620	1520	1500	1510
3	---	---	---	1750	1720	1730	1640	1600	1620	1530	1500	1510
4	---	---	---	1760	1720	1740	1650	1620	1630	1530	1500	1520
5	---	---	---	1730	1450	1650	1650	1600	1630	1520	1490	1510
6	---	---	---	1760	472	963	1640	1620	1620	1540	1500	1520
7	---	---	---	1360	652	931	1620	1590	1610	1550	1520	1550
8	---	---	---	1650	1370	1500	1620	1590	1600	1560	1550	1560
9	---	---	---	---	---	---	1640	1600	1630	1570	1540	1560
10	---	---	---	---	---	---	1640	1600	1620	1570	1530	1550
11	---	---	---	---	---	---	1630	1600	1620	1560	1520	1540
12	---	---	---	---	---	---	1610	1590	1600	1560	1550	1570
13	1420	1230	1330	---	---	---	1610	1580	1560	1590	1570	1580
14	---	---	---	---	---	---	1600	1570	1580	1580	1560	1570
15	1720	1670	1700	---	---	---	1600	1560	1590	1590	1550	1570
16	1730	1710	1720	1500	1410	1460	1600	1570	1560	1590	1550	1570
17	1730	1670	1700	1530	1500	1510	1590	1560	1580	1570	1540	1550
18	1700	1680	1690	1560	1510	1530	1590	1560	1580	1570	1550	1560
19	1720	1680	1700	1580	1500	1560	1600	1580	1590	1570	1540	1560
20	1730	1710	1720	1550	1490	1530	1610	1580	1590	1570	1560	1570
21	1750	1720	1730	1580	1510	1450	1600	1580	1590	1580	1560	1570
22	1760	1730	1740	1580	1570	1570	1600	1580	1580	1580	1570	1580
23	1760	1730	1740	1580	1620	1550	1620	1570	1600	1570	1550	1560
24	1760	1720	1740	1560	1520	1540	1590	1570	1580	1570	1550	1560
25	1740	1720	1730	1570	1550	1570	1600	1570	1590	1570	1560	1570
26	1740	1710	1730	1570	1550	1570	1600	1570	1590	1560	1530	1540
27	1730	1700	1720	1590	1560	1580	1590	1560	1560	1530	1510	1520
28	1720	1690	1710	1590	1570	1590	1610	1570	1590	1510	1490	1500
29	1730	1690	1720	1600	1580	1590	1570	1570	1560	1490	1470	1490
30	1740	1720	1730	1610	1590	1600	1560	1520	1540	1470	1410	1430
31	1750	1730	1730	---	---	---	1540	1500	1520	1410	1350	1380
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1400	1370	1380	1770	1770	1770	---	---	---	1670	1620	1660
2	1490	1390	1430	1770	1670	1740	---	---	---	1740	1620	1670
3	1690	1500	1600	1670	1520	1600	---	---	---	1770	1730	1760
4	---	---	---	1580	1560	1570	---	---	---	1750	1550	1690
5	---	---	---	1620	1030	1570	---	---	---	1700	1680	1690
6	---	---	---	1650	1620	1640	---	---	---	1720	1650	1690
7	---	---	---	1670	1620	1650	---	---	---	1670	1610	1650
8	---	---	---	1720	1660	1690	---	---	---	1710	1440	1570
9	---	---	---	1730	1610	1660	---	---	---	1730	1710	1720
10	1820	1730	1780	1660	1630	1650	---	---	---	1730	1700	1720
11	1740	1660	1710	1630	1570	1590	---	---	---	1720	1710	1720
12	1670	1640	1650	1600	1570	1590	---	---	---	1720	1550	1620
13	1640	1470	1610	1620	1590	1610	1690	1670	1680	1610	1560	1580
14	1600	1560	1570	1630	1610	1620	1690	1470	1600	1540	1440	1480
15	---	---	---	1750	1630	1650	1730	1500	1660	1440	1310	1390
16	1550	1520	1540	1760	1650	1700	1770	1510	1630	1370	1270	1310
17	1530	1490	1510	1660	1630	1650	1800	1660	1720	1350	1300	1320
18	1510	1490	1500	1660	1640	1650	1810	1790	1800	1380	1320	1350
19	1530	1510	1520	1670	1650	1660	1810	1790	1800	1370	1350	1360
20	1550	1530	1540	1680	1650	1670	1810	1800	1810	1360	1180	1280
21	1570	1540	1560	1690	1640	1660	1810	1790	1800	1170	1060	1090
22	1580	1540	1560	1650	1620	1640	1790	1720	1760	1250	1150	1230
23	1600	1570	1580	1630	1580	1610	1740	1710	1730	1430	1220	1330
24	1620	1580	1600	1610	1590	1600	1740	1710	1720	1630	1440	1520
25	1630	1580	1600	1610	1580	1590	1730	1710	1720	1700	1640	1690
26	1710	1610	1650	1570	1530	1550	1720	1690	1710	1690	1630	1660
27	1760	1720	1750	---	---	---	1690	1670	1680	1680	1660	1670
28	1770	1760	1760	---	---	---	1740	1650	1680	1670	1600	1650
29	---	---	---	---	---	---	1660	1630	1640	1590	1570	1580
30	---	---	---	---	---	---	1660	1630	1650	1670	1650	1660
31	---	---	---	---	---	---	---	---	---	1670	1600	1660

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1660	1400	1580	1480	1460	1470	1690	1650	1670	---	---	---
2	1520	1390	1490	1480	1460	1470	---	---	---	---	---	---
3	1550	1480	1520	1500	1460	1480	1700	1660	1680	1110	781	960
4	1500	927	1070	1500	1480	1490	1720	1680	1700	476	385	691
5	---	---	---	1490	1480	1490	1760	1720	1730	732	373	441
6	1320	1230	1290	1500	1490	1490	1760	1710	1730	788	600	697
7	1180	368	585	1500	1480	1490	1760	1740	1750	1080	695	860
8	419	393	400	1510	1500	1510	1740	1550	1700	---	---	---
9	634	429	530	1540	1500	1510	1720	1520	1610	---	---	---
10	891	646	760	1520	1510	1520	1760	1720	1750	---	---	---
11	1090	900	1000	1520	1510	1510	1780	1750	1770	---	---	---
12	1310	1070	1190	1520	1510	1510	1790	1750	1780	1570	744	1170
13	1310	937	1080	1520	1460	1510	1800	1740	1780	598	275	347
14	1110	942	1030	1490	1350	1450	1720	1580	1610	---	---	---
15	1160	759	1080	1320	1150	1270	1610	1490	1540	---	---	---
16	1450	1160	1310	1450	1320	1400	1600	1510	1540	---	---	---
17	1460	1450	1450	1500	1450	1470	1630	1510	1590	---	---	---
18	1510	1460	1480	1530	1500	1510	1750	1580	1660	---	---	---
19	1500	1310	1480	1530	1520	1520	1780	1480	1680	1530	1480	1500
20	1510	783	1440	1540	1520	1530	1780	1580	1680	1560	1530	1540
21	1520	1500	1510	1590	1530	1550	1870	1780	1820	1560	1540	1550
22	1520	1510	1510	1580	1520	1560	1880	1840	1870	1550	1510	1540
23	---	---	---	1590	1550	1570	1830	1880	1770	1550	1540	1540
24	1480	1460	1470	1600	1570	1580	1730	588	1620	---	---	---
25	1480	1450	1460	1610	1570	1600	1630	1620	1630	---	---	---
26	1480	1460	1470	1610	1590	1610	1630	1600	1620	---	---	---
27	1470	1450	1460	1630	1590	1610	1630	1590	1610	---	---	---
28	1470	1450	1460	1660	1590	1630	1640	1620	1630	1620	1560	1590
29	1470	1460	1460	1700	1620	1660	1640	1550	1630	1590	1570	1580
30	1470	1460	1470	1690	1640	1680	1630	1620	1620	1590	1570	1580
31	---	---	---	1700	1660	1690	---	---	---	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.2	7.6	8.0	7.5	7.3	7.4	8.3	8.1	8.2	8.4	8.2	8.3
2	8.2	8.0	8.1	7.5	7.4	7.5	8.4	8.1	8.2	8.4	8.3	8.3
3	8.2	7.4	7.9	7.5	7.3	7.4	8.6	8.5	8.5	8.5	8.3	8.4
4	7.6	7.5	7.5	7.4	7.1	7.3	8.5	8.4	8.5	8.5	8.3	8.4
5	7.7	7.6	7.6	7.4	7.2	7.3	8.5	8.4	8.4	8.4	8.3	8.3
6	---	---	---	7.2	7.1	7.2	8.5	8.3	8.4	8.4	8.3	8.3
7	---	---	---	7.3	7.2	7.2	8.5	8.3	8.4	8.4	8.2	8.3
8	---	---	---	7.7	7.4	7.5	8.5	8.3	8.5	8.4	8.3	8.4
9	---	---	---	7.8	7.6	7.7	8.5	8.4	8.4	8.4	8.3	8.3
10	---	---	---	8.0	7.7	7.8	8.5	8.3	8.4	8.3	8.2	8.3
11	---	---	---	8.3	7.5	8.1	8.4	8.3	8.3	8.3	8.2	8.3
12	---	---	---	---	---	---	8.4	8.3	8.3	8.5	8.3	8.4
13	8.5	8.0	8.2	---	---	---	8.3	8.3	8.3	8.5	8.4	8.4
14	---	---	---	---	---	---	8.4	8.2	8.3	8.4	8.3	8.4
15	8.4	8.3	8.3	---	---	---	8.4	8.3	8.3	8.4	8.3	8.4
16	8.4	8.3	8.3	8.2	8.0	8.2	8.3	8.2	8.3	8.4	8.3	8.4
17	---	---	---	8.2	8.1	8.2	8.2	8.1	8.1	---	---	---
18	8.4	8.3	8.3	8.2	8.0	8.1	8.2	8.1	8.1	---	---	---
19	8.3	8.2	8.3	8.2	8.0	8.1	8.2	8.1	8.1	---	---	---
20	8.2	8.1	8.2	8.2	8.1	8.1	8.3	8.0	8.2	---	---	---
21	8.1	7.9	8.0	8.2	8.1	8.1	8.3	8.2	8.2	---	---	---
22	7.9	7.8	7.9	8.2	8.1	8.1	8.3	8.1	8.3	---	---	---
23	---	---	---	8.2	8.0	8.1	8.3	8.2	8.2	---	---	---
24	---	---	---	8.2	8.1	8.1	8.4	8.1	8.2	---	---	---
25	---	---	---	8.3	8.1	8.2	8.5	8.2	8.4	---	---	---
26	8.3	8.1	8.2	8.3	8.2	8.2	8.4	8.3	8.4	---	---	---
27	8.1	8.0	8.0	8.4	8.2	8.3	8.5	8.3	8.4	---	---	---
28	8.0	7.8	7.9	8.3	8.3	8.3	8.4	8.3	8.3	---	---	---
29	7.8	7.7	7.8	8.4	8.2	8.3	8.4	8.2	8.3	---	---	---
30	7.7	7.5	7.6	8.3	8.0	8.2	8.4	8.2	8.3	---	---	---
31	7.5	7.4	7.4	---	---	---	8.4	8.2	8.3	---	---	---

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	8.0	7.9	8.0
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	8.4	8.4	8.4
4	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
5	---	---	---	---	---	---	---	---	---	8.4	8.1	8.2
6	---	---	---	---	---	---	---	---	---	8.4	8.2	8.3
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	8.4	8.1	8.3	---	---	---	---	---	---
10	---	---	---	8.3	8.2	8.3	---	---	---	---	---	---
11	---	---	---	8.3	8.1	8.2	---	---	---	8.5	8.2	8.5
12	---	---	---	8.4	8.1	8.2	---	---	---	8.6	8.5	8.5
13	---	---	---	8.3	8.1	8.2	8.5	8.2	8.4	8.5	8.3	8.5
14	---	---	---	8.3	8.0	8.1	8.4	8.3	8.4	8.4	8.1	8.3
15	---	---	---	8.4	8.2	8.3	8.4	8.1	8.4	---	---	---
16	---	---	---	8.4	8.2	8.3	8.5	7.4	8.3	---	---	---
17	---	---	---	8.4	8.2	8.3	8.3	8.2	8.3	---	---	---
18	---	---	---	8.5	8.3	8.4	8.2	8.1	8.2	---	---	---
19	---	---	---	8.5	8.2	8.4	8.3	7.9	8.2	---	---	---
20	---	---	---	8.5	8.1	8.4	8.4	8.2	8.3	8.9	8.7	8.8
21	---	---	---	8.3	8.1	8.3	8.3	8.1	8.2	8.9	8.8	8.8
22	---	---	---	8.3	7.8	8.2	---	---	---	8.8	8.5	8.7
23	---	---	---	8.2	7.6	7.9	---	---	---	8.4	8.1	8.2
24	---	---	---	---	---	---	---	---	---	8.3	7.9	8.1
25	---	---	---	---	---	---	---	---	---	8.2	7.7	7.9
26	---	---	---	---	---	---	8.4	8.2	8.3	8.1	8.0	8.1
27	---	---	---	---	---	---	8.3	8.1	8.2	8.3	8.1	8.2
28	---	---	---	---	---	---	8.4	8.0	8.1	8.3	8.2	8.2
29	---	---	---	---	---	---	8.4	8.2	8.2	8.3	8.2	8.2
30	---	---	---	---	---	---	8.2	8.0	8.1	8.4	8.2	8.4
31	---	---	---	---	---	---	---	---	---	8.5	8.4	8.5

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.7	8.5	8.5	8.5	8.4	8.5	8.5	8.3	8.4	---	---	---
2	8.6	8.4	8.5	8.5	8.4	8.5	---	---	---	---	---	---
3	8.6	8.1	8.3	8.5	8.0	8.5	8.4	8.2	8.3	---	---	---
4	8.5	7.9	8.4	8.5	8.3	8.4	8.5	8.1	8.4	---	---	---
5	8.4	7.9	8.0	8.5	8.0	8.5	8.4	8.2	8.3	---	---	---
6	8.2	8.1	8.1	8.5	8.3	8.4	8.4	8.3	8.4	8.0	7.9	8.0
7	8.2	7.6	7.9	8.4	8.2	8.4	8.5	8.3	8.4	8.2	8.0	8.1
8	7.8	7.4	7.7	8.4	8.3	8.4	8.5	8.2	8.4	---	---	---
9	7.7	7.5	7.6	8.4	8.3	8.4	8.5	8.2	8.3	---	---	---
10	7.9	7.5	7.6	8.4	8.1	8.4	8.5	8.4	8.5	---	---	---
11	8.2	7.9	8.0	8.4	8.1	8.4	8.6	8.5	8.5	---	---	---
12	8.2	8.0	8.1	8.2	7.9	8.1	8.5	8.4	8.4	8.3	8.0	8.1
13	8.0	7.9	7.9	8.2	8.1	8.1	---	---	---	8.4	8.0	8.0
14	8.0	7.8	7.9	8.3	8.2	8.2	8.7	8.5	8.6	8.5	8.4	8.4
15	8.1	7.8	8.0	8.1	8.0	8.1	8.6	8.4	8.5	8.5	8.4	8.4
16	8.2	8.0	8.0	8.3	8.1	8.3	8.4	8.0	8.4	8.6	8.5	8.5
17	8.2	8.0	8.1	8.4	8.3	8.3	8.0	7.7	7.9	8.7	8.5	8.6
18	8.3	8.0	8.2	8.4	8.1	8.2	7.9	7.6	7.7	8.7	8.4	8.7
19	8.1	7.8	7.9	8.3	8.2	8.3	7.9	7.7	7.8	8.5	8.4	8.4
20	8.1	7.8	7.9	8.3	8.1	8.3	8.4	7.8	8.1	8.4	8.4	8.4
21	8.1	7.9	8.0	8.4	8.2	8.3	8.4	8.3	8.3	8.4	8.4	8.4
22	8.1	7.9	8.0	8.4	8.3	8.3	8.4	8.3	8.3	8.5	8.4	8.5
23	---	---	---	8.4	8.3	8.3	8.3	8.2	8.3	8.6	8.5	8.6
24	---	---	---	8.5	8.3	8.4	8.6	8.2	8.4	8.7	8.3	8.6
25	---	---	---	8.5	8.4	8.4	8.5	8.3	8.4	9.2	8.0	8.6
26	---	---	---	8.5	8.3	8.4	8.3	8.1	8.2	9.4	8.0	8.4
27	8.4	8.3	8.3	8.4	8.4	8.4	8.3	8.0	8.2	9.0	8.4	8.7
28	8.4	8.4	8.4	8.4	8.3	8.4	8.2	8.0	8.1	8.7	8.3	8.1
29	8.5	8.4	8.4	8.4	8.3	8.4	8.1	7.9	8.0	8.6	8.3	8.4
30	8.5	8.4	8.4	8.5	8.1	8.4	8.0	7.6	7.8	8.5	8.3	8.4
31	---	---	---	8.5	8.3	8.4	7.7	7.4	7.6	---	---	---

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	20.5	17.5	19.0	18.0	10.5	14.0	---	---	---	8.5	3.0	5.5
2	22.0	15.5	18.0	18.5	12.5	15.0	---	---	---	5.0	4.0	4.5
3	22.5	15.5	19.0	18.5	12.5	15.5	10.5	4.5	7.0	7.5	2.5	4.5
4	19.5	16.5	18.0	18.0	13.5	15.0	8.0	3.5	6.0	6.5	2.5	4.5
5	16.5	13.5	14.5	14.5	10.0	12.0	8.5	2.0	5.0	11.0	5.5	8.0
6	16.0	12.0	13.5	14.5	8.0	11.0	10.0	4.5	7.0	10.5	5.0	7.5
7	14.5	13.0	13.5	15.0	9.0	12.0	8.5	5.0	7.5	7.5	3.5	6.0
8	13.0	12.0	12.5	14.5	9.0	12.0	4.5	1.5	3.0	4.0	1.0	2.5
9	16.0	12.5	14.0	19.5	12.5	15.5	4.0	.0	1.5	4.5	.0	2.5
10	19.0	13.5	16.0	15.5	10.5	12.5	4.0	1.0	3.0	6.0	.0	3.0
11	19.5	15.0	17.0	11.0	8.5	10.0	4.5	2.0	3.0	9.0	2.0	5.0
12	18.5	14.0	16.0	---	---	---	7.0	3.0	4.5	4.0	1.0	2.5
13	17.5	12.0	15.0	---	---	---	9.0	3.0	6.0	4.0	.0	2.0
14	---	---	---	---	---	---	9.0	4.5	6.5	5.5	.5	2.5
15	20.0	11.5	16.0	---	---	---	5.0	2.0	3.5	5.0	.0	2.5
16	21.0	14.5	17.5	11.5	7.0	9.0	4.5	.0	2.0	5.5	.0	3.0
17	17.0	10.5	15.0	10.5	5.5	8.0	6.0	.5	3.0	7.0	.5	4.0
18	17.0	10.0	14.0	12.0	6.5	9.0	7.5	1.0	4.0	8.0	3.0	5.5
19	16.5	11.0	14.0	10.5	2.0	7.0	8.5	4.5	6.5	8.5	2.5	5.5
20	16.5	10.0	14.0	7.0	1.5	4.0	8.5	4.0	6.5	7.0	3.0	5.0
21	17.0	10.5	14.5	8.0	2.0	5.0	8.0	2.5	5.5	6.5	1.5	4.0
22	12.0	10.0	11.0	9.0	3.5	6.0	10.5	5.5	7.5	5.5	1.5	3.5
23	14.5	10.0	12.0	10.0	4.5	7.0	7.0	2.5	5.0	9.0	3.5	6.0
24	12.0	10.0	11.0	12.0	6.0	9.0	6.5	2.0	4.5	9.0	5.0	7.0
25	15.0	10.0	12.0	9.5	7.5	8.5	6.0	1.5	4.0	7.0	5.0	6.0
26	17.5	12.0	14.5	7.0	5.5	6.5	12.0	5.5	9.0	6.5	2.5	4.5
27	17.5	14.0	15.5	7.5	3.5	5.5	10.0	3.5	6.5	6.0	2.5	4.5
28	13.5	10.0	12.0	7.0	1.5	4.0	4.5	.0	2.5	6.5	5.5	6.0
29	14.5	11.0	12.5	8.5	2.5	5.5	4.0	.0	2.0	9.0	5.5	7.0
30	13.5	11.5	12.5	---	---	---	6.0	.5	3.0	10.0	5.0	7.5
31	15.0	12.0	13.0	---	---	---	7.5	2.5	4.5	11.0	6.5	8.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	19.5	14.5	17.0
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	16.0	13.0	14.5
4	---	---	---	---	---	---	---	---	---	22.5	14.0	18.5
5	---	---	---	---	---	---	---	---	---	24.5	17.0	20.5
6	---	---	---	---	---	---	---	---	---	24.0	17.5	20.5
7	---	---	---	---	---	---	---	---	---	26.0	16.5	21.0
8	---	---	---	---	---	---	---	---	---	27.5	21.0	24.0
9	---	---	---	13.0	3.5	8.0	---	---	---	26.0	22.0	24.0
10	---	---	---	17.0	6.5	11.5	---	---	---	24.5	19.0	21.5
11	---	---	---	19.5	10.0	14.5	---	---	---	23.5	19.0	21.0
12	---	---	---	21.5	12.0	16.5	---	---	---	20.5	16.0	18.0
13	---	---	---	19.5	12.5	16.0	13.0	11.5	12.5	18.5	15.0	16.5
14	---	---	---	20.0	12.0	15.5	18.0	11.0	14.0	24.0	17.5	20.0
15	---	---	---	16.0	7.0	11.5	20.0	14.0	17.0	25.5	20.0	22.5
16	---	---	---	17.5	8.0	12.5	20.0	15.0	17.5	25.0	20.0	22.0
17	---	---	---	23.0	12.5	16.5	20.5	16.0	18.5	22.5	19.5	21.0
18	---	---	---	15.5	7.0	11.5	21.5	19.0	20.0	20.0	18.0	19.0
19	---	---	---	13.5	9.0	11.0	22.5	16.5	19.0	27.0	16.5	22.0
20	---	---	---	13.5	6.0	11.0	21.0	16.5	19.0	27.5	22.5	24.5
21	---	---	---	12.0	4.0	7.5	24.5	17.0	20.5	29.5	22.5	25.5
22	---	---	---	13.5	4.5	8.5	25.5	20.0	22.5	31.0	22.0	26.0
23	---	---	---	15.5	6.0	10.5	25.5	19.5	22.5	31.5	23.5	27.0
24	---	---	---	18.5	8.5	13.0	25.0	20.5	22.5	31.0	23.5	27.0
25	---	---	---	20.5	12.5	16.0	26.0	20.0	23.0	28.0	25.0	26.5
26	---	---	---	22.5	15.0	18.0	28.0	21.5	24.5	25.5	20.0	24.0
27	---	---	---	---	---	---	26.5	22.5	24.5	23.5	20.0	22.0
28	---	---	---	---	---	---	25.5	20.0	23.0	25.0	22.0	23.5
29	---	---	---	---	---	---	21.5	17.5	19.5	25.0	22.5	23.5
30	---	---	---	---	---	---	22.0	16.0	18.5	24.5	22.5	23.5
31	---	---	---	---	---	---	---	---	---	24.0	23.0	23.5

07239450 NORTH CANADIAN RIVER NEAR CALUMENT, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	23.5	21.5	22.5	29.0	26.5	28.0	28.0	26.5	27.5	28.5	25.0	27.0
2	24.5	21.0	22.5	28.5	26.5	27.5	---	---	---	---	---	---
3	24.5	22.0	23.5	28.0	26.5	27.5	27.5	26.0	27.0	---	---	---
4	22.0	20.0	21.0	28.5	26.0	27.5	28.5	26.0	27.5	---	---	---
5	23.5	21.0	22.0	30.0	27.0	28.5	29.5	26.5	28.0	---	---	---
6	23.0	21.5	22.5	30.0	28.0	29.0	30.0	26.5	28.0	---	---	---
7	21.0	18.0	19.0	30.5	27.5	29.0	29.5	25.5	27.0	---	---	---
8	22.0	18.5	20.0	29.5	27.5	28.5	26.5	23.0	25.0	---	---	---
9	23.0	19.5	21.5	30.0	27.5	29.0	26.0	23.0	24.5	---	---	---
10	24.0	22.0	23.0	29.0	27.0	28.0	26.0	22.5	24.0	---	---	---
11	26.5	22.5	24.0	29.0	26.5	27.5	24.0	21.0	22.0	---	---	---
12	26.5	23.5	25.0	29.0	26.5	28.0	23.5	22.5	23.0	---	---	---
13	25.0	23.0	24.0	28.5	26.5	27.5	23.0	20.5	21.0	---	---	---
14	24.0	22.5	23.5	28.0	26.0	27.0	21.0	20.5	20.5	---	---	---
15	23.5	21.0	27.0	29.0	26.0	27.5	23.5	20.5	22.0	---	---	---
16	23.5	20.5	22.0	29.5	27.5	28.5	25.0	22.5	23.5	---	---	---
17	24.0	21.5	22.5	29.5	27.5	28.5	26.0	23.5	24.5	---	---	---
18	26.0	23.0	24.0	29.5	27.5	28.5	27.0	24.5	25.5	---	---	---
19	27.0	24.0	25.5	28.5	27.0	27.5	27.0	24.5	26.0	26.5	24.0	25.0
20	27.5	25.0	26.5	27.5	26.0	27.0	27.5	25.5	26.5	27.0	25.0	26.0
21	27.0	25.5	26.5	27.0	25.5	26.5	27.0	25.5	26.0	26.5	24.5	25.5
22	26.0	23.5	25.0	27.0	25.0	26.0	27.0	24.5	26.0	27.0	22.5	24.5
23	---	---	---	26.0	25.0	25.5	29.0	26.0	27.5	23.0	17.5	19.5
24	27.5	25.5	26.5	27.0	24.5	25.5	29.5	27.0	28.5	---	---	---
25	27.0	25.0	26.0	27.0	25.0	26.0	29.5	27.0	28.5	---	---	---
26	28.0	25.5	26.5	26.5	25.5	26.0	29.5	26.5	28.0	---	---	---
27	27.5	25.5	26.5	27.0	25.5	26.0	30.0	26.5	28.0	24.5	19.5	22.0
28	27.0	25.0	26.0	27.5	26.0	26.5	30.0	26.5	28.0	22.5	17.0	19.5
29	28.0	25.5	26.5	29.0	26.0	27.0	29.0	27.0	28.0	23.0	17.5	20.0
30	28.5	26.5	27.5	29.0	27.0	28.0	30.5	26.5	28.5	24.0	18.0	20.5
31	---	---	---	29.0	27.5	28.0	30.5	26.0	28.0	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	10.8	8.1	9.2	12.7	10.0	11.0	---	---	---
2	11.0	9.6	10.1	10.8	8.0	9.0	12.4	10.2	11.0	---	---	---
3	11.2	9.4	10.1	10.6	7.8	8.9	13.1	9.9	11.0	---	---	---
4	11.2	9.2	10.3	10.4	7.8	8.7	13.3	9.9	11.4	---	---	---
5	10.7	8.0	8.9	10.2	8.1	9.0	13.5	10.6	11.8	---	---	---
6	---	---	---	10.3	8.5	9.2	12.7	9.5	11.0	---	---	---
7	---	---	---	10.2	8.3	9.0	10.9	9.3	10.1	---	---	---
8	---	---	---	10.4	8.3	9.1	13.3	10.4	11.7	---	---	---
9	---	---	---	9.9	7.8	8.6	13.4	11.4	12.2	---	---	---
10	---	---	---	10.3	7.9	8.9	13.2	11.2	12.1	---	---	---
11	---	---	---	10.1	8.5	9.2	13.2	11.1	11.8	---	---	---
12	---	---	---	---	---	---	13.3	10.7	11.7	---	---	---
13	9.6	8.1	8.9	---	---	---	13.7	10.4	11.7	---	---	---
14	8.0	7.9	8.3	---	---	---	13.4	10.4	11.4	---	---	---
15	9.9	7.8	8.4	---	---	---	14.1	10.8	12.2	---	---	---
16	8.8	6.5	7.6	10.2	8.8	9.5	14.2	11.9	12.7	---	---	---
17	8.5	6.6	8.0	10.6	9.5	9.9	14.2	11.7	12.6	---	---	---
18	8.6	7.9	8.2	10.5	8.9	9.7	13.5	11.0	12.2	14.9	10.6	12.0
19	8.8	7.9	8.2	10.5	8.9	9.7	13.7	10.6	11.7	14.9	10.4	12.0
20	8.8	8.0	8.3	11.6	10.6	11.0	14.4	10.6	12.3	14.7	10.3	11.9
21	8.8	8.0	8.3	11.4	10.3	10.8	---	---	---	14.3	10.8	12.1
22	10.2	8.0	8.9	11.2	9.9	10.5	---	---	---	14.2	10.7	12.0
23	10.2	8.1	8.9	11.1	9.6	10.3	---	---	---	13.8	9.6	11.4
24	10.3	8.1	8.9	11.0	9.0	9.9	---	---	---	14.0	9.4	11.0
25	10.8	8.0	9.1	10.8	9.0	9.8	---	---	---	11.9	9.7	10.5
26	10.8	8.1	9.0	11.4	9.5	10.2	---	---	---	12.5	10.0	11.1
27	10.8	7.9	8.8	12.1	10.0	10.9	---	---	---	13.2	10.6	11.6
28	10.6	7.8	8.7	12.2	10.6	11.1	---	---	---	12.3	9.9	10.8
29	10.4	7.8	8.7	12.1	10.2	10.9	---	---	---	12.6	9.7	10.8
30	10.2	8.2	8.9	12.6	10.1	11.2	---	---	---	12.6	9.8	10.8
31	10.3	8.0	8.9	---	---	---	---	---	---	12.4	9.2	10.4

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	9.0	7.0	8.0
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	9.3	7.5	8.3
4	---	---	---	---	---	---	---	---	---	9.6	6.9	8.1
5	---	---	---	---	---	---	---	---	---	10.0	6.9	8.3
6	---	---	---	---	---	---	---	---	---	11.3	6.9	8.8
7	---	---	---	---	---	---	---	---	---	12.2	6.8	9.2
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	13.6	9.3	11.1	---	---	---	---	---	---
10	---	---	---	13.9	8.2	10.6	---	---	---	---	---	---
11	---	---	---	14.4	7.6	10.1	---	---	---	10.0	7.1	8.3
12	---	---	---	14.2	7.1	9.7	---	---	---	8.4	7.1	7.8
13	---	---	---	13.7	6.9	9.4	---	---	---	9.2	7.7	8.3
14	---	---	---	13.5	6.9	9.3	10.8	8.4	9.6	10.5	7.3	8.5
15	---	---	---	13.7	7.7	10.2	11.0	8.0	9.2	10.8	6.7	8.1
16	---	---	---	13.4	7.7	10.1	10.3	7.7	8.9	11.9	6.5	8.4
17	---	---	---	12.7	7.3	9.2	10.3	7.6	8.8	9.9	6.2	7.8
18	---	---	---	13.1	7.5	10.1	10.2	7.2	8.5	9.8	6.3	8.1
19	---	---	---	12.8	8.0	9.9	10.8	7.6	9.0	---	---	---
20	---	---	---	11.0	7.2	9.0	10.5	7.6	8.8	---	---	---
21	---	---	---	13.5	8.4	10.9	10.6	7.5	8.8	---	---	---
22	---	---	---	13.8	8.2	10.5	10.1	7.0	8.3	---	---	---
23	---	---	---	15.0	8.7	11.5	10.3	6.9	8.3	---	---	---
24	---	---	---	---	---	---	10.5	6.8	8.3	---	---	---
25	---	---	---	---	---	---	10.0	6.8	8.4	---	---	---
26	---	---	---	---	---	---	9.9	6.4	7.8	---	---	---
27	---	---	---	---	---	---	9.2	6.2	7.5	---	---	---
28	---	---	---	---	---	---	9.3	6.2	7.6	---	---	---
29	---	---	---	---	---	---	9.5	6.5	7.9	---	---	---
30	---	---	---	---	---	---	9.1	7.0	7.9	---	---	---
31	---	---	---	---	---	---	---	---	---	7.0	6.7	6.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	6.9	6.2	6.7	6.7	5.3	5.9	8.6	7.5	8.0	---	---	---
2	7.0	6.1	6.7	6.7	5.2	5.8	---	---	---	---	---	---
3	7.2	6.5	6.8	6.4	5.3	5.8	---	---	---	---	---	---
4	6.9	5.3	5.8	6.7	5.1	5.8	---	---	---	---	---	---
5	---	---	---	5.8	4.1	5.1	---	---	---	---	---	---
6	7.3	6.7	7.0	5.4	4.4	4.8	---	---	---	---	---	---
7	7.2	4.8	5.5	5.8	4.4	5.0	---	---	---	---	---	---
8	5.1	4.0	4.5	5.4	4.0	4.6	---	---	---	---	---	---
9	5.6	4.4	4.8	5.1	4.0	4.5	---	---	---	---	---	---
10	6.4	5.5	5.9	5.1	3.6	4.4	---	---	---	---	---	---
11	9.1	6.1	7.0	5.2	3.6	4.4	---	---	---	---	---	---
12	8.5	5.7	6.7	4.6	3.6	4.2	---	---	---	---	---	---
13	6.0	5.5	5.7	4.7	3.7	4.1	---	---	---	---	---	---
14	6.2	5.6	5.9	4.9	3.6	4.2	---	---	---	---	---	---
15	7.5	6.3	6.8	4.0	3.1	3.6	---	---	---	---	---	---
16	8.9	6.3	6.9	5.4	3.8	4.7	---	---	---	---	---	---
17	7.3	5.9	6.5	6.4	4.4	5.3	---	---	---	---	---	---
18	7.5	5.1	6.4	5.9	4.6	5.2	---	---	---	---	---	---
19	7.2	5.6	6.1	6.5	5.2	5.9	---	---	---	8.2	8.0	8.0
20	7.1	5.1	5.7	7.1	5.9	6.5	---	---	---	8.2	8.0	8.1
21	---	---	---	7.7	6.4	6.9	---	---	---	8.2	8.1	8.2
22	---	---	---	6.9	6.0	6.5	---	---	---	8.4	8.1	8.2
23	---	---	---	7.2	6.1	6.6	---	---	---	8.7	8.4	8.6
24	---	---	---	7.6	6.7	7.1	---	---	---	9.1	8.3	8.7
25	---	---	---	8.2	6.8	7.5	7.6	6.1	6.7	9.4	8.4	8.9
26	---	---	---	8.2	7.2	7.8	7.0	5.8	6.3	9.3	8.1	8.7
27	6.8	5.9	6.3	8.3	7.2	7.8	8.5	5.7	6.8	10.3	8.4	9.4
28	6.5	5.9	6.2	8.3	7.4	7.8	8.4	5.6	6.7	10.5	10.0	10.3
29	7.1	5.8	6.3	8.6	7.4	7.9	8.3	5.3	6.4	10.5	10.0	10.2
30	6.7	5.4	5.6	8.7	7.4	8.0	8.3	5.0	6.3	10.4	10.0	10.2
31	---	---	---	8.2	7.2	7.7	---	---	---	---	---	---

07239500 NORTH CANADIAN RIVER NEAR EL RENO, OK

LOCATION (REVISED).-- Lat 35°33'47", long 97°57'26", sec.33, T.13 N., R.7 W., Canadian County, Hydrologic Unit 11100301, near left downstream end of bridge on new U.S. Highway 81, 2.0 mi north of courthouse in El Reno, 2.3 mi downstream from Target Creek, and at mile 307.3.

DRAINAGE AREA.-- 13,042 mi² of which 4,899 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1902 to April 1908, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at site 1.1 mi upstream February 1914 to March 1934 and at site 0.1 mi upstream thereafter are contained in reports of National Weather Service. Published as Canadian River (North Fork) near El Reno 1902-4.

REVISED RECORDS.-- WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,295.00 ft above National Geodetic Vertical Datum of 1929. October 1902 to April 1908, nonrecording gage at site about 450 ft upstream at different datum. October 1937 to September 1988, gage at site 500 ft upstream and datum 4.02 ft higher.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation by Fort Supply Lake (station 07238500) for period May 1942 to April 1948 and by Canton Lake (station 07238500) thereafter. U.S. Geological Survey's satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Canton Lake, 16 years (water years 1903-07, 1938-48), 264 ft³/s, 191,300 acre-ft/yr; since regulation by Canton Lake, 41 years (water years 1949-89), 209 ft³/s, 151,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 15,000 ft³/s, Oct. 28, 1941, gage height, 15.98 ft datum then in use; maximum gage height, 18.20 ft datum then in use, Sept. 21, 1965; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of Oct. 15, 1923, reached an elevation of 1,326.3 ft above mean sea level at railroad bridge 1.1 mi above station, from reports of National Weather Service.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 6,020 ft³/s, Sept. 13, height, 15.58 ft; minimum daily discharge, 23 ft³/s, Jan. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	38	33	30	40	41	186	106	612	1010	777	98
2	63	38	32	29	35	41	155	105	642	990	756	271
3	59	e39	32	29	e35	43	138	104	649	961	679	299
4	55	e39	32	28	e37	44	123	109	2890	949	612	456
5	53	e38	30	28	e40	39	111	84	1080	908	544	845
6	67	e38	30	26	e45	37	150	71	524	888	438	434
7	532	e37	30	26	e44	39	172	63	3180	693	284	210
8	296	e37	30	26	e45	36	173	98	3400	634	339	133
9	153	e36	30	25	e44	38	167	119	1480	854	338	184
10	112	e35	30	25	e42	38	161	118	622	903	393	136
11	91	e80	30	25	e41	36	156	118	367	884	392	145
12	79	e190	30	25	e41	34	156	164	427	864	393	335
13	69	e100	30	24	e43	33	153	267	2710	826	393	4990
14	62	e80	30	24	45	33	154	131	1700	937	702	4010
15	60	e65	30	24	49	31	150	100	787	1030	653	1490
16	57	e54	30	23	49	31	147	79	529	802	310	910
17	52	e50	29	25	49	31	144	95	748	798	215	761
18	48	e45	30	26	55	30	142	125	713	752	402	932
19	47	e42	29	26	60	28	138	92	684	728	557	1020
20	48	e42	29	26	64	30	136	86	668	791	520	817
21	47	e44	28	25	63	29	135	72	747	917	478	772
22	48	46	28	24	59	29	133	58	879	903	466	688
23	46	46	29	24	53	30	131	50	1270	893	455	575
24	44	46	e29	24	47	30	129	46	1770	892	442	488
25	41	44	e30	40	45	31	120	319	796	877	424	274
26	40	40	e30	56	43	37	117	437	433	873	350	211
27	39	39	e31	41	42	49	117	441	903	858	276	186
28	38	39	32	44	41	2160	113	442	1130	848	256	184
29	38	37	30	56	---	1440	109	446	1120	825	251	179
30	38	36	30	55	---	555	107	458	1040	796	220	167
31	38	---	30	49	---	281	---	471	---	773	122	---
TOTAL	2534	1540	933	958	1296	5384	4223	5474	34500	26655	13437	22120
MEAN	81.7	51.3	30.1	30.9	46.3	174	141	177	1150	860	433	737
MAX	532	190	33	56	64	2160	186	471	3400	1030	777	4990
MIN	38	35	28	23	35	28	107	46	367	634	122	98
AC-FT	5030	3050	1850	1900	2570	10680	8380	10860	68430	52870	26650	43880

CAL YR 1988 TOTAL 134125 MEAN 366 MAX 3850 MIN 17 AC-FT 268000
WTR YR 1989 TOTAL 119054 MEAN 326 MAX 4990 MIN 23 AC-FT 236100

e Estimated

ARKANSAS RIVER BASIN

07240000 LAKE HEFNER CANAL NEAR OKLAHOMA CITY, OK

LOCATION.-- Lat 35°33'11", long 97°37'11", in SW 1/4 SW 1/4 sec.34, T.13 N., R.4 W., Oklahoma County, Hydrologic Unit 11050002, attached to left wing wall just downstream from outlet of inverted siphon, 2,600 ft upstream from Lake Hefner, 3.0 mi northeast of Bethany, and 7.6 mi northwest of the State Capitol in Oklahoma City.

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

REVISED RECORDS.-- WDR OK-80-1: 1968-80 (Datum).

GAGE.-- Water stage recorder and concrete control. Datum of gage is 1,196.06 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 8, 1947, nonrecording gage at site 2.7 mi upstream at different datum. Apr. 8, 1947 to Apr. 30, 1950, water-stage recorder at site 3.0 mi upstream at different datum. May 1, 1950 to May 19, 1954, Apr. 26, 1957 to Feb. 19, 1968 at present site and datum 4.90 ft higher. May 20, 1954 to Apr. 25, 1957, water-stage recorder and concrete control at site 2,500 ft downstream at datum 2.10 ft higher than present datum.

REMARKS.-- Records fair. Use of canal began in March 1944. Canal diverts water from North Canadian River just upstream from Lake Overholser (station 07240500) and delivers water to Lake Hefner, capacity, 80,600 acre-ft, for municipal water supply of Oklahoma City. Subsequent to April 1950, small ground-water seepage, when head gates are closed, included in records.

EXTREMES FOR PERIOD OF RECORD.-- Maximum daily discharge, 1,500 ft³/s, May 28, 1955; no flow at times in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	e1.3	e.80	e.13	e.12	e.00	146	1.1	26	.79	2.4	.32
2	e5.2	e1.2	e.76	e.12	e.11	e.00	149	1.3	597	1.3	.65	.90
3	e4.5	e1.1	e.70	e.12	e.10	e.00	74	1.3	645	.72	.71	.41
4	e3.0	e1.0	e.60	e.12	e.10	e.00	15	2.7	30	.70	.48	.70
5	e2.6	e.96	e.58	e.11	e.00	e.00	9.0	1.2	4.6	.74	.46	.34
6	e5.0	e.88	e.60	e.11	e.00	e.00	7.5	1.2	12	.69	2.3	.30
7	13	e.82	e.70	e.10	e.00	e.00	e5.6	1.1	40	.67	.34	.26
8	5.6	e.72	e.60	e.10	e.00	e.00	e4.9	1.1	8.3	.71	.37	.24
9	105	e.70	e.52	e.08	e.00	e.00	e4.5	.99	3.3	.62	.46	.24
10	250	e.62	e.46	e.07	e.00	e.00	e4.0	30	3.7	.54	.54	.23
11	98	e.60	e.40	e.14	e.00	e.00	e3.7	112	10	.87	.56	.51
12	50	188	e.52	e.13	e.00	e.00	e3.4	113	18	.66	.55	.26
13	7.0	439	e.46	e.20	e.00	e.00	e2.9	418	117	2.5	2.2	.70
14	e5.0	157	e.40	e.17	e.00	e.00	e4.2	495	11	1.5	25	3.5
15	e4.0	12	e.38	e.16	e.00	e.00	e3.5	172	3.6	.73	3.6	.79
16	e3.3	4.0	e.34	e.15	e.00	e.00	e3.0	2.9	2.9	.65	.81	.63
17	e4.0	e3.0	e.30	e.14	e.00	e.00	e2.5	410	2.6	.65	.75	.53
18	102	e2.8	e.28	e.13	e.00	e.00	e2.2	898	2.1	.59	.69	.50
19	197	e2.5	e.27	e.12	e.00	e.00	e3.1	313	2.0	.53	.72	.47
20	153	e2.2	e.25	e.11	e.00	e.00	e2.9	99	1.8	.40	.60	.44
21	8.5	e2.1	e.24	e.11	e.00	e.00	e2.7	102	1.7	.45	.56	.43
22	e4.9	e1.9	e.23	e.10	e.00	e.00	e2.6	102	2.0	.42	.55	.34
23	e4.5	e1.8	e.22	e.10	e.00	.00	e1.9	102	2.5	1.7	.50	.33
24	e4.0	e1.6	e.20	e.11	e.00	e.00	e1.8	59	1.5	.54	.49	.38
25	e3.3	e1.5	e.19	e.16	e.00	e.00	e1.7	1.4	1.3	.51	.43	.38
26	e2.8	e1.4	e.18	e.13	e.00	e.00	1.5	1.5	1.3	.47	.36	.37
27	e2.5	e1.2	e.17	e.17	e.00	e3.0	1.2	1.3	1.7	.47	.30	.34
28	e2.0	e1.1	e.16	e.25	e.00	509	1.1	1.7	.96	.46	.29	.50
29	e1.8	e1.0	e.15	e.18	---	945	1.0	1.2	.90	.48	.27	.58
30	e1.6	e.90	e.14	e.16	---	846	1.2	1.2	.87	.42	.26	.65
31	e1.5	---	e.13	e.14	---	313	---	.65	---	.40	.28	---
TOTAL	1061.4	834.90	11.93	4.12	0.43	2616.00	467.6	3448.84	1555.63	22.88	48.48	111.61
MEAN	34.2	27.8	.38	.13	.015	84.4	15.6	111	51.9	.74	1.56	3.72
MAX	250	439	.80	.25	.12	945	149	898	645	2.5	25	70
MIN	1.5	.60	.13	.07	.00	.00	1.0	.65	.87	.40	.26	.23
AC-FT	2110	1660	24	8.2	.9	5190	927	6840	3090	45	96	221

CAL YR 1988 TOTAL 16065.87 MEAN 43.9 MAX 1100 MIN .00 AC-FT 31870
WTR YR 1989 TOTAL 10183.82 MEAN 27.9 MAX 945 MIN .00 AC-FT 20200

e Estimated

ARKANSAS RIVER BASIN

347

07240500 LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK

LOCATION.-- Lat 35°29'11", long 97°39'58", on north line of SW 1/4 sec.30, T.12 N., R.4 W., Oklahoma County, Hydrologic Unit 11100301, at control tower at left end of dam on North Canadian River, 2.9 mi upstream from Mustang Creek, 9.0 mi west of State Capitol in Oklahoma City, and at mile 281.5.

DRAINAGE AREA.-- 13,221 mi², of which 4,899 mi² is probably noncontributing.

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

GAGE.-- Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Oklahoma City Water Department). Prior to Oct. 1, 1955, at same site at datum, 1,065.77 ft elevation. Oct. 1, 1955 to Sept. 30, 1962, water-stage recorder at same site and present datum.

REMARKS.-- Reservoir is formed by Ambursen-type dam flanked by long earth-fill sections. Outlet facilities are twenty-three taintor gates and one uncontrolled spillway. Storage began in 1917. Dam was partly washed out in 1923 and rebuilt in 1924. Capacity, 17,100 acre-ft below elevation 1,242.27 ft, top of spillway gates. Dead storage, 1,400 acre-ft below elevation 1,229.77 ft, sill of outlet works. Figures given herein represent total contents. Water diverted for municipal water supply by Oklahoma City. Revised capacity table used since Oct. 1, 1950.

COOPERATION.-- Elevations and capacity table provided by Oklahoma City Water Department.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 20,900 acre-ft, June 14, 1944, elevation, 1,242.67 ft, from capacity table then in use; minimum observed, 1,870 acre-ft, May 14, 1955, elevation, 1,230.62 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 17,700 acre-ft, Sept. 6, 13-15, elevation, 1,242.60 ft; minimum, 10,230 acre-ft, June 5, elevation, 1,237.75 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1242.00	16,700	-
Oct. 31.....	1242.00	16,700	-
Nov. 30.....	1241.70	16,240	-460
Dec. 31.....	1242.20	17,010	+770
CAL YR 88.....	-	-	+300
Jan. 31.....	1242.25	17,080	+70
Feb. 28.....	1241.35	15,700	-1,380
Mar. 31.....	1241.90	16,550	+850
Apr. 30.....	1240.85	14,250	-2,300
May 31.....	1241.70	16,240	+1,990
June 30.....	1241.85	16,470	+230
July 31.....	1241.80	16,390	-80
Aug. 31.....	1242.30	17,160	+770
Sept. 30.....	1242.10	16,850	-310
WTR YR 89.....	-	-	+150

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER, NEAR OKLAHOMA CITY, OK

LOCATION (REVISED).-- Lat 35°28'43", long 97°39'47", in NE 1/4 of NW 1/4 of sec.31, T. 12N., R. 4W, Oklahoma County, Hydrologic Unit 11100301, on left downstream side of bridge on NW 10th Street, 0.5 mi downstream from Lake Overholser, 2.4 mi upstream from Mustang Creek, 9.1 mi southwest of State Capitol of Oklahoma, and at river mile 281.0.

DRAINAGE AREA.-- 13,222 mi², of which 4,899 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1952 to September 1968, October 1969 to September 1972, October 1973 to September 1987, October 1988 to Sept. 30, 1989.

GAGE.-- Water-stage recorder. Datum of gage is 1,194.66 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1961, at datum 10.00 ft higher. Prior to March 24, 1971, gage located at current site. March 25, 1971, to Sept. 30, 1987, gage located 200 ft upstream.

REMARKS.-- Records fair. Flow regulated by Canton Lake (station 07238500) and Lake Overholser (station 07240500). Diversions upstream from station into Lake Overholser and Lake Hefner Canal (station 07240000). Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Geological Survey's satellite telemeter at station.

AVERAGE DISCHARGE.-- 37 years (water years 1953-68, 1970-72, 1974-87, 1989), 134 ft³/s, 97,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 18,700 ft³/s, May 28, 1987, gage height, 29.85 ft, from high-water mark; no flow at times in 1952-57.

EXTREMES OUTSIDE PERIOD OF RECORD.-- A stage of 40.9 ft, present datum, was reached in October 1923 from information provided by Oklahoma State Highway Department.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 11,000 ft³/s, June 13, gage height, 24.71 ft; minimum daily discharge, 2.8 ft³/s, March 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	91	e16	47	363	83	4.0	24	2130	921	852	219
2	65	91	e13	56	169	82	7.0	5.1	1770	908	733	417
3	17	89	e13	90	e78	147	208	5.1	1880	659	538	393
4	45	133	e12	18	e45	292	297	9.8	6970	468	657	160
5	21	230	e28	87	e46	219	130	7.0	3060	1010	717	331
6	24	103	11	57	e47	81	95	6.1	1390	705	643	514
7	322	80	61	134	e45	53	145	6.5	3630	700	250	365
8	422	e22	98	46	e43	51	207	6.7	5810	749	225	249
9	281	e21	11	42	e44	39	161	27	4980	728	331	251
10	42	e215	9.7	40	e42	79	157	7.2	2130	758	367	145
11	44	e1200	11	87	e45	101	158	7.1	1040	764	455	323
12	23	e140	9.3	123	e50	97	158	19	961	759	432	529
13	25	e22	8.6	37	119	92	156	52	5510	762	436	4750
14	30	e43	36	35	187	62	154	12	5740	765	2130	5020
15	58	e500	72	36	133	33	148	12	2510	761	1740	3340
16	85	e57	16	33	96	32	151	8.8	1110	757	856	1470
17	84	e17	19	33	101	68	146	378	918	744	482	783
18	119	e115	8.4	35	99	84	142	97	948	734	468	635
19	25	e200	7.2	33	99	83	144	34	787	719	466	645
20	27	e33	8.7	55	183	104	145	31	651	555	491	901
21	22	e22	9.3	32	206	64	144	28	658	558	495	393
22	20	e19	38	32	104	5.3	145	27	760	554	487	629
23	59	e16	10	33	91	4.3	143	26	1060	708	477	610
24	19	e15	77	36	90	3.7	143	248	1400	787	456	409
25	26	e15	9.2	101	88	3.0	140	364	1160	827	443	311
26	22	e14	13	68	86	2.8	138	352	599	792	441	301
27	37	e35	132	27	86	5.9	73	420	673	728	437	144
28	86	e23	19	36	84	27	38	486	902	736	427	131
29	99	e17	11	61	---	47	40	495	980	729	174	194
30	95	e40	19	59	---	202	37	402	949	718	25	213
31	94	---	35	324	---	21	---	337	---	574	119	---
TOTAL	2366	3618	841.4	1933	2869	2268.0	3954.0	3940.4	63066	22637	17250	24775
MEAN	76.3	121	27.1	62.4	102	73.2	132	127	2102	730	556	826
MAX	422	1200	132	324	363	292	297	495	6970	1010	2130	5020
MIN	17	14	7.2	18	42	2.8	4.0	5.1	599	468	25	131
AC-FT	4690	7180	1670	3830	5690	4500	7840	7820	125100	44900	34220	49140

WTR YR 1989 TOTAL 149517.8 MEAN 410 MAX 6970 MIN 2.8 AC-FT 296600

e Estimated

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK --Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- August 1988 to September 1989.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to September 1989.

pH: October 1988 to September 1989.

WATER TEMPERATURE: October 1988 to September 1989.

DISSOLVED OXYGEN: October 1988 to September 1989.

INSTRUMENTATION.-- Water-quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 1,970 microsiemens, April 26, 1989; minimum recorded, 108 microsiemens, Sept. 13, 1989.

pH: Maximum recorded, 8.7 units, Sept. 6, 22, 1989; minimum recorded, 6.2 units, Aug. 8, 1989.

WATER TEMPERATURE: Maximum recorded, 30.7°C, July 17, 1989; minimum recorded, 10.3°C, April 11, 1989.

DISSOLVED OXYGEN: Maximum recorded, 15.8 mg/l, June 13, 1989; minimum recorded, 4.4 mg/l, May 21, 1989.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded (more than 20 percent record missing), 1,970 microsiemens, April 26; minimum recorded (more than 20 percent record missing), 108 microsiemens, Sept. 13.

pH: Maximum recorded (more than 20 percent record missing), 8.7 units, Sept. 6, 22; minimum recorded (more than 20 percent record missing), 6.2 units, Aug. 8.

WATER TEMPERATURE: Maximum recorded (more than 20 percent record missing), 30.7°C, July 17; minimum recorded (more than 20 percent record missing), 10.3°C, April 11.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent record missing), 15.8 mg/l, June 13; minimum recorded (more than 20 percent record missing), 4.4 mg/l, May 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	TUR- BID- ITY (NTU)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO
AUG											
18...	1300	1028	80020	--	--	410	93	43	150	44	3
18...	1301	1028	9999	6.4	900	--	--	--	--	--	--
SEP											
21...	1230	1028	80020	--	--	--	--	--	--	--	--
21...	1300	1028	9999	32	15000	--	--	--	--	--	--

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)
AUG										
18...	5.9	--	260	200	0.60	14	895	893	1.22	--
18...	--	208	--	--	--	--	--	--	--	21
SEP										
21...	--	--	--	--	--	--	--	--	--	--
21...	--	182	--	--	--	--	--	--	--	77

DATE	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRATE SOLVED (MG/L AS NO3)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRITE SOLVED (MG/L AS NO2)	NITRO- GEN NO2+NO3 SOLVED (MG/L AS N)	NITRO- GEN AMMONIA SOLVED (MG/L AS N)	NITRO- GEN AMMONIA SOLVED (MG/L AS NH4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
AUG										
18...	0.140	0.62	0.010	0.03	0.150	0.070	0.09	--	0.170	0.52
18...	0.200	--	--	--	--	0.350	0.45	0.200	0.070	0.21
SEP										
21...	0.230	1.0	0.010	0.03	0.240	0.150	0.19	--	0.200	0.61
21...	--	--	<0.010	--	0.810	0.300	0.39	0.230	0.330	1.0

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
AUG 18...	7	160	<0.5	<1.0	<5	<3	<10	7	20	42
18...	--	--	--	--	--	--	--	--	--	--
SEP 21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)
AUG 18...	110	0.1	<10	<10	<1	<1.0	1100	8	20	9.4
18...	--	--	--	--	--	--	--	--	--	--
SEP 21...	--	--	--	--	--	--	--	--	--	8.9
21...	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
OCT 17...	1330	1028	80020	--	9.52	55	1300	8.4	27.5	19.5	--
17...	1331	1028	9999	--	9.52	55	1300	8.4	27.5	19.5	18
NOV 02...	1330	1028	80020	--	9.85	92	1380	8.4	19.5	15.0	--
02...	1331	1028	9999	--	9.85	92	1380	8.4	19.5	15.0	4.4
DEC 05...	1200	1028	80020	--	8.98	16	1290	8.0	17.5	8.0	--
05...	1201	1028	9999	--	8.98	16	1290	8.0	17.5	8.0	6.8
JAN 18...	1100	1028	80020	--	9.63	51	1460	8.5	11.0	5.5	--
18...	1101	1028	9999	--	9.63	51	1460	8.5	11.0	5.5	3.1
FEB 27...	1200	1028	80020	--	9.79	85	1420	8.4	-1.0	6.0	--
27...	1201	1028	9999	--	9.79	85	1420	8.4	-1.0	6.0	9.9
MAR 28...	1100	1028	80020	--	9.34	26	642	7.7	18.0	16.0	--
28...	1500	1028	9999	--	9.34	26	642	7.7	18.0	16.0	190
APR 11...	1100	1028	80020	--	10.37	146	1440	8.2	13.0	11.0	--
11...	1101	1028	9999	--	10.37	146	1440	8.2	13.0	11.0	18
MAY 09...	1200	1028	80020	--	9.35	43	1330	8.5	22.0	20.0	--
09...	1201	1028	9999	--	9.35	43	1330	8.5	22.0	20.0	22
JUN 19...	1215	1028	1028	10.0	--	--	1450	8.3	--	25.0	--
19...	1216	1028	1028	30.0	--	--	1450	8.3	--	25.0	--
19...	1217	1028	1028	50.0	--	--	1460	8.3	--	25.0	--
19...	1218	1028	1028	70.0	--	--	1460	8.3	--	25.0	--
19...	1219	1028	1028	90.0	--	--	1470	8.3	--	25.0	--
19...	1220	1028	1028	110	--	--	1470	8.3	--	25.0	--
19...	1300	1028	80020	--	12.26	667	1460	8.3	29.0	25.0	--
19...	1301	1028	9999	--	12.26	667	1460	8.3	29.0	25.0	24
JUL 18...	1230	1028	80020	--	11.77	506	1420	--	30.0	28.5	--
18...	1231	1028	9999	--	11.77	506	1420	--	30.0	28.5	28
AUG 21...	1300	1028	80020	--	10.80	254	1410	8.1	36.0	27.0	--
21...	1301	1028	9999	--	10.80	254	1410	8.1	36.0	27.0	27

07214000 NORTH CANADIAN RIVER BELOW LAKE JOVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT											
17...	730	9.7	111	--	--	--	--	--	--	--	--
17...	730	9.7	111	1.1	--	200	240	--	--	--	--
NOV											
02...	720	10.0	106	--	--	--	--	470	110	46	150
02...	720	10.0	106	--	--	2000	1200	--	--	--	--
DEC											
05...	740	12.4	108	--	6.6	--	--	--	--	--	--
05...	740	12.4	108	--	--	100	40	--	--	--	--
JAN											
18...	740	13.1	108	--	2.6	--	--	--	--	--	--
18...	740	13.1	108	--	--	350	400	--	--	--	--
FEB											
27...	730	12.1	102	--	4.4	--	--	480	110	49	140
27...	730	12.1	102	--	--	60	--	--	--	--	--
MAR											
28...	730	8.8	93	--	8.7	--	--	--	--	--	--
28...	730	8.8	93	1.1	--	20000	28000	--	--	--	--
APR											
11...	740	11.7	110	--	3.3	--	--	--	--	--	--
11...	740	11.7	110	0.33	--	200	50	--	--	--	--
MAY											
09...	--	9.2	--	--	4.2	--	--	410	96	40	130
09...	--	9.2	--	--	--	6400	1100	--	--	--	--
JUN											
19...	--	9.4	--	--	--	--	--	--	--	--	--
19...	--	9.6	--	--	--	--	--	--	--	--	--
19...	--	9.6	--	--	--	--	--	--	--	--	--
19...	--	9.6	--	--	--	--	--	--	--	--	--
19...	--	9.6	--	--	--	--	--	--	--	--	--
19...	--	9.4	--	--	--	--	--	--	--	--	--
19...	740	9.6	120	--	3.4	--	--	--	--	--	--
19...	740	9.6	120	--	--	310	200	--	--	--	--
JUL											
18...	725	8.0	109	--	1.6	--	--	--	--	--	--
18...	725	8.0	109	3.5	--	200	600	--	--	--	--
AUG											
21...	730	8.8	116	--	1.1	--	--	360	91	32	140
21...	730	8.8	116	0.94	--	320	600	--	--	--	--

[illegible]

ARKANSAS RIVER BASIN

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07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)
OCT											
17...	--	--	--	<0.010	--	0.140	0.021	0.03	--	--	--
17...	36	--	--	<0.010	--	0.640	--	--	--	0.50	0.180
NOV											
02...	--	0.160	0.71	0.020	0.07	0.180	0.040	0.05	--	--	--
02...	16	--	--	--	--	--	--	--	--	0.32	0.370
DEC											
05...	--	0.250	1.1	0.020	0.07	0.270	0.160	0.21	--	--	--
05...	6	--	--	<0.010	--	--	0.740	0.95	0.17	0.91	0.260
JAN											
18...	--	0.390	1.7	0.010	0.03	0.400	0.070	0.09	--	--	--
18...	1	--	--	--	--	--	0.210	0.27	0.11	0.32	0.210
FEB											
27...	--	0.720	3.2	0.070	0.23	0.790	0.171	0.22	--	--	--
27...	46	--	--	0.050	0.16	--	--	--	--	0.32	0.290
MAR											
28...	--	0.610	2.7	0.130	0.43	0.740	0.240	0.31	--	--	--
28...	370	0.410	1.8	0.070	0.23	0.480	0.130	0.17	0.44	0.57	0.220
APR											
11...	--	--	--	<0.010	--	0.300	0.080	0.10	--	--	--
11...	48	0.040	0.18	0.010	0.03	0.050	0.020	0.03	0.26	0.28	0.420
MAY											
09...	--	--	--	<0.010	--	<0.100	0.070	0.09	--	--	--
09...	156	--	--	<0.010	--	<0.050	0.040	0.05	0.40	0.44	0.360
JUN											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	0.119	0.53	0.021	0.07	0.140	0.050	0.06	--	--	--
19...	46	--	--	--	--	--	0.040	0.05	1.2	1.3	0.260
JUL											
18...	--	--	--	<0.010	--	<0.100	0.030	0.04	--	--	--
18...	78	--	--	<0.010	--	0.030	0.190	0.24	3.3	3.5	0.220
AUG											
21...	--	0.350	1.5	0.010	0.03	0.360	0.100	0.13	--	--	--
21...	28	0.300	1.3	0.090	0.30	0.390	0.110	0.14	0.44	0.55	0.270

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07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)
OCT											
17...	--	--	--	--	--	--	--	--	--	--	7.4
17...	--	--	--	--	--	--	--	--	--	--	--
NOV											
02...	47	15	<0.1	<10	<10	<1	<1.0	1100	10	25	6.1
02...	--	--	--	--	--	--	--	--	--	--	--
DEC											
05...	--	--	--	--	--	--	--	--	--	--	5.8
05...	--	--	--	--	--	--	--	--	--	--	--
JAN											
18...	--	--	--	--	--	--	--	--	--	--	6.9
18...	--	--	--	--	--	--	--	--	--	--	--
FEB											
27...	39	120	<0.1	<10	<10	<1	<1.0	1100	7	26	6.8
27...	--	--	--	--	--	--	--	--	--	--	--
MAR											
28...	--	--	--	--	--	--	--	--	--	--	15
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
11...	--	--	--	--	--	--	--	--	--	--	8.7
11...	--	--	--	--	--	--	--	--	--	--	--
MAY											
09...	35	30	<0.1	<10	<10	<1	<1.0	1000	7	8	7.9
09...	--	--	--	--	--	--	--	--	--	--	--
JUN											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	8.7
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	--	--	--	--	--	--	--	--	--	--	9.3
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	36	7	<0.1	<10	10	<1	<1.0	940	10	14	7.1
21...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
SEP											
25...	1100	1028	80020	9.99	111	1560	8.3	24.0	22.0	--	735
25...	1101	1028	9999	9.99	111	1560	8.3	24.0	22.0	16	735

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-WF (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CAC03	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
SEP											
25...	10.2	122	--	7.6	--	--	--	--	0.650	2.9	0.020
25...	10.2	122	1.1	--	130	210	230	60	--	--	--

DATE	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN N02+N03 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS ORTHOPHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)
SEP										
25...	0.07	0.670	0.040	0.05	--	--	--	0.150	0.46	7.8
25...	--	0.830	0.070	0.09	0.24	0.31	0.160	--	--	--

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	1210	1180	1190	1670	1540	1600
2	---	---	---	---	---	---	1250	1180	1200	1620	1570	1600
3	---	---	---	---	---	---	1180	344	902	1580	1560	1570
4	---	---	---	---	---	---	958	310	465	1570	1300	1420
5	---	---	---	---	---	---	983	925	955	1520	1400	1460
6	---	---	---	---	---	---	1040	952	1050	1520	1390	1470
7	---	---	---	---	---	---	1100	1020	1050	1550	1470	1500
8	---	---	---	---	---	---	1180	466	1240	1520	1260	1440
9	---	---	---	---	---	---	1370	1220	1270	1430	1310	1350
10	---	---	---	---	---	---	1420	1260	1370	1420	1340	1380
11	---	---	---	---	---	---	1420	1400	1410	1440	1370	1410
12	---	---	---	---	---	---	1430	1310	1410	1400	932	1220
13	---	---	---	---	---	---	1630	1340	1470	1240	1070	1210
14	---	---	---	---	---	---	1640	1620	1630	1240	1200	1220
15	---	---	---	---	---	---	1640	1510	1580	1300	1190	1250
16	---	---	---	---	---	---	1600	1530	1570	1270	1220	1250
17	---	---	---	---	---	---	1600	737	1500	1260	237	716
18	---	---	---	---	---	---	1530	1450	1480	432	289	388
19	---	---	---	---	---	---	1470	1140	1400	1170	402	794
20	---	---	---	---	---	---	---	---	---	1480	1250	1330
21	---	---	---	---	---	---	---	---	---	1480	1420	1460
22	---	---	---	---	---	---	---	---	---	1420	1370	1400
23	---	---	---	---	---	---	---	---	---	1360	1110	1210
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	1350	1330	1340	1820	1730	1790	---	---	---
26	---	---	---	1340	1320	1330	1970	1680	1760	---	---	---
27	---	---	---	1280	1000	1140	1810	1600	1750	---	---	---
28	---	---	---	1020	480	709	1660	1580	1620	---	---	---
29	---	---	---	1320	880	1130	1640	1550	1620	---	---	---
30	---	---	---	---	---	---	1660	1630	1640	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	1470	1430	1450	1570	1190	1440	---	---	---
2	---	---	---	1490	1350	1430	1450	1240	1340	1600	873	1440
3	---	---	---	1460	1410	1430	1490	1440	1470	1500	1050	1290
4	---	---	---	1460	1370	1410	1480	1410	1440	---	---	---
5	---	---	---	1440	1290	1360	1470	1430	1450	1220	1120	1100
6	---	---	---	1440	1400	1420	1460	1180	1320	1240	1210	1220
7	722	361	496	1470	1410	1440	---	---	---	1240	1160	1200
8	1250	344	492	1430	1420	1430	---	---	---	1200	1120	1170
9	881	356	466	1480	1430	1450	1520	1460	1490	1120	1040	1090
10	769	388	497	1490	1430	1460	1480	1340	1410	1120	990	1050
11	---	---	---	1530	1450	1490	1540	1460	1500	1380	490	1060
12	---	---	---	1520	1460	1500	1570	1530	1550	1490	195	742
13	---	---	---	1540	1480	1510	1580	1370	1550	561	108	405
14	---	---	---	1540	1380	1440	1220	474	716	362	113	246
15	---	---	---	1460	1400	1430	744	521	620	519	349	431
16	---	---	---	1380	1270	1320	930	747	829	605	411	521
17	---	---	---	1430	1310	1360	1070	855	977	740	432	636
18	---	---	---	1480	1420	1440	1280	1080	1160	926	740	784
19	---	---	---	1490	1450	1470	1490	1260	1380	1070	921	1010
20	---	---	---	1510	1460	1480	1510	1460	1500	1370	1070	1170
21	---	---	---	1510	1110	1470	1440	1250	1340	1400	947	1270
22	1650	1460	1560	1520	1480	1510	1510	1420	1460	1480	929	1120
23	1720	1470	1590	1520	1470	1490	1570	1520	1540	1520	1290	1390
24	1550	1050	1390	1500	1450	1470	1580	1050	1420	1540	778	1380
25	---	---	---	1500	1420	1460	1590	1560	1570	1570	1520	1550
26	1350	1060	1240	1510	1440	1480	1590	1470	1560	1560	1430	1550
27	1230	1000	1090	1530	1480	1500	1580	1500	1540	1550	1020	1360
28	1430	1280	1370	1560	1480	1510	1540	1500	1520	1520	1170	1340
29	1470	1410	1430	1540	1470	1500	---	---	---	1550	1480	1530
30	1470	1380	1430	1550	1500	1520	---	---	---	1570	1450	1530
31	---	---	---	1560	1510	1530	1410	1140	1180	---	---	---

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	7.9	7.6	7.8	8.5	7.8	8.3
2	---	---	---	---	---	---	8.1	7.5	7.7	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	8.0	7.5	7.7
5	---	---	---	---	---	---	7.7	6.8	7.0	8.2	7.9	8.1
6	---	---	---	---	---	---	8.4	6.8	7.8	7.8	7.4	7.6
7	---	---	---	---	---	---	8.3	8.0	8.3	7.9	7.4	7.7
8	---	---	---	---	---	---	8.3	7.8	8.2	8.0	7.6	7.7
9	---	---	---	---	---	---	8.4	8.1	8.2	8.5	7.7	8.3
10	---	---	---	---	---	---	8.2	7.8	8.0	8.3	7.1	8.1
11	---	---	---	---	---	---	7.9	7.2	7.7	7.2	6.9	7.1
12	---	---	---	---	---	---	7.8	7.2	7.6	7.5	6.9	7.2
13	---	---	---	---	---	---	8.4	7.5	8.1	8.3	7.4	7.7
14	---	---	---	---	---	---	8.4	8.2	8.3	8.1	7.5	7.6
15	---	---	---	---	---	---	8.4	8.1	8.3	8.3	7.4	7.6
16	---	---	---	---	---	---	8.4	8.3	8.4	8.0	7.6	7.8
17	---	---	---	---	---	---	8.4	8.4	8.4	---	---	---
18	---	---	---	---	---	---	8.5	8.3	8.4	---	---	---
19	---	---	---	---	---	---	8.4	8.2	8.3	---	---	---
20	---	---	---	---	---	---	8.2	7.8	8.0	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	8.4	8.0	8.1	8.5	8.4	8.4	---	---	---
26	---	---	---	8.1	7.8	7.9	8.5	8.3	8.4	---	---	---
27	---	---	---	8.1	7.5	7.7	8.4	8.1	8.2	---	---	---
28	---	---	---	8.0	7.5	7.7	8.5	8.1	8.4	---	---	---
29	---	---	---	8.6	7.4	8.1	8.5	8.3	8.4	---	---	---
30	---	---	---	---	---	---	8.5	8.3	8.4	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	8.2	8.0	8.1	8.4	8.2	8.3	8.5	7.7	8.0
2	---	---	---	8.2	8.1	8.2	8.2	8.0	8.1	8.9	7.4	8.1
3	---	---	---	8.3	8.1	8.2	8.2	8.1	8.2	8.2	7.5	7.9
4	---	---	---	8.4	8.2	8.3	8.4	8.1	8.3	---	---	8.1
5	---	---	---	8.4	8.2	8.3	8.4	8.2	8.3	8.6	7.6	8.7
6	7.8	7.4	7.7	8.3	8.1	8.2	8.3	8.1	8.2	8.7	8.4	8.6
7	7.8	7.5	7.7	8.3	8.2	8.3	8.1	8.3	7.4	8.6	8.4	8.5
8	7.5	7.3	7.4	8.3	8.2	8.2	8.5	8.2	7.5	8.6	8.1	8.3
9	7.6	7.2	7.4	8.4	8.2	8.3	8.4	8.4	8.4	8.5	8.2	8.4
10	7.8	7.6	7.7	8.4	8.2	8.3	8.4	8.2	8.3	8.5	8.2	8.4
11	8.0	7.7	7.8	8.4	8.2	8.3	8.3	8.2	8.3	8.4	7.5	7.9
12	7.9	7.6	7.7	8.4	8.2	8.3	8.4	8.3	8.3	8.3	7.6	7.9
13	---	---	---	8.3	8.2	8.3	8.3	8.2	8.3	8.9	7.5	8.5
14	---	---	---	8.2	8.1	8.2	8.2	7.5	7.9	8.7	7.4	8.2
15	---	---	---	8.2	8.1	8.2	7.6	7.4	7.5	8.6	7.1	7.9
16	8.3	7.9	8.0	8.1	8.0	8.0	7.9	7.5	7.6	7.8	7.4	7.6
17	8.1	7.9	8.0	8.2	8.0	8.1	8.0	7.6	7.8	8.0	7.6	7.7
18	8.1	7.9	8.0	8.2	8.1	8.2	8.1	7.9	8.0	8.5	7.6	7.7
19	8.1	8.0	8.1	8.3	8.1	8.2	8.1	7.9	8.0	8.7	8.3	8.5
20	8.2	7.9	8.0	8.3	8.2	8.3	8.1	7.9	8.0	8.6	8.2	8.3
21	8.2	8.0	8.1	8.3	8.2	8.3	8.0	7.9	8.0	8.5	7.3	8.2
22	8.2	8.1	8.2	8.3	8.2	8.2	8.4	8.0	8.2	8.7	8.2	8.3
23	8.1	7.9	8.0	8.3	8.2	8.2	8.4	8.3	8.3	8.3	8.2	8.2
24	7.9	7.7	7.8	8.3	8.2	8.2	8.4	7.8	8.2	8.3	8.2	8.2
25	7.8	7.7	7.7	8.3	8.2	8.2	8.1	7.9	8.0	8.3	8.2	8.3
26	8.0	7.8	7.9	8.3	8.2	8.3	8.4	7.4	7.7	8.3	8.2	8.2
27	8.1	7.9	8.0	8.3	8.2	8.3	8.2	7.8	8.0	8.3	7.2	7.5
28	8.1	8.0	8.0	8.3	8.3	8.3	8.4	8.0	8.1	8.2	7.3	7.9
29	8.2	8.0	8.1	8.4	8.3	8.3	8.3	7.3	7.9	8.0	7.5	7.8
30	8.1	8.0	8.0	8.4	8.2	8.3	7.5	7.3	7.4	8.2	7.3	7.7
31	---	---	---	8.4	8.3	8.4	7.7	7.1	7.5	---	---	---

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	18.5	10.5	14.0	25.0	17.5	20.5
2	---	---	---	---	---	---	19.5	12.5	16.0	18.5	16.0	17.0
3	---	---	---	---	---	---	16.0	14.5	15.5	20.0	15.5	17.0
4	---	---	---	---	---	---	16.5	15.5	16.0	23.0	15.0	18.0
5	---	---	---	---	---	---	16.5	15.5	16.5	23.5	14.5	18.5
6	---	---	---	---	---	---	16.5	14.5	15.5	22.5	15.0	18.0
7	---	---	---	---	---	---	15.5	14.5	15.0	24.5	14.5	18.5
8	---	---	---	---	---	---	15.5	14.0	15.0	---	---	---
9	---	---	---	---	---	---	15.0	13.5	14.0	21.5	18.5	20.0
10	---	---	---	---	---	---	13.5	11.5	12.5	25.5	16.5	20.0
11	---	---	---	---	---	---	11.0	10.5	10.5	24.5	16.5	19.5
12	---	---	---	---	---	---	12.0	10.5	11.5	18.5	16.0	17.0
13	---	---	---	---	---	---	12.5	11.5	12.5	20.0	16.5	18.0
14	---	---	---	---	---	---	14.0	12.5	13.0	24.0	17.5	20.0
15	---	---	---	---	---	---	16.0	13.0	14.5	25.5	19.0	20.5
16	---	---	---	---	---	---	17.5	14.5	16.5	24.5	18.5	20.5
17	---	---	---	---	---	---	19.0	16.5	18.0	20.0	18.5	19.0
18	---	---	---	---	---	---	20.0	18.5	19.5	20.5	19.0	19.5
19	---	---	---	---	---	---	21.5	19.5	20.0	---	---	---
20	---	---	---	---	---	---	19.5	19.0	19.5	---	---	---
21	---	---	---	---	---	---	20.0	18.5	19.5	---	---	---
22	---	---	---	---	---	---	21.5	19.5	22.0	---	---	---
23	---	---	---	---	---	---	23.0	20.0	22.5	---	---	---
24	---	---	---	---	---	---	23.5	21.5	23.0	24.5	22.0	24.0
25	---	---	---	20.5	12.0	15.5	23.5	22.0	23.0	26.0	24.5	25.0
26	---	---	---	20.5	15.0	17.5	24.0	23.0	23.5	25.5	23.0	24.0
27	---	---	---	20.0	15.0	17.0	25.0	23.0	24.0	23.5	23.0	23.0
28	---	---	---	19.5	15.0	16.5	25.0	21.5	23.5	23.5	23.0	23.5
29	---	---	---	19.0	15.5	18.0	24.5	21.5	23.0	23.0	23.0	23.5
30	---	---	---	---	---	---	23.5	21.0	22.0	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	25.5	21.5	23.5	29.5	28.5	29.0	30.0	28.0	28.0	28.5	27.0	27.5
2	24.5	21.5	23.5	30.0	28.0	29.0	29.0	25.5	27.5	28.5	27.0	27.5
3	22.0	20.5	21.5	30.0	28.0	28.0	29.0	24.0	26.5	28.0	26.5	27.0
4	21.5	20.5	21.0	30.0	28.5	29.0	---	---	---	27.5	24.0	26.0
5	31.5	20.0	26.0	30.0	28.0	29.0	---	---	---	28.5	26.0	27.5
6	26.5	20.0	21.5	29.5	28.5	29.5	---	---	---	28.0	27.0	27.5
7	25.0	20.5	22.5	30.5	29.0	29.5	---	---	---	28.0	27.0	27.5
8	---	---	---	30.5	29.0	29.0	---	---	---	27.5	26.5	27.0
9	---	---	---	30.5	29.0	29.5	---	---	---	26.5	23.5	25.5
10	---	---	---	29.5	29.0	29.5	---	---	---	25.5	23.5	24.0
11	---	---	---	30.0	28.5	29.0	---	---	---	23.5	22.5	23.5
12	---	---	---	30.0	28.5	29.0	24.0	23.5	23.5	22.5	19.0	21.5
13	---	---	---	30.0	27.0	29.0	24.0	23.0	23.5	19.5	15.0	17.0
14	---	---	---	29.5	27.5	28.5	23.0	22.0	22.5	15.0	14.5	15.0
15	---	---	---	29.0	27.5	28.0	23.0	20.5	22.0	17.5	15.0	16.0
16	---	---	---	29.5	28.5	29.0	24.5	23.5	24.0	18.5	17.0	17.5
17	24.5	23.0	23.5	30.5	29.0	29.5	25.5	24.5	25.0	20.0	18.5	19.5
18	26.5	24.0	25.0	30.5	28.5	29.5	27.0	25.5	26.0	20.5	20.0	20.5
19	27.0	25.5	26.0	29.5	27.5	28.5	27.5	26.5	27.0	21.0	20.5	20.5
20	28.0	26.5	27.0	28.0	26.5	27.5	28.5	27.0	27.5	22.5	20.0	21.5
21	---	---	---	27.0	25.5	26.5	---	---	---	23.0	21.0	22.0
22	---	---	---	27.0	25.5	26.5	---	---	---	21.0	19.0	20.5
23	---	---	---	27.0	26.0	26.5	28.5	27.5	27.5	20.5	18.0	19.0
24	---	---	---	26.5	25.5	26.0	29.5	28.0	28.5	18.0	16.5	17.5
25	---	---	---	27.0	25.5	26.0	29.0	28.0	28.5	18.0	16.5	17.0
26	---	---	---	27.5	26.5	27.0	29.0	28.0	28.5	18.5	16.0	17.0
27	29.5	27.0	28.0	27.5	27.0	27.0	29.5	28.5	28.5	23.5	15.5	19.5
28	29.5	27.5	28.0	28.0	26.5	27.5	29.0	28.0	28.5	19.0	14.0	17.0
29	29.0	27.5	28.0	28.5	27.0	27.5	29.5	22.5	27.0	19.5	18.0	19.0
30	29.0	27.5	28.0	29.0	27.5	28.5	26.0	21.0	23.0	20.5	19.0	19.5
31	---	---	---	29.5	28.5	29.0	28.5	25.5	27.5	---	---	---

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	9.7	7.4	8.4
2	---	---	---	---	---	---	---	---	---	9.4	6.5	7.6
3	---	---	---	---	---	---	---	---	---	10.9	7.1	8.6
4	---	---	---	---	---	---	---	---	---	11.6	7.1	8.8
5	---	---	---	---	---	---	---	---	---	12.2	6.8	9.1
6	---	---	---	---	---	---	---	---	---	14.0	6.5	9.6
7	---	---	---	---	---	---	---	---	---	14.2	6.6	9.7
8	---	---	---	---	---	---	---	---	---	15.0	6.4	9.7
9	---	---	---	---	---	---	---	---	---	9.2	5.9	7.8
10	---	---	---	---	---	---	---	---	---	12.4	6.2	8.6
11	---	---	---	---	---	---	---	---	---	11.5	6.3	8.4
12	---	---	---	---	---	---	---	---	---	8.0	6.3	7.3
13	---	---	---	---	---	---	---	---	---	8.9	7.4	8.2
14	---	---	---	---	---	---	---	---	---	10.4	6.7	8.2
15	---	---	---	---	---	---	9.6	8.8	9.2	11.0	6.2	7.8
16	---	---	---	---	---	---	9.1	8.1	8.7	10.3	6.5	7.8
17	---	---	---	---	---	---	8.9	7.9	8.2	8.5	4.7	7.1
18	---	---	---	---	---	---	8.6	7.8	8.1	7.3	6.0	6.5
19	---	---	---	---	---	---	8.7	7.9	8.2	7.8	5.7	6.8
20	---	---	---	---	---	---	8.6	7.8	8.1	9.1	5.8	7.1
21	---	---	---	---	---	---	8.5	7.7	8.1	9.6	5.6	7.3
22	---	---	---	---	---	---	8.4	7.5	7.9	11.4	5.4	7.7
23	---	---	---	---	---	---	8.6	7.6	8.0	11.3	4.9	7.5
24	---	---	---	---	---	---	8.4	7.0	7.6	---	---	---
25	---	---	---	---	---	---	8.1	7.3	7.6	---	---	---
26	---	---	---	---	---	---	8.3	7.2	7.7	---	---	---
27	---	---	---	---	---	---	9.7	6.9	7.4	---	---	---
28	---	---	---	---	---	---	8.8	6.7	7.6	---	---	---
29	---	---	---	---	---	---	8.9	6.8	7.7	---	---	---
30	---	---	---	---	---	---	9.0	7.3	8.0	---	---	---
31	---	---	---	---	---	---	---	---	---	8.7	7.1	7.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.8	7.4	8.2	8.6	7.9	8.2	8.5	8.1	8.2	8.3	6.4	7.2
2	---	---	---	8.6	8.0	8.2	8.6	8.1	8.3	8.4	6.9	7.5
3	---	---	---	8.6	8.0	8.2	8.9	8.2	8.5	8.5	7.3	7.8
4	---	---	---	8.5	7.9	8.2	8.3	7.9	8.1	7.5	5.5	7.1
5	---	---	---	8.4	7.9	8.1	8.2	7.7	7.9	8.1	6.0	7.1
6	---	---	---	8.2	7.8	8.0	8.1	7.7	7.9	8.1	7.0	7.4
7	15.4	9.4	11.9	8.2	7.9	8.1	9.4	7.6	8.2	8.9	6.8	7.1
8	15.6	6.4	10.4	8.1	7.7	8.0	10.3	7.4	8.6	8.2	6.8	7.3
9	12.0	7.2	8.6	8.1	7.7	7.9	8.1	7.4	7.7	7.9	6.8	7.2
10	11.1	7.5	9.4	8.3	7.7	8.0	7.7	7.3	7.5	8.7	7.1	7.9
11	12.8	7.8	10.3	8.4	7.9	8.1	8.0	7.5	7.7	8.2	7.3	7.8
12	10.7	7.1	8.6	8.3	7.8	8.1	8.2	7.8	8.0	9.2	6.2	8.5
13	15.8	7.6	9.8	8.3	7.8	8.0	8.3	7.9	8.2	11.0	6.6	9.8
14	9.3	6.9	8.0	8.5	8.1	8.3	8.9	8.2	8.5	---	---	---
15	9.4	6.1	7.6	8.5	7.9	8.3	8.8	8.0	8.4	10.7	5.7	8.4
16	10.0	6.4	7.2	8.0	7.9	8.0	8.2	7.8	8.0	---	---	---
17	8.7	7.8	8.3	8.4	7.9	8.1	8.1	7.9	8.0	---	---	---
18	8.5	7.6	8.0	8.4	8.0	8.2	8.4	8.0	8.2	---	---	---
19	7.7	6.8	7.4	8.2	7.9	8.0	8.3	7.6	8.0	9.3	8.8	9.0
20	7.5	6.7	7.0	8.4	7.8	8.1	8.4	7.6	7.9	9.4	8.7	9.1
21	7.8	6.8	7.2	8.5	7.9	8.2	8.1	6.8	7.3	9.3	4.4	8.1
22	8.2	7.2	7.7	8.4	8.0	8.2	10.8	6.7	8.7	9.1	8.4	8.8
23	8.8	8.1	8.4	8.5	8.0	8.2	9.2	7.2	8.1	9.6	8.8	9.3
24	8.9	8.0	8.4	8.7	8.3	8.5	8.5	7.3	7.6	10.2	9.5	9.8
25	---	---	---	8.8	8.3	8.5	9.8	7.3	8.2	10.3	9.6	9.9
26	---	---	---	8.6	8.3	8.4	8.8	7.2	7.7	10.5	9.4	9.9
27	8.7	6.2	8.4	8.6	8.3	8.4	9.3	7.2	7.7	9.6	7.4	9.0
28	8.9	8.1	8.4	8.6	8.3	8.4	8.1	7.1	7.5	12.6	7.9	9.8
29	8.7	8.2	8.4	8.7	8.1	8.4	10.9	7.1	7.8	12.6	8.6	9.9
30	8.5	8.1	8.3	8.4	7.9	8.2	9.5	6.5	8.4	12.2	8.7	10.2
31	---	---	---	8.3	8.0	8.1	7.8	5.6	6.7	---	---	---

ARKANSAS RIVER BASIN

07241503 NORTH CANADIAN RIVER AT N.E. 36TH STREET AT OKLAHOMA CITY, OK

LOCATION.-- Lat 35°30'28", long 97°25'23", in SW 1/4 SW 1/4 sec.16, T.12 N., R.2 W., Oklahoma County, Hydrologic Unit 11100302, attached to fourth pier on downstream side of bridge on N.E. 36th Street, 3 mi upstream from Crutcho Creek, 4 mi southwest of Spencer, and at mile 259.5.

DRAINAGE AREA.-- 13,356 mi², of which 4,899 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,131.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Flow regulated by Canton Lake (station 07238500) and by Lake Overholser (station 07240500) where diversions are made into Lake Hefner Canal (station 07240000). U.S. Geological Survey's satellite telemeter located at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 24,700 ft³/s, June 13, 1989, gage height, 21.49 ft; minimum, 30 ft³/s, Dec. 19, 20, 1988.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 24,700 ft³/s, June 13, gage height, 21.49 ft; minimum daily discharge, 30 ft³/s, Dec. 19, 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e72	101	35	54	300	96	57	74	3770	994	983	157
2	e84	102	31	61	e230	92	44	56	3180	1290	1340	551
3	e58	103	31	81	e160	92	43	42	913	910	863	651
4	e53	111	30	70	e169	e250	261	256	9600	396	680	348
5	66	170	36	43	e200	e200	209	55	6420	779	950	163
6	49	164	31	93	e139	e270	123	e36	414	1090	1860	638
7	531	105	34	64	e115	e210	120	e34	9190	613	666	513
8	385	77	125	125	e94	e150	189	e33	5700	854	193	331
9	300	60	78	54	e90	110	200	e31	5570	771	344	274
10	e150	61	39	66	96	71	197	44	2730	803	345	240
11	e60	126	35	65	74	99	186	e35	1240	828	471	299
12	e48	1470	45	124	72	100	186	570	2080	839	530	655
13	e43	153	35	81	239	97	187	346	13900	909	585	9010
14	e42	73	31	112	569	96	201	90	7330	1580	6190	5510
15	e40	95	51	63	405	68	196	56	3600	885	2780	4630
16	e80	529	60	57	143	57	190	148	1300	866	1420	2240
17	e75	68	40	81	291	55	190	1150	565	857	574	935
18	e100	40	37	77	185	85	190	415	790	854	545	689
19	e200	130	30	73	115	90	189	100	688	849	537	618
20	360	219	30	75	148	91	188	55	639	655	544	1100
21	72	62	31	71	218	112	187	47	459	605	583	902
22	54	39	171	69	132	50	184	41	1710	610	577	528
23	51	34	58	70	58	40	183	39	2090	1590	569	984
24	68	32	54	68	94	39	186	36	1570	1130	565	634
25	48	31	52	137	94	40	186	321	1510	1010	555	389
26	51	31	32	133	93	40	191	300	669	1070	549	604
27	48	31	168	81	98	190	179	329	533	886	546	340
28	67	53	108	288	107	969	92	358	901	904	537	127
29	100	33	40	125	---	138	78	451	1040	949	462	191
30	100	57	34	96	---	180	76	383	1020	856	71	222
31	101	---	48	92	---	174	---	312	---	795	52	---
TOTAL	3536	4360	1860	2749	4726	4351	4888	6243	91121	28027	27266	34473
MEAN	114	145	53.5	88.7	169	140	163	201	3037	904	880	1149
MAX	531	1470	171	288	569	969	261	1150	13900	1590	6190	9010
MIN	40	31	30	43	58	39	43	31	414	396	52	127
AC-FT	7010	8650	3290	5450	9300	8630	9700	12380	180700	55590	54080	68380

WTR YR 1989 TOTAL 213402 MEAN 585 MAX 13900 MIN 30 AC-FT 423300

e Estimated

ARKANSAS RIVER BASIN

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
AUG 24...	0.060	0.27	0.100	0.33	0.160	0.800	1.0	--	0.140	0.43
24...	--	--	--	--	--	0.780	1.0	0.160	0.150	0.46
SEP 22...	0.290	1.3	0.110	0.36	0.400	0.950	1.2	--	0.390	1.2
22...	--	--	--	--	--	0.810	1.0	0.390	0.760	2.3

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
AUG 24...	6	260	<0.5	2.0	<5	<3	<10	53	30	62
24...	--	--	--	--	--	--	--	--	--	--
SEP 22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)
AUG 24...	91	<0.1	30	<10	<1	<1.0	2000	<6	<3	9.7
24...	--	--	--	--	--	--	--	--	--	--
SEP 22...	--	--	--	--	--	--	--	--	--	6.7
22...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
OCT 21...	1300	1028	80020	5.16	63	925	7.8	21.0	19.0	--	730
21...	1301	1028	9999	5.16	63	925	7.8	21.0	19.0	16	730
NOV 08...	1500	1028	80020	5.19	56	1640	8.2	17.0	16.5	--	740
08...	1501	1028	9999	5.19	56	1640	8.2	17.0	16.5	1.7	740
DEC 14...	1100	1028	80020	4.89	25	1920	8.0	13.0	10.5	--	730
14...	1101	1028	9999	4.89	25	1920	8.0	13.0	10.5	3.3	730
JAN 23...	1210	1028	80020	5.25	63	1770	7.8	16.0	9.0	--	730
23...	1211	1028	9999	5.25	63	1770	7.8	16.0	9.0	4.7	730
FEB 15...	1315	1028	80020	6.67	514	756	8.0	2.0	2.5	--	740
15...	1316	1028	9999	6.67	514	756	8.0	2.0	2.5	66	740
MAR 22...	1050	1028	80020	5.25	63	1700	8.0	12.0	9.0	--	740
22...	1051	1028	9999	5.25	63	1700	8.0	12.0	9.0	9.1	740
APR 11...	1100	1028	9999	5.77	195	1890	8.2	12.5	11.0	22	740
11...	1135	1028	80020	5.77	195	1890	8.2	12.5	11.0	--	740
MAY 09...	0950	1028	9999	4.92	40	2030	8.5	21.0	20.0	6.0	730
09...	1045	1028	80020	4.92	40	2030	8.5	21.0	20.0	--	730

ARKANSAS RIVER BASIN

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07241503 NORTH CANADIAN RIVER AT NE 38TH ST AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
OCT											
21...	7.3	82	--	--	--	--	--	--	--	--	--
21...	7.3	82	--	--	9600	600	--	--	--	--	--
NOV											
08...	9.4	100	--	--	--	--	500	120	49	190	45
08...	9.4	100	--	--	2000	100	--	--	--	--	--
DEC											
14...	11.2	105	--	--	--	--	--	--	--	--	--
14...	11.2	105	--	--	800	110	--	--	--	--	--
JAN											
23...	10.2	93	--	2.0	--	--	--	--	--	--	--
23...	10.2	93	--	--	110	60	--	--	--	--	--
FEB											
15...	12.4	94	--	7.4	--	--	230	55	22	70	40
15...	12.4	94	--	--	600	4400	--	--	--	--	--
MAR											
22...	10.0	89	--	3.0	--	--	--	--	--	--	--
22...	10.0	90	--	--	10	--	--	--	--	--	--
APR											
11...	10.6	100	0.32	--	600	40	--	--	--	--	--
11...	10.6	100	--	4.2	--	--	--	--	--	--	--
MAY											
09...	9.7	112	0.44	--	7600	500	--	--	--	--	--
09...	9.7	112	--	9.1	--	--	470	110	46	280	54
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)
OCT											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	30
NOV											
08...	4	6.5	220	260	0.60	15	1070	1060	1.46	182	--
08...	--	--	--	--	--	--	--	--	--	--	4
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	8
JAN											
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	17
FEB											
15...	2	4.0	95	81	0.30	8.6	453	440	0.82	629	--
15...	--	--	--	--	--	--	--	--	--	--	177
MAR											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	19
APR											
11...	--	--	--	--	--	--	--	--	--	--	45
11...	--	--	--	--	--	--	--	--	--	--	--
MAY											
09...	--	--	--	--	--	--	--	--	--	--	13
09...	5	8.6	190	430	0.70	11	1290	1240	1.75	139	--

ARKANSAS RIVER BASIN

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, N02+N03 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT											
21...	0.540	2.4	0.070	0.23	0.610	0.420	0.54	--	--	--	0.150
21...	--	--	--	--	--	0.200	0.26	0.26	0.46	0.170	0.210
NOV											
08...	0.360	1.6	0.060	0.20	0.420	0.630	0.81	--	--	--	0.610
08...	--	--	--	--	--	--	--	--	1.7	0.670	--
DEC											
14...	0.620	2.7	0.080	0.26	0.700	0.540	0.70	--	--	--	0.430
14...	--	--	--	--	--	--	--	--	1.6	0.640	0.380
JAN											
23...	0.400	1.8	0.030	0.10	0.430	0.530	0.68	--	--	--	0.220
23...	--	--	--	--	--	0.740	0.95	0.22	0.96	0.150	0.230
FEB											
15...	0.930	4.1	0.050	0.16	0.980	0.380	0.49	--	--	--	0.140
15...	--	--	0.060	0.20	--	0.320	0.41	0.74	1.1	0.240	--
MAR											
22...	0.120	--	--	--	0.130	0.190	0.24	--	--	--	0.300
22...	--	--	0.150	0.49	--	0.080	0.10	0.17	0.25	0.200	0.250
APR											
11...	--	--	<0.010	--	0.110	0.040	0.05	0.17	0.21	0.260	0.160
11...	0.080	--	0.020	0.07	--	0.050	0.06	--	--	--	0.230
MAY											
09...	--	--	--	--	0.080	0.170	0.22	0.19	0.36	0.320	0.590
09...	0.090	0.40	0.040	0.13	0.130	0.110	0.14	--	--	--	0.370

DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT											
21...	0.46	--	--	--	--	--	--	--	--	--	--
21...	0.64	--	--	--	--	--	--	--	--	--	--
NOV											
08...	1.9	6	210	<0.5	<1.0	<5	<3	<10	7	<10	51
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	1.3	--	--	--	--	--	--	--	--	--	--
14...	1.2	--	--	--	--	--	--	--	--	--	--
JAN											
23...	0.67	--	--	--	--	--	--	--	--	--	--
23...	0.71	--	--	--	--	--	--	--	--	--	--
FEB											
15...	0.43	3	100	<0.5	1.0	<5	<3	<10	110	<10	17
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	0.92	--	--	--	--	--	--	--	--	--	--
22...	0.77	--	--	--	--	--	--	--	--	--	--
APR											
11...	0.49	--	--	--	--	--	--	--	--	--	--
11...	0.71	--	--	--	--	--	--	--	--	--	--
MAY											
09...	1.8	--	--	--	--	--	--	--	--	--	--
09...	1.1	3	250	<2	7.0	40	<9	<30	25	<30	56

ARKANSAS RIVER BASIN

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07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE		MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	
OCT												
21...		--	--	--	--	--	--	--	--	--	6.3	
21...		--	--	--	--	--	--	--	--	--	--	
NOV												
08...		53	<0.1	<10	<10	<1	<1.0	1400	7	6	7.3	
08...		--	--	--	--	--	--	--	--	--	--	
DEC												
14...		--	--	--	--	--	--	--	--	--	6.4	
14...		--	--	--	--	--	--	--	--	--	--	
JAN												
23...		--	--	--	--	--	--	--	--	--	7.3	
23...		--	--	--	--	--	--	--	--	--	--	
FEB												
15...		27	<0.1	<10	<10	<1	<1.0	610	<6	43	9.4	
15...		--	--	--	--	--	--	--	--	--	--	
MAR												
22...		--	--	--	--	--	--	--	--	--	8.9	
22...		--	--	--	--	--	--	--	--	--	--	
APR												
11...		--	--	--	--	--	--	--	--	--	--	
11...		--	--	--	--	--	--	--	--	--	15	
MAY												
09...		--	--	--	--	--	--	--	--	--	--	
09...		240	0.1	<30	<30	<1	<3.0	1900	<18	<9	9.1	
DATE		TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)
JUN												
20...		1000	1028	1028	10.0	--	--	1460	7.7	--	24.5	--
20...		1005	1028	1028	20.0	--	--	1430	7.8	--	24.5	--
20...		1010	1028	1028	30.0	--	--	1450	8.1	--	24.5	--
20...		1015	1028	1028	40.0	--	--	1480	8.2	--	24.5	--
20...		1020	1028	1028	50.0	--	--	1500	8.2	--	24.5	--
20...		1025	1028	1028	60.0	--	--	1500	8.3	--	24.5	--
20...		1030	1028	1028	70.0	--	--	1490	8.3	--	24.5	--
20...		1035	1028	1028	80.0	--	--	1490	8.4	--	24.5	--
20...		1040	1028	1028	90.0	--	--	1500	8.4	--	24.5	--
20...		1045	1028	1028	100	--	--	1510	8.4	--	24.5	--
20...		1050	1028	1028	110	--	--	1500	8.4	--	24.5	--
20...		1055	1028	1028	120	--	--	1520	8.4	--	24.5	--
20...		1100	1028	1028	130	--	--	1520	8.4	--	24.5	--
20...		1105	1028	1028	140	--	--	1520	8.4	--	24.5	--
20...		1110	1028	1028	150	--	--	1510	8.4	--	24.5	--
20...		1115	1028	1028	160	--	--	1530	8.4	--	24.5	--
20...		1120	1028	1028	170	--	--	1530	8.4	--	24.5	--
20...		1130	1028	80020	--	7.34	762	1500	8.4	28.0	24.5	--
20...		1131	1028	9999	--	7.34	762	1500	8.4	28.0	24.5	42
JUL												
17...		1020	1028	80020	--	7.59	892	1400	8.1	26.0	27.0	--
17...		1021	1028	9999	--	7.59	892	1400	8.1	26.0	27.0	38
AUG												
23...		0745	1028	80020	--	6.88	562	1530	8.3	24.5	24.5	--
23...		0746	1028	9999	--	6.88	562	1530	8.3	24.5	24.5	32
SEP												
25...		1130	1028	9999	--	6.09	275	1410	8.4	21.0	16.0	35
25...		1158	1028	80020	--	6.09	275	1410	8.4	21.0	16.0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
AUG 24...	1330	<1	<1.0	<0.1	1.0	0.2	<0.1	<0.1	<0.1	<0.1

[illegible]

DATE	WIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP, IN BOTTOM MAT. (UG/KG)	2,4,6-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
AUG 24...	<0.1	<0.1	<1.00	<10	<0.1	<0.1	<0.1	<0.1	<0.1

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 08...	1500	<1	<1.0	<0.1	<1.0	<0.1	0.1	<0.1	<0.1	<0.1
FEB 15...	1315	2	<1.0	<0.1	2.0	<0.1	<0.1	<0.1	<0.1	<0.1
MAY 09...	1045	<1	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1

DATE	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOT- TOM MA- TERIAL (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)
NOV 08...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
FEB 15...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MAY 09...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

DATE	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP, IN BOTTOM MAT. (UG/KG)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 08...	<0.1	<0.1	<1.00	<10	<0.1	<0.1	<0.1	<0.1	<0.1
FEB 15...	<0.1	<0.1	<1.00	<10	<0.1	<0.1	<0.1	<0.1	<0.1
MAY 09...	<0.1	<0.1	<1.00	<10	<0.1	<0.1	<0.1	<0.1	<0.1

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
AUG 23...	0745	3	<1.0	<0.1	1.0	<0.1	<0.1	<0.1	<0.1	<0.1

DATE	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOT- TOM MA- TERIAL (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)
AUG 23...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

DATE	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-DP, IN BOTTOM MAT. (UG/KG)	2,4,5-T TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	SILVEX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
AUG 23...	<0.1	<0.1	<1.00	<10	<0.1	<1.0	<1.0	<1.0	<1.0

ARKANSAS RIVER BASIN

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	1510	1450	1480	---	---	---	1550	1150	1410
2	---	---	---	1540	1490	1520	---	---	---	1630	1490	1570
3	---	---	---	1530	1470	1500	---	---	---	1570	1450	1520
4	---	---	---	1500	1430	1480	---	---	---	1680	1210	1440
5	---	---	---	1500	1400	1430	---	---	---	1840	1680	1750
6	---	---	---	1450	1320	1360	---	---	---	1750	1440	1520
7	---	---	---	1510	1440	1480	2340	1980	2120	1630	1530	1600
8	---	---	---	1730	1490	1590	2200	1310	1520	1570	1220	1470
9	---	---	---	1860	1650	1770	1570	1180	1350	1680	1550	1620
10	---	---	---	2080	1550	1810	1760	1560	1660	1650	1600	1630
11	---	---	---	1910	1490	1700	1840	1600	1720	1650	1600	1620
12	---	---	---	---	---	---	1890	1550	1660	1660	1230	1500
13	---	---	---	---	---	---	1810	1590	1680	1580	1260	1490
14	---	---	---	---	---	---	1940	1580	1860	1810	1500	1610
15	---	---	---	---	---	---	1970	1510	1810	1820	1200	1400
16	---	---	---	---	---	---	1570	1450	1500	1560	1270	1500
17	---	---	---	---	---	---	1850	1580	1680	1600	1520	1560
18	---	---	---	---	---	---	1720	1560	1630	1640	1550	1590
19	---	---	---	---	---	---	2000	1560	1870	1650	1580	1610
20	---	---	---	---	---	---	1960	1830	1910	1690	1560	1650
21	---	---	---	---	---	---	2080	1960	2020	1700	1580	1630
22	1630	1260	1450	---	---	---	2000	575	1640	1710	1610	1670
23	1900	1550	1680	---	---	---	1430	533	1030	1790	1650	1740
24	1560	1400	1480	---	---	---	1880	1440	1640	1710	1640	1670
25	1760	1520	1650	---	---	---	1630	1410	1480	1680	1060	1380
26	1800	1660	1740	---	---	---	1890	1580	1770	1380	1140	1320
27	1890	1510	1770	---	---	---	1900	577	1400	1480	1370	1430
28	1960	1490	1760	---	---	---	1320	837	1140	1480	461	954
29	1580	1140	1390	---	---	---	1610	1180	1410	809	469	634
30	1460	1140	1400	---	---	---	1730	1540	1640	1010	821	925
31	1450	1400	1420	---	---	---	1840	1550	1720	1090	1020	1050

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	1870	1760	1830
2	---	---	---	---	---	---	---	---	---	2210	1750	1960
3	---	---	---	---	---	---	---	---	---	2280	1770	2170
4	2000	1810	1930	---	---	---	---	---	---	2270	561	1070
5	2020	1690	1890	---	---	---	---	---	---	1530	639	1200
6	1730	1680	1710	2010	1320	1400	---	---	---	2010	1540	1820
7	1690	1630	1660	2220	1760	1920	---	---	---	2160	1890	2030
8	1630	1600	1610	1940	1410	1540	---	---	---	2290	1960	2110
9	1810	1630	1720	1600	1400	1490	---	---	---	2340	1980	2100
10	1760	1340	1450	1870	1490	1650	---	---	---	---	---	---
11	---	---	---	1750	1470	1980	---	---	---	---	---	---
12	---	---	---	1800	1510	1960	---	---	---	---	---	---
13	---	---	---	1710	1540	1590	---	---	---	---	---	---
14	---	---	---	2250	1560	1680	2610	1610	1730	---	---	---
15	---	---	---	1860	1570	1720	2640	1640	1810	---	---	---
16	---	---	---	1870	1760	1820	4470	1650	2340	1610	278	905
17	---	---	---	1920	1760	1810	3130	1650	2040	---	---	---
18	---	---	---	1810	1440	1620	3040	1640	1980	---	---	---
19	---	---	---	---	---	---	2630	1660	1900	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	1620	1530	1790	---	---	---	---	---	---
22	---	---	---	2380	1630	1790	---	---	---	---	---	---
23	---	---	---	2360	2170	2270	---	---	---	---	---	---
24	---	---	---	3170	1330	2190	---	---	---	1810	1560	1700
25	---	---	---	3410	1320	1750	---	---	---	1700	517	846
26	---	---	---	2840	1290	1640	1700	1480	2070	534	495	520
27	---	---	---	---	---	---	1720	1660	1690	1540	483	1170
28	---	---	---	---	---	---	1940	1680	1820	1570	1040	1490
29	---	---	---	---	---	---	1860	1760	1830	1700	1520	1560
30	---	---	---	---	---	---	1880	1770	1830	1610	1560	1580
31	---	---	---	---	---	---	---	---	---	1610	1500	1540

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1450	371	759	---	---	---	1700	966	1510	1290	1090	1180
2	729	510	584	---	---	---	1350	1210	1290	---	---	---
3	1270	375	906	---	---	---	1610	1360	1400	---	---	---
4	607	483	545	---	---	---	1700	1610	1670	---	---	---
5	947	598	657	---	---	---	1680	1550	1660	---	---	---
6	1460	507	1210	---	---	---	1510	458	1040	---	---	---
7	603	291	384	---	---	---	1710	1360	1540	---	---	---
8	430	229	333	---	---	---	2380	1720	2030	---	---	---
9	423	230	345	---	---	---	1770	1670	1730	---	---	---
10	510	237	419	---	---	---	1760	1600	1730	---	---	---
11	476	258	345	---	---	---	1720	1570	1640	---	---	---
12	377	275	314	---	---	---	2290	1720	1900	---	---	---
13	330	190	244	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	1530	1440	1500	---	---	---	---	---	---
19	---	---	---	1560	1530	1540	---	---	---	---	---	---
20	1480	1410	1420	1620	1530	1580	---	---	---	---	---	---
21	1480	1500	1470	1610	1600	1610	---	---	---	---	---	---
22	---	---	---	1640	1610	1630	---	---	---	---	---	---
23	---	---	---	1630	466	1140	---	---	---	---	---	---
24	---	---	---	1520	1290	1430	---	---	---	---	---	---
25	---	---	---	1560	1520	1540	---	---	---	---	---	---
26	---	---	---	1570	1520	1550	---	---	---	---	---	---
27	---	---	---	1600	1540	1580	---	---	---	---	---	---
28	1320	1040	640	1620	1420	1600	---	---	---	---	---	---
29	---	---	---	1600	1350	1540	---	---	---	1590	1570	1580
30	---	---	---	1640	1590	1620	1040	776	886	1580	1450	1550
31	---	---	---	1690	1620	1650	1270	1010	1150	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	8.4	8.0	8.2
2	---	---	---	---	---	---	---	---	---	8.5	7.9	8.2
3	---	---	---	---	---	---	---	---	---	8.9	7.9	8.2
4	---	---	---	---	---	---	---	---	---	8.9	8.3	8.5
5	---	---	---	---	---	---	---	---	---	8.4	8.2	8.3
6	---	---	---	---	---	---	---	---	---	9.0	8.3	8.8
7	---	---	---	---	---	---	---	---	---	9.0	8.6	8.7
8	---	---	---	---	---	---	---	---	---	9.1	8.6	8.6
9	---	---	---	8.2	7.9	8.1	---	---	---	8.8	8.5	8.7
10	---	---	---	7.9	7.7	7.9	---	---	---	8.8	8.6	8.7
11	---	---	---	8.3	7.7	8.0	---	---	---	8.9	8.7	8.8
12	---	---	---	---	---	---	---	---	---	9.3	8.8	9.1
13	---	---	---	---	---	---	---	---	---	9.3	8.9	9.1
14	---	---	---	---	---	---	---	---	---	9.1	8.6	8.9
15	---	---	---	---	---	---	8.6	8.1	8.3	8.6	8.2	8.5
16	---	---	---	---	---	---	8.5	8.1	8.4	8.6	8.3	8.5
17	---	---	---	---	---	---	8.5	8.2	8.3	8.5	8.2	8.4
18	---	---	---	---	---	---	8.5	8.2	8.3	8.3	8.1	8.2
19	---	---	---	---	---	---	8.6	8.2	8.3	8.5	8.1	8.3
20	---	---	---	---	---	---	8.6	8.2	8.4	8.6	8.3	8.5
21	---	---	---	---	---	---	8.6	8.1	8.3	8.6	8.4	8.4
22	8.3	8.0	8.2	---	---	---	8.6	7.9	8.2	8.5	8.3	8.4
23	8.4	8.2	8.3	---	---	---	8.0	8.0	8.4	8.6	8.3	8.4
24	8.5	8.3	8.4	---	---	---	8.5	8.3	8.4	8.6	8.3	8.4
25	8.5	8.3	8.4	---	---	---	8.6	8.5	8.5	8.4	8.0	8.1
26	8.6	8.4	8.4	---	---	---	8.5	8.4	8.4	8.4	8.1	8.2
27	8.6	8.4	8.5	---	---	---	8.5	8.2	8.4	8.2	7.7	7.8
28	8.6	8.5	8.5	---	---	---	8.7	8.4	8.6	---	---	---
29	8.6	8.4	8.5	---	---	---	8.5	8.4	8.4	---	---	---
30	8.5	8.2	8.5	---	---	---	8.4	8.2	8.3	---	---	---
31	8.5	8.3	8.4	---	---	---	8.5	8.2	8.3	---	---	---

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	7.8	7.7	7.8	---	---	---
2	---	---	---	---	---	---	7.7	7.3	7.5	---	---	---
3	---	---	---	---	---	---	7.6	7.3	7.4	---	---	---
4	---	---	---	---	---	---	7.9	7.3	7.5	---	---	---
5	---	---	---	---	---	---	8.0	7.4	7.6	---	---	---
6	---	---	---	---	---	---	8.4	7.3	7.8	---	---	---
7	---	---	---	---	---	---	7.6	7.1	7.4	---	---	---
8	---	---	---	---	---	---	8.0	7.2	7.4	---	---	---
9	---	---	---	8.3	8.2	8.2	8.1	7.5	7.8	---	---	---
10	---	---	---	8.3	8.1	8.2	8.7	7.5	7.9	---	---	---
11	---	---	---	8.5	8.0	8.3	8.3	7.8	8.0	---	---	---
12	---	---	---	8.4	8.0	8.3	---	---	---	---	---	---
13	---	---	---	8.5	8.0	8.2	---	---	---	---	---	---
14	---	---	---	8.5	7.9	8.2	8.3	8.2	8.3	---	---	---
15	---	---	---	8.5	8.0	8.3	8.4	8.2	8.4	---	---	---
16	---	---	---	8.2	7.9	8.1	8.5	8.3	8.4	---	---	---
17	---	---	---	8.1	7.8	8.0	8.5	8.3	8.3	---	---	---
18	---	---	---	8.3	8.0	8.1	8.4	8.2	8.3	---	---	---
19	---	---	---	8.1	7.9	8.0	8.4	7.9	8.1	7.8	7.5	7.7
20	---	---	---	8.9	7.7	7.9	8.4	8.1	8.4	8.2	7.6	8.1
21	---	---	---	8.2	7.9	8.1	8.4	8.2	8.3	8.5	8.1	8.2
22	---	---	---	8.2	7.9	8.1	8.5	8.2	8.4	---	---	---
23	---	---	---	8.2	8.0	8.1	8.5	8.3	8.4	---	---	---
24	---	---	---	8.6	8.0	8.3	8.6	8.4	8.5	---	---	---
25	---	---	---	8.6	8.3	8.5	8.6	8.3	8.5	---	---	---
26	---	---	---	8.7	8.3	8.4	9.0	8.0	8.4	---	---	---
27	---	---	---	8.4	7.6	7.9	8.2	7.8	8.0	---	---	---
28	---	---	---	8.2	7.6	8.1	8.2	7.4	7.5	---	---	---
29	---	---	---	8.2	8.0	8.2	7.9	7.6	7.7	---	---	---
30	---	---	---	8.0	7.8	7.9	8.0	7.8	7.9	---	---	---
31	---	---	---	8.3	7.7	8.0	---	---	---	---	---	---
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	8.7	8.1	8.5
2	---	---	---	---	---	---	---	---	---	8.6	8.0	8.2
3	---	---	---	---	---	---	---	---	---	8.8	8.1	8.6
4	---	---	---	---	---	---	8.9	8.6	8.7	8.7	7.8	8.4
5	---	---	---	---	---	---	8.9	8.7	8.8	7.8	6.8	7.2
6	---	---	---	8.4	8.2	8.3	8.8	8.5	8.7	8.6	7.1	8.4
7	---	---	---	8.3	7.9	8.0	8.7	8.4	8.6	---	---	---
8	---	---	---	---	---	---	8.3	8.2	8.3	---	---	---
9	---	---	---	---	---	---	8.8	8.3	8.6	---	---	---
10	---	---	---	---	---	---	8.9	8.7	8.8	---	---	---
11	---	---	---	---	---	---	8.9	8.6	8.8	---	---	---
12	---	---	---	---	---	---	8.8	8.2	8.4	---	---	---
13	---	---	---	---	---	---	8.4	8.3	8.4	8.3	8.0	8.2
14	---	---	---	---	---	---	8.5	8.2	8.4	8.4	8.3	8.3
15	---	---	---	---	---	---	8.3	8.2	8.2	8.3	8.1	8.2
16	---	---	---	---	---	---	8.3	8.3	8.3	8.3	8.1	8.2
17	---	---	---	8.4	8.1	8.2	8.4	8.2	8.4	8.2	7.9	8.1
18	---	---	---	8.3	8.0	8.1	8.7	8.4	8.5	8.1	7.7	8.0
19	---	---	---	8.3	8.0	8.0	8.9	8.5	8.6	7.9	7.5	7.7
20	8.4	8.1	8.3	8.4	8.1	8.2	8.8	8.5	8.7	8.6	7.5	7.8
21	8.5	8.1	8.3	8.4	8.0	8.2	8.7	8.5	8.6	7.7	7.0	7.5
22	8.5	8.1	8.2	8.4	7.9	8.1	8.7	8.4	8.6	8.7	7.0	7.4
23	---	---	---	---	---	---	8.8	8.5	8.7	8.8	8.6	8.8
24	---	---	---	---	---	---	8.9	8.6	8.7	8.8	8.7	8.7
25	---	---	---	---	---	---	8.8	8.6	8.7	8.7	8.6	8.7
26	---	---	---	---	---	---	8.9	8.6	8.8	8.7	7.7	8.4
27	---	---	---	---	---	---	8.8	8.6	8.7	8.7	7.8	8.3
28	---	---	---	---	---	---	8.8	8.5	8.7	7.9	7.5	7.7
29	---	---	---	---	---	---	8.7	8.3	8.5	8.9	7.6	8.2
30	---	---	---	---	---	---	8.4	7.9	8.3	8.5	7.4	8.2
31	---	---	---	---	---	---	8.1	7.3	7.9	---	---	---

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	19.0	12.0	15.0	---	---	---	10.5	5.0	7.5
2	---	---	---	19.5	12.5	16.0	---	---	---	8.5	5.5	7.0
3	---	---	---	20.0	14.0	17.0	---	---	---	9.5	4.5	7.0
4	---	---	---	19.0	14.5	16.5	---	---	---	7.5	5.0	6.5
5	---	---	---	14.5	11.0	13.0	---	---	---	14.0	7.5	10.0
6	---	---	---	16.0	10.5	13.0	---	---	---	11.5	7.0	9.5
7	---	---	---	16.5	10.5	13.5	10.5	4.0	8.5	9.5	4.5	7.5
8	---	---	---	17.0	10.5	13.5	4.5	2.5	4.0	4.5	2.5	3.5
9	---	---	---	22.0	14.0	17.0	7.0	.5	4.0	6.5	.5	3.0
10	---	---	---	16.5	10.5	13.5	7.0	3.0	5.0	8.5	.5	4.5
11	---	---	---	13.0	9.5	11.0	6.5	4.0	5.0	12.5	5.0	8.0
12	---	---	---	---	---	---	9.0	5.0	6.5	6.5	2.0	4.0
13	---	---	---	---	---	---	12.0	5.0	7.5	5.5	.5	3.0
14	---	---	---	---	---	---	12.0	5.5	8.5	6.0	.0	3.0
15	---	---	---	---	---	---	8.0	2.5	5.0	4.0	1.0	2.5
16	---	---	---	---	---	---	6.0	.5	3.0	7.5	.5	3.0
17	---	---	---	---	---	---	8.5	2.0	4.5	10.0	2.5	5.5
18	---	---	---	---	---	---	10.5	2.5	6.0	11.0	4.5	7.5
19	---	---	---	---	---	---	10.5	6.0	7.5	11.5	4.5	8.5
20	---	---	---	---	---	---	10.5	6.0	8.5	9.0	4.5	6.5
21	---	---	---	---	---	---	11.5	5.0	7.5	9.0	3.0	6.0
22	22.5	15.0	18.5	---	---	---	13.5	8.5	10.5	8.0	3.0	5.5
23	19.5	14.5	17.0	---	---	---	12.0	5.5	8.0	11.5	5.5	8.0
24	20.0	12.5	16.0	---	---	---	10.0	3.0	6.5	12.5	7.0	9.5
25	21.0	13.5	16.5	---	---	---	9.0	4.0	6.5	9.5	7.0	8.0
26	19.5	12.0	15.5	---	---	---	14.5	8.0	10.0	8.5	4.0	6.5
27	18.5	14.0	16.0	---	---	---	14.0	6.0	9.5	9.0	4.0	6.5
28	13.0	9.0	11.5	---	---	---	7.0	2.5	4.5	8.0	7.0	7.5
29	15.0	10.5	13.0	---	---	---	6.0	.5	4.0	10.0	6.5	8.0
30	13.5	12.0	12.5	---	---	---	9.5	2.0	4.5	12.5	5.5	9.0
31	18.0	12.5	14.5	---	---	---	10.5	6.0	7.5	13.5	7.5	10.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	10.5	5.0	7.5	13.0	5.0	8.5	19.5	10.5	15.0	22.0	13.5	17.5
2	4.5	.5	2.0	9.5	8.0	9.0	24.0	13.0	17.5	17.5	14.5	16.5
3	1.0	.5	.5	17.5	9.0	12.5	22.0	15.5	18.0	21.5	13.5	16.5
4	1.0	1.0	1.0	7.0	.5	2.5	18.0	14.0	16.0	24.0	13.0	18.5
5	1.0	1.0	1.0	.5	.5	.5	19.5	13.5	16.5	26.5	16.0	21.0
6	1.0	1.0	1.0	.5	.5	.5	20.0	12.0	16.0	26.0	16.5	20.5
7	1.0	1.0	1.0	9.0	.5	3.5	20.0	13.5	16.5	27.0	15.0	20.5
8	2.0	1.0	1.0	11.5	2.5	7.0	17.5	13.5	16.0	31.0	19.0	24.5
9	3.5	.5	1.5	14.0	5.5	9.5	14.0	10.5	12.0	25.5	19.0	22.5
10	6.0	.5	2.0	17.0	7.0	11.5	16.0	8.5	12.0	22.5	16.5	19.5
11	7.5	2.0	4.5	19.5	10.5	15.0	14.5	10.0	12.5	23.5	19.0	20.5
12	6.0	3.5	5.0	21.0	12.5	16.5	16.0	10.5	13.0	20.5	17.0	18.5
13	5.5	4.5	5.0	20.0	13.0	16.5	14.5	11.5	13.0	22.5	15.5	18.5
14	4.0	3.0	3.5	20.5	12.5	16.5	21.0	11.5	15.5	28.0	19.0	23.0
15	3.5	3.0	3.0	16.5	7.5	12.0	22.0	14.5	18.0	28.0	21.0	23.0
16	3.5	2.5	3.0	18.0	9.5	13.5	21.0	14.5	18.0	24.5	18.5	21.0
17	4.0	3.0	3.5	24.0	13.5	17.5	22.0	16.0	19.0	21.0	19.0	19.5
18	8.5	3.0	5.5	16.0	9.0	12.5	20.5	18.0	19.5	21.5	18.5	20.0
19	7.5	5.5	6.0	13.0	11.0	12.0	23.5	14.5	18.5	29.0	16.5	22.5
20	6.5	5.5	6.0	15.5	7.5	12.5	21.5	16.5	19.0	28.5	22.0	25.0
21	9.5	4.0	6.5	14.0	5.5	9.5	25.5	16.5	20.5	30.5	21.5	25.5
22	8.0	3.5	5.5	18.0	8.0	12.5	25.5	19.0	22.0	31.0	20.5	25.0
23	7.0	.5	4.0	19.5	9.0	14.0	25.5	18.0	21.5	32.0	22.0	26.0
24	10.0	2.0	6.0	21.0	10.5	15.5	25.5	19.0	22.0	30.0	22.0	25.5
25	13.0	5.5	9.0	23.0	13.0	17.5	27.0	19.0	22.5	29.5	23.0	26.0
26	13.5	8.0	10.5	22.0	16.0	18.5	28.5	20.5	24.5	25.0	20.5	22.5
27	9.0	5.0	6.0	21.5	15.5	18.5	27.0	21.0	24.0	26.0	18.5	22.0
28	8.0	5.0	6.0	18.5	14.5	16.5	27.5	18.5	23.0	26.5	21.5	24.0
29	---	---	---	22.0	16.5	18.5	21.0	14.5	18.5	25.5	21.5	23.5
30	---	---	---	18.5	13.5	16.0	23.5	14.5	18.5	26.5	21.5	23.5
31	---	---	---	19.5	11.0	15.0	---	---	---	25.5	22.0	24.0

ARKANSAS RIVER BASIN

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	23.0	20.0	20.5	29.0	25.5	27.0	28.5	26.0	27.5	31.5	26.0	28.5
2	22.5	19.5	21.0	28.0	25.5	26.5	27.5	26.0	26.5	29.0	25.5	27.0
3	24.0	21.0	22.5	29.5	26.0	27.5	28.0	24.5	26.5	30.0	26.0	28.0
4	21.0	20.0	20.5	29.0	26.5	28.0	30.0	24.5	27.0	29.0	24.5	27.0
5	22.5	20.5	21.0	29.5	27.0	28.5	30.5	25.0	27.5	29.0	25.5	27.0
6	23.5	20.5	21.5	31.0	28.0	28.5	30.0	24.0	26.5	30.5	25.5	28.0
7	20.5	18.5	19.0	32.0	27.0	29.5	27.0	24.0	25.5	30.5	26.0	28.0
8	21.0	19.0	20.0	31.5	27.5	29.5	28.5	20.0	24.0	30.5	25.5	28.0
9	21.5	20.5	21.0	31.5	27.0	29.5	28.0	22.0	25.0	27.0	22.0	24.5
10	23.5	21.0	22.0	31.0	27.5	29.0	24.5	21.5	22.5	25.5	20.5	22.5
11	25.0	22.0	23.5	30.5	26.5	28.5	26.0	21.0	23.5	24.0	22.0	23.0
12	25.0	21.5	23.5	30.5	26.5	28.5	23.5	21.5	23.0	22.0	18.5	21.0
13	24.0	20.0	21.5	30.0	27.0	28.5	23.0	21.5	22.5	18.5	15.5	16.5
14	23.0	22.0	22.5	27.5	26.5	26.5	22.0	20.0	20.5	15.5	14.5	15.0
15	23.5	22.0	22.5	30.5	25.0	27.0	22.5	20.0	21.0	16.5	14.5	15.5
16	24.5	21.5	23.0	31.0	26.0	28.5	25.0	21.5	22.5	19.5	16.0	17.5
17	24.5	22.0	23.0	29.5	26.0	28.0	26.5	22.5	24.5	22.0	17.0	19.5
18	27.5	23.0	25.0	30.0	25.5	28.0	27.0	23.0	25.0	20.5	19.0	19.5
19	28.5	24.0	26.0	28.0	25.5	26.5	29.0	23.5	26.0	23.0	18.5	21.0
20	29.0	23.5	26.5	28.5	24.5	26.5	29.5	24.0	27.0	23.0	18.5	21.0
21	29.0	24.0	26.5	28.5	23.5	26.0	29.5	24.5	27.0	24.0	20.0	21.5
22	28.5	23.0	25.5	28.5	23.5	26.0	29.5	24.5	27.0	22.5	19.5	21.0
23	27.0	22.0	24.5	26.0	19.5	23.0	31.0	24.5	27.5	19.5	16.0	18.0
24	27.0	24.0	25.5	27.5	23.0	25.5	31.0	25.5	28.5	20.0	14.5	17.0
25	27.5	23.5	25.5	28.5	23.5	26.0	30.5	25.5	28.0	20.0	14.5	17.0
26	30.0	25.0	27.0	28.0	24.0	26.0	31.0	25.5	28.0	20.5	15.0	18.0
27	28.5	24.5	26.5	29.0	24.5	26.5	31.0	26.0	28.5	21.5	15.5	18.5
28	29.5	24.5	27.0	29.0	25.0	27.0	31.0	25.5	28.5	24.0	15.0	19.5
29	28.5	26.0	27.5	30.0	25.0	27.0	30.0	25.5	28.0	23.0	16.5	20.0
30	29.0	26.0	26.5	31.0	25.5	28.0	31.0	24.5	27.5	24.0	17.5	20.5
31	---	---	---	31.0	26.0	28.5	31.0	24.0	27.5	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	11.7	9.3	10.1
2	---	---	---	---	---	---	---	---	---	12.2	9.2	10.4
3	---	---	---	---	---	---	---	---	---	12.0	8.6	9.9
4	---	---	---	---	---	---	---	---	---	11.2	9.7	10.3
5	---	---	---	---	---	---	---	---	---	10.0	8.7	9.3
6	---	---	---	---	---	---	---	---	---	11.6	8.8	10.0
7	---	---	---	---	---	---	10.8	8.0	9.5	11.6	8.9	10.3
8	---	---	---	---	---	---	11.7	8.8	10.6	12.1	10.2	11.3
9	---	---	---	---	---	---	11.4	10.0	10.7	12.2	10.7	11.4
10	---	---	---	---	---	---	11.2	9.7	10.2	12.0	10.3	11.1
11	---	---	---	---	---	---	11.6	9.6	10.4	11.2	9.8	10.5
12	---	---	---	---	---	---	11.8	9.1	10.3	12.0	10.1	11.3
13	---	---	---	---	---	---	11.7	9.1	10.2	12.5	10.7	11.7
14	---	---	---	---	---	---	11.7	9.0	10.2	12.2	10.4	11.4
15	---	---	---	---	---	---	13.2	9.9	11.5	11.6	10.1	10.6
16	---	---	---	---	---	---	13.1	11.1	11.9	12.0	10.7	11.1
17	---	---	---	---	---	---	14.1	10.5	11.7	11.7	9.9	10.6
18	---	---	---	---	---	---	12.9	9.9	11.2	11.7	9.3	10.2
19	---	---	---	---	---	---	12.0	9.4	10.5	15.4	9.3	11.5
20	---	---	---	---	---	---	15.5	8.9	10.5	17.0	10.2	13.6
21	---	---	---	---	---	---	16.0	9.1	11.6	16.2	12.2	14.2
22	---	---	---	---	---	---	14.5	6.5	9.1	16.3	10.4	13.0
23	---	---	---	---	---	---	10.4	7.1	8.7	13.1	8.7	10.9
24	---	---	---	---	---	---	11.7	9.3	10.2	14.3	8.5	10.6
25	---	---	---	---	---	---	11.2	10.2	10.6	8.8	7.3	8.4
26	---	---	---	---	---	---	10.1	8.9	9.8	10.9	8.7	9.8
27	10.9	6.9	8.4	---	---	---	10.0	8.3	8.9	10.7	8.2	9.2
28	12.0	8.0	9.6	---	---	---	11.2	9.9	10.6	8.1	6.8	7.7
29	11.9	8.2	9.6	---	---	---	11.5	10.4	10.8	8.9	7.9	8.3
30	11.8	8.2	9.5	---	---	---	10.9	10.0	10.5	10.8	8.2	9.0
31	12.4	8.2	9.5	---	---	---	11.2	9.3	10.0	10.4	7.9	8.8

07241503 NORTH CANADIAN RIVER AT NE 36TH ST AT OKC, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	7.3	1.6	5.6	10.6	8.7	9.7
2	---	---	---	---	---	---	7.1	4.9	6.7	11.4	7.9	9.1
3	---	---	---	---	---	---	---	---	---	9.7	7.5	8.6
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	10.6	7.6	9.3	---	---	---	---	---	---
11	---	---	---	14.2	7.6	11.2	---	---	---	---	---	---
12	---	---	---	15.5	7.5	12.0	---	---	---	---	---	---
13	---	---	---	15.6	9.4	12.8	---	---	---	---	---	---
14	---	---	---	14.7	7.2	11.1	12.9	8.6	10.7	---	---	---
15	---	---	---	10.7	6.9	8.8	13.2	8.1	11.4	---	---	---
16	---	---	---	---	---	---	---	---	---	7.1	5.9	6.5
17	---	---	---	---	---	---	---	---	---	7.8	6.2	6.5
18	---	---	---	---	---	---	---	---	---	7.2	4.5	5.8
19	---	---	---	---	---	---	11.6	7.7	9.6	7.3	4.9	6.7
20	---	---	---	---	---	---	11.2	7.2	9.2	6.1	4.8	5.7
21	---	---	---	---	---	---	---	---	---	8.8	4.7	6.6
22	---	---	---	---	---	---	10.5	6.9	8.6	---	---	---
23	---	---	---	---	---	---	11.0	7.1	8.8	---	---	---
24	---	---	---	---	---	---	11.4	7.0	8.8	---	---	---
25	---	---	---	---	---	---	11.3	6.9	8.8	---	---	---
26	---	---	---	---	---	---	10.2	6.5	7.9	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	11.2	7.2	9.7	8.1	5.1	6.4
30	---	---	---	---	---	---	11.6	8.8	10.2	7.4	5.6	6.6
31	---	---	---	8.8	1.1	7.4	---	---	---	8.0	5.9	7.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	6.5	4.5	5.3	---	---	---	---	---	---	11.3	6.0	8.5
2	5.7	3.8	5.8	---	---	---	---	---	---	8.4	5.7	7.1
3	---	---	---	---	---	---	---	---	---	13.3	6.8	9.6
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	5.4	4.5	5.0	---	---	---
9	---	---	---	---	---	---	9.9	3.9	6.2	---	---	---
10	---	---	---	---	---	---	10.0	5.5	8.5	---	---	---
11	---	---	---	---	---	---	10.7	7.1	8.9	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	6.9	3.9	5.9	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	8.7	5.6	8.1	---	---	---
16	---	---	---	---	---	---	9.8	8.0	8.7	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	13.7	10.3	11.9	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	10.4	6.6	8.3	10.5	7.1	8.5	---	---	---	---	---	---
21	11.5	6.6	8.7	10.7	7.7	8.9	14.1	9.3	11.0	---	---	---
22	11.2	5.5	7.9	10.2	7.4	8.8	13.5	9.1	11.3	---	---	---
23	---	---	---	11.5	6.7	8.0	13.3	9.7	11.2	---	---	---
24	---	---	---	9.6	7.1	8.3	13.7	9.2	11.4	---	---	---
25	---	---	---	8.8	6.8	7.2	12.3	7.7	9.7	---	---	---
26	10.2	5.4	8.9	8.5	6.1	7.5	13.3	7.1	9.5	---	---	---
27	---	---	---	8.8	6.0	7.5	---	---	---	---	---	---
28	---	---	---	9.5	6.1	7.9	11.5	6.7	8.9	---	---	---
29	---	---	---	9.7	6.0	7.8	10.2	8.3	9.2	---	---	---
30	---	---	---	9.1	6.0	7.2	14.4	7.2	10.2	15.5	6.7	10.3
31	---	---	---	9.1	5.7	7.4	12.9	7.4	10.7	---	---	---

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK

LOCATION.-- Lat 35°33'56", long 97°22'01", in SW 1/4 SW 1/4 sec.25, T.13 N., R.2 W., Oklahoma County, Hydrologic Unit 11100303, on right downstream abutment of county road bridge, 3.8 mi downstream from Crutcho Creek, 4.0 mi west of Jones, and at mile 252.7.

DRAINAGE AREA.-- 13,413 mi², of which 4,899 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,109.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Flow regulated by Canton Lake (station 07238500) and by Lake Overholser (station 07240500) where diversions are made into Lake Hefner Canal (station 07240000). Low flow sustained in part by sewage effluent from Oklahoma City. U.S. Geological Survey telemeter located at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 31,300 ft³/s, June 13, 1989, gage height, 23.48 ft, from HWM; minimum daily discharge 41 ft³/s Dec. 21, 1988.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 31,300 ft³/s, June 13, gage height, 23.48 ft, from HWM; minimum daily discharge 41 ft³/s Oct. 15, Dec. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	132	84	107	538	170	107	76	4510	1380	770	216
2	101	133	75	101	276	161	78	68	3550	1310	1350	676
3	96	134	69	124	227	165	74	49	852	1640	659	813
4	63	134	66	158	273	336	248	286	8800	1150	607	500
5	69	188	74	72	312	298	263	105	7980	646	835	213
6	67	284	67	143	252	479	160	61	1370	1110	2140	562
7	537	142	71	121	211	347	147	53	9080	1100	772	539
8	596	104	230	186	170	214	195	51	6130	868	200	350
9	412	60	219	82	140	160	221	50	5750	1020	320	249
10	238	49	90	75	144	132	217	60	3480	956	336	217
11	75	46	67	73	129	149	209	52	2300	974	404	239
12	64	2100	87	142	113	152	203	344	2780	964	538	806
13	51	627	72	153	459	146	200	647	12100	964	511	10800
14	42	287	51	118	e900	146	212	166	9480	1940	5890	6690
15	41	234	64	195	e700	115	210	105	4620	1300	3810	5080
16	87	907	110	93	e250	96	199	191	2500	979	1840	2760
17	86	332	61	91	e550	94	196	1030	1410	881	898	e1300
18	87	166	61	91	e300	118	196	768	1590	892	778	e1080
19	125	220	44	80	e240	137	196	219	1280	919	743	e900
20	372	638	42	74	e300	138	194	136	1300	868	738	1060
21	155	253	41	99	386	160	189	115	1010	627	700	e900
22	64	146	325	68	242	122	182	104	1830	634	e681	e680
23	51	118	209	66	189	74	178	99	4640	1680	e650	e1000
24	75	107	89	66	154	71	176	93	2170	1350	e620	e700
25	46	98	125	179	152	73	174	288	2170	995	e600	468
26	46	102	57	221	147	73	175	379	1350	1010	e580	e420
27	47	94	299	127	150	272	168	e330	965	864	e560	e450
28	51	128	287	446	199	1400	103	e350	1170	833	e540	e270
29	106	94	96	284	---	266	80	e370	1380	913	e530	e250
30	129	130	66	150	---	197	78	e430	1380	816	210	e300
31	133	---	76	131	---	265	---	e380	---	786	135	---
TOTAL	4232	8187	3374	4116	8083	6726	5218	7453	108927	32369	29945	40488
MEAN	137	273	109	133	289	217	174	240	3631	1044	966	1350
MAX	596	2100	325	446	900	1400	253	1030	12100	1940	5890	10800
MIN	41	46	41	66	113	71	74	49	852	627	135	213
AC-FT	8390	16240	6690	8160	16030	13340	10350	14780	216100	64200	59400	80310

WTR YR 1989 TOTAL 259118 MEAN 710 MAX 12100 MIN 41 AC-FT 514000

e Estimated

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK --Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- August 1988 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to September 1989.

pH: October 1988 to September 1989.

WATER TEMPERATURE: October 1988 to September 1989.

DISSOLVED OXYGEN: October 1988 to September 1989.

INSTRUMENTATION.-- Water quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 3,040 microsiemens, Sept. 1, 1989; minimum recorded, 210 microsiemens, Nov. 12, 1988. pH: Maximum recorded (more than 20 percent missing record), 9.0 units, Sept. 23, 1989; minimum recorded, 6.9 units, July 20, Sept. 10, 1989.

WATER TEMPERATURE: Maximum recorded, 30.3°C, July 31, 1989; minimum recorded, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 18.1 mg/l, Aug. 31, 1989; minimum recorded, 3.7 mg/l, Aug. 2, 1989.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 3,040 microsiemens, Sept. 1; minimum recorded, 210 microsiemens, Nov. 12, 1988.

pH: Maximum recorded (more than 20 percent missing record), 9.0 units, Sept. 23; minimum recorded, 6.9 units, July 20, Sept. 10.

WATER TEMPERATURE: Maximum recorded, 30.3°C, July 31; minimum recorded, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 18.1 mg/l, Aug. 31; minimum recorded, 3.7 mg/l, Aug. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	TUR- BID- ITY (NTU)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
AUG										
24...	1100	1028	80020	--	--	390	89	40	200	52
24...	1101	1028	9999	3.6	3500	--	--	--	--	--
SEP										
22...	1100	1028	80020	--	--	--	--	--	--	--
22...	1101	1028	9999	14	30	--	--	--	--	--
DATE		SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)
AUG										
24...	4	10	150	320	0.70	12	963	969	1.31	--
24...	--	--	--	--	--	--	--	--	--	23
SEP										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	59
DATE		NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHORUS ORTHOPHOSPHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOSPHATE, DIS- SOLVED (MG/L AS PO4)
AUG										
24...	0.700	3.1	0.400	1.3	1.10	2.70	3.5	--	1.20	3.7
24...	0.600	--	--	--	--	1.76	2.3	0.870	1.17	3.6
SEP										
22...	0.690	3.1	0.180	0.59	0.870	0.720	0.93	--	0.480	1.5
22...	--	--	--	--	--	0.920	1.2	0.480	--	--

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
AUG										
24...	5	230	<0.5	2.0	<5	<3	<10	29	<10	44
24...	--	--	--	--	--	--	--	--	--	--
SEP										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON ORGANIC TOTAL (MG/L AS C)
AUG										
24...	150	<0.1	10	<10	<1	<1.0	1300	<6	<3	9.8
24...	--	--	--	--	--	--	--	--	--	--
SEP										
22...	--	--	--	--	--	--	--	--	--	8.1
22...	--	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
OCT											
25...	1200	1028	9999	8.49	38	1520	8.3	22.0	16.0	3.2	730
25...	1300	1028	80020	8.49	38	1520	8.3	22.0	16.0	--	730
NOV											
08...	1230	1028	80020	--	56	1510	8.3	17.5	13.5	--	740
08...	1231	1028	9999	--	56	1510	8.3	17.5	13.5	2.5	740
DEC											
13...	1100	1028	80020	8.51	46	1340	7.8	15.0	8.0	--	740
13...	1101	1028	9999	8.51	46	1340	7.8	15.0	8.0	4.6	740
JAN											
24...	1240	1028	80020	8.68	61	1480	8.0	14.0	9.0	--	730
24...	1241	1028	9999	8.68	61	1480	8.0	14.0	9.0	3.8	730
FEB											
27...	1250	1028	80020	9.08	127	1530	8.2	1.5	6.0	--	730
27...	1251	1028	9999	9.08	127	1530	8.2	1.5	6.0	9.2	730
MAR											
21...	1120	1028	80020	8.96	178	1590	8.2	8.0	6.0	--	740
21...	1121	1028	9999	8.96	178	1590	8.2	8.0	6.0	12	740
APR											
11...	1400	1028	9999	9.37	210	1740	8.2	18.5	13.0	17	740
11...	1425	1028	80020	9.37	210	1740	8.2	18.5	13.0	--	740
MAY											
10...	1230	1028	80020	8.24	60	1670	8.3	--	17.0	--	740
10...	1231	1028	9999	8.24	60	1670	8.3	--	17.0	6.2	740
JUN											
21...	1300	1028	1028	11.83	997	1430	8.3	92.0	23.0	--	730
21...	1305	1028	1028	11.83	997	1450	8.5	92.0	22.0	--	730
21...	1310	1028	1028	11.83	997	1420	8.5	92.0	22.0	--	730
21...	1325	1028	1028	11.83	997	1430	8.3	92.0	23.0	--	730
21...	1330	1028	1028	11.83	997	1490	8.4	92.0	23.0	--	730
21...	1340	1028	1028	11.83	997	1510	8.2	92.0	22.0	--	730
21...	1345	1028	1028	11.83	997	1490	8.3	92.0	22.0	--	730
21...	1350	1028	1028	11.83	997	1460	8.3	92.0	22.5	--	730
21...	1355	1028	1028	11.83	997	1520	8.4	92.0	23.0	--	730
21...	1359	1028	1028	11.83	997	1510	8.3	92.0	23.0	--	730
21...	1401	1028	9999	11.83	997	1510	8.3	26.0	23.0	39	730
JUL											
17...	1245	1028	80020	12.15	1160	1390	8.1	26.0	27.0	--	730
17...	1246	1028	9999	12.15	1160	1390	8.1	26.0	27.0	45	730

ARKANSAS RIVER BASIN

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07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
OCT											
25...	7.8	83	1.8	--	120	70	--	--	--	--	--
25...	7.8	83	--	--	--	--	--	--	--	--	--
NOV											
08...	9.2	91	--	--	--	--	470	110	47	160	42
08...	9.2	91	--	--	1200	150	--	--	--	--	--
DEC											
13...	10.8	94	--	--	--	--	--	--	--	--	--
13...	10.8	94	--	--	400	140	--	--	--	--	--
JAN											
24...	11.0	100	--	2.5	--	--	--	--	--	--	--
24...	11.0	100	--	--	300	80	--	--	--	--	--
FEB											
27...	11.8	99	--	7.5	--	--	460	110	44	150	41
27...	11.8	99	--	--	360	380	--	--	--	--	--
MAR											
21...	11.4	95	--	4.4	--	--	--	--	--	--	--
21...	11.4	95	0.96	--	500	300	--	--	--	--	--
APR											
11...	9.8	98	0.62	--	200	100	--	--	--	--	--
11...	9.8	98	--	--	--	--	--	--	--	--	--
MAY											
10...	12.2	131	--	9.5	--	--	420	100	42	200	50
10...	12.2	131	2.4	--	140	20	--	--	--	--	--
JUN											
21...	8.8	108	--	--	--	--	--	--	--	--	--
21...	9.3	112	--	--	--	--	--	--	--	--	--
21...	9.0	108	--	--	--	--	--	--	--	--	--
21...	8.8	108	--	--	--	--	--	--	--	--	--
21...	8.9	109	--	--	--	--	--	--	--	--	--
21...	8.8	106	--	--	--	--	--	--	--	--	--
21...	9.4	113	--	--	--	--	--	--	--	--	--
21...	9.8	119	--	--	--	--	--	--	--	--	--
21...	9.4	115	--	--	--	--	--	--	--	--	--
21...	9.7	119	--	--	--	--	--	--	--	--	--
21...	9.7	119	2.3	--	1000	300	--	--	--	--	--
JUL											
17...	7.2	95	--	2.1	--	--	--	--	--	--	--
17...	7.2	95	--	--	900	300	--	--	--	--	--

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

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07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, NO2+N03 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT											
25...	--	--	<0.010	--	0.830	0.900	1.2	0.06	0.96	1.04	2.48
25...	--	--	--	--	--	--	--	--	--	--	--
NOV											
08...	0.570	2.5	0.100	0.33	0.670	0.780	1.0	--	--	--	0.650
08...	0.500	--	--	--	--	--	--	--	0.43	0.720	--
DEC											
13...	1.86	8.2	0.240	0.79	2.10	1.40	1.8	--	--	--	0.760
13...	--	--	--	--	--	--	--	--	0.32	0.760	0.950
JAN											
24...	1.41	6.2	0.090	0.30	1.50	0.670	0.86	--	--	--	0.140
24...	--	--	0.100	0.33	--	0.530	0.68	0.53	1.1	0.200	--
FEB											
27...	1.20	5.3	0.100	0.33	1.30	1.00	1.3	--	--	--	0.410
27...	--	--	0.070	0.23	--	1.06	1.4	0.11	1.2	0.480	0.590
MAR											
21...	0.620	2.7	0.050	0.16	0.670	0.140	0.18	--	--	--	0.410
21...	0.570	2.5	0.070	0.23	0.640	0.120	0.15	0.20	0.32	0.330	0.380
APR											
11...	0.300	1.3	0.050	0.16	0.350	0.020	0.03	0.25	0.27	0.320	0.230
11...	0.340	1.5	0.030	0.10	0.370	0.050	0.06	--	--	--	0.290
MAY											
10...	--	--	--	--	1.90	0.070	0.09	--	--	--	0.720
10...	--	--	<0.010	--	1.90	0.160	0.21	0.34	0.50	0.820	0.850
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	0.260	1.2	0.030	0.10	0.290	0.100	0.13	1.9	2.0	0.300	0.200
JUL											
17...	0.380	1.7	0.020	0.07	0.400	0.100	0.13	--	--	--	0.180
17...	--	--	--	--	--	0.220	0.28	3.3	3.5	0.070	--

[illegible]

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT										
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	8.8
NOV										
08...	27	<0.1	<10	<10	<1	<1.0	1200	7	8	--
08...	--	--	--	--	--	--	--	--	--	--
DEC										
13...	--	--	--	--	--	--	--	--	--	7.2
13...	--	--	--	--	--	--	--	--	--	--
JAN										
24...	--	--	--	--	--	--	--	--	--	7.5
24...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	70	<0.1	<10	10	<1	<1.0	1200	<6	13	8.1
27...	--	--	--	--	--	--	--	--	--	--
MAR										
21...	--	--	--	--	--	--	--	--	--	9.7
21...	--	--	--	--	--	--	--	--	--	--
APR										
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	9.9
MAY										
10...	140	<0.1	10	<10	<1	2.0	1400	<6	31	10
10...	--	--	--	--	--	--	--	--	--	--
JUN										
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
JUL										
17...	--	--	--	--	--	--	--	--	--	9.0
17...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
AUG											
22...	1200	1028	80020	11.24	675	1600	8.3	36.0	26.0	--	732
22...	1201	1028	9999	11.24	675	1600	8.3	36.0	26.0	43	732
SEP											
25...	1410	1028	9999	10.86	564	1410	8.4	29.0	18.0	35	740
25...	1518	1028	80020	10.86	564	1410	8.4	29.0	18.0	--	740

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
AUG											
22...	8.2	106	--	8.3	--	--	380	96	34	160	47
22...	8.2	106	7.3	--	700	300	--	--	--	--	--
SEP											
25...	10.4	114	2.3	--	1400	600	--	--	--	--	--
25...	10.4	113	--	9.5	--	--	--	--	--	--	--

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
AUG											
22...	0.490	2.2	0.020	0.07	0.510	0.180	0.23	--	--	--	0.240
22...	0.230	1.0	0.050	0.16	0.280	0.120	0.15	6.9	7.0	0.490	--
SEP											
25...	0.720	3.2	0.040	0.13	0.760	0.110	0.14	1.4	1.5	0.270	0.970
25...	0.500	2.2	0.030	0.10	0.530	0.090	0.12	--	--	--	--

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WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

[illegible]

ARKANSAS RIVER BASIN

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07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
AUG 24...	<0.001	<0.01	<0.001	<0.001	0.016	<0.01	<0.01	<0.01	<0.01	<0.01
24...	--	--	--	--	--	--	--	--	--	--

DATE	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
AUG 24...	<0.01	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.50	<0.01
24...	--	--	--	--	--	--	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
NOV 08...	1230	<0.10	<0.001	<0.1	<0.001	<0.001	<0.001	0.09	0.002	<0.001
FEB 27...	1250	<0.10	<0.001	<0.1	<0.001	<0.001	<0.001	0.03	0.001	<0.001
MAY 10...	1230	--	0.001	0.1	0.001	0.001	0.001	0.11	0.001	0.001

DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
NOV 08...	<0.001	<0.01	0.001	<0.001	0.008	<0.01	<0.01	<0.01	<0.01	<0.01
FEB 27...	<0.001	<0.01	<0.001	<0.001	0.005	<0.01	<0.01	<0.01	<0.01	<0.01
MAY 10...	0.001	0.01	0.001	0.001	0.005	0.01	0.01	0.01	0.01	0.01

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

		PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2, 4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2, 4, 5-T TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
NOV 08...		<0.01	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.50	<0.01	
FEB 27...		<0.01	<0.1	<1	<0.01	0.04	<0.01	<0.01	<0.50	<0.01	
MAY 10...		0.01	0.1	1	0.01	0.18	0.06	0.01	<0.50	0.01	
DATE	TIME	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
AUG 22...	1200	<0.10	<0.001	<0.1	<0.001	<0.001	<0.001	<0.01	0.002	<0.01	<0.001
DATE	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	
AUG 22...	<0.001	<0.01	<0.001	<0.001	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	
DATE	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2, 4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2, 4, 5-T TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
AUG 22...	<0.01	<0.1	<0.01	<1	<0.01	0.02	<0.01	<0.01	<0.50	<0.01	

07241620 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1030	848	892	1520	1250	1380	1620	1580	1600	1550	1200	1290
2	1230	1030	1090	1340	1270	1300	1660	1610	1630	1430	1300	1370
3	1450	1260	1360	1380	1300	1350	1680	1650	1670	1380	1320	1340
4	1580	1370	1450	1310	1290	1300	1710	1680	1700	1440	1280	1320
5	1790	1560	1640	1290	1100	1200	1710	1670	1700	1510	1310	1420
6	1610	1450	1510	1640	1110	1390	1720	1620	1690	1610	1330	1470
7	1610	420	927	1510	1430	1470	1620	1580	1600	1410	1320	1370
8	1040	504	825	1770	1460	1530	1690	1260	1580	1500	1320	1380
9	1150	1050	1080	1720	1590	1650	1260	1120	1150	1470	1340	1400
10	1230	1070	1140	1980	1640	1720	1210	1180	1180	1480	1410	1450
11	1320	1090	1200	1870	1430	1640	1290	1210	1250	1490	1410	1450
12	1470	1290	1370	1490	210	419	1420	1290	1340	1560	1340	1440
13	1550	1380	1460	670	280	438	1440	1350	1400	1360	1330	1350
14	1610	1310	1480	901	670	794	1590	1440	1510	1540	1320	1360
15	1500	1400	1440	1200	910	1050	1740	1510	1620	1470	1150	1260
16	1610	1270	1420	1310	970	1160	1500	1340	1410	1320	1220	1280
17	1390	1250	1320	1010	940	960	1530	1380	1430	1360	1310	1330
18	1510	1380	1430	1240	1000	1130	1560	1420	1480	1390	1310	1340
19	1440	1380	1400	1520	942	1300	1610	1440	1540	1430	1370	1400
20	1400	498	981	880	460	562	1720	1570	1650	1450	1390	1410
21	882	519	656	893	640	799	1730	1640	1700	1430	1360	1400
22	1260	910	1100	1120	900	1010	1700	402	1300	1460	1390	1440
23	1530	1270	1400	1340	1120	1250	1050	420	747	1550	1440	1490
24	1690	1480	1560	1460	1300	1400	1510	1050	1180	1540	1450	1490
25	1640	1490	1550	1480	1420	1450	1610	1240	1320	1490	989	1330
26	1730	1610	1660	1480	1430	1470	1470	1260	1370	1260	987	1150
27	1770	1590	1650	1500	1430	1460	1480	604	1180	1270	1240	1260
28	2030	1750	1810	1640	1390	1510	1050	650	908	1260	406	940
29	1780	1480	1600	1390	1330	1360	1180	1070	1120	839	415	613
30	1590	1470	1510	1660	1380	1530	1360	1190	1290	1170	858	1050
31	1590	1520	1570	---	---	---	1570	1360	1430	1210	1150	1180

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1320	1200	1240	1360	1320	1350	1830	1570	1670	---	---	---
2	1280	1230	1260	1370	1340	1360	2160	1770	1980	---	---	---
3	1480	1160	1340	1400	1350	1370	2210	1600	1970	---	---	---
4	1420	1310	1370	1370	967	1200	1950	1030	1390	---	---	---
5	1450	1370	1400	1320	1220	1260	1080	1010	1050	---	---	---
6	1470	1370	1410	1340	1260	1310	1140	1050	1090	---	---	---
7	1410	1290	1360	1720	1310	1520	1180	1130	1150	---	---	---
8	1340	1280	1310	1650	1360	1520	1200	1170	1190	---	---	---
9	1390	1280	1330	1530	1300	1390	1310	1200	1240	---	---	---
10	1450	1340	1390	1980	1530	1760	1460	1300	1370	---	---	---
11	1510	1320	1430	2200	1960	2090	1710	1400	1570	---	---	---
12	1510	1450	1490	2270	2140	2210	1550	1520	1540	---	---	---
13	1460	426	1110	2280	2150	2230	1550	1520	1530	---	---	---
14	1050	324	654	2260	2160	2210	1540	1490	1520	---	---	---
15	649	333	507	2460	2100	2190	1560	1520	1530	---	---	---
16	949	658	794	2410	2190	2280	1560	1520	1540	---	---	---
17	1070	483	914	2310	2110	2180	1560	1540	1550	---	---	---
18	828	464	618	2240	1760	1980	1550	1540	1540	---	---	---
19	1080	848	972	1800	1580	1700	1570	1530	1550	820	500	671
20	1130	954	1080	1600	1500	1550	1570	1540	1550	1030	820	931
21	1110	953	1050	1550	1490	1520	1570	1530	1550	1340	1050	1190
22	1230	1110	1160	1540	1490	1510	1590	1550	1570	1390	1300	1340
23	1300	1220	1250	1970	1530	1730	---	---	---	1410	1330	1370
24	1330	1280	1310	1890	1770	1840	---	---	---	1500	1330	1390
25	1380	1340	1360	1870	1630	1740	---	---	---	1690	1060	1310
26	1410	1360	1380	1800	1660	1730	---	---	---	1200	1110	1150
27	1390	1360	1380	1900	699	1230	---	---	---	1470	1140	1260
28	1370	1280	1320	775	273	396	---	---	---	1540	1460	1500
29	---	---	---	733	404	538	---	---	---	1530	1480	1510
30	---	---	---	1470	733	1120	---	---	---	1600	1520	1550
31	---	---	---	1530	1270	1380	---	---	---	1640	1550	1590

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC. OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1550	370	904	1540	1510	1520	1920	1040	1650	3040	1760	2200
2	750	570	632	1570	1050	1440	1410	1160	1310	2080	1020	1430
3	1100	581	869	1470	1110	1360	1530	1370	1440	1710	1230	1580
4	---	---	---	1540	1450	1490	1660	1530	1590	1560	1290	1440
5	---	---	---	1560	1430	1530	1650	1600	1630	1740	1160	1390
6	---	---	---	1530	1430	1490	1580	440	903	1880	1280	1390
7	1620	270	468	1560	1510	1540	1540	1300	1430	1310	1280	1290
8	480	390	447	1570	1540	1560	---	---	---	1350	1310	1330
9	460	430	448	1570	1530	1550	---	---	---	1440	1340	1370
10	620	430	494	1580	1550	1570	1710	1660	1690	1420	1240	1300
11	610	440	547	1610	1550	1580	1700	1550	1620	1480	1340	1410
12	670	370	500	1610	1560	1600	1730	1670	1690	1440	1150	1330
13	640	210	365	1620	1570	1600	1750	1680	1720	---	---	---
14	420	320	364	1560	570	1000	1690	280	602	---	---	---
15	690	420	544	1490	1300	1400	620	470	526	---	---	---
16	881	660	753	1510	1420	1490	---	---	---	---	---	---
17	1010	890	953	---	---	---	---	---	---	---	---	---
18	1310	1010	1150	---	---	---	1260	1060	1150	---	---	---
19	1430	1320	1370	---	---	---	1460	1270	1360	---	---	---
20	1480	1430	1460	---	---	---	1710	1450	1600	---	---	---
21	1500	1470	1490	1620	1220	1400	1750	1580	1700	---	---	---
22	1510	419	1420	1640	1580	1610	1770	1570	1680	---	---	---
23	1120	280	634	1650	410	1100	1850	1760	1810	1470	1370	1420
24	1410	1140	1270	1490	900	1290	1890	1810	1860	1480	1470	1470
25	1400	820	1090	1570	1490	1530	1930	1860	1890	1510	1400	1480
26	1170	1000	1100	1670	1530	1580	1960	1840	1910	1390	1230	1290
27	1480	1070	1170	1660	1620	1640	2000	1890	1940	1230	1220	1230
28	1390	1100	1220	1680	1650	1660	1950	1840	1920	1240	1220	1230
29	1510	1400	1460	1690	1470	1590	1910	1870	1900	1240	1200	1220
30	1630	1530	1590	1710	1590	1640	2360	1870	2080	1210	1200	1200
31	---	---	---	1730	1690	1710	2580	2310	2420	---	---	---

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN		MAX	MIN	MEDIAN		MAX	MIN	MEDIAN		MAX	MIN	MEDIAN
	OCTOBER				NOVEMBER				DECEMBER				JANUARY		
1	8.0	7.9	8.0		8.6	8.2	8.5		---	---	---		---	---	---
2	8.1	7.9	8.0		8.4	8.0	8.2		---	---	---		---	---	---
3	8.3	8.0	8.2		8.1	7.9	8.0		---	---	---		---	---	---
4	8.1	7.9	8.0		8.0	7.9	7.9		---	---	---		---	---	---
5	8.3	8.0	8.1		7.9	7.6	7.8		---	---	---		---	---	---
6	8.2	7.9	8.1		8.7	7.6	8.4		---	---	---		---	---	---
7	8.4	8.0	8.2		8.6	8.0	8.4		---	---	---		---	---	---
8	8.6	8.3	8.5		8.7	8.2	8.4		---	---	---		---	---	---
9	8.6	8.4	8.5		8.2	8.1	8.2		---	---	---		---	---	---
10	8.5	8.0	8.3		8.2	8.0	8.1		---	---	---		---	---	---
11	8.2	8.0	8.1		8.1	7.6	8.1		---	---	---		---	---	---
12	8.2	8.0	8.1		8.5	7.9	8.1		---	---	---		---	---	---
13	8.4	7.9	8.2		8.0	7.9	8.0		---	---	---		---	---	---
14	8.4	8.2	8.3		---	---	---		8.3	8.1	8.2		---	---	---
15	8.3	8.0	8.2		---	---	---		8.4	8.1	8.2		---	---	---
16	8.0	7.7	7.9		---	---	---		8.4	8.2	8.3		---	---	---
17	8.1	7.9	7.9		---	---	---		8.2	8.1	8.2		---	---	---
18	8.6	7.8	8.2		---	---	---		8.3	8.1	8.2		---	---	---
19	8.5	7.8	8.1		---	---	---		8.4	8.1	8.2		---	---	---
20	8.2	7.5	7.9		---	---	---		8.4	8.1	8.3		---	---	---
21	---	---	---		---	---	---		8.4	8.2	8.3		---	---	---
22	---	---	---		---	---	---		8.3	7.8	8.0		---	---	---
23	---	---	---		---	---	---		8.1	7.9	8.0		---	---	---
24	---	---	---		---	---	---		8.1	8.0	8.0		---	---	---
25	---	---	---		---	---	---		8.3	8.0	8.1		---	---	---
26	8.6	8.5	8.5		---	---	---		8.2	8.0	8.0		---	---	---
27	8.5	8.5	8.5		---	---	---		8.0	7.6	7.9		---	---	---
28	8.5	8.4	8.5		---	---	---		---	---	---		---	---	---
29	8.6	8.4	8.5		---	---	---		---	---	---		---	---	---
30	8.6	8.4	8.5		---	---	---		---	---	---		---	---	---
31	8.6	8.5	8.5		---	---	---		---	---	---		---	---	---

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	8.1	8.0	8.0	---	---	---
2	---	---	---	---	---	---	8.0	8.0	8.0	---	---	---
3	---	---	---	---	---	---	8.1	7.9	8.0	---	---	---
4	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
5	---	---	---	---	---	---	8.5	8.1	8.3	---	---	---
6	---	---	---	---	---	---	8.5	8.3	8.4	---	---	---
7	---	---	---	---	---	---	8.5	8.2	8.4	---	---	---
8	---	---	---	---	---	---	8.4	8.1	8.3	8.6	8.0	8.2
9	---	---	---	---	---	---	8.3	8.1	8.1	8.6	7.9	8.2
10	---	---	---	8.2	8.0	8.1	8.4	8.1	8.2	8.4	8.0	8.2
11	---	---	---	8.5	8.1	8.3	8.4	8.3	8.3	8.3	8.0	8.1
12	---	---	---	8.6	8.2	8.4	8.3	8.2	8.3	8.0	7.5	7.9
13	---	---	---	8.6	8.2	8.3	8.4	8.2	8.3	7.8	7.6	7.7
14	---	---	---	8.7	8.0	8.5	8.3	8.2	8.3	7.9	7.6	7.8
15	---	---	---	8.5	8.1	8.3	8.4	8.1	8.2	7.9	7.7	7.8
16	---	---	---	8.4	7.9	8.2	8.4	8.1	8.3	7.8	7.4	7.7
17	---	---	---	8.5	7.6	8.2	8.4	8.2	8.3	7.8	7.4	7.5
18	---	---	---	8.5	7.8	8.2	8.3	8.1	8.2	7.7	7.6	7.6
19	---	---	---	8.5	8.2	8.4	8.2	8.1	8.1	7.8	7.7	7.8
20	---	---	---	8.5	8.2	8.4	8.2	7.9	8.0	7.8	7.7	7.8
21	---	---	---	8.4	8.0	8.2	8.0	7.9	8.0	7.9	7.7	7.8
22	---	---	---	8.2	7.9	8.0	8.2	8.0	8.1	7.9	7.5	7.7
23	---	---	---	8.0	7.8	7.9	8.4	8.0	8.2	7.6	7.1	7.3
24	---	---	---	7.9	7.6	7.8	---	---	---	8.1	7.1	7.4
25	---	---	---	7.8	7.5	7.7	---	---	---	8.0	7.3	7.5
26	---	---	---	7.8	7.6	7.8	---	---	---	8.2	7.4	7.9
27	---	---	---	8.0	7.4	7.7	---	---	---	8.5	8.2	8.3
28	---	---	---	---	---	---	---	---	---	8.3	8.1	8.2
29	---	---	---	---	---	---	---	---	---	8.2	8.1	8.2
30	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
31	---	---	---	8.2	8.0	8.1	---	---	---	8.4	8.2	8.3

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.3	7.5	7.7	8.2	8.1	8.2	8.3	7.7	8.0	8.7	8.0	8.4
2	7.6	7.5	7.5	8.2	7.7	8.1	7.9	7.7	7.8	8.4	7.6	7.9
3	7.7	7.5	7.6	8.0	7.8	7.9	8.0	7.7	7.8	8.4	7.9	8.2
4	---	---	---	8.0	7.7	7.8	8.2	7.8	7.9	8.5	8.2	8.3
5	---	---	---	8.2	7.7	7.8	8.1	7.9	8.0	8.3	8.0	8.2
6	---	---	---	8.2	8.0	8.0	8.3	7.6	7.9	8.5	8.1	8.5
7	7.9	7.5	7.7	8.4	8.1	8.2	8.3	8.1	8.3	8.5	8.4	8.5
8	7.6	7.6	7.6	8.5	8.2	8.4	---	---	---	8.4	7.8	8.0
9	7.9	7.5	7.6	8.5	8.3	8.4	---	---	---	8.5	8.2	8.3
10	7.8	7.5	7.6	8.5	8.4	8.4	8.5	8.4	8.5	7.5	6.9	7.1
11	7.6	7.4	7.5	8.6	8.4	8.5	8.5	8.3	8.4	8.2	7.0	7.8
12	7.6	7.5	7.5	8.6	8.4	8.5	8.6	8.4	8.5	8.4	8.1	8.3
13	7.9	7.5	7.6	8.5	8.4	8.4	8.6	8.4	8.5	7.9	7.8	7.8
14	7.7	7.4	7.5	8.4	7.8	8.0	8.5	7.5	7.8	7.9	7.8	7.8
15	7.4	7.3	7.3	8.4	8.2	8.2	7.6	7.4	7.5	7.9	7.7	7.8
16	7.6	7.4	7.4	8.5	8.3	8.4	---	---	---	7.9	7.7	7.8
17	7.7	7.6	7.6	8.5	8.2	8.4	---	---	---	7.8	7.7	7.8
18	7.9	7.7	7.7	8.4	8.0	8.2	8.3	8.1	8.2	---	---	---
19	8.1	7.7	7.8	8.2	7.1	8.0	8.7	8.3	8.4	---	---	---
20	8.1	7.8	7.9	8.5	6.9	8.2	8.5	8.3	8.4	---	---	---
21	8.3	7.8	8.0	8.5	7.1	8.2	8.4	8.0	8.2	---	---	---
22	8.2	7.4	8.0	8.5	8.3	8.4	8.3	8.0	8.1	---	---	---
23	7.7	7.2	7.5	8.5	7.6	7.8	8.5	8.2	8.3	9.0	7.4	8.4
24	7.6	7.5	7.6	8.4	7.9	8.2	8.6	8.2	8.3	8.1	7.2	7.6
25	7.6	7.4	7.5	8.6	8.4	8.5	8.7	8.4	8.6	8.5	7.4	8.4
26	7.6	7.1	7.5	8.5	7.9	8.4	8.8	8.5	8.6	8.6	8.3	8.6
27	7.9	7.5	7.7	8.1	7.8	7.9	8.6	8.5	8.6	8.5	8.3	8.4
28	8.2	7.8	8.0	7.9	7.4	7.7	8.6	8.4	8.5	8.6	8.4	8.5
29	8.2	7.9	8.1	7.7	7.3	7.4	8.6	8.4	8.5	8.6	8.4	8.5
30	8.2	8.1	8.1	7.7	7.3	7.6	8.6	8.2	8.5	8.6	8.4	8.5
31	---	---	---	8.3	7.7	7.7	8.6	8.0	8.3	---	---	---

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	20.5	17.5	18.5	17.0	12.0	14.5	9.0	7.0	8.0	9.0	6.0	7.5
2	21.5	15.5	18.5	17.5	13.5	15.5	10.0	8.0	9.0	8.0	6.5	7.0
3	21.0	15.5	18.5	18.0	14.0	16.5	10.5	9.0	10.0	8.0	5.0	6.5
4	19.0	17.0	18.0	18.0	15.0	16.5	10.5	9.5	10.0	8.0	5.5	6.5
5	18.5	13.0	14.5	15.0	11.5	13.0	9.5	8.0	9.0	12.0	7.5	9.5
6	16.0	12.5	14.0	14.0	10.5	12.0	9.5	8.5	9.0	10.0	7.5	9.0
7	14.5	13.0	13.5	15.0	11.0	13.0	10.0	9.0	10.0	10.0	6.5	8.5
8	15.0	13.5	14.5	14.5	11.0	13.0	9.0	4.5	6.5	6.0	3.0	4.0
9	18.0	14.0	16.0	20.5	14.5	16.5	5.5	3.0	4.0	5.0	1.5	3.0
10	20.5	15.0	17.5	18.0	11.5	14.0	6.0	5.0	5.5	6.5	2.5	4.5
11	20.0	15.5	18.0	13.0	10.5	11.5	6.5	5.5	6.0	10.5	5.5	8.0
12	19.5	14.0	17.0	12.0	11.0	11.5	7.5	5.5	6.5	8.0	3.0	5.0
13	20.0	14.5	17.0	13.0	10.5	11.5	9.0	6.0	7.5	4.5	1.0	3.0
14	20.0	14.0	17.0	16.5	12.0	14.0	10.0	6.5	8.0	5.0	1.5	3.0
15	21.5	16.0	18.5	18.0	13.0	16.5	7.0	3.5	5.0	4.0	2.0	3.0
16	23.0	17.5	20.5	12.5	9.0	10.5	4.0	1.5	3.0	5.5	1.5	3.5
17	24.0	19.5	22.0	11.0	8.5	10.0	6.5	2.5	4.5	8.0	3.5	6.0
18	21.5	15.5	17.5	11.0	9.0	10.0	8.0	3.5	6.0	9.5	5.5	7.5
19	17.5	13.0	15.5	11.0	6.5	9.0	9.5	6.0	7.5	9.5	5.5	8.0
20	17.0	15.5	16.0	7.0	4.5	6.0	9.5	7.0	8.5	8.5	5.5	7.0
21	19.5	14.5	17.0	8.0	4.5	6.5	9.5	5.5	7.5	7.5	4.0	5.5
22	20.5	15.5	18.0	9.5	6.0	7.5	12.5	8.5	10.5	7.5	4.0	6.0
23	18.5	15.5	17.5	11.0	6.5	8.5	10.0	7.0	8.5	10.0	6.0	8.0
24	18.0	13.0	15.5	12.5	8.0	10.0	8.0	5.0	7.0	10.0	7.5	9.0
25	19.0	13.5	16.0	12.0	10.0	11.0	7.5	4.5	6.0	9.0	6.5	8.0
26	17.5	12.5	15.0	10.0	8.0	9.0	12.5	7.5	10.0	6.5	4.5	6.0
27	16.5	14.5	15.5	8.5	6.0	7.0	12.0	5.5	8.5	7.0	3.5	5.5
28	14.0	10.5	12.0	6.0	4.0	5.5	5.5	3.0	4.5	7.0	6.5	7.0
29	13.5	11.5	12.5	8.0	5.5	7.0	5.0	2.5	3.5	8.0	6.0	7.0
30	13.0	12.0	12.5	8.0	6.0	7.5	7.5	3.5	5.0	10.0	5.5	8.0
31	16.0	12.0	13.5	---	---	---	10.0	6.0	7.5	11.5	7.5	9.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.5	5.0	7.0	11.0	5.5	8.0	18.0	12.0	14.5	20.5	14.5	17.5
2	4.5	.0	2.5	10.0	8.5	9.0	21.5	14.0	17.5	17.5	14.0	15.0
3	.0	.0	.0	15.5	9.0	11.5	21.0	16.5	18.5	18.5	13.0	15.5
4	.0	.0	.0	10.0	.0	3.0	18.0	14.5	16.5	20.5	14.5	16.0
5	.0	.0	.0	.0	.0	.0	19.0	14.5	16.5	25.0	12.5	17.5
6	.0	.0	.0	.5	.0	.0	19.0	13.5	16.5	---	---	---
7	.0	.0	.0	2.5	.0	.5	20.0	14.0	17.0	---	---	---
8	3.0	.0	1.0	8.0	2.0	5.0	18.0	14.5	16.5	29.0	19.5	24.0
9	4.0	.0	1.0	11.0	11.0	8.0	15.0	11.0	12.5	25.5	20.5	23.0
10	5.0	.0	2.0	14.0	7.0	10.5	14.5	8.5	11.5	24.5	16.5	20.5
11	6.5	1.0	4.0	16.5	9.5	13.0	13.5	9.5	12.0	24.0	17.0	20.0
12	5.0	3.5	4.5	18.5	12.0	15.5	15.5	10.5	13.0	20.0	16.0	18.0
13	5.0	3.5	4.5	17.5	12.5	15.5	14.5	12.5	13.5	20.0	15.0	17.0
14	3.5	2.0	3.0	18.0	13.0	15.5	19.0	11.5	15.0	25.0	18.0	21.5
15	2.5	2.0	2.5	13.5	8.0	11.0	21.0	15.0	18.0	25.5	20.0	22.5
16	2.5	2.0	2.5	15.5	8.5	12.0	21.0	15.5	18.5	23.0	19.5	20.5
17	4.0	2.5	3.0	21.0	12.5	16.0	22.0	16.5	19.0	21.0	18.5	19.5
18	7.0	2.5	5.0	14.5	9.0	12.0	20.5	19.0	20.0	21.0	18.5	19.5
19	7.0	5.5	6.5	11.0	9.5	10.5	22.0	15.5	18.5	26.5	18.0	22.0
20	6.0	5.5	5.5	12.0	7.0	11.0	21.0	17.0	19.0	27.0	23.0	24.5
21	8.0	4.5	6.0	10.0	4.0	7.0	25.0	17.5	21.0	29.0	22.5	25.5
22	7.0	4.0	5.5	13.5	6.5	9.5	26.0	20.5	23.0	28.5	22.0	25.0
23	5.5	1.0	3.5	16.0	8.0	12.0	25.5	19.0	22.5	30.0	23.5	26.5
24	13.0	2.5	5.5	18.5	9.5	14.0	25.0	20.5	22.5	29.5	23.0	26.5
25	11.0	6.0	8.5	21.0	13.5	17.0	26.0	20.5	23.0	28.5	23.0	26.0
26	10.0	5.5	11.0	20.5	16.0	18.0	25.0	22.5	23.0	26.0	21.5	23.0
27	10.5	5.5	7.0	19.5	15.5	17.5	28.5	21.5	24.5	25.0	18.5	22.0
28	7.5	5.0	6.0	17.5	14.5	16.0	26.5	20.0	23.0	26.0	22.5	24.0
29	---	---	---	20.5	16.5	18.5	22.5	17.0	19.5	25.0	22.0	23.5
30	---	---	---	18.5	13.0	15.5	22.5	15.0	18.5	26.0	22.0	24.0
31	---	---	---	17.5	11.5	14.5	---	---	---	25.5	22.5	24.0

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	24.0	20.0	21.0	29.0	25.5	27.0	29.0	26.0	27.5	29.0	25.0	27.0
2	22.5	20.0	20.5	28.5	25.0	26.0	27.5	26.0	26.5	26.5	24.5	25.0
3	23.0	21.5	22.5	29.0	25.0	27.0	27.0	24.5	26.0	28.0	25.5	26.5
4	27.5	18.5	21.0	29.5	25.5	27.5	29.0	24.5	26.5	---	---	---
5	25.0	16.5	21.0	30.0	26.5	28.5	29.5	25.0	27.5	---	---	---
6	24.5	15.5	19.0	29.5	26.5	28.5	28.5	23.5	26.0	---	---	---
7	21.5	18.5	19.5	30.0	26.5	28.0	28.0	24.5	26.0	---	---	---
8	21.5	19.0	20.0	30.0	27.0	28.5	28.5	21.5	24.0	---	---	---
9	22.0	20.5	21.0	30.0	26.5	28.5	27.0	21.0	24.5	---	---	---
10	23.0	21.0	22.0	30.0	26.0	28.0	25.5	21.5	23.0	---	---	---
11	24.0	21.5	22.5	30.0	26.0	28.0	25.5	20.5	23.0	---	---	---
12	24.0	21.5	23.0	30.0	26.5	28.5	24.5	22.5	23.0	---	---	---
13	24.0	20.0	21.5	29.5	27.0	28.0	23.0	22.0	22.5	---	---	---
14	22.5	21.0	22.0	28.0	24.5	25.5	22.0	19.5	20.5	---	---	---
15	22.5	21.0	21.5	29.0	25.0	26.5	22.0	20.0	21.0	---	---	---
16	23.5	20.5	22.0	30.0	26.0	28.0	---	---	---	---	---	---
17	23.5	20.5	22.0	29.0	26.0	27.5	---	---	---	---	---	---
18	25.5	22.0	23.5	29.0	26.0	27.5	26.0	23.5	25.0	---	---	---
19	27.5	22.5	25.0	28.5	26.5	27.5	27.5	24.0	25.5	---	---	---
20	28.0	24.5	26.5	27.5	25.0	26.0	28.0	25.0	26.5	---	---	---
21	28.0	24.5	26.5	27.5	24.5	25.5	28.5	25.5	27.0	---	---	---
22	27.5	22.0	25.5	28.0	24.0	26.0	28.5	25.0	27.0	21.5	20.5	15.0
23	25.5	21.0	22.5	27.0	20.0	23.5	29.5	25.5	27.5	20.5	18.5	18.0
24	26.5	23.5	25.0	27.5	23.5	25.0	30.0	26.5	28.5	18.0	17.0	17.5
25	26.5	23.5	25.0	28.5	24.5	25.5	29.5	26.5	28.0	18.0	17.0	17.5
26	28.5	24.5	26.0	27.5	25.0	26.5	30.0	26.0	28.0	18.0	17.0	17.5
27	27.5	24.0	26.0	28.0	25.0	26.5	30.0	26.5	28.5	18.0	17.5	18.0
28	28.5	25.0	26.5	28.0	27.0	27.5	29.5	26.5	28.0	18.5	17.5	18.0
29	28.5	25.5	27.0	29.0	25.0	27.0	29.0	26.5	28.0	18.5	17.5	18.0
30	29.0	25.5	27.0	30.0	26.0	28.0	29.5	25.5	27.5	19.0	18.0	18.5
31	---	---	---	30.5	26.5	28.5	29.5	25.0	27.5	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.4	6.4	6.8	10.6	7.3	8.5	---	---	---	11.0	9.3	9.9
2	6.8	6.0	6.5	11.1	6.8	8.4	---	---	---	11.2	9.5	10.2
3	8.4	6.0	7.0	11.9	6.5	8.5	---	---	---	12.1	10.0	10.8
4	7.8	6.0	6.7	12.3	6.4	8.6	---	---	---	11.9	9.7	10.7
5	8.6	6.2	7.3	10.3	6.7	8.3	---	---	---	11.0	8.3	9.8
6	8.8	6.9	7.9	9.4	7.2	8.1	---	---	---	11.7	8.2	9.7
7	7.5	6.4	7.1	9.5	7.2	8.1	---	---	---	11.6	8.9	10.0
8	9.2	7.0	8.0	9.4	7.1	8.1	---	---	---	12.7	9.9	11.4
9	10.0	8.5	9.1	8.2	6.2	7.0	---	---	---	12.4	10.9	11.6
10	9.9	7.2	8.7	8.3	6.1	7.1	---	---	---	12.7	10.3	11.5
11	8.1	7.0	7.5	8.7	6.9	7.7	---	---	---	12.4	9.6	10.8
12	8.8	7.0	7.8	7.7	5.7	6.8	---	---	---	13.0	9.5	11.3
13	9.3	6.9	7.8	7.7	6.8	7.3	---	---	---	13.3	11.0	12.4
14	9.7	6.7	7.8	7.5	6.7	7.2	11.5	8.4	9.6	12.9	10.8	11.8
15	11.6	6.2	8.0	8.9	6.4	6.7	12.8	8.9	10.6	11.8	11.2	11.5
16	11.2	5.3	8.0	8.2	6.9	7.7	13.0	10.5	11.6	12.7	10.6	11.7
17	14.1	5.5	8.9	8.7	7.8	8.2	12.6	9.9	10.9	12.2	9.9	10.9
18	12.1	6.0	8.6	8.1	7.5	7.8	12.8	9.1	10.7	11.9	9.4	10.3
19	10.9	6.9	8.7	8.6	7.3	7.8	12.5	8.4	9.9	12.2	9.1	10.3
20	7.0	5.5	6.3	9.3	8.1	8.8	13.0	7.7	9.8	12.4	9.2	10.6
21	7.4	6.4	6.9	9.0	8.2	8.8	13.8	8.2	10.5	13.3	10.4	11.5
22	7.7	5.9	6.8	8.5	8.0	8.3	11.7	4.8	8.0	13.1	10.1	11.3
23	7.6	5.7	6.6	8.4	7.7	8.1	9.6	7.0	8.6	13.4	9.8	11.1
24	10.0	6.3	7.8	8.1	7.2	7.7	10.5	9.2	9.8	13.1	8.7	10.3
25	8.6	6.0	6.9	7.4	7.0	7.2	11.5	9.8	10.7	9.5	7.5	8.3
26	8.5	6.1	7.1	7.9	7.3	7.6	10.3	8.2	9.5	10.1	8.0	9.1
27	8.4	6.2	7.0	8.7	7.6	8.3	9.9	8.0	8.8	9.8	8.4	9.2
28	9.4	6.5	7.8	---	---	---	11.7	10.1	10.9	8.4	6.7	7.8
29	10.0	7.3	8.4	---	---	---	11.2	10.2	10.7	8.6	8.2	8.4
30	10.1	7.3	8.4	---	---	---	10.8	9.5	10.3	9.4	8.1	8.7
31	10.3	7.6	8.6	---	---	---	10.4	9.2	9.7	9.3	8.0	8.5

07241520 NORTH CANADIAN RIVER AT BRITTON RD AT OKC, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	8.5	6.9	7.7	---	---	---
2	---	---	---	---	---	---	8.3	6.4	7.3	---	---	---
3	---	---	---	---	---	---	10.1	6.0	7.7	---	---	---
4	---	---	---	---	---	---	9.0	6.3	7.6	---	---	---
5	---	---	---	---	---	---	12.4	7.3	9.3	---	---	---
6	---	---	---	---	---	---	14.7	7.0	10.3	---	---	---
7	---	---	---	---	---	---	14.8	6.7	10.1	---	---	---
8	---	---	---	---	---	---	13.1	6.5	9.4	---	---	---
9	---	---	---	---	---	---	11.5	7.4	9.3	---	---	---
10	---	---	---	8.6	6.4	7.7	11.4	8.6	9.8	---	---	---
11	---	---	---	11.1	6.2	8.0	10.9	7.7	9.1	---	---	---
12	---	---	---	13.1	5.9	8.8	11.0	7.7	9.1	---	---	---
13	---	---	---	14.4	5.9	9.4	10.7	7.4	9.0	---	---	---
14	---	---	---	15.8	5.8	9.7	11.3	7.6	9.2	---	---	---
15	---	---	---	12.4	6.7	9.2	12.3	6.6	9.0	---	---	---
16	---	---	---	12.7	7.1	9.4	11.0	6.4	8.4	---	---	---
17	---	---	---	14.7	6.4	9.6	10.9	6.4	8.2	---	---	---
18	---	---	---	14.8	6.3	9.9	10.0	6.1	7.8	5.8	4.2	5.1
19	---	---	---	13.4	7.3	10.0	11.2	6.6	8.6	6.8	5.0	6.2
20	---	---	---	10.9	7.3	8.9	10.6	6.3	8.1	6.9	4.7	5.7
21	---	---	---	11.5	8.1	9.7	11.4	6.3	8.3	---	---	---
22	---	---	---	11.0	6.3	8.8	11.2	5.7	7.9	---	---	---
23	---	---	---	9.2	5.4	6.7	11.3	5.9	8.0	---	---	---
24	---	---	---	9.3	4.8	6.7	10.7	5.6	7.6	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	9.3	7.1	8.1	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	8.0	5.9	6.8	9.8	4.4	7.2	15.9	4.7	8.7
2	---	---	---	6.9	4.7	5.9	6.7	3.7	4.9	5.9	4.4	5.2
3	---	---	---	8.2	5.4	6.7	8.0	5.3	6.5	9.9	5.8	7.4
4	---	---	---	10.8	5.6	7.7	9.3	5.6	7.4	10.7	5.6	7.7
5	---	---	---	9.7	5.2	7.1	9.3	5.7	7.4	10.9	5.7	7.6
6	---	---	---	6.8	5.5	6.1	7.3	5.1	6.1	8.5	5.5	6.8
7	5.9	5.4	5.6	9.0	5.7	7.1	9.3	6.2	7.6	8.9	5.8	7.2
8	5.9	5.5	5.7	8.7	5.7	7.0	8.4	6.2	7.4	9.7	5.8	7.4
9	5.8	5.6	5.7	8.5	5.7	6.9	11.9	6.5	8.7	8.0	6.0	7.0
10	5.8	5.0	5.6	9.1	5.8	7.1	9.1	6.5	7.9	8.8	6.9	7.6
11	5.5	5.1	5.3	9.1	5.8	7.2	9.4	7.3	8.3	7.9	6.4	7.0
12	5.6	5.2	5.4	9.1	5.9	7.2	9.9	7.0	8.3	7.9	6.9	7.4
13	6.0	5.2	5.5	8.6	5.8	6.9	9.2	7.0	8.0	7.5	6.1	7.0
14	5.5	5.0	5.3	6.7	4.2	5.6	7.6	5.9	6.3	8.0	6.7	7.4
15	5.5	5.3	5.4	8.3	6.0	6.9	6.7	6.1	6.5	8.0	7.1	7.6
16	5.7	5.4	5.6	9.6	6.1	7.5	---	---	---	7.5	7.0	7.2
17	6.3	5.4	5.9	---	---	---	---	---	---	6.8	6.2	6.6
18	7.4	5.7	6.5	---	---	---	8.4	6.3	7.1	---	---	---
19	8.4	5.7	6.8	---	---	---	11.9	6.1	8.2	---	---	---
20	8.4	5.4	6.7	---	---	---	10.6	6.0	7.9	---	---	---
21	9.7	5.1	7.1	---	---	---	10.3	5.8	7.7	---	---	---
22	8.9	5.2	6.5	9.2	5.8	7.4	8.1	6.0	6.8	---	---	---
23	5.4	4.0	4.7	6.8	5.5	6.0	9.3	5.2	6.8	---	---	---
24	5.6	5.0	5.3	8.4	5.6	6.8	8.6	4.8	6.5	---	---	---
25	5.7	5.4	5.6	8.8	6.4	7.5	9.0	4.2	6.2	---	---	---
26	6.0	5.4	5.6	9.2	6.6	7.7	9.8	4.5	6.6	---	---	---
27	6.5	5.3	5.8	9.8	6.3	7.7	9.0	4.6	6.5	---	---	---
28	8.2	5.1	6.3	9.2	7.0	8.1	9.2	4.9	6.7	---	---	---
29	7.7	5.5	6.5	9.0	5.6	7.0	10.1	5.5	7.2	---	---	---
30	7.6	6.1	6.7	9.6	5.2	6.9	14.9	5.0	8.9	---	---	---
31	---	---	---	9.0	5.8	7.1	18.1	4.8	10.4	---	---	---

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK

LOCATION (REVISED).-- Lat 35°30'01", long 97°11'37", in SW 1/4 NW 1/4 sec.22, T.12 N., R.1 E., Oklahoma County, Hydrologic Unit 11100302, on left bank downstream side county road bridge, 2.2 mi northwest of Harrah, 3.8 mi downstream from Choctaw Creek, and at mile 230.0.

DRAINAGE AREA.-- 13,501 mi², of which 4,899 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.-- Water-stage recorder. Datum of gage is 1,055.69 ft above National Geodetic Vertical Datum of 1929. June 19, 1981 to May 31, 1987, gage 0.8 mi downstream at same datum.

REMARKS.-- Records good. Flow regulated by Canton Lake (station 07238500) and by Lake Overholser (station 07240500) where diversions are made into Lake Hefner Canal (station 07240000). Low flow sustained in part by sewage effluent from Oklahoma City. U.S. Geological Survey's satellite telemeter located at station.

AVERAGE DISCHARGE.-- 21 years, 410 ft³/s, 297,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 27,200 ft³/s, May 29, 1987, gage height, 19.80 ft; minimum, 23 ft³/s, Aug. 8, 1972.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 13,700 ft³/s, June 14, gage height, 19.07 ft; minimum daily discharge, 95 ft³/s, May 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	298	221	187	177	321	285	322	136	1500	1350	871	528
2	233	217	153	168	575	261	237	162	4630	1310	1490	e500
3	198	209	143	184	205	256	212	140	1650	1700	1140	e830
4	193	211	140	218	271	294	234	160	4650	1010	835	e650
5	167	223	131	185	225	463	458	374	7850	660	902	e560
6	176	299	145	146	229	268	343	141	4430	1300	2410	e610
7	433	275	140	217	204	370	268	107	5230	996	1250	e740
8	1020	209	173	192	201	406	276	95	8680	884	613	580
9	636	175	312	216	207	340	356	108	6830	1010	347	e450
10	502	148	224	171	215	282	330	103	5530	1000	520	e350
11	256	145	178	170	202	247	336	106	3470	966	559	286
12	194	2060	151	172	187	253	326	102	3980	988	642	579
13	181	1230	174	244	248	234	330	883	6140	1000	614	6860
14	179	425	159	215	677	241	337	383	11800	2470	3130	8870
15	171	293	144	261	1420	230	345	202	8630	1510	6340	6690
16	168	468	156	219	756	187	336	229	3950	1120	2900	4670
17	212	661	175	204	461	182	310	543	2260	1070	1670	2770
18	191	266	150	195	816	179	306	1720	2070	1050	1160	1910
19	219	217	141	176	463	219	298	500	1970	1030	1020	1560
20	247	499	130	170	398	219	302	283	1800	1020	932	1530
21	529	452	136	176	517	216	289	208	1510	788	918	1880
22	214	248	152	185	481	234	274	171	1790	767	916	1130
23	181	205	471	162	337	185	276	157	8320	1240	880	1260
24	163	194	222	157	304	151	266	146	3220	2050	859	1350
25	176	180	182	159	293	135	266	162	2500	1160	824	1010
26	147	171	160	306	285	137	271	515	1840	1120	854	772
27	153	174	178	263	274	173	278	464	1120	1110	789	725
28	149	156	468	229	292	1420	249	473	1150	1020	774	579
29	162	194	257	627	---	948	172	490	1330	1070	750	346
30	204	165	174	294	---	393	148	553	1410	1010	584	407
31	211	---	164	242	---	494	---	509	---	1010	e560	---
TOTAL	8163	10590	5870	6700	11064	9902	8751	10325	121220	35789	38053	50982
MEAN	263	353	189	216	395	319	292	333	4041	1154	1228	1699
MAX	1020	2060	471	627	1420	1420	458	1720	11800	2470	6340	8870
MIN	147	145	130	146	187	135	148	95	1120	660	347	286
AC-FT	16190	21010	11640	13290	21950	19640	17360	20480	240400	70990	75480	101100

CAL YR 1988 TOTAL 244684 MEAN 669 MAX 7420 MIN 101 AC-FT 485300
WTR YR 1989 TOTAL 317409 MEAN 870 MAX 11800 MIN 95 AC-FT 629600

e Estimated

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to September 1988 (once daily observer's readings), October 1988 to September 1989.

pH: October 1988 to September 1989.

WATER TEMPERATURE: October 1968 to September 1988 (once daily observer's readings), October 1988 to September 1989.

DISSOLVED OXYGEN: October 1988 to September 1989.

INSTRUMENTATION.-- Water-quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument. Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum (observed), 4,700 microsiemens, Sept. 25, 1980; minimum recorded (more than 20 percent missing record), 261 microsiemens, June 23, 1989.

pH: Maximum recorded (more than 20 percent missing record), 9.1 units, April 29, 1989; minimum recorded, 7.0 units, July 30, 1989.

WATER TEMPERATURE: Maximum daily (observed), 36.0 °C, July 11, 1982; minimum daily, 0.0 °C on several days during winter periods.

DISSOLVED OXYGEN: Maximum recorded (more than 20 percent missing record), 17.3 mg/l, Sept. 29, 1989; minimum recorded, 3.1 mg/l, Aug. 1, 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
OCT											
27...	1100	1028	80020	5.11	150	1300	7.8	14.0	16.0	--	730
27...	1101	1028	9999	5.11	150	1300	7.8	14.0	16.0	5.8	730
NOV											
09...	1030	1028	80020	5.22	175	1290	8.1	20.5	17.0	--	730
09...	1031	1028	9999	5.22	175	1290	8.1	20.5	17.0	2.8	730
DEC											
29...	1215	1028	80020	5.35	257	1030	7.8	6.0	5.0	--	740
29...	1216	1028	9999	5.35	257	1030	7.8	6.0	5.0	15	740
JAN											
25...	1310	1028	80020	5.13	160	1280	7.8	8.5	10.0	--	740
25...	1311	1028	9999	5.13	160	1280	7.8	8.5	10.0	6.8	740
FEB											
14...	1030	1028	80020	6.63	677	947	7.5	0.0	4.0	--	740
14...	1031	1028	9999	6.63	677	947	7.5	0.0	4.0	3.6	740
MAR											
22...	1200	1028	80020	5.40	245	1450	8.0	14.5	10.0	--	740
22...	1201	1028	9999	5.40	245	1450	8.0	14.5	10.0	7.0	740
APR											
12...	1245	1028	9999	5.71	330	1650	8.1	20.5	13.5	16	740
12...	1320	1028	80020	5.71	330	1650	8.1	20.5	13.5	--	740
MAY											
17...	1030	1028	80020	6.14	464	1020	8.1	21.0	20.0	--	730
17...	1140	1028	9999	6.14	464	1020	8.1	21.0	20.0	130	730

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
OCT											
27...	7.2	77	--	--	--	--	--	--	--	--	--
27...	7.2	77	--	--	400	10	--	--	--	--	--
NOV											
09...	8.1	88	--	--	--	--	360	87	35	150	47
09...	8.1	88	--	--	400	200	--	--	--	--	--
DEC											
29...	12.1	98	--	--	--	--	270	67	25	110	--
29...	12.1	98	2.6	--	80	160	--	--	--	--	--
JAN											
25...	10.2	93	--	4.4	--	--	--	--	--	--	--
25...	10.2	93	--	--	400	100	--	--	--	--	--
FEB											
14...	11.0	87	--	9.3	--	--	230	59	20	100	48
14...	11.0	87	--	--	90	11000	--	--	--	--	--
MAR											
22...	12.2	112	--	4.0	--	--	390	90	40	160	--
22...	12.2	112	2.7	--	1200	50	--	--	--	--	--
APR											
12...	12.9	128	--	--	300	0	--	--	--	--	--
12...	12.9	128	--	5.3	--	--	--	--	--	--	--
MAY											
17...	6.4	74	--	4.2	--	--	250	62	22	100	46
17...	6.4	74	--	--	1100	4000	--	--	--	--	--

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)
OCT											
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	14
NOV											
09...	3	7.6	160	180	0.80	13	822	808	1.12	388	--
09...	--	--	--	--	--	--	--	--	--	--	16
DEC											
29...	3	--	--	--	--	9.0	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	40
JAN											
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	15
FEB											
14...	3	5.1	62	150	0.40	9.4	506	586	0.69	925	--
14...	--	--	--	--	--	--	--	--	--	--	16
MAR											
22...	4	--	--	--	--	8.5	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	17
APR											
12...	--	--	--	--	--	--	--	--	--	--	50
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
17...	3	6.6	78	150	0.50	10	554	545	0.75	694	--
17...	--	--	--	--	--	--	--	--	--	--	370
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT											
27...	4.93	22	0.170	0.56	5.10	0.200	0.26	--	--	--	1.20
27...	--	--	--	--	--	0.210	0.27	0.09	0.30	1.22	--
NOV											
09...	4.26	19	0.140	0.46	4.40	0.150	0.19	--	--	--	1.40
09...	--	--	--	--	--	--	--	--	--	1.02	--
DEC											
29...	2.16	9.6	0.040	0.13	2.20	0.140	0.18	--	--	--	1.20
29...	0.600	2.7	0.020	0.07	0.620	1.38	1.8	0.64	2.0	1.07	1.69
JAN											
25...	3.99	18	0.110	0.36	4.10	0.100	0.13	--	--	--	2.40
25...	--	--	--	--	--	--	--	--	--	1.32	--
FEB											
14...	1.51	6.7	0.090	0.30	1.60	0.590	0.76	--	--	--	0.450
14...	--	--	0.080	0.26	--	0.650	1.1	0.11	0.96	0.580	0.890
MAR											
22...	2.52	11	0.080	0.26	2.60	0.070	0.09	--	--	--	0.370
22...	2.15	9.5	0.150	0.49	2.30	0.010	0.01	0.34	0.35	1.20	--
APR											
12...	--	--	0.010	0.03	--	0.020	0.03	0.44	0.46	0.740	1.16
12...	2.38	11	0.020	0.07	2.40	0.030	0.04	--	--	--	1.20
MAY											
17...	1.63	7.2	0.070	0.23	1.70	0.120	0.15	--	--	--	1.00
17...	--	--	--	--	--	0.120	0.15	0.39	0.51	0.870	1.13

[illegible][illegible]

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
JUN												
21...	1215	1028	1028	7.00	--	--	1270	8.1	--	26.5	--	--
21...	1220	1028	1028	22.0	--	--	1340	8.1	--	26.5	--	--
21...	1230	1028	1028	37.0	--	--	1340	8.1	--	26.5	--	--
21...	1240	1028	1028	52.0	--	--	1340	8.1	--	26.5	--	--
21...	1250	1028	1028	67.0	--	--	1330	8.1	--	26.5	--	--
21...	1300	1028	1028	82.0	--	--	1330	8.1	--	26.5	--	--
21...	1310	1028	1028	97.0	--	--	1340	8.1	--	26.5	--	--
21...	1320	1028	1028	125	--	--	1340	8.1	--	26.5	--	--
21...	1330	1028	1028	142	--	--	1340	8.1	--	26.5	--	--
21...	1340	1028	1028	157	--	--	1310	8.1	--	26.5	--	--
21...	1350	1028	1028	172	--	--	1330	8.1	--	26.5	--	--
21...	1355	1028	1028	187	--	--	1320	8.1	--	26.5	--	--
21...	1400	1028	1028	202	--	--	1330	8.2	--	26.5	--	--
21...	1404	1028	1028	210	--	--	1330	8.2	--	26.5	--	--
21...	1405	1028	80020	--	7.89	1510	1340	8.1	33.0	27.0	--	730
21...	1406	1028	9999	--	7.89	1510	1340	8.1	33.0	27.0	230	730
JUL												
18...	1130	1028	80020	--	7.76	1340	1380	8.2	90.0	26.5	--	730
18...	1550	1028	9999	--	7.76	1340	1380	8.2	90.0	26.5	46	730
AUG												
21...	1200	1028	80020	--	7.56	1210	1410	8.2	30.0	26.0	--	730
21...	1201	1028	9999	--	7.56	1210	1410	8.2	30.0	26.0	44	730
SEP												
26...	1130	1028	9999	--	7.30	1060	1340	8.3	28.0	18.0	45	740
26...	1335	1028	80020	--	7.30	1060	1340	8.3	28.0	18.0	--	740

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN DIS- SOLVED (MG/L AS N)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT
JUN											
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	6.8	--	--	--	--	--	--	--	--	--	--
21...	6.5	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	7.0	--	--	--	--	--	--	--	--	--	--
21...	6.9	--	--	--	--	--	--	--	--	--	--
21...	6.9	--	--	--	--	--	--	--	--	--	--
21...	6.9	--	--	--	--	--	--	--	--	--	--
21...	6.7	--	--	--	--	--	--	--	--	--	--
21...	7.5	99	--	4.1	--	--	390	96	35	140	--
21...	7.0	92	--	--	4000	200	--	--	--	--	--
JUL											
18...	8.1	106	--	10	--	--	--	--	--	--	--
18...	8.1	106	5.2	--	800	300	--	--	--	--	--
AUG											
21...	8.8	114	--	3.4	--	--	370	95	33	150	46
21...	8.8	114	2.4	--	500	700	--	--	--	--	--
SEP											
26...	9.7	106	3.6	--	200	100	--	--	--	--	--
26...	9.7	106	--	11	--	--	380	95	34	150	--

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	3	--	--	--	--	12	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	46
JUL											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	130
AUG											
21...	3	8.1	190	200	0.60	16	856	839	1.16	2800	--
21...	--	--	--	--	--	--	--	--	--	--	76
SEP											
26...	--	--	--	--	--	--	--	--	--	--	148
26...	3	--	--	--	--	16	--	--	--	--	--
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2-NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	0.800	3.5	0.040	0.13	0.840	0.050	0.06	--	--	--	0.460
21...	--	--	0.070	0.23	--	0.070	0.09	--	--	0.080	0.780
JUL											
18...	0.920	4.1	0.010	0.03	0.930	0.140	0.18	--	--	--	0.560
18...	0.910	4.0	0.070	0.23	0.980	0.360	0.46	3.8	4.2	0.560	--
AUG											
21...	0.940	4.2	0.020	0.07	0.960	0.040	0.05	--	--	--	0.560
21...	1.22	5.4	0.080	0.26	1.30	0.080	0.10	1.0	1.1	0.890	--
SEP											
26...	1.65	7.3	0.040	0.13	1.69	0.070	0.09	1.9	1.9	0.680	--
26...	1.48	6.6	0.020	0.07	1.50	0.020	0.03	--	--	--	0.580

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	1.4	5	230	<0.5	<1.0	<5	<3	<10	14	<10	37
21...	2.4	--	--	--	--	--	--	--	--	--	--
JUL											
18...	1.7	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	1.7	6	220	<0.5	<1.0	<5	<3	<10	8	<10	37
21...	--	--	--	--	--	--	--	--	--	--	--
SEP											
26...	--	--	--	--	--	--	--	--	--	--	--
26...	1.8	5	220	<0.5	2.0	<5	<3	10	8	10	38
DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	PHENOLS TOTAL (UG/L)
JUN											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	4	1.7	<10	10	<1	<1.0	1100	12	16	11	6
21...	--	--	--	--	--	--	--	--	--	--	--
JUL											
18...	--	--	--	--	--	--	--	--	--	12	--
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	1	<0.1	20	<10	<1	<1.0	1100	11	6	9.5	--
21...	--	--	--	--	--	--	--	--	--	--	--
SEP											
26...	--	--	--	--	--	--	--	--	--	--	--
26...	10	<0.1	<10	<10	<1	<1.0	1100	8	20	9.5	<1

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)	SESTON, TOTAL (MG/L)	CHLORO- PHYLL A PHYTO- PLANK- TON ACID M. (UG/L)	PHEO- PHYTTIN PHYTO- PLANK- TON ACID M. (UG/L)	CHLORO- PHYLL A PHYTO- PLANK- TON UNCORR. (UG/L)	CHLORO- PHYLL B PHYTO- PLANK- TON UNCORR. (UG/L)	CHLORO- PHYLL C PHYTO- PLANK- TON UNCORR. (UG/L)
NOV 09...	1030	11200	2.0	14.0	<1.00	14.0	<1.00	3.00
DEC 29...	1215	11400	4.0	18.0	<1.00	18.0	2.00	<1.00
FEB 14...	1030	19200	10	33.0	13.0	42.0	4.00	<1.00
MAR 22...	1200	11400	--	19.0	33.0	38.0	13.0	24.0
APR 12...	1320	22200	--	36.0	57.0	71.0	17.0	24.0
MAY 17...	1030	37000	20	26.0	34.0	48.0	<1.00	8.00
JUN 21...	1405	24600	17	56.0	61.0	94.0	5.00	11.0
JUL 18...	1130	28800	22	31.0	38.0	55.0	3.00	5.00
AUG 21...	1200	34800	4.0	50.0	91.0	107	11.0	29.0
SEP 26...	1335	14000	16	22.0	48.0	52.0	4.00	2.00

DATE	TIME	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PCB TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
NOV 09...	1030	<0.10	<0.1	<0.001	<0.1	<0.001	<0.001	<0.001	0.20	0.002
FEB 14...	1030	<0.10	<0.1	<0.001	0.1	0.003	<0.001	0.032	0.06	0.007
MAY 17...	1140	--	0.1	0.001	0.1	0.001	0.001	0.001	0.16	0.001

DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)
NOV 09...	<0.001	<0.001	<0.01	<0.001	<0.001	0.023	<0.01	<0.01	<0.5
FEB 14...	<0.001	<0.001	<0.01	<0.001	<0.001	0.012	0.06	<0.01	<0.5
MAY 17...	0.001	0.001	0.01	0.001	0.001	0.010	0.02	0.01	--

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PRO- PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)	PROME- TRYNE TOTAL (UG/L)
NOV 09...	<0.01	<0.01	<0.01	<0.01	<0.1	<0.10	<0.5	0.1	<0.1
FEB 14...	<0.01	<0.01	<0.01	<0.01	<0.1	<0.10	<0.5	0.1	<0.1
MAY 17...	0.01	0.01	0.01	0.01	--	--	--	--	--

DATE	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,6-T TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA- ZYNE TOTAL (UG/L)	SIME- TRYNE TOTAL (UG/L)
NOV 09...	<1	<0.01	0.01	0.02	<0.01	<0.50	<0.01	<0.10	<0.1
FEB 14...	<1	<0.01	0.12	<0.01	<0.01	<0.50	<0.01	0.20	<0.1
MAY 17...	1	0.01	--	--	--	--	--	--	--

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DEF TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)
AUG 21...	1200	<0.10	<0.1	<0.001	<0.1	<0.001	<0.001	<0.001	<0.01	0.04
DATE	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)
AUG 21...	0.003	<0.01	<0.001	<0.001	<0.01	<0.001	<0.001	0.010	<0.01	<0.01
DATE	METHO- MYL TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	PRO- PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
AUG 21...	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	0.10	<0.5	0.1
DATE	PROME- TRYNE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA- ZINE TOTAL (UG/L)	SIME- TRYNE TOTAL (UG/L)
AUG 21...	<0.1	<1	<0.01	0.01	<0.01	<0.01	<0.50	<0.01	<0.10	<0.1

07241650 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1080	710	954	1260	1090	1190	1440	1190	1330	---	---	---
2	1060	963	1020	1200	1160	1180	1280	1200	1230	---	---	---
3	1130	975	1050	1340	1180	1230	1310	1240	1270	---	---	---
4	1220	1060	1120	1360	1320	1350	1310	1270	1290	---	---	---
5	1240	1140	1200	1370	1300	1340	1320	1260	1300	---	---	---
6	1330	1070	1230	1380	1300	1360	1330	1280	1300	---	---	---
7	1430	702	1140	1370	1110	1310	1340	1240	1270	---	---	---
8	835	387	605	1340	1260	1320	1310	1250	1270	---	---	---
9	1030	489	814	1360	1310	1340	1460	1060	1230	---	---	---
10	1080	900	1030	1360	1330	1340	1110	1080	1090	---	---	---
11	1130	963	1080	1360	1280	1330	1150	1100	1130	---	---	---
12	1140	996	1080	1210	270	599	1160	1120	1130	---	---	---
13	1230	1110	1180	414	291	350	1230	1160	1180	---	---	---
14	1350	1180	1300	660	418	549	1220	1130	1160	---	---	---
15	1300	1230	1270	826	670	754	1190	1170	1180	---	---	---
16	1330	1080	1280	1100	820	920	1310	1190	1220	---	---	---
17	1340	1260	1300	1110	950	1010	1330	1160	1220	---	---	---
18	1410	1220	1290	982	940	963	---	---	---	---	---	---
19	1280	1190	1250	1030	990	1010	---	---	---	---	---	---
20	1380	1250	1310	1220	611	960	---	---	---	---	---	---
21	1270	1090	1210	737	540	607	---	---	---	---	---	---
22	1080	544	646	920	740	866	---	---	---	---	---	---
23	1020	723	839	1060	930	992	---	---	---	---	---	---
24	1240	997	1140	1200	1050	1120	---	---	---	---	---	---
25	1250	1190	1220	1240	1170	1200	---	---	---	---	---	---
26	1390	1240	1320	1240	1200	1220	---	---	---	---	---	---
27	1280	1200	1240	1290	1240	1260	---	---	---	---	---	---
28	1320	1280	1300	1290	1240	1270	---	---	---	---	---	---
29	1370	1110	1290	1420	1290	1350	---	---	---	---	---	---
30	1490	1030	1360	1330	1180	1220	---	---	---	---	---	---
31	1460	1140	1320	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	1530	1210	1300	1430	1400	1420
2	1210	1110	1140	---	---	---	1450	1330	1410	1470	1400	1430
3	1160	1100	1130	---	---	---	1610	1410	1510	1410	1330	1360
4	1300	1100	1180	---	---	---	---	---	---	1420	1260	1320
5	1300	1160	1220	---	---	---	1510	1390	1420	1510	766	940
6	1170	1130	1150	---	---	---	1550	1390	1460	1100	864	973
7	1160	1130	1140	---	---	---	1530	1360	1450	1290	1110	1200
8	1200	1110	1140	---	---	---	1480	1360	1430	1370	1190	1290
9	1130	1100	1120	---	---	---	1410	1320	1350	1380	1230	1340
10	1150	1100	1120	1230	1100	1160	1530	1260	1300	1370	1220	1320
11	1190	1130	1170	1240	1140	1190	1400	1330	1370	1400	1270	1350
12	1230	1140	1190	1300	1210	1240	1690	1390	1530	1350	1180	1260
13	1200	920	1060	1300	1180	1230	1590	1510	1540	1400	344	727
14	1160	450	738	1310	1210	1240	---	---	---	749	402	576
15	820	370	472	1320	1210	1250	---	---	---	988	744	881
16	620	430	553	1320	1200	1240	---	---	---	1000	781	893
17	---	---	---	1350	1250	1300	---	---	---	1040	522	819
18	---	---	---	1310	1220	1270	---	---	---	646	314	518
19	---	---	---	1320	1230	1260	---	---	---	686	500	569
20	---	---	---	1380	1200	1260	---	---	---	908	688	811
21	---	---	---	1310	1220	1260	---	---	---	---	---	---
22	---	---	---	1340	1250	1300	---	---	---	---	---	---
23	---	---	---	1330	1210	1250	---	---	---	---	---	---
24	---	---	---	1450	1210	1290	---	---	---	1170	1110	1150
25	---	---	---	1400	1310	1340	---	---	---	1220	1140	1170
26	---	---	---	1400	1230	1300	---	---	---	1480	1000	1140
27	---	---	---	1260	625	1180	---	---	---	1190	1120	1160
28	---	---	---	---	---	---	1470	1440	1460	1550	1200	1380
29	---	---	---	---	---	---	1440	1380	1410	1620	1550	1590
30	---	---	---	---	---	---	1440	1410	1420	1640	1610	1620
31	---	---	---	1490	796	1110	---	---	---	---	---	---

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989[illegible]

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	8.8	8.5	8.7
2	---	---	---	---	---	---	---	---	---	8.7	8.6	8.7
3	---	---	---	---	---	---	---	---	---	8.9	8.5	8.7
4	---	---	---	---	---	---	---	---	---	8.6	8.1	8.4
5	---	---	---	---	---	---	---	---	---	8.2	7.8	8.0
6	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
7	---	---	---	---	---	---	---	---	---	8.9	7.9	8.5
8	---	---	---	---	---	---	---	---	---	8.9	8.5	8.7
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	8.2	8.1	8.1	---	---	---	---	---	---
11	---	---	---	8.2	8.0	8.1	8.1	7.9	8.0	---	---	---
12	---	---	---	8.2	7.9	8.0	8.6	7.9	8.4	---	---	---
13	---	---	---	8.8	7.9	8.5	8.6	8.2	8.6	---	---	---
14	---	---	---	8.9	8.2	8.4	---	---	---	7.9	7.7	7.8
15	---	---	---	8.5	8.2	8.3	---	---	---	8.2	7.8	8.0
16	---	---	---	8.6	8.2	8.4	8.2	8.1	8.1	8.4	8.0	8.2
17	---	---	---	8.5	8.1	8.3	8.2	8.1	8.2	8.2	7.7	8.1
18	---	---	---	8.8	8.2	8.5	8.3	8.1	8.2	8.4	7.6	7.8
19	---	---	---	8.8	8.3	8.5	8.5	8.3	8.3	7.8	7.5	7.6
20	---	---	---	8.4	8.0	8.2	8.4	8.2	8.4	7.6	7.5	7.6
21	---	---	---	8.3	7.9	8.1	8.3	8.2	8.3	7.8	7.5	7.7
22	---	---	---	8.1	7.8	8.0	8.5	8.2	8.3	8.5	7.7	8.0
23	---	---	---	7.9	7.7	7.8	8.4	8.2	8.3	8.7	8.1	8.4
24	---	---	---	7.7	7.5	7.6	8.6	8.3	8.5	8.9	8.4	8.6
25	---	---	---	7.7	7.5	7.6	8.9	8.4	8.5	8.9	8.6	8.8
26	---	---	---	7.9	7.6	7.7	9.0	8.5	8.6	8.8	8.0	8.2
27	---	---	---	7.8	7.5	7.7	8.8	8.4	8.6	8.5	8.2	8.3
28	---	---	---	7.7	7.1	7.3	9.0	8.6	8.8	8.6	8.5	8.5
29	---	---	---	7.4	7.3	7.4	9.1	8.6	8.8	8.5	8.4	8.4
30	---	---	---	---	---	---	8.9	8.6	8.7	8.6	8.3	8.4
31	---	---	---	---	---	---	---	---	---	8.5	8.3	8.4
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.5	7.9	8.3	7.9	7.7	7.8	8.3	8.1	8.2	---	---	---
2	---	---	---	8.1	7.9	8.0	8.2	7.7	7.8	---	---	---
3	---	---	---	8.1	7.8	8.0	7.8	7.8	7.8	---	---	---
4	---	---	---	8.3	8.0	8.1	8.1	7.8	7.9	---	---	---
5	---	---	---	8.4	8.1	8.2	8.3	8.0	8.0	---	---	---
6	---	---	---	8.2	8.1	8.1	8.2	7.6	7.9	---	---	---
7	---	---	---	8.2	8.1	8.1	---	---	---	8.1	7.8	7.9
8	---	---	---	8.2	8.0	8.1	---	---	---	8.3	7.9	8.0
9	---	---	---	8.3	8.1	8.2	---	---	---	8.4	8.1	8.2
10	---	---	---	8.4	8.2	8.2	---	---	---	8.1	8.0	8.1
11	---	---	---	8.3	8.2	8.3	---	---	---	---	---	---
12	---	---	---	8.3	8.2	8.3	8.2	7.9	8.1	---	---	---
13	---	---	---	8.3	8.2	8.2	8.1	8.0	8.1	---	---	---
14	---	---	---	8.2	7.5	8.0	---	---	---	---	---	---
15	---	---	---	7.9	7.6	7.9	---	---	---	---	---	---
16	---	---	---	8.2	7.7	7.8	---	---	---	---	---	---
17	---	---	---	8.2	8.0	8.1	7.8	7.5	7.6	---	---	---
18	---	---	---	8.1	7.9	8.0	8.0	7.6	7.8	---	---	---
19	---	---	---	8.1	7.6	7.8	8.2	7.9	8.0	---	---	---
20	---	---	---	8.0	7.9	8.0	8.4	8.1	8.2	---	---	---
21	---	---	---	8.1	7.9	8.0	8.6	8.2	8.3	---	---	---
22	8.2	7.8	8.0	8.1	7.9	8.0	8.5	8.2	8.4	---	---	---
23	7.8	7.5	7.6	7.9	7.4	7.9	8.3	8.1	8.2	8.4	8.0	8.2
24	7.6	7.5	7.6	7.7	7.3	7.4	8.3	8.1	8.2	8.5	8.4	8.4
25	---	---	---	8.0	7.7	7.8	8.3	8.1	8.3	8.5	8.4	8.4
26	---	---	---	8.2	7.9	8.0	8.3	8.1	8.2	8.7	8.4	8.5
27	---	---	---	8.2	8.1	8.1	8.3	8.1	8.2	8.6	8.5	8.5
28	8.0	7.9	7.9	8.1	7.7	7.9	8.2	8.0	8.1	8.7	8.5	8.6
29	8.0	7.7	7.9	7.6	7.1	7.4	---	---	---	8.6	8.4	8.5
30	7.8	7.6	7.7	8.2	7.0	7.3	---	---	---	8.8	8.3	8.5
31	---	---	---	8.3	8.1	8.2	---	---	---	---	---	---

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	20.5	18.5	19.5	17.0	13.5	15.0	10.0	7.0	8.5	10.5	7.5	9.0
2	22.0	17.5	19.5	18.0	14.0	16.0	11.5	7.5	9.5	9.0	8.0	8.5
3	22.5	17.0	19.5	18.5	15.0	17.0	13.0	9.0	11.0	10.0	7.0	8.0
4	20.5	18.5	19.0	19.0	16.0	18.0	11.5	8.5	10.0	9.0	6.5	8.0
5	19.0	15.0	16.5	18.5	13.5	15.5	10.5	7.0	8.5	12.0	8.0	10.0
6	16.0	13.0	14.0	14.5	11.0	13.0	10.5	8.5	9.5	11.5	8.5	10.0
7	16.5	13.5	14.5	16.0	12.0	13.5	11.0	8.5	10.5	10.5	8.0	10.0
8	14.0	13.5	13.5	16.0	12.5	14.5	8.5	6.0	7.0	8.0	5.5	6.0
9	16.0	13.5	14.0	20.0	15.0	17.5	6.5	4.5	5.5	6.0	2.5	4.5
10	17.0	14.5	16.0	17.0	13.5	15.0	7.0	5.5	6.0	8.0	4.0	5.5
11	18.5	15.5	17.5	14.0	12.0	13.0	8.0	6.0	7.0	11.0	6.5	8.5
12	19.5	14.5	17.0	12.5	11.5	12.0	8.5	6.5	7.5	8.5	5.5	7.0
13	19.5	14.5	17.0	13.0	11.5	12.5	10.5	6.5	8.5	5.5	4.5	5.0
14	19.5	14.5	17.0	16.0	12.5	14.0	11.0	8.0	9.5	6.0	2.5	4.0
15	19.5	14.5	17.5	17.5	12.0	15.5	8.5	5.5	7.0	5.5	3.5	4.5
16	20.5	16.0	19.0	12.0	9.5	10.5	7.0	4.0	5.5	6.5	2.5	4.5
17	23.0	17.5	21.0	10.5	8.5	9.5	8.0	4.5	6.0	9.0	5.0	6.5
18	23.5	19.5	21.5	11.0	9.0	10.0	9.5	5.5	7.0	10.5	6.5	8.5
19	19.5	15.0	17.5	11.0	7.0	10.0	10.0	7.0	8.5	10.5	6.5	8.5
20	18.0	14.0	16.5	8.0	6.0	7.0	10.0	8.0	9.0	9.5	7.0	8.5
21	17.5	16.0	17.0	8.0	5.5	7.0	10.5	7.0	9.0	9.0	6.0	7.5
22	18.5	15.5	17.0	10.0	6.5	8.5	13.0	9.5	11.0	8.5	5.5	7.0
23	20.5	16.0	18.5	11.5	7.5	9.5	10.0	9.0	9.5	10.5	7.0	8.5
24	19.5	16.5	18.0	12.5	9.0	11.0	9.5	7.0	8.0	12.0	8.5	10.0
25	19.0	14.5	16.5	12.5	11.5	12.0	8.5	6.0	7.5	10.5	9.0	10.0
26	19.5	15.0	17.0	11.0	9.0	10.5	12.5	8.0	10.0	9.5	7.0	8.5
27	18.5	14.5	16.5	9.5	7.0	8.5	12.5	7.0	9.5	8.5	6.0	7.5
28	17.5	16.0	16.5	8.5	5.5	7.0	7.0	5.0	6.5	8.5	6.0	8.5
29	17.0	12.5	14.0	9.0	6.0	7.5	5.5	3.5	4.5	8.5	7.0	8.0
30	15.5	13.5	14.5	10.0	7.0	8.5	8.5	4.5	6.0	10.5	7.0	8.5
31	14.5	13.5	14.0	---	---	---	10.5	7.0	8.5	12.5	8.5	10.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	11.5	7.0	9.5	11.0	6.5	8.5	17.5	12.0	15.0	22.0	16.5	19.5
2	7.0	2.0	4.5	10.0	8.5	9.5	21.0	14.5	17.5	18.5	15.5	16.5
3	2.0	.5	.5	15.0	9.5	12.0	21.0	17.0	18.5	18.0	14.0	16.0
4	.5	.5	.5	11.0	2.5	5.5	18.5	15.5	16.5	24.5	16.0	20.0
5	1.5	.5	1.0	2.0	.0	.5	17.5	14.0	16.0	23.5	17.5	20.5
6	3.5	.5	1.5	4.5	.0	1.5	18.5	13.5	16.0	24.0	18.5	21.0
7	5.0	1.0	3.0	5.5	.0	3.0	19.0	14.0	16.5	25.0	17.0	21.0
8	6.0	2.5	4.5	6.5	1.5	4.0	18.5	14.5	16.5	29.0	20.5	24.0
9	5.5	1.5	3.5	11.0	5.0	8.0	15.5	12.0	13.5	26.0	21.5	24.0
10	7.0	3.5	5.5	14.0	7.5	10.5	15.0	10.0	12.0	25.5	18.5	21.5
11	8.0	4.0	6.0	16.0	10.5	13.0	13.5	10.0	12.0	23.5	18.5	20.5
12	6.5	5.0	6.0	17.5	12.5	15.0	15.0	11.5	13.0	20.5	17.0	19.0
13	7.0	5.5	6.5	17.5	13.5	15.5	14.0	13.0	13.5	18.0	16.0	17.0
14	5.5	3.5	4.5	18.0	13.5	15.5	17.5	12.0	14.5	23.5	17.5	20.5
15	4.0	2.5	3.0	14.0	9.5	12.0	19.5	14.5	17.0	25.5	21.0	22.5
16	3.5	2.5	3.0	14.5	9.5	12.0	20.0	15.5	18.0	24.0	19.0	21.5
17	4.5	3.5	4.0	17.5	12.5	15.0	20.0	16.5	18.5	21.5	20.0	20.5
18	6.5	3.5	5.0	15.0	11.0	13.0	19.5	18.0	18.5	20.5	18.5	19.5
19	6.5	6.0	6.5	12.0	10.5	11.0	21.0	16.0	18.0	25.5	18.5	21.5
20	6.5	6.0	6.5	13.5	8.0	11.0	19.0	16.0	17.5	26.5	23.0	24.5
21	8.5	5.5	7.0	11.5	6.0	8.5	22.5	16.5	19.5	29.0	23.5	26.0
22	8.0	5.0	6.5	13.0	7.0	10.0	24.0	19.5	21.5	28.5	23.0	25.5
23	6.5	3.0	5.0	15.0	8.5	11.5	24.0	19.0	21.0	30.0	24.0	26.5
24	8.5	3.5	6.0	17.5	10.5	13.5	25.0	19.5	21.5	30.5	24.5	27.0
25	11.0	6.5	8.5	20.0	13.5	16.5	25.5	20.5	23.0	31.0	24.5	27.0
26	13.0	9.0	8.5	18.5	16.0	17.5	27.5	22.0	23.5	27.0	23.0	24.5
27	11.0	7.5	8.5	19.5	16.0	18.0	27.5	22.5	24.5	25.0	20.5	23.0
28	9.0	6.5	7.5	18.5	16.0	16.5	27.0	22.0	24.5	26.5	22.0	24.5
29	---	---	---	19.0	15.5	17.0	23.5	19.0	21.0	26.0	23.0	24.5
30	---	---	---	18.0	14.0	16.0	23.5	17.0	20.0	26.0	22.5	24.5
31	---	---	---	16.0	12.5	14.5	---	---	---	25.5	23.5	24.5

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.5	20.5	22.5	28.5	26.5	27.5	29.0	27.0	28.0	29.0	26.5	27.5
2	22.0	20.0	21.0	27.0	26.0	26.5	28.0	26.0	27.0	27.0	24.5	25.5
3	23.5	22.0	22.5	27.5	24.5	26.0	27.0	25.5	26.0	27.5	25.0	26.0
4	22.0	21.0	21.5	29.0	26.5	27.5	28.5	25.0	26.5	28.0	26.0	27.0
5	---	---	---	30.0	26.5	28.0	29.0	26.0	27.5	29.0	25.5	27.0
6	---	---	---	29.5	27.0	28.5	27.5	25.0	26.0	28.5	25.0	27.0
7	---	---	---	30.0	27.5	28.5	25.5	25.0	25.0	29.0	26.0	27.5
8	---	---	---	30.0	27.0	28.5	---	---	---	28.5	25.0	27.0
9	---	---	---	30.5	27.5	29.0	---	---	---	27.0	23.0	25.0
10	---	---	---	30.0	27.0	28.5	---	---	---	24.0	22.0	23.0
11	---	---	---	29.5	27.0	28.0	---	---	---	23.0	22.0	22.5
12	---	---	---	30.0	27.0	28.5	24.5	22.0	23.0	22.0	20.0	21.0
13	23.5	21.5	22.5	29.5	28.0	28.5	23.5	22.0	22.5	19.5	17.0	18.0
14	22.5	21.0	21.5	28.0	25.5	26.5	22.0	19.5	20.5	17.0	15.0	15.5
15	22.0	21.0	22.0	28.0	25.0	26.5	26.0	19.5	21.0	16.0	15.0	15.0
16	22.5	21.5	22.0	29.5	26.5	28.0	23.0	20.5	21.5	18.0	15.5	16.5
17	23.5	21.5	22.5	29.0	27.0	28.0	27.0	21.5	24.5	19.5	17.5	18.5
18	25.0	22.0	23.5	29.0	26.5	27.5	26.5	19.5	24.0	20.5	19.0	19.5
19	27.0	23.0	25.0	28.0	26.5	27.5	27.0	24.0	25.5	22.5	20.0	21.0
20	28.5	24.5	26.5	28.0	25.5	27.0	28.0	25.0	26.5	22.5	20.0	21.5
21	28.0	25.5	26.5	27.5	24.5	26.0	27.5	25.5	26.5	23.0	20.5	22.0
22	27.5	22.5	26.0	27.5	24.5	26.0	28.5	25.0	26.0	23.0	21.5	22.0
23	23.5	21.0	22.0	26.5	21.5	25.0	29.0	25.5	27.0	21.5	18.0	19.5
24	26.5	23.5	25.0	25.5	21.0	23.0	30.0	26.5	28.0	19.0	16.0	17.5
25	27.0	25.5	26.0	27.5	24.5	26.0	29.5	26.5	28.0	20.0	16.5	18.0
26	27.5	25.5	26.5	27.0	25.5	26.0	29.5	26.5	28.0	20.5	17.0	19.0
27	27.5	25.5	26.5	27.5	25.0	26.0	30.0	27.0	28.5	21.0	18.0	19.5
28	27.5	24.5	26.0	28.0	25.5	27.0	30.0	27.0	28.5	21.5	18.0	20.0
29	28.5	26.0	27.0	28.5	26.0	27.0	29.5	27.0	28.5	22.5	18.5	20.5
30	28.5	26.5	27.0	29.5	26.5	28.0	29.5	27.0	28.5	23.0	19.5	21.0
31	---	---	---	30.0	27.0	28.5	28.5	27.0	28.0	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.0	6.5	7.4	10.5	6.8	8.1	9.5	8.9	9.2	10.0	9.1	9.5
2	9.0	7.4	8.0	10.4	6.3	7.9	9.3	8.3	9.0	10.3	9.3	9.8
3	8.3	7.1	7.6	11.0	6.2	8.2	8.9	7.9	8.4	11.0	9.9	10.3
4	9.4	7.0	7.8	13.5	5.6	8.7	9.1	7.9	8.5	11.2	10.0	10.5
5	9.3	7.9	8.4	12.4	5.8	8.6	9.8	8.5	9.1	10.4	9.2	9.9
6	9.3	8.2	8.6	10.5	6.1	7.7	10.0	8.6	9.2	10.5	9.1	9.6
7	9.1	7.7	8.2	7.6	5.5	6.3	9.0	8.4	8.7	11.0	8.9	9.8
8	8.0	6.1	6.8	8.7	5.3	6.6	9.9	8.5	9.3	11.5	9.9	10.6
9	9.0	6.4	7.4	8.3	5.5	6.7	10.2	9.5	9.9	12.4	11.1	11.8
10	9.3	7.7	8.4	7.1	5.7	6.4	9.9	9.2	9.7	11.9	10.7	11.3
11	10.1	7.2	8.4	7.8	6.3	7.1	9.4	8.8	9.1	11.2	9.7	10.6
12	8.1	6.7	7.2	8.0	4.2	6.5	9.6	8.7	9.1	11.1	9.5	10.2
13	8.2	6.7	7.2	7.1	5.9	6.7	9.7	8.3	9.1	12.2	10.1	11.0
14	8.5	6.6	7.3	7.8	7.1	7.4	8.8	7.9	8.3	12.2	11.0	11.6
15	9.5	6.5	7.5	7.3	7.0	7.1	9.7	7.8	8.8	11.8	10.7	11.1
16	9.6	6.0	7.2	8.4	7.3	7.9	10.4	8.9	9.7	11.6	10.5	11.0
17	10.1	6.1	7.4	9.3	8.5	8.9	10.7	9.3	10.0	11.3	9.6	10.7
18	14.3	6.3	9.2	8.9	8.2	8.7	9.9	8.7	9.3	10.4	8.9	9.6
19	12.1	6.4	8.9	8.7	8.1	8.3	10.2	8.5	9.2	10.8	8.7	9.7
20	10.8	7.6	9.1	9.4	8.7	9.0	10.0	8.3	9.0	11.4	9.3	10.2
21	9.3	4.9	7.7	9.6	9.0	9.3	10.4	8.4	9.2	11.9	10.1	10.7
22	6.1	4.4	5.5	9.4	8.7	9.1	9.1	7.5	8.2	12.3	10.1	10.8
23	6.9	6.0	6.5	9.0	8.5	8.8	8.2	5.3	7.0	11.5	9.4	10.3
24	7.8	6.1	6.9	8.8	8.0	8.5	9.1	7.2	8.5	11.6	9.4	10.4
25	8.2	6.7	7.3	8.1	7.9	8.0	10.0	8.9	9.5	10.7	9.0	9.7
26	11.5	6.7	8.5	8.6	8.0	8.4	10.4	8.8	9.8	10.9	9.3	10.1
27	8.9	7.1	7.9	9.3	8.6	9.1	9.9	8.7	9.3	11.8	10.0	10.7
28	8.0	6.3	6.9	9.9	9.3	9.6	10.2	9.1	9.7	10.6	9.9	10.3
29	8.6	6.2	7.2	10.0	9.2	9.6	11.4	10.3	10.9	9.9	7.5	8.8
30	8.3	6.4	7.1	9.4	8.9	9.2	10.6	9.7	10.4	10.4	9.5	9.9
31	9.1	6.6	7.6	---	---	---	10.1	9.2	9.7	10.6	9.2	9.9

07241550 NORTH CANADIAN RIVER BASIN NEAR HARRAH, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	8.6	7.3	7.8	15.0	7.0	11.0
2	---	---	---	---	---	---	8.2	7.0	7.6	11.3	7.6	9.6
3	---	---	---	---	---	---	8.8	6.6	7.6	11.5	8.2	9.6
4	---	---	---	---	---	---	11.3	7.1	8.0	10.5	6.5	8.7
5	---	---	---	---	---	---	9.1	6.7	7.9	---	---	---
6	---	---	---	---	---	---	12.5	7.1	9.5	---	---	---
7	---	---	---	---	---	---	8.9	5.8	7.8	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	9.0	7.1	8.2	---	---	---	---	---	---
11	---	---	---	9.1	6.1	7.5	11.9	7.5	9.4	---	---	---
12	---	---	---	10.9	6.0	7.2	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	8.6	6.8	7.4
17	---	---	---	---	---	---	---	---	---	7.5	4.4	6.5
18	---	---	---	---	---	---	---	---	---	5.8	3.5	4.9
19	---	---	---	---	---	---	---	---	---	6.7	5.6	6.4
20	---	---	---	---	---	---	---	---	---	8.6	6.3	7.3
21	---	---	---	14.4	9.6	11.6	---	---	---	11.4	6.7	8.7
22	---	---	---	12.5	8.9	10.7	---	---	---	---	---	---
23	---	---	---	11.6	8.8	9.8	---	---	---	---	---	---
24	---	---	---	10.8	7.8	9.0	---	---	---	---	---	---
25	---	---	---	11.2	7.3	8.7	---	---	---	---	---	---
26	---	---	---	12.6	7.4	9.6	---	---	---	10.1	5.6	6.8
27	---	---	---	11.7	7.8	9.3	13.1	6.6	9.2	10.8	6.8	8.4
28	---	---	---	---	---	---	14.0	6.1	9.6	13.3	7.1	9.7
29	---	---	---	---	---	---	14.7	6.4	10.1	9.8	7.1	8.3
30	---	---	---	---	---	---	16.4	7.3	11.4	9.7	7.1	8.2
31	---	---	---	8.4	7.1	7.6	---	---	---	9.6	7.2	8.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	8.7	7.5	8.0	9.2	6.2	7.5	---	---	---
2	---	---	---	8.6	7.6	8.0	7.2	4.2	5.8	---	---	---
3	---	---	---	8.4	5.6	7.3	7.0	5.8	6.4	---	---	---
4	---	---	---	11.7	7.7	9.3	9.2	6.3	7.4	---	---	---
5	---	---	---	14.5	8.1	10.9	9.4	6.4	7.6	11.8	6.4	8.5
6	---	---	---	9.5	7.7	8.3	7.1	4.0	5.4	13.1	6.3	8.9
7	---	---	---	10.8	7.7	9.0	7.7	4.9	6.2	10.3	6.5	8.0
8	---	---	---	11.0	8.1	9.4	9.5	5.0	7.6	11.3	6.6	8.6
9	---	---	---	11.6	8.0	9.5	10.8	3.1	6.9	9.1	6.9	8.1
10	---	---	---	12.0	8.1	9.7	8.7	6.8	7.8	10.9	7.7	8.9
11	---	---	---	11.5	8.1	9.6	12.2	7.0	9.1	9.8	7.6	8.5
12	---	---	---	11.3	8.0	9.6	9.7	7.0	8.2	---	---	---
13	---	---	---	10.4	8.0	9.0	9.1	7.0	8.0	---	---	---
14	---	---	---	8.8	4.7	6.9	---	---	---	---	---	---
15	---	---	---	9.7	5.9	8.0	---	---	---	---	---	---
16	---	---	---	11.8	8.5	9.9	9.4	6.3	7.6	---	---	---
17	---	---	---	11.6	8.5	9.8	8.1	5.1	6.6	---	---	---
18	---	---	---	12.6	8.8	10.2	7.9	5.2	6.4	---	---	---
19	---	---	---	10.9	8.8	9.9	6.8	5.2	5.8	---	---	---
20	---	---	---	12.1	9.1	10.5	7.7	5.3	6.3	---	---	---
21	---	---	---	13.3	8.8	10.8	---	---	---	8.4	7.6	8.2
22	---	---	---	12.1	8.1	10.0	---	---	---	9.3	7.7	8.4
23	---	---	---	8.3	4.4	7.0	10.6	6.2	7.9	8.9	7.8	8.4
24	---	---	---	6.9	4.7	5.6	11.2	6.2	8.3	9.7	8.8	9.1
25	---	---	---	8.7	6.6	7.5	11.3	6.3	8.4	10.0	8.5	9.1
26	---	---	---	8.3	6.7	7.5	12.4	6.3	8.8	10.6	8.1	9.0
27	---	---	---	8.2	6.6	7.3	12.7	6.5	9.1	11.4	7.5	9.2
28	8.8	7.0	7.7	8.3	6.5	7.3	12.2	6.4	8.9	14.0	7.6	10.2
29	9.4	7.4	8.3	8.3	6.4	7.0	---	---	---	17.3	7.2	11.3
30	8.9	7.6	8.2	9.2	6.3	7.5	---	---	---	---	---	---
31	---	---	---	9.3	6.3	7.6	---	---	---	---	---	---

ARKANSAS RIVER BASIN
07241550 NORTH CANADIAN RIVER NR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE TIME	NOV 09, 88 1030	DEC 29, 88 1215	FEB 14, 89 1030	MAR 22, 89 1200	APR 12, 89 1320
TOTAL CELLS/ML	11000	11000	19000	11000	16000
	CELLS PER- /ML CENT	CELLS PER- /ML CENT	CELLS PER- /ML CENT	CELLS PER- /ML CENT	CELLS PER- /ML CENT
CHLOROPHYTA (GREEN ALGAE)					
..CHLOROPHYCEAE					
..CHLOROCOCCALES					
...OOCYSTACEAE					
...ANKISTRODESMUS	1200 11	3400 31	2800 15	4800 42	5600 35
...SCENEDESMACEAE					
...SCENEDESMUS	--	--	--	200 2	3200 20
...VOLVOCALES					
...CHLAMYDOMONADACEAE					
...CHLAMYDOMONAS	--	--	--	1000 9	--
...ZYGNEMATALES					
...DESMIDIACEAE					
...CLOSTERIUM					1200 8
...STAUSTRUM	600 5	--	--	--	--
CHRYSTOPHYTA (YELLOW-GREEN ALGAE)					
..BACILLARIOPHYCEAE					
..CENTRALES					
..COSCINODISCACEAE					
..CYCLOTELLA	600 5	--	600 3	200 2	--
..PENNALES					
..FRAGILARIACEAE					
..FRAGILARIA	--	200 2	--	--	--
..NAVICULACEAE					
..NAVICULA	2200 20	600 5	5400 28	200 2	1600 10
CYANOPHYTA (BLUE-GREEN ALGAE)					
..CYANOPHYCEAE					
..CHROOCOCCALES					
..CHROOCOCCACEAE					
...ANACYSTIS	5200 47	6600 60	9800 52	2200 20	3800 24
..OSCILLATORIALES					
...NOSTOCACEAE					
...ANABAENA	--	--	--	200 2	--
...OSCILLATORIA	400 4	--	--	--	--
EUGLENOPHYTA (EUGLENIDS)					
..EUGLENOPHYCEAE					
..EUGLENALES					
...EUGLENACEAE					
....EUGLENA	1000 9	600 5	600 3	2800 25	600 4

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE TIME	MAY 17, 89 1030	JUN 21, 89 1405	JUL 18, 89 1130	AUG 21, 89 1200	SEP 26, 89 1335
TOTAL CELLS/ML	37000	25000	28000	34000	14000
	CELLS PER- /ML CENT	CELLS PER- /ML CENT	CELLS PER- /ML CENT	CELLS PER- /ML CENT	CELLS PER- /ML CENT
CHLOROPHYTA (GREEN ALGAE)					
..CHLOROPHYCEAE					
..CHLOROCOCCALES					
...HYDRODICTYACEAE					
....PEDIASTRUM	--	--	--	800 2	--
...OOCYSTACEAE					
....ANKISTRODESMUS	4200 11	1200 5	1000 4	10000 29	2200 16
....CHLORELLA	--	--	--	6000 18	3200 23
...SCENEDESMACEAE					
....SCENEDESMUS	2600 7	400 2	1400 5	3200 9	2000 14
..VOLVOCALES					
...CHLAMYDOMONADACEAE					
....CHLAMYDOMONAS	--	5000 20	3800 14	3000 9	--
..ZYGEMATALES					
...DESMIDIACEAE					
....CLOSTERIUM	1000 3	--	400 1	600 2	1000 7
....STAUROSTRUM	--	600 2	--	--	--
CHRYSTOPHYTA (YELLOW-GREEN ALGAE)					
..BACILLARIOPHYCEAE					
...CENTRALES					
...COSCINODISCACEAE					
....CYCLOTELLA	1600 4	--	--	--	--
...PENNALES					
...NAVICULACEAE					
....NAVICULA	3800 10	800 3	--	4600 14	1200 9
CYANOPHYTA (BLUE-GREEN ALGAE)					
..CYANOPHYCEAE					
...CHROOCOCCALES					
...CHROOCOCCACEAE					
....ANACYSTIS	21000 57	13000 52	20000 71	4400 13	2600 19
...OSCILLATORIALES					
...OSCILLATORIA					
....OSCILLATORIA	500 1	2400 10	1000 4	600 2	--
EUGLENOPHYTA (EUGLENIDS)					
..EUGLENOPHYCEAE					
...EUGLENALES					
...EUGLENACEAE					
....EUGLENA	2600 7	1400 6	600 2	1200 4	1800 13

ARKANSAS RIVER BASIN

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK

LOCATION (REVISED).-- Lat 35°15'58", long 96°12'21", in NE 1/4 SW 1/4 sec.12, T.9 N., R.10 E., Hughes County, Hydrologic Unit 11100302, on left downstream side of bridge on U.S. Highway 75, 2.3 mi upstream from Wewoka Creek, 2.5 mi northeast of Wetumka, and at mile 84.4.

DRAINAGE AREA.-- 14,290 mi² of which 4,899 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 977: 1942. WSP 1341: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 683.28 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1939, nonrecording gage at site 500 ft upstream and at same datum. Jan. 20, 1939 to Feb. 23, 1985 gage 500 ft upstream at same datum.

REMARKS.-- No estimated daily discharges. Records good. Some regulation by Lake Overholser (station 07240500) and other dams upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 52 years, 727 ft³/s, 526,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 66,000 ft³/s, Apr. 15, 1945, gage height, 26.40 ft, no flow Aug. 27 to Oct. 11, 1954, Aug. 25 to Oct. 22, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in October 1923 reached a stage of 26.9 ft, from information provided by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 10,100 ft³/s, June 13, gage height, 10.05 ft; minimum daily discharge, 245 ft³/s, Oct. 30 to Nov. 2, May 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	245	310	496	629	455	1110	393	486	1560	1130	849
2	299	245	296	434	539	429	734	374	504	1640	1080	927
3	447	248	297	376	422	408	599	343	540	1630	1050	903
4	435	260	291	344	324	420	592	357	1750	1500	987	1650
5	337	266	287	332	447	407	487	404	3830	1560	1390	1640
6	293	271	281	327	558	283	437	362	3610	1510	1140	1100
7	329	270	278	320	321	350	410	334	4330	1130	933	1000
8	412	265	276	325	285	562	421	322	5990	973	1020	850
9	400	274	267	325	388	794	488	397	6060	1340	1860	663
10	407	312	267	302	449	2170	434	298	5860	1100	1200	786
11	544	341	270	316	432	2250	402	260	6690	1030	894	875
12	683	1150	266	322	373	1290	410	245	7180	1080	654	754
13	552	1500	347	327	867	849	442	247	7970	1020	676	6780
14	471	1070	336	313	1540	615	452	273	8960	1260	736	8080
15	374	1390	292	308	4930	495	461	528	6580	2920	790	5810
16	324	1170	266	308	3790	425	460	378	6150	2450	2730	5430
17	292	690	262	338	2320	387	464	699	6660	2180	4270	5690
18	281	508	269	346	2530	359	453	705	7790	1580	3790	6140
19	265	445	264	347	1700	320	456	602	4970	1360	2410	3990
20	266	692	254	351	1100	291	453	558	2850	1230	1700	2510
21	271	756	259	330	1180	275	443	1190	2410	1160	1430	2050
22	277	568	268	325	1100	262	442	1090	2140	1120	1260	1750
23	298	458	352	312	801	267	433	1070	2260	1070	1140	1730
24	333	541	296	304	692	264	433	720	2040	954	1080	1720
25	413	481	361	310	654	260	426	493	4050	923	1050	1240
26	320	499	318	545	574	268	408	425	4800	1560	997	1350
27	272	543	705	966	506	271	406	489	3180	1490	962	1300
28	252	480	991	748	472	359	396	427	2440	1230	924	1100
29	247	376	508	1050	---	459	390	349	1850	1220	907	960
30	245	330	443	1370	---	442	387	472	1590	1180	875	918
31	245	---	406	835	---	985	---	484	---	1100	863	---
TOTAL	10923	16644	10603	13952	29923	17671	14329	15288	125520	43000	41928	70545
MEAN	352	555	342	450	1069	570	478	493	4184	1389	1353	2351
MAX	683	1500	991	1370	4930	2250	1110	1190	8960	2920	4270	8080
MIN	245	245	254	302	285	260	387	245	486	923	654	663
AC-FT	21670	33010	21030	27670	59350	35050	28420	30320	249000	85410	83160	139900

CAL YR 1988 TOTAL 391937 MEAN 1071 MAX 15500 MIN 69 AC-FT 777400
WTR YR 1989 TOTAL 410386 MEAN 1124 MAX 8960 MIN 245 AC-FT 814000

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1953 to May 12, 1989.

WATER TEMPERATURE: October 1953 to May 12, 1989.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 37,100 microsiemens, Dec. 31, 1954; minimum daily, 98 microsiemens, Apr. 30, 1977.

WATER TEMPERATURE: Maximum daily, 39.0 °C, July 5, 1971; minimum daily, 0.0 °C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SAMPLE LOCATION, CROSS SECTION (FT FW L BANK)	GAGE HEIGHT (FEET)	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)
NOV 15...	1530	1028	80020	--	3.39	1560	557	8.0	17.0	16.5	670
29...	1100	1028	80020	--	1.19	370	679	7.6	11.0	8.5	350
FEB 01...	1628	1028	1028	--	2.02	630	548	7.6	5.5	9.0	--
MAR 14...	1500	1028	80020	--	2.13	607	*609	8.2	19.0	17.0	86
MAY 02...	1130	1028	80020	--	1.32	374	1310	8.8	14.0	18.0	63
JUN 13...	1500	1028	1028	--	8.88	8150	385	8.0	26.0	23.5	--
JUL 19...	1315	1028	1028	--	3.32	1360	1060	8.2	30.0	25.5	--
SEP 12...	1300	1028	80020	--	2.12	732	1030	8.6	24.0	24.0	110
12...	1400	1028	1028	310	--	--	1030	8.6	--	--	--
12...	1401	1028	1028	328	--	--	1030	8.6	--	--	--
12...	1402	1028	1028	347	--	--	1030	8.6	--	--	--
12...	1403	1028	1028	365	--	--	1030	8.6	--	--	--
12...	1404	1028	1028	383	--	--	1030	8.6	--	--	--
12...	1405	1028	1028	401	--	--	1030	8.6	--	--	--
12...	1406	1028	1028	419	--	--	1030	8.6	--	--	--
12...	1407	1028	1028	437	--	--	1030	8.6	--	--	--
12...	1408	1028	1028	456	--	--	1030	8.7	--	--	--
12...	1409	1028	1028	474	--	--	1030	8.7	--	--	--

*SPECIFIC CONDUCTANCE, LAB (US/CM)

[illegible]

[illegible][illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

[illegible]

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	597	1190	950	950	500	1000	784	1400	---	---	---	---
2	722	1150	1100	940	790	1040	548	1420	---	---	---	---
3	623	1230	1190	940	880	1090	554	1390	---	---	---	---
4	1020	1230	1200	800	670	1080	635	1310	---	---	---	---
5	663	1200	1230	970	720	1070	816	1200	---	---	---	---
6	732	1250	1270	1020	910	1050	1140	1210	---	---	---	---
7	820	1170	1200	1070	1100	---	1140	1210	---	---	---	---
8	828	1210	1200	1140	1160	1040	1170	1220	---	---	---	---
9	852	1200	1210	1190	1160	1030	1270	1270	---	---	---	---
10	844	1190	1220	1210	1150	500	1490	1270	---	---	---	---
11	910	1050	1220	1190	1200	430	1190	1130	---	---	---	---
12	814	1240	1210	1180	1130	480	1160	1110	---	---	---	---
13	563	513	1240	1210	700	540	1140	---	---	---	---	---
14	976	470	1450	1270	490	660	1190	---	---	---	---	---
15	993	582	1470	1220	350	790	1160	---	---	---	---	---
16	1030	552	1360	1230	310	880	1230	---	---	---	---	---
17	1030	440	1270	1180	360	920	1220	---	---	---	---	---
18	1020	468	1160	1210	380	1020	1350	---	---	---	---	---
19	1010	434	1180	1210	370	1010	1340	---	---	---	---	---
20	1060	510	1210	1190	390	1020	1350	---	---	---	---	---
21	1100	516	1250	1180	620	1050	1350	---	---	---	---	---
22	1130	890	1200	1280	480	1030	1320	---	---	---	---	---
23	1160	761	1020	1130	480	1030	1310	---	---	---	---	---
24	1120	888	1110	1140	540	1070	1330	---	---	---	---	---
25	1200	1030	---	1120	660	1090	1380	---	---	---	---	---
26	759	903	920	1110	820	1080	1420	---	---	---	---	---
27	905	620	920	850	860	1040	1390	---	---	---	---	---
28	1070	693	470	570	930	1010	1340	---	---	---	---	---
29	1170	671	690	470	---	860	1350	---	---	---	---	---
30	1150	841	680	510	---	870	1360	---	---	---	---	---
31	1160	---	760	550	---	940	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

07242340 ARCADIA LAKE NEAR ARCADIA, OK

LOCATION.-- Lat 35°38'54", long 97°21'47", in NW 1/4 SE 1/4 sec.36, T.14 N., R.2 W., Oklahoma County, Hydrologic Unit 11100303, 2.0 mi southwest of Arcadia and at mile 213.8.

DRAINAGE AREA.-- 105 mi².

PERIOD OF RECORD.-- November 1986 to current year.

REVISED RECORDS.-- WDR OK-88-1: 1987 (M).

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

REMARKS.-- Reservoir is formed by rolled earth dam. An uncontrolled saddle spillway is located on the left end of the dam. Outlet works consist of a 7- by 10-foot conduit and an 18-inch water-supply pipe. Impoundment began Nov. 9, 1986; conservation pool first filled May 29, 1987. Capacity 92,101 acre-ft at elevation 1,029.5 ft, top of flood-control pool and spillway crest; 27,580 acre-ft at elevation 1,006.0 ft, top of conservation pool. Dead storage 190 acre-ft below elevation 970.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, water-quality control, recreation, fish and wildlife, and future water supply. U.S. Army Corps of Engineers' satellite telemeter located at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 45,400 acre-ft, Sept. 18, 19, 1989, elevation, 1,014.39 ft; minimum since conservation pool first filled, 15,000 acre-ft, July 29, 1987, November 23, 1987, elevation, 997.91 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents 45,400 acre-ft, Sept. 18, 19, elevation 1,014.39 ft; minimum, 20,690 acre-ft, Nov. 11, elevation, 1,001.91 ft.

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

980	1,630	1,030	93,937
990	6,989	1,040	138,717
1,000	17,841	1,050	197,302
1,010	35,428	1,060	272,330
1,020	60,273	1,070	367,981

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21700	20800	20800	21800	23200	25800	28500	27700	31800	29500	28300	28900
2	21500	20800	20800	21800	23100	25900	28300	27700	31500	29500	28400	29800
3	21300	20800	20800	21800	23100	25900	28000	27700	31800	29300	28300	29900
4	21100	20800	20800	21800	23100	25900	27800	28100	34200	29200	28200	31100
5	20900	20800	20900	21900	23100	26000	27700	28100	33900	29000	28500	30500
6	20800	20700	20900	21900	23200	26100	27700	28100	32800	28700	31900	29600
7	22800	20700	20900	22000	23200	26200	27700	28100	35200	28500	31300	28700
8	22800	20700	21000	21900	23200	26200	27600	28100	33600	28300	30400	28200
9	22800	20700	21000	21900	23200	26300	27600	28000	32000	28100	29500	28000
10	22900	20700	21100	21800	23300	26400	27600	28000	30900	27900	28500	27800
11	22800	20900	21100	21900	23300	26500	27600	28000	30900	27800	28100	28000
12	22600	22800	21200	21900	23300	26400	27700	28700	30900	27700	28000	34800
13	22300	22900	21200	22000	23600	26500	27700	28900	36000	28100	27900	44700
14	22000	22800	21200	22100	24100	26400	27700	29000	36300	29500	35700	44900
15	21800	22800	21200	22100	24500	26400	27700	29200	36400	29200	35200	45100
16	21600	22500	21300	22200	24600	26500	27800	29100	36500	28900	33900	45200
17	21300	22200	21200	22200	25000	26400	27800	30700	36600	28500	32500	45300
18	21000	22000	21300	22200	25100	26500	27800	30400	36600	28200	31400	45400
19	20900	22100	21300	22200	25200	26500	27800	29900	36600	27900	30600	45200
20	21400	22200	21300	22200	25300	26500	27800	29200	36400	27700	29700	44700
21	21300	22100	21300	22200	25400	26500	27800	28600	35800	27600	28800	43800
22	21200	21800	21400	22200	25500	26500	27900	28000	35700	27700	28200	41800
23	21100	21600	21400	22300	25500	26500	27800	27700	36400	28300	27800	39300
24	21000	21400	21400	22400	25600	26500	27800	27400	36500	28400	27700	36900
25	20800	21300	21400	22500	25600	26500	27800	27400	36600	28200	27700	34500
26	20800	21100	21400	22500	25700	26700	27800	27900	36600	28000	27700	32400
27	20800	20900	21500	22800	25700	27400	27900	27900	36100	27800	27700	30600
28	20700	20800	21600	23100	25700	28700	27800	27900	34100	27700	27700	29100
29	20700	20800	21600	23100	---	28800	27800	27900	31300	27800	27700	28300
30	20700	20800	21700	23200	---	28900	27700	27800	29300	27800	27700	28100
31	20800	---	21700	23200	---	28800	---	27900	---	27800	27700	---
MAX	22900	22900	21700	23200	25700	28900	28500	30700	36600	29500	35700	45400
MIN	20700	20700	20800	21800	23100	25800	27600	27400	29800	27600	27700	27800

(*) 1001.95 1001.97 1002.54 1003.48 1004.96 1006.65 1006.09 1006.15 1007.17 1006.10 1006.07 1006.30
(**) -1,000 0 +900 +1,500 +2,500 +3,100 -1,100 +200 +1,900 -2,000 -100 +400

CAL YR 1988 MAX 26300 MIN 18200 (**) +3,500
WTR YR 1989 MAX 45400 MIN 20700 (**) +6,300

(*) ELEVATION, IN FEET, AT END OF MONTH
(**) CHANGE, IN CONTENTS, IN ACRE FEET

ARKANSAS RIVER BASIN

417

07242350 DEEP FORK NEAR ARCADIA, OK

LOCATION.-- Lat 35°38'50", long 97°21'35", in NE 1/4 SW 1/4 sec.36, T.14 N., R.2 W., Oklahoma County, Hydrologic Unit 11100305, on right bank 400 ft downstream from Arcadia Dam, 2.0 mi southwest of Arcadia, 2.6 mi upstream from Coffee Creek, and at mile 213.7.

DRAINAGE AREA.-- 105 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WDR OK-77-1: 1975 (M) (gage height only), WDR OK-84-1: 1983 (m).

GAGE.-- Water-stage recorder. Datum of gage is 900.00 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1974, at site 0.9 mi downstream at datum 41.65 ft higher. May 2, 1978 to May 14, 1979, the gage was temporarily moved 1.9 mi downstream to county road bridge at datum 36.65 ft higher. May 15, 1979 to March 10, 1987, at site 0.6 mi downstream at datum 41.65 ft higher.

REMARKS.-- Records good. Regulation since November 1986 by Arcadia Lake (station 07242340), 400 ft upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Arcadia Lake, 17 years (water years 1970-86), 66.3 ft³/s, 48,030 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 14,300 ft³/s, Nov. 2, 1974, gage height, 26.9 ft from floodmark at former site and datum; minimum daily, 0.03 ft³/s, July 10, 1988.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,470 ft³/s, June 28,29, gage height, 57.78 ft; minimum daily discharge, 0.10 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	.10	.10	.11	.13	e.15	e148	.17	55	122	.25	2.4
2	92	.10	.10	.11	.12	e.15	e146	.17	295	122	.24	.33
3	91	.10	.10	.13	.13	e.15	147	.18	485	122	42	.24
4	91	.10	.10	.12	e.14	e.17	115	.20	237	122	67	.91
5	91	.10	.10	.11	e.14	e.16	67	.17	239	122	67	296
6	37	.10	.10	.26	e.14	e.19	24	.16	736	122	69	542
7	.56	.10	.10	.15	e.14	e.17	.12	.16	839	122	321	537
8	.10	.10	.10	.14	e.14	e.16	.12	.15	978	122	542	271
9	.12	.11	.10	.14	e.13	e.16	.12	.14	964	122	536	97
10	.11	.12	.10	.14	e.13	e.15	.13	.15	708	82	533	97
11	49	.13	.10	.14	e.13	e.15	.14	.15	703	42	260	44
12	123	.67	.12	.14	e.15	e.15	.14	.52	703	12	70	2.1
13	138	.14	.13	.13	e.18	e.15	.14	.74	417	.10	70	2.9
14	138	67	.11	.14	e.15	e.15	.14	.75	.31	105	36	.22
15	138	135	.11	.14	e.23	e.15	.14	88	.31	183	404	.21
16	138	137	.11	.13	e.20	e.14	.24	153	.30	183	810	.21
17	138	137	.11	.13	e.18	e.14	.39	156	.30	183	808	.20
18	138	137	.12	.13	e.16	e.14	.39	254	.30	183	659	.16
19	90	137	.13	.13	e.16	e.14	.39	352	.34	182	530	134
20	62	136	.13	.13	e.16	e.14	.25	350	94	85	526	297
21	62	137	.13	.13	e.18	e.14	.17	347	362	.26	520	486
22	62	137	.13	.13	e.18	e.13	.17	347	634	.26	341	992
23	62	109	.13	.13	e.17	e.13	.17	233	57	.25	249	1300
24	62	87	.13	.13	e.16	e.13	.17	120	.23	.24	91	1290
25	62	87	.13	.14	e.15	e.13	.17	24	.22	94	.24	1280
26	22	87	.13	.13	e.15	e.14	.17	.26	.22	112	.24	1160
27	.10	87	.14	.13	e.15	e.24	.17	.22	244	93	.24	962
28	.10	54	.14	.15	e.16	e.40	.17	.24	980	35	.24	878
29	.10	21	.14	.14	---	e.23	.17	.26	1460	.24	.24	461
30	.10	8.5	.39	.13	---	e.18	.17	.25	738	.24	.24	92
31	.10	---	.12	.13	---	e82	---	.26	---	.24	.24	---
TOTAL	1980.39	1702.47	3.88	4.22	4.34	86.91	651.55	2429.30	11930.53	2673.83	7553.17	11225.88
MEAN	63.9	56.7	.13	.14	.15	2.80	21.7	78.4	398	86.3	244	374
MAX	138	137	.39	.26	.23	82	148	352	1460	183	810	1300
MIN	.10	.10	.10	.11	.12	.13	.12	.14	.22	.10	.24	.16
AC-FT	3930	3300	7.7	8.4	8.6	172	1290	4820	23660	5300	14980	22270

CAL YR 1988 TOTAL 15595.18 MEAN 42.6 MAX 507 MIN .03 AC-FT 30930
WTR YR 1989 TOTAL 40246.47 MEAN 110 MAX 1460 MIN .10 AC-FT 79830

e Estimated

ARKANSAS RIVER BASIN

07242350 DEEP FORK NEAR ARCADIA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1970 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1969 to January 1980.

WATER TEMPERATURE: October 1969 to January 1980.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
25...	1515	1028	80020	--	52.15	65	554	8.2	24.5	18.0	740	8.6
NOV												
23...	1400	1028	80020	--	52.54	83	**535	7.8	10.0	13.0	730	11.2
JAN												
12...	1200	1028	80020	--	50.17	*0.16	**915	8.4	5.0	9.0	740	11.4
FEB												
24...	1345	1028	80020	--	--	*0.16	651	8.2	15.5	8.5	760	17.2
MAR												
16...	1225	1028	80020	--	--	0.14	755	8.0	19.5	14.5	740	8.7
APR												
03...	1300	1028	80020	--	52.98	157	590	8.1	24.5	14.5	725	10.4
MAY												
11...	1145	1028	80020	--	50.23	0.09	858	8.3	20.0	18.0	730	8.8
19...	1140	1028	80020	--	54.20	341	552	8.3	31.0	21.0	730	8.8
19...	1150	1028	1028	9.00	54.20	341	540	8.3	31.0	21.0	730	8.6
19...	1200	1028	1028	15.0	54.20	341	538	8.3	31.0	21.0	730	8.6
19...	1210	1028	1028	21.0	54.20	341	530	8.3	31.0	21.0	730	8.5
19...	1220	1028	1028	27.0	54.20	341	529	8.3	31.0	21.0	730	8.6
JUN												
09...	1415	1028	80020	--	56.60	1030	487	7.8	28.0	22.0	740	8.0
JUL												
06...	1110	1028	80020	--	52.80	122	420	7.9	32.0	27.0	740	6.9
AUG												
22...	1604	1028	80020	--	53.68	249	303	8.0	34.0	24.0	730	8.4

*MEAN DAILY DISCHARGE

**SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CAC03	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT												
25...	94	29	200	--	41	23	38	1	--	--	--	46
NOV												
23...	--	55	190	--	40	21	35	1	--	--	--	46
JAN												
12...	--	<10	480	--	94	60	32	0.6	--	--	--	25
FEB												
24...	144	--	270	--	53	34	35	0.9	--	--	--	26
MAR												
16...	88	15	340	--	60	45	39	0.9	--	--	--	30
APR												
03...	108	--	210	--	44	24	38	1	--	--	--	49
MAY												
11...	97	11	490	24	99	59	31	0.6	557	7	469	25
19...	101	--	210	19	46	24	39	1	234	2	194	49
19...	101	--	--	--	--	--	--	--	--	--	--	--
19...	101	--	--	--	--	--	--	--	--	--	--	--
19...	100	--	--	--	--	--	--	--	--	--	--	--
19...	101	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	94	44	180	--	39	19	31	1	--	--	--	35
JUL												
06...	89	--	150	--	35	16	26	0.9	--	--	--	29
AUG												
22...	104	27	120	0	28	11	17	0.7	194	0	159	17

ARKANSAS RIVER BASIN

419

07242350 DEEP FORK NR ARCADIA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SILICA, DIS- SOLVED (MG/L AS SI02)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)
OCT 25...	2.7	1.90	0.040	0.05	0.020	210	<0.5	4.0	<5	<3	10
NOV 23...	4.5	0.190	0.120	0.15	0.060	15	<0.5	<1.0	<5	<3	<10
JAN 12...	24	0.950	0.080	0.10	0.010	820	<0.5	2.0	5	<3	<10
FEB 24...	6.2	1.20	0.130	0.17	0.070	440	<0.5	<1.0	<5	<3	<10
MAR 16...	7.5	1.90	0.030	0.04	0.130	590	<0.5	<1.0	<5	<3	<10
APR 03...	2.1	0.120	0.060	0.08	0.020	220	<0.5	<1.0	<5	<3	<10
MAY 11...	25	0.610	0.130	0.17	0.020	870	<0.5	<1.0	<5	<3	<10
19...	1.3	--	0.140	0.18	<0.010	250	<0.5	<1.0	<5	<3	20
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
JUN 09...	2.8	0.290	0.210	0.27	0.060	200	<0.5	1.0	<5	<3	10
JUL 06...	1.2	0.100	0.040	0.05	0.030	190	<0.5	1.0	<5	<3	<10
AUG 22...	5.3	0.240	0.110	0.14	0.080	170	<0.5	10	<5	<3	<10
DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 25...	6	<10	8	8	<0.1	<10	<10	<1.0	630	<6	35
NOV 23...	10	<10	120	<1	<0.1	10	<10	<1.0	1500	<6	5
JAN 12...	17	10	9	910	<0.1	<10	<10	<1.0	1200	<6	11
FEB 24...	8	<10	9	140	<0.1	<10	<10	<1.0	650	<6	9
MAR 16...	7	<10	9	150	<0.1	<10	<10	1.0	760	<6	9
APR 03...	21	<10	<4	8	0.1	<10	<10	2.0	680	<6	11
MAY 11...	7	<10	10	1000	<0.1	<10	<10	<1.0	1200	<6	8
19...	32	20	7	300	<0.1	<10	<10	<1.0	690	<6	57
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
JUN 09...	5	<10	5	3	0.1	<10	<10	<1.0	550	<6	16
JUL 06...	12	<10	5	68	0.1	<10	<10	<1.0	490	<6	4
AUG 22...	54	10	<4	270	0.3	<10	<10	<1.0	350	<6	12

ARKANSAS RIVER BASIN

07242380 DEEP FORK NEAR WARWICK, OK

LOCATION.-- Lat 35°40'51", long 97°00'29", NW 1/4 NE 1/4 sec. 20, T.14 N., R.3 E., Lincoln County, Hydrologic Unit 11100303, on left downstream abutment on U.S. Highway 66, 0.5 mi southwest of Warwick, and at mile 190.9.

DRAINAGE AREA.-- 532 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 823.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Considerable regulation by Arcadia Lake (station 07242340), 22.9 miles upstream, since November 1986. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 6 years, 324 ft³/s, 234,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 28,700 ft³/s Oct. 21, 1983, gage height, 22.05 ft, from high-water mark; minimum daily discharge, 0.05 ft³/s Aug. 23, 1987.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 20,400 ft³/s, Sept. 13, gage height, 20.97 ft; minimum daily discharge, 23 ft³/s, Nov. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	28	e81	e55	76	e100	e360	37	706	e470	49	73
2	159	27	e76	e57	63	e100	e300	46	730	e550	67	667
3	156	25	e70	e58	e65	e100	e270	47	911	456	42	182
4	161	25	e60	e57	e65	e90	e260	186	2650	382	92	1100
5	154	27	54	e56	e60	e80	e180	105	e1100	e360	88	e500
6	170	23	55	56	e60	e200	e160	64	e1400	e350	830	e800
7	792	24	61	59	e60	e150	e120	51	3100	e330	408	784
8	186	26	76	52	e60	e250	e90	46	e1800	e300	e800	654
9	97	25	62	51	e65	e270	e70	40	e1600	e290	e720	211
10	68	27	60	55	e70	e150	e81	34	e1300	e270	e700	201
11	54	31	60	57	71	e126	e77	33	e1800	e240	e600	202
12	144	1270	66	53	69	e95	e75	44	2470	e180	e150	1310
13	177	181	69	49	128	e96	69	76	4230	e140	e120	16500
14	165	92	66	69	391	e95	72	84	e1800	e400	e2800	4190
15	160	238	60	76	e440	e102	70	124	e600	e420	e1400	1460
16	e160	e228	57	67	e240	e85	66	390	372	e410	e2800	1010
17	e160	e218	57	81	e250	e83	63	1740	299	e400	e1640	851
18	e160	204	60	84	e240	e73	61	934	257	e400	e1230	751
19	e120	212	61	69	e180	e70	61	693	221	e404	e1110	627
20	e70	515	59	68	e250	e69	56	618	195	361	e1000	833
21	e70	e386	56	63	e240	e62	57	546	475	98	e979	805
22	e70	e254	58	60	e140	e62	54	1460	1630	49	e565	1420
23	e70	235	e57	60	e110	64	48	679	4330	67	e511	1980
24	e70	203	e56	58	e115	62	48	387	557	93	e287	1840
25	e70	205	e55	99	e100	60	48	232	e360	79	e132	1780
26	e45	200	e56	92	e90	62	47	818	e300	191	e86	1670
27	33	e221	e57	69	e90	98	44	226	e800	153	e77	1260
28	28	e224	e56	257	e115	2010	42	137	e1400	132	65	1190
29	26	e132	e55	216	---	e456	38	105	e2000	46	66	808
30	26	e130	e54	121	---	e260	38	85	e1700	37	65	145
31	28	---	e53	90	---	e180	---	76	---	32	62	---
TOTAL	4008	5636	1883	2414	3903	5760	3025	10143	41093	8090	19541	45804
MEAN	129	188	60.7	77.9	139	186	101	327	1370	261	630	1527
MAX	792	1270	81	257	440	2010	360	1740	4330	550	2800	16500
MIN	26	23	53	49	60	60	38	33	195	32	42	73
AC-FT	7950	11180	3730	4790	7740	11420	6000	20120	81510	16050	38760	90850

CAL YR 1988 TOTAL 75652.7 MEAN 207 MAX 8680 MIN 4.3 AC-FT 150100
WTR YR 1989 TOTAL 151300 MEAN 415 MAX 16500 MIN 23 AC-FT 300100

e Estimated

ARKANSAS RIVER BASIN

421

07243000 DRY CREEK NEAR KENDRICK, OK

LOCATION.-- Lat 35°46'55", long 96°51'14" (revised), in NW 1/4 NW 1/4 sec.14, T.15 N., R.4 E., Lincoln County, Hydrologic Unit 11100303, near left bank on downstream side of county road bridge, 1.0 mi downstream from Beaver Creek and 4.5 mi west of Kendrick.

DRAINAGE AREA.-- 69.0 mi².

PERIOD OF RECORD.-- October 1955 to current year.

GAGE.-- Water-stage recorder. Elevation of gage is 820 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1981, gage at same site and datum 5.00 ft higher.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 34 years, 23.9 ft³/s, 17,320 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 18,000 ft³/s, Nov. 2, 1974, gage height, 24.20 ft present datum; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 22	0945	*5,270	*19.74	Sept. 12	2330	2,480	15.20

Minimum daily discharge, 1.0 ft³/s Oct. 14-15, Aug. 30-31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	e1.5	3.9	5.2	9.4	10	24	9.3	36	10	2.6	1.2
2	3.0	e1.4	3.9	4.9	7.7	9.9	22	11	31	18	2.7	4.1
3	2.2	e1.3	3.9	4.6	e6.1	11	21	13	34	13	3.2	2.1
4	1.7	e1.2	3.8	4.1	e5.8	11	19	155	271	9.1	2.6	11
5	1.4	e1.3	3.8	4.3	e5.4	15	17	24	402	7.9	2.3	5.1
6	1.2	e1.4	4.0	4.0	e5.1	26	17	14	62	7.2	3.4	2.1
7	8.9	e1.5	4.2	3.9	e5.0	20	17	11	75	6.6	2.5	1.5
8	8.2	e1.6	4.1	3.6	e4.6	31	16	11	43	6.3	e2.0	1.3
9	4.5	e2.0	3.9	3.5	e4.5	38	15	9.2	31	6.0	e1.9	1.1
10	2.9	e7.0	3.9	3.7	e4.3	20	15	8.1	28	5.5	e1.8	1.3
11	2.1	27	3.9	3.9	e5.8	14	15	7.8	29	5.1	e1.7	1.5
12	1.5	205	4.1	3.5	7.2	13	16	9.2	123	5.0	2.1	212
13	1.1	16	4.1	3.3	9.7	11	16	12	243	5.2	2.8	885
14	1.0	8.3	3.9	8.7	45	11	16	12	63	6.1	9.3	60
15	1.0	7.2	3.5	6.0	95	9.0	15	63	31	5.8	4.6	20
16	1.2	7.0	3.4	5.1	33	9.0	15	59	24	4.9	15	11
17	1.3	5.8	3.5	6.1	24	9.5	14	187	21	4.8	5.9	7.6
18	1.1	5.5	3.5	6.7	26	8.4	14	204	18	4.7	3.3	6.1
19	e1.2	5.8	3.7	5.5	18	8.7	13	45	15	4.2	2.8	5.3
20	e1.3	58	3.5	4.7	50	9.6	14	26	14	3.6	3.2	4.9
21	e1.2	20	3.4	e4.0	59	8.6	14	20	13	3.5	2.4	4.5
22	e1.2	8.8	20	e3.7	20	8.5	13	1600	13	3.5	2.0	3.8
23	e1.2	6.1	6.6	e3.6	14	8.7	12	166	47	3.8	1.8	3.1
24	e1.3	5.3	4.1	4.2	13	8.9	12	72	18	3.7	1.6	3.4
25	e1.7	5.3	3.6	18	12	8.8	12	47	13	3.5	1.5	3.5
26	e1.5	7.4	3.9	13	11	9.5	11	73	12	3.4	1.5	3.4
27	e1.4	5.2	67	6.9	11	10	11	36	90	3.4	1.3	3.2
28	e1.3	4.2	19	93	11	324	10	30	22	3.2	1.2	3.1
29	e1.3	4.2	8.6	42	---	54	9.7	26	14	3.0	e1.1	3.0
30	e1.3	3.9	6.4	18	---	35	9.6	23	11	2.7	e1.0	2.9
31	e1.6	---	5.6	12	---	27	---	21	---	2.6	e1.0	---
TOTAL	65.9	436.2	224.7	313.7	522.6	798.1	445.3	3004.6	1847	175.3	92.1	1278.1
MEAN	2.13	14.5	7.25	10.1	18.7	25.7	14.8	96.9	61.6	5.65	2.97	42.6
MAX	8.9	205	67	93	95	324	24	1600	402	18	15	885
MIN	1.0	1.2	3.4	3.3	4.3	8.4	9.6	7.8	11	2.6	1.0	1.1
AC-FT	131	865	446	622	1040	1580	883	5960	3660	348	183	2540

CAL YR 1988 TOTAL 10367.72 MEAN 28.3 MAX 3240 MIN .00 AC-FT 20560
WTR YR 1989 TOTAL 9203.6 MEAN 25.2 MAX 1600 MIN 1.0 AC-FT 18260

e Estimated

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK

LOCATION (REVISED).-- Lat 35°40'26", long 96°04'08", NW 1/4 SW 1/4 sec. 20, T.14 N., R.12 E., Okmulgee County, Hydrologic Unit 11100303, near right downstream abutment of county road bridge, 3.0 mi upstream from Adams Creek, 4.0 mi south of Beggs, 8.0 mi downstream from Flat Rock (Checkerboard) Creek, and at mile 85.0.

DRAINAGE AREA.-- 2,018 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- September 1938 to current year.

REVISED RECORDS.-- WSP 957: 1941. WSP 1117: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 632.55 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 29, 1939, nonrecording gage at site 450 ft downstream at same datum. Aug. 29, 1939 to June 22, 1953, nonrecording gage at present site and datum. June 23, 1953 to July 15, 1981, recording gage at present site and datum. July 16, 1981 to May 3, 1989, recording gage at site 1,000 ft downstream and at same datum.

REMARKS.-- Records fair. Some regulation by Arcadia Lake (station 07242340) since November 1986. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 51 years, 877 ft³/s, 635,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 66,800 ft³/s, May 11, 1943, gage height, 34.55 ft; no flow at times in 1939, 1954, 1956.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 20	1800	3,920	15.39	June 17	1800	*8,330	*21.73
Mar. 11	0200	3,600	14.69	June 30	0200	5,090	17.56
May 28	2400	3,510	14.48	Sept. 20	2000	6,970	20.30

Minimum daily discharge, 42 ft³/s, Nov. 8-10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212	83	266	326	1360	518	1890	133	844	3970	193	135
2	441	66	226	258	793	461	1220	125	544	2650	149	131
3	361	54	184	212	510	426	791	131	798	2190	117	139
4	247	50	156	184	347	417	674	594	1470	1880	105	155
5	204	46	137	162	261	480	605	1240	1550	1350	104	387
6	184	44	119	142	171	472	526	878	1730	1000	120	587
7	175	43	108	132	159	492	468	617	1950	728	158	932
8	189	42	104	127	181	514	404	434	2370	505	203	707
9	241	42	101	125	170	932	351	298	2650	392	254	611
10	572	42	100	127	163	2940	301	214	2810	352	373	613
11	514	43	102	126	174	3510	253	174	3020	316	413	537
12	309	599	111	126	174	3320	230	157	3470	293	498	363
13	199	1430	117	122	617	2940	220	148	3990	278	520	739
14	145	937	113	118	2100	1820	218	148	4680	241	545	2280
15	113	1050	109	123	3530	1030	235	179	6070	217	445	2400
16	115	745	108	122	3680	725	262	258	7470	228	446	2490
17	169	466	108	125	3740	567	257	761	8220	478	1150	2790
18	179	308	75	127	3840	472	249	1450	8030	1150	1480	3410
19	180	e250	64	138	3840	404	245	1730	7240	643	1710	4670
20	182	465	60	140	3800	360	231	1920	6190	476	2000	6610
21	184	906	55	142	3850	339	215	1900	4620	386	2290	6710
22	181	819	58	147	3390	312	205	2170	2030	323	2310	5840
23	176	e720	94	141	2620	290	201	e2500	1620	297	1690	4440
24	158	e650	198	132	1930	277	197	2920	e2300	261	1030	2230
25	143	e600	238	274	1160	268	186	2610	2990	221	762	1410
26	132	e550	264	1360	816	256	174	3020	3300	180	552	1400
27	122	e500	306	1540	671	251	162	3310	3590	152	421	1440
28	114	e460	859	1350	581	447	154	3450	4140	164	304	1460
29	112	439	511	1950	---	1140	147	3460	4840	171	223	1440
30	112	332	563	1910	---	1480	139	3110	4930	205	178	1360
31	104	---	466	1700	---	1870	---	1940	---	213	152	---
TOTAL	6469	12781	6080	13708	44708	29730	11410	41979	109456	21910	20895	58416
MEAN	209	426	196	442	1597	959	380	1354	3649	707	674	1947
MAX	572	1430	859	1950	3880	3510	1890	3460	8220	3970	2310	6710
MIN	104	42	55	118	159	251	139	125	544	152	104	131
AC-FT	12830	25350	12060	27190	88680	58970	22630	83270	217100	43460	41450	115900

CAL YR 1988 TOTAL 381977 MEAN 1044 MAX 20300 MIN 13 AC-FT 757700
WTR YR 1989 TOTAL 377542 MEAN 1034 MAX 8220 MIN 42 AC-FT 748900

e Estimated

ARKANSAS RIVER BASIN

423

07243500 DEEP FORK NEAR BEGGS, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1952 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1951 to May 1989 (discontinued).

WATER TEMPERATURE: November 1951 to May 1989 (discontinued).

REMARKS.-- Samples were collected at six-week intervals and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 10,500 microsiemens, Jan. 12, 1955; minimum daily, 74 microsiemens, Oct. 21, 1983.

WATER TEMPERATURE: (1951-85) Maximum daily, 38.5 °C, Aug. 8, 1970; minimum daily, 0.0 °C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
04...	1125	1028	80020	2.94	250	442	7.9	24.5	18.0	--	750	7.7
DEC												
01...	1430	1028	80020	3.02	252	500	7.8	17.5	7.0	170	755	10.9
JAN												
18...	1530	1028	80020	1.92	124	877	8.2	15.5	4.5	--	750	13.1
FEB												
18...	1630	1028	80020	15.25	3750	220	7.8	14.0	3.5	270	750	11.5
APR												
03...	1630	1028	80020	5.66	742	564	7.8	25.5	18.5	--	735	8.0
MAY												
10...	1345	1028	80020	2.74	224	690	7.9	24.0	22.0	98	750	7.2
JUN												
28...	2030	1028	80020	16.24	4460	242	7.2	32.0	25.5	--	745	6.0
AUG												
15...	1230	1028	80020	4.20	418	512	7.7	33.0	23.5	180	745	6.8
SEP												
21...	1615	1028	80020	20.05	6710	228	7.5	--	21.0	--	745	5.3
DATE		OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03
OCT												
04...	83	--	--	150	--	29	18	34	32	1	8.8	--
DEC												
01...	91	240	280	160	27	34	19	38	33	1	3.5	167
JAN												
18...	103	--	--	300	41	59	36	78	36	2	3.4	311
FEB												
18...	88	--	--	72	18	16	7.7	17	33	0.9	2.8	66
APR												
03...	89	--	--	180	--	37	20	41	33	1	3.4	--
MAY												
10...	84	200	260	210	39	42	26	63	39	2	3.3	211
JUN												
28...	75	--	--	91	5	21	9.3	14	24	0.6	4.1	105
AUG												
15...	82	170	370	170	7	35	19	33	30	1	3.4	194
SEP												
21...	61	--	--	81	0	19	8.2	11	22	0.5	4.1	99

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)
OCT 04...	--	--	26	52	--	6.9	257	254	0.35	173	--	--
DEC 01...	0	137	34	61	0.20	7.9	283	282	0.38	193	0.270	1.2
JAN 18...	0	255	29	130	--	5.7	488	496	0.66	163	--	--
FEB 18...	0	54	18	29	0.20	6.7	167	133	0.23	1690	0.300	1.3
APR 03...	--	--	21	71	--	8.2	298	294	0.41	597	0.170	0.75
MAY 10...	0	173	20	100	0.30	7.6	379	368	0.52	229	0.340	1.5
JUN 28...	0	86	7.0	19	--	7.8	149	136	0.20	1790	0.190	0.84
AUG 15...	0	159	23	40	0.30	5.7	288	257	0.39	325	--	--
SEP 21...	0	81	7.0	14	--	7.6	131	120	0.18	2370	--	--
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 01...	0.010	0.03	0.280	0.140	0.030	0.18	0.04	0.86	1.0	0.230	0.070	0.060
JAN 18...	<0.010	--	0.220	--	0.020	--	0.03	--	--	--	--	0.080
FEB 18...	0.030	0.10	0.330	0.190	0.170	0.24	0.22	2.3	2.5	0.210	0.060	0.050
APR 03...	0.020	0.07	0.190	--	0.060	--	0.08	--	--	--	--	0.030
MAY 10...	0.030	0.10	0.370	0.120	0.100	0.15	0.13	0.88	1.0	0.110	0.110	0.040
JUN 28...	0.020	0.07	0.210	--	0.130	--	0.17	--	--	--	--	0.050
AUG 15...	<0.010	--	0.390	0.080	0.040	0.10	0.05	1.1	1.2	0.200	0.080	0.040
SEP 21...	<0.010	--	<0.100	--	0.070	--	0.09	--	--	--	--	0.050
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 04...	--	--	1	110	<0.5	<1.0	<5	<3	<10	110	<10	4
DEC 01...	0.18	240	1	120	<0.5	<1.0	1	<3	3	260	<5	<4
JAN 18...	0.25	--	1	160	<0.5	<1.0	<5	<3	<10	12	<10	7
FEB 18...	0.15	310	1	56	<0.5	5.0	2	<3	11	270	5	<4
APR 03...	0.09	--	<1	120	<0.5	<1.0	<5	<3	<10	100	10	<4
MAY 10...	0.12	20	1	130	0.7	<1.0	1	<3	3	35	1	9
JUN 28...	0.15	--	1	87	<0.5	52	<5	<3	10	120	30	<4
AUG 15...	0.12	10	2	130	<0.5	<1.0	2	<3	5	28	1	<4
SEP 21...	0.15	--	<1	82	<0.5	<1.0	<5	<3	20	130	<10	<4

ARKANSAS RIVER BASIN

425

07243500 DEEP FORK NEAR BEGGS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 04...	15	0.2	<10	<10	--	<1.0	290	<6	11	--	--	--
DEC 01...	36	0.2	<10	7	<1	<1.0	320	<6	5	294	200	96
JAN 18...	41	0.1	<10	<10	--	<1.0	520	<6	6	--	--	--
FEB 18...	68	0.3	<10	4	<1	<1.0	120	<6	58	332	3360	91
APR 03...	7	0.1	<10	<10	--	3.0	320	<6	14	--	--	--
MAY 10...	8	<0.1	<10	2	<1	<1.0	410	<6	4	189	114	96
JUN 28...	12	4.3	<10	<10	--	<1.0	160	<6	47	--	--	--
AUG 15...	2	<0.1	<10	2	<1	<1.0	370	<6	28	115	130	80
SEP 21...	8	0.2	<10	20	--	1.0	140	<6	31	--	--	--

07243500 DEEP FORK NEAR BEGGS, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	422	735	560	530	340	450	471	1100	---	---	---	---
2	442	750	570	520	400	510	492	1110	---	---	---	---
3	462	779	580	520	410	590	506	---	---	---	---	---
4	477	764	590	550	430	640	581	---	---	---	---	---
5	462	782	640	580	450	650	618	---	---	---	---	---
6	455	797	640	590	500	670	680	---	---	---	---	---
7	442	805	660	640	590	650	694	---	---	---	---	---
8	462	795	660	660	560	640	733	---	---	---	---	---
9	500	788	660	710	580	590	748	---	---	---	---	---
10	507	788	730	730	640	450	764	---	---	---	---	---
11	479	792	760	760	670	310	842	---	---	---	---	---
12	457	317	780	770	710	300	843	---	---	---	---	---
13	427	330	810	820	650	290	853	---	---	---	---	---
14	416	360	820	830	460	290	862	---	---	---	---	---
15	432	681	800	870	310	310	895	---	---	---	---	---
16	421	538	900	870	200	360	915	---	---	---	---	---
17	443	444	920	830	210	470	929	---	---	---	---	---
18	453	424	910	860	220	520	931	---	---	---	---	---
19	595	401	960	890	230	530	944	---	---	---	---	---
20	677	406	880	870	240	610	960	---	---	---	---	---
21	702	433	900	850	270	630	1000	---	---	---	---	---
22	684	425	930	880	280	680	1000	---	---	---	---	---
23	658	417	920	970	310	700	1010	---	---	---	---	---
24	663	451	950	590	330	750	1020	---	---	---	---	---
25	666	474	870	880	360	790	1020	---	---	---	---	---
26	670	463	770	540	380	830	1010	---	---	---	---	---
27	672	480	750	870	380	840	1020	---	---	---	---	---
28	670	505	470	---	430	650	1030	---	---	---	---	---
29	668	518	440	350	---	650	1040	---	---	---	---	---
30	681	550	520	340	---	640	1080	---	---	---	---	---
31	690	---	530	340	---	620	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

ARKANSAS RIVER BASIN

427

07244800 EUFAULA LAKE NEAR BROOKEN, OK

LOCATION.-- Lat 35°18'25", long 95°21'45", in SW 1/4 sec.25, T.10 N., R.18 E., McIntosh County, Hydrologic Unit 11090204, in intake structure near left end of dam on Canadian River, 4.0 mi northeast of Brooken, and at mile 27.0.

DRAINAGE AREA.-- 47,522 mi², of which 9,700 mi² is probably noncontributing.

PERIOD OF RECORD.-- February 1964 to current year. Prior to October 1970, published as Eufaula Reservoir near Brooken.

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

REMARKS.-- Reservoir is formed by an earthen dam having a gated, concrete, ogee-type spillway weir controlled by eleven 40-foot taintor gates. Closure for diversion was made Feb. 1, 1963, and regulated storage began Feb. 10, 1964; minimum power pool was first filled June 17, 1964. Capacity, 3,825,400 acre-ft at elevation 597.0 ft, top of flood-control pool; 2,314,600 acre-ft at elevation 585.0 ft, top of power pool, and 851,600 acre-ft at elevation 565.0 ft, bottom of power pool. Dead storage is negligible. Figures given herein represent total contents. Reservoir is used for flood control, sediment control, power development, and other water uses. Revised capacity table, based on survey 1977, used since Oct. 1, 1983. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 3,791,000 acre-ft, Apr. 25, 1973, elevation, 596.95 ft; minimum since power pool first filled, 1,182,000 acre-ft, Nov. 4, 1964, elevation, 570.23 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 3,054,000 acre-ft, June 15, elevation, 591.38 ft; minimum, 2,118,000 acre-ft, Nov. 9, elevation, 583.07 ft.

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

583	2,111,000	589	2,764,000
585	2,315,000	591	3,000,000
587	2,533,000	593	3,263,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2156000	2144000	2249000	2324000	2398000	2446000	2380000	2215000	2383000	2464000	2325000	2327000
2	2154000	2140000	2250000	2328000	2379000	2434000	2366000	2215000	2382000	2477000	2318000	2343000
3	2153000	2135000	2251000	2328000	2362000	2428000	2348000	2216000	2370000	2474000	2313000	2368000
4	2152000	2140000	2252000	2322000	2350000	2427000	2345000	2229000	2402000	2465000	2304000	2389000
5	2152000	2137000	2255000	2321000	2344000	2428000	2341000	2235000	2437000	2450000	2298000	2386000
6	2148000	2129000	2254000	2315000	2326000	2411000	2338000	2239000	2456000	2436000	2298000	2376000
7	2163000	2125000	2253000	2307000	2306000	2393000	2327000	2242000	2478000	2426000	2292000	2367000
8	2164000	2123000	2253000	2303000	2290000	2393000	2328000	2246000	2528000	2414000	2293000	2362000
9	2166000	2125000	2255000	2293000	2290000	2416000	2333000	2245000	2563000	2400000	2289000	2373000
10	2167000	2124000	2254000	2278000	2287000	2472000	2324000	2247000	2580000	2385000	2292000	2378000
11	2165000	2125000	2257000	2278000	2289000	2519000	2310000	2248000	2666000	2376000	2292000	2401000
12	2164000	2136000	2257000	2260000	2289000	2535000	2302000	2250000	2741000	2376000	2293000	2421000
13	2163000	2141000	2259000	2262000	2364000	2521000	2290000	2248000	2879000	2372000	2292000	2524000
14	2161000	2151000	2251000	2257000	2427000	2494000	2283000	2258000	3001000	2367000	2301000	2506000
15	2166000	2178000	2254000	2261000	2551000	2460000	2280000	2271000	3046000	2364000	2302000	2616000
16	2162000	2166000	2259000	2255000	2621000	2432000	2286000	2282000	3007000	2365000	2310000	2603000
17	2159000	2171000	2256000	2250000	2653000	2399000	2273000	2328000	2957000	2398000	2336000	2585000
18	2153000	2172000	2261000	2248000	2671000	2378000	2264000	2454000	2913000	2397000	2360000	2566000
19	2151000	2200000	2262000	2249000	2664000	2351000	2264000	2493000	2867000	2398000	2372000	2550000
20	2156000	2198000	2254000	2250000	2652000	2328000	2262000	2508000	2813000	2396000	2380000	2537000
21	2158000	2203000	2253000	2250000	2624000	2325000	2253000	2497000	2755000	2391000	2385000	2535000
22	2161000	2207000	2260000	2252000	2583000	2323000	2246000	2523000	2697000	2383000	2386000	2533000
23	2160000	2210000	2267000	2254000	2542000	2320000	2251000	2529000	2652000	2378000	2383000	2526000
24	2160000	2220000	2262000	2254000	2512000	2310000	2229000	2512000	2607000	2372000	2376000	2526000
25	2157000	2229000	2263000	2282000	2494000	2316000	2223000	2478000	2570000	2370000	2368000	2517000
26	2156000	2238000	2273000	2306000	2478000	2319000	2218000	2464000	2537000	2366000	2364000	2504000
27	2150000	2244000	2288000	2331000	2460000	2314000	2213000	2449000	2510000	2356000	2357000	2493000
28	2151000	2242000	2294000	2370000	2452000	2351000	2215000	2435000	2484000	2348000	2350000	2480000
29	2151000	2248000	2299000	2414000	---	2372000	2212000	2414000	2465000	2342000	2336000	2465000
30	2150000	2251000	2304000	2425000	---	2390000	2214000	2393000	2460000	2336000	2332000	2442000
31	2148000	---	2318000	2419000	---	2394000	---	2389000	---	2335000	2320000	---
MAX	2167000	2251000	2318000	2425000	2671000	2535000	2380000	2529000	3046000	2477000	2386000	2616000
MIN	2148000	2123000	2249000	2248000	2287000	2310000	2212000	2215000	2370000	2335000	2289000	2327000
(+)	583.38	584.39	585.03	585.97	586.27	585.74	584.03	585.70	586.35	585.19	585.05	586.18
(++)	-7,000	+103,000	+67,000	+101,000	+33,000	-58,000	-180,000	+175,000	+71,000	-125,000	-15,000	+122,000

CAL YR 1988 MAX 3054000 MIN 2090000 (++) -923,000
WTR YR 1989 MAX 3046000 MIN 2123000 (++) +287,000

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

ARKANSAS RIVER BASIN

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK

LOCATION.-- Lat 35°15'50", long 95°14'21", in SE 1/4 SE 1/4 sec.12, T.9 N., R.19 E., Haskell County, Hydrologic Unit 11090204, on left downstream bank at end of bridge on State Highway 2, 0.8 mi north of Whitefield, 5.5 mi upstream from Taloka (Snake) Creek, 8.2 mi downstream from Eufaula Dam, and at mile 18.8.

DRAINAGE AREA.-- 47,576 mi², of which 9,700 mi² is probably noncontributing.

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

REVISED RECORDS.-- WSP 1177: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 473.16 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 11, 1939, nonrecording gage and Jan. 11, 1939 to Dec. 10, 1941, June 12, 1947 to Sept. 30, 1948, water-stage recorder, all at site 2.1 mi downstream at datum 2.20 ft higher. Dec. 11, 1941 to June 1, 1947, and Oct. 1, 1948 to Sept. 30, 1978, water-stage recorder at site 400 ft upstream and at datum 5.00 ft higher. Oct. 1, 1978 to July 26, 1983, water-stage recorder at site 400 ft upstream at same datum.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Prior to February 1964, occasional slight regulation by Conchas Lake in New Mexico and, except for 54 mi² of intervening area, completely regulated thereafter by Eufaula Lake (station 07244800). U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Eufaula Dam, 25 years (water years 1939-63), 6,005 ft³/s, 4,347,000 acre-ft/yr; since regulation by Eufaula Dam, 22 years (water years 1968-89), 5,927 ft³/s, 4,294,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 281,000 ft³/s, May 10, 1943, gage height, 25.5 ft datum then in use; minimum daily discharge, 0.4 ft³/s, Oct. 8, 1956.

PERIOD OF RECORD.-- Maximum stage since 1898, that of May 10, 1943, from information by local resident.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 45,700 ft³/s, June 20, gage height, 15.57 ft; minimum daily discharge, 67 ft³/s, Dec. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	2750	71	118	11300	7440	15000	112	6570	8720	5700	3590
2	105	2500	70	91	14000	7890	15000	102	7080	9110	5860	653
3	101	1380	70	1410	15100	9110	15000	1130	7530	10300	4250	183
4	83	1360	70	3650	8540	8930	9100	821	7550	12300	6040	686
5	76	744	70	4890	6270	9940	4600	125	11300	12900	4210	5560
6	79	162	70	3530	9290	8760	4550	93	14300	12600	946	8470
7	86	2990	73	5280	12800	9980	5550	84	10100	11900	2680	7430
8	81	1370	73	2820	8520	8200	1980	81	10600	9220	808	3770
9	85	164	69	7740	4320	7880	286	102	14600	10100	1280	1460
10	1020	828	68	8090	2890	11000	5370	79	14600	9840	564	177
11	562	149	68	4110	1300	15800	9070	72	16900	8360	1100	2540
12	1160	148	69	3360	1840	15400	7730	70	16200	7140	394	5650
13	806	113	68	3140	3100	18700	7680	69	16500	8410	1220	7760
14	700	108	67	540	6810	e21500	6590	268	16800	8030	537	13300
15	160	113	220	112	16800	e23000	1600	277	30300	8090	116	16700
16	145	109	384	2470	19200	e21500	2440	2390	43900	7720	138	21200
17	2630	103	213	4330	23500	20600	8120	2370	43400	8140	4660	21100
18	1920	105	72	1400	26100	15300	7490	10600	43200	e600	6250	20400
19	861	137	259	1180	26000	15300	5460	15400	43100	4710	4390	20300
20	391	135	1130	539	26100	14100	3940	15200	43200	4720	3300	16800
21	200	110	1160	93	27400	8870	6010	15300	42500	5110	3520	11700
22	180	106	1350	80	30700	4090	4580	16100	42400	5500	4450	9160
23	178	103	759	72	30400	4170	2090	15900	37500	6710	5770	8890
24	167	102	95	69	25500	5480	7820	19300	29900	5890	6550	8580
25	165	107	74	454	16500	2230	5640	24100	29700	4920	5330	8870
26	1130	129	263	429	16200	384	4920	20100	29500	6110	6280	8960
27	1560	110	981	135	14100	6610	4300	15900	29700	6970	4160	8950
28	2000	102	2170	1650	10600	10400	812	16500	26600	6400	5140	9280
29	842	104	2190	476	---	15300	294	e15000	20200	5260	6710	10000
30	198	80	2240	5520	---	10900	125	e10000	16100	4510	5950	13900
31	3000	---	771	14900	---	13600	---	8750	---	5210	5320	---
TOTAL	20778	16521	15307	82678	415180	352364	173147	226195	721830	235500	113603	276019
MEAN	670	551	494	2667	14830	11370	5772	7297	24060	7597	3665	9201
MAX	3000	2990	2240	14900	30700	23000	15000	24100	43900	12900	6710	21200
MIN	76	80	67	69	1300	384	125	69	6570	600	116	177
AC-FT	41210	32770	30360	164000	823500	698900	343400	448700	1432000	467100	225300	547500

CAL YR 1988 TOTAL 2239323 MEAN 6118 MAX 40100 MIN 67 AC-FT 4442000
WTR YR 1989 TOTAL 2649122 MEAN 7258 MAX 43900 MIN 67 AC-FT 5255000

e Estimated

07246400 ROBERT S. KERR LOCK AND DAM (ARKANSAS RIVER) NEAR SALLISAW, OK

LOCATION.-- Lat 35°20'57", long 94°46'43", in SW 1/4 SW 1/4, sec. 9, T.10 N., R.24 E., LeFlore County, Hydrologic Unit 11110104, from lock wall at dam, 0.5 mi upstream from gage on bridge on U.S. Highway 59, 3.5 mi downstream from Sans Bois Creek, 7.5 mi south of Sallisaw, and at mile 395.4.

DRAINAGE AREA.-- 147,756 mi² of which 22,241 mi² is probably noncontributing.

PERIOD OF RECORD.-- Water years 1970 to current year.

REVISED RECORDS.-- WDR OK-77-1: Drainage area.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)
NOV 02...	1400	1028	80020	12.36	1230	7.9	27.0	16.5	--	744
DEC 15...	1200	1028	80020	12.58	580	7.7	19.0	8.0	--	763
JAN 31...	1000	1028	80020	15.35	634	7.7	29.0	8.0	--	749
MAR 09...	1000	1028	80020	15.35	430	7.8	9.0	4.5	17	765
APR 18...	1500	1028	80020	13.18	688	7.9	31.0	21.5	--	751
JUN 07...	1200	1028	80020	10.11	857	--	22.0	24.0	--	747
JUL 21...	1300	1028	80020	15.73	877	7.8	31.0	24.5	--	755
AUG 25...	1600	1028	80020	15.34	1230	--	26.0	30.5	--	748

DATE	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONIC (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM DIS-SOLVED (MG/L AS Mg)	SODIUM DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM ADSORPTION RATIO
NOV 02...	8.1	85	25	210	--	53	18	150	61	5
DEC 15...	9.2	78	21	140	--	41	9.7	59	47	2
JAN 31...	8.8	76	11	140	--	40	10	68	50	2
MAR 09...	--	--	--	130	--	37	10	34	35	1
APR 18...	8.4	97	34	160	49	44	11	73	50	3
JUN 07...	8.1	99	28	160	--	45	12	110	59	4
JUL 21...	8.4	102	--	160	--	45	11	110	59	4
AUG 25...	7.4	101	32	180	69	52	13	170	66	5

DATE	POTASSIUM, DIS-SOLVED (MG/L AS K)	BICARBONATE WATER DIS-SOLVED (MG/L AS HCO3)	CARBONATE WATER DIS-SOLVED (MG/L AS CO3)	ALKALINITY WATER DIS-SOLVED (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
NOV 02...	4.3	--	--	--	100	230	656	633	0.89
DEC 15...	3.3	--	--	--	52	80	316	308	0.43
JAN 31...	3.3	--	--	--	57	99	353	337	0.48
MAR 09...	2.9	--	--	--	47	45	245	231	0.33
APR 18...	3.0	129	0	106	53	120	374	367	0.51
JUN 07...	3.4	--	--	--	64	160	450	458	0.61
JUL 21...	4.9	--	--	--	66	170	503	470	0.68
AUG 25...	5.2	140	0	115	90	230	695	629	0.95

ARKANSAS RIVER BASIN

07247500 FOURCHE MALINE NEAR RED OAK, OK

LOCATION.-- Lat 34°54'45", long 95°09'20", in NW 1/4 NW 1/4 sec.13, T.5 N., R.20 E., Latimer County, Hydrologic Unit 11110105, on downstream side of left abutment of county road bridge, 0.1 mi downstream from Little Fourche Maline, 5.0 mi southwest of Red Oak, and at mile 41.2.

DRAINAGE AREA.-- 122 mi².

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

REVISED RECORDS.-- WSP 1117: Drainage area. WSP 1631: 1940.

GAGE.-- Water-stage recorder. Datum of gage is 540.80 ft above National Geodetic Vertical Datum of 1929. Prior to April 25, 1939, nonrecording gage at same site and datum.

REMARKS.-- Records good. Some regulation by several flood-retarding structures.

AVERAGE DISCHARGE.-- 51 years, 128 ft³/s, 92,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 41,500 ft³/s, May 19, 1960, gage height, 24.79 ft, from floodmarks, from rating curve extended above 25,000 ft³/s; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in June 1935 reached a stage of 25.4 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 28	1500	*2,520	*14.74	No peak greater than base discharge.			

Minimum daily discharge, 0.14 ft³/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	4.2	39	38	216	73	656	22	46	9.7	e3.6	.87
2	.33	3.5	43	31	209	64	547	20	37	11	e3.4	20
3	.29	2.9	40	26	418	58	436	22	169	16	e3.2	33
4	.25	2.8	23	21	256	119	251	54	1880	14	e3.0	31
5	.19	2.6	11	38	157	187	148	70	835	11	e2.8	15
6	.14	2.4	6.7	40	125	130	94	48	443	8.6	e2.6	12
7	.20	2.0	5.7	30	90	124	72	35	317	6.5	e2.4	8.9
8	.37	1.7	6.5	24	89	260	61	28	246	5.2	e2.3	6.4
9	.59	2.0	7.1	19	84	567	54	25	170	4.4	e2.2	7.4
10	1.2	2.6	7.5	16	79	924	47	22	93	3.7	e2.0	7.0
11	1.9	2.1	7.6	14	76	1040	43	19	244	2.7	e1.9	50
12	1.8	4.2	7.9	13	82	888	38	18	1150	2.3	e1.7	37
13	1.5	5.1	6.1	14	305	686	35	16	1170	3.0	e1.5	209
14	1.4	6.6	6.4	15	839	493	37	15	1410	6.6	e2.5	357
15	1.3	4.9	7.6	14	1820	292	52	138	741	5.0	e2.0	167
16	1.2	4.5	7.0	13	1710	173	48	1210	540	4.8	e1.6	85
17	1.2	5.4	6.6	11	1120	125	39	791	387	5.4	1.3	54
18	1.1	5.7	6.0	11	1250	99	36	1330	259	32	1.3	42
19	.91	7.4	5.4	9.8	857	84	304	1270	177	38	1.5	34
20	1.0	24	4.8	8.5	707	168	241	980	98	31	1.3	28
21	1.3	22	5.1	8.0	547	120	136	817	67	21	1.5	23
22	2.1	17	6.9	7.2	340	94	90	796	55	11	1.3	17
23	2.8	15	16	7.0	204	77	66	971	48	6.7	1.1	12
24	2.2	11	38	6.8	150	66	54	646	41	32	1.0	7.9
25	1.9	17	27	124	122	58	46	455	34	39	1.0	5.9
26	1.4	41	20	1290	106	120	41	210	29	23	.97	4.5
27	1.9	23	168	742	95	330	36	197	28	9.6	1.0	3.5
28	2.0	24	203	731	84	1720	33	140	20	6.0	1.0	2.8
29	2.7	17	150	1140	---	1870	30	98	15	e4.0	.99	2.8
30	4.1	12	64	703	---	1070	26	69	12	e3.6	.92	2.7
31	4.2	---	46	366	---	801	---	55	---	e3.2	.89	---
TOTAL	43.77	295.6	998.9	5531.3	12137	12880	3797	10587	10761	380.0	55.77	1286.67
MEAN	1.41	9.85	32.2	178	433	415	127	342	359	12.3	1.80	42.9
MAX	4.2	41	203	1290	1820	1870	656	1330	1880	39	3.6	357
MIN	.14	1.7	4.8	6.8	76	58	26	15	12	2.3	.89	.87
AC-FT	87	586	1980	10970	24070	25550	7530	21000	21340	754	111	2550

CAL YR 1988 TOTAL 22952.48 MEAN 62.7 MAX 1310 MIN .09 AC-FT 45530
WTR YR 1989 TOTAL 58754.01 MEAN 161 MAX 1880 MIN .14 AC-FT 116500

e Estimated

07240000 WISTER LAKE NEAR WISTER, OK

LOCATION.-- Lat 34°56'12" (revised), long 94°43'10", in SE 1/4 NE 1/4 sec.1, T.5 N., R.24 E., Le Flore County, Hydrologic Unit 11110105, in control tower near right end of Wister Dam on Poteau River, 2.0 mi south of Wister, 2.7 mi upstream from Caston Creek, and at mile 60.9.

DRAINAGE AREA.-- 993 mi².

PERIOD OF RECORD.-- October 1949 to current year. Prior to October 1970, published as Wister Reservoir near Wister.

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

REMARKS.-- Reservoir is formed by an earth dam with outlets of an uncontrolled, concrete, chute-type spillway and six 7- by 12-foot vertical liftgates. Regulated storage began Oct. 4, 1949, conservation pool was first filled Dec. 19, 1949. Capacity, 427,900 acre-ft at elevation 502.5 ft crest of spillway and 27,060 acre-ft at elevation 471.6 ft conservation pool. Figures given herein represent total contents. Reservoir is used for flood control and recreation. Revised capacity table used since Oct. 1, 1973.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 507,400 acre-ft, May 27, 1957, elevation, 505.73 ft; minimum since conservation pool was first filled, 4,020 acre-ft, Oct. 16, 1961, elevation, 456.97 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 256,800 acre-ft, Feb. 20, elevation, 493.98 ft; minimum, 38,870 acre-ft, Nov. 11, elevation, 474.18 ft.

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

474	37,930	486	139,900
478	82,360	490	193,400
482	96,480	494	257,100

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41560	39650	61800	68200	106300	171700	126000	42640	133800	65180	60860	41450
2	41400	39640	59070	65200	102500	159600	121400	42860	121400	64510	59570	44940
3	41340	39540	58850	62220	105500	147300	114900	43410	113700	63780	57960	45730
4	41180	39490	58570	58640	101800	138800	105400	44540	137400	63330	56320	46010
5	41070	39470	58100	56110	95690	131700	93990	46010	153000	62880	54640	44260
6	40960	39280	57490	54900	87000	122700	82630	46360	158800	62360	52820	42050
7	41130	39230	57280	55230	77000	113400	74610	45730	154700	62510	51240	41450
8	41070	39090	56860	55230	67070	106200	67420	44990	145900	62660	49760	41400
9	41020	39290	56450	55230	57840	106200	60570	56180	134900	62730	48080	41990
10	40960	39070	55980	54900	52950	112300	53930	58160	123300	62730	46360	41990
11	40860	38920	55700	54900	51970	117500	48840	57000	111400	62660	45220	42260
12	40750	39440	55290	54840	50740	118600	44260	52750	102200	62950	44320	42370
13	40640	39390	54970	54640	53120	113700	41880	49760	103000	67220	43410	44820
14	40580	39300	54450	55230	75770	105400	41780	46660	106000	68200	42540	45840
15	40530	40340	54060	55840	140000	95900	42100	46770	103400	67500	41880	46450
16	40370	39440	53930	56180	194700	85410	42430	61630	96920	66490	41560	44320
17	40320	39330	53800	56390	222300	75110	42590	83210	89030	69530	41610	43020
18	40220	39650	53800	55360	245900	64680	42750	120200	80560	75950	41780	41940
19	40010	43070	53930	52950	254600	55160	44150	133200	71620	76700	41720	41560
20	40320	49820	53600	50500	256600	49510	46420	148700	66140	75780	41670	41450
21	40270	52690	53270	47960	253800	46660	46540	159100	65380	73460	41610	41450
22	40270	54000	54060	46330	247200	43920	45280	170600	65950	70960	41610	41510
23	40220	54650	55100	42700	238500	42050	43640	181600	66410	68750	41510	41400
24	40110	54980	55430	41400	228500	42100	42430	184800	66880	67270	41450	41510
25	39960	55650	56180	42430	217400	42480	42590	178900	67190	67030	41340	41510
26	39910	66930	57000	62810	206200	43130	42640	171100	68120	65500	41290	41450
27	39910	76460	61070	73540	195200	45790	42590	178600	68510	63260	41180	41450
28	39800	77210	72330	84160	183700	83980	42640	180400	68410	61860	41070	41510
29	39800	72530	73860	104200	---	105500	42160	171500	67190	61500	41020	41610
30	39700	67210	72970	113200	---	120100	42210	159100	66180	61070	40910	41610
31	39750	---	70960	113300	---	126600	---	146500	---	61290	40750	---
MAX	41560	77210	73860	113300	256600	171700	126000	184800	158800	76700	60860	46010
MIN	39700	38920	53270	41400	50740	42050	41780	42640	65380	61070	40750	41400
(+)	474.35	478.64	479.12	483.65	489.33	484.87	474.81	486.53	478.51	477.85	474.54	474.70
(++)	-1,810	+27,460	+3,750	+42,340	+70,400	-57,100	-84,390	+104,290	-80,320	-4,890	-20,540	+860

CAL YR 1988 MAX 302000 MIN 35890 {++} -238,240
WTR YR 1989 MAX 256600 MIN 38920 {++} +50

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

RED RIVER BASIN

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION (REVISED).-- Lat 34°51'30", long 99°30'30", 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 south of Mangum, 13.0 mi downstream from Fish Creek, and at mile 35.5.

DRAINAGE AREA.-- 1,566 mi², of which 209 mi² is probably noncontributing.

PERIOD OF RECORD.-- April 1905 to June 1906, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 1211: Drainage area. WSP 1241: 1938.

GAGE.-- Water-stage recorder. Datum of gage is 1,490.87 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Apr. 11, 1905 to June 30, 1906, nonrecording gage at site 0.2 mi upstream at different datum. Oct. 1, 1937 to Nov. 8, 1938, nonrecording gage at present site and datum.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 52 years (water years 1938-89), 85.7 ft³/s, 62,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 72,000 ft³/s May 16, 1957, gage height, 14.55 ft; maximum gage height, 14.7 ft, June 16, 1938; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 14	1000	*8,680	*10.97	No other peak greater than base discharge.			

Minimum daily discharge, .50 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e. 50	13	24	28	47	42	61	16	55	e70	e2.3	e9.8
2	e3.0	14	24	28	40	42	87	13	183	e49	e2.1	e30
3	e2.5	15	24	30	e38	42	75	13	99	e40	e4.0	52
4	e2.0	15	24	30	e36	43	41	15	e400	e30	e3.4	e36
5	e1.7	13	24	30	e34	36	37	37	e150	e26	e3.0	e25
6	e1.5	12	25	29	e31	24	34	83	e80	e22	e10	e17
7	e5.0	11	27	28	e30	25	32	70	e1500	e18	e250	e14
8	e6.6	11	35	27	e32	32	31	64	500	e16	219	e11
9	e7.0	12	35	26	e33	41	29	47	200	e15	130	e9.2
10	e6.8	12	33	25	e35	34	27	28	108	e12	70	e8.0
11	e7.0	13	34	24	40	36	27	22	100	e11	48	e7.0
12	e7.6	16	32	24	50	34	27	137	800	e10	38	e300
13	e7.4	17	34	23	58	31	28	234	1520	e15	e30	e1500
14	e8.0	18	35	26	64	28	30	307	5490	e13	e20	e700
15	e8.4	19	31	26	61	26	32	177	563	e11	e15	e250
16	e9.0	21	30	26	59	26	32	158	237	e10	e25	e150
17	e9.4	20	29	25	71	26	32	460	170	e9.0	46	e100
18	e9.8	20	28	26	74	24	30	350	122	e8.4	41	e80
19	11	21	28	27	93	24	28	274	e98	e7.6	e35	e65
20	11	28	27	27	83	24	26	157	e80	e6.6	e30	e58
21	12	29	28	27	70	25	24	94	e72	e5.8	e25	e50
22	12	34	29	27	62	28	23	63	e66	e5.2	53	e45
23	11	34	29	27	53	27	22	46	93	e4.7	80	e40
24	10	33	27	27	47	30	19	35	200	e7.0	76	e37
25	9.3	31	26	29	45	33	17	30	e170	e6.3	58	e34
26	8.3	29	28	27	44	32	16	32	e130	e5.0	35	e32
27	8.6	27	27	27	41	43	16	30	e110	e4.4	e30	e30
28	7.9	26	27	41	42	234	15	27	e90	e3.7	e22	e28
29	7.8	26	27	48	---	177	20	24	120	e3.2	e17	e26
30	11	24	27	68	---	122	21	23	e94	e2.8	e14	e24
31	12	---	28	58	---	79	---	21	---	e2.7	e11	---
TOTAL	235.10	614	886	941	1413	1470	939	3087	13600	450.4	1442.8	3768.0
MEAN	7.58	20.5	28.6	30.4	50.5	47.4	31.3	99.6	453	14.5	46.5	126
MAX	12	34	35	68	93	234	87	460	5490	70	250	1500
MIN	.50	11	24	23	30	24	15	13	55	2.7	2.1	7.0
AC-FT	466	1220	1760	1870	2800	2920	1860	6120	26980	893	2860	7470

CAL YR 1988 TOTAL 17790.43 MEAN 48.6 MAX 861 MIN .00 AC-FT 35290
WTR YR 1989 TOTAL 28846.30 MEAN 79.0 MAX 5490 MIN .50 AC-FT 57220

e Estimated

07301110 SALT FORK RED RIVER NEAR ELMER, OK

LOCATION.-- Lat 34°28'44", long 99°22'55", in NW 1/4 NE 1/4 sec.15, T.1 S., R.21 W., Jackson County, Hydrologic Unit 11120202, on right bank at bridge on State Highway 6, 1.7 mi west of Elmer, and at mile 3.5.

DRAINAGE AREA.-- 1,878 mi², of which 209 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1979 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,258.55 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Low flows sustained at times by cotton irrigation.

AVERAGE DISCHARGE.-- 10 years, 220 ft³/s, 159,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 44,900 ft³/s, October 20, 1983, gage height, 15.35 ft from high-water mark (HWM); maximum gage height, 16.06 ft, May 29, 1987 (from high-water mark); minimum daily discharge, 0.08 ft³/s, Sept. 4, 1981.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 15	1100	*11,900	*10.31	No other peak greater than base discharge.			
Minimum daily discharge, 31 ft ³ /s, Nov. 16.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	34	55	65	142	98	256	32	55	82	72	79
2	47	41	54	66	125	98	190	40	85	65	76	261
3	42	38	52	67	e110	97	153	40	365	57	81	193
4	40	38	51	68	e100	91	128	49	1310	49	74	124
5	37	36	50	68	e92	103	109	69	1590	45	75	106
6	38	33	51	67	e84	59	95	144	736	41	188	71
7	40	35	52	71	e78	64	83	166	2390	40	683	58
8	44	32	59	67	e75	74	70	161	2680	46	446	63
9	49	33	57	67	e78	80	60	164	1310	62	276	82
10	51	33	61	65	81	92	53	127	479	75	217	66
11	53	35	69	65	83	86	50	95	473	80	130	73
12	54	36	71	60	89	82	48	247	1100	79	98	96
13	53	37	72	57	103	77	52	1210	3650	78	89	3700
14	51	38	69	59	122	76	58	1250	6670	107	84	3560
15	47	36	69	61	180	65	55	948	9930	99	78	1090
16	45	31	67	61	156	60	55	631	2540	96	72	482
17	43	33	60	59	160	56	54	562	1090	89	63	327
18	38	36	61	56	187	48	51	2210	576	71	89	255
19	34	40	57	87	191	45	49	1220	369	66	76	203
20	35	49	80	90	209	45	47	662	270	67	72	165
21	35	52	77	79	208	46	47	407	208	67	90	140
22	36	56	76	83	175	50	46	311	156	60	106	119
23	37	59	75	97	151	52	44	226	128	75	141	101
24	35	67	76	105	137	53	41	181	113	76	166	89
25	35	69	86	140	121	57	41	139	102	91	197	85
26	34	69	81	139	111	62	41	115	181	102	143	80
27	35	67	71	119	104	316	39	96	102	108	127	74
28	33	60	69	134	98	1020	37	85	84	103	98	71
29	32	58	66	133	---	604	33	78	75	99	96	68
30	32	54	67	124	---	444	34	71	97	113	141	65
31	35	---	65	147	---	328	---	62	---	119	94	---
TOTAL	1272	1335	2026	2626	3530	4526	2119	11798	38914	2407	4438	11946
MEAN	41.0	44.5	65.4	84.7	126	146	70.6	381	1297	77.6	143	398
MAX	54	69	86	147	209	1020	256	2210	9930	119	683	3700
MIN	32	31	50	56	75	45	33	32	55	40	63	58
AC-FT	2520	2650	4020	5210	7000	8980	4200	23400	77190	4770	8800	23690
CAL YR 1988	TOTAL 65658	MEAN 179	MAX 3090	MIN 31	AC-FT 130200							
WTR YR 1989	TOTAL 86937	MEAN 238	MAX 9930	MIN 31	AC-FT 172400							

e Estimated

RED RIVER BASIN

07301110 SALT FORK RED RIVER NEAR ELMER, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to January 1982.

WATER TEMPERATURE: October 1978 to January 1982.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT 18...	1350	1028	1028	2.47	35	4750	7.8	14.5	17.0	--	--	--
NOV 30...	1600	1028	80020	2.70	55	4710	8.2	18.0	12.0	4.2	740	12.1
JAN 18...	1530	1028	80020	2.79	56	4450	8.1	19.5	13.0	11	730	10.9
MAR 21...	2000	1028	80020	2.86	45	4250	8.2	1.0	3.0	4.3	740	6.0
APR 18...	1300	1028	80020	2.95	53	4750	7.9	33.0	24.0	11	740	9.2
MAY 31...	1200	1028	80020	2.78	62	4140	8.3	29.0	23.0	--	735	10.4
JUL 25...	1700	1028	80020	2.42	86	3080	8.2	31.0	26.0	25	730	9.6
SEP 07...	1900	1028	80020	2.46	60	3290	8.2	31.0	29.0	23	721	8.3

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	118	K3	K11	2000	1800	530	160	390	30	4	6.2	227
JAN 18...	110	34	K5	1800	--	480	140	380	32	4	7.2	--
MAR 21...	47	100	48	1800	--	480	150	400	32	4	6.6	--
APR 18...	114	180	70	2000	--	500	170	420	32	4	7.6	--
MAY 31...	128	--	40	--	--	--	--	--	--	--	--	133
JUL 25...	125	100	28	1100	--	270	110	310	37	4	8.8	--
SEP 07...	116	32	78	1200	--	290	120	330	37	4	7.2	--

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	0	186	1800	630	0.40	13	3800	3680	5.17	565	2.37	10
JAN 18...	--	--	1700	550	0.50	10	3600	3370	4.90	545	2.29	10
MAR 21...	--	--	1700	630	0.50	6.7	3660	3420	4.98	449	1.18	5.2
APR 18...	--	--	1800	660	0.50	5.9	3850	3650	5.24	555	0.670	3.0
MAY 31...	0	109	--	--	--	--	--	--	--	--	0.570	2.5
JUL 25...	--	--	1000	510	0.60	10	2470	2300	3.36	573	0.500	2.2
SEP 07...	--	--	1200	540	0.60	11	2580	2580	3.51	418	3.48	15

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	0.030	0.10	2.40	0.230	--	0.30	--	0.67	0.90	0.020	0.020	0.010
JAN 18...	0.010	0.03	2.30	0.170	0.160	0.22	0.21	0.33	0.50	0.030	0.010	<0.010
MAR 21...	0.020	0.07	1.20	0.130	0.120	0.17	0.15	0.87	1.0	0.060	0.020	0.020
APR 18...	0.030	0.10	0.700	0.140	0.130	0.18	0.17	1.3	1.4	0.310	0.130	0.110
MAY 31...	0.020	0.07	0.590	0.120	--	0.15	--	1.9	2.0	0.070	0.020	0.010
JUL 25...	0.020	0.07	0.520	0.060	0.070	0.08	0.09	1.0	1.1	0.090	<0.010	<0.010
SEP 07...	0.020	0.07	3.50	0.090	0.040	0.12	0.05	1.0	1.1	0.080	0.020	0.010

[illegible]

DATE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE- NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON- TIUM, DIS-SOLVED (UG/L AS SR)	VANA- DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 18...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 30...	36	<0.1	<10	6	8	1.0	5800	<6	11	12	1.8	81
JAN 18...	--	--	--	--	--	--	--	--	--	40	6.1	82
MAR 21...	110	--	<30	6	6	<1.0	5700	<18	33	41	5.0	80
APR 18...	49	0.3	<30	2	7	<1.0	6000	<6	20	48	6.9	47
MAY 31...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	6	<0.1	<20	4	4	<1.0	3500	<12	21	68	16	54
SEP 07...	--	--	--	--	--	--	--	--	--	69	11	86

RED RIVER BASIN

07301420 SWEETWATER CREEK NEAR SWEETWATER, OK

LOCATION.-- Lat 35°25'25", long 99°58'08", in NW 1/4 NE 1/4 sec.20, T.11 N, R.26 W., Roger Mills-Beckham County line, Hydrologic Unit 11120302, on right bank downstream bridge piling of State Highway 152, 0.4 mi downstream from Freezeout Creek, 3.3 mi west of Sweetwater, and at mile 16.0.

DRAINAGE AREA.-- 424 mi², of which 20 mi² is probably noncontributing.

PERIOD OF RECORD.-- April 1986 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 2,087.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 545 ft³/s, June 14, 1989, gage height, 12.80; minimum daily discharge, 0.17 ft³/s, Aug. 22, 1986.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 545 ft³/s, June 14, gage height, 12.80 ft; minimum daily discharge, 8.1 ft³/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	23	26	34	34	36	21	16	33	11	10
2	19	18	23	26	e29	34	33	20	18	30	11	10
3	18	19	23	26	e23	34	31	19	21	27	11	11
4	18	18	23	26	e20	31	28	20	42	25	10	10
5	18	18	23	26	e21	e26	26	22	60	24	9.3	9.8
6	18	17	23	25	e22	e23	26	23	46	22	14	9.2
7	19	18	24	25	e23	27	26	22	38	21	24	8.7
8	20	18	23	25	e23	26	25	21	34	20	48	8.2
9	21	18	23	24	e24	26	23	19	30	19	29	8.1
10	20	18	23	27	e26	26	22	17	30	18	23	8.4
11	19	19	24	26	e27	26	22	17	29	17	19	9.2
12	18	23	24	26	26	25	22	26	47	16	17	11
13	18	24	25	25	27	24	23	53	94	16	16	21
14	17	24	25	26	32	24	23	57	310	16	18	34
15	17	23	24	26	34	24	24	42	309	16	38	24
16	16	20	24	27	36	23	24	38	121	15	34	19
17	17	20	24	27	37	23	23	54	83	15	25	16
18	16	20	25	27	43	23	22	95	66	14	22	14
19	16	21	25	27	45	22	22	89	56	13	19	13
20	17	26	25	27	43	23	21	64	50	13	18	12
21	17	30	25	27	41	23	22	50	43	12	17	11
22	17	32	25	28	37	23	22	42	38	12	16	10
23	17	34	25	28	34	24	22	36	55	12	16	9.5
24	17	32	25	27	33	25	21	31	68	13	15	9.5
25	17	30	24	27	32	25	20	27	50	20	14	9.7
26	17	28	25	27	33	25	22	23	41	17	13	9.8
27	17	27	25	27	32	27	24	20	37	15	12	9.5
28	17	26	25	34	33	53	25	19	43	14	12	9.5
29	17	25	24	48	---	80	24	17	52	12	11	9.4
30	17	24	25	44	---	57	23	16	40	11	11	9.4
31	18	---	26	37	---	43	---	15	---	11	11	---
TOTAL	549	688	750	874	870	929	727	1035	1967	539	564.3	363.9
MEAN	17.7	22.9	24.2	28.2	31.1	30.0	24.2	33.4	65.6	17.4	18.2	12.1
MAX	21	34	26	48	45	80	36	95	310	33	48	34
MIN	16	17	23	24	20	22	20	15	16	11	9.3	8.1
AC-FT	1090	1360	1490	1730	1730	1840	1440	2050	3900	1070	1120	722

CAL YR 1988 TOTAL 10532.96 MEAN 28.8 MAX 215 MIN .74 AC-FT 20890
WTR YR 1989 TOTAL 9856.2 MEAN 27.0 MAX 310 MIN 8.1 AC-FT 19550

e Estimated

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, on left bank on downstream side of roadway on State Highway 34 (revised), 3.0 mi south of Carter, 10.8 mi downstream from Timber Creek, and at mile 110.5.

DRAINAGE AREA.-- 2,337 mi², of which 399 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1944 to September 1962. Annual maximum and occasional low-flow measurements, water years 1963-64. August 1964 to current year.

REVISED RECORDS.-- WSP 1211: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,673.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 43 years, (water years 1945-62, 1965-89) 122 ft³/s, 88,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 53,400 ft³/s, May 26, 1959, maximum gage height, 14.98 ft, May 17, 1977; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 3,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 14	0030	*5,700	*9.95 (HWW)	No other peak above base.			

Minimum daily discharge 25 ft³/s Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	52	99	103	127	126	199	115	e1300	e166	34	34
2	72	54	96	108	e90	126	215	109	e680	e158	33	198
3	67	55	93	114	e80	133	200	107	e500	e150	32	131
4	67	54	90	114	e82	e110	182	113	e1300	e146	29	76
5	67	51	88	114	e84	e100	162	132	e800	e134	25	60
6	68	47	92	112	e87	e112	150	167	e500	132	36	50
7	69	46	96	110	e92	120	140	206	326	122	416	43
8	69	43	98	106	e97	112	134	196	e330	111	397	37
9	71	44	92	100	108	108	119	174	e310	103	305	34
10	70	44	92	98	115	117	106	155	e296	91	193	32
11	68	47	91	97	125	120	103	145	e288	79	141	33
12	68	87	93	100	132	110	102	371	4630	72	115	40
13	68	98	99	96	140	104	102	803	5460	213	99	84
14	62	99	103	106	130	100	103	458	e3800	190	93	262
15	58	92	99	107	99	97	107	416	e1400	127	95	178
16	57	86	90	104	103	94	111	994	e720	111	104	146
17	55	74	91	106	111	94	116	728	e560	97	107	118
18	52	72	89	112	138	92	111	2110	e420	81	94	96
19	48	76	91	112	133	87	106	946	e370	67	96	80
20	49	87	97	113	180	90	102	639	e400	57	82	69
21	51	97	100	109	150	90	99	594	297	50	66	61
22	49	119	100	109	157	89	92	462	e250	46	65	54
23	50	129	100	109	140	92	87	395	e260	47	61	47
24	44	132	100	109	129	94	81	368	e300	46	50	44
25	44	130	98	104	123	103	74	374	e270	67	44	43
26	41	124	98	101	125	103	290	346	e237	68	36	42
27	41	119	102	103	123	586	289	304	e210	62	29	41
28	42	111	99	125	126	1360	222	280	e230	56	26	39
29	40	107	101	176	---	447	156	256	e200	47	46	37
30	45	103	104	165	---	229	129	232	e180	41	68	36
31	49	---	101	141	---	203	---	224	---	36	42	---
TOTAL	1779	2479	2982	3483	3326	5548	4189	12919	26824	2973	3059	2245
MEAN	57.4	82.6	96.2	112	119	179	140	417	894	95.9	98.7	74.8
MAX	78	132	104	176	180	1360	290	2110	5460	213	416	262
MIN	40	43	88	96	80	87	74	107	180	36	25	32
AC-FT	3530	4920	5910	6910	6600	11000	8310	25620	53210	5900	6070	4450

CAL YR 1988 TOTAL 48125.49 MEAN 131 MAX 5500 MIN .00 AC-FT 95460
WTR YR 1989 TOTAL 71806 MEAN 197 MAX 5460 MIN 25 AC-FT 142400

e Estimated

RED RIVER BASIN

07302500 LAKE ALTUS AT LUGERT, OK

LOCATION.-- Lat 34°53'08", long 99°17'43", in SW 1/4 SE 1/4 sec.22, T.5 N., R.20 W., Kiowa County, Hydrologic Unit 11120302, on upstream face of Altus Dam on North Fork Red River, 1.0 mi west of Lugert, 2.6 mi upstream from Elm Fork of North Fork, and at mile 73.5.

DRAINAGE AREA.-- 2,515 mi², of which 399 mi² 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 National Geodetic Vertical Datum of 1929 (levels by U.S. 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, 134,500 acre-ft at elevation 1,559.0 ft, crest of uncontrolled spillway, and 72,400 acre-ft at elevation 1,547.0 ft, crest of controlled spillway. Dead storage, 1,660 acre-ft below elevation 1,517.5 ft, 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. Revised capacity table used since Jan. 1, 1969. From 1927 to 1943, a dam to form reservoir for municipal water supply was at same site. Elevation of crest was 1,514.31 ft. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Data on diversions provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 170,600 ft³/s, May 19, 1951, elevation 1,562.10 ft; minimum after initial storage, 4,690 acre-ft, Aug. 25, 1944, elevation, 1,520.2 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 141,500 acre-ft, June 15, elevation 1,560.10 ft; minimum, 85,790 acre-ft, Oct. 1, elevation, 1,550.06 ft.

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

1520	3,844	1540	46,780
1525	10,710	1548	76,580
1529	18,130	1559	134,500
1534	29,620	1563	161,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85810	89270	92800	98560	104500	111500	122500	127900	136300	135400	109600	94820
2	85930	89410	93740	98660	105100	111600	122900	128100	137600	135700	108700	94730
3	86150	89560	93980	98820	104600	112300	123500	128100	137600	135800	107800	94480
4	86270	89750	93980	98920	104800	112800	123800	128600	137000	136100	106900	93980
5	86360	89860	94180	99330	104800	112700	123900	128600	136900	136100	106000	93590
6	86500	89510	94480	99430	104800	112300	124200	128700	135800	136000	107100	93000
7	86810	89650	95070	99590	104800	112500	124500	128800	136900	135300	108500	93020
8	87050	89510	94780	99640	105000	112700	124600	129100	137200	134600	109200	92320
9	87190	89700	94870	99840	105000	112800	124800	129200	136600	132300	109500	92120
10	87420	89800	95020	99690	105300	112900	124700	129100	135900	130700	109500	91880
11	87610	89750	95220	100300	105400	113200	125000	129600	135400	129400	109500	91980
12	87610	90130	95420	100000	105700	113400	125000	130700	137300	128200	109500	93420
13	87470	90180	95470	100200	105900	113600	125100	132200	139100	127100	109600	94690
14	87660	90320	95780	100300	106500	113800	125400	133300	141200	126300	109500	95290
15	87940	90610	95830	100400	106900	114000	125300	133900	141500	125700	109300	95880
16	88080	90610	96030	100600	107200	114000	125300	135200	137400	133900	108900	96200
17	88320	90470	96130	100600	107800	114500	125900	136100	136200	122500	108500	96400
18	88220	90810	96180	101000	108100	114400	126200	137500	135900	121300	107900	96630
19	88220	91290	96380	101200	108500	114100	126200	137400	136000	120400	107300	96860
20	88410	91180	96680	101200	109100	115000	126200	136200	135400	119000	106300	96930
21	88600	91190	96730	101400	109500	114700	126300	134800	135400	118400	105400	97350
22	88700	91340	96990	101500	109800	115000	126500	135400	135900	117500	104200	97110
23	88700	91290	97040	101700	110000	114900	126600	135400	135600	116600	102900	96920
24	88700	91630	97240	101900	110300	115100	126500	135100	135600	115700	101600	96880
25	88940	91730	97240	102600	110500	115100	126700	135300	135600	114800	100500	96990
26	88890	91820	97540	102600	110900	115700	126600	135000	135400	114000	99430	96990
27	89080	92070	97690	103000	111000	116200	127400	134600	135100	113400	98610	96990
28	88890	92360	97790	103300	111300	119800	127700	134400	135100	112800	97790	97090
29	88940	92500	98000	103500	---	121300	127800	134200	135100	112000	96980	97090
30	89130	92650	98310	103900	---	122000	128100	133000	135200	111200	96130	97140
31	89180	---	98460	104200	---	122200	---	133000	---	110500	95370	---
MAX	89180	92650	98460	104200	111300	122200	128100	137500	141500	136100	109600	97350
MIN	85810	89270	92800	98560	104500	111500	122500	127900	135100	110500	95370	91880
(*)	1550.78	1551.50	1552.66	1553.77	1555.07	1556.97	1557.96	1559.10	1559.11	1554.93	1552.05	1552.40
(**)	+3,390	+3,470	+5,810	+5,740	+7,100	+10,900	+5,900	+4,900	+2,200	-24,700	-15,130	+1,770

CAL YR 1988 MAX 140100 MIN 62190 (*) -27,240
WTR YR 1989 MAX 141500 MIN 85810 (**) +11,350

(*) ELEVATION IN FEET, AT END OF MONTH
(**) CHANGE IN CONTENTS, IN ACRE FEET

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

LOCATION.-- Lat 34°53'26", long 99°18'22", in SW 1/4 sec.22, T.5 N., R.20 W., Greer County, Hydrologic Unit 11120303, on right bank at State Highway 44A bridge, 3,500 ft downstream from Altus Dam, 1.9 mi upstream from Elm Fork of North Fork, 2.0 mi west of Lugert, and at mile 72.8.

DRAINAGE AREA.-- 2,515 mi², of which 399 mi² is probably noncontributing.

PERIOD OF RECORD.-- March 1930 to December 1932 (published as "at Lugert Dam"), December 1943 to September 1950 (published as spill from Lake Altus), October 1950 to September 1962, August 1964 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 1311: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,471.81 ft above National Geodetic Vertical Datum of 1929. Mar. 19, 1930 to Dec. 21, 1932, nonrecording gage at former Lugert Dam, 0.7 mi upstream at datum 1,504.31 ft National Geodetic Vertical Datum of 1929, unadjusted.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation at low flow by Lugert Lake prior to December 1943, capacity 13,500 acre-ft and completely regulated thereafter by Lake Altus (station 07302500). Diversions at Lake Altus bypass most of streamflow. Seepage from Altus Dam not included for period February 1953 to September 1977.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 16,100 ft³/s, May 18, 1951, gage height, 12.70 ft, maximum gage height, 16.37 ft, May 21, 1977 (backwater from Elm Fork of the North Fork Red River); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of May 16, 1928, reached a stage of 14.5 ft, site and datum in use 1930-32, discharge, 14,300 ft³/s.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 4,920 ft³/s, June 14, gage height, 11.89 ft; minimum daily discharge, .10 ft³/s, Oct. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	.55	.89	2.6	1.7	1.7	.69	.48	65	224	e.52	e.60
2	.59	.56	.92	7.7	1.7	1.8	.74	.50	350	211	e.52	e.54
3	.67	.56	1.0	6.9	1.8	1.6	.76	.50	577	49	e.56	e.52
4	1.4	.57	.93	4.6	2.2	1.4	.70	.58	1420	55	e.52	e.51
5	1.5	.48	.91	1.3	2.3	1.4	.66	.69	1590	56	e.52	e.51
6	.92	.37	.98	.96	2.5	1.4	.65	.60	1060	37	e.78	e.52
7	.81	.38	1.4	.86	2.6	1.5	.70	.61	791	11	e.85	e.52
8	.87	.42	.87	.89	2.5	1.6	.77	.66	801	3.0	e.54	e.52
9	.71	.49	.74	.97	2.4	1.7	.77	1.4	790	1.8	e.52	e.52
10	.66	.46	.73	.95	2.2	1.4	.76	.71	760	1.8	e.52	e.52
11	.60	.42	.89	.92	2.1	1.2	.80	.64	415	4.7	e.52	e.52
12	.54	.59	.85	.73	2.0	1.0	.77	3.0	1900	5.6	e.52	e.58
13	.46	.52	.80	.85	2.0	.89	.89	2.0	4640	e2.0	e.55	e.62
14	.47	.60	.76	1.0	2.2	.70	.78	1.6	4710	e.92	e.53	e.54
15	.55	.65	.70	1.1	2.1	.62	.63	3.2	3380	e.60	e.52	e.54
16	.62	.61	.71	1.0	2.0	.63	.61	38	3030	e.53	e.52	e.54
17	.57	.58	.68	.99	2.2	.52	.62	442	1700	e.52	e.52	e.54
18	.43	.52	.71	.73	2.0	.57	.60	946	729	e.52	e.52	e.54
19	.18	.57	.71	.67	2.0	.64	.58	1220	417	e.52	e.55	e.53
20	.24	.73	.72	.64	2.0	.69	.53	1140	299	e.53	e.53	e.53
21	.38	.69	.74	.81	2.0	.89	.41	622	271	e.52	e.52	e.54
22	.49	.69	.69	.94	2.0	.72	.34	268	286	e.52	e.52	e.54
23	.49	.65	.70	.92	2.0	.71	.31	264	468	e.56	e.52	e.54
24	.46	.65	.71	1.1	1.8	.62	.27	260	480	e.52	e.54	e.53
25	.43	.66	.74	2.5	1.8	.57	.27	263	481	e.52	e.52	e.53
26	.30	.71	.72	2.0	1.8	.63	.35	276	472	e.52	e.52	e.54
27	.23	.71	.79	2.0	1.8	1.1	.34	204	429	e.58	e.52	e.54
28	.12	.76	.86	2.5	1.8	1.3	.44	25	428	e.53	e.52	e.54
29	.10	.78	.95	2.0	---	.97	.47	21	316	e.52	e.52	e.54
30	.30	.87	.95	1.8	---	.75	.51	25	227	e.52	e.52	e.54
31	.47	---	1.0	1.8	---	.69	---	35	---	e.53	e.52	---
TOTAL	17.32	17.80	25.75	54.73	57.5	31.91	17.72	6066.17	33282	671.88	16.87	16.14
MEAN	.56	.59	.83	1.77	2.05	1.03	.59	196	1109	21.7	.54	.54
MAX	1.5	.87	1.4	7.7	2.6	1.8	.89	1220	4710	224	.85	.62
MIN	.10	.37	.68	.64	1.7	.52	.27	.48	65	.52	.52	.51
AC-FT	34	35	51	109	114	63	35	12030	66010	1330	33	32

CAL YR 1988 TOTAL 28855.95 MEAN 78.8 MAX 918 MIN .00 AC-FT 57240
WTR YR 1989 TOTAL 40275.79 MEAN 110 MAX 4710 MIN .10 AC-FT 79890

e Estimated

RED RIVER BASIN

07304500 ELK CREEK NEAR HOBART, OK

LOCATION.-- Lat 34°54'51", long 99°06'49", in NE 1/4 NE 1/4 sec.17, T.5 N., R.18 W., Kiowa County, Hydrologic Unit 11120303, near right bank on downstream side of pier of county road bridge, 7.0 mi downstream from Little Elk Creek, 7.5 mi south of Hobart, and at mile 10.9.

DRAINAGE AREA.-- 549 mi².

PERIOD OF RECORD.-- September 1904 to March 1908, October 1949 to current year.

REVISED RECORDS.-- WSP 1211: Drainage area. WSP 1241: 1905. WDR OK-86-1: 1984 (M).

GAGE.-- Water-stage recorder. Datum of gage is 1,429.4 ft above National Geodetic Vertical Datum of 1929. See WSP 1920 for history of changes prior to Apr. 28, 1954.

REMARKS.-- Records poor. Part of high flows are diverted 1.0 mi upstream from station, by means of a breach canal (U.S. Bureau of Reclamation), into Tom Steed Reservoir.

AVERAGE DISCHARGE.-- 43 years, (water years 1905-07, 1950-89), 85.8 ft³/s, 62,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 28,000 ft³/s, Oct. 3, 1986, gage height, 31.53 ft; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 8	2400	2,790	19.98	Sept. 13	0945	4,370	25.23
June 13	1345	*8,550	*28.26				

Minimum daily discharge, 20 ft³/s, Oct. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	e98	40	35	e37	34	269	e38	e44	e190	e51	e35
2	e71	e72	44	35	e35	e32	184	45	48	e145	e52	668
3	e62	e52	43	35	e34	e38	e125	e37	e100	e112	e52	96
4	e55	e36	43	35	42	38	e94	47	e160	e93	e50	e59
5	e45	e30	42	35	43	47	e82	48	e110	e80	e47	e51
6	62	e27	43	34	e34	41	e63	46	e86	e71	146	e45
7	82	e26	42	34	e32	e37	e55	51	e600	e62	925	e42
8	98	e88	43	34	e31	e35	e50	e45	2090	e59	177	e41
9	e78	80	54	34	e30	40	e51	45	1700	e55	93	e40
10	e70	e29	48	33	e30	e35	e48	e38	793	e53	e55	e40
11	e61	34	45	33	e30	e33	e47	e37	538	e51	e39	e165
12	e55	329	43	32	e30	e32	e47	202	1310	e50	38	261
13	e51	142	42	32	e31	e32	e47	121	5380	e270	e49	3210
14	e45	92	42	33	e31	e32	e46	126	4240	e255	e130	492
15	e42	53	41	32	e32	e32	e46	59	1880	e190	e110	197
16	e36	42	44	32	e36	e31	e46	247	1070	e145	e74	125
17	e33	38	42	32	39	31	e46	260	821	e112	e55	88
18	e30	41	39	32	46	e31	e48	449	e530	e87	e44	e57
19	e28	39	38	31	47	e32	e47	836	e415	e82	e42	e48
20	82	43	38	31	54	e32	e46	450	e335	e76	e40	e42
21	e36	47	38	31	e46	e32	e46	309	e285	e72	e45	e39
22	e33	47	38	31	e41	e31	e47	191	488	e69	e42	e37
23	e30	56	37	32	e38	e32	e47	150	e455	e66	e41	e36
24	e27	50	37	32	e37	e32	51	e120	e365	53	e40	e34
25	e25	e43	37	118	37	e32	46	e85	e315	e60	e39	e33
26	e23	e42	37	42	37	e33	44	e70	e275	e57	e38	e32
27	e22	e41	37	e30	39	e34	43	e60	e390	e56	e37	e31
28	e21	e40	36	43	40	236	43	e56	e360	e55	e37	e30
29	e20	e40	36	44	---	359	48	e52	341	e54	e36	e29
30	97	40	36	53	---	277	e43	e50	e255	e53	e36	e28
31	125	---	35	e43	---	535	---	e48	---	e52	e35	---
TOTAL	1826	1817	1260	1183	1039	2328	1945	4418	25789	2885	2695	6131
MEAN	52.5	60.6	40.6	37.5	37.1	75.1	64.8	143	860	93.1	86.9	204
MAX	125	329	54	118	54	535	269	836	5380	270	925	3210
MIN	20	26	35	30	30	31	43	37	44	50	35	28
AC-FT	3230	3600	2500	2310	2060	4620	3860	8760	51150	5720	5350	12160

CAL YR 1988 TOTAL 49050.9 MEAN 134 MAX 4140 MIN 9.3 AC-FT 97290
WTR YR 1989 TOTAL 53096 MEAN 145 MAX 5380 MIN 20 AC-FT 105300

e Estimated

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK

LOCATION.-- Lat 34°38'04", long 99°05'47", in NW 1/4 NE 1/4 sec.21, T.2 N., R.18 W., Tillman County, Hydrologic Unit 11120303, near left bank on downstream side of pier of bridge on old U.S. Highway 62, 2.5 mi east of Headrick, 12.9 mi upstream from Otter Creek, and at mile 33.0.

DRAINAGE AREA.-- 4,244 mi², of which 399 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- April 1905 to March 1908, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to July 1905, published as near Snyder.

REVISED RECORDS.-- WSP 1211: Drainage area. WSP 1241: 1905-07.

GAGE.-- Water-stage recorder. Datum of gage is 1,294.83 ft above National Geodetic Vertical Datum of 1929. Prior to July 18, 1905, nonrecording gage at site 0.2 mi downstream at different datum. July 18, 1905 to Mar. 30, 1908, nonrecording gage at Navajo dam site 10.4 mi upstream at different datum. Oct. 1, 1937 to Jan. 29, 1969, water-stage recorder at present site at datum 5.0 ft higher.

REMARKS.-- Records good. Flow regulated since December 1943 by storage and diversion at Lake Altus, 39.5 mi upstream from station (station 07302500). Diversions for irrigation of about 40,000 acres upstream from station; some return flow may re-enter at Stinking Creek, 16 mi downstream from station. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Altus, 8 years (1906-07, 1938-43), 455 ft³/s, 329,600 acre-ft/yr; since regulation by Lake Altus, 45 years (water years 1945-89), 293 ft³/s, 212,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 59,000 ft³/s, Oct. 4, 1986, gage height, 19.07 ft, present datum; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- A stage of 21.1 ft, present datum, occurred sometime prior to 1927, from information provided by Oklahoma State Highway Department.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 16,900 ft³/s, June 15, gage height, 14.14 ft; minimum daily discharge, 61 ft³/s, Aug. 29, Sept. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	284	131	98	89	129	103	619	86	158	569	91	85
2	252	119	97	89	115	101	416	79	209	e520	88	78
3	243	100	100	92	e100	101	325	82	967	e470	88	1190
4	213	87	106	96	e92	88	275	115	1170	e420	84	374
5	206	88	98	96	e86	90	245	312	1950	e380	78	207
6	179	87	101	90	e87	127	222	117	2640	e340	84	124
7	174	86	106	87	e88	127	198	96	4020	e310	1170	92
8	174	84	103	93	e92	96	174	97	5860	e290	1650	79
9	173	85	98	88	116	94	161	87	4000	e260	607	71
10	170	83	102	90	127	95	160	77	2510	e240	313	61
11	162	85	123	87	116	87	153	79	1890	e220	210	70
12	147	89	107	83	100	83	147	483	1820	e210	161	126
13	143	261	105	76	102	80	143	734	6950	e190	132	4240
14	122	224	104	89	107	79	140	558	13800	e180	128	6040
15	117	173	99	89	114	76	134	280	16100	e170	120	1650
16	111	117	100	90	110	78	122	250	9610	e180	116	824
17	108	110	104	88	128	78	113	560	5610	e170	106	505
18	93	96	103	87	129	72	108	2400	3410	e150	101	377
19	91	95	91	84	138	73	102	3760	2150	e140	104	307
20	94	108	88	83	138	75	99	2280	1360	e130	88	262
21	94	96	90	83	143	79	95	1470	1030	e125	91	229
22	92	104	92	83	133	78	94	784	860	e120	96	204
23	95	110	88	84	125	78	90	633	788	e118	99	183
24	91	121	90	83	119	76	88	560	977	e115	93	173
25	85	114	89	126	111	76	84	508	1200	111	92	164
26	80	109	90	342	101	79	81	477	1030	106	79	158
27	87	101	88	163	94	116	78	439	870	149	71	150
28	83	104	88	134	95	209	74	258	786	144	65	140
29	85	101	90	150	---	730	78	186	807	113	61	135
30	90	100	91	141	---	929	95	170	689	101	68	130
31	102	---	90	131	---	636	---	164	---	94	62	---
TOTAL	4240	3368	3019	3276	3135	4889	4913	18181	95821	6835	6396	18408
MEAN	137	112	97.4	106	112	158	164	586	3194	220	206	614
MAX	284	261	123	342	143	929	619	3760	16100	569	1650	6040
MIN	80	83	88	76	86	72	74	77	158	94	61	61
AC-FT	8410	6680	5990	6500	6220	9700	9740	36060	190100	13560	12690	36510

CAL YR 1988 TOTAL 146917 MEAN 399 MAX 8710 MIN 25 AC-FT 289400
WTR YR 1989 TOTAL 172481 MEAN 473 MAX 16100 MIN 61 AC-FT 342100

e Estimated

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1959 to September 1963, July 1968 to March 1989 (discontinued).

WATER TEMPERATURE: November 1959 to September 1963, July 1968 to March 1989 (discontinued).

INSTRUMENTATION.-- Water-quality monitor from August 1969 to September 1981.

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

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 23,300 microsiemens, June 8, 1974; minimum daily, 302 microsiemens, Oct. 20, 1983.

WATER TEMPERATURE: Maximum daily, 38.0 °C, July 19, 1969, Aug. 4, 1977, July 19, 1988; minimum daily, 0.0 °C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)
OCT 12...	1031	1028	1028	6.35	95	6250	7.9	14.0	15.0	--	--	--
NOV 30...	1115	1028	80020	6.23	99	7510	8.2	14.0	5.0	2.7	740	15.0
JAN 18...	1225	1028	1028	6.11	87	7900	8.2	12.5	6.5	--	--	--
MAR 21...	1400	1028	80020	6.03	82	7220	8.3	8.0	6.0	5.7	740	8.3
APR 20...	1040	1028	1028	6.02	99	6580	7.9	23.0	22.0	--	--	--
MAY 31...	1500	1028	80020	6.66	163	4760	8.2	25.0	25.0	29	735	11.4
JUL 25...	1200	1028	80020	6.02	111	5190	8.2	31.0	24.0	22	731	8.7
AUG 10...	0755	1028	1028	6.70	328	1910	8.1	19.5	20.5	--	--	--

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

RED RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

RED RIVER BASIN

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

LOCATION.-- Lat 34°44'02", long 98°59'10", in SE 1/4 sec.16 (revised), T.3 N., R.17 W., Kiowa County, Hydrologic Unit 11120303, near east end of Snyder Dam, 0.8 mi upstream from small tributary, 3 mi northwest of Mountain Park, and at mile 26.0.

DRAINAGE AREA.-- 132 mi².

PERIOD OF RECORD.-- April 1903 to March 1908, October 1951 to September 1971, July 1972 to current year. Published as Otter Creek near Mountain Park 1903-8 and as Otter Creek at Snyder Lake, near Mountain Park 1951-60. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 1731: 1960 (M). WSP 1920: 1959-60. WDR OK-78-2: 1977.

GAGE.-- Water-stage recorder and broad-crested masonry spillway. Datum of gage is 1,361.06 ft above National Geodetic Vertical Datum of 1929. April 1903 to March 1908, nonrecording gage at site 1.8 mi downstream at different datum. October 1951 to September 1971 at intake tower at same site and datum. July 1972 to August 1976, 700 ft downstream at datum 1,344.00 ft.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. The city of Snyder diverted about 130 acre-ft 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, 26 years (water years 1904-7, 1952-71, 1973-74), 23.0 ft³/s, 16,660 acre-ft/yr; since regulation by Tom Steed Reservoir, 14 years (water years 1976-89), 13.9 ft³/s, 10,070 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 14,200 ft³/s, June 6, 1953, gage height, 19.50 ft, from floodmarks, from rating curve extended above 1,600 ft³/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, 338 ft³/s, June 25-26, 29-30, July 1, gage height, 12.99 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	320	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	136	.00	.00
3	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.01	.00	.00
4	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	e.00	.00	.00	.00	21	.00	.00	.00
9	.00	.00	.00	.00	e.00	2.8	.00	.00	1.4	.00	.00	.00
10	.00	.00	.00	.00	e.00	15	.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	4.3	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	11	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.17	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	18	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	90	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.06	186	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.01	278	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	311	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	310	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	312	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	311	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	314	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	315	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	318	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	318	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	318	.00	.00	.00
28	.00	.00	.00	.00	.00	.05	.00	.00	319	.00	.00	.00
29	.00	.00	.00	.00	---	.06	.00	.00	322	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	320	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	17.91	0.00	0.07	4397.87	456.01	0.00	0.00
MEAN	.00	.00	.00	.00	.00	.58	.00	.002	147	14.7	.00	.00
MAX	.00	.00	.00	.00	.00	15	.00	.06	322	320	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	.0	.0	36	.0	.1	8720	904	.0	.0

CAL YR 1988 TOTAL 5984.62 MEAN 16.4 MAX 312 MIN .00 AC-FT 11870
WTR YR 1989 TOTAL 4871.86 MEAN 13.3 MAX 322 MIN .00 AC-FT 9660

e Estimated

RED RIVER BASIN

447

07307028 NORTH FORK RED RIVER NEAR TIPTON, OK

LOCATION.-- Lat 34°30'25", long 99°12'27", in NW 1/4 NE 1/4 sec.5. T.1 S, R.19 W., Tillman County, Hydrologic Unit 11120303, near left bank on downstream side of bridge pier on State Highway 5, 3.8 mi west of intersection of State Highways 5 and 5C in Tipton, 4.8 mi downstream from Otter Creek, and at mile 15.3.

DRAINAGE AREA.-- 4,691 mi², of which 399 mi² is probably noncontributing.

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

GAGE.-- Water-stage recorder. Datum of gage is 1,234.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated since December 1943 by storage and diversion at Lake Altus 54.2 mi upstream (station 07302500). Diversions for irrigation of about 48,000 acres upstream from station.

AVERAGE DISCHARGE.-- 6 years, 650 ft³/s, 470,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 57,200 ft³/s, Oct. 5, 1986, gage height, 19.15 ft (from HWM); minimum daily discharge, 3.7 ft³/s, Sept. 7, 1985.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 13,300 ft³/s, June 15, gage height, 16.14 ft; minimum daily discharge, 75 ft³/s, Aug. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e350	129	118	106	113	98	370	101	184	e1000	e125	143
2	e300	140	118	104	108	100	262	102	181	e900	e119	188
3	e280	131	117	104	99	98	214	102	291	e800	e111	873
4	e260	126	115	105	e97	91	192	102	1410	e700	e109	696
5	e240	121	114	105	e94	90	179	120	1370	e650	e106	330
6	e230	118	113	104	e92	91	168	201	1610	e580	491	e180
7	e210	117	114	102	e94	109	160	135	5890	e520	326	e160
8	e197	115	116	101	e110	97	152	126	6480	e480	2010	e120
9	e190	114	115	102	102	93	144	122	5990	e450	773	e130
10	e180	112	114	102	94	93	141	118	2940	e400	501	e104
11	e170	115	122	101	98	95	142	112	1450	e380	333	158
12	160	120	120	99	91	96	139	259	1980	e350	273	162
13	e158	117	118	98	99	91	141	477	6950	e300	e230	4740
14	156	190	115	99	100	89	141	594	10500	e270	e200	8090
15	151	153	112	98	105	84	139	379	12400	e260	e180	2360
16	147	139	111	99	103	85	137	269	11000	e270	e160	961
17	144	130	112	99	113	86	136	261	7420	e240	e150	806
18	139	123	112	99	114	82	134	404	5020	e220	e140	462
19	136	120	114	99	111	82	132	1480	2950	e195	e130	363
20	137	125	111	97	112	80	129	2730	2260	e187	e120	311
21	137	125	109	97	110	84	127	1380	1760	e170	e118	e280
22	135	123	108	97	110	88	125	901	1600	e168	e120	e250
23	131	122	108	98	106	86	122	467	1470	e162	e122	e235
24	129	122	107	97	105	84	119	378	1490	e150	e118	e210
25	128	124	108	108	104	85	117	339	1660	e148	e110	e200
26	127	123	109	146	101	85	113	314	1670	e140	e100	e185
27	126	122	107	146	98	164	110	298	1470	e200	e90	e178
28	122	120	106	129	96	399	106	289	1360	e190	e89	e170
29	121	120	107	119	---	241	101	252	e1180	e170	e75	e160
30	122	118	107	121	---	603	99	204	e1100	e150	e99	e155
31	127	---	107	114	---	293	---	190	---	e130	e90	---
TOTAL	5340	3774	3482	3295	2879	4042	4491	13206	103036	10930	7718	22950
MEAN	172	126	112	106	103	130	150	426	3435	353	249	765
MAX	350	190	122	146	114	603	370	2730	12400	1000	2010	8090
MIN	121	112	106	97	91	80	99	101	181	130	75	104
AC-FT	10590	7490	6910	6540	5710	8020	8910	26190	204400	21680	15310	45520

CAL YR 1988 TOTAL 188395 MEAN 515 MAX 10400 MIN 32 AC-FT 373700
WTR YR 1989 TOTAL 186143 MEAN 507 MAX 12400 MIN 75 AC-FT 367200

e Estimated

07308500 RED RIVER NEAR BURKBURNETT, TX

LOCATION.-- Lat 34°06'36", long 98°31'53", Cotton County, Okla., Hydrologic Unit 11130102, on left bank at downstream side of bridge on U.S. Highways 277 and 281, 2.5 mi northeast of Burkburnett, and at mile 933.0.

DRAINAGE AREA.-- 20,570 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- July 1924 to August 1925 (monthly discharge only), December 1959 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 952.57 ft above National Geodetic Vertical Datum of 1929. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft downstream, at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

REMARKS.-- Records fair, except those for estimated daily discharges, which are poor. There are many small diversions upstream from station for irrigation, but total amounts are unknown.

AVERAGE DISCHARGE.-- 29 years (water years 1961-89), 1,024 ft³/s, 741,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 166,000 ft³/s, Oct. 21, 1983, gage height, 16.90 ft; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of June 3, 1957, reached a stage of 13.54 ft, from levels to floodmarks. According to local residents, higher stages occurred in 1891 and June 1941.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 19	0855	11,000	8.15	June 16	0100	*38,400	*10.73
June 6	0250	16,300	8.78	Sept. 14	1130	29,900	10.11
June 8	0520	19,300	9.12				

Minimum discharge, 154 ft³/s, May 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	858	293	264	254	352	346	1800	163	213	2130	269	238
2	755	300	261	255	e300	352	1130	158	200	2040	295	248
3	678	300	262	257	e260	367	1130	186	185	1610	305	228
4	585	294	261	256	e240	320	861	265	1970	1420	275	252
5	538	298	270	258	e230	e300	672	353	12400	1170	272	595
6	539	269	268	245	e240	e280	514	394	10300	918	222	912
7	539	245	261	240	e270	e290	477	470	7840	704	355	473
8	558	224	264	231	e310	e300	423	794	15400	589	1240	341
9	540	217	281	229	e330	312	387	611	10400	530	2280	254
10	506	200	279	228	367	326	325	461	7540	533	2870	219
11	484	214	332	230	341	291	296	336	5170	469	1580	534
12	437	260	375	213	311	277	276	342	3560	435	974	723
13	411	243	406	213	325	278	275	373	12600	424	644	5420
14	403	264	390	238	387	276	305	1050	28000	540	554	19700
15	408	263	347	232	440	259	282	2770	34000	610	463	9320
16	412	306	336	233	434	264	272	3570	35000	506	419	4200
17	402	357	312	240	544	265	255	4760	20000	450	383	2230
18	375	311	297	242	712	234	243	6050	7140	411	446	1730
19	348	282	285	239	668	241	237	7880	5770	403	549	1410
20	331	283	264	231	641	237	235	4890	4160	383	411	1230
21	318	281	254	231	618	241	223	4990	3650	359	332	1080
22	327	293	254	236	608	266	208	2800	2860	336	375	978
23	326	294	242	233	556	256	197	2360	2510	332	347	890
24	310	294	230	223	496	253	185	1580	2300	349	328	808
25	300	306	228	223	461	255	177	911	2240	333	333	753
26	294	307	250	224	415	251	181	610	2480	355	460	687
27	286	297	257	235	374	250	184	495	2510	498	433	644
28	270	301	253	375	356	326	189	418	2510	380	372	617
29	293	285	245	481	---	2240	172	341	2320	339	304	595
30	308	272	245	365	---	1890	168	280	2210	315	270	566
31	298	---	252	346	---	1400	---	252	---	295	231	---
TOTAL	13437	8353	8725	7936	11586	13443	12279	50913	247438	20164	18591	57875
MEAN	433	278	281	256	414	434	409	1642	8248	650	600	1929
MAX	858	357	406	481	712	2240	1800	7880	35000	2130	2870	19700
MIN	270	200	228	213	230	234	168	158	185	295	222	219
AC-FT	26650	16570	17310	15740	22980	26660	24360	101000	490800	40000	36880	114800
CAL YR 1988	TOTAL	352921	MEAN	964	MAX	16900	MIN	132	AC-FT	700000		
WTR YR 1989	TOTAL	470740	MEAN	1290	MAX	35000	MIN	158	AC-FT	933700		

e Estimated.

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical analyses: May 1968 to September 1974. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: October 1973 to September 1982.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1981.

WATER TEMPERATURE: July 1968 to September 1981 INSTRUMENTATION:--From December 1968 to September 1979, specific conductance was continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 17,400 microsiemens, July 30, 1972; minimum daily, 889 microsiemens, Sept. 24, 1970.

WATER TEMPERATURE: Maximum daily, 35.5 °C, June 29, 1980; minimum daily, 0.0 °C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)
NOV												
17...	1350	325	7230	8.20	12.0	56	13.1	129	5.4	270	360	1400
DEC												
22...	1535	268	9350	8.30	13.0	12	10.3	105	2.4	K30	K33	1500
MAR												
13...	1320	278	8500	8.30	17.0	9.6	14.4	163	4.1	K24	44	1500
MAY												
12...	0800	344	7720	7.90	15.0	42	8.9	96	6.1	800	110	1200
JUL												
21...	1330	357	5370	8.10	29.0	20	9.4	131	8.0	K5	K35	1100
AUG												
18...	0945	383	5870	8.10	25.5	80	10.4	136	4.7	260	42	1000

DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CAC03	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)
NOV												
17...	1300	350	130	1100	13	7.7	146	1200	1800	0.40	5.0	4810
DEC												
22...	1300	390	130	1500	17	8.5	164	1400	2500	0.40	6.0	6090
MAR												
13...	1400	380	140	1300	14	8.5	125	1400	2000	0.40	1.8	5810
MAY												
12...	1100	330	90	1200	15	9.7	63	1100	1800	0.40	2.8	4640
JUL												
21...	1000	250	110	710	9	8.8	78	990	1200	0.40	10	3520
AUG												
18...	950	270	85	870	12	1.6	76	940	1400	0.50	9.0	3820

DATE	SOLIDS SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
NOV												
17...	4690	0.370	0.040	0.410	0.090	0.120	1.5	1.6	0.100	<0.010	<0.010	--
DEC												
22...	6020	0.650	0.030	0.680	0.160	0.160	1.1	1.3	0.040	<0.010	<0.010	--
MAR												
13...	5310	--	0.020	<0.100	0.100	0.090	1.0	1.1	0.040	<0.010	<0.010	--
MAY												
12...	4580	--	<0.010	<0.100	0.120	0.110	0.48	0.60	0.050	0.010	<0.010	--
JUL												
21...	3330	--	<0.010	<0.100	0.080	0.050	0.62	0.70	0.070	<0.010	0.020	0.06
AUG												
18...	3630	--	<0.010	<0.100	0.060	0.050	1.2	1.3	0.150	<0.010	<0.010	--

RED RIVER BASIN

07308500 RED RIVER BURKBURNETT, TX--(Continued)

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 17...	66	58	88	<10	2	100	<10	<1	<1	<1	14	20
DEC 22...	49	35	76	--	--	--	--	--	--	--	--	--
MAR 13...	53	40	90	<10	2	300	<10	2	3	<1	2	50
MAY 12...	82	76	97	<10	2	200	<10	<1	3	<1	1	30
JUL 21...	27	26	90	--	--	--	--	--	--	--	--	--
AUG 18...	77	75	98	<10	2	100	<10	<1	2	<1	3	30

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 17...	<5	70	20	0.2	4	<1	4	<1.0	4600	46	10
DEC 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 13...	<5	100	20	<0.1	1	<1	5	<1.0	5400	32	20
MAY 12...	<1	80	50	0.2	4	1	3	<1.0	4800	27	10
JUL 21...	--	--	--	--	--	--	--	--	--	--	--
AUG 18...	<1	70	<10	0.3	3	1	2	<1.0	3400	14	10

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 east of Walters, 12.2 mi upstream from West Cache Creek, and at mile 19.7.

DRAINAGE AREA.-- 675 mi².

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 above National Geodetic Vertical Datum of 1929 (Oklahoma State Highway Department). Prior to Jan. 8, 1939, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.-- 45 years, 194 ft³/s, 140,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 50,900 ft³/s, Oct. 21, 1983, gage height, 30.66 ft; no flow at times in 1939-40.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in 1906 reached an approximate stage of 29.7 ft, information from local residents.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 6,840 ft³/s, June 8, gage height, 27.80 ft; minimum daily discharge, 13 ft³/s, May 2-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	65	34	35	45	e33	61	14	69	160	35	607
2	58	51	35	38	39	e31	50	13	75	136	36	392
3	48	39	35	38	33	e31	34	13	122	125	50	198
4	43	33	35	34	28	e30	33	13	4110	113	70	262
5	41	28	34	33	25	e29	31	15	4030	103	51	115
6	36	25	33	32	e23	e28	30	33	2050	101	37	67
7	35	28	34	32	e22	e28	27	34	1500	101	38	53
8	34	28	37	32	e21	e27	25	20	5140	89	33	34
9	34	28	57	31	e21	e27	24	17	4640	63	34	30
10	36	33	48	32	e20	e26	22	16	2420	65	31	168
11	36	35	41	32	e20	e25	21	15	854	65	31	132
12	35	37	39	30	e21	e24	21	19	1640	78	30	49
13	35	49	50	28	e41	e24	20	307	4420	73	24	1950
14	34	72	44	21	e80	e23	21	841	5220	93	21	2950
15	32	58	38	19	e150	e22	22	320	5950	218	26	1330
16	32	44	36	20	e120	e22	22	148	4230	103	33	252
17	32	37	35	24	e150	e21	21	753	1840	72	26	177
18	31	38	34	21	e220	e21	20	1090	683	66	31	263
19	30	43	33	20	e150	e21	21	806	586	48	32	230
20	31	42	33	24	e110	e20	23	210	555	39	32	105
21	34	41	33	24	e90	19	22	343	537	33	35	75
22	39	43	33	24	e70	28	22	164	650	31	29	68
23	33	43	33	24	e54	32	23	112	767	43	20	63
24	29	40	35	26	e49	31	21	99	1010	42	18	59
25	28	38	33	27	e44	29	22	159	736	42	15	59
26	30	37	33	37	e40	27	22	104	691	39	15	59
27	28	36	31	38	e37	26	21	86	670	39	145	60
28	25	35	31	43	e34	229	18	79	592	41	349	52
29	26	34	48	63	---	441	16	76	265	39	358	41
30	28	34	41	88	---	184	15	73	186	38	369	35
31	37	---	37	57	---	93	---	63	---	36	511	---
TOTAL	1110	1194	1153	1027	1757	1652	751	6055	56238	2334	2561	9935
MEAN	35.8	39.8	37.2	33.1	62.7	53.3	25.0	195	1875	75.3	82.6	331
MAX	82	72	57	88	220	441	61	1090	5950	218	511	2950
MIN	25	25	31	19	20	19	15	13	69	31	15	30
AC-FT	2200	2370	2290	2040	3490	3280	1490	12010	111500	4630	5080	19710

CAL YR 1988 TOTAL 75591 MEAN 207 MAX 3680 MIN 14 AC-FT 149900
WTR YR 1989 TOTAL 85767 MEAN 235 MAX 5950 MIN 13 AC-FT 170100

e Estimated

RED RIVER BASIN

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.

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)
OCT 26...	1330	1028	80020	5.33	27	*738	7.8	19.5	15.0	730
JAN 19...	1215	1028	1028	5.16	20	733	7.8	18.5	5.0	730
MAR 21...	1315	1028	80020	5.16	20	947	9.2	9.0	11.0	740
MAY 16...	1700	1028	80020	6.51	140	507	7.7	25.0	22.0	730
JUL 24...	1300	1028	80020	5.97	41	936	8.2	34.0	24.0	735
SEP 09...	1600	1028	80020	5.51	34	685	7.8	30.0	26.0	732

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT 26...	7.5	--	200	26	60	13	68	41	2	6.4
JAN 19...	10.9	89	--	--	--	--	--	--	--	--
MAR 21...	17.2	161	230	0	66	16	100	48	3	5.3
MAY 16...	10.7	128	190	58	53	13	52	37	2	4.9
JUL 24...	9.3	115	320	0	93	21	91	38	2	4.1
SEP 09...	6.2	80	230	--	64	16	66	38	2	6.2

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS C03	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT 26...	216	0	177	63	63	429	412	0.58	31.2	7.30
JAN 19...	231	0	189	--	--	--	--	--	--	--
MAR 21...	228	37	249	93	100	558	529	0.76	30.0	<0.100
MAY 16...	156	0	128	73	61	356	340	0.48	135	1.40
JUL 24...	403	0	330	100	70	594	583	0.81	65.1	1.20
SEP 09...	--	--	--	75	--	405	--	--	--	1.50

07311200 BLUE BEAVER CREEK NEAR CACHE, OK
(Hydrologic benchmark station)

LOCATION.-- Lat 34°37'24", long 98°33'48", in NE 1/4 NE 1/4 sec. 28, T.2 N., R.13 W., Comanche County, Hydrologic Unit 11130203, on downstream side of right bank pier on old U.S. Highway 62, 3,000 ft upstream from St. Louis-San Francisco Railway Co. bridge, 4.0 mi east of Cache, and at mile 12.0.

DRAINAGE AREA.-- 24.6 mi².

WATER-DISCHARGE RECORDS

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

GAGE.-- Water-stage recorder. Datum of gage is 1,215.26 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Minor regulation by Lake Rush, Lake Jed Johnson, and Lake Ketch, combined surface-area 132 acres.

AVERAGE DISCHARGE.-- 25 years, 12.5 ft³/s, 9,060 acre-ft/yr.

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

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

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 17	1830	768	10.14	June 13	1315	1,610	11.40
June 7	2115	*5,670	*14.62				

No flow July 29-Aug. 1, Aug. 4-Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	.66	.49	.34	.50	6.7	17	.42	4.3	4.4	.00	.00
2	2.9	.62	.48	.34	.42	6.3	15	.45	4.3	3.9	.10	.00
3	2.5	.54	.50	.41	e.41	6.2	12	.52	4.6	3.2	.29	.00
4	2.5	.52	.50	.42	e.40	6.2	11	1.0	74	2.8	.00	.00
5	2.5	.53	.42	.56	e.39	9.0	9.1	1.9	31	2.4	.00	.00
6	2.4	.57	.51	.54	e.38	7.0	7.6	.67	17	1.9	.00	.00
7	2.1	.65	.96	.52	e.37	5.4	6.4	.43	1270	1.5	.00	.00
8	2.0	.68	.77	.44	.38	4.7	5.7	.33	626	1.2	.00	.00
9	1.9	.76	.65	.42	.42	4.1	6.6	.34	129	1.0	.00	.00
10	1.6	.64	.65	.42	.42	3.7	5.4	.27	81	.95	.00	.00
11	1.1	1.3	.78	.42	.42	3.3	4.9	.28	77	.81	.00	.00
12	.98	5.2	.65	.32	.44	2.8	4.4	31	160	.68	.00	.24
13	.91	1.5	.65	.41	.56	2.6	3.9	47	696	.55	.00	9.2
14	.79	.83	.59	.65	2.1	2.4	3.6	43	255	1.1	.00	.93
15	.71	.94	.40	.58	3.6	2.0	3.0	28	85	.88	.00	.35
16	.65	.39	.34	.52	6.0	1.7	2.7	64	48	.63	.00	.36
17	.65	.42	.41	.52	24	1.8	2.3	403	33	.54	.00	.25
18	.52	.42	.47	.52	29	1.7	2.1	206	25	.51	.0	.17
19	.57	.45	.52	.52	20	1.4	2.0	71	21	.42	.00	.17
20	.65	.48	.38	.39	19	1.7	1.7	39	16	.34	.00	.17
21	.65	.52	.34	.40	15	1.9	1.5	27	13	.30	.00	.17
22	.65	.84	.34	.52	12	2.3	1.3	20	12	.29	.00	.19
23	.53	.56	.34	.52	11	2.2	1.1	16	11	.27	.00	.16
24	.52	.70	.34	.42	9.6	1.7	.98	13	10	.19	.00	.17
25	.52	.66	.34	.48	8.6	1.5	.94	11	9.0	.15	.00	.17
26	.48	.65	.34	.42	7.8	1.4	.85	8.8	7.9	.05	.00	.17
27	.52	.60	.49	.45	7.3	12	.71	7.6	7.2	.06	.00	.17
28	.47	.56	.37	1.4	7.4	42	.62	7.1	6.1	.02	.00	.17
29	.57	.58	.34	.70	---	45	.46	5.9	5.4	.00	.00	.17
30	1.1	.52	.34	.65	---	35	.42	5.0	4.9	.00	.00	.17
31	.99	---	.34	.54	---	22	---	4.6	---	.00	.00	---
TOTAL	38.43	24.09	15.04	15.76	187.91	247.7	135.28	1064.61	3743.7	31.04	0.39	13.55
MEAN	1.24	.80	.49	.51	6.71	7.99	4.51	34.3	125	1.00	.013	.45
MAX	3.5	5.2	.96	1.4	29	45	17	403	1270	4.4	.29	9.2
MIN	.47	.39	.34	.32	.37	1.4	.42	.27	4.3	.00	.00	.00
AC-FT	76	48	30	31	373	491	268	2110	7430	62	.8	27

CAL YR 1988 TOTAL 4282.61 MEAN 11.7 MAX 468 MIN .00 AC-FT 8490
WTR YR 1989 TOTAL 5517.50 MEAN 15.1 MAX 1270 MIN .00 AC-FT 10940

e Estimated

RED RIVER BASIN

07311200 BLUE BEAVER CREEK NEAR CACHE, OK--Continued
(Hydrologic benchmark station)

WATER-QUALITY RECORDS

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT 26...	1115	1028	1028	6.70	0.56	137	7.3	21.0	19.0	--	--	--
NOV 08...	1415	1028	80020	6.72	0.64	*202	7.9	22.0	18.0	1.9	730	8.8
JAN 23...	1520	1028	1028	6.76	0.55	132	7.4	10.0	14.0	--	--	--
MAR 20...	1506	1028	80020	6.82	2.0	*159	7.4	9.5	15.0	5.0	730	13.0
MAY 16...	1030	1028	80020	8.00	90	112	7.0	23.0	20.0	37	730	11.7
JUL 26...	1400	1028	80020	6.70	0.06	*305	7.9	30.0	22.0	3.3	730	6.1

*SPECIFIC CONDUCTANCE, LAB (US/CM)

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT 26...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	20	38	74	0	21	5.2	13	27	0.7	1.4
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	--	33	22	56	2	16	3.9	11	29	0.6	1.2
MAY 16...	135	--	--	42	10	12	2.8	10	33	0.7	2.5
JUL 26...	--	130	32	96	0	28	6.3	23	33	1	2.8

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 100 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
OCT 26...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	107	0	88	17	5.5	0.30	15	112	131	0.15	0.19
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	66	0	54	16	5.7	0.30	14	109	102	0.15	0.58
MAY 16...	39	0	32	11	4.9	0.30	13	77	76	0.10	18.7
JUL 26...	134	0	110	15	21	0.30	17	183	180	0.25	0.03

07311200 BLUE BEAVER CREEK NR CACHE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)
OCT 26...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	<0.010	--	<0.100	<0.010	<0.010	--	--	--	0.30	0.010	0.010
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	<0.010	--	<0.100	0.010	--	0.01	--	0.59	0.60	0.010	0.010
MAY 16...	0.010	0.03	<0.100	0.040	0.040	0.05	0.05	0.76	0.80	0.100	0.100
JUL 26...	<0.010	--	<0.100	0.180	0.210	0.23	0.27	2.4	2.6	0.020	0.010
DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 26...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	<0.010	--	20	<1	61	<0.5	1.0	<1	<3	3	93
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	0.010	0.03	280	<1	56	<0.5	3.0	2	<3	8	440
MAY 16...	0.000	0.25	140	<1	32	<0.5	<1.0	<1	<3	3	170
JUL 26...	0.020	0.06	20	<1	76	<0.5	3.0	<1	<3	19	50
DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 26...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	<5	<4	4	<0.1	<10	9	<1	1.0	88	<8	5
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	12	<4	36	0.2	<10	1	<1	<1.0	70	<8	68
MAY 16...	1	<4	23	<0.1	<10	2	<1	<1.0	52	<8	16
JUL 26...	2	5	35	0.2	<10	4	<1	<1.0	130	<8	66
DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 26...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	0.5	0.6	2.4	<0.4	1.9	<0.4	0.07	0.07	1	0.00	95
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	--	--	--	--	--	--	--	--	105	0.58	16
MAY 16...	<0.4	0.9	1.8	0.8	1.4	0.7	0.10	0.04	--	--	--
JUL 26...	--	--	--	--	--	--	--	--	23	0.00	20

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 north of Randlett, and at mile 4.8.

DRAINAGE AREA.-- 617 mi².

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 above National Geodetic Vertical Datum of 1929 (Oklahoma State Highway Department). Prior to Nov. 10, 1949, nonrecording gage at same site and datum.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation by numerous flood-retarding structures.

AVERAGE DISCHARGE.-- 40 years, 151 ft³/s, 109,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 72,300 ft³/s, Oct. 20, 1983, gage height, 28.89 ft, from rating curve extended above 13,000 ft³/s on basis of contracted-opening measurement at 27.51 ft in 1969; maximum gage height, 29.58 ft, May 29, 1987 (backwater from W. Cache Creek and the Red River); no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in 1908 reached a stage somewhat exceeding 27 ft, from information provided by local residents.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
June 9	0045	*10,800	*24.51	Sept. 15	1315	4,160	21.91
June 15	0300	8,300	24.06				

Minimum daily discharge, 1.2 ft³/s, Oct. 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	e90	e4.0	e2.6	e11	e16	48	e1.9	12	32	4.6	e1.6
2	9.2	e48	e4.0	e2.6	8.9	e14	33	e1.8	9.8	27	5.6	e1.6
3	4.8	e18	e3.9	e2.5	7.6	e12	25	e1.7	7.8	23	4.2	e1.6
4	3.4	e12	e3.8	e2.4	5.0	e10	20	e1.7	433	20	5.9	e1.6
5	2.9	e11	e3.8	e2.3	3.9	e9.2	15	e5.0	2670	18	5.5	e1.5
6	e2.7	e9.0	e3.7	e2.3	e3.6	e8.3	14	41	4520	16	6.1	e1.5
7	e2.4	e8.2	e3.6	e2.3	e3.5	e7.4	12	26	4650	15	6.6	e1.5
8	e2.3	e7.8	e3.6	e2.2	e3.2	e6.6	10	14	7940	14	14	1.5
9	e2.1	e7.3	e3.5	e2.2	e3.0	e5.9	8.1	4.9	8090	13	37	1.7
10	e2.0	e7.0	e2.0	e2.2	e2.9	e5.4	7.2	2.7	4490	12	24	2.7
11	e1.9	e6.8	e3.2	e2.2	e2.8	e5.0	6.6	2.1	3330	11	11	11
12	e1.8	e6.6	e1.9	e2.1	e2.7	e4.8	6.9	3.1	3110	11	6.5	3.1
13	e1.7	e7.1	e7.2	e2.1	4.2	e4.5	7.5	5.9	2930	9.8	4.7	969
14	e1.7	e5.2	e5.8	e2.1	38	e4.0	8.1	45	5600	12	4.5	3280
15	e1.6	e2.0	e5.5	e7.2	63	e3.8	7.8	26	7020	417	4.5	4060
16	e1.6	e1.1	e5.2	e6.0	51	e3.6	8.1	49	4430	414	3.5	1660
17	e1.5	e9.4	e5.0	e7.0	286	e4.1	7.2	36	2390	75	3.2	265
18	e1.5	e7.8	e4.7	e8.7	625	e3.7	6.1	805	1050	42	2.8	112
19	e1.4	e7.0	e4.4	e5.8	229	e3.9	6.0	1610	657	30	2.5	74
20	e1.4	e6.4	e4.2	4.6	79	e3.3	5.5	691	460	20	2.5	45
21	e1.3	e5.9	e4.0	e4.3	53	2.9	4.8	205	332	13	2.3	34
22	e1.3	e5.6	e3.8	e4.0	43	e2.7	10	110	237	13	2.2	31
23	e1.3	e5.2	e3.6	e3.7	e3.7	e2.5	17	77	135	12	2.0	29
24	e1.2	e5.0	e3.4	3.5	e3.2	e2.3	8.3	64	91	10	1.9	27
25	e1.2	e4.8	e3.3	3.3	e2.8	e2.1	4.7	48	73	9.2	1.7	23
26	e1.8	e4.7	e3.1	3.1	e2.4	e1.9	3.4	39	60	7.7	1.8	19
27	2.7	e4.4	e3.0	3.2	e2.1	e2.5	2.7	31	51	6.0	1.9	18
28	e3.1	e4.3	e2.9	e1.4	e1.8	250	2.5	26	45	5.2	1.9	16
29	e3.8	e4.2	e2.8	e5.0	---	741	e2.1	23	40	8.6	1.8	10
30	e5.9	e4.1	e2.7	e3.0	---	471	e2.0	19	36	9.0	1.9	8.6
31	e88	---	e2.7	e1.7	---	77	---	16	---	6.1	e1.5	---
TOTAL	175.5	464.5	182.2	207.5	1689.3	1713.9	319.6	4031.8	64899.6	1331.6	180.1	10711.5
MEAN	5.66	15.5	5.88	6.69	60.3	55.3	10.7	130	2163	43.0	5.81	357
MAX	88	90	32	50	625	741	48	1610	8090	417	37	4060
MIN	1.2	4.1	2.7	2.1	2.7	1.9	2.0	1.7	7.8	5.2	1.5	1.5
AC-FT	348	921	361	412	3350	3400	634	8000	128700	2640	357	21250

CAL YR 1988 TOTAL 47066.85 MEAN 129 MAX 6610 MIN .37 AC-FT 93360
WTR YR 1989 TOTAL 85907.1 MEAN 235 MAX 8090 MIN 1.2 AC-FT 170400

e Estimated

07313400 WAURIKA LAKE NEAR WAURIKA, OK

LOCATION.-- Lat 34°13'57", long 98°02'51", in SW 1/4 SW 1/4 sec.4, T.4 S., R.8 W., Jefferson County, Hydrologic Unit 11130200, 3,050 ft east of outlet works on Beaver Creek, 5.5 mi north of Waurika and at mile 27.0.

DRAINAGE AREA.-- 562 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1977, nonrecording gage at same site and datum.

REMARKS.-- Reservoir is formed by an earth dam with a concrete outlet structure and emergency spillway. Storage began Aug. 1, 1977. Capacity 469,300 acre-ft at elevation 970.0 ft, crest of uncontrolled spillway and 203,100 acre-ft at elevation 951.4 ft, top of conservation pool. Dead storage, 3,400 acre-ft below elevation 910.0 ft. Reservoir is used for flood control, irrigation, water supply, water quality, fish and wildlife, and recreation. U.S. Army Corps of Engineers' satellite telemeter at station.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 368,600 acre-ft, May 30, 1987, elevation, 984.14 ft; minimum since first major filling, 59,170 acre-ft, Dec. 4-5, 1978, elevation, 931.56 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 300,200 acre-ft, June 15, elevation, 959.55 ft; minimum, 192,700 acre-ft, Dec. 5-7, elevation, 950.40 ft.

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

949	178,800	959	293,800
951	198,900	961	321,800
953	220,400	963	351,100
956	255,300	965	382,400

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198500	194300	193000	194000	196100	204000	203600	199900	203400	234100	204800	201700
2	198200	194500	193000	194000	197300	204200	203600	199000	203400	230000	204600	201000
3	197500	194500	192900	194400	200900	206800	202000	198900	207100	226200	204400	200700
4	197900	195100	192800	193800	195500	208400	201000	199900	221500	222300	204200	200600
5	197200	194900	192700	194100	197000	205600	200900	200500	231400	218200	204100	200400
6	197000	193900	192700	194100	197000	204100	201000	199900	230800	214100	204900	200300
7	196700	193800	194800	194900	199100	204100	200700	200000	242500	210300	204800	200000
8	196100	193800	194200	193900	195500	204100	201600	200500	261900	206600	203700	201200
9	196000	193800	193600	193600	194400	204500	201500	201500	267900	204800	203100	201200
10	196100	193800	194400	193800	194400	205100	200100	200200	268400	204500	202700	200000
11	196500	193700	194000	196000	195500	205600	199800	200200	265500	204300	203200	202500
12	195500	194000	193900	194700	194600	207500	199800	201200	270800	204300	203100	206500
13	194900	194000	193800	193600	195900	208100	200000	201800	285000	204900	203000	213000
14	194700	194000	195300	193800	198000	207100	200400	202400	298900	206700	203500	214700
15	194800	195700	194100	193700	200200	205600	200300	203300	298800	207500	203400	214300
16	194800	193900	194700	193600	201700	205500	200700	203600	293100	207500	203500	213700
17	194900	193200	193800	193900	204000	207200	200300	205100	289600	207200	203400	213000
18	195500	193600	193700	193800	204600	205700	200600	204400	285900	207500	203400	211300
19	194400	195200	193700	195300	205200	205600	200700	204600	281900	207200	203300	210100
20	195100	193600	193800	194500	207100	209400	200300	204600	277900	206900	203200	209200
21	194300	193500	193700	193900	205800	207700	200400	204600	274000	206600	203100	208500
22	194100	193200	193900	193600	206200	205600	200100	204700	270300	206100	202900	208700
23	193900	193200	193800	193700	204400	205000	200700	204100	266100	206200	202900	206200
24	193900	193300	194000	193900	204500	206200	200000	205200	262200	205700	202500	205200
25	194500	193600	193500	195200	204600	205500	200100	205100	258300	205700	202300	204500
26	193800	193500	193800	194000	206300	205500	200100	203900	254100	205600	202400	204000
27	195400	193600	194100	194300	204700	210000	200300	203800	250300	205700	202200	203800
28	193700	192900	193900	194900	204600	210200	200700	204200	246400	205300	202000	203600
29	194200	193700	193700	195300	---	210200	199900	203200	242500	205200	201900	203500
30	194200	193700	193800	195500	---	208800	199800	203200	238200	205100	201700	203500
31	194300	---	193900	195500	---	204600	---	203200	---	204900	201200	---
MAX	198500	195700	195300	196000	207100	210200	203600	205200	298900	234100	204900	214700
MIN	193700	192900	192700	193600	194400	204000	199800	198900	203400	204300	201200	200000
(*)	950.56	950.50	950.52	950.67	951.55	951.55	951.09	951.41	954.56	951.58	951.22	951.44
(**)	-3,700	-600	+200	+1,600	+9,100	0	-4,800	+3,400	+35,000	-33,300	-3,700	+2,300

CAL YR 1988 MAX 246300 MIN 187700 (*) -19,400
WTR YR 1989 MAX 298900 MIN 192700 (**) +5,500

(*) ELEVATION, IN FEET, AT END OF MONTH
(**) CHANGE IN CONTENTS, IN ACRE FEET

RED RIVER BASIN

07313500 BEAVER CREEK NEAR WAURIKA, OK

LOCATION.-- Lat 34°13'00", long 98°02'57", on north line of NW 1/4 NW 1/4 sec.16, T.4 S., R.8 W., Jefferson County, Hydrologic Unit 11130208, on left bank on downstream side of bridge on State Highway 5, 4.5 mi northwest of Waurika, 6.2 mi upstream from Cow Creek, and at mile 25.8.

DRAINAGE AREA.-- 563 mi².

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, Oklahoma State Highway Department datum. Prior to Apr. 5, 1966, water-stage recorder at same site at datum 5.00 ft higher.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated by Waurika Lake (07313400) 1.2 mi upstream beginning August 1977. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Waurika Lake, 23 years (water years 1954-76), 107 ft³/s, 77,520 acre-ft/yr; since regulation by Waurika Lake, 12 years (water years 1978-89), 158 ft³/s, 114,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 32,200 ft³/s, May 20, 1955, gage height, 27.42 ft, 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, present datum, from floodmark, discharge 65,300 ft³/s by contracted-opening measurement of peak flow. A similar stage was reached prior to 1889, from information provided by local resident.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,980 ft³/s, June 17, gage height, 20.54 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	e.30	e.00	e.11	e.13	289	266	e2.6	2.3	1850	9.0	3.4
2	7.0	e.00	e.00	e.11	e.14	291	266	e2.5	2.8	1840	9.1	3.4
3	7.0	e.00	e.00	e.11	e.14	285	136	e2.4	6.6	1830	9.0	3.4
4	6.9	e.00	e.00	e.10	e.13	27	17	6.0	52	1820	8.9	3.4
5	6.7	e.00	e.00	e.10	e.13	27	7.0	10	46	1820	8.9	3.4
6	e.50	e.00	e.00	e.10	e.13	27	4.9	5.7	243	1790	8.9	3.2
7	e.10	e.00	e.20	e.10	e.13	27	e4.0	4.3	170	1700	9.0	3.3
8	e.05	e.00	e.00	e.11	e.13	27	e3.8	e3.8	e4.0	1620	8.8	3.6
9	e.00	e.00	e.00	e.11	e.13	28	e3.6	e3.4	e333	672	8.7	3.8
10	e.00	e.00	e.00	e.11	e.12	27	e3.5	e3.0	e1080	38	8.7	4.2
11	e.00	e.00	e.00	e.10	e.12	27	e3.3	e2.6	e1080	32	8.9	11
12	e.00	e.00	e.35	e.10	e.12	27	e3.2	e5.0	e500	31	8.7	4.7
13	e.00	e.80	e.15	e.10	e.13	27	e3.1	e7.0	e4.0	31	8.7	227
14	e.00	e.20	e.00	e.11	5.4	27	e6.0	e6.0	e481	28	7.9	111
15	e.00	e.00	e.00	e.15	10	23	e5.0	e4.5	e1530	11	3.9	348
16	e.00	e.60	e.00	e.13	8.1	6.2	e4.5	10	1950	10	3.8	349
17	e.00	e.15	e.00	e.10	10	4.5	e4.2	3.2	1960	10	3.8	348
18	e.00	e.00	e.00	e.11	9.2	3.9	e4.0	e3.1	1920	10	3.8	583
19	e.00	e.00	e.00	e.11	5.2	4.3	e3.9	e3.0	1940	10	3.8	581
20	e.00	e.90	e.00	e.12	3.6	11	e3.7	e2.9	1920	10	3.6	340
21	e.00	e.25	e.00	e.12	109	27	e3.6	e2.8	1870	9.8	3.5	339
22	e.00	e.00	e.00	e.12	299	175	e3.5	e2.7	1870	9.8	3.5	341
23	e.00	e.00	e.80	e.11	297	283	e3.4	2.7	1900	9.7	3.4	342
24	e.00	e.00	e.25	e.12	157	282	e3.3	2.7	1890	9.6	3.4	341
25	e.00	e.00	e.07	e.12	27	281	e3.2	2.5	1870	9.6	3.4	340
26	e.05	e.00	e.09	e.12	27	280	e3.1	2.4	1850	9.5	3.4	166
27	e.00	e.00	e.09	e.11	27	279	e3.0	2.4	1830	9.4	3.4	27
28	e.00	e.00	e.10	e.11	98	279	e2.9	2.4	1830	9.4	3.4	26
29	e.00	e.00	e.10	e.12	---	374	e2.8	2.3	1730	8.8	3.4	26
30	e.00	e.00	e.10	e.12	---	460	e2.7	2.3	1840	9.4	3.4	26
31	e1.5	---	e.11	e.13	---	412	---	2.3	---	9.2	3.4	---
TOTAL	36.80	3.20	2.41	3.49	1094.18	4267.9	784.2	118.5	33684.7	15267.2	183.5	4911.8
MEAN	1.19	.11	.078	.11	39.1	138	26.1	3.82	1123	492	5.92	164
MAX	7.0	.90	.80	.15	299	460	266	10	1960	1850	9.1	583
MIN	.00	.00	.00	.10	.12	3.9	2.7	2.3	2.3	8.8	3.4	3.2
AC-FT	73	6.3	4.8	6.9	2170	8470	1560	235	66810	30280	364	9740

CAL YR 1988 TOTAL 54879.11 MEAN 150 MAX 1910 MIN .00 AC-FT 108900
WTR YR 1989 TOTAL 60357.88 MEAN 165 MAX 1960 MIN .00 AC-FT 119700

e Estimated

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.-- Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, on left bank at downstream side of bridge abutment on U.S. Highway 81, 0.5 mi downstream from Chicago, Rock Island, and Railroad Co. bridge, 1.2 mi south of Terral, 3.6 mi downstream from Little Wichita River, and at mile 872.0.

DRAINAGE AREA.-- 28,723 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.-- WSP 1211: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 770.31 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

REMARKS.-- Records good except those for period of estimated daily discharges, which are poor. There are many small diversions upstream from station for irrigation, oil field, and municipal uses. Gage-height telemeter at station.

AVERAGE DISCHARGE.-- 51 years (water years 1939-89), 2,319 ft³/s, 1,680,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 225,000 ft³/s, May 30, 1987, gage height, 32.65 ft; maximum gage height, 33.60 ft, Oct. 22, 1983, minimum, 43 ft³/s, Mar. 15, 1939. Maximum stage since at least 1891, that of Oct. 22, 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of May 19, 1935, reached a stage of 27.2 ft, although floods in 1891 and on May 1, 1908, are reported to have reached about the same stage.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 21,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 6	1415	28,700	16.53	June 15	0800	*85,400	*20.22
June 9	1110	54,600	20.03	Sept. 14	2400	37,900	17.35

Minimum discharge, 309 ft³/s, May 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2430	606	616	522	665	690	2520	315	2570	4690	773	902
2	1720	645	603	521	e480	837	1890	324	2610	4520	750	935
3	1380	625	596	514	e400	844	1830	371	3090	4400	743	1070
4	1230	618	580	500	e370	703	1310	392	7630	4310	911	998
5	1110	581	565	490	e360	527	1110	730	19200	4050	1050	768
6	1040	572	571	488	e340	418	899	1100	27500	3970	916	754
7	986	566	575	489	e340	476	738	1830	22500	3720	952	984
8	892	558	540	446	e350	626	650	1720	37500	3650	907	1180
9	860	551	572	498	375	1010	581	1000	50800	3340	1240	889
10	832	537	558	518	428	1360	541	823	34400	2070	2940	925
11	836	564	588	529	467	1440	499	692	22500	1290	4010	2340
12	816	557	668	495	538	961	499	623	18300	1190	2720	2330
13	794	582	815	436	500	678	488	628	26400	1130	1930	12300
14	771	677	828	457	493	576	502	805	50600	1170	1490	33600
15	754	623	778	454	1220	503	495	1670	62600	1410	1280	33500
16	768	630	748	470	2370	483	468	4890	52900	1920	1320	17900
17	751	599	714	488	2820	445	443	9480	42600	2050	1100	12300
18	715	597	689	504	4510	394	438	14700	24200	1380	928	11100
19	668	597	665	497	5450	383	412	17300	17300	1180	878	9840
20	610	598	631	483	3710	381	388	16000	14600	1070	862	6720
21	576	592	607	438	2200	349	423	10600	11200	990	889	5690
22	565	596	589	425	1480	365	409	8800	10000	943	755	5360
23	556	614	578	417	1370	420	388	5500	8110	889	696	5160
24	545	619	578	415	1250	592	357	4450	6970	855	705	4400
25	555	637	560	420	1120	617	339	3780	7160	821	691	3310
26	572	628	551	381	879	615	332	3300	6920	821	657	2960
27	565	633	540	352	775	611	337	3070	6530	830	660	2630
28	577	646	512	413	718	585	335	2820	5990	846	745	2520
29	573	650	510	456	---	612	325	2690	5650	952	762	2630
30	572	631	524	614	---	2340	314	2670	5110	872	906	2570
31	608	---	528	744	---	4050	---	2610	---	813	933	---
TOTAL	26227	18129	18977	14854	35778	24891	20260	125683	613440	62142	36099	188565
MEAN	846	604	612	479	1278	803	675	4054	20450	2005	1164	6286
MAX	2430	677	828	744	5450	4050	2520	17300	62600	4690	4010	33600
MIN	545	537	510	352	340	349	314	315	2570	813	657	754
AC-FT	52020	35960	37640	29460	70970	49370	40190	249300	1217000	123300	71600	374000
CAL YR 1988	TOTAL	652274	MEAN	1782	MAX	31900	MIN	278	AC-FT	1294000		
WTR YR 1989	TOTAL	1185045	MEAN	3247	MAX	62600	MIN	314	AC-FT	2351000		

e Estimated.

RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical analyses: October 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURE: October 1967 to current year.

REMARKS.-- Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 13,000 microsiemens, June 15, 1984; minimum daily, 255 microsiemens, Jan. 1.

WATER TEMPERATURE: Maximum daily, 35.0 °C, Aug. 13, 16, 17, 1983; minimum daily, 0.0 °C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 9,120 microsiemens, Dec. 19; minimum daily, 720 microsiemens, June 9.

WATER TEMPERATURE: Maximum daily, 30.0 °C, June 28, July 19, 24, Aug. 1; minimum daily, 0.0 °C, on several days during February and March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 30...	0915	653	4210	8.00	8.0	830	200	81	600
JAN 24...	1120	411	6770	8.00	9.5	1300	330	120	990
MAR 14...	1510	576	5040	8.30	20.5	830	200	81	870
MAY 18...	1510	15400	4720	8.10	21.5	580	160	45	680
JUN 08...	1445	36800	1370	8.10	23.0	290	85	20	200
AUG 09...	1215	1320	3510	8.50	26.0	620	150	59	530

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
NOV 30...	9	5.8	236	600	940	0.40	6.8	2580
JAN 24...	12	8.2	164	1100	1700	0.30	2.5	4350
MAR 14...	13	7.5	102	700	1300	0.30	0.70	3220
MAY 18...	12	8.1	105	480	--	0.40	9.7	--
JUN 08...	5	6.9	95	190	320	0.20	8.7	888
AUG 09...	9	6.9	92	550	820	0.40	4.0	2180

07315500 RED RIVER NEAR TERRAL, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3240	e5190	7340	6400	4540	6840	2450	6470	4630	2690	4290	5020
2	3680	e5170	7170	6540	e5000	5480	2850	6520	4250	2380	4450	4470
3	3920	5160	6940	6370	e5500	5030	4130	5690	3720	2230	e4500	e4000
4	4230	5600	e6850	6290	e6500	e5180	3870	5390	e1200	e2200	4550	3550
5	4390	5230	6570	6390	e6600	e5330	4660	5520	1090	2150	4730	4030
6	4570	5240	6570	6450	e6700	e5480	5080	2930	1250	2080	3520	4230
7	4680	5020	6510	6710	e6800	e5630	5050	2930	2570	2040	4030	4480
8	4740	5280	e6540	e6740	6870	e5780	5010	2400	1560	2040	3990	5690
9	4770	5360	6570	6760	7830	5930	5070	3180	720	2100	3760	4020
10	4790	5320	5680	6450	7750	3220	5180	4390	e750	2560	3490	3530
11	4800	5220	5910	6610	6790	3040	5090	5330	780	3870	2860	2810
12	4800	4910	5780	6980	e6900	3540	5380	e5560	870	4280	3220	1560
13	4880	5090	5500	6930	7310	4280	e5100	5790	840	4580	e4000	960
14	5020	5360	5690	6660	e6500	4840	5070	5980	1370	4510	4640	1080
15	e5020	4560	5930	e6630	3740	5330	5110	3990	1820	4120	4790	1660
16	e5030	5080	6500	6600	3440	5500	5380	2530	2110	3620	e4500	1420
17	5030	5190	7460	6510	2170	5840	5580	4010	1650	4010	3890	e1610
18	5130	4780	8650	6520	1420	5950	5880	2750	1440	2750	4100	1810
19	5420	e5000	9120	6460	1180	e5920	5720	1340	1610	3790	4380	2160
20	5340	5220	8640	6520	1550	5880	5710	3810	1770	4060	e4710	1910
21	5370	5070	8580	6530	2200	e5900	e5710	2450	1870	4540	5210	1840
22	5480	4520	8670	6550	3320	6160	5950	3000	2040	4390	7140	2000
23	e5450	4420	8100	6720	3850	6000	6240	2650	2130	4600	6650	2090
24	e5420	e4620	7910	6870	4930	4340	6370	2660	2250	4830	6100	e2000
25	e5390	4840	7380	6850	5640	4250	6540	2860	2170	4350	e6070	3170
26	e5360	5100	7590	6750	7230	4070	6420	3050	2180	e4400	6040	3360
27	e5330	5230	7200	6680	7380	3980	6260	3470	2260	4470	6000	3640
28	e5300	5050	7360	6380	7040	3960	6380	e3900	2330	4470	5850	4430
29	e5280	5330	e7000	e6300	---	4100	6440	4380	2340	4500	5910	4540
30	e5250	5760	6670	6210	---	4850	6490	4310	2350	4570	6360	4500
31	e5220	---	6700	6090	---	3140	---	4430	---	4080	5500	---

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	e20.0	12.0	12.0	13.0	9.0	15.0	18.0	26.0	28.0	30.0	26.0
2	19.0	e20.0	15.0	12.0	e3.0	10.0	17.0	18.0	24.0	23.0	27.0	26.0
3	21.0	21.0	14.0	11.0	e1.0	13.0	18.0	18.0	23.0	27.0	e27.0	e25.0
4	21.0	21.0	e12.0	11.0	e.0	e6.0	17.0	19.0	e23.0	e27.0	26.0	25.0
5	20.0	15.0	10.0	13.0	e.0	e.0	15.0	e18.0	22.0	27.0	28.0	26.0
6	18.0	16.0	8.0	15.0	e.0	e.0	21.0	18.0	23.0	28.0	27.0	27.0
7	19.0	23.0	13.0	14.0	e1.0	e.0	18.0	20.0	23.0	28.0	26.0	27.0
8	18.0	20.0	e10.0	e11.0	4.0	e1.0	18.0	22.0	23.0	28.0	23.0	25.0
9	18.0	20.0	6.0	8.0	6.0	7.0	13.0	24.0	24.0	27.0	24.0	26.0
10	18.0	20.0	9.0	9.0	5.0	15.0	12.0	21.0	e24.0	27.0	25.0	23.0
11	18.0	15.0	8.0	15.0	7.0	12.0	13.0	20.0	24.0	27.0	24.0	25.0
12	19.0	14.0	12.0	9.0	e7.0	19.0	13.0	e18.0	25.0	28.0	24.0	24.0
13	18.0	19.0	8.0	7.0	7.0	16.0	e13.0	18.0	25.0	28.0	e24.0	19.0
14	17.0	19.0	11.0	8.0	e6.0	17.0	15.0	21.0	23.0	28.0	24.0	19.0
15	e18.0	22.0	8.0	e7.0	6.0	17.0	15.0	20.0	23.0	28.0	24.0	17.0
16	e20.0	13.0	7.0	5.0	5.0	13.0	17.0	22.0	24.0	29.0	e24.0	17.0
17	22.0	14.0	7.0	10.0	5.0	21.0	18.0	19.0	24.0	29.0	26.0	e18.0
18	22.0	15.0	12.0	13.0	5.0	19.0	18.0	20.0	25.0	27.0	27.0	21.0
19	17.0	e13.0	11.0	14.0	7.0	e17.0	17.0	22.0	26.0	30.0	26.0	23.0
20	17.0	10.0	12.0	10.0	7.0	15.0	20.0	25.0	28.0	27.0	e26.0	24.0
21	18.0	10.0	12.0	8.0	7.0	e15.0	e21.0	25.0	26.0	26.0	27.0	23.0
22	20.0	10.0	12.0	8.0	10.0	14.0	26.0	25.0	27.0	26.0	25.0	20.0
23	e20.0	11.0	13.0	17.0	9.0	12.0	21.0	26.0	27.0	26.0	26.0	20.0
24	e20.0	e13.0	10.0	14.0	9.0	15.0	22.0	26.0	23.0	30.0	28.0	e19.0
25	e20.0	16.0	8.0	15.0	11.0	15.0	25.0	27.0	27.0	27.0	e28.0	18.0
26	e20.0	15.0	15.0	9.0	e10.0	26.0	27.0	27.0	26.0	e27.0	28.0	19.0
27	e20.0	12.0	13.0	9.0	10.0	20.0	25.0	23.0	27.0	27.0	29.0	20.0
28	e20.0	16.0	6.0	10.0	8.0	17.0	25.0	e23.0	30.0	28.0	29.0	21.0
29	e20.0	10.0	e8.0	e12.0	---	19.0	20.0	24.0	28.0	28.0	28.0	20.0
30	e20.0	12.0	10.0	18.0	---	19.0	19.0	25.0	28.0	29.0	27.0	24.0
31	e20.0	---	10.0	11.0	---	18.0	---	25.0	---	26.0	26.0	---

e Estimated

RED RIVER BASIN

07315700 MUD CREEK NEAR COURTNEY, OK

LOCATION.-- Lat 34°00'15", 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 downstream from North Mud Creek, 6.0 mi northwest of Courtney, and at mile 11.5.

DRAINAGE AREA.-- 572 mi².

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

REVISED RECORDS.-- WDR OK-78-2: Maximum gage height.

GAGE.-- Water-stage recorder and sharp-crested weir. Datum of gage is 727.72 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1968, auxiliary water-stage recorder 2.0 mi downstream from base gage.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 29 years, 162 ft³/s, 117,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 38,800 ft³/s, May 29, 1987, gage height, 33.14 ft; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of May 1957, reached a stage of 30.6 ft.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 18	1500	3,310	25.13	June 9	0100	*17,700	*29.84
Mar. 11	0400	1,900	23.74	June 14	1700	3,970	25.65
May 19	0300	1,460	22.98	Sept. 14	0500	5,060	26.37

Minimum daily discharge, 0.09 ft³/s Oct. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	37	e1.4	3.6	16	37	45	6.2	7.6	25	7.2	2.4
2	.65	7.5	e1.3	3.8	11	31	30	6.7	6.9	23	6.5	6.9
3	3.4	6.6	e1.2	3.7	8.1	29	22	7.2	11	24	5.9	4.2
4	4.0	4.3	e1.1	3.7	7.5	33	19	6.0	1450	21	5.3	3.1
5	3.4	2.8	e1.0	3.3	7.5	39	17	183	5330	19	4.9	2.5
6	2.0	2.6	e.85	3.1	7.6	32	15	315	4820	18	4.6	2.2
7	1.2	1.7	.79	3.4	7.5	37	13	91	3730	22	4.2	1.9
8	.87	1.3	.69	3.2	6.9	61	13	22	7680	19	3.8	1.7
9	.64	1.2	.77	3.2	5.6	495	12	12	11000	17	3.7	1.5
10	.46	.87	.48	2.9	3.8	1250	11	8.6	4220	15	3.5	170
11	.29	.72	.18	2.8	3.8	1840	11	6.8	2520	14	3.4	1290
12	.20	.74	.55	2.5	3.8	953	11	5.8	1120	14	3.4	1890
13	.16	.67	.63	2.4	4.1	194	10	32	1530	13	3.1	2240
14	.09	.73	.32	2.7	5.4	110	12	195	3560	12	3.3	4660
15	.33	1.5	.16	2.7	513	82	17	77	3650	13	3.2	3640
16	.20	2.8	.10	2.9	2240	63	20	639	2950	74	4.2	2470
17	.37	2.7	7.2	3.1	2840	50	17	1110	1180	49	29	518
18	.43	2.7	5.7	3.2	3120	44	13	1290	210	22	21	81
19	.57	3.3	4.6	3.2	2650	40	12	1310	143	54	8.9	46
20	.56	3.5	3.9	3.1	2170	37	11	551	118	67	5.6	26
21	.56	3.0	3.6	3.3	570	158	10	105	100	28	4.4	15
22	.56	2.7	4.4	3.1	157	120	10	55	86	15	4.8	10
23	.58	2.8	4.8	3.0	100	61	9.4	33	72	11	5.0	7.8
24	.66	2.9	7.1	2.9	71	44	8.8	22	58	9.4	3.7	6.3
25	.69	3.4	5.3	3.2	58	36	8.4	17	51	8.1	3.1	5.4
26	.79	1.8	8.4	2.9	52	31	8.1	14	45	7.5	2.7	5.0
27	.81	13	8.4	3.6	48	29	7.6	13	41	7.7	2.5	4.4
28	1.0	5.3	6.2	10	43	54	7.5	13	35	7.2	2.2	4.1
29	6.0	2.6	5.0	82	---	129	7.1	11	31	6.6	1.8	3.8
30	4.9	1.6	4.4	40	---	142	6.6	8.7	27	6.9	1.4	3.6
31	5.9	---	3.8	21	---	73	---	8.2	---	7.3	1.2	---
TOTAL	43.03	124.33	410.13	237.5	14730.6	6134	414.5	6174.2	55782.5	649.7	167.5	17122.8
MEAN	1.39	4.14	13.2	7.66	528	198	13.8	199	1859	21.0	5.40	571
MAX	6.0	37	77	82	3120	1640	45	1310	11000	74	29	4660
MIN	.09	.67	.69	2.4	3.8	29	6.6	5.8	6.9	6.6	1.2	1.5
AC-FT	85	247	813	471	29220	12170	822	12250	110600	1290	332	33960

CAL YR 1988 TOTAL 63010.57 MEAN 172 MAX 6610 MIN .00 AC-FT 125000
WTR YR 1989 TOTAL 101990.79 MEAN 279 MAX 11000 MIN .09 AC-FT 202300

e Estimated

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, OK, Hydrologic Unit 11130201, on downstream right bank near end of bridge on Interstate 35, 0.2 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 5.0 mi downstream from Fish Creek, 4.5 mi southwest of Thackerville, OK, 7.0 mi north of Gainesville, and at mile 791.5.

DRAINAGE AREA.-- 30,782 mi² of which 5,936 mi² probably is 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 above National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1939, and Feb. 13, 1965 to Nov. 14, 1966, nonrecording gage at same site and datum.

REMARKS.-- Records fair. Flow slightly regulated by Lake Kemp (station 07312000 in Texas), since 1943 by Lake Altus (station 07302500 in Oklahoma), since 1946 by Lake Kickapoo (station 07314000 in Texas), since 1967 by Lake Arrowhead (station 07314800 in Texas) and Moss Lake (station 07315950 in Texas). U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record and 9 discharge measurements provided by U.S. Army Corps of Engineers, records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- 53 years, 3,006 ft³/s, 2,178,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 265,000 ft³/s May 31, 1987, gage height, 40.08 ft; minimum discharge, 48 ft³/s Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 24,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 19	1630	38,700	18.29	June 16	1200	69,800	22.98
June 10	0900	*76,100	*23.88	Sept. 16	0100	45,800	19.48

Minimum daily discharge, 367 ft³/s, May 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2540	693	483	471	611	1130	3000	370	2060	6410	999	711
2	2720	640	479	474	744	1040	3910	367	1900	5810	939	766
3	2500	651	469	474	738	987	2830	464	1950	5580	919	763
4	1890	611	463	459	565	1090	2270	552	8150	5150	887	816
5	1580	603	457	457	e400	e1000	2130	888	20300	4890	852	886
6	1400	587	450	450	e400	e1000	1720	1280	39200	4610	843	873
7	1260	573	452	440	e430	1020	1490	1430	38800	4360	1100	740
8	1170	553	452	428	444	758	1270	1670	43800	4380	970	652
9	1100	534	456	428	470	1430	1070	2020	35900	4020	983	703
10	1040	526	468	428	479	2040	920	1950	72900	3710	941	922
11	998	517	579	440	477	e4800	826	1340	46200	3140	1080	1120
12	1020	535	627	454	455	4980	757	1070	34500	2240	2150	4630
13	e1030	521	582	461	473	3660	709	1000	36100	1770	3240	8060
14	1040	510	608	485	530	1990	715	914	48400	1670	2570	22800
15	e1000	501	616	481	766	1320	742	948	61200	1640	2050	43600
16	e950	519	627	464	1660	1050	705	5420	69000	1620	1670	41700
17	e900	547	624	459	4670	919	649	11100	64700	1670	1540	20900
18	e870	539	604	467	8210	801	606	25900	49800	2000	1410	11700
19	e850	593	573	480	9140	731	569	32300	31300	2050	1250	9860
20	e800	553	562	484	9740	683	538	37900	20100	1910	1070	8720
21	786	543	534	474	8010	600	505	24600	14500	1570	959	7880
22	712	525	547	463	4620	575	477	8210	11400	1380	903	e8200
23	e690	501	532	460	2910	760	443	10500	9860	1260	908	e5700
24	e660	477	525	452	2220	635	433	7010	8920	1170	846	e5000
25	e630	505	510	684	1950	577	419	6110	8240	1110	776	e4500
26	605	522	503	006	1710	690	400	4810	7890	1060	737	e4000
27	574	583	511	542	1500	808	387	4080	e7300	1090	713	e3600
28	581	522	522	820	1260	1620	380	3640	e7000	1110	672	e3200
29	599	495	483	648	---	2330	371	3040	6840	1030	643	e3000
30	665	486	466	578	---	2680	373	2580	6710	986	653	e2800
31	713	---	467	625	---	1710	---	2270	---	1020	684	---
TOTAL	33873	16465	16231	15736	65602	46174	31614	205673	844920	81416	35957	226802
MEAN	1093	549	524	508	2343	1489	1054	6635	26160	2626	1160	7560
MAX	2720	693	627	820	9740	4960	3910	37900	72900	6410	3240	43600
MIN	574	477	450	428	400	575	371	367	1900	986	643	652
AC-FT	67190	32660	32190	31210	130100	91590	62710	408000	1676000	161500	71320	449900

CAL YR 1988 TOTAL 896360 MEAN 2449 MAX 32900 MIN 247 AC-FT 1778000
WTR YR 1989 TOTAL 1620463 MEAN 4440 MAX 72900 MIN 367 AC-FT 3214000

e Estimated

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical analyses: May 1944 to April 1946, October 1952 to September 1964, October 1966 to August 1989 (discontinued). Chemical and biochemical analyses: January 1968 to September 1986. Pesticide analyses: April 1968 to September 1982. Sediment analyses: January 1978 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1944 to April 1946, October 1952 to September 1964, October 1966 to September 1989.

WATER TEMPERATURE: October 1952 to September 1963, October 1966 to September 1989.

REMARKS.-- Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 11,100 microsiemens July 16, 1972, and June 19, 1984; minimum daily, 176 microsiemens Nov. 4, 1958.

WATER TEMPERATURE: Maximum daily, 35.0°C on several days during summer months; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,830 microsiemens Dec. 24; minimum daily, 286 microsiemens May 17.

WATER TEMPERATURE: Maximum daily, 33.5°C Aug. 24; minimum daily, 0.5°C Feb. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS MG)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV									
01...	1630	703	4750	8.20	21.0	790	190	77	720
DEC									
21...	0815	548	5720	8.50	8.0	1000	250	91	870
FEB									
01...	1115	550	5000	8.20	14.5	970	240	89	760
MAR									
22...	1000	587	4350	8.10	7.5	770	180	77	690
MAY									
10...	0915	1980	2360	7.80	20.0	410	110	34	300
JUN									
28...	0935	7250	2120	8.20	26.5	490	130	41	250
AUG									
16...	1730	1860	4210	8.00	27.0	660	180	50	650

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV								
01...	11	7.2	117	670	1100	0.30	3.3	2840
DEC								
21...	12	6.6	135	830	1300	0.40	9.0	3440
FEB								
01...	11	7.3	167	700	1300	0.40	1.6	3200
MAR								
22...	11	6.8	167	620	1100	0.30	3.6	2780
MAY								
10...	6	6.3	95	260	530	0.30	6.2	1300
JUN								
28...	5	6.6	162	350	360	0.40	9.7	1240
AUG								
16...	11	8.5	107	550	1000	0.40	9.0	2510

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMANS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1988	33873	3870	2320	212000	940	86400	470	42600	720
NOV.	1988	16465	4610	2780	124000	1100	50800	560	24700	850
DEC.	1988	16231	4990	3030	133000	1300	55000	600	26400	910
JAN.	1989	15736	4580	2790	118000	1200	49000	550	23500	830
FEB.	1989	65602	1720	1010	179000	400	70900	210	36500	330
MAR.	1989	46174	2470	1460	182000	580	72500	300	36900	470
APR.	1989	31614	3170	1880	160000	760	64300	380	32300	600
MAY	1989	205673	1810	1060	588000	420	231600	220	119900	350
JUNE	1989	844920	1240	719	1640000	280	638000	150	336400	240
JULY	1989	81416	2660	1570	345000	630	137500	320	69900	510
AUG.	1989	35957	4100	2460	239000	1000	97400	490	47800	760
SEPT	1989	226802	1580	926	567000	360	222800	190	115600	310
TOTAL		1620463	**	**	4489000	**	1776000	**	913000	**
WTD. AVG.		4440	1750	1030	**	410	**	210	**	340

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2340	4760	4540	5550	2840	2960	2420	1060	3400	2350	4100	5560
2	2340	4790	4770	5610	3320	2990	3430	2200	3590	2370	4150	5560
3	3100	4870	5000	5770	3800	3070	2260	3750	3600	2390	4020	5850
4	3070	4870	5210	5790	4280	3140	2370	4490	888	2480	4060	5670
5	3290	4800	5240	5730	4760	3220	3710	3210	959	2300	3910	4450
6	3870	4840	5660	5600	5240	3290	3610	3340	826	2320	3970	4410
7	3800	4900	5600	5410	3340	3370	3310	2660	1000	2250	4070	3810
8	3730	4900	5150	5460	3660	3410	3620	3500	1430	2160	4230	3400
9	3980	4950	5300	5390	3920	2640	4120	3740	937	2020	4560	3500
10	4080	5060	4690	5320	3960	2190	4010	2260	686	2060	3720	3970
11	4210	4910	4010	5490	4110	2140	3930	2570	679	2070	3780	4230
12	4350	4760	4270	5620	2420	1850	4020	3070	677	2130	3890	3080
13	4340	4910	4160	5710	4350	1470	3920	2860	679	2310	3500	954
14	4390	5090	4510	5570	2370	1850	3290	3320	580	2480	3450	757
15	4440	4990	4680	5560	633	2210	3720	3780	1550	3420	3240	1070
16	4480	5210	4680	5530	3310	2920	3680	844	1770	3590	4050	1420
17	4610	5080	4740	5890	1150	3540	3680	286	1770	3890	4210	1320
18	4590	5150	4810	5820	1120	3130	3710	1340	1460	3850	4080	1220
19	4700	2810	4910	5890	1310	3680	3600	1220	1390	3650	4350	1360
20	4760	2500	2970	5890	1090	3850	3640	1480	1440	3510	4020	1770
21	4700	4630	3460	5780	950	4060	3580	2090	1560	2930	3690	1890
22	4700	4630	4120	5890	1150	4230	3490	2510	1680	2880	3770	1930
23	4780	4660	3840	5750	1560	4300	3320	2620	1770	3220	4130	1760
24	4880	4510	6830	5690	2050	4240	3140	2580	1960	3380	4420	1810
25	4900	4620	6790	2840	2610	4100	2600	2500	2030	3850	4670	1920
26	4890	4120	6670	1070	3070	4300	2120	2400	2100	3820	4790	2130
27	4940	4090	6370	1870	3810	4470	1820	1920	2120	3800	5780	2670
28	4950	3920	5880	1880	4160	887	1250	2450	2130	3730	5910	3010
29	4770	4380	5850	551	---	701	1200	2670	2190	3780	5720	3430
30	4850	4540	5760	2780	---	2000	1290	2960	2250	4080	5580	3480
31	4580	---	5590	3650	---	2910	---	3270	---	4160	5490	---
MEAN	4240	4610	5030	4850	2870	3000	3130	2550	1640	3010	4300	2910

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	17.0	10.0	9.0	12.0	11.0	17.0	29.0	25.0	29.5	31.5	31.5
2	20.5	17.5	---	9.0	6.0	10.5	16.5	28.5	26.5	28.0	28.5	32.0
3	21.5	18.5	---	10.5	---	11.0	23.0	26.0	27.0	27.5	29.0	30.0
4	21.5	16.5	---	10.0	---	---	19.5	25.0	22.5	29.5	29.5	31.5
5	20.0	16.0	10.5	---	---	---	20.0	23.0	23.0	31.0	29.0	31.5
6	20.0	16.0	11.0	---	.5	---	20.0	22.0	21.5	32.0	28.5	30.5
7	18.5	16.0	11.0	15.0	2.0	5.0	20.5	24.0	22.0	31.0	26.0	30.5
8	16.5	17.0	6.5	11.5	3.5	6.5	19.5	26.5	23.0	29.5	27.0	30.0
9	17.0	20.5	6.5	7.5	4.0	9.5	14.5	25.5	23.0	28.5	27.5	27.5
10	17.0	15.5	7.5	9.0	8.5	11.5	14.0	23.0	23.0	31.0	---	25.5
11	19.5	---	8.0	13.5	10.0	13.0	---	23.0	25.0	28.0	26.0	26.0
12	19.0	16.0	9.0	7.0	8.0	14.0	12.5	21.5	25.0	31.5	24.0	23.0
13	19.5	17.0	10.0	7.0	6.5	17.0	13.0	19.0	24.0	31.5	25.0	21.0
14	20.0	19.0	10.5	7.0	7.0	19.5	14.5	23.0	23.0	27.0	24.5	18.5
15	18.0	19.0	7.0	7.5	7.0	15.5	---	25.5	24.0	30.0	26.5	18.0
16	22.0	13.5	7.0	8.0	6.0	15.0	18.5	21.0	24.0	32.0	27.0	19.0
17	23.5	12.0	7.0	9.0	6.0	15.0	22.0	19.5	24.0	31.0	28.0	---
18	19.5	11.0	9.0	10.5	5.5	15.0	24.0	22.0	26.0	31.5	29.5	23.0
19	19.0	10.5	10.0	11.0	5.5	16.5	26.0	21.0	28.0	29.5	29.0	23.5
20	19.0	10.0	11.0	10.0	7.0	17.5	26.5	24.0	28.0	28.0	30.0	24.0
21	19.0	10.0	13.5	8.5	8.5	11.0	26.5	25.0	28.0	27.0	32.0	24.5
22	19.0	8.5	13.5	8.0	8.5	14.0	26.5	26.0	29.0	30.0	31.0	22.5
23	---	9.5	11.0	10.5	7.5	14.0	24.0	27.0	28.0	27.0	31.0	20.0
24	19.0	9.0	10.5	14.0	8.0	16.0	26.0	28.0	29.0	26.5	33.5	---
25	21.0	11.0	12.5	---	9.5	17.5	26.0	25.5	28.0	30.0	31.0	20.0
26	20.0	15.5	14.5	10.5	12.5	---	27.5	28.0	30.0	29.5	29.5	21.0
27	20.0	---	9.5	9.0	10.0	20.0	28.0	23.0	27.5	29.5	30.5	21.5
28	18.0	9.0	7.5	8.0	10.5	20.0	28.5	25.0	29.5	30.5	31.0	22.0
29	16.0	9.5	7.5	8.0	---	18.0	29.0	26.5	29.5	29.0	32.0	---
30	14.0	9.5	7.5	11.0	---	18.0	28.5	27.0	27.5	30.5	32.0	---
31	14.5	---	11.0	13.0	---	17.0	---	27.5	---	32.0	31.5	---
MEAN	19.1	13.9	9.6	9.7	7.2	14.4	21.9	24.5	25.8	29.6	29.0	24.9

07316500 WASHITA RIVER NEAR CHEYENNE, OK

LOCATION.-- Lat 35°37'36", long 99°40'05", in SE 1/4 sec.5, T.13 N., R.23 W., Roger Mills County, Hydrologic Unit 11130301, on left bank on downstream side of bridge on U.S. Highway 283, 0.5 mi downstream from Sergeant Major Creek, 1.0 mi north of Cheyenne, 5.2 mi upstream from Dead Indian Creek, and at mile 543.9.

DRAINAGE AREA.-- 794 mi².

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 above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). May 1, 1938 to Nov. 16, 1946, and Oct. 1, 1947 to Jan. 11, 1948, nonrecording gage at site 50 ft upstream and datum 5.00 ft higher. Jan. 12, 1948 to Dec. 31, 1976, at site 50 ft upstream and datum 5.00 ft higher. Jan. 1, 1976 to Dec. 20, 1979, at site 50 ft upstream at same datum.

REMARKS.-- Records fair. Flow regulated since 1961 by numerous flood-retarding structures. U.S. Army Corps of Engineers' satellite telemeter at site. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- Prior to regulation by numerous flood-retarding structures, 23 years (water years 1938-60), 41.7 ft³/s, 30,190 acre-ft/yr; since regulation by numerous flood-retarding structures, 28 years (water years 1962-89), 16.5 ft³/s, 11,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 69,800 ft³/s, Apr. 29, 1954, gage height, 15.24 ft (datum then in use); from rating curve extended above 27,000 ft³/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 lower than that in 1954, at site on upstream side of highway fill (at old bridge site).

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 328 ft³/s, June 7, gage height, 9.38 ft (HWM); minimum daily discharge 1.5 ft³/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	5.6	12	23	e32	20	45	12	48	24	6.0	2.2
2	5.0	5.5	12	23	e30	20	44	10	55	22	5.8	3.1
3	4.6	5.6	13	24	e29	21	39	11	60	19	6.6	2.7
4	4.3	5.6	13	24	e25	19	34	12	168	18	5.5	2.6
5	4.3	5.5	14	24	e20	e20	29	14	104	18	4.1	1.5
6	4.9	6.0	14	24	e19	e21	27	13	70	16	5.4	1.9
7	5.6	6.1	14	24	e19	21	25	11	203	14	59	2.0
8	5.9	6.1	14	23	e20	22	23	12	107	14	20	1.7
9	6.6	6.1	14	24	e22	20	20	12	73	12	14	2.0
10	6.5	5.8	14	22	e25	23	19	11	62	10	13	1.8
11	5.9	7.8	15	24	e27	23	21	9.5	55	9.6	13	2.5
12	5.5	17	15	24	e28	22	19	81	55	8.9	13	5.8
13	5.1	12	16	23	e29	22	20	60	58	14	11	16
14	5.0	10	16	22	e28	21	20	47	54	12	12	8.6
15	4.7	8.4	16	22	28	18	20	41	46	11	10	5.9
16	5.0	7.8	15	22	e28	20	19	42	41	10	6.5	5.1
17	5.2	7.9	15	23	e29	20	19	51	38	9.1	7.1	4.4
18	4.5	8.0	16	25	e31	16	16	95	35	9.6	12	3.7
19	4.5	8.0	16	25	e35	17	15	120	34	8.1	13	3.0
20	4.7	9.6	17	25	30	17	15	96	33	7.7	9.1	2.5
21	5.0	10	17	26	e28	17	18	80	28	7.2	8.7	2.7
22	4.9	12	17	27	e27	18	17	69	21	7.1	6.2	2.2
23	4.9	13	17	27	e28	17	14	61	26	6.3	4.8	2.6
24	4.9	13	18	27	25	18	12	52	73	27	4.9	3.4
25	5.0	13	18	27	24	16	11	43	41	15	4.1	2.3
26	4.8	11	19	29	23	18	12	38	42	12	3.5	2.7
27	4.9	11	19	30	22	44	19	31	39	10	3.6	2.3
28	4.4	11	20	38	21	86	16	27	34	9.4	3.4	3.0
29	4.5	12	20	42	---	74	15	23	30	7.4	3.2	2.8
30	5.1	12	22	e40	---	60	13	19	27	6.1	3.1	4.8
31	5.7	---	23	e35	---	51	---	19	---	6.2	3.4	---
TOTAL	156.9	272.4	501	818	730	822	636	1222.5	1760	380.7	294.7	107.7
MEAN	5.06	9.08	16.2	26.4	26.1	26.5	21.2	39.4	58.7	12.3	9.51	3.59
MAX	6.6	17	23	42	35	86	45	120	203	27	59	18
MIN	4.3	5.5	12	22	19	16	11	9.5	21	6.1	3.1	1.5
AC-FT	311	540	994	1620	1450	1630	1260	2420	3490	756	585	214

CAL YR 1988 TOTAL 8579.97 MEAN 23.4 MAX 128 MIN .00 AC-FT 17020
WTR YR 1989 TOTAL 7701.9 MEAN 21.1 MAX 203 MIN 1.5 AC-FT 15280

e Estimated

RED RIVER BASIN

07324300 FOSS RESERVOIR NEAR FOSS, OK

LOCATION (REVISED).-- Lat 35°32'20", long 99°11'09", 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 upstream from Oak Creek, 3.5 mi west of Stafford, 6.0 mi north of Foss, and at mile 474.4.

DRAINAGE AREA.-- 1,496 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to October, 1961, nonrecording gage at same site and datum.

REMARKS.-- Reservoir is formed by earth dam. Outlet consists of four 6- by 7-foot, 6-inch high pressure gates and one uncontrolled spillway. Storage began Feb. 13, 1961. Capacity, 436,500 acre-ft, at elevation 1,668.6 ft, crest of drop inlet and 256,100 acre-ft, at elevation 1,652.0 ft, conservation pool. Dead storage, 12,420 acre-ft below elevation 1,597.2 ft, 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. U.S. Army Corps of Engineers' telemeter at station.

COOPERATION.-- Elevations and data on diversions provided by Foss Reservoir Master Conservancy District.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 217,300 acre-ft, June 18, 1989, elevation, 1,647.35 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 217,300 acre-ft, June 18, elevation, 1,647.35 ft; minimum, 161,300 acre-ft, Oct. 28, elevation, 1,639.45 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30.....	1639.97	164,600	-	-
Oct. 31.....	1639.53	161,800	-2,800	134
Nov. 30.....	1639.92	164,200	+2,400	180
Dec. 31.....	1639.65	162,500	-1,700	215
CAL YR 88.....	-	-	-23,300	2,094
Jan. 31.....	1640.32	166,800	+4,300	148
Feb. 29.....	1640.56	168,400	+1,600	129
Mar. 31.....	1641.52	174,700	+6,300	150
Apr. 30.....	1641.14	172,200	-2,500	166
May 31.....	1642.73	182,900	+10,700	162
June 30.....	1646.53	210,900	+28,000	170
July 31.....	1641.77	176,400	-34,500	170
Aug. 31.....	1641.78	176,400	0	174
Sept. 30.....	1640.05	165,100	-11,300	143
WTR YR 89.....	-	-	+500	1,941

07325000 WASHITA RIVER NEAR CLINTON, OK

LOCATION.-- Lat 35°31'51", long 98°58'00", 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 north of Clinton, 0.8 mi upstream from Beaver Creek, 4.8 mi downstream from Barnitz Creek, and at mile 447.4.

DRAINAGE AREA.-- 1,977 mi².

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 1,467.44 ft above National Geodetic Vertical Datum of 1929. See WSP 1920 for history of changes prior to Mar. 19, 1941.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated since February 1961 by Foss Reservoir (station 07324300) and by numerous flood-retarding structures. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Foss Reservoir, 25 years (water years 1936-60), 146 ft³/s, 105,700 acre-ft/yr; since regulation by Foss Reservoir, 28 years (water years 1962-89), 87.5 ft³/s, 63,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 66,800 ft³/s, May 16, 1951, gage height, 31.09 ft, from rating curve extended above 7,900 ft³/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, from floodmarks.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 5,020 ft³/s, June 8, gage height, 23.58 ft; minimum daily discharge, 41 ft³/s, March 19, 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	55	48	49	61	61	278	107	1060	756	707	202
2	92	54	48	48	56	60	274	107	886	699	698	304
3	85	54	48	48	50	61	245	107	783	678	440	226
4	79	52	47	48	e45	61	193	108	2470	670	380	469
5	76	49	47	51	e43	42	161	111	1460	671	364	319
6	75	47	48	54	e44	54	150	109	832	763	356	268
7	85	47	50	48	e46	58	144	107	2800	762	941	237
8	101	47	51	46	e47	50	137	106	4280	758	589	217
9	86	47	49	45	e48	48	129	e105	2290	752	471	210
10	76	49	48	46	e49	47	125	e100	1320	745	417	205
11	71	53	48	48	e52	49	124	e180	1030	739	376	207
12	68	86	48	50	e56	49	125	551	1270	733	174	222
13	70	100	49	49	e54	47	125	681	1180	665	153	400
14	70	71	49	48	e52	45	126	364	1000	861	148	308
15	72	61	49	49	54	45	126	281	767	717	145	352
16	66	84	47	48	57	43	126	363	661	630	137	441
17	61	59	47	47	62	43	131	293	790	595	129	443
18	57	54	47	47	72	45	124	449	839	518	122	439
19	54	52	49	48	76	41	121	592	764	642	145	435
20	54	55	51	49	75	41	119	557	787	720	131	430
21	54	54	51	49	72	42	119	486	834	737	155	429
22	53	55	49	49	66	42	119	456	676	738	117	426
23	62	57	54	50	60	46	117	409	1130	736	109	423
24	55	57	52	50	57	47	116	387	769	727	102	425
25	52	56	50	52	56	46	113	371	598	576	96	426
26	51	54	49	54	56	45	143	349	536	672	92	418
27	51	52	50	55	55	136	125	335	719	717	90	241
28	50	50	48	64	58	1180	119	330	825	718	85	203
29	50	50	47	78	---	532	112	329	861	713	181	198
30	52	51	48	73	---	368	109	326	848	709	213	192
31	56	---	50	64	---	297	---	323	---	708	208	---
TOTAL	2086	1712	1516	1604	1579	3771	4275	9479	35085	21845	8471	9715
MEAN	67.3	57.1	48.9	51.7	56.4	122	142	308	1169	705	273	324
MAX	102	100	54	78	76	1180	278	681	4280	861	941	469
MIN	50	47	47	45	43	41	109	100	536	518	85	192
AC-FT	4140	3400	3010	3180	3130	7480	8480	18800	69550	43330	16800	19270

CAL YR 1988 TOTAL 63930 MEAN 175 MAX 3130 MIN 15 AC-FT 126800
WTR YR 1989 TOTAL 101118 MEAN 277 MAX 4280 MIN 41 AC-FT 200600

e Estimated

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 upstream from Running Creek, 2.7 mi east of Carnegie, and at mile 353.9. Records include flow of Running Creek.

DRAINAGE AREA.-- 3,129 mi², includes that of Running Creek.

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 1,244.23 ft above National Geodetic Vertical Datum of 1929. Prior to October 1942, water-stage recorder at site 8.0 mi upstream at datum 24.57 ft higher. Prior to Aug. 7, 1985, datum 5.00 ft higher.

REMARKS.-- Records good. Some diversion for irrigation upstream from station. October 1942 to May 1949, occasional fluctuation caused by powerplant at Carnegie, 7.5 mi upstream from station. Flow regulated by Foss Reservoir since February 1961 (station 07324300), and by numerous flood-retarding structures. U.S. Army Corps of Engineers' satellite telemeter at site. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- Prior to regulation by Foss Reservoir, 23 years (water years 1938-60), 314 ft³/s, 227,500 acre-ft/yr; since regulation by Foss Reservoir, 28 years (water years 1962-89), 311 ft³/s, 225,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 50,000 ft³/s, May 18, 1949, gage height, 26.21 ft at datum then in use, from rating curve extended above 35,500 ft³/s on basis of contracted-opening measurement of peak flow, maximum gage height, 28.70 ft at datum then in use, Oct. 20, 1983; 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, at former site and datum, from information provided by local resident; flood of May 18, 1949, reached a stage of 20.9 ft, from floodmark, at that site and datum.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 10,100 ft³/s, June 14, gage height, 27.51 ft; minimum daily discharge, 108 ft³/s, Feb. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	387	245	e149	e172	227	165	528	165	880	1240	e880	369
2	337	194	e150	e171	201	164	441	164	2470	1170	e860	392
3	308	187	e148	e172	181	164	407	164	2340	1040	e800	905
4	293	182	e149	e170	119	164	390	163	3960	978	e720	e720
5	278	176	e150	e171	108	159	354	165	4730	939	e600	e840
6	264	171	e149	e172	143	144	310	167	4690	914	e450	e660
7	256	166	e151	e171	162	136	278	165	5340	905	e429	e550
8	253	163	e150	e172	162	148	259	163	5720	950	429	435
9	254	162	e148	e170	162	154	248	157	6330	937	e760	400
10	268	161	e147	e173	161	158	235	154	5920	937	e700	382
11	258	163	e151	e182	158	149	229	146	5480	909	693	414
12	238	945	e152	e186	158	144	222	251	5230	890	e600	710
13	225	841	e151	e179	158	141	220	e1500	5700	874	e560	3730
14	216	419	e152	e189	158	141	219	e2050	8700	892	e650	3910
15	208	324	e150	e180	158	141	219	1300	7710	857	e500	2640
16	203	260	e153	e170	158	141	218	885	4950	1100	447	1320
17	202	229	e151	e172	158	137	213	1430	3380	905	425	1110
18	197	211	e160	e169	166	134	208	2280	2810	822	409	1040
19	197	e200	e155	e165	183	134	207	1260	2540	780	397	959
20	197	e190	e159	e163	192	133	204	1050	2210	723	387	888
21	192	e195	e158	e162	192	131	197	964	1970	793	371	809
22	186	e180	e152	e164	192	131	193	861	1860	841	373	742
23	181	e177	e156	e162	192	131	189	761	2170	850	389	686
24	178	e174	e154	e160	189	132	187	689	2530	852	361	639
25	175	e170	e160	e162	177	133	181	628	2440	849	340	611
26	173	e168	e162	226	169	135	176	586	1680	821	325	586
27	172	e164	e166	265	167	139	175	552	1400	745	314	553
28	167	e158	e170	258	166	198	178	522	1310	830	309	525
29	167	e149	e171	259	---	1310	188	501	1370	834	296	416
30	167	e150	e165	279	---	1360	172	486	1330	827	290	365
31	204	---	e171	264	---	719	---	475	---	e850	324	---
TOTAL	6981	7274	4810	5830	4717	7470	7445	20804	109150	27854	15368	28306
MEAN	225	242	155	188	168	241	248	671	3638	899	496	944
MAX	367	945	171	279	227	1360	528	2280	8700	1240	860	3910
MIN	167	149	147	160	108	131	172	146	880	723	290	365
AC-FT	13850	14430	9540	11560	9360	14820	14770	41260	216500	55250	30480	56140

CAL YR 1988 TOTAL 191786 MEAN 524 MAX 8380 MIN 89 AC-FT 380400
WTR YR 1989 TOTAL 246009 MEAN 674 MAX 8700 MIN 108 AC-FT 488000

e Estimated

RED RIVER BASIN

471

07325800 COBB CREEK NEAR EAKLY, OK

LOCATION.-- Lat 35°17'26", long 98°35'38", in NW 1/4 NE 1/4 sec.5, T.9 N., R.13 W., Caddo County, Hydrologic Unit 11130302, near left downstream abutment of bridge, on State Highway 152, 0.5 mi downstream from Fivemile Creek, 2.4 mi southwest of Eakly, 3.0 mi upstream from Fort Cobb Reservoir, and at mile 22.9.

DRAINAGE AREA.-- 132 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 1,369.70 ft above National Geodetic Vertical Datum of 1929. Oct. 29, 1980 to Aug. 11, 1982 gage at site 0.5 mi downstream at same datum.

REMARKS.-- Records poor. Flow regulated since 1957 by numerous floodwater-retarding structures. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

AVERAGE DISCHARGE.-- 21 years, 25.0 ft³/s, 18,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 10,000 ft³/s, Sept. 29, 1986, gage height, 24.38 ft; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 2,230 ft³/s, June 7, gage height, 17.10 ft; minimum daily discharge, 5.5 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	20	12	e11	20	e25	e25	9.8	501	e27	e15	e10
2	6.2	19	e11	e11	e18	e23	e21	9.5	245	e25	e17	e80
3	6.0	15	e11	e11	e17	e22	e20	9.1	432	22	e16	e50
4	5.5	e14	e12	e11	e18	e21	e19	10	598	21	e15	e40
5	6.3	e13	e12	e10	e17	e20	e18	12	e300	e21	e14	e30
6	7.0	e13	e11	e10	e17	e19	e18	11	56	e20	e32	e22
7	8.1	e12	e14	e10	e16	e18	e17	11	1190	e18	e25	e20
8	9.6	e12	e12	e10	e15	e19	e16	10	292	e17	e20	e17
9	9.7	e12	e12	e12	e18	e18	e17	10	e150	e16	e16	e15
10	9.4	e12	e12	e11	e15	e17	e16	e11	93	e15	e15	e14
11	8.7	e12	e11	e11	e14	e17	e15	11	45	e15	e14	e14
12	7.9	e24	e11	e11	e14	e18	e16	57	e30	e14	e14	17
13	e7.8	e16	e11	e11	e17	e17	15	109	570	e20	e17	e80
14	e8.2	e16	e11	e11	e15	17	16	193	e250	e19	e50	e45
15	e8.2	e15	e11	e11	e40	e16	15	81	e80	e18	e35	22
16	e8.4	e14	e11	e11	e61	e16	15	88	e50	e17	e27	e20
17	e9.0	15	e11	e11	e45	15	14	229	e40	e16	e22	e19
18	e9.0	14	e11	e11	e75	14	14	128	e33	e16	e20	e18
19	e9.2	15	e11	e10	e55	14	14	55	e30	15	e18	e17
20	e8.8	18	e11	e10	e40	14	14	40	e27	15	e16	e16
21	e9.0	19	e11	e10	e35	15	14	35	25	e14	e15	e15
22	e9.8	17	e11	e10	e31	14	13	31	23	e14	e19	e16
23	e11	16	e11	e11	e27	14	13	28	e100	e18	e17	e15
24	e11	15	e11	e11	e25	14	12	26	e70	e16	e15	e15
25	e10	15	e11	e32	e23	14	11	23	e50	e15	e14	e14
26	e11	16	e12	e20	e21	16	11	21	e35	e14	e13	e15
27	e11	14	e14	e38	e20	29	11	20	e110	e30	e13	e14
28	12	13	e13	e30	e27	121	11	20	e74	e25	e12	e14
29	12	13	e12	e27	---	57	11	18	e50	e20	e12	e15
30	17	13	e11	e24	---	40	10	17	e35	e18	e11	e15
31	24	---	e11	e21	---	29	---	16	---	e16	e11	---
TOTAL	296.8	452	357	449	752	723	452	1349.4	5584	567	570	714
MEAN	9.57	15.1	11.5	14.5	26.9	23.3	15.1	43.5	186	18.3	18.4	23.8
MAX	24	24	14	38	75	121	25	229	1190	30	50	80
MIN	5.5	12	11	10	14	14	10	9.1	23	14	11	10
AC-FT	589	897	708	891	1490	1430	897	2680	11080	1120	1130	1420

CAL YR 1988 TOTAL 8111.7 MEAN 22.2 MAX 430 MIN 3.0 AC-FT 16090
WTR YR 1989 TOTAL 12266.2 MEAN 33.6 MAX 1190 MIN 5.5 AC-FT 24330

e Estimated

RED RIVER BASIN

07325900 FORT COBB RESERVOIR NEAR FORT COBB, OK

LOCATION.-- Lat 35°09'58", long 98°27'23", in SE 1/4 NW 1/4 sec. 22, T.8 N., R.12 W., Caddo County, Hydrologic Unit 11130382, in control house at right center of dam on Cobb Creek, 4.0 mi northwest of Fort Cobb, and at mile 7.5.

DRAINAGE AREA.-- 304 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Prior to October, 1961, nonrecording gage at same datum.

REMARKS.-- Reservoir is formed by earth dam. Outlet consists of two sets of controlled 5- by 5-foot steel gates and an uncontrolled concrete spillway. Storage began Mar. 30, 1959. Conservation pool was first filled in June 1962. Capacity, 143,700 acre-ft at elevation 1,354.8 ft, crest of drop inlet, 80,010 acre-ft at elevation 1,342.0 ft, conservation pool, and 1,664 acre-ft at elevation 1,300.0 ft, 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. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Elevations and data on diversions provided by Fort Cobb Reservoir Master Conservancy District.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 116,500 acre-ft, June 18, 1989, elevation, 1,349.89 ft; minimum since conservation pool was first filled, 54,650 acre-ft, Oct. 19, 1972, elevation 1,335.06 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 116,500 acre-ft, June 18, elevation, 1,349.89 ft; minimum, 76,910 acre-ft, Nov. 11, elevation 1,341.23 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)*	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30.....	1,341.43	77,710	-	-
Oct. 31.....	1,341.29	77,150	-560	1,041
Nov. 30.....	1,341.78	79,120	+1,970	948
Dec. 31.....	1,341.37	79,490	+370	922
CAL YR 88.....	-	-	-530	11,636
Jan. 31.....	1,342.21	80,880	+1,390	811
Feb. 28.....	1,342.60	82,500	+1,620	668
Mar. 31.....	1,342.20	80,840	-1,660	841
Apr. 30.....	1,341.84	79,360	-1,480	895
May 31.....	1,341.84	79,360	-	1,023
June 30.....	1,343.92	97,100	+17,740	986
July 31.....	1,342.36	81,510	-15,590	996
Aug. 31.....	1,342.16	80,660	-830	1,111
Sept. 30.....	1,341.95	79,810	-870	962
WTR YR 89.....	-	-	+2,100	11,204

* 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 upstream from county road bridge, 0.3 mi upstream from Punjo Creek, 1.2 mi downstream from Fort Cobb Dam, 3.0 mi north of Fort Cobb, and at mile 5.8.

DRAINAGE AREA.-- 313 mi². Area at site used prior to Oct. 1, 1969, 319 mi².

PERIOD OF RECORD.-- October 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1960, published as Pond Creek near Fort Cobb.

REVISED RECORDS.-- WSP 1087: 1938. WSP 1211: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,254.49 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Oct. 1, 1969 to Sept. 30, 1982 gage at same site and datum 5.00 ft higher. Oct. 1, 1939 to Aug. 29, 1940, nonrecording gage and Aug. 30, 1940 to Sept. 30, 1969, water-stage recorder at site 0.8 mi downstream at datum 1.92 ft lower.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. 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, 36,340 acre-ft/yr; since regulation by Fort Cobb Reservoir, 31 years (water years 1959-89), 25.2 ft³/s, 18,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 35,000 ft³/s, May 17, 1949, gage height, 18.72 ft, from floodmark in gage well at former site and datum, from rating curve extended above 4,300 ft³/s, on basis of contracted-opening measurements at gage heights 16.62 ft, 17.58 ft, and 18.72 ft, at former site and datum; minimum daily, 0.2 ft³/s, Sept. 20, 24-28, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of June 15, 1937, reached a stage of 19.3 ft, site and datum used in 1939, from information by local resident.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,030 ft³/s, June 21, gage height, 15.40 ft; minimum daily discharge, 2.0 ft³/s, Apr. 29 to May 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.4	e4.0	e2.7	2.6	e85	234	2.0	142	957	2.7	2.2
2	2.2	2.4	e3.9	e2.7	2.9	e304	234	2.0	47	953	2.8	3.1
3	2.2	2.4	3.7	e2.7	2.5	e325	235	2.0	55	948	4.1	2.6
4	2.2	2.4	3.7	e2.8	2.5	e185	119	2.1	100	944	3.5	2.6
5	2.2	2.4	3.6	e3.3	2.6	e185	6.0	2.4	41	939	3.3	2.3
6	2.2	2.4	3.6	e2.8	2.6	e62	5.1	2.4	34	846	3.1	2.2
7	2.1	2.4	3.6	e2.9	2.6	7.4	4.8	2.2	149	825	3.3	2.1
8	2.2	2.3	3.7	e2.7	2.6	5.1	4.3	2.2	51	513	3.2	2.1
9	2.3	2.2	4.2	e2.8	2.6	4.5	e4.1	2.3	37	512	3.1	2.1
10	2.2	2.2	3.9	e2.7	2.6	4.1	e4.0	2.3	35	433	3.1	2.1
11	2.2	2.8	3.3	e2.6	2.6	4.0	e3.9	2.3	39	184	3.1	2.5
12	2.2	74	e3.3	e2.6	2.6	3.9	e3.8	7.8	68	8.5	3.0	47
13	2.2	42	e3.3	e2.7	2.8	3.4	e3.6	3.5	173	6.9	3.1	45
14	2.2	42	e3.2	e3.1	3.4	3.0	4.1	3.1	61	6.3	4.2	3.7
15	2.2	42	e3.2	e2.8	3.8	e2.9	e3.4	2.5	54	5.2	3.2	178
16	2.2	42	e3.1	e2.6	3.0	e2.8	e3.3	45	52	4.3	3.1	483
17	2.2	28	e3.0	e2.6	3.6	2.9	e3.0	174	51	3.8	2.9	483
18	2.3	5.0	e3.1	e2.7	3.2	2.9	e2.8	284	238	3.5	2.9	484
19	2.3	5.0	e3.1	e2.6	3.1	2.9	e2.7	446	552	3.4	2.9	425
20	2.3	5.7	e3.0	e2.5	3.1	3.1	2.6	655	771	2.9	2.6	e235
21	2.3	5.2	e3.0	e2.6	e3.0	3.1	2.5	654	987	3.6	2.6	e185
22	2.3	5.0	e3.3	e2.5	e3.1	3.1	2.3	655	945	4.0	2.6	e70
23	2.3	5.0	e2.9	e2.6	e3.0	3.1	2.3	499	809	4.2	2.6	e6.0
24	2.3	4.6	e2.8	e4.1	e2.9	3.1	2.3	146	772	4.2	2.6	e5.3
25	2.2	4.5	e2.8	e2.9	e2.9	3.1	2.3	6.6	992	4.2	2.6	e4.9
26	2.1	4.5	e2.9	e2.9	e2.8	3.1	2.1	5.4	988	4.2	2.4	e4.3
27	2.1	e4.4	e2.9	e2.8	e2.9	3.7	2.1	4.7	980	4.4	2.4	e3.7
28	2.1	e4.3	e2.8	e4.1	e2.9	4.7	2.1	4.5	971	3.7	2.4	e3.4
29	2.1	e4.2	e2.7	e2.8	---	2.9	2.0	4.2	968	3.9	2.4	e3.3
30	2.2	e4.1	e2.7	e2.5	---	199	2.0	4.2	961	3.8	2.4	e3.2
31	2.3	---	e2.8	e2.4	---	325	---	3.9	---	2.8	2.4	---
TOTAL	68.6	357.8	101.1	87.1	80.8	1752.8	905.5	3632.6	12123	7941.8	90.6	2698.7
MEAN	2.21	11.9	3.26	2.81	2.89	56.5	30.2	117	404	256	2.92	90.0
MAX	2.3	74	4.2	4.1	3.8	325	235	655	992	957	4.2	484
MIN	2.1	2.2	2.7	2.4	2.5	2.8	2.0	2.0	34	2.8	2.4	2.1
AC-FT	136	710	201	173	160	3480	1800	7210	24050	15750	180	5350

CAL YR 1988 TOTAL 16128.7 MEAN 44.1 MAX 779 MIN 2.0 AC-FT 31990
WTR YR 1989 TOTAL 29840.4 MEAN 81.8 MAX 992 MIN 2.0 AC-FT 59190

e Estimated

07326500 WASHITA RIVER AT ANADARKO, OK

LOCATION (REVISED).-- Lat 35°05'03", long 98°14'35" in NW 1/4 sec.15, T.7 N., R.10 W., Caddo County, Hydrologic Unit 11130302 on right downstream bank at bridge on U.S. Highway 281 at north edge of Anadarko, 8.1 mi upstream from Sugar Creek, and at mile 305.2.

DRAINAGE AREA.-- 3,656 mi².

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, 1907-08, drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,150.00 ft above National Geodetic Vertical Datum of 1929. October 26, 1902 to June 30, 1908, nonrecording gage at former bridge 125 ft downstream at datum estimated to be 2.8 ft higher. May 25, 1924 to June 30, 1925, nonrecording gage at county road bridge 14 mi downstream at different datum. Jan. 10, 1936 to Mar. 7, 1938, non-recording gage on upstream side of bridge on U.S. Highway 281 at datum 1.88 ft higher. October 1963 to March 1989 gage located 100 ft upstream at same datum.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated by low-water dams upstream and since March 1959, by Fort Cobb Reservoir (station 07325900), since February 1961, by Foss Reservoir (station 07324300), and by numerous flood-retarding structures. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation by Fort Cobb and Foss Reservoirs, 8 years (water years 1903-08, 1936-37), 595 ft³/s, 430,800 acre-ft/yr; since regulation by Fort Cobb and Foss Reservoirs, 26 years (water years 1964-89), 385 ft³/s, 278,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 44,700 ft³/s, Oct. 21, 1983, gage height, 25.20 ft (from HWM); no flow Aug. 1, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of May 1949, reached an elevation of 1,176.7 ft, from floodmark, at right bank on downstream side of bridge on U.S. Highway 281.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 11,200 ft³/s, June 16, gage height, 21.78 ft; minimum daily discharge, 162 ft³/s, Dec. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	799	202	171	198	315	225	1470	213	853	e1700	1130	210
2	663	237	166	197	282	255	1150	206	2330	e1700	1140	448
3	557	245	164	196	255	572	1050	204	3130	e1800	1170	429
4	476	234	164	199	229	702	965	205	3880	e2000	1150	1220
5	408	219	162	201	e219	503	808	205	4780	e2100	1090	e950
6	361	207	165	206	e201	497	610	205	4910	2250	812	e800
7	327	199	171	206	e192	371	524	203	5330	e2000	817	709
8	305	193	176	206	e185	217	457	202	6370	e1800	812	504
9	293	190	176	206	e180	212	405	197	6450	e1700	1080	367
10	287	188	174	206	e175	214	370	189	6490	e1600	1380	284
11	287	188	174	204	169	227	337	184	6630	e1400	1050	268
12	290	485	171	200	176	222	320	274	6650	e1300	866	335
13	282	1450	171	202	192	219	307	1270	7180	e1400	741	1530
14	267	1030	171	208	198	217	e290	2620	7280	e1600	709	4300
15	256	496	169	219	203	215	e285	3030	7440	e1800	640	4420
16	246	336	172	209	207	215	e272	2210	10100	e1700	e600	3370
17	240	256	174	206	214	213	e265	1800	7610	1560	e570	e2300
18	235	223	171	210	231	213	268	2820	4140	e1200	e540	e2100
19	224	206	171	209	233	214	262	2890	e3500	1100	e500	e1900
20	215	209	171	210	240	211	257	2350	e3100	1030	e460	e1800
21	210	197	172	210	252	210	256	2320	e2900	978	428	e1700
22	206	191	175	210	245	208	250	2200	e2700	1100	387	e1600
23	206	189	180	210	240	208	248	2070	e3000	1180	392	e1400
24	205	194	182	214	235	205	244	1690	e3200	1190	412	e1250
25	191	193	184	229	232	202	240	1230	e3000	1180	368	1020
26	168	192	187	256	231	205	240	1000	e2800	1180	309	961
27	180	190	188	333	226	230	230	914	e2700	1160	273	897
28	185	183	189	337	223	331	218	852	2580	1040	242	814
29	184	180	192	305	---	359	217	789	e2200	1200	229	738
30	184	174	194	335	---	1720	235	739	1720	1150	204	496
31	196	---	199	339	---	2000	---	707	---	1130	187	---
TOTAL	9133	8876	5446	7076	6180	11812	13050	35988	134953	45228	20688	39202
MEAN	295	296	176	228	221	381	435	1161	4498	1459	667	1307
MAX	799	1450	199	339	315	2000	1470	3030	10100	2250	1380	4420
MIN	168	174	162	196	169	202	217	184	853	978	187	210
AC-FT	18120	17610	10800	14040	12260	23430	25880	71380	267700	89710	41030	77760

CAL YR 1988 TOTAL 237329 MEAN 648 MAX 5500 MIN 102 AC-FT 470700
WTR YR 1989 TOTAL 337632 MEAN 925 MAX 10100 MIN 162 AC-FT 669700

e Estimated

RED RIVER BASIN

475

07328100 WASHITA RIVER AT ALEX, OK

LOCATION (REVISED).-- Lat 34°55'33", long 97°46'25", in NW 1/4 sec.7, T.5 N., R.5 W., Grady County, Hydrologic Unit 11130303, near right bank on downstream side of county road bridge, 1.0 mi north of Alex, 3.8 mi downstream from Winter Creek, and at mile 226.5.

DRAINAGE AREA.-- 4,787 mi².

PERIOD OF RECORD.-- October 1964 to September 1986, October 1988 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 950.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1988, datum 5.00 ft higher.

REMARKS.-- No estimated daily discharges. Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation since March 1959 by Fort Cobb Reservoir (station 07325900), since February 1961 by Foss Reservoir (07324300), and by numerous flood-retarding structures. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Records furnished by Agricultural Research Service prior to January 1978.

AVERAGE DISCHARGE.-- 23 years, 471 ft³/s, 341,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 23,400 ft³/s, Oct. 21, 1983, gage height, 23.78 ft; no flow Aug. 13-18, 1970, Aug. 30 to Sept. 1, 1971.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 14,500 ft³/s, June 13, gage height, 19.01 ft.; minimum daily discharge, 164 ft³/s, Oct. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	978	262	368	384	e540	475	1690	221	603	2240	1140	411
2	1120	259	358	385	e480	472	1460	237	1910	2250	1160	808
3	705	253	351	379	e430	467	1210	229	2270	2240	1210	1410
4	570	292	345	370	e410	509	1090	230	5910	2150	1230	1050
5	493	245	342	368	e370	704	996	232	6470	2050	1170	1020
6	441	222	341	356	e360	681	936	233	5380	2020	1130	1140
7	409	210	364	351	e350	691	788	221	6460	1960	1020	926
8	396	202	394	346	e340	746	699	215	7810	1900	939	795
9	385	194	393	346	e400	635	625	206	6540	1760	950	810
10	363	185	395	345	436	536	566	194	6440	1680	1020	727
11	338	184	392	347	468	491	529	180	6590	1630	1280	682
12	322	479	387	335	444	456	508	374	7230	1560	1130	679
13	318	1080	380	334	416	435	487	1840	11200	1380	1020	1200
14	307	1100	375	348	533	421	498	1860	11800	1510	1090	3320
15	278	1280	367	350	850	387	499	2300	10100	1730	1190	3530
16	259	963	361	359	761	370	485	3080	8630	1480	1070	3620
17	244	734	354	377	723	372	458	2910	8080	1360	926	2780
18	221	607	354	382	834	339	444	3010	7760	1400	875	2050
19	212	525	358	362	771	326	428	2760	6060	1300	845	1770
20	215	516	357	349	710	332	414	2810	4040	1190	812	1650
21	225	476	353	345	679	339	399	2210	3550	1120	706	1550
22	215	462	376	339	640	333	393	2030	3240	1060	657	1370
23	201	443	400	338	593	329	377	1840	3180	1070	610	1270
24	196	425	362	335	554	332	356	1710	3730	1170	578	1160
25	188	410	352	350	535	325	333	1450	3440	1180	562	1010
26	185	403	349	373	514	318	293	1100	3340	1170	556	948
27	165	397	367	414	493	467	282	883	3240	1150	521	913
28	164	389	397	481	484	1130	267	784	2660	1140	477	890
29	172	382	386	621	---	1260	243	715	2360	1070	451	858
30	185	373	374	678	---	952	230	655	2230	1110	455	831
31	268	---	377	597	---	1240	---	596	---	1180	442	---
TOTAL	10738	13952	11429	12044	15118	16870	17983	37295	162253	47210	27222	41178
MEAN	346	465	369	389	540	544	599	1203	5408	1523	878	1373
MAX	1120	1280	400	678	850	1260	1690	3060	11800	2250	1280	3620
MIN	164	184	341	334	340	318	230	180	603	1060	442	411
AC-FT	21300	27670	22670	23890	29990	33460	35670	73970	321800	93640	53990	81680

WTR YR 1989 TOTAL 413292 MEAN 1132 MAX 11800 MIN 164 AC-FT 819800

e Estimated

07328500 WASHITA RIVER NEAR PAULS VALLEY, OK

LOCATION.-- Lat 34°45'17", long 97°15'04", in NE 1/4, SE 1/4 sec.1. T.3 N., R.1 W., Garvin County, Hydrologic Unit 11130303, on downstream side of left pier of bridge on U.S. Highway 77, 2.0 mi northwest of Pauls Valley, 6.0 mi downstream from Owl Creek, 7.0 mi upstream from Washington Creek, and at mile 146.5.

DRAINAGE AREA.-- 5,330 mi².

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 above National Geodetic Vertical Datum of 1929. During 1899, nonrecording gage at site 9 mi 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 upstream, at datum 1.53 ft higher. Mar. 11, 1975 to Jan. 26, 1981, water-stage recorder at site 200 ft upstream, and at same datum.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some diversion for irrigation upstream from 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. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation, 21 years (water years 1938-58), 829 ft³/s, 600,200 acre-ft/yr; since regulation, 28 years (water years 1962-89), 753 ft³/s, 545,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 43,600 ft³/s, May 29, 1987, gage height, 28.72 ft; maximum gage height, 29.88 ft, May 11, 1950; no flow in 1956, 1964, 1966-67, 1970-72.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Stream is reported to have receded to no flow in 1882 and in 1897 (information provided by local resident).

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 15,300 ft³/s, June 14, gage height, 16.39 ft; minimum daily discharge, 282 ft³/s, Oct. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1740	424	388	395	639	618	1570	409	613	2810	886	350
2	1650	468	371	388	628	570	1460	e412	584	2760	839	1280
3	986	468	361	371	e613	543	1370	409	1840	2680	786	1720
4	758	438	361	361	e598	504	1150	434	3680	2550	753	1430
5	670	449	344	354	e575	e618	1040	438	7410	2400	816	982
6	613	431	344	361	e552	e752	959	427	5600	2330	936	990
7	603	409	348	354	e530	898	924	406	6730	2000	815	1020
8	589	368	402	344	e496	741	814	467	8390	1990	693	808
9	580	348	479	344	468	769	745	374	7110	1930	e660	710
10	566	328	438	344	431	810	618	357	6220	1770	e786	708
11	552	328	424	344	406	781	593	e357	6220	1650	e789	754
12	508	487	402	338	413	618	580	361	7510	1610	1050	656
13	468	933	413	312	649	654	572	994	9970	1520	904	2560
14	449	1010	399	344	827	633	547	1980	14500	2050	835	4160
15	449	845	392	395	1830	548	570	2410	13900	2320	915	4070
16	e449	962	381	378	1170	530	547	3310	10400	1670	1050	4330
17	388	769	371	361	e1230	513	535	3540	9240	1570	852	3950
18	378	598	361	381	e980	483	539	3130	8570	e1490	786	2870
19	379	589	361	395	e944	496	547	2890	7590	1500	692	2220
20	456	530	385	e403	e898	504	570	2840	4880	1160	644	1980
21	374	468	392	371	e886	504	570	2260	4390	1070	580	1820
22	402	487	378	368	e764	491	561	1970	3920	1020	561	1320
23	361	431	387	354	725	496	543	1900	3890	1030	539	1120
24	341	413	449	413	697	472	535	1740	4240	951	513	1080
25	334	413	e412	399	670	464	517	1380	4210	938	495	951
26	351	395	361	402	593	476	483	1190	3780	921	479	915
27	344	413	378	399	e618	521	460	968	4250	911	480	897
28	328	409	449	508	628	697	434	881	3460	1050	e496	833
29	291	409	409	654	---	810	427	775	3180	980	518	742
30	282	395	378	665	---	1140	416	775	2910	938	436	733
31	413	---	385	649	---	1380	---	698	---	915	405	---
TOTAL	17052	15415	12103	12449	20458	20034	21196	40482	179187	50484	21989	47959
MEAN	550	514	390	402	731	646	707	1306	5973	1629	709	1599
MAX	1740	1010	479	665	1830	1380	1570	3540	14500	2810	1050	4330
MIN	282	328	344	312	406	464	416	357	584	911	405	350
AC-FT	33820	30560	24010	24690	40580	39740	42040	80300	355400	100100	43620	95130

CAL YR 1988 TOTAL 407901 MEAN 1114 MAX 11300 MIN 141 AC-FT 809100
WTR YR 1989 TOTAL 458808 MEAN 1257 MAX 14500 MIN 282 AC-FT 910000

e Estimated

07329000 RUSH CREEK AT PURDY, OK

LOCATION.-- Lat 34°41'46", long 97°35'55", in SE 1/4 SE 1/4 sec.27, T.3 N., R.4 W., on left downstream bank near end of bridge on State Highway 76, 1.6 mi southwest of Purdy, 9.7 mi south of Lindsay, and at mile 27.3.

DRAINAGE AREA.-- 145 mi².

PERIOD OF RECORD.-- October 1939 to December 1953, February 1982 to current year. Prior to May 1940 monthly discharges only, published in WSP 1311.

REVISED RECORDS.-- WSP 1211: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 1,004.12 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1942, nonrecording gage, at site 1.2 mi downstream, at datum 9.42 ft lower. Oct. 1, 1942 to Aug. 22, 1943, and May 11, 1950 to Sept. 18, 1952, nonrecording gage, 1.2 mi downstream, at datum 14.42 ft lower. Aug. 23, 1943 to May 10, 1950, and Sept. 19, 1952 to Dec. 31, 1953, water-stage recorder, at site 1.2 mi downstream, at datum 14.42 ft lower.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow partially regulated since 1960 by numerous soil-conservation reservoirs.

AVERAGE DISCHARGE.-- Prior to regulation by soil-conservation reservoirs, 14 years (water years 1940-53), 23.1 ft³/s, 52,130 acre-ft; since regulation by soil-conservation reservoirs, 7 years (water years 1983-89), 84.0 ft³/s, 60,860 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 30,000 ft³/s, May 10, 1950, gage height, 27.00 ft at site and datum then in use, from floodmark, and from rating extended above 5,000 ft³/s on the basis of a slope-area measurement, at 27.00 ft. No flow at times in several years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,200 ft³/s, June 4, gage height, 12.09 ft; minimum daily discharge, 1.0 ft³/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	20	15	e17	35	e32	42	16	16	e21	e8.7	1.0
2	97	19	15	e17	28	e32	38	16	17	e21	e8.0	12
3	52	17	15	e17	e24	e32	35	17	97	e20	e7.4	6.5
4	29	16	16	e17	e21	e32	32	21	911	e19	e6.8	3.4
5	21	15	16	e16	e20	e32	29	27	546	e18	e6.4	2.9
6	17	15	16	e16	e18	e34	27	25	281	e18	e6.0	2.6
7	17	15	22	e15	e18	e41	26	22	345	19	e5.4	2.3
8	24	14	36	e15	e20	e54	26	21	270	18	5.1	1.8
9	22	14	29	e15	24	e100	25	20	e150	16	e4.7	1.7
10	19	14	26	e15	22	e93	23	18	e100	e16	e4.3	2.0
11	16	14	26	e14	22	e68	23	16	e90	e15	e4.2	33
12	14	30	25	e14	23	e55	23	53	180	e15	e4.0	14
13	14	23	23	e14	39	e45	24	126	681	e20	e5.0	337
14	13	20	23	e14	56	e42	26	81	e550	e90	e6.0	e150
15	12	19	22	e21	105	e34	28	60	e330	e75	e8.0	e60
16	12	21	19	e19	153	e30	28	112	e200	e60	e9.0	e24
17	13	16	18	23	144	e29	27	133	e100	e50	e8.0	e14
18	12	14	18	25	159	e29	26	144	e90	e45	e7.0	e11
19	12	15	19	25	e120	e29	25	87	58	e43	e6.0	e9.2
20	11	19	20	24	e100	e29	24	59	e50	e35	e5.0	e8.4
21	11	18	19	23	e72	e29	24	45	e48	e30	4.8	e7.0
22	11	17	19	22	e61	e29	23	38	e40	e25	4.5	e6.5
23	11	17	20	22	e51	30	23	33	e39	e21	3.7	e6.0
24	11	17	20	22	e43	30	22	30	e35	e18	3.0	e5.6
25	11	17	20	34	e38	29	21	27	e32	e16	2.6	e5.4
26	11	17	e19	48	e35	42	20	24	e30	e15	2.4	e5.0
27	11	17	e19	35	e34	50	20	22	e28	e13	1.9	e4.8
28	11	17	e19	68	e33	120	19	21	e26	e12	1.7	e4.5
29	11	16	e18	77	---	105	19	19	e24	e11	2.0	e4.3
30	13	16	e18	52	---	76	17	18	e23	e10	4.1	e4.1
31	20	---	e18	40	---	53	---	17	---	e9.5	1.5	---
TOTAL	580	519	628	796	1518	1465	765	1368	5387	814.5	157.2	750.0
MEAN	18.7	17.3	20.3	25.7	54.2	47.3	25.5	44.1	180	26.3	5.07	25.0
MAX	97	30	36	77	159	120	42	144	911	90	9.0	337
MIN	11	14	15	14	18	29	17	16	16	9.5	1.5	1.0
AC-FT	1150	1030	1250	1500	3010	2910	1520	2710	10690	1620	312	1490

CAL YR 1988 TOTAL 17202.1 MEAN 47.0 MAX 1800 MIN 7.5 AC-FT 34120
WTR YR 1989 TOTAL 14747.7 MEAN 40.4 MAX 911 MIN 1.0 AC-FT 29250

e Estimated

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 north of Hoover, 1.8 mi downstream from Sandy Creek, and at mile 7.9.

DRAINAGE AREA.-- 604 mi².

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 above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Flow regulated by Duncan, Clear Creek, Humphries and Fuqua Lakes, combined surface-area, 3,340 acres, and capacity, 44,800 acre-ft, and numerous flood-retarding structures.

AVERAGE DISCHARGE.-- 20 years, 238 ft³/s, 172,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 36,000 ft³/s, May 29, 1987, gage height, 25.54 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 14	2145	6,190	13.85	June 7	2030	*10,100	*17.61
June 4	0745	8,130	15.79	June 13	1130	6,590	14.25

Minimum daily discharge, 12 ft³/s, Oct. 28-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e150	e80	e48	42	53	116	133	33	43	63	15	15
2	e70	e60	e46	41	51	109	119	37	42	59	16	28
3	e50	e45	e44	39	42	108	109	112	53	51	16	50
4	e40	e35	e42	38	45	110	99	62	5140	43	16	33
5	e35	e30	e40	37	58	150	90	61	3270	39	15	34
6	e30	e25	e42	36	48	165	86	55	1240	35	14	23
7	e27	e23	e100	35	33	104	82	45	4170	32	14	18
8	e45	e21	e150	33	31	137	79	41	4230	29	13	15
9	e35	e24	89	32	31	492	74	38	2030	28	13	15
10	e30	e20	69	31	31	1330	72	34	1280	26	14	46
11	e25	e22	70	31	33	738	69	32	1070	24	14	441
12	e22	e60	94	30	33	423	69	52	1190	22	15	123
13	e20	e100	80	29	68	310	68	255	3490	21	15	1310
14	e18	e70	69	29	1820	253	74	116	2460	340	22	518
15	e16	e58	60	32	2680	203	76	73	1500	350	25	182
16	e15	e80	52	32	1060	173	72	327	1020	103	31	128
17	e14	e72	47	32	1740	154	67	745	768	71	26	90
18	e13	e62	44	30	1480	136	66	1390	571	55	25	77
19	14	e50	42	28	879	124	64	443	447	43	22	62
20	e15	e90	41	27	661	134	60	251	358	36	20	50
21	e16	e80	39	26	529	125	58	171	291	32	18	44
22	e15	e70	49	e25	419	124	57	131	233	26	16	39
23	e14	e64	77	e24	290	117	53	106	193	24	16	34
24	e14	e60	50	e23	213	111	49	89	164	22	15	31
25	e13	e58	42	e22	181	106	47	76	135	21	16	31
26	e13	e64	38	e21	163	104	43	65	116	19	15	31
27	e13	e60	42	e20	148	105	40	62	100	19	14	31
28	e12	e56	40	47	131	144	38	62	88	19	14	30
29	e12	e54	38	85	---	226	36	55	79	18	25	29
30	e14	e50	35	76	---	179	34	49	69	17	44	28
31	e70	---	41	61	---	153	---	46	---	15	18	---
TOTAL	890	1643	1760	1094	12951	6963	2083	5114	35840	1702	572	3586
MEAN	28.7	54.8	56.8	35.3	463	225	69.4	165	1195	54.9	18.5	120
MAX	150	100	150	85	2680	1330	133	1390	5140	350	44	1310
MIN	12	20	35	20	31	104	34	32	42	15	13	15
AC-FT	1770	3260	3490	2170	25690	13810	4130	10140	71090	3380	1130	7110

CAL YR 1988 TOTAL 138694.0 MEAN 379 MAX 7880 MIN 4.1 AC-FT 275100
WTR YR 1989 TOTAL 74198 MEAN 203 MAX 5140 MIN 12 AC-FT 147200

e Estimated

RED RIVER BASIN

479

07329849 ANTELOPE SPRING AT SULPHUR, OK

LOCATION.-- Lat 34°30'16", long 96°56'28", in NW 1/4 NE 1/4 sec.1, T.1 S., R.3E., Murray County, Hydrologic Unit 11130303, 10 ft downstream from spring in the Chickasaw National Park, 1.1 mi up the self-guiding nature trail from the nature center.

PERIOD OF RECORD.-- November 1985 to September 1989 (discontinued).

GAGE.-- Water-stage recorder. Elevation of gage is 1,080 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 11 ft³/s, Mar. 28, Apr. 1, 2, 1988, gage height, 0.75 ft; minimum daily discharge 0.08 ft³/s, Feb. 9, 1989.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 4.3 ft³/s, June 25, gage height, 0.66 ft; minimum daily discharge, 0.08 ft³/s, Feb. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	1.1	.63	.95	.25	2.1	e2.7	3.0	2.4	3.3	3.0	2.7
2	2.4	1.1	.63	.95	.23	2.4	e2.7	2.7	2.4	3.3	3.0	3.0
3	2.4	1.1	.63	.63	.20	2.1	e3.0	2.7	2.4	3.3	3.3	3.0
4	2.1	.95	.50	.50	.24	1.9	e3.0	2.1	2.4	3.6	3.3	3.0
5	2.1	.95	.63	.63	.20	1.9	e3.0	1.9	2.4	3.6	3.3	2.7
6	2.1	.95	.63	.80	.17	1.9	e3.3	1.9	2.4	3.6	3.3	2.7
7	1.9	.95	.80	.63	.14	2.1	e3.3	1.9	2.4	3.6	2.7	2.7
8	2.1	.80	.63	.50	.10	2.1	e3.3	1.9	2.4	3.0	3.3	2.7
9	1.9	.80	.63	.50	.08	2.1	3.3	1.9	2.4	3.0	3.3	3.0
10	1.7	.80	.63	.50	.14	2.4	3.3	1.9	2.4	3.3	3.3	3.0
11	1.4	.95	.80	.63	.17	2.4	3.6	1.9	2.4	3.3	3.3	2.7
12	1.4	.80	.80	.63	.18	2.7	3.6	1.9	2.7	3.3	3.3	3.0
13	1.4	.80	.80	.80	.14	2.7	3.6	1.9	3.0	3.3	3.0	3.0
14	1.6	1.1	.80	.63	.14	2.7	3.6	1.9	3.0	3.3	3.0	3.0
15	1.4	1.1	.63	.50	.20	e2.7	3.3	1.9	3.3	3.3	3.3	3.0
16	1.2	.95	.80	.39	.35	e2.7	3.3	2.1	3.3	3.3	3.3	2.7
17	1.2	1.1	.80	.50	.47	e2.7	3.3	2.4	3.3	3.6	3.6	2.7
18	1.2	1.1	.80	.50	.80	e2.7	3.3	2.7	3.0	3.6	3.6	3.0
19	1.1	1.1	.80	.40	1.1	e2.7	3.3	3.0	3.0	3.6	3.6	3.0
20	1.2	.95	.63	.38	1.4	e2.7	3.3	3.0	3.0	3.3	3.3	3.0
21	1.2	.80	.63	.38	1.4	e2.7	3.3	3.0	3.6	3.0	3.3	3.0
22	.95	.80	.63	.38	1.7	e2.7	3.0	3.3	3.3	3.3	3.6	3.0
23	.95	.80	.80	.38	1.7	e2.4	3.0	3.0	3.3	3.3	3.6	2.6
24	.80	.80	.80	.35	1.9	e2.4	3.0	2.7	3.3	3.3	3.0	2.4
25	.80	.63	.80	.33	2.1	e2.4	3.0	2.7	3.6	3.3	3.0	2.1
26	.95	.80	.80	.24	1.9	e2.4	3.0	3.0	3.6	3.3	3.0	2.1
27	.95	.80	.63	.24	1.9	e2.4	3.0	3.0	3.6	3.3	3.0	2.1
28	.80	.80	.50	.25	2.4	e2.4	3.0	2.4	3.3	3.3	3.0	2.1
29	.80	.80	.63	.24	---	e2.4	3.0	2.4	3.3	3.6	3.0	1.9
30	.95	.80	.80	.25	---	2.5	3.0	2.4	3.3	3.3	3.0	1.6
31	.95	---	.95	.27	---	e2.7	---	2.4	---	3.3	2.6	---
TOTAL	44.60	27.28	21.97	15.26	21.70	75.1	95.4	74.9	88.2	103.8	99.2	80.5
MEAN	1.44	.91	.71	.49	.77	2.42	3.18	2.42	2.94	3.35	3.20	2.68
MAX	2.7	1.1	.95	.95	2.4	2.7	3.6	3.3	3.6	3.6	3.6	3.0
MIN	.80	.63	.50	.24	.08	1.9	2.7	1.9	2.4	3.0	2.6	1.6
AC-FT	88	54	44	30	43	149	189	149	175	206	197	160

CAL YR 1988 TOTAL 1656.85 MEAN 4.53 MAX 11 MIN .50 AC-FT 3290
WTR YR 1989 TOTAL 747.91 MEAN 2.05 MAX 3.6 MIN .08 AC-FT 1480

e Estimated

RED RIVER BASIN

07329851 VENDOME WELL AT SULPHUR, OK

LOCATION.-- Lat 34°30'21", long 96°58'19", in NW 1/4 NE 1/4 sec.3, T.1 S., R.3E., Murray County, Hydrologic Unit 11130303, .2 mi west and 300 ft south of intersection of State Highways 7 and 177, in Sulphur.

PERIOD OF RECORD.-- November 1985 to September 1989 (discontinued).

GAGE.-- Water-stage recorder. Elevation of gage is 950 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 1.6 ft³/s at times each year; minimum discharge 0.80, at time most years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1.4 ft³/s at times; minimum discharge, 0.80 ft³/s, March 4-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
2	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
3	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
4	1.4	1.1	1.1	1.1	1.1	.80	1.1	1.1	1.4	1.1	1.1	1.1
5	1.4	1.1	1.1	1.1	1.1	.80	1.1	1.1	1.4	1.1	1.1	1.1
6	1.4	1.1	1.4	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
7	1.4	1.1	1.4	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
8	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
9	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
10	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
11	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
12	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
13	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
14	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1
15	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
16	1.1	e1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
17	1.1	e1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
18	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
19	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
20	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
21	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
22	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
23	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
24	1.1	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
25	1.1	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
26	1.4	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
27	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1	1.1	1.1
28	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.4	1.1	1.1	1.4
29	1.1	1.1	1.1	1.1	---	1.1	1.1	1.4	1.4	1.1	1.1	1.4
30	1.1	1.1	1.1	1.1	---	1.1	1.1	1.4	1.4	1.1	1.1	1.4
31	1.1	---	1.1	1.1	---	1.1	---	1.4	---	1.1	1.1	---
TOTAL	39.8	33.9	34.7	34.1	30.8	33.50	33.0	35.3	42.0	36.8	34.1	33.9
MEAN	1.28	1.13	1.12	1.10	1.10	1.08	1.10	1.14	1.40	1.19	1.10	1.13
MAX	1.4	1.4	1.4	1.1	1.1	1.1	1.1	1.4	1.4	1.4	1.1	1.4
MIN	1.1	1.1	1.1	1.1	1.1	.80	1.1	1.1	1.4	1.1	1.1	1.1
AC-FT	79	67	69	68	61	66	65	70	83	73	68	67

CAL YR 1988 TOTAL 455.50 MEAN 1.24 MAX 1.6 MIN .80 AC-FT 903
WTR YR 1989 TOTAL 421.90 MEAN 1.16 MAX 1.4 MIN .80 AC-FT 837

e Estimated

07331000 WASHITA RIVER NEAR DICKSON, OK

LOCATION.-- Lat 34°14'03", long 96°58'32", in SW 1/4 SE 1/4 sec.3, T.4 S., R.3 E., Carter County, Hydrologic Unit 11130303, near left bank on downstream side of bridge on U.S. Highway 177, 1.3 mi downstream from Caddo Creek, 3.2 mi north of Dickson, 12.0 mi northeast of Ardmore, and at mile 63.4.

DRAINAGE AREA.-- 7,202 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- August 1928 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to Oct. 1, 1979, published as Washita River near Durwood.

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

GAGE.-- Water-stage recorder. Datum of gage is 650.57 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 16, 1939, nonrecording gage, at same site and datum. Dec. 15, 1950 to Feb. 19, 1952, nonrecording gage, at site 500 ft upstream, at same datum. Apr. 24, 1975 to May 8, 1986, water-stage recorder, at site 500 ft upstream, at same datum.

REMARKS.-- Records fair. Some diversions for irrigation upstream from station. Flow regulated by Fort Cobb Reservoir (station 07325900) since March 1959; by Foss Reservoir (station 07324300) since February 1981; and by numerous flood-retarding structures. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.-- Prior to regulation, 30 years (water years 1929-58), 1,573 ft³/s, 1,139,600 acre-ft/yr; since regulation by Fort Cobb and Foss reservoirs, 28 years (water years 1962-89), 1,471 ft³/s, 1,066,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 105,000 ft³/s, May 30, 1987, gage height, 45.24 ft; no flow Aug. 28, Sept. 14 to Oct. 1, 7-12, 1956.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 31,400 ft³/s, June 8, gage height, 24.41 ft; minimum daily discharge, 468 ft³/s, Oct. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2200	568	629	741	1130	1090	2240	e500	1180	3300	1260	624
2	2040	615	620	720	1050	1050	2330	555	1100	e3090	1250	592
3	2550	628	605	710	954	979	2420	682	1270	e3000	1180	1460
4	1700	604	591	694	e865	993	2050	724	8060	e2910	1220	1630
5	1400	568	576	679	e825	992	1730	948	13000	e2830	1200	1270
6	1210	544	572	669	e790	972	1570	981	10700	e2800	1200	957
7	1080	556	679	647	762	1020	1340	833	16100	e2740	1150	999
8	1020	527	1030	629	802	1700	1260	761	29500	e2620	1110	1070
9	960	495	1080	620	874	2170	1140	729	23200	e2500	1010	911
10	898	480	902	613	797	5160	1030	572	14200	e2390	945	879
11	843	473	878	605	822	4960	937	488	11600	e2250	966	2210
12	791	486	930	606	771	3820	892	483	12100	e2180	1040	2300
13	743	524	969	595	778	3140	861	633	17200	e2090	1220	8240
14	667	738	868	599	1040	2720	885	1490	24500	e2000	1120	8950
15	658	1200	807	597	10200	2340	892	2180	22100	3700	1080	7050
16	645	1290	750	604	7470	2020	872	3170	17000	3250	1180	5940
17	632	1360	714	620	6350	1840	855	5990	12800	e2400	1300	5670
18	592	1120	687	618	8500	1850	830	9530	10900	e2130	1090	4910
19	546	1000	657	615	5080	1730	809	6400	10100	e2380	1080	3920
20	528	901	640	625	3910	1510	e775	5130	8510	e1930	1030	3250
21	530	804	633	616	3290	1510	e740	4710	6210	e1690	923	2900
22	525	770	650	600	2990	1400	e700	3990	5390	e1560	894	2780
23	509	732	693	585	2500	1370	e660	3540	4870	e1520	838	2560
24	496	693	753	577	1830	1310	e630	3140	4580	e1410	785	2280
25	484	693	735	595	1580	1270	e615	2620	4810	1330	750	2130
26	493	941	691	602	1430	1250	e800	2470	4720	1350	719	1940
27	472	740	724	698	1360	1230	e590	2660	4310	1410	712	1770
28	516	674	777	898	e1200	2000	e560	1870	4310	1380	695	1690
29	468	658	729	960	---	3230	e520	1570	3780	1360	684	1640
30	483	643	731	1280	---	3730	e510	1390	3410	1310	682	1590
31	559	---	750	1180	---	2840	---	1260	---	1210	690	---
TOTAL	27238	22025	23050	21397	69950	63196	31843	71979	311510	68020	31003	82112
MEAN	879	734	744	690	2498	2039	1061	2322	10380	2194	1000	2737
MAX	2550	1360	1080	1280	10200	5160	2420	9530	29500	3700	1300	8950
MIN	468	473	572	577	762	972	510	483	1100	1210	682	592
AC-FT	54030	43690	45720	42440	138700	125300	63160	142800	617900	134900	61490	162900

CAL YR 1988 TOTAL 764576 MEAN 2089 MAX 30500 MIN 188 AC-FT 1517000
WTR YR 1989 TOTAL 823323 MEAN 2256 MAX 29500 MIN 468 AC-FT 1633000

e Estimated

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1944 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1944 to January 1982, February 1984 to April 1989 (discontinued).

WATER TEMPERATURE: April 1947 to January 1982, February 1984 to April 1989 (discontinued).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,120 microsiemens, Nov. 15, 1963; minimum daily, 95 microsiemens, Nov. 2, 1951.

WATER TEMPERATURE: Maximum daily, 38.0 °C, July 16, 1985; minimum daily, 0.0 °C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
19...	0900	1028	1028	7.41	552	1440	8.4	15.0	17.0	--	--	--
DEC												
07...	1300	1028	80020	7.68	607	2140	8.1	10.5	11.0	60	740	--
JAN												
25...	1200	1028	80020	7.57	578	1660	8.3	18.0	15.0	16	740	10.3
MAR												
01...	1145	1028	80020	8.48	1140	1290	8.2	14.0	11.0	58	765	13.6
29...	1548	1028	1028	10.37	3390	222	7.4	22.0	19.0	--	--	--
MAY												
02...	1235	1028	80020	7.16	494	1530	8.1	17.5	18.0	0.20	760	--
JUN												
21...	1456	1028	1028	13.44	6040	414	7.4	35.0	31.5	--	--	--
JUL												
25...	1133	1028	80020	9.94	1330	1260	8.0	29.5	27.5	320	760	6.2
SEP												
06...	1230	1028	80020	9.77	977	978	7.6	35.0	31.0	840	750	4.8

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HC03
OCT												
19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
07...	--	240	530	720	450	170	71	78	19	1	3.7	320
JAN												
25...	106	K23	K12	750	500	180	73	81	19	1	3.9	290
MAR												
01...	123	K16	K65	600	330	150	55	62	18	1	3.4	329
29...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
02...	--	K35	47	700	510	150	79	82	20	1	4.9	239
JUN												
21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
25...	79	K93	250	600	400	140	61	54	16	1	5.9	249
SEP												
06...	66	>600	160	430	300	100	43	45	18	0.9	5.9	159

07331000 WASHITA RIVER NR DICKSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 07...	0	262	530	82	0.40	13	1160	1110	1.58	1900	1.18	5.2
JAN 25...	10	254	540	90	0.60	6.2	1180	1130	1.60	1840	--	--
MAR 01...	0	270	370	75	0.40	11	934	894	1.27	2870	0.720	3.2
MAR 29...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	0	196	560	87	0.50	5.3	1140	1090	1.55	1520	--	--
JUN 21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	0	204	460	42	0.50	14	976	903	1.33	3510	--	--
SEP 06...	0	130	330	38	0.40	11	663	658	0.90	1750	0.900	4.0
DATE	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 07...	0.020	0.07	1.20	0.070	--	0.09	--	0.73	0.80	0.280	0.070	0.060
JAN 25...	<0.010	--	<0.100	0.080	<0.010	0.10	--	--	<0.20	0.110	0.050	0.040
MAR 01...	0.010	0.03	0.730	0.080	--	0.10	--	0.62	0.70	0.160	0.080	0.060
MAR 29...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	0.020	0.07	<0.100	0.040	0.030	0.05	0.04	0.86	0.90	0.180	0.040	0.030
JUN 21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	<0.010	--	0.580	0.180	0.040	0.23	0.05	1.0	1.2	0.380	0.080	0.080
SEP 06...	0.050	0.16	0.950	0.490	0.050	0.63	0.06	1.5	2.0	0.090	0.080	0.070
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 07...	0.18	--	--	--	--	--	--	--	--	--	--	--
JAN 25...	0.12	<10	2	140	<0.5	<1.0	<1	<3	2	10	<5	32
MAR 01...	0.18	10	2	180	<0.5	<1.0	<1	<3	<1	5	<5	23
MAR 29...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	0.09	<10	2	170	<0.5	<1.0	<1	<3	1	4	<5	32
JUN 21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	0.25	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	0.21	220	3	140	<0.5	<1.0	2	<3	3	86	1	18

RED RIVER BASIN
07331000 WASHITA RIVER NR DICKSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 07...	--	--	--	--	--	--	--	--	--	456	747	44
JAN 25...	15	0.3	<10	11	1	2.0	2100	<6	12	266	415	13
MAR 01...	16	0.5	<10	<1	<1	<1.0	1600	<6	9	235	723	83
MAR 29...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	11	<0.1	<10	<1	<1	<1.0	2100	<6	120	--	--	--
JUN 21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 25...	--	--	--	--	--	--	--	--	--	1850	6660	58
SEP 06...	15	<0.1	10	2	<1	<1.0	1300	13	13	2770	7310	66

07331000 WASHITA RIVER NEAR DICKSON, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	646	1370	1530	1320	1290	1310	1290	---	---	---	---	---
2	564	1410	1560	1300	1390	1360	1310	---	---	---	---	---
3	686	1410	1440	1300	1380	1370	1310	---	---	---	---	---
4	473	1400	1540	1430	---	---	1290	---	---	---	---	---
5	631	1410	1500	1490	1690	---	1060	---	---	---	---	---
6	652	1450	1610	1490	1520	---	1070	---	---	---	---	---
7	804	1510	1550	1520	1600	---	1230	---	---	---	---	---
8	912	1550	1370	1550	1360	---	1290	---	---	---	---	---
9	984	1540	1130	1550	1450	1520	1310	---	---	---	---	---
10	1150	1520	1200	1520	1530	1100	1320	---	---	---	---	---
11	1140	1580	1390	1550	1440	590	1320	---	---	---	---	---
12	1080	1570	1370	1470	1660	600	1430	---	---	---	---	---
13	1070	1380	1270	1390	1460	710	1340	---	---	---	---	---
14	1190	1450	1360	1530	1550	800	1440	---	---	---	---	---
15	1220	1370	1430	1420	420	910	1410	---	---	---	---	---
16	1260	1280	1310	1450	470	1050	1400	---	---	---	---	---
17	1280	1240	1420	1400	480	1090	1420	---	---	---	---	---
18	1320	1290	1350	1430	430	1060	1440	---	---	---	---	---
19	1300	1060	1480	1540	580	1120	1450	---	---	---	---	---
20	1340	1210	1510	1570	650	1250	1490	---	---	---	---	---
21	1380	1120	1560	1450	750	1260	1490	---	---	---	---	---
22	1350	1190	1520	1470	870	1280	1530	---	---	---	---	---
23	1390	1050	1460	1580	940	1290	1540	---	---	---	---	---
24	1360	---	1480	1570	1020	1340	1570	---	---	---	---	---
25	1400	1350	1420	1440	1100	1330	1590	---	---	---	---	---
26	1430	1030	1480	1410	1170	1330	1600	---	---	---	---	---
27	1410	1350	1470	1450	1250	1340	1590	---	---	---	---	---
28	1400	---	1400	1280	1300	900	---	---	---	---	---	---
29	1480	1480	1480	1190	---	950	---	---	---	---	---	---
30	1510	1500	1260	1310	---	950	---	---	---	---	---	---
31	1360	---	1470	1210	---	910	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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, OK, Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi upstream from Shawnee Creek, 1.8 mi upstream from Sand Creek, 4.0 mi northwest of Denison, 6.0 mi southwest of Colbert, and at mile 725.9.

DRAINAGE AREA.-- 39,719 mi² of which 5,936 mi² 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 National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1944, nonrecording gage at same site and datum. Prior to Oct. 1, 1948, supplementary nonrecording gage in Cumberland pool at the same datum.

REMARKS.-- Reservoir is formed by a rolled earthfill dam. The controlled outlet consists of eight 20-foot diameter conduits and the uncontrolled outlet is a concrete, ogee-type weir spillway. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power pool was first filled March 15, 1945. Capacity, based on 1969 survey, 5,312,000 acre-ft at elevation 640.0 ft, crest of spillway, 2,643,000 acre-ft at elevation 617.0 ft maximum power pool; 1,031,000 acre-ft at elevation 590.0 ft, minimum power pool, in Denison pool. Dead storage, 11,000 acre-ft at elevation 610.0 ft in Cumberland pool. When contents are below 2,105,000 acre-ft, the reservoir is divided into two pools by protective levees around the Cumberland oil field on the Washita River arm with bottom outlet channel for the upper pool (known as Cumberland pool) at elevation 610 ft. At higher elevations the two pools are considered as being at a common level, contents being computed from gage in Denison pool. Figures given herein represent total contents of both pools. Reservoir is used principally for flood control and power development. Revised capacity table, based on survey in 1969, used since Oct. 1, 1977. U.S. Army Corps of Engineers' satellite telemeter at station.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 5,991,300 acre-ft, June 5, 1957, elevation, 643.18 ft. Minimum contents since power pool was first filled, 1,565,100 acre-ft, Sept. 16, 1964; minimum elevation, 599.96 ft, Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 4,185,000 acre-ft, June 19, elevation, 631.56 ft; minimum, 2,320,000 acre-ft, Feb. 9, elevation, 612.97 ft.

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

610	2,105,000	622	3,117,000
614	2,399,000	627	3,649,000
617	2,643,000	632	4,240,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2539000	2482000	2387000	2377000	2409000	2569000	2558000	2441000	2765000	3481000	2665000	2490000
2	2544000	2476000	2384000	2377000	2421000	2564000	2563000	2442000	2749000	3419000	2650000	2489000
3	2546000	2473000	2383000	2376000	2407000	2569000	2560000	2442000	2733000	3349000	2633000	2486000
4	2546000	2470000	2381000	2373000	2386000	2566000	2559000	2428000	2825000	3281000	2616000	2486000
5	2542000	2465000	2376000	2376000	2367000	2550000	2553000	2453000	2878000	3209000	2608000	2485000
6	2540000	2456000	2370000	2374000	2348000	2532000	2550000	2452000	2954000	3137000	2601000	2483000
7	2539000	2453000	2371000	2374000	2328000	2521000	2540000	2450000	3136000	3078000	2599000	2481000
8	2539000	2447000	2367000	2373000	2324000	2521000	2532000	2453000	3260000	3037000	2592000	2477000
9	2537000	2446000	2362000	2370000	2321000	2529000	2525000	2458000	3414000	3012000	2588000	2480000
10	2535000	2441000	2365000	2368000	2322000	2541000	2513000	2462000	3570000	2983000	2580000	2476000
11	2532000	2433000	2366000	2374000	2326000	2558000	2504000	2465000	3646000	2954000	2574000	2489000
12	2526000	2438000	2366000	2367000	2331000	2568000	2501000	2466000	3667000	2925000	2569000	2492000
13	2521000	2434000	2365000	2361000	2334000	2575000	2500000	2473000	3759000	2897000	2568000	2537000
14	2517000	2428000	2367000	2356000	2335000	2580000	2492000	2475000	3853000	2955000	2571000	2570000
15	2514000	2439000	2365000	2357000	2357000	2571000	2490000	2477000	3946000	2943000	2571000	2634000
16	2513000	2429000	2364000	2352000	2383000	2561000	2489000	2551000	4050000	2923000	2570000	2671000
17	2507000	2421000	2364000	2349000	2438000	2554000	2486000	2662000	4139000	2899000	2567000	2758000
18	2502000	2421000	2363000	2348000	2478000	2550000	2478000	2749000	4185000	2882000	2565000	2774000
19	2493000	2435000	2363000	2344000	2509000	2546000	2474000	2805000	4173000	2867000	2560000	2780000
20	2491000	2428000	2367000	2343000	2542000	2542000	2467000	2844000	4141000	2843000	2556000	2782000
21	2487000	2423000	2365000	2339000	2565000	2529000	2466000	2875000	4099000	2825000	2551000	2783000
22	2482000	2417000	2372000	2336000	2577000	2517000	2463000	2895000	4047000	2812000	2546000	2778000
23	2485000	2412000	2375000	2336000	2577000	2502000	2460000	2895000	3990000	2801000	2541000	2766000
24	2484000	2410000	2377000	2336000	2578000	2498000	2456000	2884000	3932000	2788000	2534000	2756000
25	2486000	2414000	2377000	2359000	2579000	2499000	2453000	2870000	3870000	2773000	2528000	2744000
26	2489000	2413000	2379000	2366000	2580000	2497000	2449000	2849000	3807000	2760000	2523000	2733000
27	2492000	2409000	2390000	2364000	2576000	2497000	2447000	2844000	3747000	2744000	2519000	2719000
28	2487000	2400000	2383000	2397000	2573000	2524000	2443000	2831000	3680000	2730000	2513000	2703000
29	2487000	2399000	2380000	2405000	---	2547000	2439000	2813000	3612000	2714000	2509000	2688000
30	2490000	2393000	2377000	2408000	---	2564000	2441000	2795000	3549000	2699000	2502000	2674000
31	2486000	---	2377000	2409000	---	2565000	---	2781000	---	2690000	2498000	---
MAX	2546000	2482000	2390000	2409000	2580000	2580000	2563000	2895000	4185000	3481000	2665000	2783000
MIN	2482000	2393000	2362000	2336000	2321000	2497000	2439000	2428000	2733000	2690000	2498000	2476000
(+)	615.11	613.93	613.72	614.13	616.19	616.09	614.54	618.52	626.10	617.52	615.27	617.35
(++)	-40,000	-93,000	-16,000	+32,000	+164,000	-8,000	-124,000	+340,000	+768,000	-859,000	-192,000	+176,000

CAL YR 1988 MAX 2986000 MIN 2251000 ++ -622,000
WTR YR 1989 MAX 4185000 MIN 2321000 ++ +140,000

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX

LOCATION.-- Lat 33°49'08", long 96°33'47", Grayson County, Hydrologic Unit 11140101, on right bank 1,800 ft downstream from Denison Dam powerhouse, 0.4 mi upstream from Shawnee Creek (spillway flow return), 4.5 mi north of Denison, and at mile 725.5.

DRAINAGE AREA.-- 39,720 mi², of which 5,936 mi² is probably noncontributing. At site used prior to October 1961, drainage area was 39,777 mi², of which 5,936 mi² probably was noncontributing.

WATER-DISCHARGE RECORDS

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, TX", and October 1934 to September 1961, published as "near Colbert, OK". Gage-height records collected at various sites in this vicinity 1892-93, 1906-28, 1931-49 are contained in reports of the National Weather Service.

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 above National Geodetic Vertical Datum of 1929. Oct. 9, 1923 to Sept. 24, 1934, nonrecording gage, and July 29, 1942 to Sept. 30, 1961, water-stage recorder, at county road bridge 2.5 mi downstream. Prior to Oct. 1, 1931, at datum 6.85 ft higher; Oct. 1, 1931 to Sept. 24, 1934, at datum 7.07 ft higher; and July 29, 1942 to Sept. 30, 1961, at datum 2.64 ft lower; Sept. 25, 1934 to July 28, 1942, water-stage recorder at railway bridge 1.9 mi downstream at datum 7.36 ft higher.

REMARKS.-- Records good. Flow regulated since October 1943 by Lake Texoma (station 07331500).

COOPERATION.-- Gage-height record and 3 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Texoma, 20 years (water years 1924-43), 5,684 ft³/s, 4,118,000 acre-ft/yr; since regulation by Lake Texoma, 45 years (water years 1946-89), 4,782 ft³/s, 3,465,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 201,000 ft³/s May 21, 1935, gage height, 31.8 ft (at site and datum then in use); maximum gage height, 32.0 ft, Apr. 25, 1942 (at site and datum used in 1943); minimum daily discharge, 12 ft³/s Jan. 10, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of May 26, 1908, reached a stage of 45.5 ft (at site and datum used July 29, 1942 to Sept. 30, 1961); from record of National Weather Service.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 39,700 ft³/s, June 22, gage height, 15.73 ft; minimum daily discharge, 40 ft³/s, Feb. 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	315	2830	2870	1290	e1530	e3880	6270	426	10100	39000	9770	3550
2	253	2790	2870	1270	e1920	e3850	6530	326	10500	39000	9750	2780
3	2940	2840	1340	1300	e4780	e3780	4400	440	10500	38900	9770	2810
4	2700	2810	1540	1290	e9200	e6800	6040	990	5450	38900	9830	2790
5	2670	2770	2970	1280	e9250	e9060	6800	1820	2290	38900	5440	2800
6	2600	2800	2920	1280	e9290	e9380	6470	3370	5550	38800	4740	2800
7	2580	2810	2890	1120	e9290	e6470	6490	3400	5660	34700	5530	2780
8	2450	2470	2860	1390	e2680	e3820	3560	2380	8200	26000	4320	2810
9	2560	2430	2230	1340	e1200	e3790	6500	150	10100	18000	4340	2780
10	2190	2430	1650	1320	e420	e3780	6470	88	17200	18000	4320	2800
11	2470	2420	1710	1280	e40	e3770	6490	102	28600	18000	4320	2800
12	2560	2030	1420	2820	e40	e3780	3160	1480	34100	18000	4330	3000
13	2560	2010	1290	3040	e410	e3770	3780	1400	22700	17100	4310	4440
14	2560	2860	1250	2410	e800	e3780	6120	1530	12000	15800	4320	6670
15	2550	1610	1280	1370	e1170	e6400	3080	2510	21900	15300	4450	7710
16	2530	2050	1290	2440	e800	6400	1120	3570	31900	15200	4300	10800
17	4180	3090	503	2450	e790	e6410	2020	5630	34400	15200	4310	10800
18	2970	2860	695	2460	e1650	e3020	3370	345	36400	15200	4320	10800
19	2910	2060	1350	2470	e1640	e3570	1770	5400	39300	15300	4300	10800
20	2900	1940	103	1360	e1630	e6410	3490	10500	39200	14400	4300	10500
21	2900	2800	1260	2520	e1640	e6440	1260	10500	39200	11500	4300	10500
22	2910	2800	100	1360	e3390	e6470	1120	10500	39300	9750	4320	10400
23	214	2820	102	1380	e3800	6470	1090	13300	39200	9740	4310	10400
24	85	1340	98	1870	e3770	3700	1600	16400	39200	9700	4300	10400
25	80	1250	99	2650	e3770	1740	1350	16000	39200	9710	4290	10400
26	93	2670	102	3540	e3770	3380	1610	15000	39100	9740	3570	10500
27	2520	2720	642	2490	e4150	5850	1010	12400	39100	9720	3500	10500
28	2880	2870	2960	e1150	3770	3330	1430	12400	39100	9700	3510	10500
29	2890	2870	2930	e1150	---	3630	943	12400	39000	9710	3530	10500
30	2790	2870	2480	e1520	---	5690	56	11500	39000	9730	3570	10400
31	2880	---	1410	e1520	---	5620	---	10500	---	9780	3590	---
TOTAL	69690	74920	47214	56030	86170	154200	105399	186757	777450	598480	153860	211120
MEAN	2248	2497	1523	1807	3077	4974	3513	6024	26910	19310	4963	7037
MAX	4180	3090	2970	3540	9290	9380	6800	16400	39300	39000	9830	10800
MIN	80	1250	98	1120	40	1740	56	88	2290	9700	3500	2780
AC-FT	138200	148600	93650	111100	170900	305900	209100	370400	1542000	1187000	305200	418800

CAL YR 1988 TOTAL 1824456 MEAN 4985 MAX 20600 MIN 80 AC-FT 3619000
WTR YR 1989 TOTAL 2521290 MEAN 6908 MAX 39300 MIN 40 AC-FT 5001000

e Estimated

RED RIVER BASIN

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical analyses: May 1944 to August 1989 (discontinued). Chemical and biochemical analyses: October 1974 to September 1986. Sediment analyses: October 1974 to September 1986.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1944 to September 1989.

WATER TEMPERATURE: October 1945 to September 1989.

REMARKS.-- Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,520 microsiemens Aug. 14, 1944; minimum daily, 656 microsiemens Oct. 16, 1945. WATER TEMPERATURE (1945-89): Maximum daily, 31.0°C July 17, 1969; minimum daily, 3.0°C Feb. 2-4, 7, 1966.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,880 microsiemens on several days during February and March; minimum daily, 1,200 microsiemens Sept. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS MG)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV									
01...	1355	2850	1720	8.40	21.0	400	90	42	200
DEC									
20...	1630	103	1840	8.50	12.0	390	91	40	210
FEB									
01...	0900	1530	1830	7.00	9.5	420	100	41	210
MAR									
21...	1620	6430	1860	8.20	9.0	430	100	43	210
MAY									
09...	1740	150	1680	8.40	18.5	400	95	39	190
JUN									
27...	1719	39100	1380	--	25.0	320	82	28	150
AUG									
15...	1435	4375	1180	--	25.0	280	74	23	130

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV								
01...	4	5.2	117	310	310	0.30	5.9	1030
DEC								
20...	5	5.3	106	300	320	0.30	5.1	1040
FEB								
01...	4	5.2	118	330	330	0.30	6.2	1090
MAR								
21...	4	5.0	126	320	350	0.30	5.9	1110
MAY								
09...	4	4.8	120	290	290	0.30	4.6	986
JUN								
27...	4	4.7	116	210	240	0.30	6.7	791
AUG								
15...	3	5.4	112	180	200	0.30	8.3	686

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMANS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1988	69690	1720	998	188000	340	64300	230	43900	370
NOV.	1988	74920	1770	1030	208000	350	71700	240	48600	370
DEC.	1988	47214	1790	1040	132000	360	45800	240	30900	380
JAN.	1989	56030	1830	1060	161000	370	56100	250	37600	380
FEB.	1989	86170	1860	1080	251000	380	88100	250	58800	390
MAR.	1989	154200	1850	1070	447000	380	156300	250	104600	380
APR.	1989	105399	1760	1020	290000	350	100000	240	67900	370
MAY	1989	186757	1690	975	492000	330	167200	230	115000	360
JUNE	1989	777450	1580	912	1914000	300	639600	210	447500	350
JULY	1989	598480	1340	768	1241000	250	396900	180	290200	310
AUG.	1989	153860	1350	774	322000	250	103100	180	75200	310
SEPT	1989	211120	1270	726	414000	230	130500	170	96700	290
TOTAL		2521290	**	**	6059000	**	2019000	**	1417000	**
WTD. AVG.		6908	1540	890	**	300	**	210	**	340

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1730	1750	1790	1800	1840	1850	1800	1730	1690	1400	1250	1200
2	1690	1750	1780	1800	1840	1860	1810	1730	1690	1400	1280	1220
3	1640	1760	1780	1800	1850	1870	1810	1720	1700	1390	1270	1240
4	1630	1770	1780	1780	1850	1870	1800	1730	1700	1380	1280	1270
5	1660	1770	1780	1800	1860	1870	1770	1720	1710	1370	1250	1290
6	1700	1770	1780	1810	1860	1870	1770	1720	1700	1360	1230	1270
7	1720	1770	1780	1810	1860	1880	1790	1730	1700	1370	1220	1280
8	1740	1770	1790	1810	1860	1870	1780	1730	1690	1350	1440	1290
9	1700	1770	1780	1820	1870	1870	1750	1730	1690	1320	1450	1310
10	1760	1770	1790	1820	1880	1860	1740	1730	1690	1320	1430	1320
11	1720	1770	1800	1820	1880	1860	1740	1720	1680	1330	1440	1330
12	1740	1770	1800	1830	1880	1860	1730	1720	1680	1360	1430	1340
13	1720	1770	1800	1820	1880	1860	1730	1710	1660	1280	1430	1230
14	1740	1770	1790	1820	1870	1870	1730	1700	1670	1300	1420	1230
15	1740	1770	1790	1830	1860	1860	1740	1700	1650	1300	1430	1230
16	1740	1770	1790	1830	1860	1850	1750	1690	1660	1300	1430	1240
17	1740	1770	1800	1830	1880	1850	1750	1690	1660	1310	1420	1240
18	1740	1780	1800	1830	1880	1850	1730	1700	1620	1350	1420	1240
19	1740	1790	1800	1840	1870	1860	1730	1690	1600	1250	1400	1240
20	1740	1780	1800	1850	1870	1860	1740	1690	1590	1270	1400	1230
21	1740	1770	1800	1850	1870	1850	1740	1690	1580	1280	1390	1250
22	1740	1780	1800	1850	1870	1850	1740	1690	1600	1290	1400	1300
23	1740	1770	1790	1850	1870	1840	1740	1690	1570	1290	1380	1290
24	1740	1770	1790	1870	1870	1830	1740	1690	1550	1300	1390	1290
25	1740	1780	1790	1860	1870	1830	1730	1680	1530	1290	1380	1280
26	1740	1780	1800	1860	1870	1820	1730	1680	1520	1260	1370	1280
27	1750	1780	1800	1860	1870	1820	1720	1680	1410	1280	1360	1280
28	1740	1780	1790	1860	1870	1810	1730	1670	1450	1300	1350	1280
29	1740	1780	1800	1850	---	1800	1730	1670	1450	1290	1370	1290
30	1750	1790	1800	1850	---	1800	1730	1670	1420	1280	1330	1300
31	1750	---	1800	1860	---	1800	---	1670	---	1270	1220	---
MEAN	1730	1770	1790	1830	1870	1850	1750	1700	1620	1320	1360	1270

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	20.0	14.5	---	10.0	8.5	---	25.0	27.0	---	27.0	27.0
2	---	20.0	15.5	---	---	8.5	---	25.0	---	25.0	27.0	---
3	23.0	20.5	---	12.0	---	8.5	---	25.0	---	25.0	26.0	---
4	22.0	20.0	---	12.0	---	---	---	25.0	27.0	25.0	26.0	---
5	---	19.0	15.0	12.0	---	---	22.0	---	27.0	26.0	---	25.0
6	23.0	---	15.0	12.0	8.0	8.5	21.5	---	27.0	27.0	---	28.0
7	---	---	15.0	---	7.5	7.5	---	25.5	26.0	---	28.0	27.5
8	---	18.5	15.0	11.0	7.5	7.0	---	---	26.0	---	23.0	27.5
9	---	18.5	---	---	7.5	7.0	22.5	25.5	---	---	25.0	---
10	---	18.5	---	11.0	7.5	7.0	22.0	25.5	---	25.0	25.0	---
11	22.5	---	---	10.0	---	---	22.5	25.5	28.0	28.0	24.0	26.0
12	22.5	---	14.0	9.5	---	---	22.5	---	23.0	27.5	---	26.0
13	22.5	---	13.5	9.5	8.0	7.5	26.0	---	25.0	27.5	---	28.0
14	22.5	---	14.0	---	8.0	7.5	---	25.5	25.0	---	24.0	27.0
15	---	19.5	13.5	---	8.0	8.0	---	25.5	24.0	---	24.5	27.0
16	---	18.0	---	---	8.0	8.5	23.8	25.0	---	26.0	24.0	---
17	22.5	17.0	---	10.0	8.0	10.0	24.1	26.0	---	26.0	24.0	---
18	22.0	18.0	---	10.0	---	---	24.0	---	24.0	28.0	24.0	26.0
19	22.0	19.5	12.0	9.5	---	---	25.0	---	24.5	27.0	---	25.5
20	22.0	---	12.0	10.0	---	10.5	25.0	---	24.0	27.0	---	25.5
21	22.0	17.0	12.0	---	8.0	8.0	---	26.0	24.0	---	24.5	25.5
22	---	16.0	12.0	---	8.0	10.0	---	26.0	24.0	---	24.5	25.5
23	---	17.0	12.0	10.5	8.0	11.0	24.0	27.0	---	25.9	24.5	---
24	22.0	---	---	10.5	7.5	11.0	24.0	27.0	---	25.6	24.5	---
25	22.0	---	---	10.5	---	---	24.0	27.0	24.5	25.5	24.0	24.0
26	22.0	---	---	10.5	---	---	24.0	---	24.5	25.3	---	24.0
27	21.0	---	12.0	10.5	8.5	10.0	25.0	---	24.5	25.3	---	24.0
28	21.0	15.3	11.0	---	9.0	10.5	---	26.0	24.5	---	26.0	24.0
29	---	15.0	10.5	---	---	11.5	---	26.0	24.0	---	25.0	24.0
30	---	14.7	10.5	10.0	---	11.5	25.0	26.5	---	24.0	25.0	---
31	20.0	---	---	10.0	---	12.0	---	26.0	---	24.0	26.0	---
MEAN	22.1	18.0	13.1	10.5	8.1	9.1	23.7	25.8	25.1	26.0	25.0	25.8
MAX	23.0	20.5	15.5	12.0	10.0	12.0	26.0	27.0	28.0	28.0	28.0	28.0
MIN	20.0	14.7	10.5	9.5	7.5	7.0	21.5	25.0	23.0	24.0	23.0	24.0

WTR YR 1989 MEAN 19.5 MAX 28.0 MIN 7.0

07332500 BLUE RIVER NEAR BLUE, OK

LOCATION.-- Lat 33°59'49", long 96°14'27", on line between sec.27 and 34, T.6 S., R.10 E., Bryan County, Hydrologic Unit 11140102, near left bank on downstream side of pier of bridge on U.S. Highway 70, 1.0 mi west of Blue, 7.0 mi east of Durant, 7.7 mi upstream from Caddo Creek, and at mile 38.8.

DRAINAGE AREA.-- 476 mi².

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 above National Geodetic Vertical Datum of 1929. Prior to Mar. 13, 1945, nonrecording gage and Mar. 13, 1945 to Feb. 2, 1960, water-stage recorder at site 1.2 mi downstream at datum 5.00 ft lower.

REMARKS.-- Records fair. Some regulation at low flow by a State fish hatchery, 16.0 mi upstream from station. Small diversion for municipal water supply for city of Durant upstream from station. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record and 6 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- 53 years, 299 ft³/s, 8.53 in/yr, 216,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 65,200 ft³/s, Oct. 14, 1981, gage height, 44.20 ft, from high-water mark; no flow Aug. 3, 4, 1936, result of regulation at fish hatchery, and no flow Sept. 19 to Oct. 16, 1956.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 30	0400	4,710	19.44	June 8	1100	*15,700	*29.04
May 19	0300	5,310	20.55	June 13	2000	4,340	18.62
June 5	0200	6,560	22.42	Sept. 14	1000	4,390	18.74

Minimum daily discharge, 16 ft³/s, Oct. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	39	e50	67	181	147	e1500	82	140	124	79	37
2	21	34	e46	63	167	141	e270	89	128	122	78	36
3	21	31	e42	64	326	137	257	145	e118	146	81	226
4	22	28	e37	61	145	142	e210	966	3800	137	78	106
5	22	28	e35	55	103	159	190	1370	5480	118	73	49
6	21	26	33	52	90	155	173	792	926	108	68	50
7	e20	e24	34	52	98	164	163	235	2400	105	70	39
8	e20	e23	39	53	103	219	155	164	12200	131	65	35
9	e19	e24	51	51	93	917	148	138	6970	116	59	34
10	24	26	55	50	89	2390	137	120	1100	101	60	40
11	22	25	49	48	87	1430	125	106	665	94	63	111
12	e20	29	58	49	86	682	121	99	712	96	61	234
13	e19	42	57	51	89	386	121	118	2950	97	59	630
14	e18	34	61	51	96	279	133	118	2900	400	61	1790
15	e17	36	56	48	574	230	163	115	810	e870	68	503
16	e16	45	48	47	1490	197	164	1650	446	e300	67	215
17	e17	37	44	47	1720	178	138	2680	329	e180	287	147
18	e18	38	44	47	3280	170	124	5110	269	151	500	119
19	e19	39	42	48	1090	161	119	4490	232	280	e150	100
20	e19	73	42	46	459	154	118	781	210	173	e67	87
21	e20	88	42	45	422	175	113	340	193	126	e61	80
22	e20	64	44	44	301	158	109	258	179	106	58	75
23	22	e60	53	44	222	144	107	226	167	112	55	68
24	23	e48	65	46	190	139	102	201	158	172	50	64
25	22	e44	82	52	175	135	98	174	152	174	51	60
26	25	e36	58	1490	168	133	95	153	148	130	49	57
27	31	e62	52	702	161	147	93	1420	141	113	47	53
28	58	86	86	797	154	2300	91	1010	163	106	45	52
29	44	62	111	2470	---	3200	87	301	144	97	43	53
30	59	e60	98	536	---	3670	84	183	130	91	38	56
31	56	---	74	240	---	2070	---	155	---	85	39	---
TOTAL	777	1291	1688	7516	12159	20709	5508	23789	44360	5161	2630	5206
MEAN	25.1	43.0	54.5	242	434	668	184	767	1479	166	84.8	174
MAX	59	88	111	2470	3280	3670	1500	5110	12200	870	500	1790
MIN	16	23	33	44	86	133	84	82	118	85	38	34
AC-FT	1540	2560	3350	14910	24120	41000	10930	47190	87990	10240	5220	10330
CFSM	.05	.09	.11	.51	.91	1.40	.39	1.61	3.11	.35	.18	.36
IN.	.06	.10	.13	.59	.95	1.62	.43	1.86	3.47	.40	.21	.41

CAL YR 1988 TOTAL 56887 MEAN 155 MAX 2380 MIN 16 AC-FT 112800 CFSM .33 IN. 4.45
WTR YR 1989 TOTAL 130794 MEAN 358 MAX 12200 MIN 16 AC-FT 259400 CFSM .75 IN. 10.22

e Estimated

RED RIVER BASIN

07334000 MUDDY BOGGY CREEK NEAR FARRIS, OK

LOCATION.-- Lat 34°16'17", long 95°54'43", in NE 1/4 NW 1/4 sec.26, T.3 S., R.13 E., Atoka County, Hydrologic Unit 11140103, on downstream left bank of bridge on State Highway 3, 1.3 mi downstream from McGee Creek, 2.8 mi northwest of Farris, and at mile 57.7.

DRAINAGE AREA.-- 1,087 mi².

PERIOD OF RECORD.-- October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.-- WSP 1211: Drainage area.

GAGE.-- Water-stage recorder. Datum of gage is 444.58 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 13, 1945, nonrecording gage, and Mar. 13, 1945 to Sept. 30, 1961, water-stage recorder at same site at datum 2.00 ft higher.

REMARKS.-- Records fair. Some regulation since June 1959 by Atoka Reservoir, drainage area, 176 mi²; pipeline diversions to Oklahoma City since November 1963, and since April 1987 by McGee Creek Reservoir, drainage area 178 mi².

COOPERATION.-- Gage-height records and 5 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by McGee Creek Lake, 49 years (water years 1938-86), 880 ft³/s, 637,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 61,900 ft³/s, June 17, 1945, gage height, 44.94 ft, datum then in use, from rating curve extended above 37,000 ft³/s; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Feb. 18	0700	*8,720	*25.90	No peaks above base discharge.			

Minimum daily discharge, 9.9 ft³/s, Nov. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	38	64	141	1400	859	3410	70	1020	102	31	43
2	16	30	47	108	1200	644	2400	70	769	81	30	42
3	16	25	37	134	e900	555	2100	78	315	94	28	50
4	16	22	31	137	e600	213	1780	134	2110	85	26	1730
5	15	19	26	109	e300	227	1310	504	3380	73	25	1440
6	15	18	24	88	e150	317	949	499	3220	70	24	391
7	15	17	34	75	e70	581	516	392	2710	61	23	208
8	15	12	53	62	59	763	233	307	6060	59	22	149
9	15	9.9	46	52	49	2030	213	253	5180	50	22	124
10	15	10	37	45	43	5330	178	116	3620	49	21	239
11	15	13	39	41	42	6900	178	91	1600	48	21	1100
12	14	22	45	36	42	5230	138	78	1450	43	21	721
13	14	20	47	35	51	2770	121	77	3710	41	22	2810
14	14	18	55	35	77	2130	114	76	6990	29	22	2710
15	14	18	54	35	350	1730	151	75	6970	51	23	3590
16	14	20	44	33	2410	1170	168	557	6480	84	24	2420
17	14	20	30	29	6570	723	208	1370	3870	116	28	939
18	14	20	28	28	8090	303	195	5800	1630	191	240	531
19	14	38	30	27	6130	286	163	7070	1490	978	1580	205
20	15	132	30	26	3750	250	198	6910	1350	427	1970	148
21	15	196	30	25	2170	321	224	4470	1240	178	858	114
22	14	118	34	24	2330	435	120	2370	1170	104	337	90
23	14	71	47	24	2300	460	113	4420	1120	71	219	76
24	14	55	47	23	2050	303	108	4380	1100	55	160	109
25	14	56	171	93	1800	191	101	2240	1080	46	126	81
26	14	68	119	3900	1740	183	95	1450	1010	41	105	56
27	16	42	88	3030	1610	308	87	2420	761	37	90	46
28	34	65	300	1780	1220	2920	80	2170	617	33	81	41
29	19	160	750	4830	---	5140	75	1060	452	30	73	41
30	17	98	423	4690	---	5510	70	918	389	31	69	39
31	27	---	216	2290	---	6030	---	1190	---	32	47	---
TOTAL	494	1450.9	3026	21985	47503	54812	15796	51615	72863	3390	6368	20283
MEAN	15.9	48.4	97.6	709	1697	1768	527	1665	2429	109	205	676
MAX	34	196	750	4830	8090	6900	3410	7070	6990	978	1970	3590
MIN	14	9.9	24	23	42	183	70	70	315	29	21	39
AC-FT	980	2880	6000	43610	94220	108700	31330	102400	144500	6720	12630	40230

CAL YR 1988 TOTAL 125969.9 MEAN 344 MAX 7620 MIN 9.9 AC-FT 249900
WTR YR 1989 TOTAL 299585.9 MEAN 821 MAX 8090 MIN 9.9 AC-FT 594200

e Estimated

RED RIVER BASIN

493

07334200 BYRD'S MILL SPRING NEAR FITTSTOWN, OK

LOCATION.-- Lat 34°35'40", (revised) long 96°39'55", in SW 1/4 SW 1/4 sec.34, T.2 N., R.6 E., Pontotoc County, Hydrologic Unit 11140104, upstream from weir outlet of spring, 0.5 mi upstream from Big Spring Creek, 2.0 mi west of Fittstown, and 12.0 mi south of Ada.

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

GAGE.-- Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 1,021.17 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Records do not include diversion of about 6 to 10 ft³/s by city of Ada for municipal water supply, a part of which is discharged as effluent to Sandy Creek, tributary to Canadian River. Records of zero flow do not include seepage of up to 0.10 ft³/s.

AVERAGE DISCHARGE.-- 30 years, 7.74 ft³/s, 5,608 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 30 ft³/s, May 30, 1960, gage height, 3.22 ft; no flow at times in several years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 19 ft³/s, Oct. 20, May 22, June 29, gage height, 3.15 ft; minimum daily discharge, 3.4 ft³/s, Dec. 24, 25, 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	6.6	e5.5	3.7	5.2	7.9	10	10	10	12	9.8	8.1
2	5.2	6.8	e5.5	3.7	5.2	7.9	10	10	10	12	9.9	8.2
3	5.9	6.7	e5.5	3.7	5.2	8.0	11	10	10	12	9.6	7.9
4	7.0	6.5	e5.4	4.4	5.2	8.0	11	10	10	11	9.4	7.9
5	6.7	6.3	e5.4	5.5	5.2	8.0	11	10	10	11	9.4	8.1
6	6.4	6.3	e5.4	5.5	5.2	8.1	11	9.9	10	11	9.4	8.4
7	6.3	8.9	e5.3	5.5	4.7	8.2	11	9.9	10	11	9.4	8.4
8	6.3	9.0	e5.3	5.5	3.7	8.0	11	9.9	11	11	9.4	8.4
9	6.0	6.0	e5.2	5.5	3.7	8.1	11	9.9	11	11	9.4	8.4
10	6.3	6.0	e5.2	5.6	3.8	8.4	11	9.9	11	11	9.4	8.3
11	6.0	6.2	e5.2	5.5	4.0	8.8	11	9.8	11	11	9.4	8.6
12	5.5	6.1	5.2	5.3	4.0	8.9	11	9.9	11	10	9.1	8.9
13	5.5	6.0	5.3	5.3	4.0	9.1	11	9.9	11	10	8.9	9.2
14	5.5	5.9	5.9	5.5	4.9	9.4	11	9.6	12	10	8.7	9.4
15	5.5	6.2	5.2	5.2	5.8	9.4	11	9.4	12	10	8.4	9.4
16	5.5	5.9	5.2	5.1	6.3	9.4	11	9.4	12	10	9.0	9.4
17	5.5	5.9	5.2	5.2	6.5	9.5	11	9.8	12	10	10	9.4
18	5.5	5.9	5.4	5.2	7.1	9.4	12	12	12	10	11	9.4
19	5.6	5.9	5.3	5.2	7.6	9.7	11	12	12	9.9	11	9.4
20	9.5	5.9	3.6	5.2	7.9	9.9	11	12	13	9.9	11	9.4
21	9.0	5.9	3.5	5.2	7.9	9.9	11	12	13	9.9	11	9.4
22	5.0	e5.8	3.6	5.2	8.6	9.9	11	13	13	9.9	11	9.3
23	4.7	e5.8	3.7	5.1	8.4	9.9	11	12	13	9.9	11	8.9
24	5.1	e5.8	3.4	4.8	7.5	9.9	11	11	13	9.9	11	8.9
25	6.3	e5.7	3.4	4.8	7.5	9.9	10	10	13	10	9.6	8.9
26	6.3	e5.7	3.6	4.8	7.5	9.9	10	10	12	10	9.4	8.9
27	6.3	e5.7	3.4	4.8	7.9	9.9	10	10	12	9.9	8.7	8.9
28	6.3	e5.6	3.4	4.8	7.9	9.9	10	10	13	11	8.0	8.8
29	6.3	e5.6	3.5	4.9	---	9.9	10	10	13	9.9	8.1	9.9
30	6.3	e5.6	4.3	5.2	---	10	10	10	12	9.9	9.2	9.4
31	6.3	---	4.5	5.2	---	10	---	10	---	9.9	8.2	---
TOTAL	189.1	186.2	145.5	156.1	168.4	283.2	323	321.3	348	324.0	296.8	265.9
MEAN	6.10	6.21	4.69	5.04	6.01	9.14	10.8	10.4	11.6	10.5	9.57	8.86
MAX	9.5	9.0	5.9	5.6	8.6	10	12	13	13	12	11	9.9
MIN	4.7	5.6	3.4	3.7	3.7	7.9	10	9.4	10	9.9	8.0	7.9
AC-FT	375	369	289	310	334	562	641	637	690	643	589	527

CAL YR 1988 TOTAL 3603.0 MEAN 9.84 MAX 19 MIN 2.9 AC-FT 7150
WTR YR 1989 TOTAL 3007.5 MEAN 8.24 MAX 13 MIN 3.4 AC-FT 5970

e Estimated

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 downstream from Caney Creek, 1.5 mi north of Caney, and at mile 24.1.

DRAINAGE AREA.-- 720 mi².

PERIOD OF RECORD.-- October 1942 to September 1989 (discontinued). 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 above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Mar. 13, 1945, nonrecording gage at same site and datum.

REMARKS.-- Records fair. Some regulation since 1964 by numerous floodwater-retarding structures.

COOPERATION.-- Gage-height record and 7 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- 47 years, 488 ft³/s, 9.20 in/yr, 353,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 53,500 ft³/s, Oct. 14, 1981, gage height, 26.60 ft, maximum gage height, 26.77 ft, Dec. 11, 1946; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- A stage of 26.9 ft occurred in February 1938, information provided by local resident.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Mar. 29	2100	5,000	19.26	June 8	0600	*9,640	*22.36
May 19	2000	5,300	19.79				

Minimum daily discharge, 4.6 ft³/s, Oct. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	16	54	124	724	e414	1550	57	214	137	48	132
2	7.9	15	48	122	e500	e368	1120	54	170	141	41	86
3	9.8	13	40	135	e300	e340	855	64	156	151	36	334
4	10	16	33	113	e250	e331	677	106	2010	145	40	668
5	13	15	29	97	e225	e323	543	402	1880	123	35	319
6	11	11	26	84	e200	e340	437	322	930	103	32	200
7	9.1	10	28	78	e180	e349	359	201	2020	94	29	147
8	10	9.6	30	69	e160	e426	297	138	8000	91	27	113
9	13	9.4	133	81	e140	e1320	254	106	5060	87	21	99
10	13	9.1	104	54	e130	e3980	217	86	2090	78	19	89
11	12	9.1	89	50	e125	e3930	193	69	1470	70	18	139
12	11	9.4	78	49	e120	e1730	178	62	1370	64	18	357
13	10	14	71	50	e118	e1390	171	65	2500	60	18	1390
14	11	15	81	47	e117	1020	179	68	3880	351	17	2650
15	11	34	92	44	1090	e803	202	84	3250	429	17	1780
16	10	40	79	48	3920	e640	212	115	1300	316	18	748
17	8.6	28	64	48	e3730	e627	197	898	919	214	218	584
18	6.7	21	53	45	e4880	e485	171	4240	706	158	1930	476
19	5.5	23	45	42	e4300	e397	154	4470	614	120	1110	389
20	4.6	43	42	40	e2260	e542	134	3460	521	97	651	321
21	5.1	41	38	39	e1600	e533	121	1530	438	72	421	273
22	6.8	78	35	36	e1250	e483	109	1150	367	58	327	222
23	57	58	37	35	e950	e453	100	1420	302	59	257	184
24	48	41	124	35	e765	e433	90	e1100	258	104	210	159
25	26	30	139	231	e640	e423	83	e900	234	117	172	138
26	17	26	94	e2500	e544	e414	77	e800	215	115	133	126
27	12	207	77	e1300	e503	e398	73	e650	200	194	106	116
28	11	209	139	e1700	e443	e1590	68	e500	206	126	91	95
29	11	117	406	e3000	---	3050	67	e400	167	95	77	84
30	11	73	242	1560	---	4220	58	354	145	81	63	76
31	16	---	155	1000	---	3260	---	273	---	61	111	---
TOTAL	416.0	1240.6	2705	12834	30172	34992	8946	24144	41592	4111	6311	12494
MEAN	13.4	41.4	87.3	414	1078	1129	298	779	1386	133	204	416
MAX	57	209	406	3000	4880	4220	1550	4470	8000	429	1930	2650
MIN	4.6	9.1	26	35	117	323	58	54	145	58	17	76
AC-FT	825	2460	5370	25460	59850	69410	17740	47890	82500	8150	12520	24780
CFSM	.02	.06	.12	.57	1.50	1.57	.41	1.08	1.93	.18	.28	.58
IN.	.02	.06	.14	.66	1.56	1.81	.46	1.25	2.15	.21	.33	.65

CAL YR 1988 TOTAL 67337.6 MEAN 184 MAX 3680 MIN 3.7 AC-FT 133600 CFSM .26 IN. 3.48
WTR YR 1989 TOTAL 179957.6 MEAN 493 MAX 8000 MIN 4.6 AC-FT 356900 CFSM .68 IN. 9.30

e Estimated

RED RIVER BASIN

495

07335300 MUDDY BOGGY CREEK NEAR UNGER, OK

LOCATION.-- Lat 34°01'36", long 95°45'00", in SE 1/4 SE 1/4 sec.17, T.6 S., R.15 E., Choctaw County, Hydrologic Unit 11140103, at bridge on U.S. Highway 70, 3.5 mi west of Soper, 1.8 mi east of Unger and at mile 18.6.

DRAINAGE AREA.-- 2,273 mi².

PERIOD OF RECORD.-- August 1982 to current year.

GAGE.-- Water-stage recorder and crest-stage gage. Datum of gage is 392.72 ft above National Geodetic Vertical Datum of 1929. Auxiliary gage 7.4 mi downstream. Prior to Sept. 19, 1985, gage 500 ft downstream at same datum.

REMARKS.-- Records fair. Several unpublished observations of water temperature, specific conductance, and pH were made during the year and are available at the District Office. Some regulation by Atoka Reservoir, capacity, 125,000 acre-ft, on North Boggy Creek, drainage area 176 mi².

AVERAGE DISCHARGE.-- 7 years, 1,676 ft³/s, 1,214,000 acre-ft/year.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 28,000 ft³/s, Apr. 26, 1985, gage height, 44.05 ft; minimum daily discharge, 1.8 ft³/s, Sept. 8, 1984.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 11,900 ft³/s, Feb. 20, gage height, 35.82 ft; minimum daily discharge, 27 ft³/s, Oct. 11-17, 20-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	50	251	527	6140	1600	9030	e250	1620	e730	157	122
2	28	48	179	357	3210	1230	9220	e235	1350	e580	143	133
3	28	58	135	271	2300	971	8360	e220	971	e510	130	584
4	28	57	112	249	1770	907	5550	540	1690	e460	119	428
5	28	51	94	287	1160	726	3020	1160	5550	e430	111	2000
6	28	42	84	261	840	604	2130	1570	6870	e400	106	1680
7	28	39	80	234	699	616	1620	1180	7340	e370	102	729
8	28	37	81	198	587	896	e1370	859	8390	e350	97	420
9	28	37	96	174	387	1400	e980	606	9040	e330	92	292
10	28	35	109	157	311	2240	e790	469	10300	e315	88	237
11	27	31	115	143	281	4220	e660	324	11000	310	84	418
12	27	30	150	134	265	6540	e550	242	10200	287	80	1600
13	27	38	168	129	298	7700	e490	247	8850	280	77	2480
14	27	44	145	129	349	8570	e460	298	8440	277	75	4650
15	27	53	134	131	2520	8940	e435	257	8680	431	77	5470
16	27	79	132	128	5530	8080	e400	331	9380	803	76	6110
17	27	58	130	122	7670	5290	e375	3810	10100	700	128	4680
18	28	56	122	116	8990	2760	e440	7230	9940	637	159	2090
19	28	65	107	113	10300	1820	e545	7970	7480	2310	804	1200
20	27	92	101	111	11700	1260	e620	8760	e3100	2100	2650	735
21	27	107	96	106	11500	845	e645	9840	e2100	1050	2820	554
22	27	201	94	102	10000	714	e660	11000	e1830	493	1450	435
23	28	191	98	101	7970	629	e615	11300	e1680	302	733	348
24	28	144	111	99	4970	611	e535	10500	e1580	239	498	278
25	28	126	116	156	3200	693	e400	9220	e1420	188	367	260
26	33	124	162	1300	2620	651	e380	7020	e1380	189	290	235
27	46	138	327	4870	2360	486	e340	3360	e1270	195	234	194
28	62	141	300	5130	2040	3560	e315	3840	e1260	200	193	171
29	72	119	368	4760	---	7000	e290	3450	e1020	226	166	159
30	84	230	892	6370	---	8010	e275	2200	e880	198	147	146
31	66	---	788	7140	---	8520	---	1710	---	171	134	---
TOTAL	1053	2521	5867	34105	109967	98089	51500	109998	154691	18061	12387	38826
MEAN	34.0	84.0	189	1100	3927	3164	1717	3548	5156	518	400	1294
MAX	84	230	892	7140	11700	8940	9220	11300	11000	2310	2820	6110
MIN	27	30	80	99	265	486	275	220	880	171	75	122
AC-FT	2090	5000	11640	67650	218100	194600	102200	218200	306800	31860	24570	77010

CAL YR 1988 TOTAL 275637 MEAN 753 MAX 13500 MIN 23 AC-FT 546700
WTR YR 1989 TOTAL 635065 MEAN 1740 MAX 11700 MIN 27 AC-FT 1260000

e Estimated

RED RIVER BASIN

07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.-- Lat 33°52'32", long 95°30'08", in NW 1/4 sec.11, T.8 S., R.17 E., Choctaw County, OK, Hydrologic Unit 11140101, on right downstream bank of bridge on U.S. Highway 271 at Arthur City, 10.6 mi downstream from Muddy Boggy River, 26.0 mi upstream from Kiamichi River, and at mile 633.1.

DRAINAGE AREA.-- 44,531 mi², of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.-- January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of the National Weather Service.

REVISED RECORDS.-- WSP 1241: Drainage area. WSP 1311: 1906-11.

GAGE.-- Water-stage recorder. Datum of gage is 380.07 ft above National Geodetic Vertical Datum of 1929. From 1905-11 nonrecording gage at St. Louis-San Francisco Railway Co. bridge 200 ft upstream at same datum. July 1, 1936 to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.-- Records poor. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi upstream from station.

COOPERATION.-- Gage-height record and 8 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by Lake Texoma, 13 years (water years 1906-11, 1937-43), 9,266 ft³/s, 6,713,000 acre-ft/yr; since regulation by Lake Texoma, 45 years (water years 1945-89), 8,352 ft³/s, 6,051,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 400,000 ft³/s, May 28, 1908, gage height, 43.2 ft, from rating curve extended above 41,000 ft³/s, on basis of records for later years; minimum, 130 ft³/s, Dec. 11-12, 1956, gage height, 4.49 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 71,600 ft³/s, June 14, gage height, 18.82 ft; minimum daily discharge, 398 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	413	3580	3680	4100	11300	7240	23900	4360	16100	54500	9960	4340
2	413	3940	3640	3520	7960	6540	20900	3250	14900	53900	9940	4300
3	408	3730	3530	2430	5730	6100	20300	2640	14500	54500	9970	4420
4	398	3390	3490	2100	5630	5910	18200	3500	24200	54200	9890	4610
5	411	3260	3340	2060	7760	6000	13800	7700	54000	53500	9840	4970
6	1700	3230	1870	2050	10900	8740	11700	10800	51400	53400	8390	5510
7	2480	3120	2290	1990	11300	10300	10700	7760	34900	53500	6530	4620
8	2600	3200	3300	1900	11300	11700	9970	6380	48400	50700	5960	4640
9	2620	3250	3370	1680	9820	10900	9340	5910	58800	39800	6260	3800
10	2620	3210	3400	1700	5490	13200	9000	4920	50300	25300	5440	3710
11	2560	2870	3430	2050	3820	17100	8790	3700	39600	21800	5340	3950
12	2580	2870	2540	1830	2420	16200	8670	2500	50000	21000	5280	4910
13	2370	3100	2570	1830	1960	14700	8500	2220	63600	20700	5230	6470
14	2540	3180	3260	1890	1910	14200	8550	2240	67300	20500	5180	11900
15	2630	2940	2440	3350	6350	12700	6450	3280	49700	24800	5180	15600
16	2650	2800	2040	3190	16200	9320	7970	4020	44300	30700	5160	15400
17	2660	3080	1960	2630	24700	8970	6220	33800	54100	23500	5360	15100
18	2650	2530	1910	2300	38400	8400	4790	62800	62000	18900	5710	13700
19	2910	3090	1640	2860	32700	7560	5920	41000	60700	28900	6400	12100
20	3830	3670	1130	2960	20600	5330	7780	29300	58900	22500	7160	11300
21	3220	3480	1260	2940	16500	5180	5990	29300	56800	19500	7780	11000
22	3150	3180	1620	2450	14700	7160	5960	30200	56000	15100	6980	10800
23	3150	3100	986	2380	12800	7370	4910	32600	55500	12100	6020	10600
24	3140	3520	1430	2220	11200	7380	4670	29900	55400	12200	5620	10400
25	2990	3520	874	1890	8970	7190	4580	33300	55500	11200	5420	10400
26	1290	3830	711	5830	7950	4930	5230	32100	55500	10600	5320	10400
27	731	2910	711	12300	7520	4720	5050	29700	55300	10500	5220	10400
28	672	2840	976	14500	7440	12800	5110	29000	55400	10400	4820	10400
29	668	3590	1140	13800	---	43100	4570	26000	55100	10200	4480	10400
30	2420	3580	1820	19200	---	38600	4830	20900	54700	10200	4400	10400
31	3510	---	4070	15100	---	28800	---	18700	---	10100	4350	---
TOTAL	66384	97390	70428	141030	323330	368360	270350	553780	1470900	858700	198590	259950
MEAN	2141	3246	2272	4549	11550	11880	9012	17880	49030	27700	6406	8665
MAX	3830	3940	4070	19200	38400	43100	23900	62800	67300	54500	9970	15600
MIN	398	2530	711	1680	1910	4720	4570	2220	14500	10100	4350	3710
AC-FT	131700	193200	139700	279700	641300	730600	536200	1098000	2918000	1703000	393900	515600

CAL YR 1988 TOTAL 2432871 MEAN 6647 MAX 23000 MIN 397 AC-FT 4826000
WTR YR 1989 TOTAL 4679192 MEAN 12820 MAX 67300 MIN 398 AC-FT 9281000

RED RIVER BASIN

497

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK
(Hydrologic benchmark 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., Le Flore County, Hydrologic Unit 11140105, in Ouachita National Forest, on downstream side of right bank pier of bridge on State Highway 63, 0.2 mi upstream from Rattlesnake Creek, 1.1 mi upstream from Big Branch, 2.1 mi east of Big Cedar, and at mile 167.6.

DRAINAGE AREA.-- 40.1 mi².

WATER-DISCHARGE RECORDS

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

GAGE.-- Water-stage recorder. Datum of gage is 886.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good.

AVERAGE DISCHARGE.-- 24 years, 79.4 ft³/s, 26.9 in/yr, 57,5300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 21,500 ft³/s, Dec. 10, 1971, gage height, 17.08 ft; from rating curve extended above 9,000 ft³/s; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 25	2345	2,040	9.20	Feb. 15	0315	*9,280	*14.15
Feb. 13	2045	3,950	11.13	May 17	1330	5,410	12.14

No flow Oct. 1 to Nov. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	82	127	165	119	153	98	43	6.2	68	.27
2	.00	.00	64	111	158	111	136	85	36	9.2	48	.58
3	.00	.00	51	95	172	105	121	137	28	10	36	.58
4	.00	.00	41	78	151	138	106	154	88	6.2	26	.40
5	.00	.00	34	105	151	158	93	151	85	4.4	18	.26
6	.00	.00	29	118	150	141	84	122	104	3.3	13	.21
7	.00	.00	39	111	132	137	78	102	75	5.1	10	.16
8	.00	.00	51	98	99	157	69	86	70	6.4	7.7	.13
9	.00	.01	46	93	91	231	58	167	51	4.2	5.8	.14
10	.00	.07	47	88	84	312	50	142	38	3.3	4.9	.71
11	.00	.06	54	81	81	282	44	112	32	2.4	4.2	1.1
12	.00	.59	54	86	79	215	40	91	44	2.1	3.5	.68
13	.00	.75	50	115	840	174	36	75	432	18	2.9	4.8
14	.00	.74	49	122	744	150	50	76	292	11	2.8	2.5
15	.00	1.0	45	118	2990	127	55	67	180	35	2.8	1.7
16	.00	3.1	39	108	698	111	41	308	137	43	2.6	1.5
17	.00	4.9	36	98	465	97	37	1420	106	169	2.3	1.2
18	.00	50	32	89	445	85	33	555	76	206	2.1	1.0
19	.00	404	30	78	295	74	35	286	54	608	1.9	.95
20	.00	246	30	68	261	69	33	291	39	189	1.7	.81
21	.00	133	28	59	232	60	31	245	28	127	1.5	.58
22	.00	95	62	53	193	54	28	191	20	90	1.2	.40
23	.00	68	156	47	166	48	27	151	14	65	.99	.30
24	.00	50	125	43	148	42	26	120	11	241	.79	.24
25	.00	254	102	86	133	39	23	92	8.1	261	.62	.21
26	.00	750	86	543	121	49	20	72	9.2	165	.49	.19
27	.00	257	306	277	147	100	17	184	7.5	124	.33	.17
28	.00	164	335	414	133	223	15	137	6.2	96	.27	.14
29	.00	130	220	470	---	294	12	111	4.9	69	.25	.37
30	.00	105	172	271	---	235	119	84	4.4	52	.45	.67
31	.00	---	148	202	---	183	---	63	---	105	.63	---
TOTAL	0.00	2717.22	2643	4452	9522	4320	1670	5975	2123.3	2736.8	271.72	22.95
MEAN	.00	90.6	85.3	144	340	139	55.7	193	70.8	88.3	8.77	.76
MAX	.00	750	335	543	2990	312	153	1420	432	608	68	4.8
MIN	.00	.00	28	43	79	39	12	63	4.4	2.1	.25	.13
AC-FT	.0	5390	5240	8830	18890	8570	3310	11850	4210	5430	539	.46
CFSM	.00	2.26	2.13	3.58	8.48	3.48	1.39	4.81	1.77	2.20	.22	.02
IN.	.00	2.52	2.45	4.13	8.83	4.01	1.55	5.54	1.97	2.54	.25	.02

CAL YR 1988 TOTAL 21486.46 MEAN 58.7 MAX 1030 MIN .00 AC-FT 42620 CFSM 1.46 IN. 19.93
WTR YR 1989 TOTAL 36453.99 MEAN 99.9 MAX 2990 MIN .00 AC-FT 72310 CFSM 2.49 IN. 33.82

RED RIVER BASIN

07335700 KIAMIACHI RIVER NEAR BIG CEDAR, OK--Continued
(Hydrologic benchmark station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1966 to current year.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	GAGE HEIGHT (FEET)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)
DEC 13...	1200	1028	80020	3.74	52	*25	7.6	27.0	8.5	7.6	744
MAR 14...	1600	1028	80020	4.27	148	*20	7.5	19.0	18.5	5.4	728
APR 19...	1440	1028	1028	3.60	40	32	6.2	33.0	21.5	--	--
JUN 01...	1100	1028	80020	3.73	47	*23	**7.6	26.0	25.0	70	747
AUG 23...	1100	1028	80020	3.08	1.1	*34	7.3	36.0	27.5	1.4	739

*SPECIFIC CONDUCTANCE, LAB (US/CM)

**PH, LAB (STANDARD UNITS)

DATE	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
DEC 13...	9.1	38	37	6	--	1.1	0.77	2.3	43	0.4	0.60
MAR 14...	--	--	--	5	--	0.79	0.64	1.7	41	0.3	0.60
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	8.8	74	59	6	0	1.1	0.77	2.0	39	0.4	0.70
AUG 23...	7.5	26	--	11	--	2.4	1.2	2.6	31	0.3	1.4

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
DEC 13...	--	--	--	4.8	1.9	<0.10	8.3	16	23	0.02	2.26
MAR 14...	--	--	--	4.7	--	0.10	8.0	30	--	--	--
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	10	0	8	3.0	1.5	<0.10	8.8	19	23	0.03	2.41
AUG 23...	--	--	--	2.0	2.4	<0.10	9.0	34	29	0.05	0.10

07335700 KIAMICHI RIVER NR BIG CEDAR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)
DEC 13...	<0.010	--	<0.100	0.020	0.020	0.03	0.03	--	<0.20	0.010	<0.010
MAR 14...	0.010	0.03	<0.100	0.010	0.030	0.01	0.04	--	<0.20	0.010	0.010
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	<0.010	--	<0.100	0.040	0.050	0.05	0.06	1.2	1.2	0.010	<0.010
AUG 23...	<0.010	--	<0.100	0.050	0.020	0.06	0.03	0.25	0.30	0.030	<0.010
DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
DEC 13...	<0.010	--	40	<1	10	<0.5	<1.0	<1	<3	1	75
MAR 14...	0.010	0.03	170	<1	9	<0.5	<1.0	1	<3	2	49
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	<0.010	--	40	<1	11	<0.5	<1.0	<1	<3	4	92
AUG 23...	<0.010	--	30	<1	20	<0.5	<1.0	1	<3	6	340
DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 13...	<5	<4	5	<0.1	<10	2	<1	<1.0	10	<6	18
MAR 14...	<5	<4	4	0.2	<10	<1	<1	<1.0	8	<6	15
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	1	<4	9	<0.1	<10	1	<1	<1.0	10	<6	27
AUG 23...	3	<4	26	2.4	<10	2	<1	<1.0	21	<6	140
DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 13...	<0.4	<0.4	0.8	1.2	0.7	1.2	0.04	<0.01	3	0.42	52
MAR 14...	--	--	--	--	--	--	--	--	3	1.2	27
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	0.08	0.02	54	6.9	90
AUG 23...	--	--	--	--	--	--	--	--	7	0.02	52

RED RIVER BASIN

07335775 SARDIS LAKE NEAR CLAYTON, OK

LOCATION.-- Lat 34°37'45", long 95°21'03", in NE 1/4 SW 1/4 sec.19. T.2 N, R.19 E., Pushmataha County, Hydrologic Unit 11140105, on the northeast end of parking area on top of dam, 2.5 mi north of Clayton, and at mile 2.8.

DRAINAGE AREA.-- 275 mi².

PERIOD OF RECORD.-- December 1982 to current year.

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

REMARKS.-- Reservoir is formed by earth dam. The controlled outlet consists of two sluice gates and the uncontrolled outlet is a concrete spillway. Flow was diverted through control structure May 4, 1981; regulated storage began Dec. 27, 1982; conservation pool first filled Oct. 20, 1984. Capacity, 735,800 acre-ft at elevation 624.0 ft, maximum pool; 468,100 acre-ft, at elevation 611.0 ft, spillway crest; 396,900 acre-ft at elevation 607.0 ft, top of flood pool; 274,300 acre-ft, at elevation 599.0 ft, top of conservation pool. Figures given herein represent total contents. Reservoir is designed for flood control, water supply, water-quality control and conservation. Capacity table used since Oct. 1, 1984. U.S. Army Corps of Engineers' satellite telemeter at station.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 345,400 acre-ft, Oct. 28, 1984, elevation, 603.84 ft; minimum since conservation pool was first filled, 219,200 acre-ft, Oct. 9-12, 1985, elevation, 594.65 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 333,100 acre-ft, June 14, 15, elevation, 603.05 ft; minimum contents, 255,300 acre-ft, Nov. 11, 12, elevation, 597.57 ft.

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

595	223,400	601	302,500
597	248,000	603	332,300
599	274,300	605	363,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260200	257400	260700	270100	290600	279800	298400	274000	276700	274700	280500	275400
2	260000	257400	260700	270700	289100	277400	293800	273400	276000	276000	280100	275700
3	259900	257400	260700	271500	286700	277800	287900	273400	275400	275700	279700	275700
4	259500	257500	260700	271500	283200	278900	283600	275100	279400	275700	279000	275700
5	258900	256900	260700	271800	280400	280000	280300	275700	280500	276100	278200	275700
6	258700	256100	260700	271900	277800	280000	277400	275600	279800	275700	277400	275300
7	258700	255800	260700	272700	276400	280100	275600	275000	280700	275800	276300	275300
8	258700	255700	260700	272700	275300	279800	274300	274500	281500	276000	275600	274700
9	258700	257000	260700	272700	274900	281300	273500	275000	281500	276000	275300	275300
10	258700	256900	260700	271900	274700	284300	273200	274600	281500	275800	275000	275300
11	258700	255300	260700	271900	274700	285300	273100	274200	289800	275700	274700	276900
12	258600	256900	261200	272000	274700	284100	273100	273900	294700	275200	274700	277200
13	258200	256900	261200	272000	276400	282000	273300	273700	329600	276300	274500	282600
14	257700	256900	261300	272000	278700	279100	273400	274200	333100	276300	274500	282700
15	257400	258100	261300	272000	296200	276500	274200	274300	330400	276900	274500	281600
16	257200	257800	261300	272000	302000	275400	274600	274100	325000	276400	274200	279400
17	257300	257000	261300	272000	310100	274900	274700	277900	319300	278200	276500	277400
18	257300	256800	261300	272700	314300	275200	275200	289200	314000	280400	277600	275300
19	257300	257900	260900	272700	314900	274500	276700	290900	308200	281500	277600	274300
20	257500	258300	261100	273000	314700	276800	276500	290800	303100	281800	277500	274300
21	257500	258300	261100	273000	311200	276100	274900	287800	298100	281800	277500	274300
22	257500	258300	262900	273000	308000	275200	273800	287600	294000	281600	277400	274200
23	257800	258200	262800	273000	300200	274900	273700	285200	290800	281800	277200	273300
24	257800	258100	262900	273100	295500	274500	273800	282000	287700	281500	277100	272800
25	257800	259800	262900	278600	291900	274500	273900	280000	284400	281500	276800	272800
26	257400	260800	262900	284400	288200	275600	274100	279000	281500	281500	276700	272300
27	257400	260800	267200	284300	284300	277600	274100	280100	279100	281500	276500	272300
28	257400	260400	268300	291200	281900	297300	274300	280800	276900	281500	276300	272000
29	257400	260200	268900	294900	---	303700	274300	280300	274700	281300	275800	272000
30	257400	260200	269500	295500	---	306800	274100	279300	274700	280900	275200	272000
31	257400	---	270000	293200	---	303700	---	278300	---	280500	275200	---
MAX	260200	260800	270000	295500	314900	306800	298400	290900	333100	281800	280500	282700
MIN	257200	255300	260700	270100	274700	274500	273100	273400	274700	274700	274200	272000
(+)	597.73	597.94	598.68	600.35	599.65	601.18	598.98	599.29	599.03	599.45	599.06	598.83
(++)	-2,800	-2,800	+9,800	+23,200	-11,300	+21,800	-29,600	+4,200	-3,600	+5,800	-5,300	-3,200

CAL YR 1988 MAX 321600 MIN 255300 (++) -58,300
WTR YR 1989 MAX 333100 MIN 255300 (++) +11,800

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

RED RIVER BASIN

501

07335790 KIAMICHI RIVER NEAR CLAYTON, OK

LOCATION.-- Lat 34°34'30", long 95°20'26", in NE 1/4 SE 1/4 sec.7, T.1 N., R.19 E., Pushmataha County, Hydrologic Unit 11140105, on left bank near downstream bridge abutment on U.S. Highway 271, approximately 1 mi southeast of Clayton, and at mile 101.6.

DRAINAGE AREA.-- 708 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 520.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- No estimated daily discharges. Records poor. Some regulation since December 1982 by Sardis Lake (station 07335775), on Jackfork Creek 4.5 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 8 years (water years 1982-89), 1,008 ft³/s, 730,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 24,800 ft³/s, June 7, 1981, gage height, 20.21 ft; no flow Oct. 3-18, 1983.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 19,800 ft³/s, June 13, gage height, 17.49 ft; minimum daily discharge, 3.2 ft³/s, Oct. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	13	380	719	2920	1860	4160	416	985	92	142	3.4
2	6.8	8.5	317	583	3430	1790	3810	377	665	91	149	6.9
3	6.6	7.5	275	485	5230	1310	3610	333	224	115	212	239
4	5.5	6.1	239	419	3460	645	3140	819	717	90	497	56
5	5.1	5.1	215	449	2980	1160	2330	1150	891	85	497	30
6	5.1	4.3	198	882	2480	1100	1630	844	845	87	486	19
7	5.5	3.8	186	700	1840	1600	1450	654	745	79	475	13
8	6.4	3.9	218	533	1370	2860	1140	501	767	65	321	11
9	7.0	4.0	265	438	1090	3190	538	793	691	54	50	12
10	7.4	6.0	275	393	678	3000	272	1350	604	45	41	17
11	7.2	8.1	275	371	518	4040	243	628	728	40	40	59
12	6.5	26	296	343	485	3370	232	429	876	40	31	39
13	5.5	36	319	348	874	2830	209	351	10600	608	25	261
14	5.2	24	305	452	4780	2570	209	315	7310	688	22	735
15	4.7	21	264	535	9290	2210	265	298	3190	299	17	1270
16	4.3	46	237	487	12500	1570	286	2650	3560	477	17	1180
17	3.6	45	214	411	7890	923	243	4700	3240	401	16	1160
18	3.2	31	196	375	6250	473	304	9480	3030	2310	16	1140
19	3.2	89	190	343	4030	422	799	5820	2910	2160	15	672
20	3.7	2560	181	314	3750	725	1090	3830	2570	1770	13	56
21	4.9	1220	173	287	4080	920	1320	5210	2220	685	11	37
22	5.2	589	172	259	4290	1090	771	3110	2020	453	11	28
23	4.8	401	439	244	3940	748	224	2980	1610	353	11	22
24	4.0	320	650	237	3560	548	197	2330	1590	301	8.8	16
25	3.8	277	461	623	2970	337	173	1850	1680	402	7.2	13
26	3.4	2180	371	6650	2870	419	161	1250	1390	639	6.0	11
27	3.4	2930	1040	4240	2600	1550	153	1500	1070	412	5.2	9.6
28	4.9	1070	3910	3420	2110	7500	145	1650	1090	316	4.6	8.3
29	12	657	1850	5040	---	11200	132	1000	917	253	4.3	7.9
30	18	477	1140	3190	---	5470	219	1060	518	208	3.8	7.8
31	18	---	851	3200	---	4210	---	1210	---	170	3.7	---
TOTAL	191.5	13069.3	16102	36970	102265	72520	29455	58888	59153	13788	3158.6	7139.9
MEAN	6.18	436	519	1193	3652	2339	982	1900	1972	445	102	238
MAX	18	2930	3910	6650	12500	11200	4160	9480	10600	2310	497	1270
MIN	3.2	3.8	172	237	485	337	132	298	224	40	3.7	3.4
AC-FT	380	25920	31940	73330	202800	143800	58420	116800	117300	27350	6270	14160
CAL YR 1988	TOTAL	228896.28	MEAN	625	MAX	11300	MIN	.18	AC-FT	454000		
WTR YR 1989	TOTAL	412700.3	MEAN	1131	MAX	12500	MIN	3.2	AC-FT	818600		

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 downstream from bridge on U.S. Highway 271 and State Highway 2, 2.0 mi northeast of Antlers, 7.7 mi downstream from Tenmile Creek, 5.4 mi upstream from Cedar Creek and at mile 59.6.

DRAINAGE AREA.-- 1,138 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 419.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Some regulation since December 1982 by Sardis Lake (station 07335775), located on Jackfork Creek, 42.0 miles upstream from station. Small diversion for municipal water supply for city of Antlers upstream from station. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record, 4 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by Sardis Lake, 10 years (water years 1973-82), 1,484 ft³/s, 17.70 in/yr, 1,075,000 acre-ft/yr; since regulation by Sardis Lake, 6 years (water years 1983-89), 1,607 ft³/s, 19.17 in/yr, 1,164,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 50,000 ft³/s, Mar. 28, 1977, gage height, 38.33 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 21,100 ft³/s, June 14, gage height, 23.38 ft; minimum daily discharge, 5.5 ft³/s, Oct. 15-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e11	e27	e450	919	3460	2110	5130	191	1190	528	165	10
2	e10	e20	e400	788	3500	1880	4590	385	988	212	142	9.2
3	e9.0	e16	e300	656	6240	1790	4190	385	640	163	118	27
4	e7.6	e13	e260	548	5210	1140	3890	492	2340	129	111	316
5	7.0	e10	e214	494	3590	1110	3120	2200	4070	119	299	309
6	7.3	e9.0	192	670	3100	1310	2050	1400	1720	100	383	148
7	7.3	e8.0	181	941	2370	1330	1590	924	3600	89	369	87
8	7.3	e7.0	296	720	1730	3170	1410	703	5330	108	359	59
9	7.3	e8.0	342	567	1450	4960	1000	536	2140	168	323	46
10	7.3	e12	338	473	1060	5790	581	1110	1230	112	161	46
11	7.1	e20	352	423	806	6210	344	1010	3910	82	74	106
12	6.8	23	438	396	682	5100	303	580	5400	66	47	1130
13	6.8	27	429	392	767	3830	280	429	9650	88	37	1660
14	6.3	22	426	434	2810	3170	274	360	18800	817	36	3330
15	5.5	20	352	553	12000	2760	319	308	6470	842	35	1550
16	5.5	20	291	589	17200	2160	400	715	4550	617	32	1470
17	6.4	54	251	502	16400	1410	396	6990	4150	801	35	1270
18	6.8	67	222	444	13500	899	328	14800	3760	2250	84	1180
19	6.8	73	197	402	7310	579	1150	12500	3500	5010	155	1120
20	9.1	461	183	360	5400	569	1300	5040	3340	3560	69	667
21	10	e2700	172	325	5140	845	1380	5880	2680	1460	44	215
22	10	e1500	165	292	5180	1060	1360	5800	2510	744	34	112
23	11	e450	193	264	4680	972	713	5140	1980	493	29	76
24	11	e350	473	247	4270	759	333	3480	1750	427	25	60
25	11	e450	630	336	3550	584	276	2740	1720	381	22	49
26	9.7	472	475	1580	3190	436	239	1860	1750	395	19	41
27	10	3510	677	3540	3090	1480	214	2290	1280	582	18	36
28	31	2520	3610	4880	2630	8960	196	3510	1080	394	16	31
29	95	935	3820	8710	---	18100	175	1880	1100	297	15	29
30	83	600	1710	5600	---	13200	161	1170	828	236	13	27
31	e45	---	1140	4090	---	6120	---	1350	---	195	12	---
TOTAL	474.9	14404.0	19179	41135	140315	103793	37692	85958	103456	21465	3281	15216.2
MEAN	15.3	480	619	1327	5011	3348	1256	2773	3449	692	106	507
MAX	95	3510	3820	8710	17200	18100	5130	14800	18800	5010	383	3330
MIN	5.5	7.0	165	247	682	436	161	191	640	66	12	9.2
AC-FT	942	28570	38040	81590	278300	205900	74760	170500	205200	42580	6510	30180
CFSM	.01	.42	.54	1.17	4.40	2.94	1.10	2.44	3.03	.61	.09	.45
IN.	.02	.47	.63	1.34	4.59	3.39	1.23	2.81	3.38	.70	.11	.50

CAL YR 1988 TOTAL 309749.4 MEAN 846 MAX 12600 MIN 1.7 AC-FT 614400 CFSM .74 IN. 10.13
WTR YR 1989 TOTAL 586369.1 MEAN 1606 MAX 18800 MIN 5.5 AC-FT 1163000 CFSM 1.41 IN. 19.17

e Estimated

RED RIVER BASIN

503

07336600 HUGO LAKE NEAR HUGO, OK

LOCATION.-- Lat 34°00'42", long 95°22'49", in NW 1/4 SW 1/4 sec.25, T.6 S., R.18 E., Choctaw County, Hydrologic Unit 11140105, on upstream face of Hugo Dam on Kiamichi River, 700 ft to left of spillway, 7.0 mi east of Hugo, and at mile 17.6.

DRAINAGE AREA.-- 1,709 mi².

PERIOD OF RECORD.-- January 1974 to current year.

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

REMARKS.-- Reservoir is formed by rolled earth dam. The outlet works consists of a gate-controlled concrete gravity ogee-type weir with six 40- by 50-foot gates. Regulated storage began Jan. 18, 1974; conservation pool was first filled Mar. 12, 1974. Total capacity, 1,561,500 acre-ft, at elevation 452.5 ft, top of dam, 966,700 acre-ft, at elevation 437.5 ft, top of flood control pool. Dead storage 21,080 acre-ft, at elevation 387.5 ft, crest of gated spillway. Figures given herein represent total contents. Reservoir is used for flood control, water supply, recreation and conservation. U.S. Army Corps of Engineers' satellite telemeter at station.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 577,800 acre-ft, June 17, 1982, elevation, 425.00 ft; minimum since conservation pool was first filled, 88,860 acre-ft, Nov. 15, 1978, elevation, 398.47 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 382,900 acre-ft, June 20, 21, elevation, 417.26 ft; minimum, 142,000 acre-ft, Oct. 20, elevation, 403.29 ft.

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

401	115,000	415	334,000
407	192,700	420	447,100
410	239,900	425	577,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153500	147800	181000	187200	222100	188900	281300	206700	205700	335000	199000	155000
2	153100	146700	182300	182000	212900	180300	263600	203500	203000	330500	195200	154300
3	152700	147100	182500	181300	208700	174600	247800	203300	201100	323900	192000	160100
4	152300	151800	182900	181600	204000	173300	231300	206200	209100	316400	188400	161900
5	151500	151800	184100	183200	194200	168400	217300	216500	221800	309500	186000	162600
6	150800	151800	184100	184400	182300	164400	208700	217800	226000	302400	182300	162700
7	149900	146800	185900	188700	171500	162300	204800	215100	242700	295700	179700	162700
8	149400	146800	186600	188600	163200	162000	204500	212100	265800	289300	176000	162400
9	149400	147000	187200	189000	159500	165100	202900	208700	273400	282700	173000	162200
10	148800	147000	188900	189000	160100	169500	208300	205500	273100	269000	169600	162200
11	148400	147000	189900	187500	161500	174800	198400	203200	272200	252200	166700	163600
12	147200	147200	190500	186500	163800	178000	198400	200500	279000	234700	164200	166200
13	146200	147200	190500	184700	166100	178000	199300	201700	280600	225000	161500	175600
14	145600	147000	190200	183100	170800	174100	200900	202700	357500	219500	160500	185400
15	144700	150200	188700	182500	213100	163500	202400	203600	371300	219200	160000	185000
16	144700	149300	187100	181000	255100	158800	203900	208200	368100	218400	159300	180300
17	143400	148400	186900	179800	297600	161500	204800	247300	363500	216200	160700	174500
18	143900	149600	186500	178200	329300	163600	206300	285500	371900	210700	161400	168500
19	142200	155600	185000	176500	338400	165300	206600	310600	378700	220500	161500	163000
20	145000	159300	185000	174800	338400	168400	205400	312700	382900	225000	161200	158900
21	147100	168200	185200	172600	331500	167800	204000	308900	380700	220200	160900	159500
22	146200	172700	186900	170600	315000	170100	204000	308400	378000	211600	160700	160100
23	147500	175600	186900	168800	294300	172700	203600	298100	374600	203400	160000	158700
24	146600	177500	186900	166900	274100	174800	201800	281300	371700	198500	159500	158300
25	146000	188400	186900	168100	253600	176800	200300	262500	366300	199100	158900	158100
26	145200	200600	186900	188900	232300	182300	200300	247100	362100	199900	158500	157700
27	146900	217100	191400	201700	212000	191800	200500	239700	357500	200500	157900	157500
28	147100	181200	194900	211000	198700	231000	200900	235000	352100	200900	157300	156900
29	146800	178500	196300	225600	---	278500	205700	226300	347100	201100	156800	157300
30	147700	179100	194000	231600	---	303900	206000	217500	341300	201100	155800	157500
31	147900	---	191200	229700	---	300800	---	210800	---	201100	155200	---
MAX	153500	217100	196300	231600	338400	303900	281300	312700	382900	335000	199000	185400
MIN	142200	146700	181000	166900	159500	158800	198400	200500	201100	198500	155200	154300
(+)	403.77	406.08	406.90	409.37	407.40	413.35	407.89	408.20	415.35	407.56	404.32	404.49
(++)	-5,600	+31,200	+12,100	+38,500	-31,000	+102,100	-94,800	+4,800	+130,500	-140,200	-45,900	+2,300

CAL YR 1988 MAX 425400 MIN 132500 (++) -247,100
WTR YR 1989 MAX 382900 MIN 142200 (++) +4,000

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-FEET

RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX

LOCATION.-- Lat 33°41'15", long 94°41'39", Bowie County, TX-McCurtain County, Okla. state line, Hydrologic Unit 11140106, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 mi upstream from North Mill Creek, 13 mi north of De Kalb, and at mile 556.9.

DRAINAGE AREA.-- 47,348 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- December 1967 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 302.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good except those for estimated daily discharges, which are fair. At times, flood peaks may be affected by Lake Texoma (station 07331500) located approximately 169 mi upstream, and low flows may be affected by releases for the generation of electric power. Storage and/or releases from Lake Hugo on the Kiamichi River, a tributary to the Red River about 45 miles upstream, may also affect flows. Gage-height telemeter at station.

AVERAGE DISCHARGE.-- 21 years (water years 1969-89), 12,770 ft³/s, 9,252,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 189,000 ft³/s, Dec. 11, 1971, gage height, 31.55 ft, from graph based on gage readings; minimum, 213 ft³/s, Nov. 30, 1979, from graph based on gage readings.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Maximum discharge since 1957, 205,000 ft³/s, June 1957, gage height, 32.2 ft, from rating curve extended above 186,500 ft³/s. The greatest flood since 1936 occurred in February 1936, stage unknown.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 71,700 ft³/s, May 18 at 1200 hours, gage height, 26.65 ft; minimum daily, 1,010 ft³/s, Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	e3870	5070	8600	21700	18200	47000	8200	20200	40900	9950	4630
2	1040	3470	4290	7270	19600	13900	42000	6300	17600	40900	10700	4530
3	1030	3420	4030	6840	18700	12300	39100	6440	15000	41400	11500	4590
4	1030	3670	3780	5220	18000	9300	37900	6970	17000	41100	11600	5610
5	1020	3430	3630	2840	14800	11100	33600	12400	30500	40500	11600	5750
6												
8	1020	e3270	3530	2290	15600	12200	25800	16800	48500	40100	11600	4990
7	1010	e3100	2910	2150	18500	13100	21000	20100	45600	40100	10400	5570
8	1880	e2810	2370	2050	19100	15400	16600	17400	40900	40400	8990	5370
9	2560	e2630	3200	1950	17100	19200	13400	13200	43000	38700	8070	4530
10	2690	e2430	3450	1910	12900	19700	12200	11000	48600	33200	8330	4090
11												
12	2720	3060	3540	2550	7980	21100	11500	9430	42200	28200	7420	3920
13	2660	e2440	3650	3160	5270	23900	10000	7740	35100	26200	6900	3980
14	2630	e2630	3520	3280	4030	24000	8970	5880	39700	25200	6580	4630
15	2550	e2230	3700	3410	3810	22100	8890	4040	50100	23000	6450	6590
16	2510	e2350	4300	3430	5850	22200	7660	3610	50400	22200	5950	11500
17												
18	2630	e2460	4260	3950	12800	23000	8760	6430	40300	25800	5630	18400
19	2630	e2560	3520	4480	27000	17000	7530	17500	38600	27500	6340	21400
20	2700	e2770	2800	4010	49800	11200	7380	51200	41600	26400	7450	20700
21	2670	e2580	2610	3520	61000	9300	5890	59800	42600	24100	6920	19900
22	2710	e2790	2500	3620	54800	8400	6330	42800	42300	26700	7220	17800
23												
24	3290	e2900	2000	3770	40800	6400	9670	32100	42600	25000	7740	15600
25	3500	e3100	1580	3780	35300	5390	9670	30200	42900	22500	8530	12200
26	3240	e3250	1900	3660	34800	6610	7960	31100	42300	19000	8270	11500
27	3150	e3300	1750	3210	32500	7430	7300	33600	42200	16300	6980	11200
28	3130	e3410	1950	3340	29800	7560	6760	35200	42000	14000	6180	11100
29												
30	3330	e3110	2000	4010	26500	7720	6280	37500	41600	11500	5840	11000
31	e3250	e3030	1740	7360	24300	10100	5650	35000	41600	10500	5680	10500
32	e3280	5320	1800	15500	21900	7750	5940	30600	41500	10300	5550	11000
33	e3300	5640	2400	21200	---	28800	7150	30000	41100	10200	5390	11200
34	e3810	7020	5020	20300	---	57600	7760	27100	41200	10000	4880	11500
35	e4230	---	5780	22800	---	54700	---	23300	---	9960	4700	---
TOTAL	78250	98050	98580	183460	652240	526660	443670	670740	1168800	811860	239320	295680
MEAN	2524	3268	3180	5918	23290	16990	14790	21640	38960	26190	7720	9856
MAX	4230	7020	5780	22800	61000	57600	47000	59800	50400	41400	11600	21400
MIN	1010	2230	1580	1910	3810	5390	6650	3610	15000	9960	4700	3920
AC-FT	155200	194500	195500	363900	1294000	1045000	880000	1330000	2318000	1610000	474700	586500

CAL YR 1988 TOTAL 3486800 MEAN 9527 MAX 49100 MIN 1010 AC-FT 1916000
WTR YR 1989 TOTAL 5267310 MEAN 14430 MAX 61000 MIN 1010 AC-FT 10450000

e Estimated.

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NO2+N03 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)
OCT 26...	<0.100	0.020	0.88	0.90	0.100	--	--	--	--	--
DEC 13...	0.200	0.070	0.53	0.60	0.050	57	536	49	1	160
JAN 31...	0.300	0.090	1.1	1.2	0.290	504	31400	91	<1	69
MAR 22...	<0.100	0.020	0.38	0.40	0.040	136	1870	84	--	--
MAY 09...	0.200	0.040	0.46	0.50	0.060	115	4170	99	--	--
JUN 20...	0.200	0.050	0.65	0.70	0.040	244	28500	95	--	--
AUG 15...	--	--	--	--	--	53	847	88	--	--

[illegible]

07336820 RED RIVER NEAR DE KALB, TX--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	989	1200	842	789	298	556	320	1090	972	1240	1200	1080
2	993	1540	1230	785	195	620	351	393	1110	1240	1210	1080
3	993	1640	1400	780	325	684	381	308	1060	1230	1100	1080
4	962	1540	1400	777	451	688	413	391	951	1180	1090	1030
5	971	1640	1430	1140	580	728	481	309	843	1260	1090	933
6	945	1630	1230	1140	708	798	581	388	598	1220	1060	915
7	949	1620	1410	1140	838	809	766	347	345	1210	1060	976
8	953	1530	1250	1140	974	1110	856	307	246	1210	1000	834
9	1340	1540	1250	1140	1010	1140	1040	565	379	1180	918	769
10	1630	1660	1250	1140	1230	1060	1230	566	426	1150	916	790
11	1630	1640	1100	1160	1190	779	1310	736	473	984	963	973
12	1630	1640	1070	1040	1140	637	1230	805	519	986	971	1040
13	1610	1650	1500	1050	1140	495	1460	712	929	990	988	1100
14	1620	1270	1070	1050	1060	485	1210	708	1090	949	987	1050
15	1620	1280	1500	1040	850	506	1310	683	1110	948	992	782
16	1610	1280	1090	1040	385	472	1300	523	724	950	1070	201
17	1630	1120	1100	1040	335	496	1300	364	898	948	991	335
18	1660	1260	990	1040	299	501	1440	491	1070	752	916	501
19	1660	1280	960	1040	282	620	1470	314	1250	764	963	795
20	1650	1150	770	639	226	1380	1200	288	1270	899	995	796
21	1690	1100	873	664	216	1260	1120	262	1380	800	1030	844
22	1690	1160	1070	567	216	1140	1050	236	1360	864	956	1060
23	1670	1320	280	475	231	1010	1090	413	1350	865	883	1070
24	1660	1320	521	487	236	891	1120	591	1350	865	760	1100
25	1660	1320	600	485	300	766	1040	562	1350	864	892	1140
26	1210	1340	762	659	364	863	1020	695	1360	1050	933	1240
27	1220	1320	1100	660	428	960	1050	802	1340	1090	974	1210
28	1210	842	297	660	492	971	1020	863	1330	1150	1010	1210
29	1230	932	297	660	---	710	1100	924	1310	1140	1060	1230
30	1220	849	300	505	---	449	1090	812	1250	1180	1080	1230
31	1220	---	281	496	---	291	---	776	---	1220	1080	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

07337300 PINE CREEK LAKE NEAR WRIGHT CITY, OK

LOCATION.-- Lat 34°06'43", long 95°04'48" 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 upstream from bridge on State Highway 98, 5.0 mi northwest of Wright City, and at mile 145.3.

DRAINAGE AREA.-- 636 mi².

PERIOD OF RECORD.-- June 1969 to current year. Prior to October 1970, published as Pine Creek Reservoir near Wright City.

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

REMARKS.-- Reservoir is formed by rolled earth dam; regulated storage began June 1, 1969; conservation pool was first filled Jan. 7, 1970. Total capacity, 1,136,000 acre-ft at elevation 509.0 ft, top of dam, 465,800 acre-ft at elevation 480.0 ft, crest of spillway, 53,800 acre-ft at elevation 438.0 ft top of conservation pool, 7,140 acre-ft dead storage at elevation 414.0 ft. Figures given herein represent total contents. Reservoir is designed for flood control, municipal and industrial water supply, and recreation. U.S. Army Corps of Engineers' satellite telemeter at station.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 356,500 acre-ft, Nov. 4, 1984, elevation, 473.13 ft; minimum since conservation pool was first filled, 28,220 acre-ft, Oct. 21, 1972, elevation, 429.34 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 184,200 acre-ft, Feb. 21, elevation, 458.63 ft; minimum 51,540 acre-ft, Nov. 11, 12, elevation, 437.40 ft.

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

436	46,650	448	102,600
439	57,610	462	217,470
442	70,490	474	369,400

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56750	52860	70170	60890	99790	122100	107500	85590	106700	73020	66860	61120
2	56550	52820	67130	59110	91940	112000	99530	83540	101100	74510	66280	60850
3	56280	52710	63890	56840	85600	101900	90540	81710	91710	75130	65580	72220
4	56040	52680	60950	54590	77720	92330	82050	84380	98370	75090	65020	74030
5	55730	52420	57490	54210	70040	83490	74750	96420	102500	74460	64710	73550
6	55540	52270	55610	54850	61600	74460	69880	95720	102500	73310	64320	71430
7	55310	52230	55000	55650	57110	68110	68520	92390	105700	72990	63890	69160
8	55160	52010	54810	56040	55060	64490	69070	88210	109200	73120	63500	67350
9	55000	51970	55350	56080	54250	62700	69390	83060	107300	73170	63160	65880
10	54810	51760	55850	55770	53940	62490	69620	78250	103200	73120	62740	64930
11	54510	51580	56470	55420	54210	62990	69890	74610	98600	73020	62440	65320
12	54240	51830	56790	55190	54480	62490	70120	73410	94680	72880	62190	65230
13	54020	51720	56870	55460	54860	61090	70440	73650	133600	73550	61980	68160
14	53860	51680	56280	55770	68450	59110	71100	73740	147800	73790	61720	69390
15	53750	51830	55570	56040	116300	56280	71710	73980	147700	76710	61580	68000
16	53750	52160	55230	56120	138300	55040	72170	77110	141300	77750	61420	66100
17	53600	52450	55160	55770	154800	55270	72550	110100	132700	78150	62100	63930
18	53450	53680	55040	55000	170000	56040	73360	131900	123700	79460	62700	61510
19	53190	59010	54850	54050	177500	56750	76370	138300	114300	81820	63420	60560
20	53380	64490	54740	53450	183000	57570	77110	151400	104800	82340	63550	60160
21	53310	65970	54400	53310	183200	58190	76270	158400	95200	80220	63480	59690
22	53120	65800	54470	53080	179100	58970	75180	158800	87120	77650	63290	58970
23	53190	65100	55460	53120	173100	59550	73950	154800	81970	75580	63120	58090
24	53080	64150	56470	53530	165500	60100	72270	146500	78520	72970	62870	57450
25	52940	65410	57220	55160	157700	60430	71570	137500	74990	70260	62700	56830
26	52710	75130	57760	75040	149400	62100	71990	128100	72830	68340	62490	56280
27	52790	78100	60130	80680	141000	67440	72320	133600	72460	67930	62270	55610
28	52750	77700	63550	88260	132200	154200	75040	134100	72500	67930	62060	55080
29	52680	75670	64060	101000	---	132100	80120	131600	72500	67930	61760	55160
30	52750	73020	63380	105400	---	116800	84230	125400	72880	67840	61510	55080
31	52820	---	62230	105100	---	113500	---	116100	---	67490	61350	---
MAX	56750	78100	70170	105400	183200	154200	107500	158800	147800	82340	66860	74030
MIN	52680	51580	54400	53080	53940	55040	68520	73410	72460	67490	61350	55080
(+)	437.77	442.54	440.13	448.40	452.38	449.70	444.77	450.09	442.51	441.34	439.90	438.35
(++)	-4,080	+20,200	-10,790	+42,870	+27,100	-18,700	-29,270	+31,870	-43,220	-5,390	-6,140	-6,270

CAL YR 1988 MAX 198200 MIN 51580 (++) -138,470
WTR YR 1989 MAX 183200 MIN 51580 (++) -1,820

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

RED RIVER BASIN

509

07337500 LITTLE RIVER NEAR WRIGHT CITY, OK

LOCATION.-- Lat 34°04'10", long 95°02'47", in NE 1/4 NW 1/4 sec.6, T.6 S., R.22 E., McCurtain County, Hydrologic Unit 11140107, on left bank on downstream side of bridge on State Highway 98, 1.8 mi upstream from White Oak Creek, 2.0 mi west of Wright City, 4.7 mi downstream from Pine Creek Lake, and at mile 140.6.

DRAINAGE AREA.-- 645 mi².

PERIOD OF RECORD.-- October 1929 to September 1931, October 1944 to September 1989. 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 above National Geodetic Vertical Datum of 1929. Oct. 12, 1929 to Sept. 30, 1931, nonrecording gage at railroad bridge 1.0 mi downstream at datum 4.15 ft higher. Dec. 6, 1944 to July 30, 1951, nonrecording gage at present site and datum.

REMARKS.-- Records good. Except for 10 mi² intervening area, flow completely regulated since June 1969 by Pine Creek Lake (station 07337300). U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record and 5 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by Pine Creek Lake, 26 years (water years 1930-31, 1945-68), 907 ft³/s, 656,600 acre-ft/yr; since regulation by Pine Creek Lake, 19 years (water years 1971-89), 917 ft³/s, 664,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 78,200 ft³/s, May 6, 1961, gage height, 45.60 ft; maximum gage height, 45.77 ft, Sept. 16, 1950; no flow at times in 1930, 1954, 1958, 1964.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 5,910 ft³/s, Mar. 1, gage height, 20.16 ft; minimum daily discharge, 4.4 ft³/s, Oct. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	44	1650	1410	3400	5890	5220	e900	5120	51	330	76
2	61	45	1670	1420	5010	5870	5200	2030	4770	e51	331	75
3	48	48	1670	1430	5190	5800	5120	2120	e3400	e120	330	e75
4	39	49	1660	1420	5100	5740	5030	e2120	e2600	220	286	e75
5	32	47	1650	960	4970	5870	4380	e2160	360	318	140	375
6	31	49	1260	412	4820	5740	3150	e2820	1130	547	138	1060
7	32	56	662	402	3810	5040	1200	3170	e1130	325	138	1060
8	35	59	579	390	e1820	3960	128	3100	e1630	47	141	870
9	41	65	335	419	e1210	3220	127	3050	2520	48	139	646
10	39	67	324	539	e770	2810	125	3000	2830	44	139	645
11	39	69	330	587	e470	1880	128	2420	2800	39	120	646
12	34	82	364	601	e470	1850	129	1070	2790	41	71	646
13	29	89	532	617	e480	1840	126	434	e1000	41	71	e646
14	28	92	589	620	e490	1830	134	435	e500	51	72	937
15	19	97	606	620	e240	1820	135	434	e2000	e139	72	1270
16	8.5	96	517	620	e73	1360	132	e434	4300	e139	75	1260
17	4.4	96	316	637	e75	494	131	e250	5270	139	e75	1260
18	5.7	115	302	748	e77	71	e131	e130	5260	187	e75	1250
19	10	152	302	789	e78	74	e251	e1020	5170	389	76	796
20	19	153	302	691	e560	78	922	e1080	5090	663	77	269
21	26	249	297	428	e2650	71	1240	e1300	5000	1420	76	269
22	26	520	300	406	e3980	74	1040	2600	4530	1420	75	266
23	29	612	309	349	e4570	73	1030	3460	2950	1420	76	263
24	30	676	303	86	e5250	73	1030	5320	1640	1420	74	263
25	32	e700	295	64	e5220	74	637	5370	1600	1410	76	263
26	33	e715	307	148	e5180	e74	119	5290	1170	1110	77	263
27	35	e735	317	539	5030	e74	120	e3500	304	330	76	263
28	46	931	392	1510	5310	e80	e120	e2650	51	72	76	263
29	44	1410	1030	131	---	521	e120	2400	50	70	76	274
30	43	1610	1300	578	---	1960	e120	3110	51	70	74	183
31	45	---	1390	1820	---	4240	---	5070	---	155	76	---
TOTAL	1006.6	9728	21860	21391	76303	68551	37475	72247	77016	12496	3728	16507
MEAN	32.5	324	705	690	2725	2211	1249	2331	2567	403	120	550
MAX	63	1610	1670	1820	5310	5890	5220	5370	5270	1420	331	1270
MIN	4.4	44	295	64	73	71	119	130	50	39	71	75
AC-FT	2000	19300	43360	42430	151300	136000	74330	143300	152800	24790	7390	32740

CAL YR 1988 TOTAL 267761.6 MEAN 732 MAX 6260 MIN 4.4 AC-FT 531100
WTR YR 1989 TOTAL 418308.6 MEAN 1146 MAX 5890 MIN 4.4 AC-FT 829700

e Estimated

07337900 GLOVER CREEK NEAR GLOVER, OK

LOCATION.-- Lat 34°05'51", long 94°54'07", in NW 1/4 NE 1/4 sec.28, T.5 S., R.23 E., McCurtain County, Hydrologic Unit 11140107, on right downstream end of bridge on State Highways 3 and 7, 2.0 mi north of Glover, 11.0 mi northwest of Broken Bow, and at mile 9.2.

DRAINAGE AREA.-- 315 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 378.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- No estimated daily discharges. Records poor. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record and 3 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- 28 years, 459 ft³/s, 19.79 in/yr, 332,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 98,600 ft³/s, Dec. 10, 1971, gage height, 29.72 ft; no flow at times in several years.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in May 1961 reached a stage of 28.84 ft, from floodmark. Flood in 1908 was higher than in May 1961, from information provided by local residents.

EXTREMES FOR CURRENT YEAR.-- Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Nov. 26	1000	8,490	9.44	May 27	1200	12,900	11.87
Feb. 15	1100	21,800	15.35	June 13	2000	17,800	13.80
May 17	2100	*25,100	*16.49				

Minimum daily discharge, 1.0 ft³/s on Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	178	375	564	760	445	726	848	338	57	76	11
2	6.5	135	314	480	609	387	572	542	355	80	65	10
3	5.5	106	267	416	809	357	481	467	276	379	53	28
4	4.2	86	233	376	688	365	408	1210	1820	326	45	52
5	3.1	65	204	333	539	731	345	3390	2000	239	39	90
6	2.5	48	183	515	473	716	295	1710	814	154	33	72
7	2.1	38	169	537	414	685	264	901	689	120	28	68
8	2.0	31	289	456	381	937	239	646	1000	100	25	45
9	2.0	25	433	393	364	1000	212	504	744	79	22	38
10	2.0	23	434	369	349	946	187	415	526	64	21	31
11	2.1	19	415	367	338	804	174	348	405	52	18	52
12	2.1	81	415	369	336	653	161	292	403	48	15	225
13	1.7	258	409	804	361	538	152	268	6360	48	13	189
14	1.4	197	372	865	2150	463	150	245	4000	48	13	310
15	1.2	155	332	725	11300	401	176	222	1480	309	11	407
16	1.2	122	291	591	6920	353	224	384	838	808	11	276
17	1.2	168	251	499	3840	315	200	9420	596	528	191	191
18	1.2	312	225	430	4560	284	179	6310	445	1580	688	138
19	1.0	2630	205	382	2220	259	1330	2360	349	1030	364	101
20	3.4	3530	190	337	1450	251	878	2300	273	781	215	75
21	6.7	978	179	296	1480	237	579	2710	214	485	124	59
22	10	594	177	260	1030	226	450	1190	165	336	84	45
23	11	427	496	240	782	206	369	812	130	244	63	36
24	13	341	700	221	642	190	315	594	103	335	46	30
25	14	319	526	231	554	180	268	453	82	484	38	24
26	16	4830	421	4320	499	179	235	358	83	358	35	20
27	14	2130	460	2220	452	282	212	5040	94	267	27	17
28	206	912	2380	2290	501	1530	193	2120	88	189	22	15
29	194	617	1140	4790	---	3440	794	911	69	143	18	28
30	126	468	771	1840	---	1840	619	592	59	112	15	49
31	156	---	617	1050	---	1050	---	432	---	92	13	---
TOTAL	820.1	19823	13873	27566	44801	20250	11387	47992	24798	9875	2431	2732
MEAN	26.5	661	448	889	1600	653	380	1548	827	319	78.4	91.1
MAX	206	4830	2380	4790	11300	3440	1330	9420	6360	1580	688	407
MIN	1.0	19	169	221	336	179	150	222	59	48	11	10
AC-FT	1630	39320	27520	54680	88860	40170	22500	95190	49190	19590	4820	5420
CFSM	.08	2.10	1.42	2.82	5.08	2.07	1.20	4.91	2.62	1.01	.25	.29
IN.	.10	2.34	1.64	3.26	5.29	2.39	1.34	5.67	2.93	1.17	.29	.32
CAL YR 1988	TOTAL 119759.33	MEAN 327	MAX 7820	MIN .83	AC-FT 237500	CFSM 1.04	IN. 14.14					
WTR YR 1989	TOTAL 226348.1	MEAN 620	MAX 11300	MIN 1.0	AC-FT 449000	CFSM 1.97	IN. 26.73					

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 northeast of Idabel, and at mile 103.4.

DRAINAGE AREA.-- 1,226 mi².

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 above National Geodetic Vertical Datum of 1929. Oct. 1, 1946 to Oct. 26, 1950, and for stages below 9.0 ft Oct. 26, 1950 to Oct. 10, 1951, nonrecording gage at same site and datum.

REMARKS.-- Records good. Flow regulated since June 1969 by Pine Creek Lake (station 07337300), 41.9 mi upstream. Small diversions for municipal use by City of Idabel at station and by Weyerhaeuser 41 miles above station. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record and 5 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by Pine Creek Lake, 22 years (water years 1947-68), 1,622 ft³/s, 1,174,000 acre-ft/yr; since regulation by Pine Creek Lake, 19 years (water years 1971-89), 1,750 ft³/s, 1,268,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 103,000 ft³/s, Dec. 10, 1971, gage height, 39.39 ft; minimum discharge, 0.4 ft³/s, Sept. 15-16, and Sept. 21 to Oct. 1, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in February 1938 reached a stage of 39.7 ft, from information provided by local resident, discharge, 86,000 ft³/s.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 11,500 ft³/s, May 19, gage height, 26.20 ft; minimum daily discharge, 23 ft³/s, Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	149	2580	2560	3840	5830	e5530	1460	5210	262	264	115
2	85	162	2420	2440	4870	6110	5760	2160	5340	425	486	113
3	79	152	2340	2310	6470	6060	5760	2970	4950	1750	500	510
4	69	125	2260	2200	6650	6240	5570	3840	5930	1280	480	1790
5	66	105	2190	2120	6250	6910	5390	5700	7110	771	436	602
6	64	87	2140	1350	5890	7090	4550	6770	4180	736	293	725
7	62	76	1480	1260	5590	6910	3250	5350	3470	875	357	1330
8	61	71	1110	1170	4300	6250	1650	4390	5850	710	309	1330
9	62	71	1120	1070	2560	5450	415	3900	4860	342	258	1060
10	62	67	1030	1180	1780	4740	355	3640	4030	245	233	911
11	63	67	1010	1270	1320	e4150	328	3450	3730	204	218	900
12	63	84	1010	1280	1090	e3330	301	2670	3570	186	211	943
13	63	120	1220	1560	1200	e2860	271	1320	7150	190	162	1040
14	64	201	1320	2180	1840	e2680	257	789	11100	176	130	1270
15	63	226	1270	2050	4830	e2520	358	705	10500	574	127	1550
16	60	180	1200	1790	9540	e2370	355	1460	7680	1820	128	1720
17	43	143	921	1570	11000	1660	328	5360	6000	1220	271	1640
18	30	151	741	1570	11100	773	286	10900	5790	1110	678	1580
19	23	1770	708	e1530	9290	425	e740	11100	5630	1640	741	1540
20	31	5140	690	e1390	5420	383	1890	8680	5440	1390	478	918
21	63	3600	671	e1350	3940	380	e1960	6530	5270	1630	368	440
22	77	1710	670	e1310	4680	363	e1900	5170	5130	1990	273	396
23	73	1610	776	e1320	5260	337	1570	4410	4540	1900	216	382
24	66	1300	1300	e1280	5700	307	1440	4800	3070	1840	184	369
25	67	1260	1240	e3000	5840	276	1350	5610	2090	1940	164	356
26	70	5290	1050	e8000	5830	592	782	5710	2000	1970	153	353
27	67	7840	972	5790	5760	1740	e355	6480	1360	1400	144	351
28	88	5040	2030	4260	5620	1330	e274	8530	610	682	134	345
29	155	2960	3260	6530	---	4800	1390	7030	325	346	130	348
30	225	2810	3070	6010	---	5560	1880	4450	263	267	124	407
31	174	---	2710	3720	---	4960	---	4360	---	237	118	---
TOTAL	2318	42467	46489	76420	147460	103366	56245	149694	142178	30108	8768	25334
MEAN	74.8	1416	1500	2465	5266	3334	1875	4829	4739	971	283	844
MAX	225	7840	3260	8000	11100	7090	5760	11100	11100	1990	741	1790
MIN	23	67	670	1070	1090	276	257	705	263	176	118	113
AC-FT	4600	84230	92210	151600	292500	205000	111600	296900	282000	59720	17390	50250

CAL YR 1988 TOTAL 490439 MEAN 1340 MAX 11800 MIN 23 AC-FT 972800
WTR YR 1989 TOTAL 830847 MEAN 2276 MAX 11100 MIN 23 AC-FT 1648000

e Estimated

RED RIVER BASIN

07338900 BROKEN BOW LAKE NEAR BROKEN BOW, OK

LOCATION.-- Lat 34°08'35", long 94°41'00", in SW 1/4 sec.3, T.6 S., R.25 E., McCurtain County, Hydrologic Unit 11140108, at intake structure on upstream side of dam on Mountain Fork, 9.0 mi northeast of Broken Bow, and at mile 20.3.

DRAINAGE AREA.-- 754 mi².

PERIOD OF RECORD.-- October 1968 to current year. Prior to October 1970, published as Broken Bow Reservoir near Broken Bow.

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

REMARKS.-- Reservoir is formed by a rolled earth and gravel structure. Outlet works consists of power-generated turbines and a concrete ogee-type weir controlled by eight 40- by 40-foot taintor gates. Regulated storage began Oct. 3, 1968; conservation pool was first filled Jan. 30, 1969. Total capacity, 1,368,000 acre-ft at elevation 627.5 ft, top of flood pool and spillway gates, 918,100 acre-ft at elevation 599.5 ft, top of power pool, and 448,200 acre-ft at elevation 559.0 ft, bottom of power pool. Figures given herein represent total contents. Reservoir is used for flood control, power development and water supply. U.S. Army Corps of Engineers' satellite telemeter at station.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,244,400 acre-ft, Nov. 3, 4, 1984, elevation, 620.40 ft; minimum since conservation pool was first filled, 672,000 acre-ft, Oct. 21, 1972, elevation 580.48 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 1,065,000 acre-ft, Feb. 21, elevation 609.36 ft; minimum 842,200 acre-ft, Nov. 11, elevation, 594.01 ft.

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

590	789,300	607	1,028,500
594	842,100	615	1,154,600
598	897,000	621	1,254,600

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	854400	845700	936900	945300	969800	989200	955300	911400	955900	918200	925900	909200
2	854200	844800	932100	943000	961900	977200	954600	910400	948000	919700	924600	908600
3	853200	844800	932600	940500	966400	965100	950600	910100	936300	919400	923400	909700
4	852600	844400	933600	935800	968000	959400	941800	918500	931300	919900	921800	909600
5	851900	843800	930900	930500	962800	967400	936100	919800	953300	919200	921600	908900
6	851500	843700	927000	925200	956500	969500	929200	919700	953300	919500	922100	908600
7	850300	843300	924000	926600	945700	964700	923200	919900	951500	918700	920900	908200
8	850200	842700	920900	927500	935800	962000	922300	915700	948900	918700	918400	907600
9	850200	843600	915700	920500	927000	958400	922200	913000	946100	918800	917500	908200
10	850000	843000	917100	918500	921500	954700	917100	909200	942200	917800	917000	908900
11	849200	842200	918500	914500	919900	950800	913600	920800	938200	917100	916400	909200
12	848700	844100	918100	916000	921900	947600	913600	919400	933200	917500	916300	908900
13	847300	844000	917500	918700	920600	940400	913100	920500	948000	917800	916000	908600
14	846700	844100	917200	921900	926000	936900	913000	921500	959000	918100	915000	909200
15	846500	844600	916100	919900	984000	931300	914300	918200	961400	922900	914700	908700
16	846400	843800	914800	918500	1013000	926000	914800	920500	962600	926800	914700	908600
17	846100	843800	915400	918700	1030000	920600	910700	966300	963100	931300	915300	908200
18	845700	849600	915700	918400	1048000	921400	909600	993000	961000	938200	915800	907700
19	845200	869800	914100	917000	1058000	922300	912300	1004000	954400	956800	915000	907300
20	846700	886400	914400	916100	1064000	917000	912100	1012000	948900	959700	914700	906600
21	846300	891100	914400	916500	1062000	915400	910600	1017000	943400	957900	914400	906500
22	845300	893900	915800	917700	1057000	915100	911300	1016000	937900	955600	914000	905900
23	846700	895300	918800	917000	1049000	914500	914800	1007000	931200	952000	913600	904900
24	846300	896900	921900	915100	1040000	913600	906900	995900	931000	944000	912700	904300
25	845600	903100	924300	916700	1030000	913100	908400	984000	931000	944000	912300	904000
26	845000	936200	925800	938100	1019000	914400	910100	972200	926300	941400	912000	903600
27	844600	945300	930200	945600	1009000	916400	910000	984700	923500	936600	911600	903100
28	845600	945100	936600	955900	999500	925000	910400	989800	921500	932000	911100	902600
29	845600	944400	938900	974500	---	938800	910600	989500	919500	931300	910400	903200
30	846000	941200	938900	980700	---	950900	910900	981300	918400	928600	910300	903200
31	845900	---	942700	977000	---	954300	---	968200	---	927800	909900	---
MAX	854400	945300	942700	980700	1064000	989200	955300	1017000	963100	959700	925900	909700
MIN	844600	842200	914100	914500	919900	913100	906900	909200	918400	917100	909900	902600
(+)	594.28	601.12	601.22	603.57	605.08	602.02	599.19	603.04	599.52	600.18	598.92	598.45
(++)	-8,200	+95,300	+1,500	+34,300	+22,500	-45,200	-43,400	+57,300	-49,800	+9,400	-17,900	-6,700

CAL YR 1988 MAX 1138000 MIN 842200 (++) -204,300
WTR YR 1989 MAX 1064000 MIN 842200 (++) +49,100

(+) ELEVATION, IN FEET, AT END OF MONTH
(++) CHANGE IN CONTENTS, IN ACRE-Feet

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 west of Eagletown, 10.7 mi downstream from Broken Bow Dam, and at mile 8.9.

DRAINAGE AREA.-- 787 mi².

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 above National Geodetic Vertical Datum of 1929. See WSP 1920 for history of changes prior to July 23, 1950.

REMARKS.-- No estimated daily discharges. Records good. Except for 33 mi² intervening area, flow completely regulated since October 1968 by Broken Bow Lake (station 07338900). U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.-- Gage-height record and 3 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Prior to regulation by Broken Bow Lake, 40 years (water years 1925, 1930-68), 1,291 ft³/s, 934,600 acre-ft/yr; since regulation by Broken Bow Lake, 20 years (water years 1970-89), 1,400 ft³/s, 1,014,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 101,000 ft³/s, May 20, 1960, gage height, 26.73 ft; from rating curve extended above 65,000 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of Aug. 18-19, 1915, reached a stage of 26.4 ft, from information provided by local resident, discharge, 92,500 ft³/s.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 8,250 ft³/s, July 25, gage height, 7.68 ft; minimum daily discharge, 99 ft³/s, Oct. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	128	2600	218	5890	7110	1700	131	7320	777	1990	178
2	130	131	4120	1250	6870	7460	2270	838	7140	462	1720	251
3	101	142	1380	2530	2740	7670	3670	1430	4450	510	1160	263
4	113	142	194	3080	2740	5170	5480	1580	2930	695	1270	178
5	127	136	1270	3780	4930	831	3610	2430	699	359	846	166
6	112	130	1930	4530	6110	1600	4460	1320	1070	508	268	163
7	112	120	2290	1420	5590	4850	3750	678	2750	423	542	160
8	134	125	1880	607	6230	4300	1290	972	3340	639	775	157
9	135	127	3410	2950	5590	4620	214	2300	3110	264	563	161
10	112	116	1240	2810	3940	4510	2570	2460	2440	351	550	154
11	99	109	188	2990	2130	4290	1950	2480	2680	643	326	152
12	123	136	441	1420	337	3370	1090	1920	4580	673	204	150
13	107	124	859	722	1880	5100	350	873	2170	831	190	159
14	128	110	947	848	3530	3470	1270	183	750	332	313	155
15	150	112	948	2810	2800	3480	266	900	616	507	393	149
16	142	105	865	2390	1350	3370	125	1770	1100	263	317	147
17	130	114	787	1510	1420	3500	1520	2660	1510	735	558	144
18	126	129	150	1530	832	604	2280	1790	1540	2560	276	142
19	132	897	429	1610	308	134	1270	430	3190	2920	208	141
20	151	924	816	1110	731	2990	227	522	3610	2960	193	138
21	144	355	378	576	4760	1320	302	1050	3850	3430	187	138
22	158	207	324	137	5600	671	332	3330	3500	2410	180	136
23	152	188	162	458	5960	705	137	5150	3890	2240	178	133
24	141	155	302	1320	6370	963	391	6850	1500	4630	176	132
25	138	168	124	1300	6980	567	262	7290	417	4980	173	130
26	155	1920	109	1970	7010	706	134	7280	1670	3270	170	129
27	251	588	946	2400	7000	702	132	3770	2140	3910	170	129
28	160	1700	3700	2270	7030	506	132	639	1740	3290	163	129
29	149	2880	2660	1530	---	1050	206	748	1250	2250	160	142
30	142	2720	2530	1060	---	377	140	4740	1030	1860	157	142
31	132	---	1340	4850	---	1200	---	7300	---	2100	154	---
TOTAL	4222	14938	39319	57986	116458	87196	41530	75814	77982	51782	14530	4648
MEAN	136	498	1268	1871	4159	2813	1384	2446	2599	1670	469	155
MAX	251	2880	4120	4850	7030	7670	5480	7300	7320	4980	1990	263
MIN	99	105	109	137	308	134	125	131	417	263	154	129
AC-FT	8370	29630	77990	115000	231000	173000	82370	150400	154700	102700	28820	9220

CAL YR 1988 TOTAL 430751 MEAN 1177 MAX 7670 MIN 99 AC-FT 854400
WTR YR 1989 TOTAL 586405 MEAN 1607 MAX 7670 MIN 99 AC-FT 1163000

Low-flow partial-record stations

Discharge measurements made at low-flow partial-record stations during water year 1989

Station number	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
RED RIVER BASIN						
07329847	Buffalo Spring near Sulphur, Okla.	Lat 34°30'08", long 96°56'21", in SW 1/4 NE 1/2 sec.1, T.1 S., R.3 E., Murray County, 0.1 mi upstream from Travertine Creek and 2 mi east of Sulphur.		1986-89	10-19-88 12-08-88 03-03-89 03-30-89 05-03-89 07-26-89 09-11-89	.10 .17 .80 .87 2.3 1.9 2.1

Flood hydrograph stations

The following table contains rainfall and discharge for indicated times at a flood hydrograph station. Records of discharge above the base discharge are obtained from a water-stage recorder. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak discharge. Records of rainfall are obtained from a water-stage recorder collecting rain in a holding pipe.

ARKANSAS RIVER BASIN

07165515 Fred Creek at Evanston Ave., at Tulsa, Ok.

LOCATION.--Lat 36°03'08", long 95°56'48", in NW 1/4, SE 1/4, sec.13, T.18 N., R.13 E., Tulsa County, Hydrologic Unit 11110101, at left downstream wingwall of culvert, near intersection of Evanston Ave. and 76th Place, and at mile 1.2.

DRAINAGE AREA.--1.87 mi²

PERIOD OF RECORD.--April 1988 to September 1989.

DISCHARGE, IN CUBIC FEET PER SECOND, AND RAINFALL, IN INCHES, AT INDICATED TIME,
WATER YEAR ENDING SEPT. 30, 1989

DATE	HOUR	DISCHARGE**	RAINFALL*
AUG. 20	0220	N/A	.00
	0230	N/A	.09
	0245	N/A	.47
	0300	N/A	.33
	0315	N/A	.50
	0330	N/A	.74
	0345	N/A	.50
	0400	N/A	.21
	0415	N/A	.26
	0430	N/A	.21
	0445	N/A	.14
	0500	N/A	.07
	0515	N/A	.01
	0530	N/A	.00

*3.38 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

07165560 Little Haikey Tributary at Tulsa, Ok.

LOCATION.--Lat 36°02'10", long 95°53'09", in NW 1/4, SE 1/4, sec.13, T.18 N., R.13 E., Tulsa County, Hydrologic Unit 11110101, at downstream wingwall of culvert, on south Memorial, 0.5 mile south of 81st on east side of road, and at mile 0.3.

DRAINAGE AREA.--.50 mi²

PERIOD OF RECORD.--April 1988 to current year.

DISCHARGE, IN CUBIC FEET PER SECOND, AND RAINFALL, IN INCHES, AT INDICATED TIME,
WATER YEAR ENDING SEPT. 30, 1989

DATE	HOUR	DISCHARGE	RAINFALL	DATE	HOUR	DISCHARGE	RAINFALL
AUG. 20	0230	43	.14	SEPT. 12	1730	41	.10
	0245	71	.36		1745	104	.20
	0300	219	.38		1800	166	.28
	0315	298	.52		1805	179	.02
	0330	543	.68		1815	164	.04
	0345	498	.17		1830	118	.04
	0400	483	.37				
	0415	431	.30				
	0430	495	.38				
	0445	532	.30				
	0450	540	.26				
	0500	532	.05				
	0515	429	.03				
	0530	347	.01				
	0545	283	.01				
	0600	228	.01				
	0615	225	.15				
	0620	235	.07				
	0630	264	.15				
	0635	270	.03				
	0645	240	.02				
	0700	196	.00				
	0715	170	.01				
	0730	145	.00				

DISCHARGE AT PARTIAL-RECORD STATIONS--Continued

07170010 Brook Hollow at S 136th St at Tulsa, Ok.

LOCATION.--Lat 36°19", long 95°32" SE 1/4, SW 1/4, sec.16, T.19 N., R.14 E., Tulsa County, Hydrologic Unit 110701077, at right downstream wingwall of culvert, near intersection of S 136th E Ave. and E 28th Place, and at mile 2.7

DRAINAGE AREA.--2.17 mi²

PERIOD OF RECORD.--April 1988 to September 1989.

DISCHARGE, IN CUBIC FEET PER SECOND, AND RAINFALL, IN INCHES, AT INDICATED TIME,
WATER YEAR ENDING SEPT. 30, 1989

DATE	HOUR	DISCHARGE**	RAINFALL*
AUG. 20	0220	N/A	.00
	0230	N/A	.08
	0245	N/A	.57
	0300	N/A	.14
	0315	N/A	.22
	0330	N/A	.30
	0345	N/A	.22
	0400	N/A	.17
	0415	N/A	.38
	0430	N/A	.30
	0445	N/A	.48
	0500	N/A	.17
	0515	N/A	.27
	0530	N/A	.26
	0545	N/A	.21
	0600	N/A	.07
	0615	N/A	.20
	0630	N/A	.29
	0645	N/A	.33
	0700	N/A	.15
	0715	N/A	.00

*5.01 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

07170020 Tupelo Creek at US 169 at Tulsa, Ok.

LOCATION.--Lat 36°04", long 95°39", in SE 1/4, SW 1/4, sec.6, T.19 N., R.14 E., Tulsa County, Hydrologic Unit 11070107, at left downstream wingwall of culvert, on US 169 south between Admiral and 11 St exit.

DRAINAGE AREA.--3.53 mi²

PERIOD OF RECORD.--April 1988 to September 1989.

DISCHARGE, IN CUBIC FEET PER SECOND, AND RAINFALL, IN INCHES, AT INDICATED TIME,
WATER YEAR ENDING SEPT. 30, 1989

DATE	HOUR	DISCHARGE	RAINFALL
AUG. 20	0330	357	N/A
	0345	561	N/A
	0400	804	N/A
	0415	912	N/A
	0430	949	N/A
	0445	999	N/A
	0500	1030	N/A
	0515	1040	N/A
	0530	1030	N/A
	0545	1030	N/A
	0600	1040	N/A
	0615	1230	N/A
	0630	1340	N/A
	0645	1560	N/A
	0700	1690	N/A
	0715	1800	N/A
	*0730	1820	N/A
	0745	1730	N/A
	0800	1580	N/A
	0815	1340	N/A
	0830	1030	N/A
	0845	908	N/A
	0900	406	N/A

*Maximum discharge for year.

DISCHARGE AT PARTIAL-RECORD STATIONS--Continued

517

07229030 Merkle Creek at Norman, Ok.

LOCATION.--Lat 35°24", long 97°51", in SW 1/4, SE 1/4, sec.35, T.9 N., R.3 W., Cleveland County, Hydrologic Unit 11090202, at the Lindsey Street south bound off ramp of I-35 in Norman, and at mile 1.1.

DRAINAGE AREA.--3.76 mi²

PERIOD OF RECORD--January 1988 to current year.

DISCHARGE IN CUBIC FEET PER SECOND, RAINFALL IN INCHES, AT INDICATED TIME
WATER YEAR ENDING SEPT. 30, 1989

DATE	HOUR	DISCHARGE	HOUR	RAINFALL	DATE	HOUR	DISCHARGE	HOUR	RAINFALL
JUNE 3	1700	1234	1630	.32	JUNE 7	0200	338	0200	.02
	1715	1300	1645	1.04		0215	308	0215	.00
	1730	348	1700	.32		0230	341	0230	.00
	1745	376	1715	.01		0245	418	0245	.00
	1800	402	1730	.01		0300	402	0300	.00
	1815	434	1745	.00		0315	412	0315	.00
	1830	421	1800	.02		0330	399	0330	.00
			1815	.01		0345	402	0345	.01
			1830	.02		0400	399	0400	.02
						0415	399	0415	.00
						0430	376	0430	.01
						0445	349	0445	.00
						0515	349		
						0530	356		
						0545	393		
						0600	402		
						0615	356		
						0630	356		
						0645	331		
JUNE 13	0545	345	0330	.03	JULY 23	0745	323	0730	.01
	0550	358	0345	.07		0755	341	0745	.05
	0555	446	0400	.15		0800	466	0800	.06
	0600	454	0415	.12		0810	383	0815	.03
	0615	398	0430	.07		0820	430	0830	.01
	0630	421	0445	.07		0835	345	0845	.02
	0700	359	0500	.06		0845	349	0900	.02
	0725	349	0515	.04					
	0800	363	0530	.04					
	0830	345	0545	.04					
	0900	373	0600	.03					
	0920	396	0615	.01					
	0940	349	0630	.01					
	0955	345	0645	.00					
	1015	396	0700	.00					
	1035	389	0715	.01					
	1055	349	0730	.01					
			0745	.02					
			0800	.01					
			0815	.03					
			0830	.00					
			0845	.01					

LOCATION.--Lat 35°13", long 97°52", in NW 1/4, NE 1/4, sec.5, T.8 N., R.2 W., Cleveland County, Hydrologic Unit 11090202, at the intersection of Classen and Lindsey Street in Norman, and at mile 3.2.

PERIOD OF RECORD--January 1988 to current year.

DISCHARGE IN CUBIC FEET PER SECOND, RAINFALL IN INCHES, AT INDICATED TIME
WATER YEAR ENDING SEPT. 30, 1989

DATE	HOUR	DISCHARGE	RAINFALL	DATE	HOUR	DISCHARGE	RAINFALL
JUNE 7	0030		.02	JUNE 13	0330		.01
	0045		.02		0345		.19
	0100		.02		0400	<133	.39
	0115		.04		0415	542	.09
	0130		.06		0430	731	.04
	0145	<132	.33		0445	635	.04
	0200	176	.51		0500	486	.06
	0215	518	.19		0515	447	.06
	0230	747	.02		0530	439	.07
	0245	673	.05		0545	432	.02
	0300	480	.05		0600	397	.01
	0315	401	.03		0615	327	.01
	0330	359	.02		0630	270	.01
	0345	305	.00		0645	225	.00
	0400	243	.01		0700	190	.01
	0415	196	.00		0715	162	.01
	0430	161	.00		0730	145	.01
	0445	139	.00		0745	<135	.01
	0500	<134	.01				

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound 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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