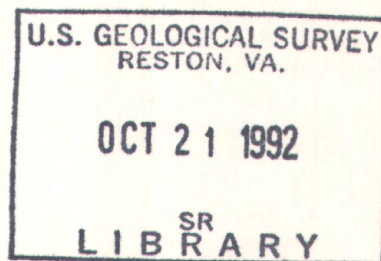


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Water Resources Data Oklahoma Water Year 1991



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-91-1
Prepared in cooperation with the State of Oklahoma
and with other agencies

CALENDAR FOR WATER YEAR 1991

1990

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3							1
7	8	9	10	11	12	13														
14	15	16	17	18	19	20	4	5	6	7	8	9	10	2	3	4	5	6	7	8
21	22	23	24	25	26	27	11	12	13	14	15	16	17	9	10	11	12	13	14	15
28	29	30	31				18	19	20	21	22	23	24	16	17	18	19	20	21	22
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1991

JANUARY							FEBRUARY							MARCH						
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20	21	22	23	24	25	26	10	11	12	13	14	15	16	17	18	19	20	21	22	23
27	28	29	30	31			17	18	19	20	21	22	23	24	25	26	27	28	29	30
							24	25	26	27	28			31						
APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6				1	2	3	4							1
7	8	9	10	11	12	13								2	3	4	5	6	7	8
14	15	16	17	18	19	20	5	6	7	8	9	10	11	9	10	11	12	13	14	15
21	22	23	24	25	26	27	12	13	14	15	16	17	18	16	17	18	19	20	21	22
28	29	30					19	20	21	22	23	24	25	23	24	25	26	27	28	29
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7	8	9	10	11	12	13								8	9	10	11	12	13	14
14	15	16	17	18	19	20	4	5	6	7	8	9	10	15	16	17	18	19	20	21
21	22	23	24	25	26	27	11	12	13	14	15	16	17	22	23	24	25	26	27	28
28	29	30	31				18	19	20	21	22	23	24	29	30					
							25	26	27	28	29	30	31							



Water Resources Data Oklahoma Water Year 1991

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OK-91-1
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

1992

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 and ground-water data-collection networks in each state, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, 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.

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15. Supplementary Notes Prepared in cooperation with the State of Oklahoma and with other agencies.			
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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, Ground water. b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
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[Letters after station name designate type of data: (d) discharge, (c) chemical, (b) biological, (e) contents, (m) microbiological, (t) water temperature, (s) sediment]

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ix

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Kansas.....	361415094452501	422
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Taloga.....	355850098522701	423
ELLIS COUNTY		
Gage.....	361536099464601	424
Catesby.....	363224099584601	425
GRADY COUNTY		
Rush Springs.....	344656098031401	426
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JOHNSTON COUNTY		
Mannsville.....	341243098534501	428
LINCOLN COUNTY		
Stroud.....	354442098400801	429
LOGAN COUNTY		
Waterloo.....	354525097242201	430
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WATER RESOURCES DATA - OKLAHOMA, 1991
DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

The following continuous-record surface-water discharge stations (gaging stations) in Oklahoma have been discontinued. Daily streamflow records were collected and published for the period of record, expressed in water years, shown for each station. Discontinued project stations with less than 2 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

Discontinued surface-water discharge stations

Station name	Station number	Discharge area (mi ²)	Period of record
ARKANSAS RIVER BASIN			
Salt Fork Arkansas River near Ingersoll, OK	07148450	1,140	1961-62 1974-79
Salt Fork Arkansas River near Cherokee, OK	07149500	2,439	1941-50
Greasy Creek near Watchorn, OK	07152290	28.0	1974-76
Ranch Creek at Cleveland Dam near Cleveland, OK	07153100	21.9	1945-63
Cimarron River above Ute Creek near Boise City, OK	07155000	1,955	1906-07 1943-46 1947-54
Cimarron River near Boise City, OK	07155500	2,214	1939-42
Cimarron River near Mocane, OK	07157000	8,670	1943-65
Cimarron River near Englewood, KS	07157500	10,096	1982-87
Cimarron River at Freedom, OK	07157900	12,706	1974-80
Salt Creek near Hitchcock, OK	07158150	44.4	1968-70
Salt Creek near Okeene, OK	07158400	196	1961-67 1974-79
Preacher Creek near Dover, OK	07158500	14.5	1952-57
Turkey Creek near Drummond, OK	07159000	248	1948-70
Cimarron River near Crescent, OK	07159400	16,453	1971-72
Bluff Creek above Lake Hefner near Oklahoma City, OK	07159500	1.62	1950-58
Cottonwood Creek near Navina, OK	07159720	247	1978-80 1982-89
Cimarron River near Perkins, OK	07161000	17,852	1940-89
Stillwater Creek near Stillwater, OK	07162000	168	1935-38
West Fork Brush Creek near Stillwater, OK	07162500	13.1	1935-38
Cimarron River at Oilton, OK	07163500	18,669	1935-45
Cimarron River at Mannford, OK	07164000	18,849	1939-50 1960-63
Polecat Creek below Heyburn Reservoir near Heyburn, OK	07165500	123	1944-79
Arkansas River near Tullahasse, OK	07165600	75,815	1970-72
Verdigris River near Sageeyah, OK	07171500	4,402	1939-45
Little Caney River near Copan, OK	07174000	424	1944-58
Little Caney River below Cotton Creek near Copan, OK	07174200	502	1959-81
Caney River at Bartlesville, OK	07174500	1,465	1950-56 1966-87
Caney River near Ochelata, OK	07174700	1,753	1956-76
Double Creek subwater shed 5 near Ramona, OK	07175000	2.39	1955-69

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS--Continued

Station name	Station number	Discharge area (mi ²)	Period of record
ARKANSAS RIVER BASIN			
Caney River near Collinsville, OK	07175550	2,046	1936-38
Candy Creek near Wolco, OK	07176800	30.6	1970-81
Hominy Creek near Skiatook, OK	07177000	340	1944-81
Mingo Creek at 38th Street North at Tulsa, OK	07178035	58.0	1987-89
Verdigris River near Inola, OK	07178600	7,911	1945-70
Tar Creek at Miami, OK	07185100	52.0	1980-84
Lost Creek at Seneca, MO	07188500	42.0	1949-59
Neosho River near Grove, OK	07189500	9,969	1925-39
Big Cabin Creek near Pyramid Corners, OK	07190600	71.1	1964-72
Spavinaw Creek near Row, OK	07191200	128	1959-62
Pryor Creek near Pryor, OK	07192000	229	1948-63
Neosho River near Wagoner, OK	07192500	12,307	1924-25 1938-49
Neosho River below Fort Gibson Lake near Fort Gibson, OK	07193500	12,495	1951-89
Arkansas River near Muskogee, OK	07194500	96,674	1926-70
Flint Creek near Kansas, OK	07196000	110	1956-76 1979-90
Dirty Creek near Warner, OK	07198500	227	1940-46
Deer Creek at Hydro, OK	07228400	274	1961-63 1978-80
Canadian River near Newcastle, OK	07229000	25,763	1939-45
Canadian River near Noble, OK	07229100	25,911	1960-61 1964-75
Canadian Sandy Creek near Ada, OK	07229427	198	1987-88
Little River near Norman, OK	07229500	120	1952-55
Little River near Bowlegs, OK	07230597	550	1983-88
Salt Creek near Dewright, OK	07230800	210	1960-63 1966-67
Ti Creek near Blanco, OK	07231965	4.82	1980-81
Brushy Creek near Haileyville, OK	07231975	139	1978-83
Peaceable Creek near Haileyville, OK	07231990	134	1978-83
Gaines Creek near Krebs, OK	07232000	588	1943-63
Blue Creek near Blocker, OK	07232010	12.1	1976-83
Deer Creek near McAlester, OK	07232024	38.3	1979-80
Coldwater Creek near Hardesty, OK	07233000	1,967	1940-64
Beaver River near Hardesty, OK	07233210	5,029	1978-86
Wolf Creek near Shattuck, OK	07235500	1,183	1938-46
Wolf Creek near Fargo, OK	07236000	1,624	1943-76
Bent Creek near Seiling, OK	07237800	139	1967-70

WATER RESOURCES DATA - OKLAHOMA 1991

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS--Continued

Station name	Station number	Discharge area (mi ²)	Period of record
ARKANSAS RIVER BASIN			
North Canadian River near Watonga, OK	07239200	12,692	1980-83
North Canadian River near Oklahoma City, OK	07241500	13,354	1939-53 1960-61
Wewoka Creek near Wetumka, OK	07242100	396	1960-64 1967
Bellcow Creek at Chandler, OK	07242500	46.0	1949-55
Deep Fork near Dewar, OK	07244000	2,307	1938-50
North Canadian River near Eufaula, OK	07244500	17,657	1960-62
Taloka Creek near Stigler, OK	07245030	20.1	1979-81
Sallisaw Creek near Sallisaw, OK	07245500	182	1943-76
Sans Bois Creek near Keota, OK	07246000	346	1939-42
Arkansas River near Sallisaw, OK	07246500	147,757	1948-70
Coal Creek near Spiro, OK	07246615	15.4	1979-82
Fourche Maline near Wilburton, OK	07247450	56.2	1978-81
Red Oak Creek near Red Oak, OK	07247550	12.8	1978-82
Poteau River near Wister, OK	07248500	993	1938-87
Caston Creek at Wister, OK	07248600	72.9	1979-82
Morris Creek at Howe, OK	07248620	19.4	1979-81
Sugarloaf Creek near Monroe, OK	07248700	53.6	1979-81
Poteau River at Poteau, OK	07249000	1,240	1938-45
Brazil Creek near Walls, OK	07249080	69.1	1979-81 1984-85
Owl Creek near McCurtain, OK	07249100	27.9	1978-81
Holi-Tuska Creek near Panama, OK	07249422	4.39	1978-81
RED RIVER BASIN			
Sandy Creek near Eldorado, OK	07299710	280	1960-63
Turkey Creek at Olustee, OK	07301100	317	1960-63
North Fork Red River near Sayre, OK	07301481	2,159	1978-87
North Fork Red River near Granite, OK	07302000	2,494	1904-08 1938-44
Elm Fork of North Fork Red River near Carl, OK	07303400	416	1960-79
Elm Fork of North Fork Red River near Reed, OK	07303420	579	1965-67
Elm Fork of North Fork Red River near Mangum, OK	07303500	838	1905-08 1930-31 1938-47 1965-67 1968-76
Otter Creek at Mountain Park, OK	07306500	164	1946-51
East Cache Creek near Elgin, OK	07309000	248	1956-58
Little Medicine Bluff Creek near Lawton, OK	07310000	7.00	1913-19

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS--Continued

Station name	Station number	Discharge area (mi ²)	Period of record
RED RIVER BASIN			
Medicine Bluff Creek near Lawton, OK	07310500	101	1913-19
Little Beaver Creek near Duncan, OK	07313000	150	1949-64
Cow Creek at Waurika, OK	07313600	193	1966-70
Walnut Bayou near Burneyville, OK	07315900	314	1961-63 1969-71
Sandstone Creek subwater shed 16A near Cheyenne, OK	07317500	8.78	1952-71
Sandstone Creek subwater shed 16 near Cheyenne, OK	07318000	20.3	1953-69
Sandstone Creek subwater shed 14 near Cheyenne, OK	07318500	1.02	1953-70
Sandstone Creek subwater shed 17 near Cheyenne, OK	07319000	10.1	1953-70
Sandstone Creek near Berlin, OK	07319500	44.9	1953-72
Sandstone Creek subwater shed 10A near Elk City, OK	07320000	2.87	1952-70
Sandstone Creek subwater shed 6 near Elk City, OK	07320500	6.46	1953-70
Sandstone Creek subwater shed 5 near Elk City, OK	07321000	3.89	1953-70
Sandstone Creek subwater shed 3 near Elk City, OK	07321500	0.62	1953-70
Sandstone Creek subwater shed 9 near Elk City, OK	07322000	3.50	1952-70
East Branch Sandstone Creek near Elk City, OK	07322500	23.0	1951-72
Sandstone Creek near Cheyenne, OK	07323000	87.1	1952-74
Sandstone Creek subwater shed 1 near Cheyenne, OK	07324000	5.33	1952-70
Barnitz Creek near Arapaho, OK	07324500	243	1946-63
Lake Creek near Eakly, OK	07325850	52.0	1970-78
Willow Creek near Albert, OK	07325860	28.0	1971-78
Sugar Creek near Gracemont, OK	07327000	208	1956-74
Little Washita River near Ninnekah, OK	07327490	208	1964-85
Little Washita River at Ninnekah, OK	07327500	227	1952-83
Washita River near Tabler, OK	07328000	4,706	1940-52
Winter Creek near Alex, OK	07328070	33.0	1965-87
Rush Creek near Maysville, OK	07329500	206	1955-76
Antelope Spring at Sulphur, OK	07329849	0	1986-89
Outflow from Vendome Well at Sulphur, OK	07329851	0	1986-89
Rock Creek at Dougherty, OK	07329900	138	1957-67
Washita River near Berwyn, OK	07330000	6,815	1924-26
Caddo Creek near Ardmore, OK	07330500	298	1937-50
Mill Creek near Ravia, OK	07331250	89.2	1969-71
Red River at Denison Dam near Denison, TX	07331600	39,720	1959-89
Red River near Colbert, OK	07332000	39,777	1924-59
Blue River near Connerville, OK	07332390	162	1977-79
Blue River at Milburn, OK		203	1966-87

WATER RESOURCES DATA - OKLAHOMA 1991

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS--Continued

Station name	Station number	Discharge area (mi ²)	Period of record
RED RIVER BASIN			
Coal Creek near Lehigh, OK	07332900	8.10	1978-81
Muddy Boggy Creek at Atoka, OK	07332950	445	1979-81
North Boggy Creek near Stringtown, OK	07333000	136	1956-59
Chickasaw Creek near Stringtown, OK	07333500	32.7	1956-68
McGee Creek near Stringtown, OK	07333800	86.6	1956-68
McGee Creek near Farris, OK	07333910	176	1978-82
Clear Boggy Creek near Caney, OK	07335000	720	1943-89
Clear Boggy Creek near Wapanucka, OK	07334500	518	1940-43
Tennile Creek near Miller, OK	07336000	68	1956-70
Kiamichi River near Belzoni, OK	07336500	1,423	1926-72
Little River near Wright City, OK	07337500	845	1930-31 1945-89
Little River near Idabel, OK	07338000	1,173	1930-46

WATER RESOURCES DATA - OKLAHOMA, 1991

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 both surface water and ground water in the State. Specifically, it contains: (1) Discharge records for 131 streamflow-gaging stations, and 11 partial-record or miscellaneous streamflow stations, (2) stage and content records for 30 lakes and reservoirs, (3) water-quality records for 46 streamflow-gaging stations, and 2 lakes; (4) water-level records for 27 observation wells.

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 include, in one volume, data on quantity and quality of surface water levels. Data on ground-water levels were added to this format from 1975-79 and 1990 to present.

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." Records of ground-water levels were published from 1935 to 1974 under the title "Ground-Water Levels in the United States," and 1980 to 1989 under the title "Ground-Water Levels in Observation Wells in Oklahoma." 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 25426, Denver, CO 80226.

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-91-1." 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. Beginning with the 1990 water year, all water-data reports also will be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25426, Denver, Colorado 80226.

COOPERATION

The U.S. Geological Survey and organizations of the State of Oklahoma have had cooperative agreements for the systematic collection of streamflow and ground-water 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, Patty Eaton,
Executive Director.
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, Lawton, Oklahoma City, and Tulsa.

Organizations that supplied data are acknowledged in the station descriptions.

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 Oklahoma 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, poorly defined channels, and ephemeral streamflow.

Precipitation data from monthly reports of the Oklahoma Climatological Survey, averaged over the State, indicate that monthly precipitation was below normal during October, February, March, July, and August of the water year. Totals were above normal during June, and September. November, December, January, April, and May totals were about average.

Precipitation was not uniform across the State, however. Western Oklahoma was particularly hard-hit by dry conditions. During February, the western third of the State averaged only 0.1 inch of precipitation, and it was the fourth driest year on record for the State as a whole. In June, heavy rains fell across southern Oklahoma and eased parched conditions in northwest Oklahoma, but near-drought conditions persisted in northeast Oklahoma. During September significantly above-average precipitation fell over the entire State.

A comparison of daily, monthly, and annual streamflow for the 1991 water year, and the period of record, at eight selected stations (fig. 1-8) reflects unusually dry conditions for the entire year in western and northern Oklahoma. Streamflow was average for the year in southwestern, central, southern and southeastern Oklahoma, due to high flows in June and September. These eight stations were selected at representative locations within Oklahoma. Three locations are affected to some degree by regulation: Arkansas River at Ralston, Washita River near Dickson, and North Canadian River at Woodward.

Drought effects during the 1991 water year varied throughout the State. Streamflow was far below normal in all streams during the year in the western and north-central areas, and in the large streams in northeastern Oklahoma (fig. 1-3). In central Oklahoma, streamflow was below normal during April with above normal levels in September (fig. 4). In the smaller streams of northeastern Oklahoma, streamflow was below normal in February, March, and throughout the summer months of June through August. Two medium-flow periods in December through January and in April were the only outstanding points in the otherwise dry year (fig. 5). In southwestern Oklahoma, streamflow was above normal in June (fig. 6). Streamflow was above normal in June and September in the south-central part of the State (fig. 7) and in June in the southeast (fig. 8). Overall the streamflow, on an annual basis, was reflected dry conditions in the northern third of the State with all annual peak flows in the low-flow range. In the rest of the State, streamflow was about normal with all annual peak flows in the medium-flow range.

The worst flooding occurred during June across large parts of southwest and south-central Oklahoma. Daily rainfall totals greater than 5 inches were reported in Altus, Snyder, and Sedan in the southwest, causing flash floods. The Kingston-Madill area in south-central Oklahoma received more than 10 inches in 3 days, causing street flooding; low-lying areas near Lake Murray in Love County were flooded.

A comparison of streamflow for the 1991 water year with streamflow for the period of record at the eight selected stations is presented in the following table.

STATION	IDENTIFICATION	Statistics of discharge during 1991 water year (cubic feet per second)			Statistics of discharge during period of record (cubic feet per second)		
		Maximum	Minimum	Average	Maximum	Minimum	Average
07152500	Arkansas River at Ralston	17,400	175	1,549	211,000 (Prior to regulation 1926-75) 5,153 (Since regulation by Kaw Lake 1977-91)	14	4,826
07185000	Neosho River near Commerce	5,700	20	508	267,000	0	3,685
07197000	Baron Fork at Eldon	6,260	16	321	57,600	1.7	311 (1949-91)
07231500	Canadian River at Calvin	26,100	34	1,385	174,000 (1906, 1939-42, 1945-1991)	0	1,704
07237500	North Canadian River at Woodward	250 *	0.67	35.5	42,000 (Prior to regulation 1939-78) 120 (Since regulation by Optima Lake 1979-91)	0	194
07304500	Elk Creek near Hobart	2,440	7.4	64.9	28,000	0	85.5 (1950-91)
07331000	Washita River near Dickson	27,300	228	1,732	98,000 (Prior to regulation 1929-58) 118,000 (Since regulation by Fort Cobb Reservoir 1982-91)	0	1,573
07332500	Blue River near Blue	23,600	69	444	65,200	0	313 (1937-91)

* maximum daily discharge, all other stations maximum instantaneous discharge

The average discharge streamflow statistic illustrates below normal runoff conditions in the northern third of Oklahoma for the 1991 water year and nearly normal runoff conditions in the rest of the State.

Conservation storage in six selected reservoirs in the State, with a combined conservation storage capacity of 8,014,000 acre-feet, remained about the same, decreasing slightly from 97 percent at the start of the water year to 95 percent at the end of the water year.

A comparison of conservation storage capacity for the start and end of the 1991 water year for the six selected reservoirs is presented in the following table.

STATION	IDENTIFICATION	Conservation Storage Capacity			
		Start of 1991 WY		End of 1991 WY	
		(acre-feet)	(percent)	(acre-feet)	(percent)
<u>Arkansas River Basin</u>					
07164200	Keystone Lake near Sand Springs	524,000	79	523,600	79
07190000	Lake O' the Cherokees at Langely	1,515,000	102	1,504,000	101
07197500	Tenkiller Ferry Lake near Gore	640,000	102	629,300	100
07244800	Eufaula Lake near Broken	2,359,000	99	2,218,000	93
<u>Red River Basin</u>					
07302500	Lake Altus at Lugert	78,050	59	69,010	52
07331500	Lake Texoma near Denison	2,623,000	96	2,654,000	98
Total/Average		7,740,000	97	7,634,000	95

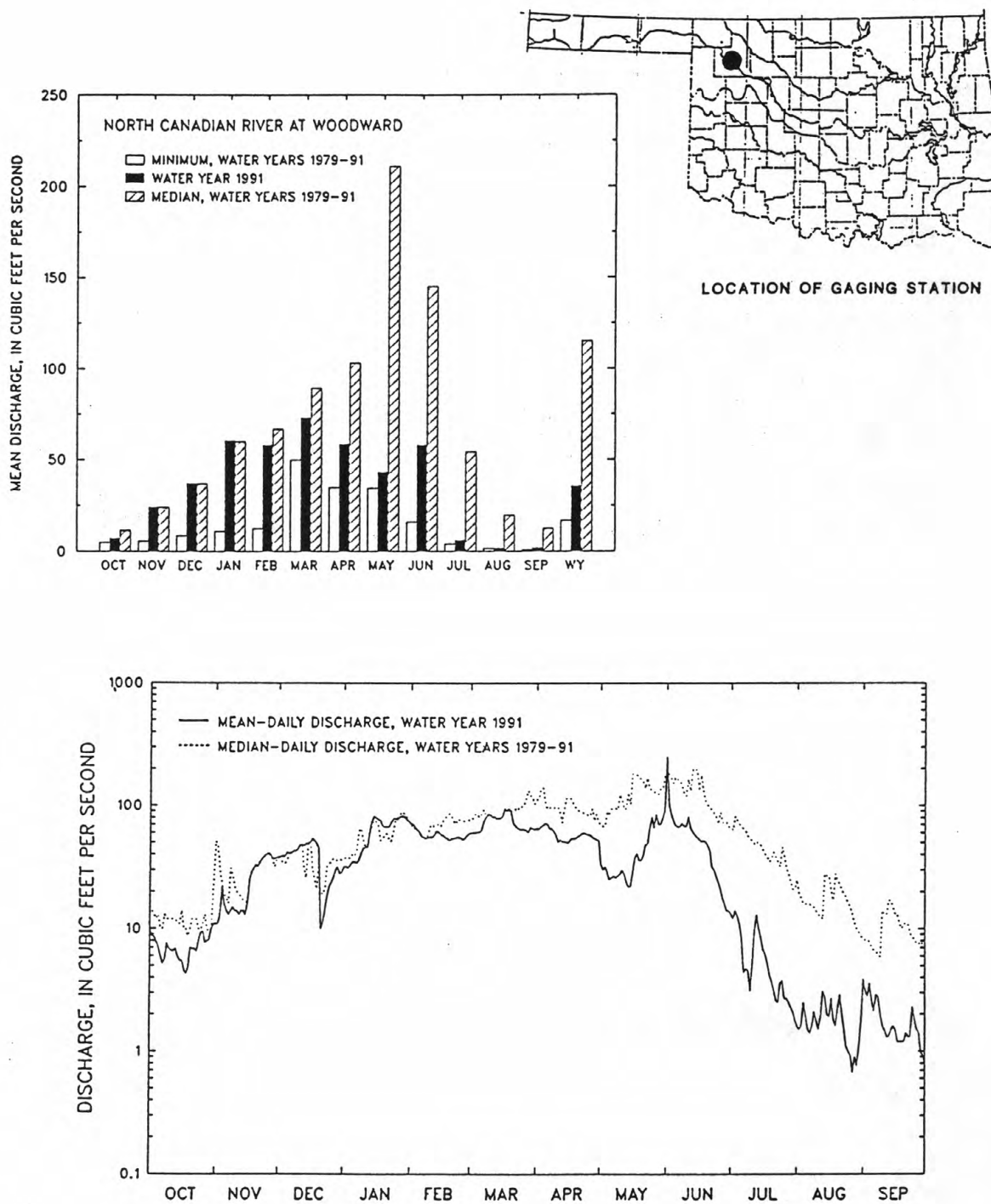


Figure 1.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for North Canadian River at Woodward, Oklahoma.

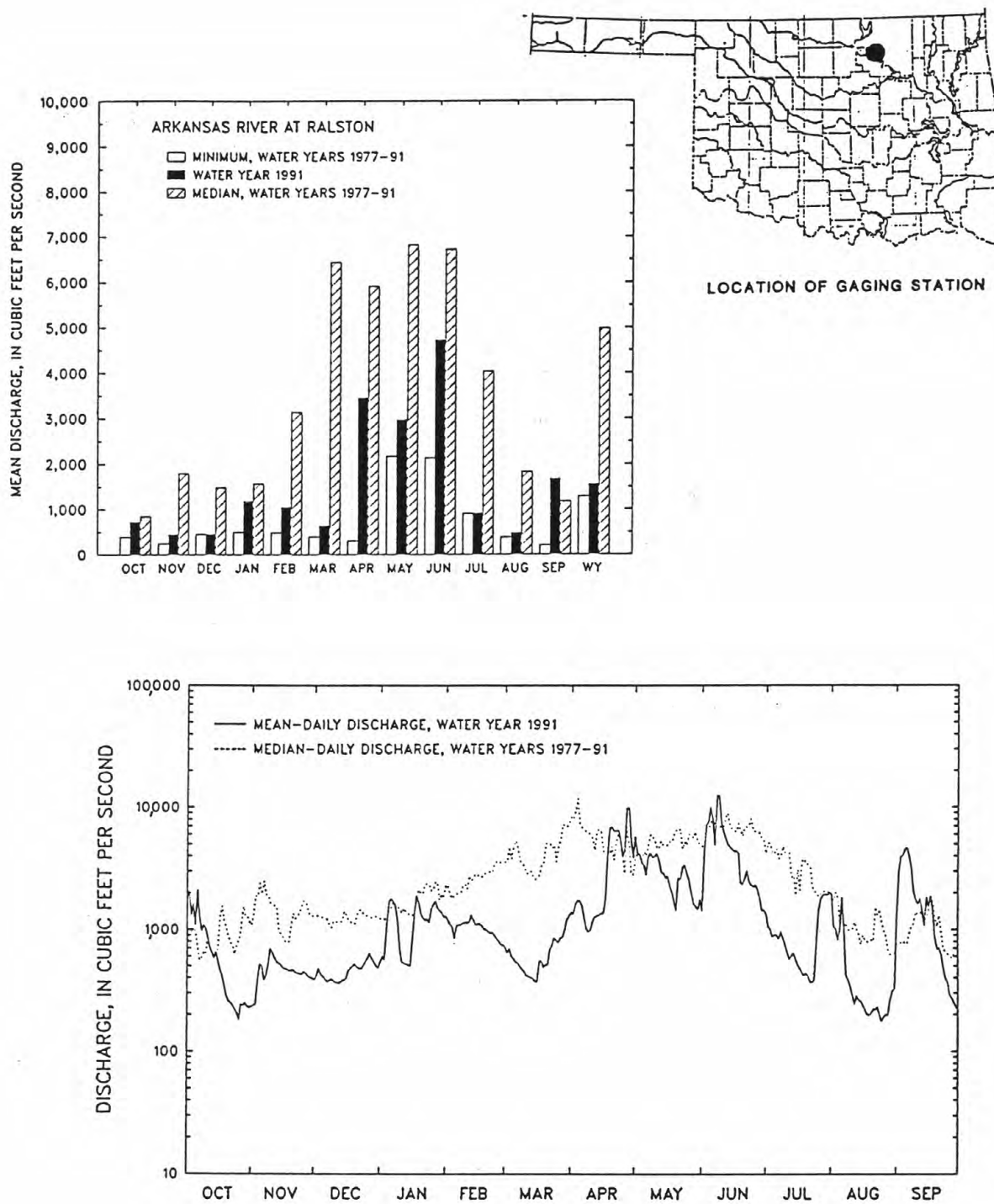


Figure 2.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Arkansas River at Ralston, Oklahoma.

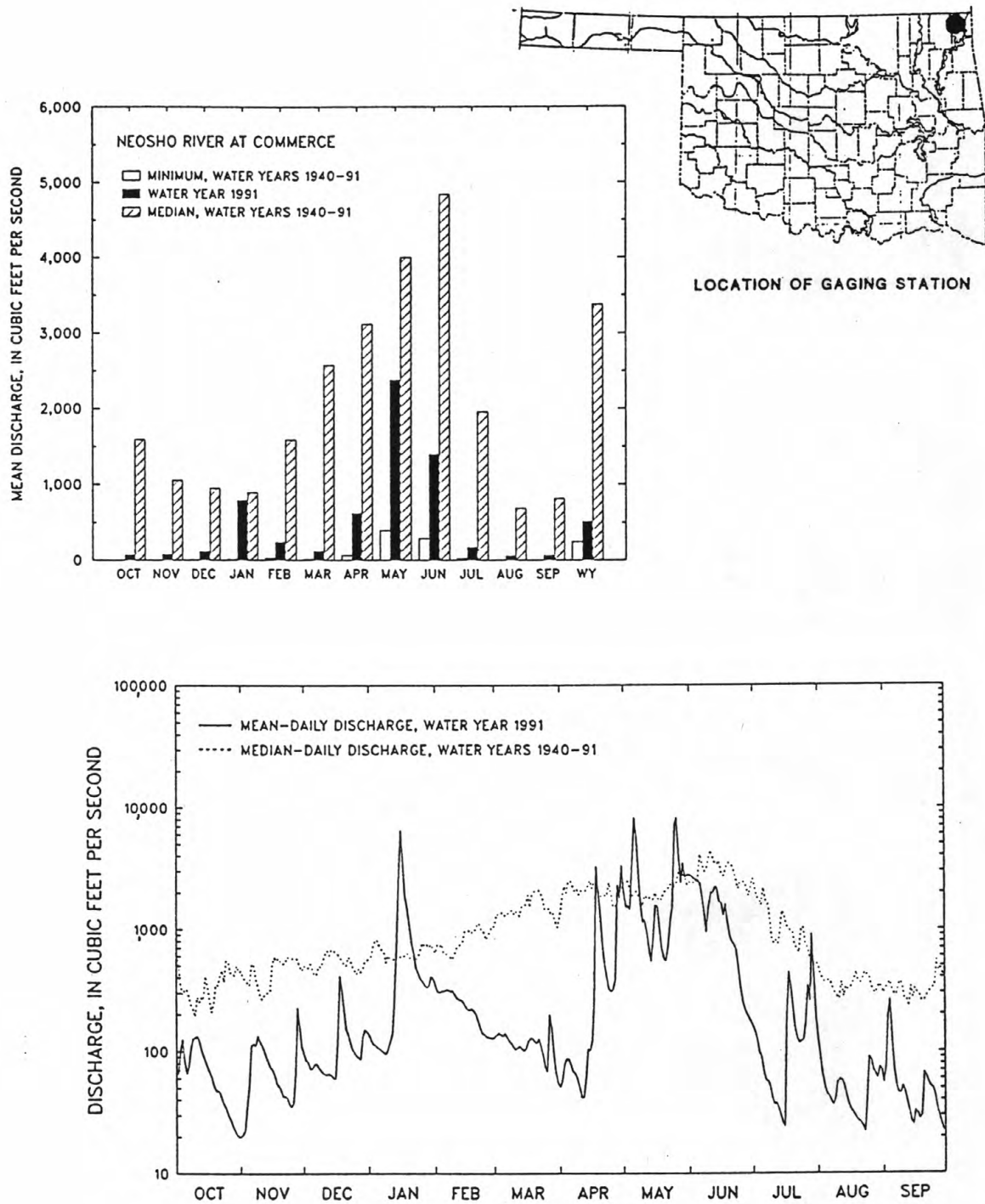


Figure 3.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Neosho River near Commerce, Oklahoma.

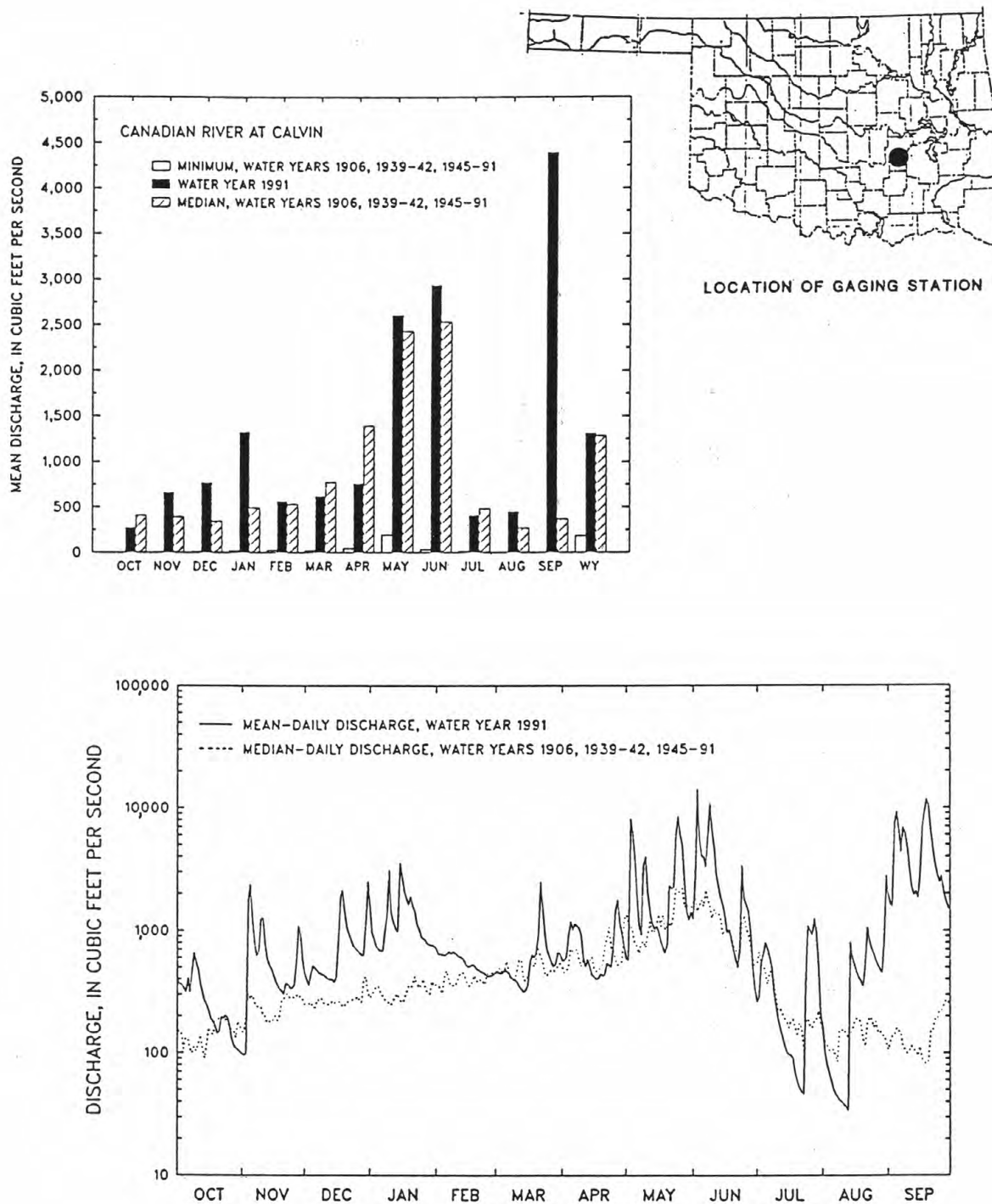


Figure 4.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Canadian River at Calvin, Oklahoma.

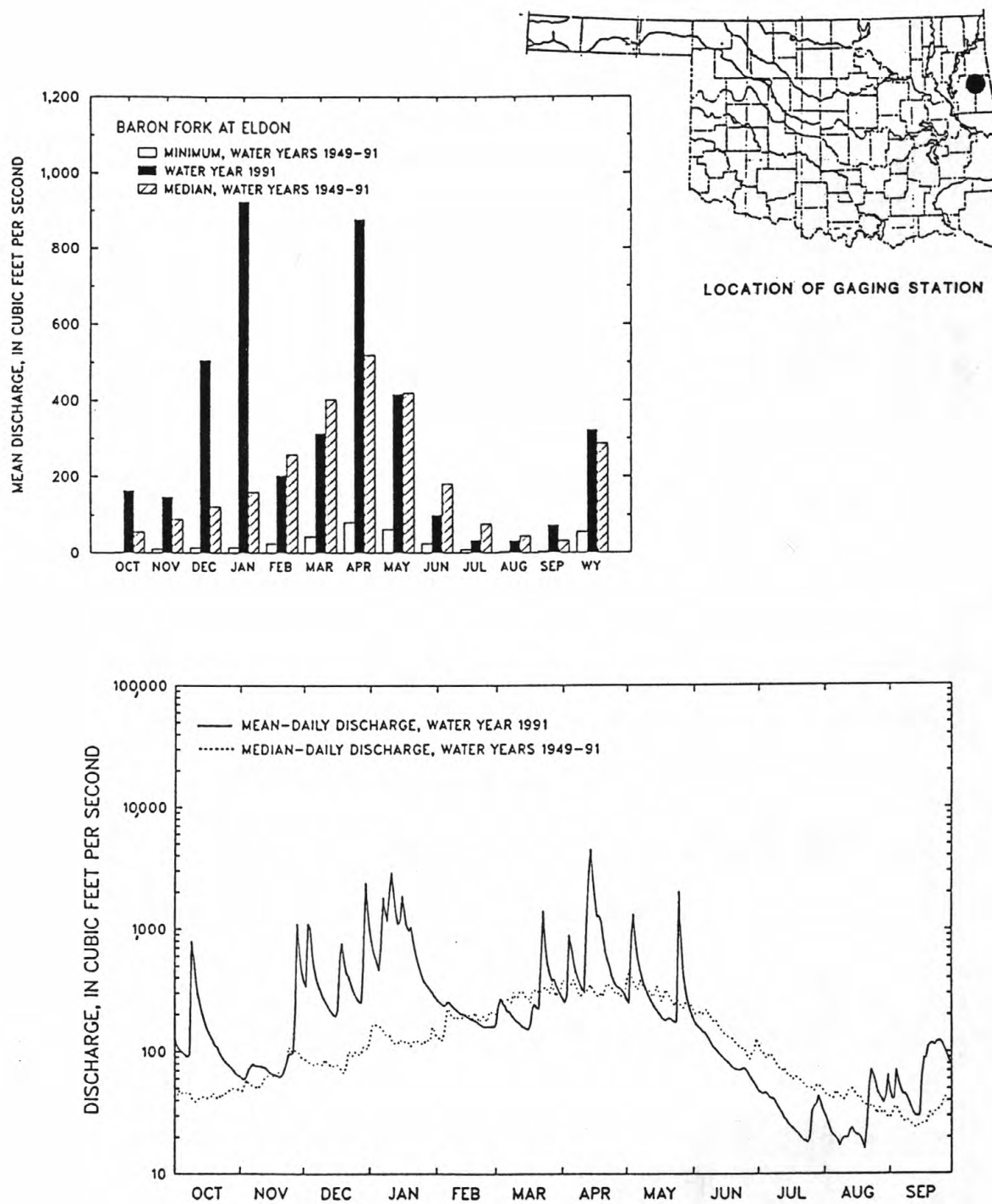


Figure 5.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Baron Fork at Eldon, Oklahoma.

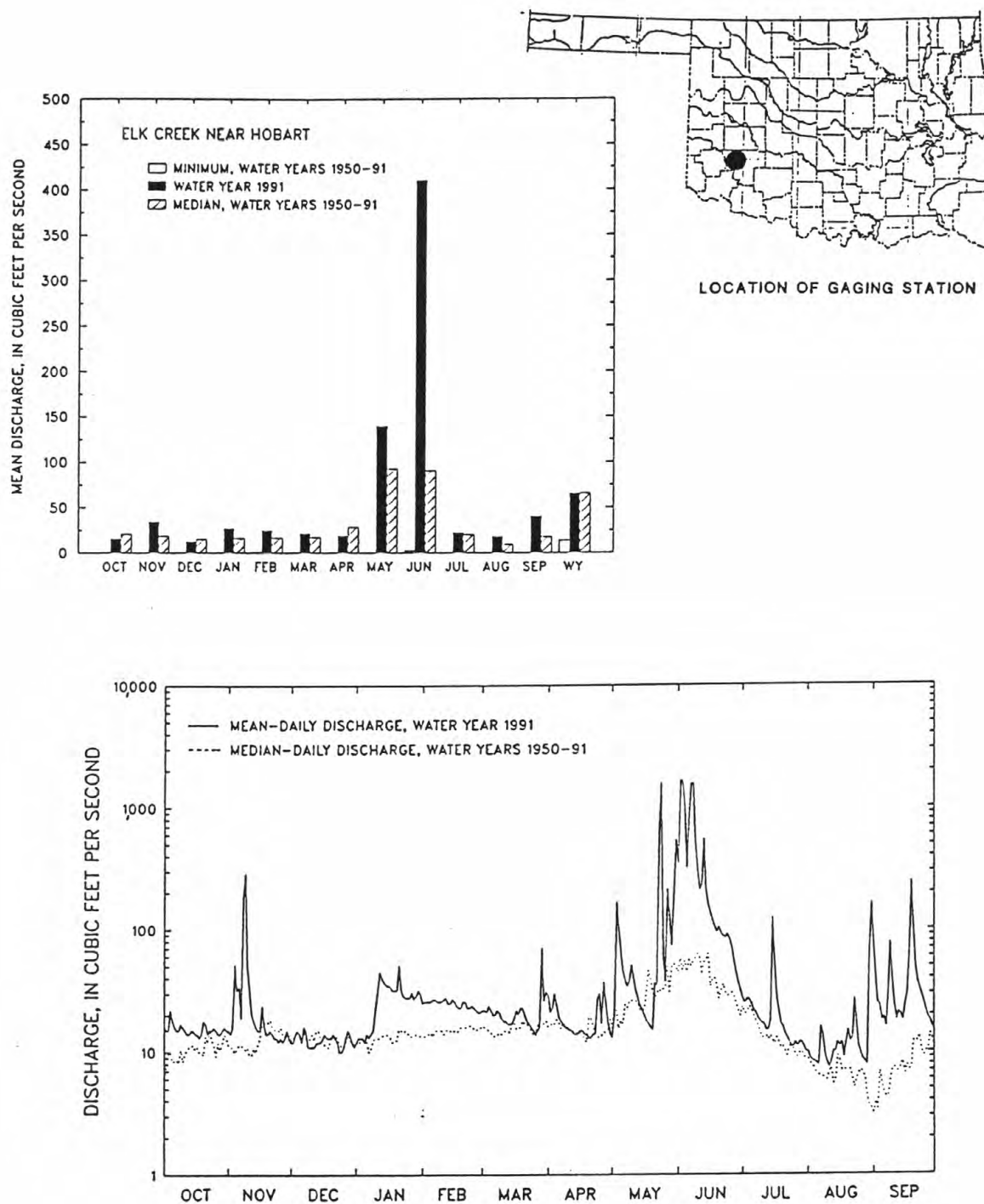


Figure 6.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Elk Creek near Hobart, Oklahoma.

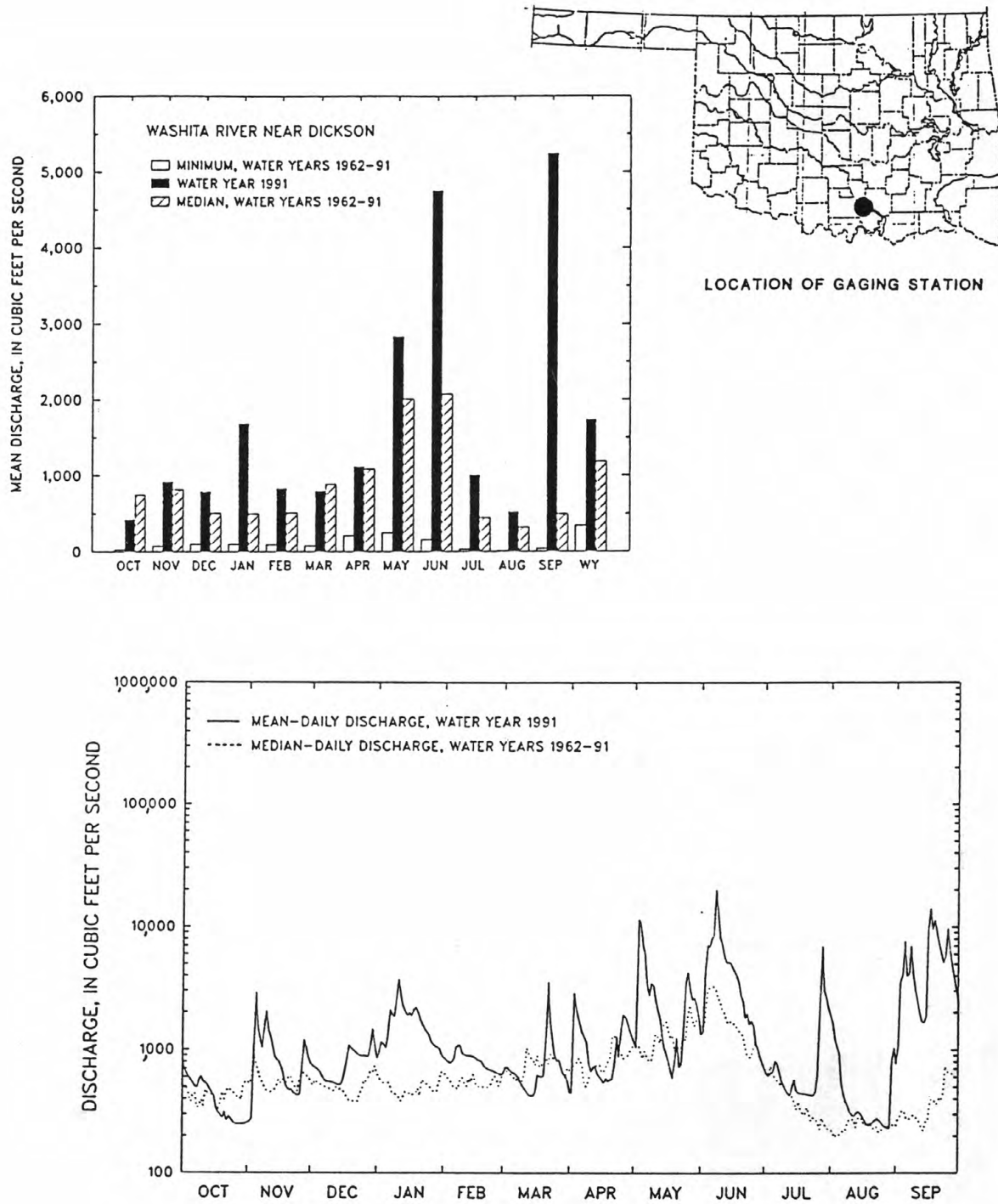


Figure 7.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Washita River near Dickson, Oklahoma.

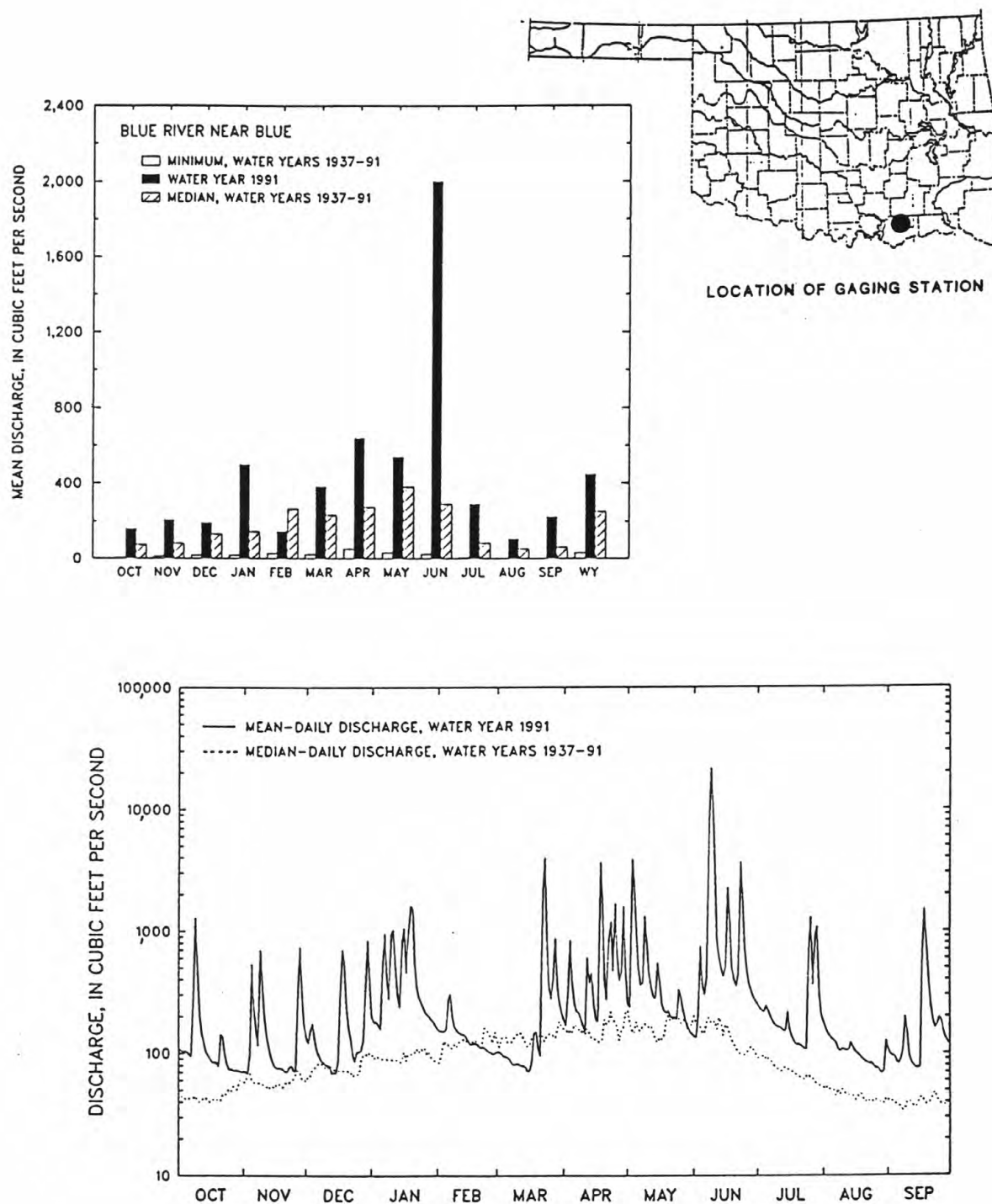


Figure 8.--Comparison of daily, monthly, and annual discharges for water year 1991 and period of record for Blue River near Blue, Oklahoma.

Chemical Quality of Streamflow

The concentrations of selected dissolved chemical constituents measured at surface-water sampling stations in the State during the 1991 water year were generally within the ranges measured during previous years. The minimum values for the selected constituents for most stations were larger for the 1991 water year than the minimum values for the 1970 through 1985 water years. The maximum values for these same constituents were smaller for most stations for the 1991 water year than the maximum values for the 1970 through 1985 water years. Concentrations of dissolved solids, chloride, sulfate, and suspended sediment are shown in the following graphs for sampling sites on selected principal streams (fig. 9) in the State. Maximum and minimum concentrations of these constituents for the 1991 water year are compared to maximum and minimum concentrations for the 1970 through 1985 water years.

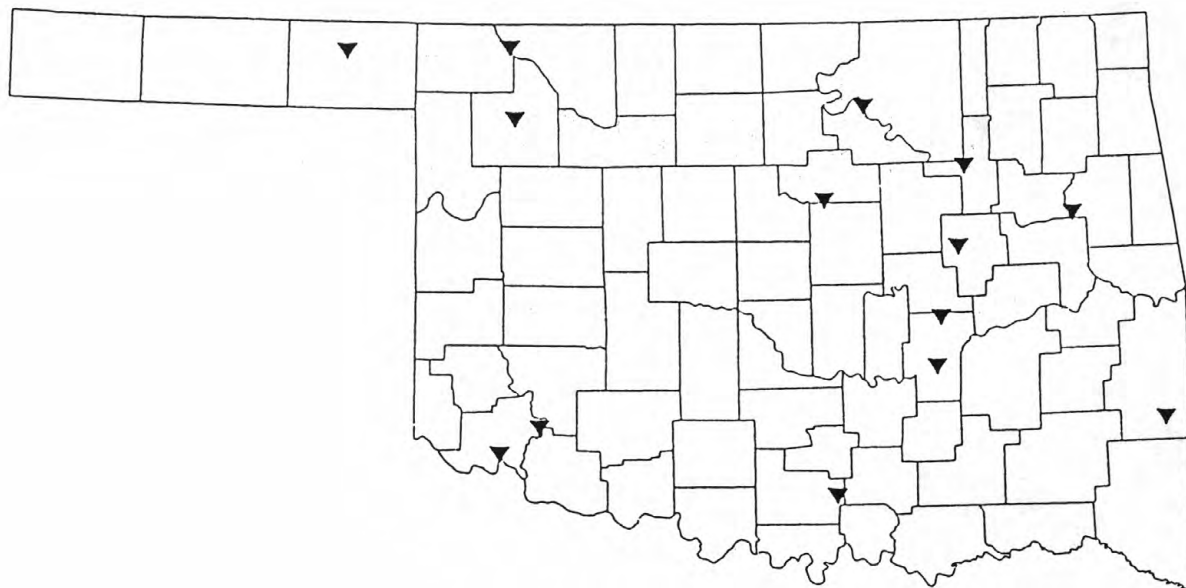


Figure 9.—Location of water-quality stations on selected principal streams.

The maximum dissolved-solids concentration measured in these streams in 1991 was 36,800 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 shown in the following graphs:

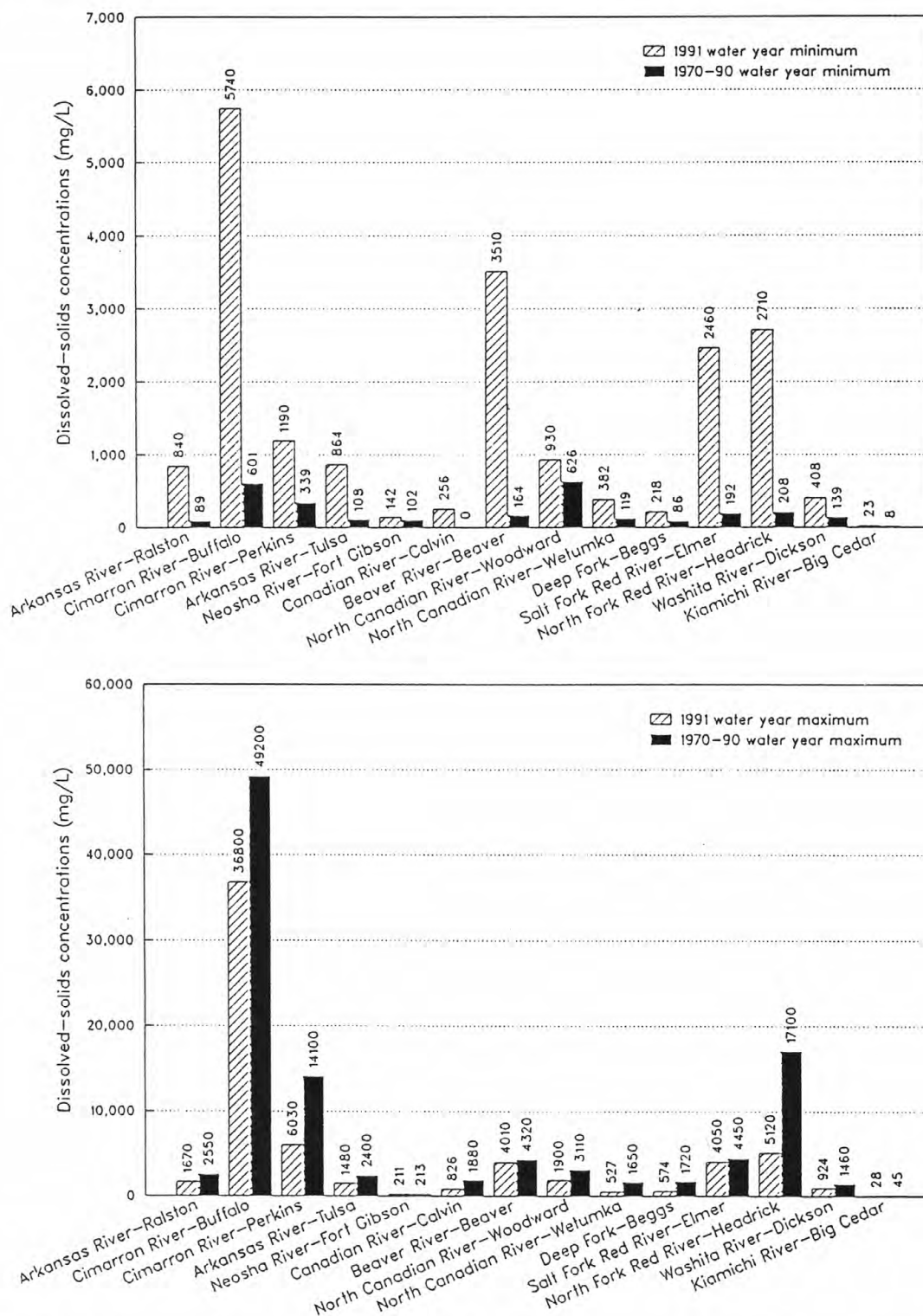


Figure 10.—Comparisons of minimum and maximum dissolved-solids concentrations, in milligrams per liter (mg/L), for water year 1991 and water years 1970-90.

The maximum dissolved-chloride concentration measured at the selected stations in 1991 was 24,000 mg/L in the Cimarron River near Buffalo. Dissolved-chloride concentrations, in mg/L, are shown in the following graphs:

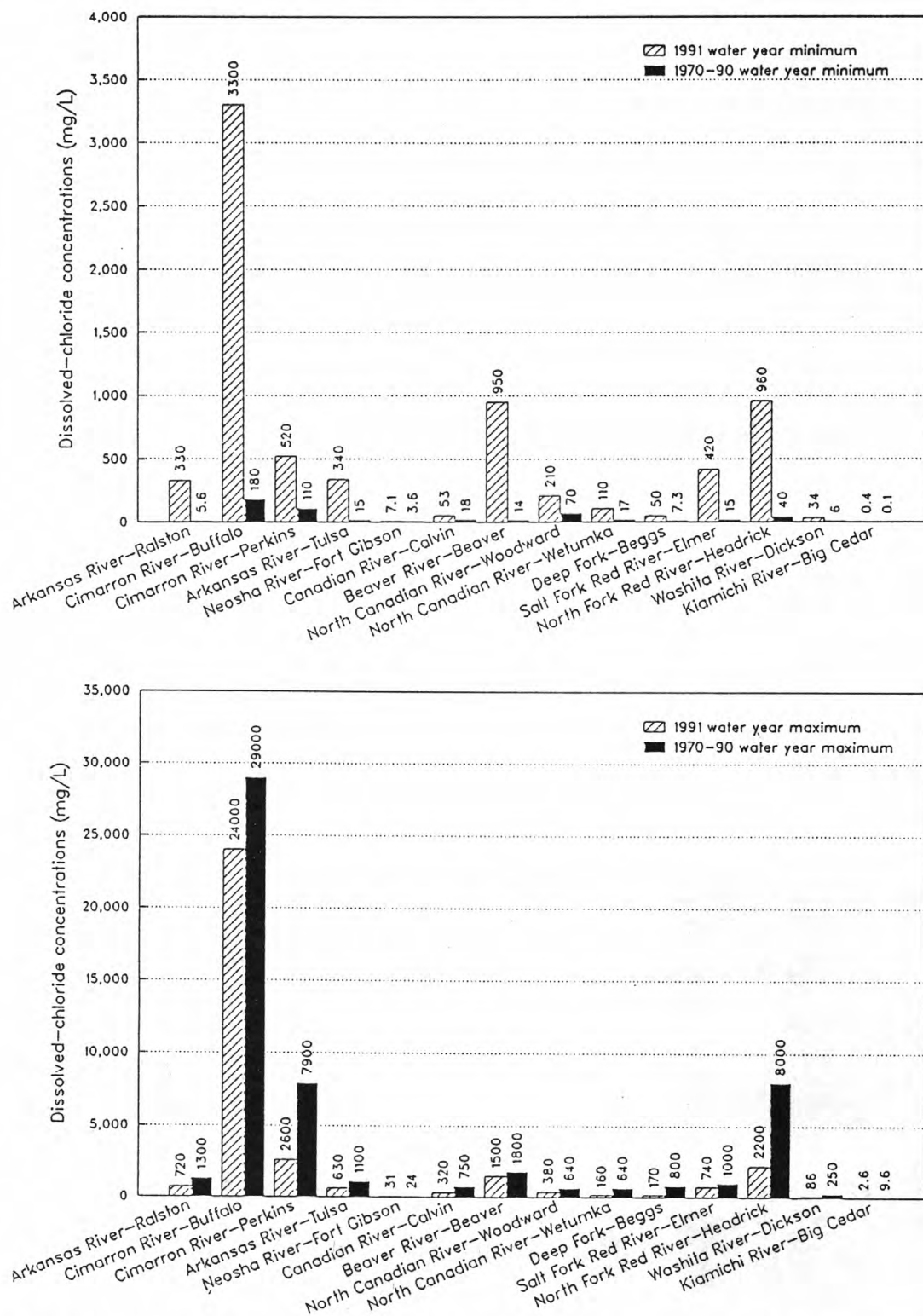


Figure 11.—Comparisons of minimum and maximum dissolved-chloride concentrations, in milligrams per liter (mg/L), for water year 1991 and water years 1970-90.

The maximum dissolved-sulfate concentration measured at the selected stations in 1991 was 2,300 mg/L in the Salt Fork Red River near Elmer. This value was larger than concentrations measured in the Salt Fork Red River near Elmer during the 1970-85 water years. Dissolved-sulfate concentrations, in mg/L, are shown in the following graphs:

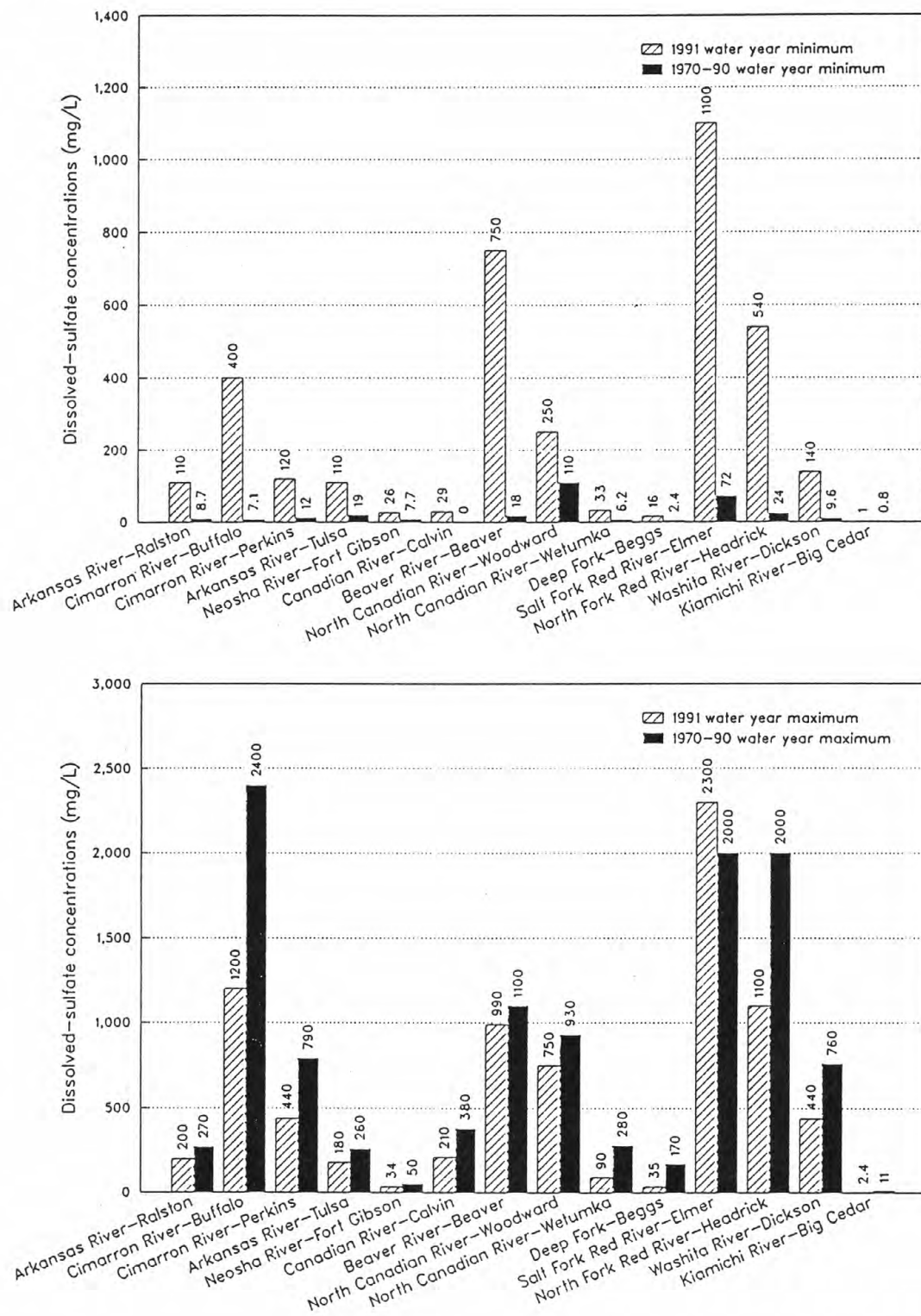


Figure 12.—Comparisons of minimum and maximum dissolved-sulfate concentrations, in milligrams per liter (mg/L), for water year 1991 and water years 1970-90.

The maximum suspended-sediment concentration measured at the selected stations in 1991 was 2,810 mg/L in the Cimarron River at Perkins. Suspended-sediment concentrations in mg/L, are shown in the following graphs:

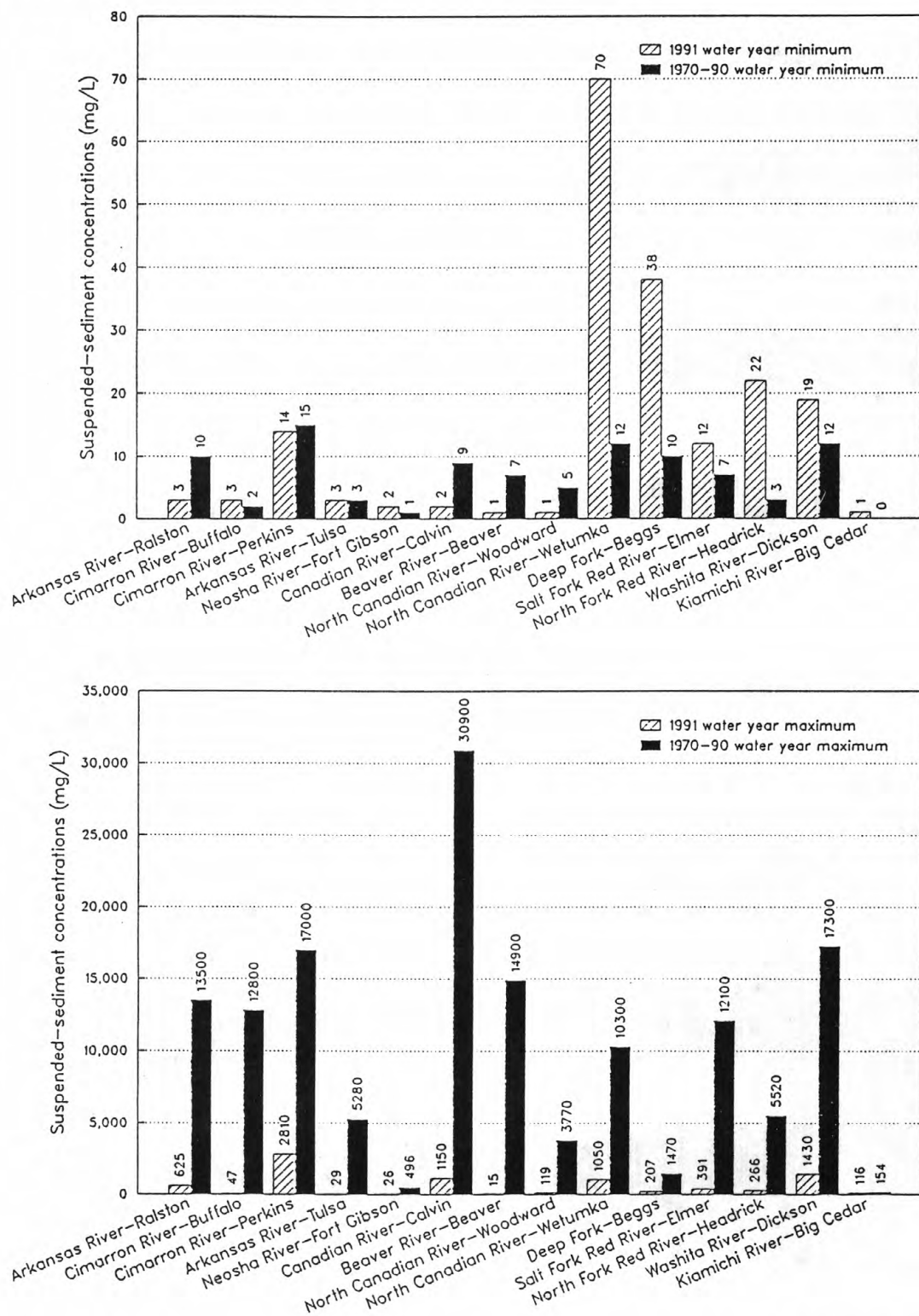


Figure 13.—Comparisons of minimum and maximum suspended-sediment concentrations, in milligrams per liter (mg/L), for water year 1991 and water years 1970-90.

Ground Water

Ground-water levels are measured annually at more than 900 sites statewide during January to March. An additional 27 sites are part of a network of sites visited quarterly, or that have continuous recorders.

Figures 14-18 show 3-year hydrographs for five of the continuous recorder sites throughout the State. The hydrograph of the Idabel GW Well (McCurtain County) (fig. 14) is representative of seasonal variations in water levels in a shallow well in an irrigated area.

The hydrographs of the Texhoma GW Well (Texas County) (fig. 15) and the Sharon GW well (Woodward County) (fig. 16) are indicative of the long-term decline of water levels in the Ogallala aquifer. The Texoma well recorded a new low water level of record. The Sharon well has averaged a water-level decline of about one foot per year for the last three years.

Conversely, the Taloga GW well (Dewey County) (fig. 17) hydrograph shows recovering water levels in the Rush Springs aquifer at the rate of about one foot per year for the last three years.

The hydrograph for the Fittstown GW well (Pontotoc County) (fig. 18) shows water levels still elevated after last year's peak of record. Rainfall in this part of the State was above normal for the year.

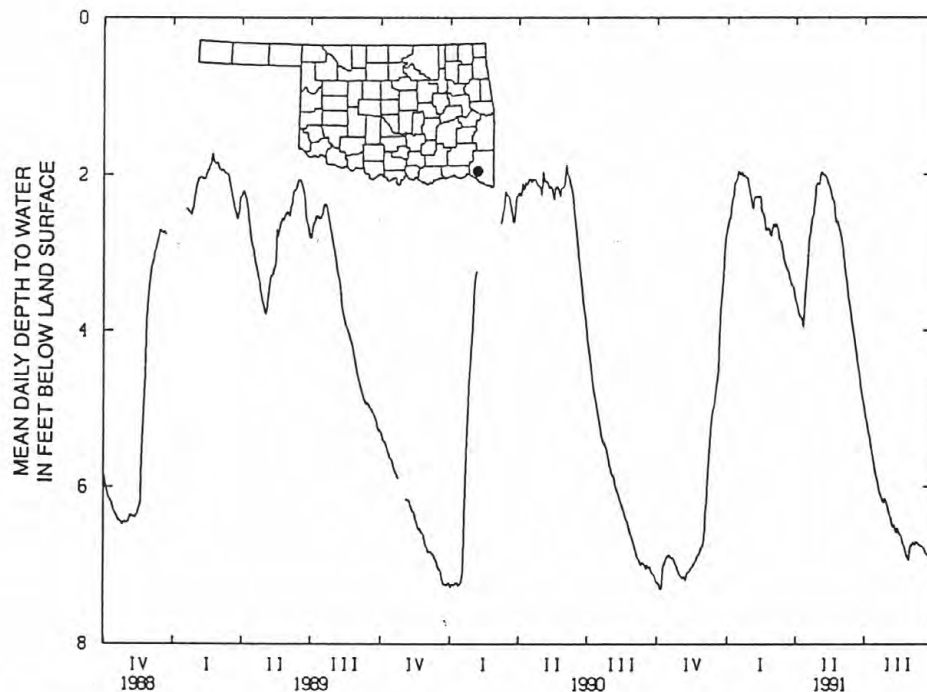


Figure 14.—Hydrograph for well 08S-24E-01 BBD 1 (Idabel GW Well, 335337094451101) for water years 1989-91.

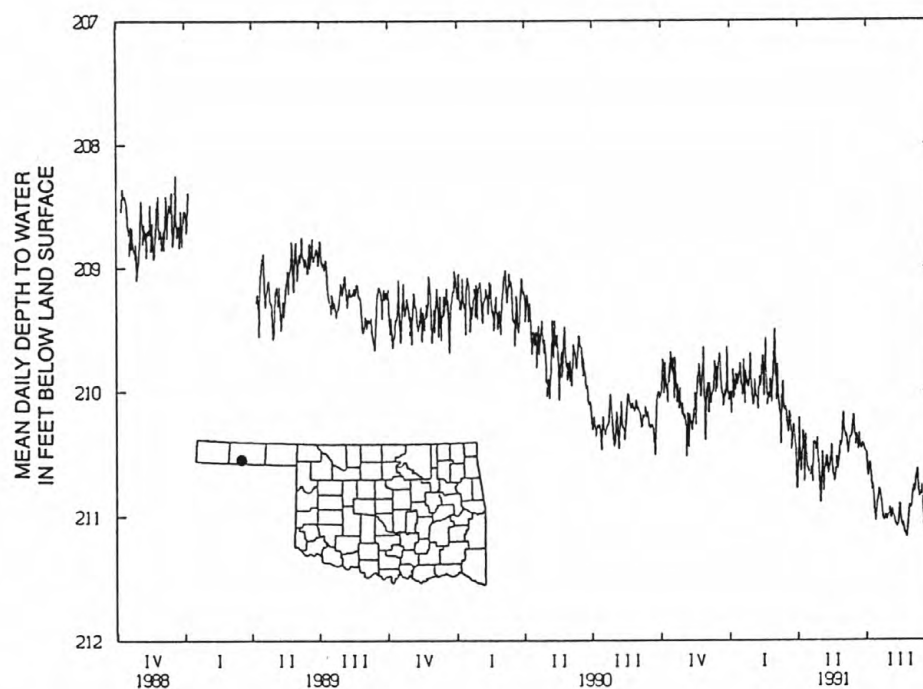


Figure 15.—Hydrograph for well 01N-12E-35 BDD 1 (Texhoma GW Well, 363033101440701) for water years 1989-91.

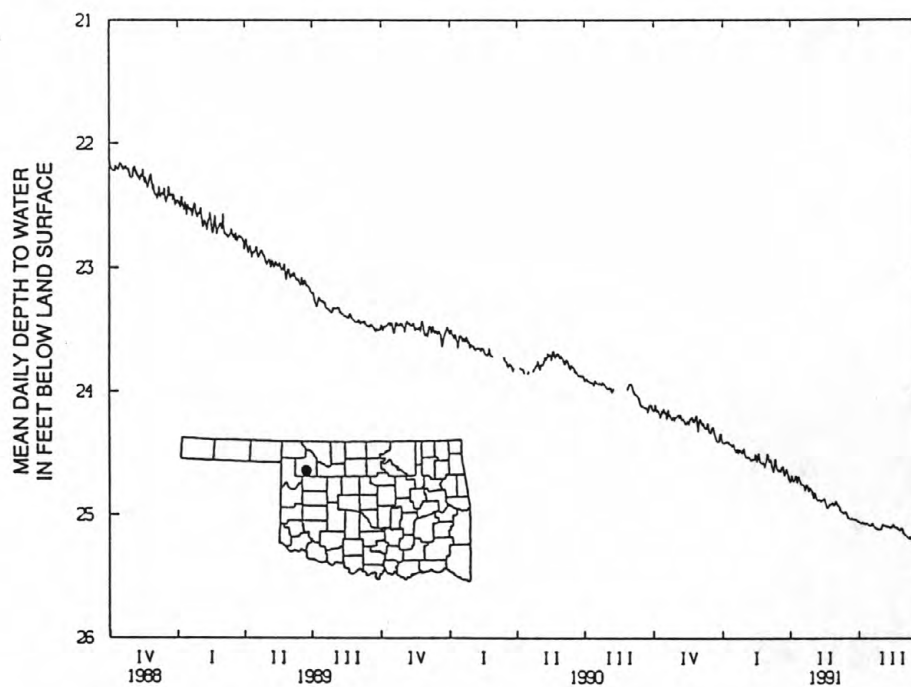


Figure 16.—Hydrograph for well 21N-22W-23 BBB 1 (Sharon GW Well, 361714099315101) for water years 1989-91.

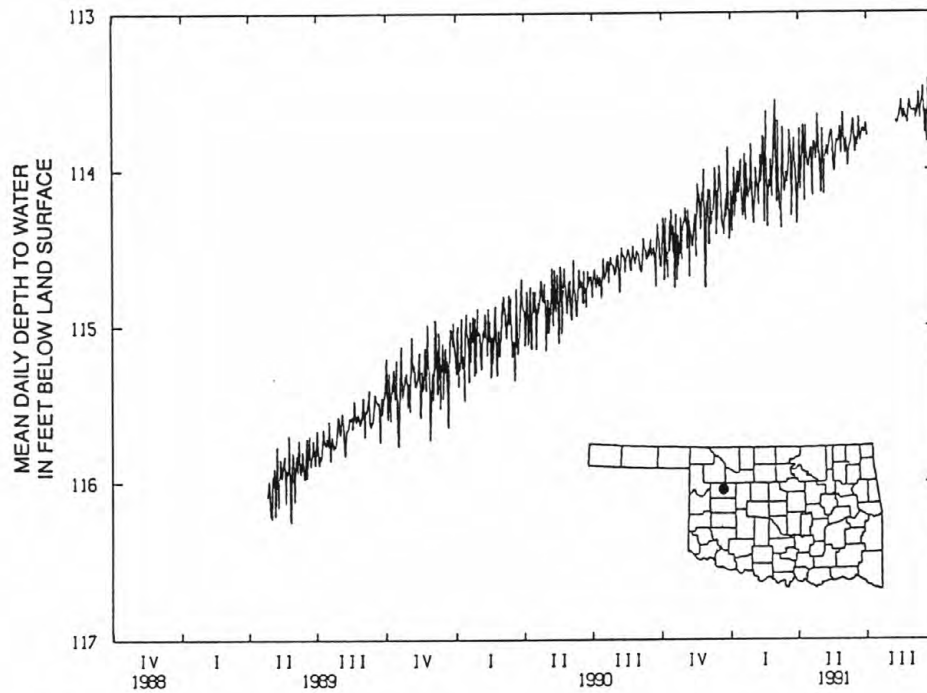


Figure 17.-Hydrograph for well 17N-16W-02 ACB 1 (Taloga GW Well, 355850098522701) for water years 1989-91.

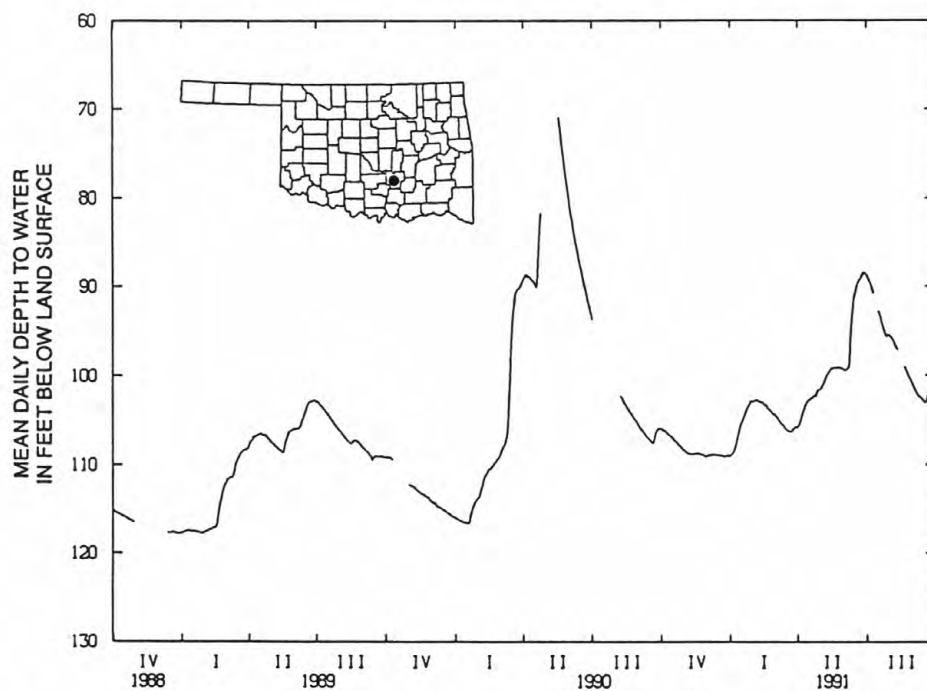


Figure 18.-Hydrograph for well 01N-06E-04 CAD 1 (Fittstown GW Well, 343457096404501) for water years 1989-91.

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 ground-water records published in this report are for the 1991 water year that began Oct. 1, 1990, and ended Sept. 30, 1991. 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, water-quality data for surface water and water levels for ground water. The locations of the stations where the data were collected are shown in figures 19-22. 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 and for ground-water wells sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells and, in Oklahoma, for surface-water stations where only miscellaneous measurements are made.

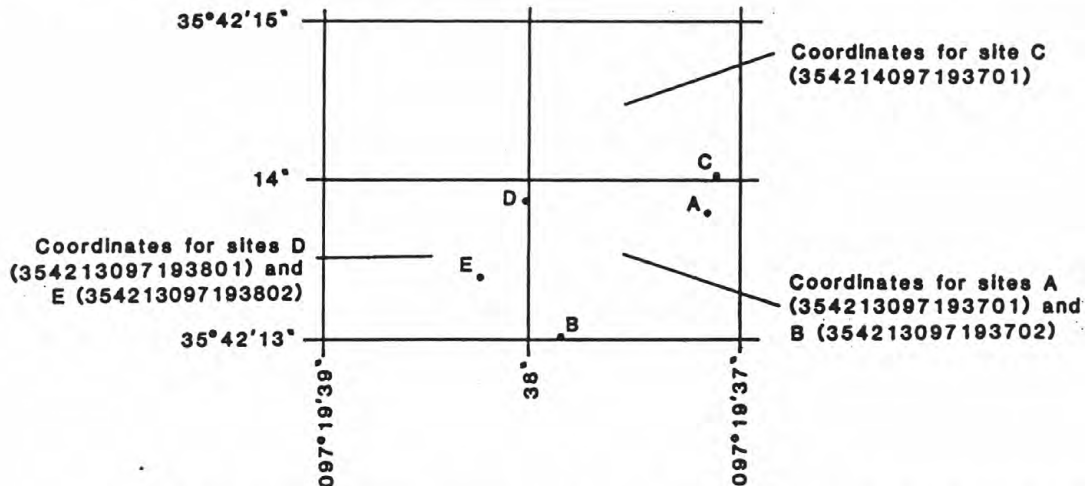
Downstream Order System

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 wells and 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 instances 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 and ground-water 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 19, 21.

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

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 20.

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 in 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

Dissolved Trace-Element Concentrations

NOTE: Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (ug/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's and 100's of nanograms per liter (ng/L). Present data above the ug/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey will begin using new trace-element protocols in the near future.

Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Oklahoma are shown in figure 22.

Although, in this report, records of water levels are presented for fewer than 100 wells, records are obtained through cooperative efforts of many Federal, State, and local agencies for several hundred observation wells throughout Oklahoma and are placed in computer storage. Information about the availability of the data in the water-level file may be obtained from the District chief, Oklahoma District. (See address on back of front page.)

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 16-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape or punched tape of the water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in each well description.

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

Data Presentation

Each well record consists of two parts, the station description and the data table of mean daily water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); the hydrologic-unit number; the distance and direction from a geographic point of reference.

AQUIFER.--This entry designates by name the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It is used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of mean daily water levels follows the station description for each well equipped with a digital recorder. For wells with no recorder, actual measurements are listed. Water levels are reported in feet below land-surface datum. Missing records are indicated by blanks in place of the water level.

ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National WATER Data STOrage and REtrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- * Station Header File - contains descriptive information on more than 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- * Daily Values File - Contains more than 220 million daily values of streamflows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.
- * Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.
- * Water-Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemical characteristics of both surface and ground water.
- * Ground-Water Site Inventory Data Base - Contains inventory data for more than 900,000 wells, springs, and other sources of ground water. The data include site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disc; and as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports also will be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's District offices. (See address on the back of the title page.) A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

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.

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

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.

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

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, 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/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 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 (ft³/s)* is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 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 [(ft³/s)/mi²]* 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 (CaCO₃).

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.

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

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Micrograms per gram (ug/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 (UG/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.

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.

*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.

The National Trends Network (NTN) is a 160-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 [$mg C/m^2 \cdot time$] for periphyton and macrophytes and [$mg C/(m^3 \cdot time)$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [$\text{mg O}_2/(\text{m}^2 \cdot \text{time})$] for periphyton and macrophytes and [$\text{mg O}_2/(\text{m}^3 \cdot \text{time})$] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made 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 85 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 planimeted. All areas shown are those for the stage when the planimeted 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.....	<u>hexagenia limbata</u>

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. McCary: 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. Rathburn, 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-A19. *Levels of streamflow gaging stations*, by E.J. Kennedy: USGS—TWRI Book 3, Chapter A19. 1990. 27 pages.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS—TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a 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-B4. *Regression modeling of ground-water flow*, by Richard L. Cooley and Richard L. Naff: USGS—TWRI Book 3, Chapter B4. 1990. 232 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.

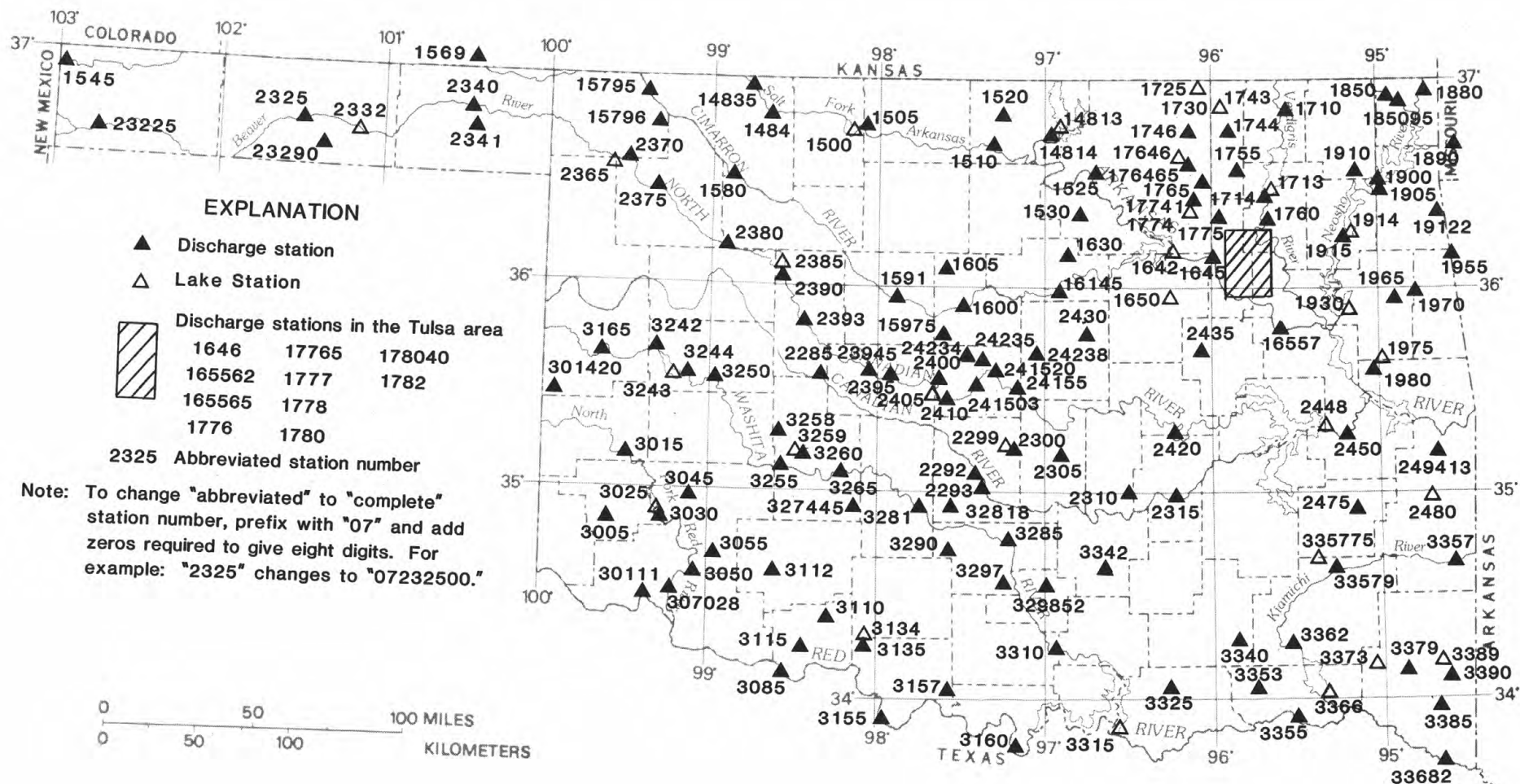


Figure 19.—Locations of continuous-record surface-water stations, water year 1991.

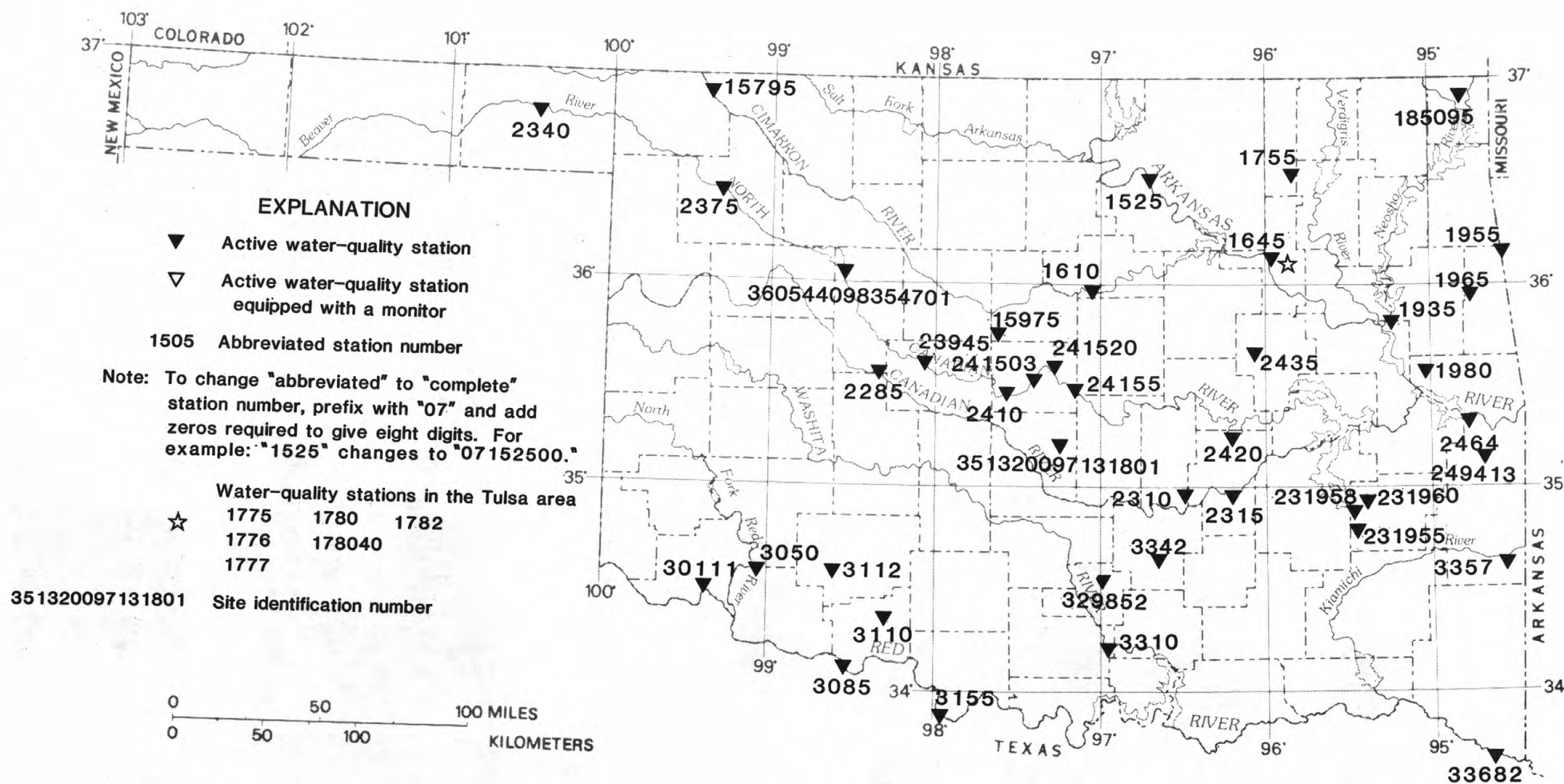


Figure 20.—Locations of water-quality stations, water year 1991.

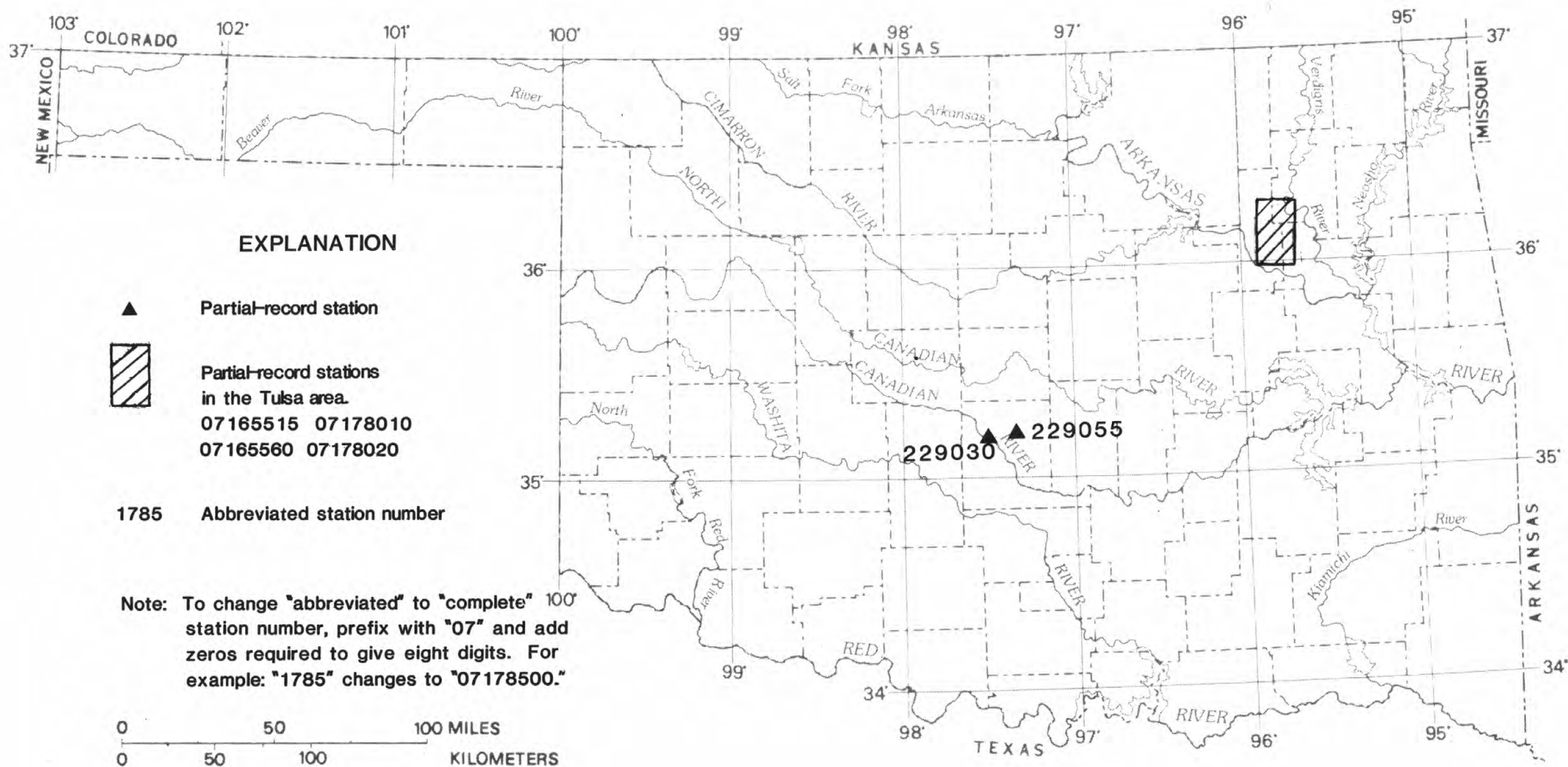


Figure 21.—Locations of partial-record stations, water year 1991.

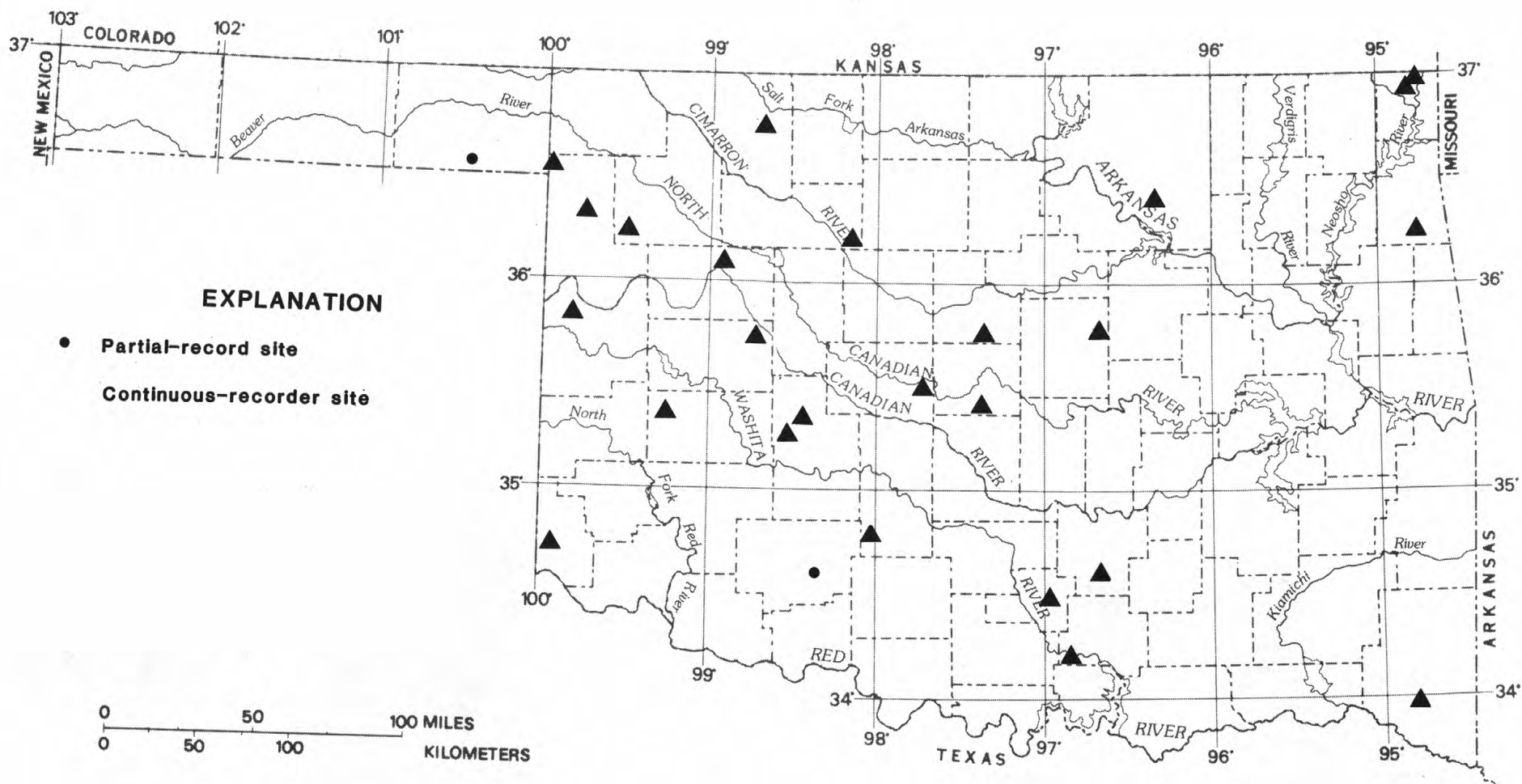


Figure 22.—Locations of network ground-water wells, water year 1991.

ARKANSAS RIVER BASIN

39

07148130 KAW LAKE NEAR PONCA CITY, OK

LOCATION.-- 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 853.7.

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, 428,600 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, 460,100 acre-ft, Apr. 28, elevation, 1,011.80 ft; minimum, 397,300 acre-ft, Aug. 27, elevation, 1,008.11 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	410700	415200	435100	441200	427400	426700	426900	449600	437500	428400	409300	408700
2	411100	415900	437400	441700	427400	427100	427400	448700	438900	428600	408700	405700
3	412900	418100	436000	441200	428300	426600	429100	445700	438100	428100	407700	407400
4	410800	418100	435800	438200	429100	427100	428900	444300	436200	428900	404900	407400
5	411000	418200	436700	436000	429300	427700	428900	441500	436700	428800	403600	404100
6	411900	420600	436900	432900	429300	427900	429100	438600	436700	428400	403300	404600
7	411800	420600	437000	430000	429500	427900	429500	436700	444300	428600	402600	405200
8	413800	422500	437500	428600	429300	427900	430700	436000	452800	428400	404400	406100
9	413100	423200	437900	429100	430000	428100	429800	433200	456700	427900	403300	406700
10	412600	424200	438200	429500	429100	427700	428900	429800	454700	427600	402500	405900
11	413500	425000	438900	429800	428600	427700	428800	428600	451200	428600	402300	406100
12	413600	425700	440300	430100	428300	430700	428900	427100	447700	428600	402000	407200
13	413600	426400	439800	430100	428600	429800	428900	425500	443800	428400	401200	405600
14	414300	426900	440200	430300	428400	429500	428800	425000	439600	427900	401000	406900
15	414300	427900	440700	430700	427400	429500	428100	424500	436900	427700	400500	405700
16	414800	428300	441500	429500	426900	430300	434100	425200	431900	427400	400200	405100
17	415300	428400	442600	429500	426900	431700	439300	425200	432700	426700	400200	405200
18	414100	429100	442900	429600	427400	431900	441900	425700	434400	425900	399500	405100
19	413500	429500	443800	430500	426900	432200	437500	425700	432900	425900	399100	404400
20	415300	429500	445900	430500	426600	431700	435000	426400	431000	424900	398600	404600
21	414100	431400	444500	430000	426700	432000	432900	425700	430500	424700	398600	405100
22	413900	431400	444000	430500	426400	431400	427900	427900	433900	424200	398600	405200
23	414800	431700	442600	430000	426900	431700	427900	431000	432700	423700	398300	404900
24	414300	432600	442100	429300	426600	431500	429500	431900	431200	421500	397600	405600
25	414500	433100	442600	428900	426000	431700	428100	432000	430500	418600	397900	405700
26	414500	433600	441500	428600	426000	429800	451200	428400	430700	417400	397600	405600
27	415000	434100	441500	428400	425900	431000	456000	432000	430700	415900	397400	405400
28	414700	434600	441500	428300	425900	431500	459600	433400	429800	414600	397800	405400
29	414900	434400	442400	428600	---	430000	456000	432600	428900	412300	399200	405400
30	415300	433800	441500	427600	---	428400	452200	432600	428600	410000	404100	405700
31	415500	---	441400	427200	---	427600	---	432900	---	409800	411000	---
MAX	415500	434600	445900	441700	430000	432200	459600	449600	456700	428900	411000	408700
MIN	410700	415200	435100	427200	425900	426600	426900	424500	428600	409800	397400	404100
(+)	1009.22	1010.30	1010.74	1009.92	1009.84	1009.94	1011.36	1010.25	1010.00	1008.88	1008.95	1008.63
(++)	+5,000	+18,300	+7,600	-14,200	-1,300	+1,700	+24,600	-19,300	-4,300	-18,600	+1,200	-5,300

CAL YR 1990 MAX 781900 MIN 386700 (++) +11,900

WTR YR 1991 MAX 459600 MIN 397400 (++) -4,800

(+) ELEVATION, IN FEET, AT END OF MONTH

(++) CHANGE IN CONTENTS, IN ACRE-Feet

ARKANSAS RIVER BASIN

07148140 ARKANSAS RIVER NEAR PONCA CITY, OK

LOCATION.-- Lat 36°41'36", 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 860.66 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 fair. Flow completely regulated by Kaw Lake. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 15 years, 2,924 ft³/s, 2,118,000 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, 5,820 ft³/s, Oct. 4, gage height, 8.93 ft; minimum daily discharge, 40 ft³/s, Oct. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	128	160	e252	418	e383	712	2360	1020	281	596	3220
2	311	132	144	e247	413	e198	514	1810	1840	174	484	3140
3	276	128	166	e253	109	e200	714	1920	1370	172	581	3350
4	1420	124	176	e1520	452	200	721	1920	1590	169	1420	3040
5	384	124	192	e1540	e448	e188	494	1940	1730	164	475	3420
6	217	126	178	e1500	e453	e203	300	2300	1620	181	193	1590
7	327	123	171	e1520	e490	e204	293	2050	1570	166	185	537
8	338	124	133	e982	e511	e180	320	1770	1180	166	187	512
9	358	124	155	e265	e503	e203	501	2520	1630	166	148	515
10	191	125	175	e252	e501	e202	501	2510	2610	98	134	817
11	178	126	184	e254	e704	201	503	1530	2820	108	190	431
12	365	126	192	e243	e519	209	501	1490	2640	172	156	130
13	507	126	163	e254	e500	191	593	1680	2520	170	161	999
14	189	127	137	e434	e498	199	521	977	2720	178	161	449
15	411	128	169	e503	e505	205	962	815	2730	167	150	1060
16	235	122	146	1010	e453	204	1030	959	2930	166	156	462
17	211	123	173	e600	e452	191	2310	696	2080	171	164	149
18	e157	124	128	e513	e452	288	3030	453	1010	185	180	172
19	e153	126	e127	e501	e402	371	3990	453	1420	174	171	188
20	e150	127	e129	e500	e430	490	3910	333	1420	144	178	88
21	e150	130	e124	e503	e450	478	3950	874	775	187	163	86
22	e146	128	e351	401	e450	598	4160	509	1120	105	69	83
23	e40	128	e287	e800	e402	397	2050	495	922	683	159	87
24	e301	128	e306	806	e400	400	1440	454	925	1240	163	88
25	e144	127	e353	e801	e364	479	1960	542	615	1300	150	90
26	e176	128	e479	e604	e363	473	1590	455	223	1300	106	89
27	e135	129	e247	e603	e355	673	697	492	237	1330	155	77
28	e142	127	e254	e611	e300	665	53	464	432	1270	100	97
29	e140	127	e250	e506	---	696	2950	974	432	1300	164	84
30	e138	270	e253	e499	---	683	3110	644	234	1320	1040	72
31	e146	---	e248	e501	---	702	---	824	---	408	1720	---
TOTAL	8283	3935	6350	19858	12298	10954	44380	37213	44165	13815	9979	25122
MEAN	267	131	205	641	439	353	1479	1200	1472	446	322	837
MAX	1420	270	479	1540	704	702	4160	2520	2930	1330	1720	3420
MIN	40	122	124	243	109	180	53	333	223	98	69	72
AC-FT	16430	7810	12600	39390	24390	21730	88030	73810	87600	27400	19790	49830

CAL YR 1990 TOTAL 743725 MEAN 2038 MAX 18600 MIN 40 AC-FT 1475000
WTR YR 1991 TOTAL 236352 MEAN 648 MAX 4160 MIN 40 AC-FT 468800

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.28, 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. Prior to Oct. 1, 1978, at datum .45 ft lower.

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

AVERAGE DISCHARGE.-- 32 years, 95.5 ft³/s, 89,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 52,000 ft³/s, Aug. 19, 1961, 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 3	0100	*1,900	*8.22	No peak greater than base discharge.			

Minimum daily discharge, .07 ft³/s, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	22	38	e29	76	36	49	47	61	7.3	.13	2.3
2	58	22	37	e29	69	33	47	161	886	7.2	.10	1.1
3	57	26	38	e30	62	35	876	776	1100	11	.23	.66
4	53	47	36	e29	61	40	929	171	364	20	.27	.34
5	45	66	35	e30	58	40	311	112	194	7.7	.44	.26
6	38	62	36	e31	56	36	199	89	139	2.7	.18	.27
7	28	51	41	e32	54	35	159	79	114	1.7	.11	.63
8	27	49	44	e34	52	36	137	76	103	1.2	.09	.34
9	30	48	47	e35	53	36	122	75	92	.82	.15	.21
10	28	44	46	e38	52	35	116	73	79	.58	.24	.19
11	26	40	45	e40	49	35	110	70	90	.72	.22	.16
12	23	38	45	e42	44	35	104	68	194	.71	.19	.13
13	22	38	44	e48	43	34	99	65	129	.68	.70	.16
14	22	37	44	e55	40	34	90	61	92	.67	.32	.20
15	22	39	43	e58	40	35	86	56	72	.53	.21	.17
16	21	39	43	e59	41	41	79	55	97	.43	.15	.14
17	19	39	57	e65	45	66	73	51	63	.39	.16	.15
18	17	40	67	e90	45	78	67	46	54	.33	.18	.12
19	18	40	64	e100	40	70	63	42	53	.30	.19	.14
20	18	42	56	109	39	58	61	40	38	.28	5.9	.14
21	18	39	e50	65	38	52	66	40	34	.26	109	.13
22	18	37	e45	60	36	48	74	39	35	.25	8.2	.14
23	20	39	e40	75	34	45	75	36	38	.38	1.6	.13
24	21	39	e35	68	32	41	72	43	69	.50	.83	.20
25	21	37	e36	61	33	39	79	108	50	.37	.50	.11
26	21	35	e36	e60	34	40	79	63	32	.29	.41	.11
27	21	32	e37	58	33	70	67	52	24	.40	.36	.09
28	21	32	e39	64	34	59	57	38	18	.37	.33	.08
29	21	33	e37	66	---	61	52	31	13	.27	.57	.07
30	21	35	e36	e70	---	55	48	58	10	.23	3.5	.09
31	22	---	e34	66	---	51	---	59	---	.16	37	---
TOTAL	887	1187	1329	1896	1293	1409	4446	2780	4337	68.72	172.46	8.96
MEAN	28.0	39.6	42.9	54.7	46.2	45.5	148	89.7	145	2.22	5.56	.30
MAX	70	66	67	109	76	78	929	776	1100	20	109	2.3
MIN	17	22	34	29	32	33	47	31	10	.16	.09	.07
AC-FT	1720	2350	2640	3380	2560	2790	8820	5510	8600	136	342	18

CAL YR 1990 TOTAL 27950.68 MEAN 76.6 MAX 918 MIN .17 AC-FT 55440
WTR YR 1991 TOTAL 19594.14 MEAN 53.7 MAX 1100 MIN .07 AC-FT 38860

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 good except for periods with ice effect, which are poor.

AVERAGE DISCHARGE.-- 14 years (water years 1938-51), 109 ft³/s, 78,970 acre-ft/yr; 12 years (water years 1980-91), 127 ft³/s, 92,010 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)
May 3	0730	*1,500	*8.79	No peak greater than base discharge.			

Minimum daily discharge, .51 ft³/s, Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	22	32	e29	58	43	55	51	57	18	.65	94
2	66	23	33	e31	70	42	49	68	470	17	.61	55
3	60	31	36	e30	61	40	215	834	804	22	.66	29
4	53	38	37	e29	63	40	884	341	563	32	.65	23
5	44	48	39	e30	61	42	432	185	300	22	.60	15
6	37	59	39	e31	59	40	281	134	211	12	.58	13
7	32	52	40	e33	55	38	216	100	164	7.6	.57	21
8	31	47	40	e27	51	38	181	95	136	4.8	.61	43
9	32	47	39	e26	50	37	153	85	114	3.4	.67	17
10	31	48	40	e36	48	35	130	78	97	2.0	.68	9.1
11	30	50	39	e40	48	33	115	75	89	1.8	.71	6.5
12	29	49	39	e50	49	33	113	71	125	2.1	.72	5.2
13	28	45	38	e51	49	35	115	64	198	3.2	8.6	4.9
14	28	44	37	e50	48	36	110	60	117	2.3	1.1	4.4
15	27	43	39	e57	46	36	102	54	82	1.8	.59	4.3
16	27	43	41	72	49	42	94	49	77	1.4	3.0	4.8
17	25	39	47	79	49	52	89	44	85	1.2	1.3	4.8
18	21	38	61	90	50	70	85	39	57	.85	.56	4.2
19	19	39	62	103	48	79	82	36	53	.96	.51	3.6
20	19	40	e52	116	46	67	81	36	49	.80	5.9	3.6
21	17	41	e46	94	46	56	86	38	36	.62	282	3.3
22	17	37	e42	65	45	51	81	39	31	.59	61	3.4
23	17	37	e40	72	43	48	83	38	268	1.2	16	3.6
24	18	37	e37	77	42	45	88	47	301	2.0	8.9	4.7
25	19	37	e38	70	41	43	83	149	83	1.0	4.9	3.8
26	20	37	e40	69	42	45	88	94	52	.76	2.6	3.5
27	21	36	e35	57	42	44	78	56	35	1.5	1.7	3.2
28	20	35	e25	64	44	72	65	44	27	7.7	1.3	2.8
29	19	34	e38	83	---	64	58	34	24	1.9	23	2.5
30	21	33	e35	68	---	63	54	34	21	.67	185	2.6
31	22	---	e30	54	---	58	---	52	---	.56	421	---
TOTAL	930	1209	1236	1783	1403	1467	4346	3132	4726	175.71	1036.67	398.8
MEAN	30.0	40.3	39.9	57.5	50.1	47.3	145	101	158	5.67	33.4	13.3
MAX	80	59	62	116	70	79	884	834	804	32	421	94
MIN	17	22	25	26	41	33	49	34	21	.56	.51	2.5
AC-FT	1840	2400	2450	3540	2780	2910	8620	6210	9370	349	2060	791

CAL YR 1990 TOTAL 30327.4 MEAN 83.1 MAX 534 MIN 1.8 AC-FT 60150
WTR YR 1991 TOTAL 21843.18 MEAN 59.8 MAX 884 MIN .51 AC-FT 43330

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 11060004, 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, 267,700 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, 46,360 acre-ft, Mar. 27, elevation 1,126.54 ft, affected by seiche; minimum, 25,400 acre-ft, Aug. 13, elevation 1,124.26 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29300	32350	33090	33650	35320	32810	33280	34950	31980	33090	29790	35690
2	30200	31420	35600	33650	34580	33650	32720	35600	32160	33090	29300	36430
3	31010	32350	33740	33650	34950	33930	33830	36250	36900	36080	28900	37540
4	31180	35040	34200	33650	34760	34110	34020	38100	38010	35600	28570	36620
5	31980	33650	33370	33650	35040	34020	34510	38100	38940	35320	28490	36340
6	31980	34950	33650	33650	35040	32720	34950	37640	39030	34580	28730	35780
7	31090	34200	33650	33650	34950	33650	35220	37360	39960	33650	28410	35500
8	31260	35220	33740	33650	34760	34020	35690	37450	39310	33280	27190	34760
9	31700	34850	33740	33650	34760	34110	36800	37080	38570	33000	27350	34480
10	31880	34760	33830	34020	34670	33280	35690	36900	38010	32260	27510	33930
11	31980	34580	33830	34020	34670	34580	35970	36620	37080	32350	27270	33550
12	31980	34580	33650	34020	35220	33930	35600	36080	36520	31340	27110	33180
13	32350	34760	33930	34020	34300	32530	36710	35500	35690	31510	27590	33000
14	32160	34580	34390	34110	33850	32180	37360	35130	35870	30600	27760	32160
15	32160	34670	34020	34110	34200	33000	37920	34670	35500	31180	27190	32070
16	32720	34300	33830	34200	33930	34020	38290	35220	35500	30930	28410	32070
17	32900	33930	34390	34300	34580	34200	38100	35040	35040	30600	32160	31090
18	31880	34200	34110	34480	33930	34020	37080	35130	34480	30440	32350	31700
19	32810	34020	34390	34760	34110	33740	37920	34300	34300	30360	31610	31420
20	33460	34670	33930	34980	34300	35220	37450	35320	34110	30360	32350	31420
21	31790	34020	34390	35040	33830	34020	37920	34850	33920	30520	31700	31090
22	31790	34390	34300	35130	33370	34760	37640	34670	32900	30690	31790	31180
23	31790	34390	34110	35220	32900	33650	36800	35320	36430	29950	31090	31010
24	31700	34110	33930	35220	33550	33090	38290	35130	35970	30280	31090	31340
25	31790	33740	33930	35410	34760	34200	37360	35130	33090	29790	31010	30930
26	32260	35040	33830	35410	33830	36710	38570	33650	34140	29710	30440	31010
27	31610	34300	33740	35220	33650	33370	36520	34390	34850	29630	30200	31340
28	31980	33740	33740	35220	33930	32260	37270	33180	34390	29790	29710	30520
29	32070	34300	33930	35220	---	32350	36800	33280	e34670	29790	29790	30360
30	31980	33550	33740	35040	---	32720	35500	31980	e35220	29870	31010	30610
31	32260	---	33650	35040	---	33090	---	32160	---	29380	33740	---
MAX	33460	35220	35600	35410	35320	36710	38570	38100	39960	36060	33740	37540
MIN	29300	31420	33090	33650	32900	32160	32720	31980	31980	29380	27110	30360
(+)	1125.09	1125.23	1125.24	1125.39	1125.27	1125.18	1125.44	1125.08	1125.41	1124.75	1125.25	1124.90
(++)	+3,200	+1,290	+100	+1,390	-1,110	-840	+2,410	-3,340	+3,060	-5,840	+4,360	-3,130

CAL YR 1990 MAX 45100 MIN 24010 (++) -1,300
WTR YR 1991 MAX 39980 MIN 27110 (++) +1,550

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

e Estimated

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.

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.-- 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, 50 years (water years 1942-91), 392 ft³/s, 284,000 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, 909 ft³/s, Mar. 27, gage height, 4.75 ft; minimum daily discharge, 2.5 ft³/s, Oct. 27, Sept. 29, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	12	29	e61	159	107	73	202	155	134	18	205
2	20	7.5	60	49	152	63	40	164	294	66	17	297
3	22	12	107	53	156	91	66	287	280	233	18	325
4	21	80	60	47	149	90	100	331	395	278	19	312
5	39	85	59	49	152	117	190	419	499	237	18	326
6	31	65	30	51	156	77	282	428	543	174	17	291
7	20	66	61	49	153	68	315	382	565	134	18	264
8	20	98	55	49	145	85	329	358	597	92	18	274
9	22	137	55	55	137	83	344	342	549	95	19	218
10	17	124	61	73	143	153	238	317	491	56	18	169
11	4.7	123	62	76	139	76	222	307	450	34	18	146
12	4.6	119	61	74	143	264	204	342	385	23	19	106
13	14	113	40	73	163	73	307	248	353	14	19	89
14	4.9	115	88	71	135	31	283	219	346	9.2	18	73
15	4.7	134	92	85	107	21	364	199	252	12	18	43
16	25	87	69	83	133	24	475	194	227	12	18	25
17	44	90	90	92	89	128	422	187	207	11	26	27
18	7.2	85	100	101	120	104	424	155	208	24	54	6.4
19	14	87	78	115	97	76	393	122	173	26	35	7.3
20	28	113	89	135	109	157	377	160	170	21	30	5.4
21	6.1	128	93	143	92	148	312	169	155	24	33	11
22	3.1	82	e84	153	68	243	364	155	123	20	30	7.2
23	2.9	92	e89	162	108	112	350	168	121	22	27	3.2
24	2.9	92	118	167	46	89	304	179	358	20	26	3.8
25	2.7	72	e112	171	89	90	430	213	379	19	21	5.0
26	2.7	98	117	169	109	105	450	209	322	19	20	3.0
27	2.5	117	84	163	127	307	359	173	262	19	20	4.4
28	2.6	86	56	161	101	19	309	136	220	19	23	3.1
29	5.5	87	60	153	---	24	433	128	190	19	20	2.5
30	3.7	96	e68	158	---	47	212	168	212	19	20	2.5
31	2.8	---	75	157	---	88	---	195	---	18	45	---
TOTAL	420.6	2662.5	2282	3198	3477	3160	8971	7254	9481	1903.2	720	3254.8
MEAN	13.6	88.7	73.6	103	124	102	299	234	318	61.4	23.2	108
MAX	44	137	118	171	163	307	475	428	597	278	54	326
MIN	2.5	7.5	29	47	46	19	40	122	121	9.2	17	2.5
AC-FT	834	5280	4530	6340	6900	6270	17790	14390	18810	3770	1430	6460

CAL YR 1990 TOTAL 90108.7 MEAN 247 MAX 1240 MIN 2.5 AC-FT 178700
WTR YR 1991 TOTAL 46784.1 MEAN 128 MAX 597 MIN 2.5 AC-FT 92800

e Estimated

07151000 SALT FORK ARKANSAS RIVER AT TONKAWA, OK

LOCATION.-- Lat 36°40'19", 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 fair. 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, 50 years (water years 1942-91), 794 ft³/s, 575,300 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 discharges 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)
Apr. 26	1900	*2,790	*8.74	No peaks greater than base discharge			

Minimum daily discharge, 25 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	e29	105	e90	191	131	94	512	253	196	e40	41
2	109	e28	95	e94	186	140	99	450	1060	180	e38	67
3	204	e30	114	e98	186	128	127	415	1410	198	e37	79
4	346	48	75	e104	187	128	123	379	868	166	e36	219
5	118	62	91	e110	180	115	104	550	643	359	e34	314
6	81	83	106	e114	182	116	111	580	596	419	e33	268
7	61	87	89	e118	177	120	120	e500	862	276	e32	263
8	70	110	85	e122	181	127	193	e500	1330	203	e31	258
9	74	108	70	e126	182	102	293	e490	e870	143	30	236
10	74	105	82	e130	178	103	335	483	e710	111	e30	211
11	81	121	80	e140	175	110	401	472	e630	88	e29	197
12	52	137	78	e155	172	119	373	445	e640	79	e29	150
13	48	136	80	e162	168	149	347	418	e580	69	e29	111
14	e44	137	82	e170	162	171	336	427	e530	58	e28	92
15	e43	135	71	179	171	202	356	404	e500	46	e28	68
16	e42	129	66	158	174	122	381	347	e460	41	e27	60
17	e40	131	101	145	155	108	494	296	e405	39	e27	54
18	e39	133	110	124	147	95	1190	271	e360	e38	e26	38
19	e38	103	96	115	141	100	710	260	e320	e37	e27	e37
20	e37	112	e92	113	134	143	621	258	e280	44	35	e36
21	e36	115	e88	120	137	127	590	233	e240	e40	37	e36
22	e35	109	e85	134	129	127	568	215	e220	e38	41	e35
23	e34	132	e82	152	132	170	511	254	e210	e36	e39	e35
24	e33	126	e85	167	113	183	483	265	206	e34	e35	e33
25	e32	110	e90	172	105	245	506	236	745	e33	e33	e32
26	e31	116	e95	182	122	142	1510	253	735	e31	e32	e31
27	e30	105	e100	184	97	136	1820	278	474	42	e31	e30
28	e30	96	e97	196	123	130	825	285	387	92	e30	e28
29	e29	114	e93	186	---	225	632	255	308	62	29	e26
30	e29	131	e90	187	---	215	497	263	240	43	e29	e25
31	e30	---	e85	185	---	114	---	224	---	e41	e28	---
TOTAL	2083	3098	2758	4432	4387	4343	14750	11226	17072	3282	990	3110
MEAN	67.2	103	89.0	143	157	140	492	362	569	106	31.9	104
MAX	346	137	114	196	191	245	1820	580	1410	419	41	314
MIN	29	28	66	90	97	95	94	215	206	31	26	25
AC-FT	4130	6140	5470	8790	8700	8610	29260	22270	33860	6510	1960	6170

CAL YR 1990 TOTAL 193580 MEAN 530 MAX 7390 MIN 28 AC-FT 384000
WTR YR 1991 TOTAL 71531 MEAN 196 MAX 1820 MIN 25 AC-FT 141900

e Estimated

ARKANSAS RIVER BASIN

07152000 CHIKASKIA RIVER NEAR BLACKWELL, OK

LOCATION.-- Lat 36°48'41", long 97°16'37" (revised), 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. 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.-- 56 years, 511 ft³/s, 370,200 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)
Sept. 3	0400	*1,910	*8.53	No peaks above base discharge			
Minimum daily discharge, 5.3 ft ³ /s, Aug. 30.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	37	67	86	87	e85	82	117	98	8.1	e9.3	110
2	60	39	67	83	101	e88	79	107	121	13	e9.2	235
3	153	45	72	83	116	e88	97	123	130	14	e9.1	1170
4	116	68	67	82	121	e87	92	196	148	8.5	e9.1	303
5	73	73	68	82	110	e86	89	717	115	8.5	e9.1	115
6	70	87	76	80	105	e85	168	386	89	e8.0	e9.1	e70
7	54	80	70	80	101	e86	186	260	84	11	e9.4	e51
8	46	80	67	79	96	e86	151	238	84	9.0	10	e43
9	43	80	67	77	93	e85	128	173	75	7.6	11	e33
10	41	76	69	78	92	e84	111	168	74	e7.5	e9.7	e26
11	41	70	71	75	90	e85	99	152	77	e7.3	e9.8	e21
12	41	67	73	76	88	86	96	141	77	e7.2	e9.2	e14
13	38	65	74	76	91	76	119	129	73	15	e8.8	e12
14	39	65	76	75	89	78	134	120	83	e9.4	e8.5	e11
15	36	67	76	80	88	78	107	110	90	e8.8	e8.4	e11
16	38	69	76	86	81	80	224	106	70	e8.5	e8.4	e10
17	43	64	83	93	78	100	601	98	56	e8.2	e8.3	e11
18	34	62	85	103	83	101	628	91	80	e8.1	e8.3	e11
19	30	63	88	116	85	110	239	83	131	20	e8.2	e9.4
20	27	65	88	132	84	117	353	89	87	28	e8.0	e8.4
21	31	64	86	126	84	115	255	96	63	11	e7.9	e9.6
22	23	62	e82	109	87	103	237	95	52	e9.0	e7.6	e10
23	26	61	74	110	e86	93	167	95	44	9.0	e7.4	e8.0
24	31	65	64	91	e85	86	162	104	47	16	e7.2	e7.2
25	32	62	64	112	e87	82	159	98	41	12	e7.0	e10
26	38	62	66	96	e88	83	441	95	44	e9.5	e6.6	e11
27	41	68	70	91	e86	89	225	110	32	e9.4	e6.2	e10
28	39	66	74	85	e86	81	165	102	29	e18	e6.1	e9.0
29	40	64	e72	86	---	80	172	81	19	17	8.0	e8.3
30	41	61	e70	85	---	86	138	77	15	9.7	5.1	e8.0
31	37	---	e74	77	---	87	---	72	---	e9.4	47	---
TOTAL	1470	1957	2276	2790	2568	2756	5904	4629	2228	345.7	294.8	2365.9
MEAN	47.4	65.2	73.4	90.0	91.7	88.9	197	149	74.3	11.2	9.51	78.9
MAX	153	87	88	132	121	117	628	717	148	28	47	1170
MIN	23	37	64	75	78	76	79	72	15	7.2	5.1	7.2
AC-FT	2920	3880	4510	5530	5090	5470	11710	9180	4420	686	585	4690

CAL YR 1990 TOTAL 124502 MEAN 341 MAX 8890 MIN 18 AC-FT 246900
WTR YR 1991 TOTAL 29584.4 MEAN 81.1 MAX 1170 MIN 5.1 AC-FT 58680

e Estimated

ARKANSAS RIVER BASIN

47

07152500 ARKANSAS RIVER AT RALSTON, OK

LOCATION.-- 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 good. 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), 4,826 ft³/s, 3,496,000 acre-ft/yr; since regulation by Kaw Lake, 15 years (water years 1977-91), 5,153 ft³/s, 3,733,000 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, 17,400 ft³/s, June 5, gage height, 8.03 ft, minimum daily discharge, 175 ft³/s, Aug. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1830	232	384	540	1280	717	1380	5750	1420	1330	1970	1140
2	2060	240	416	e600	1200	638	1340	4180	4340	1060	1040	2960
3	1310	242	475	e560	1100	699	1640	4110	7150	1000	1020	3960
4	1630	378	429	e1100	1060	605	1730	3520	7620	864	806	4060
5	1080	515	417	e1700	844	574	1730	3360	10100	910	984	4620
6	2100	504	390	e1800	1080	544	1570	2800	8000	900	1830	4660
7	1300	383	370	e1700	1090	e530	1280	3960	4880	820	e980	3850
8	962	414	383	e1600	1100	e500	1020	4210	12500	967	419	3140
9	1090	510	394	e1200	1130	e470	959	3880	12500	854	380	2020
10	1020	698	377	e700	1140	e450	984	3990	7460	747	342	1730
11	854	646	365	e540	1140	e420	1170	4180	6230	665	284	1610
12	712	582	364	e530	1140	e410	1260	3710	5570	562	242	1800
13	638	544	364	e520	1320	403	1300	2930	5000	610	285	1420
14	572	527	383	e510	1210	397	1320	2910	4740	638	263	1070
15	649	516	382	e500	1090	376	1360	2660	4530	568	257	1850
16	546	482	398	e800	1110	370	1350	2740	4330	515	239	1520
17	465	472	457	1400	1120	550	1790	2300	4440	478	218	1870
18	417	470	482	1900	1080	552	4340	2020	4200	443	202	1480
19	350	457	498	1650	1010	481	6810	1700	2440	419	195	869
20	286	463	519	1350	1010	511	6950	1430	2320	435	205	693
21	257	464	e490	1240	956	514	6390	2620	2650	423	222	705
22	251	442	e480	1200	936	691	6440	2560	3030	371	219	616
23	239	437	e470	1220	955	733	6560	3260	2480	365	232	480
24	222	434	e500	1130	902	855	5360	3380	2330	384	202	394
25	206	424	e540	1490	846	817	3960	2850	2250	811	175	364
26	181	447	e580	1610	802	780	4420	2530	2320	1420	191	e290
27	243	437	e640	1720	750	858	9840	2050	2120	1790	199	e270
28	237	413	e580	1510	746	860	9980	1830	1790	1930	197	e250
29	249	403	e540	1430	---	1000	5350	1560	1430	1940	258	e230
30	232	398	e500	1370	---	1200	3810	1450	1450	1910	309	e220
31	229	---	e480	1270	---	1300	---	1760	---	2020	325	---
TOTAL	22417	13574	14047	36390	29147	19805	103393	91990	141820	28149	14890	50141
MEAN	723	452	453	1174	1041	639	3446	2987	4721	908	474	1671
MAX	2100	698	640	1900	1320	1300	9980	5750	12500	2020	1970	4660
MIN	181	232	364	500	746	370	959	1430	1420	365	175	220
AC-FT	44460	26920	27860	72180	57810	39280	205100	182500	280900	55830	29140	99450

CAL YR 1990 TOTAL 1391170 MEAN 3811 MAX 51400 MIN 181 AC-FT 2759000
WTR YR 1991 TOTAL 565363 MEAN 1549 MAX 12500 MIN 175 AC-FT 1121000

e Estimated

ARKANSAS RIVER BASIN

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 1969.

WATER TEMPERATURE: January 1950 to September 1963, July 1968 to May 1969.

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

REMARKS.-- Samples were collected bimonthly and specific conductance, pH, water temperature, dissolved oxygen, and alkalinity 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.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG												
21...	1424	20.0	31.0	775	1028	1028	186	2.27	2200	8.6	8.6	3
21...	1431	30.0	30.5	775	1028	1028	186	2.27	2200	8.4	8.6	11
21...	1447	65.0	30.5	775	1028	1028	186	2.27	2200	8.6	8.6	5
21...	1457	85.0	30.5	775	1028	1028	186	2.27	2200	8.9	8.6	5
21...	1512	100	31.0	775	1028	1028	186	2.27	2200	8.8	8.6	7
21...	1517	120	31.5	775	1028	1028	186	2.27	2300	8.8	8.6	5
21...	1529	150	32.0	775	1028	1028	186	2.27	2300	7.8	8.6	--
21...	1537	170	32.5	775	1028	1028	186	2.27	2300	9.0	8.6	4
21...	1547	190	32.5	775	1028	1028	186	2.27	2300	9.1	8.7	6

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
13...	1100	1028	80020	532	2300	8.6	17.0	13.5	5.5	770	10.8	103
JAN												
08...	1300	1028	80020	*1600	1880	8.5	0.5	0.0	10	775	13.9	96
MAR												
06...	1140	1028	80020	544	3100	8.7	8.5	11.5	10	765	11.6	107
MAY												
08...	1230	1028	80020	3740	1500	8.6	16.0	18.0	5.7	775	9.4	98
JUN												
26...	1052	1028	80020	2720	1530	8.6	30.0	27.5	20	770	7.4	94
AUG												
21...	1045	1028	80020	208	2300	8.5	27.0	24.5	2.0	775	8.5	101

*MEAN DAILY DISCHARGE

ARKANSAS RIVER BASIN

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07152500 ARKANSAS RIVER AT RALSTON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCHI, 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 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)	
NOV 13...	K23	K26	330	140	87	27	350	69	8	5.0	224	5
JAN 08...	230	130	290	110	80	22	260	65	7	6.5	226	0
MAR 06...	K38	760	350	170	92	30	430	72	10	5.9	168	29
MAY 08...	K470	600	240	89	67	18	200	84	6	5.6	177	5
JUN 26...	300	200	190	59	53	14	190	68	6	5.9	150	5
AUG 21...	K16	K21	310	130	84	25	360	71	9	6.8	205	12
DATE	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 NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	
NOV 13...	192	160	560	0.20	3.0	1310	1310	1.78	1880	--	--	
JAN 08...	182	130	420	0.50	2.7	1060	1040	1.44	--	0.580	0.480	
MAR 06...	185	200	720	0.40	1.1	1670	1590	2.27	2450	--	--	
MAY 08...	153	120	400	0.40	3.0	1010	907	1.37	10200	--	--	
JUN 26...	131	110	330	0.50	3.7	840	786	1.14	6170	--	--	
AUG 21...	188	160	620	0.70	4.7	1260	1380	1.71	708	--	--	
DATE	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	
NOV 13...	--	<0.010	0.010	0.03	<0.100	<0.100	0.060	0.050	0.08	0.06	0.84	
JAN 08...	2.1	0.020	0.020	0.07	0.600	0.500	0.160	0.180	0.21	0.23	0.74	
MAR 06...	--	0.010	<0.010	--	<0.050	<0.050	0.020	<0.010	0.03	--	0.48	
MAY 08...	--	--	--	--	--	--	--	--	--	--	--	
JUN 26...	--	<0.010	<0.010	--	0.078	<0.050	0.050	0.060	0.06	0.08	2.0	
AUG 21...	--	<0.010	<0.010	--	<0.050	<0.050	<0.010	<0.010	--	--	--	
DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (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)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	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 PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	
NOV 13...	0.90	--	--	--	0.080	0.12	0.040	0.040	0.030	0.09	10	
JAN 08...	0.90	--	1.5	6.6	0.150	0.31	0.090	0.100	0.080	0.25	<10	
MAR 06...	0.50	--	--	--	0.130	0.09	0.050	0.030	0.030	0.09	--	
MAY 08...	--	--	--	--	--	--	--	--	--	--	20	
JUN 26...	2.1	--	2.2	9.6	0.210	0.15	0.080	0.050	0.030	0.09	--	
AUG 21...	0.80	0.70	--	--	0.130	0.28	0.070	0.090	0.070	0.21	10	

ARKANSAS RIVER BASIN
 07162500 ARKANSAS RIVER AT RALSTON, OK--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 13...	2	100	<0.5	<1.0	1	<3	<1	5	<1	20	28
JAN 08...	2	130	<0.5	1.0	10	<3	2	6	<1	20	9
MAR 06...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	2	110	<0.5	<1.0	3	<3	3	29	5	15	5
JUN 26...	--	--	--	--	--	--	--	--	--	--	--
AUG 21...	4	130	<0.5	<1.0	2	<3	2	11	<1	24	47
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .002 MM
NOV 13...	0.2	<10	1	<1	<1.0	900	<6	4	21	30	18
JAN 08...	<0.1	<10	1	<1	<1.0	900	<6	9	18	--	59
MAR 06...	--	--	--	--	--	--	--	--	28	41	26
MAY 08...	<0.1	<10	2	<1	<1.0	800	<6	<3	77	778	91
JUN 26...	--	--	--	--	--	--	--	--	204	1500	95
AUG 21...	0.2	<10	3	<1	<1.0	1100	<6	10	--	--	--

ARKANSAS RIVER BASIN

51

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.-- 578 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.-- No estimated daily discharges. Records good. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 47 years, 188 ft³/s, 136,200 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)
May 21	0500	*1,700	*7.12	No peaks greater than base discharge.			
No flow, Aug. 21, 22.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	4.8	6.0	7.0	12	14	16	13	23	4.5	.51	.07
2	33	4.9	7.0	9.1	12	14	23	12	32	4.2	.53	.08
3	180	5.2	7.0	9.7	11	16	275	16	286	3.9	.52	.15
4	142	12	5.9	11	12	16	266	15	233	3.8	.41	.19
5	49	16	5.9	12	14	16	91	25	163	3.8	.43	.28
6	21	16	5.7	12	13	15	49	31	116	3.7	.60	1.0
7	11	14	5.7	12	12	15	34	73	118	3.7	.58	2.0
8	8.3	10	6.0	12	12	16	26	122	653	3.7	.22	2.4
9	6.6	10	6.2	12	13	15	20	106	289	3.9	.15	2.4
10	6.5	8.7	6.6	18	13	16	16	53	122	4.0	.09	2.3
11	4.8	10	8.2	20	14	16	14	36	82	3.8	.06	2.2
12	4.1	12	8.6	21	15	16	13	29	65	4.0	.05	1.8
13	3.9	9.9	8.2	19	14	14	12	23	47	3.8	.07	1.5
14	3.9	7.8	8.2	18	13	13	10	19	35	39	.05	1.4
15	4.0	6.0	9.4	19	12	14	10	16	27	43	.04	1.4
16	4.3	4.9	9.2	19	12	15	9.8	38	21	27	.04	1.3
17	4.1	4.4	13	20	12	19	10	43	17	15	.05	1.2
18	3.1	4.9	16	19	12	18	11	30	14	6.5	.06	1.4
19	2.8	5.2	20	18	13	21	11	21	11	3.2	.03	1.4
20	3.0	6.4	21	15	13	32	9.8	82	9.4	1.9	.01	45
21	3.1	7.7	14	13	13	28	31	966	8.3	1.2	.00	37
22	2.9	6.4	9.9	12	13	22	25	252	57	.91	.00	17
23	2.8	6.2	7.7	11	14	18	19	575	17	.80	.05	6.9
24	2.8	6.7	6.2	11	14	19	19	867	20	.86	.16	3.9
25	3.1	6.9	6.0	11	13	19	27	472	41	.85	.20	2.6
26	3.1	8.0	6.4	10	13	17	27	174	18	.72	.17	2.1
27	3.9	8.3	7.8	11	13	14	35	94	12	.58	.09	2.0
28	4.6	8.2	10	12	14	13	29	60	7.6	.51	.08	2.0
29	4.8	6.7	9.9	13	---	18	21	41	5.8	.43	.10	1.9
30	5.1	6.1	8.2	11	---	17	16	33	5.0	.36	.05	1.7
31	5.4	---	7.9	12	---	16	---	28	---	.37	.05	---
TOTAL	635.0	244.3	277.8	429.8	361	532	1175.6	4365	2555.1	193.99	5.45	146.57
MEAN	20.5	8.14	8.96	13.9	12.9	17.2	39.2	141	85.2	6.26	.18	4.89
MAX	180	16	21	21	15	32	275	966	653	43	.60	45
MIN	2.8	4.4	5.7	7.0	11	13	9.8	12	5.0	.36	.00	.07
AC-FT	1260	485	551	853	716	1060	2330	8660	5070	385	11	291

CAL YR 1990 TOTAL 96831.3 MEAN 285 MAX 7280 MIN 1.8 AC-FT 191700
WTR YR 1991 TOTAL 10921.61 MEAN 29.9 MAX 966 MIN .00 AC-FT 21660

ARKANSAS RIVER BASIN

07154500 CIMARRON RIVER NEAR KENTON, OK

LOCATION.-- Lat 36°55'38", 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.-- 1,100 mi², of which 88 mi² is probably noncontributing.

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

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

GAGE.-- Water-stage recorder. Datum of gage is 4,262.08 ft 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.-- 41 years (water years 1951-91), 19.1 ft³/s, 13,840 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 29	0400	*4,000	*14.44	No other peak greater than base discharge.			
No flow at times.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.19	.93	e.90	1.0	.82	.33	.10	.00	9.6	.00	e.01
2	.31	.14	.90	e1.1	1.0	.87	.23	.09	.00	5.0	e.00	e.00
3	.61	.25	.87	e1.1	1.0	.83	.21	.09	.00	3.2	e.00	e.00
4	.41	.50	.83	e1.0	.99	.86	.21	.09	.00	2.2	e3.0	e.00
5	.26	.40	.82	e.95	.96	.85	.22	.09	.00	1.5	e.50	.00
6	.21	.31	.82	e1.1	.98	.88	.25	.09	67	.93	e7.0	e.00
7	.17	.57	.84	e1.1	.97	1.0	.22	.08	9.8	.52	e1.0	e.00
8	.16	1.1	.85	e1.2	.96	.95	.19	.08	2.0	.37	e.10	e.00
9	.23	1.4	.88	e1.2	.95	.96	.17	.08	.41	.23	e.00	e.00
10	.31	1.2	.88	e1.1	.91	.94	.16	.06	.34	.14	e.00	e.01
11	.32	1.2	.91	e1.2	.88	.81	.12	.07	.21	1.6	e.00	e.05
12	.32	1.2	.88	e1.1	.90	.41	.12	.09	.09	4.8	e.00	e.01
13	.29	1.1	.97	e1.2	.90	.30	.10	.04	.02	3.1	e9.0	e65
14	.25	1.1	1.0	e1.4	.88	.27	.10	.03	.00	2.4	e1.0	e6.0
15	.23	1.1	1.1	1.6	.86	.33	.09	.03	.00	1.6	e.06	e.80
16	.28	1.1	1.1	1.1	.84	.45	.08	.01	.00	1.0	e.02	e.10
17	.73	1.1	1.3	.97	.80	.84	.09	.00	.00	.59	e.01	e.05
18	.88	1.2	1.5	.92	.81	.50	.10	.00	.00	.32	e1.0	e.02
19	.92	1.3	1.4	.90	.83	.36	.10	.00	.00	.18	e1.8	e.01
20	.91	1.3	1.3	.93	.84	.33	.10	.00	27	.10	e.15	e.00
21	1.0	1.1	e1.0	.89	.85	.28	.10	.00	51	.05	e.05	e.00
22	1.2	1.1	e.80	.91	.84	.26	.10	.09	1.5	.02	e.03	e.00
23	.74	1.2	e.70	.92	.82	.24	.10	.03	.20	.00	e75	e.00
24	.52	2.1	e.65	.91	.85	.22	.11	.01	.07	.00	e10	e.00
25	.54	2.3	e.60	.94	.88	.19	.09	.01	.00	.00	e1.5	e.00
26	.55	2.4	e.60	.92	.87	.18	.05	.00	.00	.00	e.50	e.00
27	.58	2.3	e.65	.93	.82	.15	.05	.00	.00	.00	e.10	e.00
28	.55	2.0	e.90	.94	.82	.15	.07	.02	.00	e.00	e.08	e.00
29	.49	1.2	e1.0	.91	---	.16	.10	.03	599	e.00	e.06	e.00
30	.55	.98	e.90	.93	---	.37	.10	.00	34	e.00	e.04	e.00
31	.39	---	e.85	1.0	---	.45	---	.00	---	e.00	e.02	---
TOTAL	14.96	34.42	28.73	32.27	25.01	16.21	4.06	1.31	792.64	39.45	112.02	72.06
MEAN	.48	1.15	.93	1.04	.89	.52	.14	.042	26.4	1.27	3.61	2.40
MAX	1.2	2.4	1.5	1.6	1.0	1.0	.33	.10	599	9.6	.75	.65
MIN	.05	.14	.60	.89	.80	.15	.05	.00	.00	.00	.00	.00
AC-FT	30	68	57	64	50	32	8.1	2.6	1570	78	222	143

CAL YR 1990 TOTAL 2510.84 MEAN 6.88 MAX 1090 MIN .00 AC-FT 4980
WTR YR 1991 TOTAL 1173.14 MEAN 3.21 MAX 599 MIN .00 AC-FT 2330

e Estimated

ARKANSAS RIVER BASIN

53

07158900 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.

PERIOD OF RECORD.-- October 1985 to September 1986, October 1987 to current year.

REVISED RECORDS.-- WDR OK-91-1 gage datum.

GAGE.-- Water-stage recorder. Datum of gage is 2,320.05 ft (revised) above National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.-- 25 years (water years 1966-86, 88-91), 65.6 ft³/s, 47,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 21,200 ft³/s, Oct. 20, 1985, gage height, 8.10 ft; minimum discharge, 13 ft³/s, June 19, 20 1988 and Aug. 2, 1991.

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 24	0830	*121	*3.33	No peak greater than base discharge.			

Minimum daily discharge, 13 ft³/s, Aug. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	29	51	e28	48	46	40	39	35	19	14	26
2	29	30	51	e29	47	49	41	40	39	22	13	23
3	31	34	51	e29	49	51	43	41	35	27	18	24
4	31	39	49	e28	51	49	43	42	33	24	31	23
5	26	41	47	e29	48	46	39	41	32	21	23	22
6	26	43	46	e29	48	48	38	39	30	20	21	23
7	29	41	43	e30	48	50	37	39	32	19	20	25
8	29	38	45	e31	46	51	36	41	30	19	20	23
9	29	37	45	e32	48	50	39	39	30	18	20	22
10	28	37	44	e34	48	47	35	38	39	18	21	20
11	28	39	42	e34	47	45	36	39	47	21	22	19
12	28	39	42	e36	45	42	39	39	34	26	23	19
13	29	39	43	e41	48	47	40	38	29	23	24	21
14	29	41	43	e50	46	44	38	37	27	25	22	22
15	28	47	43	57	48	46	38	35	28	24	21	23
16	27	46	48	51	45	49	38	32	28	20	23	25
17	28	43	54	52	43	54	39	32	26	18	25	24
18	28	42	54	48	42	49	38	32	27	17	29	25
19	28	42	49	51	46	47	39	31	30	16	24	26
20	29	44	e50	47	44	45	40	32	28	17	23	26
21	31	49	e45	51	45	44	40	30	29	18	21	26
22	31	49	e30	50	42	44	41	44	28	19	23	27
23	33	48	e25	51	42	47	40	55	38	19	23	26
24	34	47	e24	52	43	43	41	95	33	23	22	26
25	33	48	e25	55	46	43	42	64	25	24	22	27
26	32	50	e26	51	47	40	40	48	23	22	23	29
27	31	51	e26	48	46	39	42	43	25	22	21	28
28	31	49	e27	47	46	43	41	39	23	20	20	28
29	30	46	e30	53	---	45	40	39	21	19	25	26
30	30	47	e28	58	---	44	40	38	20	19	21	23
31	30	---	e27	54	---	45	---	35	---	16	26	---
TOTAL	916	1275	1253	1336	1292	1431	1183	1276	904	635	684	727
MEAN	29.5	42.5	40.4	43.1	46.1	46.2	39.4	41.2	30.1	20.5	22.1	24.2
MAX	34	51	54	58	51	54	43	95	47	27	31	29
MIN	28	29	24	28	42	39	35	30	20	16	13	19
AC-FT	1820	2530	2490	2650	2560	2840	2350	2530	1790	1260	1360	1440

CAL YR 1990 TOTAL 14190 MEAN 38.9 MAX 320 MIN 15 AC-FT 28150
WTR YR 1991 TOTAL 12912 MEAN 35.4 MAX 95 MIN 13 AC-FT 25610

e Estimated

ARKANSAS RIVER BASIN

07157950 CIMARRON RIVER NEAR BUFFALO, OK

LOCATION.-- Lat 36°51'07", long 99°18'54", in SE 1/4 NE 1/4 sec.2, T.27 N., R.20 W., Harper County, Hydrologic Unit 11050001, near left bank on downstream side of pier of U.S. Highway 64, 0.5 mi 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 1,599.87 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1979, at site 8.9 mi upstream at elevation 1,660 ft.

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

AVERAGE DISCHARGE.-- 31 years, 135 ft³/s, 97,810 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 25	0245	*630	*5.76	No peak discharge above base.			
No flow at times.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.46	12	e8.1	58	45	26	15	64	.52	.00	.42
2	1.2	.46	13	e7.7	69	44	28	31	69	.40	.00	e.10
3	1.1	.89	14	e7.0	105	53	59	88	74	1.9	.00	e.06
4	.93	5.8	12	e7.7	76	59	158	e50	56	.93	.00	e.04
5	.82	e9.0	13	e7.1	59	82	85	e33	33	.31	.00	e.02
6	.69	5.3	16	e6.5	56	77	58	e27	18	.26	.00	e.02
7	.62	3.8	17	e5.8	54	83	45	e22	11	.22	.00	e.01
8	.66	4.5	18	e6.0	53	59	38	19	9.1	.21	.00	.00
9	.76	5.2	21	e6.2	53	57	32	17	7.1	.22	.00	.00
10	.70	4.1	22	e6.4	52	55	29	16	8.9	.17	.00	.00
11	.63	3.7	24	e7.3	52	56	26	19	9.8	.28	.00	.00
12	.61	3.7	26	e9.4	54	58	23	17	5.0	e.24	.00	.00
13	.54	3.8	25	e13	56	52	21	12	3.7	e.19	.00	.00
14	.80	3.7	27	38	53	49	19	9.3	2.8	e.14	.00	.00
15	.55	3.6	28	60	50	52	17	9.1	2.5	e.09	.00	.00
16	.53	3.7	31	60	49	60	16	9.0	3.0	.06	.00	.00
17	.51	4.2	60	73	51	88	15	7.5	2.1	e.06	.00	.00
18	.45	4.8	50	95	50	91	15	6.7	1.3	e.05	.00	.00
19	.40	5.4	51	116	47	113	15	6.4	12	e.05	.00	.00
20	.41	6.5	e24	131	48	87	15	6.3	5.2	e.04	.00	.00
21	.40	7.2	e17	106	47	68	21	5.9	2.9	e.04	.00	.00
22	.40	7.6	e9.7	89	44	48	28	6.6	39	e.03	.00	.00
23	.40	8.2	e9.4	85	43	37	26	26	52	e.02	.00	.00
24	.40	8.3	e10	84	40	30	25	154	145	e.01	.00	.00
25	.40	8.8	e12	82	39	27	31	329	177	.01	.00	.00
26	.40	10	e14	75	38	26	29	143	67	.00	.00	.00
27	.43	12	e15	63	38	30	24	59	22	.00	.00	.00
28	.44	12	e16	63	41	29	23	21	5.5	.00	.00	.00
29	.43	10	e12	e60	---	34	19	8.2	2.5	.00	.00	.00
30	.44	10	e5.3	e56	---	29	17	31	1.1	.00	.00	.00
31	.45	---	e6.4	e71	---	27	---	16	---	.00	.00	---
TOTAL	18.60	178.71	630.8	1505.2	1475	1685	983	1220.0	911.5	6.45	0.00	0.67
MEAN	.60	5.89	20.3	48.6	52.7	54.4	32.8	39.4	30.4	.21	.000	.022
MAX	1.3	12	60	131	105	113	158	329	177	1.9	.00	.42
MIN	.40	.46	5.3	5.8	38	26	15	5.9	1.1	.00	.00	.00
AC-FT	37	351	1250	2990	2930	3340	1950	2420	1810	13	.00	1.3

CAL YR 1990 TOTAL 24447.15 MEAN 67.0 MAX 434 MIN .00 AC-FT 48490
WTR YR 1991 TOTAL 8612.93 MEAN 23.6 MAX 329 MIN .00 AC-FT 17080

e Estimated

ARKANSAS RIVER BASIN

55

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 bimonthly and specific conductance, pH, water temperature, dissolved oxygen, and alkalinity were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV 06...	1130	1028	80020	5.3	45500	8.0	9.0	7.5	2.5	713	8.9	96
JAN 03...	1130	1028	80020	7.5	37700	7.9	-7.0	0.0	--	729	10.9	92
FEB 13...	0930	1028	80020	58	10000	8.3	12.5	5.5	7.4	710	12.6	112
APR 03...	1300	1028	80020	63	56300	7.9	18.5	17.0	--	716	6.9	96
MAY 08...	1000	1028	80020	19	14400	8.3	15.5	14.5	9.2	717	9.1	100
JUL 08...	1300	1028	80020	0.21	24700	8.1	37.0	32.5	1.0	717	8.4	134
DATE	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)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)
NOV 06...	58	180	1500	1300	370	130	9600	93	110	17	199	0
JAN 03...	--	--	1300	1100	330	120	8900	94	110	12	259	0
FEB 13...	K9	67	560	370	130	58	2100	89	39	7.3	224	0
APR 03...	--	--	1200	1100	290	110	14000	96	180	17	135	0
MAY 08...	99	62	760	590	190	68	2800	89	44	7.2	200	0
JUL 08...	94	310	1400	1200	380	98	5300	89	63	10	184	0
DATE	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, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 06...	163	1100	--	0.30	15	29500	--	40.1	419	<0.010	<0.010	<0.100
JAN 03...	212	1000	14000	<0.10	16	24400	24500	33.2	491	--	<0.010	--
FEB 13...	184	400	3300	1.9	13	5740	6120	7.81	899	<0.010	<0.010	<0.100
APR 03...	111	820	24000	4.0	9.4	36800	39300	50.0	6220	--	<0.010	--
MAY 08...	164	570	4800	0.90	11	8370	8550	11.4	420	--	--	--
JUL 08...	151	1200	7700	0.40	14	15100	14800	20.5	8.56	<0.010	<0.010	<0.050

ARKANSAS RIVER BASIN

07157950 CIMARRON RIVER NEAR BUFFALO, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
NOV 06...	20	2	300	<10	<10	<1	<10	<10	<10	<10	60	460
JAN 03...	--	1	<100	<10	<5.0	<1	<5	5	10	<5	60	340
FEB 13...	100	2	100	<10	<1.0	<2	1	1	40	<1	60	50
APR 03...	--	2	100	10	<6.0	<10	<6	<6	30	<6	60	140
MAY 08...	20	2	<100	<10	<2.0	<1	<2	2	<10	<2	120	80
JUL 08...	<10	--	200	<10	<2.0	<2	2	<1	20	<2	50	190
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	
NOV 06...	0.1	1	<10	<1	<10	6700	4	20	3	0.04	94	
JAN 03...	0.2	6	<5	--	<5.0	4900	220	<10	8	0.16	33	
FEB 13...	0.6	<10	1	<4	<1.0	2700	40	<10	40	6.3	28	
APR 03...	0.2	5	<6	--	<6.0	5000	330	<10	47	7.9	48	
MAY 08...	0.3	4	4	<1	<2.0	3100	81	<10	3	0.15	54	
JUL 08...	<0.1	3	<1	<1	<1.0	20	110	<10	27	0.02	14	

ARKANSAS RIVER BASIN

67

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 fair, except for periods of estimated record, which were affected by ice, and are poor.

AVERAGE DISCHARGE.-- 26 years, 13.1 ft³/s, 9,490 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, 18.17 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 24	1130	*846	*6.94	No peak greater than base discharge.			

Minimum daily discharge, .04 ft³/s, Aug. 7, 8, 15-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.6	1.6	e3.8	4.2	4.8	6.7	3.2	19	11	.07	13
2	1.2	1.5	1.5	e4.2	3.1	5.0	6.5	3.5	30	9.2	.06	28
3	1.1	2.5	1.4	e4.3	3.2	6.2	7.8	5.6	26	11	.06	11
4	1.0	5.6	1.6	e4.6	2.9	6.4	6.8	5.0	23	7.3	.06	13
5	.76	5.0	1.7	e4.8	2.6	6.3	6.2	5.9	17	5.7	.06	21
6	.59	4.4	1.3	e4.5	2.7	6.2	5.7	5.4	13	4.2	.05	9.8
7	.53	3.4	1.3	e4.6	2.9	6.1	5.5	4.0	11	3.3	.04	4.5
8	.66	3.3	1.5	e4.8	2.8	5.6	4.9	3.9	9.7	2.8	.04	2.7
9	1.1	3.3	1.5	e5.2	2.9	5.3	4.4	4.0	8.6	2.3	.05	1.6
10	1.4	2.7	1.5	e5.8	2.7	5.1	3.9	3.8	9.5	1.7	.05	.83
11	1.4	2.2	1.5	e6.6	2.6	5.4	4.1	4.1	26	2.3	.05	.65
12	1.3	2.1	1.3	e7.5	2.9	5.4	4.4	4.0	14	1.9	.05	.43
13	1.4	2.1	1.2	e8.3	3.0	4.7	4.5	3.1	8.3	1.7	.07	.33
14	1.2	2.0	1.4	e9.2	2.8	4.5	4.4	3.0	6.2	1.6	.05	.29
15	1.1	1.8	1.4	e9.8	3.0	4.8	4.3	2.6	5.0	1.4	.04	.23
16	1.1	1.6	2.3	e9.4	3.1	6.1	4.5	2.6	4.3	.83	.04	.17
17	.89	1.6	2.6	e9.0	3.4	8.9	4.4	2.4	3.7	.57	.04	.14
18	.75	1.6	3.2	6.3	3.5	9.0	4.6	2.3	3.1	.45	.04	.11
19	.81	1.6	4.0	5.5	3.4	8.1	4.6	2.2	2.6	.35	.04	.11
20	.74	1.7	4.0	4.8	3.7	7.8	4.9	2.1	2.1	.30	.11	.10
21	.80	2.3	3.1	7.8	3.9	6.7	5.8	1.9	1.7	.27	.13	.09
22	1.0	2.2	e2.6	7.0	4.1	5.6	7.3	1.9	22	.23	.06	.08
23	1.2	2.1	e2.3	5.3	4.1	4.9	7.4	14	81	.20	.06	.08
24	1.2	2.1	e2.4	5.4	4.3	4.6	7.9	249	307	.24	.07	.11
25	1.3	2.1	e2.7	3.8	4.2	4.3	9.2	108	102	.22	.06	.07
26	1.4	2.1	e3.0	4.7	4.1	4.5	9.2	46	57	.17	.05	.07
27	1.5	1.7	e3.2	6.5	4.3	5.2	8.2	31	37	.18	.05	.06
28	1.4	1.4	e3.4	5.8	4.6	5.8	6.8	25	27	.16	.05	.05
29	1.5	1.2	e3.2	3.7	---	8.9	5.2	20	19	.12	.07	.05
30	1.5	1.5	e3.4	5.0	---	8.4	3.7	19	15	.10	.19	.06
31	1.5	---	e2.9	6.0	---	7.6	---	17	---	.08	.52	---
TOTAL	34.63	71.1	70.0	184.0	95.0	188.2	173.8	605.5	909.8	71.87	2.38	108.61
MEAN	1.12	2.37	2.26	5.94	3.39	6.07	5.79	19.5	30.3	2.32	.077	3.62
MAX	1.5	5.8	4.0	9.8	4.6	9.0	9.2	249	307	11	.52	28
MIN	.53	1.2	1.2	3.7	2.6	4.3	3.7	1.9	1.7	.08	.04	.05
AC-FT	69	141	139	365	188	373	345	1200	1800	143	4.7	215

CAL YR 1990 TOTAL 3440.69 MEAN 9.43 MAX 64 MIN .19 AC-FT 6820
WTR YR 1991 TOTAL 2514.89 MEAN 6.89 MAX 307 MIN .04 AC-FT 4990

e Estimated

ARKANSAS RIVER BASIN

07158000 CIMARRON RIVER NEAR WAYNOKA, OK

LOCATION.-- Lat 36°31'02", long 98°52'45", in NW 1/4 NE 1/4 sec.35, T.24 N., R.16 W., Woods County, Hydrologic Unit 11050001, near left bank on downstream side of bridge on U.S. Highway 281, 4.0 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. Extensive diversions for irrigation above station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.-- 54 years, (water years 1938-91), 309 ft³/s, 223,900 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 24	1015	*1,090	*6.93	No peak greater than base discharge.			
No flow at times.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	.00	11	e18	59	50	37	13	136	22	.00	24
2	9.7	.00	13	e16	66	57	33	25	707	15	.00	26
3	11	3.4	13	e20	69	67	43	134	339	20	.00	15
4	5.5	18	15	e19	87	76	82	129	219	228	.00	10
5	1.7	51	16	e21	88	73	90	61	175	93	.00	5.5
6	.00	43	16	e20	75	73	92	40	133	26	.00	6.1
7	.00	22	16	e18	67	81	65	28	102	11	.00	15
8	.18	20	18	e19	65	81	51	28	84	5.4	.00	13
9	2.2	18	20	20	66	79	44	27	64	2.3	.00	7.5
10	.80	19	22	25	64	72	37	26	52	.30	.00	4.3
11	3.1	14	24	27	62	66	30	27	46	.00	.00	1.8
12	.42	9.4	25	32	61	60	29	25	121	.00	.00	.88
13	.00	7.1	26	33	58	60	30	20	47	.61	.00	.52
14	.00	5.0	26	42	54	54	29	13	29	.15	.00	.29
15	.00	4.2	27	44	50	53	29	8.8	24	.00	.00	.13
16	.00	3.4	30	48	47	64	24	7.9	19	.00	.00	.00
17	.00	2.5	38	64	50	106	22	5.0	15	.00	.00	.00
18	.00	2.8	49	74	49	112	22	3.7	13	.00	.00	.00
19	.00	3.4	57	88	48	90	24	3.9	11	.00	.00	.00
20	.00	5.9	49	95	48	96	22	8.3	8.1	.00	.00	.00
21	.00	7.1	15	106	49	95	27	6.3	4.8	.00	.89	.00
22	.00	7.9	e12	97	50	78	40	6.0	10	.00	180	.00
23	.00	7.7	e12	86	50	65	47	17	28	.00	19	.00
24	.00	7.3	e13	87	46	54	43	644	568	.22	5.7	.00
25	.00	9.5	e16	82	46	48	46	573	356	.00	1.9	.00
26	.00	12	e19	87	49	43	42	557	299	.00	.58	.00
27	.00	12	e22	63	50	40	34	333	181	.00	.01	.00
28	.00	12	e27	73	50	38	25	214	109	.00	.00	.00
29	.00	11	e16	69	---	46	20	125	59	.00	.00	.00
30	.00	10	e13	36	---	53	17	120	34	.00	2.1	.00
31	.00	---	e15	49	---	46	---	150	---	.00	12	---
TOTAL	56.00	348.00	691	1578	1823	2076	1156	3378.9	3992.9	423.98	310.29	130.02
MEAN	1.83	11.6	22.3	50.9	58.0	67.0	38.5	109	133	13.7	10.0	4.33
MAX	22	51	57	106	88	112	92	644	707	228	180	26
MIN	.00	.00	11	16	46	38	17	3.7	4.8	.00	.00	.00
AC-FT	112	691	1370	3130	3220	4120	2290	6700	7920	841	615	258

CAL YR 1990 TOTAL 43224.84 MEAN 118 MAX 612 MIN .00 AC-FT 85740
WTR YR 1991 TOTAL 15765.29 MEAN 43.2 MAX 707 MIN .00 AC-FT 31270

e Estimated

ARKANSAS RIVER BASIN

59

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 fair. U.S. Army Corps of Engineers' telemeter at station.

AVERAGE DISCHARGE.-- 18 years, 839 ft³/s, 607,900 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)
Sept. 2	1730	*7,890	*15.47	No peak greater than base discharge			

Minimum daily discharge, 19 ft³/s, Aug. 8, 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	54	79	e115	171	127	134	127	310	e255	25	1840
2	73	55	77	e110	181	119	125	121	1370	e1000	21	6590
3	83	57	69	e106	156	144	135	142	3900	e2600	20	4110
4	79	92	76	e117	142	181	136	151	3050	e960	27	1350
5	75	141	78	e121	143	154	124	128	1500	e600	33	1310
6	68	130	77	e112	149	146	118	302	957	e420	23	832
7	57	111	78	e118	149	143	126	295	706	e310	21	416
8	58	107	81	e121	170	150	128	248	609	e230	19	298
9	59	122	85	e128	167	154	154	216	528	e190	20	244
10	74	126	87	e131	157	153	165	187	459	e165	19	264
11	78	114	90	e127	150	165	151	176	425	e142	22	243
12	69	102	91	e140	144	161	142	159	422	e128	21	171
13	68	94	91	e159	139	151	117	143	512	e570	20	132
14	65	88	95	172	131	143	123	122	446	e325	34	118
15	61	87	97	e181	124	140	129	112	362	e150	84	108
16	61	81	100	e190	124	156	129	128	358	84	45	122
17	54	78	112	166	128	199	116	253	318	64	103	150
18	48	80	117	161	127	223	107	290	346	51	767	464
19	52	78	121	156	114	213	105	182	324	41	1360	1070
20	51	81	111	150	116	216	102	149	278	33	424	317
21	45	85	e118	159	119	260	102	397	e200	30	220	146
22	48	79	e120	173	122	233	107	269	e250	27	375	116
23	49	78	e122	194	124	210	108	190	e305	24	909	101
24	51	78	e125	212	115	232	111	334	e410	22	770	92
25	52	78	e128	207	115	214	147	1540	e305	23	337	86
26	54	81	e121	196	119	203	195	1570	e470	28	186	81
27	55	78	e116	190	125	176	206	1420	e640	28	120	75
28	55	73	e110	187	129	160	208	1220	e490	67	87	70
29	55	74	e103	177	---	165	167	669	e390	76	68	65
30	55	78	e98	178	---	183	138	551	e320	52	71	62
31	53	---	e105	141	---	155	---	391	---	31	1800	---
TOTAL	1872	2660	3078	4795	3830	5409	4055	12182	20960	8726	8141	21043
MEAN	60.4	88.7	99.3	155	137	174	135	393	699	281	263	701
MAX	83	141	128	212	171	260	208	1570	3900	2600	1890	6590
MIN	45	54	69	106	114	119	102	112	200	22	19	62
AC-FT	3710	5280	6110	9510	7600	10730	8040	24160	41570	17310	16150	41740

CAL YR 1990 TOTAL 239099 MEAN 655 MAX 12000 MIN 33 AC-FT 474300
WTR YR 1991 TOTAL 96751 MEAN 285 MAX 6590 MIN 19 AC-FT 191900

e Estimated

ARKANSAS RIVER BASIN

07159750 COTTONWOOD CREEK NEAR SEWARD, OK

LOCATION.-- Lat 35°48'49", long 97°28'40", in SW 1/4 sec.36, T.16 N., R.3 W., Logan County, Hydrologic Unit 11050002, on downstream left bank, 1.2 mi north of Seward, 6.5 mi southwest of Guthrie, and at mile 22.1 on Broadway Road.

DRAINAGE AREA.-- 320 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- March 1973 to September, 1982, November 1989 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 936.49 ft National Geodetic Vertical Datum of 1929. March 1973 to September 1982 gage at site 0.9 mi upstream at datum 10 ft higher.

REMARKS.-- Records fair. Low flow sustained by part of sewage effluent from Oklahoma City. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 10 years, (water years 1974-82, 91), 132 ft³/s, 95,630 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 29,900 ft³/s, Nov. 2, 1974, gage height, 23.99 ft, site and datum then in use; minimum daily, 6.1 ft³/s, Aug. 15, 22, 23, 1976.

EXTREMES FOR CURRENT YEAR.-- Peak discharges above base 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)
July 4	0300	*1,790	*17.72	No peak greater than base discharge.			

Minimum daily discharge, 11 ft³/s, July 24-26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	36	38	e47	51	38	41	40	71	34	14	148
2	54	46	40	e46	51	40	36	41	180	34	20	254
3	56	46	41	51	50	45	482	259	358	547	21	414
4	148	51	38	50	54	73	699	245	184	1260	23	328
5	77	192	38	49	53	55	298	140	117	379	114	274
6	57	73	38	54	48	46	196	103	101	215	62	80
7	55	43	38	82	46	41	139	71	131	133	29	68
8	51	39	38	61	46	38	107	574	886	98	25	66
9	51	71	40	55	45	38	93	580	232	80	22	68
10	80	112	44	56	44	37	83	241	137	65	30	48
11	60	69	43	118	46	38	71	147	103	58	22	38
12	49	61	43	93	46	38	69	111	86	46	23	33
13	44	54	43	65	45	36	74	93	78	41	21	31
14	41	50	43	63	42	35	73	82	166	54	32	36
15	52	48	46	61	43	36	68	70	123	54	24	201
16	94	49	46	60	41	37	67	61	97	44	18	215
17	69	47	64	67	41	71	62	55	91	36	18	237
18	48	50	150	58	46	147	59	48	62	34	52	116
19	43	51	107	57	45	68	59	44	52	26	32	485
20	43	52	61	54	44	54	55	49	47	27	29	244
21	47	48	50	51	41	58	52	240	44	32	31	121
22	69	47	46	66	41	54	55	89	41	40	82	86
23	54	41	e46	77	41	47	56	113	42	30	59	123
24	49	40	e45	70	40	42	56	973	213	11	40	85
25	47	40	e45	61	40	39	262	721	188	11	27	64
26	42	42	e46	56	40	43	215	311	82	11	25	56
27	39	44	e47	55	38	46	97	199	58	14	23	50
28	31	41	e47	55	38	45	62	133	45	13	18	43
29	31	39	e48	55	---	48	49	96	40	17	15	40
30	34	38	e48	54	---	44	44	83	37	22	18	37
31	33	---	e47	52	---	45	---	94	---	15	48	---
TOTAL	1707	1660	1554	1879	1246	1522	3779	6106	4092	3481	1017	4089
MEAN	55.1	55.3	50.1	60.6	44.5	49.1	126	197	136	112	32.8	136
MAX	148	192	150	118	54	147	699	973	886	1260	114	485
MIN	31	36	38	46	38	35	36	40	37	11	14	31
AC-FT	3390	3290	3080	3730	2470	3020	7500	12110	8120	6900	2020	8110

CAL YR 1990 TOTAL 128640 MEAN 352 MAX 15800 MIN 29 AC-FT 255200
WTR YR 1991 TOTAL 32132 MEAN 88.0 MAX 1260 MIN 11 AC-FT 63730

e Estimated

ARKANSAS RIVER BASIN
07159750 COTTONWOOD CREEK NEAR SEWARD, OK--Continued

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WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1973-82, October 1989 to June 1991 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1973 to April 1982.

WATER TEMPERATURE: February 1973 to April 1982.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,610 microsiemens Jan. 3, 1974; minimum daily, 132 microsiemens Nov. 4, 1974.

WATER TEMPERATURE: Maximum daily, 28.0°C July 15, 1978; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 16...	1036	1028	80020	44	1040	7.9	16.5	14.0	19	770	7.4	72
JAN 14...	1545	1028	80020	63	1060	7.9	12.0	5.5	13	760	12.4	99
MAR 08...	1150	1028	80020	39	1110	8.2	12.0	10.0	10	770	10.1	89
APR 30...	1143	1028	80020	41	1030	8.2	26.0	17.0	55	760	3.7	38
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 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 16...	280	82	66	27	100	43	3	8.0	237	0	194	140
JAN 14...	280	110	67	28	100	43	3	6.6	215	0	176	160
MAR 08...	290	81	67	29	100	42	3	6.8	251	0	206	180
APR 30...	280	72	63	26	89	42	2	6.6	235	0	192	160
DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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 DIS- SOLVED 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, NITRITE DIS- SOLVED TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
NOV 16...	110	0.50	002	006	0.82	71.5	6.55	6.37	28	0.250	0.230	
JAN 14...	110	0.10	042	006	0.87	109	6.39	5.51	24	0.110	0.090	
MAR 08...	120	0.50	092	067	0.94	72.9	7.02	7.14	32	0.080	0.060	
APR 30...	100	0.50	024	092	0.85	69.8	6.03	5.85	26	0.070	0.050	

*PH, LAB (STANDARD UNITS)

ARKANSAS RIVER BASIN

07159750 COTTONWOOD CREEK NEAR SEWARD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	PHOS- PHATE, TOTAL (MG/L AS PO4)	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 PO4)
NOV 16...	0.76	6.80	6.60	0.130	0.120	0.17	0.15	10.7	3.50	2.90	8.9
JAN 14...	0.30	6.50	5.60	0.350	0.320	0.45	0.41	6.13	2.00	1.20	3.7
MAR 08...	0.20	7.10	7.20	0.080	0.060	0.10	0.08	3.37	--	2.00	8.6
APR 30...	0.16	6.10	5.90	0.270	0.240	0.35	0.31	5.52	1.00	1.50	4.6

07160000 CIMARRON RIVER NEAR GUTHRIE, OK

LOCATION.-- 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 11650002, 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 poor. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 47 years (water years 1938-76, 1984-91), 985 ft³/s, 713,600 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)
Sept. 3	1830	*6,460	*6.69	No peak greater than base discharge.			

Minimum daily discharge, 86 ft³/s, Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	e92	154	e210	262	201	206	189	626	304	e120	712
2	133	e100	154	e222	237	207	191	180	627	253	e109	2020
3	142	e115	154	e210	246	213	306	264	2650	578	e99	5040
4	174	149	152	e222	249	225	1190	506	3210	2540	e92	3790
5	201	184	151	e240	249	229	778	406	2270	1090	e145	1880
6	155	249	151	e260	249	222	476	305	1350	591	151	1560
7	138	247	151	314	251	211	332	295	879	449	e130	1030
8	131	237	151	289	252	203	268	568	1470	313	e110	652
9	130	237	151	266	249	197	238	1250	838	254	e93	484
10	131	246	152	266	249	191	221	624	563	227	e86	408
11	141	261	155	267	249	179	217	312	468	178	e98	349
12	142	244	158	281	249	181	209	245	402	152	e105	348
13	140	224	164	286	250	185	194	235	382	139	e120	297
14	130	205	164	292	245	191	200	192	373	557	e110	264
15	125	190	165	294	239	191	199	168	530	452	e100	275
16	126	179	172	300	232	191	187	148	380	280	e90	348
17	146	177	203	301	219	210	180	131	343	196	e110	347
18	130	177	213	287	219	258	201	184	287	149	e120	744
19	e115	177	251	274	221	295	178	277	249	121	209	1990
20	e112	176	244	274	221	261	167	274	250	e118	944	2970
21	e100	166	220	267	221	245	164	287	219	e112	569	1040
22	e116	164	e226	267	214	252	167	287	197	e111	318	536
23	e116	164	e229	271	210	243	161	378	225	e108	314	396
24	e110	164	e232	279	204	224	163	1270	298	e103	462	349
25	e102	164	e233	283	202	207	213	2410	411	e99	778	293
26	e104	161	e240	283	202	206	414	2000	344	e97	410	255
27	e104	156	e232	286	202	211	294	1490	424	e95	264	231
28	e100	154	e220	288	202	211	274	1410	625	e92	191	210
29	e99	154	e210	288	---	210	251	1180	487	e90	152	191
30	e96	154	e200	279	---	208	228	844	393	e110	137	180
31	e94	---	e190	270	---	206	---	660	---	e135	137	---
TOTAL	3922	5467	5842	8416	6494	6664	8475	18989	21770	10093	6871	29189
MEAN	127	182	188	271	232	215	282	612	726	326	222	973
MAX	201	261	251	314	262	295	1190	2410	3210	2540	944	5040
MIN	94	92	151	210	202	179	161	131	197	90	86	180
AC-FT	7780	10840	11590	16890	12880	13220	16810	37630	43180	20020	13630	57900

CAL YR 1990 TOTAL 527401 MEAN 1445 MAX 27700 MIN 84 AC-FT 1046000
WTR YR 1991 TOTAL 132172 MEAN 362 MAX 5040 MIN 86 AC-FT 282200

e Estimated

ARKANSAS RIVER BASIN

07160500 SKELETON CREEK NEAR LOVELL, OK

LOCATION.-- Lat 36°03'38", 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 Utter 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.

AVERAGE DISCHARGE.-- 42 years, 129 ft³/s, 93,460 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)
June 3	0630	*1,170	*13.18	No peak greater than base discharge.			

Minimum daily discharge, 0.51 ft³/s, Aug. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	14	11	e10	14	13	15	35	47	8.2	4.9	27
2	13	12	11	e11	18	12	11	32	546	9.0	4.1	55
3	20	18	8.8	e11	14	11	11	56	849	80	2.6	91
4	50	23	12	12	14	12	11	82	147	311	2.2	25
5	29	95	16	14	18	17	12	58	70	86	3.7	20
6	15	51	14	17	15	15	12	43	53	31	3.9	19
7	10	19	13	16	11	14	10	40	45	17	3.7	10
8	9.6	15	14	16	10	9.3	8.4	42	93	12	3.3	8.1
9	15	18	15	15	11	9.3	7.1	40	89	9.0	3.2	6.9
10	70	44	17	22	11	7.0	6.1	36	42	7.9	3.5	5.9
11	29	27	17	23	11	6.7	7.1	35	25	8.7	6.4	5.5
12	14	16	11	33	13	9.3	6.7	33	21	66	3.9	4.7
13	11	12	8.0	29	14	9.0	8.3	32	18	203	3.2	4.8
14	9.9	12	16	23	11	9.9	30	31	17	66	3.7	16
15	8.2	12	15	25	15	11	33	29	17	64	3.8	33
16	9.0	11	15	23	16	12	12	37	17	30	5.6	11
17	9.5	12	14	19	14	15	e12	42	14	21	6.3	58
18	10	12	17	16	11	62	e11	62	12	13	4.9	267
19	9.9	9.6	21	17	15	36	e11	37	11	8.2	4.0	194
20	9.4	9.8	16	15	13	18	e11	32	13	6.6	2.0	38
21	9.5	11	9.7	12	12	16	e10	31	17	5.9	1.6	17
22	8.8	14	e11	10	12	12	e25	47	13	5.6	1.7	13
23	10	13	e10	11	14	9.0	e15	37	11	4.9	1.7	8.1
24	11	13	e9.8	15	11	8.2	e10	38	63	3.4	2.5	5.9
25	8.2	12	e10	17	10	8.4	e112	88	117	5.0	1.8	6.2
26	11	11	e10	15	9.1	12	e88	107	38	4.0	1.7	4.2
27	12	10	e11	15	10	13	e68	79	18	7.3	2.1	4.3
28	14	10	e11	18	11	11	e60	42	13	7.9	.91	4.9
29	17	10	e11	18	---	15	51	32	11	5.2	.51	3.7
30	12	12	e11	18	---	15	38	30	9.2	4.1	4.4	1.8
31	11	---	e10	16	---	17	---	29	---	4.7	15	---
TOTAL	488.0	558.4	396.3	532	358.1	445.1	722.7	1394	2456.2	1115.6	112.82	967.0
MEAN	15.7	18.6	12.8	17.2	12.8	14.4	24.1	45.0	81.9	36.0	3.64	32.2
MAX	70	95	21	33	18	62	112	107	849	311	15	267
MIN	8.2	9.6	8.0	10	9.1	6.7	6.1	29	9.2	3.4	.51	1.8
AC-FT	968	1110	786	1060	710	883	1430	2760	4870	2210	224	1920

CAL YR 1990 TOTAL 55121.5 MEAN 151 MAX 3980 MIN 8.0 AC-FT 109300
WTR YR 1991 TOTAL 9546.22 MEAN 26.2 MAX 849 MIN .51 AC-FT 18930

e Estimated

ARKANSAS RIVER BASIN

65

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

LOCATION.-- 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.

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, alkalinity, and dissolved oxygen were determined in the field.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FW L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG											
22...	1521	20.0	31.0	1028	1028	567	8.24	2100	3.7	6.8	1870
22...	1528	40.0	31.0	1028	1028	567	8.24	2100	4.2	7.0	2810
22...	1534	60.0	31.0	1028	1028	567	8.24	2100	4.4	7.1	2030
22...	1538	80.0	31.5	1028	1028	567	8.24	2100	4.3	7.1	1810
22...	1543	100	31.5	1028	1028	567	8.24	2100	4.2	7.2	2180
22...	1552	120	31.5	1028	1028	567	8.24	2100	4.2	7.2	2150
22...	1559	140	31.5	1028	1028	567	8.24	2100	4.0	7.3	2150
22...	1600	160	31.5	1028	1028	567	8.24	2100	4.0	7.4	2140
22...	1612	180	31.5	1028	1028	567	8.24	2100	3.8	7.4	2090
22...	1619	200	31.5	1028	1028	567	8.24	2100	3.9	7.5	1540

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
14...	1100	1028	80020	261	4660	8.6	19.5	13.0	15	770	11.2	107
JAN												
18...	1150	1028	80020	346	6500	8.7	11.0	4.5	2.8	770	13.1	103
MAR												
05...	1240	1028	80020	257	8900	9.0	28.5	16.0	6.6	750	14.2	151
MAY												
07...	1354	1028	80020	383	4600	9.2	25.5	21.5	26	770	15.1	172
JUN												
27...	1350	1028	80020	366	5100	9.2	35.5	30.0	23	770	16.0	214
AUG												
22...	1208	1028	80020	567	2100	8.1	34.5	29.0	1100	775	5.6	72

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN DIS- SOLVED (MG/L AS N)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC 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)
NOV 14...	--	K47	K42	450	220	110	43	780	79	18	5.0	256
JAN 16...	--	24	370	550	300	130	53	1300	84	24	4.0	278
MAR 05...	--	95	600	580	370	130	61	1600	86	29	5.9	201
MAY 07...	--	K28	50	400	220	93	40	780	81	17	5.6	159
JUN 27...	--	K16	84	420	230	100	41	880	82	19	8.9	130
AUG 22...	3.6	K680	600	180	60	49	14	360	81	12	7.0	147
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 CONSTITUENTS, 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)
NOV 14...	12	228	310	1200	0.10	7.8	2720	2600	3.70	1920	1.08	1.08
JAN 16...	11	246	350	2000	0.40	7.2	3950	4000	5.37	3690	1.93	1.84
MAR 05...	26	209	440	2600	0.40	1.0	6030	4970	8.20	4180	0.450	0.400
MAY 07...	28	176	280	1300	0.40	4.2	2470	2610	3.36	2550	--	--
JUN 27...	51	189	320	1400	0.50	6.7	2730	2870	3.71	2700	--	--
AUG 22...	0	120	120	520	0.50	7.3	1190	1160	1.62	1820	2.17	2.18
DATE	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN NITRITE TOTAL (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN N02+N03 TOTAL (MG/L AS N)	NITRO- GEN N02+N03 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 ORGANIC DIS- SOLVED (MG/L AS N)
NOV 14...	4.8	0.020	0.020	0.07	1.10	1.10	0.030	0.020	0.04	0.03	1.2	--
JAN 16...	8.1	0.070	0.060	0.20	2.00	1.90	0.030	0.040	0.04	0.05	0.47	--
MAR 05...	1.8	0.010	0.020	0.07	0.460	0.420	0.020	0.010	0.03	0.01	1.7	--
MAY 07...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 27...	--	0.020	<0.010	--	<0.050	<0.050	0.020	0.020	0.03	0.03	2.2	--
AUG 22...	9.6	0.330	0.320	1.1	2.50	2.50	0.040	0.050	0.05	0.06	6.1	1.0
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (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 DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS P04)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	
NOV 14...	1.2	--	2.3	10	0.500	1.32	0.390	0.430	0.420	1.3	20	
JAN 16...	0.50	--	2.5	11	0.420	1.23	0.340	0.400	0.320	0.98	20	
MAR 05...	1.7	--	2.2	9.6	0.540	1.23	0.400	0.400	0.360	1.1	--	
MAY 07...	--	--	--	--	--	--	--	--	--	--	10	
JUN 27...	2.2	--	--	--	0.530	0.95	0.280	0.310	0.230	0.71	--	
AUG 22...	6.1	1.1	8.6	38	0.810	0.46	0.240	0.150	0.140	0.43	70	

ARKANSAS RIVER BASIN

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07161000 CIMARRON RIVER AT PERKINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 14...	5	140	<2	<3.0	2	<9	1	17	<1	32	24
JAN 16...	2	200	<10	<1.0	3	<1	2	<10	<1	20	40
MAR 05...	--	--	--	--	--	--	--	--	--	--	--
MAY 07...	4	120	<2	<3.0	10	<9	3	85	<1	26	16
JUN 27...	--	--	--	--	--	--	--	--	--	--	--
AUG 22...	4	89	<2	<3.0	1	<9	6	44	<1	<12	<3
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. STEEVE DIAM. % FINER THAN .062 MM
NOV 14...	<0.1	<30	1	1	<1.0	1500	<18	<9	29	20	8
JAN 16...	<0.1	<2	1	1	<1.0	1800	23	<10	14	13	55
MAR 05...	--	--	--	--	--	--	--	--	46	32	27
MAY 07...	<0.1	<30	3	1	1.0	1400	<18	53	76	79	75
JUN 27...	--	--	--	--	--	--	--	--	48	47	48
AUG 22...	0.3	<30	2	1	<1.0	490	<18	<9	--	--	--

ARKANSAS RIVER BASIN

07181450 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 4,928 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 good. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 55,200 ft³/s, Mar. 11, 1990, gage height 21.43, 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)
Sept. 4	2000	*6,650	*13.42	No peaks greater than base discharge.			
Minimum daily discharge, 88 ft ³ /s, Aug. 6.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266	140	199	e230	292	208	228	310	820	374	117	256
2	211	136	206	e250	290	211	229	269	829	324	133	325
3	347	141	212	e230	283	210	978	311	1470	320	116	1650
4	262	339	207	e240	275	218	565	320	5250	387	101	4480
5	216	224	195	e260	274	228	1090	531	3990	2570	92	4550
6	259	212	204	e250	269	243	1020	527	2630	1710	88	2090
7	241	333	204	e240	264	246	646	377	1980	825	106	1610
8	212	313	202	e250	255	233	482	741	1460	609	150	1090
9	210	312	210	e260	253	224	391	744	1500	467	118	710
10	189	283	210	e280	255	211	328	1230	1140	371	97	526
11	189	288	215	e270	263	201	299	760	714	332	91	439
12	226	319	216	e250	269	213	297	487	571	291	94	371
13	216	305	224	e270	269	201	303	389	503	256	104	351
14	200	272	220	e290	258	198	292	309	447	345	110	330
15	185	248	219	e310	253	197	281	268	415	561	114	305
16	176	236	219	e350	230	200	286	249	483	599	105	348
17	177	215	238	e390	231	223	294	236	442	441	95	371
18	174	206	302	353	234	231	280	227	376	330	90	570
19	167	212	296	329	230	248	299	222	342	264	108	1170
20	161	222	294	313	216	328	286	949	300	225	110	2340
21	175	225	e270	287	222	313	260	923	281	196	520	3070
22	160	227	e247	281	220	280	254	363	269	172	622	1350
23	151	216	250	277	210	265	260	476	250	155	401	684
24	157	220	258	281	210	265	248	1320	250	143	317	494
25	158	222	255	288	210	250	287	1320	266	135	351	398
26	150	217	e260	303	213	230	300	2560	410	128	635	337
27	151	218	e270	317	203	253	442	2350	357	122	498	293
28	151	214	e250	328	200	238	395	1680	382	119	342	262
29	146	206	e230	329	---	238	379	1690	441	112	260	238
30	144	205	e220	306	---	233	371	1320	450	109	214	216
31	141	---	e210	297	---	233	---	1040	---	107	186	---
TOTAL	5988	7126	7212	8909	6831	7268	12070	24478	28998	13099	6485	31224
MEAN	193	238	233	287	244	234	402	790	967	423	209	1041
MAX	347	339	302	390	292	328	1090	2560	5250	2570	635	4550
MIN	141	136	195	230	200	196	228	222	250	107	88	216
AC-FT	11840	14130	14310	17670	13550	14420	23940	48550	57520	25980	12860	81930

CAL YR 1990 TOTAL 817012 MEAN 2238 MAX 44200 MIN 133 AC-FT 1621000
WTR YR 1991 TOTAL 159668 MEAN 437 MAX 5250 MIN 88 AC-FT 316700

e Estimated

ARKANSAS RIVER BASIN

69

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 fair.

AVERAGE DISCHARGE.-- 57 years, 12.0 ft³/s, 8,690 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)
May 24	0800	*802	*10.46	No peak greater than base discharge.			
No flow, July 12 to Sept. 15.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.5	2.4	1.7	1.5	1.4	1.6	2.8	1.6	.07	.00	.00
2	1.7	1.4	2.3	1.7	1.5	1.3	1.7	3.0	7.9	.06	.00	.00
3	78	1.5	2.3	1.3	1.5	1.2	84	4.2	7.1	.10	.00	.00
4	8.9	19	2.6	1.3	1.3	1.1	13	4.1	4.2	.15	.00	.00
5	2.8	3.3	2.6	1.4	1.4	1.2	5.4	3.9	2.3	.15	.00	.00
6	1.8	1.3	2.6	1.6	1.9	1.2	3.9	4.4	1.8	.15	.00	.00
7	1.4	1.1	2.6	1.6	1.9	1.1	4.5	4.0	1.7	.12	.00	.00
8	1.5	1.2	2.6	1.6	1.9	1.1	4.4	202	3.1	.07	.00	.00
9	1.6	1.4	2.6	2.3	1.9	1.1	4.2	27	3.5	.06	.00	.00
10	1.5	1.3	2.4	7.0	2.0	1.2	3.8	8.2	1.9	.04	.00	.00
11	1.4	1.4	2.4	4.6	1.9	1.2	3.8	6.9	1.5	.01	.00	.00
12	1.3	1.3	2.4	2.1	2.0	1.1	3.3	5.7	1.4	.00	.00	.00
13	1.3	1.3	2.4	1.7	2.1	1.1	2.8	4.3	1.3	.00	.00	.00
14	1.3	1.3	2.4	1.7	2.5	1.1	2.6	3.9	1.1	.00	.00	.00
15	1.3	1.3	2.4	1.9	1.6	1.1	2.7	3.3	.67	.00	.00	.00
16	1.4	1.3	2.4	2.1	1.4	1.1	2.8	3.1	.37	.00	.00	2.2
17	1.2	1.3	4.4	2.2	1.5	1.2	2.8	4.7	.37	.00	.00	.85
18	1.2	1.3	4.8	2.2	1.3	1.3	2.4	4.6	.37	.00	.00	.28
19	1.2	1.3	4.0	2.2	1.3	1.2	2.5	3.6	.33	.00	.00	.31
20	1.3	1.7	2.9	1.8	1.3	1.4	2.9	3.2	.32	.00	.00	.21
21	1.6	2.1	2.6	1.6	1.4	1.3	2.8	3.3	.31	.00	.00	.16
22	1.6	2.1	2.1	1.5	1.5	1.3	2.8	4.0	.35	.00	.00	.18
23	1.3	2.2	1.7	1.5	1.5	1.3	2.8	138	.39	.00	.00	.22
24	1.2	2.2	1.5	1.5	1.7	1.2	3.2	261	.43	.00	.00	.21
25	1.1	2.3	1.5	1.4	1.6	1.3	3.7	25	.24	.00	.00	.15
26	1.2	2.4	1.5	1.2	1.5	1.2	4.3	7.1	.16	.00	.00	.15
27	1.4	2.3	1.5	1.2	1.4	1.2	7.2	4.5	.11	.00	.00	.15
28	1.5	2.2	1.9	1.2	1.4	1.4	6.7	2.8	.09	.00	.00	.13
29	1.6	2.2	2.3	1.2	---	1.8	5.3	1.5	.07	.00	.00	.10
30	1.5	2.3	2.1	1.2	---	1.5	3.5	1.4	.07	.00	.00	.06
31	1.4	---	1.8	1.3	---	1.5	---	1.7	---	.00	.00	---
TOTAL	130.5	88.8	76.0	58.8	45.7	38.7	197.4	757.2	45.05	0.98	0.00	5.38
MEAN	4.21	2.29	2.45	1.90	1.63	1.25	6.58	24.4	1.50	.032	.000	.18
MAX	78	19	4.8	7.0	2.5	1.8	84	261	7.9	.15	.00	2.2
MIN	1.1	1.1	1.5	1.2	1.3	1.1	1.6	1.4	.07	.00	.00	.00
AC-FT	259	136	151	117	91	77	392	1500	89	1.9	.00	11

CAL YR 1990 TOTAL 10781.89 MEAN 29.5 MAX 2070 MIN .00 AC-FT 21390
WTR YR 1991 TOTAL 1424.51 MEAN 3.90 MAX 261 MIN .00 AC-FT 2830

ARKANSAS RIVER BASIN

07184200 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, 297,000 acre-ft, Jan. 19, 1965, elevation, 705.07 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 606,400 acre-ft, Apr. 29, elevation 724.99 ft; minimum, 496,700 acre-ft, Sept. 2, elevation, 720.29 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	523600	527900	530600	539900	553900	546100	551800	593100	569500	581400	548200	512300
2	527700	526800	530300	539500	556700	547800	551800	588400	569300	580700	546600	498400
3	534000	529500	531700	540900	559500	548900	557800	585100	566700	581000	547500	505500
4	533300	536300	531300	540400	557400	548000	556200	582200	570500	580700	548800	510700
5	534400	535600	530100	542700	557100	546600	557100	573900	583200	580200	545900	521600
6	537200	536500	528800	545200	556700	542500	556700	567600	592800	582900	542900	532400
7	541300	536700	527400	546800	556200	541500	556000	565500	581700	587600	536000	544500
8	540400	534900	528600	547800	551800	540600	555500	568800	580200	585400	530600	552700
9	539000	532200	529900	549900	554100	542000	555500	572700	593100	582700	531500	550800
10	539900	533500	528800	556400	556700	542500	552700	574400	592300	577300	531500	546800
11	540400	535600	530400	558600	556000	541300	549200	575600	580200	573200	531700	540600
12	539000	535100	530100	561900	556400	545300	547100	575800	580900	571000	528800	532900
13	540200	536700	530400	565200	556000	543400	545700	570500	577800	572400	529200	525600
14	542000	536000	530000	563600	559400	541500	548700	559500	587800	573200	527400	520300
15	539000	533500	531500	559700	556000	540900	545700	555300	591300	570700	525200	520000
16	535800	535600	533100	559500	555500	541500	544100	556200	597600	571200	522000	521200
17	535300	533500	530600	559000	556000	542500	542200	554800	597100	566700	522700	521400
18	534700	535300	536300	558000	556200	541500	542200	550600	598100	564000	522900	524100
19	532200	533500	537600	558600	553200	541300	545700	546100	598100	559300	521200	526300
20	535600	531500	541800	562200	550800	539500	553900	544800	595800	560700	519800	526800
21	534700	532200	540200	560500	547100	541500	556700	548500	594300	560900	518000	530600
22	533300	533500	539500	558800	543400	541100	571700	560500	595100	554800	517600	537900
23	533000	532000	538600	557400	545700	542700	576800	574100	601600	549900	514900	539500
24	533100	533100	536500	557600	548000	544300	582400	588400	599900	547100	516300	537000
25	532000	534200	537600	558400	541300	543200	583400	597900	600900	547100	517600	533300
26	530800	531700	536300	560500	543600	543800	583400	598900	599400	544800	516000	529700
27	528600	533100	537400	564300	542900	545200	586600	597300	592100	548000	514300	527900
28	529000	530800	537000	563300	544800	546800	598100	592800	582900	550800	512000	528800
29	527200	530800	539900	563300	---	547300	603400	585400	579200	548900	512900	529900
30	528600	529000	540400	560900	---	549400	599100	579000	581400	549400	511800	523600
31	527200	---	538800	559300	---	551800	---	570700	---	548200	512700	---
MAX	542000	536700	541800	565200	559500	551800	603400	598900	601600	587600	548800	552700
MIN	523600	526800	527400	539500	541300	539500	542200	544800	566700	544800	511800	498400
(+)	721.68	721.76	722.19	723.07	722.45	722.75	724.70	723.55	723.99	722.60	721.03	721.52
(++)	+2,700	+1,800	+9,800	+20,500	-14,500	+7,000	+47,300	-28,400	+10,700	-33,200	-35,500	+10,900

CAL YR 1990 MAX 1315000 MIN 510700 (++) -28,300
WTR YR 1991 MAX 603400 MIN 498400 (++) -900

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

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 poor. 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, 27 years (water years 1965-91), 7,645 ft³/s, 5,539,000 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, 1958.

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, 14,400 ft³/s, Sept. 2, gage height, 5.45 ft; minimum daily discharge, 72 ft³/s, June 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	354	959	363	3200	110	1120	4390	5510	227	1940	426
2	1470	147	e320	1220	1610	e840	2860	5000	2900	1140	1950	7490
3	490	785	408	368	118	128	1260	5830	4260	1270	1710	841
4	1380	322	1260	e890	1990	993	2680	5810	4540	982	448	384
5	1670	577	928	e330	1820	1280	2980	5680	2350	1010	530	697
6	1060	959	1350	137	1360	2020	1720	5640	5600	1010	902	528
7	141	310	1510	100	1420	1400	1650	3390	13100	179	3480	1720
8	366	496	651	e300	2450	284	1500	2910	11600	1200	3520	412
9	1570	2110	e220	1800	1700	895	524	3880	9440	2030	1840	2200
10	1110	495	e155	462	153	97	679	2870	10000	2160	387	3730
11	167	131	1170	1280	1310	663	2140	3460	12400	2740	326	4420
12	702	1160	210	507	1650	193	1840	4180	12200	1950	989	5110
13	1210	671	e850	135	1440	e780	e2300	4890	2320	1190	1040	5620
14	175	991	e630	708	321	e950	e960	7200	72	83	517	6100
15	300	1020	e680	3070	961	489	733	6220	928	459	1300	3330
16	1490	e1980	154	4000	1760	646	e2200	1980	1600	1040	1360	3930
17	1670	1370	e180	2450	1010	490	e2100	3120	1740	1450	1480	3220
18	1120	698	e1400	1660	1100	1220	e2000	3690	2820	2070	214	2660
19	216	1390	550	1700	e1800	190	e2100	3720	3360	2200	257	2390
20	845	1670	213	659	2600	648	e2300	3620	3150	1670	1400	1520
21	114	1440	e300	1430	e2600	1430	505	1570	2680	365	507	1620
22	438	582	e750	1950	2140	757	e2100	816	2790	1380	803	1060
23	357	1050	e350	e1900	1630	190	e2300	1180	1300	3160	1290	308
24	243	769	1040	e2100	115	90	e2400	4690	1510	2100	1120	1390
25	587	e310	381	1030	987	1070	2680	5360	1770	1210	313	2990
26	643	555	1010	443	2500	233	4010	4690	2250	497	276	3510
27	1130	2250	357	94	116	1150	3510	4580	3940	1590	1140	3330
28	552	1620	1140	1280	e830	184	3890	5250	6370	551	1380	2500
29	152	600	388	2380	---	e180	3420	5470	3020	638	1570	1540
30	730	849	108	2430	---	e780	5140	5590	1640	1420	531	2560
31	658	---	823	2480	---	90	---	6700	---	1770	1160	---
TOTAL	22912	27661	20445	39634	40889	20530	65361	133356	137160	40741	35660	77536
MEAN	739	922	660	1279	1460	662	2179	4302	4572	1314	1150	2585
MAX	1670	2250	1510	4000	3200	2020	5140	7200	13100	3160	3520	7490
MIN	114	131	108	94	115	90	505	816	72	83	214	308
AC-FT	45450	54870	40550	78610	81100	40720	129600	264500	272100	80810	70730	153800

CAL YR 1990 TOTAL 2563451 MEAN 7023 MAX 35500 MIN 90 AC-FT 5085000
WTR YR 1991 TOTAL 661886 MEAN 1813 MAX 13100 MIN 72 AC-FT 1313000

e Estimated

ARKANSAS RIVER BASIN

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1977 to July 1985, October 1987 to current year.

WATER TEMPERATURE: March 1977 to July 1985, October 1987 to current year.

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, dissolved oxygen, and alkalinity were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,820 microsiemens, Feb. 16, 1978; minimum, 450 microsiemens, Apr. 26, 27, 28, 1990.

WATER TEMPERATURE: Maximum, 33.5°C, Aug. 27, 1990, July 7, 1991; minimum, 0.0°C on many days during winter periods.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
AUG										
07...	1430	1040	29.0	1028	1028	704	2.34	2380	8.1	8.3
07...	1435	960	28.5	1028	1028	704	2.34	2350	8.2	8.2
07...	1440	880	28.5	1028	1028	704	2.34	2400	8.1	8.3
07...	1445	800	28.5	1028	1028	704	2.34	2420	8.0	8.4
07...	1450	720	28.5	1028	1028	704	2.34	2420	8.1	8.4
07...	1455	640	28.0	1028	1028	704	2.34	2410	7.9	8.3
07...	1500	560	28.0	1028	1028	704	2.34	2410	7.9	8.3
07...	1505	480	28.5	1028	1028	704	2.34	2410	8.0	8.4
07...	1510	400	28.0	1028	1028	704	2.34	2430	8.0	8.4
07...	1515	320	28.5	1028	1028	704	2.34	2440	8.0	8.4
07...	1520	240	28.5	1028	1028	704	2.34	2410	8.0	8.4
07...	1525	160	29.0	1028	1028	704	2.34	2510	7.9	8.6
07...	1530	80.0	29.0	1028	1028	704	2.34	2530	7.9	8.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
30...	1430	1028	80020	140	1640	8.4	14.0	10.0	2.7	750	10.7	97
DEC												
11...	1300	1028	80020	926	1650	8.5	16.0	11.5	2.5	745	11.8	111
FEB												
06...	1300	1028	80020	265	2270	8.4	12.0	9.5	1.6	750	12.7	114
APR												
16...	1400	1028	80020	944	2720	8.5	23.5	17.0	3.4	740	10.5	113
JUN												
26...	1200	1028	80020	539	2170	7.8	31.0	28.0	4.0	745	8.8	116
AUG												
07...	1400	1028	80020	704	2420	8.4	34.0	28.5	1.3	750	8.0	106

ARKANSAS RIVER BASIN

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07184500 ARKANSAS RIVER AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN DIS- SOLVED (MG/L AS N)	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)
NOV 30...	--	K13	<2	250	90	63	22	220	65	6	5.2	188
DEC 11...	--	K13	20	240	89	60	22	220	66	6	7.1	179
FEB 06...	--	<2	K4	280	120	72	25	340	71	9	16	199
APR 16...	--	150	K38	320	160	80	30	450	75	11	6.3	189
JUN 26...	--	K37	640	240	110	64	20	330	74	9	7.1	161
AUG 07...	0.80	89	110	220	77	53	20	400	80	12	7.1	157
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 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)
NOV 30...	3	159	110	340	0.40	2.2	864	860	1.18	327	--	0.190
DEC 11...	3	151	130	350	0.80	1.4	901	884	1.23	2250	0.280	0.290
FEB 06...	2	167	180	500	2.3	2.9	1290	1240	1.75	923	--	0.380
APR 16...	6	165	150	630	0.50	1.1	1480	1450	2.01	3770	--	--
JUN 26...	0	132	140	520	0.70	4.8	1180	1170	1.60	1720	0.340	0.330
AUG 07...	6	138	130	620	0.80	4.7	1330	1320	1.81	2530	0.150	0.170
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, NO2+N03 TOTAL (MG/L AS N)	NITRO- GEN, NO2+N03 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, ORGANIC DIS- SOLVED (MG/L AS N)
NOV 30...	0.84	<0.010	0.010	0.03	0.200	0.200	0.050	0.060	0.06	0.08	0.35	--
DEC 11...	1.3	0.020	0.010	0.03	0.300	0.300	0.020	0.020	0.03	0.03	0.28	--
FEB 06...	1.7	<0.010	0.020	0.07	0.300	0.400	0.060	0.070	0.08	0.09	0.84	--
APR 16...	--	<0.010	<0.010	--	0.057	<0.050	0.010	0.010	0.01	0.01	0.69	--
JUN 26...	1.5	0.020	0.020	0.07	0.360	0.350	0.040	0.030	0.05	0.04	0.56	--
AUG 07...	0.75	--	0.030	0.10	--	0.200	--	0.160	--	0.21	0.97	0.44
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (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 DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS P04)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	
NOV 30...	0.40	--	0.60	2.7	0.070	0.12	0.040	0.040	0.030	0.09	10	
DEC 11...	0.30	--	0.60	2.7	0.050	0.12	0.030	0.040	0.020	0.06	--	
FEB 06...	0.90	--	1.2	5.3	0.250	0.71	0.250	0.230	0.230	0.71	<10	
APR 16...	0.70	--	0.76	3.4	0.050	--	0.010	<0.010	<0.010	--	<10	
JUN 26...	0.60	--	0.96	4.2	0.130	0.21	0.080	0.070	0.070	0.21	--	
AUG 07...	1.1	0.60	1.3	5.6	0.220	0.49	0.180	0.160	0.160	0.49	20	

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 30...	2	140	<0.5	<1.0	<1	<3	1	<3	<1	15	60
DEC 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 08...	1	140	<2	<3.0	<1	<9	3	18	<1	14	25
APR 18...	1	100	<10	<1.0	<1	<1	1	<10	1	20	30
JUN 26...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	2	100	<10	<1.0	<1	<1	5	<10	<1	<10	70
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .002 MM
NOV 30...	<0.1	<10	2	<1	<1.0	800	<8	5	5	1.9	74
DEC 11...	--	--	--	--	--	--	--	--	29	73	10
FEB 08...	0.2	<30	1	<2	<1.0	940	<18	10	10	7.2	14
APR 18...	<0.1	2	<1	<1	<1.0	1100	17	<10	10	25	20
JUN 26...	--	--	--	--	--	--	--	--	3	4.4	30
AUG 07...	<0.1	5	2	<2	<1.0	810	12	<10	8	15	20

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1500	1480	1490	1640	1610	1630	---	---	---	---	---	---
2	1650	1510	1630	1630	1610	1620	---	---	---	---	---	---
3	1650	1050	1480	1680	1610	1630	---	---	---	---	---	---
4	1630	1500	1590	---	---	---	---	---	---	---	---	---
5	1630	1590	1610	---	---	---	---	---	---	---	---	---
6	1650	1590	1630	1540	1470	1500	---	---	---	---	---	---
7	1640	1590	1620	1550	1630	1640	---	---	---	---	---	---
8	1590	1310	1510	1560	1490	1510	---	---	---	---	---	---
9	1550	1500	1530	1560	1520	1550	---	---	---	---	---	---
10	1560	1520	1530	1570	1510	1550	---	---	---	---	---	---
11	1520	1500	1510	1550	1480	1530	---	---	---	---	---	---
12	1560	1480	1530	1530	1490	1510	---	---	---	---	---	---
13	1560	1520	1550	---	---	---	---	---	---	---	---	---
14	1560	1540	1550	---	---	---	---	---	---	---	---	---
15	1540	1480	1530	---	---	---	---	---	---	---	---	---
16	1570	1520	1560	---	---	---	---	---	---	---	---	---
17	1660	1550	1610	---	---	---	---	---	---	---	---	---
18	1660	1630	1640	---	---	---	---	---	---	---	---	---
19	1670	1640	1660	---	---	---	---	---	---	---	---	---
20	1640	1620	1630	---	---	---	---	---	---	---	---	---
21	1660	1630	1640	---	---	---	---	---	---	---	---	---
22	1640	1630	1640	---	---	---	---	---	---	---	---	---
23	1630	1600	1610	---	---	---	---	---	---	---	---	---
24	1610	1580	1600	---	---	---	---	---	---	---	---	---
25	1600	1550	1580	---	---	---	---	---	---	---	---	---
26	1600	1570	1580	---	---	---	---	---	---	---	---	---
27	1660	1570	1590	---	---	---	---	---	---	---	---	---
28	1610	1580	1600	---	---	---	---	---	---	---	---	---
29	1610	1580	1600	---	---	---	---	---	---	---	---	---
30	1610	1580	1600	---	---	---	---	---	---	---	---	---
31	1650	1580	1610	---	---	---	---	---	---	---	---	---
MONTH	1670	1050	1580	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	2700	2640	2670
2	---	---	---	---	---	---	---	---	---	2660	2630	2640
3	---	---	---	---	---	---	---	---	---	2810	2580	2640
4	---	---	---	---	---	---	---	---	---	2680	2590	2650
5	---	---	---	---	---	---	2630	2580	2610	2600	2560	2580
6	---	---	---	---	---	---	2610	2580	2600	2580	2520	2550
7	---	---	---	---	---	---	2660	2580	2620	2620	2560	2600
8	---	---	---	---	---	---	2950	2610	2780	2610	2570	2590
9	---	---	---	---	---	---	3050	2940	3000	2620	2590	2600
10	---	---	---	---	---	---	---	---	---	2640	2590	2620
11	---	---	---	---	---	---	3040	2900	2970	2680	2640	2650
12	---	---	---	---	---	---	3070	2900	3010	2770	2660	2690
13	---	---	---	---	---	---	2950	2790	2870	2960	2760	2830
14	---	---	---	---	---	---	2780	2730	2760	3020	2910	2960
15	---	---	---	---	---	---	2730	2630	2700	3000	2870	2920
16	---	---	---	---	---	---	2720	2660	2690	2980	2890	2940
17	---	---	---	---	---	---	2720	2680	2620	3030	2870	2960
18	---	---	---	---	---	---	2520	2440	2470	2860	2790	2840
19	---	---	---	---	---	---	2490	2410	2450	2780	2390	2690
20	---	---	---	---	---	---	2560	2460	2500	---	---	---
21	---	---	---	---	---	---	2590	2560	2570	---	---	---
22	---	---	---	---	---	---	2660	2380	2540	---	---	---
23	---	---	---	---	---	---	2710	2590	2660	---	---	---
24	---	---	---	---	---	---	2840	2660	2720	---	---	---
25	---	---	---	---	---	---	2830	2680	2760	---	---	---
26	---	---	---	---	---	---	2860	2780	2830	---	---	---
27	---	---	---	---	---	---	2840	2740	2800	---	---	---
28	---	---	---	---	---	---	2750	2690	2730	---	---	---
29	---	---	---	---	---	---	2730	2650	2700	---	---	---
30	---	---	---	---	---	---	2700	2640	2670	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	20.5	16.0	18.5
2	---	---	---	---	---	---	---	---	---	21.0	16.5	18.5
3	---	---	---	---	---	---	---	---	---	21.0	17.5	19.5
4	---	---	---	---	---	---	---	---	---	21.0	18.0	19.5
5	---	---	---	---	---	---	18.0	13.5	15.5	20.0	16.5	18.0
6	---	---	---	---	---	---	18.5	14.5	16.5	21.0	16.5	19.0
7	---	---	---	---	---	---	18.0	15.0	16.5	21.0	17.5	19.0
8	---	---	---	---	---	---	17.5	15.0	16.5	19.5	17.5	18.5
9	---	---	---	---	---	---	20.0	16.0	17.0	20.0	18.0	19.0
10	---	---	---	---	---	---	---	---	---	21.0	18.5	19.5
11	---	---	---	---	---	---	16.5	14.0	15.5	21.5	19.0	20.0
12	---	---	---	---	---	---	19.5	15.0	17.5	24.0	19.5	21.5
13	---	---	---	---	---	---	18.5	16.0	17.0	24.5	20.0	22.0
14	---	---	---	---	---	---	17.0	15.0	16.0	24.0	20.0	22.0
15	---	---	---	---	---	---	20.5	14.5	17.5	22.0	20.0	21.0
16	---	---	---	---	---	---	20.0	15.0	17.5	22.5	19.0	21.0
17	---	---	---	---	---	---	21.0	17.5	19.0	25.5	20.5	22.5
18	---	---	---	---	---	---	19.0	16.5	17.5	25.5	21.0	23.0
19	---	---	---	---	---	---	17.0	14.5	15.5	24.0	21.0	22.5
20	---	---	---	---	---	---	17.5	14.5	16.0	24.0	21.0	22.0
21	---	---	---	---	---	---	16.0	13.5	15.0	25.0	21.0	22.5
22	---	---	---	---	---	---	15.0	13.5	14.5	23.0	21.5	22.0
23	---	---	---	---	---	---	19.0	14.0	16.5	25.0	21.0	22.5
24	---	---	---	---	---	---	19.0	15.0	17.0	22.5	21.0	22.0
25	---	---	---	---	---	---	20.0	16.0	18.0	28.0	21.0	23.0
26	---	---	---	---	---	---	20.5	17.0	18.5	28.5	21.5	24.0
27	---	---	---	---	---	---	20.5	17.0	19.0	28.5	21.5	24.0
28	---	---	---	---	---	---	19.0	16.5	18.0	29.0	22.0	24.0
29	---	---	---	---	---	---	19.0	15.5	17.5	28.0	22.0	24.5
30	---	---	---	---	---	---	21.0	16.0	18.0	27.0	22.5	24.0
31	---	---	---	---	---	---	---	---	---	27.0	22.5	24.0
MONTH	---	---	---	---	---	---	---	---	---	29.0	16.0	21.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.5	22.5	24.0	---	---	---	31.5	27.0	29.0	28.0	26.0	27.0
2	27.5	22.0	24.0	29.5	26.5	28.0	31.0	27.5	29.5	27.5	26.0	27.0
3	27.5	22.5	24.5	28.5	26.0	27.0	31.0	27.0	29.0	28.5	26.0	27.0
4	30.0	22.5	25.0	30.0	26.0	28.0	32.5	28.5	30.0	---	---	---
5	24.5	22.5	23.0	30.5	26.5	28.5	---	---	---	---	---	---
6	25.0	23.0	24.0	31.0	26.5	29.0	---	---	---	---	---	---
7	24.0	23.0	23.5	33.5	28.5	30.5	32.0	27.5	29.5	---	---	---
8	23.5	23.0	23.5	33.0	28.5	30.5	31.0	27.5	29.0	---	---	---
9	26.5	23.0	24.5	32.5	27.5	29.5	29.0	26.5	27.5	---	---	---
10	26.5	23.5	25.0	32.0	26.5	29.0	28.0	25.5	26.5	---	---	---
11	27.5	23.5	25.5	31.0	26.5	28.5	29.0	24.5	26.5	---	---	---
12	28.0	24.0	26.0	32.5	27.0	29.0	29.5	26.0	27.0	---	---	---
13	28.5	24.5	26.5	31.0	27.0	29.0	27.0	24.0	25.5	---	---	---
14	---	---	---	---	---	---	28.0	23.5	25.5	---	---	---
15	---	---	---	---	---	---	29.5	25.5	27.5	---	---	---
16	29.0	24.5	26.5	31.0	27.0	29.0	29.5	26.0	28.0	---	---	---
17	30.5	26.5	28.0	32.5	28.0	30.0	30.5	27.0	28.5	---	---	---
18	31.0	25.0	27.5	31.0	26.5	28.5	32.0	27.5	29.5	---	---	---
19	31.0	25.5	27.5	31.0	26.5	28.5	31.0	26.5	28.5	---	---	---
20	30.5	25.0	27.5	30.0	26.5	28.5	27.5	25.0	28.0	---	---	---
21	30.5	25.5	27.5	32.5	28.0	29.5	28.5	24.5	26.5	---	---	---
22	30.5	25.0	27.0	32.5	27.0	30.0	30.5	26.5	28.5	---	---	---
23	28.5	25.0	26.5	32.0	27.5	29.0	31.5	27.5	29.5	---	---	---
24	32.0	27.0	29.0	29.5	27.0	28.5	30.0	27.0	28.5	---	---	---
25	31.5	26.0	28.5	28.5	25.5	27.0	32.0	28.5	30.0	---	---	---
26	31.5	26.5	29.0	30.0	25.0	27.5	31.0	27.5	29.0	---	---	---
27	31.5	26.0	28.0	28.0	26.0	27.0	28.0	26.0	27.0	---	---	---
28	29.5	25.5	27.5	30.5	26.5	28.5	29.5	26.0	28.0	---	---	---
29	31.0	25.5	28.0	---	---	---	28.5	26.5	27.0	---	---	---
30	30.0	25.5	27.5	29.5	25.5	27.5	30.0	26.0	28.0	---	---	---
31	---	---	---	31.5	26.5	28.5	28.0	26.0	27.0	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07164800 JOE CREEK AT 81ST STREET AT TULSA, OK

LOCATION.-- Lat 36°04'32", long 95°57'37", in SE 1/4 SE 1/4 sec.31, T.19 N., R.13 E., Tulsa County, Hydrologic Unit 11110101, at right upstream abutment of 81st Street bridge, .2 mi west of Lewis Avenue, 4 mi north of Jenks and at mile 2.1.

DRAINAGE AREA.-- 12.2 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 820.98 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 7,990 ft³/s, Aug. 20, 1989, gage height, 7.81 ft, minimum daily discharge, 0.51 ft³/s, Aug. 9, 1989.

EXTREMES OUTSIDE PERIOD OF RECORD.-- 23,000 ft³/s, May 26, 1984, slope-area measurement at 71st Street, gage height undetermined at 81st Street.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 4,100 ft³/s, Sept. 4, gage height, 5.11 ft; minimum daily discharge, 0.90 ft³/s June 13, 18-21, 25-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.3	3.5	e3.0	1.3	18	16	7.8	12	1.1	1.4	5.6
2	1.7	2.3	46	e5.0	1.3	32	109	5.1	141	1.9	1.9	25
3	128	36	5.4	e3.0	1.3	7.7	102	196	2.2	13	2.3	37
4	3.3	197	2.3	e2.0	2.3	3.9	5.6	127	5.5	4.9	2.3	235
5	2.3	4.4	2.6	e40	25	3.9	3.7	17	118	3.0	2.3	5.1
6	2.3	2.9	2.0	e20	1.3	3.3	3.3	3.8	2.3	1.7	2.3	4.4
7	2.1	2.0	1.7	4.4	1.3	3.0	2.8	3.2	127	1.7	2.3	17
8	43	2.0	1.7	8.0	1.3	3.4	2.3	57	43	1.7	2.3	7.2
9	10	8.7	1.6	21	1.3	4.5	2.0	5.2	3.0	1.7	7.0	4.7
10	3.1	2.7	1.7	104	1.3	3.0	1.7	4.1	1.5	1.7	2.3	4.5
11	2.3	2.3	2.0	13	1.3	3.6	3.3	3.9	1.2	1.7	2.3	4.5
12	2.2	2.3	2.5	5.4	1.3	3.9	2.0	4.8	.99	1.7	3.0	4.5
13	2.3	2.3	2.0	4.9	1.3	3.5	2.0	5.6	.90	2.3	26	18
14	2.3	2.3	2.1	4.2	1.3	4.0	1.9	12	1.0	2.6	4.9	39
15	2.0	2.3	2.3	61	2.0	3.0	1.7	18	1.1	2.6	2.2	9.3
16	2.0	2.3	15	5.7	2.3	29	1.7	252	19	2.7	2.0	256
17	2.0	2.3	215	3.1	2.2	36	2.0	17	1.0	2.8	2.0	6.3
18	2.0	2.3	4.7	2.4	2.0	7.5	2.0	1.5	.90	2.1	2.0	322
19	2.0	2.3	1.8	19	1.9	8.5	2.0	4.6	.90	2.3	2.0	9.3
20	2.0	2.3	1.4	1.8	1.7	9.2	2.0	4.8	.90	7.1	2.1	4.8
21	2.0	4.4	e1.4	2.9	1.7	32	2.5	1.1	.90	1.3	3.8	4.5
22	2.0	3.5	e1.3	4.3	2.3	33	3.9	5.6	21	1.1	3.5	44
23	2.0	3.0	e1.3	1.3	2.0	13	7.3	11	2.9	1.8	3.5	4.5
24	2.0	2.8	e1.2	1.1	4.2	9.9	24	199	1.1	.93	18	5.9
25	2.0	2.6	e1.2	1.3	4.4	10	76	17	.90	38	5.6	4.7
26	2.0	4.6	e1.1	3.5	2.2	11	4.8	5.2	.90	1.8	20	3.9
27	2.0	4.3	e1.1	1.4	2.0	30	20	2.0	.90	15	3.7	3.5
28	2.0	3.0	e1.5	1.5	2.2	9.7	13	1.7	.90	3.1	2.6	3.5
29	2.0	3.0	e2.0	8.8	---	40	8.8	1.7	.90	1.7	70	3.5
30	2.1	3.2	e1.5	32	---	11	7.7	17	1.2	1.3	29	3.5
31	2.3	---	e1.4	1.4	---	13	---	2.3	---	1.3	24	---
TOTAL	239.0	317.7	332.3	390.4	76.0	403.5	435.0	1013.9	514.99	127.63	258.6	1100.7
MEAN	7.71	10.6	10.7	12.6	2.71	13.0	14.5	32.7	17.2	4.12	8.34	36.7
MAX	128	197	215	104	25	40	109	252	141	38	70	322
MIN	1.7	2.0	1.1	1.1	1.3	3.0	1.7	1.1	.90	.93	1.4	3.5
AC-FT	474	630	659	774	151	800	863	2010	1020	253	513	2180
CFSM	.63	.87	.88	1.03	.22	1.07	1.19	2.68	1.41	.34	.68	3.01
IN.	.73	.97	1.01	1.19	.23	1.23	1.33	3.09	1.57	.39	.79	3.36

CAL YR 1990 TOTAL 6983.43 MEAN 19.1 MAX 633 MIN .83 AC-FT 13810 CFSM 1.56 IN. 21.23
WTR YR 1991 TOTAL 5209.72 MEAN 14.3 MAX 322 MIN .90 AC-FT 10330 CFSM 1.17 IN. 15.89

e Estimated

ARKANSAS RIVER BASIN

79

07165000 HEYBURN LAKE NEAR HEYBURN, OK

LOCATION.-- Lat 35°58'49", 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 767.95 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 14,850 acre-ft, June 6, elevation, 768.07 ft; minimum, 5,920 acre-ft, Nov. 3, elevation 760.04 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6110	5930	6300	7040	7210	7100	7020	7310	7520	7180	6490	6080
2	6100	5920	6330	7030	7210	7110	7100	7290	7620	7170	6460	6080
3	6200	6040	6320	7030	7200	7100	7460	7310	7570	7170	6430	6080
4	6230	6320	6310	7030	7200	7100	7500	7350	7500	7140	6410	6210
5	6230	6350	6290	7050	7210	7110	7470	7320	14820	7110	6380	6240
6	6220	6360	6290	7160	7210	7100	7430	7310	12310	7100	6360	6240
7	6220	6360	6290	7190	7200	7100	7390	7280	10430	7080	6330	6240
8	6230	6360	6280	7210	7200	7100	7360	7330	9680	7050	6320	6220
9	6230	6370	6270	7250	7190	7080	7320	7340	8980	7030	6300	6210
10	6220	6360	6280	7470	7190	7050	7280	7340	8420	6990	6280	6210
11	6200	6360	6270	7590	7180	7050	7260	7330	8080	6970	6270	6180
12	6200	6360	6270	7550	7180	7070	7250	7300	7860	6950	6250	6170
13	6170	6350	6270	7510	7180	7040	7260	7280	7700	6920	6300	6140
14	6170	6330	6270	7490	7150	7020	7250	7260	7590	6910	6300	6130
15	6160	6320	6270	7620	7130	7020	7210	7240	7530	6870	6280	6120
16	6140	6320	6270	7650	7100	7020	7190	7240	7520	6860	6270	6170
17	6140	6320	6830	7590	7100	7040	7200	7240	7450	6830	6260	6170
18	6120	6310	6970	7530	7120	7040	7200	7230	7410	6800	6240	7000
19	6080	6310	7000	7480	7100	7040	7190	7210	7360	6760	6210	7080
20	6090	6300	7020	7430	7100	7040	7160	7430	7320	6730	6200	7080
21	6070	6290	7010	7380	7100	7060	7160	7700	7290	6700	6190	7050
22	6060	6290	6990	7350	7100	7060	7160	7810	7270	6670	6170	7100
23	6050	6290	6980	7330	7090	7040	7150	8090	7360	6650	6150	7120
24	6030	6280	6970	7310	7100	7040	7170	8930	7390	6620	6130	7120
25	6020	6270	6970	7290	7090	7030	7180	8660	7360	6590	6110	7100
26	6000	6270	6970	7270	7080	7040	7190	8240	7320	6570	6090	7100
27	5990	6330	6980	7270	7060	7060	7190	7950	7290	6590	6080	7070
28	5980	6330	7000	7270	7060	7060	7210	7750	7270	6580	6050	7050
29	5970	6320	7040	7260	---	7050	7350	7610	7230	6560	6040	7040
30	5950	6290	7040	7250	---	7040	7340	7580	7190	6530	6050	7030
31	5950	---	7040	7210	---	7040	---	7540	---	6510	6050	---
MAX	6230	6370	7040	7650	7210	7110	7500	8930	14820	7180	6490	7120
MIN	5950	5920	6270	7030	7060	7020	7020	7210	7190	6510	6040	6080
(+)	760.08	760.53	761.42	761.82	761.45	761.42	761.76	761.99	761.60	760.80	760.22	761.41
(++)	-180	+340	+750	+170	-150	-20	+300	+200	-350	-680	-460	+980

CAL YR 1990 MAX 20880 MIN 5700 (++) +70

WTR YR 1991 MAX 14820 MIN 5920 (++) +920

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

ARKANSAS RIVER BASIN

07185582 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 at low flow, fair at high flows.

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 1,290 ft³/s, Sept. 4, gage height, 14.75 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.00	1.3	.00	.75	5.3	4.3	.40	3.6	e.00	.28	4.8
2	.00	.00	14	.00	.75	3.3	6.4	.16	54	e.00	.05	4.7
3	163	.00	21	.00	.75	4.4	123	134	5.4	e.00	.00	4.0
4	6.7	167	1.9	.00	1.1	1.3	8.4	29	3.3	e.00	.00	369
5	.26	4.0	1.3	2.5	3.8	.16	3.0	62	179	e.00	.00	2.2
6	.02	.79	1.1	63	1.7	.60	2.8	4.0	9.5	e.00	.00	25
7	.00	.36	1.3	8.7	.40	1.6	2.5	2.9	87	e.00	.00	8.1
8	15	.86	2.2	2.2	.00	2.6	2.9	32	230	e.00	.00	5.3
9	6.4	1.9	1.4	15	.34	2.5	3.5	4.7	7.1	e.00	.00	1.7
10	.88	1.5	1.3	201	1.0	2.6	3.6	3.2	3.6	e.00	.00	.66
11	.00	1.2	1.3	34	.57	2.7	5.0	3.1	3.1	e.00	.00	.14
12	.00	1.1	1.7	5.1	.72	2.7	4.7	3.3	2.8	e.00	.00	.80
13	.00	.81	1.8	3.4	1.3	2.7	4.5	3.9	2.6	e.00	1.1	.30
14	.00	.43	1.8	3.0	1.5	2.8	5.3	3.6	2.4	e.00	2.5	.00
15	.00	.14	2.1	57	1.4	2.8	3.7	3.3	2.4	e.00	1.3	.00
16	.00	.10	2.9	8.9	1.3	2.9	2.8	28	4.3	e.00	.28	111
17	.00	.00	223	1.9	1.3	11	.66	34	3.0	e.00	.00	3.8
18	.00	.00	13	1.1	1.6	2.6	.00	4.6	2.3	e.00	.00	331
19	.00	.00	2.9	1.4	1.8	1.8	.55	3.5	1.9	e.10	.00	13
20	.00	.00	2.1	.69	1.8	1.5	1.8	9.4	1.5	e1.0	.00	2.4
21	.00	.00	1.9	.00	2.0	51	2.1	4.9	e1.0	e3.0	.00	3.3
22	.00	.00	.74	.00	2.1	31	2.8	4.2	e7.0	e.00	.00	50
23	.00	.59	.00	.00	2.5	6.9	2.9	5.5	e2.0	e.00	.00	7.2
24	.00	.64	.00	.00	2.6	3.5	.00	129	e.90	e.00	.00	3.5
25	.00	.00	.00	.00	3.8	3.5	23	31	e.20	e165	.00	2.4
26	.00	.00	2.4	.20	3.6	5.1	3.2	4.9	e.30	e5.0	.00	1.6
27	.00	.70	1.4	.50	3.2	10	2.7	3.7	e.10	e15	.03	1.0
28	.00	1.4	2.5	.91	3.2	8.4	1.7	3.3	e.00	e7.0	.00	.71
29	.00	1.3	12	.60	---	11	2.2	3.0	e.00	e3.0	.00	.04
30	.00	1.3	2.7	1.2	---	2.9	.33	61	e.00	e1.0	.00	.00
31	.00	---	.05	1.0	---	1.6	---	5.8	---	.12	5.7	---
TOTAL	192.67	186.12	323.09	411.30	46.88	192.76	230.14	625.36	620.30	200.22	11.24	957.65
MEAN	6.22	6.20	10.4	13.3	1.67	6.22	7.67	20.2	20.7	6.46	.36	31.9
MAX	163	167	223	201	3.8	51	123	134	230	165	5.7	369
MIN	.00	.00	.00	.00	.00	.16	.00	.16	.00	.00	.00	.00
AC-FT	382	369	641	816	93	382	456	1240	1230	397	.22	1900
CFSM	.35	.35	.59	.75	.09	.35	.43	1.13	1.16	.36	.02	1.79
IN.	.40	.39	.68	.86	.10	.40	.48	1.31	1.30	.42	.02	2.00

CAL YR 1990 TOTAL 9771.46 MEAN 26.8 MAX 1620 MIN .00 AC-FT 19380 CFSM 1.50 IN. 20.42
WTR YR 1991 TOTAL 3997.73 MEAN 11.0 MAX 369 MIN .00 AC-FT 7930 CFSM .62 IN. 8.35

e Estimated

ARKANSAS RIVER BASIN

81

0716566 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 upstream 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 fair.

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, 572 ft³/s, Sept. 4, gage height, 12.25 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.04	.72	.07	.44	.55	1.5	3.0	.00	.01	.01	2.0
2	.04	.04	11	.09	.36	.79	2.9	.19	27	.00	.01	5.4
3	44	.03	1.5	.10	.39	1.2	25	36	.01	.00	.00	8.7
4	1.4	36	.56	.04	.50	.01	.29	21	.00	.00	.00	90
5	.46	.31	.76	1.5	2.0	.00	.01	3.8	33	.00	.00	.69
6	.35	.00	.77	7.0	.42	.00	.00	.00	.21	.04	.00	.24
7	.22	.00	.77	.30	.50	.01	.02	.00	39	.10	.00	1.4
8	3.1	.00	.77	.22	.48	.01	.04	3.0	29	.05	.01	2.5
9	1.1	.43	.77	2.8	.48	.00	.04	.00	.33	.04	.03	.27
10	.09	.06	.94	37	.49	.00	.03	.00	.00	.01	.00	.08
11	.02	.06	.96	2.5	.58	.01	.19	.00	.00	.02	.01	.12
12	.04	.06	.96	.51	.55	.03	.10	.00	.00	.10	.00	.05
13	.10	.04	1.0	.22	.43	.00	.12	.00	.00	.12	.13	.03
14	.14	.03	1.2	.09	.36	.02	.18	.00	.03	.11	.06	.72
15	.13	.10	1.2	8.2	.28	.01	.16	.00	.05	.06	.02	.51
16	.16	.12	4.2	.19	.23	.24	.14	24	6.7	.03	.00	45
17	.15	.07	56	.00	.29	8.2	.12	1.8	.05	.03	.00	1.9
18	.11	.08	4.1	.00	.28	.02	.11	.00	.02	.03	.00	110
19	.05	.08	4.0	.23	.21	.00	.21	.00	.05	.03	.00	3.3
20	.04	.07	1.9	.00	.16	.00	.42	.00	.07	.71	.02	.38
21	.02	.14	.42	.00	.12	26	.35	.00	.07	.91	.05	.30
22	.00	1.1	.38	.00	.18	2.4	.97	.00	5.4	.10	.02	18
23	.00	.61	.28	.00	.13	.02	.04	.57	.17	.02	.00	2.4
24	.01	.52	.24	.06	.08	.09	.59	24	.08	.01	.00	1.5
25	.00	.52	.23	.20	.20	.15	5.8	.73	.03	38	.00	.85
26	.00	.66	.23	.36	.10	.33	.74	.00	.07	.89	.00	.25
27	.00	1.6	.43	.26	.05	2.3	.27	.00	.03	3.6	.52	.10
28	.00	1.5	.59	.32	.01	1.0	.01	.00	.02	2.5	2.0	.02
29	.00	.82	3.1	.65	---	3.7	.34	.00	.01	.67	.19	.00
30	.00	.76	.23	.56	---	1.6	2.7	13	.01	.27	.15	.00
31	.00	---	.08	.44	---	1.2	---	.00	---	.03	9.9	---
TOTAL	51.81	45.85	100.28	63.91	10.30	49.89	43.97	131.09	141.41	48.49	13.13	296.71
MEAN	1.67	1.53	3.23	2.06	.37	1.61	1.47	4.23	4.71	1.56	.42	9.89
MAX	44	36	56	37	2.0	26	25	36	39	38	9.9	110
MIN	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
AC-FT	103	91	199	127	20	99	87	260	280	96	26	589
CFSM	.31	.28	.59	.38	.07	.30	.27	.78	.86	.29	.08	1.81
IN.	.35	.31	.68	.44	.07	.34	.30	.89	.97	.33	.09	2.03

CAL YR 1990 TOTAL 2488.19 MEAN 6.82 MAX 374 MIN .00 AC-FT 4940 CFSM 1.25 IN. 16.98
WTR YR 1991 TOTAL 996.84 MEAN 2.73 MAX 110 MIN .00 AC-FT 1980 CFSM .50 IN. 6.80

e Estimated

ARKANSAS RIVER BASIN

07165670 ARKANSAS RIVER NEAR HASKELL, OK

LOCATION.-- Lat 35°49'15", long 95°38'19", in SW 1/4 NW 1/4 sec. 32, T.18 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. Except for 858 mi² intervening area, flow regulated by Keystone Lake (station 07164200) 55.1 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 19 years, 9,482 ft³/s, 8,870,000 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, 17,900 ft³/s, June 8, gage height, 9.66 ft; minimum daily discharge, 359 ft³/s, Apr. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	853	867	e850	1550	1930	835	477	5820	6510	2720	1150	1160
2	e630	984	1130	1720	2330	579	359	5790	5350	1190	1760	1030
3	1590	e720	e800	1150	2250	790	1040	6520	3910	1520	1410	5950
4	1390	1200	e650	1600	673	630	1910	6690	5560	1940	1930	3740
5	1680	1620	1020	1160	803	478	1890	6480	6010	1350	980	2930
6	2450	1040	1020	1770	1920	1100	2810	6120	9860	1240	753	2530
7	1550	1310	1070	1380	1350	1360	2010	5820	13700	1220	1290	1590
8	872	1170	1270	1160	1310	1890	1880	4210	16700	948	2740	2440
9	749	815	1100	843	1680	1060	2010	4570	15800	956	3380	1710
10	2020	2070	e800	1870	2120	992	2010	4550	12200	2090	2600	1780
11	1870	1550	e700	2680	640	592	1060	3380	11600	2740	1080	4300
12	863	e600	880	1760	534	485	1920	3880	13200	3060	749	4850
13	1050	799	600	1510	1230	825	1940	4270	12200	2540	687	5360
14	1490	1120	665	920	1240	509	1770	5230	4060	2090	1320	5210
15	841	765	770	1160	919	912	1640	7640	1650	1050	888	5270
16	e700	1030	810	3590	545	906	731	6410	1640	811	957	3890
17	1600	1550	728	3930	1450	878	2060	3410	3270	1240	1160	4180
18	1900	905	1410	2420	1000	732	1650	3320	2990	1220	1420	3640
19	1730	1120	1570	1740	1050	958	1750	3600	4330	2340	891	4490
20	e820	985	1120	1740	1240	984	1540	4030	4130	2200	655	3150
21	1160	1350	738	1620	1790	786	1620	4630	3920	2300	854	1890
22	e730	1320	683	1110	1820	1470	1190	3220	3570	1040	856	2070
23	e600	1110	773	1760	1840	802	716	2430	3860	981	855	1840
24	932	950	1010	1980	1540	904	2050	2300	2780	2790	761	1710
25	e550	1120	1040	1650	504	474	2710	7840	1920	2700	1300	1740
26	954	e820	1480	1230	539	504	3130	6430	2640	1950	856	3170
27	1010	e700	1170	1160	2290	994	3750	5210	2820	1070	630	3360
28	1130	1410	1690	646	636	852	3560	4790	4340	1320	768	3320
29	1400	1370	826	763	---	957	3600	5780	6170	953	969	2290
30	e600	1220	2020	1820	---	521	3670	6310	3680	757	1620	1580
31	937	---	1530	2010	---	853	---	6030	---	1470	1000	---
TOTAL	36451	33590	31923	51402	37153	26392	58453	156710	190370	51796	38269	92170
MEAN	1176	1120	1030	1658	1327	851	1948	5055	6346	1671	1234	3072
MAX	2450	2070	2020	3930	2330	1690	3750	7840	16700	3060	3380	5950
MIN	550	600	600	646	504	465	359	2300	1640	757	630	1030
AC-FT	72300	66630	63320	102000	73690	52350	115900	310800	377600	102700	75910	182800

CAL YR 1990 TOTAL 3050256 MEAN 8357 MAX 55200 MIN 150 AC-FT 6050000
WTR YR 1991 TOTAL 804679 MEAN 2205 MAX 16700 MIN 359 AC-FT 1596000

e Estimated

ARKANSAS RIVER BASIN

83

07171000 VERDIGRIS RIVER NEAR LENAPAH, OK

LOCATION.-- Lat 36°51'04", long 95°35'09", NE 1/4, SW 1/4, 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, 4.6 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 644.90 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- No estimated daily discharges. Records good. 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, 25 years (water years 1967-91), 2,680 ft³/s, 1,942,000 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, 7,840 ft³/s, Apr. 27, gage height, 11.69 ft; minimum daily discharge, 5.5 ft³/s, July 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	36	50	282	143	71	30	1690	3750	23	110	31
2	48	35	49	257	114	71	28	1220	3000	18	71	47
3	47	35	49	252	105	67	41	976	2310	15	51	44
4	319	125	53	247	101	82	54	1680	2040	12	40	67
5	366	367	50	249	101	59	57	4110	2090	10	31	181
6	171	742	45	257	99	57	51	3850	2540	8.2	24	88
7	117	441	43	260	124	56	50	1740	2170	7.4	19	62
8	96	258	42	255	786	54	50	1110	2240	6.9	15	75
9	102	185	41	305	808	56	48	2100	2260	6.7	19	124
10	136	176	42	696	804	57	47	2330	2250	6.2	20	71
11	133	280	41	902	793	53	44	1710	2130	5.6	46	45
12	109	252	40	891	791	50	40	1210	2070	5.5	53	35
13	97	175	38	838	793	46	42	620	1770	7.3	44	29
14	86	132	40	843	778	46	133	616	1040	15	34	25
15	77	109	41	1180	757	45	332	877	486	30	27	22
16	70	92	133	2010	537	45	281	770	1820	38	22	30
17	62	81	340	1440	254	54	232	693	1280	42	18	34
18	60	72	352	1020	235	77	1330	380	368	38	15	32
19	57	68	300	623	230	79	1350	278	260	31	13	51
20	51	65	298	408	231	76	809	206	188	27	11	61
21	47	61	281	324	217	75	556	417	402	22	9.9	48
22	45	63	268	269	122	74	372	600	342	20	8.9	38
23	41	62	261	234	73	71	274	469	191	19	8.0	33
24	39	62	272	209	55	66	235	708	128	18	13	27
25	39	63	254	195	53	57	439	2320	92	20	20	23
26	39	62	260	202	63	50	405	2580	68	33	35	19
27	35	70	257	201	71	46	4510	2040	54	37	35	18
28	35	72	257	193	71	42	3600	1920	44	52	32	16
29	34	58	270	192	---	37	2890	1790	36	131	42	14
30	34	54	272	191	---	33	3400	2550	29	379	41	13
31	35	---	305	176	---	30	---	3790	---	197	33	---
TOTAL	2685	4353	5044	15601	9309	1762	21730	47330	37448	1280.8	960.8	1403
MEAN	86.6	145	163	503	332	56.8	724	1527	1248	41.3	31.0	46.8
MAX	366	742	352	2010	808	79	4510	4110	3750	379	110	181
MIN	34	35	38	176	53	30	28	206	29	5.5	8.0	13
AC-FT	5330	8630	10000	30940	18460	3490	43100	93800	74280	2540	1910	2780

CAL YR 1990 TOTAL 1145103 MEAN 3137 MAX 34800 MIN 15 AC-FT 2271000
WTR YR 1991 TOTAL 148906.6 MEAN 408 MAX 4510 MIN 5.5 AC-FT 295400

ARKANSAS RIVER BASIN

07171300 OOLOGAH LAKE NEAR OOLOGAH, OK

LOCATION.-- 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 control 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. 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, 1,751,000 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, 602.67 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 686,300 acre-ft, May 8, elevation, 642.03 ft; minimum, 486,000 acre-ft, Sept. 14, elevation, 635.72 ft.

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

635	489,400	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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	542300	540100	551900	568800	623500	627200	619700	670300	606500	541300	510100	491700
2	540700	541000	552500	567400	623500	627800	620700	668200	602600	541000	509200	493800
3	548900	546200	552500	568000	625100	628500	625800	668600	596300	540100	508600	502700
4	549200	550400	549500	567700	625100	627200	626500	671400	591700	538600	508100	497500
5	548000	549500	549800	568400	625500	627800	626500	684200	596000	536500	506700	497000
6	548300	552900	551300	570300	625500	627500	624800	686000	594700	535600	506100	496700
7	550700	552500	549500	570300	625100	626500	625100	685200	594000	534700	504700	494700
8	553500	553200	549500	570600	625500	625800	626200	685200	594700	533800	504100	493800
9	554100	552200	548900	572500	626800	624800	625100	684200	590400	531100	503800	494400
10	551000	551900	548000	576900	629500	622100	624500	684200	586200	529900	503000	494700
11	551300	552500	548300	582000	629200	621400	622800	683200	581300	528400	501800	493600
12	551800	552900	553500	583500	627500	623100	620700	680000	576600	529300	500700	493600
13	550100	552200	549200	586200	626200	623500	622800	678900	568000	528100	502100	488700
14	551800	551300	548000	589800	626200	623100	623100	675500	563600	527100	502700	487100
15	550100	551300	548900	599900	633300	622100	622100	674100	559200	526500	501800	493000
16	546500	554700	549500	608200	633300	622800	622400	675200	558200	525300	500700	495600
17	551300	554700	556600	611800	633300	623800	623800	674500	556600	524100	500100	495800
18	548900	552500	559200	614700	633300	623500	632900	673800	554400	522900	500700	497500
19	542600	551900	558900	616700	632200	620700	636600	672700	551600	520600	498700	496700
20	548300	550100	564200	621400	630600	619400	636600	670300	548600	519200	497300	495300
21	548900	553200	564900	620100	631900	620400	637000	667900	549200	518900	496100	494700
22	547700	553200	564900	619700	630200	617000	636000	670000	549800	518000	495800	495800
23	547700	551600	562000	621400	630900	617700	633900	669300	550400	518000	495800	495600
24	548300	551600	561100	621400	633300	619400	636000	664100	549200	517200	495000	495300
25	546500	549500	562000	623100	632900	618000	637000	660900	548000	515200	494100	494400
26	544400	548900	561700	623800	628900	619100	640700	657500	545900	513200	493800	493600
27	546500	552200	561100	623800	626800	621800	656100	652200	546200	512600	492200	491900
28	544400	553200	563300	624500	625800	624100	660600	642100	542900	513200	491900	492200
29	543200	551900	567400	628200	---	624800	665800	621800	541600	512300	491700	491400
30	542900	548600	566800	625100	---	620100	668200	612400	540700	510600	491700	491400
31	541600	---	566100	624100	---	620100	---	609500	---	510600	491900	---
MAX	554100	554700	567400	628200	633300	628500	668200	686000	606500	541300	510100	502700
MIN	540700	540100	548000	566800	623500	617000	619700	609500	540700	510600	491700	487100
(+)	637.65	637.88	638.44	640.22	640.27	640.10	641.51	639.78	637.62	636.60	635.94	635.92
(++)	-3,200	+7,000	+17,500	+58,000	+1,700	-5,700	+48,100	-58,700	-68,800	-30,100	-18,700	-500

CAL YR 1990 MAX 1127000 MIN 534100 (++) +16,200

WTR YR 1991 MAX 686000 MIN 487100 (++) -53,400

(+) ELEVATION, IN FEET, AT END OF MONTH

(++) CHANGE IN CONTENTS, IN ACRE-FEET

ARKANSAS RIVER BASIN

85

07171400 VERDIGRIS RIVER NEAR OOLOGAH, OK

LOCATION.-- 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 poor. 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.

COOPERATION.-- Gage-height record and four discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.-- Since regulation by Oologah Lake, 27 years (water years 1965-91), 2,950 ft³/s, 2,137,000 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, 9,260 ft³/s, May 30, gage height, 21.32 ft; minimum daily discharge, 5.8 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	14	15	89	e153	e204	e100	e1490	4710	104	43	34
2	10	15	14	89	e160	e210	e92	e1130	4720	104	43	35
3	51	16	15	89	e160	e226	e156	e1490	4710	104	43	39
4	14	63	15	89	e176	e214	e189	e1490	4170	104	44	38
5	11	13	15	89	e162	e162	e195	e1800	3270	105	44	37
6	11	11	14	89	e182	e172	e182	e2040	3010	107	45	37
7	11	12	14	91	e179	e153	e171	e2210	3040	106	43	37
8	11	11	15	91	e182	e128	e179	e2240	3900	104	44	37
9	11	12	14	91	e190	e122	e182	e2180	3870	103	44	37
10	11	13	13	197	e236	e96	e173	e2170	3860	101	42	37
11	11	13	13	139	e234	e59	e134	e2150	3850	102	43	37
12	11	13	13	89	e225	e54	e133	e2030	3830	101	43	35
13	13	13	14	87	e202	e98	e124	e2220	3830	100	43	34
14	13	13	13	87	e191	e92	e148	e1760	3170	99	39	34
15	12	14	15	155	e251	e82	e142	e1070	2400	99	32	37
16	12	14	15	115	e292	e82	e126	1030	2390	99	32	37
17	12	15	100	88	e292	e91	e139	1020	2390	100	32	22
18	12	15	35	86	e292	e93	e230	1010	1930	99	32	12
19	12	15	14	86	e287	e88	e414	1010	1050	101	34	9.7
20	12	15	13	86	e256	e87	e611	1000	637	101	37	8.2
21	12	15	50	86	e262	e107	e610	1070	148	101	37	6.8
22	12	15	86	86	e271	e54	e612	88	98	101	37	6.5
23	13	15	86	86	e248	e66	e562	1290	96	100	37	6.3
24	14	15	86	e105	e286	e81	e579	3100	97	99	38	6.3
25	13	15	86	e131	e290	e82	e614	3440	100	81	37	6.7
26	12	15	86	e163	e268	e83	e586	4040	102	43	37	6.7
27	12	16	86	e159	e213	e100	e936	4010	99	45	35	6.7
28	12	15	86	e162	e181	e148	e1230	5550	98	45	32	6.7
29	13	14	87	e216	---	e166	e1320	9180	97	44	32	6.2
30	13	14	86	e193	---	e136	e1450	8260	103	43	32	5.8
31	14	---	86	e172	---	e100	---	4730	---	41	34	---
TOTAL	409.7	469	1316	3581	6339	3636	12319	77298	65775	2786	1190	698.6
MEAN	13.2	15.6	42.5	116	226	117	411	2493	2192	89.9	38.4	23.3
MAX	51	63	100	216	292	226	1450	9180	4720	107	45	39
MIN	8.7	11	13	86	153	54	92	88	96	41	32	5.8
AC-FT	813	930	2610	7100	12570	7210	24430	153300	130500	5530	2360	1390

CAL YR 1990 TOTAL 1270412.6 MEAN 3481 MAX 25800 MIN 2.7 AC-FT 2520000
WTR YR 1991 TOTAL 175617.3 MEAN 482 MAX 9180 MIN 5.8 AC-FT 348700

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, 47,920 acre-ft, June 9, elevation 737.19 ft; minimum, 20,600 acre-ft, Apr. 12, elevation 729.72 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24900	24240	24670	24140	24450	23430	21310	37660	33670	32280	29400	26310
2	24930	24050	24710	24050	24450	23280	21120	34310	33900	32170	29290	26210
3	24930	24300	24580	24020	24420	23220	21310	32750	33820	32060	29160	26140
4	24930	25370	24580	24110	24420	23100	21260	33300	33450	31950	28990	26040
5	24930	25280	24420	24080	24390	23100	21210	33410	41160	31770	28850	25950
6	24930	25210	24390	24050	24330	22970	21140	33600	43910	31630	28750	25910
7	24930	25210	24360	24000	24390	22910	21060	33530	44930	31480	28610	25850
8	24930	25370	24240	24050	24390	22850	21090	33410	46150	31340	28440	25720
9	24890	25440	24200	24080	24330	22820	21030	33260	47780	31160	28340	25630
10	24930	25470	24200	24300	24300	22730	20860	33080	45500	30940	28140	25580
11	25980	25470	24140	24170	24200	22610	20720	33260	41690	31880	28030	25470
12	25910	25500	24140	24240	24300	22730	20720	33380	37620	31770	27860	25370
13	25950	25530	24110	24270	24170	22500	21030	33450	34570	31880	28140	25250
14	25850	25500	24170	24270	24190	22380	20970	33490	33380	31770	27970	25090
15	25790	25440	24140	24450	24080	22320	20830	33530	35210	31630	27830	25150
16	25720	25410	24170	24450	24050	22380	20780	34010	35020	31480	27690	25120
17	25760	25340	24360	24550	23960	22470	21760	34050	34790	31370	27560	24930
18	25530	25310	24300	24610	23930	22380	21670	33490	33900	31230	27480	24830
19	25440	25280	24270	24610	23830	22290	21780	32890	32890	31010	27300	24670
20	25370	25210	24330	24580	23770	22230	21840	33750	32460	30840	27160	24560
21	25210	25180	24270	24610	23770	22170	21960	33670	32460	30730	27070	24450
22	25090	25210	24240	24580	23680	22110	22020	33930	32640	30560	26970	24390
23	24990	25150	24170	24550	23590	22050	22080	36400	32680	30520	26870	24200
24	24930	25090	24170	24550	23580	21960	22520	42110	32710	30490	26800	24110
25	24930	25060	24140	24550	23560	21810	23030	42310	32750	30280	26670	24020
26	24800	24990	24170	24580	23470	21780	35100	41730	32750	30170	26540	23900
27	24670	24900	24170	24550	23430	21700	42020	41110	32640	30060	26670	23800
28	24610	24740	24170	24550	23340	21640	44340	39730	32640	30100	26500	23680
29	24520	24870	24200	24520	---	21490	44720	37660	32530	29960	26470	23560
30	24420	24740	24140	24450	---	21460	41490	35600	32350	29780	26410	23470
31	24360	---	24140	24450	---	21370	---	33900	---	29610	26310	---
MAX	25980	25530	24710	24610	24450	23430	44720	42310	47780	32280	29400	26310
MIN	24360	24050	24110	24020	23340	21370	20720	32750	32350	29610	26310	23470
(+)	730.98	731.10	730.91	731.01	730.65	729.99	735.69	733.76	733.34	732.57	731.59	730.69
(++)	-740	+380	-600	+310	-1,110	-1,970	+20,120	-7,590	-1,550	-2,740	-3,300	-2,840
CAL YR 1990	MAX 176200	MIN 24050	(++)	-0,360								
WTR YR 1991	MAX 47780	MIN 20720	(++)	-1,630								

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

ARKANSAS RIVER BASIN

87

07173000 CANEY RIVER NEAR HULAH, OK

LOCATION.-- 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 11070100, 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 894.00 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 9.04 ft lower. Oct. 1, 1948 to Sept. 30, 1972, at site 0.6 mi downstream at datum 12.04 ft lower. Oct. 1, 1972, to Sept. 30, 1989, at same site and datum 5.00 ft higher.

REMARKS.-- Records fair. 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, 41 years (water years 1951-91), 398 ft³/s, 286,900 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, 2,240 ft³/s, June 11, gage height, 5.51 ft; minimum daily discharge, 2.0 ft³/s, Dec. 11-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	20	23	16	17	13	13	e1920	e264	22	e21	24
2	21	20	23	11	17	13	14	e1620	e264	22	16	24
3	22	20	23	6.3	17	13	14	e671	e264	21	16	19
4	22	22	23	6.2	17	13	14	e12	e264	21	17	14
5	22	22	23	6.2	17	13	14	e12	e113	22	17	14
6	22	21	23	6.2	17	14	14	e12	e14	30	17	14
7	20	e18	23	6.2	17	13	15	89	e644	22	17	14
8	20	e18	23	6.2	17	13	15	232	e1540	22	17	14
9	20	e18	23	6.2	17	13	15	231	e1550	22	18	14
10	23	e18	13	6.2	16	13	18	146	e1890	23	17	13
11	23	e18	e2.0	6.2	16	13	16	11	2190	25	17	12
12	23	e18	e2.0	6.2	16	13	16	11	2140	28	17	13
13	23	e18	2.0	6.2	17	12	16	12	1310	21	21	15
14	23	e18	e2.0	6.2	16	12	16	12	463	21	19	17
15	23	e18	e2.0	6.2	16	12	15	12	208	21	19	17
16	23	e18	e2.0	12	16	12	16	14	208	21	19	19
17	22	e19	e2.0	17	16	12	16	86	257	21	19	19
18	22	e19	e2.0	17	16	12	15	249	322	21	18	19
19	22	e19	e2.0	17	16	12	15	243	321	21	18	20
20	22	e19	e2.0	17	16	14	15	123	141	21	18	20
21	22	e19	e2.0	17	16	12	14	12	21	21	18	20
22	22	e19	e2.0	17	16	12	14	93	24	21	18	21
23	21	e19	28	17	16	9.9	14	246	20	27	18	21
24	20	e19	28	17	16	12	15	280	20	26	18	20
25	20	e19	28	17	16	13	15	286	20	23	18	20
26	20	22	27	17	16	13	21	284	20	26	31	21
27	20	24	28	17	16	12	32	281	21	26	28	24
28	20	23	5.5	17	13	12	18	e772	22	27	15	37
29	20	23	5.6	17	---	13	e883	e1010	22	27	14	37
30	20	23	8.0	17	---	13	e1950	e1000	22	26	15	38
31	20	---	15	17	---	13	---	e696	---	e27	23	---
TOTAL	684	591	417.1	374.7	455	389.9	3278	10678	14579	725	574	594
MEAN	21.4	19.7	13.5	12.1	16.2	12.6	109	344	486	23.4	18.5	19.8
MAX	23	24	28	17	17	14	1950	1920	2190	30	31	38
MIN	20	18	2.0	6.2	13	9.9	13	11	14	21	14	12
AC-FT	1320	1170	827	743	902	773	6500	21100	28920	1440	1140	1180

CAL YR 1990 TOTAL 205768.1 MEAN 584 MAX 3740 MIN 2.0 AC-FT 408100
WTR YR 1991 TOTAL 33319.7 MEAN 91.3 MAX 2190 MIN 2.0 AC-FT 66090

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 11070100, 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. U.S. Army Corps of Engineers' satellite telemeter at station.

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, 51,240 acre-ft, May 27, elevation, 711.54 ft; minimum, 33,940 acre-ft, Sept. 29, elevation, 707.92 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38420	37500	39020	38560	39770	39160	37760	47790	43500	42460	39110	35950
2	38200	37630	38930	38470	39770	39160	37360	45750	43800	42410	38930	35820
3	38800	38420	38830	38420	39770	38800	37980	45650	43750	42270	38930	35990
4	39110	38420	38560	38510	39820	38780	37850	46940	43750	42880	38880	35910
5	39110	38830	38550	38560	39870	38880	37850	48810	43900	41940	38560	35730
6	39020	39300	38550	38560	39870	38880	37850	48190	43900	41800	38470	35640
7	39110	38970	38560	38560	39820	38740	37760	46540	43900	41680	38290	35550
8	39440	39110	38560	38600	39870	38690	37850	45600	44250	41560	38250	35420
9	39280	39210	38510	38500	39910	38650	37670	44300	44800	41370	38120	35330
10	39110	39300	38470	38740	39820	38470	37450	43400	44850	41190	37940	35240
11	39110	39350	38420	38780	39730	38380	37360	43450	45050	41370	37850	35200
12	39020	39440	38690	38740	39820	38550	37360	43600	45250	41140	37760	35110
13	38970	39440	38470	38800	39820	38560	38030	43600	45100	41280	37630	35020
14	38970	39440	38380	38800	39680	38290	37980	43850	44800	41090	37580	34980
15	38930	39400	38380	39110	39400	38290	37940	43850	45350	41040	37410	35290
16	38740	39400	38340	39300	39210	38340	37980	44250	49600	40900	37360	35240
17	38880	39300	38740	39440	39300	38560	38930	44350	49130	40720	37230	35110
18	38560	39300	38560	39490	39580	38470	39350	44150	47390	40570	37100	35020
19	38290	39300	38550	39580	39350	38420	39400	43900	45450	40430	36970	34890
20	38510	39070	38930	39680	39260	38380	39400	43700	44050	40240	36790	34760
21	38380	39490	38600	39580	39300	38510	39490	44850	43600	40150	36700	34580
22	38290	39300	38510	39630	39260	38380	39490	45150	43500	39960	36610	34670
23	38250	39300	38380	39680	39440	38290	39580	45990	43500	40060	36610	34580
24	38200	39300	38470	39680	39260	38250	39680	47590	43400	40150	36480	34540
25	38120	39260	38380	39820	39070	38070	39770	50240	43260	39870	36390	34360
26	37980	38930	38380	39730	39110	37670	40570	51030	43160	39730	36260	34360
27	38030	39210	38380	39770	38930	38070	45800	51190	43070	39630	36260	34310
28	37980	39160	38470	39870	38830	38160	48500	50000	42880	39630	36170	34110
29	37850	38930	38510	39910	---	38030	49920	47590	42790	39490	36080	34150
30	37890	38830	38510	39820	---	37850	49710	45150	42510	39300	36080	34110
31	37760	---	38510	39770	---	37850	---	43650	---	39160	35910	---
MAX	39440	39490	39020	39910	39910	39160	49920	51190	49600	42460	39110	35990
MIN	37760	37500	38340	38420	38830	37670	37360	43400	42510	39160	35910	34110
(+)	708.79	709.03	708.96	709.23	709.03	708.81	711.25	710.05	709.81	709.10	708.37	707.96
(++)	-710	+1,070	-320	+1,260	-940	-980	+11,860	-6,060	-1,140	-3,350	-3,250	-1,800

CAL YR 1990 MAX 152500 MIN 37500 (++) -5,390
WTR YR 1991 MAX 51190 MIN 34110 (++) -4,360

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

ARKANSAS RIVER BASIN

89

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.-- Records good. 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.

AVERAGE DISCHARGE.-- 6 years, 1,394 ft³/s, 1,010,000 acre-ft/yr.

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, 3,840 ft³/s, May 5, gage height, 6.78 ft; minimum daily discharge, 12 ft³/s, Dec. 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	41	44	18	28	35	24	3330	804	33	60	53
2	36	41	47	23	29	32	26	3360	435	35	53	56
3	62	45	50	23	28	30	38	2420	420	34	35	47
4	63	110	44	20	30	30	29	1800	415	33	30	46
5	62	83	45	19	30	32	26	1760	554	33	34	36
6	53	84	46	21	30	32	26	360	216	32	31	34
7	43	64	43	19	28	32	26	804	96	36	31	35
8	43	53	45	18	28	32	25	1240	1460	31	32	34
9	46	53	45	20	28	31	22	1350	1910	26	40	33
10	40	45	47	27	28	30	21	1280	1900	30	43	33
11	39	42	45	28	28	32	22	350	2450	34	44	28
12	39	41	32	27	28	33	24	55	2630	58	44	25
13	39	41	21	23	30	33	29	45	2520	54	58	31
14	e39	40	18	23	29	33	24	42	1520	43	44	32
15	e39	39	18	34	26	32	23	38	562	42	37	35
16	e39	37	17	35	27	34	24	89	827	37	36	157
17	39	34	27	36	31	41	73	97	695	34	37	32
18	39	34	20	44	32	28	192	266	1510	33	36	36
19	40	34	18	39	30	26	102	431	1740	34	41	26
20	42	35	16	33	30	25	64	421	1620	32	41	26
21	43	40	14	29	30	26	46	348	731	33	41	26
22	39	37	13	28	30	26	30	270	129	35	41	29
23	41	36	12	31	29	26	25	698	43	36	41	28
24	41	36	12	31	29	24	27	1090	35	48	43	27
25	40	35	15	31	28	24	45	1180	36	49	42	26
26	41	38	17	29	29	27	43	1130	33	40	41	26
27	43	40	18	29	29	28	346	1100	30	41	47	28
28	41	40	18	28	32	26	295	1230	31	47	53	28
29	41	41	20	30	---	25	757	2500	33	41	38	34
30	40	42	16	27	---	23	2790	2600	33	36	35	36
31	41	---	16	27	---	23	---	2440	---	49	35	---
TOTAL	1329	1381	859	850	814	911	5244	33924	25418	1179	1264	1121
MEAN	42.9	46.0	27.7	27.4	29.1	29.4	175	1094	847	38.0	40.8	37.4
MAX	63	110	50	44	32	41	2790	3360	2630	58	60	157
MIN	36	34	12	18	26	23	21	38	30	26	30	25
AC-FT	2640	2740	1700	1690	1610	1810	10400	67290	50420	2340	2510	2220

CAL YR 1990 TOTAL 443558 MEAN 1215 MAX 6400 MIN 12 AC-FT 879800
WTR YR 1991 TOTAL 74294 MEAN 204 MAX 3360 MIN 12 AC-FT 147400

e Estimated

ARKANSAS RIVER BASIN

07174600 SAND CREEK AT OKESA, OK

LOCATION.-- Lat 36°43'10", long 96°07'56", 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 Oksa, 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 889.20 ft above National Geodetic Vertical Datum of 1929. Prior to May 25, 1960, nonrecording gage at same site and datum.

REMARKS.-- No estimated daily discharges. Records good. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 32 years, 82.9 ft³/s, 80,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 19,500 ft³/s, Mar. 10, 1974, from rating curve extended above 14,400 ft³/s on basis of slope-area measurement of peak flow, 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)
Apr. 27	0500	5,060	13.46	June 5	1600	*14,400	*20.95

No flow, Aug. 9-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	5.6	8.2	5.7	14	6.8	3.5	95	18	5.8	1.5	.58
2	2.8	4.7	8.5	5.7	14	6.4	3.7	68	261	5.3	1.2	.49
3	261	4.3	8.5	5.7	13	6.4	5.7	256	165	4.4	1.1	.22
4	246	78	8.2	5.7	13	6.6	9.0	283	70	4.2	.87	.21
5	89	153	8.1	5.7	12	6.6	8.0	113	7140	4.0	.58	.11
6	49	83	7.7	5.5	12	6.4	19	49	589	4.0	.56	.11
7	29	47	7.2	5.3	11	6.4	19	32	312	3.6	.51	.31
8	20	34	6.8	5.3	11	6.2	15	130	698	3.3	.22	.72
9	37	27	6.8	5.3	10	6.0	13	223	718	3.0	.00	.79
10	71	78	6.8	6.4	10	6.0	10	112	193	2.8	.00	.79
11	43	58	6.8	11	9.8	5.9	8.6	67	112	2.7	.00	.71
12	29	37	6.8	17	9.8	5.7	7.7	45	77	2.8	.00	.58
13	21	26	6.8	16	9.5	5.1	7.3	35	57	3.5	.00	.56
14	17	22	6.6	18	8.8	4.5	7.3	27	42	3.6	.00	.49
15	14	19	6.0	20	8.2	3.9	10	23	32	2.9	.00	.60
16	12	17	6.3	44	8.1	3.9	11	188	266	2.8	.00	5.0
17	10	15	8.1	59	7.6	5.1	111	156	88	2.6	.00	4.1
18	7.7	13	10	39	7.5	5.0	389	68	39	1.9	.00	19
19	6.8	12	11	30	7.7	5.4	154	36	24	1.7	.00	15
20	6.4	11	11	26	7.5	5.4	73	28	18	1.4	.00	7.8
21	5.5	13	15	24	7.3	5.0	44	210	14	1.2	.00	4.9
22	4.7	14	15	21	7.1	4.6	47	204	26	.99	.00	4.1
23	4.7	12	13	19	6.9	4.3	62	371	52	.62	.00	3.8
24	4.7	12	11	17	6.8	4.6	45	858	37	.84	.00	3.5
25	4.7	12	9.1	16	6.8	4.7	264	337	22	1.1	.00	2.9
26	4.7	12	8.1	16	6.7	4.8	182	139	16	1.3	.00	2.6
27	5.0	12	7.0	16	6.8	4.6	1790	78	13	1.8	.00	2.5
28	5.3	11	6.8	15	6.8	4.3	473	40	10	2.1	.00	2.4
29	4.7	9.2	6.8	15	---	3.7	374	32	7.7	2.1	.00	2.3
30	4.3	8.7	6.8	15	---	3.6	162	24	6.4	2.0	.00	1.9
31	5.2	---	6.5	14	---	3.6	---	21	---	1.7	.02	---
TOTAL	1028.6	860.5	261.3	524.3	259.7	161.5	4327.8	4336	11123.1	82.05	6.56	89.05
MEAN	33.2	28.7	8.43	16.9	9.27	5.21	144	140	371	2.65	.21	2.97
MAX	261	153	15	59	14	6.8	1790	858	7140	5.8	1.5	19
MIN	2.8	4.3	6.0	5.3	6.7	3.6	3.5	21	6.4	.62	.00	.11
AC-FT	2040	1710	518	1040	515	320	8580	8600	22060	163	13	177

CAL YR 1990 TOTAL 47337.36 MEAN 130 MAX 8500 MIN .19 AC-FT 93890
WTR YR 1991 TOTAL 23060.46 MEAN 63.2 MAX 7140 MIN .00 AC-FT 45740

ARKANSAS RIVER BASIN

91

07175500 CANEY RIVER NEAR RAMONA, OK

LOCATION.-- Lat 36°30'32", long 95°50'30", 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.-- No estimated daily discharge. Records good. 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, 870,200 acre-ft/yr; since regulation by Copan Lake, 8 years (water years 1984-91), 1,900 ft³/s, 1,377,000 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, 8,800 ft³/s, June 8, gage height, 22.43 ft; minimum daily discharge, 33 ft³/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	48	64	71	101	77	62	3290	1820	72	48	48
2	52	47	65	89	99	78	61	3470	549	70	60	86
3	58	49	67	80	98	76	512	3250	572	67	64	108
4	209	222	75	55	96	73	348	3100	507	66	54	74
5	341	319	67	60	96	72	152	7140	3280	63	39	62
6	183	259	64	72	93	71	106	3980	7750	59	36	53
7	116	178	63	72	89	68	91	929	3400	55	37	44
8	95	127	62	66	86	67	87	1240	2790	54	36	44
9	94	110	62	72	84	66	88	1940	3210	55	36	48
10	89	101	62	292	83	65	79	1770	2810	45	36	45
11	93	96	63	433	83	64	71	1300	2230	42	39	43
12	97	111	62	293	81	64	66	415	2560	48	41	43
13	86	98	53	262	85	64	70	203	2470	99	47	36
14	80	88	46	290	82	63	88	157	2040	92	80	33
15	74	81	42	958	75	62	86	132	1100	69	69	51
16	69	77	49	781	70	63	77	135	423	61	50	230
17	67	73	263	320	70	71	75	440	1140	56	45	278
18	63	68	187	240	75	96	1640	345	859	52	43	109
19	58	67	113	235	74	87	1280	352	1350	51	43	113
20	57	66	90	213	74	82	463	389	1290	49	41	85
21	56	67	76	157	71	80	272	375	1030	45	41	69
22	55	65	65	131	71	77	208	475	378	42	42	60
23	53	64	67	123	71	74	174	519	147	43	43	57
24	53	62	66	118	72	71	164	1300	109	41	46	55
25	53	61	53	111	72	69	224	2260	114	45	45	46
26	51	61	52	108	72	68	563	1560	104	57	44	44
27	51	66	56	111	72	79	3700	1180	99	54	42	39
28	50	77	62	108	73	77	3040	1040	85	50	43	37
29	49	72	65	107	---	74	2210	1370	79	50	53	35
30	50	66	89	110	---	67	2140	2280	76	54	57	36
31	49	---	88	106	---	64	---	2280	---	49	49	---
TOTAL	2595	2946	2358	8202	2268	2229	18197	48616	44371	1755	1449	2111
MEAN	83.7	98.2	76.1	260	81.0	71.9	607	1568	1479	56.6	46.7	70.4
MAX	341	319	263	958	101	96	3700	7140	7750	99	80	278
MIN	49	47	42	55	70	62	61	132	76	41	36	33
AC-FT	5150	5840	4680	12300	4500	4420	36090	96430	88010	3480	2870	4190

CAL YR 1990 TOTAL 604445 MEAN 1656 MAX 17400 MIN 34 AC-FT 1199000
WTR YR 1991 TOTAL 135097 MEAN 370 MAX 7750 MIN 33 AC-FT 268000

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 bimonthly and specific conductance, pH, water temperature, alkalinity, and dissolved oxygen were determined in the field.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
FEB										
05...	1520	2.00	9.0	1028	1028	92	3.44	686	16.0	8.7
05...	1522	6.00	9.0	1028	1028	92	3.44	686	15.2	8.7
05...	1524	10.0	9.0	1028	1028	92	3.44	688	15.1	8.7
05...	1526	14.0	9.0	1028	1028	92	3.44	688	15.0	8.7
05...	1528	18.0	9.0	1028	1028	92	3.44	692	15.0	8.7
05...	1530	22.0	9.0	1028	1028	92	3.44	676	15.0	8.6
05...	1532	26.0	9.0	1028	1028	92	3.44	672	15.0	8.7
05...	1534	30.0	9.0	1028	1028	92	3.44	676	15.0	8.7
05...	1536	34.0	9.0	1028	1028	92	3.44	670	15.0	8.7
05...	1538	38.0	9.0	1028	1028	92	3.44	686	15.0	8.7
05...	1540	42.0	9.0	1028	1028	92	3.44	685	14.9	8.7
05...	1542	46.0	9.0	1028	1028	92	3.44	680	14.9	8.7
05...	1544	50.0	9.0	1028	1028	92	3.44	676	14.9	8.7
05...	1546	54.0	9.0	1028	1028	92	3.44	682	14.9	8.7
05...	1548	58.0	9.0	1028	1028	92	3.44	689	14.4	8.7
05...	1550	62.0	9.0	1028	1028	92	3.44	680	12.0	8.7

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
19...	0940	1028	80020	67	529	8.0	16.0	12.0	11	745	9.5	90
DEC												
11...	1240	1028	80020	60	665	8.4	17.0	7.0	2.5	740	15.2	129
FEB												
05...	1505	1028	80020	92	678	8.7	--	9.0	11	750	15.0	132
APR												
09...	1340	1028	80020	89	691	8.3	24.5	21.5	23	750	10.5	121
JUN												
11...	1510	1028	80020	2260	299	8.0	29.0	25.0	20	745	7.3	91
AUG												
07...	1500	1028	80020	39	580	8.3	35.0	31.5	2.6	745	8.4	117

07175500 CANEY RIVER NEAR RAMONA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCEI, 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)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)
NOV 19...	83	K36	190	43	61	9.9	35	28	1	3.4	184	0
DEC 11...	K24	K6	220	49	71	11	47	31	1	3.9	204	4
FEB 05...	K14	K16	210	60	67	11	50	33	1	2.9	187	0
APR 09...	83	33	210	55	64	11	55	36	2	3.8	184	0
JUN 11...	470	650	120	17	39	5.5	12	18	0.5	2.4	126	0
AUG 07...	K16	K13	190	40	60	9.7	43	32	1	4.3	184	0
DATE	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 TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N03)
NOV 19...	150	30	62	0.20	5.8	302	302	0.41	54.6	0.680	--	--
DEC 11...	173	28	91	0.30	4.0	308	366	0.53	63.3	0.990	--	--
FEB 05...	154	42	97	0.20	2.3	383	369	0.52	95.7	--	0.770	3.4
APR 09...	151	33	100	0.30	3.7	389	365	0.53	93.1	--	0.550	2.4
JUN 11...	103	11	15	0.20	7.5	167	156	0.23	1020	--	0.240	1.1
AUG 07...	151	25	83	0.40	2.6	317	319	0.43	33.5	--	--	--
DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N02)	NITRO-GEN, N02+N03 TOTAL (MG/L AS N)	NITRO-GEN, N02+N03 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, ORGANIC DIS-SOLVED (MG/L AS N)	
NOV 19...	0.020	<0.010	--	0.700	0.700	0.070	0.080	0.09	0.10	0.53	--	
DEC 11...	0.010	<0.010	--	1.00	1.00	0.030	0.020	0.04	0.03	0.57	--	
FEB 05...	0.050	0.030	0.10	--	0.800	<0.010	0.010	--	0.01	--	--	
APR 09...	0.040	0.020	0.07	0.560	0.570	0.030	<0.010	0.04	--	1.4	--	
JUN 11...	0.110	0.030	0.10	0.280	0.270	0.100	0.020	0.13	0.03	1.0	--	
AUG 07...	<0.010	<0.010	--	<0.050	<0.050	0.020	0.020	0.03	0.03	0.88	0.48	
DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (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 DIS-SOLVED (MG/L AS P)	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)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	
NOV 19...	0.60	--	1.3	5.8	0.140	0.52	0.080	0.170	0.100	0.31	<10	
DEC 11...	0.60	--	1.6	7.1	0.300	0.86	0.240	0.280	0.230	0.71	--	
FEB 05...	0.40	--	1.1	4.9	0.270	0.80	0.210	0.260	0.190	0.58	20	
APR 09...	1.4	--	2.0	8.7	0.200	0.28	0.080	0.090	0.050	0.15	20	
JUN 11...	1.1	--	1.4	6.1	0.180	0.40	0.050	0.130	0.030	0.09	--	
AUG 07...	0.90	0.50	--	--	0.120	0.21	0.060	0.070	0.050	0.15	20	

ARKANSAS RIVER BASIN

07175500 CANEY RIVER NEAR RAMONA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 19...	<1	94	<0.5	<1.0	<1	<3	2	10	<1	5	51
DEC 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 05...	<1	79	0.6	<1.0	1	<3	3	10	<1	7	110
APR 09...	1	93	<0.5	<1.0	<1	<3	3	12	<1	6	49
JUN 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	3	110	0.6	<1.0	<1	<3	3	7	<1	<4	3
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 19...	0.3	<10	1	<1	<1.0	470	<6	8	19	3.4	75
DEC 11...	--	--	--	--	--	--	--	--	5	0.82	58
FEB 05...	0.1	<10	<1	<1	<1.0	590	<6	8	13	3.2	65
APR 09...	<0.1	<10	1	<1	<1.0	590	<6	<3	26	6.2	85
JUN 11...	--	--	--	--	--	--	--	--	291	1780	56
AUG 07...	0.4	<10	2	<1	<1.0	500	<6	6	6	0.63	41

ARKANSAS RIVER BASIN

95

07176000 VERDIGRIS RIVER NEAR CLAREMORE, OK

LOCATION.-- Lat 36°18'26", long 95°41'52", NE 1/4 NW 1/4 sec.15, 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 good. 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, 2,895,000 acre-ft/yr; since regulation by Oologah Lake, 27 years (water years 1965-91), 4,347 ft³/s, 3,149,000 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, 11,400 ft³/s, May 30, gage height, 14.08 ft; minimum daily discharge, 53 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	62	95	172	299	264	210	4180	7120	195	83	95
2	126	62	90	163	286	354	202	4560	8320	183	82	95
3	149	62	88	158	286	392	745	4940	5620	168	85	125
4	298	269	88	151	286	315	1590	4450	5320	159	95	287
5	393	751	92	150	296	272	681	7340	5640	150	90	162
6	429	492	95	185	300	300	443	9340	9890	158	e83	114
7	251	397	91	243	300	297	336	4750	9850	146	e80	103
8	182	288	86	237	296	264	290	3610	7850	140	e80	92
9	167	215	85	212	295	248	305	4040	7250	139	81	85
10	157	170	85	698	326	220	280	4400	7330	144	e80	83
11	144	154	83	1260	345	182	227	4060	6600	137	e80	84
12	125	136	82	747	347	171	200	3320	6510	132	e84	81
13	131	146	80	501	384	199	217	2810	6590	149	e85	80
14	123	147	80	468	459	225	228	2800	5800	184	e90	76
15	106	127	76	806	474	204	228	1540	4240	172	e120	69
16	96	115	67	1800	347	200	222	1280	3560	156	e103	235
17	90	104	150	981	317	198	213	1490	3570	145	e82	439
18	83	98	827	586	378	216	426	1660	3240	133	e78	341
19	77	96	518	495	434	224	2150	1470	2380	140	e76	191
20	75	91	274	479	389	220	1350	1560	2390	140	71	156
21	75	90	183	433	368	194	892	1720	1670	140	75	124
22	71	90	165	339	389	206	747	711	1090	142	78	112
23	66	86	168	297	345	200	640	869	564	168	76	117
24	65	85	162	275	364	211	599	3650	314	162	77	103
25	64	83	153	276	390	206	623	5450	242	167	87	91
26	64	82	153	304	325	191	701	6330	234	107	82	77
27	64	84	150	287	312	205	3040	5630	236	111	78	67
28	64	85	150	285	267	267	5280	6720	210	116	76	60
29	63	89	173	350	---	328	3450	10300	207	93	72	57
30	62	96	194	362	---	277	3760	10400	200	81	78	53
31	62	---	182	317	---	220	---	7260	---	90	103	---
TOTAL	4023	4852	4965	14017	9604	7470	30275	132640	122037	4447	2590	3854
MEAN	130	162	160	452	343	241	1009	4279	4068	143	83.5	128
MAX	429	751	827	1800	474	392	5280	10400	9890	195	120	439
MIN	62	62	67	150	267	171	200	711	200	81	71	53
AC-FT	7980	9820	9850	27800	19050	14020	60050	263100	242100	8820	5140	7640

CAL YR 1990 TOTAL 1900538 MEAN 5207 MAX 27900 MIN 53 AC-FT 3770000
WTR YR 1991 TOTAL 340774 MEAN 934 MAX 10400 MIN 53 AC-FT 675900

e Estimated

ARKANSAS RIVER BASIN

07176460 BIRCH LAKE NEAR BARNSDALL, OK

LOCATION.-- Lat 36°32'05", long 96°09'53", 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. U.S. Army Corps of Engineers' satellite telemeter at station.

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, 22,730 acre-ft, June 7, elevation, 753.50 ft; minimum, 14,680 acre-ft, Sept. 15, elevation, 746.31 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17340	16780	17000	17020	17580	17600	17440	19740	19210	18350	16910	15100
2	17330	16750	17030	17050	17560	17580	17470	19400	19380	18310	16820	15100
3	17480	16820	17010	17030	17560	17560	17630	19240	19150	18260	16760	15070
4	17500	17030	17000	17010	17560	17560	17670	19360	19080	18230	16710	15050
5	17490	17060	16990	17020	17560	17590	17690	19370	22630	18150	16670	15010
6	17470	17060	16980	17050	17560	17550	17690	19360	22690	18120	16620	14980
7	17430	17060	16970	17050	17560	17530	17660	19320	22730	18050	16570	14970
8	17430	17070	16970	17050	17590	17540	17660	19920	22430	18020	16610	14940
9	17400	17050	16980	17070	17590	17530	17630	19900	21470	17960	16530	14910
10	17380	17080	16970	17140	17590	17520	17600	19560	21150	17930	16220	14880
11	17350	17070	16960	17230	17580	17540	17550	19490	19580	17830	16950	14830
12	17320	17080	16950	17220	17610	17550	17540	19390	19180	17780	16880	14780
13	17300	17090	16920	17240	17610	17490	17540	19270	19050	17770	16640	14730
14	17270	17080	16920	17250	17620	17490	17520	19190	18970	17730	16610	14730
15	17250	17080	16900	17520	17600	17490	17490	19370	18920	17670	16580	14840
16	17240	17060	16900	17460	17590	17490	17480	19920	18960	17620	16540	15010
17	17200	17060	17030	17480	17600	17490	18270	19970	18920	17580	16500	14990
18	17180	17060	17020	17500	17610	17490	19400	19900	18820	17510	16460	15080
19	17110	17050	17030	17520	17590	17490	19150	19810	18810	17470	16420	15040
20	17090	17060	17050	17520	17590	17490	19120	19750	18750	17410	16380	15000
21	17080	17090	17070	17530	17580	17490	19100	19690	18720	17340	16370	14960
22	17020	17060	17050	17530	17560	17490	19090	19720	18740	17280	16320	14940
23	16990	17060	17050	17540	17580	17490	19060	20260	18730	17230	16270	14920
24	16960	17070	17030	17530	17580	17490	19120	20970	18710	17190	16260	14900
25	16940	17070	17020	17540	17590	17490	19590	20850	18660	17140	16230	14860
26	16910	17080	17000	17540	17590	17530	20480	20720	18620	17100	16200	14830
27	16870	17090	17000	17540	17580	17530	20610	20250	18580	17060	16150	14790
28	16860	17040	17020	17550	17590	17510	20920	19950	18530	17060	16100	14750
29	16830	17020	17020	17580	---	17510	20920	19770	18460	17000	16160	14720
30	16810	17010	17010	17580	---	17490	20520	19450	18400	16960	16140	14690
31	16790	---	17010	17580	---	17440	---	19250	---	16940	16100	---
MAX	17500	17090	17070	17580	17620	17600	20920	20970	22730	18350	16910	15100
MIN	16790	16750	16900	17010	17560	17440	17440	19190	18400	16940	16100	14690
(+)	748.33	748.54	748.54	749.05	749.07	748.94	751.66	750.56	749.80	748.47	746.73	746.32
(++)	-510	+220	0	+550	+30	-150	+3,080	-1,270	-850	-1,460	-1,840	-410

CAL YR 1990 MAX 37030 MIN 16750 (++) -2,020
WTR YR 1991 MAX 22730 MIN 14690 (++) -2,610

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

ARKANSAS RIVER BASIN

97

07176465 BIRCH CREEK BELOW BIRCH LAKE NEAR BARNSDALL, OK

LOCATION.-- 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 fair. Flow completely regulated since March 1977 by Birch Lake (station 07176460).

AVERAGE DISCHARGE.-- 14 years, 47.2 ft³/s, 34,200 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, 887 ft³/s, June 10, gage height, 10.12; maximum gage height 19.70 ft, June 5, (backwater from Bird Creek); minimum daily discharge, 0.01 ft³/s, Nov. 29, Dec. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	4.7	.01	e.13	.14	.23	8.2	445	38	15	13	11
2	6.2	.37	.05	e.13	.15	.32	8.1	258	38	15	13	11
3	6.2	.10	.10	e.13	.13	.29	8.3	20	33	15	13	11
4	6.2	.02	.05	e.13	.13	.24	8.0	20	27	15	14	11
5	6.2	.28	.10	e.13	.14	.24	7.9	19	e40	15	14	11
6	6.2	.09	.13	e.13	.18	.24	7.8	19	e30	15	14	11
7	6.2	.65	.05	e.13	.18	.24	7.9	14	195	14	14	11
8	6.2	.11	.05	e.13	.44	.24	8.1	9.9	403	14	14	11
9	6.2	.08	.05	e.13	.30	.24	8.0	104	402	15	15	11
10	6.3	.05	.05	e.13	.15	.24	8.0	199	579	13	144	11
11	6.5	.05	.05	e.13	.15	.24	8.2	52	677	14	146	11
12	6.5	.05	.05	e.13	.08	.17	8.3	52	288	14	114	11
13	6.5	.05	.05	e.13	.18	.13	8.3	53	73	14	13	11
14	6.6	.05	.03	.13	.18	.17	8.2	41	22	14	9.5	11
15	6.8	.05	.05	.13	.18	.24	8.4	18	22	14	9.8	12
16	6.8	.05	.05	.49	.18	.25	8.3	19	22	13	9.8	12
17	6.8	.05	.22	.23	.13	.50	9.4	27	22	14	9.9	12
18	6.8	.05	.25	.13	.13	.46	192	43	17	14	10	12
19	6.8	.04	.12	.13	.13	.41	134	43	14	14	11	12
20	6.8	.04	.08	.13	.13	.57	12	43	14	14	10	12
21	6.8	.05	.08	.13	.13	.52	12	60	14	14	10	11
22	6.8	.05	.08	.14	.13	.45	12	70	15	13	10	11
23	6.8	.05	.08	.18	.13	.24	12	70	14	14	10	11
24	6.9	.05	e.08	.18	.13	.24	8.1	125	15	14	10	11
25	7.1	.05	e.08	.18	.18	.24	5.1	161	15	14	10	12
26	7.1	.05	e.08	.60	.18	.27	5.3	161	15	14	10	12
27	7.1	.07	e.10	.28	.18	.60	5.5	158	15	14	10	11
28	7.1	.06	.13	.13	.18	.52	5.9	157	15	14	10	13
29	8.0	.01	.13	.16	---	5.4	306	156	14	14	10	13
30	8.8	.02	.13	.18	---	8.4	453	157	14	14	11	13
31	9.1	---	e.13	.16	---	8.4	---	103	---	14	11	---
TOTAL	210.6	8.19	2.69	5.38	4.63	30.94	1302.3	2876.9	3102	438	723.0	346
MEAN	6.79	.27	.087	.17	.17	1.00	43.4	92.8	103	14.1	23.3	11.5
MAX	9.1	4.7	.25	.60	.44	8.4	453	445	677	15	146	13
MIN	6.2	.01	.01	.13	.08	.13	5.1	9.9	14	13	9.5	11
AC-FT	418	16	5.3	11	9.2	61	2500	5710	6150	869	1430	686

CAL YR 1990 TOTAL 27040.67 MEAN 74.1 MAX 1090 MIN .01 AC-FT 53640
WTR YR 1991 TOTAL 9050.63 MEAN 24.8 MAX 677 MIN .01 AC-FT 17950

e Estimated

ARKANSAS RIVER BASIN

07176500 BIRD CREEK NEAR AVANT, OK

LOCATION.-- Lat 36°29'12", long 96°03'50", in SW 1/4 NW 1/4 sec.7, T.23 N., R.12 E., Osage County, Hydrologic Unit 11070107, 150 ft upstream from county road bridge at Avant, 2.4 mi 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. No estimated daily discharges. 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.-- 46 years, 227 ft³/s, 164,500 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)
June 6	0300	*20,400	*22.08	No other peaks greater than base discharge.			

Minimum daily discharge, 11 ft³/s, Nov. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	16	13	17	25	16	27	628	102	50	25	35
2	27	14	14	15	21	18	27	507	935	47	23	29
3	44	11	17	14	21	18	132	125	794	47	22	29
4	394	59	17	14	21	18	214	293	351	45	22	25
5	140	225	14	14	21	16	162	736	9090	44	20	20
6	61	120	13	14	19	16	103	168	9820	44	19	19
7	36	55	12	15	18	14	66	110	1270	44	18	19
8	28	33	12	15	18	14	47	299	2400	45	21	19
9	29	27	13	15	17	14	38	781	2660	44	28	19
10	65	33	14	23	18	14	30	590	1150	44	51	19
11	53	64	14	40	18	14	27	222	1090	42	167	17
12	34	41	14	41	16	14	25	168	548	42	158	17
13	28	28	14	46	17	15	24	147	288	50	76	17
14	26	24	14	44	18	15	24	133	155	47	23	20
15	22	20	14	157	18	15	25	149	127	44	16	24
16	20	19	14	154	15	15	30	534	290	40	15	74
17	18	16	49	106	15	19	239	762	212	29	15	70
18	18	15	71	70	16	20	2040	256	124	23	15	54
19	18	15	47	54	16	22	621	155	95	20	14	48
20	16	14	36	47	15	26	173	130	78	19	13	52
21	15	14	34	40	15	26	112	200	70	18	13	35
22	15	14	27	33	15	24	96	237	204	18	13	29
23	15	14	22	30	15	22	97	504	270	18	13	27
24	15	14	20	27	15	20	96	1410	122	18	13	24
25	15	14	19	24	16	18	836	1150	88	18	13	24
26	14	14	18	23	16	16	505	489	69	18	14	22
27	14	19	18	24	15	18	2110	344	61	27	14	20
28	14	18	18	25	15	18	1100	282	57	31	14	19
29	14	16	18	25	---	18	1380	252	53	25	18	19
30	14	14	18	25	---	20	824	230	50	26	25	19
31	14	---	18	25	---	25	---	220	---	29	50	---
TOTAL	1266	1000	656	1216	485	558	11230	12211	32623	1056	961	864
MEAN	40.8	33.3	21.2	39.2	17.3	18.0	374	394	1087	34.1	31.0	28.8
MAX	394	225	71	157	25	26	2110	1410	9820	50	167	74
MIN	14	11	12	14	15	14	24	110	50	18	13	17
AC-FT	2510	1980	1300	2410	962	1110	22270	24220	64710	2090	1910	1710

CAL YR 1990 TOTAL 162245 MEAN 445 MAX 13800 MIN 10 AC-FT 321800
WTR YR 1991 TOTAL 64126 MEAN 176 MAX 9820 MIN 11 AC-FT 127200

ARKANSAS RIVER BASIN

99

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. Conservation pool was first filled Aug. 20, 1989. 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. 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, 427,100 acre-ft, Mar. 15, 1990, elevation 723.31 ft; minimum since conservation pool was first filled, 290,500 acre-ft, Sept. 19, 1990.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 325,400 acre-ft, June 13-15, elevation 714.26 ft; minimum, 271,900 acre-ft, Apr. 17, elevation 708.83 ft.

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

700	197,800	715	333,000
705	237,800	720	387,800
710	282,800	725	448,200

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290500	283300	281400	278200	278800	276500	273000	284800	309400	320800	307700	294500
2	290300	283000	281400	278100	278800	276200	273000	284900	309000	320300	307100	294400
3	290500	284200	281700	278100	278600	275900	274100	285100	309300	320300	306700	294300
4	290500	285100	281200	278100	278600	275700	274200	286100	309200	319900	305900	294100
5	290500	284900	280900	278000	278500	275700	274100	285500	317600	319300	305500	293700
6	289900	284900	280700	278100	278400	275500	274000	285300	319100	318900	305100	293300
7	289500	284700	280600	278100	278300	275300	273900	285300	320100	318400	304800	292900
8	289300	284700	280300	278000	278200	275100	273800	287800	324200	318300	304200	292500
9	289100	284600	280200	278000	278100	275100	273500	288700	324900	317800	303600	292200
10	288300	284500	280100	278300	278100	275100	273200	289000	325200	316900	302900	291900
11	288000	284400	279900	278500	278100	275500	272900	289400	325200	316200	302500	291400
12	287800	284200	279800	278500	278100	276900	272700	289700	325200	316000	302300	291200
13	287600	284200	279600	278500	278200	275100	272900	289800	325400	315800	301900	290900
14	287400	283000	280000	278500	278000	274600	272500	289900	325400	315200	301600	290600
15	286900	283600	279300	279600	277500	274500	272400	290000	325400	314700	301200	291200
16	286900	283600	279200	279800	277500	274600	272400	292400	325200	314500	300700	291800
17	286900	283300	280200	279900	277700	274800	272200	293100	325200	314100	300300	291600
18	286300	283100	280600	280000	277500	274600	276200	293100	325200	313600	299900	291500
19	286000	282900	280000	280000	277200	274400	276300	293000	325000	313100	299200	291000
20	286300	283000	280000	280100	276900	274300	276500	293000	324600	312500	298800	290400
21	285500	282800	280000	280000	276800	274400	276300	293900	324400	312100	298400	290000
22	285100	282800	279500	279900	276800	276100	276500	294900	324200	311400	298000	290300
23	285100	282600	279400	279800	276700	274200	276300	300000	323900	311100	297600	289900
24	284800	282600	279100	279700	276800	274000	276800	306400	323700	310200	297600	289700
25	284600	282400	278900	279700	276600	274000	277800	307900	323400	309700	297300	289200
26	284400	282900	278800	279500	276500	274400	281000	308200	323100	309200	296800	288900
27	284200	282600	278800	279500	276600	274200	281200	308500	322400	309100	296400	288300
28	283900	282300	278800	279500	276200	273900	283600	308600	322200	309100	296100	288000
29	283800	282000	278600	279300	---	273700	284500	308700	321700	308800	295600	287600
30	283600	281500	278400	279100	---	273600	285100	308600	321400	308200	295300	287200
31	283400	---	278300	279000	---	273300	---	308600	---	308100	295000	---
MAX	290500	285100	281700	280100	278800	276900	285100	308700	325400	320800	307700	294500
MIN	283400	281500	278300	278000	276200	273300	272200	284800	309000	308100	295000	287200
(+)	710.06	709.86	709.52	709.59	709.29	708.98	710.24	712.61	713.87	712.56	711.25	710.45
(++)	-7,500	-1,900	-3,200	+700	-2,800	-2,900	+11,800	+23,500	+12,800	-13,300	-13,100	-7,800
CAL YR 1990	MAX 426900	MIN 278300	(++)	-30,300								
WTR YR 1991	MAX 325400	MIN 272200	(++)	-3,700								

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

ARKANSAS RIVER BASIN

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.

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 610.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Flow regulated by Skiatook Lake (07177400).

COOPERATION.-- Gage height record and six discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

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, 297 ft³/s, Aug. 12, gage height, 8.32 ft, maximum gage height 9.13 ft, (backwater from local creek), June 5; minimum daily discharge, 1.9 ft³/s, May 12-14, 26-29, June 6, 7, 15-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	50	50	50	51	51	88	2.2	102	128	125	120
2	134	50	e50	50	51	51	90	25	102	128	125	120
3	135	51	e49	50	51	51	88	78	44	128	126	120
4	134	51	e40	50	51	51	88	77	2.1	128	126	122
5	133	50	e43	50	51	52	87	76	2.0	129	126	122
6	133	50	e50	50	51	52	88	77	1.9	129	127	122
7	133	50	e50	50	51	52	88	77	1.9	130	126	123
8	134	50	e50	50	51	52	88	77	2.0	127	126	123
9	133	50	e50	50	51	52	89	52	2.1	126	127	123
10	133	50	e50	50	51	51	89	2.1	2.1	127	127	123
11	133	50	e50	50	51	51	88	2.1	2.1	127	128	123
12	107	50	e50	50	51	43	88	1.9	2.1	128	117	123
13	57	50	e50	50	51	33	88	1.9	2.1	129	123	123
14	57	50	e50	51	52	37	88	1.9	2.0	129	121	123
15	57	50	e50	50	51	40	88	52	1.9	119	120	124
16	46	50	e50	50	51	41	87	85	1.9	102	121	124
17	39	51	e50	50	51	42	39	84	1.9	102	121	122
18	39	50	e50	50	51	41	2.2	85	39	113	120	122
19	44	50	e50	50	51	41	2.2	85	91	129	120	124
20	50	50	e50	50	51	41	2.2	85	102	130	120	122
21	50	50	e50	50	52	40	37	45	102	129	120	121
22	51	50	e50	50	52	41	62	2.1	102	128	120	122
23	51	51	e50	50	52	41	47	2.0	102	127	120	122
24	50	51	e50	50	52	41	16	2.5	102	126	120	121
25	50	51	e50	50	52	41	2.2	1.9	102	126	120	120
26	50	51	51	51	51	41	2.2	1.9	102	126	120	122
27	50	51	50	50	51	41	2.1	1.9	103	127	120	124
28	50	51	50	51	51	69	2.0	1.9	116	126	120	124
29	50	51	50	51	---	89	2.0	1.9	128	127	120	124
30	50	50	50	51	---	88	2.2	2.0	128	126	120	124
31	50	---	50	51	---	88	---	44	---	125	120	---
TOTAL	2518	1510	1533	1556	1434	1545	1630.3	1134.2	1595.1	3881	3792	3672
MEAN	81.2	50.3	49.5	50.2	51.2	49.8	54.3	36.6	53.2	125	122	122
MAX	135	51	51	51	52	89	90	85	128	130	128	124
MIN	39	50	40	50	51	33	2.0	1.9	102	102	117	120
AC-FT	4990	3000	3040	3090	2840	3060	3230	2250	3160	7700	7520	7280

CAL YR 1990 TOTAL 136796.4 MEAN 375 MAX 3130 MIN 1.7 AC-FT 271300
WTR YR 1991 TOTAL 25800.6 MEAN 70.7 MAX 135 MIN 1.9 AC-FT 51180

e Estimated

ARKANSAS RIVER BASIN

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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 07178460). 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, 10,000 ft³/s, June 7, gage height, 22.15 ft; minimum daily discharge, 54 ft³/s, Mar. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	77	72	66	89	83	134	692	264	194	167	185
2	185	79	72	64	90	79	139	572	248	192	184	174
3	207	83	73	61	88	79	717	361	1140	191	162	189
4	310	463	76	62	87	82	555	218	452	191	159	180
5	416	281	77	64	85	83	364	1890	1730	188	160	162
6	257	258	75	84	84	82	274	583	8480	189	160	159
7	207	157	73	87	82	78	212	297	8070	188	161	180
8	200	113	73	80	81	79	184	273	4570	184	159	161
9	196	99	73	78	81	78	169	834	3830	184	157	158
10	188	87	72	253	81	78	157	673	1750	181	160	156
11	215	93	72	396	82	79	151	409	1210	181	218	157
12	196	116	72	250	82	79	148	226	872	179	250	157
13	118	98	71	168	83	74	145	183	519	183	229	154
14	102	86	72	150	81	59	147	163	270	192	195	154
15	94	82	72	341	79	54	157	138	176	183	163	154
16	92	78	73	711	78	65	151	303	302	159	155	200
17	69	74	381	317	80	73	150	908	407	149	154	212
18	62	74	275	218	81	73	1890	500	207	140	151	214
19	63	72	158	202	78	75	991	311	200	157	151	184
20	74	72	113	192	78	78	371	248	208	157	149	177
21	75	73	91	148	78	80	168	237	195	156	151	182
22	72	70	81	126	77	78	125	252	195	154	151	177
23	73	71	75	115	77	72	166	248	454	155	152	177
24	71	74	71	108	75	73	177	794	325	152	153	170
25	73	73	69	100	78	73	402	1620	234	151	153	162
26	74	74	66	95	79	74	889	675	204	153	154	161
27	74	78	66	95	80	112	1780	404	188	157	154	160
28	73	77	67	94	80	82	1430	309	180	179	153	160
29	75	76	71	95	---	77	1680	262	198	165	154	159
30	76	74	65	93	---	128	1010	235	196	162	161	158
31	77	---	68	91	---	132	---	217	---	166	164	---
TOTAL	4288	3282	2685	5004	2274	2491	14993	15035	37274	5312	5124	5093
MEAN	138	109	93.1	161	81.2	80.4	500	485	1242	171	165	170
MAX	416	463	381	711	90	132	1890	1890	8480	194	250	214
MIN	62	70	65	61	75	54	125	138	176	140	149	154
AC-FT	8510	6510	5720	9930	4510	4940	29740	29820	73930	10540	10160	10100

CAL YR 1990 TOTAL 359644 MEAN 985 MAX 18300 MIN 46 AC-FT 713400
WTR YR 1991 TOTAL 103055 MEAN 282 MAX 8480 MIN 54 AC-FT 204400

ARKANSAS RIVER BASIN

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1840 microsiemens, May 25, 1987; minimum, 80 microsiemens, Aug. 20, 1989.

pH: Maximum, 8.6 units, Aug. 27, 1988, Mar. 5, 1991; minimum, 5.7 units Sept. 2, 1987.

WATER TEMPERATURE: Maximum, 35.5°C, July 14-16, 1988; minimum, 0.0°C, several days in winter months.

DISSOLVED OXYGEN: Maximum, 14.5 mg/l, Jan. 14, 1988; minimum, 2.0 mg/l, June 29, 1987.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 987 microsiemens, Mar. 28; minimum, 118 microsiemens, June 8.

pH: Maximum, 8.6 units, Mar. 5; minimum, 7.1 units, Apr. 18.

WATER TEMPERATURE: Maximum, 31.5°C, July 9, 10; minimum, 0.0°C, Dec. 23, 24, 31, Jan. 1.

DISSOLVED OXYGEN: Maximum, 13.8 mg/l, Feb. 1; minimum, 2.6 mg/l, Apr. 18.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	296	280	289	423	418	420	415	402	407	443	423	435
2	296	280	286	425	420	423	415	401	409	431	426	428
3	331	276	289	423	415	421	418	400	408	428	423	425
4	328	280	301	494	238	385	417	400	406	427	423	424
5	315	255	274	329	222	276	418	400	408	424	422	423
6	289	270	279	463	301	376	424	400	414	487	401	431
7	294	280	285	369	365	366	402	400	401	498	405	449
8	291	283	286	370	367	369	415	400	406	473	462	467
9	306	281	294	376	370	373	416	404	411	465	447	463
10	304	297	299	384	376	380	414	401	403	497	395	449
11	320	298	309	394	380	385	409	400	404	397	300	361
12	323	318	320	417	385	409	415	400	406	498	321	430
13	349	317	332	417	400	407	415	403	409	482	440	459
14	351	335	342	409	400	404	415	402	405	487	475	482
15	336	326	329	400	395	398	418	405	411	499	383	454
16	334	326	329	395	382	390	417	403	410	498	322	416
17	345	330	337	391	380	383	632	297	404	496	404	459
18	358	340	352	396	380	386	395	300	328	449	440	442
19	362	358	360	398	395	397	406	324	370	469	440	451
20	368	361	365	401	397	399	494	407	441	469	411	431
21	365	359	362	405	400	402	482	401	444	422	415	419
22	367	360	364	407	404	405	442	424	436	427	420	424
23	374	367	371	407	405	406	437	421	431	440	423	436
24	378	372	375	409	400	405	435	421	429	440	423	437
25	381	376	378	415	402	408	435	423	428	434	420	429
26	387	379	383	417	407	415	436	421	431	434	421	429
27	391	380	385	417	400	411	436	423	434	440	422	432
28	---	---	---	449	402	425	437	423	432	448	440	444
29	---	---	---	423	419	422	445	437	440	461	440	448
30	419	404	416	419	403	414	449	434	443	466	458	462
31	421	417	418	---	---	---	439	422	432	464	447	460
MONTH	---	---	---	494	222	395	632	297	414	499	300	438

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	463	459	462	449	445	448	391	387	374	229	209	216
2	461	457	459	461	449	455	378	365	370	264	230	250
3	460	457	459	453	449	450	718	299	435	311	265	286
4	459	456	458	452	447	450	492	304	404	401	313	339
5	460	457	459	454	450	452	522	435	497	442	217	292
6	460	456	458	454	448	450	492	478	485	257	212	243
7	464	442	453	449	444	445	485	458	471	240	212	223
8	449	440	442	447	434	439	457	430	444	251	219	227
9	450	440	444	459	434	441	431	424	427	314	267	292
10	462	440	448	459	430	442	426	422	424	316	282	299
11	462	440	448	433	427	430	425	418	421	386	310	331
12	448	440	444	435	428	432	420	418	419	331	322	326
13	442	440	441	436	433	435	422	417	420	349	322	332
14	449	440	443	437	431	432	425	417	423	358	349	352
15	449	440	443	483	437	461	431	417	425	368	356	362
16	446	438	441	487	483	485	434	420	424	498	356	396
17	441	434	437	483	468	474	424	420	422	414	340	365
18	447	436	439	495	480	491	661	326	451	452	380	425
19	449	440	445	499	493	495	305	253	276	378	362	371
20	443	440	441	513	496	503	339	274	317	368	360	364
21	439	426	436	515	500	506	353	340	347	364	356	361
22	437	424	434	517	513	515	362	353	357	392	356	371
23	436	435	438	514	500	505	569	363	428	378	350	368
24	437	423	434	500	491	495	415	351	371	422	346	361
25	437	422	431	492	485	488	412	349	377	362	266	311
26	444	437	440	486	475	479	432	385	410	274	248	258
27	445	443	444	739	472	520	457	302	381	338	266	303
28	448	443	445	987	566	701	371	252	333	360	340	354
29	---	---	---	565	519	541	358	236	282	358	354	356
30	---	---	---	517	489	483	238	166	196	356	352	354
31	---	---	---	488	392	398	---	---	---	356	346	353
MONTH	464	422	445	987	392	475	718	166	394	498	209	324
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	460	348	388	366	358	362	352	346	350	348	336	344
2	358	320	333	364	360	362	352	350	351	342	330	337
3	392	304	343	362	356	359	352	350	351	332	328	330
4	386	338	369	356	352	354	350	346	348	338	324	332
5	346	128	300	352	348	351	350	346	348	332	330	331
6	170	124	158	352	348	350	348	344	347	330	326	329
7	232	160	189	356	348	351	348	346	347	328	320	326
8	212	118	181	356	350	353	348	344	347	332	318	327
9	290	212	241	356	348	353	350	344	347	328	326	327
10	236	220	225	358	348	353	350	346	349	330	326	328
11	252	228	236	356	344	350	402	342	359	332	328	330
12	270	250	259	350	342	347	396	374	382	334	330	332
13	280	268	276	352	344	348	382	342	366	334	330	332
14	298	280	291	356	348	351	344	330	334	332	330	332
15	320	300	309	350	344	347	332	326	329	332	330	332
16	490	230	323	354	344	350	330	326	328	354	326	336
17	344	254	305	358	350	354	332	328	330	360	336	350
18	354	324	339	360	354	355	330	326	328	448	320	350
19	595	354	425	356	342	349	328	324	326	382	332	349
20	426	350	364	350	340	343	328	322	325	332	326	329
21	358	350	353	348	340	342	328	322	326	330	326	329
22	408	358	389	344	340	342	330	326	328	342	324	327
23	424	320	368	346	340	343	332	328	330	358	328	335
24	342	314	327	356	342	345	334	330	332	330	328	330
25	358	340	350	344	338	341	332	330	331	328	324	327
26	360	354	357	350	336	341	334	330	332	326	324	326
27	356	352	355	348	340	342	334	332	334	324	322	324
28	360	352	356	364	346	352	336	332	335	324	322	324
29	360	350	355	360	352	356	336	332	335	326	322	324
30	362	354	358	362	348	351	342	332	339	326	324	325
31	---	---	---	350	344	347	338	336	337	---	---	---
MONTH	595	118	314	366	336	350	402	322	340	448	318	332

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	7.7	7.6	7.6	7.8	7.7	7.7	8.1	8.0	8.0	8.0	8.0	8.0
2	7.6	7.6	7.6	7.7	7.6	7.7	8.1	7.9	8.0	8.0	8.0	8.0
3	7.6	7.4	7.5	7.8	7.6	7.7	8.1	7.9	8.0	8.1	8.0	8.0
4	7.6	7.4	7.5	7.8	7.5	7.7	8.1	8.0	8.0	8.0	8.0	8.0
5	7.6	7.4	7.5	7.7	7.5	7.6	8.2	8.0	8.1	8.0	8.0	8.0
6	7.6	7.5	7.6	8.0	7.7	7.9	8.2	8.0	8.1	8.0	8.0	8.0
7	7.7	7.5	7.6	8.0	8.0	8.0	8.1	8.0	8.0	8.0	7.8	7.9
8	7.6	7.5	7.5	8.0	7.9	7.9	8.1	8.0	8.0	8.0	7.9	8.0
9	7.7	7.5	7.6	7.9	7.9	7.9	8.1	7.8	8.0	8.0	7.8	7.9
10	7.8	7.7	7.7	8.0	7.9	7.9	8.0	7.8	7.9	8.0	7.8	8.0
11	7.7	7.7	7.7	8.0	7.9	8.0	8.1	7.8	7.9	7.9	7.8	7.8
12	7.8	7.7	7.7	8.1	8.0	8.1	7.9	7.8	7.8	8.1	7.8	8.0
13	7.8	7.7	7.7	8.1	8.0	8.0	8.0	7.8	8.0	8.1	8.0	8.0
14	7.7	7.6	7.7	8.1	8.0	8.0	8.0	7.8	7.9	8.0	8.0	8.0
15	7.8	7.6	7.8	8.0	7.9	8.0	8.0	7.8	7.9	8.0	7.8	8.0
16	7.8	7.6	7.7	8.0	7.9	8.0	8.0	7.8	7.8	8.1	7.8	8.0
17	7.8	7.6	7.7	8.0	7.9	7.9	8.1	7.8	7.8	8.0	8.0	8.0
18	7.8	7.6	7.7	8.1	7.9	8.0	7.7	7.4	7.6	8.1	8.0	8.0
19	7.9	7.8	7.8	8.0	7.9	8.0	8.0	7.7	7.9	8.1	8.0	8.1
20	7.9	7.7	7.8	8.0	7.9	8.0	8.1	8.0	8.0	8.1	8.0	8.0
21	7.8	7.7	7.8	8.0	7.8	7.9	8.2	8.0	8.1	8.2	8.0	8.1
22	7.8	7.7	7.8	7.9	7.8	7.9	8.2	8.2	8.2	8.2	8.1	8.2
23	7.9	7.8	7.9	7.9	7.9	7.9	8.2	8.2	8.2	8.2	8.0	8.2
24	7.9	7.8	7.8	7.9	7.9	7.9	8.2	8.2	8.2	8.2	8.0	8.2
25	7.9	7.8	7.8	7.9	7.7	7.9	8.2	8.1	8.2	8.2	8.0	8.0
26	7.9	7.8	7.9	8.1	7.7	8.0	8.2	8.0	8.1	8.2	8.0	8.0
27	7.9	7.8	7.8	8.1	7.8	8.0	8.1	8.0	8.0	8.2	8.0	8.2
28	7.8	7.7	7.8	8.0	7.8	7.9	8.1	8.0	8.0	8.2	8.1	8.2
29	7.8	7.8	7.8	8.1	8.0	8.0	8.0	8.0	8.0	8.2	8.1	8.2
30	7.9	7.8	7.8	8.1	8.0	8.0	8.1	8.0	8.1	8.2	8.0	8.2
31	7.8	7.7	7.8	---	---	---	8.0	8.0	8.0	8.3	8.0	8.2
MAX	7.9	7.8	7.9	8.1	8.0	8.1	8.2	8.2	8.2	8.3	8.1	8.2
MIN	7.6	7.4	7.5	7.7	7.5	7.6	7.7	7.4	7.6	7.9	7.8	7.8
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	8.2	8.0	8.2	8.5	8.2	8.4	7.9	7.8	7.8	---	---	---
2	8.2	8.0	8.1	8.4	8.2	8.3	7.8	7.7	7.8	---	---	---
3	8.2	7.8	8.1	8.3	8.2	8.3	8.1	7.5	7.9	---	---	---
4	8.0	7.7	7.8	8.5	8.3	8.4	7.9	7.6	7.8	---	---	---
5	7.9	7.7	7.8	8.6	8.2	8.4	7.9	7.9	7.9	---	---	---
6	7.9	7.7	7.8	8.4	8.1	8.3	8.2	7.8	7.8	---	---	---
7	8.1	7.8	8.0	8.3	8.1	8.2	8.2	8.1	8.1	---	---	---
8	8.2	7.8	8.0	8.3	8.1	8.2	8.1	7.9	8.0	---	---	---
9	8.2	7.9	8.1	8.4	8.1	8.2	7.9	7.6	7.7	---	---	---
10	8.2	7.9	8.1	8.4	8.1	8.2	7.8	7.6	7.7	---	---	---
11	8.2	7.9	8.1	8.4	8.1	8.3	7.8	7.6	7.7	---	---	---
12	8.1	7.7	8.0	8.2	8.0	8.1	7.8	7.6	7.7	---	---	---
13	8.0	7.7	7.9	8.1	8.0	8.1	7.8	7.6	7.6	---	---	---
14	8.2	7.9	8.1	8.3	8.1	8.2	7.7	7.6	7.6	---	---	---
15	8.2	8.0	8.1	8.3	8.1	8.2	7.7	7.6	7.7	---	---	---
16	8.2	8.0	8.1	8.3	8.1	8.1	7.7	7.6	7.6	8.3	8.1	8.3
17	8.2	8.0	8.1	8.3	8.1	8.1	7.6	7.5	7.6	8.4	8.3	8.3
18	8.0	7.8	8.0	8.2	8.0	8.1	7.7	7.1	7.3	8.4	8.3	8.4
19	8.1	7.8	8.0	8.2	8.0	8.1	7.3	7.2	7.3	8.3	8.1	8.2
20	8.2	7.9	8.1	8.4	8.1	8.2	7.4	7.3	7.4	8.1	8.1	8.1
21	8.2	7.9	8.1	8.3	8.1	8.1	7.4	7.4	7.4	8.1	8.0	8.0
22	8.2	7.9	8.1	8.3	8.0	8.1	7.4	7.4	7.4	8.2	8.0	8.1
23	8.2	7.9	8.0	8.4	8.0	8.1	7.5	7.3	7.4	8.2	8.1	8.2
24	8.2	7.9	8.1	8.4	8.1	8.1	7.5	7.4	7.5	8.2	7.9	8.1
25	8.1	8.0	8.1	8.3	7.9	8.1	7.5	7.4	7.5	7.9	7.9	7.9
26	8.4	8.0	8.2	8.0	7.9	8.0	---	---	---	7.8	7.8	7.8
27	8.5	8.0	8.3	8.1	7.8	7.9	---	---	---	7.9	7.8	7.9
28	8.5	8.3	8.5	8.1	7.9	8.0	---	---	---	8.1	8.0	8.0
29	---	---	---	7.9	7.8	7.9	---	---	---	8.1	8.1	8.1
30	---	---	---	8.0	7.8	7.9	---	---	---	8.2	8.0	8.1
31	---	---	---	8.0	7.9	7.9	---	---	---	8.2	8.0	8.1
MAX	8.5	8.3	8.5	8.6	8.3	8.4	---	---	---	---	---	---
MIN	7.9	7.7	7.8	7.9	7.8	7.9	---	---	---	---	---	---

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.3	8.0	8.2	---	---	---	7.7	7.6	7.6	8.0	7.7	7.9
2	8.2	8.1	8.1	---	---	---	7.7	7.6	7.7	8.0	7.9	7.9
3	8.3	8.0	8.1	---	---	---	7.7	7.6	7.7	7.9	7.7	7.8
4	8.3	8.3	8.3	---	---	---	7.7	7.6	7.6	7.9	7.8	7.8
5	8.3	7.4	8.2	---	---	---	7.7	7.5	7.6	7.9	7.7	7.8
6	7.9	7.5	7.7	---	---	---	7.7	7.5	7.6	7.9	7.5	7.8
7	7.6	7.4	7.5	---	---	---	7.7	7.6	7.6	7.8	7.5	7.7
8	7.8	7.5	7.7	---	---	---	7.8	7.5	7.7	7.7	7.5	7.7
9	8.0	7.8	8.0	---	---	---	7.8	7.6	7.7	7.7	7.5	7.7
10	8.0	7.9	7.9	---	---	---	7.8	7.7	7.7	7.7	7.5	7.7
11	8.0	7.9	8.0	---	---	---	7.9	7.7	7.7	7.7	7.5	7.7
12	8.0	8.0	8.0	---	---	---	7.9	7.8	7.9	7.7	7.5	7.6
13	8.1	8.0	8.0	---	---	---	7.9	7.8	7.8	7.7	7.5	7.6
14	8.0	7.9	8.0	---	---	---	7.9	7.8	7.8	7.7	7.6	7.6
15	8.0	7.9	8.0	---	---	---	7.9	7.7	7.8	7.7	7.6	7.6
16	---	---	---	7.9	7.7	7.8	7.9	7.7	7.8	7.8	7.6	7.7
17	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.8	7.6	7.7
18	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.8	7.7	7.7
19	---	---	---	7.8	7.6	7.7	7.9	7.8	7.8	7.8	7.7	7.8
20	---	---	---	7.8	7.6	7.7	7.9	7.8	7.8	7.8	7.7	7.7
21	---	---	---	7.8	7.6	7.7	7.8	7.7	7.8	7.7	7.5	7.6
22	---	---	---	7.8	7.7	7.7	7.8	7.6	7.7	7.8	7.6	7.8
23	---	---	---	7.8	7.7	7.7	7.9	7.7	7.8	7.9	7.6	7.7
24	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.7	7.8
25	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.6	7.7
26	---	---	---	7.8	7.7	7.7	7.9	7.7	7.8	7.8	7.6	7.8
27	---	---	---	7.8	7.6	7.7	7.9	7.7	7.8	7.8	7.7	7.7
28	---	---	---	7.7	7.6	7.6	7.9	7.7	7.8	7.8	7.6	7.7
29	---	---	---	7.8	7.6	7.7	7.9	7.6	7.8	7.8	7.7	7.7
30	---	---	---	7.7	7.6	7.7	8.0	7.8	7.9	7.8	7.7	7.8
31	---	---	---	7.7	7.6	7.6	8.0	7.9	7.9	---	---	---
MAX	---	---	---	---	---	---	8.0	7.9	7.9	8.0	7.9	7.9
MIN	---	---	---	---	---	---	7.7	7.5	7.6	7.7	7.5	7.6

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	22.5	21.5	22.0	17.5	16.5	17.0	10.0	9.0	9.5	1.0	.0	.5
2	22.5	21.5	22.0	18.0	17.0	17.5	11.5	10.0	10.5	2.0	1.0	1.5
3	23.0	22.0	22.5	18.0	17.0	17.5	11.0	9.0	10.5	2.0	1.5	2.0
4	22.5	21.5	22.0	17.0	11.0	14.0	9.5	8.0	8.5	1.5	1.5	1.5
5	22.5	20.5	21.5	11.5	10.0	11.0	8.0	7.0	8.0	2.5	1.0	2.0
6	23.0	21.5	22.0	12.5	10.0	11.0	8.5	7.0	8.0	2.5	2.0	2.0
7	23.0	21.0	22.5	12.0	11.0	12.0	8.0	7.0	7.5	2.0	2.0	2.0
8	21.0	19.0	20.0	12.0	11.5	11.5	8.0	7.0	7.5	2.0	1.0	2.0
9	19.0	17.0	18.0	12.5	11.5	12.0	8.5	7.0	7.5	2.5	2.0	2.5
10	17.5	16.5	17.0	12.0	11.5	11.5	9.0	7.5	8.5	3.0	1.0	2.0
11	17.5	16.5	17.0	12.5	11.5	12.0	9.5	8.0	9.0	1.5	1.0	1.0
12	17.5	16.0	17.0	13.0	12.0	12.5	10.5	9.0	9.5	1.5	1.0	1.0
13	17.5	16.5	17.0	13.5	12.0	13.0	10.0	9.0	9.5	2.5	1.0	1.5
14	18.0	17.0	17.0	14.0	13.0	13.5	9.0	8.0	8.5	3.0	1.5	2.0
15	18.0	17.0	17.5	14.5	13.5	14.0	9.0	8.0	8.5	4.0	2.5	3.0
16	19.0	17.0	18.0	15.0	14.0	14.5	8.5	8.0	8.5	4.0	3.5	3.5
17	19.5	18.5	19.0	14.0	12.0	13.5	8.0	7.0	8.0	4.5	3.0	3.5
18	18.0	16.0	17.5	12.5	12.0	12.5	8.0	7.0	7.5	5.0	3.5	4.0
19	18.0	15.0	15.5	13.0	12.0	12.5	8.0	7.0	7.5	5.5	4.0	5.0
20	15.5	14.0	15.0	14.5	13.0	13.5	8.0	6.5	7.5	5.5	5.0	5.0
21	15.5	15.0	15.5	16.0	14.0	15.0	6.5	3.0	5.0	5.0	4.0	4.0
22	14.5	13.5	14.0	15.5	13.5	15.0	3.0	1.0	2.0	4.0	2.0	3.0
23	14.0	13.5	13.5	13.5	12.0	13.0	1.0	.0	.5	4.0	3.0	3.5
24	14.0	13.0	13.5	12.5	12.0	12.0	1.0	.0	.5	4.0	3.0	3.5
25	14.0	13.5	13.5	13.5	12.0	12.5	1.5	.5	1.0	4.0	3.0	3.5
26	14.5	13.0	13.5	15.5	13.0	14.5	2.5	1.0	2.0	3.0	2.0	2.5
27	15.0	13.5	14.0	16.5	15.0	16.0	3.5	2.0	3.0	3.5	2.0	2.5
28	15.0	14.0	14.5	15.0	11.0	13.5	4.5	3.5	4.0	3.5	2.5	3.0
29	15.0	14.0	14.5	11.5	9.0	10.5	5.0	3.0	4.5	4.0	3.0	3.5
30	16.0	14.0	15.0	9.5	9.0	9.0	2.5	1.0	1.5	3.0	2.0	2.0
31	17.0	15.0	16.0	---	---	---	1.0	.0	.5	2.5	1.5	2.0
MONTH	23.0	13.0	17.3	18.0	9.0	13.2	11.5	.0	6.3	5.5	.0	2.6

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.0	2.0	3.5	12.0	9.0	11.0	15.0	13.5	14.0	20.0	18.5	19.0
2	5.0	4.0	4.5	12.0	10.0	11.5	15.5	14.5	15.0	20.5	18.5	19.5
3	6.0	5.0	5.5	10.0	8.0	8.5	15.0	14.0	14.5	21.5	19.5	20.5
4	7.5	6.0	7.0	9.0	7.5	8.0	17.0	14.0	15.5	22.0	20.5	21.0
5	8.5	7.0	8.0	11.5	8.5	10.0	18.0	15.5	16.5	21.0	19.0	20.0
6	8.5	7.0	7.5	13.0	11.0	12.0	19.0	16.5	17.5	19.5	18.0	19.0
7	8.0	7.0	7.5	12.0	10.5	11.5	19.0	17.5	18.5	20.0	18.5	19.0
8	7.5	6.5	7.0	11.0	9.5	10.0	19.0	18.0	18.5	20.0	18.5	19.0
9	7.0	6.0	7.0	11.0	9.5	10.0	19.0	17.5	18.5	19.5	19.0	19.5
10	7.5	6.5	7.0	11.0	9.5	10.0	18.5	16.0	17.0	20.5	19.5	20.0
11	8.0	7.0	7.5	11.5	9.5	10.5	17.5	16.5	17.0	21.0	20.0	20.5
12	8.0	7.0	8.0	12.0	11.0	11.5	19.0	17.0	18.0	24.0	20.5	22.0
13	9.5	8.0	8.5	11.0	9.5	10.5	19.0	18.0	18.5	25.0	21.5	23.5
14	9.0	8.0	8.5	10.0	8.5	9.5	17.5	16.5	17.0	26.0	24.0	25.0
15	7.5	5.0	7.0	9.0	8.0	8.5	18.0	15.5	16.5	26.0	24.5	25.0
16	10.0	5.0	8.0	9.5	8.0	8.5	19.5	16.5	18.0	24.5	23.0	24.0
17	7.5	5.0	6.0	11.0	9.0	10.0	20.0	18.5	19.0	24.0	22.5	23.5
18	9.5	7.0	9.0	13.0	10.0	11.5	20.0	18.0	19.0	25.5	23.5	24.5
19	9.5	8.0	9.0	13.5	11.0	12.5	18.0	17.0	17.5	24.5	24.0	24.5
20	8.5	7.0	8.0	14.0	12.0	13.0	17.5	16.5	17.0	24.0	23.0	23.5
21	9.0	7.0	8.0	15.5	13.0	14.0	17.0	16.0	16.0	24.5	22.5	23.5
22	9.5	8.0	8.5	16.5	14.5	15.5	15.5	15.0	15.5	24.5	23.5	24.0
23	9.5	8.5	9.0	16.5	15.0	15.5	17.0	14.5	15.5	24.5	23.5	24.0
24	9.5	7.5	9.0	16.5	14.0	15.5	18.0	15.5	16.5	24.0	23.0	23.5
25	8.0	6.0	7.0	17.0	14.5	15.5	20.0	17.0	18.0	24.0	23.0	23.5
26	7.5	6.0	6.5	17.5	15.5	16.5	19.5	18.0	18.5	25.0	23.0	24.0
27	8.0	6.5	7.0	18.5	17.0	17.5	19.5	18.5	19.0	27.0	24.0	25.5
28	9.0	7.0	8.5	17.5	16.0	17.0	18.5	17.5	18.0	28.5	25.5	27.0
29	---	---	---	16.5	15.0	15.5	19.0	18.0	18.5	28.5	26.5	27.5
30	---	---	---	14.5	13.0	14.0	19.0	18.0	18.5	28.0	26.5	27.5
31	---	---	---	13.5	12.0	13.0	---	---	---	27.5	26.5	27.0
MONTH	10.0	2.0	7.3	18.5	7.5	12.2	20.0	13.5	17.2	28.5	18.0	22.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	28.0	26.5	27.0	30.0	27.0	28.0	30.0	28.0	29.0	27.0	26.0	26.5
2	26.5	24.5	25.5	29.5	27.5	28.5	30.5	28.5	29.5	26.5	26.0	26.5
3	27.0	25.0	26.0	29.0	27.5	28.5	30.5	29.0	30.0	26.5	26.0	26.0
4	27.5	25.5	26.5	29.5	27.0	28.5	30.0	28.5	29.5	26.5	25.5	26.0
5	26.5	21.0	25.0	30.0	28.0	29.0	29.5	28.5	29.0	26.5	25.5	26.0
6	22.0	20.5	21.5	30.5	28.5	29.5	30.5	28.5	29.5	26.5	25.0	26.0
7	22.5	22.0	22.5	31.0	29.0	30.0	30.5	29.0	29.5	26.5	26.0	26.5
8	22.5	21.5	22.0	31.0	29.5	30.0	30.5	29.0	30.0	26.5	25.5	26.0
9	22.5	22.0	22.5	31.5	29.0	30.0	30.0	28.5	29.0	27.5	26.0	26.5
10	23.5	22.5	23.0	31.5	29.5	30.5	29.0	27.0	27.5	27.5	26.5	27.0
11	24.5	23.0	23.5	31.0	29.5	30.0	27.5	26.0	26.5	28.0	26.5	27.0
12	25.5	24.0	24.5	31.0	29.0	30.0	27.0	26.0	26.5	28.0	27.0	27.5
13	27.0	25.0	26.0	31.0	29.0	30.0	26.5	25.5	26.0	28.0	26.5	27.5
14	27.5	25.5	26.5	30.0	28.5	29.5	27.0	24.5	25.5	27.5	27.0	27.5
15	27.5	26.0	27.0	30.5	28.0	29.0	27.5	25.5	26.5	27.0	26.5	27.0
16	27.0	25.5	26.0	30.5	28.5	29.5	28.0	26.0	27.0	27.0	25.5	26.0
17	28.5	25.0	26.5	30.5	28.5	29.5	29.0	27.0	28.0	25.5	24.5	25.0
18	29.5	26.5	28.0	30.0	28.5	29.5	28.5	27.0	27.5	25.0	22.0	23.5
19	30.0	27.0	28.5	30.5	28.5	30.0	27.5	26.0	27.0	22.0	20.5	21.0
20	29.0	27.0	28.0	30.5	29.5	30.0	27.5	25.5	26.0	21.0	20.0	20.5
21	29.0	27.0	28.0	30.5	29.0	30.0	27.0	24.5	25.5	20.5	20.0	20.5
22	28.5	26.5	27.0	30.5	29.0	30.0	28.0	26.5	27.0	20.5	20.0	20.5
23	28.5	26.5	27.5	30.5	29.0	30.0	28.5	27.0	27.5	20.5	19.5	20.0
24	29.0	26.5	27.5	30.5	29.0	29.5	28.5	27.0	28.0	21.0	20.5	20.5
25	29.5	27.0	28.0	29.0	27.5	28.0	28.0	26.5	27.5	20.5	19.0	20.0
26	29.5	27.0	28.5	28.0	26.0	27.0	28.0	26.5	27.0	20.5	19.0	20.0
27	29.5	27.5	28.5	27.5	26.5	27.0	27.5	26.5	27.0	20.5	19.0	20.0
28	29.0	27.0	28.5	28.5	26.5	27.5	28.0	26.5	27.5	20.5	19.5	20.0
29	29.0	27.0	28.0	29.0	27.5	28.5	28.0	27.0	27.5	21.0	19.5	20.5
30	29.0	27.0	28.0	28.5	26.5	27.5	27.5	26.0	26.5	21.0	20.0	20.5
31	---	---	---	29.0	26.5	27.5	27.5	26.5	27.0	---	---	---
MONTH	30.0	20.5	26.2	31.5	26.0	29.1	30.5	24.5	27.6	28.0	19.0	23.9
YEAR	31.5	.0	17.2									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.7	6.6	7.3	8.0	7.2	7.7	10.7	9.8	10.3	13.3	12.8	13.2
2	7.6	7.2	7.4	7.5	6.8	7.2	10.4	9.3	10.0	13.0	12.7	12.8
3	7.3	6.9	7.1	7.2	6.7	6.9	10.1	9.3	9.7	12.9	12.5	12.8
4	7.5	6.6	7.0	8.2	6.9	7.5	10.7	9.6	10.3	13.0	12.8	12.9
5	7.6	6.7	7.3	8.3	7.6	8.0	11.3	10.4	10.9	12.9	12.5	12.8
6	7.4	6.8	7.1	9.0	7.7	8.4	11.2	10.4	10.8	12.6	12.4	12.5
7	7.4	6.7	7.1	8.9	6.6	8.8	11.1	10.4	10.8	12.8	12.4	12.5
8	7.8	7.4	7.5	8.9	8.6	8.8	11.3	10.5	11.0	12.9	12.5	12.8
9	8.2	7.7	7.9	9.0	8.6	8.8	11.4	10.6	11.0	12.9	12.4	12.8
10	8.5	8.0	8.3	9.0	8.6	8.8	11.1	10.3	10.8	12.8	12.5	12.7
11	8.6	8.0	8.3	9.2	8.7	9.0	11.0	10.0	10.6	12.9	12.8	12.8
12	8.7	8.1	8.4	9.4	8.6	9.1	10.8	9.7	10.3	13.1	12.8	12.9
13	8.4	8.0	8.2	9.4	8.5	8.9	10.5	9.6	10.1	13.0	12.8	12.9
14	8.5	7.9	8.1	9.1	8.4	8.7	10.7	9.9	10.3	12.9	12.8	12.8
15	8.2	7.9	8.0	8.9	8.0	8.3	10.9	10.3	10.6	12.7	11.9	12.3
16	8.3	7.8	8.0	8.6	7.9	8.2	11.1	10.0	10.6	12.2	11.9	12.0
17	8.2	7.4	7.9	8.5	8.0	8.2	10.5	10.0	10.3	12.4	11.9	12.2
18	8.4	7.5	7.9	8.9	8.3	8.6	10.2	10.0	10.1	12.2	12.0	12.1
19	8.9	7.8	8.5	8.5	8.0	8.3	10.8	10.0	10.4	12.1	11.6	12.0
20	9.0	8.4	8.7	8.4	7.6	8.1	10.9	10.7	10.8	11.8	11.3	11.6
21	8.7	8.0	8.5	7.8	7.1	7.5	11.7	10.8	11.2	12.4	11.6	11.9
22	9.0	8.3	8.7	7.5	7.1	7.3	12.8	11.9	12.3	12.8	12.0	12.4
23	9.5	8.8	9.2	8.4	7.5	8.0	13.1	12.8	12.9	12.8	12.4	12.6
24	9.6	8.8	9.3	8.9	8.1	8.6	13.2	12.9	13.1	12.8	12.4	12.6
25	9.5	8.8	9.2	8.8	8.1	8.5	13.1	12.7	12.9	12.9	12.1	12.5
26	9.4	8.8	9.2	8.5	7.6	8.1	12.8	12.5	12.7	12.9	12.1	12.6
27	9.3	8.6	9.0	8.1	7.4	7.7	12.6	12.0	12.4	13.3	12.5	12.9
28	9.0	8.4	8.8	8.9	7.5	8.4	12.2	11.6	12.0	13.1	12.5	12.9
29	8.9	8.5	8.7	10.2	9.1	9.7	11.7	11.6	11.7	13.2	12.1	12.6
30	8.9	8.0	8.6	10.8	10.0	10.4	12.6	11.6	12.3	13.3	12.5	12.8
31	8.4	7.6	8.2	---	---	---	13.4	12.5	13.1	13.7	13.2	13.5
MONTH	9.6	6.6	8.2	10.8	6.7	8.3	13.4	9.3	11.2	13.7	11.3	12.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	13.8	12.8	13.4	11.6	9.8	10.9	9.5	8.5	8.8	---	---	---
2	13.6	12.7	13.2	10.5	9.1	9.8	9.0	8.1	8.4	---	---	---
3	13.5	12.1	12.9	10.8	9.2	10.2	8.8	8.1	8.3	---	---	---
4	13.2	11.6	12.4	12.0	10.8	11.6	8.2	7.9	8.1	---	---	---
5	12.6	11.3	12.0	12.2	10.4	11.4	8.5	8.1	8.2	---	---	---
6	12.8	11.4	12.0	11.4	9.7	10.6	8.5	7.8	8.1	---	---	---
7	12.7	11.6	12.1	10.9	9.7	10.5	8.2	7.4	7.7	---	---	---
8	13.0	11.6	12.3	11.8	10.1	11.2	7.9	7.1	7.5	---	---	---
9	12.9	11.7	12.3	12.0	10.9	11.7	8.4	7.0	7.7	---	---	---
10	12.8	11.6	12.2	11.9	10.8	11.5	9.0	7.3	8.2	---	---	---
11	12.6	11.5	12.0	11.6	10.2	11.1	8.9	7.8	8.4	---	---	---
12	12.4	10.8	11.7	10.7	8.8	9.9	9.0	7.9	8.5	---	---	---
13	11.7	10.8	11.4	---	---	---	8.9	7.5	7.9	---	---	---
14	11.8	10.8	11.3	10.3	8.9	9.7	8.7	7.6	7.9	7.1	6.5	6.8
15	11.8	10.9	11.5	11.2	9.7	10.3	8.9	7.5	8.4	7.1	6.3	6.7
16	12.6	11.8	12.3	10.7	9.7	10.1	8.8	7.8	8.2	7.3	5.8	6.8
17	12.7	11.6	12.3	10.7	9.6	10.1	8.6	7.4	7.8	7.2	7.1	7.1
18	12.1	10.2	11.4	10.3	9.5	9.9	8.1	2.6	6.0	7.3	7.0	7.2
19	11.0	10.5	10.8	10.5	9.5	10.1	7.6	6.6	7.3	7.0	6.8	6.9
20	11.7	10.8	11.4	10.5	9.7	10.1	7.9	7.7	7.9	7.0	6.8	6.9
21	12.1	11.2	11.6	10.1	9.0	9.6	7.9	7.8	7.8	7.1	6.8	6.9
22	11.9	10.9	11.5	9.5	8.6	9.0	7.9	7.8	7.8	6.9	6.7	6.8
23	11.6	10.8	11.3	10.3	8.5	9.2	8.1	7.4	7.8	7.3	6.9	7.1
24	11.5	10.0	10.9	10.4	9.0	9.7	8.1	7.9	8.0	7.3	6.8	7.1
25	11.6	10.1	11.0	9.9	8.4	9.2	7.9	7.5	7.6	6.9	6.2	6.8
26	12.3	11.5	12.0	8.8	7.6	8.3	7.8	7.6	7.7	6.8	6.7	6.8
27	12.3	11.5	12.0	7.7	7.1	7.4	7.6	5.9	6.6	6.9	6.7	6.8
28	12.2	11.0	11.8	7.3	6.8	7.1	7.4	6.7	7.1	7.1	6.7	6.9
29	---	---	---	8.2	7.1	7.6	---	---	---	7.2	6.6	6.9
30	---	---	---	9.3	7.5	8.4	---	---	---	7.2	6.6	6.8
31	---	---	---	9.5	8.9	9.3	---	---	---	---	---	---
MONTH	13.8	10.0	11.9	---	---	---	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	6.9	6.1	6.4	6.6	5.7	6.3	---	---	---
2	7.0	6.7	6.8	6.6	5.9	6.2	6.4	5.5	6.1	---	---	---
3	6.8	6.1	6.7	6.6	5.6	6.1	6.3	5.5	5.9	---	---	---
4	6.9	6.7	6.8	7.0	5.9	6.4	6.3	5.5	6.0	---	---	---
5	6.8	3.3	5.9	6.8	5.8	6.3	6.3	5.8	6.0	---	---	---
6	5.3	3.6	4.7	6.7	5.7	6.2	6.3	5.5	5.9	---	---	---
7	4.9	3.2	3.9	6.5	5.6	6.0	6.3	5.5	6.0	---	---	---
8	6.2	3.8	5.5	6.3	5.6	6.0	6.3	5.6	6.0	---	---	---
9	6.7	6.2	6.4	6.5	5.6	6.0	6.4	5.6	6.0	---	---	---
10	6.8	6.5	6.7	6.3	5.4	5.9	6.5	5.9	6.2	---	---	---
11	6.9	6.7	6.8	6.2	5.4	5.8	6.8	6.2	6.4	---	---	---
12	6.9	6.6	6.7	6.3	5.5	5.9	7.1	6.2	6.6	---	---	---
13	6.6	6.4	6.5	6.4	5.4	5.9	6.6	6.1	6.4	---	---	---
14	6.4	5.8	6.2	6.7	5.5	6.1	7.1	6.3	6.6	---	---	---
15	6.2	5.6	5.9	6.7	5.8	6.2	6.8	6.2	6.6	---	---	---
16	6.8	5.5	6.2	6.6	5.8	6.2	6.6	6.1	6.4	---	---	---
17	7.1	6.1	6.6	6.5	5.7	6.1	6.5	5.9	6.2	---	---	---
18	8.1	6.6	7.2	6.3	5.6	6.0	6.5	5.8	6.1	---	---	---
19	7.1	5.7	6.5	6.2	5.5	5.9	6.5	6.0	6.3	---	---	---
20	7.3	6.1	6.7	6.2	5.5	5.9	---	---	---	---	---	---
21	7.3	6.4	6.8	6.1	5.6	5.9	---	---	---	---	---	---
22	7.2	6.4	6.7	6.1	5.6	5.9	---	---	---	---	---	---
23	6.9	6.4	6.7	6.1	5.5	5.9	---	---	---	---	---	---
24	7.6	6.5	7.0	6.2	5.5	5.9	---	---	---	---	---	---
25	7.8	6.4	7.0	6.6	5.8	6.2	---	---	---	---	---	---
26	7.6	6.3	6.9	6.6	6.0	6.4	---	---	---	---	---	---
27	7.3	6.2	6.7	6.5	6.1	6.2	---	---	---	---	---	---
28	7.0	6.2	6.6	6.4	6.1	6.3	---	---	---	---	---	---
29	7.0	6.2	6.6	6.9	5.8	6.4	---	---	---	---	---	---
30	7.0	6.1	6.5	6.9	6.2	6.5	---	---	---	---	---	---
31	---	---	---	6.8	6.3	6.6	---	---	---	---	---	---
MONTH	---	---	---	7.0	5.4	6.1	---	---	---	---	---	---

ARKANSAS RIVER BASIN

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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 June 1991 (discontinued).

GAGE.-- Water-stage recorder. Datum of gage is 567.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Flow slightly regulated since March 1977 by Birch Lake (station 07176400). Flow regulated to some extent since October 1984 by Skiatook Lake (station 07177400).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 21,100 ft³/s, Mar. 12, 1990, gage height 33.98 ft; minimum daily discharge, 12 ft³/s, Sept. 27, 1987

EXTREMES FOR CURRENT PERIOD.-- Maximum discharge, 10,800 ft³/s, June 7, gage height, 27.34 ft; minimum daily discharge, 58 ft³/s, Mar. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	219	e76	e74	e68	89	e83	135	663	266	---	---	---
2	181	e77	e75	e65	e89	e80	e140	544	263	---	---	---
3	229	e81	e76	e62	e88	e80	e745	402	1110	---	---	---
4	288	645	e78	e62	e87	e83	e540	216	460	---	---	---
5	420	375	e79	e64	e86	e85	e360	2060	1440	---	---	---
6	258	296	e76	e87	e85	e85	e275	e620	8570	---	---	---
7	205	179	e75	e89	e83	e79	e212	e310	8970	---	---	---
8	191	127	e75	e80	e82	e80	e185	e270	4910	---	---	---
9	196	104	e74	e79	e82	e79	e170	e813	4080	---	---	---
10	185	93	e73	e275	e83	e79	e161	e700	2100	---	---	---
11	213	90	e73	e390	e84	e80	e152	e425	1240	---	---	---
12	210	119	e73	e247	e84	e80	e150	e230	893	---	---	---
13	148	101	e73	e170	e85	e75	e147	e190	512	---	---	---
14	110	88	e74	e155	e83	e61	e147	e165	293	---	---	---
15	94	82	e74	e385	e80	58	e160	e142	193	---	---	---
16	90	78	e75	e885	e79	63	e152	284	321	---	---	---
17	e71	74	403	347	e81	72	e151	841	407	---	---	---
18	e63	e76	492	226	e80	74	e1720	515	242	---	---	---
19	e82	e74	207	208	e79	75	1140	319	209	---	---	---
20	e68	e75	143	206	e79	78	407	256	229	---	---	---
21	e73	e71	e95	155	e78	78	185	244	215	---	---	---
22	e69	e73	e81	e126	e79	78	129	262	214	---	---	---
23	e68	e75	e74	e115	e78	74	155	252	415	---	---	---
24	e67	e74	72	e110	e76	e75	176	781	330	---	---	---
25	e70	e76	e69	e103	e80	e76	306	2000	235	---	---	---
26	e69	e79	e67	e97	e82	e77	886	741	208	---	---	---
27	e68	e78	e68	e97	e84	110	1510	415	192	---	---	---
28	e71	e77	e69	e96	e82	107	1790	320	181	---	---	---
29	e72	e75	e75	e96	---	90	1710	268	200	---	---	---
30	e74	e73	e68	e95	---	126	1010	244	196	---	---	---
31	e76	---	e70	e92	---	131	---	226	---	---	---	---
TOTAL	4278	3661	3250	5132	2307	2551	15106	15718	39094	---	---	---
MEAN	138	122	105	166	82.4	82.3	504	507	1303	---	---	---
MAX	420	645	492	885	89	131	1790	2060	8970	---	---	---
MIN	62	71	67	62	76	58	129	142	181	---	---	---
AC-FT	8490	7260	6450	10180	4580	5060	29960	31180	77540	---	---	---
CFSM	.14	.13	.11	.17	.09	.09	.52	.52	1.35	---	---	---

CAL YR 1990 TOTAL 382712 MEAN 1049 MAX 18500 MIN 46 AC-FT 759100 CFSM 1.08

e Estimated

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK --Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- July 1987 to June 1991 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1987 to June 1991 (discontinued).

pH: July 1987 to June 1991 (discontinued).

WATER TEMPERATURE: July 1987 to June 1991 (discontinued).

DISSOLVED OXYGEN: July 1987 to June 1991 (discontinued).

INSTRUMENTATION.-- Water-quality monitor since July 1987.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,400 microsiemens, Jan. 19, 1990; minimum, 70 microsiemens, Mar. 14, 15, 1990.

pH: Maximum, 8.8 units, Mar. 27, 1988; minimum, 6.9 units, Oct. 22, 1988.

WATER TEMPERATURE: Maximum, 33.5°C, Aug. 11, 1987; minimum, 0.0°C, Jan. 13, 1988.

DISSOLVED OXYGEN: Maximum, 15.6 mg/l, Dec. 17, 19, 1987; minimum, 2.9 mg/l, Apr. 18, 1991.

EXTREMES FOR CURRENT PERIOD.--

SPECIFIC CONDUCTANCE: Maximum, 980 microsiemens, Mar. 28; minimum 120 microsiemens, June 8.

pH: Maximum recorded (more than 20 percent missing record), 8.4 units, Feb. 28, Mar. 4, 5, 8, 9; minimum recorded 7.1 units, Apr. 18.

WATER TEMPERATURE: Maximum, 29.0°C, June 26; minimum, 1.5°C, several days during winter period.

DISSOLVED OXYGEN: Maximum, 13.9 mg/L, Jan. 31; minimum 2.9 mg/L, Apr. 18.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	291	284	287	423	412	420	424	420	422	464	453	458
2	291	287	289	426	420	423	424	420	422	457	443	451
3	317	288	285	425	414	423	424	416	421	447	439	444
4	366	278	328	700	295	416	424	416	421	444	438	440
5	307	255	273	321	242	273	420	417	418	452	440	444
6	286	266	276	432	307	356	431	419	425	564	455	491
7	303	287	296	370	359	362	426	419	422	595	501	502
8	302	293	298	367	361	365	421	417	419	578	508	522
9	320	299	304	373	367	370	423	418	421	589	515	549
10	311	298	306	380	372	376	424	419	422	533	441	506
11	313	302	307	388	380	384	420	416	419	542	303	380
12	321	314	318	409	387	396	426	417	419	466	303	387
13	341	319	326	412	409	411	429	426	428	457	432	441
14	353	341	349	409	404	406	430	421	425	556	460	506
15	340	328	334	404	399	402	424	422	423	539	448	508
16	329	326	327	400	397	398	425	423	424	453	312	397
17	338	328	334	399	395	397	691	353	474	459	424	440
18	355	337	345	398	395	396	305	235	261	423	412	415
19	362	355	359	403	398	400	376	285	344	455	413	427
20	364	362	363	405	403	404	461	376	413	489	426	455
21	366	361	364	409	404	407	522	441	487	425	412	418
22	367	354	363	413	408	411	440	432	434	416	411	413
23	372	363	368	415	411	413	439	432	435	431	417	425
24	375	371	373	417	413	414	441	432	436	435	432	433
25	379	375	378	421	416	418	441	429	435	434	429	431
26	382	379	381	423	421	422	435	430	433	435	430	432
27	391	382	386	425	421	423	441	436	439	440	436	438
28	401	387	395	451	422	430	450	441	445	451	440	445
29	410	401	405	446	428	431	468	450	458	484	450	455
30	417	410	415	430	424	428	466	452	459	474	462	468
31	419	412	417	---	---	---	468	446	458	473	467	469
MONTH	419	255	340	700	242	399	691	235	425	595	303	453

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	478	473	475	475	468	469	489	378	393	228	284	219
2	478	469	473	466	473	478	381	372	375	263	230	248
3	472	469	470	488	475	480	621	284	420	330	262	299
4	478	471	474	478	472	475	439	291	358	414	325	343
5	483	475	479	478	474	477	478	480	448	476	226	386
6	488	472	478	478	473	478	471	451	458	258	238	249
7	483	469	474	473	463	468	460	445	455	277	256	265
8	478	464	469	464	453	458	445	430	438	313	279	293
9	478	465	475	475	455	465	428	422	425	348	267	382
10	479	464	475	473	451	462	422	413	418	310	281	293
11	476	465	470	---	---	---	417	413	416	311	279	384
12	466	461	464	---	---	---	415	412	413	325	382	312
13	469	465	467	---	---	---	415	412	413	345	327	337
14	471	468	469	462	454	457	416	411	414	361	346	356
15	---	---	---	475	463	466	513	417	451	386	360	371
16	---	---	---	500	477	493	461	486	424	514	382	416
17	---	---	---	515	499	507	489	486	487	416	354	380
18	---	---	---	526	503	510	622	361	438	464	484	445
19	---	---	---	537	528	530	345	255	283	400	380	388
20	---	---	---	531	526	529	334	265	384	482	378	387
21	---	---	---	550	529	541	354	334	345	388	378	381
22	---	---	---	558	544	553	366	354	360	416	382	390
23	---	---	---	555	541	550	544	366	405	446	374	481
24	---	---	---	539	527	534	519	350	394	458	338	390
25	---	---	---	528	520	525	586	354	424	382	276	314
26	---	---	---	519	508	515	418	379	397	384	256	288
27	---	---	---	785	492	535	442	288	378	336	288	299
28	468	463	465	980	778	878	368	253	325	368	336	355
29	---	---	---	757	572	642	365	237	279	368	364	365
30	---	---	---	569	448	517	251	175	286	366	364	365
31	---	---	---	443	486	419	---	---	---	370	360	365
MONTH	---	---	---	---	---	---	622	175	389	514	284	336
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	478	358	481	---	---	---	---	---	---	---	---	---
2	440	350	387	---	---	---	---	---	---	---	---	---
3	482	298	344	---	---	---	---	---	---	---	---	---
4	468	366	413	---	---	---	---	---	---	---	---	---
5	414	168	348	---	---	---	---	---	---	---	---	---
6	178	136	156	---	---	---	---	---	---	---	---	---
7	230	158	182	---	---	---	---	---	---	---	---	---
8	230	120	193	---	---	---	---	---	---	---	---	---
9	252	202	225	---	---	---	---	---	---	---	---	---
10	240	218	224	---	---	---	---	---	---	---	---	---
11	244	226	230	---	---	---	---	---	---	---	---	---
12	264	246	253	---	---	---	---	---	---	---	---	---
13	276	264	271	---	---	---	---	---	---	---	---	---
14	296	276	286	---	---	---	---	---	---	---	---	---
15	356	298	313	---	---	---	---	---	---	---	---	---
16	450	294	365	---	---	---	---	---	---	---	---	---
17	358	252	297	---	---	---	---	---	---	---	---	---
18	354	320	336	---	---	---	---	---	---	---	---	---
19	574	354	418	---	---	---	---	---	---	---	---	---
20	424	354	378	---	---	---	---	---	---	---	---	---
21	356	354	355	---	---	---	---	---	---	---	---	---
22	362	358	380	---	---	---	---	---	---	---	---	---
23	376	334	362	---	---	---	---	---	---	---	---	---
24	338	314	323	---	---	---	---	---	---	---	---	---
25	354	338	346	---	---	---	---	---	---	---	---	---
26	360	356	358	---	---	---	---	---	---	---	---	---
27	362	356	358	---	---	---	---	---	---	---	---	---
28	360	356	357	---	---	---	---	---	---	---	---	---
29	360	352	357	---	---	---	---	---	---	---	---	---
30	360	354	357	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	574	120	318	---	---	---	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.5	7.4	7.5	7.6	7.4	7.5	8.0	7.9	8.0	8.1	8.0	8.0
2	7.6	7.5	7.6	7.6	7.4	7.5	8.0	7.8	7.9	8.1	8.0	8.0
3	7.6	7.5	7.5	7.6	7.4	7.5	8.0	7.9	7.9	8.1	8.0	8.1
4	7.7	7.5	7.6	7.9	7.5	7.8	8.1	7.9	8.0	8.1	7.8	8.1
5	7.6	7.5	7.6	7.7	7.4	7.5	8.1	7.9	8.0	8.1	7.9	8.0
6	7.6	7.5	7.5	7.8	7.6	7.6	8.2	7.9	8.0	8.1	8.0	8.0
7	7.6	7.6	7.6	7.8	7.7	7.7	8.2	8.0	8.0	8.1	8.0	8.0
8	7.6	7.6	7.6	7.6	7.6	7.6	8.2	7.9	8.0	8.0	8.0	8.0
9	7.7	7.6	7.6	7.7	7.5	7.6	8.2	7.9	8.0	8.1	8.0	8.0
10	7.7	7.6	7.6	7.7	7.5	7.6	8.2	7.9	8.0	8.1	7.9	8.0
11	7.7	7.6	7.7	7.8	7.5	7.6	8.2	7.9	8.0	8.0	7.8	7.9
12	7.8	7.6	7.7	7.9	7.7	7.8	8.2	7.9	8.0	8.1	7.9	8.1
13	7.7	7.6	7.7	7.9	7.7	7.8	8.2	8.0	8.0	8.1	8.0	8.1
14	7.7	7.6	7.7	7.8	7.7	7.8	8.2	8.0	8.0	8.1	8.1	8.1
15	7.7	7.6	7.7	7.7	7.5	7.7	8.3	8.0	8.1	8.1	8.0	8.1
16	7.7	7.5	7.6	7.7	7.5	7.6	8.3	8.0	8.1	8.1	8.0	8.1
17	7.7	7.5	7.6	7.7	7.5	7.6	8.1	7.7	8.0	8.1	8.1	8.1
18	7.8	7.6	7.7	7.8	7.5	7.5	7.8	7.7	7.7	---	---	---
19	7.9	7.7	7.8	7.6	7.5	7.6	7.9	7.8	7.8	---	---	---
20	8.1	7.8	8.0	7.7	7.5	7.6	8.0	7.9	8.0	---	---	---
21	8.0	7.8	7.9	7.7	7.6	7.7	8.1	8.0	8.0	---	---	---
22	7.9	7.7	7.8	7.7	7.6	7.6	8.1	8.0	8.1	---	---	---
23	8.0	7.7	7.9	7.8	7.6	7.6	8.1	8.0	8.0	---	---	---
24	8.1	7.8	7.9	7.8	7.5	7.7	8.0	8.0	8.0	---	---	---
25	8.1	7.8	8.0	7.8	7.6	7.7	8.0	8.0	8.0	---	---	---
26	8.1	7.8	7.9	7.9	7.7	7.8	8.0	8.0	8.0	---	---	---
27	8.0	7.7	7.8	7.9	7.8	7.8	8.1	8.0	8.0	---	---	---
28	7.9	7.6	7.7	7.9	7.7	7.8	8.0	8.0	8.0	---	---	---
29	7.8	7.5	7.6	8.0	7.8	7.9	8.1	8.0	8.0	---	---	---
30	7.7	7.5	7.6	8.0	7.9	7.9	8.1	8.0	8.1	---	---	---
31	7.7	7.5	7.6	---	---	---	8.1	8.0	8.1	---	---	---
MAX	8.1	7.8	8.0	8.0	7.9	7.9	8.3	8.0	8.1	---	---	---
MIN	7.5	7.4	7.5	7.6	7.4	7.5	7.8	7.7	7.7	---	---	---
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	8.2	7.9	8.1	7.9	7.8	7.9	7.6	7.5	7.6
2	---	---	---	8.0	7.9	8.0	7.9	7.7	7.8	7.7	7.6	7.6
3	---	---	---	8.2	7.9	8.0	7.9	7.5	7.8	7.7	7.5	7.6
4	---	---	---	8.4	7.9	8.1	7.8	7.6	7.7	7.6	7.5	7.5
5	---	---	---	8.4	7.9	8.1	7.9	7.5	7.9	7.6	7.4	7.5
6	---	---	---	8.3	7.9	8.1	7.9	7.8	7.9	7.6	7.5	7.6
7	---	---	---	8.3	8.0	8.1	7.9	7.8	7.9	7.6	7.4	7.5
8	---	---	---	8.4	8.0	8.1	7.9	7.8	7.9	7.6	7.5	7.5
9	---	---	---	8.4	8.0	8.1	7.9	7.8	7.8	---	---	---
10	---	---	---	8.3	8.0	8.1	7.9	7.8	7.8	---	---	---
11	---	---	---	---	---	---	7.9	7.8	7.9	---	---	---
12	---	---	---	---	---	---	8.0	7.8	7.9	---	---	---
13	---	---	---	---	---	---	7.8	7.8	7.8	---	---	---
14	---	---	---	8.0	7.9	7.9	7.9	7.8	7.8	---	---	---
15	---	---	---	8.0	7.9	7.9	7.8	7.8	7.8	---	---	---
16	---	---	---	8.0	7.9	8.0	7.9	7.8	7.8	---	---	---
17	---	---	---	8.0	7.8	7.9	7.9	7.7	7.8	---	---	---
18	---	---	---	8.0	7.7	7.9	7.8	7.2	7.4	---	---	---
19	---	---	---	8.0	7.8	7.9	7.4	7.3	7.3	---	---	---
20	---	---	---	8.1	7.8	7.9	7.5	7.3	7.5	---	---	---
21	---	---	---	8.1	7.5	8.0	7.5	7.5	7.5	---	---	---
22	---	---	---	8.1	7.8	8.0	7.5	7.5	7.5	---	---	---
23	---	---	---	8.1	7.8	7.9	7.5	7.3	7.5	---	---	---
24	---	---	---	8.1	7.8	8.0	7.6	7.5	7.6	---	---	---
25	---	---	---	8.1	7.9	8.0	7.7	7.5	7.6	---	---	---
26	---	---	---	8.0	7.8	7.9	7.7	7.5	7.7	---	---	---
27	---	---	---	8.0	7.7	7.8	7.7	7.5	7.6	---	---	---
28	8.4	8.0	8.2	7.9	7.8	7.8	7.7	7.4	7.5	---	---	---
29	---	---	---	8.0	7.8	7.8	7.8	7.4	7.6	---	---	---
30	---	---	---	8.0	7.8	7.9	7.6	7.4	7.5	---	---	---
31	---	---	---	8.0	7.9	7.9	---	---	---	---	---	---
MAX	---	---	---	---	---	---	7.9	7.8	7.9	---	---	---
MIN	---	---	---	---	---	---	7.3	7.1	7.3	---	---	---

07177600 BIRD CREEK AT 66TH STREET, NEAR TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	7.3	7.2	7.2	---	---	---	---	---	---	---	---	---
8	7.6	7.2	7.4	---	---	---	---	---	---	---	---	---
9	7.7	7.4	7.6	---	---	---	---	---	---	---	---	---
10	7.7	7.6	7.6	---	---	---	---	---	---	---	---	---
11	7.7	7.6	7.7	---	---	---	---	---	---	---	---	---
12	7.7	7.6	7.6	---	---	---	---	---	---	---	---	---
13	7.7	7.6	7.7	---	---	---	---	---	---	---	---	---
14	7.7	7.7	7.7	---	---	---	---	---	---	---	---	---
15	7.7	7.7	7.7	---	---	---	---	---	---	---	---	---
16	7.7	7.4	7.7	---	---	---	---	---	---	---	---	---
17	7.8	7.4	7.7	---	---	---	---	---	---	---	---	---
18	7.9	7.8	7.8	---	---	---	---	---	---	---	---	---
19	7.9	7.7	7.8	---	---	---	---	---	---	---	---	---
20	7.9	7.8	7.8	---	---	---	---	---	---	---	---	---
21	7.9	7.8	7.9	---	---	---	---	---	---	---	---	---
22	7.9	7.8	7.9	---	---	---	---	---	---	---	---	---
23	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
24	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
25	8.1	7.8	7.9	---	---	---	---	---	---	---	---	---
26	8.1	7.9	8.0	---	---	---	---	---	---	---	---	---
27	8.1	7.9	8.0	---	---	---	---	---	---	---	---	---
28	8.0	7.9	7.9	---	---	---	---	---	---	---	---	---
29	8.1	7.8	8.0	---	---	---	---	---	---	---	---	---
30	8.1	7.9	8.0	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.0	21.0	21.5	17.5	16.0	17.0	10.5	9.0	10.0	2.0	1.5	1.5
2	22.0	21.0	22.0	18.0	16.5	17.5	11.5	10.0	10.5	2.0	1.5	2.0
3	22.5	22.0	22.0	18.5	17.0	18.0	11.5	10.0	10.5	2.5	1.5	2.0
4	22.0	21.0	21.5	18.0	12.0	14.5	10.0	9.0	9.5	2.5	2.0	2.0
5	22.0	20.5	21.5	12.0	10.5	11.0	9.0	8.0	8.5	3.0	2.5	2.5
6	22.5	21.0	22.0	12.0	10.5	11.0	8.5	8.0	8.5	3.0	3.0	3.0
7	23.0	21.0	22.0	12.5	11.5	12.0	8.5	7.5	8.0	3.0	2.5	2.5
8	21.0	19.0	20.0	12.0	11.5	12.0	8.5	7.0	8.0	2.5	2.5	2.5
9	19.0	17.0	18.0	12.5	11.5	12.0	8.5	7.0	8.0	3.0	2.5	3.0
10	17.5	16.5	17.0	12.5	11.0	12.0	9.5	8.0	8.5	3.0	2.0	3.0
11	17.5	16.5	17.0	13.0	11.0	12.0	10.0	8.5	9.0	2.0	2.0	2.0
12	17.0	16.0	16.5	13.5	12.0	13.0	10.5	9.5	10.0	2.5	1.5	2.0
13	18.0	16.5	17.0	14.0	12.5	13.0	10.5	9.5	10.0	3.0	1.5	2.0
14	18.5	16.5	17.5	14.5	12.5	13.5	9.5	9.0	9.5	3.5	2.5	3.0
15	18.0	16.5	17.5	15.0	13.5	14.0	9.5	8.5	9.0	4.5	3.5	4.0
16	19.0	17.0	18.0	15.0	14.0	14.5	9.0	8.5	8.5	4.5	4.0	4.5
17	19.0	18.5	19.0	14.5	13.0	13.5	8.5	8.0	8.5	5.0	4.0	4.5
18	18.5	16.5	17.5	13.5	12.5	13.0	8.5	8.0	8.0	5.5	4.5	5.0
19	17.0	15.0	16.0	13.5	12.5	13.0	8.0	7.5	8.0	6.5	5.5	6.0
20	16.0	15.0	15.5	15.0	13.0	14.0	8.0	7.0	8.0	6.5	6.0	6.0
21	16.0	14.5	15.0	16.0	15.0	15.5	7.0	4.0	5.5	5.5	4.0	5.0
22	15.0	13.5	14.5	16.0	14.5	15.0	4.0	1.5	3.0	4.5	3.5	4.0
23	14.5	13.0	14.0	14.5	13.0	13.5	1.5	1.5	1.5	4.5	3.5	4.0
24	14.5	13.0	13.5	13.5	12.0	12.5	1.5	1.5	1.5	5.0	4.0	4.5
25	14.0	12.5	13.5	14.0	12.0	13.0	1.5	1.5	1.5	4.5	3.5	4.0
26	14.5	13.0	14.0	16.0	14.0	14.5	3.0	1.5	2.0	4.0	3.0	3.5
27	15.0	13.5	14.5	16.0	15.0	16.0	4.0	3.0	3.0	4.0	3.0	3.5
28	15.0	13.5	14.5	15.0	13.0	14.0	5.0	4.0	4.0	4.5	3.0	3.5
29	15.5	14.0	14.5	13.0	11.0	11.5	5.5	3.5	4.5	4.5	3.5	4.0
30	16.0	14.5	15.5	11.0	9.5	10.0	3.5	2.0	2.5	3.5	3.0	3.5
31	17.0	15.5	16.0	---	---	---	2.0	1.5	1.5	4.0	2.0	3.0

ARKANSAS RIVER BASIN

07177600 BIRD CREEK AT 86TH STREET, NEAR TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	5.0	2.5	4.0	13.0	10.0	11.5	16.0	13.0	14.5	20.0	18.0	19.0
2	6.5	4.0	5.0	12.0	10.5	11.0	16.0	14.0	15.0	20.5	18.5	19.5
3	7.5	5.0	6.0	10.0	9.0	9.5	15.0	14.5	14.5	21.0	19.0	20.0
4	8.5	6.5	7.5	10.5	9.5	9.5	16.5	14.5	15.5	21.5	21.0	21.0
5	9.5	8.0	8.5	12.5	9.0	11.0	18.0	15.5	16.5	21.0	19.0	20.0
6	9.5	8.0	8.5	13.0	11.0	12.5	19.0	16.5	18.0	19.5	18.0	19.0
7	9.0	7.0	8.5	12.5	10.5	11.5	19.0	18.0	18.5	19.5	18.5	19.0
8	9.0	7.0	8.0	12.0	9.5	11.0	19.0	18.5	19.0	19.5	19.0	19.0
9	8.5	6.5	7.5	11.5	9.5	10.5	19.5	18.0	18.5	19.5	18.5	19.0
10	8.5	7.0	8.0	12.0	10.5	11.0	18.5	17.0	17.5	20.5	19.5	20.0
11	9.0	7.0	8.0	---	---	---	18.0	16.5	17.0	21.0	20.0	20.5
12	9.0	7.5	8.5	---	---	---	19.5	17.0	18.0	22.5	20.5	21.5
13	10.0	8.5	9.0	---	---	---	19.0	18.0	18.5	24.0	22.5	23.0
14	10.0	8.5	9.0	10.5	9.5	10.0	18.0	17.0	17.5	25.0	24.0	24.5
15	---	---	---	10.5	9.0	9.5	18.0	16.0	17.0	24.5	24.5	24.5
16	---	---	---	10.0	8.5	9.5	19.5	17.0	18.0	24.0	23.0	23.5
17	---	---	---	11.0	10.0	10.5	20.0	18.5	19.5	23.5	22.0	23.0
18	---	---	---	13.0	10.5	11.5	20.0	18.0	19.0	25.0	23.5	24.0
19	---	---	---	13.5	12.0	12.5	18.0	17.0	17.5	25.0	24.0	24.0
20	---	---	---	14.5	13.0	13.5	17.5	16.5	17.0	24.0	23.0	23.5
21	---	---	---	16.0	14.0	15.0	17.0	16.0	16.5	24.0	22.5	23.0
22	---	---	---	16.5	15.0	15.5	16.0	15.5	15.5	24.0	23.0	23.5
23	---	---	---	16.5	15.0	16.0	17.0	14.5	15.5	24.5	23.5	24.0
24	---	---	---	16.5	15.0	16.0	17.5	4.0	16.0	24.0	22.5	23.5
25	---	---	---	17.0	16.0	16.5	19.5	17.0	18.0	23.5	22.5	23.0
26	---	---	---	18.0	17.0	17.5	19.5	18.0	19.0	25.0	23.0	23.5
27	---	---	---	18.5	17.5	18.0	20.0	18.5	19.0	26.5	24.0	25.0
28	10.5	8.0	9.5	18.0	16.0	17.0	18.5	17.5	18.5	27.5	25.5	26.5
29	---	---	---	17.5	15.5	16.0	19.0	18.0	18.5	28.0	26.0	27.0
30	---	---	---	15.5	13.5	14.5	19.0	18.0	18.5	27.5	26.0	27.0
31	---	---	---	15.0	12.5	13.5	---	---	---	27.0	26.0	26.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	27.5	26.0	26.5	---	---	---	---	---	---	---	---	---
2	26.5	24.0	25.5	---	---	---	---	---	---	---	---	---
3	26.5	24.5	25.5	---	---	---	---	---	---	---	---	---
4	27.0	25.5	26.0	---	---	---	---	---	---	---	---	---
5	26.5	21.5	25.0	---	---	---	---	---	---	---	---	---
6	21.5	20.5	21.0	---	---	---	---	---	---	---	---	---
7	22.0	21.5	22.0	---	---	---	---	---	---	---	---	---
8	22.0	21.5	22.0	---	---	---	---	---	---	---	---	---
9	22.5	22.0	22.0	---	---	---	---	---	---	---	---	---
10	23.5	22.0	22.5	---	---	---	---	---	---	---	---	---
11	24.0	22.5	23.5	---	---	---	---	---	---	---	---	---
12	25.0	23.5	24.5	---	---	---	---	---	---	---	---	---
13	26.5	25.0	25.5	---	---	---	---	---	---	---	---	---
14	26.5	25.0	26.0	---	---	---	---	---	---	---	---	---
15	26.5	26.0	26.5	---	---	---	---	---	---	---	---	---
16	26.5	25.0	25.5	---	---	---	---	---	---	---	---	---
17	27.5	24.5	26.0	---	---	---	---	---	---	---	---	---
18	26.5	26.0	27.5	---	---	---	---	---	---	---	---	---
19	28.5	27.0	28.0	---	---	---	---	---	---	---	---	---
20	28.5	27.0	28.0	---	---	---	---	---	---	---	---	---
21	28.0	27.0	27.5	---	---	---	---	---	---	---	---	---
22	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
23	28.0	26.0	27.0	---	---	---	---	---	---	---	---	---
24	28.0	26.5	27.0	---	---	---	---	---	---	---	---	---
25	28.5	26.5	27.5	---	---	---	---	---	---	---	---	---
26	29.0	27.5	28.0	---	---	---	---	---	---	---	---	---
27	28.5	27.5	28.0	---	---	---	---	---	---	---	---	---
28	28.5	27.5	28.0	---	---	---	---	---	---	---	---	---
29	28.5	27.0	28.0	---	---	---	---	---	---	---	---	---
30	28.5	27.0	27.5	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	29.0	20.5	25.8	---	---	---	---	---	---	---	---	---

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.1	7.8	8.0	9.1	8.1	8.5	10.9	10.0	10.4	13.2	13.1	13.2
2	8.1	7.8	7.9	8.5	7.7	8.0	10.8	9.8	10.1	13.1	12.9	13.0
3	7.8	7.3	7.6	8.1	7.4	7.8	10.6	9.4	9.9	13.0	12.7	12.8
4	8.0	7.6	7.8	8.6	7.6	8.0	11.1	9.8	10.4	12.9	12.7	12.8
5	8.2	7.8	8.0	9.2	8.6	9.0	11.5	10.3	10.8	12.8	12.6	12.7
6	8.0	7.8	7.9	9.5	8.7	9.1	11.5	10.5	11.0	12.7	12.4	12.5
7	7.8	7.7	7.7	9.6	9.3	9.4	11.7	10.5	11.0	12.7	12.4	12.6
8	8.4	7.8	8.1	9.5	9.4	9.5	11.8	10.6	11.1	12.9	12.5	12.7
9	8.7	8.4	8.6	9.6	9.3	9.4	11.8	10.6	11.1	12.8	12.5	12.7
10	9.1	8.7	8.9	9.6	9.3	9.4	11.7	10.5	11.0	12.7	12.4	12.5
11	9.1	8.9	9.0	9.7	9.3	9.5	11.5	10.2	10.8	12.8	12.7	12.8
12	9.3	8.9	9.1	9.9	9.3	9.6	11.3	9.9	10.6	13.0	12.8	12.9
13	9.1	8.9	9.0	9.8	9.3	9.5	11.1	9.7	10.3	13.0	12.8	12.9
14	8.9	8.7	8.8	9.6	9.0	9.3	11.2	9.9	10.4	13.1	12.8	12.9
15	8.9	8.6	8.7	9.4	8.7	9.1	12.0	10.1	10.9	12.8	12.3	12.6
16	8.8	8.5	8.7	9.1	8.4	8.8	11.8	10.3	10.8	12.7	12.2	12.5
17	8.6	8.1	8.3	9.4	8.4	8.8	10.9	10.0	10.3	12.9	12.7	12.8
18	9.0	8.2	8.5	9.3	8.7	9.0	10.5	10.1	10.4	12.8	12.6	12.7
19	9.4	8.6	9.0	9.2	8.8	9.0	10.6	10.5	10.5	12.5	12.2	12.4
20	9.5	8.8	9.2	9.0	8.5	8.7	10.7	10.5	10.6	12.1	11.9	12.0
21	9.6	8.8	9.2	8.6	8.1	8.2	11.6	10.7	11.1	12.7	12.1	12.4
22	9.9	9.0	9.4	8.6	7.8	8.1	12.6	11.6	12.1	13.0	12.6	12.8
23	10.4	9.2	9.7	9.4	8.2	8.7	13.1	12.5	12.8	13.1	12.7	12.9
24	10.6	9.4	10.0	9.6	8.8	9.2	13.1	13.0	13.0	13.1	12.7	12.9
25	10.6	9.5	10.0	9.5	8.8	9.2	13.0	12.8	12.9	12.8	12.7	12.8
26	10.4	9.4	9.9	9.3	8.4	8.6	12.7	12.6	12.7	13.3	12.7	13.0
27	10.3	9.2	9.7	8.5	7.9	8.2	12.6	12.3	12.4	13.4	12.8	13.1
28	10.2	9.2	9.6	9.4	8.3	8.7	12.3	11.9	12.1	13.4	12.7	13.0
29	9.9	9.0	9.5	10.4	9.0	9.6	12.0	11.5	11.7	12.9	12.5	12.8
30	9.7	8.8	9.3	10.8	9.8	10.2	12.8	11.9	12.3	13.7	12.5	13.1
31	9.6	8.5	9.0	---	---	---	13.2	12.7	13.0	13.9	13.0	13.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	13.8	13.2	13.5	11.1	9.9	10.6	11.0	8.5	9.3	7.9	7.6	7.8
2	13.6	12.7	13.2	10.1	9.2	9.6	8.8	8.1	8.4	7.9	7.6	7.8
3	13.3	12.2	12.8	11.3	9.4	10.3	9.4	8.1	8.6	7.7	7.3	7.6
4	12.7	11.7	12.3	12.2	10.2	11.1	8.7	8.0	8.3	7.3	6.7	7.1
5	12.7	11.1	11.9	11.8	10.1	10.9	8.2	7.8	8.1	7.2	6.4	6.9
6	12.7	11.0	11.8	11.1	9.4	10.2	8.4	7.8	8.1	7.5	6.9	7.3
7	12.9	11.0	11.9	11.3	9.3	10.0	8.4	7.8	8.1	7.5	7.2	7.3
8	13.1	11.0	12.0	11.7	9.8	10.7	8.2	7.7	7.9	7.4	7.2	7.3
9	13.1	11.0	12.0	11.8	9.8	10.7	8.6	7.7	8.1	7.5	7.2	7.4
10	13.1	11.0	12.0	11.4	9.6	10.4	9.0	8.1	8.5	7.5	7.4	7.5
11	12.8	10.9	11.8	---	---	---	8.8	8.1	8.3	7.6	7.2	7.4
12	12.1	10.7	11.4	---	---	---	8.7	7.9	8.2	---	---	---
13	12.0	10.3	11.1	---	---	---	7.9	7.5	7.7	---	---	---
14	---	---	---	10.7	9.2	9.8	8.3	7.4	7.8	---	---	---
15	---	---	---	10.8	9.7	10.2	8.7	7.8	8.2	---	---	---
16	---	---	---	11.0	10.0	10.4	8.7	7.9	8.2	7.0	6.4	6.7
17	---	---	---	10.9	9.5	10.2	8.2	8.0	7.5	7.4	6.9	7.2
18	---	---	---	10.9	9.2	10.0	7.4	2.9	5.2	7.5	7.0	7.3
19	---	---	---	11.1	8.7	9.9	7.7	6.1	7.1	7.3	7.1	7.2
20	---	---	---	10.8	8.6	9.8	8.1	7.7	7.9	7.2	7.1	7.1
21	---	---	---	10.4	8.3	9.5	8.0	7.9	8.0	7.3	7.1	7.2
22	---	---	---	10.3	7.8	9.2	8.1	8.0	8.0	---	---	---
23	---	---	---	10.4	7.8	9.2	8.4	8.0	8.2	---	---	---
24	---	---	---	10.9	7.9	9.5	8.4	8.0	8.2	---	---	---
25	---	---	---	10.5	7.9	9.4	8.0	7.6	7.8	---	---	---
26	---	---	---	9.4	7.4	8.4	---	---	---	---	---	---
27	---	---	---	8.6	6.8	7.7	7.6	6.6	7.2	---	---	---
28	12.4	11.0	11.7	8.1	6.9	7.3	7.4	6.6	7.1	---	---	---
29	---	---	---	8.6	6.7	7.6	7.5	6.7	6.7	---	---	---
30	---	---	---	9.2	7.5	8.3	7.6	7.1	7.4	---	---	---
31	---	---	---	11.0	8.4	9.1	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

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07177650 FLAT ROCK CREEK AT CINCINNATI 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.-- No estimated daily discharges. Records fair.

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, 147 ft³/s, Apr. 3, gage height, 6.20 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.16	.12	.20	.52	.35	.19	.11	.25	.03	.00	.01
2	.09	.16	.25	.25	.51	.37	5.7	.10	2.1	.05	.00	.00
3	4.9	.57	.14	.19	.47	.35	33	1.5	.86	.01	.00	.08
4	1.0	13	.14	.15	.41	.33	4.3	3.7	.45	.02	.00	.24
5	.31	1.5	.10	.46	.41	.36	2.1	5.7	9.4	.00	.00	.06
6	.12	.58	.09	2.9	.41	.35	1.3	1.4	2.7	.00	.00	.04
7	.17	.29	.05	1.5	.36	.29	1.0	.82	1.2	.00	.00	.23
8	.47	.19	.06	.87	.29	.24	.83	1.6	1.7	.00	.28	.08
9	.52	.20	.06	1.6	.28	.23	.62	1.2	2.1	.01	.16	.07
10	.24	.11	.06	13	.28	.20	.43	.80	1.0	.00	.19	.04
11	.16	.09	.06	7.4	.28	.19	.36	.87	.81	.00	.00	.06
12	.13	.06	.06	3.6	.28	.19	.29	.59	.40	.58	.06	.03
13	.12	.06	.06	3.2	.28	.19	.23	.46	.23	.10	.22	.01
14	.24	.06	.06	2.4	.28	.19	.19	.41	.13	.02	.10	.27
15	.29	.03	.06	12	.20	.19	.19	.32	.07	.02	.02	.02
16	.24	.03	.14	5.9	.19	.32	.17	1.6	.66	.00	.00	1.4
17	.17	.00	8.6	2.8	.24	.51	.14	.93	.21	.01	.00	.15
18	.16	.00	3.5	1.6	.36	.46	.09	.53	.07	.00	.00	.39
19	.16	.00	1.3	5.0	.32	.46	.09	.44	.04	.01	.00	.17
20	.20	.02	.62	2.6	.24	.46	.06	2.1	.09	.03	.00	.15
21	.19	.03	.48	1.3	.23	.46	.06	5.1	.07	.03	.00	.18
22	.16	.03	.44	.99	.23	.37	.03	1.7	.33	.05	.00	.69
23	.12	.01	.47	.88	.23	.36	.05	1.7	.13	.03	.00	.28
24	.12	.00	.14	.76	.24	.36	1.1	11	.10	.03	.00	.19
25	.13	.00	.07	.67	.24	.36	2.7	9.5	.06	.03	.00	.25
26	.16	.01	.08	.60	.18	.36	.83	2.5	.01	.00	.00	.24
27	.16	.47	.11	.58	.19	1.4	.49	1.1	.01	.07	.00	.22
28	.13	.40	.21	.62	.19	.62	.43	.64	.01	.11	.00	.20
29	.12	.24	.97	.84	---	.44	.34	.36	.04	.06	.00	.15
30	.15	.16	.76	.79	---	.31	.18	.38	.04	.04	.22	.14
31	.16	---	.45	.56	---	.23	---	.17	---	.01	.01	---
TOTAL	11.42	18.46	19.91	76.01	8.34	11.50	57.49	59.13	25.07	1.35	1.26	6.04
MEAN	.37	.62	.64	2.45	.30	.37	1.92	1.91	.84	.044	.041	.20
MAX	4.9	13	8.6	13	.52	1.4	33	11	9.4	.58	.28	1.4
MIN	.09	.00	.05	.15	.18	.19	.03	.10	.01	.00	.00	.00
AC-FT	23	37	39	151	17	23	114	117	50	2.7	2.5	12
CFSM	.04	.08	.08	.30	.04	.05	.23	.23	.10	.01	.00	.02
IN.	.05	.08	.09	.34	.04	.05	.26	.27	.11	.01	.01	.03

CAL YR 1990 TOTAL 2647.48 MEAN 7.25 MAX 395 MIN .00 AC-FT 5250 CFSM .88 IN. 12.01
WTR YR 1991 TOTAL 295.98 MEAN .81 MAX 33 MIN .00 AC-FT 587 CFSM .10 IN. 1.34

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 75 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, 8.0 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 June 1991 (discontinued).

GAGE.-- Water-stage recorder. Datum of gage is 571.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair.

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 27.54 ft. Mar. 13, 1990 (backwater from Bird Creek); minimum daily discharge no flow, Aug. 10, 21, 23, 1990.

EXTREMES FOR CURRENT PERIOD.-- October 1990 to June 1991. Maximum discharge 717 ft³/s, Oct. 3, maximum gage height, 19.91 ft, June 7 (backwater from Bird Creek); minimum daily discharge, .01 ft³/s, Oct. 10-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.94	e.28	.81	1.1	4.3	8.1	1.6	1.1	2.2	---	---	---
2	.59	e.26	6.5	e1.0	1.4	2.9	20	1.1	67	---	---	---
3	98	21	9.0	e.90	1.4	5.5	150	45	6.8	---	---	---
4	6.8	160	1.2	1.1	1.4	1.5	21	34	3.6	---	---	---
5	1.3	9.9	1.1	8.7	4.0	1.5	8.9	e15	67	---	---	---
6	.62	2.3	.87	41	1.5	1.4	5.1	3.9	e20	---	---	---
7	.38	1.3	.89	8.3	1.3	1.3	4.5	2.0	e10	---	---	---
8	e.15	.88	.83	4.8	1.5	1.3	3.6	21	e5.0	---	---	---
9	e.06	2.6	1.1	16	1.3	1.3	3.0	3.4	e3.0	---	---	---
10	.01	1.8	.86	86	1.4	1.2	2.3	2.4	e3.0	---	---	---
11	e.01	1.1	.72	33	1.4	1.2	2.2	1.8	3.0	---	---	---
12	e.01	1.2	e.70	13	1.7	1.4	2.2	1.6	2.6	---	---	---
13	e.01	.97	e.68	8.9	2.4	1.2	2.3	1.5	1.7	---	---	---
14	e1.5	.76	e.66	7.7	2.3	1.2	2.1	6.3	1.4	---	---	---
15	e1.0	.69	e.64	63	2.0	1.3	2.1	1.7	1.4	---	---	---
16	e.00	.70	3.8	26	2.0	2.0	1.7	26	16	---	---	---
17	e.00	.72	90	9.6	2.2	18	1.5	3.0	2.2	---	---	---
18	e.50	.82	15	4.7	4.6	2.6	e1.8	1.6	1.6	---	---	---
19	.38	.85	3.0	24	1.5	2.2	e1.8	18	1.4	---	---	---
20	.37	.99	1.4	9.1	1.3	2.4	1.8	41	1.3	---	---	---
21	e1.5	1.1	1.0	3.6	1.3	2.3	1.9	24	1.2	---	---	---
22	e1.0	1.6	.55	2.6	1.3	2.0	2.4	13	17	---	---	---
23	e.55	1.2	.34	2.6	1.2	1.8	1.7	14	1.7	---	---	---
24	e.42	1.1	.22	2.1	1.2	1.6	24	70	1.3	---	---	---
25	e.32	.85	.23	2.1	3.6	1.6	29	e50	1.3	---	---	---
26	e.30	1.0	.80	1.8	1.4	1.7	2.7	9.4	1.2	---	---	---
27	e.34	10	.75	1.6	1.3	20	e2.0	4.1	1.0	---	---	---
28	e.32	1.6	1.6	1.6	1.3	3.0	e1.5	2.8	1.1	---	---	---
29	e.28	1.1	e2.0	6.6	---	3.3	e1.4	2.3	1.2	---	---	---
30	e.35	.88	e1.5	2.4	---	2.0	1.2	6.9	1.1	---	---	---
31	e.31	---	1.2	1.4	---	1.6	---	2.3	---	---	---	---
TOTAL	119.72	229.55	149.95	396.30	53.5	100.4	307.3	430.2	248.3	---	---	---
MEAN	3.88	7.65	4.84	12.8	1.91	3.24	10.2	13.9	8.28	---	---	---
MAX	98	160	90	86	4.6	20	150	70	67	---	---	---
MIN	.01	.26	.22	.90	1.2	1.2	1.2	1.1	1.0	---	---	---
AC-FT	237	455	297	786	106	199	610	853	493	---	---	---

CAL YR 1990 TOTAL 6928.07 MEAN 19.0 MAX 800 MIN .00 AC-FT 13740

e Estimated

ARKANSAS RIVER BASIN

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07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 76 AT TULSA, OK --Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- June 1987 to June 1991 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1987 to June 1991 (discontinued).

pH: June 1987 to June 1991 (discontinued).

WATER TEMPERATURE: June 1987 to June 1991 (discontinued).

DISSOLVED OXYGEN: June 1987 to June 1991 (discontinued).

INSTRUMENTATION.-- Water-quality monitor June 1987 to June 1991 (discontinued).

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument and sustained periods of low flow inhibiting the minimonitor sensors. pH and dissolved oxygen data for June 1991 available upon request from District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 4,700 microsiemens, July 31, 1987; minimum, 80 microsiemens, Aug. 20, 1989.

pH: Maximum, 8.7 units, Mar. 7, 1989, Dec. 20, Feb. 7, 15, 1991; minimum, 6.2 units, June 26, 1989.

WATER TEMPERATURE: Maximum, 35.0°C, Aug. 7, 1988; minimum, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum, 19.7 mg/l, Jan. 4, 1989; minimum, 1.6 mg/l, June 20, 1987.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	300	270	282	780	740	756	510	470	489	---	---	---
2	310	290	295	770	750	759	620	510	549	---	---	---
3	520	110	339	760	230	670	590	390	468	---	---	---
4	550	510	527	380	110	289	400	380	390	---	---	---
5	589	530	559	467	330	410	410	390	401	---	---	---
6	640	580	608	520	460	495	430	410	417	---	---	---
7	843	310	648	560	520	539	430	420	426	---	---	---
8	890	190	657	580	550	566	460	430	441	---	---	---
9	320	230	285	678	570	606	500	450	469	---	---	---
10	390	320	360	700	630	667	550	500	526	---	---	---
11	440	390	416	688	640	654	580	580	571	680	550	599
12	470	440	454	770	690	731	580	570	577	810	690	757
13	500	470	487	780	770	777	610	580	592	970	790	842
14	520	500	513	770	740	761	670	610	632	980	850	884
15	540	520	529	740	710	728	720	670	696	940	540	751
16	580	540	559	730	700	714	720	670	705	640	540	579
17	620	580	602	700	670	689	680	130	448	730	640	690
18	650	620	635	670	660	669	---	---	---	770	740	756
19	670	640	654	670	650	662	---	---	---	880	490	696
20	680	670	675	660	650	655	670	600	634	830	750	782
21	695	610	660	690	660	676	760	370	689	830	820	823
22	820	700	755	740	690	718	---	---	---	870	840	854
23	960	810	913	760	740	750	---	---	---	900	850	875
24	950	910	934	770	750	765	---	---	---	920	890	897
25	910	820	863	760	740	746	---	---	---	940	910	921
26	830	794	816	750	730	741	---	---	---	950	920	937
27	810	780	791	820	810	705	---	---	---	950	890	924
28	790	774	784	640	560	604	940	870	910	910	850	882
29	780	770	773	540	470	504	1000	430	673	940	860	891
30	780	750	765	480	460	470	520	430	464	870	790	813
31	770	750	757	---	---	---	---	---	---	820	770	787
MONTH	960	110	610	820	110	649	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 75 AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

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PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	8.3	8.1	8.2
2	---	---	---	---	---	---	---	---	---	8.3	8.2	8.3
3	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
4	---	---	---	---	---	---	---	---	---	8.2	8.1	8.2
5	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
6	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
7	---	---	---	---	---	---	---	---	---	8.2	8.1	8.1
8	---	---	---	---	---	---	---	---	---	8.2	8.1	8.2
9	---	---	---	---	---	---	---	---	---	8.2	8.1	8.2
10	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
11	---	---	---	---	---	---	---	---	---	8.2	8.0	8.0
12	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
13	---	---	---	---	---	---	---	---	---	8.3	8.2	8.3
14	---	---	---	---	---	---	---	---	---	8.3	8.2	8.3
15	---	---	---	---	---	---	---	---	---	8.2	8.0	8.1
16	---	---	---	---	---	---	---	---	---	8.2	8.0	8.1
17	---	---	---	---	---	---	---	---	---	8.4	8.2	8.3
18	---	---	---	---	---	---	---	---	---	8.5	8.2	8.4
19	---	---	---	---	---	---	---	---	---	8.4	8.1	8.1
20	---	---	---	---	---	---	8.7	8.1	8.3	8.4	8.2	8.3
21	---	---	---	---	---	---	8.6	8.3	8.4	8.5	8.1	8.4
22	---	---	---	---	---	---	---	---	---	8.5	8.3	8.4
23	---	---	---	---	---	---	---	---	---	8.5	8.2	8.3
24	---	---	---	---	---	---	---	---	---	8.5	8.3	8.4
25	---	---	---	---	---	---	8.5	8.2	8.4	8.4	8.3	8.4
26	---	---	---	---	---	---	8.4	8.0	8.4	8.6	8.3	8.5
27	---	---	---	---	---	---	8.4	8.0	8.4	8.5	8.3	8.3
28	---	---	---	---	---	---	8.4	8.0	8.3	8.5	8.2	8.3
29	---	---	---	---	---	---	8.3	7.9	8.0	8.3	8.1	8.3
30	---	---	---	---	---	---	8.5	8.3	8.5	8.3	8.1	8.3
31	---	---	---	---	---	---	---	---	---	8.3	8.1	8.2
MAX	---	---	---	---	---	---	---	---	---	8.6	8.3	8.5
MIN	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	8.3	7.9	8.1	8.2	7.8	7.9	---	---	---	8.2	7.9	7.9
2	8.4	8.1	8.2	8.1	7.8	7.9	---	---	---	8.2	7.8	8.0
3	8.5	8.0	8.2	8.4	7.8	8.1	---	---	---	7.9	7.7	7.8
4	8.4	7.9	8.2	8.5	8.0	8.2	---	---	---	8.0	7.6	7.7
5	8.5	7.8	8.2	8.6	7.9	8.2	---	---	---	7.9	7.6	7.8
6	8.6	8.2	8.5	8.6	7.9	8.3	---	---	---	8.0	7.8	7.9
7	8.7	8.2	8.4	8.6	8.1	8.3	---	---	---	8.2	7.9	8.0
8	8.6	8.2	8.4	8.6	8.1	8.3	---	---	---	8.1	7.8	7.9
9	8.6	8.2	8.5	8.5	8.1	8.2	---	---	---	8.2	7.8	7.8
10	8.6	8.2	8.4	8.5	8.0	8.2	---	---	---	8.3	8.0	8.0
11	8.6	8.2	8.4	8.5	8.1	8.3	---	---	---	8.2	8.0	8.0
12	8.4	8.1	8.3	8.4	8.0	8.2	---	---	---	8.0	7.8	7.9
13	8.4	8.0	8.2	8.4	8.0	8.1	---	---	---	8.1	7.6	7.9
14	8.5	8.1	8.1	8.5	8.1	8.2	---	---	---	8.2	7.7	7.9
15	8.7	8.3	8.5	8.4	8.2	8.3	---	---	---	8.5	7.8	7.9
16	8.6	8.3	8.5	8.4	8.1	8.2	---	---	---	8.0	7.4	7.6
17	8.5	8.0	8.3	8.0	7.4	7.5	---	---	---	8.0	7.6	7.7
18	8.4	7.9	8.2	7.8	7.4	7.6	---	---	---	8.3	7.7	7.8
19	8.6	8.1	8.4	8.0	7.4	7.7	---	---	---	---	---	---
20	8.5	8.2	8.3	8.1	7.5	7.7	---	---	---	7.9	7.6	7.6
21	8.3	8.1	8.1	8.0	7.4	7.6	---	---	---	7.9	7.6	7.7
22	8.3	8.0	8.1	8.0	7.4	7.7	---	---	---	---	---	---
23	8.2	8.0	8.1	8.0	7.4	7.7	---	---	---	---	---	---
24	8.2	7.9	8.0	8.1	7.5	7.7	---	---	---	---	---	---
25	8.3	7.9	8.2	8.4	7.5	7.9	7.9	7.7	7.8	7.9	7.6	7.7
26	8.3	8.2	8.3	8.3	7.4	7.7	8.1	7.8	7.9	8.1	7.9	7.9
27	8.3	8.1	8.2	7.6	7.4	7.5	8.1	7.8	7.9	8.3	7.8	7.9
28	8.4	8.0	8.1	---	---	---	8.1	7.6	7.9	8.4	7.9	8.1
29	---	---	---	---	---	---	8.1	7.7	7.9	8.4	7.9	8.1
30	---	---	---	---	---	---	8.3	7.9	8.0	8.2	7.9	7.9
31	---	---	---	---	---	---	---	---	---	8.3	7.8	8.0
MAX	8.7	8.3	8.5	---	---	---	---	---	---	---	---	---
MIN	8.2	7.8	8.0	---	---	---	---	---	---	---	---	---

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 75 AT TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	22.5	18.5	20.0	17.0	14.5	16.0	9.5	7.0	8.0	1.0	.5	.5
2	22.0	18.5	20.5	17.5	15.5	16.5	11.0	8.5	9.5	1.0	.5	.5
3	22.0	21.0	21.5	18.5	16.0	17.0	10.5	6.5	8.5	.5	.5	.5
4	22.0	19.0	20.5	16.5	10.0	11.0	7.0	4.5	5.5	.5	.5	.5
5	22.5	18.5	20.5	11.0	8.5	10.0	7.5	4.5	6.0	.5	.5	.5
6	23.5	19.5	21.5	11.5	8.5	10.0	7.0	5.5	6.0	.5	.5	.5
7	22.5	18.0	20.5	11.0	9.5	10.0	6.0	3.5	4.5	.5	.5	.5
8	18.0	15.5	17.0	10.5	9.5	10.0	6.5	3.5	5.0	1.0	.5	.5
9	15.5	13.0	14.5	11.5	9.5	10.5	7.5	4.5	5.5	1.0	.5	.5
10	15.0	11.5	13.0	11.5	8.0	10.0	8.0	5.0	6.5	2.5	1.0	1.5
11	15.5	11.5	13.0	13.0	9.0	11.0	9.5	6.0	7.5	2.5	1.5	2.0
12	16.0	11.0	13.0	13.5	10.0	11.5	10.5	7.5	8.5	3.0	1.0	2.0
13	17.0	12.0	14.5	14.0	10.0	11.5	8.0	6.5	7.0	3.5	1.0	2.5
14	18.5	14.0	16.0	14.0	10.5	12.5	8.0	6.0	7.0	5.0	2.0	4.0
15	17.5	13.5	15.5	15.0	11.5	13.5	8.0	6.5	7.5	6.5	4.5	5.5
16	20.5	15.5	17.5	14.0	12.0	13.5	7.0	6.5	8.5	5.5	4.0	5.0
17	19.0	16.0	18.0	11.5	8.5	10.0	8.5	7.0	8.0	7.0	4.5	5.5
18	15.5	12.0	13.5	12.0	10.0	11.0	8.5	7.0	8.0	7.5	4.0	6.0
19	13.5	10.5	12.0	13.5	11.0	12.0	8.0	5.0	6.5	9.0	6.5	8.0
20	15.0	12.5	13.5	16.5	12.0	14.0	7.0	4.0	6.0	7.5	4.5	6.5
21	14.5	12.0	13.0	17.5	15.0	16.5	3.5	.5	1.5	4.0	1.5	3.0
22	13.0	9.5	11.0	15.0	11.0	13.0	1.0	.5	.5	3.5	.5	2.0
23	13.0	9.0	11.0	12.5	9.0	10.5	1.0	.5	.5	4.5	1.5	3.0
24	12.5	10.0	11.0	13.0	9.5	11.0	1.0	.5	1.0	5.0	2.0	3.0
25	12.0	9.0	10.5	14.5	10.0	12.0	1.0	.5	1.0	3.0	1.5	2.5
26	13.0	9.5	11.0	17.0	13.5	15.5	1.0	.5	1.0	2.5	.5	1.5
27	13.5	11.5	12.5	17.0	12.5	16.0	1.5	1.0	1.0	4.5	1.5	2.5
28	12.5	10.5	12.0	12.0	8.5	10.0	1.5	.5	1.0	3.5	1.0	2.5
29	14.5	11.0	13.0	9.0	6.5	7.5	2.5	.5	1.0	3.5	1.5	3.0
30	15.5	13.0	14.5	8.5	5.5	7.0	.5	.5	.5	3.0	.5	1.5
31	16.0	14.0	15.0	---	---	---	1.0	.5	.5	3.5	.5	2.0
MONTH	23.5	9.0	15.2	18.5	5.5	12.0	11.0	.5	4.7	9.0	.5	2.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.5	1.5	3.5	15.5	11.5	13.5	19.0	12.0	15.5	22.0	16.0	19.0
2	7.5	3.0	5.0	13.0	7.5	10.0	17.5	14.0	16.0	22.5	18.0	19.0
3	8.5	4.5	6.5	9.5	6.0	7.5	17.5	13.0	15.0	22.0	19.0	20.5
4	10.5	8.0	9.0	12.0	5.5	8.5	18.0	14.0	16.0	22.5	20.0	21.0
5	12.0	9.5	10.5	16.0	9.5	12.5	21.5	14.0	18.0	20.5	17.0	18.5
6	11.5	7.5	9.0	15.0	11.5	13.0	21.5	16.0	19.0	21.0	15.0	17.5
7	10.5	6.0	8.0	11.5	8.5	10.0	21.5	18.5	20.0	20.5	17.0	19.0
8	9.5	5.5	7.5	13.5	7.5	10.0	22.5	19.0	20.0	19.5	17.5	18.5
9	9.0	5.0	7.0	13.0	8.0	10.0	---	---	---	20.0	17.5	19.0
10	10.0	6.5	8.0	13.0	7.5	10.0	---	---	---	22.0	19.0	20.5
11	10.5	5.0	8.0	14.0	10.0	12.0	19.5	16.0	17.5	23.0	20.0	21.5
12	10.0	7.0	8.5	13.5	10.5	12.5	22.0	17.0	19.5	26.5	21.5	24.0
13	12.5	9.0	10.5	10.0	7.0	9.0	21.0	18.5	20.0	28.0	23.0	25.5
14	10.5	6.5	9.0	11.0	6.0	8.0	18.5	16.5	18.0	26.0	23.5	25.0
15	6.0	3.0	4.5	8.0	7.5	7.5	21.0	14.0	17.0	24.5	22.5	23.5
16	6.0	2.0	4.0	11.0	7.5	9.0	23.0	16.5	19.5	23.0	20.0	22.0
17	11.0	5.0	8.0	13.5	10.5	12.0	22.5	19.0	20.5	26.5	21.5	23.5
18	12.5	10.0	11.0	15.5	9.5	12.5	20.5	18.5	19.0	28.0	23.0	25.0
19	10.5	7.0	8.5	15.0	10.5	13.0	19.0	15.5	16.5	25.5	23.5	24.5
20	10.5	5.0	7.5	16.5	12.5	14.5	17.0	14.0	15.5	24.5	22.5	23.5
21	12.0	6.5	9.0	19.5	14.5	16.5	15.5	13.5	14.5	25.0	22.5	23.5
22	11.5	7.0	9.0	19.0	15.5	17.0	15.0	13.0	14.0	23.5	22.5	23.0
23	12.5	7.0	9.5	18.5	12.5	15.5	19.0	12.0	15.0	24.5	22.0	23.0
24	10.0	5.5	8.0	19.0	12.0	15.5	20.5	14.5	17.0	23.5	21.5	22.5
25	8.5	4.5	6.0	19.0	14.0	17.0	21.0	16.5	18.5	25.5	21.5	23.5
26	9.0	4.0	6.5	21.5	18.0	19.5	23.0	18.5	20.5	29.0	24.0	26.0
27	10.0	4.0	7.0	20.5	16.0	19.0	23.5	19.0	21.0	30.0	24.0	27.0
28	12.5	7.5	10.0	18.0	13.5	15.5	22.0	18.5	20.5	30.5	25.5	28.0
29	---	---	---	16.5	12.5	14.5	20.0	16.5	18.0	30.5	26.0	28.0
30	---	---	---	15.5	10.0	12.5	22.5	15.5	18.5	27.5	25.5	26.5
31	---	---	---	17.5	10.0	13.5	---	---	---	28.5	24.5	26.5
MONTH	12.5	1.5	7.0	21.5	5.5	12.6	---	---	---	30.5	15.0	22.8

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991[illegible]

ARKANSAS RIVER BASIN

07177700 FLAT ROCK CREEK AT U.S. HIGHWAY 75 AT TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

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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.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 2,930 ft³/s Aug. 20, 1989, gage height 13.11 ft; minimum daily discharge, no flow, July 30-Aug. 11, Aug. 16-29, 1991.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,100 ft³/s Oct. 3, gage height 10.27 ft; minimum daily discharge, no flow, July 30-Aug. 11, Aug. 16-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	e.60	e.60	1.5	1.7	4.6	1.1	2.7	2.1	.26	.00	.03
2	2.2	e.57	e7.0	2.2	1.9	5.1	34	2.1	45	.27	.00	3.0
3	82	e20.0	e2.2	1.6	1.6	2.3	37	59	2.1	.29	.00	3.5
4	1.6	e42.0	e1.2	1.4	1.6	1.4	2.9	43	1.4	.34	.00	31
5	.65	e18.0	e.92	5.0	7.0	1.5	2.1	5.8	25	.37	.00	.39
6	.54	e7.0	e.88	12	2.5	1.4	1.2	1.9	2.1	.37	.00	.48
7	.50	e2.5	.82	2.9	2.6	1.5	1.0	1.3	55	.38	.00	2.1
8	17	e2.2	e.81	3.2	2.6	1.4	.98	14	10	.37	.00	.75
9	2.0	e4.0	e.82	6.9	2.6	1.8	1.0	1.5	.46	.32	.00	.34
10	.66	e2.0	e.82	32	2.6	1.3	.96	1.2	.60	.20	.00	.37
11	.52	e.90	e.81	8.3	2.6	2.5	1.7	1.0	2.3	.17	.00	.37
12	.49	e.75	e.80	5.2	2.7	1.6	2.9	1.0	2.0	.23	1.8	.45
13	.49	e.64	e.79	5.4	2.6	1.6	3.2	.93	1.1	.71	1.8	.47
14	.49	e.54	e.78	4.3	2.2	1.5	3.9	.93	.68	.33	.04	10
15	.51	e.46	e.78	23	1.9	1.3	4.0	1.3	.82	.23	.05	7.0
16	e.50	e.45	11	5.0	2.2	4.4	3.7	14	6.5	.20	.00	94
17	e.49	e.45	58	3.5	2.5	8.0	3.0	2.4	.39	.22	.00	.92
18	e.48	e.45	3.6	3.0	2.8	1.4	3.9	1.1	e.36	.21	.00	39
19	e.47	e.80	2.1	9.1	2.9	1.4	4.2	31	2.9	e.34	.25	1.3
20	e.46	e2.0	1.6	2.8	2.9	1.4	4.4	4.3	e.33	.94	.00	.61
21	e.43	e1.9	1.3	2.3	3.2	1.4	5.4	3.0	e.32	.26	.00	.53
22	e.42	e.45	1.1	2.0	3.3	1.9	7.0	3.3	10	.21	.00	25
23	e.39	e.47	.86	2.0	3.5	1.2	6.0	5.1	1.9	.22	.00	.89
24	e.60	e1.0	.97	1.9	4.4	1.1	25	46	.77	.19	.00	.65
25	e.49	e.51	1.1	1.8	2.9	1.1	16	5.9	.36	.20	.00	.70
26	e.44	e3.0	1.1	1.7	1.6	1.5	1.5	2.7	.39	.24	.00	.78
27	e.60	e3.8	2.2	1.6	1.5	9.2	8.7	1.8	.40	.52	.00	.90
28	e.48	e.90	1.3	1.6	1.4	1.1	2.5	1.5	.32	.41	.00	1.1
29	e.43	e.60	13	4.2	---	4.1	1.4	2.1	.25	.20	.00	1.3
30	e.40	e.80	1.4	1.6	---	1.0	2.1	7.7	.24	.00	9.7	1.6
31	e.80	---	1.1	1.5	---	1.0	---	2.6	---	.00	10	---
TOTAL	119.63	119.54	121.76	160.5	73.8	72.0	192.74	272.16	173.53	9.11	23.39	229.53
MEAN	3.86	3.98	3.93	5.18	2.64	2.32	6.42	8.78	5.78	.29	.75	7.65
MAX	82	42	58	32	7.0	9.2	37	59	55	.94	10	94
MIN	.39	.45	.60	1.4	1.4	1.0	.96	.93	.24	.00	.00	.03
AC-FT	237	237	242	318	146	143	382	540	344	18	46	455
CFSM	.51	.53	.52	.69	.35	.31	.85	1.17	.77	.04	.10	1.02
IN.	.59	.59	.60	.79	.36	.36	.95	1.34	.86	.05	.12	1.13

CAL YR 1990 TOTAL 3366.68 MEAN 9.22 MAX 345 MIN .13 AC-FT 6680 CFSM 1.22 IN. 16.63
WTR YR 1991 TOTAL 1567.69 MEAN 4.30 MAX 94 MIN .00 AC-FT 3110 CFSM .57 IN. 7.74

e Estimated

ARKANSAS RIVER BASIN

07178000 BIRD CREEK NEAR OWASSO, OK

LOCATION.-- Lat 36°14'56", long 95°52'06", in NW 1/4 NW 1/4 sec.6, T.20 N., R.14 E., 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 poor. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 17,800 ft³/s, Mar. 13, 1990, gage height 23.35 ft; minimum daily discharge, 18 ft³/s, Sept. 27, 1987.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 9,770 ft³/s, June 7, gage height, 16.25 ft³/s; minimum daily discharge, 61 ft³/s, Oct. 19, Jan. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e230	76	71	69	107	e94	135	e660	248	211	175	186
2	e200	76	72	66	103	e96	139	e540	e275	207	171	e185
3	e266	80	e80	64	102	e94	e830	e400	1120	206	170	e180
4	340	909	79	61	101	e92	e620	e210	583	204	169	e188
5	464	507	78	67	e101	96	e450	e2060	e1500	199	170	183
6	271	339	74	e93	e100	91	323	e630	e8700	198	170	172
7	205	200	73	e96	e100	87	237	e320	9110	198	172	174
8	199	138	72	e88	e99	86	194	e280	5220	198	172	e172
9	210	120	72	e85	e99	86	e180	e830	2920	198	172	171
10	182	110	71	e320	99	87	e170	e710	1960	195	174	170
11	194	105	71	e450	96	89	e182	e435	1240	194	194	186
12	199	128	68	355	98	93	e160	e240	992	194	290	186
13	144	122	67	219	98	89	e157	e200	607	190	232	164
14	104	109	68	186	96	82	e157	e175	365	201	e207	162
15	96	101	68	483	92	69	e170	e150	233	195	e170	e170
16	94	97	73	933	e90	76	e182	e280	361	179	167	e215
17	78	93	782	418	e91	e82	e180	e840	438	159	166	e227
18	63	92	473	289	e92	e83	e1900	e510	283	e153	164	e229
19	61	92	205	257	e90	e86	1250	e310	224	e159	163	e210
20	66	94	131	250	e88	91	e402	e250	239	159	160	204
21	72	96	98	184	e87	89	e182	e240	229	159	160	200
22	68	96	83	150	e88	90	e127	e260	239	159	164	e190
23	68	95	75	133	e88	85	e152	272	e374	161	166	e187
24	67	96	72	122	e84	84	e173	774	e350	159	166	185
25	68	95	69	114	e88	83	e300	1960	278	159	164	171
26	70	97	68	108	e90	84	e880	945	237	159	165	167
27	70	109	69	107	e90	124	e1500	486	220	159	162	163
28	69	102	69	104	e88	e100	e1780	342	207	182	162	162
29	70	87	95	108	---	e94	e1700	266	213	173	162	160
30	72	76	78	109	---	e131	e1000	238	216	171	169	159
31	73	---	71	106	---	e135	---	222	---	172	203	---
TOTAL	4433	4537	3595	6174	2645	2848	15752	16035	39181	5610	5471	5438
MEAN	143	151	116	199	94.5	91.9	525	517	1306	181	176	181
MAX	464	909	782	933	107	135	1900	2060	9110	211	290	229
MIN	61	76	67	61	84	69	127	150	207	153	160	159
AC-FT	8790	9000	7130	12250	5250	5650	31240	31810	77720	11130	10850	10790

CAL YR 1990 TOTAL 423667 MEAN 1161 MAX 17300 MIN 61 AC-FT 840300
WTR YR 1991 TOTAL 111719 MEAN 306 MAX 9110 MIN 61 AC-FT 221600

e Estimated

ARKANSAS RIVER BASIN

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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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,010 microsiemens, Feb. 19, 1988; minimum, 48 microsiemens, July 18, 1989.

pH: Maximum, 8.9 units, May 17, 1988; minimum, 5.5 units June 14, 15, 1987.

WATER TEMPERATURE: Maximum, 35.0°C, Aug. 2, 3, 1987; minimum, 0.0°C, several days during winter periods.

DISSOLVED OXYGEN: Maximum, 16.3 mg/l, Jan. 17, 1988; minimum, 1.3 mg/l Aug. 14, 1987.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	326	305	314	408	403	405	428	391	409	501	480	488
2	309	301	303	411	407	409	437	428	431	490	482	487
3	310	236	294	415	402	411	439	426	432	485	474	478
4	331	284	278	593	227	397	437	427	432	490	480	486
5	374	292	320	447	262	321	464	438	454	500	490	496
6	315	274	287	318	259	289	452	435	444	496	483	492
7	298	284	291	413	315	362	441	435	438	947	493	706
8	320	297	307	368	356	363	438	434	436	615	575	593
9	337	304	318	375	353	358	443	433	438	631	590	617
10	325	305	315	372	353	357	442	437	440	758	569	636
11	322	312	318	365	354	361	438	435	436	605	411	518
12	323	308	317	368	359	362	441	434	438	399	346	363
13	333	324	328	375	359	368	442	438	440	506	367	435
14	333	327	331	366	370	378	438	437	437	505	476	487
15	344	325	332	386	382	383	438	434	436	582	496	528
16	358	345	352	382	376	379	438	434	437	560	339	444
17	350	339	344	380	372	374	447	318	414	493	428	470
18	338	333	336	377	367	370	688	268	410	490	460	470
19	334	333	334	372	364	367	286	261	268	462	445	450
20	340	332	337	369	363	364	366	290	329	493	457	475
21	356	340	347	372	363	364	402	369	384	506	483	493
22	369	356	364	369	363	365	470	404	432	506	452	471
23	382	369	374	372	363	366	521	475	506	452	446	448
24	382	374	378	377	366	371	489	453	465	451	444	447
25	376	373	374	378	372	374	459	453	455	463	451	458
26	380	374	377	380	374	376	459	454	456	465	462	464
27	382	379	381	378	374	376	454	445	450	466	464	465
28	386	381	383	378	375	377	445	442	443	465	461	463
29	392	384	388	431	376	405	444	438	442	466	464	465
30	398	391	395	400	387	390	465	439	453	473	467	469
31	404	397	401	---	---	---	545	466	510	512	474	497
MONTH	404	204	339	593	227	371	688	261	432	947	339	492

ARKANSAS RIVER BASIN

07170000 BIRD CREEK NEAR DWASSO, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	503	495	498	487	480	475	553	449	503	218	176	199
2	499	490	494	544	483	492	446	399	421	242	218	228
3	512	495	506	576	547	564	587	338	427	292	242	265
4	502	493	499	564	540	548	348	296	326	328	276	302
5	502	486	493	542	506	524	449	353	412	428	224	306
6	496	486	491	505	489	495	485	440	469	276	252	258
7	513	496	506	490	483	485	470	455	460	268	258	265
8	503	481	490	485	483	484	484	456	482	316	266	276
9	481	470	474	483	474	478	455	443	450	342	284	310
10	474	466	470	474	466	468	442	430	435	296	266	266
11	467	462	464	465	455	461	431	424	427	312	282	301
12	474	465	470	455	448	450	429	424	426	314	308	312
13	483	469	475	457	448	453	426	421	423	328	308	318
14	483	478	480	454	440	442	422	413	420	344	328	337
15	485	480	482	441	434	438	423	419	421	376	342	356
16	484	482	483	438	428	435	466	420	430	372	356	364
17	484	473	478	430	423	427	491	435	470	452	344	389
18	473	464	469	476	427	445	594	413	444	446	356	389
19	464	455	460	509	478	498	441	277	330	454	394	439
20	465	453	458	490	471	479	286	257	268	404	348	376
21	471	465	469	487	471	480	330	286	311	392	350	375
22	476	460	468	489	485	488	348	330	341	396	336	373
23	462	455	459	496	485	489	373	350	360	418	386	393
24	456	447	452	502	497	499	378	368	372	418	396	408
25	451	447	449	510	502	506	490	360	399	448	312	375
26	453	449	451	508	499	504	519	386	415	---	---	---
27	472	449	462	498	481	489	428	296	395	---	---	---
28	467	456	460	523	472	487	412	252	306	---	---	---
29	---	---	---	576	507	519	364	234	314	---	---	---
30	---	---	---	---	---	---	254	188	231	---	---	---
31	---	---	---	825	557	652	---	---	---	---	---	---
MONTH	513	447	475	---	---	---	594	188	396	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	360	340	346	353	346	353	336	312	328
2	---	---	---	366	353	355	351	346	351	350	332	338
3	---	---	---	388	353	357	353	345	350	345	300	335
4	---	---	---	371	354	360	356	348	353	326	288	312
5	---	---	---	356	353	355	351	348	350	426	272	326
6	---	---	---	354	351	354	350	345	348	340	326	334
7	---	---	---	354	351	353	353	346	350	336	332	335
8	---	---	---	354	350	353	350	345	347	333	332	333
9	---	---	---	354	351	353	346	343	345	330	310	323
10	---	---	---	358	351	356	343	340	341	343	330	337
11	---	---	---	363	351	358	345	338	342	336	333	335
12	---	---	---	358	354	356	364	340	344	336	333	335
13	---	---	---	354	351	353	378	350	369	338	335	336
14	---	---	---	356	351	354	368	350	360	330	335	336
15	---	---	---	356	348	354	354	335	345	330	335	336
16	---	---	---	354	351	352	335	330	332	335	240	284
17	---	---	---	353	350	352	---	---	---	340	240	282
18	---	---	---	356	351	354	333	328	330	341	290	323
19	---	---	---	359	354	357	336	328	332	324	294	308
20	---	---	---	359	356	358	336	326	332	360	310	346
21	591	340	392	356	346	352	332	322	326	348	330	338
22	338	332	335	348	346	347	333	324	328	332	306	323
23	354	332	341	348	345	346	338	324	329	324	303	314
24	360	300	339	348	343	346	330	326	328	353	319	336
25	316	300	306	346	343	344	330	326	329	349	339	342
26	330	316	324	346	343	345	336	328	330	343	339	340
27	340	328	333	345	338	343	333	328	331	339	337	338
28	340	334	336	345	340	343	341	330	333	339	335	337
29	348	336	339	350	340	345	333	330	332	337	335	336
30	348	340	343	354	346	351	333	326	333	337	335	335
31	---	---	---	358	351	354	333	326	330	---	---	---
MONTH	---	---	---	371	338	352	---	---	---	426	240	329

ARKANSAS RIVER BASIN

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07178000 BIRD CREEK NEAR OWASSO, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.6	7.5	7.6	7.8	7.5	7.7	7.9	7.7	7.8	8.1	7.8	8.0
2	7.6	7.5	7.5	7.7	7.3	7.6	7.9	7.7	7.8	8.2	8.0	8.1
3	7.6	7.5	7.5	7.7	7.2	7.4	7.9	7.8	7.8	8.1	8.1	8.1
4	7.5	7.4	7.5	7.7	7.5	7.6	8.0	7.8	7.9	8.1	8.1	8.1
5	7.5	7.4	7.5	7.5	7.3	7.4	7.9	7.8	7.8	8.1	8.1	8.1
6	---	---	---	7.5	7.3	7.4	8.0	7.8	7.9	8.1	8.1	8.1
7	---	---	---	7.5	7.3	7.4	8.0	7.8	7.9	8.1	8.1	8.1
8	---	---	---	7.6	7.2	7.3	8.0	7.8	7.9	8.1	8.0	8.1
9	---	---	---	7.7	7.5	7.6	8.1	7.8	7.9	8.0	8.0	8.0
10	---	---	---	---	---	---	8.0	7.9	7.9	8.1	8.0	8.0
11	---	---	---	---	---	---	8.0	7.8	7.9	8.0	7.9	8.0
12	---	---	---	---	---	---	7.9	7.8	7.9	8.0	7.9	7.9
13	---	---	---	---	---	---	7.9	7.8	7.8	8.0	7.9	8.0
14	---	---	---	---	---	---	7.9	7.7	7.8	8.0	7.9	8.0
15	---	---	---	---	---	---	8.0	7.7	7.8	7.9	7.9	7.9
16	7.8	7.5	7.7	---	---	---	7.9	7.7	7.8	8.0	7.8	7.9
17	7.9	7.5	7.6	---	---	---	8.0	7.8	7.9	8.1	7.9	8.0
18	7.9	7.4	7.5	---	---	---	8.0	7.8	8.0	8.1	8.1	8.1
19	7.9	7.5	7.8	---	---	---	7.9	7.8	7.9	8.1	8.0	8.1
20	7.9	7.5	7.7	---	---	---	8.0	7.9	7.9	8.2	8.1	8.1
21	7.9	7.6	7.8	---	---	---	8.1	8.0	8.1	8.2	8.1	8.2
22	8.0	7.4	7.8	---	---	---	8.2	8.1	8.2	8.3	8.1	8.2
23	8.0	7.6	7.8	---	---	---	8.3	8.2	8.2	8.3	8.1	8.2
24	8.0	7.6	7.8	---	---	---	8.3	8.2	8.2	8.3	8.2	8.2
25	8.0	7.5	7.8	---	---	---	8.2	8.2	8.2	8.2	8.1	8.2
26	8.0	7.5	7.8	---	---	---	8.2	8.1	8.2	8.3	8.1	8.2
27	8.1	7.6	7.9	7.6	7.5	7.6	8.1	8.1	8.1	8.3	8.1	8.2
28	8.1	7.7	7.9	7.8	7.6	7.7	8.1	8.1	8.1	8.2	8.1	8.1
29	8.1	7.6	7.9	7.8	7.7	7.7	8.2	8.1	8.2	8.2	8.1	8.2
30	8.0	7.7	7.8	7.9	7.7	7.8	8.2	8.1	8.2	8.3	7.9	8.2
31	7.9	7.6	7.8	---	---	---	8.2	8.1	8.2	8.4	7.8	8.2
MAX	---	---	---	---	---	---	8.3	8.2	8.2	8.4	8.2	8.2
MIN	---	---	---	---	---	---	7.9	7.7	7.8	7.9	7.8	7.9
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.4	8.1	8.2	---	---	---	8.0	7.7	7.8	7.6	7.5	7.5
2	8.3	7.7	8.0	---	---	---	8.0	7.7	7.9	7.7	7.5	7.5
3	---	---	---	---	---	---	8.0	7.7	7.9	7.8	7.7	7.7
4	---	---	---	---	---	---	7.7	7.5	7.7	7.8	7.7	7.7
5	---	---	---	---	---	---	7.6	7.5	7.5	7.9	7.5	7.7
6	---	---	---	---	---	---	7.7	7.5	7.5	7.7	7.6	7.6
7	---	---	---	---	---	---	7.7	7.6	7.7	7.7	7.6	7.6
8	---	---	---	---	---	---	7.6	7.6	7.6	---	---	---
9	---	---	---	---	---	---	7.7	7.6	7.6	---	---	---
10	---	---	---	---	---	---	7.7	7.5	7.6	---	---	---
11	---	---	---	---	---	---	7.7	7.5	7.6	---	---	---
12	---	---	---	---	---	---	7.8	7.5	7.7	---	---	---
13	---	---	---	---	---	---	7.7	7.5	7.6	---	---	---
14	---	---	---	8.1	7.7	7.7	7.7	7.5	7.6	---	---	---
15	---	---	---	8.1	7.7	7.9	7.8	7.6	7.6	---	---	---
16	---	---	---	8.1	7.9	8.0	7.9	7.7	7.7	---	---	---
17	---	---	---	8.2	7.9	8.0	7.9	7.8	7.8	7.8	7.6	7.7
18	---	---	---	8.2	7.9	8.0	8.0	7.6	7.8	7.7	7.6	7.7
19	---	---	---	8.1	7.7	7.9	7.7	7.7	7.7	7.6	7.5	7.6
20	---	---	---	8.2	7.7	7.9	7.7	7.5	7.7	---	---	---
21	---	---	---	8.3	7.7	7.9	7.6	7.6	7.6	---	---	---
22	---	---	---	8.5	7.8	8.1	7.7	7.6	7.6	---	---	---
23	---	---	---	8.4	7.8	8.1	7.7	7.5	7.5	---	---	---
24	---	---	---	8.4	7.8	8.0	7.6	7.5	7.5	---	---	---
25	---	---	---	8.2	7.7	7.9	7.6	7.5	7.5	---	---	---
26	---	---	---	8.1	7.7	7.8	7.7	7.6	7.7	---	---	---
27	---	---	---	8.3	7.7	7.9	7.7	7.5	7.7	---	---	---
28	---	---	---	7.8	7.5	7.6	7.7	7.4	7.5	---	---	---
29	---	---	---	7.8	7.4	7.6	7.8	7.5	7.7	---	---	---
30	---	---	---	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---
31	---	---	---	7.8	7.5	7.7	---	---	---	---	---	---
MAX	---	---	---	---	---	---	8.0	7.8	7.9	---	---	---
MIN	---	---	---	---	---	---	7.6	7.4	7.5	---	---	---

ARKANSAS RIVER BASIN

07170000 BIRD CREEK NEAR OWASSO, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	8.1	7.9	7.9	7.8	7.6	7.8
2	---	---	---	---	---	---	8.1	7.9	7.9	7.9	7.8	7.9
3	---	---	---	---	---	---	8.0	7.8	7.9	7.9	7.5	7.8
4	---	---	---	---	---	---	8.0	7.8	7.9	8.0	7.7	7.9
5	---	---	---	---	---	---	8.0	7.8	7.9	7.7	7.5	7.6
6	---	---	---	---	---	---	7.8	7.6	7.8	8.1	7.5	8.0
7	---	---	---	---	---	---	7.8	7.6	7.6	8.0	7.9	7.9
8	---	---	---	---	---	---	7.9	7.7	7.8	---	---	---
9	---	---	---	---	---	---	7.9	7.7	7.8	---	---	---
10	---	---	---	---	---	---	7.8	7.7	7.8	---	---	---
11	---	---	---	---	---	---	7.8	7.6	7.7	---	---	---
12	---	---	---	8.0	7.7	7.8	8.0	7.8	7.9	7.9	7.5	7.6
13	---	---	---	8.0	7.8	7.8	8.0	7.7	7.9	7.8	7.6	7.8
14	---	---	---	8.0	7.7	7.8	8.2	7.7	7.8	7.8	7.5	7.7
15	---	---	---	8.0	7.7	7.9	8.1	7.9	8.0	7.8	7.7	7.8
16	---	---	---	8.1	7.8	7.9	7.9	7.6	7.8	8.0	7.8	8.0
17	---	---	---	8.0	7.7	7.9	---	---	---	7.9	7.6	7.7
18	---	---	---	8.0	7.8	7.9	---	---	---	7.7	7.5	7.6
19	---	---	---	7.9	7.7	7.8	---	---	---	7.8	7.7	7.7
20	---	---	---	8.0	7.7	7.8	---	---	---	7.7	7.6	7.7
21	---	---	---	7.9	7.6	7.8	7.7	7.4	7.5	7.7	7.6	7.6
22	---	---	---	7.7	7.6	7.6	7.7	7.5	7.6	7.9	7.6	7.7
23	---	---	---	7.8	7.6	7.7	7.8	7.6	7.7	7.9	7.8	7.8
24	---	---	---	8.0	7.6	7.8	7.8	7.6	7.7	8.1	7.8	7.9
25	---	---	---	8.1	7.9	8.0	7.8	7.6	7.7	8.1	7.8	8.0
26	---	---	---	8.1	7.9	8.0	7.8	7.7	7.7	8.0	7.9	8.0
27	---	---	---	8.0	7.9	8.0	7.7	7.5	7.6	8.2	7.9	8.0
28	---	---	---	8.0	7.9	7.9	---	---	---	8.0	7.8	8.0
29	---	---	---	8.1	7.9	8.0	---	---	---	8.1	7.7	7.9
30	---	---	---	8.1	7.9	8.0	8.0	7.5	7.7	8.0	7.8	7.9
31	---	---	---	8.2	8.0	8.0	7.9	7.7	7.8	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.0	21.0	21.5	17.0	15.0	16.0	11.0	10.0	10.5	1.5	.5	.5
2	22.0	21.0	21.5	17.5	15.5	16.5	11.0	10.0	10.5	1.0	.5	.5
3	22.0	21.0	21.5	17.5	16.0	17.0	10.0	8.0	9.0	.5	.0	.5
4	22.5	21.0	21.5	16.5	12.0	14.5	8.5	7.5	8.0	.5	.5	.5
5	22.0	21.0	21.5	12.0	10.5	11.5	8.5	7.0	8.0	1.0	.5	.5
6	22.0	20.5	21.5	11.5	10.0	10.5	8.0	7.0	7.5	.5	.5	.5
7	22.0	21.0	21.5	11.0	10.5	10.5	8.0	6.5	7.0	1.0	.5	1.0
8	21.0	19.0	20.5	11.0	10.5	11.0	7.5	6.0	7.0	1.5	1.0	1.0
9	19.0	16.5	18.0	12.0	11.0	11.5	8.0	6.0	7.0	1.5	1.5	1.5
10	17.0	16.0	16.5	12.0	10.5	11.0	8.0	6.0	7.0	2.0	1.5	1.5
11	17.0	15.5	16.0	12.5	11.0	11.5	8.5	6.5	7.5	2.0	1.0	1.5
12	17.0	15.5	16.0	13.0	11.5	12.0	9.0	7.5	8.0	1.5	.5	1.0
13	17.5	15.5	16.5	13.5	11.5	12.5	7.5	7.5	7.5	2.0	.5	1.5
14	18.0	16.0	17.0	14.0	12.5	13.0	8.5	7.5	8.0	2.5	1.5	2.0
15	18.0	16.5	17.0	14.5	12.5	13.5	8.5	7.5	8.0	3.5	2.5	3.0
16	19.0	17.0	18.0	14.5	13.0	13.5	8.0	7.5	8.0	4.0	3.0	3.5
17	19.0	17.5	18.0	13.0	12.5	13.0	8.0	7.5	8.0	4.0	3.5	3.5
18	18.0	16.0	17.0	13.0	12.5	12.5	8.0	7.0	7.5	4.5	3.5	4.0
19	17.5	15.5	16.5	13.5	12.5	13.0	7.5	6.5	7.0	5.0	4.5	5.0
20	16.5	15.5	16.0	14.0	12.5	13.5	7.0	6.0	7.0	5.5	4.5	5.0
21	16.0	14.5	15.5	14.5	13.5	14.0	6.0	3.5	5.0	4.5	3.5	4.5
22	15.0	13.5	14.5	14.0	13.0	13.5	3.5	1.5	2.5	4.5	3.0	3.5
23	15.0	13.0	14.0	14.0	12.5	13.0	1.5	.5	1.0	4.0	3.0	3.5
24	14.0	13.0	13.5	14.0	12.0	13.0	1.0	.5	.5	4.5	3.0	3.5
25	14.0	12.5	13.0	14.0	12.0	13.0	1.0	.5	.5	3.5	2.5	3.0
26	14.5	12.5	13.5	14.5	13.5	14.0	1.5	.5	1.0	3.5	2.0	2.5
27	14.5	13.0	13.5	15.0	13.0	14.5	1.0	.5	1.0	3.5	2.5	3.0
28	14.5	12.5	13.5	13.5	12.5	13.0	1.5	1.0	1.0	3.0	2.0	2.5
29	15.0	13.0	14.0	12.5	11.0	12.0	2.0	.5	1.0	3.0	2.0	2.5
30	16.0	14.0	14.5	11.5	10.0	11.0	1.0	.5	.5	3.0	1.5	2.5
31	16.5	14.5	15.0	---	---	---	1.0	.5	.5	3.5	1.5	2.5
MONTH	22.5	12.5	17.0	17.5	10.0	13.0	11.0	.5	5.6	5.5	.0	2.3

ARKANSAS RIVER BASIN

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07178000 BIRD CREEK NEAR OWASSO, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	4.0	2.0	3.0	11.5	9.0	10.0	16.5	14.0	15.0	19.0	18.0	18.5
2	4.5	2.5	3.5	10.0	9.0	9.5	16.0	14.0	15.0	19.5	18.5	19.0
3	5.5	3.5	4.5	10.5	9.0	9.5	15.0	14.0	14.5	20.0	19.5	20.0
4	6.5	5.0	6.0	11.0	8.5	9.5	15.5	13.5	14.5	21.5	20.0	20.5
5	8.0	6.5	7.0	12.5	9.5	10.5	17.5	15.0	16.0	20.5	19.0	20.0
6	9.0	7.0	7.5	12.5	10.5	11.0	18.5	16.5	17.5	19.5	18.0	19.0
7	9.0	7.0	8.0	11.5	9.5	10.5	19.0	17.5	18.5	20.0	18.5	19.0
8	9.0	7.0	8.0	13.0	9.5	11.0	19.5	18.5	19.0	19.5	18.5	19.0
9	8.5	7.0	7.5	12.5	9.5	11.0	20.0	18.0	19.0	19.5	18.5	19.0
10	9.0	7.0	8.0	12.5	9.5	11.0	20.0	17.5	18.5	20.0	19.0	19.5
11	9.0	6.5	8.0	12.5	10.5	11.5	18.5	17.0	18.0	20.5	20.0	20.5
12	8.5	7.0	8.0	12.0	11.0	11.5	19.5	17.5	18.0	22.5	20.5	21.5
13	10.0	7.5	8.5	11.0	10.0	10.5	18.5	18.0	18.5	24.0	22.0	23.0
14	9.5	7.5	8.5	11.0	9.0	10.0	18.5	17.5	18.0	25.0	23.0	24.0
15	8.0	6.0	7.0	9.5	9.0	9.5	19.0	17.0	18.0	25.0	23.5	24.0
16	7.5	5.5	6.5	10.5	8.5	9.5	19.5	17.0	18.0	24.0	23.5	23.5
17	9.0	6.5	7.5	11.0	9.5	10.5	19.5	18.0	18.5	23.5	23.0	23.0
18	9.0	7.5	8.0	12.5	9.5	11.0	19.5	18.0	19.0	24.5	23.0	24.0
19	9.0	6.5	7.5	12.5	10.5	11.5	18.0	17.0	17.5	24.5	24.0	24.5
20	9.5	6.5	8.0	14.0	11.5	12.5	17.0	16.0	16.5	24.0	23.5	24.0
21	10.0	7.0	8.5	16.0	12.5	14.0	16.0	15.5	16.0	24.5	23.0	23.5
22	10.5	8.0	9.0	16.0	14.0	15.0	16.0	15.0	15.5	23.5	23.0	23.5
23	11.0	8.0	9.5	17.5	13.5	15.5	17.0	14.5	15.5	24.0	23.0	23.5
24	9.5	8.0	8.5	17.5	14.0	15.5	17.5	15.5	16.5	24.0	23.0	23.5
25	9.5	7.0	8.0	17.5	14.5	16.0	18.5	16.5	17.5	23.5	22.5	23.0
26	9.5	7.0	8.0	18.5	16.0	17.0	19.0	18.0	18.5	24.5	23.0	23.5
27	9.5	6.5	8.0	18.5	16.5	17.5	20.0	18.5	19.0	26.0	23.0	24.5
28	10.0	7.5	8.5	18.0	16.0	17.0	18.5	17.5	18.0	27.5	25.5	26.0
29	---	---	---	17.0	15.5	16.0	18.5	17.5	18.0	28.0	26.5	27.0
30	---	---	---	16.5	14.0	15.0	19.0	17.5	18.5	28.0	27.0	27.5
31	---	---	---	16.5	14.0	15.0	---	---	---	28.0	26.5	27.0
MONTH	11.0	2.0	7.4	18.5	8.5	12.4	20.0	13.5	17.3	28.0	18.0	22.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	27.5	26.5	27.0	30.0	28.0	29.0	29.5	27.5	28.5	27.0	25.5	26.5
2	27.5	26.0	26.5	29.5	28.0	29.0	30.5	28.0	29.0	26.5	26.0	26.5
3	26.5	25.0	25.5	29.0	27.5	28.5	31.0	28.5	29.5	27.5	25.5	26.0
4	27.0	25.5	26.0	29.5	27.0	28.0	31.0	29.0	29.5	26.5	25.5	26.0
5	27.0	25.5	26.5	30.0	27.5	28.5	31.0	29.0	30.0	26.5	24.5	25.5
6	25.5	20.5	22.0	31.0	28.0	29.5	31.0	29.0	30.0	27.0	25.5	26.0
7	22.5	19.5	21.5	31.0	29.0	30.0	31.0	29.0	30.0	27.0	26.0	26.5
8	---	---	---	31.5	29.5	30.5	31.0	29.0	30.0	27.0	25.5	26.0
9	---	---	---	31.5	29.5	30.5	30.0	28.5	29.5	27.5	25.5	26.5
10	---	---	---	31.5	29.5	30.5	28.5	27.5	28.0	28.0	26.0	27.0
11	---	---	---	32.5	29.0	30.5	27.5	26.5	27.0	28.5	26.5	27.5
12	---	---	---	31.5	29.0	30.5	26.5	25.5	26.0	28.5	27.0	28.0
13	---	---	---	31.5	29.5	30.5	26.0	25.0	25.5	28.0	27.0	27.5
14	---	---	---	31.0	29.0	30.0	26.5	24.5	25.5	28.0	27.0	27.5
15	---	---	---	31.0	28.5	29.5	27.0	24.5	25.5	27.5	26.5	27.0
16	---	---	---	31.0	28.5	29.5	27.5	25.0	26.0	27.0	24.0	25.5
17	---	---	---	30.5	28.5	29.5	28.5	26.5	27.0	25.0	23.5	24.5
18	---	---	---	30.5	28.5	29.5	29.0	26.5	27.5	24.5	22.0	23.5
19	---	---	---	31.0	29.0	29.5	28.5	27.0	27.5	22.0	20.0	21.0
20	---	---	---	30.5	29.0	29.5	27.0	26.0	26.5	26.5	19.0	19.5
21	30.0	28.0	29.0	31.0	29.0	30.0	27.0	25.5	26.5	20.0	19.0	19.5
22	29.0	27.5	28.0	31.5	29.0	30.0	28.0	25.5	26.5	19.5	19.0	19.0
23	27.5	27.0	27.0	31.5	29.5	30.5	28.5	26.0	27.0	19.0	18.5	19.0
24	29.0	27.0	28.0	31.0	29.0	30.0	29.0	27.0	28.0	20.5	19.0	19.5
25	29.5	27.5	28.5	30.0	28.5	29.0	29.0	27.0	28.0	20.5	18.5	19.5
26	30.0	28.0	29.0	29.0	27.5	28.5	28.5	27.0	27.5	20.5	19.0	19.5
27	30.0	28.0	29.0	28.0	27.0	27.5	28.0	26.5	27.5	20.5	18.5	19.5
28	30.0	28.0	29.0	28.5	26.5	27.5	28.5	26.5	27.5	20.5	18.5	19.5
29	30.0	28.0	29.0	29.0	26.5	27.5	27.5	27.0	27.0	21.0	19.0	20.0
30	30.0	28.0	29.0	29.0	26.5	27.5	28.0	26.5	27.0	21.0	19.0	20.0
31	---	---	---	29.5	27.0	28.0	27.5	26.0	27.0	---	---	---
MONTH	---	---	---	32.5	26.5	29.3	31.0	24.5	27.7	28.5	18.5	23.6

ARKANSAS RIVER BASIN

07170000 BIRD CREEK NEAR OWASSO, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.7	8.3	8.5	8.8	7.7	8.1	10.0	8.3	9.0	---	---	---
2	8.9	8.5	8.6	8.4	7.1	7.7	10.2	8.7	9.3	---	---	---
3	8.6	4.9	6.3	8.0	6.9	7.4	10.2	9.1	9.6	---	---	---
4	8.8	5.0	6.8	8.6	6.4	7.4	10.6	9.3	9.8	---	---	---
5	7.5	6.8	7.3	7.8	7.5	7.6	10.2	9.0	9.6	---	---	---
6	8.0	7.1	7.3	8.4	7.8	8.2	10.8	9.2	9.8	---	---	---
7	7.1	7.0	7.1	8.6	8.0	8.3	11.2	9.7	10.3	---	---	---
8	7.3	6.9	7.1	9.0	8.6	8.8	11.5	10.0	10.6	---	---	---
9	7.8	7.3	7.5	9.5	8.8	9.0	11.7	10.2	10.8	---	---	---
10	8.3	7.7	8.0	9.6	8.8	9.2	11.5	10.1	10.7	---	---	---
11	8.5	8.1	8.3	9.7	8.8	9.2	11.3	10.0	10.5	---	---	---
12	8.7	8.2	8.4	9.8	8.8	9.2	11.1	9.8	10.3	---	---	---
13	9.0	8.2	8.5	9.9	8.7	9.2	10.5	9.8	10.1	---	---	---
14	8.7	8.1	8.3	10.2	8.6	9.3	10.3	9.5	9.8	---	---	---
15	8.8	7.9	8.2	10.1	8.7	9.2	10.7	9.2	9.8	---	---	---
16	8.7	7.9	8.2	9.5	8.3	8.7	9.7	9.2	9.5	---	---	---
17	8.5	7.8	8.0	9.3	8.1	8.6	10.0	9.2	9.5	---	---	---
18	8.8	7.7	8.2	8.6	8.0	8.3	---	---	---	12.4	12.0	12.2
19	8.6	7.6	8.0	8.8	7.9	8.3	---	---	---	12.1	11.6	11.9
20	8.7	7.5	8.0	8.5	7.8	8.0	---	---	---	11.6	11.4	11.5
21	9.0	7.8	8.3	8.3	7.8	7.9	---	---	---	11.9	11.3	11.5
22	9.3	8.0	8.6	8.4	7.6	7.9	---	---	---	12.2	11.4	11.7
23	9.5	8.2	8.7	8.7	7.4	7.9	---	---	---	12.6	11.8	12.1
24	9.6	8.3	8.9	9.5	7.5	8.1	---	---	---	12.9	12.0	12.3
25	9.8	8.4	9.0	9.1	7.8	8.2	---	---	---	12.3	12.0	12.1
26	10.2	8.6	9.2	8.5	7.8	8.1	---	---	---	12.9	12.0	12.3
27	10.6	8.8	9.5	8.8	7.7	8.1	---	---	---	12.9	12.0	12.3
28	10.5	8.9	9.6	8.9	7.7	8.2	---	---	---	13.0	12.1	12.5
29	10.1	8.8	9.3	8.9	7.9	8.3	---	---	---	12.6	12.2	12.4
30	9.8	8.4	9.0	9.7	7.9	8.7	---	---	---	13.3	12.2	12.6
31	9.4	8.1	8.7	---	---	---	---	---	---	13.4	12.1	12.6
MONTH	10.6	4.9	8.1	10.2	6.4	8.4	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	13.7	12.3	12.9	12.2	10.6	11.2	10.6	8.4	9.4	7.6	7.3	7.5
2	14.1	12.5	13.2	10.6	9.9	10.3	10.9	8.7	9.4	7.9	7.5	7.6
3	14.0	12.4	13.1	11.0	9.6	10.1	8.8	8.0	8.3	7.6	6.8	7.3
4	13.2	11.9	12.5	11.4	9.3	10.2	10.7	8.1	8.7	7.1	6.2	6.8
5	12.8	11.2	11.9	11.8	9.3	10.3	8.3	8.0	8.1	6.7	6.1	6.4
6	12.8	10.8	11.6	12.1	9.6	10.6	8.2	7.5	7.9	7.4	6.7	7.0
7	12.8	10.7	11.5	12.0	9.8	10.7	7.9	7.2	7.6	7.3	6.8	7.0
8	13.0	10.8	11.7	12.1	9.6	10.6	7.5	6.9	7.2	7.0	6.7	6.8
9	12.9	11.0	11.8	12.1	9.4	10.5	8.2	6.8	7.5	7.4	6.6	7.0
10	13.4	11.2	12.1	12.5	9.5	10.8	9.8	7.0	8.2	7.5	7.3	7.4
11	13.5	11.3	12.2	12.1	9.9	10.8	8.7	7.3	8.0	7.4	7.1	7.3
12	12.9	11.2	11.9	11.3	9.8	10.4	9.0	7.2	7.9	7.1	6.5	6.9
13	12.8	11.0	11.7	10.8	9.5	10.0	7.8	7.1	7.4	6.8	6.2	6.5
14	12.4	10.6	11.3	11.6	9.3	10.3	7.7	6.7	7.1	6.4	5.9	6.1
15	12.6	10.6	11.4	11.1	9.6	10.3	8.5	6.8	7.5	6.2	5.7	5.9
16	12.6	10.6	11.5	11.8	9.8	10.6	9.0	7.4	8.1	6.2	5.6	5.9
17	13.0	10.9	11.7	11.7	10.0	10.8	8.2	7.1	7.6	7.2	5.7	6.5
18	12.9	11.0	11.8	12.6	10.1	11.2	7.1	1.7	5.9	7.0	6.7	6.8
19	13.0	11.1	11.9	12.3	9.8	11.0	7.1	5.0	6.3	7.0	5.9	6.5
20	12.6	10.7	11.5	12.3	10.0	10.9	7.2	7.0	7.2	---	---	---
21	12.4	10.4	11.2	12.4	9.6	10.8	7.2	7.0	7.2	---	---	---
22	12.4	10.2	11.2	12.4	9.7	10.9	7.0	6.8	6.9	---	---	---
23	13.0	10.3	11.2	13.1	9.5	10.9	7.3	6.8	7.0	---	---	---
24	11.7	10.3	10.9	12.4	9.5	10.8	7.4	7.0	7.3	---	---	---
25	12.3	10.2	11.1	12.6	9.2	10.3	7.4	5.6	6.9	---	---	---
26	12.3	10.2	11.1	11.1	8.8	9.7	7.5	6.6	7.3	---	---	---
27	12.7	10.4	11.4	10.7	8.2	9.3	7.5	6.3	7.1	---	---	---
28	12.5	10.6	11.4	10.1	7.5	8.8	6.9	6.3	6.6	---	---	---
29	---	---	---	9.4	7.2	8.1	7.5	6.5	7.0	---	---	---
30	---	---	---	9.5	7.5	8.5	7.3	6.6	7.1	---	---	---
31	---	---	---	10.6	8.0	9.2	---	---	---	---	---	---
MONTH	14.1	10.2	11.7	13.1	7.2	10.3	10.9	1.7	7.5	---	---	---

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH 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 46th 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, no estimated daily discharges. U.S. Geological Survey satellite telemeter at station.

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, 1.3 ft³/s, Aug. 7, 1991.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 5,100 ft³/s, June 7, gage height, 14.77 ft; minimum daily discharge, 1.3 ft³/s, Aug. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	2.5	3.7	10	13	23	5.1	9.4	11	2.7	2.0	9.0
2	5.3	2.5	52	12	13	21	5.9	6.0	318	4.1	1.8	14
3	478	19	78	13	14	40	134	418	29	6.0	1.9	37
4	47	607	9.1	9.2	13	9.8	41	198	14	3.1	1.9	608
5	13	33	7.4	27	58	8.6	20	422	497	2.3	1.7	19
6	7.8	14	4.6	152	16	6.6	14	32	233	2.0	1.6	7.2
7	6.2	8.9	4.3	43	11	14	11	17	1780	1.9	1.3	33
8	87	6.7	4.3	24	9.5	8.8	10	153	999	1.8	1.4	51
9	61	18	4.0	92	8.8	6.4	9.5	30	75	1.8	3.7	8.4
10	15	10	3.9	456	8.5	9.1	7.7	15	39	2.3	5.0	4.5
11	8.7	6.6	3.9	129	7.8	8.3	7.1	11	27	3.9	2.5	2.9
12	7.0	7.6	3.9	62	9.8	7.4	8.4	14	21	3.2	2.1	2.4
13	5.8	5.4	3.6	55	8.4	5.7	7.5	7.7	15	3.7	1.7	3.4
14	4.9	4.5	3.7	52	7.9	4.7	7.5	6.3	12	3.0	3.1	33
15	4.1	4.3	3.9	197	10	5.8	7.3	6.5	10	2.3	5.0	54
16	3.9	7.7	22	73	7.5	7.6	6.1	179	37	2.4	2.6	536
17	3.9	4.4	630	36	6.2	87	5.4	419	15	2.0	2.1	37
18	3.1	4.2	61	27	6.9	13	5.3	34	9.2	1.8	1.7	646
19	2.9	4.4	22	61	7.5	8.2	5.3	77	6.7	1.6	1.5	73
20	2.8	4.3	14	27	6.8	7.3	5.2	41	4.8	5.6	1.5	21
21	2.8	5.3	9.7	18	6.7	38	5.2	20	4.3	9.6	2.3	10
22	2.6	8.1	6.9	16	6.7	43	7.6	14	84	2.4	2.7	141
23	2.8	6.2	5.2	16	7.1	11	6.4	41	16	1.9	2.2	61
24	2.9	5.3	5.3	15	6.0	7.0	6.5	345	23	1.9	1.9	23
25	2.7	4.2	5.4	14	15	5.5	143	110	6.7	33	1.9	16
26	2.3	4.1	7.4	15	8.9	5.3	13	28	3.9	13	4.2	8.8
27	2.3	9.0	9.7	15	6.6	28	37	16	3.1	6.1	23	5.5
28	2.3	6.6	20	12	6.2	8.6	9.4	12	4.6	12	4.1	4.2
29	2.1	4.2	120	22	---	41	19	11	3.8	3.2	2.4	3.5
30	2.1	3.9	23	14	---	13	6.9	85	3.2	2.5	5.7	3.5
31	2.4	---	12	11	---	6.4	---	22	---	2.3	40	---
TOTAL	805.7	831.9	1163.9	1725.2	306.8	509.1	577.3	2799.9	4305.3	145.4	179.7	2476.3
MEAN	26.0	27.7	37.5	55.7	11.0	16.4	19.2	90.3	144	4.69	5.80	82.5
MAX	478	607	630	456	58	87	143	422	1780	33	40	646
MIN	2.1	2.5	3.6	9.2	6.0	4.7	5.1	6.0	3.1	1.6	1.3	2.4
AC-FT	1600	1650	2310	3420	609	1010	1150	5550	8540	288	356	4910
CFSM	.43	.46	.63	.93	.18	.27	.32	1.51	2.40	.08	.10	1.38
IN.	.50	.52	.72	1.07	.19	.32	.36	1.74	2.67	.09	.11	1.54

CAL YR 1990 TOTAL 30750.5 MEAN 84.2 MAX 2760 MIN 1.6 AC-FT 60990 CFSM 1.41 IN. 19.10
WTR YR 1991 TOTAL 15828.5 MEAN 43.4 MAX 1780 MIN 1.3 AC-FT 31390 CFSM .72 IN. 9.83

ARKANSAS RIVER BASIN

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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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,580 microsiemens, May 13, 1990; minimum, 80 microsiemens, Aug. 20, 1989.

pH: Maximum, 9.4 units, Jan. 14, 1989; minimum, 5.9 units, Oct. 25, 1988.

WATER TEMPERATURE: Maximum, 34.0°C, July 5, 1990; minimum, 0.0°C, several days during winter months.

DISSOLVED OXYGEN: Maximum, 16.8 mg/l, Dec. 19, 1988; minimum, 0.2 mg/l, Aug. 24, 1990.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,010 microsiemens, Aug. 20; minimum, 100 microsiemens, Sept. 4.

pH: Maximum recorded (more than 20 percent missing record), 8.6 units, Feb. 15, 16, 24, 26; minimum recorded, 7.0 units, May 22, 24.

WATER TEMPERATURE: Maximum, 31.5°C, June 30, July 10; minimum, 0.0°C several days during winter months.

DISSOLVED OXYGEN: Maximum, 16.4 mg/l, Feb. 3; minimum, 2.6 mg/l, Aug. 18.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	442	380	403	723	702	714	765	754	761	660	566	612
2	474	442	458	744	712	728	775	157	701	712	628	665
3	526	132	323	744	251	703	398	272	312	---	---	---
4	437	304	377	691	136	275	388	356	373	---	---	---
5	479	437	455	460	325	392	429	377	385	---	---	---
6	512	479	498	513	450	487	398	377	389	---	---	---
7	524	502	512	534	503	519	409	388	399	---	---	---
8	690	175	469	576	524	547	409	388	399	---	---	---
9	423	216	332	608	566	586	442	409	428	---	---	---
10	425	403	418	733	587	671	450	419	436	---	---	---
11	446	425	438	807	744	787	513	419	459	587	440	508
12	510	457	486	744	691	718	534	503	521	639	576	613
13	500	479	489	691	649	665	555	534	543	702	639	670
14	522	490	506	670	660	665	555	524	539	670	628	653
15	555	512	527	681	660	669	618	545	604	712	409	543
16	566	534	549	712	670	697	710	440	608	608	471	548
17	597	555	571	723	712	720	765	105	335	691	608	652
18	608	587	598	723	712	721	419	304	367	744	691	723
19	618	587	593	744	712	725	503	419	460	848	618	682
20	628	618	620	786	744	765	566	503	534	670	628	645
21	628	618	622	775	754	765	649	555	600	691	670	684
22	639	618	627	828	775	806	649	628	636	733	691	713
23	628	618	621	828	807	816	670	628	646	754	733	749
24	628	618	624	817	807	811	691	660	679	775	754	768
25	628	618	621	817	796	808	712	691	702	817	775	793
26	628	608	619	817	775	802	744	712	725	817	807	813
27	660	618	642	817	712	772	848	744	784	828	807	817
28	660	649	656	817	744	772	901	775	844	828	817	822
29	670	660	664	817	786	803	932	377	603	838	702	774
30	691	670	675	786	754	768	566	409	499	796	744	766
31	712	681	701	---	---	---	566	545	554	766	775	779
MONTH	712	132	539	828	136	689	932	105	543	---	---	---

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	775	733	748	800	560	745	480	440	487	580	510	535
2	796	744	771	770	590	723	630	110	480	530	490	508
3	828	796	812	580	460	503	430	170	294	490	110	283
4	840	828	834	480	460	465	530	440	490	460	200	392
5	830	280	617	510	480	499	600	530	563	360	170	291
6	650	620	639	560	510	545	630	590	613	450	370	410
7	640	610	626	570	540	559	660	630	639	490	450	464
8	620	610	616	610	560	583	690	660	670	500	260	358
9	640	620	626	660	620	651	700	690	692	420	320	380
10	670	640	657	660	570	631	710	690	700	470	410	437
11	700	670	684	570	540	551	710	700	703	510	460	487
12	730	700	717	650	560	609	710	700	705	540	510	526
13	740	720	733	710	660	684	730	710	724	560	540	554
14	750	740	747	750	720	724	780	690	731	600	570	585
15	770	750	757	720	670	695	730	700	717	610	590	596
16	820	780	803	670	250	639	730	720	726	690	140	459
17	840	820	829	670	320	380	740	720	732	430	170	319
18	840	820	827	410	350	380	760	740	749	540	430	496
19	820	750	799	460	410	440	770	750	756	640	220	491
20	740	680	720	510	460	492	770	750	760	480	310	440
21	700	670	685	600	390	518	840	760	789	590	470	527
22	750	690	731	410	300	372	760	740	746	630	580	605
23	780	740	768	460	410	432	770	740	754	690	610	641
24	790	700	765	530	460	499	770	260	744	610	190	375
25	820	690	773	570	520	543	860	270	356	530	300	417
26	830	800	815	610	570	588	410	320	367	600	520	559
27	820	800	812	650	320	565	510	310	419	690	580	624
28	820	790	807	640	540	572	470	390	414	750	660	685
29	---	---	---	660	360	512	460	420	436	740	670	706
30	---	---	---	420	400	414	500	450	472	750	330	562
31	---	---	---	450	420	432	---	---	---	560	470	514
MONTH	840	280	740	800	250	547	840	110	614	750	110	491
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	590	540	561	---	---	---	610	570	589	410	370	390
2	650	170	310	---	---	---	650	610	640	560	370	398
3	510	410	459	---	---	---	650	630	644	430	320	405
4	620	510	555	570	480	531	680	660	667	270	180	174
5	630	140	382	620	570	598	770	680	694	280	250	268
6	440	230	391	630	620	622	760	730	746	320	280	295
7	510	110	403	680	630	660	900	740	800	570	280	385
8	490	160	321	700	670	686	920	780	835	420	300	334
9	620	480	549	700	680	690	890	580	776	330	300	310
10	690	610	656	690	670	681	580	550	556	380	320	353
11	720	690	705	700	680	688	590	560	571	410	380	391
12	730	710	716	710	690	705	910	590	651	470	410	432
13	730	690	714	800	650	700	790	370	622	460	420	448
14	710	700	704	680	630	662	670	420	496	500	210	424
15	710	680	695	730	670	698	450	420	432	470	220	286
16	700	200	584	760	720	741	500	440	462	270	120	182
17	750	680	707	760	750	757	500	470	485	330	270	314
18	690	660	673	770	750	759	500	470	489	330	110	211
19	670	660	667	800	760	778	530	480	509	370	230	319
20	680	660	672	860	810	844	1010	530	624	450	370	412
21	680	660	671	840	780	801	940	440	646	480	440	458
22	---	---	---	800	780	791	460	440	451	490	160	344
23	---	---	---	810	790	802	520	450	476	360	240	298
24	---	---	---	880	800	812	560	500	515	472	350	423
25	---	---	---	860	540	749	570	520	557	504	462	481
26	---	---	---	510	450	473	540	510	523	516	505	509
27	---	---	---	600	450	485	700	520	634	528	506	520
28	---	---	---	460	440	449	580	560	567	560	528	546
29	---	---	---	480	450	470	610	560	573	593	550	574
30	---	---	---	550	470	507	880	490	552	595	583	585
31	---	---	---	590	540	557	670	280	421	---	---	---
MONTH	---	---	---	---	---	---	1010	280	587	595	100	382

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
7	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
8	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
9	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
10	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
11	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
12	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
13	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
14	---	---	---	---	---	---	---	---	---	7.8	7.4	7.6
15	---	---	---	---	---	---	---	---	---	7.9	7.5	7.7
16	---	---	---	---	---	---	---	---	---	8.0	7.3	7.8
17	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
18	---	---	---	---	---	---	---	---	---	8.0	7.4	7.7
19	---	---	---	---	---	---	---	---	---	7.5	7.3	7.4
20	---	---	---	---	---	---	---	---	---	7.7	7.4	7.5
21	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
22	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
23	---	---	---	---	---	---	---	---	---	7.8	7.1	7.7
24	---	---	---	---	---	---	---	---	---	7.9	7.6	7.8
25	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
26	---	---	---	---	---	---	---	---	---	7.6	7.5	7.6
27	---	---	---	---	---	---	---	---	---	7.5	7.4	7.5
28	---	---	---	---	---	---	---	---	---	7.6	7.5	7.6
29	---	---	---	---	---	---	---	---	---	7.6	7.5	7.5
30	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
31	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.5	20.0	21.0	18.5	15.5	16.5	10.0	8.0	9.0	.5	.0	.5
2	21.5	20.0	21.0	18.5	16.0	17.0	12.5	9.5	10.5	1.0	.0	.5
3	22.0	21.0	21.5	19.0	16.5	17.5	12.0	8.0	9.5	.5	.0	.5
4	22.0	20.0	21.0	18.0	9.5	11.0	8.0	6.0	7.5	.5	.0	.5
5	21.5	19.5	21.0	10.5	9.0	9.5	7.5	6.0	7.0	1.5	.5	1.0
6	22.5	20.0	21.5	11.0	9.0	10.0	7.5	6.0	6.5	.5	.0	.5
7	22.5	19.0	21.0	10.5	9.5	10.0	6.5	5.0	5.5	.5	.0	.5
8	19.0	15.5	17.5	10.0	9.5	9.5	6.5	4.5	5.5	1.5	.0	1.0
9	15.5	13.0	14.5	11.5	10.0	10.5	7.0	5.5	6.0	2.0	.5	1.0
10	13.5	11.5	13.0	11.5	9.5	10.5	7.5	5.5	6.5	2.5	.5	1.0
11	14.0	12.0	13.5	12.0	10.0	11.0	8.5	6.5	7.5	3.0	2.0	2.5
12	14.5	12.5	14.0	12.5	11.0	12.0	9.5	8.0	8.5	3.5	2.0	2.5
13	16.0	13.5	15.0	13.5	11.5	12.5	8.5	6.5	7.5	4.5	2.0	3.0
14	17.5	15.5	16.5	14.0	12.0	13.0	8.0	6.5	7.0	6.0	3.0	5.0
15	17.5	15.0	16.5	15.0	12.5	13.5	8.0	7.0	7.5	7.0	5.5	6.5
16	20.0	16.5	18.0	14.0	13.0	13.5	8.0	6.5	7.0	6.5	5.5	6.0
17	19.5	17.0	18.5	12.5	10.5	11.5	8.5	7.0	7.5	7.5	5.0	6.0
18	16.5	14.0	15.5	12.0	11.0	11.5	8.5	7.5	8.0	8.0	5.0	6.5
19	15.5	12.5	14.0	13.0	11.5	12.5	8.0	6.5	7.5	9.0	7.0	8.5
20	16.0	13.0	14.5	15.0	12.5	13.5	8.0	5.5	7.0	8.0	6.0	7.0
21	15.0	12.5	14.0	16.5	15.0	15.5	5.5	1.0	3.0	6.0	3.5	4.5
22	14.0	11.0	12.5	15.0	13.0	13.5	1.0	.5	.5	4.0	2.5	3.0
23	14.0	10.5	12.0	12.5	11.0	12.0	1.0	.5	.5	4.0	2.5	3.5
24	14.0	11.5	12.5	13.0	11.0	12.0	1.0	.5	1.0	4.5	3.0	3.5
25	13.5	10.5	12.0	14.0	11.5	12.5	1.5	.5	1.0	4.0	2.5	3.5
26	14.0	10.5	12.5	16.5	14.0	15.0	2.0	1.0	1.5	3.5	2.0	2.5
27	15.5	12.0	13.5	17.0	13.5	16.0	2.0	1.5	1.5	4.0	2.5	3.5
28	14.5	11.5	13.0	13.5	11.0	11.5	2.0	1.0	1.0	4.0	2.5	3.0
29	15.5	12.0	13.5	10.5	9.0	10.0	5.0	.0	2.0	4.5	2.0	3.5
30	16.5	13.5	14.5	9.5	7.5	8.5	.0	.0	.0	3.0	1.0	2.0
31	17.0	14.5	15.5	---	---	---	.5	.0	.5	4.0	1.5	2.5
MONTH	22.5	10.5	16.0	19.0	7.5	12.4	12.5	.0	5.2	9.0	.0	3.1

07178040 MINGO CREEK AT 46TH STREET NORTH AT TULSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	5.0	2.5	3.5	14.0	11.0	12.0	18.0	11.0	15.5	21.0	18.0	19.5
2	6.5	3.0	4.5	12.0	9.0	10.5	17.0	14.5	15.5	21.5	17.5	19.5
3	8.0	5.0	6.5	10.5	5.5	7.0	16.5	13.0	15.0	21.5	19.0	20.0
4	9.5	7.5	8.5	10.0	5.5	8.0	19.5	16.0	17.5	23.5	20.5	22.0
5	11.5	9.0	11.0	13.0	8.5	10.5	19.5	15.5	18.0	21.0	17.0	19.0
6	11.0	9.0	10.0	13.0	10.5	12.0	21.0	17.5	19.5	20.5	16.0	18.0
7	10.5	8.5	9.5	11.0	9.0	10.0	20.5	19.0	20.0	19.5	18.0	19.0
8	10.0	7.5	9.0	12.0	8.5	10.5	21.0	19.0	20.0	19.0	17.0	18.5
9	9.5	7.0	8.5	12.0	9.0	10.5	21.0	18.0	19.5	21.0	18.0	19.5
10	9.5	7.0	8.5	12.5	8.5	10.5	20.5	16.5	18.5	22.0	20.0	21.0
11	10.0	6.5	8.5	13.0	9.5	11.0	19.0	17.0	18.0	23.0	20.5	22.0
12	10.0	8.0	9.0	13.0	11.0	12.5	21.5	17.0	19.5	25.5	22.5	24.0
13	11.5	9.0	10.0	11.0	8.5	9.5	21.0	19.5	20.5	27.0	24.0	25.5
14	10.0	8.0	9.5	10.0	7.0	8.5	19.5	17.5	18.5	27.0	21.0	26.0
15	7.5	5.0	6.0	9.0	8.0	8.5	20.0	15.5	18.0	25.5	24.0	24.5
16	6.0	4.0	5.5	11.5	8.0	9.0	21.5	17.5	20.0	24.0	20.5	22.5
17	10.5	6.0	7.5	13.0	9.5	12.0	21.5	19.5	20.5	24.0	21.5	22.5
18	10.5	9.0	10.0	14.5	10.5	12.5	20.5	19.0	20.0	27.0	23.0	25.0
19	9.5	7.5	8.5	14.0	11.0	13.0	19.0	16.5	17.5	26.0	23.5	25.0
20	9.5	6.0	8.0	15.5	13.0	14.0	17.0	15.5	16.5	24.0	22.5	23.5
21	10.0	7.0	9.0	18.5	14.0	16.0	16.5	14.5	15.0	24.5	22.5	23.5
22	10.0	7.5	9.5	18.5	16.5	17.5	15.5	14.5	15.0	24.0	23.5	23.5
23	11.0	7.5	9.5	17.5	14.5	16.0	18.0	13.5	18.0	25.0	22.5	24.0
24	11.0	6.5	8.5	18.5	14.0	16.5	19.5	16.0	17.5	24.0	21.0	23.0
25	8.0	6.5	7.0	18.0	15.0	17.0	19.5	18.5	18.0	25.0	22.0	23.5
26	8.5	6.0	7.5	20.0	17.5	19.0	22.0	18.0	20.0	28.0	22.5	25.0
27	9.0	5.5	7.5	19.5	17.5	19.0	22.5	20.0	21.0	29.0	25.5	27.0
28	11.0	7.5	9.5	18.0	15.5	17.0	21.0	19.0	20.0	29.5	26.0	27.5
29	---	---	---	16.5	11.5	14.0	20.5	17.5	19.0	29.5	26.5	28.0
30	---	---	---	14.0	10.0	12.0	22.0	17.5	20.0	28.0	23.5	26.5
31	---	---	---	16.5	11.0	13.5	---	---	---	28.0	25.5	26.5
MONTH	11.5	2.5	8.2	20.0	5.5	12.6	22.5	11.0	18.3	29.5	18.0	23.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	28.0	22.5	27.0	31.0	27.5	29.0	29.0	26.0	27.5	26.5	25.0	25.0
2	25.0	22.0	23.5	30.0	28.0	29.0	29.5	26.5	28.0	25.5	25.0	25.0
3	28.5	24.0	26.0	28.5	24.5	27.0	30.0	27.5	28.5	26.5	24.5	25.5
4	28.5	25.5	27.0	30.0	25.5	27.5	29.5	27.0	28.5	26.5	24.0	24.5
5	28.0	21.5	24.0	30.0	27.0	28.5	29.5	27.0	28.5	28.0	23.0	24.5
6	25.5	22.5	24.0	30.0	27.0	28.5	29.5	27.5	28.5	26.5	24.5	25.5
7	24.5	22.5	23.0	30.5	27.5	29.0	29.5	27.5	28.5	27.5	24.5	26.0
8	22.5	21.5	22.0	30.5	28.0	29.5	30.0	28.0	29.0	27.0	25.5	26.0
9	24.0	22.0	23.0	31.0	28.0	29.5	29.0	26.5	27.5	27.5	25.5	26.5
10	26.5	22.5	24.5	31.5	28.0	29.5	27.5	26.0	26.5	29.0	26.0	27.5
11	26.5	23.0	25.0	31.0	28.0	29.5	27.0	24.5	25.5	30.0	26.5	28.0
12	27.5	24.5	26.0	31.5	28.0	29.5	26.5	24.0	25.0	30.0	26.5	28.0
13	28.5	25.5	27.0	31.0	26.5	29.0	25.0	22.5	24.0	29.5	26.0	27.5
14	29.0	26.5	27.5	30.0	27.5	28.5	25.5	22.0	24.0	27.5	26.0	26.5
15	28.0	26.5	27.5	30.0	26.5	28.0	27.0	23.5	25.5	27.5	25.5	26.5
16	27.0	22.5	25.5	30.0	27.0	28.5	28.0	24.5	26.0	26.0	23.0	24.0
17	27.5	24.5	26.5	29.5	26.5	28.5	29.0	26.0	27.0	24.5	23.0	24.0
18	29.5	26.0	27.5	29.0	26.0	27.5	27.5	24.5	26.0	24.0	17.5	19.5
19	30.0	27.0	28.5	29.0	26.0	27.5	26.5	24.5	25.5	17.5	12.0	16.5
20	30.5	27.0	28.5	30.5	27.5	28.5	25.0	22.5	23.5	17.0	15.0	16.0
21	30.0	27.5	29.0	30.5	27.5	29.0	27.0	23.0	24.5	17.5	11.5	16.5
22	28.5	24.5	26.0	31.0	28.0	29.5	28.5	24.5	26.5	18.0	12.0	16.5
23	27.5	22.0	25.5	30.5	28.0	29.5	29.0	25.5	27.0	19.0	12.0	18.0
24	29.0	22.5	27.5	30.0	26.5	28.5	28.0	25.5	27.0	19.0	17.5	18.0
25	30.5	27.5	29.0	28.0	25.5	26.5	28.0	25.5	27.0	19.5	17.0	18.5
26	31.0	28.0	29.5	27.0	24.0	25.5	28.0	25.5	26.5	19.0	17.0	18.0
27	31.0	28.0	29.5	26.5	25.5	26.0	27.5	25.0	26.5	19.0	12.5	18.0
28	30.5	27.5	29.0	28.0	25.5	26.5	29.0	26.0	27.5	20.0	17.5	19.0
29	31.0	27.5	29.5	29.0	26.5	27.5	27.5	26.0	27.0	20.5	17.5	19.0
30	31.5	28.0	29.5	29.5	24.5	26.5	27.0	25.0	26.0	20.5	18.0	19.5
31	---	---	---	29.0	24.5	27.0	28.0	24.5	25.0	---	---	---
MONTH	31.5	21.5	26.6	31.5	24.0	28.2	30.0	22.0	26.6	30.0	11.5	22.4
YEAR	31.5	.0	16.9									

ARKANSAS RIVER BASIN

07178040 MINGO CREEK AT 48TH STREET NORTH AT TULSA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	4.7	3.4	4.1	8.8	4.8	6.2	13.6	9.3	11.1	11.1	10.6	10.8
2	5.6	4.2	4.8	8.6	4.1	5.8	13.1	7.9	10.1	11.0	10.6	10.8
3	6.5	4.0	5.2	7.8	4.2	5.7	8.2	7.8	8.0	11.0	10.6	10.7
4	5.7	5.1	5.5	8.3	5.5	7.8	8.4	7.8	8.1	11.0	10.4	10.8
5	5.6	4.8	5.2	7.8	7.2	7.5	8.8	7.7	8.2	---	---	---
6	5.8	4.8	5.3	7.8	7.0	7.4	8.6	7.0	7.6	---	---	---
7	5.8	4.5	5.2	7.5	6.8	7.1	9.0	7.5	8.4	---	---	---
8	7.7	5.1	6.0	7.1	6.3	6.7	9.5	8.4	8.7	---	---	---
9	7.6	7.1	7.3	7.2	6.5	6.9	10.3	8.3	9.2	---	---	---
10	8.2	7.5	7.8	7.8	6.6	7.1	10.6	8.8	9.7	---	---	---
11	8.1	7.6	7.8	8.1	6.2	7.3	11.0	8.8	9.8	---	---	---
12	8.1	7.3	7.7	8.0	6.5	7.3	11.0	9.2	10.0	---	---	---
13	8.4	7.2	7.7	7.8	6.0	7.1	11.0	9.1	9.9	---	---	---
14	8.3	6.9	7.6	8.5	5.8	7.2	11.2	8.8	9.8	---	---	---
15	9.4	7.2	8.2	8.8	6.5	7.3	12.0	9.0	10.4	---	---	---
16	10.8	7.4	8.8	---	---	---	10.5	8.6	9.6	---	---	---
17	10.5	7.5	8.8	---	---	---	9.9	8.6	9.3	10.6	8.7	9.6
18	10.6	7.3	8.5	---	---	---	9.4	9.0	9.2	11.2	9.9	10.4
19	10.8	7.5	8.7	---	---	---	9.6	8.9	9.2	10.0	8.9	9.5
20	10.7	7.4	8.8	---	---	---	9.1	8.6	8.9	10.3	8.8	9.5
21	11.2	7.4	8.9	---	---	---	10.0	9.0	9.5	12.2	9.9	10.9
22	11.3	8.3	9.5	---	---	---	10.6	9.3	9.8	13.3	11.3	12.1
23	11.0	8.3	9.3	---	---	---	10.9	10.2	10.5	13.6	11.7	12.4
24	11.4	8.2	9.5	---	---	---	10.9	10.5	10.7	13.9	11.8	12.5
25	11.8	8.4	9.7	---	---	---	11.1	10.5	10.8	12.5	11.5	12.0
26	11.9	7.9	9.4	---	---	---	11.2	10.4	10.8	14.6	11.5	12.5
27	11.4	7.2	8.8	---	---	---	11.0	10.4	10.8	14.3	11.8	12.6
28	10.6	7.2	8.4	---	---	---	10.7	10.3	10.5	15.2	11.8	13.1
29	11.2	7.2	8.7	---	---	---	10.8	9.6	10.2	12.4	10.3	12.0
30	10.1	6.4	7.9	12.7	9.2	10.6	11.2	10.6	11.0	15.0	11.5	12.6
31	9.4	5.3	7.0	---	---	---	11.1	10.6	10.8	14.5	11.2	12.5
MONTH	11.9	3.4	7.6	---	---	---	13.6	7.0	9.7	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	15.3	11.1	12.9	12.1	8.5	10.0	8.9	5.8	7.6	6.3	4.5	5.4
2	16.3	11.9	13.5	9.0	6.8	8.0	8.7	6.0	7.2	7.2	4.8	5.9
3	16.4	11.4	13.3	10.3	7.0	9.3	9.0	7.4	8.5	6.9	5.5	6.3
4	14.4	10.4	12.1	11.3	9.0	10.0	8.0	7.1	7.5	6.6	5.5	5.9
5	10.5	8.1	9.2	11.9	8.3	10.1	8.5	6.7	7.5	7.2	6.2	6.8
6	10.8	7.7	8.9	12.1	7.8	10.0	8.0	6.4	7.2	7.3	6.1	6.9
7	11.5	8.2	9.6	11.4	8.2	10.1	8.2	5.9	6.9	7.2	5.8	6.5
8	12.9	8.6	10.5	13.7	8.5	11.0	7.9	5.7	6.5	7.8	6.5	7.2
9	13.7	9.2	11.3	13.8	8.9	11.6	9.1	5.7	7.3	6.9	6.3	6.7
10	14.4	9.3	11.9	14.8	9.1	11.7	9.8	6.1	7.8	6.8	5.5	6.2
11	14.3	9.2	11.9	13.8	9.1	11.2	9.3	6.3	7.8	6.9	5.8	6.2
12	12.8	9.8	11.4	12.1	8.1	10.4	10.2	6.1	7.9	7.2	5.3	6.1
13	13.7	8.6	11.1	12.0	8.5	10.3	7.6	5.7	6.4	7.5	5.0	6.1
14	12.9	8.4	10.8	14.0	9.6	11.2	7.8	5.1	6.3	7.2	4.8	5.9
15	13.2	9.2	11.1	12.6	10.8	11.8	9.6	5.7	7.6	7.4	4.5	5.8
16	13.9	10.6	12.2	14.1	9.1	11.5	10.0	6.0	8.0	6.6	4.8	5.6
17	13.1	9.8	11.7	10.4	7.4	8.4	9.2	5.8	7.4	6.4	5.9	6.2
18	12.9	8.9	10.9	8.3	7.0	7.6	7.8	5.7	6.5	6.4	5.4	5.8
19	12.9	8.9	11.3	9.0	6.8	7.9	8.5	5.7	6.9	6.8	4.6	5.5
20	12.6	9.4	11.3	9.6	6.6	8.1	9.6	6.0	7.7	5.6	4.6	5.2
21	12.7	9.6	11.5	9.2	6.1	7.6	8.6	6.6	7.5	5.2	4.4	4.8
22	13.1	9.4	11.5	6.2	5.3	5.8	9.2	6.4	7.7	5.4	4.7	5.0
23	12.9	9.1	11.3	6.6	5.1	5.8	10.4	6.5	8.4	6.3	4.7	5.4
24	11.5	9.5	10.7	8.0	5.3	6.6	11.1	6.8	8.7	6.9	5.0	6.0
25	12.8	9.5	11.1	7.8	5.1	6.6	7.7	5.3	6.5	6.2	5.6	6.0
26	13.9	9.6	11.7	7.5	5.2	6.3	6.0	4.5	5.3	6.4	5.0	5.7
27	13.6	9.9	12.0	7.5	5.7	6.6	5.9	4.3	5.0	6.7	4.6	5.5
28	13.4	10.4	12.2	6.4	4.5	5.5	5.3	3.8	4.4	7.3	4.7	5.7
29	---	---	---	8.3	5.2	7.0	6.0	4.1	5.0	7.6	4.7	5.9
30	---	---	---	8.8	7.2	7.9	6.6	4.5	5.5	6.1	4.1	5.1
31	---	---	---	8.9	6.6	7.8	---	---	---	5.4	3.5	4.3
MONTH	16.4	7.7	11.4	14.8	4.5	8.8	11.1	3.8	7.0	7.8	3.5	5.9

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07178200 BIRD CREEK AT STATE HIGHWAY 286 NEAR CATOOSA, OK

LOCATION.-- Lat 36°13'23", long 95°49'09", in SE 1/4 SE 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 9.5.

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 good. U.S. Geological Survey's satellite telemeter at station. Some regulation by Skiatook Lake (station 07177400).

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 18,500 ft³/s, Mar. 14, 1990, gage height, 28.39 ft; minimum daily discharge, 92 ft³/s, Feb. 9, 1989.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 11,000 ft³/s, June 7, gage height, 21.45 ft; minimum daily discharge, 93 ft³/s, Oct. 28, Nov. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	321	97	104	129	161	167	171	822	336	253	209	223
2	279	93	110	133	158	168	177	878	797	250	204	235
3	975	99	248	133	158	191	1830	1120	1160	255	198	271
4	518	1630	120	123	153	147	1110	435	719	246	194	942
5	570	718	112	134	215	170	620	2550	1400	237	197	246
6	372	471	100	420	164	134	455	1230	8150	233	197	205
7	294	289	103	266	154	138	341	518	10600	229	198	230
8	366	201	103	193	149	132	280	574	7390	232	199	298
9	394	189	101	271	146	128	240	807	4480	229	200	205
10	284	172	102	1070	146	131	211	886	2720	230	207	193
11	280	157	103	1050	142	135	199	645	1400	231	209	187
12	286	182	102	642	143	135	194	361	1140	230	342	185
13	222	171	99	450	141	125	190	268	721	229	286	184
14	157	152	101	387	135	122	187	228	460	244	320	209
15	149	144	103	798	131	111	202	199	302	237	213	256
16	142	141	109	1210	134	120	209	431	589	214	192	1230
17	120	130	1080	641	130	265	191	1360	562	191	186	413
18	97	132	1010	424	140	143	1260	778	370	e190	180	1000
19	94	132	395	441	135	130	1650	533	285	e187	180	458
20	95	134	228	398	132	132	617	475	304	e190	179	285
21	105	138	177	281	133	164	249	439	287	e190	182	252
22	102	136	148	221	135	176	183	371	387	e190	187	510
23	99	134	117	199	132	182	182	398	469	e183	187	375
24	98	135	106	185	126	123	207	1070	517	e183	184	258
25	97	132	112	174	144	122	546	2400	348	e183	181	231
26	98	136	121	170	138	123	1050	1090	294	e183	189	208
27	95	149	126	166	134	201	1240	612	271	e183	209	198
28	93	148	140	162	137	174	2330	455	254	e197	190	193
29	96	129	295	176	---	187	1850	367	260	e198	183	188
30	97	117	176	172	---	172	1260	421	259	e199	198	189
31	96	---	136	162	---	175	---	333	---	201	276	---
TOTAL	7091	6788	6175	11381	4046	4673	19231	22852	47231	6627	6456	10057
MEAN	229	226	199	367	144	151	641	737	1574	214	208	335
MAX	975	1630	1080	1210	215	265	2330	2550	10600	255	342	1230
MIN	93	93	99	123	126	111	171	199	254	183	179	184
AC-FT	14060	13460	12250	22570	8030	9270	38140	45330	93680	13140	12810	19950

CAL YR 1990 TOTAL 491725 MEAN 1347 MAX 17600 MIN 93 AC-FT 975300
WTR YR 1991 TOTAL 152608 MEAN 418 MAX 10600 MIN 93 AC-FT 302700

e Estimated

ARKANSAS RIVER BASIN

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07170200 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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, greater than 1,000 microsiemens (monitor overscale), Jan. 6, 10, 1991; minimum, 56 microsiemens, July 18, 1989.

pH: Maximum, 9.4 units, July 17, 1989; minimum, 6.0 units, May 12, 1991.

WATER TEMPERATURE: Maximum, 31.5°C, several days in July 1990; minimum, 1.5°C, Dec. 23, 1989.

DISSOLVED OXYGEN: Maximum, 13.1 mg/l, Dec. 22, 1989; minimum, 2.6 mg/l, Apr. 18, 1991.

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	486	481	476	507	486	488	548	510	533
2	---	---	---	478	453	470	503	485	489	527	516	523
3	---	---	---	481	455	472	665	394	485	565	533	553
4	---	---	---	520	227	352	482	430	452	588	558	571
5	---	---	---	510	315	365	485	454	477	580	564	570
6	---	---	---	343	282	308	505	471	496	---	---	---
7	---	---	---	420	343	380	504	482	496	719	581	612
8	---	---	---	434	395	417	499	477	493	856	663	756
9	---	---	---	435	401	415	510	478	497	908	870	759
10	---	---	---	448	414	432	507	476	496	---	---	---
11	---	---	---	438	403	425	505	483	497	525	464	494
12	---	---	---	438	398	423	511	484	503	464	403	423
13	---	---	---	432	405	421	517	489	507	498	416	446
14	---	---	---	434	412	428	531	501	522	542	506	523
15	---	---	---	446	426	439	521	495	512	560	483	515
16	443	420	429	456	430	448	512	479	500	515	363	450
17	458	435	448	467	419	453	614	196	411	504	386	456
18	459	431	448	459	421	446	611	303	425	515	498	506
19	464	429	451	454	419	441	341	304	325	542	503	518
20	465	427	451	449	420	441	404	337	360	507	491	496
21	451	416	437	452	422	442	450	406	425	527	496	514
22	453	414	440	456	425	447	465	454	457	542	524	530
23	465	426	454	467	428	449	513	471	494	528	504	519
24	473	434	460	458	426	445	542	508	530	524	508	518
25	471	447	462	462	426	448	511	490	503	534	522	526
26	469	442	460	458	426	447	506	491	501	540	528	536
27	465	442	457	461	432	450	518	498	511	553	529	544
28	469	436	457	476	441	460	550	507	529	546	527	540
29	468	434	457	465	443	459	761	492	500	551	526	535
30	470	441	459	504	446	485	479	452	460	570	530	551
31	479	447	467	---	---	---	505	474	489	543	530	537
MONTH	---	---	---	520	227	432	761	196	481	---	---	---

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN	MAX	MTN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	566	545	556	555	527	546	663	553	602	258	194	227
2	552	536	546	595	543	570	581	475	522	278	248	264
3	553	541	547	631	545	583	553	268	396	354	214	280
4	584	553	571	594	574	587	439	316	353	404	312	350
5	659	573	602	579	561	573	466	369	413	450	232	310
6	582	546	562	572	542	564	504	447	470	292	266	279
7	567	552	558	556	532	549	504	479	494	328	292	308
8	574	556	567	548	529	543	507	483	496	434	318	342
9	565	529	555	546	523	539	507	486	500	366	314	340
10	555	531	545	542	514	532	501	476	493	328	288	312
11	550	529	543	539	512	528	495	472	487	360	308	330
12	553	532	544	533	505	526	501	475	489	388	358	367
13	567	547	558	538	506	524	501	474	491	400	368	383
14	569	549	562	538	512	531	498	465	485	428	394	408
15	563	541	557	537	510	529	494	464	485	442	418	429
16	574	543	560	536	516	529	486	461	474	494	414	455
17	564	540	555	602	447	518	538	486	504	432	216	353
18	557	534	547	481	454	470	596	415	503	470	384	415
19	549	532	544	519	475	505	440	302	363	484	460	478
20	547	523	541	547	521	539	323	278	302	452	400	425
21	549	523	541	538	519	532	388	322	343	454	414	435
22	555	535	549	582	484	530	431	393	406	468	410	442
23	554	528	547	524	502	514	450	425	440	521	452	470
24	554	524	543	551	516	542	454	426	421	507	310	431
25	543	517	536	557	533	549	581	396	450	452	304	361
26	560	534	553	567	540	559	517	394	427	356	326	345
27	550	525	543	568	526	553	444	308	417	346	316	330
28	569	527	551	541	513	528	432	278	324	402	348	369
29	---	---	---	570	527	548	386	262	343	446	404	423
30	---	---	---	666	563	587	272	236	260	535	442	467
31	---	---	---	916	674	811	---	---	---	458	428	445
MONTH	659	517	553	916	447	550	663	236	438	535	194	373

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	452	426	444	---	---	---	434	405	426	410	373	396
2	448	282	366	---	---	---	474	400	427	400	369	384
3	420	332	373	---	---	---	429	400	421	410	385	396
4	422	358	388	---	---	---	436	401	423	409	158	278
5	436	238	370	---	---	---	431	399	420	379	330	353
6	344	136	184	---	---	---	428	401	421	402	369	383
7	234	158	172	---	---	---	431	402	422	411	368	394
8	238	148	203	---	---	---	428	401	421	420	387	402
9	274	210	230	---	---	---	429	400	420	398	363	386
10	266	252	257	---	---	---	426	401	418	404	374	390
11	270	252	261	436	408	429	432	390	416	415	378	400
12	308	258	279	486	410	443	420	370	392	407	379	399
13	352	306	327	501	408	438	444	391	411	416	380	405
14	398	350	367	503	397	429	462	437	449	414	390	406
15	432	400	414	510	398	431	443	405	426	430	365	398
16	---	---	---	509	402	439	423	386	410	392	202	284
17	---	---	---	527	412	447	415	384	405	355	258	292
18	---	---	---	478	416	442	419	378	403	405	206	308
19	---	---	---	515	426	456	412	381	402	375	300	342
20	---	---	---	483	418	447	415	381	405	445	378	400
21	---	---	---	526	441	460	412	381	404	442	400	427
22	---	---	---	489	408	449	415	382	406	442	294	395
23	---	---	---	483	406	438	414	384	406	372	309	345
24	---	---	---	480	404	433	417	380	406	402	362	374
25	---	---	---	502	409	445	420	380	405	423	398	411
26	---	---	---	565	426	496	415	382	404	419	392	411
27	---	---	---	466	401	434	434	403	413	420	391	412
28	---	---	---	438	395	419	438	399	427	418	383	406
29	---	---	---	483	391	421	429	392	417	422	380	406
30	---	---	---	485	402	424	425	387	412	416	378	403
31	---	---	---	487	404	427	424	378	405	---	---	---
MONTH	---	---	---	---	---	---	474	370	414	445	158	379

07178200 BIRD CREEK AT STATE HIGHWAY 266 CATOOSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	7.9	7.7	7.8	---	---	---	7.8	7.8	7.8
2	---	---	---	7.8	7.6	7.7	---	---	---	7.8	7.7	7.8
3	---	---	---	7.8	7.6	7.6	---	---	---	7.8	7.7	7.8
4	---	---	---	---	---	---	---	---	---	7.7	7.7	7.7
5	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
6	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
7	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
8	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
9	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
10	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
11	---	---	---	---	---	---	---	---	---	7.8	7.8	7.8
12	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
13	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
14	---	---	---	---	---	---	---	---	---	7.8	7.7	7.8
15	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
16	7.9	7.8	7.9	---	---	---	---	---	---	7.7	7.6	7.7
17	7.9	7.8	7.8	---	---	---	---	---	---	7.7	7.6	7.7
18	7.9	7.7	7.8	---	---	---	---	---	---	7.7	7.6	7.7
19	7.9	7.7	7.7	---	---	---	---	---	---	7.8	7.6	7.7
20	7.7	7.5	7.7	---	---	---	7.6	7.5	7.6	7.8	7.7	7.8
21	7.8	7.6	7.7	---	---	---	7.7	7.6	7.7	7.8	7.8	7.8
22	7.8	7.4	7.7	---	---	---	7.8	7.7	7.7	7.8	7.8	7.8
23	---	---	---	---	---	---	7.9	7.8	7.8	7.8	7.8	7.8
24	---	---	---	---	---	---	7.8	7.8	7.8	7.9	7.7	7.8
25	---	---	---	---	---	---	7.8	7.8	7.8	7.9	7.8	7.8
26	---	---	---	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8
27	---	---	---	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8
28	---	---	---	---	---	---	7.9	7.8	7.8	7.8	7.8	7.8
29	---	---	---	---	---	---	8.0	7.7	7.8	7.9	7.8	7.9
30	---	---	---	---	---	---	7.9	7.7	7.8	7.9	7.8	7.9
31	7.9	7.7	7.8	---	---	---	7.8	7.8	7.8	7.9	7.8	7.8
MAX	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
MIN	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.8	7.8	7.8	---	---	---	---	---	---	7.5	7.4	7.4
2	7.8	7.7	7.8	---	---	---	---	---	---	7.5	7.4	7.5
3	7.9	7.7	7.8	---	---	---	8.0	7.5	7.9	7.9	7.5	7.6
4	7.8	7.7	7.8	---	---	---	7.7	7.5	7.6	7.8	7.5	7.5
5	---	---	---	---	---	---	7.9	7.7	7.8	7.8	7.4	7.5
6	---	---	---	---	---	---	7.8	7.6	7.8	7.5	7.4	7.5
7	---	---	---	---	---	---	7.8	7.5	7.6	7.5	7.3	7.5
8	---	---	---	---	---	---	---	---	---	7.4	7.2	7.3
9	---	---	---	---	---	---	---	---	---	7.3	7.0	7.1
10	---	---	---	---	---	---	---	---	---	7.0	6.6	6.8
11	---	---	---	---	---	---	---	---	---	6.6	6.3	6.5
12	---	---	---	---	---	---	---	---	---	6.3	6.0	6.2
13	---	---	---	---	---	---	---	---	---	6.5	6.1	6.3
14	---	---	---	8.0	7.9	8.0	---	---	---	6.8	6.3	6.7
15	---	---	---	8.0	7.9	8.0	---	---	---	7.4	6.8	7.2
16	---	---	---	7.9	7.8	7.9	---	---	---	7.6	7.3	7.5
17	---	---	---	8.1	7.8	7.9	---	---	---	7.9	7.6	7.7
18	---	---	---	7.9	7.9	7.9	---	---	---	7.8	7.6	7.7
19	---	---	---	7.9	7.8	7.9	---	---	---	7.7	7.6	7.6
20	---	---	---	7.8	7.8	7.8	---	---	---	7.6	7.3	7.5
21	---	---	---	7.8	7.6	7.7	---	---	---	7.6	7.3	7.4
22	---	---	---	7.7	7.4	7.6	---	---	---	7.6	7.5	7.5
23	---	---	---	7.7	7.6	7.6	---	---	---	7.8	7.5	7.5
24	---	---	---	7.7	7.5	7.7	---	---	---	7.7	7.5	7.7
25	---	---	---	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.4	7.6
26	---	---	---	7.7	7.6	7.6	7.7	7.6	7.7	7.6	7.5	7.5
27	---	---	---	---	---	---	7.8	7.7	7.7	7.5	7.5	7.5
28	---	---	---	---	---	---	7.7	7.5	7.6	7.6	7.5	7.6
29	---	---	---	---	---	---	7.8	7.6	7.7	7.6	7.5	7.6
30	---	---	---	---	---	---	7.8	7.5	7.5	7.8	7.6	7.7
31	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
MAX	---	---	---	---	---	---	---	---	---	7.9	7.6	7.7
MIN	---	---	---	---	---	---	---	---	---	6.3	6.0	6.2

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.7	7.6	7.6	---	---	---	7.7	7.6	7.6	7.4	7.2	7.3
2	7.7	7.6	7.6	---	---	---	7.7	7.6	7.6	7.5	7.3	7.4
3	7.7	7.6	7.6	---	---	---	7.7	7.6	7.6	7.5	7.4	7.5
4	7.7	7.7	7.7	---	---	---	7.6	7.5	7.5	7.9	7.4	7.6
5	7.8	7.5	7.7	---	---	---	7.5	7.4	7.5	7.6	7.5	7.5
6	---	---	---	---	---	---	7.4	7.4	7.4	7.6	7.5	7.6
7	---	---	---	---	---	---	7.4	7.2	7.3	7.7	7.5	7.6
8	---	---	---	---	---	---	7.4	7.1	7.2	7.6	7.5	7.5
9	---	---	---	---	---	---	7.4	7.1	7.3	7.5	7.3	7.4
10	---	---	---	---	---	---	7.3	7.1	7.2	7.5	7.4	7.4
11	---	---	---	7.9	7.7	7.9	7.2	7.1	7.2	7.3	7.0	7.2
12	---	---	---	7.9	7.7	7.9	7.4	7.2	7.3	7.3	7.0	7.2
13	---	---	---	7.9	7.7	7.8	7.4	7.1	7.3	7.6	7.3	7.5
14	---	---	---	7.9	7.7	7.8	7.4	7.2	7.3	7.7	7.6	7.6
15	---	---	---	7.9	7.7	7.8	7.5	7.3	7.4	7.7	7.6	7.6
16	---	---	---	7.9	7.7	7.8	7.4	7.3	7.4	7.8	7.6	7.7
17	---	---	---	7.8	7.7	7.8	7.3	7.2	7.3	7.6	7.5	7.6
18	---	---	---	7.8	7.7	7.8	7.3	7.1	7.2	8.0	7.6	7.7
19	---	---	---	7.8	7.7	7.8	7.3	7.1	7.3	7.7	7.7	7.7
20	---	---	---	7.9	7.7	7.8	7.5	7.3	7.4	7.7	7.5	7.6
21	---	---	---	7.8	7.7	7.8	7.5	7.4	7.4	---	---	---
22	---	---	---	7.8	7.7	7.7	7.5	7.5	7.5	---	---	---
23	---	---	---	7.7	7.7	7.7	7.5	7.5	7.5	7.8	7.4	7.8
24	---	---	---	7.7	7.6	7.7	7.5	7.4	7.5	7.8	7.7	7.8
25	---	---	---	7.7	7.6	7.7	7.3	7.2	7.3	7.8	7.8	7.8
26	---	---	---	7.7	7.6	7.6	7.4	7.2	7.3	7.8	7.6	7.7
27	---	---	---	7.6	7.5	7.6	7.5	7.4	7.4	7.6	7.3	7.4
28	---	---	---	7.6	7.5	7.6	7.5	7.4	7.4	7.3	7.0	7.3
29	---	---	---	7.7	7.5	7.6	7.5	7.4	7.4	7.0	6.3	6.7
30	---	---	---	7.7	7.6	7.6	7.4	7.2	7.3	6.9	6.2	6.7
31	---	---	---	7.7	7.6	7.7	7.4	7.2	7.3	---	---	---
MAX	---	---	---	---	---	---	7.7	7.6	7.6	---	---	---
MIN	---	---	---	---	---	---	7.2	7.1	7.2	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	18.0	16.5	17.5	12.5	11.5	12.0	4.5	4.0	4.5
2	---	---	---	18.0	17.0	17.5	13.5	12.0	12.5	5.5	4.0	5.0
3	---	---	---	18.5	17.5	18.0	13.0	10.5	11.5	5.0	3.5	4.5
4	---	---	---	18.0	12.5	14.5	10.5	9.5	10.0	4.5	4.0	4.5
5	---	---	---	12.5	11.5	12.0	10.5	9.5	10.0	5.0	4.0	5.0
6	---	---	---	12.5	11.0	12.0	10.5	9.5	10.0	6.0	2.5	4.0
7	---	---	---	12.5	11.5	12.0	10.0	9.5	10.0	4.0	3.0	3.5
8	---	---	---	12.5	12.0	12.0	10.0	9.0	9.5	5.0	4.0	4.0
9	---	---	---	13.0	12.5	13.0	10.5	9.0	10.0	5.0	4.0	4.5
10	---	---	---	13.0	12.5	12.5	10.5	9.0	10.0	4.5	2.5	3.5
11	---	---	---	13.5	12.5	13.0	11.0	9.5	10.5	3.5	3.0	3.5
12	---	---	---	14.0	13.0	13.5	11.5	10.0	11.0	4.0	3.0	3.5
13	---	---	---	14.0	13.5	14.0	11.0	10.5	11.0	5.0	3.0	4.0
14	---	---	---	14.5	14.0	14.0	10.5	10.0	10.5	6.0	4.0	5.0
15	---	---	---	15.0	14.0	14.5	11.0	10.0	10.5	7.0	5.5	6.0
16	19.0	18.0	18.5	15.5	14.5	15.0	10.5	10.0	10.5	5.5	4.5	5.5
17	19.5	18.5	19.5	14.5	13.0	14.0	10.5	8.5	9.5	6.5	5.0	5.5
18	18.5	17.0	18.0	14.0	13.0	14.0	9.0	8.5	8.5	7.0	5.5	6.0
19	17.0	16.5	16.5	14.5	13.5	14.5	9.5	8.0	8.5	8.0	7.0	7.5
20	17.0	16.0	16.5	15.5	14.0	15.0	9.5	8.5	9.0	7.5	7.0	7.0
21	17.0	16.0	16.5	16.0	15.0	16.0	8.5	6.0	7.5	7.0	5.5	6.0
22	15.5	15.0	15.5	16.0	14.0	15.0	6.0	4.0	5.5	6.5	5.5	6.0
23	15.5	14.5	15.0	14.0	13.5	14.0	4.5	3.5	4.5	6.5	6.0	6.0
24	15.5	14.5	15.0	14.5	13.5	14.0	4.5	3.5	4.0	6.5	6.0	6.0
25	15.0	14.5	15.0	14.5	13.5	14.5	5.0	4.0	4.5	6.5	5.5	6.0
26	15.5	14.0	15.0	16.0	14.0	15.5	5.0	4.0	5.0	6.0	4.5	5.5
27	16.0	14.5	15.5	16.5	15.5	16.0	6.0	4.5	5.5	6.0	5.5	5.5
28	16.0	15.0	15.5	15.5	13.0	14.0	6.0	5.0	5.5	6.0	5.0	6.0
29	16.0	14.5	15.5	13.0	12.0	13.0	6.5	3.0	5.0	6.5	5.5	6.0
30	17.0	15.0	16.0	12.5	11.5	12.5	3.5	3.0	3.0	5.5	4.5	5.0
31	17.5	16.0	17.0	---	---	---	3.5	3.5	3.5	5.5	5.0	5.0
MONTH	---	---	---	18.5	11.0	14.2	13.5	3.0	8.3	8.0	2.5	5.1

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CATOOSA, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	6.0	5.5	6.0	13.0	10.5	12.0	16.0	15.5	16.0	19.5	18.0	18.5
2	7.0	6.0	6.5	13.0	10.5	12.0	16.5	15.5	16.0	20.0	18.5	19.0
3	7.5	7.0	7.5	10.5	9.5	10.0	16.0	14.5	15.0	20.5	19.0	19.5
4	9.0	8.0	8.5	11.0	10.0	10.5	16.0	14.0	15.0	21.0	19.5	20.0
5	10.0	9.0	9.5	12.5	11.0	12.0	18.0	15.0	16.5	21.0	19.0	20.0
6	10.0	9.5	10.0	14.0	12.5	13.0	18.5	16.5	17.5	19.5	18.0	19.0
7	10.0	9.5	10.0	12.5	11.5	12.5	19.0	18.0	18.5	19.5	18.5	19.0
8	10.0	9.5	10.0	12.0	11.5	11.5	19.0	18.5	18.5	19.5	18.5	19.0
9	10.0	9.0	9.5	13.0	11.5	12.0	19.5	18.5	19.0	19.5	18.5	19.0
10	10.0	9.0	10.0	13.0	11.5	12.0	19.5	17.5	18.5	20.0	19.0	19.5
11	10.0	9.5	10.0	13.0	12.0	12.5	18.5	17.5	18.0	21.0	20.0	20.0
12	10.5	9.5	10.0	13.5	12.5	13.5	19.5	18.0	18.5	22.5	20.5	21.0
13	11.5	10.0	10.5	13.0	11.0	12.0	19.5	18.5	19.0	23.5	21.5	22.5
14	11.0	10.0	11.0	11.5	10.5	11.0	18.5	18.0	18.0	24.0	22.5	23.5
15	9.5	8.0	9.5	11.5	11.0	11.0	19.0	17.5	18.0	24.0	23.0	23.5
16	8.5	7.5	8.0	11.5	10.5	11.0	19.0	17.5	18.5	23.0	22.5	23.0
17	10.0	7.5	9.0	12.5	11.0	11.5	19.5	18.5	19.0	23.5	21.5	22.5
18	11.5	9.5	10.5	12.5	12.0	12.5	19.5	18.0	19.0	24.0	22.5	23.5
19	10.5	9.5	10.5	13.5	12.5	13.0	18.0	17.0	17.5	24.0	23.5	23.5
20	10.0	9.5	9.5	14.0	13.0	13.5	17.0	16.5	17.0	23.5	23.0	23.5
21	11.0	9.5	10.0	15.5	13.5	14.5	17.0	16.0	16.0	24.0	23.0	23.5
22	11.5	10.0	11.0	16.5	15.5	16.0	16.0	15.5	16.0	23.5	23.0	23.0
23	11.5	10.5	11.0	16.0	15.5	16.0	17.0	15.5	16.0	23.5	22.5	23.0
24	11.5	10.0	11.0	16.5	15.5	16.0	19.0	16.5	17.0	23.5	22.5	23.0
25	10.0	9.5	9.5	17.0	16.0	16.5	18.5	16.5	17.5	23.0	22.0	22.5
26	10.0	9.5	9.5	18.0	16.5	17.5	19.5	18.0	18.5	24.0	22.5	23.5
27	10.0	9.5	9.5	18.5	18.0	18.0	20.0	18.5	19.0	26.0	23.5	24.5
28	11.0	9.5	10.5	18.0	16.5	17.0	19.0	18.0	18.5	27.0	24.0	25.5
29	---	---	---	17.0	16.0	16.5	18.5	17.5	18.0	27.0	25.5	26.0
30	---	---	---	15.5	15.0	15.0	19.0	17.5	18.5	26.5	25.5	26.0
31	---	---	---	15.5	14.5	15.0	---	---	---	26.0	25.5	26.0
MONTH	11.5	5.5	9.6	18.5	9.5	13.5	20.0	14.0	17.6	27.0	18.0	22.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	27.0	25.5	26.0	22.0	20.5	21.0	27.5	26.5	27.0	26.0	25.5	26.0
2	26.5	23.0	24.5	21.5	20.5	21.0	28.0	27.0	27.5	26.0	25.5	25.5
3	26.0	24.0	25.0	---	---	---	28.0	27.5	28.0	26.0	25.0	25.5
4	26.5	24.5	25.5	---	---	---	28.5	27.5	28.0	26.5	24.0	25.0
5	26.0	22.0	24.5	---	---	---	28.5	27.5	28.0	26.0	25.0	25.5
6	24.0	20.5	21.0	---	---	---	28.5	28.0	28.5	26.5	25.5	26.0
7	22.0	21.0	21.5	---	---	---	29.0	28.0	28.5	26.5	26.0	26.5
8	22.0	19.5	21.0	---	---	---	29.0	28.0	28.5	26.5	25.5	26.0
9	22.5	18.5	21.0	---	---	---	28.5	27.0	27.5	27.0	26.0	26.5
10	21.5	18.0	19.5	---	---	---	27.0	26.0	26.5	27.0	26.5	27.0
11	23.0	18.0	20.0	30.5	29.5	30.0	26.0	25.5	26.0	27.5	27.0	27.5
12	23.5	21.0	22.0	30.5	29.0	30.0	26.0	24.5	25.5	28.0	27.5	27.5
13	24.0	21.5	22.5	31.0	29.5	30.5	25.5	24.0	24.5	28.0	27.5	27.5
14	24.0	22.5	23.0	30.5	29.0	30.0	25.0	23.0	24.0	27.5	27.0	27.5
15	24.0	23.0	23.5	30.0	28.5	29.5	25.0	24.0	24.5	27.0	26.5	27.0
16	23.5	15.5	21.5	30.5	29.0	29.5	25.5	25.0	25.0	27.0	23.5	25.0
17	21.5	17.5	19.5	29.5	27.0	28.5	27.0	25.5	26.5	25.0	24.0	24.0
18	21.5	20.5	21.0	27.5	26.5	27.0	27.0	26.0	26.5	25.0	19.5	22.0
19	22.0	20.5	21.0	28.0	27.0	27.5	26.5	26.0	26.5	26.5	20.0	20.0
20	22.0	20.5	21.0	28.0	27.0	27.5	26.5	25.0	25.5	26.5	19.0	19.5
21	22.0	20.5	21.0	28.0	27.0	27.5	26.0	24.5	25.5	26.0	19.5	19.5
22	22.0	20.5	21.5	28.5	27.5	28.0	26.5	25.5	26.0	26.0	18.5	19.5
23	22.0	20.5	21.5	29.0	28.0	28.5	27.0	26.0	26.5	26.0	18.5	19.0
24	22.0	20.5	21.5	29.0	27.5	28.0	27.0	26.5	27.0	26.0	19.5	20.0
25	21.5	20.5	21.0	27.5	26.0	27.0	27.5	27.0	27.0	26.5	19.0	19.5
26	21.5	20.5	21.0	26.5	25.5	26.0	27.5	26.5	27.0	26.5	20.0	20.0
27	22.0	20.5	21.0	26.5	25.5	26.0	26.5	26.0	26.5	26.5	20.0	20.0
28	22.0	20.5	21.5	26.5	25.0	25.5	27.0	26.0	26.5	26.5	20.0	20.5
29	22.0	20.5	21.5	26.5	25.5	26.0	27.0	26.0	26.5	21.0	20.5	20.5
30	22.0	20.5	21.0	26.0	25.0	25.5	26.5	25.5	26.0	21.0	20.5	20.5
31	---	---	---	27.0	25.5	26.0	26.5	25.5	26.0	---	---	---
MONTH	27.0	15.5	21.9	---	---	---	29.0	23.0	26.5	28.0	18.5	23.5

07178200 BIRD CREEK AT STATE HIGHWAY 266 NEAR CAT00SA, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	8.0	7.4	7.7	8.9	8.1	8.5	11.9	11.6	11.7
2	---	---	---	7.6	7.0	7.4	9.2	8.5	8.8	11.9	11.5	11.6
3	---	---	---	7.4	6.9	7.1	9.3	8.1	8.6	12.3	11.7	11.9
4	---	---	---	8.2	7.0	7.5	9.4	8.9	9.2	12.2	12.0	12.1
5	---	---	---	7.5	7.1	7.4	10.1	9.5	9.7	12.1	11.8	11.9
6	---	---	---	8.0	7.4	7.7	9.8	9.3	9.6	12.4	11.6	12.1
7	---	---	---	8.0	7.7	7.9	10.1	9.4	9.7	12.3	12.1	12.2
8	---	---	---	8.3	8.0	8.1	10.4	9.8	10.0	12.0	11.7	11.8
9	---	---	---	8.6	8.3	8.4	10.2	9.7	9.9	11.8	11.4	11.6
10	---	---	---	8.7	8.5	8.6	10.3	9.7	10.0	12.4	11.7	12.1
11	---	---	---	8.7	8.5	8.6	10.3	9.7	9.9	12.4	12.1	12.3
12	---	---	---	8.8	8.4	8.6	10.0	9.4	9.7	12.5	12.2	12.4
13	---	---	---	8.9	8.5	8.7	9.8	9.4	9.6	12.3	12.0	12.2
14	---	---	---	8.8	8.5	8.6	9.8	9.4	9.6	12.1	11.7	11.9
15	---	---	---	8.8	8.5	8.6	9.7	9.2	9.5	11.8	10.9	11.4
16	7.9	7.6	7.7	8.7	8.0	8.4	9.8	9.4	9.6	11.8	11.4	11.7
17	7.6	7.1	7.4	8.4	8.0	8.3	10.1	9.6	9.8	12.0	11.7	11.8
18	7.6	7.2	7.4	8.5	7.7	8.2	10.2	9.9	10.0	11.8	11.7	11.7
19	8.0	7.5	7.7	7.8	7.6	7.7	10.2	10.0	10.1	11.7	11.0	11.3
20	7.8	7.4	7.6	7.9	7.4	7.7	10.1	9.9	10.0	11.2	10.8	11.0
21	7.7	7.4	7.6	7.6	7.0	7.4	10.6	10.0	10.2	11.5	11.0	11.2
22	8.2	7.7	8.0	7.3	7.0	7.2	11.1	10.6	10.8	11.5	11.1	11.3
23	8.3	7.9	8.1	7.6	7.3	7.5	11.7	11.1	11.3	11.5	11.2	11.3
24	8.3	8.0	8.1	7.9	7.4	7.7	12.0	11.7	11.8	11.6	11.3	11.4
25	8.5	8.1	8.3	7.9	7.4	7.7	12.1	11.8	11.9	11.6	11.2	11.4
26	8.6	8.3	8.4	8.0	7.2	7.6	12.2	11.9	12.0	11.7	11.1	11.3
27	8.5	8.2	8.3	7.4	7.1	7.2	12.2	11.8	11.9	11.7	11.4	11.5
28	8.7	8.3	8.4	8.0	7.5	7.8	12.0	11.6	11.8	11.5	11.2	11.3
29	8.7	8.4	8.5	8.6	8.1	8.4	11.8	11.4	11.6	11.6	11.0	11.3
30	8.4	7.9	8.3	8.9	8.3	8.5	11.9	11.6	11.7	11.8	11.2	11.5
31	8.1	7.6	7.9	---	---	---	12.0	11.9	11.9	12.0	11.7	11.8
MONTH	---	---	---	8.9	6.9	7.9	12.2	8.1	10.3	12.5	10.8	11.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.8	11.5	11.6	10.3	9.3	9.9	9.1	8.5	8.9	7.9	7.6	7.7
2	11.8	11.5	11.7	---	---	---	9.1	8.3	8.6	8.2	7.9	8.1
3	11.8	11.4	11.6	---	---	---	8.8	7.4	8.1	8.3	6.6	7.3
4	11.6	10.9	11.2	---	---	---	8.3	7.9	8.2	7.1	6.5	6.9
5	10.9	10.3	10.6	---	---	---	8.3	8.0	8.2	6.9	5.9	6.4
6	10.4	9.4	9.8	9.9	9.3	9.6	8.1	7.9	8.0	7.3	6.4	7.0
7	10.5	9.9	10.3	10.2	9.5	9.9	7.9	7.5	7.7	7.3	7.1	7.3
8	10.7	10.2	10.4	---	---	---	7.8	7.2	7.4	7.3	7.1	7.2
9	10.7	10.2	10.4	---	---	---	8.2	7.3	7.6	7.6	7.0	7.2
10	10.7	10.4	10.5	---	---	---	8.6	7.5	8.0	7.5	7.4	7.5
11	10.9	10.5	10.7	---	---	---	8.7	7.8	8.3	7.4	7.3	7.4
12	10.9	10.0	10.5	---	---	---	8.6	7.8	8.3	7.2	6.9	7.1
13	10.3	9.8	10.1	9.4	9.1	9.3	8.7	7.3	7.8	6.8	6.5	6.6
14	10.2	9.8	10.0	10.3	9.2	9.8	7.8	7.2	7.5	6.6	6.3	6.4
15	10.6	9.9	10.4	10.7	9.3	10.1	8.6	7.5	7.9	8.4	6.1	6.3
16	11.3	10.7	11.0	10.4	9.4	9.8	8.5	7.6	7.9	6.5	6.1	6.3
17	11.0	10.4	10.9	10.2	8.7	9.4	8.2	7.1	7.5	7.0	5.8	6.2
18	10.7	9.9	10.3	9.6	9.1	9.4	7.6	2.6	6.3	6.9	6.7	6.8
19	10.7	10.1	10.4	10.2	9.6	10.0	7.1	4.6	6.2	6.9	6.4	6.7
20	11.0	10.5	10.9	9.9	9.4	9.8	7.4	7.2	7.3	6.6	6.0	6.3
21	10.9	10.2	10.7	10.0	8.9	9.5	7.8	7.3	7.7	6.6	6.0	6.4
22	10.7	10.1	10.4	9.5	7.5	8.1	7.8	7.7	7.7	6.6	5.8	6.2
23	10.8	10.2	10.5	8.6	7.9	8.4	8.1	7.8	7.9	6.9	6.5	6.6
24	10.6	9.4	10.1	9.4	8.5	8.9	8.0	7.3	7.7	6.9	6.3	6.6
25	10.8	9.7	10.2	9.2	8.1	8.7	7.6	6.7	7.2	6.9	6.2	6.5
26	11.1	10.6	10.9	8.3	7.6	8.1	7.5	6.3	7.2	6.7	6.5	6.6
27	11.0	10.5	10.8	7.9	7.0	7.6	7.6	5.7	7.2	6.6	6.4	6.5
28	11.0	9.5	10.5	8.6	7.5	8.1	6.9	6.1	6.5	6.5	6.3	6.4
29	---	---	---	8.6	7.5	8.0	7.5	6.7	7.1	6.7	6.1	6.3
30	---	---	---	8.6	7.6	8.0	7.5	6.7	7.2	6.9	6.2	6.5
31	---	---	---	9.2	8.1	8.7	---	---	---	6.6	5.8	6.2
MONTH	11.8	9.4	10.6	---	---	---	9.1	2.6	7.6	8.3	5.8	6.8

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07105000 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.

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. 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.-- 52 years, 3,685 ft³/s, 2,670,000 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 25	2400	*9,700	*8.70	No peak greater than base discharge.			

Minimum daily discharge, 20 ft³/s, Oct. 31, Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	20	96	137	347	131	51	2080	2790	158	122	e55
2	66	21	85	123	310	137	57	1540	2710	144	87	e75
3	103	23	82	e115	303	142	78	1540	2630	122	64	e190
4	125	37	72	e112	312	136	87	1450	2550	99	52	263
5	81	53	73	108	312	134	87	3540	2500	89	45	118
6	66	113	79	e105	320	140	78	8220	2370	68	43	72
7	76	115	80	e101	320	129	69	5710	1820	58	39	52
8	108	110	74	e98	310	122	66	2670	1330	57	36	46
9	127	134	70	95	316	116	61	1610	941	51	41	45
10	130	122	67	107	294	110	51	1130	1500	42	56	52
11	133	112	65	120	274	103	42	1200	2010	37	59	47
12	122	101	65	140	266	108	42	918	1980	38	58	39
13	103	91	66	259	265	111	61	678	2210	34	53	33
14	93	82	64	694	254	105	104	541	2200	30	44	27
15	83	75	61	2930	236	102	101	871	1600	26	38	25
16	74	71	60	6510	221	106	123	1570	1640	24	34	33
17	68	64	115	3390	218	122	269	1550	1290	196	32	31
18	62	55	414	1870	224	128	3270	974	1610	441	30	28
19	53	52	333	1470	216	129	2070	691	1170	348	e28	30
20	48	49	218	1050	200	121	1310	573	886	227	e27	67
21	48	43	150	770	177	116	741	545	788	155	e26	63
22	46	43	e138	625	156	127	510	740	744	126	e24	56
23	40	42	e119	482	140	111	389	1180	673	116	e22	52
24	37	37	e105	437	138	93	319	1510	490	121	e40	50
25	34	35	e98	388	132	76	306	7210	338	125	e90	44
26	30	38	e92	374	130	68	317	8230	256	174	e85	35
27	28	68	e89	349	129	199	381	3890	223	339	e70	30
28	25	227	e86	333	127	160	2310	2400	200	252	e65	26
29	23	158	131	343	---	95	1780	3480	187	908	e60	23
30	21	110	e150	411	---	68	3350	2640	172	410	e75	22
31	20	---	e145	394	---	55	---	2790	---	187	e70	---
TOTAL	2139	2301	3542	24440	6647	3600	18480	73671	41888	5202	1615	1729
MEAN	69.0	76.7	114	788	237	116	616	2376	1396	168	52.1	57.6
MAX	133	227	414	6510	347	199	3350	8230	2790	908	122	263
MIN	20	20	60	95	127	55	42	541	172	24	22	22
AC-FT	4240	4560	7030	48480	13180	7140	36660	146100	83080	10320	3200	3430

CAL YR 1990 TOTAL 1615994 MEAN 4427 MAX 44800 MIN 20 AC-FT 3205000
WTR YR 1991 TOTAL 185254 MEAN 508 MAX 8230 MIN 20 AC-FT 367500

e Estimated

ARKANSAS RIVER BASIN

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07105095 TAR CREEK AT 22ND STREET BRIDGE AT MIAMI, OK

LOCATION.-- Lat 38°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 782.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor.

AVERAGE DISCHARGE.-- 7 years, 62.1 ft³/s, 44,990 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, 1,200 ft³/s, Oct. 3, gage height, 8.27 ft; minimum daily discharge, 1.3 ft³/s, Aug. 13, 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	4.6	e4.5	10	25	27	12	e45	e25	4.0	2.3	1.9
2	4.4	4.6	e4.0	8.3	21	28	10	e38	e20	3.6	2.2	2.4
3	353	4.7	e7.0	6.6	19	19	15	e34	e18	3.6	2.2	5.3
4	157	13	11	5.8	20	18	17	e38	e16	3.5	2.1	6.6
5	33	9.7	7.4	6.8	20	15	14	e200	e15	3.5	2.0	2.5
6	13	6.9	6.3	14	17	14	11	e95	e30	3.3	2.3	1.8
7	8.1	5.1	5.4	13	18	11	10	e62	e22	3.3	1.7	1.7
8	44	4.9	4.7	9.8	15	9.6	11	e50	e16	3.3	1.4	1.8
9	68	4.8	5.0	14	16	10	12	e42	e14	3.3	1.5	1.9
10	26	6.6	5.3	203	16	9.6	11	e36	e13	3.1	1.5	1.8
11	14	4.8	5.2	224	14	9.0	11	e32	e12	2.7	1.5	1.7
12	9.1	3.6	5.0	93	15	9.1	11	e28	e10	3.0	1.4	1.9
13	7.6	3.7	4.6	79	18	8.0	87	e26	e9.2	5.1	1.3	1.8
14	7.4	3.7	4.8	174	16	7.6	111	e24	e8.8	3.7	1.5	1.9
15	5.8	3.5	4.8	460	13	6.9	61	e22	e8.2	3.1	1.5	1.9
16	4.9	3.6	4.6	407	12	6.8	33	e20	e30	2.9	1.4	4.2
17	4.6	4.0	145	138	13	11	e300	e19	e14	2.5	1.5	3.5
18	5.5	4.1	81	70	15	10	e200	e18	e9.4	2.6	1.3	3.4
19	5.3	4.1	25	70	13	9.0	e70	e17	e8.0	3.5	1.3	3.1
20	4.8	4.3	15	64	12	10	e40	e17	e7.0	3.2	1.4	2.0
21	4.6	4.6	9.8	39	11	12	e35	e16	e6.4	3.3	1.4	1.8
22	4.6	5.5	6.7	29	11	12	e32	e18	e5.6	3.2	1.6	1.9
23	4.5	6.3	5.5	25	9.9	9.4	e28	e15	e5.4	2.6	1.6	2.6
24	4.2	5.0	4.9	20	11	8.2	e26	e15	e5.2	2.4	1.7	2.3
25	3.8	5.2	4.7	19	15	7.4	e24	e100	5.1	2.4	1.8	2.2
26	3.4	5.8	4.6	23	19	7.8	e22	e60	5.1	2.6	1.7	2.0
27	3.4	6.9	4.4	24	24	110	e100	e45	4.9	3.1	1.6	1.9
28	3.8	7.5	5.2	25	20	85	e80	e36	4.4	3.4	1.7	1.8
29	4.3	7.4	92	37	---	32	e60	e30	4.4	2.8	1.7	1.9
30	4.2	6.5	49	45	---	18	e50	e90	4.2	2.4	1.9	1.9
31	4.3	---	16	32	---	14	---	e32	---	2.3	1.5	---
TOTAL	825.3	165.0	558.4	2388.3	446.9	562.4	1504	1318	356.3	97.3	51.5	73.4
MEAN	26.6	5.60	18.0	77.0	16.0	18.1	50.1	42.5	11.9	3.14	1.66	2.45
MAX	353	13	145	460	25	110	300	200	30	5.1	2.3	6.6
MIN	3.4	3.5	4.0	5.8	9.9	6.8	10	15	4.2	2.3	1.3	1.7
AC-FT	1640	327	1110	4740	886	1120	2980	2610	707	193	102	146

CAL YR 1990 TOTAL 28845.1 MEAN 79.0 MAX 1780 MIN 2.7 AC-FT 57210
WTR YR 1991 TOTAL 8346.8 MEAN 22.9 MAX 460 MIN 1.3 AC-FT 16560

e Estimated

ARKANSAS RIVER BASIN

07185095 TAR CREEK AT 22ND STREET BRIDGE AT MIAMI, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- June 1988 to May 1989, September 1989 to current year.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DIS-CHARGE, INST. (CUBIC FEET PER SECOND)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (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 24...	1915	1028	80020	5.3	1460	7.3	20.0	17.0	9.0	740	8.0	
DATE		OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	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	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
SEP 24...	86	810	280	39	32	8	0.5	5.1	68	730	16	
DATE		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, NITRITE DIS-SOLVED (MG/L AS N)	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)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)
SEP 24...	12	1230	1140	1.67	17.6	<0.010	0.200	0.510	0.66	<0.010	40	
DATE		ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	
SEP 24...		<1	<1	39	<0.5	6	5.0	1	<5	20	20	
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, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	
SEP 24...	2	<10	1200	7	2	<10	42	830	<0.10	<0.1		
DATE		MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	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)	
SEP 24...		<10	150	140	<1	<1	<1.0	370	<6	6400	6000	

07185095 TAR CREEK AT 22ND STREET BRIDGE, MIAMI, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (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)
DEC 04...	1030	1028	80020	11	*1650	**6.7	5.5	5.5	29	750	8.8
FEB 06...	1045	1028	80020	17	1510	6.7	11.5	9.5	72	760	10.2
APR 03...	1030	1028	80020	11	1810	7.4	15.0	15.0	--	740	9.9
JUN 25...	1315	1028	80020	5.2	1970	6.9	34.0	27.5	3.9	740	7.4
AUG 06...	1115	1028	80020	2.2	2850	6.7	31.0	27.0	20	740	7.5
SEP 04...	1630	1028	80020	6.4	2340	6.7	29.0	26.5	11	745	6.9
DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	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	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
DEC 04...	71	900	290	42	31	7	0.6	5.5	36	880	37
FEB 06...	90	820	260	41	28	7	0.4	3.9	40	860	13
APR 03...	102	--	--	--	--	--	--	--	--	--	--
JUN 25...	97	1200	370	56	35	6	0.4	5.1	36	1300	12
AUG 06...	98	1700	530	100	75	9	0.8	10	20	1700	32
SEP 04...	89	1400	420	88	78	11	0.9	10	32	1700	46
DATE	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, 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)
DEC 04...	1.0	11	1410	1340	1.92	41.1	--	--	<0.010	--	0.200
FEB 06...	0.90	9.5	1290	1270	1.75	59.9	0.190	0.84	0.010	0.03	0.200
APR 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 25...	1.3	11	1830	1820	2.49	25.8	--	--	<0.010	--	0.070
AUG 06...	1.5	11	2650	2490	3.60	15.6	--	--	<0.010	--	0.170
SEP 04...	1.5	9.1	2250	2380	3.06	38.8	--	--	<0.010	--	0.078
DATE	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)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
DEC 04...	0.140	0.18	<0.010	--	90	<1	<1	28	<0.5	9	8.0
FEB 06...	0.400	0.52	<0.010	--	70	<1	<1	46	0.7	11	11
APR 03...	--	--	--	--	120	<1	--	--	--	8	--
JUN 25...	0.190	0.24	<0.010	--	30	<1	<1	26	<0.5	5	4.0
AUG 06...	0.140	0.18	<0.010	--	370	<1	<1	48	<2	3	<3.0
SEP 04...	0.060	0.08	0.060	0.18	150	<1	<1	22	<2	2	<3.0

*SPECIFIC CONDUCTANCE, LAB (US/CM)

**pH, LAB (STANDARD UNITS)

ARKANSAS RIVER BASIN

07185095 TAR CREEK AT 22ND STREET BRIDGE, MIAMI, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	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, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC 04...	2	<5	40	40	3	<10	5000	3100	10	53	--
FEB 06...	17	<5	40	40	7	<10	13000	9600	10	46	--
APR 03...	2	--	40	--	1	--	6300	--	--	--	930
JUN 25...	43	<5	60	50	4	<10	890	15	<10	63	--
AUG 06...	26	<20	60	60	5	<30	5900	43	<30	130	--
SEP 04...	13	<20	40	40	3	<30	2100	62	<30	130	--
DATE	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYBDENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRONTIUM, DIS- SOLVED (UG/L AS SR)	VANADIUM, DIS- SOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 04...	1100	0.2	<10	240	230	<1	2.0	350	<6	11000	10000
FEB 06...	1100	<0.1	<10	--	260	<2	2.0	310	<6	12000	13000
APR 03...	--	--	--	230	--	<1	--	--	--	13000	--
JUN 25...	1400	0.9	<10	400	300	<1	<1.0	420	<6	11000	9400
AUG 06...	2100	2.0	<30	470	410	<1	<3.0	780	<18	--	9200
SEP 04...	1400	1.7	<30	--	270	<1	<3.0	710	<18	3200	3300

07188000 SPRING RIVER NEAR QUAPAW, OK

LOCATION.-- 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.

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

REVISED RECORDS.-- WSP 1117: Drainage area.

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

REMARKS.-- Records good. Occasional releases from floodgates at old Riverton Hydroelectric plant, 15 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 52 years, 2,058 ft³/s, 11.13 in/yr, 1,491,000 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)
Jan. 16	1300	*18,100	*15.77	No other peaks greater than base discharge.			

Minimum daily discharge, 117 ft³/s, Aug. 21-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	408	376	376	1890	2050	1000	758	1750	636	288	177	158
2	399	368	376	1540	1840	1010	750	1560	609	276	164	162
3	1690	362	536	1310	1790	1010	799	1460	584	247	154	198
4	3190	383	945	1180	1720	1010	690	1470	545	391	149	409
5	1780	418	1140	1100	1680	1010	680	2680	542	343	145	581
6	1080	421	987	1050	1670	1010	680	2960	639	333	e145	452
7	906	395	836	1050	1640	990	675	2510	775	334	153	415
8	925	375	725	1040	1570	965	668	2160	672	314	153	376
9	e1950	371	662	1040	1490	938	659	1880	609	283	159	331
10	2060	366	615	1470	1430	915	e615	1690	559	253	170	284
11	1570	358	570	3450	1320	901	589	1530	534	218	170	256
12	1250	350	542	4320	1300	e862	583	1380	517	198	169	233
13	1030	341	512	3580	1290	828	693	1300	e471	247	160	219
14	914	332	489	3880	1250	819	818	1220	434	239	148	211
15	818	328	471	7650	1200	819	841	1150	416	237	142	201
16	e742	321	454	16500	1160	808	863	1100	635	222	136	227
17	685	309	605	12800	1150	827	976	1070	554	206	134	256
18	838	308	1330	7550	1140	841	4620	1010	569	196	129	273
19	602	304	2130	5110	1130	844	3200	e929	496	189	127	279
20	574	304	1790	4760	1110	823	2530	877	455	183	120	257
21	544	304	1320	4380	1080	811	2150	874	421	177	117	256
22	524	304	1100	3530	1040	822	1920	1100	398	165	117	301
23	507	304	973	2940	1010	812	1620	932	374	163	118	326
24	e489	300	898	2680	1000	798	1520	997	362	176	132	301
25	e465	293	861	2490	999	777	1450	1650	374	162	190	280
26	e447	297	824	2360	998	754	1430	1200	398	201	192	266
27	e438	308	775	2230	990	965	2470	1050	367	204	163	249
28	415	333	741	2130	985	970	2340	907	337	205	158	232
29	403	369	916	2130	---	890	2280	814	317	209	157	221
30	394	381	1510	2340	---	815	1960	e731	300	200	158	215
31	387	---	2290	2230	---	779	---	678	---	193	158	---
TOTAL	28224	10283	28299	111470	37032	27423	41827	42599	14895	7272	4664	8425
MEAN	910	343	913	3596	1323	885	1394	1374	496	235	150	281
MAX	3190	421	2290	16500	2050	1010	4620	2960	775	391	192	581
MIN	387	293	376	1040	985	754	583	678	300	163	117	158
AC-FT	55900	20400	56130	221100	73450	54390	82980	84500	29540	14420	9250	16710
CFSM	.36	.14	.36	1.43	.53	.35	.56	.55	.20	.09	.06	.11
IN.	.42	.15	.42	1.65	.55	.41	.62	.63	.22	.11	.07	.12

CAL YR 1990 TOTAL 1304944 MEAN 3575 MAX 47600 MIN 206 AC-FT 2588000 CFSM 1.42 IN. 19.34
WTR YR 1991 TOTAL 362413 MEAN 993 MAX 16500 MIN 117 AC-FT 718800 CFSM .40 IN. 5.37

e Estimated

ARKANSAS RIVER BASIN

07189000 ELK RIVER NEAR TIFF CITY, MO

LOCATION.-- 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.-- Records good. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 52 years, 811 ft³/s, 12.63 in/yr, 587,600 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)
Jan. 16	1100	10,700	12.18	Apr. 14	1400	*15,900	*14.95

Minimum daily discharge, 53 ft³/s, Aug. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	151	485	1880	738	337	386	646	439	109	88	102
2	172	147	441	1390	712	358	397	566	418	105	84	88
3	180	143	584	1130	681	349	390	521	390	105	76	87
4	203	145	784	989	675	347	426	572	365	110	71	169
5	220	154	738	868	654	347	488	1020	346	106	68	147
6	215	161	625	912	625	336	497	1350	405	102	71	134
7	201	165	545	1320	608	310	497	1150	391	95	70	124
8	195	165	490	1800	588	297	480	969	381	91	72	117
9	215	165	441	1500	571	293	457	829	358	86	70	108
10	246	162	409	3400	581	287	425	729	324	81	69	98
11	246	161	384	7520	551	285	406	671	301	77	70	91
12	229	161	367	4850	508	282	404	635	291	72	67	82
13	217	157	348	3270	503	277	1560	600	271	85	68	79
14	211	154	336	2820	493	271	11800	559	249	117	70	73
15	200	154	322	4640	e463	263	6490	521	236	165	65	71
16	196	154	312	9550	e439	256	3970	488	228	147	61	93
17	187	154	720	5670	e434	274	2530	464	217	132	62	101
18	184	154	3450	3880	e422	303	2180	446	205	120	67	128
19	180	151	2400	3020	417	333	3880	423	196	112	60	197
20	176	150	1540	2490	400	357	2730	408	178	103	53	280
21	173	151	1100	2070	384	366	2010	409	167	99	55	171
22	169	154	860	1610	367	379	1610	396	187	94	60	151
23	169	156	723	1560	358	404	1320	388	165	88	57	153
24	165	159	577	1410	339	435	1170	383	158	84	83	157
25	162	158	582	1290	343	451	1040	558	151	99	127	159
26	161	159	540	1200	337	461	919	986	138	107	117	140
27	157	179	499	1120	336	468	848	756	132	113	99	128
28	160	672	473	1000	325	462	812	625	127	114	86	118
29	168	794	596	928	---	434	776	543	122	109	80	110
30	160	583	e2060	914	---	411	724	488	118	103	78	102
31	154	---	2750	789	---	397	---	464	---	96	93	---
TOTAL	5841	6273	26461	76450	13852	10030	51622	19563	7654	3226	2317	3738
MEAN	188	209	854	2466	495	349	1721	631	255	104	74.7	125
MAX	246	794	3450	9550	738	468	11800	1350	439	165	127	260
MIN	154	143	312	789	325	256	386	303	118	72	53	71
AC-FT	11590	12440	52490	151600	27480	21480	102400	38800	15180	6400	4600	7410
CFSM	.22	.24	.98	2.83	.57	.40	1.97	.72	.29	.12	.09	.14
IN.	.25	.27	1.13	3.26	.59	.46	2.20	.83	.33	.14	.10	.16

CAL YR 1990 TOTAL 535800 MEAN 1468 MAX 23900 MIN 96 AC-FT 1063000 CFSM 1.68 IN. 22.86
WTR YR 1991 TOTAL 227827 MEAN 824 MAX 11800 MIN 53 AC-FT 451900 CFSM .72 IN. 9.72

e Estimated

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' benchmark). Prior to Nov. 14, 1941, nonrecording gage at same site and datum.

REMARKS.-- Reservoir is formed by multiple-arch concrete dam, with tops 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 525,200 acre-ft, and is reserved for flood control. Dead storage below gage height 682.0 ft is 682.0 ft is 180,200 acre-ft. Figures given herein represent total contents. Reservoir is utilized for power development and flood control. U.S. Army Corps of Engineers' satellite telemeter at station.

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, 1,727,000 acre-ft, Jan. 20, gage height, 746.17 ft; minimum, 1,489,000 acre-ft, Mar. 17, gage height, 740.88.

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

740	1,425,000	750	1,917,000
745	1,672,000	755	2,198,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1500000	1532000	1523000	1568000	1602000	1504000	1503000	1532000	1562000	1593000	1541000	1516000
2	1497000	1533000	1522000	1568000	1587000	1510000	1506000	1526000	1561000	1594000	1540000	1516000
3	1510000	1533000	1524000	1563000	1573000	1502000	1508000	1516000	1560000	1594000	1535000	1517000
4	1512000	1536000	1524000	1562000	1561000	1498000	1510000	1520000	1561000	1598000	1533000	1517000
5	1515000	1536000	1529000	1563000	1555000	1501000	1514000	1533000	1563000	1598000	1527000	1524000
6	1515000	1537000	1534000	1568000	1552000	1502000	1515000	1546000	1561000	1595000	1524000	1524000
7	1518000	1538000	1536000	1564000	1548000	1500000	1515000	1556000	1562000	1593000	1523000	1525000
8	1520000	1537000	1539000	1562000	1543000	1499000	1519000	1559000	1562000	1589000	1523000	1524000
9	1519000	1538000	1541000	1568000	1538000	1502000	1518000	1558000	1562000	1581000	1526000	1525000
10	1521000	1539000	1543000	1563000	1532000	1505000	1519000	1559000	1566000	1575000	1524000	1525000
11	1524000	1541000	1547000	1577000	1530000	1505000	1521000	1558000	1572000	1570000	1524000	1525000
12	1528000	1542000	1551000	1584000	1528000	1505000	1522000	1556000	1577000	1570000	1523000	1526000
13	1529000	1542000	1550000	1587000	1526000	1503000	1532000	1548000	1579000	1572000	1523000	1525000
14	1531000	1543000	1550000	1588000	1526000	1501000	1546000	1543000	1582000	1572000	1523000	1520000
15	1527000	1535000	1551000	1611000	1523000	1494000	1548000	1546000	1584000	1570000	1522000	1521000
16	1526000	1529000	1550000	1673000	1523000	1491000	1544000	1549000	1584000	1568000	1519000	1524000
17	1529000	1526000	1560000	1708000	1526000	1492000	1548000	1552000	1592000	1566000	1520000	1522000
18	1530000	1521000	1566000	1720000	1523000	1494000	1565000	1551000	1597000	1563000	1519000	1522000
19	1529000	1514000	1570000	1726000	1513000	1494000	1564000	1550000	1600000	1558000	1519000	1520000
20	1530000	1511000	1577000	1723000	1510000	1490000	1557000	1544000	1601000	1557000	1518000	1519000
21	1532000	1514000	1574000	1719000	1510000	1497000	1546000	1546000	1602000	1557000	1518000	1516000
22	1530000	1515000	1572000	1718000	1507000	1497000	1537000	1548000	1602000	1554000	1517000	1518000
23	1530000	1515000	1563000	1713000	1508000	1500000	1539000	1548000	1606000	1548000	1514000	1517000
24	1528000	1516000	1562000	1704000	1508000	1500000	1534000	1550000	1607000	1549000	1514000	1516000
25	1527000	1519000	1562000	1679000	1499000	1504000	1533000	1553000	1605000	1547000	1515000	1515000
26	1527000	1519000	1556000	1665000	1498000	1505000	1532000	1581000	1603000	1546000	1514000	1512000
27	1530000	1523000	1559000	1651000	1499000	1507000	1543000	1560000	1601000	1548000	1514000	1510000
28	1530000	1526000	1559000	1647000	1504000	1512000	1544000	1555000	1598000	1548000	1514000	1509000
29	1530000	1528000	1559000	1636000	---	1506000	1537000	1553000	1598000	1550000	1514000	1507000
30	1531000	1526000	1563000	1626000	---	1499000	1534000	1559000	1595000	1550000	1516000	1504000
31	1533000	---	1567000	1615000	---	1500000	---	1561000	---	1547000	1515000	---
MAX	1533000	1543000	1577000	1726000	1602000	1512000	1565000	1561000	1607000	1598000	1541000	1526000
MIN	1497000	1511000	1522000	1558000	1498000	1491000	1503000	1516000	1560000	1514000	1514000	1504000
(+)	741.91	741.75	742.68	743.75	741.24	741.14	741.93	742.55	743.30	742.23	741.50	741.24
(++)	+18,000	-7,000	+41,000	+48,000	-111,000	-4,000	+34,000	+27,000	+34,000	-48,000	-32,000	-11,000

CAL YR 1990 MAX 2167000 MIN 1481000 (++) +81,000
WTR YR 1991 MAX 1726000 MIN 1491000 (++) -11,000

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

ARKANSAS RIVER BASIN

07190500 NEOSHO RIVER NEAR LANGLEY, OK

LOCATION.-- Lat 36°28'20", long 95°02'54", in SW 1/4, 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, 3.6 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. 18, 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. 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.-- 52 years, 7,197 ft³/s, 5,214,000 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, 12,500 ft³/s, Jan. 25-28, maximum gage height, 13.97 ft, May 6; minimum daily discharge, 25 ft³/s, at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3600	25	4140	4630	11100	1610	25	7580	5640	1070	2190	25
2	1090	619	1770	5260	11200	477	399	7360	5310	654	1980	25
3	2250	83	2420	5210	10300	4930	1030	9340	3700	25	1790	25
4	2850	738	1800	3970	9710	4050	40	6810	3270	25	1030	87
5	974	858	e660	2150	7540	419	29	8470	5180	486	2880	189
6	957	36	e990	3320	5010	1880	25	9280	3370	791	1080	37
7	1680	242	e280	3870	5260	1950	165	8960	25	823	253	112
8	2200	923	e200	5510	6170	1530	2230	7530	3390	2760	90	25
9	2810	114	e140	6200	5640	25	1220	7190	2680	2900	43	184
10	380	25	e80	9100	6090	25	1050	4650	141	3430	61	501
11	868	25	25	10400	3370	819	150	5100	83	1680	25	178
12	25	25	e200	10800	2840	944	689	5420	468	1140	25	178
13	1400	25	e240	10100	5060	3560	5210	7580	1460	129	348	263
14	879	25	e280	10300	3040	2410	8900	4880	267	25	25	1970
15	2900	4380	e1530	10400	2780	3770	9130	2240	376	1230	25	104
16	812	3950	e1470	10600	1310	3260	8600	2830	2290	1300	25	439
17	52	2470	e2100	10600	1900	960	6770	2640	25	1090	364	567
18	60	2930	e3890	10600	4730	407	9460	4800	25	2070	32	3160
19	49	3950	e4070	10700	6860	1710	12000	4560	821	2030	188	1060
20	129	1770	e3210	10700	3850	141	12000	4200	278	25	25	1110
21	369	95	e3960	10800	2570	1090	12100	1420	215	25	63	792
22	1680	25	e3620	10800	4280	377	9740	1900	129	1340	937	786
23	514	25	e4830	10700	898	680	3730	2790	66	4150	801	906
24	2420	25	e3070	10900	2310	481	6380	4270	419	118	270	577
25	217	25	e3250	12200	6570	64	5250	7210	1570	25	25	640
26	156	40	e3930	12400	2380	871	2420	8520	1560	25	80	732
27	25	169	e1120	12400	25	1140	9340	8520	1360	25	25	734
28	25	304	e1110	12400	25	1990	7680	8000	1120	26	25	999
29	25	274	7110	11000	---	2010	9180	5400	53	108	39	1040
30	25	558	4180	9750	---	3980	8940	246	835	532	25	873
31	25	---	3870	10500	---	770	---	1580	---	1330	25	---
TOTAL	31506	24753	69525	278270	132818	48310	153882	171076	46124	31385	14794	18318
MEAN	1016	825	2243	8976	4743	1558	5129	5519	1537	1012	477	611
MAX	3680	4380	7110	12400	11200	4930	12100	9340	5640	4150	2880	3160
MIN	25	25	25	2150	25	25	25	246	25	25	25	25
AC-FT	62490	49100	137900	561900	263400	95820	305200	339300	91490	62250	29340	36330

CAL YR 1990 TOTAL 4000151 MEAN 10960 MAX 85000 MIN 25 AC-FT 7934000
WTR YR 1991 TOTAL 1020761 MEAN 2797 MAX 12400 MIN 25 AC-FT 2025000

e Estimated

ARKANSAS RIVER BASIN

159

07191000 BIG CABIN CREEK NEAR BIG CABIN, OK

LOCATION.-- Lat 36°34'08", 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 822.00 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.-- No estimated daily discharges. Records good. Low flow sustained in part by sewage from city of Vinita. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 44 years, 328 ft³/s, 9.56 in/yr, 237,600 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 34.98 ft at former site; discharge, 83,000 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)
Apr. 27	1615	*9,160	*29.71	May 5	1530	9,070	29.60

Minimum daily discharge, 0.57 ft³/s, July 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	19	25	110	122	128	42	140	41	6.5	1.5	1.5
2	13	19	24	65	110	204	38	100	30	5.8	1.4	1.5
3	934	19	62	52	102	157	53	140	23	4.8	1.3	2.4
4	1490	35	52	46	100	113	246	176	19	3.6	1.2	22
5	179	81	42	44	107	95	112	6860	18	2.9	1.1	2.3
6	74	89	37	168	109	85	77	1820	12	2.3	.86	2.8
7	45	68	34	259	100	76	61	341	41	2.0	.81	8.1
8	37	57	31	132	87	87	57	199	118	1.7	.81	11
9	215	51	28	149	81	61	55	162	58	1.5	.85	3.7
10	174	49	27	2640	78	58	46	133	24	1.3	1.1	2.2
11	83	45	25	2580	76	56	40	107	12	1.1	1.3	2.0
12	50	40	23	661	72	53	35	88	6.4	.77	1.4	1.8
13	37	38	21	356	72	51	370	73	3.8	.57	1.4	1.6
14	29	35	21	1060	76	49	559	62	2.9	.36	1.4	1.4
15	24	32	15	3100	75	47	196	56	2.3	.50	1.4	1.4
16	21	30	13	3970	68	46	116	71	111	31	1.4	2.1
17	18	16	804	778	60	49	136	284	225	21	1.4	3.5
18	17	12	1470	424	88	66	4750	90	72	16	1.4	33
19	17	11	279	347	129	79	1220	55	29	13	1.4	56
20	17	11	133	391	95	75	347	44	13	11	1.4	38
21	17	12	83	249	80	69	202	226	7.2	8.8	1.5	20
22	20	12	56	171	70	65	151	573	9.2	7.2	1.5	12
23	23	14	38	146	65	62	125	195	10	5.6	1.5	9.1
24	21	16	31	138	60	64	100	495	10	3.8	1.7	6.6
25	19	17	28	129	62	55	429	576	11	3.0	2.2	5.5
26	19	17	26	132	79	50	509	221	10	2.5	1.8	4.3
27	20	20	26	144	121	363	6030	104	9.1	2.2	1.6	3.2
28	20	19	28	145	154	390	1730	65	8.0	2.1	1.6	2.6
29	20	22	616	147	---	109	397	46	7.3	1.9	1.6	2.3
30	20	25	456	222	---	87	227	42	6.9	1.7	1.5	1.9
31	20	---	173	159	---	50	---	48	---	1.6	1.5	---
TOTAL	3702.9	931	4727	19114	2498	2959	18456	13592	950.1	253.24	42.83	265.8
MEAN	119	31.0	152	617	89.2	95.5	615	438	31.7	8.17	1.38	8.86
MAX	1490	89	1470	3970	154	390	6030	6860	225	50	2.2	56
MIN	9.9	11	13	44	60	46	35	42	2.3	.57	.81	1.4
AC-FT	7340	1850	9380	37910	4950	5870	36810	26960	1880	502	85	527
CFSM	.27	.07	.34	1.37	.20	.21	1.37	.97	.07	.02	.00	.02
IN.	.31	.08	.39	1.58	.21	.24	1.53	1.12	.08	.02	.00	.02

CAL YR 1990 TOTAL 195365.94 MEAN 535 MAX 19900 MIN .49 AC-FT 387500 CFSM 1.19 IN. 16.15
WTR YR 1991 TOTAL 87491.87 MEAN 185 MAX 8860 MIN .57 AC-FT 133900 CFSM .41 IN. 5.58

ARKANSAS RIVER BASIN

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK

LOCATION.-- Lat 36°20'07", long 94°38'27", 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. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 30 years, 110 ft³/s, 11.23 in/yr, 79,700 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)
Apr. 14	0045	*1,230	*7.96	No peak greater than base discharge.			

Minimum discharge, 13 ft³/s, Aug. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	31	161	295	124	70	59	75	72	23	15	15
2	46	31	138	241	118	72	56	71	65	22	15	16
3	48	31	149	200	114	72	62	74	60	22	15	16
4	47	32	149	172	111	72	86	86	55	21	15	19
5	50	32	137	154	109	72	102	113	51	21	14	23
6	55	32	124	162	106	72	109	109	49	21	14	24
7	57	32	112	236	102	72	104	99	47	22	14	25
8	56	34	105	258	101	71	98	92	46	22	14	25
9	56	34	97	238	99	69	90	86	45	21	14	23
10	65	34	92	709	96	67	83	81	43	20	14	21
11	70	34	86	729	95	66	78	76	42	19	14	19
12	65	33	82	506	95	66	75	71	39	18	14	18
13	60	32	79	401	95	66	326	67	37	18	14	17
14	56	32	76	344	92	66	827	63	35	17	14	16
15	54	32	74	465	87	65	452	59	33	17	14	15
16	50	32	72	543	84	63	325	56	32	18	14	15
17	47	32	143	426	83	64	259	54	31	17	14	16
18	44	32	389	343	82	64	224	51	30	18	15	20
19	41	32	289	298	81	66	194	51	29	17	15	29
20	38	32	229	264	78	67	170	49	29	17	15	36
21	37	31	187	235	77	68	153	49	28	16	15	45
22	35	31	157	214	76	68	137	47	28	16	15	46
23	34	31	136	198	72	68	122	46	27	15	16	44
24	34	31	119	185	71	69	110	51	26	15	16	41
25	33	31	108	174	72	70	103	437	25	15	15	38
26	32	36	101	164	72	69	97	245	24	15	15	35
27	32	158	96	158	71	68	92	176	24	15	15	33
28	32	347	92	152	70	67	88	141	24	15	15	31
29	31	243	145	146	---	65	85	114	24	15	15	29
30	31	195	469	138	---	63	81	97	23	15	15	26
31	31	---	378	130	---	61	---	84	---	15	15	---
TOTAL	1412	1780	4771	8878	2533	2098	4847	2970	1123	558	454	776
MEAN	45.5	59.3	154	286	90.5	67.7	162	95.8	37.4	18.0	14.6	25.9
MAX	70	347	469	729	124	72	827	437	72	23	16	46
MIN	31	31	72	130	70	61	56	46	23	15	14	15
AC-FT	2800	3530	9460	17610	5020	4160	9610	5890	2230	1110	901	1540
CFSM	.34	.45	1.16	2.15	.68	.51	1.21	.72	.28	.14	.11	.19
IN.	.39	.50	1.33	2.48	.71	.59	1.36	.83	.31	.16	.13	.22

CAL YR 1990 TOTAL 68102 MEAN 187 MAX 4490 MIN 14 AC-FT 135100 CFSM 1.40 IN. 19.05
WTR YR 1991 TOTAL 32200 MEAN 88.2 MAX 827 MIN 14 AC-FT 63870 CFSM .66 IN. 9.01

ARKANSAS RIVER BASIN

161

07191400 LAKE HUDSON NEAR LOCUST GROVE, OK

LOCATION.-- 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. U.S. Army Corps of Engineers' satellite telemeter at station.

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, 214,600 acre-ft, Mar. 12, elevation, 620.29 ft; minimum, 199,200 acre-ft, Jan. 14, elevation, 618.90 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	620.19	213,500	-
Oct. 31.....	619.27	203,300	-10,200
Nov. 30.....	619.41	204,800	+1,500
Dec. 31.....	619.61	207,000	+2,200
CAL YR 90.....	-	-	+3,300
Jan. 31.....	619.19	202,400	-4,600
Feb. 28.....	619.17	202,200	-200
Mar. 31.....	619.44	205,200	+3,000
Apr. 30.....	619.19	202,400	-2,800
May 31.....	619.68	207,600	+5,200
June 30.....	619.85	209,700	+2,100
July 31.....	619.81	209,200	-500
Aug. 31.....	618.99	200,200	-9,000
Sept. 30.....	619.50	205,800	+5,600
WTR YR 91.....	-	-	-7,700

ARKANSAS RIVER BASIN

07191500 NEOSHO RIVER NEAR CHOUTEAU, OK

LOCATION (REVISED).-- Lat 36°13'46", long 95°10'57", in SE 1/4 NW 1/4 sec.9, T.20 N., R.20 E., Mayes County, Hydrologic Unit 11070209, on left bank, 100 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 2.6 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 fair. 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, 28 years (water years 1964-91), 8,368 ft³/s, 6,063,000 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 discharge, 25,000 ft³/s, Jan. 12, gage height, 15.63 ft; minimum daily discharge, 150 ft³/s, Apr. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6010	194	2550	e8400	11300	e205	161	e8300	6990	e740	2060	200
2	2310	190	1810	4160	10200	e2400	159	e7900	7900	e620	1470	206
3	2940	189	4840	5890	11200	e3900	2340	e11400	479	352	902	255
4	5160	857	1210	4820	10300	e6900	182	e7300	3050	226	406	207
5	957	451	1360	3590	6340	e310	154	e11500	6510	223	3500	198
6	1500	197	211	4450	e6720	e720	150	e17500	2900	1030	4460	288
7	2310	194	198	4570	e5710	e1900	677	e11700	529	1890	417	202
8	2740	196	189	8230	e6480	e1700	1520	e9600	4330	2010	219	196
9	3040	525	189	9070	e6550	e230	2820	e8900	2350	3350	209	194
10	256	263	189	12700	e5790	e215	754	e4550	198	2640	203	192
11	1360	201	1190	17600	e3600	e2200	350	e8200	196	3890	202	192
12	300	232	186	16100	e3200	e3000	722	e5300	409	1690	203	192
13	1340	205	180	12500	e6100	8550	9660	e9400	234	267	209	192
14	227	205	440	16400	e3850	e3650	12200	2690	e1700	216	203	191
15	3340	4810	190	11800	e3050	e2500	12800	2460	e710	1560	203	192
16	399	2880	2720	20000	e215	e5500	11600	4520	e3810	1200	204	193
17	466	1260	5990	13900	e1000	e1000	7050	3650	e480	814	218	378
18	216	3560	9860	13300	e4340	e300	18500	5230	e220	1390	207	5430
19	194	3040	5010	10900	e9100	e1600	15300	5020	e210	3380	205	212
20	191	2570	5820	14300	e3700	e320	13000	1330	e280	236	207	450
21	642	269	4910	11500	e3000	e2800	12600	3040	e525	211	614	166
22	1220	189	4730	10500	e5100	e280	9060	2330	e330	721	200	625
23	480	185	5790	11600	e770	e270	5260	3710	e225	1050	199	211
24	3880	182	2120	11300	e2650	e1900	5370	6310	e1500	230	249	2360
25	330	182	3930	12500	e7200	e250	7310	e8100	e340	213	213	185
26	193	184	5480	11300	e3700	e950	3610	e9900	e1200	210	248	762
27	189	219	2480	15200	e950	755	12700	e8250	e300	210	208	914
28	187	189	377	10400	e215	4430	13600	e8000	e705	640	210	1650
29	186	789	10700	11500	---	1160	11700	e5600	e270	514	212	1180
30	197	226	e3800	e10000	---	1840	10000	e300	e560	720	211	204
31	200	---	e5000	e11600	---	184	---	e3500	---	638	211	---
TOTAL	42900	24833	93629	340080	142330	61919	201289	205490	49440	33081	18682	18025
MEAN	1386	828	3020	10970	5883	1997	6710	6629	1648	1067	603	601
MAX	6010	4810	10700	20000	11300	8550	18500	17500	7900	3890	4460	5430
MIN	186	182	180	3590	215	184	150	300	196	210	199	166
AC-FT	85210	49260	185700	674500	282300	122800	399300	407600	98060	65620	37060	35750

CAL YR 1990 TOTAL 4584105 MEAN 12560 MAX 80700 MIN 166 AC-FT 9093000
WTR YR 1991 TOTAL 1231758 MEAN 3375 MAX 20000 MIN 150 AC-FT 2443000

e Estimated

ARKANSAS RIVER BASIN

163

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 tainter 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, 303,000 acre-ft, May 28, 1955, elevation, 550.58 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 436,700 acre-ft, Jan. 16, elevation, 557.53 ft; minimum, 344,900 acre-ft, Aug. 29, elevation 552.91.

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
		580	1,185,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	377600	361000	365000	376300	368400	364200	362700	375300	372000	365400	358400	347400
2	374300	361400	371300	369200	368000	366500	360800	372400	378600	366500	356300	346700
3	377100	363100	369000	365400	369200	368400	368400	377600	369200	362200	358800	347400
4	375700	364400	370900	367700	368600	370000	366700	375300	364200	362000	355700	349400
5	369900	363900	367500	369200	362700	378400	366200	380400	369000	361200	359100	349400
6	372800	362700	364400	370700	358400	370700	367300	397300	365800	360800	363100	349300
7	377800	360000	364600	371100	357400	368900	368600	396100	361200	361600	359300	348900
8	372800	358500	365400	370900	357000	369200	372200	381600	373900	363100	354000	348500
9	365000	359300	364100	376300	368200	369600	373700	373600	371800	366300	353700	348500
10	358500	359700	364600	398700	367500	369400	373700	361000	363500	367500	353300	348500
11	357000	360100	366500	418700	359700	373200	367900	361400	363700	369600	352600	347400
12	352900	360400	368800	424300	358000	376900	363300	359100	361600	365000	350700	346700
13	354600	360600	365800	421400	365800	381200	373600	361600	361600	364800	353500	346500
14	355700	360000	362700	425400	374300	373700	376500	367600	363100	362300	353300	346000
15	358900	364400	362900	426500	364800	369400	381000	356300	363300	363100	352800	346800
16	358500	355700	368000	436700	365600	374900	383100	363300	365800	362000	352000	347400
17	361600	354600	374700	427300	367500	370700	374900	366500	365400	361400	352600	347200
18	360300	358500	362700	417200	371300	368000	389900	365400	365400	361000	352200	358900
19	358500	350000	379600	407200	378000	370900	397100	369000	363100	365800	350500	359300
20	359900	352600	376500	404700	378800	369900	392300	366900	360400	365400	350000	359300
21	360800	354600	369200	393100	368000	371500	385900	368400	360400	365000	350500	358700
22	362300	354200	368400	387100	371500	370500	374700	368800	362000	363300	350400	360600
23	362700	354400	368800	383700	368800	364700	369000	369200	362000	361600	350000	360800
24	366000	354400	366700	378000	369800	367900	368200	374300	362700	361600	349800	364400
25	366700	354400	364200	376900	377200	361400	373200	371300	363700	362200	349800	364200
26	366700	354600	367300	372600	372200	361400	365000	368400	364600	359500	349100	364200
27	365400	358000	366700	376300	364600	363900	375700	368400	364600	359500	348700	365400
28	365400	358400	364200	371500	365400	371800	383500	366500	364200	359300	348900	367500
29	363700	359000	374300	372400	---	369000	382900	366300	364800	359500	348000	369200
30	360800	360600	367300	368400	---	369400	376900	357200	364600	358000	347800	367700
31	361000	---	366500	368400	---	366700	---	360100	---	355900	347800	---
MAX	377600	364400	382700	436700	378800	381200	397100	397300	378600	369600	363100	369200
MIN	352900	350000	362700	365400	357000	361400	360800	356300	360400	355900	346000	345800
(+)	553.78	553.76	554.07	554.17	554.01	554.08	554.61	553.73	553.97	553.51	553.07	554.13
(++)	-14,500	-400	+5,900	+1,900	-3,000	+1,300	+10,200	-16,800	+4,500	-8,700	-8,100	+19,900
CAL YR 1990	MAX 1180000	MIN 344200	(++)	+1,300								
WTR YR 1991	MAX 436700	MIN 345800	(++)	-7,800								

(+) ELEVATION, IN FEET, AT END OF MONTH

(++) CHANGE IN CONTENTS, IN ACRE-FEET

ARKANSAS RIVER BASIN

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK
(National stream-quality accounting network station)

LOCATION.-- 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.

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 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	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)	
NOV 19...	1415	1028	80020	12900	260	8.1	20.0	9.0	5.6	750	10.7	
DEC 10...	1045	1028	80020	15	276	8.2	17.0	10.5	4.4	755	11.3	
FEB 05...	1530	1028	80020	13000	260	8.2	10.5	7.0	5.1	750	11.7	
APR 17...	1330	1028	80020	13100	276	8.3	26.0	18.5	3.5	745	8.6	
JUN 24...	1215	1028	80020	15	328	8.2	26.0	29.0	4.4	750	8.3	
AUG 06...	1400	1028	80020	6600	252	8.5	36.0	30.0	2.5	750	6.8	
DATE		OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS. / 100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONATE DISSOLVED (MG/L AS CaCO3)	CALCIUM DISSOLVED (MG/L AS Ca)	MAGNESIUM, DISSOLVED (MG/L AS Mg)	SODIUM, DISSOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	
NOV 19...	94	K22	K10	110	24	37	4.8	7.5	12	0.3	3.6	
DEC 10...	102	K27	K8	110	18	35	4.6	7.4	13	0.3	3.8	
FEB 05...	98	K4	K4	110	22	36	4.5	6.5	11	0.3	2.9	
APR 17...	94	K5	K7	120	20	39	4.7	7.3	12	0.3	3.4	
JUN 24...	110	250	97	110	27	37	5.2	19	26	0.8	3.2	
AUG 06...	92	K24	K12	110	22	35	4.7	8.2	14	0.3	3.2	
DATE		BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKALINITY TOT IT FIELD (MG/L AS CaCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)
NOV 19...	108	0	89	29	8.6	<0.10	3.0	152	148	0.21	5290	
DEC 10...	108	0	89	26	9.7	0.20	1.7	144	143	0.20	5.83	
FEB 05...	105	0	86	26	7.1	<0.10	4.5	142	139	0.19	4980	
APR 17...	118	0	97	26	9.6	0.10	0.96	147	149	0.20	5200	
JUN 24...	106	0	87	34	31	0.20	2.6	211	184	0.29	8.55	
AUG 06...	97	3	85	27	10	0.10	3.7	158	143	0.21	2820	

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	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)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
NOV 19...	--	<0.010	<0.010	0.300	0.300	0.060	0.060	0.08	0.08	0.54	--
DEC 10...	0.190	0.010	<0.010	0.200	0.200	0.070	0.060	0.09	0.08	0.33	--
FEB 05...	--	--	--	--	--	--	--	--	--	--	--
APR 17...	0.041	0.010	<0.010	0.051	<0.050	0.030	0.040	0.04	0.05	0.47	--
JUN 24...	--	0.010	<0.010	<0.050	<0.050	0.050	0.030	0.06	0.04	0.75	--
AUG 06...	--	<0.010	<0.010	<0.050	<0.050	<0.010	0.030	--	0.04	--	0.27
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (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)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHODIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (MG/L AS AL)
NOV 19...	0.60	--	0.90	4.0	0.080	0.12	0.040	0.040	0.030	0.09	10
DEC 10...	0.40	--	0.60	2.7	0.100	0.25	0.070	0.060	0.060	0.18	--
FEB 05...	--	--	--	--	--	--	--	--	--	--	30
APR 17...	0.50	--	0.55	2.4	0.040	--	0.020	<0.010	<0.010	--	<10
JUN 24...	0.80	--	--	--	0.050	0.06	0.030	0.020	<0.010	--	--
AUG 06...	1.1	0.30	--	--	0.060	--	<0.010	<0.010	<0.010	--	<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)
NOV 19...	<1	58	0.5	<1.0	<1	<3	1	6	1	<4	2
DEC 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 05...	<1	47	<0.5	<1.0	<1	<3	1	30	<1	<4	5
APR 17...	<1	48	<0.5	<1.0	<1	<3	1	8	1	<4	3
JUN 24...	--	--	--	--	--	--	--	--	--	--	--
AUG 06...	1	45	0.6	<1.0	<1	<3	4	<3	<1	<4	<1
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 19...	0.1	<10	2	<1	<1.0	160	<6	3	26	906	71
DEC 10...	--	--	--	--	--	--	--	--	2	0.08	44
FEB 05...	0.3	<10	<1	<4	<1.0	140	<6	6	8	281	64
APR 17...	<0.1	<10	1	<1	<1.0	160	<6	<3	5	177	85
JUN 24...	--	--	--	--	--	--	--	--	7	0.28	73
AUG 06...	<0.1	<10	2	<1	<1.0	130	<6	<3	8	143	7

ARKANSAS RIVER BASIN

07195500 ILLINOIS RIVER NEAR WATTS, OK

LOCATION.-- 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.

WATER-DISCHARGE RECORDS

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. 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.-- 36 years, 602 ft³/s, 12.88 in/yr, 436,100 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)
Apr. 14	1100	*10,700	*14.16	No other peaks greater than base discharge.			

Minimum discharge, 90 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375	197	637	1430	645	382	475	533	316	137	110	114
2	317	192	582	1180	618	497	448	499	302	138	106	118
3	309	196	1990	1110	590	496	475	1180	294	145	102	118
4	326	224	1480	989	572	444	734	1480	274	157	100	146
5	301	274	978	954	572	411	711	908	270	149	95	160
6	273	263	781	2280	573	383	590	722	273	134	92	139
7	254	233	667	3170	550	364	531	629	251	128	106	128
8	494	224	578	2130	523	350	526	567	242	124	112	130
9	1930	229	515	1890	506	337	517	529	226	122	109	118
10	1080	233	462	3360	491	319	455	493	212	122	105	114
11	730	227	426	3520	476	307	498	462	210	118	106	110
12	577	214	402	2330	454	305	1570	428	206	115	100	104
13	485	206	376	1790	449	296	3250	397	205	116	104	100
14	415	201	355	1540	453	292	7760	372	194	115	112	100
15	365	196	341	2130	428	288	4250	350	189	111	110	106
16	336	193	341	3330	411	284	2420	342	184	113	103	137
17	314	191	630	2110	402	362	1740	339	178	114	108	158
18	302	189	1390	1890	398	527	2160	321	179	111	124	229
19	293	186	1110	1690	393	480	1970	340	176	110	120	421
20	276	183	830	1780	377	426	1450	351	170	108	105	297
21	267	197	759	1400	364	409	1220	326	167	104	164	225
22	246	246	807	1220	356	1020	1090	315	172	98	166	221
23	242	295	763	1110	349	2370	976	311	197	98	146	307
24	235	257	608	1020	342	1260	867	349	196	119	131	288
25	229	233	486	937	357	939	793	1450	175	141	125	228
26	218	248	452	882	362	786	732	1050	168	141	118	202
27	208	861	452	832	357	703	709	638	164	131	112	175
28	201	2220	477	804	359	704	688	486	160	127	119	162
29	192	1110	2210	765	---	614	627	410	156	121	119	151
30	198	787	3940	731	---	577	579	360	150	115	113	138
31	203	---	2030	681	---	530	---	329	---	113	111	---
TOTAL	12191	10705	27835	50785	12721	17462	40809	17268	6256	3795	3553	5144
MEAN	393	357	898	1638	454	563	1360	557	209	122	115	171
MAX	1930	2220	3940	3520	645	2370	7760	1480	316	157	166	421
MIN	192	183	341	681	342	284	446	311	150	98	92	100
AC-FT	24180	21230	55210	100700	25230	34640	80940	34250	12410	7530	7050	10200
CFSM	.62	.56	1.41	2.58	.72	.89	2.14	.88	.33	.19	.18	.27
IN.	.71	.63	1.63	2.98	.75	1.02	2.39	1.01	.37	.22	.21	.30

CAL YR 1990 TOTAL 411387 MEAN 1127 MAX 31800 MIN 111 AC-FT 816000 CFSM 1.77 IN. 24.10
WTR YR 1991 TOTAL 208522 MEAN 571 MAX 7760 MIN 92 AC-FT 413600 CFSM .90 IN. 12.22

ARKANSAS RIVER BASIN

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07195500 ILLINOIS RIVER NEAR WATTS, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- October 1989 to current year.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC 05...	1015	1028	80020	998	219	7.8	9.0	8.5	8.0	750	11.5	100
JAN 30...	1000	1028	80020	731	250	8.1	5.0	6.5	--	752	13.8	114
MAR 27...	0845	1028	1020	712	229	8.0	19.5	16.5	--	730	9.4	101
MAY 14...	1500	1028	80020	360	265	8.0	28.5	23.5	15	732	8.5	104
JUL 16...	1400	1028	80020	113	307	8.1	31.5	27.5	--	748	7.8	101
SEP 10...	0945	1028	80020	119	309	7.8	22.5	25.5	14	747	7.2	90
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)
DEC 05...	92	15	34	1.8	5.8	12	0.3	3.1	94	0	77	8.7
JAN 30...	100	27	39	1.7	6.8	--	0.3	--	94	0	77	--
MAR 27...	--	--	--	--	--	--	--	--	98	0	80	--
MAY 14...	120	10	43	1.9	7.3	12	0.3	2.9	128	0	105	6.8
JUL 16...	120	5	47	1.8	12	--	0.5	--	146	0	120	--
SEP 10...	120	9	46	1.6	13	18	0.5	3.5	137	0	112	12
DATE	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 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)
DEC 05...	8.1	<0.10	7.5	143	127	0.19	385	2.18	--	--	0.020	<0.010
JAN 30...	--	--	6.5	--	--	--	--	--	3.28	15	<0.010	0.020
MAR 27...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	6.9	<0.10	5.2	147	146	0.20	143	2.09	1.98	8.8	0.010	0.020
JUL 16...	--	--	10	--	--	--	--	0.890	0.970	4.3	0.010	0.020
SEP 10...	15	0.10	9.6	172	174	0.23	55.3	1.08	1.09	4.8	0.020	0.010

07195500 ILLINOIS RIVER NEAR WATTS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS NO2)	NITRO- GEN NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA TOTAL (MG/L AS N)	NITRO- GEN AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN AMMONIA 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)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)
DEC 05...	--	2.20	2.40	0.060	0.050	0.08	0.06	0.34	0.40	2.6	12	0.160
JAN 30...	0.07	3.30	3.30	0.020	0.030	0.03	0.04	0.18	0.20	3.5	15	0.080
MAR 27...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	0.07	2.10	2.00	0.060	<0.010	0.08	--	0.54	0.60	2.7	12	0.120
JUL 16...	0.07	0.900	0.990	--	0.080	0.06	0.10	--	0.50	1.4	6.2	0.280
SEP 10...	0.03	1.10	1.10	0.070	0.080	0.09	0.10	0.33	0.40	1.5	6.6	0.220

DATE	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	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 PO4)	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)
DEC 05...	0.43	0.140	0.140	0.110	0.34	<1	52	<0.5	<1.0	<5	<3	20
JAN 30...	0.21	0.050	0.070	0.060	0.18	<1	39	<0.5	<1.0	<5	<3	<10
MAR 27...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	0.25	0.050	0.080	0.020	0.06	<1	50	<0.5	<1.0	<5	<3	<10
JUL 16...	0.58	0.210	0.190	0.180	0.55	1	50	<0.5	<1.0	<5	<3	<10
SEP 10...	0.40	0.140	0.130	0.110	0.34	<1	53	<0.5	<1.0	<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)
DEC 05...	160	<10	<4	64	<0.1	<10	<10	<1.0	41	<6	23
JAN 30...	17	<10	<4	47	<0.1	<10	<10	<1.0	46	<6	8
MAR 27...	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	14	<10	<4	62	0.1	<10	<10	<1.0	51	<6	9
JUL 16...	21	<10	5	51	0.1	<10	<10	<1.0	51	<6	6
SEP 10...	<3	<10	<4	63	<0.1	<10	<10	<1.0	50	<6	5

DATE	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DEF TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
MAY 14...	<0.1	<0.10	<0.010	<0.1	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.010
JUL 16...	--	--	--	--	<0.01	--	--	--	--	--	--

ARKANSAS RIVER BASIN

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07195500 ILLINOIS RIVER NEAR WATTS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	DI-SYSTON TOTAL (UG/L)	2, 4-DP 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)
MAY 14...	<0.01	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01
JUL 16...	--	<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)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	2, 4, 5-T TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)
MAY 14...	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<1	<0.01
JUL 16...	--	--	--	--	--	--	<0.01	<0.01	--	--

ARKANSAS RIVER BASIN

07190500 ILLINOIS RIVER NEAR TAHLEQUAH, OK

LOCATION.-- 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.

WATER-DISCHARGE RECORDS

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.-- No estimated daily discharges. Records good. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 56 years, 910 ft³/s, 12.89 in/yr, 659,300 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, 1958.

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)
Apr. 15	1000	*11,200	*11.87	No other peaks above base.			
Minimum discharge, 115 ft ³ /s, July 25.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	431	252	1240	2970	920	500	700	924	634	216	137	161
2	501	253	1030	2160	873	523	639	857	603	207	133	154
3	479	248	1010	1750	831	577	781	970	565	197	133	165
4	473	263	2120	1570	795	627	1060	1860	535	191	133	243
5	459	271	1820	1420	775	599	1280	1930	517	191	127	198
6	443	288	1380	1500	765	570	1260	1480	520	194	123	246
7	424	318	1150	3120	750	540	1120	1250	501	193	119	247
8	411	314	996	4070	727	519	1010	1110	476	184	116	230
9	433	307	874	3040	700	494	908	1010	450	173	132	202
10	1380	299	772	3550	670	471	850	928	430	163	133	189
11	1310	294	697	6460	651	455	788	861	407	156	132	172
12	978	291	637	5460	631	438	804	809	391	152	128	161
13	786	282	588	3660	622	420	1900	755	376	147	159	153
14	666	267	560	2800	599	413	6500	712	362	145	145	143
15	580	261	527	2510	590	412	9650	671	350	143	138	141
16	517	254	500	3760	578	411	5490	642	333	142	138	188
17	473	249	493	4440	562	450	3470	617	321	136	138	172
18	436	246	814	3130	549	466	2680	599	309	132	138	214
19	407	250	1670	2520	536	589	2920	579	292	132	138	291
20	392	243	1650	2330	528	626	2540	567	283	130	139	444
21	397	246	1330	2260	515	608	2000	573	274	126	171	509
22	370	262	1130	1870	495	619	1730	575	276	126	166	440
23	348	268	1080	1640	484	1180	1550	567	273	124	192	400
24	327	317	948	1490	472	2150	1410	560	262	118	198	403
25	317	330	811	1370	472	1480	1290	841	276	115	188	458
26	307	362	721	1260	469	1180	1190	1910	271	125	177	400
27	294	610	665	1180	473	1030	1140	1800	254	147	186	344
28	286	1310	636	1110	475	916	1090	1160	242	163	158	304
29	276	2610	800	1060	---	892	1090	938	235	167	150	267
30	264	1650	3030	1020	---	815	994	796	225	157	153	240
31	255	---	4930	973	---	749	---	702	---	143	159	---
TOTAL	15420	13415	36609	77453	17507	21719	59814	29151	11243	4835	4557	7879
MEAN	497	447	1181	2498	625	701	1994	940	375	156	147	263
MAX	1380	2610	4930	6460	920	2150	9650	1930	634	216	198	509
MIN	255	243	493	973	469	411	639	560	225	115	116	141
AC-FT	30590	26610	72610	153600	34730	43000	118600	57820	22300	9590	9040	15630
CFSM	.62	.47	1.23	2.61	.65	.73	2.08	.98	.39	.16	.15	.27
IN.	.60	.52	1.42	3.00	.68	.84	2.32	1.13	.44	.19	.18	.31

CAL YR 1990 TOTAL 618606 MEAN 1695 MAX 43100 MIN 158 AC-FT 1227000 CFSM 1.77 IN. 24.00
WTR YR 1991 TOTAL 299602 MEAN 821 MAX 9650 MIN 115 AC-FT 594300 CFSM .86 IN. 11.62

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1960-61, 1975-79, 1989 to current year.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DISCHARGE, INST. (CUBIC FEET PER SECOND)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	
DEC 05...	1615	1028	80020	1740	213	7.9	14.0	10.0	2.0	755	10.7	
JAN 30...	1215	1028	80020	1030	217	8.0	-4.5	5.0	--	760	12.4	
MAR 26...	0930	1028	80020	1200	213	7.7	26.0	15.5	11	740	8.5	
MAY 14...	0900	1028	80020	712	226	8.0	24.0	23.0	2.3	745	9.0	
JUL 16...	1100	1028	80020	143	261	8.0	29.0	27.5	--	750	6.6	
SEP 09...	1145	1028	80020	198	271	7.8	30.0	26.5	2.2	750	6.4	
DATE		OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS Ca)	MAGNESIUM, DISSOLVED (MG/L AS Mg)	SODIUM, DISSOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	
DEC 05...	96	87	--	32	1.8	6.0	13	0.3	2.9	--	--	
JAN 30...	97	92	24	34	1.8	5.8	--	0.3	--	83	0	
MAR 26...	88	89	14	33	1.7	6.0	12	0.3	2.5	92	0	
MAY 14...	108	110	22	43	1.8	7.2	12	0.3	2.8	113	0	
JUL 16...	85	110	7	40	2.0	8.2	--	0.3	--	123	0	
SEP 09...	81	110	16	43	1.8	15	22	0.6	3.4	120	0	
DATE		ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)
DEC 05...	--	11	9.3	<0.10	7.1	142	125	0.19	667	1.68	--	--
JAN 30...	68	--	--	--	6.6	--	--	--	--	--	--	--
MAR 26...	76	10	7.7	<0.10	6.4	120	120	0.16	389	--	--	--
MAY 14...	92	7.9	7.5	<0.10	5.1	154	137	0.21	296	--	--	--
JUL 16...	101	--	--	--	9.5	--	--	--	--	--	0.670	--
SEP 09...	98	12	13	0.10	9.9	147	159	0.20	78.6	--	--	--
DATE		NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO2)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)
DEC 05...	--	0.020	<0.010	--	1.70	1.80	0.050	0.030	0.06	0.04	0.35	--
JAN 30...	--	<0.010	<0.010	--	2.80	2.50	0.020	0.010	0.03	0.01	0.28	--
MAR 26...	--	0.040	<0.010	--	--	1.70	0.050	0.050	0.06	0.06	1.9	--
MAY 14...	--	<0.010	<0.010	--	--	1.30	--	0.140	--	0.18	--	--
JUL 16...	3.0	0.010	0.020	0.07	--	0.690	--	0.090	--	0.12	--	--
SEP 09...	--	<0.010	<0.010	--	0.440	0.420	0.020	0.020	0.03	0.03	0.18	--

07196500 ILLINOIS RIVER NEAR TAHLEQUAH. OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	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 PO4)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)
DEC 05...	0.40	2.1	9.3	0.150	0.46	0.120	0.150	0.110	0.34	2	52
JAN 30...	0.30	3.1	14	0.060	0.18	0.040	0.060	0.050	0.15	<1	35
MAR 26...	1.9	--	--	0.080	0.25	0.060	0.080	0.030	0.09	<1	36
MAY 14...	1.0	--	9.7	0.060	0.06	0.030	0.020	0.030	0.09	<1	49
JUL 18...	0.30	--	4.1	0.070	0.15	0.050	0.050	0.050	0.15	<1	42
SEP 09...	0.20	0.64	2.8	0.090	0.15	0.070	0.050	0.040	0.12	<1	58

DATE	BERYLLIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM, DIS- SOLVED (UG/L AS CD)	CHROMIUM, 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)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY, DIS- SOLVED (UG/L AS HG)	MOLYBDENUM, DIS- SOLVED (UG/L AS MO)
DEC 05...	<0.5	<1.0	7	<3	<10	120	<10	<4	8	<0.1	<10
JAN 30...	<0.5	<1.0	<5	<3	20	17	<10	<4	5	<0.1	<10
MAR 26...	<0.5	<1.0	<5	<3	<10	33	<10	<4	6	--	<10
MAY 14...	<0.5	<1.0	<5	<3	<10	6	<10	<4	50	0.3	<10
JUL 16...	<0.5	<1.0	<5	<3	<10	10	<10	<4	11	0.6	<10
SEP 09...	<0.5	<1.0	<5	<3	<10	<3	<10	<4	7	<0.1	<10

DATE	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, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)
DEC 05...	<10	<1.0	40	<6	14	--	--	--	--	--	--
JAN 30...	<10	3.0	47	<6	20	--	--	--	--	--	--
MAR 26...	<10	<1.0	47	<6	11	--	--	--	--	--	--
MAY 14...	<10	<1.0	50	<6	4	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010
JUL 18...	<10	<1.0	51	<6	6	--	--	--	--	--	--
SEP 09...	<10	<1.0	71	<6	9	--	--	--	--	--	--

[illegible]

07197000 BARON FORK AT ELDON, OK

LOCATION (REVISED).-- Lat 35°55'16", long 94°50'18", in NE 1/4 SE 1/4 sec. 27, T.17 N., R.23 E., Cherokee County, Hydrologic Unit 11110103, on downstream left abutment 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. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 43 years, 311 ft³/s, 13.75 in/yr, 225,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 57,600 ft³/s, May 3, 1990, gage height, 25.91 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)
Apr. 14	0545	*6,260	*11.74	No other peaks greater than base discharge.			

Minimum daily discharge, 16 ft³/s, Aug. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	63	375	955	269	170	270	266	179	48	31	48
2	113	60	337	725	257	240	251	248	167	47	28	41
3	105	59	1110	819	248	273	286	892	161	45	25	41
4	102	64	1030	539	240	251	901	1340	155	47	22	71
5	97	72	651	462	238	236	728	775	147	46	21	58
6	93	76	473	716	256	214	559	580	144	43	20	51
7	90	80	385	1840	254	214	460	474	136	42	19	45
8	94	77	342	1400	240	201	398	395	127	42	17	46
9	792	77	308	1160	229	189	364	350	118	39	19	43
10	579	76	279	2100	221	182	324	316	110	36	20	39
11	380	76	257	2910	213	175	310	287	105	34	20	35
12	289	75	239	1960	206	170	1030	265	101	32	20	32
13	240	74	222	1400	203	162	2780	244	96	29	23	30
14	206	71	209	1090	201	159	4530	228	93	28	24	30
15	177	68	199	1160	194	155	2700	215	88	26	22	30
16	156	66	193	1880	189	152	1750	205	85	25	21	62
17	144	65	218	1390	185	169	1280	191	82	24	21	89
18	132	64	602	1080	182	229	1290	183	78	23	20	88
19	123	63	769	959	179	245	1150	180	75	22	18	112
20	112	62	559	1050	175	228	822	187	73	21	18	116
21	109	65	439	812	169	222	649	189	72	20	26	119
22	99	73	416	655	165	597	558	180	71	19	55	112
23	92	82	362	557	161	1420	484	175	72	19	72	121
24	87	97	321	481	159	735	413	173	74	18	66	123
25	82	96	291	416	161	530	373	2030	73	20	57	122
26	79	97	269	379	161	431	347	897	68	33	47	112
27	76	211	258	355	161	380	336	433	63	36	44	102
28	73	1110	250	339	180	397	330	321	59	38	41	91
29	70	693	529	321	---	349	313	261	56	44	38	83
30	66	470	2390	303	---	321	290	224	52	39	44	79
31	64	---	1390	285	---	293	---	199	---	34	65	---
TOTAL	5049	4382	15670	30298	5676	9689	26274	12903	2980	1019	982	2171
MEAN	163	146	505	977	203	313	876	416	99.3	32.9	31.7	72.4
MAX	792	1110	2390	2910	289	1420	4530	2030	179	48	72	123
MIN	64	59	193	285	159	152	251	173	52	18	16	30
AC-FT	10010	8690	31080	60100	11260	19220	52110	25590	5910	2020	1950	4310
CFSM	.63	.48	1.65	3.18	.66	1.02	2.85	1.36	.32	.11	.10	.24
IN.	.61	.53	1.90	3.67	.69	1.17	3.18	1.56	.36	.12	.12	.26

CAL YR 1990	TOTAL 243244	MEAN 666	MAX 25200	MIN 17	AC-FT 482500	CFSM 2.17	IN. 29.47
WTR YR 1991	TOTAL 117093	MEAN 321	MAX 4530	MIN 16	AC-FT 232300	CFSM 1.04	IN. 14.19

ARKANSAS RIVER BASIN

07197500 TENKILLER FERRY LAKE NEAR GORE, OK

LOCATION.-- Lat 35°35'48", 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, 0.8 mi upstream from Tenkiller Ferry Dam on Illinois River, 8.0 mi northeast of Gore, and at mile 12.8.

DRAINAGE AREA.-- 1,810 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, 709,700 acre-ft, Jan. 13, elevation 636.20 ft; minimum, 614,700 acre-ft, Sept. 14, elevation 628.86 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	640900	645200	655800	678900	650300	643500	652000	665100	663000	649700	638100	621000
2	639800	645900	660600	678600	652700	645800	651500	659800	662600	649400	637800	621100
3	641100	645200	662800	676900	655300	647900	655100	665400	659900	649700	637700	621000
4	642200	645600	665600	674600	654500	649900	656000	664200	657200	649500	637500	621400
5	642800	643400	666400	672200	655400	648800	656800	662400	654600	649700	635200	621500
6	643400	641100	666700	671800	654000	646700	661700	659600	653300	649700	633500	622000
7	644400	640600	665500	674700	653400	648000	666100	657100	652900	649500	631000	623200
8	647700	640800	665900	679500	652700	647200	665000	658400	653600	649500	628700	623700
9	651200	641100	666000	682000	653200	647200	663400	654200	654200	649500	628300	623000
10	654400	641800	665400	689800	653600	646500	660700	652500	652400	649300	628000	621100
11	655700	642500	663000	700800	653300	645200	658600	654900	650300	649200	627800	619500
12	656800	643100	661300	707600	652500	646000	657700	657000	649300	649000	627600	617900
13	658800	643500	654900	709700	654000	646000	664800	656300	649000	649000	630300	615200
14	660500	642500	649700	709000	653600	646000	660900	656400	648800	648800	629200	614700
15	658800	642600	648600	707200	651800	644400	700400	655700	649200	648600	628700	616200
16	655800	642700	648100	705800	652700	644800	705900	654600	649900	647500	628500	617400
17	652800	643200	646500	705700	654100	647600	706600	653700	650300	647300	628700	617500
18	650300	643500	646400	702600	654200	647500	704100	652800	650700	646700	628600	619700
19	648400	643100	649400	698200	652700	645100	701400	651800	651100	646400	628000	620100
20	649500	642100	651600	692700	652100	642800	697500	650800	650500	646300	627700	620900
21	650300	642600	651200	686700	651400	641300	692600	650100	649700	645900	627600	621500
22	648800	643100	649300	681600	649300	642300	690900	650200	651900	644000	626400	623500
23	649300	643500	649400	676800	646500	647500	687300	650300	652300	641400	624300	624300
24	649000	644200	647500	672300	646300	654000	683200	653200	652300	640300	624400	625800
25	649300	645200	648400	668800	643600	657000	676700	659700	652300	640500	624600	626300
26	649800	646400	646500	665100	643500	659600	672300	665900	652300	640400	624200	627400
27	649300	646500	647500	661700	643400	659200	669000	670400	652000	640900	622200	628100
28	648800	651100	649400	659900	643500	657900	665500	669800	650200	640800	621100	628600
29	647900	654100	655400	658300	---	657100	665500	668300	650200	640600	620100	629400
30	646900	654200	665200	655800	---	654700	665500	666000	650100	640500	620600	629300
31	646000	---	675900	653100	---	652300	---	663100	---	639600	620900	---
MAX	660500	654200	675900	709700	655400	659600	706600	670400	663000	649700	638100	629400
MIN	639800	640600	646400	653100	643400	641300	651500	650100	648800	639800	620100	614700
(+)	631.38	632.01	633.66	631.92	631.19	631.86	632.87	632.69	631.69	630.90	629.36	630.05
(++)	+5,000	+8,200	+21,700	-22,800	-9,600	+8,800	+13,200	-2,400	-13,000	-10,300	-18,900	+8,400

CAL YR 1990 MAX 1140000 MIN 625900 ++ +24,300
WTR YR 1991 MAX 709700 MIN 614700 ++ -11,100

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

ARKANSAS RIVER BASIN

175

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 4.2 (revised) 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, gage at same site and 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.-- 53 years (water years 1925, 1940-91), 1,555 ft³/s, 1,127,000 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, 7,310 ft³/s, Jan. 15, gage height, 14.10 ft; minimum daily discharge, 22 ft³/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	610	1090	2760	2560	1160	e1350	1450	1030	363	950	103
2	89	23	467	3770	199	70	e1400	4000	1110	337	241	107
3	92	542	1670	3800	73	71	e1300	3460	2080	107	114	327
4	100	537	1620	3810	1370	225	e2350	4700	2000	99	107	164
5	95	1290	2600	3780	906	1560	e2450	4650	2120	106	1230	168
6	97	1300	2120	3880	1690	2250	e63	4440	1120	108	998	27
7	94	572	2380	3830	1250	234	e52	3540	797	152	1370	26
8	270	588	1290	3800	1310	1300	e2700	2560	118	109	1280	24
9	496	69	1350	3770	903	888	e2720	2720	100	120	211	543
10	194	60	1490	3800	820	1060	e2800	2290	1360	108	115	1170
11	1050	56	2270	4680	1000	1470	e3050	224	1480	109	108	1030
12	930	54	2670	5280	1220	530	3800	159	950	107	109	924
13	101	55	3510	5230	351	584	2360	1450	505	104	109	1570
14	98	953	2870	5260	991	725	2340	1720	454	104	601	350
15	1560	210	2040	6290	1520	1410	5310	1490	110	106	344	37
16	2330	274	1290	7070	292	604	6230	1280	106	613	120	413
17	2380	65	2510	7010	51	131	6180	1470	102	119	110	299
18	1720	56	1860	6910	656	1250	6170	1320	97	311	111	36
19	1340	542	1050	6960	1400	2270	6190	1330	105	111	424	26
20	60	769	1560	6910	918	e2300	6200	1170	528	109	115	23
21	50	540	2560	6900	1080	2320	6200	1210	599	109	303	22
22	1080	71	2660	6030	1630	1900	5270	663	169	903	768	24
23	58	54	1370	5260	1950	504	4530	707	104	1350	1350	24
24	518	52	2370	4890	1030	e285	4520	753	251	644	135	23
25	228	52	978	4120	1680	e1180	4240	306	232	118	26	23
26	39	463	1890	3720	744	e1000	4070	170	256	100	421	23
27	628	776	657	3720	589	e2200	4090	131	312	101	1230	23
28	528	653	59	2720	562	e2280	4100	2010	1090	102	728	23
29	738	1920	74	2560	---	e2120	1660	2170	198	159	688	23
30	727	2250	99	2590	---	e2700	1560	2190	147	132	41	436
31	762	---	1480	2750	---	e2500	---	2340	---	399	127	---
TOTAL	18543	15464	51904	143940	28745	39081	105255	58133	19630	7527	14584	8011
MEAN	598	515	1674	4643	1027	1261	3508	1875	654	243	470	267
MAX	2300	2250	3510	7070	2560	2700	6230	4700	2120	1350	1370	1570
MIN	39	23	59	2560	51	70	52	131	97	99	26	22
AC-FT	36780	30670	103000	285500	57020	77520	208800	115300	38940	14930	28930	15890

CAL YR 1990 TOTAL 1083344 MEAN 2968 MAX 15500 MIN 23 AC-FT 2149000
WTR YR 1991 TOTAL 510817 MEAN 1399 MAX 7070 MIN 22 AC-FT 1013000

e Estimated

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 quarterly and specific conductance, pH, water temperature, alkalinity, and dissolved oxygen were determined in the field.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)
AUG										
07...	0922	7.00	17.5	755	1028	1028	38	6.96	272	7.4
07...	0923	12.0	17.0	755	1028	1028	38	6.96	273	7.4
07...	0925	17.0	17.0	755	1028	1028	38	6.96	274	7.4
07...	0927	22.0	17.0	755	1028	1028	38	6.96	276	7.4
07...	0929	27.0	16.5	755	1028	1028	38	6.96	276	7.4
07...	0931	32.0	16.5	755	1028	1028	38	6.96	276	7.4
07...	0933	37.0	16.5	755	1028	1028	38	6.96	276	7.4
07...	0934	42.0	16.5	755	1028	1028	38	6.96	277	7.4
07...	0936	47.0	17.0	755	1028	1028	38	6.96	277	7.4
07...	0938	52.0	17.0	755	1028	1028	38	6.96	277	7.4
07...	0940	57.0	17.0	755	1028	1028	38	6.96	277	7.4
07...	0942	62.0	17.0	755	1028	1028	38	6.96	277	7.3
07...	0944	67.0	17.0	755	1028	1028	38	6.96	277	7.3
07...	0945	72.0	17.0	755	1028	1028	38	6.96	276	7.3
07...	0946	77.0	17.0	755	1028	1028	38	6.96	276	7.3
07...	0948	82.0	17.5	755	1028	1028	38	6.96	277	7.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)
NOV											
09...	1000	1028	80020	30	231	*7.7	11.0	14.5	0.70	740	7.4
MAR											
07...	0600	1028	80020	187	226	7.5	3.5	6.5	2.1	750	10.8
JUN											
19...	0930	1028	80020	28	262	7.6	27.0	17.0	1.3	650	8.8
AUG											
07...	0800	1028	80020	38	274	7.4	24.5	17.0	1.5	755	--
OXYGEN, DIS-SOLVED (PERCENT SATURATION)											
HARDNESS TOTAL (MG/L AS CaCO3)											
HARDNESS NONCARBONATE (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											
POTASSIUM DIS-SOLVED (MG/L AS K)											
BICARBONATE WATER DIS-IT FIELD (MG/L AS HCO3)											
CARBONATE WATER DIS-IT FIELD (MG/L AS CO3)											
NOV											
09...	75	81	9	29	2.2	14	27	0.7	2.3	88	0
MAR											
07...	90	79	10	28	2.1	12	24	0.6	2.2	83	0
JUN											
19...	107	98	22	36	2.0	13	22	0.6	2.3	93	0
AUG											
07...	--	99	16	36	2.3	13	22	0.6	2.4	102	0

*LAB PH (STANDARD UNITS)

ARKANSAS RIVER BASIN

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07198000 ILLINOIS RIVER NEAR GORE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	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 TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
NOV 09...	72	5.7	26	0.30	146	125	0.20	12.0	0.480	0.480
MAR 07...	68	9.6	22	<0.10	106	120	0.14	53.5	0.670	0.640
JUN 19...	76	6.2	24	0.10	147	133	0.20	11.3	0.670	0.690
AUG 07...	83	8.2	25	<0.10	153	141	0.21	15.6	0.800	0.800
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, N02+N03 TOTAL (MG/L AS N)	NITRO- GEN, N02+N03 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)
NOV 09...	2.1	0.020	0.020	0.07	0.500	0.500	0.080	0.100	0.10	0.13
MAR 07...	2.8	0.020	0.010	0.03	0.690	0.650	--	0.040	--	0.05
JUN 19...	3.9	0.020	0.020	0.07	0.890	0.910	0.020	0.030	0.03	0.04
AUG 07...	3.5	0.020	0.020	0.07	0.820	0.820	0.060	0.070	0.08	0.09
DATE	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 N03)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	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)
NOV 09...	--	--	--	--	--	0.03	--	0.010	0.010	0.03
MAR 07...	--	--	--	--	--	--	--	<0.010	<0.010	--
JUN 19...	--	--	--	--	--	0.06	--	0.020	0.030	0.09
AUG 07...	0.34	0.40	1.2	5.4	0.020	--	0.030	<0.010	<0.010	--

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK

LOCATION.-- Lat 35°32'37", long 98°19'03", SE 1/4 NW 1/4 sec.1, T.12 N., R.11 W., Caddo County, Hydrologic Unit 11090202, on downstream side of pier near center of bridge on U.S. Highway 281, 3.3 mi 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, 22 years (water years 1970-91), 291 ft³/s, 210,800 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 daily discharge, 790 ft³/s, June 2; minimum daily discharge, 7.6 ft³/s, Aug. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e30	41	82	e146	155	137	160	112	e175	e22	8.4	310
2	e29	40	84	e140	155	132	156	114	e790	e21	8.2	215
3	e40	40	85	e150	159	132	168	172	e680	e30	7.8	132
4	e36	103	83	e180	174	140	197	194	e450	e45	7.6	182
5	e34	110	83	e210	169	152	175	223	e325	e37	8.9	146
6	e32	85	84	e230	166	141	167	183	e295	e28	16	104
7	e30	73	84	e220	163	136	158	164	e340	e24	e13	78
8	e28	87	86	e210	159	134	154	199	e280	e21	e12	e72
9	e50	113	89	e250	155	129	150	165	e210	e18	e18	e66
10	e45	92	92	e300	154	125	144	148	e150	e16	e16	e62
11	e43	82	96	e295	155	117	139	e135	e90	e14	e14	e58
12	e40	78	97	e290	155	115	146	e120	e68	12	e12	e55
13	e38	77	98	e267	152	116	158	e110	e45	e11	e11	e68
14	e36	77	102	198	150	116	141	94	e38	e10	e10	e75
15	e35	77	102	186	149	119	134	91	e32	e25	e12	e65
16	e34	77	108	210	148	139	126	86	e25	e22	e24	302
17	e33	77	116	209	142	203	117	79	e23	19	e18	165
18	e32	78	118	235	137	199	108	173	e22	15	e12	428
19	e31	80	118	200	135	204	102	185	e21	12	e9.0	639
20	e30	82	117	186	133	208	98	428	e20	9.8	e110	165
21	e34	83	e115	180	132	202	101	e250	e19	9.5	e70	100
22	e33	83	e113	176	132	187	109	e180	e19	9.4	43	80
23	e32	81	e112	170	132	170	118	e130	e99	8.9	24	e71
24	e31	82	e111	168	132	159	133	e600	e79	8.6	19	e62
25	e30	83	e120	165	132	149	234	e395	e63	13	16	e57
26	e30	86	e140	165	132	148	242	e250	e45	13	15	e54
27	e29	87	151	164	133	149	192	e200	e37	11	13	e50
28	e32	83	164	155	136	148	162	e180	e30	11	e12	e47
29	e35	82	161	155	---	187	145	e155	e27	10	e11	e44
30	e34	82	e153	155	---	184	130	e215	e24	9.0	72	e41
31	e37	---	e150	155	---	173	---	e190	---	8.9	120	---
TOTAL	1063	2401	3414	6120	4126	4750	4464	5920	4521	524.1	762.9	3993
MEAN	34.3	80.0	110	197	147	153	149	191	151	16.9	24.6	133
MAX	50	113	164	300	174	208	242	600	790	45	120	639
MIN	28	40	82	140	132	115	98	79	19	8.6	7.6	41
AC-FT	2110	4760	6770	12140	8180	9420	8850	11740	8970	1040	1510	7920

CAL YR 1990 TOTAL 94970 MEAN 260 MAX 6660 MIN 21 AC-FT 188400
WTR YR 1991 TOTAL 42059.0 MEAN 115 MAX 790 MIN 7.6 AC-FT 83420

e Estimated

ARKANSAS RIVER BASIN

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07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1949-81, 1984, 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1948 to September 1980, October 1989 to April 1982.

WATER TEMPERATURE: October 1948 to September 1980, October 1989 to April 1982.

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

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
AUG										
22...	1145	62.0	28.5	1028	1028	45	10.22	575	8.4	8.2
22...	1146	52.0	29.0	1028	1028	45	10.22	577	8.3	8.2
22...	1147	42.0	29.0	1028	1028	45	10.22	577	8.2	8.2
22...	1148	32.0	29.0	1028	1028	45	10.22	577	8.2	8.3
22...	1149	22.0	29.0	1028	1028	45	10.22	580	8.2	8.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	HARD- NESS TOTAL (MG/L AS CAC03)
NOV												
01...	1030	1028	80020	41	1120	8.4	20.5	18.5	750	10.9	114	560
JAN												
24...	1230	1028	80020	174	1770	8.4	7.5	3.5	730	12.3	97	630
MAR												
05...	1230	1028	80020	150	1890	8.5	25.5	13.5	710	11.5	119	630
MAY												
14...	1200	1028	80020	94	1820	8.4	28.5	26.0	720	--	--	670
AUG												
22...	1200	1028	80020	45	580	8.2	31.0	28.5	740	8.4	112	240
DATE		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)	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)
NOV												
01...	300	170	33	43	14	0.8	3.5	209	6	181	380	25
JAN												
24...	300	170	50	170	37	3	4.1	285	10	250	480	230
MAR												
05...	450	170	50	180	--	3	--	182	18	179	--	--
MAY												
14...	520	180	53	140	31	2	4.5	165	7	147	600	190
AUG												
22...	140	73	14	27	19	0.8	4.8	128	0	105	170	25

ARKANSAS RIVER BASIN
07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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 NITRATE TOTAL (MG/L AS N)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS NO3)	NITRO- GEN NITRITE TOTAL (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS NO2)
NOV 01...	0.50	12	838	780	1.14	93.7	0.480	0.470	2.1	0.020	0.030	0.10
JAN 24...	1.0	17	1230	1260	1.87	578	0.870	0.870	3.9	0.030	0.030	0.10
MAR 05...	--	10	--	--	--	--	--	0.300	1.3	--	0.020	0.07
MAY 14...	0.60	16	1230	1270	1.67	312	--	--	--	<0.010	<0.010	--
AUG 22...	0.40	12	474	394	0.64	57.7	--	0.780	3.5	--	0.090	0.30

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)
NOV 01...	0.500	0.500	0.020	0.020	0.03	0.03	0.18	0.060	0.060	0.18	4	3
JAN 24...	0.900	0.900	0.130	0.140	0.17	0.18	0.18	0.060	0.040	0.12	3	2
MAR 05...	0.300	0.320	<0.010	0.020	--	0.03	--	<0.010	0.010	0.03	2	2
MAY 14...	<0.050	<0.050	0.010	0.010	0.01	0.01	0.06	0.020	<0.010	--	4	5
AUG 22...	--	0.870	--	0.440	--	0.57	--	--	0.030	0.09	--	5

DATE	BARIIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	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, 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)
NOV 01...	140	<0.5	--	<10	1.0	<1	<5	<3	<10	4	<100
JAN 24...	120	<0.5	--	<1	<1.0	5	<5	<3	<10	7	2
MAR 05...	100	<0.5	--	<1	2.0	2	<5	<3	<10	4	3
MAY 14...	110	<0.5	--	<1	<1.0	3	<5	<3	<10	5	5
AUG 22...	84	<0.5	110	--	3.0	--	<5	<3	10	8	--

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY 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 01...	<10	37	10	<0.10	0.1	<10	<10	1.0	1300	9	4
JAN 24...	<10	56	18	<0.10	<0.1	<10	<10	<1.0	2000	<6	<3
MAR 05...	--	47	17	<0.10	<0.1	<10	<10	<1.0	1900	<6	7
MAY 14...	<10	44	8	<0.10	<0.1	<10	<10	<1.0	2000	11	7
AUG 22...	<10	13	3	--	0.2	<10	<10	<1.0	550	14	<3

ARKANSAS RIVER BASIN

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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.

AVERAGE DISCHARGE.-- Since regulation by Lake Meredith, 10 years (water years 1980-83, 1986-91), 765 ft³/s, 554,200 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 discharge, 5,940 ft³/s, Sept. 3, gage height 11.58 ft; minimum daily discharge, 4.4 ft³/s, Aug. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	112	190	e340	262	208	205	146	240	191	22	607
2	131	107	299	e370	254	208	377	283	1720	188	18	1200
3	218	167	333	391	246	209	612	652	2260	784	16	2620
4	211	373	247	391	257	218	441	567	1150	752	15	1070
5	160	294	224	309	345	211	362	475	706	583	13	614
6	126	277	203	376	276	173	351	332	533	423	12	342
7	113	254	194	308	233	183	330	294	558	283	12	208
8	158	314	212	280	239	202	289	1560	601	191	11	208
9	256	341	218	313	248	203	208	892	506	130	16	167
10	204	276	216	388	247	190	190	740	443	92	11	123
11	162	259	215	282	235	185	211	612	390	70	9.1	84
12	134	247	216	273	237	178	215	589	286	61	8.8	59
13	124	242	194	252	229	149	194	503	249	57	10	41
14	112	231	210	252	182	159	178	438	163	54	13	76
15	107	209	209	324	174	174	138	397	153	60	12	109
16	110	193	346	274	196	426	110	341	147	45	9.5	1430
17	102	184	519	269	216	626	177	284	118	38	10	372
18	84	182	412	292	189	438	204	272	94	42	6.9	306
19	84	193	401	323	168	374	131	258	72	34	5.8	846
20	86	198	306	302	180	322	111	555	56	27	4.4	924
21	109	189	e292	289	196	408	135	651	44	26	19	205
22	106	187	e277	291	192	348	262	677	422	19	15	193
23	105	183	e269	288	184	261	154	869	1050	16	13	184
24	98	174	e265	286	178	252	295	833	558	223	11	203
25	95	178	e255	285	167	251	543	1430	563	598	9.5	221
26	92	216	259	294	189	288	412	1480	482	387	7.4	231
27	84	254	287	307	174	272	285	686	341	670	8.4	218
28	84	185	303	307	182	280	280	499	262	483	8.0	191
29	88	182	320	296	---	317	213	297	219	215	4.7	172
30	87	185	328	274	---	212	173	244	195	89	251	165
31	95	---	328	268	---	206	---	263	---	40	317	---
TOTAL	3860	6586	8545	9494	6055	8128	7786	18119	14581	6871	899.5	13469
MEAN	125	220	276	306	216	262	260	584	486	222	29.0	449
MAX	256	373	519	391	345	625	612	1560	2260	784	317	2620
MIN	84	107	190	252	167	149	110	146	44	16	4.4	41
AC-FT	7660	13060	16950	18830	12010	16120	15440	35940	28920	13630	1780	26720

CAL YR 1990 TOTAL 321089 MEAN 880 MAX 26800 MIN 30 AC-FT 636900
WTR YR 1991 TOTAL 104393.5 MEAN 286 MAX 2620 MIN 4.4 AC-FT 207100

e Estimated

ARKANSAS RIVER BASIN

07229300 WALNUT CREEK AT PURCELL, OK

LOCATION.-- Lat 34°59'58", long 97°22'00", NW 1/4 NW 1/4 sec.13, T.8 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.

AVERAGE DISCHARGE.-- 26 years (water years 1966-91), 75.4 ft³/s, 54,630 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)
May 8	0700	*3,970	*11.92	No other peak greater than base discharge.			

Minimum daily discharge, 2.2 ft³/s, Aug. 10-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	21	18	e49	26	23	28	24	e34	e17	6.5	49
2	24	22	19	44	26	23	41	22	202	e17	4.4	116
3	28	24	20	e43	26	23	78	511	153	45	3.7	57
4	36	67	e19	e42	26	24	49	56	58	40	3.2	187
5	33	45	e19	42	26	24	40	33	49	23	3.1	39
6	30	37	e19	74	27	24	33	25	e43	e20	2.9	23
7	26	33	e18	63	27	24	30	23	e41	e20	2.9	71
8	24	31	e18	48	27	24	28	1450	e38	e18	2.7	70
9	34	51	e18	43	27	24	25	174	e36	e17	2.8	19
10	35	40	e17	125	27	23	23	69	e35	e16	2.2	9.7
11	33	35	e17	68	27	23	22	45	e33	e15	2.2	18
12	30	31	e17	53	27	23	21	e38	32	e14	2.2	9.6
13	28	26	e17	45	28	22	21	e36	32	e14	2.4	9.3
14	26	24	e16	41	27	22	21	e34	31	e14	3.1	25
15	24	23	e16	38	27	22	20	e32	30	e15	3.5	33
16	23	22	e16	36	26	23	20	e30	29	e14	3.1	1170
17	23	21	30	34	26	29	20	e29	27	e13	3.0	116
18	22	e21	44	32	26	32	22	e28	27	e12	2.6	192
19	21	e21	33	30	26	32	24	e28	25	e11	2.8	178
20	21	e20	29	30	25	31	23	33	25	e11	2.6	55
21	37	e19	26	29	24	30	22	e32	24	e10	4.0	e47
22	38	e19	24	28	24	31	23	e31	39	e9.6	4.4	e45
23	33	e18	24	27	24	30	23	249	395	e9.3	5.6	e44
24	30	e18	24	27	24	29	30	250	63	12	4.9	e43
25	27	e18	28	26	23	27	99	106	29	e11	4.0	e42
26	25	e17	31	26	23	26	52	55	22	e9.6	3.4	e39
27	24	20	37	26	23	29	44	43	21	e8.7	2.9	e35
28	e23	19	36	26	23	34	37	e41	e19	e8.0	2.8	e32
29	e22	19	45	26	---	33	32	e39	e19	e7.5	2.6	e28
30	e20	19	e64	27	---	31	28	e37	e18	e7.2	15	e26
31	19	---	e57	27	---	30	---	e35	---	e6.8	20	---
TOTAL	843	801	816	1275	718	825	979	3638	1629	465.7	131.5	2807.6
MEAN	27.2	26.7	26.3	41.1	25.6	26.6	32.6	117	54.3	15.0	4.24	93.6
MAX	38	67	64	125	28	34	99	1450	395	45	20	1170
MIN	19	17	16	26	23	22	20	22	18	6.8	2.2	9.3
AC-FT	1670	1590	1620	2530	1420	1640	1940	7220	3230	924	261	5570

CAL YR 1990 TOTAL 57691 MEAN 158 MAX 7440 MIN 12 AC-FT 114400
WTR YR 1991 TOTAL 14928.8 MEAN 40.9 MAX 1450 MIN 2.2 AC-FT 29610

e Estimated

ARKANSAS RIVER BASIN

183

07229900 LAKE THUNDERBIRD NEAR NORMAN, OK

LOCATION.-- Lat 36°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 96.4.

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, 13,500 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, 187,400 acre-ft, May 5, 1990, elevation, 1,048.38 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, 126,800 acre-ft, May 9, elevation, 1,040.06 ft; minimum, 110,800 acre-ft, Aug. 29 elevation, 1,037.51 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30.....	1038.60	117,200	-	-
Oct. 31.....	1038.44	116,200	-1,000	1,484
Nov. 30.....	1038.82	118,500	+2,300	1,395
Dec. 31.....	1039.04	119,800	+1,300	1,384
CAL YR 90.....	-	-	+400	-
Jan. 31.....	1039.09	120,100	+300	1,317
Feb. 28.....	1039.13	120,400	+300	1,202
Mar. 31.....	1039.40	122,000	+1,600	1,295
Apr. 30.....	1039.14	120,400	-1,600	1,363
May 31.....	1039.47	122,400	+2,000	1,536
June 30.....	1039.01	119,600	-2,800	1,661
July 31.....	1038.32	115,500	-4,100	2,188
Aug. 31.....	1037.65	111,600	-3,900	2,159
Sept. 30.....	1038.95	119,300	+7,700	1,479
WTR YR 91.....	-	-	+2,100	-

ARKANSAS RIVER BASIN

351442097140201 LAKE THUNDERBIRD HOG CREEK CROSS SECTION

LOCATION.-- Lat 35°14'42", long 97°14'02".

PERIOD OF RECORD.-- Water years 1980 to June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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 WATER WHOLE FIELD (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											
10...	1100	1028	1028	1.00	118000	376	8.4	10.0	745	11.2	102
10...	1101	1028	1028	5.00	118000	378	8.4	9.5	745	11.2	100
10...	1103	1028	1028	10.0	118000	379	8.4	9.5	745	11.3	101
10...	1105	1028	1028	15.0	118000	379	8.4	9.5	745	11.2	100
10...	1107	1028	1028	20.0	118000	379	8.4	9.5	745	11.4	102
10...	1109	1028	1028	25.0	118000	379	8.4	9.5	745	11.6	104
10...	1112	1028	1028	30.0	118000	380	8.4	9.0	745	11.7	104
APR											
15...	1137	1028	1028	5.00	120000	410	8.5	17.0	765	8.4	87
15...	1138	1028	1028	10.0	120000	400	8.5	17.0	765	8.3	86
15...	1135	1028	1028	15.0	120000	400	8.5	17.0	765	8.2	85
15...	1134	1028	1028	20.0	120000	410	8.6	17.0	765	8.2	85
15...	1133	1028	1028	25.0	120000	400	8.6	17.0	765	8.2	85
15...	1132	1028	1028	30.0	120000	400	8.6	17.0	765	8.1	84
15...	1131	1028	1028	35.0	120000	400	8.5	17.0	765	7.8	80
15...	1130	1028	1028	40.0	120000	400	8.6	17.0	765	7.0	72
JUN											
06...	1252	1028	1028	5.00	124000	390	8.5	25.0	740	6.8	85
06...	1251	1028	1028	10.0	124000	390	8.5	25.0	740	6.3	79
06...	1250	1028	1028	15.0	124000	390	8.4	25.0	740	5.9	74
06...	1248	1028	1028	20.0	124000	390	8.4	25.0	740	4.6	57
06...	1247	1028	1028	25.0	124000	400	8.2	23.5	740	1.2	15
06...	1246	1028	1028	30.0	124000	410	8.2	22.0	740	0	0

ARKANSAS RIVER BASIN

185

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 June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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 WATER WHOLE FIELD (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											
10...	1223	1028	1028	1.00	118000	379	8.4	10.0	745	13.6	123
10...	1224	1028	1028	5.00	118000	379	8.4	10.0	745	13.0	118
10...	1225	1028	1028	10.0	118000	378	8.4	10.0	745	12.8	116
10...	1227	1028	1028	15.0	118000	379	8.4	10.0	745	13.0	118
10...	1229	1028	1028	20.0	118000	378	8.4	10.0	745	13.2	120
10...	1230	1028	1028	25.0	118000	378	8.4	10.0	745	13.2	120
10...	1232	1028	1028	30.0	118000	379	8.4	10.0	745	13.2	120
10...	1234	1028	1028	36.0	118000	379	8.4	10.0	745	13.0	118
APR											
15...	1211	1028	1028	5.00	120000	400	8.6	17.0	765	8.6	89
15...	1210	1028	1028	10.0	120000	400	8.6	17.0	765	7.6	78
15...	1209	1028	1028	15.0	120000	400	8.6	17.0	765	7.6	78
15...	1207	1028	1028	20.0	120000	400	8.6	17.0	765	8.1	84
15...	1206	1028	1028	25.0	120000	400	8.6	17.0	765	7.2	74
15...	1204	1028	1028	30.0	120000	400	8.5	17.0	765	6.8	70
15...	1203	1028	1028	35.0	120000	410	8.5	17.5	765	7.4	77
JUN											
06...	1327	1028	1028	5.00	124000	390	8.4	25.0	740	6.1	76
06...	1326	1028	1028	10.0	124000	400	8.4	25.0	740	4.5	56
06...	1324	1028	1028	15.0	124000	400	8.4	25.0	740	5.0	62
06...	1323	1028	1028	20.0	124000	400	8.3	24.0	740	3.2	39
06...	1322	1028	1028	25.0	124000	400	8.3	24.0	740	0	0
06...	1321	1028	1028	30.0	124000	410	8.2	22.0	740	0	0
06...	1320	1028	1028	35.0	124000	420	8.2	19.0	740	0	0

ARKANSAS RIVER BASIN

351320097131801 - LAKE THUNDERBIRD DAMSITE CROSS SECTION NO. 1 SITE 2

LOCATION.-- Lat 35°13'20", long 97°13'18".

PERIOD OF RECORD.-- Water years 1980 to June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	SAM-PLING DEPTH (FEET)	RESER-VOIR STORAGE (AC-FT)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	
DEC												
10...	1220	1028	80020	1.00	118000	378	8.4	10.0	7.1	745	12.8	
10...	1219	1028	1028	5.00	118000	378	8.4	10.0	--	745	12.6	
10...	1218	1028	1028	10.0	118000	378	8.4	10.0	--	745	12.2	
10...	1217	1028	1028	15.0	118000	378	8.4	10.0	--	745	12.4	
10...	1215	1028	80020	20.0	118000	378	8.4	10.0	7.0	745	12.7	
10...	1214	1028	1028	25.0	118000	379	8.4	10.0	--	745	12.4	
10...	1212	1028	1028	30.0	118000	379	8.4	10.0	--	745	12.8	
10...	1210	1028	1028	35.0	118000	378	8.4	10.0	--	745	13.2	
10...	1208	1028	80020	42.0	118000	378	8.4	10.0	190	745	12.6	
APR												
15...	1228	1028	80020	5.00	120000	400	8.6	17.0	11	765	8.6	
15...	1227	1028	1028	10.0	120000	400	8.6	17.0	--	765	8.4	
15...	1226	1028	1028	15.0	120000	400	8.6	17.0	--	765	8.4	
15...	1224	1028	80020	20.0	120000	400	8.6	17.0	10	765	8.6	
15...	1223	1028	1028	25.0	120000	400	8.6	17.0	--	765	8.6	
15...	1222	1028	1028	30.0	120000	400	8.6	17.0	--	765	8.4	
15...	1221	1028	1028	35.0	120000	400	8.6	17.5	--	765	8.4	
15...	1218	1028	80020	40.0	120000	400	8.6	17.0	10	765	7.4	
JUN												
06...	1350	1028	80020	5.00	124000	400	8.4	25.0	3.1	740	6.5	
06...	1349	1028	1028	10.0	124000	400	8.4	25.0	--	740	6.1	
06...	1348	1028	1028	15.0	124000	400	8.4	24.5	--	740	4.2	
06...	1343	1028	80020	20.0	124000	400	8.3	24.0	6.4	740	4.5	
06...	1342	1028	1028	25.0	124000	400	8.2	23.5	--	740	1.9	
06...	1341	1028	1028	30.0	124000	410	8.2	22.0	--	740	0	
06...	1340	1028	1028	35.0	124000	420	8.2	19.5	--	740	0	
06...	1337	1028	80020	40.0	124000	420	8.2	19.0	25	740	0	
DATE		OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	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)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)
DEC												
10...	116	180	0	33	19	12	14	0.4	3.7	199	2	
10...	114	--	--	--	--	--	--	--	--	--	--	--
10...	111	--	--	--	--	--	--	--	--	--	--	--
10...	112	--	--	--	--	--	--	--	--	--	--	--
10...	115	180	--	33	19	12	14	0.4	3.3	--	--	--
10...	112	--	--	--	--	--	--	--	--	--	--	--
10...	116	--	--	--	--	--	--	--	--	--	--	--
10...	120	--	--	--	--	--	--	--	--	--	--	--
10...	114	150	--	32	18	12	14	0.4	3.6	--	--	--
APR												
15...	89	190	20	39	22	14	14	0.4	3.2	192	6	
15...	87	--	--	--	--	--	--	--	--	--	--	--
15...	87	--	--	--	--	--	--	--	--	--	--	--
15...	89	190	--	39	22	14	14	0.4	3.1	--	--	--
15...	89	--	--	--	--	--	--	--	--	--	--	--
15...	87	--	--	--	--	--	--	--	--	--	--	--
15...	87	--	--	--	--	--	--	--	--	--	--	--
15...	76	180	--	38	21	14	14	0.5	3.1	--	--	--
JUN												
06...	81	190	1	38	22	14	14	0.4	3.0	200	12	
06...	76	--	--	--	--	--	--	--	--	--	--	--
06...	52	--	--	--	--	--	--	--	--	--	--	--
06...	55	170	--	36	20	13	14	0.4	2.8	--	--	--
06...	23	--	--	--	--	--	--	--	--	--	--	--
06...	0	--	--	--	--	--	--	--	--	--	--	--
06...	0	--	--	--	--	--	--	--	--	--	--	--
06...	0	180	--	34	18	13	15	0.4	3.3	--	--	--

ARKANSAS RIVER BASIN

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351320097131001 LAKE THUNDERBIRD DAMSITE CROSS SECTION NO. 1 SITE 2--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	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, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
DEC										
10...	167	23	21	0.20	213	212	0.29	0.070	0.030	<0.010
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	7.7	16	0.20	205	195	0.28	0.080	0.020	<0.010
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	9.2	16	0.20	201	192	0.27	0.080	0.020	<0.010
APR										
15...	167	8.2	23	0.20	224	210	0.30	--	<0.010	<0.010
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	7.3	16	0.20	218	213	0.30	0.070	0.020	<0.010
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	8.0	19	0.20	215	213	0.29	--	<0.010	0.010
JUN										
06...	184	7.2	14	0.30	209	209	0.28	--	<0.010	<0.010
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	8.1	19	0.30	238	207	0.32	--	<0.010	<0.010
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	8.4	20	0.30	248	206	0.34	0.150	0.020	--
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, N02+N03 TOTAL (MG/L AS N)	NITRO- GEN, N02+N03 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)
DEC										
10...	--	0.100	0.100	0.090	0.070	0.12	0.09	0.09	0.030	<0.010
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	0.100	0.100	0.040	0.010	0.05	0.01	0.03	0.010	<0.010
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	0.100	0.100	0.040	0.020	0.05	0.03	0.06	0.020	<0.010
APR										
15...	--	0.052	<0.050	0.040	0.050	0.05	0.06	--	<0.010	<0.010
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	0.090	<0.050	0.040	0.020	0.05	0.03	--	<0.010	<0.010
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
15...	0.03	0.051	<0.050	0.030	0.020	0.04	0.03	--	<0.010	<0.010
JUN										
06...	--	<0.050	<0.050	0.020	0.020	0.03	0.03	--	<0.010	<0.010
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	<0.050	<0.050	0.030	0.030	0.04	0.04	--	<0.010	<0.010
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	0.170	--	0.030	--	0.04	--	0.06	0.020	--

ARKANSAS RIVER BASIN

351333097131201 LAKE THUNDERBIRD DAMSITE CROSS SECTION NO. 3

LOCATION.-- Lat 35°13'33", long 97°13'12".

PERIOD OF RECORD.-- Water years 1980 to June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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 WATER WHOLE FIELD (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											
10...	1150	1028	1028	1.00	118000	380	8.5	10.0	745	12.0	109
10...	1152	1028	1028	5.00	118000	378	8.5	10.0	745	12.6	114
10...	1154	1028	1028	10.0	118000	378	8.4	10.0	745	13.0	118
10...	1156	1028	1028	15.0	118000	378	8.4	10.0	745	12.8	116
10...	1158	1028	1028	20.0	118000	378	8.4	10.0	745	12.8	116
10...	1200	1028	1028	25.0	118000	379	8.4	10.0	745	12.6	114
10...	1202	1028	1028	31.0	118000	378	8.4	10.0	745	12.5	113
APR											
15...	1244	1028	1028	5.00	120000	400	8.6	17.0	765	8.5	88
15...	1243	1028	1028	10.0	120000	410	8.6	17.5	765	8.4	87
15...	1242	1028	1028	15.0	120000	400	8.6	17.5	765	8.6	89
15...	1241	1028	1028	20.0	120000	410	8.6	17.0	765	8.5	88
15...	1240	1028	1028	25.0	120000	400	8.6	17.0	765	8.5	88
15...	1239	1028	1028	30.0	120000	410	8.6	17.0	765	8.5	88
15...	1237	1028	1028	35.0	120000	400	8.6	17.0	765	8.3	86
15...	1236	1028	1028	40.0	120000	400	8.5	17.0	765	7.9	82
15...	1235	1028	1028	45.0	120000	400	8.5	17.0	765	8.3	86
15...	1234	1028	1028	52.0	120000	400	8.5	17.0	765	7.6	79
JUN											
06...	1407	1028	1028	5.00	124000	400	8.5	25.0	740	6.5	81
06...	1406	1028	1028	10.0	124000	400	8.5	24.5	740	5.1	63
06...	1405	1028	1028	15.0	124000	400	8.4	24.5	740	4.9	61
06...	1404	1028	1028	20.0	124000	400	8.4	24.0	740	4.1	50
06...	1403	1028	1028	25.0	124000	400	8.3	24.0	740	2.8	34
06...	1402	1028	1028	30.0	124000	410	8.2	22.5	740	0.1	1
06...	1401	1028	1028	35.0	124000	420	8.2	19.5	740	0	0
06...	1359	1028	1028	40.0	124000	420	8.2	19.0	740	0	0
06...	1358	1028	1028	45.0	124000	420	8.2	18.5	740	0	0
06...	1357	1028	1028	50.0	124000	420	8.2	18.5	740	0	0

ARKANSAS RIVER BASIN

189

351317097145101 LAKE THUNDERBIRD LITTLE RIVER CROSS SECTION

LOCATION.-- Lat 35°13'17", long 97°14'51".

PERIOD OF RECORD.-- Water years 1980 to June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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 WATER WHOLE FIELD (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											
10...	1045	1028	1028	1.00	118000	380	8.4	10.0	745	11.0	100
10...	1047	1028	1028	5.00	118000	380	8.4	9.5	745	11.2	100
10...	1049	1028	1028	10.00	118000	379	8.4	9.5	745	11.8	106
10...	1051	1028	1028	15.00	118000	380	8.4	9.5	745	12.0	108
10...	1053	1028	1028	20.00	118000	380	8.4	9.5	745	11.9	107
10...	1055	1028	1028	25.00	118000	379	8.4	9.5	745	11.8	106
10...	1057	1028	1028	32.00	118000	380	8.4	9.5	745	11.6	104
APR											
15...	1116	1028	1028	5.00	120000	400	8.5	17.0	765	8.8	91
15...	1115	1028	1028	10.00	120000	410	8.5	17.0	765	8.6	89
15...	1114	1028	1028	15.00	120000	410	8.5	17.0	765	8.6	89
15...	1113	1028	1028	20.00	120000	410	8.6	17.0	765	8.5	88
15...	1112	1028	1028	25.00	120000	410	8.5	17.0	765	8.6	89
15...	1110	1028	1028	30.00	120000	400	8.5	17.0	765	7.0	73
15...	1107	1028	1028	35.00	120000	410	8.5	17.0	765	7.4	77
15...	1103	1028	1028	42.00	120000	400	8.4	15.5	765	8.3	83
JUN											
06...	1231	1028	1028	5.00	124000	400	8.5	24.5	740	6.9	85
06...	1229	1028	1028	10.00	124000	400	8.5	24.5	740	6.5	80
06...	1228	1028	1028	15.00	124000	400	8.4	24.5	740	6.5	80
06...	1227	1028	1028	20.00	124000	400	8.4	24.5	740	6.2	77
06...	1226	1028	1028	25.00	124000	400	8.3	24.5	740	6.2	77
06...	1225	1028	1028	30.00	124000	410	8.2	22.5	740	6.2	74
06...	1223	1028	1028	35.00	124000	420	8.1	20.0	740	0.2	2
06...	1222	1028	1028	40.00	124000	420	8.2	19.0	740	0	0
06...	1220	1028	1028	45.00	124000	420	8.3	19.0	740	0	0

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 June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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 WATER WHOLE FIELD (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											
10...	1032	1028	1028	1.00	118000	375	8.4	9.5	745	11.2	100
10...	1034	1028	1028	5.00	118000	379	8.4	9.5	745	11.0	99
10...	1035	1028	1028	10.0	118000	379	8.4	9.5	745	10.8	97
10...	1037	1028	1028	15.0	118000	379	8.4	9.5	745	10.4	93
10...	1039	1028	1028	20.0	118000	380	8.4	9.5	745	10.4	93
10...	1041	1028	1028	25.0	118000	381	8.4	9.5	745	10.2	91
10...	1043	1028	1028	31.0	118000	382	8.4	9.5	745	10.1	91
APR											
15...	1052	1028	1028	5.00	120000	410	8.5	17.0	765	7.6	78
15...	1050	1028	1028	10.0	120000	400	8.5	17.0	765	2.7	28
15...	1049	1028	1028	15.0	120000	400	8.5	16.5	765	1.9	19
15...	1046	1028	1028	21.0	120000	410	8.5	16.5	765	1.0	10
JUN											
06...	1207	1028	1028	5.00	124000	400	8.5	24.5	740	5.8	72
06...	1206	1028	1028	10.0	124000	400	8.5	24.5	740	5.4	67
06...	1205	1028	1028	15.0	124000	400	8.5	24.5	740	5.4	67
06...	1204	1028	1028	20.0	124000	400	8.5	24.5	740	5.4	67
06...	1202	1028	1028	25.0	124000	400	8.5	24.5	740	4.5	56

ARKANSAS RIVER BASIN

191

351318097155901 LAKE THUNDERBIRD LITTLE RIVER ABOVE CLEAR CREEK

LOCATION.-- Lat 35°13'18", long 97°15'59".

PERIOD OF RECORD.-- Water years 1980 to June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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 WATER WHOLE FIELD (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											
10...	1012	1028	1028	1.00	118000	381	8.4	9.5	745	9.7	87
10...	1014	1028	1028	5.00	118000	--	8.4	9.5	745	9.2	--
10...	1016	1028	1028	10.0	118000	380	8.4	9.5	745	9.2	82
10...	1017	1028	1028	15.0	118000	381	8.4	9.5	745	9.3	83
10...	1019	1028	1028	20.0	118000	381	8.4	9.0	745	9.4	83
10...	1021	1028	1028	27.0	118000	382	8.4	9.0	745	9.2	81
APR											
15...	1035	1028	1028	5.00	120000	410	8.3	17.0	765	8.4	87
15...	1034	1028	1028	10.0	120000	410	8.4	17.0	765	7.0	72
15...	1031	1028	1028	15.0	120000	410	8.4	17.0	765	6.4	66
15...	1029	1028	1028	20.0	120000	410	8.3	16.5	765	7.2	74
15...	1026	1028	1028	23.0	120000	410	8.3	16.5	765	7.2	74
JUN											
06...	1146	1028	1028	5.00	124000	400	8.5	25.0	740	6.2	77
06...	1144	1028	1028	10.0	124000	400	8.5	25.0	740	5.1	64
06...	1142	1028	1028	15.0	124000	400	8.5	25.0	740	4.6	57
06...	1140	1028	1028	20.0	124000	400	8.5	24.5	740	1.2	15
06...	1138	1028	1028	25.0	124000	400	8.5	24.5	740	1.0	12

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.

PERIOD OF RECORD.-- October 1952 to current year. Prior to October 1964, published as Little River below Hog Creek near Norman.

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.

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, 26 years (water years 1966-91), 49.5 ft³/s, 35,860 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, 502 ft³/s, May 28, gage height, 5.62 ft; minimum daily discharge, 0.48 ft³/s, Feb. 10.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.69	.61	.68	.64	.59	.61	.61	.64	286	.87	.85	.92
2	.69	.61	.74	.62	.61	.61	.90	.77	17	.87	.87	.98
3	.79	.90	.63	.61	.61	.60	.67	1.2	163	1.1	.86	.75
4	.68	.92	.69	.61	.61	.60	175	.85	295	.87	.88	1.5
5	.69	.63	.69	.66	.69	.60	308	.64	174	.87	.88	.72
6	.69	.61	.69	.69	.53	.57	308	.66	193	.87	.85	.69
7	.67	.61	.69	.61	.56	.60	306	.69	303	.87	.86	.81
8	.74	.81	.69	.61	.61	.61	135	169	303	.87	.86	.72
9	.66	.72	.69	.62	.56	.58	.76	304	303	.87	.87	.70
10	.69	.67	.69	.72	.48	.56	.78	303	303	.87	.86	.73
11	.69	.67	.69	180	.53	.54	.78	303	303	.87	.81	.69
12	.69	.66	.69	300	.53	.55	.78	303	303	.87	.81	.73
13	.69	.67	.69	300	.58	.53	.73	302	303	.87	.86	.73
14	.68	.69	.69	299	.58	.53	.69	302	128	.87	.85	.76
15	.69	.69	.69	299	.60	.53	.69	301	.98	.87	.79	.72
16	.69	.67	.75	297	.61	.64	.69	300	.93	.87	.81	1.9
17	.65	.69	.81	110	.61	.59	.70	301	.64	.87	.82	.74
18	.68	.69	.69	.69	.61	.53	.69	300	.84	.87	.82	1.0
19	.68	.69	.69	.62	.60	.53	.68	300	.79	.87	.80	.73
20	.82	.69	.65	.61	.61	.53	.67	105	.64	.88	.81	1.3
21	.66	.66	.61	.61	.61	.68	.70	.88	.81	.87	.86	3.9
22	.68	.65	.61	.61	.61	.61	.69	.83	.94	.87	.80	7.7
23	.66	.66	.61	.61	.61	.62	.67	121	1.1	.87	.82	13
24	.64	.69	.69	.61	.61	.64	.82	30	202	.98	.78	30
25	.64	.69	.69	.59	.61	.61	.74	.89	353	.97	.78	56
26	.64	.69	.69	.61	.60	.61	.70	.88	142	.91	.76	43
27	.63	.66	.69	.61	.61	.67	.68	.87	.86	.93	.74	.86
28	.61	.61	.69	.61	.61	.65	.69	266	.86	.87	.72	.84
29	.61	.62	.71	.56	---	.66	.66	487	.87	.86	.71	.82
30	.61	.67	.61	.53	---	.61	.65	484	.87	.87	.91	.79
31	.61	---	.63	.53	---	.61	---	362	---	.86	.78	---
TOTAL	20.94	20.50	21.15	1799.79	16.58	18.41	1249.82	5352.80	4085.53	27.50	25.48	174.73
MEAN	.68	.68	.68	58.1	.59	.59	41.7	173	136	.89	.82	5.82
MAX	.82	.92	.81	300	.69	.68	308	487	353	1.1	.91	56
MIN	.61	.61	.61	.53	.48	.53	.61	.64	.79	.86	.71	.69
AC-FT	42	41	42	3570	33	37	2480	10620	8100	55	51	347
CAL YR 1990	TOTAL 65591.24		MEAN 180		MAX 1280	MIN .61	AC-FT 130100					
WTR YR 1991	TOTAL 12813.23		MEAN 35.1		MAX 487	MIN .48	AC-FT 25420					

ARKANSAS RIVER BASIN

193

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 poor. Flow regulated or diverted since 1985 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, 26 years (water years 1966-91), 130 ft³/s, 94,180 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, 4,210 ft³/s, Sept. 16, gage height, 15.49 ft; minimum daily discharge, 4.9 ft³/s, Aug. 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	9.1	17	48	e29	22	23	e20	420	e15	e8.2	35
2	7.5	8.5	17	46	e29	23	67	17	485	e14	e7.4	238
3	12	9.7	25	45	e27	25	309	631	291	343	e6.8	230
4	20	563	21	45	e29	24	128	847	449	113	e6.6	412
5	16	101	20	42	e30	23	344	187	826	38	6.2	104
6	14	36	18	48	e33	23	343	114	480	e23	6.2	47
7	12	25	17	48	e32	19	344	112	568	e19	6.2	80
8	11	28	17	38	e31	17	281	1730	2370	e18	5.8	128
9	19	181	16	30	e30	17	38	628	957	e17	5.5	41
10	18	54	16	130	e27	16	31	563	763	e16	5.8	25
11	16	29	15	128	e26	17	27	503	673	e15	5.6	20
12	15	23	15	294	e26	17	25	470	603	e14	5.8	18
13	14	20	15	350	e25	18	e21	441	550	e13	14	18
14	13	19	15	350	25	16	e19	413	450	e13	24	18
15	12	18	15	469	22	18	e18	406	e260	e12	12	18
16	12	18	17	374	21	19	e16	392	e240	e11	7.7	2390
17	11	18	180	274	23	50	e15	377	e220	e10	6.5	548
18	11	17	100	64	23	40	e14	374	e190	e9.6	8.0	883
19	10	17	40	e50	22	28	e13	373	e165	e9.2	5.5	512
20	9.7	18	27	e45	21	25	e13	578	e143	e8.4	5.3	312
21	25	18	21	e41	21	25	e12	160	e130	e8.6	5.6	321
22	18	18	21	e39	21	33	e11	115	e230	e8.8	6.5	375
23	17	17	21	e38	21	27	e16	518	e300	e9.6	5.9	345
24	16	17	22	e37	20	22	e19	1540	330	e12	5.4	e220
25	16	17	26	e36	20	22	150	1250	625	e16	5.2	e170
26	15	17	30	e35	20	22	45	302	393	e12	4.9	e120
27	14	18	33	e33	20	32	49	203	101	e19	4.9	e78
28	13	19	39	e31	20	30	35	285	25	e17	5.6	e64
29	12	18	41	e30	---	36	28	857	e20	e16	8.8	e52
30	e11	18	49	e30	---	38	e23	860	e17	e14	16	e42
31	e10	---	49	e30	---	26	---	750	---	e9.2	20	---
TOTAL	427.7	1389.3	991	3296	694	776	2477	16016	13284	873.4	245.7	7864
MEAN	13.8	46.3	32.0	106	24.8	25.0	82.6	517	443	28.2	7.93	262
MAX	25	563	188	469	33	58	344	1730	2370	343	24	2390
MIN	7.5	8.5	15	30	20	16	11	17	17	8.4	4.9	18
AC-FT	848	2760	1970	6540	1380	1540	4910	31770	26350	1730	487	15800

CAL YR 1990 TOTAL 144003.6 MEAN 395 MAX 9740 MIN 4.3 AC-FT 285600
WTR YR 1991 TOTAL 48334.1 MEAN 132 MAX 2390 MIN 4.9 AC-FT 95870

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.-- (REVISED) Water-stage recorder and crest-stage gage. 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, 5.00 ft higher.

REMARKS.-- Records fair. 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, 26 years (water years 1966-91), 326 ft³/s, 236,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 44,600 ft³/s, May 11, 1950, gage height, 33.48 ft datum then is use; no flow at times most years after 1952.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 4,950 ft³/s, June 8, gage height, 18.18 ft; minimum daily discharge, 4.4 ft³/s, Aug. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e13	e8.6	40	e58	53	37	56	48	655	68	14	110
2	e12	e8.2	36	e58	53	38	46	41	1110	58	10	79
3	e10	e7.8	37	e59	51	38	80	3240	2090	92	6.9	121
4	e15	508	37	e60	51	38	392	1890	658	200	6.5	621
5	20	714	41	79	52	39	174	1250	881	233	e6.2	644
6	23	230	43	371	57	39	307	569	1390	92	e6.0	182
7	17	104	38	366	55	36	354	379	709	60	e5.8	292
8	29	70	36	271	54	35	350	980	3220	51	e5.6	338
9	39	113	33	234	50	33	336	2210	3680	43	5.4	183
10	37	233	32	781	48	31	140	1390	3060	38	7.7	86
11	29	151	32	632	46	30	64	844	1700	34	6.3	55
12	22	80	33	381	46	30	81	672	926	30	5.0	38
13	16	58	33	452	48	30	56	590	703	27	4.8	31
14	14	47	33	436	46	29	50	538	601	25	7.4	26
15	e13	42	33	656	42	29	48	501	517	24	21	24
16	e12	38	43	884	40	32	45	469	295	24	30	982
17	e11	37	203	571	39	43	43	438	218	23	18	2160
18	e10	34	610	424	39	46	57	415	201	21	9.9	1660
19	e9.8	33	274	210	40	75	45	401	173	19	6.7	2330
20	e10	33	140	146	39	54	39	829	151	17	5.7	1100
21	23	35	e60	110	38	54	37	1070	130	15	5.4	513
22	23	38	e42	89	38	150	42	550	131	14	5.0	437
23	27	35	e35	82	37	78	45	663	180	15	4.9	446
24	26	34	e33	77	36	60	43	2180	298	16	4.6	437
25	19	32	35	71	35	51	225	2710	362	28	4.4	347
26	15	34	38	66	34	45	220	2350	494	18	4.7	312
27	e13	195	47	62	36	45	163	883	415	32	6.3	278
28	e12	144	58	63	35	48	121	470	184	29	9.8	169
29	e11	58	e64	63	---	64	90	355	92	27	104	185
30	e10	47	e59	60	---	57	62	733	75	26	367	72
31	e9.2	---	e57	54	---	57	---	755	---	19	427	---
TOTAL	550.0	3201.6	2335	7926	1238	1471	3811	30413	25279	1418	1134.0	14178
MEAN	17.7	107	75.3	256	44.2	47.5	127	981	843	45.7	36.6	473
MAX	39	714	610	884	57	150	392	3240	3680	233	427	2330
MIN	9.2	7.8	32	54	34	29	37	41	75	14	4.4	24
AC-FT	1090	6350	4630	15720	2480	2920	7560	60320	50140	2810	2250	28120

CAL YR 1990 TOTAL 314444.2 MEAN 861 MAX 15000 MIN 6.3 AC-FT 623700
WTR YR 1991 TOTAL 92954.6 MEAN 255 MAX 3660 MIN 4.4 AC-FT 184400

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 bimonthly intervals and specific conductance, pH, water temperature, dissolved oxygen, and alkalinity were determined in the field.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FW L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
AUG											
05...	1139	6.00	28.0	740	1028	1028	5.0	4.90	1380	6.3	8.5
05...	1141	9.00	28.0	740	1028	1028	5.0	4.90	1380	6.5	8.5
05...	1143	12.0	28.5	740	1028	1028	5.0	4.90	1380	6.8	8.5
05...	1145	15.0	28.5	740	1028	1028	5.0	4.90	1380	6.8	8.5
05...	1147	18.0	28.5	740	1028	1028	5.0	4.90	1380	6.8	8.5
05...	1149	21.0	28.5	740	1028	1028	5.0	4.90	1380	6.8	8.5
05...	1151	24.0	28.5	740	1028	1028	5.0	4.90	1390	6.8	8.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	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 13...	1100	1028	80020	58	*771	7.6	24.0	12.0	740	3.4	33
JAN 17...	0900	1028	80020	583	575	8.1	0.5	4.0	750	7.6	59
MAR 08...	1200	1028	80020	34	1680	8.4	15.5	11.0	740	10.9	103
APR 18...	1000	1028	80020	67	1470	8.3	20.0	19.5	735	8.1	92
JUN 21...	1045	1028	80020	137	1520	8.3	28.5	28.5	740	7.7	103
AUG 05...	1015	1028	80020	5.0	1420	8.5	29.5	27.0	740	6.8	89
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)
NOV 13...	210	40	46	22	73	--	2	--	203	0	166
JAN 17...	180	22	39	19	44	35	1	2.8	188	0	154
MAR 08...	370	80	73	45	180	51	4	2.4	338	7	289
APR 18...	320	85	66	38	170	53	4	3.3	289	0	237
JUN 21...	350	96	79	36	170	51	4	3.9	292	7	250
AUG 05...	320	57	58	42	170	53	4	3.7	289	15	261

*SPECIFIC CONDUCTANCE, LAB (US/CM)

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NEAR SASAKWA, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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 CONSTITUENTS, 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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
NOV 13...	--	--	--	9.5	--	--	--	--	<0.010	<0.100	0.040
JAN 17...	15	84	0.20	6.4	309	304	0.42	486	<0.010	0.200	0.080
MAR 08...	41	360	0.30	9.0	890	885	1.21	81.7	<0.010	<0.050	<0.010
APR 18...	27	270	0.30	7.3	804	725	1.09	145	<0.010	<0.050	<0.010
JUN 21...	25	350	0.40	12	830	828	1.13	307	<0.010	<0.050	<0.010
AUG 05...	44	300	0.30	9.2	790	786	1.07	10.7	<0.010	<0.050	0.020
DATE	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)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	BORON, DIS- SOLVED (UG/L AS B)	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)
NOV 13...	0.05	0.070	0.21	--	290	<0.5	--	1.0	<5	<3	<10
JAN 17...	0.10	0.020	0.06	--	200	<0.5	--	<1.0	<5	<3	<10
MAR 08...	--	<0.010	--	<1	400	0.5	--	<1.0	<5	<3	<10
APR 18...	--	0.010	0.03	<1	370	0.5	--	<1.0	<5	<3	<10
JUN 21...	--	<0.010	--	2	340	<0.5	--	<1.0	<5	<3	<10
AUG 05...	0.03	<0.010	--	2	320	<0.5	340	<1.0	<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)
NOV 13...	26	10	8	25	<0.1	<10	<10	1.0	420	<6	<3
JAN 17...	21	<10	7	4	<0.1	<10	<10	2.0	310	<6	4
MAR 08...	9	<10	15	110	0.2	<10	<10	<1.0	870	<6	7
APR 18...	12	<10	12	6	<0.1	<10	<10	<1.0	830	<6	6
JUN 21...	10	<10	15	26	<0.1	10	<10	<1.0	960	<6	<3
AUG 05...	21	20	10	120	<0.1	<10	<10	3.0	740	<6	5

07231500 CANADIAN RIVER AT CALVIN, OK

LOCATION.-- 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 76, 0.6 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 1964; Lake Thunderbird (station 07229900) since March 1965. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 52 years (water years 1906, 1939-42, 1945-91), 1,704 ft³/s, 1,235,000 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 3	0345	*26,100	*8.08	No other peak greater than base discharge.			

Minimum daily discharge 34 ft³/s, Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	395	e98	442	e1000	715	462	570	593	1240	261	e160	1900
2	368	e96	e390	e950	644	463	568	568	2730	288	e100	1820
3	364	99	e355	e860	642	445	610	8090	14100	541	e80	1580
4	342	1760	e450	e740	639	454	870	6660	5400	633	e69	7390
5	311	2370	e520	e700	630	473	1190	3930	4040	797	e60	9170
6	411	1250	e490	e685	642	466	1010	2070	3960	705	51	6560
7	313	770	e465	e680	678	450	1130	1110	3270	603	e46	4320
8	474	619	e450	e960	661	421	1100	917	6200	498	e44	6850
9	660	687	e440	1330	671	398	1050	3370	10700	319	e41	6190
10	548	1240	e435	e3100	660	398	914	4020	6440	241	e40	4640
11	472	1260	e420	e1400	629	380	587	2080	4560	188	e38	3240
12	368	764	401	e1170	613	349	504	1400	2880	158	e36	2300
13	310	597	401	e1040	600	334	580	1140	2240	134	34	1930
14	268	521	400	e980	582	314	503	1030	1860	117	e800	2090
15	245	494	376	e3550	527	328	433	1090	1600	101	e610	1830
16	216	440	421	2870	503	360	419	978	1300	97	e520	2760
17	191	392	779	e2100	515	555	401	819	961	96	e450	6740
18	179	359	1870	e1850	529	634	408	714	1020	90	e410	8870
19	168	331	2130	e1600	518	599	446	651	850	69	e380	11700
20	144	323	1420	e1900	486	666	426	774	689	e58	e350	10200
21	149	301	1070	e1800	477	883	438	2330	574	e52	e540	e6600
22	194	371	e940	e1430	461	2490	539	2200	497	e48	e1060	e4800
23	192	368	e850	e1140	457	1610	523	2250	721	e46	e840	e3550
24	203	340	e760	e1030	444	942	500	5980	3360	e360	e720	e2850
25	193	337	e720	886	424	715	763	8500	1810	e1100	e650	e2470
26	163	359	e690	863	430	622	1440	8040	1600	e1000	e570	e2800
27	130	538	e660	825	430	550	1770	4830	1430	e910	e520	e2050
28	e115	1090	e635	780	440	502	1170	2420	955	e1250	e480	e1750
29	e109	933	e620	782	---	534	939	1420	514	e990	e450	e1550
30	e106	577	e1150	759	---	658	735	1220	330	e520	840	e1450
31	e102	---	e2500	747	---	655	---	1410	---	e215	2800	---
TOTAL	8403	19684	23650	40887	15637	19110	22536	80604	87831	12483	13789	131610
MEAN	271	656	763	1319	558	616	751	2600	2928	403	445	4387
MAX	600	2370	2500	3550	715	2490	1770	8500	14100	1250	2800	11700
MIN	102	96	355	680	424	314	401	568	330	46	34	1450
AC-FT	16670	39040	46910	81100	31020	37900	44700	159900	174200	24760	27350	261000

CAL YR 1990 TOTAL 1730292 MEAN 4741 MAX 132000 MIN 48 AC-FT 3432000
WTR YR 1991 TOTAL 476224 MEAN 1305 MAX 14100 MIN 34 AC-FT 944600

e Estimated

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1950-53, 1960-61, 1965 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1965 to January 1982.

WATER TEMPERATURE: July 1965 to January 1982.

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

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG												
13...	1432	10.0	26.5	740	1028	1028	34	1.00	1420	8.0	8.4	26
13...	1433	20.0	26.5	740	1028	1028	34	1.00	1420	7.9	8.4	10
13...	1434	30.0	26.5	740	1028	1028	34	1.00	1430	8.0	8.4	11
13...	1435	40.0	26.5	740	1028	1028	34	1.00	1430	7.9	8.4	14
13...	1436	50.0	26.5	740	1028	1028	34	1.00	1440	7.9	8.5	7
13...	1437	60.0	26.5	740	1028	1028	34	1.00	1440	8.1	8.5	5
13...	1438	70.0	26.5	740	1028	1028	34	1.00	1440	8.0	8.5	8
13...	1439	90.0	26.5	740	1028	1028	34	1.00	1440	7.9	8.5	23
13...	1441	90.0	26.5	740	1028	1028	34	1.00	1440	7.9	8.5	5

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
06...	1600	1028	80020	1110	435	*7.9	19.0	13.5	2.8	740	8.9	88
JAN												
16...	1500	1028	80020	2870	715	8.1	11.5	7.5	320	750	8.3	53
MAR												
04...	1400	1028	80020	448	1320	8.6	24.0	15.5	13	740	10.7	111
APR												
22...	1345	1028	80020	546	1300	8.6	15.0	16.0	27	740	12.4	129
JUN												
25...	1215	1028	80020	1730	901	8.3	32.5	30.5	290	740	7.0	97
AUG												
13...	1430	1028	80020	34	1440	8.5	24.0	26.5	2.3	740	8.5	109

*pH, LAB (STANDARD UNITS)

07231500 CANADIAN RIVER AT CALVIN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCUCCI, 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)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)
NOV 06...	>600	>1000	140	--	34	14	37	35	1	3.8	--
JAN 16...	>600	360	220	47	55	20	56	35	2	3.0	0
MAR 04...	K1	K16	400	160	90	41	120	40	3	3.5	7
APR 22...	76	71	370	160	82	41	130	43	3	3.9	12
JUN 25...	--	380	230	71	55	22	92	46	3	4.4	1
AUG 13...	43	970	310	110	65	36	180	55	4	4.5	1

DATE	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 TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
NOV 06...	--	29	53	0.20	7.0	258	259	0.35	767	0.460	0.380
JAN 16...	172	49	92	0.20	8.5	421	390	0.57	3260	0.480	0.490
MAR 04...	238	210	180	0.50	5.3	804	795	1.09	973	--	--
APR 22...	214	190	180	0.50	5.9	826	763	1.12	1220	--	--
JUN 25...	156	66	180	0.40	9.8	550	506	0.75	2570	0.390	0.400
AUG 13...	200	45	320	0.30	12	826	784	1.12	75.8	--	--

DATE	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)	NITRO-GEN, N02-N03 TOTAL (MG/L AS N)	NITRO-GEN, N02-N03 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)
NOV 06...	1.7	0.040	0.020	0.07	0.500	0.400	0.010	0.030	0.01	0.04	0.89
JAN 16...	2.2	0.020	0.010	0.03	0.500	0.500	0.150	0.170	0.19	0.22	0.55
MAR 04...	--	<0.010	<0.010	--	<0.050	<0.050	0.010	<0.010	0.01	--	1.2
APR 22...	--	0.020	<0.010	--	<0.050	<0.050	0.010	<0.010	0.01	--	1.5
JUN 25...	1.8	0.050	0.050	0.16	0.440	0.450	0.050	0.060	0.06	0.08	2.0
AUG 13...	--	<0.010	<0.010	--	<0.050	<0.050	0.020	<0.010	0.03	--	0.78

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (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 DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, DIS-SOLVED (MG/L AS P04)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
NOV 06...	0.90	--	1.4	6.2	--	--	0.170	0.020	0.170	0.52	140
JAN 16...	0.70	--	1.2	5.3	0.040	0.12	0.040	0.040	0.040	0.12	--
MAR 04...	1.2	--	--	--	0.130	0.09	0.100	0.030	0.030	0.09	<10
APR 22...	1.5	--	--	--	0.260	0.18	0.050	0.060	0.010	0.03	<10
JUN 25...	2.1	--	2.5	11	0.490	0.15	0.100	0.050	0.050	0.15	--
AUG 13...	0.80	0.80	--	--	0.090	0.09	0.060	0.030	<0.010	--	30

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 06...	2	160	<0.5	<1.0	1	<3	6	120	2	4	11
JAN 16...	--	--	--	--	--	--	--	--	--	--	--
MAR 04...	2	270	<0.5	<1.0	<1	<3	2	4	<1	23	17
APR 22...	3	270	<0.5	<1.0	<1	<3	1	<3	<1	24	8
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
AUG 13...	4	340	<0.5	1.0	<1	<3	4	6	1	16	14
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 06...	<0.1	<10	11	<1	<1.0	320	<6	5	232	695	86
JAN 16...	--	--	--	--	--	--	--	--	622	4820	25
MAR 04...	0.1	<10	1	<1	<1.0	1100	<6	4	26	31	50
APR 22...	<0.1	<10	1	<1	<1.0	1000	<6	3	37	55	98
JUN 25...	--	--	--	--	--	--	--	--	1150	5370	51
AUG 13...	0.2	<10	2	<1	<1.0	1000	<6	5	2	0.18	74

ARKANSAS RIVER BASIN

201

#7231955 GAINES CREEK NEAR HIGGINS, OK

LOCATION.-- Lat 34°48'57", long 95°28'48", in NE 1/4 SE 1/4, sec. 14, T.4 N., R.17 E., Latimer County, Hydrologic Unit 11090204, 1.0 mile downstream from Beaver Creek, 3.0 mile west of Higgins.

DRAINAGE AREA.-- 162 mi².

PERIOD OF RECORD.-- Water years 1978-1980, 1990 to current year.

REMARKS.-- Samples were collected on a six week schedule and specific conductance, pH, water temperature, alkalinity, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

		AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DISCHARGE, INST. (CUBIC FEET PER SECOND)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)		
AUG 06...		1400	1028	84042	50	56	7.6	26.0	26.0	742	7.2	
SEP 18...		0730	1028	84042	0.10	157	7.2	21.5	23.0	740	3.8	
DATE		OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS NONCARB WH WAT TOT LAB (MG/L AS CaCO3)	CALCIUM TOTAL RECOVERABLE (MG/L AS Ca)	MAGNESIUM TOTAL RECOVERABLE (MG/L AS Mg)	SODIUM, TOTAL RECOVERABLE (MG/L AS Na)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DISSOLVED (MG/L)	
AUG 06...		91	--	3.0	2.0	<10	1.4	<20	<10	0.3	80	
SEP 18...		46	8	16	5.0	<10	1.3	<20	<10	0.3	80	
DATE		ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ANTIMONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	
AUG 06...		4700	<350	<10	70	<10	<5	11	<10	8500	<45	
SEP 18...		1100	<350	<10	70	<10	<5	<10	<10	2300	<45	
DATE		MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	TIN, TOTAL RECOVERABLE (UG/L AS SN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE (MG/L)		
AUG 06...		100	<0.50	<10	<5	<7	<500	20	<5.0	<0.1		
SEP 18...		820	<0.50	<25	<5	<7	<500	<5	<5.0	--		
DATE	BENZENE TOTAL (UG/L)	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CARBON-TETRACHLORIDE TOTAL (UG/L)	CHLOROBENZENE TOTAL (UG/L)	CHLOROETHANE TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)	O-CHLOROTOLUENE WATER, WHOLE, TOTAL (UG/L)	PARA-CHLOROTOLUENE WATER, WHOLE, TOTAL (UG/L)	1,2-DIBROMOETHANE WATER, WHOLE, TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)
AUG 06...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
SEP 18...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70

ARKANSAS RIVER BASIN

07231955 GAINES CREEK NEAR HIGGINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	DI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	CIS-1,2- DI- CHLORO- ETHENE WATER TOTAL (UG/L)	1,2- TRANS- DI- CHLORO- ETHENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,3-DI- CHLORO- PROPANE WAT. WH TOTAL (UG/L)	2,2-DI- CHLORO- PROPANE WAT. WH TOTAL (UG/L)
AUG 08...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
SEP 18...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
DATE	1,1-DI- CHLORO- PROPENE, WAT. WH TOTAL (UG/L)	CIS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	HEXA- CHLORO- BUTADIENE WAT. WH TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLORIDE TOTAL (UG/L)	METHYL- ENE CHLORIDE TOTAL (UG/L)	NAPHTH- ALENE TOTAL (UG/L)	PHENOLS TOTAL (UG/L)	STYRENE TOTAL (UG/L)
AUG 08...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
SEP 18...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
DATE	1,1,2,2- TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	123-TRI- CHLORO- PROPANE WATER WHOLE TOTAL (UG/L)	VINYL CHLORIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
AUG 08...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
SEP 18...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	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)
DEC 12...	1400	1028	84042	31	69	7.5	26.0	12.5	740	11.0	106
JAN 22...	1430	1028	84042	141	52	6.8	8.0	4.5	750	13.3	105
FEB 28...	1300	1028	84042	9.8	84	7.1	16.0	12.0	740	10.9	104
APR 23...	1230	1028	84042	188	56	6.8	22.0	18.0	743	8.4	91
JUN 17...	1415	1028	84042	6.6	101	7.1	29.0	26.5	745	6.6	84
SEP 25...	1255	1028	84042	6.7	90	7.3	21.5	18.0	785	6.9	70
DATE	HARD- NESS NONCARB WAT TOT LAB (MG/L AS CAC03)	CALCIUM TOTAL RECOVER- ERABLE (MG/L AS CA)	MAGNE- SIUM, TOTAL RECOVER- ERABLE (MG/L AS MG)	SODIUM, TOTAL RECOVER- ERABLE (MG/L AS NA)	POTAS- SIUM, TOTAL RECOVER- ERABLE (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)	CHLORIDE, DIS- SOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)
DEC 12...	--	4.0	2.0	<10	1.4	20	0	16	<20	<10	0.1
JAN 22...	--	3.0	2.0	<10	0.7	12	0	10	<20	<10	0.1
FEB 28...	21	10	3.0	<10	1.0	25	0	21	<20	<10	0.1
APR 23...	--	4.0	2.0	<10	1.3	17	0	14	<20	<10	<0.1
JUN 17...	--	--	--	--	--	34	0	28	--	--	--
SEP 25...	6	7.0	3.0	<10	2.7	25	0	21	<20	<10	<0.1

07231955 GAINES CREEK NEAR HIGGINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

		RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ANTI- MONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	
DEC												
12...		104	5000	<350	<10	50	<10	<5	<10	<10	3300	
JAN												
22...		58	1500	<350	<10	30	<10	<5	<10	<10	1600	
FEB												
28...		58	530	<350	<10	30	<10	<5	<10	<10	1300	
APR												
23...		66	2200	<350	<10	40	<10	<5	<10	<10	3900	
JUN												
17...		--	--	--	--	--	--	--	--	--	--	
SEP												
25...		67	3200	<350	<10	60	<10	<5	<10	<10	4000	
DATE		LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	TIN, TOTAL RECOV- ERABLE (UG/L AS SN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE (MG/L)	
DEC												
12...		<45	120	<0.50	<25	<5	<7	<500	<5	<5.0	<0.1	
JAN												
22...		<45	42	<0.50	<25	<5	<7	<500	<5	--	--	
FEB												
28...		<45	120	<0.50	<25	<5	<7	<500	<5	--	2	
APR												
23...		<45	76	<0.50	<25	<5	<7	<500	40	--	1	
JUN												
17...		--	--	--	--	--	--	--	--	--	--	
SEP												
25...		<45	230	<0.50	<25	<5	<7	<500	5	--	<0.1	
DATE	BENZENE TOTAL (UG/L)	BROMO- BENZENE WATER, WHOLE, TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- ETHANE TOTAL (UG/L)	CHLORO- FORM TOTAL (UG/L)	O- CHLORO- TOLUENE WATER WHOLE TOTAL (UG/L)	PARA- CHLORO- TOLUENE WATER, WHOLE, TOTAL (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)
DEC												
12...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
JAN												
22...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
FEB												
28...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
APR												
23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
JUN												
17...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
SEP												
25...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
DATE	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	CIS-1,2 -DI- CHLORO- ETHENE WATER TOTAL (UG/L)	1,2- TRANSDI CHLORO- ETHENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,3-DI CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)	2,2-DI CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)	
DEC												
12...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70	
JAN												
22...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70	
FEB												
28...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70	
APR												
23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70	
JUN												
17...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70	
SEP												
25...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70	

ARKANSAS RIVER BASIN

07231955 GAINES CREEK NEAR HIGGINS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	1,1-DI CHLORO- PRO- PENE, WAT. WH TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	HEXA- CHLORO- BUTA- DIENE WAT. WH. TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	NAPHTH- ALENE TOTAL (UG/L)	PHENOLS TOTAL (UG/L)	STYRENE TOTAL (UG/L)
DEC 12...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
JAN 22...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
FEB 28...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
APR 23...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
JUN 17...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.0	<0.70	--	<0.7
SEP 25...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.0	<0.70	<5	<0.7
DATE	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	123-TRI CHLORO- PROPANE WATER WHOLE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
DEC 12...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
JAN 22...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
FEB 28...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
APR 23...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
JUN 17...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
SEP 25...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0

ARKANSAS RIVER BASIN

07231958 PIT CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	123-TRI CHLORO- PROPANE WATER WHOLE TOTAL (UG/L)	VINYL CHLORO- RIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
AUG 08...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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 30...	1530	1028	84042	E0.50	3100	2.7	25.0	15.5	740	4.8	
DEC 12...	1700	1028	84042	1.2	2130	3.1	18.0	13.0	740	10.4	
JAN 22...	1700	1028	84042	4.7	1500	4.5	8.0	3.5	750	12.2	
MAR 01...	0930	1028	84042	E0.50	2320	2.9	17.5	13.5	730	9.4	
APR 23...	0900	1028	84042	4.0	835	3.5	13.0	14.0	740	7.8	
JUN 17...	1530	1028	84042	E0.50	1440	2.6	30.0	24.5	745	5.8	
DATE		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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLORO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUORO- RIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)
OCT 30...	50	100	100	56	9.2	--	--	--	80	39000	
DEC 12...	102	100	72	30	4.9	--	--	--	1600	29000	
JAN 22...	94	57	46	23	3.6	700	11	0.6	1120	18000	
MAR 01...	95	91	73	43	5.8	1000	<10	0.6	1840	47000	
APR 23...	78	23	5.0	<10	3.8	--	--	--	--	340	
JUN 17...	72	52	34	33	6.0	710	<10	0.2	66	20000	

DATE	ANTI- MONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 30...	<350	<10	20	13	<5	<10	15	77000	<45
DEC 12...	<350	<10	20	<10	<5	<10	<10	130000	<45
JAN 22...	<350	<10	20	<10	<5	<10	<10	79000	<45
MAR 01...	<350	<10	20	11	6	17	21	84000	<45
APR 23...	<350	<10	30	<10	<5	<10	73	1500	<45
JUN 17...	<350	<10	40	<10	<5	<10	<10	20000	<45

ARKANSAS RIVER BASIN

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07231958 PIT CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL RECOVERABLE (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	TIN, TOTAL RECOVERABLE (UG/L AS SN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE (MG/L)
OCT 30...	25000	<0.50	840	<5	<7	<500	2100	--	--
DEC 12...	16000	<0.50	680	<5	<7	<500	1800	5.3	<0.1
JAN 22...	9300	<0.50	470	<5	<7	<500	1300	--	--
MAR 01...	15000	<0.50	<25	<5	<7	<500	1900	--	2
APR 23...	28	<0.50	<25	<5	<7	<500	380	--	--
JUN 17...	7100	<0.50	300	<5	<7	<500	820	--	0.2

DATE	BENZENE TOTAL (UG/L)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CARBON- TETRA- CHLORIDE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- ETHANE TOTAL (UG/L)	CHLORO- FORM TOTAL (UG/L)	0- CHLORO- TOLUENE WATER WHOLE TOTAL (UG/L)	PARA- CHLORO- TOLUENE WATER, WHOLE, TOTAL (UG/L)	1,2- DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)
OCT 30...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
DEC 12...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
JAN 22...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
MAR 01...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
APR 23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
JUN 17...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70

DATE	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	DI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	CIS-1,2- DI- CHLORO- ETHENE WATER TOTAL (UG/L)	1,2- TRANSDI- CHLORO- ETHENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,3-DI- CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)	2,2-DI- CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)
OCT 30...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
DEC 12...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
JAN 22...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
MAR 01...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
APR 23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
JUN 17...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70

DATE	1,1-DI- CHLORO- PRO- PENE, WAT. WH TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	HEXA- CHLORO- BUTADIENE WAT. WH TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLORIDE TOTAL (UG/L)	METHYL- ENE CHLORIDE TOTAL (UG/L)	NAPHTH- ALENE TOTAL (UG/L)	PHENOLS TOTAL (UG/L)	STYRENE TOTAL (UG/L)
OCT 30...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
DEC 12...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
JAN 22...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
MAR 01...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
APR 23...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
JUN 17...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.0	<0.70	<5	<0.7

ARKANSAS RIVER BASIN

07231958 PIT CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	1,1,2,2- TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	123-TRI- CHLORO- PROPANE WATER WHOLE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
OCT											
30...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
DEC											
12...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
JAN											
22...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
MAR											
01...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
APR											
23...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
JUN											
17...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0

ARKANSAS RIVER BASIN

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07231960 GAINES CREEK NEAR GOWEN, OK

LOCATION.-- Lat 34°53'43", long 95°26'13", in NE 1/4 NE 1/4, sec. 19, T.5 N., R.18 E., Latimer County, Hydrologic Unit 11090204, 1.1 mi upstream from Beaver Creek, 2.4 mi northeast of Gowen.

DRAINAGE AREA.-- 182 mi².

PERIOD OF RECORD.-- July 1990 to current year.

REMARKS.-- Samples were collected on a six week schedule and specific conductance, pH, water temperature, alkalinity, and dissolved oxygen were determined in the field.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

		AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DISCHARGE, INST. (CUBIC FEET PER SECOND)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)		
AUG 07...		0730	1028	84042	82	66	6.5	18.5	23.0	743	5.7	
SEP 18...		0945	1028	84042	21	111	7.2	24.0	23.0	740	4.8	
DATE		OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS NONCARB WH WAT TOT LAB (MG/L AS CaCO3)	CALCIUM TOTAL RECOVERABLE (MG/L AS Ca)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS Mg)	SODIUM, TOTAL RECOVERABLE (MG/L AS Na)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, TOTAL (MG/L AS F)	RESIDUE AT 105 DEG. C, DISSOLVED (MG/L)	
AUG 07...		68	--	5.0	2.0	<10	1.6	<20	<10	0.3	80	
SEP 18...		58	16	10	4.0	<10	3.0	<20	<10	0.3	27	
DATE		ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ANTIMONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	
AUG 07...		4300	<350	<10	70	<10	<5	<10	<10	5700	<45	
SEP 18...		6200	<350	<10	100	<10	<5	16	<10	9400	<45	
DATE		MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	TIN, TOTAL RECOVERABLE (UG/L AS SN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE (MG/L)		
AUG 07...		360	<0.50	<25	<5	<7	<500	20	5.3	<0.1		
SEP 18...		630	<0.50	<25	<5	<7	<500	20	8.7	--		
DATE	BENZENE TOTAL (UG/L)	BROMOBENZENE, WHOLE, TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CARBON TETRACHLORIDE TOTAL (UG/L)	CHLOROBENZENE TOTAL (UG/L)	CHLOROETHANE TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)	D-CHLOROTOLUENE, WHOLE TOTAL (UG/L)	PARA-CHLOROTOLUENE, WHOLE, TOTAL (UG/L)	1,2-DIBROMOETHANE, WHOLE TOTAL (UG/L)	CHLORODIBROMOMETHANE TOTAL (UG/L)	1,2-DICHLOROBENZENE TOTAL (UG/L)
AUG 07...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
SEP 18...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70

ARKANSAS RIVER BASIN

07231900 GAINES CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	CIS-1,2- DI- CHLORO- ETHENE WATER TOTAL (UG/L)	1,2- TRANS- DI- CHLORO- ETHENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,3-DI- CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)	2,2-DI- CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)
AUG 07...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
SEP 18...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
DATE	1,1-DI- CHLORO- PRO- PENE, WAT. WH TOTAL (UG/L)	CIS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	HEXA- CHLORO- BUTA- DIENE WAT. WH. TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	NAPHTH- ALENE TOTAL (UG/L)	PHENOLS TOTAL (UG/L)	STYRENE TOTAL (UG/L)
AUG 07...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
SEP 18...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
DATE	1,1,2,2- TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	123-TRI- CHLORO- PROPANE WATER WHOLE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
AUG 07...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
SEP 18...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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 31...	0915	1028	84042	6.4	109	7.0	20.0	14.0	740	6.2	62
DEC 13...	0830	1028	84042	34	128	6.7	7.0	8.0	740	9.8	85
JAN 23...	0830	1028	84042	E175	87	6.6	-2.0	2.5	750	12.2	91
FEB 28...	1645	1028	84042	10	201	6.3	15.5	12.0	740	10.6	101
APR 23...	1630	1028	84042	277	114	6.3	24.5	18.0	742	8.9	97
JUN 18...	0845	1028	84042	7.2	131	6.8	25.0	30.0	750	6.4	86
AUG 05...	1530	1028	84042	1.2	184	7.2	35.0	30.5	745	7.0	96
SEP 24...	1445	1028	84042	11	110	7.4	18.5	18.5	780	4.4	46

07231960 GAINES CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	HARD- NESS NONCARB WH WAT TOT LAB MG/L AS CAC03	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 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)
OCT 31...	10	8.0	3.0	<10	1.2	--	--	--	21	<10	0.3
DEC 13...	--	9.0	4.0	<10	0.2	12	0	10	--	--	--
JAN 23...	--	6.0	3.0	<10	0.5	16	0	13	<10	<10	0.1
FEB 28...	--	11	6.0	<10	1.6	8	0	6	45	<10	0.1
APR 23...	--	8.0	4.0	<10	1.7	10	0	8	55	<10	0.1
JUN 18...	--	--	--	--	--	37	0	30	--	--	--
AUG 05...	25	13	6.0	<10	2.6	48	0	39	43	<10	0.2
SEP 24...	17	8.0	4.0	<10	2.7	--	--	--	<20	<10	0.1

DATE	RESIDUE AT 105 DEG. C, DIS- SOLVED (MG/L)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	ANTI- MONY, TOTAL (UG/L AS SB)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT 31...	47	1200	<350	<10	40	<10	<5	<10	<10	2300
DEC 13...	82	1600	<350	<10	40	<10	<5	<10	<10	1500
JAN 23...	75	1900	<350	<10	40	<10	<5	<10	<10	2300
FEB 28...	127	<300	<350	<10	50	<10	<5	<10	<10	440
APR 23...	80	1800	<350	<10	100	<10	<5	<10	12	2600
JUN 18...	--	--	--	--	--	--	--	--	--	--
AUG 05...	107	590	<350	<10	50	<10	<5	<10	<10	950
SEP 24...	86	4800	<350	<10	70	<10	<5	<10	<10	4300

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	TIN, TOTAL RECOV- ERABLE (UG/L AS SN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE (MG/L)
OCT 31...	<45	130	<0.50	<25	<5	<7	<500	10	--	--
DEC 13...	<45	520	<0.50	<25	<5	<7	<500	30	<5.0	<0.1
JAN 23...	<45	230	<0.50	<25	<5	<7	<500	20	--	--
FEB 28...	<45	1200	<0.50	<25	<5	<7	<500	60	--	0.8
APR 23...	290	480	<0.50	48	<5	<7	<500	110	--	<0.1
JUN 18...	--	--	--	--	--	--	--	--	--	--
AUG 05...	<45	1100	<0.50	<25	<5	<7	<500	<5	--	1
SEP 24...	<45	390	<0.50	<25	<5	<7	500	9	--	<0.1

ARKANSAS RIVER BASIN

07231980 GAINES CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BENZENE TOTAL (UG/L)	BROMO- BENZENE WHOLE, TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- ETHANE TOTAL (UG/L)	CHLORO- FORM TOTAL (UG/L)	O- CHLORO- TOLUENE WATER WHOLE TOTAL (UG/L)	PARA- CHLORO- TOLUENE WATER, WHOLE, TOTAL (UG/L)	1,2- DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)
OCT 31...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
DEC 13...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
JAN 23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
FEB 28...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
APR 23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
JUN 18...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
AUG 05...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70
SEP 24...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<2.0	<0.70	<0.70	<0.7	<2.0	<0.70

DATE	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	CIS-1,2 -DI- CHLORO- ETHENE WATER TOTAL (UG/L)	1,2- TRANS- DI- CHLORO- ETHENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,3-DI- CHLORO- PRO- PANE, WAT. WH TOTAL (UG/L)	2,2-DI- CHLORO- PRO- PANE WAT. WH TOTAL (UG/L)
OCT 31...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
DEC 13...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
JAN 23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
FEB 28...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
APR 23...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
JUN 18...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
AUG 05...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70
SEP 24...	<0.70	<0.70	<2.0	<0.70	<0.70	<0.70	<1	<0.70	<0.70	<0.70	<0.70

DATE	1,1-DI- CHLORO- PRO- PENE, WAT. WH TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	HEXA- CHLORO- BUTA- DIENE WAT. WH TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	NAPHTH- ALENE TOTAL (UG/L)	PHENOLS TOTAL (UG/L)	STYRENE TOTAL (UG/L)
OCT 31...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
DEC 13...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
JAN 23...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	--	<0.7
FEB 28...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
APR 23...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<5	<0.7
JUN 18...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.0	<0.70	--	<0.7
AUG 05...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.0	<0.70	<5	<0.7
SEP 24...	<0.7	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<2.0	<0.70	<5	<0.7

ARKANSAS RIVER BASIN

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07231960 GAINES CREEK NEAR GOWEN, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,2,4- TRI- CHLORO- BENZENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	123-TRI CHLORO- PROPANE WATER WHOLE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
OCT 31...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
DEC 13...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
JAN 23...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
FEB 28...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
APR 23...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
JUN 18...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
AUG 05...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0
SEP 24...	<0.70	<0.70	<0.70	<0.70	<0.70	<0.70	<0.7	<0.70	<0.70	<0.40	<1.0

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 good.

AVERAGE DISCHARGE.-- 11 years, 0.75 ft³/s, 543 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.-- Maximum discharge, 192 ft³/s, June 9, gage height, 8.28 ft; no flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY 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	52	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	9.1	.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	61.10	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	2.04	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	52	.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	121	.00	.00	.00

CAL YR 1990 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT .00
WTR YR 1991 TOTAL 61.10 MEAN .17 MAX 52 MIN .00 AC-FT 121

ARKANSAS RIVER BASIN

215

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 984 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.-- No estimated daily discharges. Records good. Natural flow affected by irrigation development. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 54 years, 19.6 ft³/s, 14,200 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.-- Maximum discharge, 0.05 ft³/s, June 7, gage height 5.29 ft; no flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY 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	.01	.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	0.01	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	.01	.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	.02	.00	.00	.00

CAL YR 1990 TOTAL 86.81 MEAN .24 MAX 7.4 MIN .00 AC-FT 172
WTR YR 1991 TOTAL 0.01 MEAN .000 MAX .01 MIN .00 AC-FT .02

ARKANSAS RIVER BASIN

07232900 COLDWATER CREEK NEAR 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 and irrigation development.

AVERAGE DISCHARGE.-- 11 years, 2.57 ft³/s, 1,860 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)
June 19	2315	*840	*12.02	June 23	0930	376	11.01

No flow most days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY 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	356	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	373	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	185	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	4.4	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	251	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	84	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	16	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	e.00	.00	.00	.00
30	.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	1269.40	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	42.3	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	373	.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	2520	.00	.00	.00

CAL YR 1990 TOTAL 1580.00 MEAN 4.33 MAX 749 MIN .00 AC-FT 3130
WTR YR 1991 TOTAL 1269.40 MEAN 3.48 MAX 373 MIN .00 AC-FT 2520

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, 2,220 acre-ft, Oct. 8-10, elevation, 2,716.60 ft; minimum, 954 acre-ft, Sept. 29-30, elevation, 2,713.65 ft.

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

2,712	528	2,715	1,430
2,713	760	2,716	1,890
2,714	1,060	2,717	2,450

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2200	2060	1970	1890	1890	1890	1770	1590	1590	1610	1370	1130
2	2200	2060	1970	1890	1890	1890	1770	1590	1590	1590	1350	1130
3	2200	2060	1970	1890	1890	1890	1770	1590	1590	1590	1350	1130
4	2200	2060	1970	1890	1890	1890	1750	1590	1570	1590	1350	1130
5	2200	2060	1970	1890	1890	1890	1750	1590	1570	1570	1340	1110
6	2200	2060	1970	1890	1890	1890	1750	1590	1580	1570	1340	1110
7	2200	2030	1970	1890	1890	1870	1730	1590	1570	1540	1320	1100
8	2220	2030	1970	1890	1890	1870	1730	1590	1570	1540	1320	1100
9	2220	2030	1940	1890	1890	1870	1730	1570	1540	1540	1300	1100
10	2220	2030	1940	1890	1890	1840	1700	1570	1540	1540	1300	1080
11	2200	2030	1920	1890	1890	1840	1700	1570	1540	1520	1280	1080
12	2200	2030	1940	1890	1890	1840	1700	1570	1540	1540	1280	1080
13	2200	2030	1940	1890	1890	1840	1700	1540	1540	1540	1280	1080
14	2170	2000	1940	1890	1890	1840	1700	1540	1520	1540	1260	1060
15	2170	2000	1940	1890	1890	1840	1700	1540	1520	1540	1260	1040
16	2170	2000	1940	1890	1890	1840	1700	1540	1500	1540	1240	1040
17	2170	2000	1890	1890	1890	1840	1700	1520	1500	1520	1240	1030
18	2170	2000	1890	1890	1890	1820	1700	1520	1540	1520	1240	1030
19	2140	2000	1890	1890	1890	1820	1700	1520	1570	1500	1230	1030
20	2140	2000	1890	1890	1890	1820	1700	1500	1590	1470	1230	1010
21	2140	2000	1890	1890	1890	1800	1700	1500	1610	1470	1230	1010
22	2140	2000	1890	1890	1890	1800	1680	1590	1640	1450	1210	1010
23	2140	2000	1890	1890	1890	1800	1680	1590	1660	1450	1210	999
24	2110	2000	1890	1890	1890	1800	1680	1590	1660	1450	1190	999
25	2110	2000	1890	1890	1890	1770	1660	1590	1660	1430	1190	985
26	2110	2000	1890	1890	1890	1770	1660	1570	1660	1430	1170	985
27	2080	1970	1890	1890	1890	1770	1660	1570	1640	1410	1170	969
28	2080	1970	1890	1890	1890	1770	1610	1570	1640	1410	1150	969
29	2080	1970	1890	1890	---	1770	1610	1590	1610	1390	1150	954
30	2080	1970	1890	1890	---	1770	1610	1590	1610	1390	1150	954
31	2080	---	1890	1890	---	1770	---	1590	---	1370	1150	---
MAX	2220	2060	1970	1890	1890	1890	1770	1590	1660	1610	1370	1130
MIN	2080	1970	1890	1890	1890	1770	1610	1500	1500	1370	1150	954
(+)	2716.35	2716.15	2716.00	2716.00	2716.00	2715.75	2715.40	2715.35	2715.40	2714.85	2714.25	2713.65
(++)	-120	-110	-80	0	0	-120	-160	-20	+20	-240	-220	-196

CAL YR 1990 MAX 4380 MIN 1890 (++) -950
WTR YR 1991 MAX 2220 MIN 954 (++) -1246

(+) 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°31'00", 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 576.0.

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, 1930 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. Regulation by Optima Lake (station 07233200) 47.0 mi upstream, since Oct. 1978, and minor regulation by Palo Duro reservoir since May 1991. 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, 13 years (water years 1979-91), 21.1 ft³/s, 15,290 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 442 ft³/s, May 22, gage height, 5.53 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.07	.09	e.11	.22	.18	2.7	.66	48	.02	.00	.00
2	.00	.07	.09	e.13	.19	.23	2.8	.69	34	.03	.00	.00
3	.00	.08	.09	e.12	.18	.55	3.0	1.5	26	.02	.00	.00
4	.00	.09	.10	e.10	.17	.66	3.0	1.1	19	.02	.00	.00
5	.00	.08	.10	e.10	.17	.79	3.0	.98	15	.01	.00	.00
6	.00	.08	.10	e.11	.17	.61	2.8	.74	12	.00	.00	.00
7	.00	.07	.10	e.10	.17	.56	2.6	.58	11	.00	.00	.00
8	.01	.08	.10	e.09	.17	.65	2.4	.63	8.5	.00	.00	.00
9	.00	.08	.10	e.10	.17	.80	2.2	.54	6.5	.00	.00	.00
10	.00	.08	.10	e.13	.17	.90	2.0	.42	5.4	.02	.00	.00
11	.02	.08	.10	e.15	.17	1.2	2.1	.54	5.6	.02	.00	.00
12	.02	.08	.10	e.18	.18	1.3	2.1	.38	3.8	.02	.12	.00
13	.04	.08	.10	e.21	.18	.89	1.9	.32	2.5	.77	.05	.00
14	.04	.09	.10	.25	.17	.89	1.9	.27	1.2	.13	.04	.00
15	.04	.09	.10	.23	.17	1.5	1.8	.26	1.2	.11	.03	.00
16	.04	.09	.12	.21	.17	2.4	1.6	.23	1.7	.09	.03	.00
17	.03	.09	.13	.21	.17	3.3	1.7	.22	.48	.08	.02	.00
18	.04	.09	.11	.20	.17	3.2	1.9	.21	.24	.07	.03	.00
19	.05	.09	.11	.20	.17	2.9	2.0	.20	.19	.07	.03	.00
20	.05	.10	.13	.21	.17	2.8	1.9	.19	.19	.06	.02	.00
21	.06	.09	e.12	.20	.17	2.4	2.3	.27	.13	.05	.01	.00
22	.06	.09	e.11	.20	.17	2.1	2.7	.92	.09	.04	.00	.00
23	.07	.09	e.09	.21	.17	2.0	2.6	173	.13	.05	.00	.00
24	.07	.09	e.08	.18	.17	2.1	2.6	126	.09	.07	.00	.00
25	.07	.09	e.07	.18	.17	2.2	2.7	104	.06	.05	.00	.00
26	.07	.10	e.08	.21	.17	2.2	2.3	51	.05	.05	.00	.00
27	.07	.09	e.08	.22	.17	1.8	1.7	28	.04	.05	.00	.00
28	.07	.09	e.10	.18	.18	2.2	1.4	16	.03	.03	.00	.00
29	.07	.09	e.12	.25	---	3.2	1.1	13	.03	.03	.00	.00
30	.07	.09	e.11	e.24	---	2.5	.84	14	.02	.02	.00	.00
31	.07	---	e.10	.24	---	2.5	---	71	---	.01	.00	---
TOTAL	1.13	2.57	3.13	5.45	4.87	51.51	65.64	698.93	203.17	1.99	0.38	0.00
MEAN	.036	.086	.10	.18	.17	1.66	2.19	22.5	6.77	.064	.012	.000
MAX	.07	.10	.13	.25	.22	3.3	3.0	173	48	.77	.12	.00
MIN	.00	.07	.07	.09	.17	.18	.84	.19	.02	.00	.00	.00
AC-FT	2.2	5.1	6.2	11	9.7	102	130	1390	403	3.9	.8	.00

CAL YR 1990 TOTAL 6270.42 MEAN 17.2 MAX 777 MIN .00 AC-FT 12440
WTR YR 1991 TOTAL 1038.77 MEAN 2.85 MAX 173 MIN .00 AC-FT 2060

e Estimated

ARKANSAS RIVER BASIN

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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 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	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)	
NOV 05...	1200	1028	80020	0.09	5980	8.2	11.0	9.5	3.8	692	12.7	
FEB 12...	1300	1028	80020	0.17	5830	8.2	17.5	14.5	4.5	691	12.4	
MAY 07...	1100	1028	80020	0.53	6370	8.2	17.5	15.0	1.7	696	9.8	
AUG 20...	1100	1028	80020	0.04	6190	8.1	27.5	23.0	3.0	698	12.5	
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)
NOV 05...	125	190	830	1300	1100	290	150	810	57	10	8.5	
FEB 12...	137	280	96	1300	1100	300	140	790	56	9	8.1	
MAY 07...	109	880	310	1200	1000	250	140	910	62	11	9.0	
AUG 20...	163	1000	1100	--	--	--	--	840	--	--	9.1	
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)	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)
NOV 05...	295	0	242	880	1400	0.40	28	3780	3720	5.14	0.92	
FEB 12...	285	0	234	820	1400	0.50	23	3510	3630	4.77	1.61	
MAY 07...	249	0	204	750	1500	1.0	18	4000	3710	5.44	5.72	
AUG 20...	290	0	238	990	950	1.1	32	4010	--	--	--	
DATE		NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	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)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
NOV 05...	<0.010	<0.010	<0.100	<0.100	0.030	0.020	0.04	0.03	--	--	--	<0.20
FEB 12...	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	--	--	--	--	--	0.50
MAY 07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 20...	<0.010	<0.010	<0.050	<0.050	0.030	0.040	0.04	0.05	0.27	0.18	0.30	

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS P04)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)
NOV 05...	--	0.030	0.06	<0.010	0.020	0.030	0.09	20	2	100
FEB 12...	--	0.020	0.03	<0.010	0.010	<0.010	--	10	2	<100
MAY 07...	--	--	--	--	--	--	--	20	2	<100
AUG 20...	0.20	0.030	--	0.010	<0.010	<0.010	--	<10	4	100
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)
NOV 05...	<10	<1.0	2	<1	1	<10	<1	120	210	<0.1
FEB 12...	<10	<1.0	1	1	1	70	<1	130	280	0.2
MAY 07...	<10	<1.0	3	<1	<1	20	1	40	230	0.2
AUG 20...	<10	<1.0	<1	<1	<1	20	<1	120	80	<0.1
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- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 05...	3	<1	<1	<1.0	5000	29	<10	12	0.00	48
FEB 12...	<10	1	<2	<1.0	4000	30	<10	1	0.00	8
MAY 07...	6	2	<1	<1.0	4000	31	<10	15	0.02	100
AUG 20...	3	<1	<1	<1.0	--	27	<10	6	0.00	40

ARKANSAS RIVER BASIN

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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 pier of county road bridge, 2.0 mi north, 1.2 mi east of Elmwood, and at mile 16.9.

DRAINAGE AREA.-- 170 mi².

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

REVISED RECORDS.-- WSP 2121: 1966. WRD OK-90-1: 1989 (M).

GAGE.-- Water-stage recorder. Datum of gage is 2,541.26 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Low flows sustained by nearby springs; natural flows affected by diversion ponds and occasional diversion for irrigation.

AVERAGE DISCHARGE.-- 26 years, 6.57 ft³/s, 4,760 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 20,000 ft³/s, Oct. 16, 1969, gage height, 13.97 ft, from floodmark; from rating curve extended above 12,500 ft³/s, on basis of slope-area measurement at 13.15 ft; maximum gage height, 14.17 ft, May 17, 1989; 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 30	0130	*1,030	*7.15	No other peak greater than base discharge			

Minimum daily discharge, 0.64 ft³/s, July 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.4	1.7	e1.8	2.0	2.1	2.8	2.3	4.3	.94	.89	2.0
2	1.1	1.2	1.7	e1.9	2.0	2.0	2.7	2.3	3.2	1.0	.79	2.4
3	1.2	1.3	1.7	e1.9	2.0	2.1	2.6	2.3	2.8	1.2	.97	2.5
4	1.1	1.3	1.6	e1.8	2.0	2.2	2.6	2.1	2.6	1.1	1.1	2.6
5	1.0	1.4	1.6	e1.8	2.3	2.4	2.6	2.0	2.3	.96	1.2	2.2
6	1.0	1.1	1.6	e1.9	2.2	2.3	2.4	1.9	2.2	.90	1.2	2.1
7	.96	1.2	1.6	e1.8	2.1	2.3	2.3	1.9	2.4	.80	1.3	2.2
8	.98	1.4	1.6	e1.7	2.1	2.4	2.4	1.9	2.7	.67	1.2	2.0
9	.99	1.5	1.5	e1.8	2.0	2.6	2.4	1.8	2.6	.64	1.2	2.0
10	.94	1.5	1.4	e1.9	1.9	2.5	2.4	1.8	2.5	.91	1.2	2.0
11	.98	1.5	1.4	e1.8	2.0	2.4	2.4	1.8	2.3	1.1	1.5	1.9
12	.94	1.4	1.6	e1.9	1.9	2.4	2.5	1.7	2.1	1.3	1.8	1.9
13	.97	1.2	1.8	e1.9	1.9	2.2	2.6	e1.6	1.7	1.3	1.7	2.0
14	.94	1.2	1.8	2.0	1.9	2.5	2.6	e1.5	1.5	1.5	1.7	2.1
15	1.0	1.3	2.2	1.9	1.8	2.5	2.6	e1.5	1.4	1.6	1.6	1.8
16	1.0	1.4	2.4	1.8	1.8	2.6	2.6	e1.4	1.4	1.4	1.5	2.0
17	1.0	1.5	2.4	1.8	1.8	2.6	2.7	e1.4	1.1	1.3	1.4	2.0
18	1.0	1.7	2.2	1.9	1.8	2.6	2.7	e1.3	.81	1.3	1.5	1.8
19	1.0	1.8	2.4	2.2	1.7	2.6	2.6	e1.2	1.3	1.3	1.5	1.8
20	.97	1.8	2.4	2.2	1.7	2.5	2.5	e1.1	1.6	1.2	1.6	1.8
21	.95	1.4	2.3	2.1	1.7	2.4	2.5	e1.2	1.7	1.2	1.8	1.9
22	1.0	1.6	2.3	2.1	1.8	2.5	2.5	e1.6	1.8	1.2	1.8	1.8
23	1.1	2.2	e2.3	2.1	1.9	2.5	2.4	e1.5	1.8	1.2	1.6	1.6
24	1.1	2.3	e2.1	2.1	1.9	2.7	2.4	e1.5	1.7	1.2	1.6	1.6
25	1.2	2.4	e2.0	2.1	1.9	2.7	2.4	e1.4	1.6	1.4	1.6	1.6
26	1.3	2.4	e1.9	2.1	1.8	2.6	2.4	e1.3	1.4	1.3	1.4	1.5
27	1.3	2.4	e1.9	2.0	2.0	2.4	2.3	e1.2	1.4	1.3	1.4	1.5
28	1.5	2.2	e2.0	1.9	2.1	2.9	2.4	e1.0	1.2	1.2	1.3	1.3
29	1.4	2.0	e1.9	1.9	---	3.2	2.5	29	1.0	1.2	1.3	1.2
30	1.3	1.6	e1.8	1.9	---	2.8	2.4	220	.98	1.1	1.4	1.4
31	1.4	---	e1.7	1.9	---	2.7	---	8.6	---	.93	1.7	---
TOTAL	33.72	48.6	58.8	59.9	54.0	77.2	75.2	303.1	57.39	35.65	43.75	56.5
MEAN	1.09	1.62	1.90	1.93	1.93	2.49	2.51	9.78	1.91	1.15	1.41	1.88
MAX	1.5	2.4	2.4	2.2	2.3	3.2	2.8	220	4.3	1.6	1.8	2.6
MIN	.94	1.1	1.4	1.7	1.7	2.0	2.3	1.0	.81	.64	.79	1.2
AC-FT	67	96	117	119	107	153	149	601	114	71	87	112

CAL YR 1990 TOTAL 821.50 MEAN 2.25 MAX 109 MIN .94 AC-FT 1630
WTR YR 1991 TOTAL 903.81 MEAN 2.48 MAX 220 MIN .64 AC-FT 1790

e Estimated

ARKANSAS RIVER BASIN

07236500 FORT SUPPLY LAKE NEAR FORT SUPPLY, OK

LOCATION.-- Lat 36°33'14", long 99°34'16", in NE 1/4 SE 1/4 sec.17, T.24 N., R.22 W., Woodward County, Hydrologic Unit 11100203, in control tower at left end of Fort Supply Dam on Wolf Creek, 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 1965. 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, 2,026.97 ft; no contents at times November 1942 to January 1943.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 14,800 acre-ft, June 2, elevation, 2,004.47 ft; minimum, 11,600 acre-ft, Sept. 30, elevation 2,002.71 ft.

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

2,002	10,430	2,005	15,830
2,003	12,080	2,006	17,890
2,004	13,890	2,007	20,100

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13130	13490	14080	14200	13930	14510	14030	13840	14530	13820	13220	12170
2	13270	13490	14080	14220	14050	14530	13950	13990	14570	13780	13130	12150
3	13150	13530	14080	14240	14050	14570	14030	13990	14590	13760	13080	12150
4	13180	13710	14080	14260	14060	14650	14050	13930	14570	13750	13040	12120
5	13220	13780	14010	14280	14120	14570	14120	14050	14570	13750	13020	12120
6	13170	13710	14050	14300	14140	14530	14120	14180	14550	13650	12950	12130
7	13130	13800	14060	14320	14200	14490	14160	14080	14570	13600	12910	12190
8	13110	13890	14080	14340	14220	14430	13970	14120	14530	13530	12860	12190
9	13180	13970	14080	14390	14260	14390	14050	14200	14510	13470	12800	12120
10	13240	14010	14100	14450	14300	14430	14280	14240	14490	13370	12770	12130
11	13220	14060	14100	14490	14340	14300	14140	14340	14450	13440	12710	12080
12	13220	14100	14080	14450	14340	14140	13970	14430	14430	13510	12680	12050
13	13290	14200	14140	14430	14320	14060	13990	14410	14410	13620	12710	12060
14	13240	14260	14140	14410	14280	14030	14010	14430	14340	13670	12700	12030
15	13260	14180	14120	14390	14430	13990	14080	14410	14200	13690	12680	11950
16	13420	14160	14220	14370	14360	14010	13930	14280	14140	13690	12640	11910
17	13220	14220	14200	14340	14360	13970	13930	14280	14220	13690	12570	11950
18	13290	14160	14240	14320	14360	13930	13910	14240	14160	13650	12530	11830
19	13380	14180	14220	14280	14410	14050	13870	14200	14100	13580	12510	11830
20	13180	14450	14140	14240	14430	13970	13890	14180	14060	13560	12510	11820
21	13240	14180	14200	14200	14450	13910	13950	14180	14010	13510	12500	11830
22	13270	14160	14200	14160	14490	13890	13930	14180	14050	13420	12460	11720
23	13260	14180	14200	14120	14470	13890	13910	14260	14100	13310	12420	11680
24	13290	14160	14180	14080	14450	13950	13910	14320	14140	13370	12410	11750
25	13330	14160	14160	14050	14490	13910	14080	14320	14140	13350	12330	11720
26	13330	14160	14160	14010	14510	14080	13870	14390	14100	13290	12280	11730
27	13330	14160	14160	13970	14510	13850	13850	14360	14050	13380	12240	11750
28	13370	14120	14160	13910	14590	13870	13780	14160	14010	13370	12210	11680
29	13440	14280	14220	13890	---	13950	13760	14320	13950	13350	12120	11650
30	13400	14120	14200	13870	---	13970	13780	14390	13930	13310	12120	11620
31	13460	---	14180	13910	---	13990	---	14360	---	13260	12150	---
MAX	13460	14450	14240	14490	14590	14650	14280	14430	14590	13820	13220	12190
MIN	13110	13490	14010	13870	13930	13850	13760	13840	13930	13260	12120	11620
(+)	2003.76	2004.12	2004.15	2004.01	2004.36	2004.05	2003.94	2004.24	2004.02	2003.65	2003.04	2002.72
(++)	+370	+660	+60	-270	+680	+600	-210	+580	-430	-670	-1,110	-530
CAL YR 1990	MAX 15000	MIN 12660	(++)	-20								
WTR YR 1991	MAX 14650	MIN 11620	(++)	-1,470								

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

ARKANSAS RIVER BASIN

223

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, 1982.

REMARKS.-- Records fair. 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, 49 years (water years 1943-91), 54.2 ft³/s, 39,270 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, 71 ft³/s, Jan. 22, Mar. 18, gage height, 4.38 ft; minimum daily discharge, 0.60 ft³/s, Oct. 11, 20 and Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.7	17	14	23	27	29	1.8	29	4.8	e1.8	1.6
2	1.0	1.4	17	14	23	27	24	1.8	28	3.9	e1.6	1.8
3	.87	1.6	20	14	23	27	24	1.7	30	2.9	e1.5	4.4
4	1.2	1.6	19	14	25	28	24	1.4	28	2.7	e1.5	3.3
5	1.1	3.6	18	14	22	38	24	1.2	28	2.5	e4.0	2.4
6	1.1	1.5	18	14	21	56	24	1.2	28	2.4	e1.9	2.4
7	1.3	.90	18	15	21	56	24	3.9	28	2.4	e1.7	2.5
8	1.6	.86	18	13	21	56	26	1.5	27	2.6	e1.6	2.3
9	3.2	.86	18	13	21	56	25	1.3	26	5.1	e1.5	3.9
10	.87	.86	19	13	21	56	25	1.2	31	4.1	e1.4	2.8
11	.60	1.1	18	23	28	56	25	1.5	31	2.9	e1.4	1.9
12	.85	.91	18	51	31	57	25	.95	31	2.2	3.4	1.5
13	.86	4.8	18	54	31	57	24	2.6	31	2.0	1.8	1.5
14	.98	6.6	17	55	30	57	24	8.0	30	2.0	1.7	1.5
15	2.3	23	17	56	22	57	27	31	30	4.4	1.6	1.3
16	.64	23	17	56	23	57	29	32	30	2.7	1.4	2.8
17	e.61	22	19	56	23	57	28	32	32	1.8	1.3	1.7
18	.64	22	17	56	23	63	28	32	31	1.4	1.5	1.0
19	.71	23	17	57	25	50	28	32	30	1.3	4.4	1.0
20	.60	21	16	57	23	32	28	35	18	1.5	2.1	e.95
21	.69	20	19	57	23	32	28	34	4.4	1.5	1.5	e.90
22	2.2	20	e18	59	23	32	30	38	4.0	3.9	1.9	e.90
23	.64	19	e17	57	23	32	28	38	3.6	2.8	1.9	e2.5
24	.70	19	e19	58	23	31	28	38	5.7	2.2	2.2	e2.2
25	.81	19	e16	57	27	33	30	35	3.6	1.7	1.9	e1.8
26	1.1	21	e16	57	27	31	28	33	3.1	1.5	3.8	1.1
27	1.4	18	e15	57	27	31	28	34	2.9	2.1	2.2	.71
28	1.6	18	e15	58	27	30	28	37	2.8	2.7	1.7	.62
29	4.6	18	e16	57	---	31	19	35	2.7	5.5	1.7	.60
30	1.9	18	e15	41	---	30	2.5	33	2.5	4.2	1.7	1.7
31	1.1	---	17	24	---	30	---	29	---	e2.0	1.7	---
TOTAL	38.87	352.09	539	1241	680	1313	764.5	608.05	612.3	85.7	61.3	55.58
MEAN	1.25	11.7	17.4	40.0	24.3	42.4	25.5	19.6	20.4	2.78	1.98	1.85
MAX	4.6	23	20	59	31	63	30	38	32	5.5	4.4	4.4
MIN	.60	.86	15	13	21	27	2.5	.95	2.5	1.3	1.3	.60
AC-FT	77	698	1070	2460	1350	2600	1520	1210	1210	170	122	110

CAL YR 1990 TOTAL 12904.18 MEAN 35.4 MAX 189 MIN .60 AC-FT 25600
WTR YR 1991 TOTAL 6351.39 MEAN 17.4 MAX 63 MIN .60 AC-FT 12600

e Estimated

ARKANSAS RIVER BASIN

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 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, and minor regulation by Palo Duro reservoir since May 1991. 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, 13 years (water years 1979-91), 120 ft³/s, 86,940 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 daily discharge, 250 ft³/s, June 1; minimum daily discharge, .07 ft³/s, Aug. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	11	38	e32	71	60	65	34	e250	13	1.6	3.9
2	8.7	11	39	e32	71	60	64	30	e100	12	1.5	3.1
3	8.7	13	39	e31	66	60	68	32	e85	14	1.6	2.8
4	7.9	22	39	e33	64	61	e69	29	e75	13	2.5	3.6
5	7.1	16	42	e35	61	61	e72	25	e69	11	2.0	2.5
6	5.9	14	41	e35	56	63	71	26	e67	8.3	1.5	2.1
7	5.2	13	41	e34	55	75	65	27	e67	4.4	1.4	2.9
8	5.7	14	43	e36	54	80	65	26	72	4.8	1.6	2.8
9	7.6	15	43	e41	55	85	62	27	68	4.6	2.1	2.0
10	6.9	14	44	e45	55	85	58	28	67	3.1	1.8	1.6
11	6.6	14	48	e46	55	81	50	30	81	5.0	1.5	1.5
12	6.6	13	48	e46	58	81	53	28	66	9.8	1.9	1.3
13	6.9	14	47	e60	62	79	51	24	61	13	3.1	1.3
14	6.0	14	49	e74	61	79	51	22	58	10	2.8	1.5
15	5.5	13	49	e82	58	79	50	22	55	8.4	2.0	1.6
16	5.5	16	51	e80	57	82	50	28	53	6.8	1.9	1.5
17	4.6	25	54	e77	55	95	54	38	51	6.2	2.7	1.2
18	4.3	29	52	76	54	90	54	41	52	5.2	e1.8	1.2
19	4.8	31	49	68	52	94	54	36	51	4.3	e1.6	1.2
20	7.0	33	45	67	54	89	56	36	47	3.7	2.2	1.2
21	6.9	32	e10	67	54	73	57	39	43	e3.2	2.9	1.4
22	6.9	35	e11	67	55	68	59	48	32	e2.6	2.0	1.3
23	6.5	37	e14	73	55	66	60	49	30	2.5	e1.5	1.3
24	7.9	39	e18	79	55	64	59	66	27	3.6	e1.1	2.3
25	9.3	40	e22	78	53	64	58	81	24	3.8	e1.0	1.8
26	9.6	41	e24	76	54	64	58	65	21	2.7	.92	1.5
27	7.7	40	e26	82	57	63	55	85	18	2.7	.87	1.4
28	8.0	37	e30	82	59	60	54	70	16	2.5	.90	.99
29	8.1	37	e32	82	---	67	53	e70	14	2.3	.76	.91
30	10	38	e28	77	---	65	52	e80	14	2.1	1.1	.80
31	11	---	e29	e75	---	64	---	e90	---	1.8	1.8	---
TOTAL	223.1	721	1145	1868	1616	2257	1747	1332	1734	190.4	53.75	54.50
MEAN	7.20	24.0	36.9	60.3	57.7	72.8	58.2	43.0	57.8	6.14	1.73	1.82
MAX	11	41	54	82	71	95	72	90	250	14	3.1	3.9
MIN	4.3	11	10	31	52	60	50	22	14	1.8	.67	.80
AC-FT	443	1430	2270	3710	3210	4480	3470	2640	3440	378	107	108

CAL YR 1990 TOTAL 38750.3 MEAN 106 MAX 606 MIN 3.0 AC-FT 76860
WTR YR 1991 TOTAL 12941.75 MEAN 35.5 MAX 250 MIN .67 AC-FT 25670

e Estimated

ARKANSAS RIVER BASIN

225

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 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV 07...	1100	1020	80020	12	2250	8.1	1.5	4.5	2.0	721	14.3	118
JAN 02...	1130	1020	80020	32	1630	7.9	-4.5	0.0	70	718	12.5	91
FEB 13...	1400	1020	80020	65	1510	8.4	17.0	11.0	4.6	705	12.4	122
MAY 08...	1330	1020	80020	25	1920	8.4	17.5	16.0	16	712	10.4	114
JUL 09...	0830	1020	80020	7.3	2650	8.1	27.0	23.5	15	709	7.0	90
AUG 21...	1000	1020	80020	2.5	2730	8.2	21.0	21.5	2.4	711	7.1	87

DATE	NITRO- GEN DIS- SOLVED (MG/L AS N)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI 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)
NOV 07...	--	130	150	070	450	180	52	230	43	4	5.3	267
JAN 02...	--	K19	59	420	190	110	36	170	48	4	5.4	278
FEB 13...	--	K10	210	420	210	110	34	150	44	3	4.5	222
MAY 08...	--	K44	K94	540	340	140	46	210	46	4	5.3	251
JUL 09...	--	260	K19000	680	480	180	56	310	49	5	9.4	266
AUG 21...	3.4	640	1500	--	--	--	--	330	--	--	12	302

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 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 TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
NOV 07...	0	211	500	300	0.50	25	1460	1430	1.99	48.5	1.74	1.74
JAN 02...	0	228	250	240	0.70	27	1010	981	1.37	87.3	0.980	0.880
FEB 13...	12	202	260	210	0.70	19	930	912	1.26	163	--	0.190
MAY 08...	0	206	380	280	0.70	14	1230	1210	1.67	83.7	0.680	0.640
JUL 09...	0	218	610	380	0.80	28	1810	1710	2.46	35.7	0.170	0.180
AUG 21...	0	248	750	360	0.80	50	1900	--	--	--	0.830	0.840

ARKANSAS RIVER BASIN

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN NITRITE TOTAL (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN N02+N03 TOTAL (MG/L AS N)	NITRO- GEN N02+N03 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 ORGANIC DIS- SOLVED (MG/L AS N)
NOV 07...	7.7	0.060	0.060	0.20	1.80	1.80	0.990	1.00	1.3	1.3	0.81	--
JAN 02...	3.9	0.020	0.020	0.07	1.00	0.900	0.520	0.540	0.67	0.70	0.68	--
FEB 13...	0.84	<0.010	0.010	0.03	0.200	0.200	0.070	0.030	0.09	0.04	0.53	--
MAY 08...	2.8	0.170	0.150	0.49	0.850	0.790	0.440	0.420	0.57	0.54	0.86	--
JUL 09...	0.80	0.160	0.150	0.49	0.330	0.330	0.100	0.090	0.13	0.12	0.80	--
AUG 21...	3.7	0.570	0.560	1.8	1.40	1.40	1.10	1.10	1.4	1.4	2.0	0.90

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- (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 DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS P04)	ALUM- INUM, DIS- SOLVED (MG/L AS AL)
NOV 07...	1.8	--	3.6	16	0.230	0.61	0.210	0.200	0.190	0.50	20
JAN 02...	1.2	--	2.2	9.7	0.130	0.28	0.100	0.090	0.080	0.25	--
FEB 13...	0.60	--	0.80	3.5	0.070	0.21	0.050	0.070	0.050	0.15	50
MAY 08...	1.3	--	2.2	9.5	0.160	0.25	0.100	0.080	0.080	0.25	10
JUL 09...	0.90	--	1.2	5.4	0.390	0.74	0.230	0.240	0.200	0.61	--
AUG 21...	3.1	2.0	4.5	20	1.20	2.80	1.10	0.940	0.940	2.9	<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)
NOV 07...	2	<100	<10	<1.0	2	<1	1	30	<1	50	100
JAN 02...	--	--	--	--	--	--	--	--	--	--	--
FEB 13...	3	120	<0.5	<1.0	1	<3	1	10	<1	45	15
MAY 08...	2	130	0.9	<1.0	<1	<3	<1	8	1	52	55
JUL 09...	--	--	--	--	--	--	--	--	--	--	--
AUG 21...	7	200	<10	<1.0	<1	<1	1	40	<1	50	120

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
NOV 07...	0.1	1	<1	<1	<1.0	1000	8	<10	1	0.03	72
JAN 02...	--	--	--	--	--	--	--	--	23	2.0	52
FEB 13...	<0.1	<10	1	<1	<1.0	1100	<8	4	71	12	22
MAY 08...	<0.1	<10	2	<1	<1.0	1500	<8	7	68	4.6	21
JUL 09...	--	--	--	--	--	--	--	--	119	2.3	25
AUG 21...	<0.1	2	2	<1	<1.0	1700	14	<10	44	0.30	13

ARKANSAS RIVER BASIN

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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 80, 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. Some regulation since May 1942 by Fort Supply Lake. Minor regulation since October 1978 by Optima Lake. Some regulation since May 1991 by Palo Duro Reservoir. 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, 155,000 acre-ft/yr; since regulation by Optima Lake, 13 years (water years 1979-91), 168 ft³/s, 113,000 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, 18.00 ft, Oct. 11, 1946, present datum; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 610 ft³/s, June 1, gage height, 6.97 ft; minimum daily discharge, .34 ft³/s, Aug. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	17	49	e33	103	80	81	61	150	20	1.0	23
2	9.5	17	50	e32	95	79	79	61	293	19	.83	39
3	11	20	50	e31	90	80	80	88	150	20	.74	24
4	12	27	49	e32	89	81	83	73	134	18	.73	14
5	11	27	51	e33	86	83	79	63	274	16	.66	7.8
6	10	32	53	e35	84	81	75	58	122	13	.52	6.0
7	10	32	53	e38	81	80	73	55	107	10	.43	9.2
8	11	31	54	e41	80	88	73	54	98	9.0	.52	97
9	12	32	56	e43	79	91	71	54	92	8.2	.69	31
10	12	32	56	e46	79	93	68	53	87	6.6	.39	14
11	13	33	57	e50	78	94	67	53	99	6.1	.38	9.2
12	13	32	59	e56	77	95	68	52	90	6.7	.37	6.5
13	13	30	60	e64	78	94	69	50	79	7.7	1.2	5.8
14	13	30	60	e80	81	93	67	47	70	13	1.1	5.6
15	12	31	61	e90	79	93	67	46	71	17	.72	5.3
16	13	31	61	e100	80	98	66	129	67	14	.81	5.0
17	12	30	63	e110	82	109	65	75	67	7.8	4.5	4.9
18	11	32	64	e113	79	116	66	53	63	5.5	2.6	6.8
19	11	36	66	115	77	110	66	50	58	4.5	1.7	5.6
20	11	38	65	111	76	105	66	52	59	3.8	1.4	5.3
21	11	41	66	108	76	102	68	52	54	3.0	8.2	5.2
22	11	41	61	105	76	89	71	51	63	2.5	4.1	4.9
23	13	41	e60	106	76	84	71	52	67	2.1	2.3	4.7
24	13	43	e50	105	76	81	74	79	58	2.2	1.5	5.2
25	14	44	e47	104	76	79	76	86	59	3.3	1.0	5.1
26	14	46	e45	99	76	81	76	98	54	3.0	.79	4.7
27	15	47	e44	100	76	90	72	79	43	2.5	.46	4.0
28	15	46	e48	102	76	82	69	79	35	2.4	.34	3.4
29	16	47	e47	103	---	80	65	66	28	2.2	.40	2.8
30	16	48	e45	97	---	81	62	68	24	1.7	12	2.4
31	17	---	e40	95	---	84	---	76	---	1.3	23	---
TOTAL	384.8	1034	1690	2377	2262	2776	2133	2012	2715	252.1	75.38	367.4
MEAN	12.4	34.5	54.5	76.7	80.8	89.5	71.1	64.9	90.5	8.13	2.43	12.2
MAX	17	48	66	115	103	116	83	129	293	20	23	97
MIN	9.3	17	40	31	75	79	62	45	24	1.3	.34	2.4
AC-FT	763	2050	3350	4710	4490	5510	4230	3990	5390	500	150	729

CAL YR 1990 TOTAL 52284.64 MEAN 143 MAX 906 MIN .54 AC-FT 103700
WTR YR 1991 TOTAL 18078.68 MEAN 49.5 MAX 293 MIN .34 AC-FT 35860

e Estimated

07238500 CANTON LAKE NEAR CANTON, OK

LOCATION.-- Lat 36°04'54", long 98°36'01", 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 18 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 (bottom of 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, 1,585.68 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 111,600 acre-ft, May 30, elevation, 1,615.43 ft; minimum, 62,340 acre-ft, Sept. 29 and 30, elevation, 1,608.25 ft.

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

1,607	55,450	1,613	93,180
1,609	66,710	1,615	108,200
1,611	79,350	1,617	124,400

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94920	90680	91680	92250	96310	99120	102700	105000	110600	90390	84820	66710
2	94560	90610	91890	92320	96380	99490	102900	105500	110500	90320	84470	66770
3	95000	91820	91610	92320	96670	99350	103000	105600	109400	90460	84270	66830
4	94780	91680	91460	92390	96890	99420	103000	105900	108200	90250	84150	65890
5	94490	91390	91530	92390	97040	99570	103100	105500	107200	89820	83930	65010
6	94270	91960	91530	92460	97120	99720	103100	105100	105900	89680	83720	64420
7	94200	91390	91530	92530	97340	99640	103300	105300	104900	89540	83450	64130
8	94560	91750	91530	92610	97410	99790	103400	105500	104200	89400	83590	63890
9	94120	91760	91610	92750	97640	99790	103400	105500	103600	89120	83240	63770
10	93830	91760	91530	92960	97710	99350	103000	105600	103000	89190	82900	63720
11	93610	91760	91680	93030	97840	99790	103000	105600	102400	88840	82770	63600
12	93470	91690	91890	93100	98010	100100	103400	105700	101100	88840	82160	63490
13	93180	91680	91750	93250	98080	100300	103900	105700	100000	88700	81220	63310
14	93250	91610	91820	93320	98250	100100	104000	105600	98970	88560	79350	63140
15	93030	91750	91820	93390	97930	100100	103600	105500	98080	88420	77250	63660
16	92890	91820	91960	93610	98010	100600	103800	106900	97120	88210	75750	63720
17	92960	91610	92180	93830	98160	101000	104000	108900	95940	87930	73690	63540
18	92530	91750	92180	94120	98450	101100	104100	106900	95000	87650	71670	63830
19	91820	91610	92390	94340	98230	101100	104200	107000	93760	87300	69610	63540
20	92820	91390	92630	94520	98230	101300	103900	107400	92390	86950	68150	63430
21	92030	91890	92460	94710	98380	101600	104000	107400	91530	86740	68710	62970
22	91820	91890	92320	94850	98450	101700	103900	107400	91530	86540	67800	63260
23	91820	91750	92030	95070	98680	101800	104200	107900	91820	86400	66830	63140
24	91680	91820	92030	95220	98680	101800	104700	110000	91680	86260	65890	63090
25	91530	91820	92030	95430	98680	101700	104500	110500	91610	85980	64890	63030
26	91460	91530	92030	95430	98680	102100	105300	110700	91390	85710	64360	62800
27	91390	91960	92110	95650	98680	102200	105200	110800	91250	85770	64010	62570
28	91180	91890	92030	95800	98530	102600	105300	110900	91040	85840	64100	62510
29	90890	91530	92320	96240	---	102700	105200	111400	90890	85570	64010	62400
30	90960	91460	92250	96090	---	102700	105200	111200	90460	85300	65890	62340
31	90820	---	92250	96020	---	102700	---	111000	---	85090	66480	---
MAX	95000	91960	92630	96240	98680	102700	105300	111400	110600	90460	84820	66830
MIN	90820	90610	91460	92250	96310	99120	102700	105000	90460	85090	64010	62340
(+)	1612.67	1612.76	1612.87	1613.39	1613.73	1614.29	1614.62	1615.36	1612.62	1611.85	1608.96	1608.25
(++)	-4,320	+640	+790	+3,770	+2,510	+4,170	+2,500	+5,800	-20,540	-5,370	-18,610	-4,140

CAL YR 1990 MAX 122000 MIN 90610 (++) -19,650
WTR YR 1991 MAX 111400 MIN 62340 (++) -32,800

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

ARKANSAS RIVER BASIN

229

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 June 1991 (discontinued).

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 1990 TO SEPTEMBER 1991

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)	OXYGEN, DIS- SOLVED (MG/L)
OCT											
24...	1355	1028	80020	1.00	91800	*1780	8.4	14.0	13	723	8.8
24...	1400	1028	1028	5.00	91800	--	8.4	14.0	--	723	8.8
24...	1404	1028	1028	10.0	91800	--	8.4	14.0	--	723	8.7
24...	1407	1028	80020	15.0	91800	*1790	8.4	14.0	13	723	8.5
24...	1410	1028	1028	20.0	91800	--	8.4	14.0	--	723	8.5
24...	1413	1028	80020	26.0	91800	*1790	8.4	13.5	15	723	8.5
MAR											
04...	1240	1028	80020	1.00	99400	1820	8.5	9.0	12	712	10.6
04...	1320	1028	1028	5.00	99400	1810	8.5	9.0	--	712	10.5
04...	1325	1028	1028	10.0	99400	1810	8.5	8.0	--	712	10.4
04...	1330	1028	80020	15.0	99400	1820	8.5	8.0	15	712	10.3
04...	1335	1028	1028	20.0	99400	1820	8.5	7.5	--	712	10.0
04...	1340	1028	80020	27.0	99400	1820	8.4	7.5	16	712	10.1
MAY											
21...	1030	1028	80020	1.00	108000	1800	8.5	22.0	2.1	717	8.2
21...	1040	1028	1028	5.00	108000	1800	8.5	22.0	--	717	8.0
21...	1050	1028	1028	10.0	108000	1810	8.5	21.0	--	717	7.8
21...	1100	1028	80020	15.0	108000	1810	8.5	21.0	2.5	717	6.6
21...	1115	1028	1028	20.0	108000	1810	8.4	20.0	--	717	6.1
21...	1130	1028	80020	27.0	108000	1820	8.2	19.5	4.0	717	4.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATU- RATION)	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)
OCT											
24...	91	420	260	93	46	210	51	4	7.1	178	9
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	87	410	--	90	45	200	51	4	6.9	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	87	420	--	92	45	210	52	4	7.3	--	--
MAR											
04...	99	440	270	98	47	210	51	4	6.9	193	6
04...	98	--	--	--	--	--	--	--	--	--	--
04...	95	--	--	--	--	--	--	--	--	--	--
04...	94	430	--	97	46	210	51	4	6.5	--	--
04...	90	--	--	--	--	--	--	--	--	--	--
04...	91	430	--	96	47	200	50	4	6.6	--	--
MAY											
21...	100	430	260	99	44	190	49	4	6.7	183	9
21...	98	--	--	--	--	--	--	--	--	--	--
21...	94	--	--	--	--	--	--	--	--	--	--
21...	79	430	--	100	44	190	49	4	6.3	--	--
21...	72	--	--	--	--	--	--	--	--	--	--
21...	49	430	--	100	44	190	49	4	6.8	--	--

*SPECIFIC CONDUCTANCE, LAB (US/CM)

ARKANSAS RIVER BASIN

360544098354701 - CANTON LAKE CROSSSECTION N01 NEAR DAM SITE N01--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)
OCT										
24...	160	290	280	0.50	1110	1020	1.51	0.010	<0.010	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	290	290	0.50	1100	1020	1.50	0.010	<0.010	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	290	280	0.50	1090	1020	1.48	0.010	<0.010	--
MAR										
04...	188	340	320	0.80	1110	1120	1.51	<0.010	<0.010	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	330	300	0.70	1090	1090	1.48	<0.010	<0.010	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	330	310	0.80	1260	1090	1.71	<0.010	<0.010	--
MAY										
21...	164	330	270	0.70	1140	1040	1.55	--	0.020	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	290	230	0.60	1150	961	1.56	0.010	0.020	0.07
21...	--	--	--	--	--	--	--	--	--	--
21...	--	240	290	0.60	1200	975	1.63	0.010	0.020	0.07
DATE	NITRO- GEN, N02+N03 TOTAL (MG/L AS N)	NITRO- GEN, N02+N03 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)
OCT										
24...	<0.100	<0.100	0.020	0.020	0.03	0.03	0.06	0.020	0.020	0.06
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	<0.100	<0.100	--	0.030	--	0.04	0.06	0.020	0.020	0.06
24...	--	--	--	--	--	--	--	--	--	--
24...	<0.100	<0.100	0.030	0.040	0.04	0.05	0.09	0.030	0.020	0.06
MAR										
04...	<0.050	<0.050	0.010	0.010	0.01	0.01	--	<0.010	<0.010	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	<0.050	<0.050	0.020	0.020	0.03	0.03	--	<0.010	<0.010	--
04...	--	--	--	--	--	--	--	--	--	--
04...	<0.050	<0.050	0.010	0.010	0.01	0.01	--	<0.010	<0.010	--
MAY										
21...	<0.050	<0.050	0.020	0.020	0.03	0.03	--	<0.010	<0.010	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	<0.050	<0.050	0.030	0.030	0.04	0.04	--	<0.010	<0.010	--
21...	--	--	--	--	--	--	--	--	--	--
21...	<0.050	<0.050	0.210	0.210	0.27	0.27	--	<0.010	<0.010	--

ARKANSAS RIVER BASIN

231

360558098351501 CANTON LAKE CROSS SECTION NO. 1 SITE NO. 2

LOCATION.-- Lat 36°05'58", long 98°35'15".

PERIOD OF RECORD.-- Water years 1980 to June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
OCT											
24...	1430	1028	1028	1.00	91800	--	8.5	14.0	723	9.3	--
24...	1433	1028	1028	5.00	91800	--	8.5	14.0	723	9.3	--
24...	1436	1028	1028	10.0	91800	--	8.5	14.0	723	9.1	--
24...	1439	1028	1028	15.0	91800	--	8.5	14.0	723	9.0	--
24...	1442	1028	1028	20.0	91800	--	8.5	14.0	723	9.0	--
24...	1446	1028	1028	24.0	91800	--	8.5	13.5	723	8.8	--
MAR											
04...	1347	1028	1028	1.00	99400	1810	8.5	8.5	712	10.6	98
04...	1350	1028	1028	5.00	99400	1810	8.5	8.5	712	10.6	98
04...	1352	1028	1028	10.0	99400	1820	8.5	8.0	712	10.5	98
04...	1355	1028	1028	15.0	99400	1820	8.5	7.5	712	10.5	94
04...	1358	1028	1028	20.0	99400	1820	8.5	7.0	712	10.4	92
04...	1400	1028	1028	25.0	99400	1820	8.5	7.0	712	10.2	91
MAY											
21...	1205	1028	1028	1.00	108000	1800	8.5	22.5	717	8.9	110
21...	1210	1028	1028	5.00	108000	1800	8.6	22.5	717	8.5	105
21...	1212	1028	1028	10.0	108000	1800	8.5	22.5	717	8.6	106
21...	1215	1028	1028	15.0	108000	1790	8.5	21.5	717	7.1	86
21...	1217	1028	1028	20.0	108000	1820	8.4	20.0	717	6.6	78
21...	1220	1028	1028	25.0	108000	1830	8.3	19.5	717	3.9	45

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 June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 OF (MM HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT											
24...	1455	1028	1028	1.00	91800	--	8.5	14.0	723	9.3	--
24...	1459	1028	1028	5.00	91800	--	8.5	14.0	723	9.3	--
24...	1502	1028	1028	10.0	91800	--	8.5	14.0	723	9.2	--
24...	1505	1028	1028	15.0	91800	--	8.5	13.5	723	9.0	--
24...	1508	1028	1028	22.0	91800	--	8.5	13.5	723	8.7	--
MAR											
04...	1408	1028	1028	1.00	99400	1020	8.5	8.5	712	11.0	101
04...	1410	1028	1028	5.00	99400	1010	8.5	8.5	712	10.7	99
04...	1413	1028	1028	9.00	99400	1020	8.5	8.5	712	10.6	97
MAY											
21...	1229	1028	1028	1.00	108000	1800	8.6	22.5	717	8.7	108
21...	1232	1028	1028	5.00	108000	1810	8.6	22.5	717	8.1	100
21...	1235	1028	1028	8.00	108000	1810	8.6	22.0	717	8.3	102

ARKANSAS RIVER BASIN

233

380744098364101 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 June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
OCT											
24...	1514	1028	1028	1.00	91800	--	8.6	13.5	723	9.4	--
24...	1517	1028	1028	5.00	91800	--	8.6	13.5	723	9.4	--
24...	1520	1028	1028	10.0	91800	--	8.6	13.5	723	9.2	--
24...	1523	1028	1028	15.0	91800	--	8.6	13.5	723	8.9	--
MAR											
04...	1427	1028	1028	1.00	99400	1810	8.5	8.0	712	10.6	98
04...	1430	1028	1028	5.00	99400	1810	8.5	8.0	712	10.8	98
04...	1432	1028	1028	10.0	99400	1800	8.5	8.0	712	10.7	97
04...	1435	1028	1028	17.0	99400	1810	8.5	7.5	712	10.0	90
MAY											
21...	1245	1028	1028	1.00	108000	1800	8.5	23.5	717	8.0	101
21...	1248	1028	1028	5.00	108000	1800	8.5	23.0	717	8.4	105
21...	1250	1028	1028	10.0	108000	1800	8.5	22.5	717	7.8	98
21...	1253	1028	1028	15.0	108000	1800	8.5	22.0	717	7.5	92
21...	1255	1028	1028	18.0	108000	1810	8.4	21.5	717	4.5	55

ARKANSAS RIVER BASIN

360000090302101 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 June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT											
24...	1527	1028	1028	1.00	91800	--	8.6	13.5	723	9.3	--
24...	1530	1028	1028	5.00	91800	--	8.6	13.5	723	9.3	--
24...	1533	1028	1028	10.0	91800	--	8.6	13.5	723	9.2	--
24...	1536	1028	1028	15.0	91800	--	8.6	13.0	723	9.0	--
MAR											
04...	1441	1028	1028	1.00	99400	1820	8.5	8.0	712	10.5	96
04...	1444	1028	1028	5.00	99400	1800	8.5	8.0	712	10.4	95
04...	1446	1028	1028	10.0	99400	1800	8.5	7.5	712	10.3	93
04...	1449	1028	1028	13.0	99400	1820	8.5	7.5	712	10.2	92
MAY											
21...	1300	1028	1028	1.00	108000	1810	8.5	23.0	717	8.6	107
21...	1311	1028	1028	5.00	108000	1800	8.5	23.0	717	8.7	109
21...	1314	1028	1028	10.0	108000	1800	8.5	22.5	717	8.1	100
21...	1317	1028	1028	14.0	108000	1800	8.5	22.5	717	7.3	90

ARKANSAS RIVER BASIN

235

360028090360501 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 June 1991 (discontinued).

REMARKS.--

Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)	BARD- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT											
24...	1540	1028	1028	1.00	91800	--	8.5	13.5	723	9.2	--
24...	1543	1028	1028	5.00	91800	--	8.6	13.5	723	9.0	--
24...	1546	1028	1028	10.0	91800	--	8.6	13.0	723	8.7	--
MAR											
04...	1454	1028	1028	1.00	99400	1810	8.6	8.5	712	10.6	98
04...	1457	1028	1028	5.00	99400	1810	8.6	8.5	712	10.6	98
04...	1500	1028	1028	11.0	99400	1820	8.6	8.0	712	10.6	98
MAY											
21...	1327	1028	1028	1.00	108000	1810	8.5	23.5	717	8.3	105
21...	1330	1028	1028	5.00	108000	1800	8.5	23.0	717	8.0	100
21...	1334	1028	1028	9.00	108000	1800	8.5	22.5	717	8.0	99

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 June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
OCT											
24...	1552	1028	1028	1.00	91800	--	8.6	13.5	723	9.8	--
24...	1555	1028	1028	5.00	91800	--	8.6	14.0	723	9.9	--
MAR											
04...	1507	1028	1028	1.00	99400	1810	8.5	9.0	712	10.5	98
04...	1510	1028	1028	7.00	99400	1810	8.6	8.5	712	10.6	98
MAY											
21...	1345	1028	1028	1.00	108000	1790	8.5	25.0	717	7.9	102
21...	1350	1028	1028	7.00	108000	1790	8.5	24.5	717	7.0	90

ARKANSAS RIVER BASIN

237

380828098390701 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 June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
OCT											
24...	1558	1028	1028	1.00	91800	--	8.6	13.0	723	9.6	--
24...	1600	1028	1028	7.00	91800	--	8.6	13.5	723	9.5	--
MAR											
04...	1514	1028	1028	1.00	99400	1790	8.5	9.0	712	10.7	100
04...	1516	1028	1028	5.00	99400	1790	8.5	8.5	712	10.5	97
04...	1519	1028	1028	10.0	99400	1810	8.5	8.5	712	10.3	95
MAY											
21...	1353	1028	1028	1.00	108000	1790	8.5	25.5	717	7.5	98
21...	1355	1028	1028	5.00	108000	1780	8.5	25.0	717	7.4	96
21...	1358	1028	1028	10.0	108000	1780	8.4	24.5	717	6.2	80

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 June 1991 (discontinued).

REMARKS.-- Specific conductance, pH, water temperature and dissolved oxygen were measured in the field at 5-foot intervals.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
OCT											
24...	1603	1028	1028	1.00	91800	--	8.6	13.5	723	9.6	--
24...	1606	1028	1028	7.00	91800	--	8.6	13.5	723	9.6	--
MAR											
04...	1523	1028	1028	1.00	99400	1810	8.5	8.5	712	10.7	99
04...	1526	1028	1028	5.00	99400	1820	8.5	8.5	712	10.4	98
04...	1530	1028	1028	11.0	99400	1810	8.5	8.0	712	10.1	92
MAY											
21...	1403	1028	1028	1.00	108000	1780	8.5	25.0	717	7.6	99
21...	1406	1028	1028	7.00	108000	1780	8.5	24.5	717	7.9	102

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.-- No estimated daily discharges. Records good. Flow partly regulated by Fort Supply Lake for period May 1942 to April 1948 and completely regulated thereafter by Canton Lake. 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, 43 years (water years 1949-91), 159 ft³/s, 115,200 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, 998 ft³/s, Aug. 16; gage height, 8.45 ft; minimum daily discharge, 8.6 ft³/s, Mar. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	14	14	12	12	8.7	15	19	471	22	22	23
2	32	14	14	12	12	9.7	16	19	467	23	22	23
3	29	15	13	11	12	9.5	17	19	603	23	22	198
4	28	15	13	11	12	8.6	18	20	734	21	22	413
5	30	15	13	11	12	9.0	18	20	705	21	22	411
6	28	14	13	11	12	9.5	18	20	763	21	22	312
7	25	15	13	11	12	10	18	20	641	20	21	150
8	27	16	13	11	12	10	16	18	371	20	21	148
9	27	14	13	11	12	10	16	19	356	19	23	70
10	27	14	13	11	12	10	16	20	344	19	23	20
11	29	13	13	11	12	10	18	20	438	20	22	20
12	27	13	13	11	12	11	18	20	537	21	215	19
13	24	13	13	11	12	11	18	20	492	21	535	20
14	24	12	14	11	12	11	17	20	545	21	782	19
15	23	12	13	12	12	10	16	20	571	21	988	20
16	18	14	13	12	11	10	16	21	478	21	988	19
17	14	12	12	12	11	12	18	19	521	22	988	20
18	12	12	9.8	12	12	11	18	19	527	22	982	20
19	12	12	10	12	12	11	18	19	575	22	977	20
20	12	11	10	12	11	10	18	20	679	22	923	19
21	12	11	9.4	13	11	10	18	21	418	20	241	18
22	12	11	9.2	13	10	11	18	21	36	21	441	18
23	12	11	9.0	13	11	11	18	21	30	21	440	19
24	11	11	8.9	13	12	12	19	23	29	22	437	19
25	11	11	8.9	14	12	13	18	21	25	23	435	19
26	11	12	9.5	14	11	13	18	21	24	23	241	19
27	11	13	12	14	10	13	18	21	23	23	21	19
28	13	13	12	14	9.8	14	18	21	24	23	20	18
29	13	12	12	13	---	16	19	20	23	23	18	17
30	14	12	12	12	---	16	20	20	22	22	23	16
31	16	---	12	11	---	16	---	213	---	22	23	---
TOTAL	614	387	367.7	372	323.8	347.0	527	815	11472	665	9958	2146
MEAN	19.8	12.9	11.9	12.0	11.6	11.2	17.6	26.3	382	21.5	321	71.5
MAX	32	16	14	14	12	16	20	213	763	23	988	413
MIN	11	11	8.9	11	9.8	8.6	15	18	22	19	18	16
AC-FT	1220	768	729	738	642	688	1050	1620	22750	1320	19750	4260

CAL YR 1990 TOTAL 55510.7 MEAN 152 MAX 628 MIN 8.9 AC-FT 110100
WTR YR 1991 TOTAL 27994.5 MEAN 76.7 MAX 988 MIN 8.6 AC-FT 55530

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, 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 (Oklahoma State Highway Department benchmark).

REMARKS.-- Records good, except for estimated winter periods which are poor. Considerable regulation by Canton Lake (07238500) 33 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 8 years, 198 ft³/s, 143,500 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, 926 ft³/s, Aug. 21, gage height, 11.88 ft; minimum daily discharge, 19 ft³/s, Dec. 26, Aug. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	22	21	29	29	23	27	27	212	41	22	439
2	36	21	21	23	26	23	26	28	660	39	22	179
3	30	23	22	25	25	24	27	37	529	44	22	184
4	38	33	22	23	25	24	27	37	642	48	23	406
5	35	31	22	22	25	24	27	28	701	37	24	476
6	35	28	22	23	25	22	27	26	687	34	20	451
7	35	e26	22	24	25	21	27	25	754	32	19	328
8	33	e34	22	25	24	21	28	27	615	30	19	196
9	37	e33	22	23	25	21	25	27	474	28	20	176
10	38	e31	22	30	24	21	24	26	446	27	21	115
11	38	30	22	29	24	21	24	25	434	26	23	66
12	39	29	22	33	24	22	25	26	543	29	23	56
13	40	26	22	34	24	23	26	24	594	31	157	52
14	38	24	22	37	23	22	29	23	548	32	491	49
15	36	23	22	38	22	23	27	22	606	30	693	46
16	36	23	25	35	22	25	26	25	597	29	837	47
17	33	e23	26	31	23	35	25	33	524	27	858	50
18	27	e24	26	29	24	32	25	28	591	26	874	130
19	25	e23	25	28	23	28	26	23	562	26	881	99
20	24	23	24	28	23	27	26	220	641	25	879	54
21	23	23	22	27	23	26	28	43	679	25	791	46
22	28	22	e21	26	23	24	29	31	394	24	416	43
23	24	22	e20	26	23	23	29	28	132	23	486	40
24	24	22	e20	27	22	23	31	253	98	23	477	40
25	24	22	e20	26	22	23	47	345	83	26	475	39
26	23	23	e19	24	23	23	44	73	70	26	470	38
27	23	23	e20	28	22	25	45	38	60	26	268	37
28	23	21	e22	27	23	25	33	29	53	30	93	35
29	23	21	e25	27	---	30	29	25	49	28	72	33
30	22	21	e28	22	---	32	28	27	45	25	105	31
31	22	---	30	25	---	29	---	30	---	24	144	---
TOTAL	952	750	703	854	666	765	865	1659	13023	921	9725	3981
MEAN	30.7	25.0	22.7	27.5	23.8	24.7	28.8	53.5	434	29.7	314	133
MAX	40	34	30	38	29	35	47	345	754	48	881	476
MIN	22	21	19	22	22	21	24	22	45	23	19	31
AC-FT	1890	1490	1390	1690	1320	1520	1720	3290	25830	1830	19290	7900

CAL YR 1990 TOTAL 70214 MEAN 192 MAX 2270 MIN 19 AC-FT 139300
WTR YR 1991 TOTAL 34864 MEAN 95.5 MAX 881 MIN 19 AC-FT 69150

e Estimated

ARKANSAS RIVER BASIN

241

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 320.7.

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 1,328.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Some regulation by Canton Lake (station 07238500). U.S. Geological Survey's satellite telemeter located at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 3,160 ft³/s, Mar. 11, 1990, gage height, 13.24 ft; minimum daily discharge, 19 ft³/s, Sept. 7-9, 12, 1990.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,080 ft³/s, June 2, gage height, 10.18 ft; minimum daily discharge, 14 ft³/s, Aug. 10-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	21	27	e33	34	27	35	34	63	70	20	197
2	31	21	27	e31	31	28	33	33	731	67	19	399
3	35	21	27	e30	33	29	40	39	822	70	18	243
4	35	26	27	e29	32	30	33	38	558	65	17	195
5	34	28	27	e27	31	30	32	39	613	64	17	407
6	32	34	27	e28	30	29	31	37	700	59	19	455
7	30	32	27	e29	30	28	30	32	674	53	18	429
8	30	32	27	e31	30	26	29	37	734	48	16	338
9	30	33	27	e33	30	26	29	47	598	45	15	197
10	30	33	27	e35	29	26	27	45	440	41	14	166
11	31	33	28	e36	29	25	28	44	408	37	14	126
12	31	32	28	e38	29	25	27	39	388	35	14	85
13	31	30	29	e41	29	25	28	34	510	34	14	72
14	31	29	29	45	28	25	30	31	572	43	15	67
15	32	28	29	60	28	25	29	30	510	49	140	60
16	30	27	30	53	27	27	29	28	531	40	387	55
17	29	27	31	48	27	31	28	27	557	37	602	52
18	28	27	31	43	27	33	28	28	482	34	637	66
19	27	27	31	40	27	37	29	30	511	30	643	507
20	24	27	31	38	28	36	29	45	515	28	646	212
21	22	27	e29	37	28	33	29	284	543	27	661	119
22	21	27	e28	36	27	31	30	99	631	26	633	92
23	21	27	e27	36	27	30	30	64	421	24	e380	75
24	20	27	e27	34	27	28	33	89	216	22	e370	66
25	20	27	e28	34	27	27	39	269	142	22	e370	60
26	21	27	e29	34	27	27	41	311	115	22	e360	56
27	20	27	e30	34	27	27	47	136	101	22	382	52
28	20	27	e31	33	27	27	48	81	90	22	225	49
29	21	27	e30	34	---	30	42	63	81	22	109	46
30	21	27	e28	31	---	31	36	63	76	23	88	45
31	21	---	e30	31	---	33	---	59	---	22	117	---
TOTAL	839	838	884	1122	806	892	977	2233	13333	1203	6980	4988
MEAN	27.1	27.9	28.5	36.2	28.8	28.8	32.6	72.0	444	38.8	225	166
MAX	35	34	31	60	34	37	47	311	822	70	661	507
MIN	20	21	27	27	27	25	27	26	63	22	14	45
AC-FT	1660	1660	1750	2230	1600	1770	1940	4430	26450	2390	13840	9890

CAL YR 1990 TOTAL 100520 MEAN 275 MAX 2680 MIN 19 AC-FT 199400
WTR YR 1991 TOTAL 35095 MEAN 98.2 MAX 822 MIN 14 AC-FT 69610

e Estimated

ARKANSAS RIVER BASIN

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 current year.

pH: October 1988 to current year.

WATER TEMPERATURE: October 1988 to current year.

DISSOLVED OXYGEN: October 1988 to current year.

INSTRUMENTATION.-- Water-quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instruments, and extended periods of minimum discharge, which inhibited probe operation. Samples were collected monthly and specific conductance, pH, water temperature, dissolved oxygen, and alkalinity were determined in the field. Dissolved oxygen data for April 1991 to September 1991 is available upon request from the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,900 microsiemens, July 8, 10, 1990; minimum, 153 microsiemens, Mar. 11, 1990

pH: Maximum, 9.4 units, Sept. 25, 1989; minimum, 7.1 units, Nov. 6, 1988.

WATER TEMPERATURE: Maximum, 39.0°C, July 2, 1990; minimum, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum, 15.0 mg/l, March 23, 1989; minimum, 3.1 mg/l, July 15, 1989.

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH WATER WHOLE FIELD (STAND- ARD UNITS)
JUL											
16...	1456	4.00	33.0	760	1028	1028	40	6.15	1510	9.4	8.6
16...	1502	9.00	33.5	760	1028	1028	40	6.15	1520	9.4	8.7
16...	1506	19.0	33.0	760	1028	1028	40	6.15	1530	9.2	8.7
16...	1513	29.0	33.5	760	1028	1028	40	6.15	1530	9.2	8.7
16...	1522	39.0	33.5	760	1028	1028	40	6.15	1540	9.4	8.7
16...	1528	49.0	33.0	760	1028	1028	40	6.15	1540	10.0	8.7
16...	1535	59.0	33.0	760	1028	1028	40	6.15	1540	9.9	8.7

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT												
23...	1125	1028	80020	21	1760	8.4	17.0	10.5	--	750	11.4	104
23...	1128	1028	1028	21	1760	8.4	17.0	10.5	2.7	750	11.4	104
NOV												
19...	1140	1028	80020	27	1800	8.5	13.5	12.0	--	750	10.9	104
19...	1141	1028	1028	27	1800	8.5	13.5	12.0	2.3	750	10.9	103
DEC												
18...	1005	1028	1028	31	1480	8.5	5.5	5.5	2.2	745	11.8	98
JAN												
30...	1050	1028	1028	31	1500	8.6	-4.0	0.0	6.4	760	14.1	97
FEB												
12...	1045	1028	80020	29	1480	8.6	15.0	10.5	--	750	11.7	107
12...	1046	1028	1028	29	1480	8.6	15.0	10.5	2.8	750	11.7	107
MAR												
20...	0910	1028	1028	36	1360	8.5	14.5	11.5	4.7	745	10.0	94
APR												
16...	1150	1028	1028	28	1640	8.5	24.5	18.5	3.5	755	10.4	113
MAY												
22...	1036	1028	80020	99	440	8.3	26.0	24.0	--	755	6.1	74
22...	1037	1028	1028	99	440	8.3	26.0	24.0	300	755	6.1	73
JUN												
11...	1030	1028	1028	408	1740	8.4	27.0	25.0	58	755	7.5	92
JUL												
18...	1030	1028	80020	40	1350	8.6	32.0	27.0	2.7	760	8.0	101
AUG												
14...	0930	1028	80020	15	1830	8.4	24.5	22.0	1.5	760	7.3	84
SEP												
03...	1109	1028	80020	243	300	8.2	28.0	25.5	82	760	6.3	77

ARKANSAS RIVER BASIN

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07289450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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- 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)
OCT												
23...	--	0.6	--	--	--	--	--	--	--	--	--	--
23...	1.7	--	700	200	--	--	--	--	--	--	--	--
NOV												
19...	--	0.8	--	--	--	--	--	--	--	--	--	--
19...	1.8	--	100	200	--	--	--	--	--	--	--	--
DEC												
18...	0.38	0.7	300	1000	--	--	--	--	--	--	--	--
JAN												
30...	1.7	0.6	10	<1	--	--	--	--	--	--	--	--
FEB												
12...	--	0.2	--	--	420	--	90	47	160	45	3	5.2
12...	1.3	--	70	50	--	--	--	--	--	--	--	--
MAR												
20...	--	1.3	60	300	--	--	--	--	--	--	--	--
APR												
16...	0.52	1.0	20	20	--	--	--	--	--	--	--	--
MAY												
22...	--	8.2	--	--	130	--	32	12	35	35	1	7.6
22...	2.4	--	700	120	--	--	--	--	--	--	--	--
JUN												
11...	1.4	0.1	600	1500	--	--	--	--	--	--	--	--
JUL												
16...	--	2.0	100	140	--	--	--	--	--	--	--	--
AUG												
14...	--	1.4	160	150	410	270	76	52	220	54	5	7.4
SEP												
03...	1.8	--	>600	>1000	--	--	--	--	--	--	--	--
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 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												
23...	--	--	--	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	--	--	--	
NOV												
19...	--	--	--	280	210	0.60	--	--	--	--	--	
19...	--	--	--	--	--	--	--	--	--	--	--	
DEC												
18...	--	--	--	--	--	--	--	--	--	--	--	
JAN												
30...	--	--	--	--	--	--	--	--	--	--	--	
FEB												
12...	--	--	--	260	180	0.60	1.7	933	--	--	--	
12...	--	--	--	--	--	--	--	--	--	--	--	
MAR												
20...	--	--	--	--	--	--	--	--	--	--	--	
APR												
16...	--	--	--	--	--	--	--	--	--	--	--	
MAY												
22...	--	--	--	60	36	0.40	5.6	265	250	0.36	70.8	
22...	--	--	--	--	--	--	--	--	--	--	--	
JUN												
11...	--	--	--	--	--	--	--	--	--	--	--	
JUL												
16...	174	6	153	--	--	--	--	--	--	--	--	
AUG												
14...	133	16	136	330	280	0.80	1.3	1080	1050	1.47	43.7	
SEP												
03...	61	0	50	--	--	--	--	--	--	--	--	

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEXAZI- NONE WATER WHOLE RECOV- ERABLE (UG/L)	3-HYDRX CARBO- FURAN WATER WHOLE TOT.REC (UG/L)	METHYL- BROWIDE TOTAL (UG/L)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L)	METRI- BUZIN WATER WHOLE TOT.REC (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	1-NAPH- THOL WATER WHOLE REC (UG/L)	OXYAMYL WATER WHOLE TOT.REC (UG/L)	PROPA- CHLOR WATER WHOLE RECOV. (UG/L)
OCT												
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
19...	<0.10	<1.0	--	<0.5	<3.0	<0.10	<0.10	<3.0	<3.0	<0.5	<0.5	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
18...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
30...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
12...	<0.10	<1.0	<0.20	--	--	<0.20	<0.10	--	--	--	--	<0.10
12...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
20...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
16...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
22...	<0.10	<1.0	<0.20	--	--	<0.20	<0.10	--	--	--	--	<0.10
22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
14...	<0.10	<1.0	<0.20	--	--	<0.10	<0.10	--	--	--	--	<0.10
SEP												
03...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	STYRENE TOTAL (UG/L)	TER- BACIL WATER WHOLE RECOV. (UG/L)	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	VER- NOLATE WATER WHOLE RECOV. (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
OCT												
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
19...	<3.0	--	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	--	<1.0	<3.0
19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
18...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
30...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
12...	--	<0.20	--	--	--	--	--	--	--	<0.10	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
20...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
16...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
22...	--	<0.20	--	--	--	--	--	--	--	<0.10	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
14...	--	<0.20	--	--	--	--	--	--	--	<0.10	--	--
SEP												
03...	--	--	--	--	--	--	--	--	--	--	--	--

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible]

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1630	1620	1630	1660	1640	1660	1530	1520	1530	---	---	---
2	1640	1580	1630	1670	1650	1660	1540	1530	1540	---	---	---
3	1570	1510	1530	1660	1640	1660	1560	1540	1550	---	---	---
4	1560	1510	1540	1640	1580	1610	1570	1560	1560	---	---	---
5	1580	1540	1560	1580	1530	1550	1570	1550	1560	---	---	---
6	1590	1560	1570	1520	1480	1500	1560	1550	1560	---	---	---
7	1590	1580	1580	1460	1400	1430	1570	1550	1560	---	---	---
8	1600	1590	1590	1400	1360	1380	1560	1540	1560	---	---	---
9	1600	1590	1590	1360	1330	1350	1560	1550	1560	---	---	---
10	1630	1600	1610	1340	1320	1330	1570	1540	1560	---	---	---
11	1630	1600	1630	1380	1340	1360	1600	1550	1570	---	---	---
12	1640	1620	1630	1380	1370	1380	1600	1580	1590	---	---	---
13	1630	1570	1610	1410	1370	1390	1600	1570	1590	---	---	---
14	1620	1590	1600	1430	1400	1410	1580	1570	1580	---	---	---
15	1640	1590	1620	1440	1420	1430	1590	1570	1580	---	---	---
16	1650	1620	1630	1490	1440	1470	1580	1510	1550	---	---	---
17	1660	1640	1650	1510	1490	1500	1510	1470	1490	---	---	---
18	1690	1650	1670	1540	1510	1520	1530	1480	1500	---	---	---
19	1720	1680	1700	1590	1520	1590	1490	1480	1490	---	---	---
20	1730	1700	1730	1530	1520	1530	1540	1490	1510	---	---	---
21	1740	1720	1730	1520	1520	1520	---	---	---	---	---	---
22	1740	1730	1740	1520	1510	1520	---	---	---	---	---	---
23	1740	1690	1720	1520	1510	1510	---	---	---	---	---	---
24	1720	1700	1710	1520	1510	1510	---	---	---	---	---	---
25	1710	1680	1690	1520	1500	1510	---	---	---	---	---	---
26	1700	1680	1690	1520	1490	1510	---	---	---	---	---	---
27	1690	1680	1680	1510	1500	1510	---	---	---	---	---	---
28	1690	1670	1680	1520	1510	1520	---	---	---	---	---	---
29	1680	1660	1670	1520	1510	1520	---	---	---	---	---	---
30	1670	1650	1660	1530	1520	1530	---	---	---	---	---	---
31	1660	1640	1660	---	---	---	---	---	---	1500	1400	1440
MONTH	1740	1510	1640	1670	1320	1500	1600	1470	1550	1500	1400	1440
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1470	1400	1440	---	---	---	1410	1310	1390	1400	1170	1290
2	1460	1430	1440	---	---	---	1420	1230	1400	1530	1300	1440
3	1450	1420	1440	---	---	---	1280	1110	1220	1470	1340	1400
4	1420	1390	1400	---	---	---	1450	1280	1380	1490	1400	1460
5	---	---	---	---	---	---	1490	1400	1460	1510	1410	1460
6	---	---	---	---	---	---	1520	1490	1510	1520	1430	1470
7	---	---	---	---	---	---	1560	1500	1540	1500	1300	1400
8	---	---	---	---	---	---	1540	1520	1530	1370	1280	1320
9	---	---	---	---	---	---	1550	1520	1540	1320	1050	1130
10	---	---	---	---	---	---	1600	1550	1570	1380	1100	1220
11	---	---	---	---	---	---	1620	1590	1600	1430	1380	1410
12	---	---	---	---	---	---	1640	1600	1630	1450	1380	1410
13	---	---	---	---	---	---	1620	1560	1590	1490	1450	1470
14	---	---	---	---	---	---	---	---	---	1520	1470	1490
15	---	---	---	---	---	---	---	---	---	1540	1510	1520
16	---	---	---	---	---	---	---	---	---	1570	1530	1550
17	---	---	---	---	---	---	1640	1610	1630	1600	1560	1580
18	---	---	---	---	---	---	1610	1570	1600	1650	1600	1620
19	---	---	---	---	---	---	1590	1570	1580	1670	1570	1630
20	---	---	---	---	---	---	1610	1580	1600	1570	1290	1480
21	---	---	---	1370	1310	1340	1610	1570	1590	1210	466	629
22	---	---	---	1390	1320	1360	1580	1560	1570	551	476	505
23	---	---	---	1450	1380	1410	1580	1570	1580	822	554	648
24	---	---	---	1520	1450	1490	1610	1360	1520	927	737	864
25	---	---	---	1530	1510	1520	1410	1370	1390	913	444	635
26	---	---	---	1540	1490	1530	1410	1310	1400	732	451	566
27	---	---	---	1550	1540	1570	1470	1330	1390	454	371	410
28	---	---	---	1560	1490	1540	1440	1280	1330	632	458	539
29	---	---	---	1510	1390	1460	1380	1220	1330	844	634	729
30	---	---	---	1450	1420	1440	1380	1080	1220	988	822	895
31	---	---	---	1430	1400	1420	---	---	---	1170	859	1070
MONTH	1470	1390	1430	1560	1310	1460	1640	1080	1480	1670	371	1170

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1280	827	1170	---	---	---	1790	1730	1770	1420	432	1020
2	---	---	---	---	---	---	1780	1730	1760	817	373	466
3	---	---	---	---	---	---	1820	1720	1750	451	300	354
4	---	---	---	---	---	---	1850	1750	1790	890	322	545
5	---	---	---	---	---	---	1940	1790	1850	981	253	515
6	---	---	---	---	---	---	1940	1790	1870	1390	864	1090
7	---	---	---	---	---	---	1790	1660	1720	1450	1060	1330
8	1760	1750	1780	---	---	---	1850	1690	1770	1580	1450	1530
9	1760	1700	1750	---	---	---	1830	1800	1810	1660	1540	1590
10	---	---	---	---	---	---	---	---	---	1640	1510	1600
11	---	---	---	---	---	---	---	---	---	1670	1620	1640
12	1800	1780	1790	---	---	---	---	---	---	1630	1550	1610
13	1800	1470	1670	---	---	---	---	---	---	1650	1440	1570
14	1760	1610	1710	---	---	---	---	---	---	1640	1380	1540
15	1790	1760	1780	1840	1050	1530	1980	1090	1730	1720	1470	1600
16	1810	1790	1800	1570	1070	1350	1680	820	1190	1730	1490	1640
17	1800	1790	1800	1620	1250	1460	1450	769	1260	1760	1530	1670
18	1790	1690	1750	1750	1630	1700	1580	1310	1520	1770	1470	1640
19	1680	1650	1680	1780	1690	1740	1590	1540	1560	1410	375	633
20	1670	1600	1650	1820	1770	1800	1730	1550	1600	520	395	480
21	1710	1630	1660	1850	1810	1830	1730	1690	1700	793	524	617
22	1650	1630	1640	1890	1840	1860	1690	1660	1680	1160	805	986
23	1640	1580	1620	1890	1830	1860	1640	1540	1610	1420	1150	1270
24	---	---	---	1870	1720	1820	1770	1650	1730	1590	1420	1510
25	1780	1630	1720	1840	1720	1800	1760	1740	1750	1670	1480	1600
26	1810	1760	1780	1870	1820	1850	1750	1730	1740	1730	1600	1650
27	1850	1820	1830	1840	1800	1830	1760	1740	1750	1770	1600	1740
28	1930	1820	1870	1850	1780	1810	1760	1740	1750	1790	1640	1770
29	1990	1890	1940	1830	1780	1810	1780	1760	1770	1820	1600	1720
30	---	---	---	1860	1780	1810	1820	1680	1760	1820	1690	1770
31	---	---	---	1850	1780	1820	1690	1000	1430	---	---	---
MONTH	1990	827	1720	1890	1050	1750	1980	769	1680	1820	253	1290
YEAR	1990	253	1500									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.8	8.3	8.6	---	---	---	---	---	---	---	---	---
2	8.5	8.1	8.4	---	---	---	---	---	---	---	---	---
3	8.5	8.0	8.2	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	8.5	8.3	8.4	---	---	---
13	---	---	---	---	---	---	8.5	8.4	8.4	---	---	---
14	---	---	---	---	---	---	8.5	8.3	8.4	---	---	---
15	---	---	---	---	---	---	8.5	8.4	8.4	---	---	---
16	---	---	---	---	---	---	8.5	8.4	8.4	---	---	---
17	8.8	8.5	8.6	---	---	---	8.5	8.4	8.4	---	---	---
18	8.7	8.3	8.6	---	---	---	8.5	8.4	8.4	---	---	---
19	---	---	---	---	---	---	8.4	8.3	8.3	---	---	---
20	---	---	---	8.7	8.1	8.3	8.3	8.0	8.1	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	8.5	8.2	8.3
MAX	8.8	8.5	8.6	8.7	8.1	8.3	8.5	8.5	8.4	8.5	8.2	8.3
MIN	8.5	8.0	8.2	8.7	8.1	8.3	8.3	8.0	8.1	8.5	8.2	8.3

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.5	8.4	8.4	8.8	8.5	8.6	9.0	8.7	8.8	8.8	8.5	8.7
2	8.5	8.4	8.4	8.8	8.5	8.6	8.9	8.6	8.8	8.8	8.3	8.6
3	8.6	8.3	8.4	8.8	8.5	8.6	8.8	8.5	8.6	8.6	8.2	8.4
4	8.6	8.3	8.4	8.8	8.6	8.6	8.8	8.3	8.5	---	---	---
5	8.7	8.3	8.4	8.8	8.5	8.6	8.5	8.2	8.3	---	---	---
6	8.8	8.5	8.6	8.8	8.5	8.6	9.0	8.3	8.7	---	---	---
7	8.8	8.5	8.6	8.9	8.6	8.7	9.0	8.5	8.8	---	---	---
8	8.7	8.5	8.6	8.8	8.6	8.7	8.8	8.6	8.7	---	---	---
9	8.7	8.5	8.6	8.8	8.6	8.7	8.6	8.4	8.5	---	---	---
10	8.8	8.5	8.6	8.8	8.6	8.7	9.0	8.3	8.5	---	---	---
11	8.7	8.5	8.6	8.8	8.6	8.7	8.9	8.6	8.8	---	---	---
12	8.8	8.5	8.6	8.9	8.6	8.7	8.9	8.6	8.7	---	---	---
13	8.8	8.5	8.6	8.9	8.6	8.7	8.9	8.4	8.7	---	---	---
14	8.8	8.5	8.6	8.9	8.7	8.7	8.7	8.3	8.4	---	---	---
15	8.8	8.6	8.7	8.8	8.6	8.7	9.0	8.4	8.6	---	---	---
16	8.7	8.5	8.6	8.8	8.6	8.7	8.8	8.1	8.5	---	---	---
17	8.7	8.5	8.6	8.8	8.5	8.6	8.8	8.4	8.6	---	---	---
18	8.8	8.5	8.6	8.8	8.6	8.6	8.8	8.4	8.6	---	---	---
19	8.8	8.5	8.6	8.7	8.6	8.6	8.8	8.5	8.6	---	---	---
20	8.7	8.5	8.6	8.7	8.5	8.6	8.8	8.5	8.7	---	---	---
21	8.7	8.5	8.6	8.7	8.4	8.5	8.8	8.5	8.6	---	---	---
22	---	---	---	8.8	8.5	8.6	8.8	8.5	8.6	---	---	---
23	---	---	---	8.7	8.5	8.6	8.7	8.5	8.6	---	---	---
24	---	---	---	8.7	8.5	8.6	8.7	8.4	8.5	---	---	---
25	---	---	---	8.7	8.4	8.5	8.7	8.4	8.5	---	---	---
26	8.7	8.4	8.6	8.7	8.4	8.5	8.6	8.1	8.4	---	---	---
27	8.8	8.5	8.5	9.0	8.4	8.7	8.9	8.0	8.6	---	---	---
28	8.8	8.6	8.6	8.9	8.7	8.8	8.9	8.5	8.7	---	---	---
29	---	---	---	8.9	8.6	8.7	8.9	8.6	8.7	---	---	---
30	---	---	---	9.0	8.7	8.8	9.0	8.6	8.8	---	---	---
31	---	---	---	9.0	8.7	8.8	---	---	---	---	---	---
MAX	8.8	8.6	8.7	9.0	8.7	8.8	9.0	8.7	8.8	8.8	8.5	8.7
MIN	8.5	8.3	8.4	8.7	8.4	8.5	8.5	8.0	8.3	8.6	8.2	8.4

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	8.7	8.1	8.5	8.3	8.1	8.2	8.4	8.2	8.3
2	---	---	---	8.6	7.9	8.5	8.3	8.1	8.1	8.2	8.1	8.1
3	---	---	---	9.0	8.5	8.6	8.2	8.0	8.1	8.2	8.1	8.1
4	---	---	---	9.1	8.1	8.6	---	---	---	8.2	8.1	8.2
5	---	---	---	9.0	8.4	8.6	---	---	---	8.2	8.1	8.1
6	---	---	---	8.6	7.8	8.2	---	---	---	8.2	8.1	8.1
7	---	---	---	8.2	7.8	8.0	---	---	---	8.2	8.0	8.1
8	---	---	---	8.2	7.8	7.9	---	---	---	---	---	---
9	---	---	---	8.6	8.2	8.4	---	---	---	---	---	---
10	---	---	---	9.0	8.4	8.6	---	---	---	9.0	8.8	8.8
11	---	---	---	9.0	8.4	8.6	---	---	---	9.1	8.9	8.9
12	---	---	---	8.8	8.2	8.5	---	---	---	9.0	8.9	8.9
13	---	---	---	8.9	8.4	8.6	---	---	---	8.9	8.8	8.9
14	---	---	---	8.7	8.3	8.6	---	---	---	8.9	8.7	8.8
15	8.9	8.6	8.6	8.9	8.7	8.7	8.4	8.2	8.3	8.9	8.8	8.8
16	8.9	8.5	8.6	8.8	8.3	8.7	8.4	8.3	8.3	8.9	8.7	8.8
17	8.8	8.3	8.5	8.7	8.3	8.6	8.5	8.0	8.3	8.9	8.8	8.8
18	8.9	8.6	8.7	8.7	8.5	8.6	8.5	8.1	8.3	9.0	8.8	8.9
19	8.8	8.4	8.7	8.6	8.4	8.5	8.5	8.1	8.4	8.7	8.4	8.4
20	8.9	8.6	8.8	8.6	8.4	8.5	8.5	8.2	8.4	8.4	8.2	8.4
21	8.9	8.4	8.6	8.4	8.2	8.3	8.6	8.2	8.4	8.5	8.1	8.5
22	8.7	8.4	8.6	8.3	8.1	8.2	---	---	---	8.7	8.5	8.5
23	9.0	8.5	8.7	8.2	8.0	8.1	---	---	---	8.8	8.5	8.6
24	8.7	8.1	8.4	8.5	8.1	8.2	8.7	8.5	8.5	8.9	8.6	8.7
25	8.7	8.3	8.5	8.7	8.5	8.5	8.8	8.6	8.7	8.9	8.7	8.8
26	8.6	8.2	8.5	8.5	8.4	8.5	8.8	8.7	8.7	8.7	8.6	8.6
27	8.6	8.2	8.4	8.5	8.3	8.3	8.9	8.7	8.8	8.7	8.6	8.6
28	8.7	8.3	8.5	8.4	8.3	8.3	9.0	8.8	8.9	8.6	8.5	8.6
29	8.7	8.3	8.5	8.4	8.2	8.3	9.0	8.8	8.9	8.6	8.5	8.5
30	8.8	8.3	8.6	8.4	8.2	8.3	8.9	8.8	8.8	8.8	8.5	8.5
31	---	---	---	8.3	8.2	8.3	8.8	8.2	8.5	---	---	---
MAX	9.0	8.6	8.8	9.1	8.7	8.7	9.0	8.8	8.9	9.1	8.9	8.9
MIN	8.6	8.2	8.4	8.2	7.8	7.9	8.2	8.0	8.1	8.2	8.0	8.1

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.0	17.0	20.5	21.5	15.0	18.0	---	---	---	---	---	---
2	21.5	19.0	20.5	20.5	15.5	18.0	---	---	---	---	---	---
3	24.0	19.0	21.0	18.5	11.5	16.5	---	---	---	---	---	---
4	25.5	17.5	21.0	11.0	7.5	9.0	---	---	---	---	---	---
5	26.0	18.5	22.0	13.0	6.0	9.0	---	---	---	---	---	---
6	24.5	20.5	22.5	14.0	8.0	11.0	---	---	---	---	---	---
7	22.5	17.5	19.5	10.5	7.5	9.0	---	---	---	---	---	---
8	17.0	13.0	15.5	9.0	7.5	8.5	---	---	---	---	---	---
9	16.0	11.5	13.0	13.5	7.5	10.0	---	---	---	---	---	---
10	17.5	9.0	13.0	14.5	7.5	11.0	---	---	---	---	---	---
11	18.5	11.0	14.5	16.5	9.5	13.0	---	---	---	---	---	---
12	19.0	12.5	15.5	17.5	11.0	14.0	12.0	6.0	8.5	---	---	---
13	20.5	13.0	16.0	18.0	11.0	14.5	7.5	5.0	6.0	---	---	---
14	21.0	14.5	17.5	17.5	11.5	14.0	8.0	5.0	6.5	5.5	1.0	3.0
15	22.0	14.0	17.5	18.5	12.5	15.0	7.5	4.0	6.0	7.5	3.0	5.0
16	24.0	16.5	19.5	16.0	12.0	14.0	6.5	5.5	6.0	8.0	3.0	5.0
17	21.0	15.0	18.5	13.5	9.0	11.0	8.0	6.0	7.0	8.5	3.0	5.5
18	18.0	11.0	14.0	14.5	10.5	12.5	10.5	5.0	7.5	9.5	5.0	7.0
19	17.5	10.5	13.5	---	---	---	8.5	7.0	8.0	10.0	6.0	7.5
20	19.0	12.0	15.0	---	---	---	---	---	---	7.5	4.5	6.0
21	18.0	10.5	13.0	---	---	---	---	---	---	6.5	2.0	4.5
22	16.0	8.0	12.0	---	---	---	---	---	---	7.0	1.0	4.0
23	17.0	9.5	13.0	---	---	---	---	---	---	8.0	2.0	5.0
24	17.0	11.0	14.0	---	---	---	---	---	---	8.5	2.0	5.0
25	17.5	10.5	14.0	---	---	---	---	---	---	5.0	2.5	4.0
26	19.0	11.5	15.0	---	---	---	---	---	---	4.5	1.0	2.5
27	18.5	13.0	15.5	---	---	---	---	---	---	9.0	3.0	5.0
28	17.5	11.0	14.5	---	---	---	---	---	---	6.0	2.0	4.5
29	20.0	12.5	16.0	---	---	---	---	---	---	6.0	1.0	4.0
30	20.0	13.5	16.5	---	---	---	---	---	---	4.0	.5	1.5
31	20.5	14.0	17.0	---	---	---	---	---	---	6.5	1.0	2.5
MONTH	26.0	8.0	16.5	21.5	6.0	12.7	12.0	4.0	6.9	10.0	.5	4.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.0	1.5	5.0	19.5	12.0	15.0	27.5	13.5	20.0	27.0	15.0	20.5
2	9.5	3.5	6.5	13.5	6.0	9.0	21.5	15.0	17.5	23.0	17.0	20.0
3	11.5	5.5	8.5	13.5	3.5	8.5	22.5	15.0	18.0	31.0	18.5	24.0
4	12.5	10.0	11.0	17.5	6.5	12.0	26.0	14.5	20.0	30.5	21.0	25.0
5	14.5	10.0	11.5	20.0	10.0	14.5	27.5	16.5	21.5	24.0	15.5	19.5
6	14.0	6.5	10.0	17.0	11.5	14.0	27.5	17.5	22.0	26.5	15.0	21.0
7	13.5	6.0	9.5	12.5	8.0	10.0	---	---	---	21.5	16.0	18.5
8	14.0	5.5	9.5	16.5	5.5	11.0	---	---	---	21.5	16.5	18.5
9	14.5	7.5	10.5	17.5	7.5	12.0	---	---	---	24.5	18.5	20.5
10	14.0	7.0	10.0	15.5	7.5	11.5	---	---	---	27.0	20.0	23.0
11	14.5	6.0	10.0	15.0	9.0	12.5	---	---	---	26.0	22.5	24.0
12	15.0	9.0	12.0	16.0	10.5	13.0	---	---	---	31.0	21.0	25.5
13	16.0	10.0	12.5	17.0	7.5	11.0	---	---	---	32.5	23.5	27.5
14	13.5	7.5	10.0	16.0	5.5	10.5	---	---	---	29.5	23.0	26.5
15	10.0	3.0	6.5	11.0	7.5	9.0	---	---	---	26.0	21.5	23.5
16	6.0	2.0	5.0	11.0	7.5	9.5	---	---	---	30.5	21.5	25.5
17	10.0	6.5	10.5	17.0	9.0	12.5	---	---	---	32.5	21.5	26.5
18	16.0	9.0	12.0	19.0	8.0	13.5	---	---	---	33.0	23.0	27.5
19	12.5	5.5	8.5	17.0	11.5	14.0	---	---	---	30.5	23.5	27.0
20	13.5	4.0	8.5	17.5	12.0	14.0	---	---	---	29.0	23.5	25.5
21	15.5	6.0	10.5	23.0	12.0	17.0	---	---	---	26.5	23.0	25.0
22	15.5	7.5	11.0	20.0	14.0	17.0	---	---	---	28.5	24.0	25.5
23	15.5	7.5	11.5	23.5	12.0	17.5	---	---	---	30.0	22.5	25.5
24	11.5	7.0	9.0	23.5	13.0	18.0	23.0	17.5	20.0	27.0	23.0	25.0
25	12.5	3.5	7.5	21.5	14.0	18.0	24.5	17.0	20.0	28.5	24.5	26.5
26	14.0	4.5	8.5	23.5	18.5	20.5	30.0	21.0	25.0	30.5	25.5	28.0
27	14.0	4.5	9.0	24.5	15.5	17.5	29.5	19.5	24.0	32.0	26.0	28.5
28	15.5	7.0	11.5	20.5	14.5	17.0	24.0	19.0	22.0	32.0	25.5	28.5
29	---	---	---	23.5	13.0	17.5	25.0	15.5	20.0	33.0	26.5	29.0
30	---	---	---	19.5	11.0	15.0	27.0	16.0	21.0	29.5	24.0	27.0
31	---	---	---	24.5	11.0	17.0	---	---	---	29.5	24.5	27.0
MONTH	18.0	1.5	9.5	24.5	3.5	13.8	30.0	13.5	20.8	33.0	15.0	24.7

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	28.5	23.5	26.0	30.5	24.0	26.5	---	---	---	25.5	24.5	25.0
2	23.0	21.0	22.5	30.0	24.5	27.0	---	---	---	24.5	23.5	24.0
3	23.5	22.0	22.5	30.5	25.0	28.0	---	---	---	27.5	24.0	25.5
4	27.5	22.5	24.5	---	---	---	---	---	---	26.5	24.5	25.5
5	28.5	26.5	27.5	---	---	---	---	---	---	26.0	23.0	24.5
6	27.5	26.5	27.0	---	---	---	---	---	---	27.5	25.0	26.0
7	27.0	25.5	26.0	---	---	---	---	---	---	27.0	26.0	26.5
8	27.5	25.5	26.5	---	---	---	---	---	---	28.0	25.0	26.5
9	27.0	25.0	26.0	---	---	---	---	---	---	30.0	25.5	27.5
10	26.5	25.0	26.0	---	---	---	---	---	---	30.5	26.5	28.5
11	27.5	25.0	26.0	---	---	---	---	---	---	30.5	26.5	28.5
12	29.5	25.5	27.5	---	---	---	---	---	---	30.0	25.0	27.5
13	28.0	25.5	27.0	---	---	---	---	---	---	29.5	25.0	26.5
14	31.0	26.5	28.0	---	---	---	---	---	---	28.0	24.0	26.0
15	28.5	27.0	28.0	---	---	---	---	---	---	27.0	24.0	25.5
16	29.0	26.0	27.5	---	---	---	28.0	25.0	26.5	25.0	22.5	23.5
17	30.0	26.5	28.0	---	---	---	29.0	26.5	27.5	24.5	22.0	23.0
18	31.0	27.5	29.0	---	---	---	28.0	26.0	27.0	23.0	15.5	18.5
19	30.5	28.5	29.5	---	---	---	28.5	26.0	27.5	15.5	13.5	14.0
20	30.0	27.5	29.0	---	---	---	28.0	26.5	27.0	16.0	13.5	14.5
21	30.0	27.5	28.5	---	---	---	27.5	25.5	26.5	19.5	15.0	16.5
22	29.0	27.0	28.0	---	---	---	29.0	26.5	27.5	18.5	17.0	17.5
23	---	---	---	---	---	---	30.0	27.0	28.5	18.5	15.0	17.0
24	---	---	---	---	---	---	30.0	27.5	29.0	21.0	17.0	18.5
25	31.0	25.0	28.0	---	---	---	30.0	27.0	28.5	22.5	15.0	18.0
26	31.0	24.5	27.5	---	---	---	29.0	26.5	28.0	24.0	16.5	20.0
27	30.5	24.5	27.5	---	---	---	29.0	26.0	27.5	23.0	16.5	19.5
28	31.0	24.5	27.5	---	---	---	29.5	26.0	27.5	24.0	16.5	20.0
29	30.5	24.0	27.0	---	---	---	29.5	25.0	27.0	23.5	16.5	19.5
30	30.0	23.0	26.0	---	---	---	30.0	25.5	27.0	24.0	16.5	20.0
31	---	---	---	---	---	---	27.5	24.0	25.5	---	---	---
MONTH	31.0	21.0	26.9	30.5	24.0	27.2	30.0	24.0	27.4	30.5	13.5	22.4
YEAR	33.0	.5	17.9									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	9.8	6.7	8.1	10.3	7.2	8.5	11.9	9.5	10.7	11.3	10.4	10.9
2	8.9	6.7	7.6	10.1	7.3	8.3	11.7	9.5	10.3	10.9	10.0	10.5
3	9.3	6.7	7.6	9.4	7.3	8.1	12.4	9.9	11.1	10.7	9.4	10.1
4	9.3	6.6	7.7	11.5	9.4	10.5	12.7	10.5	11.6	10.3	9.4	9.9
5	9.1	6.4	7.5	12.0	9.8	11.0	12.5	10.1	11.3	10.6	9.0	9.8
6	8.5	6.4	7.3	11.5	9.5	10.4	12.0	10.2	10.9	11.9	9.9	10.7
7	9.3	6.4	7.7	12.1	9.7	10.9	12.6	10.6	11.5	12.4	10.8	11.5
8	9.1	7.5	8.3	11.7	10.5	11.1	---	---	---	12.1	10.8	11.4
9	10.1	8.6	9.3	12.1	9.9	10.9	---	---	---	12.2	11.1	11.5
10	10.3	8.2	9.4	12.0	9.4	10.7	---	---	---	12.4	11.4	11.8
11	10.2	7.9	9.0	11.8	8.9	10.2	---	---	---	12.6	11.4	11.8
12	10.2	7.8	8.8	11.7	8.7	9.9	13.8	10.9	12.0	12.2	11.3	11.7
13	9.8	7.4	8.5	11.7	8.8	9.9	13.9	11.2	12.4	11.7	10.7	11.3
14	9.7	7.4	8.3	11.5	8.9	9.9	13.9	11.3	12.5	11.9	10.2	11.1
15	10.0	7.1	8.4	11.1	8.5	9.7	14.2	11.3	12.5	11.2	9.8	10.5
16	10.1	7.1	8.2	11.2	8.5	9.6	13.2	11.4	12.0	11.5	9.8	10.5
17	10.2	7.6	8.7	12.2	9.7	10.8	12.5	10.6	11.5	12.0	9.8	10.7
18	11.1	9.0	9.9	11.5	9.3	10.4	12.5	10.0	11.2	12.1	9.4	10.5
19	11.1	8.9	9.9	11.2	8.4	9.8	---	---	---	12.2	9.3	10.3
20	10.7	8.5	9.6	10.0	7.5	8.6	---	---	---	12.7	9.4	10.9
21	11.4	8.8	10.0	9.9	7.4	8.3	13.5	12.2	12.8	13.2	10.8	11.8
22	11.7	9.1	10.4	11.2	8.1	9.4	13.8	11.7	12.9	12.8	10.3	11.4
23	11.5	8.7	10.1	11.4	8.7	9.9	13.7	12.2	13.1	12.8	10.1	11.2
24	11.4	8.8	9.9	11.3	8.4	9.6	13.1	11.6	12.4	12.8	10.0	11.1
25	11.4	8.7	9.9	11.2	8.1	9.5	12.6	11.0	12.0	12.3	10.1	11.0
26	11.0	8.2	9.5	10.1	7.4	8.7	12.5	10.7	11.8	12.8	10.6	11.5
27	10.8	8.3	9.3	10.5	7.2	8.7	12.0	10.6	11.3	---	---	---
28	11.1	8.5	9.6	11.8	9.2	10.4	12.1	10.8	11.4	---	---	---
29	10.8	7.8	9.2	12.2	10.0	10.9	12.5	11.1	11.8	---	---	---
30	10.6	7.7	8.9	12.1	9.9	11.0	11.9	10.9	11.6	---	---	---
31	10.7	7.6	8.8	---	---	---	12.1	10.9	11.4	14.3	12.0	13.2
MONTH	11.7	6.4	8.9	12.2	7.2	9.9	14.2	9.5	11.8	14.3	9.0	11.0

ARKANSAS RIVER BASIN

07239450 NORTH CANADIAN RIVER NEAR CALUMET, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	14.4	11.1	12.8	10.6	6.9	8.5	---	---	---	---	---	---
2	14.4	10.8	12.4	11.4	7.1	9.4	---	---	---	---	---	---
3	13.9	9.7	11.6	12.5	8.7	10.8	---	---	---	---	---	---
4	14.1	9.2	10.9	12.1	7.4	9.8	---	---	---	---	---	---
5	14.4	9.1	10.9	10.8	6.4	8.4	---	---	---	---	---	---
6	14.2	9.5	11.3	11.0	6.5	8.5	---	---	---	---	---	---
7	14.0	9.7	11.4	11.7	8.0	9.6	---	---	---	---	---	---
8	13.9	9.4	11.3	11.9	7.9	9.8	---	---	---	---	---	---
9	13.5	9.1	10.8	12.0	7.7	9.4	---	---	---	---	---	---
10	13.5	9.0	10.9	11.0	7.8	9.2	---	---	---	---	---	---
11	13.1	9.0	10.8	10.7	7.3	8.8	---	---	---	---	---	---
12	12.6	8.1	10.1	10.4	7.4	8.8	---	---	---	---	---	---
13	12.3	8.0	9.6	11.3	7.9	9.3	---	---	---	---	---	---
14	12.6	8.6	10.3	11.4	7.9	9.6	---	---	---	---	---	---
15	13.6	10.1	11.6	11.2	8.0	9.5	---	---	---	---	---	---
16	13.3	10.2	11.7	11.0	8.1	9.3	---	---	---	---	---	---
17	12.3	7.9	10.2	11.0	7.8	9.1	---	---	---	---	---	---
18	12.6	8.1	9.9	---	---	---	---	---	---	---	---	---
19	13.1	8.9	10.9	---	---	---	---	---	---	---	---	---
20	12.8	9.2	11.0	---	---	---	---	---	---	---	---	---
21	12.8	8.5	10.5	12.4	6.7	9.2	---	---	---	---	---	---
22	12.9	8.6	10.3	9.9	6.7	8.2	---	---	---	---	---	---
23	11.9	8.2	9.9	11.5	7.1	9.0	---	---	---	---	---	---
24	12.4	8.3	10.3	11.3	7.6	10.0	---	---	---	---	---	---
25	13.2	9.8	11.3	10.4	6.4	8.2	---	---	---	---	---	---
26	13.0	9.4	11.0	9.3	5.9	7.3	---	---	---	---	---	---
27	12.3	8.5	10.4	11.0	6.1	9.3	---	---	---	---	---	---
28	11.8	7.6	9.7	10.7	6.9	8.3	---	---	---	---	---	---
29	---	---	---	10.7	6.9	8.5	---	---	---	---	---	---
30	---	---	---	10.2	7.0	8.4	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	14.4	7.8	10.8	12.5	5.9	9.0	---	---	---	---	---	---

ARKANSAS RIVER BASIN

257

07239500 NORTH CANADIAN RIVER NEAR EL RENO, OK

LOCATION.-- 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 poor. 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 at station.

AVERAGE DISCHARGE.-- Prior to regulation by Canton Lake, 18 years (water years 1903-07, 1938-48), 264 ft³/s, 191,300 acre-ft/yr; since regulation by Canton Lake, 43 years (water years 1949-91), 209 ft³/s, 151,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 15,000 ft³/s, Oct. 28, 1941, gage height, 20.00 ft present datum; maximum gage height, 22.22 ft present datum, 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, 1,070 ft³/s, June 2, gage height, 9.21 ft; minimum daily discharge, 13 ft³/s, Aug. 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e35	29	33	e38	e36	32	45	e39	67	85	e24	230
2	e35	29	33	e37	36	32	43	e38	815	111	e24	495
3	e35	30	33	e35	36	33	e45	e45	795	101	e23	391
4	e39	e35	33	e34	37	34	e40	e40	521	103	e23	282
5	e40	e35	33	e33	36	35	e40	e38	517	91	22	482
6	e38	e40	33	e34	35	34	e39	e38	625	77	24	466
7	e38	e35	34	e35	36	33	e39	e40	613	67	20	461
8	e34	e35	34	e36	35	32	38	e45	648	59	17	381
9	e34	e36	34	e38	35	32	35	70	616	54	15	218
10	e35	e37	34	e39	35	31	33	65	441	50	14	170
11	e35	e35	34	e41	34	31	33	60	400	46	13	142
12	e35	e35	34	e45	35	31	32	55	389	44	13	94
13	e35	e33	35	e48	35	32	32	48	498	e42	14	77
14	e36	e33	35	50	35	32	34	e41	576	e38	14	72
15	e36	e33	35	56	34	32	33	e38	483	e50	148	63
16	38	e35	35	56	33	34	32	e34	467	e40	392	58
17	35	e35	e33	52	32	41	32	e33	510	e35	659	54
18	33	e35	35	48	32	44	33	e33	445	e32	752	61
19	33	e35	37	44	32	47	32	e32	440	30	785	417
20	31	35	37	42	32	47	32	e50	487	e30	798	294
21	29	35	35	41	32	45	32	245	494	e29	832	125
22	28	35	e35	40	32	42	33	137	613	e29	793	93
23	28	35	e34	39	32	42	34	87	489	e28	414	75
24	28	34	e34	38	32	41	36	92	274	e28	418	65
25	27	33	e34	37	32	40	e40	235	180	e27	403	58
26	27	33	e34	38	31	40	e45	291	139	e27	395	54
27	28	34	e34	36	31	40	e50	209	132	e26	393	51
28	28	34	e34	37	31	40	e50	107	121	e26	338	48
29	28	34	e34	37	---	42	e48	79	99	e25	163	46
30	28	33	e33	e37	---	43	e40	76	93	25	115	44
31	28	---	e36	e36	---	45	---	87	---	e25	130	---
TOTAL	1015	1025	1061	1257	944	1159	1130	2527	12967	1480	8188	5567
MEAN	32.7	34.2	34.2	40.5	33.7	37.4	37.7	81.5	432	47.7	264	186
MAX	40	40	37	56	37	47	50	291	815	111	832	495
MIN	27	29	33	33	31	31	32	32	67	25	13	44
AC-FT	2010	2030	2100	2490	1870	2300	2240	5010	25720	2940	16240	11040

CAL YR 1990 TOTAL 100805 MEAN 276 MAX 6640 MIN 24 AC-FT 199900
WTR YR 1991 TOTAL 38320 MEAN 105 MAX 832 MIN 13 AC-FT 76010

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: 1988-80 (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 good. Use of canal began in March 1944. Canal diverts water from North Canadian River just upstream from Lake Overholser (station 07240500) and delivers water to Lake Hefner, capacity, 80,000 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 20, 1955; no flow at times in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	.49	.46	.03	.37	.00	.00	.00	.65	1.7	8.4	37
2	.85	.46	.46	.17	.37	.00	.00	.00	501	2.7	9.0	558
3	1.4	.48	.50	.41	.36	.00	21	.66	975	583	8.8	580
4	.62	1.3	.47	.37	.37	.00	104	.18	746	759	8.9	735
5	.54	.55	.50	.45	.37	.00	103	.02	536	22	7.3	598
6	.52	.51	.46	.53	.37	.00	93	.00	541	12	6.9	510
7	.41	.41	.42	.44	.34	.00	46	.00	590	15	7.1	481
8	.55	.70	.50	.43	.27	.00	23	463	603	13	7.4	191
9	.58	.73	.47	.51	.21	.00	.54	293	610	13	7.2	4.4
10	.50	.52	.46	.80	.17	.00	.17	14	597	12	6.7	3.6
11	.39	.47	.48	.60	.08	.00	.02	14	427	12	6.8	3.2
12	.31	.46	.52	.50	.02	.00	.00	13	351	11	6.7	2.7
13	.53	.50	.48	.51	.00	.00	.00	13	352	11	6.8	2.0
14	.51	.46	.52	.52	.00	.00	.00	13	382	11	6.8	3.2
15	.51	.46	.52	.59	.00	.00	.00	11	409	11	6.2	2.2
16	.52	.42	.59	.57	.00	.00	.00	.91	409	10	5.8	2.5
17	.47	.39	1.0	.52	.00	.00	.00	.47	410	10	7.0	1.6
18	.39	.50	.68	.59	.00	.00	.00	.42	410	9.9	6.8	4.6
19	.46	.52	.52	.52	.00	.00	.00	.35	409	9.2	7.1	39
20	.56	.52	.50	.49	.00	.00	.00	.70	212	9.2	7.1	49
21	.50	.51	.32	.42	.00	.00	.00	.41	.92	9.2	289	3.6
22	.46	.42	.28	.42	.00	.00	.00	.38	.35	8.4	626	6.2
23	.47	.45	.14	.42	.00	.00	.00	26	1.7	7.8	366	5.3
24	.52	.45	.02	.37	.00	.00	.00	87	197	8.7	12	24
25	.52	.46	.23	.32	.00	.00	.71	83	243	9.2	10	105
26	.52	.50	.45	.30	.00	.00	.32	83	2.6	8.8	9.5	54
27	.50	.49	.37	.35	.00	.00	.15	83	2.2	9.5	11	1.8
28	.50	.37	.39	.40	.00	.00	.02	83	2.2	9.4	11	1.4
29	.52	.37	.56	.42	---	.00	.00	83	2.1	9.2	10	1.3
30	.47	.40	.29	.33	---	.00	.00	82	1.7	9.2	9.8	1.2
31	.46	---	.14	.37	---	.00	---	40	---	8.9	9.7	---
TOTAL	16.80	15.27	13.68	13.67	3.30	0.00	391.93	1488.50	9924.42	1636.0	1508.8	4011.8
MEAN	.54	.51	.44	.44	.12	.000	13.1	48.0	331	52.8	48.7	134
MAX	1.4	1.3	1.0	.80	.37	.00	104	463	975	759	826	735
MIN	.31	.37	.02	.03	.00	.00	.00	.00	.35	1.7	5.8	1.2
AC-FT	33	30	27	27	6.5	.00	777	2950	19690	3250	2990	7960

CAL YR 1990 TOTAL 12565.83 MEAN 34.4 MAX 951 MIN .02 AC-FT 24920
WTR YR 1991 TOTAL 19024.17 MEAN 52.1 MAX 975 MIN .00 AC-FT 37730

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 September 1991 (discontinued).

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 23 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, maximum elevation 1,242.70, Apr. 18, 1990; minimum observed, 1,070 acre-ft, May 14, 1955, elevation, 1,230.62 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 17,240 acre-ft, Sept. 12, elevation, 1,242.35 ft; minimum, 7,690 acre-ft, April 23, 24, elevation, 1,236.00 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Date	Elevation (feet)*	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1239.60	13,030	-
Oct. 31.....	1238.65	11,590	-1,440
Nov. 30.....	1238.00	10,610	-980
Dec. 31.....	1237.60	10,010	-600
CAL YR 90.....	-	-	-6,080
Jan. 31.....	1237.45	9,790	-220
Feb. 28.....	1236.60	8,650	-1,240
Mar. 31.....	1236.10	7,840	-710
Apr. 30.....	1236.30	8,120	+280
May 31.....	1238.50	11,360	+3,240
June 30.....	1240.70	14,710	+3,350
July 31.....	1241.00	15,170	+460
Aug. 31.....	1241.80	16,390	+1,220
Sept. 30.....	1241.80	16,390	0
WTR YR 91.....	-	-	+3,360

*Elevation at 0800 on the following day.

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK

LOCATION.-- 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 current year.

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 poor. 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). U.S. Geological Survey's satellite telemeter at station.

AVERAGE DISCHARGE.-- 36 years (water years 1963-68, 1970-72, 1974-87, 1989-91), 138 ft³/s, 99,980 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, 1,480 ft³/s, Sept. 19, gage height, 12.12 ft; minimum daily discharge, 0.80 ft³/s, May 22, June 16, 17, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.4	e50	28	e21	35	42	31	32	1.5	.95	3.3	44
2	e4.4	e37	28	e21	35	38	34	31	9.8	3.1	3.1	18
3	e50	e33	29	e21	38	36	16	27	2.7	79	2.9	4.0
4	e49	e31	29	e20	41	36	1.6	2.2	1.4	9.9	3.5	15
5	40	29	28	e19	39	36	2.0	1.6	2.0	5.5	3.1	2.5
6	33	e29	28	e19	40	35	1.6	1.5	1.6	5.3	2.7	1.8
7	33	e28	30	e18	42	35	1.4	16	1.3	5.4	2.6	1.7
8	35	e27	32	e18	40	35	1.2	38	1.3	5.6	2.7	2.5
9	166	e26	32	e17	39	35	1.2	3.7	1.3	5.5	2.4	1.9
10	59	e26	29	e17	37	35	1.3	2.0	1.1	5.3	2.1	53
11	e27	e26	28	e17	37	33	32	1.5	2.0	5.2	2.1	123
12	e17	e26	26	e16	38	32	40	1.5	1.1	4.8	3.3	282
13	e8.8	e26	24	e16	36	33	33	22	1.1	5.1	2.3	273
14	e3.7	e26	25	e16	36	33	32	35	.93	5.1	2.1	253
15	2.3	e26	24	e16	36	32	29	34	.82	4.8	130	80
16	e3.5	e26	24	e16	37	62	29	34	.80	4.5	92	151
17	e22	e27	25	16	40	64	31	33	.80	4.5	100	121
18	e24	e27	25	e18	44	62	28	33	1.6	4.5	97	92
19	e27	29	24	e23	44	33	27	33	1.1	4.3	97	594
20	e28	29	24	e34	43	31	27	21	.99	5.4	578	603
21	e30	28	24	39	43	32	27	1.0	.83	4.6	521	9.0
22	e26	28	24	41	43	32	27	.80	.80	4.1	93	39
23	23	28	24	43	43	29	28	4.8	3.9	5.5	334	73
24	e24	29	24	43	42	30	21	12	3.7	5.8	488	179
25	e25	28	25	41	42	31	5.8	2.2	1.6	3.7	423	6.4
26	e26	27	24	44	42	59	2.2	1.3	1.1	3.6	186	5.3
27	e28	27	25	43	40	31	1.4	1.1	1.1	3.7	212	56
28	e30	26	25	42	41	31	1.2	1.1	1.1	4.0	334	89
29	e32	28	23	40	---	33	20	1.1	1.3	3.8	353	87
30	e45	28	e23	39	---	31	34	1.3	1.1	3.3	138	86
31	e70	---	e22	38	---	31	---	2.8	---	3.4	2.4	---
TOTAL	998.1	861	805	832	1113	1148	566.9	432.50	51.77	219.25	4216.6	3346.1
MEAN	32.1	28.7	26.0	26.8	39.7	37.0	18.9	14.0	1.73	7.07	136	112
MAX	166	50	32	44	44	64	40	38	9.8	79	578	603
MIN	2.3	26	22	16	35	29	1.2	.80	.80	.95	2.1	1.7
AC-FT	1980	1710	1600	1650	2210	2280	1120	858	103	435	8360	6640

CAL YR 1990 TOTAL 124586.3 MEAN 341 MAX 7780 MIN 2.3 AC-FT 247100
WTR YR 1991 TOTAL 14688.22 MEAN 40.0 MAX 603 MIN .80 AC-FT 28940

e Estimated

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK --Continued

WATER QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to current year.

pH: October 1988 to June 1991 (discontinued).

WATER TEMPERATURE: October 1988 to current year.

DISSOLVED OXYGEN: October 1988 to current year.

INSTRUMENTATION.-- Water-quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument and insufficient flow for probes to function properly. Samples were collected monthly and specific conductance, pH, water temperature, alkalinity, and dissolved oxygen were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,970 microsiemens, April 26, 1989; minimum, 100 microsiemens, Sept. 13, 1989.

pH: Maximum, 8.9 units, Oct. 27, 1989, Nov. 27, 1989, Sept. 15, 17, 1990; minimum, 6.2 units, Aug. 8, 1989.

WATER TEMPERATURE: Maximum, 32.6°C, July 29, 1991; minimum, 0.0°C, several days during December 1990.

DISSOLVED OXYGEN: Maximum, 15.8 mg/l, June 13, 1989; minimum, 2.3 mg/l, Apr. 20, 1990.

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH WATER WHOLE FIELD (STAND- ARD UNITS)
AUG											
26...	1256	8.00	28.5	765	1028	1028	186	7.65	1800	8.4	8.2
26...	1301	13.0	28.5	765	1028	1028	186	7.65	1800	8.4	8.3
26...	1307	18.0	28.5	765	1028	1028	186	7.65	1790	8.2	8.3
26...	1311	23.0	28.5	765	1028	1028	186	7.65	1800	8.3	8.3
26...	1316	28.0	28.5	765	1028	1028	186	7.65	1790	8.4	8.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (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)	OXYGEN, DIS- SOLVED (MG/L)
OCT												
23...	1427	1028	80020	23	1490	8.7	17.5	15.0	--	--	750	11.8
23...	1428	1028	1028	23	1490	8.7	17.5	15.0	--	21	750	11.8
NOV												
19...	1450	1028	80020	29	1310	8.6	22.0	15.0	--	--	750	12.2
19...	1451	1028	1028	29	1310	8.6	22.0	15.0	--	6.8	750	12.2
DEC												
18...	1325	1028	1028	24	1340	8.6	12.5	8.0	--	4.7	745	14.4
JAN												
30...	1335	1028	1028	39	1270	8.8	0.0	3.0	--	3.9	780	15.9
FEB												
12...	1410	1028	80020	37	1410	8.6	18.5	11.0	--	--	755	13.1
12...	1411	1028	1028	37	1410	8.6	18.5	11.0	--	5.4	755	13.1
MAR												
19...	1105	1028	1028	32	1350	8.7	15.5	11.5	--	16	780	12.0
APR												
16...	1458	1028	1028	29	1400	8.6	28.0	21.0	--	19	755	11.4
MAY												
22...	1318	1028	80020	0.80	1240	8.3	23.0	25.0	--	--	760	7.4
22...	1319	1028	1028	0.80	1240	8.3	23.0	25.0	--	53	760	7.4
JUN												
11...	1330	1028	1028	2.0	1070	8.4	33.0	28.0	--	28	760	11.4
JUL												
30...	1010	1028	80020	3.1	1330	8.5	27.5	25.0	--	37	765	3.4
AUG												
13...	0843	1028	80020	2.3	1350	8.4	22.5	26.0	27	41	765	3.2
SEP												
11...	1044	1028	80020	123	1440	8.8	30.0	25.5	--	10	765	8.0

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	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												
23...	119	--	1.2	--	--	--	--	--	--	--	--	--
23...	119	9.7	--	1200	1700	--	--	--	--	--	--	--
NOV												
19...	124	--	2.2	--	--	390	--	91	39	130	42	3
19...	123	1.8	--	800	100	--	--	--	--	--	--	--
DEC												
18...	125	0.61	1.0	500	2200	--	--	--	--	--	--	--
JAN												
30...	119	2.2	0.7	<1	<1	--	--	--	--	--	--	--
FEB												
12...	120	--	0.3	--	--	430	--	97	45	150	43	3
12...	120	2.1	--	50	10	--	--	--	--	--	--	--
MAR												
19...	110	1.0	2.2	110	10	--	--	--	--	--	--	--
APR												
16...	130	1.0	2.0	100	100	--	--	--	--	--	--	--
MAY												
22...	90	--	10	--	--	350	--	85	34	110	40	3
22...	90	2.2	--	200	20	--	--	--	--	--	--	--
JUN												
11...	147	1.6	2.4	2600	3300	--	--	--	--	--	--	--
JUL												
30...	41	1.3	1.1	K510	540	--	--	--	--	--	--	--
AUG												
13...	39	0.67	0.7	K1300	865	370	110	85	38	140	45	3
SEP												
11...	98	--	1.9	K1100	860	--	--	--	--	--	--	--
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)	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)
OCT												
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
19...	5.7	--	--	--	220	150	0.50	12	822	825	1.12	64.4
19...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
18...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
30...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
12...	4.2	--	--	--	270	160	0.60	5.9	900	915	1.22	90.4
12...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
19...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
16...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
22...	5.9	--	--	--	200	120	0.50	13	736	731	1.00	1.59
22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
30...	--	251	22	242	--	--	--	--	--	--	--	--
AUG												
13...	6.4	290	12	257	170	160	0.70	10	738	767	1.00	4.58
SEP												
11...	--	201	22	201	--	--	--	--	--	--	--	--

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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											
23...	--	0.280	1.2	0.020	0.07	0.300	0.080	0.10	--	--	--
23...	55	--	--	0.030	0.10	--	0.060	0.08	0.29	0.36	0.310
NOV											
19...	--	0.190	0.84	0.010	0.03	0.200	0.120	0.15	--	--	--
19...	16	--	--	0.010	0.03	--	0.140	0.18	0.44	0.58	0.380
DEC											
18...	5	0.220	0.97	0.050	0.16	0.270	0.160	0.19	0.19	0.34	0.440
JAN											
30...	6	1.33	5.9	0.030	0.10	1.36	0.070	0.09	0.81	0.88	0.370
FEB											
12...	--	--	--	--	--	--	--	--	--	--	--
12...	16	1.73	7.7	0.020	0.07	1.75	0.050	0.06	0.32	0.37	0.170
MAR											
19...	41	0.090	0.40	0.010	0.03	0.100	0.040	0.05	0.91	0.95	0.810
APR											
18...	65	0.390	1.7	0.010	0.03	0.400	0.020	0.03	0.58	0.60	0.570
MAY											
22...	--	--	--	--	--	--	--	--	--	--	--
22...	140	0.380	1.7	0.020	0.07	0.400	0.030	0.04	1.8	1.8	0.680
JUN											
11...	82	0.210	0.93	0.150	0.49	0.380	0.030	0.04	1.2	1.2	0.470
JUL											
30...	63	0.180	0.80	0.020	0.07	0.200	0.070	0.09	1.0	1.1	0.280
AUG											
13...	78	--	--	<0.010	--	0.170	0.060	0.08	0.44	0.50	0.220
SEP											
11...	45	--	--	0.010	0.03	<0.050	0.020	0.03	0.58	0.60	0.190

[illegible]

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible][illegible][illegible]

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	1430	1400	1410	1400	1380	1390	1520	1430	1500
2	---	---	---	---	---	---	1400	1390	1390	1510	1480	1500
3	---	---	---	---	---	---	1390	1360	1380	1500	1480	1490
4	---	---	---	---	---	---	1390	1370	1380	1490	1480	1480
5	---	---	---	---	---	---	1390	1360	1380	1480	1450	1470
6	---	---	---	1490	1470	1480	1390	1380	1390	1500	1460	1480
7	---	---	---	1480	1440	1460	1390	1370	1380	1490	1450	1470
8	---	---	---	1440	1360	1420	1390	1360	1380	1470	1450	1460
9	---	---	---	1360	1320	1330	1390	1360	1380	1460	1430	1450
10	---	---	---	1330	1300	1320	1400	1360	1390	1430	1410	1420
11	---	---	---	1310	1270	1290	1400	1370	1390	1470	1420	1440
12	---	---	---	1320	1290	1310	1400	1360	1390	---	---	---
13	---	---	---	1300	1290	1300	1400	1380	1390	---	---	---
14	---	---	---	1300	1270	1290	1410	1380	1400	---	---	---
15	---	---	---	1290	1240	1270	1410	1380	1390	---	---	---
16	---	---	---	1280	1230	1260	1400	1380	1390	---	---	---
17	---	---	---	1290	1260	1260	1400	1290	1360	---	---	---
18	1470	1400	1460	1290	1270	1280	1390	1270	1300	---	---	---
19	1480	1460	1480	1290	1270	1290	1400	1390	1390	---	---	---
20	1490	1460	1480	1320	1290	1310	1410	1400	1410	1210	1040	1160
21	1470	1450	1460	1330	1320	1320	1400	1370	1380	1180	1110	1130
22	1480	1460	1470	1330	1320	1330	1400	1370	1380	---	---	---
23	1480	1470	1470	1330	1310	1320	1410	1390	1400	---	---	---
24	1500	1480	1480	1360	1320	1330	1410	1380	1400	---	---	---
25	1510	1480	1490	1360	1340	1360	1400	1380	1390	---	---	---
26	1500	1470	1500	1390	1360	1380	1460	1370	1400	---	---	---
27	1500	1440	1480	1400	1380	1390	1520	1460	1490	---	---	---
28	1490	1420	1470	1400	1370	1390	1570	1520	1550	---	---	---
29	1470	1410	1440	1390	1370	1380	1580	1530	1570	1340	1300	1320
30	1460	1410	1440	1390	1330	1380	1570	1530	1560	1360	1330	1360
31	1440	1400	1410	---	---	---	1530	1480	1500	1380	1310	1360
MONTH	---	---	---	---	---	---	1580	1270	1410	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1390	1380	1380	1430	1400	1420	---	---	---	1210	1110	1170
2	1400	1380	1390	1430	1360	1400	---	---	---	1180	1120	1160
3	1410	1400	1400	1410	1380	1390	---	---	---	---	---	---
4	1420	1400	1410	1400	1360	1370	---	---	---	---	---	---
5	1430	1410	1420	1390	1320	1360	---	---	---	---	---	---
6	1430	1360	1390	1380	1360	1360	---	---	---	---	---	---
7	1430	1400	1420	1370	1360	1360	---	---	---	---	---	---
8	1440	1410	1420	1370	1360	1360	---	---	---	---	---	---
9	1430	1420	1430	---	---	---	---	---	---	---	---	---
10	1430	1400	1420	1360	1320	1360	---	---	---	---	---	---
11	1430	1410	1420	1360	1330	1360	---	---	---	---	---	---
12	1430	1400	1420	1360	1320	1360	1190	1160	1160	---	---	---
13	1420	1390	1410	1360	1340	1360	1200	1180	1180	---	---	---
14	1410	1360	1390	1360	1340	1360	1200	1160	1180	---	---	---
15	1400	1380	1400	---	---	---	---	---	---	---	---	---
16	1400	1360	1380	---	---	---	---	---	---	---	---	---
17	1390	1360	1370	1330	1280	1310	---	---	---	1080	998	1060
18	1390	1360	1370	1310	1290	1300	---	---	---	1180	1080	1140
19	1390	1360	1380	1310	1260	1290	---	---	---	1260	1190	1220
20	1390	1340	1370	1280	1260	1270	1410	1370	1390	1290	1260	1270
21	1390	1340	1370	1270	1230	1260	1430	1390	1400	1270	1230	1260
22	1400	1360	1380	1240	1210	1230	1430	1390	1410	1240	1200	1230
23	1400	1360	1390	1240	1220	1230	1420	1370	1400	---	---	---
24	---	---	---	1260	1200	1230	---	---	---	---	---	---
25	1410	1390	1400	1290	1260	1280	---	---	---	---	---	---
26	1420	1400	1410	1290	1210	1260	---	---	---	---	---	---
27	1420	1400	1410	1320	1260	1290	---	---	---	---	---	---
28	1420	1400	1420	1340	1310	1320	---	---	---	---	---	---
29	---	---	---	1340	1310	1320	---	---	---	---	---	---
30	---	---	---	---	---	---	1240	1180	1210	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

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 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	1250	1170	1200	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	1080	817	952	---	---	---	---	---	---
6	---	---	---	1110	1080	1100	---	---	---	---	---	---
7	---	---	---	1110	1080	1090	---	---	---	---	---	---
8	---	---	---	1090	1030	1070	---	---	---	---	---	---
9	---	---	---	1060	1030	1040	---	---	---	---	---	---
10	---	---	---	1080	1040	1050	---	---	---	---	---	---
11	---	---	---	1090	1060	1070	---	---	---	---	---	---
12	---	---	---	1120	1050	1100	---	---	---	---	---	---
13	---	---	---	1220	1080	1120	---	---	---	---	---	---
14	---	---	---	1150	1090	1120	---	---	---	---	---	---
15	1070	1000	1050	1150	1110	1130	---	---	---	---	---	---
16	1090	1060	1070	1250	1140	1170	1460	1400	1430	---	---	---
17	1080	1060	1070	1210	1130	1180	1530	1410	1460	---	---	---
18	1090	1050	1070	1340	1150	1200	1650	1460	1540	---	---	---
19	1090	1050	1070	---	---	---	1740	1620	1670	---	---	---
20	1090	1040	1070	---	---	---	---	---	---	---	---	---
21	1100	1050	1070	---	---	---	---	---	---	---	---	---
22	1150	1050	1110	---	---	---	---	---	---	---	---	---
23	1150	1020	1090	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	1170	1120	1150	---	---	---	---	---	---	---	---	---
28	1200	1180	1180	---	---	---	---	---	---	---	---	---
29	1260	1200	1230	---	---	---	---	---	---	---	---	---
30	1240	1190	1210	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	8.6	8.5	8.5	8.6	8.4	8.4
2	---	---	---	---	---	---	8.5	8.5	8.5	8.6	8.4	8.5
3	---	---	---	---	---	---	8.6	8.5	8.6	8.6	8.4	8.4
4	---	---	---	---	---	---	8.6	8.5	8.6	8.5	8.4	8.4
5	---	---	---	---	---	---	8.8	8.6	8.7	8.5	8.4	8.4
6	---	---	---	8.7	8.6	8.6	8.7	8.7	8.7	8.6	8.4	8.5
7	---	---	---	8.6	8.5	8.6	8.7	8.6	8.7	8.6	8.4	8.5
8	---	---	---	8.6	8.4	8.5	8.7	8.6	8.7	8.5	8.4	8.4
9	---	---	---	8.5	8.4	8.4	8.8	8.6	8.7	8.6	8.4	8.4
10	---	---	---	8.5	8.4	8.4	8.8	8.6	8.7	8.6	8.4	8.4
11	---	---	---	8.5	8.4	8.4	8.9	8.6	8.8	8.5	8.3	8.4
12	---	---	---	8.6	8.4	8.5	8.9	8.7	8.8	8.5	8.2	8.3
13	---	---	---	8.6	8.5	8.5	8.9	8.8	8.8	8.6	8.2	8.3
14	---	---	---	8.7	8.4	8.5	8.9	8.8	8.8	8.5	8.3	8.3
15	---	---	---	8.7	8.4	8.5	8.9	8.7	8.7	8.6	8.3	8.4
16	---	---	---	8.6	8.5	8.5	8.8	8.6	8.7	8.5	8.3	8.3
17	---	---	---	8.6	8.4	8.5	8.7	8.5	8.6	8.6	8.3	8.3
18	---	---	---	8.6	8.5	8.5	8.8	8.5	8.6	8.6	8.3	8.4
19	---	---	---	8.6	8.5	8.5	8.6	8.6	8.6	8.5	8.4	8.4
20	---	---	---	8.5	8.4	8.5	8.7	8.6	8.6	8.5	8.4	8.4
21	---	---	---	8.5	8.4	8.5	8.7	8.6	8.6	8.6	8.4	8.4
22	---	---	---	8.6	8.5	8.5	8.7	8.6	8.6	8.6	8.3	8.4
23	---	---	---	8.5	8.4	8.5	8.7	8.6	8.6	8.5	8.4	8.4
24	---	---	---	8.5	8.4	8.4	8.7	8.6	8.6	8.6	8.3	8.4
25	---	---	---	8.4	8.3	8.4	8.7	8.6	8.6	8.5	8.3	8.4
26	---	---	---	8.4	8.3	8.3	8.6	8.5	8.5	8.6	8.4	8.4
27	---	---	---	8.6	8.4	8.5	8.6	8.5	8.5	8.6	8.4	8.5
28	---	---	---	8.6	8.5	8.5	8.5	8.4	8.4	8.8	8.4	8.6
29	---	---	---	8.5	8.5	8.5	8.5	8.4	8.4	8.8	8.7	8.7
30	---	---	---	8.6	8.5	8.5	8.5	8.4	8.4	8.8	8.7	8.7
31	---	---	---	---	---	---	8.5	8.4	8.4	8.8	8.7	8.7
MAX	---	---	---	8.7	8.6	8.6	8.9	8.8	8.8	8.8	8.7	8.7
MIN	---	---	---	8.4	8.3	8.3	8.5	8.4	8.4	8.5	8.2	8.3

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	
		FEBRUARY			MARCH			APRIL				MAY	
1	8.8	8.7	8.7	8.7	8.5	8.8	8.5	8.3	8.5	---	---	---	
2	8.9	8.7	8.7	8.8	8.5	8.8	8.5	8.4	8.5	---	---	---	
3	8.9	8.7	8.8	8.8	8.5	8.8	8.6	8.1	8.5	---	---	---	
4	8.8	8.7	8.8	8.8	8.5	8.5	8.2	8.1	8.2	---	---	---	
5	8.8	8.6	8.6	8.5	8.3	8.4	8.4	8.1	8.2	---	---	---	
6	8.8	8.6	8.7	8.5	8.3	8.4	8.4	8.0	8.2	---	---	---	
7	8.8	8.6	8.7	8.6	8.3	8.4	8.6	8.2	8.3	---	---	---	
8	8.8	8.6	8.7	8.5	8.4	8.5	8.8	7.9	8.4	---	---	---	
9	8.8	8.6	8.6	8.6	8.4	8.5	8.7	8.0	8.4	---	---	---	
10	8.8	8.6	8.7	8.6	8.4	8.5	8.5	8.1	8.4	---	---	---	
11	8.8	8.6	8.6	8.8	8.5	8.5	8.9	8.3	8.7	---	---	---	
12	8.8	8.6	8.6	8.8	8.4	8.5	8.8	8.6	8.7	---	---	---	
13	8.8	8.6	8.7	8.8	8.5	8.6	8.8	8.6	8.7	---	---	---	
14	8.8	8.6	8.7	8.7	8.6	8.6	8.7	8.6	8.7	---	---	---	
15	8.8	8.6	8.7	8.6	8.5	8.6	8.7	8.5	8.6	---	---	---	
16	8.8	8.6	8.7	8.8	8.5	8.6	8.6	8.5	8.6	---	---	---	
17	8.8	8.6	8.7	8.8	8.4	8.5	8.6	8.5	8.5	---	---	---	
18	8.7	8.6	8.7	8.5	8.4	8.5	8.6	8.4	8.5	8.3	8.0	8.2	
19	8.7	8.6	8.6	8.7	8.4	8.5	8.7	8.5	8.6	8.4	8.2	8.3	
20	8.7	8.6	8.6	8.8	8.6	8.7	8.7	8.5	8.6	8.6	8.3	8.4	
21	8.8	8.6	8.6	8.8	8.7	8.7	8.6	8.5	8.5	8.4	8.2	8.3	
22	8.7	8.6	8.6	8.8	8.7	8.7	8.6	8.5	8.5	8.4	8.2	8.3	
23	8.8	8.6	8.7	8.9	8.7	8.7	8.5	8.3	8.5	8.6	7.9	8.3	
24	8.8	8.6	8.7	8.8	8.7	8.7	8.4	8.1	8.3	8.0	7.5	7.7	
25	8.7	8.6	8.6	8.8	8.7	8.7	---	---	---	8.1	7.5	7.7	
26	8.7	8.6	8.6	8.7	8.6	8.7	---	---	---	8.1	7.6	7.7	
27	8.7	8.6	8.6	8.7	8.5	8.6	---	---	---	8.5	7.9	8.1	
28	8.7	8.6	8.6	8.6	8.5	8.5	---	---	---	8.6	8.2	8.4	
29	---	---	---	8.8	8.4	8.5	---	---	---	8.7	8.3	8.5	
30	---	---	---	8.6	8.4	8.5	---	---	---	8.6	8.3	8.5	
31	---	---	---	8.5	8.4	8.5	---	---	---	8.5	8.3	8.4	
MAX	8.9	8.7	8.8	8.9	8.7	8.7	8.9	8.6	8.7	8.7	8.3	8.5	
MIN	8.7	8.6	8.6	8.5	8.3	8.4	8.2	7.9	8.2	8.0	7.5	7.7	
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	
		JUNE			JULY			AUGUST			SEPTEMBER		
1	8.4	8.0	8.3	---	---	---	---	---	---	---	---	---	
2	8.2	7.7	8.0	---	---	---	---	---	---	---	---	---	
3	8.0	7.7	7.7	---	---	---	---	---	---	---	---	---	
4	8.4	7.7	7.9	---	---	---	---	---	---	---	---	---	
5	8.2	8.0	8.1	---	---	---	---	---	---	---	---	---	
6	8.5	7.8	8.1	---	---	---	---	---	---	---	---	---	
7	8.3	8.0	8.1	---	---	---	---	---	---	---	---	---	
8	8.4	8.0	8.2	---	---	---	---	---	---	---	---	---	
9	8.6	8.0	8.2	---	---	---	---	---	---	---	---	---	
10	8.8	8.3	8.4	---	---	---	---	---	---	---	---	---	
11	---	---	---	---	---	---	---	---	---	---	---	---	
12	---	---	---	---	---	---	---	---	---	---	---	---	
13	---	---	---	---	---	---	---	---	---	---	---	---	
14	---	---	---	---	---	---	---	---	---	---	---	---	
15	8.8	8.4	8.6	---	---	---	---	---	---	---	---	---	
16	8.8	8.4	8.5	---	---	---	---	---	---	---	---	---	
17	8.8	8.3	8.5	---	---	---	---	---	---	---	---	---	
18	8.8	8.3	8.5	---	---	---	---	---	---	---	---	---	
19	8.7	8.2	8.4	---	---	---	---	---	---	---	---	---	
20	8.7	8.2	8.3	---	---	---	---	---	---	---	---	---	
21	8.6	8.2	8.4	---	---	---	---	---	---	---	---	---	
22	8.4	8.1	8.3	---	---	---	---	---	---	---	---	---	
23	8.6	8.2	8.4	---	---	---	---	---	---	---	---	---	
24	8.6	8.1	8.4	---	---	---	---	---	---	---	---	---	
25	8.1	8.0	8.0	---	---	---	---	---	---	---	---	---	
26	8.2	8.0	8.1	---	---	---	---	---	---	---	---	---	
27	8.4	8.1	8.2	---	---	---	---	---	---	---	---	---	
28	8.3	8.2	8.2	---	---	---	---	---	---	---	---	---	
29	8.5	8.2	8.3	---	---	---	---	---	---	---	---	---	
30	8.8	8.4	8.5	---	---	---	---	---	---	---	---	---	
31	---	---	---	---	---	---	---	---	---	---	---	---	
MAX	8.8	8.4	8.6	---	---	---	---	---	---	---	---	---	
MIN	8.0	7.7	7.7	---	---	---	---	---	---	---	---	---	

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	23.0	19.0	20.5	16.5	15.0	15.5	10.0	8.5	9.0	3.0	1.0	1.5
2	21.0	19.5	20.0	17.5	15.5	16.0	10.0	8.0	9.0	2.5	1.0	1.5
3	21.0	19.0	20.0	17.0	14.0	16.0	7.5	6.0	7.0	1.5	.5	1.0
4	21.0	19.0	20.0	13.5	11.0	12.0	7.5	5.5	6.0	2.0	1.5	1.5
5	22.0	19.0	20.5	13.0	10.5	11.0	7.0	5.0	6.0	3.0	1.5	2.5
6	21.5	18.5	20.0	12.5	10.5	11.0	6.5	4.5	5.5	2.5	1.5	2.0
7	21.0	19.0	20.0	10.5	9.5	10.0	6.0	4.0	5.0	2.5	1.0	1.5
8	19.0	17.0	18.5	9.5	9.5	9.5	---	---	---	2.5	2.0	2.0
9	17.0	12.0	15.5	10.5	8.5	9.5	---	---	---	3.0	2.0	2.5
10	---	---	---	---	---	---	---	---	---	2.5	2.0	2.0
11	---	---	---	11.5	9.0	10.0	---	---	---	2.0	1.0	1.5
12	---	---	---	12.0	9.0	10.0	---	---	---	---	---	---
13	---	---	---	12.0	9.5	10.5	6.5	6.0	6.0	---	---	---
14	---	---	---	12.5	10.5	11.0	7.0	6.0	6.0	---	---	---
15	---	---	---	13.5	11.0	12.0	6.5	5.5	6.0	---	---	---
16	---	---	---	13.5	12.0	12.5	6.0	6.0	6.0	---	---	---
17	---	---	---	13.0	11.5	12.0	6.5	6.0	6.5	---	---	---
18	---	---	---	12.5	11.5	12.0	8.0	5.5	6.5	---	---	---
19	16.0	14.0	14.5	13.5	11.5	12.5	7.0	6.5	6.5	---	---	---
20	15.5	13.5	14.0	14.0	12.0	13.0	6.5	3.5	5.5	---	---	---
21	14.5	12.5	13.5	15.0	13.0	14.0	3.0	.0	1.5	---	---	---
22	14.5	12.0	13.0	14.0	12.5	13.5	.0	.0	.0	---	---	---
23	14.5	11.5	12.5	14.5	12.0	13.0	.0	.0	.0	---	---	---
24	14.5	11.5	13.0	13.5	12.0	12.5	.0	.0	.0	---	---	---
25	14.5	12.0	13.0	14.5	12.0	13.0	.5	.0	.0	---	---	---
26	14.5	11.5	12.5	14.5	13.0	14.0	1.5	.0	.5	---	---	---
27	15.5	12.5	13.5	15.0	12.0	14.0	2.0	1.0	1.5	---	---	---
28	15.5	13.0	13.5	13.0	11.0	12.0	2.5	1.5	2.0	---	---	---
29	15.5	12.5	13.5	12.0	10.0	11.0	3.5	.0	1.0	---	---	---
30	16.0	13.0	14.0	10.5	9.0	9.5	.5	.0	.0	3.5	1.5	2.0
31	16.0	14.0	14.5	---	---	---	2.0	.0	1.0	4.5	2.0	3.0
MONTH	23.0	11.5	15.9	17.5	8.5	12.1	10.0	.0	4.0	4.5	.5	2.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	4.5	2.5	3.0	---	---	---	16.0	13.0	14.0	---	---	---
2	5.0	3.0	4.0	---	---	---	14.0	13.0	13.5	---	---	---
3	6.0	4.0	5.0	---	---	---	15.0	13.0	14.0	---	---	---
4	6.5	5.5	6.0	---	---	---	---	---	---	---	---	---
5	7.5	6.0	7.0	---	---	---	---	---	---	---	---	---
6	8.5	6.0	7.0	11.5	9.5	10.5	---	---	---	---	---	---
7	9.5	6.5	8.0	11.5	10.0	10.5	---	---	---	---	---	---
8	10.0	7.5	8.5	12.0	9.5	10.5	---	---	---	---	---	---
9	10.0	8.0	9.0	13.0	9.5	11.0	---	---	---	---	---	---
10	10.5	8.0	9.0	12.5	10.5	11.0	---	---	---	---	---	---
11	11.0	8.5	9.5	12.0	10.5	11.0	---	---	---	---	---	---
12	10.5	9.0	9.5	12.5	10.0	11.5	20.0	16.0	18.0	---	---	---
13	11.5	9.5	10.5	11.5	9.5	10.5	19.5	15.0	17.5	---	---	---
14	11.0	8.5	10.0	11.5	8.5	10.0	---	---	---	---	---	---
15	9.0	7.0	8.0	---	---	---	---	---	---	---	---	---
16	8.0	6.5	7.0	---	---	---	---	---	---	---	---	---
17	10.0	7.0	8.0	11.0	9.5	10.0	19.5	18.0	18.5	26.0	22.5	24.0
18	10.5	8.0	9.0	12.5	9.0	10.5	20.5	17.5	19.0	25.5	23.0	23.5
19	9.5	7.0	8.0	11.5	10.0	10.5	---	---	---	26.0	23.5	24.0
20	9.5	7.0	8.0	12.5	10.5	11.0	---	---	---	---	---	---
21	10.0	7.5	8.0	14.5	11.0	12.5	17.0	16.0	16.5	---	---	---
22	10.5	7.0	8.5	14.5	12.0	13.0	16.0	13.0	16.0	---	---	---
23	11.0	8.5	9.5	15.5	12.0	13.5	18.5	14.0	16.0	---	---	---
24	---	---	---	16.0	13.0	14.0	---	---	---	---	---	---
25	9.0	7.0	8.0	---	---	---	---	---	---	---	---	---
26	9.5	7.0	8.0	---	---	---	---	---	---	---	---	---
27	9.5	7.0	8.0	---	---	---	---	---	---	---	---	---
28	10.0	7.5	9.0	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	16.0	14.0	14.5	---	---	---	---	---	---
31	---	---	---	16.5	13.0	14.5	---	---	---	---	---	---
MONTH	11.5	2.5	7.9	16.5	8.5	11.6	20.5	13.0	16.3	26.0	22.5	23.8

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	31.0	26.0	28.0	---	---	---
2	---	---	---	---	---	---	30.0	26.0	27.5	---	---	---
3	---	---	---	---	---	---	29.5	25.5	27.5	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	28.0	25.0	26.5	31.5	24.5	28.5	---	---	---	---	---	---
13	28.5	25.5	26.5	32.0	28.0	28.0	---	---	---	---	---	---
14	28.0	26.0	26.5	30.5	26.0	28.0	---	---	---	---	---	---
15	29.0	25.5	27.0	---	---	---	---	---	---	---	---	---
16	31.0	25.5	27.5	---	---	---	---	---	---	---	---	---
17	29.0	26.0	27.0	---	---	---	---	---	---	---	---	---
18	32.0	26.0	28.5	---	---	---	28.0	25.0	26.5	---	---	---
19	32.0	27.0	28.5	---	---	---	28.5	26.0	27.0	20.5	15.5	18.5
20	30.0	27.0	28.0	---	---	---	26.0	25.5	26.0	20.5	19.5	20.0
21	---	---	---	---	---	---	---	---	---	20.0	17.0	18.5
22	---	---	---	---	---	---	26.5	25.0	25.5	19.0	17.5	18.0
23	---	---	---	---	---	---	---	---	---	17.5	16.5	17.0
24	---	---	---	---	---	---	28.0	27.0	27.5	18.0	16.5	17.5
25	---	---	---	31.0	24.5	27.0	28.0	27.0	27.5	---	---	---
26	---	---	---	28.5	25.5	26.5	28.5	27.0	27.5	---	---	---
27	---	---	---	29.0	25.0	27.0	27.5	26.0	26.5	19.0	16.5	18.0
28	---	---	---	30.5	25.5	27.5	---	---	---	19.0	18.0	18.5
29	---	---	---	32.5	26.0	28.5	---	---	---	19.5	18.0	18.5
30	---	---	---	31.0	25.0	28.0	---	---	---	19.5	18.5	19.0
31	---	---	---	31.0	25.0	27.5	26.0	23.5	24.5	---	---	---
MONTH	32.0	25.0	27.3	32.5	24.5	27.6	31.0	23.5	26.8	20.5	15.5	18.3
YEAR	32.5	.0	13.2									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	11.4	9.1	9.9	13.8	10.7	11.8
2	---	---	---	---	---	---	11.5	9.1	9.8	13.8	10.5	11.7
3	---	---	---	---	---	---	11.5	9.5	10.3	13.5	10.9	11.8
4	---	---	---	---	---	---	12.1	10.0	10.7	12.8	10.5	11.2
5	---	---	---	---	---	---	12.2	10.2	10.9	13.3	10.6	11.4
6	---	---	---	10.7	9.6	10.0	12.2	10.2	10.9	13.8	10.6	11.7
7	---	---	---	11.1	9.9	10.3	12.7	10.4	11.1	15.0	10.8	12.2
8	---	---	---	10.7	10.0	10.2	12.8	10.3	11.1	13.1	10.0	11.2
9	---	---	---	11.5	10.1	10.6	12.8	10.1	11.0	12.7	9.4	10.5
10	---	---	---	11.6	10.1	10.6	12.9	10.0	10.9	12.7	9.1	10.3
11	---	---	---	12.2	10.2	10.8	12.8	9.7	10.8	12.2	9.1	10.2
12	---	---	---	12.5	10.1	10.8	12.9	9.5	10.6	13.0	9.0	10.4
13	---	---	---	12.3	9.9	10.8	12.1	9.5	10.3	13.4	8.9	10.5
14	---	---	---	12.5	9.7	10.6	12.7	9.6	10.6	12.9	9.0	10.3
15	---	---	---	12.7	9.5	10.5	13.1	9.6	10.7	13.2	9.3	10.7
16	---	---	---	12.9	9.5	10.4	---	---	---	13.3	9.1	10.7
17	---	---	---	12.7	9.5	10.5	---	---	---	14.1	9.8	11.3
18	---	---	---	11.0	9.4	10.0	---	---	---	12.5	9.2	10.3
19	---	---	---	12.2	9.5	10.2	10.8	10.4	10.7	---	---	---
20	---	---	---	10.9	9.0	9.7	12.2	10.3	11.1	---	---	---
21	---	---	---	10.8	8.8	9.4	13.7	11.1	12.2	---	---	---
22	---	---	---	11.8	8.8	9.7	14.6	12.3	13.2	---	---	---
23	---	---	---	12.4	9.0	10.0	14.3	11.6	13.1	---	---	---
24	---	---	---	12.1	9.0	9.9	13.0	10.9	12.0	---	---	---
25	---	---	---	11.7	8.8	9.7	12.3	10.5	11.2	---	---	---
26	---	---	---	10.1	8.4	9.1	13.0	10.3	11.2	---	---	---
27	---	---	---	10.7	8.3	9.1	13.1	11.0	11.8	---	---	---
28	---	---	---	12.0	8.6	9.7	13.1	11.0	11.7	---	---	---
29	---	---	---	11.7	8.9	9.8	13.3	10.8	11.9	12.8	10.7	11.4
30	---	---	---	11.1	9.1	9.8	14.0	11.5	12.4	14.1	11.1	12.1
31	---	---	---	---	---	---	14.2	11.1	12.4	14.1	10.8	11.9
MONTH	---	---	---	12.9	8.3	10.1	14.6	9.1	11.2	15.0	8.9	11.1

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	13.7	10.3	11.6	12.3	8.5	9.7	---	---	---	---	---	---
2	13.0	9.5	10.9	---	---	---	---	---	---	---	---	---
3	12.1	8.7	10.2	---	---	---	---	---	---	---	---	---
4	10.2	7.9	8.9	---	---	---	---	---	---	---	---	---
5	10.6	7.8	8.8	---	---	---	---	---	---	---	---	---
6	11.6	8.2	9.3	---	---	---	---	---	---	---	---	---
7	12.3	8.5	9.8	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	14.2	9.0	10.5	---	---	---	---	---	---	---	---	---
10	13.5	9.0	10.5	---	---	---	---	---	---	---	---	---
11	13.2	9.0	10.4	---	---	---	---	---	---	---	---	---
12	12.4	8.7	9.9	---	---	---	---	---	---	---	---	---
13	12.6	8.6	9.8	---	---	---	---	---	---	---	---	---
14	12.7	8.6	9.9	---	---	---	---	---	---	---	---	---
15	12.5	9.0	10.2	---	---	---	---	---	---	---	---	---
16	12.3	9.3	10.3	---	---	---	---	---	---	---	---	---
17	12.9	8.8	10.3	---	---	---	---	---	---	---	---	---
18	13.4	8.8	10.1	---	---	---	---	---	---	10.4	7.1	8.6
19	12.3	8.8	10.2	---	---	---	---	---	---	9.8	6.7	7.9
20	13.1	9.1	10.4	13.4	10.0	11.4	---	---	---	11.0	6.4	7.8
21	13.1	9.1	10.4	14.6	9.5	11.3	---	---	---	10.6	4.6	6.7
22	---	---	---	14.0	9.1	10.9	---	---	---	12.1	5.8	8.4
23	13.4	8.6	10.0	15.4	8.9	10.9	---	---	---	14.0	5.7	8.8
24	11.5	8.6	9.7	13.2	8.5	10.3	---	---	---	7.5	4.7	6.1
25	12.1	9.1	10.2	11.2	8.4	9.5	---	---	---	8.7	3.4	5.2
26	12.4	9.2	10.2	---	---	---	---	---	---	8.3	3.0	5.6
27	12.3	9.2	10.2	---	---	---	---	---	---	15.4	4.2	8.3
28	12.0	8.9	10.1	---	---	---	---	---	---	12.7	5.4	8.8
29	---	---	---	---	---	---	---	---	---	11.8	4.4	7.7
30	---	---	---	---	---	---	---	---	---	7.3	3.6	5.6
31	---	---	---	---	---	---	---	---	---	8.3	3.9	5.9
MONTH	14.2	7.8	10.1	15.4	8.4	10.6	---	---	---	15.4	3.0	7.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	7.3	3.9	5.6	---	---	---	---	---	---	---	---	---
2	7.4	4.3	5.6	---	---	---	---	---	---	---	---	---
3	7.6	4.0	5.4	---	---	---	---	---	---	---	---	---
4	10.2	3.3	6.3	---	---	---	---	---	---	---	---	---
5	7.1	4.5	5.6	---	---	---	---	---	---	---	---	---
6	11.6	3.4	6.4	---	---	---	---	---	---	---	---	---
7	8.3	5.1	6.6	---	---	---	---	---	---	---	---	---
8	11.5	5.6	7.8	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	9.7	5.5	7.2	---	---	---	---	---	---	---	---	---
13	9.4	4.8	7.5	---	---	---	---	---	---	---	---	---
14	11.0	4.8	7.0	---	---	---	14.6	3.7	7.9	---	---	---
15	11.8	4.1	7.2	---	---	---	8.5	4.1	7.1	---	---	---
16	10.9	4.8	7.6	---	---	---	10.6	6.4	7.3	---	---	---
17	10.8	4.0	6.9	---	---	---	10.2	6.0	7.5	---	---	---
18	9.9	3.9	6.5	---	---	---	9.2	5.8	6.9	---	---	---
19	10.3	3.0	6.1	---	---	---	9.0	5.8	7.1	---	---	---
20	10.7	2.8	6.0	---	---	---	7.5	5.9	6.8	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	12.9	11.1	11.7	---	---	---	---	---	---
26	---	---	---	12.4	10.9	11.3	---	---	---	---	---	---
27	---	---	---	11.8	10.7	11.1	---	---	---	9.6	8.1	8.9
28	---	---	---	11.6	10.6	11.0	---	---	---	10.7	8.8	9.3
29	---	---	---	11.5	10.1	10.6	---	---	---	9.9	8.8	9.2
30	---	---	---	---	---	---	---	---	---	10.3	8.7	9.1
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	11.8	2.8	6.5	12.9	10.1	11.1	14.6	3.7	7.2	10.7	8.1	9.1
YEAR	15.4	2.8	9.7									

ARKANSAS RIVER BASIN

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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 June 1991 (discontinued).

REVISED RECORDS.-- OK-91-1: 1990.

GAGE.-- Water-stage recorder. Datum of gage is 1,131.76 ft above National Geodetic Vertical Datum of 1929.

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). 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 daily discharge, 30 ft³/s, Dec. 19, 20, 1988.

EXTREMES FOR CURRENT PERIOD.-- Maximum discharge, 3,070 ft³/s, May 8, gage height, 10.82 ft; minimum daily discharge, 32 ft³/s, June 29.

REVISIONS.-- Revised daily discharges for water year 1990. These figures supersede those published in the report for 1990.

Date	Discharge	Date	Discharge	Date	Discharge
Sept. 22	481	Sept. 25	81	Sept. 28	67
23	158	26	70	29	82
24	103	27	66	30	81

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991 DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	77	60	e78	88	81	77	71	67	---	---	---
2	66	85	61	84	88	91	78	321	898	---	---	---
3	211	79	64	e80	88	100	213	651	226	---	---	---
4	90	356	61	e78	88	84	84	109	94	---	---	---
5	97	95	59	83	89	83	63	80	234	---	---	---
6	76	76	60	116	87	81	57	67	114	---	---	---
7	73	74	61	84	86	81	55	59	826	---	---	---
8	92	147	59	76	85	83	55	1270	147	---	---	---
9	159	134	60	76	84	87	51	170	65	---	---	---
10	297	75	59	180	83	84	49	82	48	---	---	---
11	66	71	59	110	82	84	50	66	44	---	---	---
12	51	69	60	96	81	84	76	91	41	---	---	---
13	49	68	61	79	81	84	76	66	81	---	---	---
14	50	66	62	77	78	84	74	76	43	---	---	---
15	52	65	60	98	78	85	74	85	39	---	---	---
16	52	64	81	83	78	124	73	86	56	---	---	---
17	51	63	402	74	79	240	75	84	36	---	---	---
18	65	63	133	73	78	91	81	84	35	---	---	---
19	68	64	86	86	79	82	78	83	35	---	---	---
20	70	63	80	92	78	81	78	301	36	---	---	---
21	92	63	e79	89	79	80	85	95	36	---	---	---
22	69	82	e77	89	78	80	83	78	40	---	---	---
23	67	83	e74	90	80	78	79	480	209	---	---	---
24	66	63	e72	89	79	79	193	473	188	---	---	---
25	64	62	e71	88	81	78	462	123	49	---	---	---
26	65	63	e80	95	82	77	126	76	38	---	---	---
27	64	69	87	87	81	95	66	65	34	---	---	---
28	63	69	85	86	80	77	55	59	33	---	---	---
29	63	61	e80	87	---	99	52	57	32	---	---	---
30	63	60	e76	e85	---	80	63	141	33	---	---	---
31	63	---	e72	87	---	78	---	74	---	---	---	---
TOTAL	2544	2489	2541	2775	2298	2795	2781	5623	3857	---	---	---
MEAN	82.1	83.0	82.0	89.5	82.1	90.2	92.7	181	129	---	---	---
MAX	297	356	402	180	89	240	462	1270	898	---	---	---
MIN	49	60	59	73	78	77	49	57	32	---	---	---
AC-FT	5050	4940	5040	5500	4560	5540	5520	11150	7650	---	---	---

CAL YR 1990 TOTAL 193917 MEAN 531 MAX 10700 MIN 45 AC-FT 384600

e Estimated

ARKANSAS RIVER BASIN

07241503 NORTH CANADIAN RIVER AT N.E. 36TH STREET AT OKLAHOMA CITY, OK --Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- August 1988 to June 1991 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to June 1991 (discontinued).

pH: October 1988 to June 1991 (discontinued).

WATER TEMPERATURE: October 1988 to June 1991 (discontinued).

DISSOLVED OXYGEN: October 1988 to June 1991 (discontinued).

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. Daily records of pH and dissolved oxygen for the 1991 water year are available at the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum 4,470 microsiemens, April 16, 1989; minimum 141 microsiemens, Sept. 21, 1990.

pH: Maximum 9.3 units, Jan. 12, 1989; minimum 7.0 units, Sept. 21, 22, 1989.

WATER TEMPERATURE: Maximum 35.5°C, Aug. 20, 21, 30, 1990; minimum recorded, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum 19.3 mg/l, Oct. 10, 1989; minimum 1.1 mg/l, Mar. 31, 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	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											
24...	1147	1028	80020	66	1750	8.4	15.0	13.5	--	760	11.6
24...	1148	1028	99999	66	1750	8.4	15.0	13.5	6.9	760	11.6
NOV											
20...	0900	1028	80020	63	1670	8.3	17.5	15.5	--	755	8.7
20...	0901	1028	99999	63	1670	8.3	17.5	15.5	6.9	755	8.7
DEC											
19...	1330	1028	99999	84	1470	8.2	15.5	10.5	9.2	750	10.9
JAN											
29...	1155	1028	99999	87	1820	8.4	-2.5	4.0	8.7	760	12.5
FEB											
13...	1200	1028	80020	81	1830	8.4	18.0	13.5	--	755	13.2
13...	1201	1028	99999	81	1830	8.4	18.0	13.5	6.7	755	13.2
MAR											
19...	1410	1028	99999	81	1490	8.5	19.5	15.0	7.7	760	11.9
APR											
17...	1237	1028	99999	75	1690	8.4	22.5	20.5	11	760	10.7
MAY											
21...	1244	1028	80020	83	1070	8.0	25.0	25.0	--	765	7.8
21...	1245	1028	99999	83	1070	8.0	25.0	25.0	16	765	7.8
JUN											
12...	1110	1028	99999	42	2430	8.3	31.0	27.0	7.3	760	14.8
DATE		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 CaCO3)	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
OCT											
24...	112	--	2.1	--	--	--	--	--	--	--	--
24...	112	0.76	--	2000	1800	--	--	--	--	--	--
NOV											
20...	89	--	1.7	--	--	450	110	42	180	46	4
20...	89	1.9	--	3000	500	--	--	--	--	--	--
DEC											
19...	100	1.5	1.9	400	500	--	--	--	--	--	--
JAN											
29...	96	3.9	1.5	4700	0	--	--	--	--	--	--
FEB											
13...	129	--	1.9	--	--	460	110	44	200	48	4
13...	129	1.9	--	1300	70	--	--	--	--	--	--
MAR											
19...	119	--	3.2	100	40	--	--	--	--	--	--
APR											
17...	119	1.1	0.6	600	100	--	--	--	--	--	--
MAY											
21...	94	--	7.9	--	--	300	75	26	100	--	3
21...	94	1.3	--	7500	2600	--	--	--	--	--	--
JUN											
12...	187	--	5.7	1100	800	--	--	--	--	--	--

07241503 NORTH CANADIAN RIVER AT N.E. 36TH STREET AT OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (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 CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 106 DEG. C, SUS- PENDED (MG/L)
OCT											
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	312	--	--	--	--	--	--	--	--	27
NOV											
20...	6.7	--	170	260	0.60	12	980	979	1.33	167	--
20...	--	321	--	--	--	--	--	--	--	--	18
DEC											
19...	--	287	--	--	--	--	--	--	--	--	14
JAN											
29...	--	308	--	--	--	--	--	--	--	--	24
FEB											
13...	6.5	--	220	280	0.60	6.4	1030	1060	1.40	225	--
13...	--	308	--	--	--	--	--	--	--	--	33
MAR											
19...	--	299	--	--	--	--	--	--	--	--	24
APR											
17...	--	305	--	--	--	--	--	--	--	--	41
MAY											
21...	--	--	92	130	0.50	11	--	--	--	--	--
21...	--	212	--	--	--	--	--	--	--	--	37
JUN											
12...	--	279	--	--	--	--	--	--	--	--	28
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											
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.370	1.6	0.040	0.13	0.410	0.180	0.23	0.17	0.35	0.670	0.530
NOV											
20...	--	--	--	--	--	--	--	--	--	--	--
20...	1.29	5.7	0.050	0.16	1.34	0.200	0.26	0.33	0.53	0.300	0.260
DEC											
19...	0.200	0.89	0.080	0.20	0.280	0.470	0.61	0.77	1.2	0.430	0.290
JAN											
29...	2.04	13	0.090	0.30	2.93	0.270	0.35	0.73	1.0	0.480	0.270
FEB											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	1.07	4.7	0.060	0.20	1.13	0.130	0.17	0.66	0.79	0.390	0.290
MAR											
19...	--	--	0.050	0.16	<0.050	0.220	0.28	0.40	0.62	0.480	0.210
APR											
17...	0.540	2.4	0.030	0.10	0.570	0.080	0.10	0.42	0.50	0.580	0.160
MAY											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	0.540	2.4	0.030	0.10	0.570	0.040	0.05	0.69	0.73	0.460	0.270
JUN											
12...	--	--	0.130	0.43	<0.050	0.030	0.04	1.5	1.5	0.350	0.330

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

07241503 NORTH CANADIAN RIVER AT N.E. 36TH STREET AT OKLAHOMA CITY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1740	1440	1640	1660	1550	1610	---	---	---	---	---	---
2	1540	773	935	1700	1520	1560	---	---	---	---	---	---
3	1930	493	947	1650	1510	1590	---	---	---	---	---	---
4	1110	673	946	1420	395	654	---	---	---	---	---	---
5	1140	1050	1080	856	471	635	---	---	---	---	---	---
6	1470	1160	1340	---	---	---	---	---	---	---	---	---
7	1540	1460	1510	---	---	---	---	---	---	---	---	---
8	1690	1310	1500	---	---	---	---	---	---	---	---	---
9	1390	820	1010	---	---	---	---	---	---	---	---	---
10	1320	1110	1230	---	---	---	---	---	---	---	---	---
11	1620	1240	1420	---	---	---	---	---	---	1010	505	788
12	1760	1610	1680	---	---	---	---	---	---	505	480	491
13	1940	1750	1900	---	---	---	---	---	---	593	498	538
14	1970	1880	1930	---	---	---	---	---	---	646	598	621
15	2030	1950	1980	---	---	---	---	---	---	693	651	671
16	2030	1990	2020	---	---	---	---	---	---	715	690	701
17	2080	2030	2060	---	---	---	---	---	---	737	712	722
18	2120	1730	2030	---	---	---	1080	532	821	820	739	770
19	1730	1660	1690	---	---	---	1470	1090	1290	842	817	831
20	1770	1730	1760	---	---	---	---	---	---	968	844	887
21	---	---	---	---	---	---	---	---	---	1230	1090	1160
22	---	---	---	---	---	---	---	---	---	1180	1120	1140
23	---	---	---	---	---	---	---	---	---	1210	1180	1200
24	---	---	---	---	---	---	---	---	---	1220	1190	1210
25	---	---	---	---	---	---	---	---	---	1230	1200	1210
26	---	---	---	---	---	---	---	---	---	---	---	---
27	1700	1660	1680	---	---	---	---	---	---	---	---	---
28	1770	1690	1720	---	---	---	---	---	---	---	---	---
29	1770	1710	1750	---	---	---	---	---	---	---	---	---
30	1730	1690	1710	---	---	---	---	---	---	---	---	---
31	1730	1670	1700	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	671	214	411
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	646	253	324
9	---	---	---	---	---	---	---	---	---	607	356	450
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	1240	1210	1230
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	1220	1190	1210
18	---	---	---	---	---	---	---	---	---	1380	1210	1280
19	---	---	---	---	---	---	---	---	---	1400	1330	1370
20	---	---	---	---	---	---	---	---	---	1450	1360	1400
21	---	---	---	---	---	---	---	---	---	1430	441	917
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	1140	512	796
24	---	---	---	---	---	---	---	---	---	1500	1150	1330
25	---	---	---	---	---	---	---	---	---	1440	266	765
26	---	---	---	---	---	---	---	---	---	327	249	297
27	---	---	---	---	---	---	622	266	440	825	322	442
28	---	---	---	---	---	---	---	---	---	1060	634	762
29	---	---	---	---	---	---	---	---	---	1540	1070	1360
30	---	---	---	---	---	---	---	---	---	1810	1500	1620
31	---	---	---	---	---	---	---	---	---	1900	1640	1750
MONTH	---	---	---	---	---	---	---	---	---	1740	568	1130
										1300	671	1010

ARKANSAS RIVER BASIN
07241503 NORTH CANADIAN RIVER AT N.E. 36TH STREET AT OKLAHOMA CITY, OK--Continued

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SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1450	1300	1350	---	---	---	---	---	---	---	---	---
2	1430	388	724	---	---	---	---	---	---	---	---	---
3	568	397	466	---	---	---	---	---	---	---	---	---
4	1110	581	846	---	---	---	---	---	---	---	---	---
5	1250	305	906	---	---	---	---	---	---	---	---	---
6	871	305	578	---	---	---	---	---	---	---	---	---
7	1040	153	631	---	---	---	---	---	---	---	---	---
8	822	241	490	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	1090	532	632	---	---	---	---	---	---	---	---	---
25	930	561	731	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	25.5	18.0	21.5	20.5	15.0	17.5	10.5	6.5	8.0	1.0	.5	.5
2	22.5	19.5	21.0	20.0	15.5	17.5	11.0	8.0	9.5	2.0	.5	1.0
3	22.5	20.0	21.0	19.0	11.5	16.5	8.5	5.0	6.5	.5	.5	.5
4	24.5	18.0	21.5	11.5	7.0	8.5	8.0	3.5	6.0	1.0	.5	1.0
5	25.0	19.5	22.0	12.0	6.0	9.0	8.5	4.0	6.0	2.0	1.0	1.5
6	25.0	20.0	22.5	14.0	8.5	11.0	8.0	5.0	6.5	1.5	1.0	1.0
7	23.0	17.0	20.0	11.0	8.0	9.0	8.5	3.0	5.5	2.5	.5	1.5
8	17.0	14.0	15.5	9.5	8.0	9.0	10.0	4.0	7.0	3.0	2.0	2.5
9	14.0	12.0	12.5	12.5	8.5	10.5	11.0	5.5	8.0	3.5	3.0	3.5
10	16.5	12.0	14.0	14.5	8.5	11.5	11.5	6.0	8.5	3.0	2.0	2.5
11	19.0	12.0	15.5	16.5	10.5	13.5	12.0	6.5	9.5	3.0	1.5	2.5
12	20.0	13.0	16.0	17.5	11.5	14.5	13.0	8.5	10.5	5.0	.5	2.5
13	20.5	13.5	16.5	17.0	12.0	14.5	9.0	6.0	7.0	7.0	2.0	4.5
14	21.5	15.0	17.5	16.5	12.0	14.0	8.5	6.0	7.0	7.5	4.5	6.0
15	21.5	15.0	18.0	17.5	12.5	14.5	8.5	6.0	7.5	8.5	6.5	7.5
16	24.0	17.0	19.5	15.0	11.5	14.0	7.5	7.0	7.5	9.0	4.5	6.5
17	20.0	13.5	17.5	13.5	9.0	11.5	9.0	7.5	8.0	9.0	4.5	7.0
18	17.0	10.5	13.5	13.5	11.0	12.5	9.5	7.0	8.5	10.0	6.5	8.0
19	16.5	10.5	13.5	16.0	12.5	14.0	9.0	8.5	8.5	10.5	8.0	9.0
20	16.5	12.0	14.0	17.5	14.5	16.0	8.5	2.0	5.5	8.5	4.0	6.0
21	15.0	11.0	12.5	18.0	14.5	17.0	1.5	1.0	1.0	5.5	2.0	4.0
22	15.5	9.0	12.0	14.0	11.0	12.5	1.0	.0	.5	6.5	2.0	4.0
23	17.0	10.5	13.5	14.5	9.0	11.5	.0	.0	.0	7.5	3.0	5.5
24	---	---	---	15.0	10.0	12.5	.0	.0	.0	8.0	3.5	6.0
25	16.5	11.0	14.0	16.5	11.0	14.0	.0	.0	.0	6.0	3.0	5.0
26	17.0	12.0	14.5	17.5	15.0	16.5	1.5	.0	.5	5.0	1.0	3.0
27	18.5	13.0	15.5	17.5	11.0	15.5	2.0	.5	1.0	8.0	4.0	5.5
28	18.5	12.0	15.0	11.0	7.5	9.5	4.5	1.0	2.5	6.0	4.0	5.0
29	20.0	13.0	16.0	11.0	6.5	8.5	6.5	.5	2.5	7.0	1.0	5.0
30	19.5	14.0	16.5	9.5	5.5	7.5	.5	.5	.5	4.5	.5	2.0
31	20.5	14.0	17.0	---	---	---	.5	.0	.0	7.0	.5	3.5
MONTH	---	---	---	20.5	5.5	12.8	13.0	.0	5.1	10.5	.5	4.0

ARKANSAS RIVER BASIN

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07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK

LOCATION.-- Lat 35°33'58", 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 poor. Flow regulated by Canton Lake (station 07238500) and by Lake Overholser (station 07240500) where diversions are made into Lake Refner 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 28 ft³/s July 28, 1991.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 4,150 ft³/s, Sept. 18, gage height, 15.40 ft; minimum daily discharge 28 ft³/s July 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	e79	e76	e90	e95	97	97	80	74	e45	e33	631
2	184	e86	e72	e92	e96	101	96	89	1100	52	e35	643
3	470	e80	99	e90	e98	152	297	1320	359	950	e37	1110
4	301	623	e78	e96	e100	107	135	194	119	508	64	840
5	252	227	e74	e110	e106	101	91	134	282	e140	175	310
6	211	138	e70	e140	100	95	79	99	253	e100	e89	319
7	187	122	e72	e120	108	94	78	82	1020	e80	e65	198
8	193	174	e70	e90	106	95	74	1700	493	e60	e53	e150
9	393	365	e68	e130	105	99	71	390	166	e55	e108	e110
10	527	146	e68	e220	103	95	66	152	e130	e54	e76	e98
11	190	e110	e67	e150	101	93	64	111	e100	e52	e57	e95
12	e110	e94	e68	e120	99	97	83	126	84	e54	e48	e150
13	e70	e86	e66	e94	99	94	99	111	181	e50	e106	357
14	e58	e82	e70	e105	95	92	94	91	138	e40	e78	615
15	e62	e80	e70	e120	92	92	94	97	e80	54	e61	421
16	e60	e78	87	e100	93	96	88	104	e70	e53	e59	2030
17	e68	e76	593	e90	93	447	88	99	e60	e50	e74	553
18	e75	e78	408	e88	90	141	96	91	e50	e45	e81	506
19	87	e79	e140	e98	87	116	92	85	e45	e43	e81	821
20	e85	e80	e110	e110	85	111	89	367	e43	e41	83	975
21	e119	e78	e90	e100	85	107	94	159	e45	e38	800	387
22	e88	e75	e86	e100	86	104	100	73	e50	e36	436	278
23	e82	e74	e80	e105	89	98	93	532	e100	e35	e189	258
24	e78	e76	e78	e100	87	98	89	868	484	e34	378	242
25	e78	e78	e90	e105	92	96	796	493	164	e34	460	279
26	e75	e82	e95	e110	95	97	176	124	e90	e31	398	e150
27	e75	89	e100	e100	95	129	98	101	e60	e29	220	e130
28	e73	97	e96	e98	94	107	72	94	e45	e28	247	e120
29	e72	85	e92	e96	---	138	87	92	e43	e90	347	e110
30	e71	81	e88	e95	---	117	69	194	e42	e49	399	e100
31	e70	---	e86	94	---	103	---	98	---	32	373	---
TOTAL	4664	3698	3405	3354	2674	3609	3623	8430	5950	2970	5710	12986
MEAN	150	123	110	108	95.5	116	121	272	198	95.8	184	433
MAX	527	623	593	220	108	447	796	1700	1100	950	800	2030
MIN	58	74	66	88	85	92	64	73	42	28	33	95
AC-FT	9250	7330	6750	6650	5300	7160	7190	16720	11800	5890	11330	25760

CAL YR 1990 TOTAL 216358 MEAN 593 MAX 10500 MIN 58 AC-FT 429100
WTR YR 1991 TOTAL 61071 MEAN 167 MAX 2030 MIN 28 AC-FT 121100

e Estimated

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

WATER QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to current year

pH: October 1988 to June 1991 (discontinued).

WATER TEMPERATURE: October 1988 to current year.

DISSOLVED OXYGEN: October 1988 to current year.

INSTRUMENTATION.-- Water quality monitor since October 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument, and the sensors being impeded by shallow depths and low velocities. Samples were collected monthly and specific conductance, pH, water temperature, and dissolved oxygen were determined in the field. pH data for Oct. 1, 1990, to June 30, 1991, is available upon request from the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum 2,630 microsiemens, July 18, 1990; minimum daily (observed) 160 microsiemens, Sept. 21, 1990.

pH: Maximum 9.1 units, June 27, 1991; minimum 6.3 units, Aug. 8, 1989.

WATER TEMPERATURE: Maximum 34.0°C, July 8, 1991; minimum recorded, 0.0°C, several days during winter period.

DISSOLVED OXYGEN: Maximum 18.4 mg/l, June 13, 1991; minimum 1.2 mg/l, Aug. 8, 1991.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
JUL											
31...	1351	10.0	30.0	765	1028	1028	32	8.10	1470	6.9	8.2
31...	1401	20.0	30.0	765	1028	1028	32	8.10	1470	6.7	8.2
31...	1408	30.0	30.0	765	1028	1028	32	8.10	1470	6.9	8.3
31...	1415	40.0	30.5	765	1028	1028	32	8.10	1480	7.7	8.3
31...	1423	50.0	30.5	765	1028	1028	32	8.10	1480	7.6	8.3
31...	1430	60.0	30.5	765	1028	1028	32	8.10	1480	7.7	8.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT												
24...	1315	1028	80020	*78	1510	8.4	18.5	14.0	--	760	11.9	116
24...	1316	1028	1028	*78	1510	8.4	18.5	14.0	8.7	760	11.9	116
NOV												
20...	1340	1028	80020	*80	1480	8.3	24.0	16.5	--	750	10.1	106
20...	1341	1028	1028	*80	1480	8.3	24.0	16.5	9.0	750	10.1	106
DEC												
19...	1415	1028	1028	*140	1010	8.1	16.0	10.0	17	750	9.6	87
JAN												
29...	1330	1028	1028	*96	1590	8.3	-3.0	5.0	5.1	760	11.7	92
FEB												
13...	1353	1028	80020	99	1610	8.4	19.5	14.0	--	755	14.1	139
13...	1354	1028	1028	99	1610	8.4	19.5	14.0	4.2	755	14.1	139
MAR												
20...	1428	1028	1028	109	1360	8.3	22.0	14.5	8.0	750	11.6	116
APR												
17...	1340	1028	1028	89	1480	8.5	25.0	20.5	13	760	11.1	125
MAY												
21...	1429	1028	80020	125	780	8.2	28.0	25.0	--	765	6.7	81
21...	1430	1028	1028	125	780	8.2	28.0	25.0	34	765	6.7	81
JUN												
12...	1232	1028	1028	84	1700	8.5	29.5	27.0	14	760	19.6	249
JUL												
31...	1010	1028	80020	32	1450	8.3	31.0	25.0	10	765	2.8	34
AUG												
28...	1010	1028	80020	247	1750	8.4	28.5	26.0	34	765	7.1	88
SEP												
04...	0953	1028	80020	1270	290	8.2	21.5	23.5	540	765	3.6	42

*Mean daily discharge

ARKANSAS RIVER BASIN

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07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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- 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)
OCT												
24...	--	0.6	--	--	--	--	--	--	--	--	--	--
24...	3.8	--	300	100	--	--	--	--	--	--	--	--
NOV												
20...	--	2.4	--	--	410	--	100	38	160	46	3	7.0
20...	2.1	--	2300	200	--	--	--	--	--	--	--	--
DEC												
19...	1.4	0.2	2000	400	--	--	--	--	--	--	--	--
JAN												
29...	3.8	0.8	1800	0	--	--	--	--	--	--	--	--
FEB												
13...	--	1.8	--	--	390	--	92	39	170	48	4	6.0
13...	3.6	--	1400	40	--	--	--	--	--	--	--	--
MAR												
20...	1.3	4.9	300	100	--	--	--	--	--	--	--	--
APR												
17...	0.76	1.7	200	20	--	--	--	--	--	--	--	--
MAY												
21...	--	8.3	--	--	200	--	52	18	75	44	2	6.2
21...	1.9	--	11000	500	--	--	--	--	--	--	--	--
JUN												
12...	1.8	6.6	220000	1000	--	--	--	--	--	--	--	--
JUL												
31...	2.5	2.7	330	180	--	--	--	--	--	--	--	--
AUG												
28...	0.92	0.9	220	400	370	190	83	40	180	51	4	7.4
SEP												
04...	1.3	--	>600	>1000	--	--	--	--	--	--	--	--

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 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)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)
OCT											
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
NOV											
20...	--	--	--	130	220	0.60	13	888	861	1.21	--
20...	--	--	--	--	--	--	--	--	--	--	--
DEC											
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
29...	--	--	--	--	--	--	--	--	--	--	--
FEB											
13...	--	--	--	170	250	0.60	6.7	938	906	1.28	251
13...	--	--	--	--	--	--	--	--	--	--	--
MAR											
20...	--	--	--	--	--	--	--	--	--	--	--
APR											
17...	--	--	--	--	--	--	--	--	--	--	--
MAY											
21...	--	--	--	74	100	0.40	8.6	455	430	0.62	154
21...	--	--	--	--	--	--	--	--	--	--	--
JUN											
12...	--	--	--	--	--	--	--	--	--	--	--
JUL											
31...	280	9	244	--	--	--	--	--	--	--	--
AUG											
28...	192	15	182	310	280	0.90	12	996	1030	1.35	664
SEP											
04...	78	0	64	--	--	--	--	--	--	--	--

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	RESIDUE TOTAL AT 106 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. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)
OCT											
24...	--	1.40	6.2	0.100	0.33	1.50	0.080	0.10	--	--	--
24...	30	--	--	0.080	0.26	--	0.140	0.18	0.21	0.35	0.690
NOV											
20...	--	1.41	6.2	0.090	0.30	1.50	0.260	0.33	--	--	--
20...	21	1.08	4.8	0.080	0.26	1.16	0.210	0.27	0.77	0.98	0.540
DEC											
19...	25	0.350	1.5	0.060	0.20	0.410	0.440	0.57	0.55	0.99	0.480
JAN											
29...	9	2.27	10	0.140	0.46	2.41	0.410	0.53	0.94	1.3	0.490
FEB											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	10	2.76	12	0.090	0.30	2.85	0.150	0.19	0.55	0.70	0.420
MAR											
20...	35	0.570	2.5	0.110	0.36	0.680	0.290	0.37	0.29	0.58	1.10
APR											
17...	43	0.370	1.6	0.050	0.16	0.420	0.020	0.03	0.32	0.34	0.770
MAY											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	92	0.380	1.7	0.040	0.13	0.420	0.030	0.04	1.4	1.5	0.400
JUN											
12...	64	0.00	0.0	0.470	1.5	0.120	0.030	0.04	1.7	1.7	0.700
JUL											
31...	20	1.43	6.3	0.070	0.23	1.50	0.250	0.32	0.75	1.0	1.50
AUG											
28...	111	0.300	1.3	0.020	0.07	0.320	0.030	0.04	0.57	0.60	0.350
SEP											
04...	724	0.420	1.9	0.030	0.10	0.450	0.100	0.13	0.80	0.90	0.280

[illegible]

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WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible]

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WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1200	1130	1170	1590	1490	1530	---	---	---	---	---	---
2	1330	1200	1270	1520	1450	1490	---	---	---	---	---	---
3	1460	471	1130	1510	1420	1470	---	---	---	---	---	---
4	749	471	550	---	---	---	---	---	---	---	---	---
5	1010	769	899	---	---	---	---	---	---	---	---	---
6	1060	983	1010	---	---	---	---	---	---	---	---	---
7	1220	1070	1130	---	---	---	---	---	---	---	---	---
8	1330	1240	1290	---	---	---	---	---	---	---	---	---
9	1190	849	971	---	---	---	---	---	---	---	---	---
10	1300	773	1130	---	---	---	---	---	---	---	---	---
11	1220	1110	1140	---	---	---	---	---	---	---	---	---
12	1250	1090	1180	---	---	---	---	---	---	---	---	---
13	1400	1250	1330	---	---	---	---	---	---	---	---	---
14	1520	1410	1460	---	---	---	---	---	---	---	---	---
15	1550	1450	1500	---	---	---	---	---	---	---	---	---
16	1570	1490	1540	---	---	---	---	---	---	---	---	---
17	1630	1550	1580	---	---	---	---	---	---	---	---	---
18	1630	1570	1600	---	---	---	---	---	---	---	---	---
19	1740	1470	1600	---	---	---	---	---	---	---	---	---
20	1490	1450	1460	---	---	---	---	---	---	---	---	---
21	1680	1430	1500	---	---	---	---	---	---	---	---	---
22	1390	1220	1270	---	---	---	---	---	---	---	---	---
23	1380	1280	1350	---	---	---	---	---	---	---	---	---
24	1450	1360	1400	---	---	---	---	---	---	---	---	---
25	1450	1400	1420	---	---	---	---	---	---	---	---	---
26	1510	1380	1430	---	---	---	---	---	---	---	---	---
27	1510	1440	1480	---	---	---	---	---	---	---	---	---
28	1480	1330	1440	---	---	---	---	---	---	---	---	---
29	1490	1400	1450	---	---	---	---	---	---	---	---	---
30	1510	1420	1480	---	---	---	---	---	---	---	---	---
31	1520	1460	1490	---	---	---	---	---	---	---	---	---
MONTH	1740	471	1310	1590	1420	1500	---	---	---	---	---	---
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	---	---	---	---	---	---	---	---	---	1200	1150	1180
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	1190	1160	1170
18	---	---	---	---	---	---	---	---	---	1290	1160	1210
19	---	---	---	---	---	---	---	---	---	1310	1280	1290
20	---	---	---	---	---	---	---	---	---	1320	1280	1300
21	---	---	---	---	---	---	---	---	---	1310	466	981
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	886	458	670
24	---	---	---	---	---	---	---	---	---	1150	888	1040
25	---	---	---	---	---	---	---	---	---	1180	288	815
26	---	---	---	---	---	---	---	---	---	405	224	310
27	---	---	---	---	---	---	---	---	---	590	192	359
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	908	578	740
30	---	---	---	---	---	---	---	---	---	1090	915	1010
31	---	---	---	---	---	---	---	---	---	1250	1100	1170
MONTH	---	---	---	---	---	---	---	---	---	1340	1250	1300
										1340	559	1110
										952	612	804
										1340	192	955

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1140	971	1060	1830	1580	1810	1850	1530	1590	1180	285	547
2	1010	429	575	1890	1480	1570	1840	1570	1810	825	305	422
3	710	559	828	1820	234	911	1700	1800	1850	393	270	330
4	859	683	749	458	258	371	1720	1250	1650	493	200	338
5	998	415	829	839	456	661	---	---	---	717	305	494
6	598	366	440	1120	861	986	1300	856	1060	849	292	472
7	783	231	545	1310	1140	1230	1510	1310	1430	1060	687	834
8	449	256	332	1370	1290	1320	1800	1340	1490	1040	708	814
9	722	458	604	1470	1380	1430	1500	681	952	1230	876	1050
10	832	725	778	1480	1420	1450	1190	776	968	1400	1240	1320
11	949	832	876	1580	1480	1530	1450	1200	1340	1580	1370	1440
12	---	---	---	1540	1450	1510	1510	1420	1460	1450	1410	1430
13	---	---	---	1550	1470	1500	1550	373	948	1490	1210	1400
14	---	---	---	1580	1450	1520	1450	1010	1250	1500	644	938
15	---	---	---	1650	1560	1600	1490	1200	1350	1220	971	1070
16	---	---	---	1670	1520	1580	1720	1440	1540	1080	195	463
17	---	---	---	1630	1520	1570	1540	1320	1470	993	329	667
18	---	---	---	1640	1510	1560	---	---	---	1050	373	906
19	---	---	---	1650	1580	1600	---	---	---	498	349	414
20	---	---	---	1640	1540	1590	---	---	---	1390	517	1140
21	---	---	---	1650	1550	1610	1670	981	1330	1350	1210	1270
22	---	---	---	1810	1510	1570	1810	1540	1580	1400	1270	1320
23	---	---	---	1700	1540	1810	1550	1500	1520	1340	1120	1190
24	---	---	---	1690	1590	1830	1670	1510	1820	1420	1220	1320
25	---	---	---	1700	1570	1860	1830	1530	1800	1210	1060	1120
26	1290	1080	1190	1550	1500	1530	1820	1490	1550	1450	1180	1310
27	1460	1300	1390	1880	1510	1810	1870	1580	1820	1520	1420	1480
28	1570	1470	1510	1750	1800	1870	1800	1860	1730	1730	1260	1520
29	1830	1560	1590	1820	791	1010	1780	1750	1770	1230	1090	1140
30	1850	1550	1590	---	---	---	1790	1180	1740	---	---	---
31	---	---	---	---	---	---	1180	725	960	---	---	---
MONTH	1850	231	918	1750	234	1410	1800	373	1440	1730	195	971
YEAR	1800	192	1210									

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN		MAX	MIN	MEAN		MAX	MIN	MEAN		MAX	MIN	MEAN
OCTOBER					NOVEMBER				DECEMBER				JANUARY		
1	20.5	17.5	19.0		20.5	18.5	19.5		--	--	--		--	--	--
2	23.5	18.0	21.5		20.5	19.0	19.5		--	--	--		--	--	--
3	23.5	21.5	22.5		20.5	17.5	19.5		--	--	--		--	--	--
4	23.0	20.0	21.5		--	--	--		--	--	--		--	--	--
5	24.0	21.0	22.0		--	--	--		--	--	--		--	--	--
6	24.0	21.5	22.5		--	--	--		--	--	--		--	--	--
7	23.5	20.0	22.0		--	--	--		--	--	--		--	--	--
8	20.0	15.5	18.0		--	--	--		--	--	--		--	--	--
9	16.0	13.0	14.0		--	--	--		--	--	--		--	--	--
10	16.0	11.5	14.0		--	--	--		--	--	--		--	--	--
11	17.5	14.5	16.0		--	--	--		--	--	--		--	--	--
12	18.5	15.5	16.5		--	--	--		--	--	--		--	--	--
13	19.0	16.0	17.0		--	--	--		--	--	--		--	--	--
14	20.5	17.0	18.5		--	--	--		--	--	--		--	--	--
15	21.0	17.5	19.0		--	--	--		--	--	--		--	--	--
16	22.0	18.5	20.0		--	--	--		--	--	--		--	--	--
17	21.0	18.5	20.0		--	--	--		--	--	--		--	--	--
18	18.0	15.5	16.5		--	--	--		--	--	--		--	--	--
19	16.5	14.0	15.5		--	--	--		--	--	--		--	--	--
20	18.0	15.5	16.5		--	--	--		--	--	--		--	--	--
21	16.5	15.0	15.5		--	--	--		--	--	--		--	--	--
22	16.0	13.5	14.5		--	--	--		--	--	--		--	--	--
23	17.5	14.0	15.5		--	--	--		--	--	--		--	--	--
24	18.0	15.0	16.5		--	--	--		--	--	--		--	--	--
25	17.5	15.0	16.5		--	--	--		--	--	--		--	--	--
26	18.0	15.5	16.5		--	--	--		--	--	--		--	--	--
27	19.0	16.0	17.5		--	--	--		--	--	--		--	--	--
28	19.0	16.0	17.5		--	--	--		--	--	--		--	--	--
29	19.5	16.5	18.0		--	--	--		--	--	--		--	--	--
30	20.0	17.5	18.5		--	--	--		--	--	--		--	--	--
31	20.0	18.0	19.0		--	--	--		--	--	--		--	--	--
MONTH	24.0	11.5	18.0		--	--	--		--	--	--		--	--	--

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	---	---	---	---	---	---	---	---	---	26.0	21.0	23.5
16	---	---	---	---	---	---	---	---	---	27.5	22.0	24.5
17	---	---	---	---	---	---	---	---	---	27.5	22.5	25.0
18	---	---	---	---	---	---	---	---	---	28.0	23.5	25.5
19	---	---	---	---	---	---	---	---	---	27.5	24.0	26.0
20	---	---	---	---	---	---	---	---	---	25.0	22.0	23.5
21	---	---	---	---	---	---	---	---	---	27.5	23.0	24.5
22	---	---	---	---	---	---	---	---	---	26.5	23.0	24.5
23	---	---	---	---	---	---	---	---	---	24.0	21.5	22.0
24	---	---	---	---	---	---	---	---	---	22.5	21.0	21.5
25	---	---	---	---	---	---	---	---	---	26.5	21.0	23.5
26	---	---	---	---	---	---	---	---	---	29.5	22.5	26.0
27	---	---	---	---	---	---	---	---	---	30.5	22.0	26.0
28	---	---	---	---	---	---	---	---	---	31.5	24.5	28.0
29	---	---	---	---	---	---	---	---	---	31.5	25.0	28.0
30	---	---	---	---	---	---	---	---	---	27.5	23.5	25.5
31	---	---	---	---	---	---	---	---	---	28.0	23.5	25.5
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	27.5	24.0	25.5	30.5	24.0	27.0	32.5	25.0	28.5	25.5	23.5	24.5
2	23.5	20.5	22.0	30.0	24.5	26.5	32.5	25.0	28.5	25.0	24.0	24.5
3	25.0	21.5	23.0	26.0	22.0	23.5	33.0	25.0	28.5	27.5	23.5	25.0
4	29.5	21.5	25.5	30.0	22.5	26.0	33.0	25.5	28.5	27.0	23.0	24.5
5	27.5	22.5	24.5	31.5	24.5	28.0	31.5	24.0	27.0	26.5	21.5	24.0
6	25.0	21.0	23.0	32.5	24.5	28.0	32.5	25.0	28.5	28.0	24.5	26.0
7	24.0	20.0	21.5	33.5	25.5	29.5	33.0	25.5	29.0	26.5	24.0	25.0
8	24.0	21.0	22.0	34.0	26.0	29.5	33.5	25.5	28.5	28.5	23.5	25.5
9	25.5	21.0	23.0	33.0	25.5	29.0	30.5	24.5	27.5	30.0	23.5	26.5
10	28.0	22.0	24.5	32.5	24.5	28.5	29.5	22.5	26.0	30.0	23.5	27.0
11	29.5	21.5	25.5	31.5	24.5	27.5	31.0	22.5	26.5	30.0	24.5	27.5
12	31.0	24.0	27.5	33.0	25.0	28.5	31.0	24.0	27.0	29.0	25.0	27.0
13	29.5	23.0	26.5	33.0	26.0	29.0	26.5	23.5	25.0	27.0	22.0	25.5
14	29.0	24.5	26.5	30.0	26.0	28.0	30.0	22.0	25.0	28.0	23.5	24.5
15	30.0	24.0	26.5	31.5	25.0	28.0	30.5	22.0	26.0	28.5	23.0	24.5
16	31.0	23.5	27.5	33.5	25.5	29.0	30.0	23.5	26.5	25.5	22.0	22.5
17	32.0	24.5	28.0	33.0	26.0	29.0	31.0	25.5	28.0	24.0	22.0	23.0
18	33.0	25.0	29.0	32.0	25.0	28.5	30.0	23.5	27.0	23.5	15.5	19.5
19	33.0	26.0	29.5	32.5	24.5	28.5	30.0	24.0	27.0	15.5	14.0	15.0
20	32.0	26.0	28.5	29.0	24.0	26.5	27.5	23.5	25.5	19.5	15.0	17.5
21	31.5	25.5	28.0	32.5	23.5	27.5	28.0	24.5	26.0	19.5	18.0	18.5
22	31.0	25.0	27.5	33.0	24.5	28.5	31.0	25.5	28.0	19.5	17.5	18.5
23	30.0	23.5	26.0	33.5	25.0	29.0	31.5	25.5	28.5	19.0	17.0	18.0
24	30.0	22.5	26.0	31.5	26.0	28.0	29.5	25.5	28.0	20.5	17.5	18.5
25	32.5	25.5	29.0	29.5	23.0	26.0	29.5	26.0	28.0	21.0	15.5	18.0
26	32.5	25.0	28.5	29.0	23.5	26.0	30.0	25.5	27.5	23.0	17.0	20.0
27	32.5	25.0	28.5	29.5	24.0	26.5	28.5	25.0	27.0	22.5	17.5	20.0
28	32.0	25.0	28.5	32.0	24.0	27.5	29.0	24.5	26.5	22.0	17.5	20.0
29	31.5	24.5	28.0	31.0	25.0	28.0	27.5	25.0	26.5	22.0	17.5	20.0
30	30.5	23.5	27.0	32.0	23.0	27.5	27.5	25.0	26.5	23.0	18.5	20.5
31	---	---	---	32.5	24.0	28.0	29.0	24.0	26.0	---	---	---
MONTH	33.0	20.0	26.2	34.0	22.0	27.8	33.5	22.0	27.2	30.0	14.0	22.4

ARKANSAS RIVER BASIN

07241520 NORTH CANADIAN RIVER AT BRITTON ROAD AT OKLAHOMA CITY, OK--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	12.3	6.9	9.2	---	---	---	---	---	---
2	---	---	---	11.4	6.1	8.3	---	---	---	---	---	---
3	---	---	---	9.6	5.7	7.7	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	11.6	8.3	9.5	---	---	---	---	---	---	---	---	---
21	11.4	8.4	9.6	---	---	---	---	---	---	---	---	---
22	10.6	6.1	7.9	---	---	---	---	---	---	---	---	---
23	11.0	6.7	8.3	---	---	---	---	---	---	---	---	---
24	12.3	6.3	8.7	---	---	---	---	---	---	---	---	---
25	11.1	6.1	8.3	---	---	---	---	---	---	---	---	---
26	12.1	7.7	9.5	---	---	---	---	---	---	---	---	---
27	13.6	5.8	9.3	---	---	---	---	---	---	---	---	---
28	13.9	6.5	9.2	---	---	---	---	---	---	---	---	---
29	13.9	7.1	9.9	---	---	---	---	---	---	---	---	---
30	13.4	7.5	9.7	---	---	---	---	---	---	---	---	---
31	12.9	5.9	9.3	---	---	---	---	---	---	---	---	---
MONTH	13.9	5.8	9.1	12.3	5.7	8.4	---	---	---	---	---	---
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	---	---	---	---	---	---	---	---	---	15.3	5.7	9.9
16	---	---	---	---	---	---	---	---	---	12.5	5.5	8.8
17	---	---	---	---	---	---	---	---	---	12.2	5.3	8.5
18	---	---	---	---	---	---	---	---	---	14.0	5.0	8.8
19	---	---	---	---	---	---	---	---	---	14.2	4.2	8.3
20	---	---	---	---	---	---	---	---	---	6.2	2.2	3.8
21	---	---	---	---	---	---	---	---	---	6.4	2.6	4.1
22	---	---	---	---	---	---	---	---	---	6.9	3.0	4.7
23	---	---	---	---	---	---	---	---	---	4.4	2.5	3.7
24	---	---	---	---	---	---	---	---	---	4.9	3.3	4.1
25	---	---	---	---	---	---	---	---	---	5.6	4.2	5.0
26	---	---	---	---	---	---	---	---	---	7.4	4.9	5.9
27	---	---	---	---	---	---	---	---	---	12.5	4.7	7.7
28	---	---	---	---	---	---	---	---	---	17.2	4.2	9.8
29	---	---	---	---	---	---	---	---	---	15.5	3.4	8.9
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	17.2	2.2	6.8

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK

LOCATION.-- 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 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's satellite telemeter located at station.

AVERAGE DISCHARGE.-- 23 years, 423 ft³/s, 306,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 27,200 ft³/s, May 29, 1987, gage height, 19.60 ft; minimum, 23 ft³/s, Aug. 8, 1972.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 7,440 ft³/s, May 24, gage height, 15.12 ft; minimum daily discharge, 101 ft³/s, Aug. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312	163	163	e165	196	178	166	142	284	121	126	512
2	270	168	154	e180	192	179	156	168	965	126	124	880
3	331	167	161	202	188	199	218	1110	1440	377	117	1610
4	538	411	169	187	168	227	428	643	627	1580	104	920
5	309	741	170	181	162	185	214	284	414	504	204	988
6	287	259	163	219	187	177	164	221	735	284	272	512
7	252	201	149	274	187	171	145	175	437	200	136	396
8	243	202	168	209	176	146	150	1380	1630	171	124	355
9	328	452	161	191	160	168	147	1240	588	157	141	328
10	458	369	144	222	163	173	138	481	392	165	205	235
11	471	219	146	452	170	167	147	297	306	150	129	207
12	223	181	150	288	147	146	143	243	277	135	104	263
13	197	172	157	212	177	163	157	275	246	150	128	343
14	200	167	158	196	173	164	162	221	350	150	196	706
15	175	177	147	198	162	158	164	208	258	135	136	720
16	172	177	144	251	164	159	161	218	211	148	101	1590
17	168	164	271	212	158	357	155	204	237	145	188	1550
18	176	155	1040	185	162	403	168	192	190	140	210	644
19	175	155	378	173	174	217	172	185	185	133	182	1270
20	173	160	259	176	169	187	160	221	185	141	195	847
21	177	171	225	183	150	176	160	624	179	120	409	1130
22	211	166	e205	185	154	175	162	302	188	117	1030	404
23	188	153	e195	187	162	173	162	313	240	120	428	337
24	170	150	e185	188	174	151	161	2540	570	117	305	314
25	183	166	e180	192	165	149	663	3310	428	127	622	346
26	162	157	e185	180	171	159	561	739	225	134	625	327
27	161	157	e190	193	148	168	302	396	171	126	487	232
28	170	159	205	198	164	196	190	299	139	117	311	212
29	158	177	224	199	---	194	162	259	141	133	423	244
30	153	168	188	178	---	205	149	274	143	185	522	243
31	153	---	e175	190	---	175	---	478	---	129	665	---
TOTAL	7342	6484	6609	6424	4723	5845	6187	17642	12381	6537	8949	18565
MEAN	237	216	213	207	169	189	206	569	413	211	289	619
MAX	538	741	1040	452	196	403	663	3310	1630	1580	1030	1590
MIN	153	150	144	165	147	146	138	142	139	117	101	207
AC-FT	14560	12860	13110	12740	9370	11590	12270	34990	24560	12970	17750	36820

CAL YR 1990 TOTAL 286264 MEAN 784 MAX 9700 MIN 138 AC-FT 567800
WTR YR 1991 TOTAL 107688 MEAN 295 MAX 3310 MIN 101 AC-FT 213600

e Estimated

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1988 to current year.

pH: October 1988 to current year.

WATER TEMPERATURE: October 1988 to current year.

DISSOLVED OXYGEN: October 1988 to current year.

INSTRUMENTATION.-- Water-quality monitor since July 1988.

REMARKS.-- Interruptions in record were due to malfunction of the recording instrument and extended periods of excessive and movement impeding streamflow from passing by the sensors. Samples were collected monthly and specific conductance, pH, water temperature, dissolved oxygen, and alkalinity were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily (observed), 4,700 microsiemens, Sept. 25, 1980; minimum recorded, 135 microsiemens, Apr. 21, 1990.

pH: Maximum, 9.1 units, Apr. 29, 1989, July 27, 1990; minimum, 6.9 units, Apr. 27, 1990.

WATER TEMPERATURE: Maximum daily (observed), 36.0 °C, July 11, 1982; minimum, 0.0 °C on several days during winter periods.

DISSOLVED OXYGEN: Maximum, 20.1 mg/l, July 12, 1991; minimum, 1.0 mg/l, July 3, 1991.

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH WATER WHOLE FIELD (STAND- ARD UNITS)
AUG											
20...	1337	5.00	27.0	765	1028	1028	209	5.39	1330	15.8	8.9
20...	1342	15.0	26.5	765	1028	1028	209	5.39	1340	16.2	8.9
20...	1349	25.0	26.5	765	1028	1028	209	5.39	1340	16.3	8.9
20...	1355	35.0	26.5	765	1028	1028	209	5.40	1340	16.4	8.9
20...	1401	45.0	26.5	765	1028	1028	209	5.40	1340	16.5	8.9
20...	1420	98.0	26.5	765	1028	1028	209	5.40	1340	16.2	8.9
20...	1425	118	26.5	765	1028	1028	209	5.40	1340	17.2	9.0
20...	1432	128	26.5	765	1028	1028	209	5.41	1340	17.4	8.9
20...	1438	138	26.5	765	1028	1028	209	5.41	1340	17.6	9.0
20...	1443	148	26.5	765	1028	1028	209	5.41	1340	17.6	9.0
20...	1448	158	26.5	765	1028	1028	209	5.41	1340	17.8	9.0
20...	1453	168	26.5	765	1028	1028	209	5.42	1350	17.4	9.0
20...	1504	178	26.5	765	1028	1028	209	5.42	1350	17.6	9.0
20...	1511	188	26.5	765	1028	1028	209	5.42	1350	17.2	9.0

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH. OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CACO3)	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											
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
NOV											
20...	--	--	--	110	190	0.70	13	760	753	1.03	330
20...	--	--	--	--	--	--	--	--	--	--	--
DEC											
19...	--	--	--	--	--	--	--	379	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
JAN											
29...	--	--	--	--	--	--	--	792	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
FEB											
13...	--	--	--	130	200	0.90	7.4	764	727	1.04	365
13...	--	--	--	--	--	--	--	--	--	--	--
MAR											
20...	--	--	--	--	--	--	--	602	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
APR											
17...	--	--	--	--	--	--	--	730	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
MAY											
21...	--	--	--	51	120	0.40	7.8	425	384	0.58	716
21...	--	--	--	--	--	--	--	--	--	--	--
JUN											
12...	--	--	--	--	--	--	--	620	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
JUL											
17...	211	18	199	--	--	--	--	670	--	--	--
AUG											
27...	170	0	139	240	230	0.60	9.8	872	870	1.19	1180
SEP											
10...	187	12	174	--	--	--	--	491	--	--	--
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											
24...	--	4.26	19	0.040	0.13	4.30	0.040	0.05	--	--	--
24...	48	4.66	21	0.060	0.20	--	0.060	0.08	0.65	0.71	2.02
NOV											
20...	--	4.85	21	0.050	0.18	4.90	0.130	0.17	--	--	--
20...	26	--	--	0.050	0.16	--	--	--	0.42	0.48	2.10
DEC											
19...	--	--	--	--	--	--	--	--	--	--	--
19...	112	0.530	2.3	0.060	0.20	0.590	0.180	0.23	1.3	1.4	1.04
JAN											
29...	--	--	--	--	--	--	--	--	--	--	--
29...	14	4.92	22	0.100	0.33	5.02	0.330	0.42	1.0	1.3	1.03
FEB											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	11	3.51	16	0.040	0.13	3.55	0.060	0.08	0.37	0.43	1.28
MAR											
20...	--	--	--	--	--	--	--	--	--	--	--
20...	47	2.44	11	0.060	0.20	2.50	0.090	0.12	0.37	0.46	2.60
APR											
17...	--	--	--	--	--	--	--	--	--	--	--
17...	53	0.750	3.3	0.030	0.10	0.780	0.040	0.05	0.20	0.24	2.20
MAY											
21...	--	--	--	--	--	--	--	--	--	--	--
21...	400	0.720	3.2	0.060	0.20	0.780	0.070	0.09	2.2	2.2	1.18
JUN											
12...	--	--	--	--	--	--	--	--	--	--	--
12...	78	1.22	5.4	0.180	0.59	1.40	0.030	0.04	1.3	1.3	0.440
JUL											
17...	2	2.43	11	0.070	0.23	2.50	0.020	0.03	1.1	1.1	2.00
AUG											
27...	120	2.37	10	0.030	0.10	2.40	<0.010	--	--	0.80	0.790
SEP											
10...	55	2.36	10	0.040	0.13	2.40	0.010	0.01	0.89	0.90	1.10

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible]

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible][illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1190	888	1010	1350	1290	1330	1260	1190	1230	1600	1190	1340
2	1120	1050	1080	1340	1300	1320	1300	1240	1270	1550	1320	1390
3	1070	872	951	1400	1250	1350	1310	1270	1290	1440	1260	1410
4	1230	655	982	1280	1020	1150	1320	1260	1290	1410	653	926
5	775	638	680	1030	591	681	1290	1240	1270	1320	618	717
6	989	792	908	875	670	770	---	---	---	1350	1240	1270
7	992	963	975	1080	882	975	---	---	---	1740	1340	1560
8	1030	972	1000	1160	1090	1140	1390	1300	1340	1700	1280	1450
9	1160	1010	1050	1270	872	1130	---	---	---	1300	633	1120
10	1140	811	941	821	718	751	---	---	---	1240	1120	1160
11	1190	826	1090	---	---	---	---	---	---	1590	919	1230
12	1100	1010	1040	---	---	---	---	---	---	980	909	942
13	1120	1020	1060	---	---	---	---	---	---	1050	970	993
14	1170	1120	1150	---	---	---	---	---	---	1090	1030	1060
15	1210	1140	1180	---	---	---	---	---	---	1120	1050	1080
16	1260	1220	1230	---	---	---	---	---	---	1240	1080	1170
17	1310	1230	1270	1250	1230	1230	1230	623	1010	1270	1150	1210
18	1330	1280	1310	1250	1220	1230	1190	506	729	---	---	---
19	1380	1290	1330	1270	1230	1250	787	609	691	---	---	---
20	1490	1370	1430	1260	1220	1240	1020	799	917	---	---	---
21	1360	1300	1320	1250	1200	1230	1270	1030	1130	1380	1260	1280
22	1490	1330	1380	1260	1220	1250	---	---	---	1290	1220	1270
23	1530	1120	1270	1260	1230	1250	---	---	---	1290	1240	1270
24	1290	1190	1260	1270	1230	1250	---	---	---	1290	1240	1260
25	1320	1270	1290	1370	1250	1290	1340	1210	1270	1280	1250	1260
26	1320	1260	1290	1260	1240	1250	1290	1170	1220	1280	1260	1270
27	1320	1290	1300	1290	1240	1260	1280	1160	1190	1310	1250	1280
28	1350	1290	1320	1280	1250	1270	2040	1210	1700	1290	1260	1280
29	1290	1270	1280	1320	1170	1260	1280	1160	1220	1290	1260	1280
30	1320	1280	1300	1190	1150	1180	---	---	---	1330	1280	1310
31	1340	1290	1320	---	---	---	---	---	---	1350	1270	1310
MONTH	1530	638	1160	1400	591	1170	2040	506	1170	1740	618	1220
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1370	1270	1320	1190	1120	1150	1230	1150	1190	1170	1090	1130
2	1320	1270	1300	1130	1070	1100	1240	1160	1220	1280	1090	1190
3	1310	1270	1290	1110	1040	1060	1230	1090	1160	1090	560	846
4	1330	1280	1300	1110	1020	1070	1240	824	964	692	560	612
5	1350	1280	1320	1060	1020	1050	1020	843	917	788	681	732
6	1360	1260	1310	1050	1010	1040	1170	1020	1090	861	788	831
7	1320	1260	1300	1050	999	1020	1250	1170	1210	1200	861	928
8	1320	1250	1290	1030	1000	1020	1270	1240	1250	1200	213	814
9	1340	1260	1290	1040	1000	1020	1260	1240	1250	371	226	307
10	1370	1280	1330	1010	989	1000	1290	1250	1270	340	310	323
11	1320	1250	1280	997	945	974	1290	1230	1270	---	---	---
12	1320	1260	1290	985	943	973	1340	1260	1290	---	---	---
13	1350	1250	1300	1020	982	997	1410	1290	1320	---	---	---
14	1290	1240	1270	1070	985	1030	1450	1260	1360	1030	893	938
15	1370	1250	1290	1060	1040	1050	1280	1220	1260	1140	954	1010
16	1330	1260	1280	1080	1030	1060	1270	1180	1240	---	---	---
17	1310	1250	1270	1050	833	933	1280	1220	1250	---	---	---
18	1360	1270	1310	833	693	746	1300	1200	1250	---	---	---
19	1300	1230	1260	868	750	805	1340	1250	1280	---	---	---
20	1270	1230	1250	998	851	936	1390	1340	1280	---	---	---
21	1290	1240	1270	1080	977	1020	1400	1350	1370	---	---	---
22	1330	1230	1290	1070	859	1000	1390	1340	1360	---	---	---
23	1330	1260	1300	879	831	866	1360	1310	1330	---	---	---
24	1320	1290	1300	878	828	858	1310	1210	1280	---	---	---
25	1320	1280	1300	846	791	822	1220	674	1030	---	---	---
26	1320	1280	1300	1210	811	1030	771	655	695	---	---	---
27	1340	1170	1260	1240	1200	1210	861	771	831	---	---	---
28	1260	1160	1210	1330	1220	1280	944	845	884	---	---	---
29	---	---	---	1250	1130	1160	1020	944	977	---	---	---
30	---	---	---	1300	1130	1210	1090	1020	1050	---	---	---
31	---	---	---	1190	1120	1150	---	---	---	---	---	---
MONTH	1370	1160	1290	1330	693	1020	1450	655	1170	1280	213	805

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	888	263	358	---	---	---	---	---	---	---	---	---
9	744	371	597	---	---	---	---	---	---	---	---	---
10	1100	737	930	---	---	---	---	---	---	---	---	---
11	1280	1040	1150	---	---	---	---	---	---	---	---	---
12	1360	1170	1220	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	1330	778	1220
15	---	---	---	---	---	---	---	---	---	1110	664	835
16	---	---	---	---	---	---	---	---	---	1060	253	724
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	1180	424	569
21	---	---	---	---	---	---	1820	1350	1480	1270	1130	1220
22	---	---	---	---	---	---	1660	1050	1410	1120	1030	1080
23	---	---	---	---	---	---	1640	1420	1580	1130	1030	1070
24	---	---	---	---	---	---	1650	1410	1500	1150	1000	1050
25	---	---	---	---	---	---	1950	1470	1740	1200	1060	1130
26	---	---	---	---	---	---	1830	1600	1710	1100	1000	1020
27	---	---	---	---	---	---	1780	1570	1650	1140	1030	1070
28	---	---	---	---	---	---	1750	1600	1650	1170	1140	1160
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	1360	263	851	---	---	---	1950	1050	1590	1330	253	1010
YEAR	2040	213	1150	---	---	---	---	---	---	---	---	---

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.8	7.6	7.7	---	---	---	8.3	8.3	8.3	---	---	---
2	7.7	7.5	7.6	---	---	---	8.4	8.2	8.3	---	---	---
3	7.7	7.6	7.7	---	---	---	8.5	8.3	8.4	---	---	---
4	7.7	7.5	7.6	---	---	---	8.5	8.4	8.4	---	---	---
5	7.6	7.5	7.5	---	---	---	8.5	8.3	8.4	---	---	---
6	8.0	7.6	7.7	---	---	---	8.4	8.3	8.3	---	---	---
7	8.1	7.7	7.8	---	---	---	8.4	8.0	8.2	---	---	---
8	7.9	7.8	7.9	---	---	---	8.2	8.0	8.1	---	---	---
9	8.0	7.9	7.9	---	---	---	8.3	8.1	8.1	---	---	---
10	8.0	7.6	7.8	---	---	---	8.4	8.2	8.3	---	---	---
11	8.2	7.7	7.9	---	---	---	8.5	8.3	8.4	---	---	---
12	8.2	8.0	8.1	---	---	---	8.5	8.3	8.4	---	---	---
13	8.3	8.0	8.1	---	---	---	8.4	8.3	8.4	---	---	---
14	8.3	8.0	8.1	---	---	---	8.4	8.3	8.4	---	---	---
15	8.2	7.9	8.0	---	---	---	8.5	8.3	8.4	---	---	---
16	8.2	7.9	8.0	---	---	---	8.5	8.3	8.4	---	---	---
17	8.4	8.0	8.1	8.3	8.2	8.3	8.6	8.3	8.5	---	---	---
18	8.6	8.1	8.2	8.3	8.2	8.3	8.4	8.1	8.4	---	---	---
19	8.7	8.0	8.2	8.4	8.2	8.3	8.4	8.3	8.3	---	---	---
20	8.4	8.1	8.2	8.5	8.2	8.3	---	---	---	---	---	---
21	8.5	8.1	8.3	8.4	8.1	8.3	---	---	---	---	---	---
22	8.7	8.2	8.4	8.4	8.1	8.2	---	---	---	---	---	---
23	8.9	8.1	8.3	8.4	7.9	8.2	---	---	---	8.2	8.1	8.1
24	8.6	8.2	8.3	8.3	8.1	8.2	---	---	---	8.2	8.0	8.1
25	8.5	8.2	8.3	8.4	8.1	8.2	---	---	---	8.1	8.0	8.1
26	8.4	8.0	8.2	8.3	7.9	8.2	---	---	---	8.2	8.0	8.1
27	8.2	8.0	8.1	8.5	8.1	8.3	---	---	---	8.2	8.0	8.1
28	8.1	7.9	8.0	8.5	8.3	8.4	---	---	---	8.2	8.0	8.1
29	8.2	7.9	8.1	8.5	8.3	8.4	---	---	---	8.2	8.0	8.1
30	8.2	8.0	8.1	8.3	8.2	8.3	---	---	---	8.3	8.1	8.2
31	8.1	7.8	8.0	---	---	---	---	---	---	8.2	8.1	8.2
MAX	8.9	8.2	8.4	8.5	8.3	8.4	8.6	8.4	8.5	8.3	8.1	8.2
MIN	7.6	7.5	7.5	8.3	7.9	8.2	8.2	8.0	8.1	8.1	8.0	8.1

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY				MARCH			APRIL			MAY		
1	8.2	8.1	8.1	8.5	8.1	8.2	---	---	---	8.4	8.2	8.3
2	8.3	8.1	8.1	8.3	8.0	8.2	---	---	---	8.8	8.3	8.6
3	8.3	8.0	8.1	8.4	8.0	8.2	---	---	---	8.4	7.7	7.8
4	8.3	8.0	8.1	8.3	7.9	8.1	---	---	---	7.9	7.7	7.8
5	8.4	8.1	8.2	---	---	---	---	---	---	8.1	7.9	8.0
6	8.4	8.1	8.2	---	---	---	---	---	---	8.3	8.1	8.2
7	8.3	8.0	8.1	---	---	---	---	---	---	8.3	8.1	8.2
8	8.4	8.0	8.2	---	---	---	---	---	---	---	---	---
9	8.4	8.1	8.2	---	---	---	---	---	---	---	---	---
10	8.4	8.1	8.2	---	---	---	8.6	8.2	8.4	---	---	---
11	8.4	8.0	8.2	---	---	---	8.5	8.2	8.3	---	---	---
12	8.4	8.0	8.2	---	---	---	8.6	8.1	8.4	---	---	---
13	8.3	8.1	8.2	---	---	---	8.8	8.2	8.4	---	---	---
14	8.4	8.0	8.2	---	---	---	9.0	8.5	8.6	---	---	---
15	8.3	8.1	8.2	---	---	---	8.8	8.5	8.7	---	---	---
16	8.3	8.0	8.2	---	---	---	8.8	8.4	8.5	---	---	---
17	8.3	8.1	8.2	---	---	---	8.8	8.1	8.6	---	---	---
18	8.4	8.1	8.3	---	---	---	8.9	8.3	8.6	---	---	---
19	8.5	8.1	8.3	---	---	---	8.8	8.3	8.6	---	---	---
20	8.4	8.1	8.2	---	---	---	8.6	8.4	8.5	---	---	---
21	8.4	8.1	8.3	---	---	---	8.4	8.1	8.3	---	---	---
22	8.4	8.1	8.3	---	---	---	8.4	8.1	8.2	---	---	---
23	8.5	8.1	8.3	---	---	---	8.3	8.1	8.2	---	---	---
24	8.4	8.1	8.2	---	---	---	8.1	8.0	8.0	---	---	---
25	8.4	8.1	8.2	---	---	---	8.0	7.7	7.9	---	---	---
26	8.4	8.1	8.2	---	---	---	7.8	7.7	7.7	---	---	---
27	8.4	8.0	8.2	---	---	---	7.9	7.8	7.9	---	---	---
28	8.5	8.2	8.3	---	---	---	8.0	7.9	8.0	---	---	---
29	---	---	---	---	---	---	8.1	8.0	8.1	---	---	---
30	---	---	---	---	---	---	8.3	8.1	8.2	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MAX	8.5	8.2	8.3	8.5	8.1	8.2	9.0	8.5	8.7	8.8	8.3	8.6
MIN	8.2	8.0	8.1	8.3	7.9	8.1	7.8	7.7	7.7	7.9	7.7	7.8
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	8.5	7.8	8.1	---	---	---
19	---	---	---	---	---	---	8.9	8.3	8.4	---	---	---
20	---	---	---	---	---	---	9.0	7.8	8.6	---	---	---
21	---	---	---	---	---	---	8.3	7.3	7.9	---	---	---
22	---	---	---	---	---	---	7.8	7.0	7.2	---	---	---
23	---	---	---	---	---	---	8.1	7.5	7.6	---	---	---
24	---	---	---	---	---	---	8.6	7.8	8.0	---	---	---
25	---	---	---	---	---	---	8.2	7.7	7.9	---	---	---
26	---	---	---	---	---	---	8.5	8.0	8.2	---	---	---
27	---	---	---	---	---	---	8.6	8.2	8.3	---	---	---
28	---	---	---	---	---	---	8.5	8.2	8.3	---	---	---
29	---	---	---	---	---	---	8.2	8.1	8.2	---	---	---
30	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	9.0	8.3	8.6	---	---	---
MIN	---	---	---	---	---	---	7.6	7.0	7.2	---	---	---

ARKANSAS RIVER BASIN

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07241650 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	24.0	21.0	22.5	19.5	16.5	18.0	11.0	8.5	9.5	5.5	2.5	4.0
2	23.0	21.5	22.5	19.0	16.5	17.5	11.5	10.0	10.5	5.0	3.5	4.5
3	23.0	21.5	22.0	19.0	14.5	17.5	10.0	7.0	8.0	3.0	2.0	2.5
4	23.5	20.5	22.0	14.0	10.0	12.0	9.0	6.0	7.0	3.5	2.5	3.0
5	24.5	21.0	22.5	11.5	8.5	10.0	9.5	6.0	8.0	5.0	3.5	4.0
6	24.0	22.0	23.0	14.5	9.5	12.0	9.5	7.5	8.5	5.0	4.0	4.5
7	23.5	20.5	22.0	13.5	11.5	12.0	8.5	6.0	7.0	4.0	3.0	3.5
8	20.0	16.5	18.5	12.5	11.0	11.5	10.5	7.0	8.5	5.0	3.5	4.0
9	16.5	14.0	15.5	13.5	11.5	12.5	11.0	8.5	9.5	5.5	5.0	5.0
10	16.0	12.5	14.0	14.0	10.5	12.5	11.0	8.5	10.0	5.0	4.5	4.5
11	18.0	13.5	15.5	---	---	---	11.5	9.0	10.0	5.5	3.0	4.0
12	20.0	16.0	17.5	---	---	---	13.0	10.0	11.5	5.5	2.0	3.5
13	20.5	16.5	18.5	---	---	---	11.0	8.5	9.5	7.0	4.0	5.5
14	21.5	17.5	19.0	---	---	---	9.0	8.5	8.5	8.5	5.5	7.0
15	21.0	18.0	19.5	---	---	---	9.0	8.0	8.5	9.5	7.5	8.5
16	23.5	19.0	20.5	---	---	---	8.5	8.0	8.0	9.5	6.5	7.5
17	21.5	18.0	20.0	14.5	12.5	13.5	9.0	8.0	8.5	9.5	6.0	8.0
18	17.5	14.5	16.5	14.5	13.0	13.5	9.5	8.0	8.5	10.5	8.5	9.5
19	18.0	14.5	16.0	16.0	14.0	15.0	9.0	8.0	8.5	11.5	9.5	10.0
20	16.0	13.5	14.5	18.0	15.5	16.5	9.0	5.0	7.5	9.5	6.0	8.0
21	14.5	12.5	13.5	18.5	16.5	17.5	5.0	.5	2.5	7.5	4.5	6.0
22	15.0	11.0	13.0	16.0	13.0	15.0	---	---	---	7.0	4.0	6.0
23	16.0	12.5	14.0	15.0	12.0	13.5	---	---	---	8.5	5.0	6.5
24	16.0	13.0	14.5	15.0	12.0	13.5	4.0	.5	2.0	9.0	5.5	7.0
25	16.5	13.0	14.5	16.5	13.0	14.5	5.0	2.5	4.0	7.0	5.0	6.5
26	17.0	14.0	15.0	17.5	16.0	17.0	5.5	4.0	4.5	6.0	3.0	4.5
27	17.5	14.0	15.5	18.0	13.5	17.0	5.5	4.5	5.0	8.5	5.5	6.5
28	17.5	14.0	15.5	13.0	10.5	12.0	7.0	4.5	5.0	7.0	5.5	6.5
29	18.5	14.5	16.0	12.0	9.5	10.5	8.0	2.0	5.0	8.0	3.5	6.5
30	18.5	15.5	17.0	10.5	8.5	9.5	1.5	.0	.5	5.5	2.0	3.5
31	19.0	16.0	17.5	---	---	---	3.5	.0	1.5	7.0	2.5	4.5
MONTH	24.5	11.0	17.7	19.5	8.5	13.9	13.0	.0	6.6	11.5	2.0	5.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.0	4.5	6.5	17.5	13.5	15.0	20.0	13.5	16.5	23.0	16.0	19.0
2	10.0	6.5	8.0	15.0	9.5	12.5	16.5	14.0	15.5	22.0	17.5	20.0
3	12.0	8.0	10.0	11.0	7.5	9.0	15.5	13.5	14.5	21.0	18.5	20.0
4	12.5	11.0	11.5	13.5	8.5	11.0	19.0	13.0	16.0	21.5	20.0	21.0
5	13.5	12.0	12.5	17.5	12.0	14.5	---	---	---	21.0	16.5	19.0
6	13.5	9.5	11.5	16.0	13.0	15.0	---	---	---	23.0	16.0	19.0
7	13.0	9.0	11.0	13.5	11.0	12.0	---	---	---	23.5	18.0	19.5
8	13.5	9.0	11.0	14.5	9.5	12.0	---	---	---	23.0	20.0	20.5
9	12.5	9.5	11.0	15.5	10.0	12.5	---	---	---	24.0	20.0	21.5
10	13.0	9.5	11.0	14.0	10.5	12.5	---	---	---	---	---	---
11	13.5	9.0	11.0	14.5	11.0	12.5	---	---	---	---	---	---
12	12.5	10.5	11.5	14.0	12.0	13.5	---	---	---	---	---	---
13	15.0	11.5	13.0	12.5	10.0	11.0	---	---	---	---	---	---
14	13.5	9.5	11.5	13.5	8.0	10.5	---	---	---	27.0	24.5	25.5
15	9.5	6.0	7.5	11.0	9.0	10.0	---	---	---	26.5	22.5	24.0
16	7.5	5.5	6.5	11.5	8.5	10.0	---	---	---	26.5	22.5	24.5
17	14.0	7.0	10.5	13.5	11.0	12.0	---	---	---	26.5	23.0	25.0
18	14.0	11.5	12.5	15.0	10.0	12.5	---	---	---	27.0	24.0	25.5
19	12.0	8.5	10.5	14.5	12.5	13.5	---	---	---	26.0	25.0	25.5
20	12.5	7.5	10.0	15.0	12.5	13.5	---	---	---	25.0	23.5	24.0
21	13.5	9.0	11.0	18.5	14.0	16.0	17.0	14.5	15.5	24.0	22.5	23.5
22	14.5	10.0	12.0	17.5	15.0	16.5	15.0	13.0	14.0	24.0	23.5	23.5
23	14.5	10.5	12.5	---	---	---	20.0	12.0	15.5	23.5	22.5	23.0
24	13.0	8.5	11.0	---	---	---	19.5	16.0	17.5	23.0	20.0	21.5
25	11.5	7.5	9.0	---	---	---	18.0	15.5	17.0	24.5	20.0	22.0
26	12.0	7.5	9.5	---	---	---	21.5	17.5	19.5	28.5	23.5	25.5
27	12.0	7.5	9.5	---	---	---	23.5	18.5	21.0	30.0	24.5	27.0
28	14.0	9.0	11.5	18.0	14.0	16.0	21.0	18.5	20.0	30.0	26.0	28.0
29	---	---	---	18.0	13.5	15.5	21.5	15.5	18.5	30.5	26.0	28.0
30	---	---	---	18.0	12.0	14.0	23.0	16.5	19.0	28.0	25.0	26.0
31	---	---	---	18.5	11.5	15.0	---	---	---	27.0	24.0	25.5
MONTH	15.0	4.5	10.5	18.5	7.5	13.0	23.5	12.0	17.1	30.5	16.0	23.2

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	27.5	24.5	26.0	30.0	25.5	27.5	---	---	---	26.0	24.5	25.0
2	25.0	22.0	23.5	28.0	25.5	27.0	---	---	---	25.0	24.0	24.5
3	24.0	21.5	22.5	27.0	22.5	25.0	---	---	---	---	---	---
4	28.0	22.0	24.5	28.0	23.5	25.5	---	---	---	---	---	---
5	27.0	22.5	25.0	31.0	25.5	28.0	---	---	---	27.0	24.0	25.5
6	24.0	21.5	22.5	32.0	26.5	29.0	---	---	---	28.5	25.5	27.0
7	23.5	22.5	23.0	33.0	27.0	30.0	---	---	---	27.0	24.5	25.5
8	23.0	21.0	22.0	33.5	28.0	30.5	33.5	28.5	30.5	27.5	23.5	25.0
9	25.0	21.5	23.5	33.0	27.5	30.0	31.0	27.0	29.0	30.0	24.5	27.0
10	27.0	22.5	25.0	32.5	26.5	29.5	28.0	25.0	27.0	31.0	26.0	28.0
11	28.5	23.5	26.0	31.5	26.5	29.0	---	---	---	32.5	27.0	29.5
12	30.0	24.5	27.0	33.5	26.5	29.5	---	---	---	35.0	29.0	31.5
13	29.5	24.5	27.0	33.0	27.5	30.0	---	---	---	32.5	28.5	30.5
14	---	---	---	30.5	27.5	29.0	---	---	---	28.5	26.5	27.5
15	---	---	---	31.0	25.5	28.0	---	---	---	28.5	25.5	27.0
16	---	---	---	33.0	26.5	29.5	---	---	---	27.5	23.5	25.0
17	---	---	---	---	---	---	31.0	26.5	28.5	---	---	---
18	---	---	---	---	---	---	29.5	25.0	27.5	---	---	---
19	---	---	---	---	---	---	30.0	25.5	27.5	20.5	17.0	18.5
20	---	---	---	---	---	---	28.0	25.0	26.5	18.5	16.5	17.5
21	30.5	26.5	28.5	---	---	---	29.5	24.5	26.5	20.0	18.5	19.0
22	29.5	26.0	27.5	---	---	---	30.0	26.5	28.0	20.0	18.5	19.0
23	28.0	24.5	26.0	---	---	---	31.5	27.5	29.0	20.0	18.0	19.0
24	28.0	23.5	26.0	---	---	---	31.5	27.5	29.5	21.0	19.0	20.0
25	31.5	26.5	29.0	---	---	---	30.0	27.0	28.5	21.5	17.0	19.0
26	31.5	26.5	29.0	---	---	---	30.0	26.5	28.0	22.5	18.0	20.0
27	31.5	26.5	29.0	---	---	---	28.5	26.0	27.5	23.0	18.5	20.5
28	31.5	27.0	29.0	---	---	---	29.5	25.5	27.5	23.0	18.5	21.0
29	31.5	26.5	29.0	---	---	---	27.5	25.5	26.5	---	---	---
30	30.5	25.5	28.0	31.5	26.0	28.5	28.0	25.0	26.0	---	---	---
31	---	---	---	31.5	26.0	29.0	26.5	24.5	25.5	---	---	---
MONTH	31.5	21.0	26.0	33.5	22.5	28.6	33.5	24.5	27.7	35.0	16.5	23.8
YEAR	35.0	.0	16.8									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	16.0	11.7	13.7	16.3	7.1	11.1	---	---	---	---	---	---
2	16.5	11.9	13.9	17.2	6.8	11.3	---	---	---	---	---	---
3	15.3	13.3	14.1	15.0	7.1	10.3	---	---	---	---	---	---
4	15.2	13.6	14.7	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	10.9	7.2	8.8	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	12.4	7.9	9.8	---	---	---	---	---	---	---	---	---
21	12.5	8.0	10.0	---	---	---	---	---	---	---	---	---
22	13.4	8.5	10.5	---	---	---	---	---	---	---	---	---
23	11.3	8.0	9.6	---	---	---	---	---	---	14.7	11.1	12.4
24	12.6	7.8	10.0	---	---	---	---	---	---	13.9	10.5	12.0
25	12.3	8.0	9.9	---	---	---	---	---	---	11.5	10.4	10.9
26	---	---	---	---	---	---	---	---	---	---	---	---
27	13.9	7.7	10.4	---	---	---	---	---	---	15.2	10.9	13.3
28	14.5	7.7	10.6	---	---	---	---	---	---	12.1	10.2	11.0
29	14.7	7.8	10.8	---	---	---	---	---	---	12.1	10.0	10.9
30	16.6	7.7	11.4	---	---	---	---	---	---	---	---	---
31	16.9	7.4	11.4	---	---	---	---	---	---	---	---	---
31	17.5	7.1	11.5	---	---	---	---	---	---	---	---	---
MONTH	17.5	7.1	11.2	17.2	6.8	10.9	---	---	---	15.2	10.0	11.7

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	12.7	10.4	11.4	13.5	8.8	10.7	11.3	8.6	9.8	---	---	---
2	12.7	10.0	11.1	12.4	8.3	10.2	10.7	8.3	9.5	---	---	---
3	12.5	9.7	10.8	14.4	10.1	11.9	10.7	8.7	9.5	---	---	---
4	---	---	---	13.1	10.0	11.3	8.9	6.6	7.9	---	---	---
5	---	---	---	12.8	8.5	10.4	10.1	7.3	8.6	---	---	---
6	14.1	9.6	11.6	13.9	8.0	10.5	10.2	7.1	8.5	---	---	---
7	14.2	10.3	12.0	14.4	8.9	11.4	11.0	7.2	8.8	---	---	---
8	14.8	10.2	12.4	15.1	9.3	11.9	12.6	7.2	9.3	---	---	---
9	---	---	---	14.2	9.1	11.4	15.2	7.2	10.6	---	---	---
10	---	---	---	14.1	8.9	11.2	15.3	7.9	11.2	---	---	---
11	12.6	9.1	10.7	12.5	8.9	10.5	12.8	7.9	10.1	---	---	---
12	---	---	---	14.6	8.2	11.1	14.9	7.3	10.7	---	---	---
13	12.7	8.5	10.7	15.7	9.1	12.1	14.5	6.8	10.2	---	---	---
14	---	---	---	16.0	9.8	12.5	19.2	7.8	12.3	---	---	---
15	---	---	---	14.2	9.3	11.5	18.3	8.3	12.9	---	---	---
16	---	---	---	13.6	9.9	11.5	18.5	7.4	12.5	---	---	---
17	---	---	---	12.2	5.6	9.6	18.2	6.7	11.2	---	---	---
18	---	---	---	9.2	5.7	7.9	19.9	6.9	12.7	---	---	---
19	---	---	---	10.5	8.1	9.1	18.1	6.5	11.5	---	---	---
20	---	---	---	11.4	8.5	9.8	16.1	7.7	11.8	---	---	---
21	---	---	---	12.3	8.3	10.2	12.3	7.1	9.5	---	---	---
22	---	---	---	12.2	7.7	9.9	11.5	7.4	7.2	---	---	---
23	---	---	---	14.8	8.4	11.2	11.1	7.7	9.3	---	---	---
24	---	---	---	17.4	8.6	12.4	9.7	6.4	7.8	---	---	---
25	---	---	---	17.4	8.3	12.2	---	---	---	---	---	---
26	---	---	---	19.3	7.7	12.0	---	---	---	---	---	---
27	---	---	---	18.3	8.8	13.1	---	---	---	---	---	---
28	14.1	9.9	11.7	17.1	9.4	12.4	---	---	---	---	---	
29	---	---	---	12.7	8.9	10.7	---	---	---	---	---	---
30	---	---	---	12.5	9.1	10.8	---	---	---	---	---	---
31	---	---	---	11.7	9.2	10.3	---	---	---	---	---	---
MONTH	14.8	8.5	11.4	19.3	5.6	11.0	19.9	6.4	10.1	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	13.5	3.1	7.4	15.6	4.6	9.4	---	---	---
2	---	---	---	6.3	1.8	3.8	15.4	4.4	9.3	---	---	---
3	---	---	---	8.8	1.0	5.1	14.8	4.2	8.6	---	---	---
4	---	---	---	5.9	2.6	4.0	13.7	3.5	7.7	---	---	---
5	---	---	---	7.8	6.0	7.0	11.3	3.7	7.1	---	---	---
6	---	---	---	13.3	7.2	9.7	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	7.5	4.6	5.9	---	---	---	11.4	2.9	6.4	---	---	---
9	7.1	6.0	6.6	---	---	---	11.6	2.1	6.3	---	---	---
10	10.8	6.3	8.1	---	---	---	14.0	3.5	7.9	---	---	---
11	---	---	---	---	---	---	11.5	3.6	7.0	---	---	---
12	---	---	---	20.1	6.8	13.5	11.4	3.1	6.6	---	---	---
13	---	---	---	19.5	5.9	11.3	---	---	---	---	---	---
14	---	---	---	19.1	5.2	11.1	---	---	---	---	---	---
15	---	---	---	19.7	5.5	11.6	---	---	---	---	---	---
16	---	---	---	17.7	5.1	10.6	---	---	---	---	---	---
17	---	---	---	16.5	5.6	10.2	---	---	---	---	---	---
18	---	---	---	16.8	5.4	10.2	---	---	---	---	---	---
19	---	---	---	19.3	4.9	10.9	---	---	---	---	---	---
20	---	---	---	12.1	4.6	7.4	---	---	---	---	---	---
21	20.0	7.0	14.0	13.3	3.8	8.1	15.7	2.4	8.8	---	---	---
22	14.1	2.3	6.0	13.4	4.1	7.9	6.5	2.0	4.4	---	---	---
23	---	---	---	12.0	4.0	7.3	13.0	5.7	8.6	---	---	---
24	---	---	---	---	---	---	17.7	5.8	10.8	---	---	---
25	14.2	4.9	8.6	---	---	---	---	---	---	---	---	---
26	18.9	6.0	11.2	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	13.5	6.4	9.4	---	---	---
29	---	---	---	---	---	---	9.9	5.7	7.5	---	---	---
30	15.0	3.7	8.7	7.2	3.3	10.0	---	---	---	---	---	---
31	---	---	---	17.5	4.2	9.6	---	---	---	---	---	---
MONTH	20.0	2.3	8.5	20.1	1.0	8.8	17.7	2.0	7.9	---	---	---
YEAR	20.1	1.0	10.1									

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE TIME	OCT 24, 90 1000	NOV 20, 90 1140	DEC 19, 90 1110	JAN 29, 91 0927	FEB 13, 91 0932
TOTAL CELLS/ML	14000	5000	2900	5600	6100
	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					
..COELASTRACEAE					
....COELASTRUM	200 1	--	--	--	--
..DOCYSTACEAE					
....ANKISTRODESMUS	400 3	1400 24	400 14	1200 21	100 2
....CHLORELLA	800 6	200 3	--	400 7	--
..SCENEDESMACEAE					
....SCENEDESMUS	4000 29	600 10	--	200 4	2800 46
..VOLVOCALES					
..CHLAMYDOMONADACEAE					
....CHLAMYDOMONAS	--	200 3	--	600 11	--
..ZYGNEMATALES					
..DESMIDIACEAE					
....CLOSTERIUM	1800 13	--	--	--	--
CHRYSOPHYTA (YELLOW-GREEN ALGAE)					
..BACILLARIOPHYCEAE					
..CENTRALES					
..COSCINODISCACEAE					
....CYCLOTELLA	--	--	400 14	--	--
..PENNALES					
..NAVICULACEAE					
....NAVICULA	1200 9	600 10	1000 34	1800 32	600 10
CYANOPHYTA (BLUE-GREEN ALGAE)					
..CYANOPHYCEAE					
..CHROCOCCALES					
..CHROCOCCACEAE					
....ANACYSTIS	5200 37	1800 31	500 17	1400 25	2200 36
..OSCILLATORIALES					
..NOSTOCACEAE					
....ANABAENA	--	--	600 21	--	--
..OSCILLATORIACEAE					
....OSCILLATORIA	--	400 7	--	--	--
EUGLENOPHYTA (EUGLENOIDS)					
..EUGLENOPHYCEAE					
..EUGLENALES					
..EUGLENACEAE					
....EUGLENA	--	600 10	--	--	400 7

ARKANSAS RIVER BASIN

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07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK--Continued

PHYTOPLANKTON ANALYSES, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE TIME	MAR 20, 91 1240	APR 17, 91 1025	MAY 21, 91 1036	JUN 12, 91 0920	SEP 10, 91 0955
TOTAL CELLS/ML	19000	38000	34000	28000	13000
	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	--	--	--	200 <1	--
...OOCYSTACEAE					
...ANKISTRODESMUS	4400 23	2400 6	2800 8	5400 19	2400 18
...CHLORELLA	4000 21	--	--	7200 26	--
...SCENEDESMACEAE					
...SCENEDESMUS	3000 16	29000 76	600 2	6800 24	2400 18
...VOLVOCALES					
...CHLAMYDOMONADACEAE					
...CHLAMYDOMONAS	1600 8	2200 6	800 2	3600 13	200 2
...ZYGNEMATALES					
...DESMIDIACEAE					
...CLOSTERIUM	--	--	800 2	--	--
...STAUSTRUM	--	1000 3	--	400 1	600 5
CHRYSOPHYTA (YELLOW-GREEN ALGAE)					
.BACILLARIOPHYCEAE					
...CENTRALES					
...COSCINODISCACEAE					
...CYCLOTELLA	--	200 <1	--	--	--
...PENNIALES					
...NAVICULACEAE					
...NAVICULA	2800 15	1000 3	9600 28	--	--
CYANOPHYTA (BLUE-GREEN ALGAE)					
.CYANOPHYCEAE					
...CHROOCOCCALES					
...CHROOCOCCACEAE					
...ANACYSTIS	2200 12	2400 6	18000 53	4400 16	5400 42
...OSCILLATORIALES					
...OSCILLATORIACEAE					
...OSCILLATORIA	--	--	--	--	1400 11
EUGLENOPHYTA (EUGLENOIDS)					
.EUGLENOPHYCEAE					
...EUGLENALES					
...EUGLENACEAE					
...EUGLENA	600 3	--	1600 5	--	800 6

ARKANSAS RIVER BASIN

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK

LOCATION.-- Lat 35°15'56", long 98°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 678.28 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. Prior to Aug. 8, 1991, at datum 6.00 ft higher.

REMARKS.-- Records fair. Some regulation by Lake Overholser (station 07240500) and other dams upstream. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 54 years, 748 ft³/s, 541,900 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, 8,280 ft³/s, June 8, gage height, 8.93 ft; minimum daily discharge, 171 ft³/s, Aug. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	873	e410	329	e210	360	318	315	509	666	301	e220	442
2	797	e410	318	e300	352	317	313	380	1020	272	e210	476
3	786	e400	331	e360	335	329	390	2240	1590	735	e200	546
4	792	e600	327	388	340	353	1230	2080	1590	1040	e190	1590
5	699	e900	313	451	363	354	1030	1420	1680	760	230	1670
6	640	1130	304	737	404	351	593	1100	3750	898	201	1310
7	1000	e800	290	981	383	345	497	1100	3030	1140	185	1130
8	1180	e720	288	869	359	357	522	784	6710	863	178	1270
9	1070	e600	283	862	340	333	412	1140	6080	821	196	860
10	1000	e620	278	1880	349	318	337	1360	4360	512	261	739
11	917	e600	265	1910	346	313	323	1900	2170	444	228	600
12	e740	e660	273	1370	339	298	312	1400	1420	403	188	536
13	e640	e560	281	928	337	298	299	932	1060	372	240	486
14	e740	e500	266	846	338	298	300	681	844	354	316	421
15	e640	e450	251	951	332	297	283	552	707	337	237	391
16	e540	386	261	1300	314	291	260	466	637	316	234	1470
17	e520	355	392	1260	328	326	255	441	591	303	211	4500
18	e500	336	1200	878	337	329	261	400	571	298	229	2390
19	e520	330	1020	706	328	329	256	358	505	282	214	3160
20	e540	330	691	650	317	346	246	360	457	276	188	2280
21	e560	324	751	561	317	477	234	368	424	e260	171	1580
22	e500	323	664	499	328	533	238	603	427	e240	202	1580
23	e470	309	e280	467	330	408	232	809	456	e230	211	1570
24	e450	299	e175	448	317	349	236	1730	1020	e210	211	1640
25	e470	299	e220	430	300	327	356	4640	1030	e190	206	1130
26	e460	327	e350	421	302	314	442	4060	665	e175	633	867
27	e480	1130	403	410	302	329	377	3720	519	e240	466	731
28	e470	553	458	406	315	427	366	2130	589	e190	378	613
29	e450	391	534	403	---	349	908	1350	450	e250	487	621
30	e430	349	e320	380	---	319	841	973	353	e240	555	555
31	e420	---	e200	368	---	301	---	772	---	e230	548	---
TOTAL	20294	15461	12296	22630	9412	10633	12664	40758	45361	12982	8514	37154
MEAN	655	515	397	730	336	343	422	1315	1512	419	275	1238
MAX	1180	1130	1200	1910	404	533	1230	4640	6710	1140	633	4500
MIN	420	299	175	210	300	291	232	358	353	175	171	391
AC-FT	40250	30670	24390	44890	18670	21890	25120	80840	89970	25750	16890	73690

CAL YR 1990 TOTAL 679620 MEAN 1862 MAX 20000 MIN 171 AC-FT 1346000
WTR YR 1991 TOTAL 248159 MEAN 680 MAX 6710 MIN 171 AC-FT 492200

e Estimated

ARKANSAS RIVER BASIN

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07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1952, 1954 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1953 to May 1989.

WATER TEMPERATURE: October 1953 to May 1989.

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

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG												
13...	1145	155	26.5	747	1028	1028	208	5.22	789	8.1	8.6	90
13...	1147	148	26.5	747	1028	1028	208	5.22	788	8.1	8.6	--
13...	1148	140	26.5	747	1028	1028	208	5.22	789	7.9	8.6	74
13...	1149	133	26.5	E747	1028	1028	208	5.22	788	8.0	8.6	--
13...	1151	125	26.5	747	1028	1028	208	5.22	788	8.0	8.5	77
13...	1153	118	26.5	E747	1028	1028	208	5.22	788	8.0	8.5	--
13...	1155	110	26.5	747	1028	1028	208	5.22	788	8.1	8.6	100
13...	1157	103	26.5	747	1028	1028	208	5.22	788	8.1	8.6	--
13...	1159	95.0	26.5	747	1028	1028	208	5.22	788	8.0	8.5	90
13...	1201	88.0	26.5	747	1028	1028	208	5.22	790	8.0	8.6	--
13...	1203	80.0	26.5	747	1028	1028	208	5.22	790	8.0	8.6	70
13...	1205	73.0	26.5	747	1028	1028	208	5.22	789	8.1	8.6	--
13...	1207	65.0	26.5	747	1028	1028	208	5.22	789	8.1	8.6	92
13...	1209	58.0	26.5	747	1028	1028	208	5.22	789	8.1	8.6	--
13...	1211	50.0	26.5	747	1028	1028	208	5.22	789	8.1	8.6	75
13...	1213	43.0	26.5	747	1028	1028	208	5.22	789	8.2	8.6	--
13...	1215	35.0	26.5	747	1028	1028	208	5.22	789	8.2	8.6	74
13...	1217	28.0	26.5	747	1028	1028	208	5.22	790	8.1	8.6	--
13...	1219	14.0	26.5	747	1028	1028	208	5.22	790	8.1	8.6	97
13...	1221	13.0	26.5	747	1028	1028	208	5.22	790	8.0	8.6	--
13...	1223	5.00	26.5	747	1028	1028	208	5.22	790	8.2	8.6	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
06...	1100	1028	80020	1130	725	8.1	17.0	12.0	360	740	9.9	95
JAN												
16...	1030	1028	80020	1300	660	8.1	2.5	5.0	150	750	6.9	55
MAR												
04...	1100	1028	80020	353	1010	9.2	13.5	9.5	37	740	16.4	149
APR												
22...	1000	1028	80020	241	937	9.1	10.0	14.5	39	740	14.8	150
JUN												
25...	0945	1028	80020	1030	695	8.2	29.0	28.0	250	740	7.6	101
AUG												
13...	1045	1028	80020	208	808	8.6	26.0	26.0	40	747	8.2	104

ARKANSAS RIVER BASIN

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCEI, 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-SORPTION 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)
NOV 06...	>800	>1000	200	13	52	16	79	46	2	4.8	224	0
JAN 16...	>800	240	160	39	41	13	64	46	2	4.1	143	0
MAR 04...	K8	K10	260	61	59	26	110	48	3	5.3	174	31
APR 22...	K8	K8	190	--	36	25	110	54	3	6.1	--	--
JUN 25...	--	360	160	36	41	14	79	51	3	5.6	151	0
AUG 13...	79	160	210	34	49	20	93	49	3	6.9	189	10
DATE	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 (TNS PER AC-FT)	SOLIDS, DIS-SOLVED (TNS 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 NO3)
NOV 06...	184	45	120	0.40	4.5	426	435	0.58	1300	0.220	--	--
JAN 16...	117	33	110	<0.10	9.8	382	351	0.52	1340	1.16	1.08	4.8
MAR 04...	193	83	160	0.60	0.10	527	562	0.72	502	0.120	0.100	0.44
APR 22...	--	90	160	0.60	0.22	512	527	0.70	333	--	--	--
JUN 25...	124	40	130	0.40	5.8	418	391	0.57	1160	0.130	0.140	0.62
AUG 13...	171	46	120	0.70	7.7	454	448	0.62	255	--	--	--
DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	
NOV 06...	0.080	<0.010	--	0.300	0.200	0.030	0.050	0.04	0.06	1.6	--	
JAN 16...	0.040	0.020	0.07	1.20	1.10	0.470	0.480	0.61	0.62	2.3	--	
MAR 04...	0.020	0.020	0.07	0.140	0.120	0.020	<0.010	0.03	--	3.4	--	
APR 22...	0.030	<0.010	--	<0.050	<0.050	0.030	<0.010	0.04	--	3.3	--	
JUN 25...	0.030	0.010	0.03	0.160	0.150	0.040	0.040	0.05	0.05	1.7	--	
AUG 13...	0.020	<0.010	--	<0.050	<0.050	0.030	0.020	0.04	0.03	2.1	0.78	
DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (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)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	
NOV 06...	1.6	--	1.9	8.4	0.590	0.83	0.250	0.270	0.240	0.74	130	
JAN 16...	2.8	--	4.0	18	0.230	0.71	0.190	0.230	0.210	0.64	--	
MAR 04...	3.4	--	3.5	16	0.350	0.49	0.160	0.160	0.120	0.37	<10	
APR 22...	3.3	--	--	--	0.600	0.28	0.050	0.090	<0.010	--	<10	
JUN 25...	1.7	--	1.9	8.2	0.440	0.25	0.140	0.080	0.090	0.28	--	
AUG 13...	2.1	0.80	--	--	0.490	0.74	0.250	0.240	0.230	0.71	10	

ARKANSAS RIVER BASIN

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07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 06...	3	170	<0.5	<1.0	<1	<3	4	130	1	14	18
JAN 16...	--	--	--	--	--	--	--	--	--	--	--
MAR 04...	3	130	<0.5	<1.0	<1	<3	3	<3	4	23	7
APR 22...	3	100	<0.5	<1.0	<1	<3	4	<3	<1	23	2
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
AUG 13...	8	160	<0.5	<1.0	1	<3	5	12	<1	19	3
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 06...	<0.1	<10	8	<1	<1.0	560	<6	5	1050	3200	19
JAN 16...	--	--	--	--	--	--	--	--	646	2270	17
MAR 04...	0.1	<10	4	<1	<1.0	810	<6	4	186	177	18
APR 22...	<0.1	<10	2	<1	<1.0	590	<6	<3	70	46	44
JUN 25...	--	--	--	--	--	--	--	--	763	2120	68
AUG 13...	<0.1	<10	3	<1	<1.0	660	12	21	101	57	43

ARKANSAS RIVER BASIN

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.-- 106 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, 46,000 acre-ft, May 12, 1990, elevation, 1014.63 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 31,000 acre-ft, June 7, 8, elevation 1,007.83 ft; minimum, 27,200 acre-ft, May 2, elevation, 1,006.78 ft.

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

990	6,989	1,005	25,790
995	11,590	1,010	35,430
1,000	17,840	1,015	46,880

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28200	27500	27600	27700	27900	27800	27700	27300	28500	27900	27300	28800
2	27900	27500	27700	27700	28000	27900	27700	27900	29400	27900	27300	29600
3	27900	27600	27600	27700	28000	27900	28500	28400	29300	30000	27300	29500
4	27600	28000	27700	27800	28000	28000	28400	28200	29000	30000	28100	29100
5	27500	28100	27600	27800	28100	28000	28200	27800	29200	29900	28300	28600
6	27500	28000	27600	27900	28100	27800	27900	27500	29000	29700	28300	28400
7	27500	27800	27600	27900	28000	27700	27700	27500	31000	29600	28200	28300
8	27500	27900	27800	28000	28000	27600	27500	28700	31000	29400	28200	28200
9	27600	27900	27600	28000	27900	27600	27500	28700	30700	29100	28300	28100
10	27600	27800	27600	28200	27900	27500	27500	28700	30500	28900	28300	27900
11	27600	27700	27600	28100	27900	27500	27500	28600	30300	28700	28200	27800
12	27600	27500	27600	27900	27800	27500	27500	28500	29800	28500	28200	27800
13	27600	27500	27600	27700	27800	27500	27500	28500	29300	28300	28200	27900
14	27600	27500	27600	27700	27700	27500	27500	28300	28800	28200	28200	28200
15	27600	27500	27700	27600	27700	27400	27500	28200	28400	28100	28100	28300
16	27600	27500	27700	27600	27700	27700	27500	28000	28000	28100	28100	29000
17	27600	27500	28300	27700	27700	27900	27500	27900	27700	28000	28100	29500
18	27500	27500	28400	27700	27700	27900	27400	27800	27700	27900	28000	29000
19	27500	27500	28500	27700	27700	27800	27400	27700	27700	27800	28000	29600
20	27500	27600	28300	27700	27700	27800	27400	28100	27600	27700	27900	29300
21	27500	27600	28100	27700	27800	27800	27400	27900	27600	27700	28200	29000
22	27500	27600	28100	27700	27800	27700	27500	28100	27600	27700	28200	28800
23	27500	27600	27800	27800	27800	27600	27500	29000	28100	27600	28100	28600
24	27500	27600	27700	27800	27800	27600	27900	30000	28200	27500	28100	28400
25	27500	27600	27600	27800	27800	27500	28200	29900	28100	27500	28000	28200
26	27500	27700	27500	27800	27800	27600	28500	29600	28100	27400	28000	28100
27	27500	27700	27600	27900	27800	27600	28100	29400	28100	27400	27900	28000
28	27500	27600	27700	27900	27800	27700	27800	29100	28000	27500	27900	27900
29	27500	27600	27600	27900	---	27700	27500	28900	27900	27500	27800	27800
30	27500	27700	27600	27900	---	27700	27300	28800	27900	27500	27800	27700
31	27500	---	27700	27900	---	27700	---	28500	---	27500	28000	---
MAX	28200	28100	28500	28200	28100	28000	28500	30000	31000	30000	28300	29000
MIN	27500	27500	27500	27500	27700	27400	27300	27300	27600	27400	27300	27700
(+)	1005.96	1006.04	1006.04	1006.20	1006.11	1006.08	1005.82	1006.51	1006.17	1005.93	1006.22	1006.06
(++)	-1,000	+200	0	+200	-100	-100	-400	+1,200	-600	-400	+500	-300
CAL YR 1990	MAX 46900	MIN 28800	(++) -100									
WTR YR 1991	MAX 31000	MIN 27300	(++) -800									

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

e Estimated

ARKANSAS RIVER BASIN

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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 11100303, 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.

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, 1980.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 344 ft³/s, Sept. 3, gage height, 54.23 ft; minimum daily discharge, 0.21 ft³/s, June 20-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	.37	.55	.30	.30	.39	.25	.52	118	.24	.28	5.6
2	170	3.8	.56	.28	.30	.42	.24	.32	119	.23	.33	5.4
3	171	.31	.53	.28	.32	.41	.59	86	119	31	.37	192
4	171	.35	1.2	.28	.32	.41	86	133	119	54	.39	340
5	60	.31	3.1	.30	.30	29	131	132	119	54	.35	264
6	.30	49	3.0	.30	.30	60	131	129	119	54	.24	101
7	.28	75	1.6	.30	37	50	131	43	119	54	.23	72
8	.29	75	.49	.30	45	38	60	29	121	75	3.5	72
9	.28	75	.48	.30	34	29	9.4	47	121	86	5.3	38
10	.27	75	.51	.34	34	29	.22	46	120	86	5.3	37
11	.28	75	.51	93	34	11	.24	46	120	86	5.3	38
12	.27	75	.51	148	34	.23	.24	46	231	64	5.3	20
13	.29	26	.53	137	33	.23	.25	47	322	52	5.3	7.8
14	.30	.70	.61	97	33	.24	.26	74	251	52	5.3	7.8
15	.30	.33	.81	27	13	.24	.26	88	214	31	5.3	7.8
16	.33	.34	.82	.27	.29	.25	.26	88	213	16	5.3	78
17	.33	.39	.78	.27	.30	.25	.27	67	130	16	5.3	140
18	.35	.41	.55	.27	.28	21	.27	46	30	16	5.3	139
19	.49	.43	.55	.27	.28	32	.29	46	.26	5.8	5.3	139
20	.44	.50	53	.27	.34	32	.30	46	.21	.22	5.3	139
21	.43	.46	81	.27	.30	32	.35	46	.21	.22	5.2	139
22	.46	.47	81	.28	.30	32	.36	46	.21	.23	5.1	139
23	.48	.51	81	.28	.32	32	.38	75	.22	.25	5.2	139
24	.48	.51	80	.30	.34	32	.46	114	.22	.24	5.3	105
25	.48	.51	80	.28	.36	11	54	119	.22	.24	5.3	50
26	.49	.51	28	.28	.36	.25	134	118	.22	.25	5.4	50
27	.48	.55	1.2	.28	.37	.24	132	118	.22	.26	5.5	50
28	.48	.46	1.1	.28	.39	.24	132	118	.22	.29	5.6	50
29	.47	.45	1.1	.28	---	.25	130	118	.22	.27	5.7	50
30	.98	.52	e.70	.30	---	.25	64	118	.22	.28	5.6	50
31	.33	---	e.40	.30	---	.25	---	119	---	.28	5.6	---
TOTAL	753.36	538.19	506.19	509.46	303.07	480.55	1199.89	2348.84	2707.65	836.30	128.79	2665.4
MEAN	24.3	17.9	16.3	16.4	10.8	15.5	40.0	75.8	90.3	27.0	4.15	88.8
MAX	171	75	81	148	45	60	134	133	322	86	5.7	340
MIN	.27	.31	.40	.27	.28	.23	.22	.32	.21	.22	.23	5.4
AC-FT	1490	1070	1000	1010	601	953	2380	4660	5370	1660	255	5290

CAL YR 1990 TOTAL 33491.89 MEAN 91.8 MAX 1010 MIN .27 AC-FT 66430
WTR YR 1991 TOTAL 12977.69 MEAN 35.6 MAX 340 MIN .21 AC-FT 25740

e Estimated

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 56, 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 good. Considerable regulation by Arcadia Lake (station 07242340), 22.9 miles upstream, since November 1986. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 8 years, 319 ft³/s, 231,100 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 8,630 ft³/s, May 24, gage height, 17.10 ft; minimum daily discharge, 16 ft³/s, Aug. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	34	43	e80	61	43	37	48	302	34	20	78
2	201	34	46	84	55	43	38	28	685	36	19	55
3	435	42	53	72	53	56	836	168	434	387	20	93
4	233	289	45	68	51	49	200	207	345	218	19	453
5	189	99	44	75	50	47	243	199	374	134	16	399
6	60	64	43	94	47	81	205	181	343	110	22	213
7	47	101	42	73	43	93	180	150	357	97	15	112
8	55	112	41	60	85	94	162	659	529	112	19	111
9	71	144	38	58	74	74	73	247	360	124	22	95
10	54	118	37	108	70	71	47	150	296	121	25	52
11	46	112	38	e100	69	71	41	106	287	95	26	55
12	44	107	38	e150	70	52	41	116	260	77	26	53
13	42	101	37	e150	72	41	41	96	466	75	37	34
14	41	52	38	e105	69	41	41	e102	446	44	36	32
15	38	42	39	e70	69	42	42	108	334	40	27	39
16	39	40	42	e90	51	44	40	105	321	39	25	330
17	37	39	310	e84	45	66	37	104	293	30	25	231
18	34	40	138	e58	44	56	39	68	163	26	24	228
19	35	41	79	e56	41	72	38	69	66	23	23	267
20	36	43	60	e54	40	79	37	470	52	22	22	190
21	38	41	107	e54	40	75	38	272	48	21	34	176
22	37	38	e120	e54	39	75	42	147	45	24	32	203
23	36	37	e160	e53	39	69	42	559	67	26	25	193
24	37	38	e120	e53	38	69	39	3060	184	24	24	179
25	36	37	e100	e51	39	70	107	3210	67	21	23	92
26	36	39	e90	e49	39	50	179	723	51	20	22	73
27	36	39	e70	e50	40	48	207	474	44	19	24	71
28	35	41	e02	e50	41	42	182	382	41	25	24	69
29	35	42	e58	e46	---	43	174	319	38	26	25	66
30	35	43	e55	e45	---	42	163	345	35	23	24	65
31	35	---	e64	e53	---	40	---	315	---	21	39	---
TOTAL	2330	2049	2257	2227	1474	1838	3591	13187	7313	2094	764	4307
MEAN	75.2	68.3	72.8	71.8	52.6	59.3	120	425	244	67.5	24.6	144
MAX	435	289	310	150	85	94	836	3210	685	387	39	453
MIN	34	34	37	45	38	40	37	28	35	19	15	32
AC-FT	4620	4060	4480	4420	2920	3650	7120	26160	14510	4150	1520	8540

CAL YR 1990 TOTAL 168250 MEAN 461 MAX 10400 MIN 10 AC-FT 333700
WTR YR 1991 TOTAL 43431 MEAN 119 MAX 3210 MIN 15 AC-FT 86150

e Estimated

ARKANSAS RIVER BASIN

315

07243000 DRY CREEK NEAR KENDRICK, OK

LOCATION.-- Lat 35°46'55", long 96°51'14", 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. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 36 years, 24.7 ft³/s, 17,900 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)
June 7	1800	*2,540	*15.36	No other peaks greater than base discharge.			

No flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.66	1.9	4.4	4.2	3.3	3.5	3.6	2.0	3.4	1.6	.00	1.8
2	.71	2.1	4.9	5.6	3.3	3.7	3.8	2.2	8.8	1.9	.00	7.6
3	10	2.4	5.4	e5.4	3.3	3.8	98	7.0	4.5	3.0	.00	1.9
4	2.5	47	4.4	e5.0	3.3	3.4	11	3.2	3.2	2.3	.00	2.0
5	1.1	6.3	4.7	e8.0	3.3	3.4	5.8	2.7	2.8	1.8	.00	1.6
6	.84	3.4	4.8	11	3.2	3.2	4.5	2.3	2.9	1.5	.00	1.5
7	.71	2.7	4.7	9.5	3.0	2.9	4.0	2.2	476	1.4	.00	1.6
8	1.4	2.9	4.8	9.5	3.0	3.0	3.7	24	100	1.3	.00	1.6
9	1.6	3.8	5.0	8.2	3.1	2.9	3.2	7.0	24	1.2	.00	1.1
10	1.1	2.9	5.0	9.3	3.1	2.9	2.9	3.9	13	1.1	.00	.70
11	.95	2.7	6.0	7.2	3.1	3.0	3.0	3.0	8.8	.94	.00	.48
12	.80	2.6	6.3	5.6	3.1	3.1	3.2	2.7	7.3	.84	.00	.36
13	.81	2.6	5.9	5.0	3.2	2.9	3.1	2.2	6.1	.75	.69	.31
14	.75	2.6	6.3	4.2	3.0	2.9	3.0	1.9	5.4	.71	1.9	.48
15	.64	2.9	6.1	6.4	2.8	3.0	2.8	1.8	4.9	.79	.63	.73
16	.74	3.2	6.5	5.6	3.0	3.3	2.7	1.8	4.5	.70	.30	4.4
17	.61	3.8	42	4.3	3.3	4.1	2.7	1.6	4.0	.60	.14	1.9
18	.47	4.1	12	4.0	3.4	3.4	2.8	1.5	3.7	.50	.00	16
19	.67	4.5	4.7	4.0	3.0	3.2	2.6	1.4	3.3	.40	.00	3.6
20	.80	4.8	3.5	3.7	3.0	3.3	2.5	10	3.0	.52	.00	1.2
21	1.0	4.7	3.7	3.4	3.0	3.3	2.7	4.4	2.7	.40	.00	.41
22	1.1	4.7	3.2	3.8	3.1	3.2	2.9	22	2.6	.28	.00	1.3
23	1.2	4.7	3.2	3.7	3.1	3.2	2.8	32	2.6	.18	.00	1.7
24	1.2	4.8	3.3	3.4	3.1	3.4	2.8	184	3.0	.06	.00	.47
25	1.3	5.2	3.3	3.3	3.2	3.3	5.6	60	2.5	.01	.00	.21
26	1.4	5.4	3.4	3.9	3.1	3.7	3.3	13	2.0	.00	.00	.10
27	1.3	5.1	3.9	3.5	3.2	4.3	3.4	6.9	2.0	.23	.00	.00
28	1.2	4.1	4.3	3.4	3.3	3.8	2.8	4.9	1.9	.35	.00	.00
29	1.3	3.9	5.1	3.5	---	4.0	2.6	3.8	1.8	.30	.00	.00
30	1.4	4.2	4.5	3.4	---	3.7	2.2	3.8	1.7	.10	.00	.00
31	1.6	---	e3.5	4.5	---	3.6	---	3.6	---	.00	.65	---
TOTAL	41.86	156.0	188.8	165.5	87.9	104.4	199.8	422.8	712.4	25.76	4.31	55.05
MEAN	1.35	5.20	6.09	5.34	3.14	3.37	6.66	13.6	23.7	.83	.14	1.83
MAX	10	47	42	11	3.4	4.3	98	184	476	3.0	1.9	16
MIN	.47	1.9	3.2	3.3	2.8	2.9	2.2	1.4	1.7	.00	.00	.00
AC-FT	83	309	374	328	174	207	396	839	1410	51	8.5	109

CAL YR 1990 TOTAL 24522.79 MEAN 67.2 MAX 3330 MIN .00 AC-FT 48640
WTR YR 1991 TOTAL 2164.58 MEAN 5.93 MAX 476 MIN .00 AC-FT 4290

e Estimated

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK

LOCATION.-- Lat 35°40'28", long 96°04'06", 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.-- 53 years, 892 ft³/s, 646,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 66,000 ft³/s, May 11, 1943, gage height, 34.55 ft; no flow at times in 1939, 1954, 1958.

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 25	1000	3,910	15.37	June 10	1500	*5,070	*17.53

Minimum daily discharge, 18 ft³/s, Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	628	59	114	216	200	137	157	384	2240	139	39	29
2	497	59	110	193	194	141	147	301	1900	126	35	39
3	457	58	111	183	190	166	213	1010	2290	121	32	73
4	465	94	113	173	185	202	774	1660	1610	720	32	59
5	430	414	118	170	189	206	1030	1320	1940	326	31	229
6	471	523	119	213	194	190	1230	792	3410	281	26	216
7	453	826	117	464	194	179	861	519	3730	345	25	190
8	348	625	118	506	190	168	574	452	4200	282	23	277
9	263	385	113	464	181	157	462	820	4840	227	22	261
10	222	277	107	1110	175	154	388	763	5030	191	19	209
11	182	246	106	2070	172	164	333	1000	4880	168	18	169
12	152	248	104	1520	175	173	278	840	4650	154	24	145
13	144	254	101	1080	188	169	234	577	4440	151	25	127
14	132	229	100	900	185	161	210	420	3640	150	23	107
15	117	204	99	940	180	156	206	331	1490	147	20	90
16	105	186	100	1570	175	151	182	279	831	143	23	92
17	95	170	244	1220	172	157	168	244	694	130	26	265
18	85	150	1140	1030	189	150	167	227	563	118	27	221
19	80	131	958	827	167	150	155	222	465	111	35	342
20	76	117	869	627	163	152	152	214	390	103	39	469
21	73	109	682	480	153	157	144	243	329	87	35	356
22	68	105	427	376	146	164	138	321	283	76	29	345
23	63	102	185	317	142	196	137	556	344	67	24	395
24	58	101	e180	281	138	226	139	1020	265	62	23	403
25	58	99	e176	252	138	206	143	3650	235	59	22	289
26	59	100	171	231	137	195	151	3320	195	49	20	242
27	60	109	182	220	135	195	171	3060	197	47	25	218
28	58	166	194	214	133	238	190	2950	203	48	30	191
29	59	136	219	215	---	223	568	3050	180	78	36	159
30	60	117	219	215	---	188	620	3270	156	71	37	134
31	60	---	225	208	---	168	---	3280	---	48	30	---
TOTAL	6076	6399	7821	18465	4760	5439	10320	37095	55620	4825	855	6341
MEAN	196	213	252	596	170	175	344	1197	1854	156	27.6	211
MAX	628	826	1140	2070	200	238	1230	3650	5030	720	39	469
MIN	58	58	99	170	133	137	137	214	156	47	18	29
AC-FT	12050	12690	15510	36630	9440	10790	20470	73580	110300	9570	1700	12580

CAL YR 1990 TOTAL 771492 MEAN 2114 MAX 34400 MIN 11 AC-FT 1530000
WTR YR 1991 TOTAL 164016 MEAN 449 MAX 5030 MIN 18 AC-FT 325300

e Estimated

ARKANSAS RIVER BASIN

317

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.

WATER TEMPERATURE: November 1951 to May 1989.

REMARKS.-- Samples were collected bimonthly and specific conductance, pH, water temperature, alkalinity, 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.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
NOV										
28...	1545	34.0	14.0	1028	1028	100	2.51	755	10.8	8.1
28...	1546	32.0	14.0	1028	1028	100	2.51	755	10.8	8.1
28...	1547	30.0	14.0	1028	1028	100	2.51	750	10.8	8.1
28...	1548	28.0	14.0	1028	1028	100	2.51	750	10.9	8.1
28...	1549	26.0	14.0	1028	1028	100	2.51	750	10.9	8.1
28...	1550	24.0	14.0	1028	1028	100	2.51	750	11.0	8.1
28...	1551	22.0	14.0	1028	1028	100	2.51	749	11.0	8.1
28...	1552	20.0	14.0	1028	1028	100	2.51	749	11.0	8.1
28...	1553	18.0	14.0	1028	1028	100	2.51	750	11.0	8.1
28...	1554	16.0	14.0	1028	1028	100	2.51	749	11.0	8.1
28...	1555	14.0	14.0	1028	1028	100	2.51	748	11.1	8.1
28...	1556	12.0	14.0	1028	1028	100	2.51	750	11.2	8.1
28...	1557	10.0	14.0	1028	1028	100	2.51	750	11.2	8.1
28...	1558	8.00	14.0	1028	1028	100	2.51	749	11.2	8.1
28...	1559	6.00	14.0	1028	1028	100	2.51	747	11.1	8.0
28...	1600	4.00	14.0	1028	1028	100	2.51	747	11.0	8.0
28...	1601	2.00	14.0	1028	1028	100	2.51	747	11.1	8.0
AUG										
05...	1230	25.0	30.0	1028	1028	30	1.90	890	6.6	8.3
05...	1231	23.0	30.0	1028	1028	30	1.90	892	6.6	8.3
05...	1232	21.0	30.0	1028	1028	30	1.90	892	6.7	8.3
05...	1233	19.0	30.0	1028	1028	30	1.90	884	6.8	8.2
05...	1234	17.0	30.0	1028	1028	30	1.90	884	6.8	8.2
05...	1235	15.0	30.0	1028	1028	30	1.90	883	6.8	8.2
05...	1236	13.0	30.0	1028	1028	30	1.90	883	6.8	8.2
05...	1237	11.0	30.0	1028	1028	30	1.90	883	6.8	8.2
05...	1238	9.00	30.0	1028	1028	30	1.90	883	6.8	8.2
05...	1239	7.00	30.0	1028	1028	30	1.90	880	6.9	8.1
05...	1240	5.00	30.0	1028	1028	30	1.90	875	7.0	8.1
05...	1241	3.00	30.0	1028	1028	30	1.90	875	7.0	8.1
05...	1242	1.00	30.0	1028	1028	30	1.90	880	7.0	8.1

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DISSOLVED (PERCENT SATURATION)	
NOV 26...	1615	1028	80020	100	750	8.1	19.0	14.0	28	740	11.0	110	
JAN 14...	1500	1028	80020	879	414	8.1	11.5	3.0	--	740	12.9	99	
MAR 05...	1530	1028	80020	202	1050	8.6	31.5	13.5	23	725	10.7	108	
APR 15...	1400	1028	80020	207	674	8.2	22.0	18.0	--	745	8.5	92	
JUN 25...	1230	1028	80020	257	550	8.0	28.0	29.0	25	750	8.1	107	
AUG 05...	1330	1028	80020	30	883	8.2	34.0	30.0	22	740	6.8	93	
DATE		COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS Ca)	MAGNESIUM, DISSOLVED (MG/L AS Mg)	SODIUM, DISSOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	
NOV 26...	88	180	240	50	48	28	59	35	2	3.6	227	0	
JAN 14...	--	--	130	23	27	14	30	34	1	2.9	125	0	
MAR 05...	46	53	290	40	58	34	94	42	2	2.4	287	6	
APR 15...	--	--	220	52	46	26	52	33	2	3.6	208	0	
JUN 25...	180	280	180	15	39	19	42	34	1	3.7	197	0	
AUG 05...	K31	K62	250	25	50	30	81	41	2	3.9	273	0	
DATE		ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 100 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)
NOV 26...	186	22	85	0.40	6.1	390	365	0.53	105	--	--	--	--
JAN 14...	103	16	50	<0.10	7.7	218	212	0.30	517	--	0.490	2.2	2.2
MAR 05...	244	35	170	0.20	2.6	574	544	0.78	313	--	--	--	--
APR 15...	171	24	84	0.20	5.6	374	346	0.51	209	--	0.260	1.2	1.2
JUN 25...	161	20	76	0.30	8.1	319	307	0.43	221	--	0.270	1.2	1.2
AUG 05...	224	32	140	0.30	6.5	483	479	0.66	39.6	--	--	--	--
DATE		NITROGEN NITRITE TOTAL (MG/L AS N)	NITROGEN NITRITE DISSOLVED (MG/L AS N)	NITROGEN NITRITE DISSOLVED (MG/L AS NO2)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)
NOV 26...	<0.010	<0.010	--	<0.100	<0.100	0.060	0.040	0.08	0.05	0.54	--	--	--
JAN 14...	--	0.010	0.03	--	0.500	--	0.120	--	0.15	--	--	--	--
MAR 05...	0.010	<0.010	--	<0.050	<0.050	0.020	0.010	0.03	0.01	0.88	--	--	--
APR 15...	--	0.010	0.03	--	0.270	--	0.030	--	0.04	--	--	--	--
JUN 25...	0.090	0.020	0.07	0.300	0.290	0.100	0.050	0.13	0.06	0.80	--	--	--
AUG 05...	<0.010	<0.010	--	<0.050	<0.050	0.030	0.030	0.04	0.04	1.3	0.57	--	--

ARKANSAS RIVER BASIN

319

07243500 DEEP FORK NEAR BEGGS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (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)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	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 PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
NOV 26...	0.60	--	--	--	0.090	0.09	0.030	0.030	0.030	0.09	10
JAN 14...	--	--	--	--	--	--	--	--	0.030	0.09	--
MAR 05...	0.90	--	--	--	0.120	0.12	0.050	0.040	0.030	0.09	<10
APR 15...	--	--	--	--	--	--	--	--	0.020	0.06	--
JUN 25...	0.90	--	1.2	5.3	0.180	0.31	0.050	0.100	0.050	0.15	10
AUG 05...	1.3	0.60	--	--	0.080	0.09	0.030	0.030	0.020	0.06	20
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)
NOV 26...	1	170	<0.5	<1.0	1	<3	2	8	<1	7	35
JAN 14...	<1	79	<0.5	<1.0	<5	<3	<10	170	<10	<4	37
MAR 05...	<1	160	0.6	<1.0	<1	<3	3	4	<1	8	83
APR 15...	1	160	<0.5	<1.0	<5	<3	<10	32	<10	6	7
JUN 25...	1	130	0.5	<1.0	<1	<3	4	17	<1	<4	5
AUG 05...	<1	160	0.6	<1.0	<1	<3	4	7	<1	7	9
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 26...	<0.1	<10	3	<1	<1.0	450	<6	5	54	15	65
JAN 14...	0.3	<10	<10	--	<1.0	200	<6	5	207	491	95
MAR 05...	0.1	<10	2	<1	<1.0	570	<6	5	38	21	94
APR 15...	<0.1	<10	<10	--	<1.0	430	<6	6	94	53	93
JUN 25...	<0.1	<10	2	<1	<1.0	370	<6	13	146	101	99
AUG 05...	<0.1	<10	2	<1	<1.0	510	<6	22	53	4.4	70

ARKANSAS RIVER BASIN

07244000 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, 4,237,000 acre-ft, May 4, 1990, elevation, 599.72 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, 2,529,000 acre-ft, June 10, 11, elevation, 586.97 ft; minimum, 2,041,000 acre-ft, Aug. 29, elevation, 582.28 ft.

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

583	2,111,000	589	2,764,000
585	2,315,000	591	3,006,000
587	2,533,000	593	3,263,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2350000	2281000	2310000	2297000	2313000	2254000	2313000	2335000	2404000	2300000	2172000	2053000
2	2338000	2272000	2334000	2292000	2305000	2254000	2315000	2325000	2415000	2288000	2159000	2056000
3	2333000	2290000	2331000	2292000	2308000	2257000	2340000	2387000	2415000	2279000	2157000	2054000
4	2324000	2292000	2326000	2289000	2314000	2255000	2344000	2433000	2418000	2289000	2154000	2072000
5	2313000	2285000	2316000	2300000	2316000	2265000	2342000	2431000	2413000	2283000	2147000	2060000
6	2313000	2284000	2305000	2332000	2318000	2257000	2343000	2425000	2402000	2284000	2139000	2086000
7	2310000	2280000	2301000	2339000	2317000	2257000	2347000	2412000	2409000	2286000	2130000	2100000
8	2348000	2279000	2296000	2341000	2315000	2258000	2345000	2396000	2438000	2278000	2118000	2104000
9	2347000	2282000	2296000	2341000	2314000	2259000	2342000	2387000	2513000	2268000	2116000	2109000
10	2341000	2290000	2290000	2379000	2313000	2259000	2326000	2387000	2526000	2259000	2116000	2111000
11	2332000	2295000	2287000	2397000	2311000	2264000	2324000	2385000	2522000	2250000	2113000	2107000
12	2324000	2294000	2284000	2391000	2309000	2268000	2326000	2380000	2504000	2245000	2110000	2103000
13	2324000	2294000	2277000	2383000	2307000	2258000	2355000	2366000	2478000	2245000	2106000	2095000
14	2325000	2289000	2272000	2385000	2307000	2250000	2365000	2348000	2465000	2244000	2104000	2090000
15	2321000	2292000	2259000	2369000	2298000	2247000	2352000	2339000	2454000	2234000	2102000	2100000
16	2317000	2288000	2263000	2366000	2297000	2260000	2342000	2324000	2438000	2226000	2097000	2110000
17	2317000	2289000	2265000	2360000	2298000	2259000	2333000	2318000	2418000	2217000	2097000	2119000
18	2306000	2288000	2274000	2354000	2299000	2257000	2319000	2316000	2394000	2206000	2095000	2148000
19	2302000	2281000	2286000	2354000	2290000	2256000	2309000	2307000	2369000	2195000	2088000	2165000
20	2310000	2280000	2296000	2350000	2286000	2257000	2308000	2302000	2357000	2193000	2083000	2187000
21	2308000	2280000	2284000	2342000	2282000	2273000	2308000	2300000	2349000	2193000	2085000	2201000
22	2301000	2280000	2274000	2335000	2277000	2265000	2313000	2299000	2362000	2185000	2081000	2211000
23	2302000	2281000	2265000	2326000	2277000	2299000	2313000	2302000	2373000	2174000	2070000	2217000
24	2296000	2282000	2249000	2322000	2272000	2302000	2313000	2313000	2364000	2174000	2069000	2221000
25	2293000	2282000	2246000	2321000	2264000	2303000	2318000	2346000	2358000	2177000	2067000	2223000
26	2292000	2295000	2242000	2324000	2251000	2309000	2316000	2380000	2348000	2178000	2059000	2224000
27	2289000	2313000	2247000	2328000	2253000	2307000	2331000	2401000	2336000	2196000	2050000	2221000
28	2288000	2328000	2256000	2324000	2253000	2316000	2343000	2411000	2326000	2199000	2047000	2221000
29	2287000	2323000	2275000	2323000	---	2313000	2342000	2413000	2318000	2195000	2054000	2223000
30	2283000	2317000	2296000	2320000	---	2314000	2336000	2406000	2309000	2193000	2049000	2218000
31	2281000	---	2294000	2317000	---	2319000	---	2399000	---	2184000	2050000	---
(+)	584.88	585.02	584.80	585.02	584.41	585.04	585.20	585.79	584.95	583.74	582.37	584.07
(**)	-78,000	+36,000	-23,000	+23,000	-64,000	+66,000	+17,000	+63,000	-90,000	-125,000	-134,000	+168,000
MAX	2350000	2328000	2334000	2397000	2318000	2319000	2365000	2433000	2526000	2300000	2172000	2224000
MIN	2281000	2272000	2242000	2289000	2251000	2247000	2308000	2299000	2309000	2174000	2047000	2053000
CAL YR 1990	MAX 4214000	MIN 2194000	++ -33,000									
WTR YR 1991	MAX 2526000	MIN 2047000	++ -141,000									

(+) ELEVATION, IN FEET, AT END OF MONTH

(**) CHANGE IN CONTENTS, IN ACRE FEET

ARKANSAS RIVER BASIN

321

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 poor. 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, 24 years (water years 1968-91), 6,187 ft³/s, 4,482,000 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.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Maximum stage since 1898, that of May 10, 1943, from information by local resident.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 24,600 ft³/s, Dec. 31, gage height, 11.90 ft; minimum daily discharge, 156 ft³/s, Nov. 25, Mar. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5460	e1720	3370	1210	2660	1600	2610	5060	6070	5540	4470	175
2	e5400	e3200	2560	5060	4820	372	3100	5670	4720	5350	5060	172
3	e5130	e1250	6100	6010	447	188	5430	8480	e8950	4870	1710	1200
4	e5730	e1030	5530	3110	737	872	5540	11900	e12700	803	706	1350
5	e5080	e2610	5990	827	e2400	597	5530	12000	e12700	4050	2740	1320
6	e1790	3970	6310	658	1330	188	4120	11400	e12800	981	3010	795
7	e866	3970	4390	5190	2580	875	4540	e9880	e12200	320	4160	457
8	e2590	5170	3690	7010	e2740	755	5130	e10200	e9900	4830	4290	175
9	e6060	2430	1060	7150	2620	185	5410	e10900	e9820	4380	857	592
10	e5320	448	3670	7620	2240	156	6390	e10600	e16400	4660	186	1870
11	e5420	258	3120	e9700	e2650	633	5760	7050	e20600	4230	177	3190
12	e5000	1860	3740	e12800	2370	314	6990	7100	e20600	3080	1360	3260
13	e550	2470	3960	e12700	e2720	2940	1610	9180	e20500	754	698	4250
14	e240	e5900	4700	e12700	2420	2370	996	10000	e15500	279	1170	2330
15	e2440	2500	4900	e12800	3250	2740	6590	8970	e12500	3020	1170	437
16	e1530	3320	3210	e12900	1280	557	8620	9460	e12500	3520	1480	1260
17	e1910	1280	6240	e11700	940	1040	7880	6800	e12700	5160	664	906
18	e2950	1870	3660	e10600	1540	2730	8230	4340	e12800	3980	175	360
19	e1350	3650	3610	e9080	2750	2420	5420	3430	e12800	3900	1170	180
20	e340	4590	5200	e9140	2590	2520	1870	4170	9220	844	640	174
21	e240	2270	e8090	8250	3110	3130	604	4030	4820	243	524	170
22	e4110	980	e7430	8020	2200	3450	1830	3110	1570	3000	2040	167
23	e176	219	e5800	7230	2480	1170	1580	3660	286	4170	3690	1070
24	e2320	165	6040	5270	2900	1670	2950	3760	e5940	1690	788	1350
25	e2080	156	2510	3670	2660	4790	2480	5070	5820	1960	175	2680
26	e1110	1380	2900	283	e6940	1680	3290	3920	6660	1360	3010	1690
27	e470	4680	1890	e4680	2470	2990	1080	4770	6020	617	3610	2550
28	e270	4040	358	e3970	1270	2570	345	5930	6110	211	2360	1140
29	e787	5860	458	4020	---	2740	4390	e7650	5720	1430	2180	172
30	e675	5900	332	2530	---	2630	4900	7930	4270	1840	2240	2420
31	e1680	---	5930	3020	---	911	---	8610	---	3710	493	---
TOTAL	79074	79326	126828	209108	69114	51783	125215	225030	303196	84582	56983	37862
MEAN	2551	2644	4091	6745	2468	1670	4174	7259	10110	2720	1838	1262
MAX	6060	5900	8090	12900	6940	4790	8620	12000	20600	5540	5060	4250
MIN	176	156	332	283	447	156	345	3110	286	211	175	167
AC-FT	156800	157300	251600	414800	137100	102700	248400	446300	601400	167800	113000	75100

CAL YR 1990 TOTAL 5283154 MEAN 14470 MAX 226000 MIN 73 AC-FT 10480000
WTR YR 1991 TOTAL 1448101 MEAN 3967 MAX 20600 MIN 156 AC-FT 2872000

e Estimated

ARKANSAS RIVER BASIN

07246400 ROBERT S. KERR LOCK AND DAM (ARKANSAS RIVER) NEAR SALLISAW, OK

LOCATION.-- Lat 35°20'57", long 94°46'43", in SW 1/4 SW 1/4, sec. 9, T.10 N., R.24 E., LeFlore County, Hydrologic Unit 11110104, from lock wall at dam, 0.6 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 396.4.

DRAINAGE AREA.-- 147,766 mi² of which 22,241 mi² is probably noncontributing.

PERIOD OF RECORD.-- Water years 1970 to June 1991 (discontinued).

REVISED RECORDS.-- WDR OK-77-1: Drainage area.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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 08...	1400	1028	80020	474	7.6	8.5	13.5	--	15	750
JAN 03...	1330	1028	80020	496	7.9	0.0	2.0	--	--	750
MAR 06...	0730	1028	80020	474	8.1	15.0	10.5	--	--	740
APR 24...	1430	1028	80020	585	7.9	22.5	17.5	--	--	752
JUN 19...	1415	1028	80020	670	8.0	31.0	27.0	13	--	750
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
NOV 08...	9.2	90	25	130	29	36	9.4	53	47	2
JAN 03...	15.5	115	20	120	51	34	8.3	42	43	2
MAR 06...	10.2	95	21	130	29	38	8.1	42	41	2
APR 24...	10.1	107	25	130	31	38	8.7	63	50	2
JUN 19...	10.1	129	50	140	37	38	10	82	56	3
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)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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)
NOV 08...	2.9	122	0	100	43	78	0.30	283	283	0.38
JAN 03...	3.4	83	0	68	33	62	0.50	249	226	0.34
MAR 06...	3.0	121	0	99	36	62	0.10	268	249	0.36
APR 24...	3.3	121	0	99	41	97	0.20	322	312	0.44
JUN 19...	3.4	121	0	99	56	--	0.20	382	319	0.52

ARKANSAS RIVER BASIN

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07246400 ROBERT S. KERR LOCK AND DAM (ARKANSAS RIVER) NEAR SALLISAW, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
NOV 08...	--	--	<0.010	--	<0.100	0.090	0.12	0.020	0.06
JAN 03...	--	--	<0.010	--	0.400	0.060	0.08	0.030	0.09
MAR 06...	--	--	<0.010	--	0.150	0.020	0.03	<0.010	--
APR 24...	0.180	0.71	0.010	0.03	0.170	0.050	0.06	0.010	0.03
JUN 19...	0.150	0.66	0.030	0.10	0.180	0.050	0.06	0.010	0.03

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 April 1991. 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 fair. Some regulation by several flood-retarding structures. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.-- 53 years (water years 1939-90), 130 ft³/s, 94,190 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 PERIOD.-- 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)
Nov. 27	1900	*1,020	*9.14	No peaks greater than base discharge.			

Minimum daily discharge, 1.9 ft³/s, Nov. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	3.3	89	287	41	37	116	---	---	---	---	---
2	8.3	2.6	71	232	39	34	94	---	---	---	---	---
3	7.2	1.9	335	246	37	31	95	---	---	---	---	---
4	6.6	33	339	210	33	31	106	---	---	---	---	---
5	5.7	154	172	168	30	30	88	---	---	---	---	---
6	5.1	87	102	300	34	26	75	---	---	---	---	---
7	9.1	46	73	536	37	22	73	---	---	---	---	---
8	24	33	58	351	34	20	117	---	---	---	---	---
9	293	115	45	237	29	18	110	---	---	---	---	---
10	406	174	36	246	26	15	86	---	---	---	---	---
11	190	100	31	309	24	12	73	---	---	---	---	---
12	93	56	26	239	22	11	419	---	---	---	---	---
13	62	43	24	170	21	10	846	---	---	---	---	---
14	44	35	31	135	20	9.9	801	---	---	---	---	---
15	32	31	30	311	18	9.4	556	---	---	---	---	---
16	22	26	40	574	16	8.8	296	---	---	---	---	---
17	17	22	94	365	16	9.7	199	---	---	---	---	---
18	61	18	432	251	14	12	599	---	---	---	---	---
19	47	16	437	282	16	13	337	---	---	---	---	---
20	37	13	255	373	26	14	201	---	---	---	---	---
21	29	12	171	253	19	13	140	---	---	---	---	---
22	25	13	149	176	16	148	123	---	---	---	---	---
23	22	13	97	140	13	227	108	---	---	---	---	---
24	17	9.4	70	110	11	106	87	---	---	---	---	---
25	13	8.1	65	95	9.8	70	92	---	---	---	---	---
26	10	8.9	65	91	9.2	56	89	---	---	---	---	---
27	7.3	509	72	87	8.9	525	155	---	---	---	---	---
28	5.3	762	120	83	8.7	530	187	---	---	---	---	---
29	4.3	438	323	75	---	317	211	---	---	---	---	---
30	3.4	180	802	65	---	244	135	---	---	---	---	---
31	3.1	---	539	53	---	161	---	---	---	---	---	---
TOTAL	1519.1	2963.2	5193	7050	628.6	2770.6	6414	---	---	---	---	---
MEAN	49.0	98.8	168	227	22.4	89.4	214	---	---	---	---	---
MAX	406	762	802	574	41	530	801	---	---	---	---	---
MIN	3.1	1.9	24	53	8.7	8.6	73	---	---	---	---	---
AC-FT	3010	5880	10300	13980	1250	5500	12720	---	---	---	---	---

CAL YR 1990 TOTAL 107115.75 MEAN 293 MAX 7480 MIN .91 AC-FT 212500

ARKANSAS RIVER BASIN

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07248000 WISTER LAKE NEAR WISTER, OK

LOCATION.-- Lat 34°56'12", 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, 427,400 acre-ft at elevation 502.5 ft crest of spillway and 23,910 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, based on survey in 1985, used since Oct. 1, 1989. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 574,500 acre-ft, May 4, 1990, elevation, 508.23 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, 183,300 acre-ft, Apr. 19, elevation, 489.53 ft; minimum, 38,070 acre-ft, Feb. 4, elevation, 474.43 ft.

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

474	35,860	492	220,800
478	61,430	500	371,200
485	126,200	509	596,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39630	40040	42770	62410	44220	40970	45990	92060	38460	46940	47970	46810
2	39690	39860	42650	58670	41620	43070	43010	79320	39510	46880	48040	46940
3	39900	39920	42890	55610	39050	45040	40270	78710	39630	46880	47970	46880
4	39860	42090	43560	51890	38350	45480	39450	81910	39630	46880	47970	47070
5	39690	42340	42770	47770	39400	44160	39860	78970	39630	46810	47840	47000
6	39630	41680	40910	54210	40790	42280	40090	73730	39510	46750	47710	46880
7	40270	40680	40150	67220	41920	40270	40790	67070	39570	46620	47640	47130
8	41530	39800	40440	67460	41680	39450	42470	59900	39510	46500	47320	47130
9	53500	41320	40680	62480	41080	39630	42770	52840	39400	46310	47320	47070
10	55410	42090	40730	62860	40380	39860	40910	49350	39280	46120	47260	46940
11	52240	43370	40730	64970	39570	40040	39800	47640	39630	45990	47070	46810
12	49160	43070	40730	62330	39100	40210	73390	45800	39740	45860	47190	46750
13	46060	42220	40440	56880	38870	40040	109500	43740	39690	45880	47510	46560
14	42800	41140	40380	50280	39160	39980	155800	41560	39630	45670	47510	46430
15	40350	39980	39920	52230	39570	39740	172100	40150	39690	45550	47450	46370
16	39310	39570	40040	60050	40270	39450	171700	39570	40910	45420	47320	46430
17	39370	39630	40790	58450	40910	39280	165800	39400	42400	45230	47320	46040
18	39690	39690	46180	57020	41200	39050	179900	40040	43010	45100	47260	49090
19	40190	39740	49290	58630	41560	39100	181900	40790	43190	44910	47130	49290
20	40670	39740	50210	59760	41980	39280	174800	41560	43310	44720	46940	49490
21	41200	39920	50940	59390	41860	39800	165600	41980	43370	44600	47070	49620
22	41370	39920	51140	55890	41200	55820	156200	42340	43980	44470	46940	49750
23	41370	39860	50470	51140	40440	71850	145700	41620	44720	44340	46940	49950
24	41370	39690	49090	46050	39690	71770	134000	41740	45480	44600	46880	50080
25	41370	39690	47570	44600	39050	66440	121700	47710	46240	44600	46560	50080
26	41320	40040	45990	44980	38750	57940	110300	49620	46690	44850	46500	49950
27	41140	41020	45040	45360	39050	53530	116100	50010	46810	45550	46560	49880
28	40970	42280	45610	45480	39220	51210	119500	47640	46940	46560	46560	49810
29	40730	43310	51750	45740	---	49810	113800	43740	46940	47320	46500	49750
30	40570	43500	63160	45610	---	50010	104200	39630	47000	47570	46500	49680
31	40330	---	65350	45420	---	48430	---	38240	---	47900	46560	---
MAX	55410	43500	65350	67460	44220	71850	181900	92060	47000	47900	48040	50080
MIN	39310	39570	39920	44600	38350	39050	39450	38240	38460	44340	46500	46370
(+)	474.82	475.35	476.52	475.66	474.63	476.13	482.92	474.46	475.91	476.05	475.84	476.32
(++)	+760	+3,170	+21,850	+19,930	+6,200	+9,210	+55,770	+65,960	+8,760	+900	+1,340	+3,120

CAL YR 1990 MAX 572200 MIN 38250 (++) +29,080
WTR YR 1991 MAX 181900 MIN 38240 (++) +10,110

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

ARKANSAS RIVER BASIN

07249413 POTEAU RIVER NEAR PANAMA, OK

LOCATION.-- Lat 35°09'47", long 94°38'50", in SE 1/4, SE 1/4 sec.15, T.8 N., R.25 E., LeFlore County, Hydrologic Unit 11110105, on left pier of county bridge, 1.5 mi east and .5 mi south of Panama, OK, .4 mi downstream from James Fork creek, and at mile 28.8.

DRAINAGE AREA.-- 1,787 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- October 1989 to December 1990.

GAGE.-- Water-stage recorder. Datum of gage is 392.96 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Flow partially regulated by Wister Reservoir 34.1 mi upstream. U.S. Army Corps of Engineers' satellite telemeter at station. Gage removed due to bridge construction.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 74,600 ft³/s, May 3, 1990, gage height, 41.59 ft (from HWM); minimum daily discharge, 6.8 ft³/s, Dec. 4, 5, 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood of June 1935 reached a stage of 44.6 ft (HWM), from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT PERIOD.-- Maximum discharge, during period October to December, 6,720 ft³/s, Dec. 30, gage height, 19.04 ft; minimum daily discharge, 30 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	45	1040	---	---	---	---	---	---	---	---	---
2	34	46	972	---	---	---	---	---	---	---	---	---
3	31	37	2370	---	---	---	---	---	---	---	---	---
4	30	49	2230	---	---	---	---	---	---	---	---	---
5	32	677	1450	---	---	---	---	---	---	---	---	---
6	42	967	1890	---	---	---	---	---	---	---	---	---
7	34	1010	1890	---	---	---	---	---	---	---	---	---
8	190	922	773	---	---	---	---	---	---	---	---	---
9	1870	1570	303	---	---	---	---	---	---	---	---	---
10	2570	2050	259	---	---	---	---	---	---	---	---	---
11	3020	1430	238	---	---	---	---	---	---	---	---	---
12	3170	1140	224	---	---	---	---	---	---	---	---	---
13	2440	1020	204	---	---	---	---	---	---	---	---	---
14	2150	939	204	---	---	---	---	---	---	---	---	---
15	2080	886	260	---	---	---	---	---	---	---	---	---
16	1320	841	261	---	---	---	---	---	---	---	---	---
17	646	278	534	---	---	---	---	---	---	---	---	---
18	214	92	2360	---	---	---	---	---	---	---	---	---
19	58	88	3430	---	---	---	---	---	---	---	---	---
20	57	81	2500	---	---	---	---	---	---	---	---	---
21	46	78	2360	---	---	---	---	---	---	---	---	---
22	39	82	2590	---	---	---	---	---	---	---	---	---
23	38	91	2050	---	---	---	---	---	---	---	---	---
24	58	83	1750	---	---	---	---	---	---	---	---	---
25	55	75	1650	---	---	---	---	---	---	---	---	---
26	51	74	1630	---	---	---	---	---	---	---	---	---
27	47	272	1770	---	---	---	---	---	---	---	---	---
28	45	1800	2640	---	---	---	---	---	---	---	---	---
29	45	1460	3890	---	---	---	---	---	---	---	---	---
30	45	1180	6080	---	---	---	---	---	---	---	---	---
31	44	---	3790	---	---	---	---	---	---	---	---	---
TOTAL	20536	19363	53592	---	---	---	---	---	---	---	---	---
MEAN	662	645	1729	---	---	---	---	---	---	---	---	---
MAX	3170	2050	6080	---	---	---	---	---	---	---	---	---
MIN	30	37	204	---	---	---	---	---	---	---	---	---
AC-FT	40730	38410	106300	---	---	---	---	---	---	---	---	---

CAL YR 1990 TOTAL 1518392 MEAN 4160 MAX 67000 MIN 12 AC-FT 3012000

ARKANSAS RIVER BASIN

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07249413 POTEAU RIVER NEAR PANAMA, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- October 1989 to January 1991 (discontinued).

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	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, DIS-SOLVED (MG/L)	OXYGEN, (PERCENT SATURATION)
NOV 08...	1030	1028	00020	919	68	*7.4	9.0	13.0	33	750	9.0	87
JAN 02...	1530	1028	00020	--	77	7.4	2.5	3.0	4.8	740	13.8	106
DATE		HARDNESS TOTAL (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 AD-SORPTION 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)	SOLIDS RESIDUE AT 180 DEG. C (MG/L)	
NOV 08...		19	3.9	2.3	5.5	36	0.5	1.8	10	3.8	0.20	54
JAN 02...		20	3.9	2.6	5.7	36	0.5	1.6	15	6.1	<0.10	60
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N03)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N02)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N02)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N02)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N02)	
NOV 08...		38	0.07	134	0.080	0.090	0.40	0.020	0.010	0.03	0.100	0.100
JAN 02...		--	--	--	0.190	--	--	0.010	<0.010	--	0.200	0.200
DATE		NITROGEN AMMONIA TOTAL (MG/L AS N)	NITROGEN AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN AMMONIA TOTAL (MG/L AS NH4)	NITROGEN AMMONIA DIS-SOLVED (MG/L AS NH4)	PHOSPHATE, TOTAL (MG/L AS P04)	PHOSPHORUS ORTHO, TOTAL (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
NOV 08...		0.090	0.070	0.12	0.09	0.06	0.020	<0.010	--	1200	<1	<1
JAN 02...		--	0.320	--	0.41	0.06	--	0.050	0.15	2400	<1	<1
DATE		CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY, TOTAL RECOVERABLE (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
NOV 08...		2	<1	2	3000	4	290	<0.10	5	<1	<1	10
JAN 02...		11	1	4	3700	9	250	<0.10	6	<1	<1	60

*PH, LAB (STANDARD UNITS)

RED RIVER BASIN

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.-- 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.-- 1,568 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.

AVERAGE DISCHARGE.-- 54 years (water years 1938-91), 85.0 ft³/s, 61,580 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 7	0515	*4,740	*8.31	No peaks greater than base discharge.			

Minimum daily discharge, .26 ft³/s, Aug.28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	13	28	e35	43	29	29	e19	85	11	6.6	.39
2	17	13	28	e33	39	28	26	37	127	13	4.8	.44
3	19	15	29	e35	40	27	24	114	264	16	3.6	1.7
4	18	31	28	e38	41	28	23	e54	204	15	4.5	1.4
5	17	39	28	e42	39	27	22	e41	110	12	4.0	1.4
6	16	35	28	e45	38	24	22	e35	604	9.4	2.7	3.2
7	13	29	28	e50	38	23	21	e32	2800	7.3	2.2	63
8	12	43	29	58	37	22	21	123	671	5.8	1.9	492
9	12	52	29	67	34	21	20	489	296	4.6	1.8	175
10	14	52	30	96	33	22	19	222	179	3.7	1.7	50
11	15	44	31	116	34	23	18	162	136	3.1	1.7	27
12	15	37	33	108	34	24	18	148	175	2.8	2.0	18
13	14	34	33	84	35	24	17	149	150	3.1	3.8	19
14	13	30	34	74	33	23	17	168	100	2.7	135	17
15	12	30	35	66	31	23	16	e110	72	5.9	53	15
16	11	31	40	60	31	24	15	e107	62	192	11	14
17	10	29	44	55	31	29	15	e104	60	89	3.2	18
18	9.3	29	45	52	30	31	15	e100	57	49	1.6	54
19	8.6	30	45	53	28	30	15	e84	50	26	1.1	447
20	8.0	29	e38	52	27	32	15	e67	46	18	1.8	169
21	7.6	30	e33	50	27	31	15	e51	49	12	3.2	103
22	8.0	30	e31	48	27	28	17	e35	63	8.0	1.4	76
23	8.6	30	e30	45	26	26	19	1060	41	5.7	1.1	60
24	9.0	29	e36	45	29	24	173	760	32	5.0	.77	e54
25	9.7	29	40	47	26	23	233	305	27	5.8	.62	e50
26	11	29	41	48	26	24	e80	410	23	5.3	.47	e46
27	11	29	41	47	27	23	e32	100	20	6.6	.37	e40
28	11	28	e38	45	27	23	e28	80	18	11	.26	e36
29	11	28	e32	43	---	38	e24	68	15	8.7	.31	e34
30	12	28	e30	42	---	34	e21	957	12	8.1	.28	e32
31	12	---	e33	38	---	31	---	632	---	8.8	.30	---
TOTAL	379.8	935	1048	1717	911	819	1030	6803	6548	574.4	257.08	2117.53
MEAN	12.3	31.2	33.8	55.4	32.5	26.4	34.3	219	218	18.5	8.29	70.6
MAX	19	52	45	116	43	38	233	1060	2800	192	135	492
MIN	7.6	13	28	33	26	21	15	19	12	2.7	.26	.39
AC-FT	753	1850	2080	3410	1810	1620	2040	13490	12990	1140	510	4200

CAL YR 1990 TOTAL 26627.76 MEAN 73.0 MAX 5630 MIN .00 AC-FT 52820
WTR YR 1991 TOTAL 23139.81 MEAN 63.4 MAX 2800 MIN .26 AC-FT 45900

e Estimated

RED RIVER BASIN

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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.-- 12 years, 234 ft³/s, 189,500 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 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
May 24	1315	8,100	9.25	June 2	2100	*22,500	*14.29 (from HWM)

Minimum daily discharge, 20 ft³/s, Oct. 25, 28, 30, Nov. 1, Apr. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	20	54	e70	54	57	83	30	731	113	86	e85
2	25	21	54	e62	54	57	81	63	18300	107	49	e80
3	40	28	52	e66	61	57	70	584	16600	150	50	e85
4	81	91	50	e62	59	56	65	281	7140	177	71	e150
5	52	94	49	e70	60	57	59	122	e2520	175	97	e110
6	47	80	48	e60	62	54	58	82	e3120	170	125	e100
7	41	79	46	e57	62	49	56	57	e8080	173	140	e95
8	40	160	47	e60	61	44	54	780	e8310	166	126	e125
9	37	486	48	e58	60	43	45	759	e2460	120	134	e110
10	35	284	47	e70	62	44	39	436	e1110	103	155	e95
11	35	157	48	e100	65	43	40	270	785	e114	142	e92
12	35	132	52	e200	64	39	40	2390	e380	e101	132	e84
13	38	119	49	e150	64	35	38	822	e510	e140	215	e77
14	37	106	49	e130	59	34	35	240	e1050	e202	408	e72
15	34	101	49	e110	55	35	33	159	e600	e160	500	e69
16	33	93	55	97	54	40	29	121	e350	e145	e320	e66
17	30	87	77	89	55	53	28	94	e220	e250	e250	e64
18	27	83	82	88	55	54	26	78	e170	e200	e300	e76
19	28	82	82	88	53	56	24	64	151	e170	e100	e110
20	27	83	74	85	50	57	21	66	e145	e150	e60	e96
21	25	82	e65	76	52	58	20	107	e140	e135	e90	e85
22	25	81	e54	71	52	57	21	61	e135	e125	e500	e82
23	25	77	e45	67	53	57	23	2000	e130	118	e150	e80
24	22	71	e48	62	49	54	413	6750	e125	107	e88	e78
25	20	69	e54	59	49	49	1830	6530	e110	108	e80	e85
26	21	72	e70	55	49	48	403	3330	93	114	e76	e90
27	22	72	e77	56	51	47	169	997	76	284	e70	e84
28	20	68	e64	56	53	45	109	394	66	247	e65	e80
29	21	58	e57	55	---	227	66	211	57	138	e100	e77
30	22	57	e50	53	---	140	45	136	66	96	e90	e74
31	20	---	e59	51	---	93	---	1610	---	85	e75	---
TOTAL	973	3093	1755	2433	1577	1839	4023	29604	71730	4643	4824	2656
MEAN	31.4	103	56.6	78.5	56.3	59.3	134	955	2391	150	156	88.5
MAX	61	486	82	200	65	227	1830	6750	16600	284	500	150
MIN	20	20	45	51	49	34	20	30	57	85	49	64
AC-FT	1930	6130	3480	4830	3130	3650	7980	58720	142300	9210	9570	5270

CAL YR 1990 TOTAL 91843 MEAN 252 MAX 4470 MIN 18 AC-FT 182200
WTR YR 1991 TOTAL 129150 MEAN 354 MAX 16600 MIN 20 AC-FT 256200

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, alkalinity, and dissolved oxygen were determined in the field.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG											
12...	1520	10.0	28.0	1028	1028	131	2.77	3430	12.9	8.3	391
12...	1523	30.0	28.0	1028	1028	131	2.77	3420	12.4	8.3	163
12...	1526	50.0	28.0	1028	1028	131	2.77	3410	12.3	8.3	44
12...	1529	70.0	28.0	1028	1028	131	2.77	3430	12.4	8.4	70
12...	1532	90.0	27.5	1028	1028	131	2.77	3420	12.5	8.4	22
12...	1535	110	28.0	1028	1028	131	2.77	3420	12.2	8.4	28

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
05...	1300	1028	80020	88	3220	7.8	15.0	11.0	17	730	10.9	104
JAN												
10...	1400	1028	80020	97	3720	8.1	10.0	4.0	52	730	13.0	105
FEB												
26...	1230	1028	80020	47	4610	8.4	15.5	8.5	6.1	740	12.9	115
APR												
16...	1530	1028	80020	30	4980	*8.0	28.5	24.5	12	730	9.9	126
JUN												
19...	1800	1028	80020	151	3820	8.0	33.0	29.0	31	730	12.0	165
AUG												
12...	1630	1028	80020	131	3420	8.4	31.5	27.0	7.0	730	12.3	163

DATE	TIME	NITRO- GEN DIS- SOLVED (MG/L AS N)	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)
NOV													
05...	--		42	75	1300	1200	350	110	310	34	4	7.0	154
JAN													
10...	--		82	180	1400	1200	380	110	310	32	4	6.0	254
FEB													
26...	--		100	150	1800	1800	480	150	400	32	4	6.0	212
APR													
16...	--		45	K18	1800	--	460	170	470	36	5	7.4	--
JUN													
19...	--		220	50	1700	1500	430	140	340	31	4	7.2	244
AUG													
12...	1.8		390	63	1200	1000	290	110	330	38	4	7.6	203

*LAB PH (STANDARD UNITS)

07301110 SALT FORK RED RIVER NEAR ELMER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 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 TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
NOV 05...	0	126	1200	520	<0.10	7.7	2640	2590	3.59	627	1.36	1.37
JAN 16...	0	208	1200	420	1.1	13	2740	2570	3.73	718	1.66	1.57
FEB 26...	0	174	2300	630	0.50	6.4	3580	4090	4.87	454	1.29	1.38
APR 16...	--	--	1900	740	0.70	4.2	4050	3830	5.51	328	0.350	0.380
JUN 19...	0	200	1600	500	0.40	17	2960	3160	4.03	1210	0.880	0.910
AUG 12...	1	169	1100	490	0.60	9.7	2460	2450	3.35	870	1.16	1.16
DATE	NITRO- GEN NITRATE DIS- SOLVED (MG/L AS NO3)	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 NO2)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	
NOV 05...	6.1	0.040	0.030	0.10	1.40	1.40	0.030	0.040	0.04	0.05	0.77	
JAN 16...	6.9	0.040	0.030	0.10	1.70	1.60	0.340	0.340	0.44	0.44	0.96	
FEB 26...	6.1	0.010	0.020	0.07	1.30	1.40	0.070	0.060	0.09	0.08	0.63	
APR 16...	1.7	0.030	0.020	0.07	0.380	0.400	0.020	0.030	0.03	0.04	0.88	
JUN 19...	4.0	0.030	0.020	0.07	0.910	0.930	0.050	0.030	0.06	0.04	1.0	
AUG 12...	5.1	0.040	0.040	0.13	1.20	1.20	0.020	<0.010	0.03	--	1.3	
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (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)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	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 PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	
NOV 05...	0.80	--	2.2	9.7	0.070	0.09	<0.010	0.030	0.040	0.12	20	
JAN 16...	1.3	--	3.0	13	<0.010	0.06	<0.010	0.020	0.010	0.03	--	
FEB 26...	0.70	--	2.0	8.9	0.020	--	<0.010	<0.010	<0.010	--	<10	
APR 16...	0.90	--	1.3	5.7	0.050	--	0.030	<0.010	<0.010	--	--	
JUN 19...	1.1	--	2.0	8.9	0.090	0.06	0.010	0.020	<0.010	--	<10	
AUG 12...	1.3	0.60	2.5	11	0.130	0.09	<0.010	0.030	<0.010	--	<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)	
NOV 05...	2	51	<2	<3.0	2	<9	1	<9	<1	99	25	
JAN 16...	--	--	--	--	--	--	--	--	--	--	--	
FEB 26...	1	35	<2	<3.0	3	<9	1	<9	<1	120	66	
APR 16...	--	--	--	--	--	--	--	--	--	--	--	
JUN 19...	4	140	<2	<3.0	<1	<9	3	10	<1	100	28	
AUG 12...	4	99	<2	<3.0	<1	<9	3	<19	<1	79	<12	

RED RIVER BASIN

07301110 SALT FORK RED RIVER NEAR ELMER, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 05...	<0.1	<30	<1	3	<1.0	4200	<18	<9	121	29	11
JAN 18...	--	--	--	--	--	--	--	--	128	34	22
FEB 26...	0.1	<30	1	8	<1.0	5700	<18	11	62	7.9	38
APR 18...	--	--	--	--	--	--	--	--	12	0.97	52
JUN 19...	<0.1	<30	2	5	<1.0	5100	<18	13	115	47	75
AUG 12...	<0.1	<30	1	11	<1.0	3800	<18	<18	34	12	45

RED RIVER BASIN

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07301420 SWEETWATER CREEK NEAR SWEETWATER, OK

LOCATION.-- Lat 35°25'20", 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, except for ice effected winter period, which is poor.

AVERAGE DISCHARGE.-- 5 years, 26.3 ft³/s, 19,050 acre-ft/yr.

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, 94 ft³/s, June 23, gage height, 9.41 ft; minimum daily discharge, .73 ft³/s, Aug. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	9.3	16	e14	22	17	24	11	35	11	1.4	1.4
2	9.6	9.4	16	e15	21	17	22	11	26	9.9	1.1	3.1
3	9.1	9.7	16	e12	21	17	20	19	34	9.1	.93	5.3
4	9.6	15	16	e9.8	21	17	19	25	36	9.1	.87	7.7
5	10	20	16	e11	20	17	18	19	27	8.6	.86	14
6	7.8	18	16	e10	20	17	18	16	23	7.8	.76	13
7	6.7	16	16	e9.6	20	16	18	14	40	6.9	.73	14
8	6.6	17	16	e14	19	16	18	17	41	6.4	.78	20
9	7.4	19	16	e18	20	16	17	23	33	5.7	.82	18
10	8.5	19	17	e17	19	17	16	22	30	5.0	.91	13
11	9.3	17	17	e20	19	17	16	20	24	4.4	1.0	9.9
12	9.3	17	17	30	19	17	16	20	23	5.0	1.1	8.4
13	9.1	16	17	28	19	17	15	20	20	4.9	5.7	9.7
14	8.9	16	17	28	18	16	15	18	17	7.3	7.2	7.7
15	8.5	15	17	28	18	16	15	16	15	10	7.9	7.0
16	7.8	15	17	27	18	17	15	14	14	12	4.8	6.7
17	7.1	14	18	25	18	19	15	12	11	19	4.2	6.5
18	6.6	14	19	24	18	19	15	11	10	17	3.4	11
19	6.9	14	19	23	17	19	15	10	10	12	2.9	16
20	6.5	15	19	23	17	19	15	9.7	14	9.6	3.3	17
21	6.7	15	e14	22	18	18	15	9.3	12	7.3	3.4	14
22	6.9	15	e10	21	18	17	16	9.2	48	5.8	2.8	12
23	6.8	15	e9.0	21	17	17	15	12	77	4.6	2.3	11
24	6.9	15	e9.2	21	17	16	15	21	43	4.4	1.8	10
25	7.1	15	e9.4	21	17	16	16	26	28	4.5	1.5	9.9
26	8.0	15	e9.6	20	17	16	16	22	21	4.1	1.3	9.1
27	8.6	15	e12	22	17	16	15	16	18	4.1	1.1	8.7
28	8.8	15	e16	21	17	16	13	12	15	4.1	.88	7.8
29	8.9	15	e20	21	---	23	12	9.9	13	3.6	1.0	7.1
30	8.6	15	e13	20	---	31	12	40	12	2.6	.95	6.7
31	9.0	---	e10	22	---	27	---	57	---	1.8	1.2	---
TOTAL	250.4	455.4	470.2	618.4	522	556	487	562.1	770	227.6	68.89	305.7
MEAN	8.08	15.2	15.2	19.9	18.6	17.9	16.2	18.1	25.7	7.34	2.22	10.2
MAX	10	20	20	30	22	31	24	57	77	19	7.9	20
MIN	6.5	9.3	9.0	9.6	17	16	12	9.2	10	1.8	.73	1.4
AC-FT	497	903	933	1230	1040	1100	966	1110	1530	451	137	606

CAL YR 1990 TOTAL 7154.44 MEAN 19.6 MAX 93 MIN .60 AC-FT 14190
WTR YR 1991 TOTAL 5293.69 MEAN 14.5 MAX 77 MIN .73 AC-FT 10500

e Estimated

RED RIVER BASIN

07301500 NORTH FORK RED RIVER NEAR CARTER, OK

LOCATION.-- Lat 35°10'05", long 99°30'25", in NW 1/4 SE 1/4 sec.15, T.8 N., R.22 W., Beckham County, Hydrologic Unit 11120302, on left bank on downstream side of roadway on State Highway 34, 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. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 45 years, (water years 1945-62, 1965-91) 121 ft³/s, 87,660 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 6	2330	*2,190	*7.05	No peak greater than base discharge.			

Minimum daily discharge 2.6 ft³/s Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	26	55	e54	74	81	88	35	410	30	6.7	6.0
2	45	26	55	e60	75	80	87	36	331	28	5.1	5.9
3	42	35	54	e52	84	59	82	83	377	27	4.4	7.6
4	39	52	52	e48	91	59	77	90	686	26	4.0	8.7
5	34	56	51	e52	88	60	71	60	463	23	3.3	167
6	30	52	52	e50	83	58	69	53	1030	20	6.1	111
7	28	50	52	e49	80	56	86	48	910	19	7.6	96
8	28	64	52	e52	77	55	84	61	761	17	5.8	263
9	32	81	49	e54	75	54	63	73	446	15	5.1	281
10	34	86	50	e50	72	51	59	92	337	13	3.4	144
11	31	83	52	e70	72	52	57	93	258	11	2.6	95
12	31	81	54	e110	71	56	60	91	215	10	10	65
13	30	75	58	143	72	55	57	86	210	10	6.8	51
14	29	70	59	157	70	53	54	81	186	21	5.1	40
15	28	68	60	149	68	53	59	76	135	35	29	37
16	26	64	63	136	66	56	61	72	118	138	37	37
17	25	57	69	107	68	67	58	87	105	198	31	33
18	23	55	72	94	70	69	58	86	99	95	26	55
19	22	55	70	92	65	67	58	57	88	58	15	210
20	21	56	71	90	62	67	55	54	193	44	11	183
21	22	57	e56	87	62	66	54	46	159	32	12	141
22	21	58	e45	86	61	61	55	48	95	21	16	109
23	21	61	e40	82	61	58	52	111	91	15	21	90
24	22	61	e35	79	63	55	52	269	104	12	12	78
25	23	58	e40	79	62	52	76	289	74	9.5	7.9	65
26	24	58	e42	78	64	52	75	205	e56	9.7	5.9	56
27	24	59	e46	79	62	54	68	141	e46	9.0	4.7	49
28	23	57	e64	76	61	52	59	106	e37	23	3.5	42
29	23	56	e70	80	---	85	51	83	e33	26	3.7	37
30	24	55	e50	80	---	102	41	681	e31	11	8.1	33
31	25	---	e46	74	---	94	---	984	---	7.4	13	---
TOTAL	884	1772	1674	2549	1979	1899	1886	4337	8064	1013.6	332.8	2596.2
MEAN	28.5	59.1	54.0	82.2	70.7	61.3	62.9	140	269	32.7	10.7	86.5
MAX	54	86	72	157	91	102	88	984	1030	198	37	281
MIN	21	26	35	48	61	51	41	35	31	7.4	2.6	5.9
AC-FT	1750	3510	3320	5060	3930	3770	3740	8600	15990	2010	660	5150

CAL YR 1990 TOTAL 48212.3 MEAN 132 MAX 10200 MIN 2.1 AC-FT 95630
WTR YR 1991 TOTAL 28986.6 MEAN 79.4 MAX 1030 MIN 2.6 AC-FT 57490

e Estimated

RED RIVER BASIN

335

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, 2.8 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, 1,600 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, 1989. 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.

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, 126,200 acre-ft, June 28, elevation 1,557.64 ft; minimum, 64,770 acre-ft, Sept. 5, 8, elevation, 1,546.10 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e77900	e76110	e80210	e82090	e88370	92180	94870	97190	109800	123800	88410	66050
2	e77540	e76020	e80300	e82180	88510	92360	95580	97640	112000	122300	87230	65430
3	e77230	e76260	e80390	e82270	88700	92310	95580	97790	113400	121200	86300	65120
4	e77400	e76490	e80430	e82360	89030	92410	95730	97840	114300	119600	85190	64920
5	e77440	e76730	e80390	e82450	89220	92550	95800	98000	115800	118100	83630	64770
6	e77490	e76970	e80430	e82540	89370	92700	95880	97790	116800	118400	81950	65040
7	e77530	e77200	e80470	e82670	89700	92700	95980	98150	119600	115100	80390	65160
8	e77490	e77440	e80560	e82760	89840	92750	96230	98510	121200	113300	78710	65230
9	e77530	e77680	e80610	e83170	90030	92800	96280	98560	122000	111600	77360	65700
10	e77490	e77920	e80690	e83530	90130	92700	95680	98770	122600	110000	76150	65930
11	e77400	e78150	e80780	e83720	90270	92850	96080	98870	123000	108400	75170	66120
12	e77380	e78390	e80870	e83950	90520	92960	96230	99280	124000	107500	74740	66080
13	e77310	e78630	e80960	e84220	90660	92950	96430	99380	124100	106400	74830	66320
14	e77230	e78860	e81050	e84500	90840	92950	96530	99380	124300	106100	74860	66360
15	e77270	78930	e81140	e84770	90760	93000	96380	99430	124900	105300	74360	66390
16	e77180	e78970	e81280	e85050	90710	93390	96230	99740	125000	104500	74190	66510
17	e77140	e79060	e81550	85830	91050	93490	96480	99890	125200	104100	74230	66550
18	e77100	e79190	e81730	e85650	91150	93490	96480	100000	125400	103100	74230	67380
19	e76920	e79370	e81820	e85930	91190	93540	96530	100000	125500	101800	74110	67620
20	e77270	e79410	e81950	e86300	91190	93740	96580	100200	125400	100500	73820	68090
21	e76790	e79500	e82090	e86530	91390	93980	96580	100200	125700	98870	73820	68330
22	e76710	e79630	e82090	e86720	91530	94080	96580	100800	126000	97490	73610	68730
23	e76820	e79680	e82000	e86950	91630	94080	96630	101300	125900	96030	73190	68850
24	e76580	e79770	e82040	e87140	91780	93980	97190	103800	125800	94780	72730	69010
25	e76450	e79810	e82040	e87330	91730	94280	96680	105400	125800	93290	72270	69410
26	e76530	e79940	e82090	e87500	91870	94680	97190	105500	126000	92120	71450	69170
27	e76500	e80030	e82180	e87700	91630	94530	97240	106000	125700	91190	70420	69050
28	e76500	e80120	e82220	e87890	91920	95120	97190	106100	125900	91000	69290	69050
29	e76360	e80160	e82270	88270	---	94970	97040	106400	125200	90520	68290	68850
30	e76280	e80210	e82360	e88270	---	95070	97040	106500	124500	90030	67540	69010
31	76280	---	e82400	e88270	---	95170	---	106700	---	89320	66750	---
MAX	77900	80210	82400	88270	91920	95170	97240	108700	126000	123800	88410	69410
MIN	76280	76020	80210	82090	88370	92180	94870	97190	109800	89320	66750	64770
(+)	1547.93	1548.83	1549.32	1550.59	1551.35	1552.01	1552.38	1554.60	1557.36	1550.81	1545.61	1546.18
(++)	-1,770	+3,930	+2,190	+5,870	+3,650	+3,250	+1,870	+11,860	+15,800	-35,180	-22,570	+2,260
CAL YR 1990	MAX 146900	MIN 76020	(++)	-21,400								
WTR YR 1991	MAX 126000	MIN 64770	(++)	-9,040								

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

e Estimated

RED RIVER BASIN

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

LOCATION.-- Lat 34°53'26", long 99°18'22", in SW 1/4 sec.22, T.5 N., R.20 W., Greer County, Hydrologic Unit 11120303, on right bank at State Highway 44A bridge, 3,500 ft 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. 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, 42 ft³/s, May 23, gage height, 5.84 ft; no flow Aug. 6-11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	1.0	1.2	1.5	1.4	1.7	2.6	1.5	1.5	.74	.12	.87
2	.96	.87	1.4	1.4	1.4	1.7	2.5	2.1	3.7	.76	.10	.89
3	1.3	1.3	1.3	1.4	1.5	1.6	2.5	2.2	2.7	.81	.10	.86
4	1.0	1.9	1.4	1.5	1.5	1.7	2.5	1.8	1.9	.85	.02	.81
5	.87	1.5	1.4	1.5	1.4	1.7	2.4	1.6	2.3	.75	.02	.79
6	.68	1.4	1.2	1.4	1.3	1.7	2.5	1.6	2.5	.74	.00	.83
7	.68	1.3	1.4	1.4	1.4	1.7	2.5	1.7	3.1	.72	.00	1.2
8	.51	2.2	1.6	1.4	1.3	1.7	2.4	2.1	1.9	.62	.00	1.2
9	.66	1.6	1.6	1.5	1.4	1.7	2.2	1.7	1.7	.56	.00	1.1
10	.60	1.5	1.4	1.7	1.3	1.7	2.1	1.6	1.7	.46	.00	1.1
11	.57	1.4	1.3	1.4	1.2	1.7	2.0	1.6	1.7	.43	.00	.92
12	.64	1.5	1.5	1.4	1.1	1.7	2.0	1.8	2.5	.38	.24	.87
13	.60	1.5	1.3	1.4	1.2	1.7	1.9	1.6	2.3	.37	.55	1.0
14	.76	1.5	1.4	1.4	1.2	1.7	1.8	1.6	1.7	.43	.77	.96
15	.69	1.5	1.5	1.7	1.4	1.6	1.7	1.6	1.7	.42	.69	.90
16	.90	1.3	1.7	2.2	1.4	1.9	1.7	1.4	1.7	.38	.57	.98
17	.99	1.2	1.6	2.1	1.3	1.9	1.6	1.3	1.6	.31	.72	.97
18	.95	1.3	1.6	2.0	1.4	1.8	1.4	1.5	1.7	.21	.61	2.9
19	1.0	1.4	1.5	2.0	1.4	1.8	1.2	1.5	1.7	.16	.44	1.6
20	.92	1.4	1.5	1.8	1.4	1.8	1.3	1.5	1.6	.17	.38	1.2
21	.93	1.4	1.4	1.6	1.5	1.8	1.5	1.2	1.6	.18	.46	1.1
22	.92	1.3	1.6	1.6	1.5	1.7	1.6	1.1	1.3	.24	.49	1.1
23	.92	1.2	1.6	1.6	1.4	1.7	1.6	6.8	1.3	.23	.43	.99
24	.74	1.3	1.5	1.5	1.5	1.7	2.2	2.9	1.1	.29	.52	1.1
25	.67	1.1	1.6	1.4	1.5	1.3	2.1	1.9	1.1	.43	.37	1.1
26	.71	1.3	1.6	1.5	1.5	1.2	1.8	1.5	1.1	.55	.29	1.0
27	.79	1.2	1.4	1.5	1.4	1.1	1.8	1.2	1.1	.59	.25	.94
28	.91	1.2	1.4	1.5	1.7	1.6	1.7	1.2	1.1	.65	.32	.93
29	1.3	1.2	1.5	1.5	---	2.5	1.6	1.2	1.0	.51	.36	.91
30	1.7	1.2	1.5	1.5	---	2.7	1.6	1.5	.81	.37	.53	.89
31	1.1	---	1.5	1.5	---	2.6	---	1.4	---	.22	.69	---
TOTAL	26.88	40.97	45.4	48.8	38.9	54.4	58.3	55.2	52.71	14.53	10.04	32.01
MEAN	.87	1.37	1.46	1.57	1.39	1.75	1.94	1.78	1.78	.47	.32	1.07
MAX	1.7	2.2	1.7	2.2	1.7	2.7	2.6	6.8	3.7	.85	.77	2.9
MIN	.51	.87	1.2	1.4	1.1	1.1	1.2	1.1	.81	.16	.00	.79
AC-FT	53	81	90	97	77	108	116	109	105	29	20	63

CAL YR 1990 TOTAL 35902.16 MEAN 98.4 MAX 4830 MIN .51 AC-FT 71210
WTR YR 1991 TOTAL 478.14 MEAN 1.31 MAX 8.8 MIN .00 AC-FT 948

RED RIVER BASIN

337

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 fair. 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.-- 45 years, (water years 1905-07, 1950-91), 85.5 ft³/s, 81,940 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 2	2230	2,430	16.62	June 7	2330	*2,440	*16.65

Minimum daily discharge, 7.4 ft³/s, Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e18	15	12	e12	25	22	29	13	350	27	10	80
2	e15	14	12	13	26	22	21	20	1640	26	8.8	41
3	e15	16	14	13	26	21	23	167	1640	27	8.5	25
4	e22	52	15	13	26	24	30	104	959	27	8.3	24
5	e18	32	14	12	26	22	24	66	320	25	8.1	18
6	e18	34	12	14	27	20	19	46	857	22	7.7	19
7	e15	19	16	13	27	20	e18	38	1540	21	16	16
8	e15	180	15	14	26	22	e17	34	1560	19	14	30
9	e17	289	11	15	26	21	e18	38	552	18	9.6	77
10	e18	50	e11	e22	26	19	16	51	307	17	8.2	37
11	e15	32	e11	e30	27	18	e15	40	209	17	7.4	24
12	e14	20	e11	e45	28	18	e15	32	232	15	8.3	18
13	e14	18	12	e40	25	17	e14	27	546	15	10	21
14	e15	16	e12	e37	25	17	e14	24	209	18	10	e20
15	e15	15	e12	35	27	17	e14	22	158	123	12	e18
16	e14	15	13	35	26	19	15	20	134	57	11	24
17	e14	24	14	34	24	22	15	18	118	29	12	30
18	e13	17	e13	32	23	20	e14	17	104	21	8.9	60
19	e14	14	e13	32	23	23	e14	16	93	17	12	245
20	e18	14	e13	32	26	23	e13	15	104	16	15	101
21	e17	15	14	51	26	20	e13	36	e92	14	12	e50
22	e14	14	e13	32	23	18	14	35	e07	13	13	e37
23	e15	e13	e12	29	23	17	14	599	e85	12	27	e33
24	e15	e13	10	28	24	16	27	1570	e91	e11	18	e29
25	e16	e12	10	28	23	e15	30	62	82	e11	11	e25
26	e15	e13	11	28	e22	e14	17	37	70	12	9.5	e22
27	e14	e12	13	31	21	e15	37	213	54	11	8.6	e19
28	e14	13	15	27	21	16	24	119	44	12	8.2	e18
29	e15	15	e14	29	---	71	17	73	37	12	7.8	e16
30	e16	13	e12	32	---	26	14	206	32	11	66	e15
31	15	---	e11	30	---	31	---	537	---	10	163	---
TOTAL	477	1019	391	838	698	666	563	4295	12306	685	549.9	1192
MEAN	15.4	34.0	12.6	27.0	24.9	21.5	18.8	139	410	22.1	17.7	39.7
MAX	22	289	16	51	28	71	37	1570	1640	123	163	245
MIN	13	12	10	12	21	14	13	13	32	10	7.4	15
AC-FT	946	2020	776	1660	1380	1320	1120	8520	24410	1360	1090	2360

CAL YR 1990 TOTAL 32817.1 MEAN 69.9 MAX 3420 MIN 8.8 AC-FT 65090
WTR YR 1991 TOTAL 23679.9 MEAN 64.9 MAX 1640 MIN 7.4 AC-FT 46970

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, 2.6 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 fair. 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 48,000 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, 47 years (water years 1945-91), 296 ft³/s, 214,500 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, 10,900 ft³/s, June 2, gage height, 13.48 ft; minimum daily discharge, 44 ft³/s, Mar. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	61	95	e95	89	58	98	51	1230	186	66	305
2	140	59	93	e92	82	56	87	56	8070	180	62	179
3	173	68	91	e91	80	59	75	93	6860	170	59	133
4	135	122	91	e91	82	58	70	180	3630	161	56	156
5	113	195	93	134	80	58	73	157	1920	154	53	154
6	101	156	98	131	78	54	69	141	1310	146	56	150
7	93	180	91	128	78	53	64	105	2820	135	57	294
8	87	160	92	128	78	53	59	140	5620	125	48	188
9	83	542	100	111	77	55	55	121	2550	118	53	415
10	82	453	93	119	73	53	55	125	1520	111	48	561
11	81	270	91	117	73	52	57	174	1150	105	48	309
12	80	204	92	116	74	49	55	204	908	94	50	191
13	79	161	90	120	74	48	51	122	3080	92	64	149
14	77	141	90	118	69	48	50	94	1630	106	75	130
15	73	131	91	114	66	50	50	82	980	108	74	108
16	71	119	102	109	69	65	49	75	735	194	468	95
17	68	112	109	106	70	62	49	66	617	212	313	100
18	62	117	105	105	67	61	48	59	534	284	185	151
19	61	118	102	104	63	58	46	55	467	186	129	242
20	59	110	100	102	62	62	45	59	427	135	105	616
21	58	107	93	98	63	59	45	82	461	112	148	602
22	56	103	e91	109	65	52	48	59	430	96	95	348
23	57	103	e89	101	63	52	46	417	406	83	114	240
24	57	102	e87	92	59	48	78	6730	408	75	135	196
25	58	101	114	90	58	49	97	6390	377	71	105	169
26	59	103	122	87	60	49	129	e3800	325	72	74	150
27	59	102	120	88	61	44	96	e1720	284	85	63	137
28	58	96	128	89	60	49	87	885	251	85	57	127
29	59	94	142	86	---	76	76	485	224	80	53	111
30	59	97	e110	84	---	113	60	369	203	73	55	100
31	59	---	e97	85	---	92	---	416	---	69	54	---
TOTAL	2446	4467	3102	3240	1973	1795	1965	23512	49427	3903	3018	6806
MEAN	78.9	149	100	105	70.5	57.9	65.5	758	1648	126	97.4	227
MAX	173	542	142	134	89	113	129	6730	8070	284	466	616
MIN	56	59	87	84	58	44	45	51	203	69	46	95
AC-FT	4850	8860	6150	6430	3910	3560	3900	46640	98040	7740	5990	13500

CAL YR 1990 TOTAL 162965 MEAN 446 MAX 14600 MIN 46 AC-FT 323200
WTR YR 1991 TOTAL 105654 MEAN 289 MAX 8070 MIN 44 AC-FT 209600

e Estimated

RED RIVER BASIN

339

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1951-52, 1954-63, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1959 to September 1963, July 1968 to March 1989.

WATER TEMPERATURE: November 1959 to September 1963, July 1968 to March 1989.

INSTRUMENTATION.-- Water-quality monitor from August 1969 to September 1981.

REMARKS.-- Samples were collected quarterly and specific conductance, pH, water temperature, alkalinity, 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.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
AUG										
12...	1230	10.0	25.0	1028	1028	50	5.81	5780	9.8	8.2
12...	1233	20.0	24.5	1028	1028	50	5.81	5780	10.0	8.2
12...	1236	30.0	24.5	1028	1028	50	5.81	5770	10.1	8.2
12...	1239	40.0	24.5	1028	1028	50	5.81	5760	10.3	8.2
12...	1242	60.0	25.0	1028	1028	50	5.81	5780	10.3	8.2
12...	1245	70.0	25.5	1028	1028	50	5.81	5790	10.4	8.2
12...	1248	80.0	25.5	1028	1028	50	5.81	5790	10.3	8.2

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL-LECTING SAMPLE (CODE NUMBER)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	
NOV 05...	1530	1020	00020	204	4840	8.0	15.5	12.0	150	730	9.8	97	
FEB 26...	1500	1020	00020	60	8340	8.3	19.5	10.5	3.3	740	13.0	124	
JUN 19...	1330	1020	00020	467	4260	8.0	32.0	20.0	31	730	11.5	166	
AUG 12...	1330	1020	00020	50	5780	8.2	25.5	25.0	5.3	730	10.3	133	
DATE		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)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)
NOV 05...	K160	230	730	--	180	68	830		71	13	7.5	--	--
FEB 26...	210	370	1100	920	260	110	1300		72	17	7.9	232	0
JUN 19...	89	56	810	--	220	63	590		61	9	7.8	--	--
AUG 12...	75	180	830	660	200	80	1000		72	15	7.5	204	0

RED RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS- SOLVED (MG/L AS S04)	CHLORIDE, DIS- SOLVED (MG/L AS CL)	FLUORIDE, 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 CONSTITUENTS, 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)
NOV 05...	--	540	1400	0.30	4.9	3080	3140	4.19	1700	0.770	0.790
FEB 26...	190	1100	2200	0.70	1.0	5120	5100	6.96	829	0.320	0.320
JUN 19...	--	680	960	0.30	13	2710	2640	3.69	3420	--	--
AUG 12...	167	740	1400	0.80	6.9	3460	3540	4.71	467	--	--
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N03)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N02)	NITRO- GEN, N02+N03 TOTAL (MG/L AS N)	NITRO- GEN, N02+N03 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)
NOV 05...	3.5	0.030	0.010	0.03	0.800	0.800	0.010	<0.010	0.01	--	0.89
FEB 26...	1.4	0.010	0.010	0.03	0.330	0.330	0.020	0.030	0.03	0.04	0.38
JUN 19...	--	0.030	<0.010	--	<0.050	<0.050	0.040	0.020	0.05	0.03	1.2
AUG 12...	--	<0.010	<0.010	--	<0.050	<0.050	<0.010	<0.010	--	--	--
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (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 DIS- SOLVED (MG/L AS P)	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
NOV 05...	0.90	--	1.7	7.5	0.160	0.09	--	0.030	0.030	0.09	40
FEB 26...	0.40	--	0.73	3.2	0.020	--	<0.010	<0.010	<0.010	--	20
JUN 19...	1.2	--	--	--	0.130	0.12	0.030	0.040	<0.010	--	<10
AUG 12...	0.70	0.40	--	--	0.100	0.06	<0.010	0.020	<0.010	--	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)
NOV 05...	3	100	<2	<3.0	2	<9	1	21	<1	47	8
FEB 26...	1	100	<10	<1.0	1	<1	2	30	2	60	40
JUN 19...	4	160	<2	<3.0	<1	<9	5	<9	<1	56	5
AUG 12...	3	110	<2	<3.0	1	<9	5	10	<1	54	16
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- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. STIEVE DIAM. % FINER THAN .062 MM
NOV 05...	<0.1	<30	1	2	<1.0	2100	<18	<9	232	128	12
FEB 26...	0.2	6	<1	3	<1.0	3400	52	<10	31	5.0	49
JUN 19...	0.2	<30	2	2	<1.0	2300	<18	<9	91	115	88
AUG 12...	<0.1	<30	1	1	<1.0	2600	<18	<9	22	3.0	29

RED RIVER BASIN

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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, 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 1951-80. 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 years 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, 16,600 acre-ft/yr; since regulation by Tom Steed Reservoir, 16 years (water years 1976-91), 14.1 ft³/s, 10,220 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, 344 ft³/s, July 1, gage height, 13.01 ft; no flow at times.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	e.00	.00	.00	.00	.00	4.9	310	.00	.00
2	.00	.00	.00	e.00	.00	.00	.00	.00	30	132	.00	.00
3	.00	.00	.00	e.00	.00	.00	.00	.00	.91	.00	.00	.00
4	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	e.00	.00	.00	.00	.00	21	.00	.00	.00
12	.00	.00	.00	e.00	.00	.00	.00	.00	69	.00	.00	.00
13	.00	.00	.00	e.00	.00	.00	.00	.00	89	.00	.00	.00
14	.00	.00	.00	e.00	.00	.00	.00	.00	117	.00	.00	.00
15	.00	.00	.00	e.00	.00	.00	.00	.00	171	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	194	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	240	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	281	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	286	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	286	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	286	.00	.00	.00
22	.00	.00	e.00	.00	.00	.00	.00	.00	286	.00	.00	.00
23	.00	.00	e.00	.00	.00	.00	.00	1.6	285	.00	.00	.00
24	.00	.00	e.00	.00	.00	.00	.00	7.3	289	.00	.00	.00
25	.00	.00	e.00	.00	.00	.00	.00	.72	291	.00	.00	.00
26	.00	.00	e.00	.00	.00	.00	.00	.00	298	.00	.00	.00
27	.00	.00	e.00	.00	.00	.00	.00	.00	301	.00	.00	.00
28	.00	.00	e.00	.00	.00	.00	.00	.00	301	.00	.00	.00
29	.00	.00	e.00	.00	---	.00	.00	.00	302	.00	.00	.00
30	.00	.00	e.00	.00	---	.00	.00	.00	299	.00	.00	.00
31	.00	---	e.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.62	4727.81	442.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.31	158	14.3	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	7.3	302	310	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	19	9300	877	.00	.00

CAL YR 1990 TOTAL 8457.99 MEAN 17.7 MAX 371 MIN .00 AC-FT 12810
WTR YR 1991 TOTAL 5179.43 MEAN 14.2 MAX 310 MIN .00 AC-FT 10270

e Estimated

RED RIVER BASIN

07307028 NORTH FORK RED RIVER NEAR TIPTON, OK

LOCATION.-- Lat 34°30'25", long 99°12'28" (revised), 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 poor. 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.-- 8 years, 624 ft³/s, 452,100 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, 25,300 ft³/s, June 2, gage height, 17.42 ft; minimum daily discharge, 54 ft³/s, Mar. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e112	e79	e116	e138	e105	e77	e175	e120	1100	380	e106	138
2	e290	e79	e114	e146	e102	e74	e128	260	17200	408	e104	212
3	e220	e128	e111	e143	e99	e78	e106	e420	17500	336	e101	187
4	e178	e200	e110	e148	e104	e74	e97	e1800	13200	230	e99	284
5	e145	e322	e112	e150	e100	e72	e102	e1380	6220	e220	e96	204
6	e124	e247	e113	e155	e100	e67	e96	e800	4140	e205	e112	406
7	e112	e200	e109	e147	e98	e65	e90	e700	7030	e195	108	296
8	e108	e1080	e111	e142	e96	e63	e85	e1400	9150	e190	e96	218
9	e104	e930	e112	e136	e95	e68	e80	e910	4980	e185	119	189
10	e102	e750	e111	e172	e92	e67	e78	e1200	2100	e180	114	317
11	e98	e410	e110	e150	e88	e64	e76	e1510	1260	e175	109	265
12	e96	e290	e110	e134	e87	e62	e75	2140	1010	e170	108	200
13	e93	e205	e111	e131	e88	e60	e74	400	2690	e165	174	187
14	e92	e179	e110	e128	e86	e60	e88	e300	3840	e180	191	174
15	e91	e182	e111	e123	e82	e64	e80	e210	1060	e210	134	163
16	e90	e147	e119	118	e85	e76	e73	e180	e920	e310	134	153
17	e89	e139	e155	e117	e86	e96	e69	e137	e760	e420	626	163
18	e88	e133	e145	e130	e81	e82	e67	e124	e680	e700	244	244
19	e87	e134	e128	e142	e78	e72	e65	e118	e640	e290	176	480
20	e86	e128	e117	e124	e76	e85	e63	210	e600	e205	146	384
21	e85	e127	e108	e122	e79	e72	e60	360	e1010	e180	308	460
22	e84	e122	e110	e141	e80	e65	e64	e290	e810	e166	150	290
23	e84	e121	e112	e125	e78	e61	e61	1770	e660	e160	e190	212
24	e83	e119	e116	e120	e76	e59	573	7440	e630	e155	e265	198
25	e82	e118	e132	e118	e73	e57	1350	11700	e600	150	e190	191
26	e82	e119	e148	e111	74	e55	e370	3970	502	145	e140	184
27	e81	e120	e152	e108	e77	e54	e290	1440	e528	224	e100	178
28	e82	e119	e159	e109	e80	e68	e205	e940	e518	178	e83	172
29	e81	e117	e170	e104	---	e200	e150	e710	e504	152	e75	163
30	80	e118	e148	e101	---	e605	e134	e590	e492	e132	e71	155
31	e80	---	e128	e98	---	e235	---	e690	---	109	e124	---
TOTAL	3309	7142	3818	4031	2445	2953	5024	44199	102332	7105	4793	7065
MEAN	107	238	123	130	87.3	95.3	167	1428	3411	229	155	235
MAX	290	1080	170	172	105	605	1350	11700	17500	700	626	480
MIN	80	79	108	98	73	54	60	118	492	109	71	138
AC-FT	6560	14170	7570	8000	4850	5860	9970	87670	203000	14090	9510	14010

CAL YR 1990 TOTAL 204941 MEAN 561 MAX 12900 MIN 58 AC-FT 406500
WTR YR 1991 TOTAL 194216 MEAN 532 MAX 17500 MIN 54 AC-FT 385200

e Estimated

07300500 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.

DRAINAGE AREA.-- 20,570 mi², of which 5,938 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.-- 31 years (water years 1961-91), 1,059 ft³/s, 787,200 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 13	1300	10,600	8.72	June 13	1700	16,300	8.76
May 26	1100	22,900	9.95	July 28	0400	25,500	9.85
June 4	1100	*103,000	*13.78	Sept. 19	2200	18,300	9.80
June 8	1300	55,500	11.38				

Minimum daily discharge, 148 ft³/s Oct. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	161	262	204	367	231	448	459	860	e1320	1220	600
2	317	166	247	308	366	230	377	521	3520	1260	831	522
3	965	174	247	423	376	237	347	1620	31500	1240	602	575
4	543	258	247	352	379	244	284	1190	91800	1210	476	852
5	421	325	247	285	362	234	269	1430	52200	1120	396	1900
6	386	442	236	354	336	222	258	1020	20600	889	348	2540
7	363	433	222	493	331	213	257	765	27700	770	319	1130
8	364	544	227	517	329	213	234	722	51800	684	298	1530
9	369	624	237	519	326	214	219	755	39000	629	305	2580
10	372	667	237	622	322	215	208	1350	17800	575	299	2850
11	358	1140	227	716	309	214	202	1700	7390	525	301	2000
12	262	1180	e222	792	304	207	198	1430	4660	475	333	1880
13	223	794	e222	839	288	184	192	4990	9170	452	334	1450
14	207	637	227	681	271	181	185	2600	7470	454	317	1920
15	206	578	294	617	260	182	175	2430	6870	418	327	1800
16	200	505	338	551	249	207	184	1820	2950	2300	505	1140
17	187	e488	366	494	237	251	167	1240	2710	4240	711	931
18	175	e472	378	485	232	295	176	938	2510	2630	798	1440
19	174	484	423	502	242	302	177	781	2250	1720	1810	e11700
20	163	404	415	512	241	302	183	708	2130	1210	1140	e14700
21	161	354	e357	520	237	289	183	681	2050	957	832	7040
22	160	342	e296	479	239	284	174	658	2080	687	596	3380
23	159	323	e247	438	237	275	183	735	2190	573	647	2800
24	159	316	e279	421	238	267	212	2300	2250	531	767	1900
25	153	313	294	447	233	259	614	16300	e2180	460	471	1300
26	153	305	363	427	239	257	2300	20000	e2040	588	320	976
27	151	294	370	396	223	266	1540	10200	e2040	3960	266	883
28	148	279	379	384	232	224	1210	3990	e1870	20400	261	785
29	151	279	514	387	---	229	860	2310	e1840	5780	229	719
30	151	269	453	366	---	209	640	1500	e1430	3500	215	696
31	153	---	217	370	---	247	---	1030	---	2000	221	---
TOTAL	8188	13730	9290	14901	8005	7384	12636	88153	404460	63557	16535	74519
MEAN	264	458	300	481	266	238	421	2844	13480	2050	533	2484
MAX	965	1180	514	839	379	302	2300	20000	91800	20400	1810	14700
MIN	148	161	217	204	223	181	164	459	860	418	215	522

CAL YR 1990 TOTAL 418818 MEAN 1147 MAX 25800 MIN 135
WTR YR 1991 TOTAL 721358 MEAN 1976 MAX 91800 MIN 148

e Estimated

RED RIVER MAIN STEM

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 1990 TO SEPTEMBER 1991

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 CaCO3)
NOV 09...	0950	839	8050	8.0	9.0	3.5	12.1	113	2.0	600	>1000	1200
JAN 18...	1500	710	9670	7.8	7.0	42	12.2	108	0.8	150	220	1400
MAR 21...	1435	268	8200	8.2	21.5	15	9.4	115	6.6	K54	170	1400
MAY 09...	1440	752	4740	8.2	25.5	71	9.6	123	5.3	410	K60	800
JUL 17...	1450	1580	10800	7.8	30.0	2800	5.8	82	1.1	K6000	9100	1600
AUG 15...	1420	319	6360	8.2	28.5	10	6.8	92	5.3	K47	130	1200

DATE	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 AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
NOV 09...	1100	330	96	1300	16	8.5	0	144	118	880	2200
JAN 18...	1200	390	110	1700	20	9.0	0	216	177	1100	2500
MAR 21...	1300	340	130	1300	15	9.5	0	147	120	1400	2000
MAY 09...	790	220	80	720	11	8.9	0	116	95	810	1100
JUL 17...	1500	470	98	1800	20	14	0	112	92	1500	2800
AUG 15...	1100	280	110	880	11	8.9	0	108	88	1100	1400

DATE	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)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	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)
NOV 09...	<0.10	5.7	5020	4900	0.680	--	0.020	<0.010	0.700	0.700	0.090
JAN 18...	<0.10	8.0	6110	5930	1.36	1.37	0.040	0.030	1.40	1.40	0.140
MAR 21...	0.60	8.0	5190	5260	--	--	0.010	<0.010	<0.050	<0.050	0.020
MAY 09...	0.40	2.1	3040	3000	--	--	0.020	<0.010	<0.050	<0.050	0.020
JUL 17...	0.90	11	6940	6750	0.450	0.500	0.100	0.060	0.550	0.560	0.180
AUG 15...	0.60	7.0	3940	3840	--	--	0.010	<0.010	<0.050	<0.050	<0.010

RED RIVER MAIN STEM

345

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (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- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, SUS- PENDEED (MG/L)
NOV 09...	0.070	0.51	--	--	0.60	0.040	<0.010	<0.010	0.020	--	236
JAN 18...	0.120	0.66	--	--	0.80	0.030	0.050	0.020	0.030	0.06	55
MAR 21...	0.210	1.1	--	--	1.1	0.060	0.070	<0.010	0.030	--	49
MAY 09...	0.010	1.8	--	--	1.8	0.150	0.010	<0.010	0.110	--	197
JUL 17...	0.120	0.42	1.8	1.9	0.80	0.040	0.040	0.010	0.020	0.03	12700
AUG 15...	<0.010	--	--	0.40	0.90	0.090	0.010	<0.010	0.020	--	61

DATE	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (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 09...	407	97	80	2	300	<10	<2.0	10	<2	6	50
JAN 18...	105	97	--	--	--	--	--	--	--	--	--
MAR 21...	35	88	30	<1	<100	<10	<1.0	<1	<1	1	20
MAY 09...	400	88	40	2	200	<10	<1.0	<1	1	4	10
JUL 17...	54200	100	--	--	--	--	--	--	--	--	--
AUG 15...	53	68	90	2	100	<10	5.0	<1	<1	<2	80

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 09...	<2	60	20	0.1	3	2	2	<2.0	4500	28	<10
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
MAR 21...	<1	100	10	0.2	4	2	4	<1.0	4600	54	10
MAY 09...	<1	50	<10	0.1	5	2	1	1.0	3200	32	<10
JUL 17...	--	--	--	--	--	--	--	--	--	--	--
AUG 15...	<1	70	10	<0.1	3	<2	3	<1.0	4200	45	<10

RED RIVER BASIN

07311000 EAST CACHE CREEK NEAR WALTERS, OK

LOCATION.-- Lat 34°21'44", long 98°16'56", on south line of SE 1/4 SE 1/4 sec.19, T.2 S., R.10 W., Cotton County, Hydrologic Unit 11130202, at right bank on downstream side of bridge on State Highway 53, 1.8 mi 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.-- 47 years, 198 ft³/s, 143,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 50,900 ft³/s, Oct. 21, 1963, 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, 3,870 ft³/s, Sept. 20, gage height, 26.12 ft; minimum daily discharge, 4.2 ft³/s, Mar. 10

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	15	24	e24	36	24	50	29	227	41	33	74
2	18	22	24	e24	36	25	34	63	96	37	26	42
3	23	28	23	e22	36	26	34	228	1170	37	23	122
4	19	32	23	e23	36	17	136	622	2630	38	22	339
5	27	42	23	e30	33	9.2	126	438	1100	38	23	1630
6	20	58	33	e26	30	6.4	89	135	251	32	24	671
7	16	42	36	e24	28	5.3	55	69	225	32	23	427
8	41	38	36	e26	27	4.9	47	172	238	32	24	424
9	30	67	37	e45	30	4.4	45	305	391	30	23	434
10	63	163	37	e70	31	4.2	39	342	314	28	33	400
11	39	71	38	e50	30	4.9	36	142	168	23	31	378
12	30	49	38	e42	29	5.2	33	85	124	e21	23	368
13	28	42	38	e43	19	5.2	20	67	484	e19	22	475
14	25	40	31	e42	13	5.1	17	317	1130	e18	22	2770
15	26	39	27	e43	12	5.1	18	154	547	59	26	2770
16	24	34	29	44	11	5.8	15	65	178	38	26	1130
17	24	28	30	30	11	7.1	16	77	125	24	20	1570
18	26	29	47	31	10	78	16	71	104	e21	18	1700
19	24	26	67	34	10	53	16	44	90	e20	17	3580
20	17	25	45	41	10	36	21	37	83	e19	16	3740
21	9.1	25	35	43	18	29	23	34	74	e19	14	1810
22	8.8	25	e33	45	23	29	22	31	68	e18	34	783
23	8.6	26	e28	42	24	31	22	108	63	e18	53	796
24	8.1	27	e27	42	23	18	38	1870	59	18	32	857
25	7.5	26	e25	40	23	11	98	2660	57	29	26	988
26	6.9	26	e26	38	24	8.2	369	1450	53	31	22	752
27	7.0	27	e26	38	24	9.3	261	343	50	137	21	944
28	7.9	25	e29	37	24	19	72	168	48	858	20	847
29	7.6	25	e28	38	---	21	40	511	46	242	21	663
30	6.1	25	e28	38	---	26	31	549	43	66	89	523
31	5.9	---	e26	36	---	69	---	525	---	43	235	---
TOTAL	622.5	1147	997	1151	661	602.3	1837	11711	10216	2086	1042	32007
MEAN	20.1	38.2	32.2	37.1	23.6	19.4	61.2	378	341	67.3	33.6	1067
MAX	63	163	67	70	36	78	369	2660	2630	858	235	3740
MIN	5.9	15	23	22	10	4.2	15	29	43	18	14	42
AC-FT	1230	2280	1980	2280	1310	1190	3640	23230	20260	4140	2070	63490

CAL YR 1990 TOTAL 137740.5 MEAN 377 MAX 7790 MIN 5.9 AC-FT 273200
WTR YR 1991 TOTAL 64079.8 MEAN 176 MAX 3740 MIN 4.2 AC-FT 127100

e Estimated

RED RIVER BASIN

347

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, alkalinity, and dissolved oxygen were determined in the field.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG											
13...	1200	4.00	24.5	1028	1028	22	5.11	905	6.8	7.9	73
13...	1202	6.00	24.5	1028	1028	22	5.11	900	7.0	7.9	56
13...	1204	8.00	24.5	1028	1028	22	5.11	897	7.2	7.9	51
13...	1206	10.0	24.5	1028	1028	22	5.11	899	7.2	7.9	52

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)
NOV										
06...	0930	1028	80020	58	815	7.6	9.5	11.5	740	7.7
JAN										
16...	1045	1028	80020	44	742	7.9	12.0	6.0	740	11.9
FEB										
27...	1030	1028	80020	24	903	8.3	8.0	7.5	740	10.8
APR										
16...	1230	1028	80020	15	960	--	25.5	18.5	740	6.7
JUN										
20...	1100	1028	80020	84	662	7.7	31.5	26.5	740	6.4
AUG										
13...	1130	1028	80020	22	898	7.9	25.5	24.5	740	7.2

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 PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HC03)
NOV										
06...	73	200	0	57	13	91	49	3	9.1	267
JAN										
16...	99	180	34	54	11	73	46	2	5.8	178
FEB										
27...	93	240	17	70	15	100	47	3	6.5	268
APR										
16...	74	250	--	71	17	100	46	3	7.5	--
JUN										
20...	82	210	16	62	13	60	38	2	5.4	234
AUG										
13...	89	220	0	64	14	110	51	3	7.9	273

RED RIVER BASIN

07311000 EAST CACHE CREEK NEAR WALTERS, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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)
NOV 06...	0	219	71	89	0.60	480	494	0.65	75.4
JAN 16...	0	146	70	89	0.40	425	397	0.58	50.9
FEB 27...	0	220	74	92	0.70	533	526	0.72	34.5
APR 16...	--	--	81	94	0.60	546	539	0.74	22.6
JUN 20...	0	192	72	57	0.40	409	397	0.56	92.8
AUG 13...	0	224	78	100	0.90	555	532	0.75	33.0
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 ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
NOV 06...	5.55	25	0.050	0.16	5.60	<0.010	--	2.50	7.7
JAN 16...	5.38	24	0.120	0.39	5.50	0.460	0.59	0.350	1.1
FEB 27...	--	--	--	--	8.20	--	--	--	--
APR 16...	--	--	--	--	5.60	--	--	--	--
JUN 20...	--	--	--	--	2.80	--	--	--	--
AUG 13...	--	--	--	--	5.10	--	--	--	--

RED RIVER BASIN

349

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 82, 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 1984 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.-- 27 years, 12.8 ft³/s, 9,270 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 24	2400	*1,200	*10.86	Sept. 18	2045	1,060	10.66
June 2	2145	659	9.92				

No flow at times during year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.06	e.04	2.9	.89	.78	.35	13	2.8	.31	.17
2	.00	.00	.06	e.05	2.3	.74	.74	1.5	226	2.7	.24	1.6
3	.09	.01	.01	e.04	2.2	.74	.74	38	288	2.5	.18	.24
4	.00	.22	.00	e.05	1.8	.74	.69	31	112	2.9	.16	7.6
5	.00	.19	.03	.08	1.7	.74	.74	36	57	2.1	.13	1.5
6	.00	.19	.04	.18	1.4	.74	.74	18	58	1.7	.09	.79
7	.00	.20	.02	.14	1.2	.70	.74	13	47	1.6	.04	12
8	.06	.99	.06	.06	1.4	.74	.74	71	130	1.4	.00	35
9	.06	.46	.06	.07	1.3	.70	.74	42	161	1.3	.00	22
10	.00	.20	.06	2.3	1.3	.74	.80	28	66	.98	.00	17
11	.00	.15	.06	7.5	1.2	.74	.95	21	43	.79	.00	14
12	.00	.13	.06	6.2	1.3	.74	.90	30	31	.68	.08	12
13	.00	.11	.06	5.2	1.5	.80	.78	29	32	.94	.28	16
14	.00	.06	.06	4.5	1.1	.83	.74	21	23	1.3	.45	66
15	.00	.02	.06	4.1	.89	.74	.74	17	18	.77	.14	32
16	.00	.00	.11	3.7	1.2	1.5	.63	14	15	.53	.08	121
17	.00	.00	.21	3.1	1.9	1.4	.59	11	13	.38	.00	96
18	.00	.00	.13	3.0	1.7	.96	.59	9.5	12	.28	.00	401
19	.00	.06	.06	3.3	1.3	.79	.59	7.7	11	.18	.00	337
20	.00	.06	.05	4.5	1.0	.74	.46	6.6	9.8	.09	.00	91
21	.00	.06	.00	7.2	1.0	.80	.59	6.0	8.7	.04	.21	52
22	.00	.04	.00	5.1	1.3	.80	.59	5.1	7.9	.09	.15	40
23	.00	.00	.00	4.0	1.1	.74	.59	42	7.2	.00	.04	34
24	.00	.00	.00	3.2	1.1	.78	.81	231	6.5	.00	.00	34
25	.00	.03	.00	3.3	1.1	.89	1.4	448	6.0	.00	.00	24
26	.00	.06	.00	3.2	.89	.89	.87	92	5.4	.14	.00	17
27	.00	.06	.11	3.9	.89	.74	.63	46	4.8	5.1	.00	13
28	.00	.06	e.05	3.4	.89	.59	.52	30	4.2	1.6	.00	11
29	.00	.06	e.03	3.2	---	1.2	.42	23	3.7	.85	.00	9.4
30	.00	.06	e.02	3.2	---	.65	.39	18	3.1	.44	.24	8.6
31	.00	---	e.03	4.0	---	.74	---	15	---	.32	.16	---
TOTAL	0.21	3.48	1.50	91.81	38.86	25.13	21.21	1401.75	1423.3	34.50	2.98	1526.90
MEAN	.007	.12	.048	2.96	1.39	.81	.71	45.2	47.4	1.11	.096	50.9
MAX	.09	.99	.21	7.5	2.9	1.5	1.4	448	288	5.1	.45	401
MIN	.00	.00	.00	.04	.89	.59	.39	.35	3.1	.00	.00	.17
AC-FT	.4	6.9	3.0	182	77	50	42	2780	2820	68	5.9	3030

CAL YR 1990 TOTAL 7974.09 MEAN 21.8 MAX 828 MIN .00 AC-FT 15820
WTR YR 1991 TOTAL 4571.63 MEAN 12.5 MAX 448 MIN .00 AC-FT 9070

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.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
AUG										
12...	1100	1.00	24.0	1028	1028	0.13	6.63	220	7.1	7.7
12...	1101	2.00	24.0	1028	1028	0.13	6.63	219	7.0	7.7
12...	1102	3.00	24.0	1028	1028	0.13	6.63	219	7.0	7.7

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
05...	1730	1028	80020	0.19	229	*7.8	19.0	15.0	2.4	730	10.4	108
FEB												
26...	1715	1028	80020	0.89	160	8.3	19.0	12.5	3.1	740	11.8	114
JUN												
19...	1030	1028	80020	11	146	7.5	29.5	24.5	4.5	730	7.8	98
AUG												
12...	1030	1028	80020	0.13	219	7.7	26.5	24.0	18	740	7.0	86
DATE		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 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)
NOV												
05...	K12	K18	77	0	22	5.4	15	29	0.7	2.0	118	0
FEB												
26...	23	29	66	--	18	5.0	21	41	1	1.1	--	--
JUN												
19...	110	150	53	--	15	3.7	8.4	25	0.5	1.2	--	--
AUG												
12...	>120	550	89	--	25	6.3	17	29	0.8	1.9	--	--
DATE		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 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, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, N02+N03 TOTAL (MG/L AS N)
NOV												
05...	97	12	9.4	0.50	14	136	139	0.18	0.07	<0.010	<0.010	<0.100
FEB												
26...	--	13	6.6	0.40	9.9	89	113	0.12	0.21	<0.010	<0.010	<0.050
JUN												
19...	--	6.3	5.0	0.30	16	82	95	0.11	2.44	<0.010	<0.010	<0.050
AUG												
12...	--	8.4	9.2	0.40	16	135	143	0.18	0.05	<0.010	<0.010	<0.050

*LAB PH (STANDARD UNITS)

RED RIVER BASIN

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07311200 BLUE BEAVER CREEK NEAR CACHE, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHATE, TOTAL (MG/L AS PO4)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
NOV 05...	<0.100	0.010	0.010	0.01	0.01	0.29	0.30	--	0.020	--	0.010	<0.010
FEB 26...	<0.050	<0.010	<0.010	--	--	--	<0.20	--	<0.010	--	<0.010	<0.010
JUN 19...	0.051	0.030	0.020	0.04	0.03	0.17	0.20	--	<0.010	--	<0.010	<0.010
AUG 12...	<0.050	<0.010	<0.010	--	--	--	0.60	<0.20	0.120	0.06	0.020	0.020
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)	
NOV 05...	<0.010	--	20	<1	65	<0.5	<1.0	1	<3	1	130	
FEB 26...	<0.010	--	20	<1	45	<0.5	<1.0	<1	<3	1	36	
JUN 19...	<0.010	--	20	<1	54	<0.5	<1.0	<1	<3	<1	47	
AUG 12...	0.010	0.03	<10	2	82	<0.5	<1.0	<1	<3	3	40	
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 05...	<1	<4	20	<0.1	<10	<1	<1	<1.0	88	<6	<3	
FEB 26...	<1	<4	6	<0.1	<10	<1	<1	<1.0	87	<6	<3	
JUN 19...	<1	4	10	<0.1	<10	1	1	<1.0	86	<6	4	
AUG 12...	3	<4	41	0.2	<10	<1	<1	<1.0	110	<6	4	
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- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. STEEVE DIAM. % FINER THAN .062 MM	
NOV 05...	<0.4	<0.4	3.1	<0.4	2.4	<0.4	0.13	0.12	9	0.00	7	
FEB 26...	--	--	--	--	--	--	--	--	45	0.11	39	
JUN 19...	<0.4	<0.4	2.1	0.4	1.7	0.4	0.07	0.07	9	0.27	66	
AUG 12...	--	--	--	--	--	--	--	--	40	0.01	37	

RED RIVER BASIN

07311500 DEEP RED RUN NEAR RANDLETT, OK

LOCATION.-- Lat 34°13'15", long 98°27'10", in SW 1/4 SW 1/4 sec.10, T.4 S., R.12 W., Cotton County, Hydrologic Unit 11130203, near right bank on downstream side of pier of bridge on U.S. Highway 277, 2.8 mi 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. Some regulation by numerous flood-retarding structures.

AVERAGE DISCHARGE.-- 42 years, 159 ft³/s, 115,200 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 1989; 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 1900 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)
May 26	1545	7,430	23.60	Sept. 5	2145	2,520	18.65
June 5	0030	7,970	23.72	Sept. 15	0945	2,770	19.26
June 14	0400	3,720	21.08	Sept. 19	1700	9,650	24.05
July 28	1100	*21,100	*25.51				

Minimum daily discharge, .80 ft³/s, Nov. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.2	e.88	2.1	2.5	5.3	4.5	3.7	9.2	141	13	204	99
2	e2.9	e.84	2.1	e2.3	5.0	4.1	6.5	29	106	12	152	129
3	e2.8	e.80	2.2	e2.3	5.0	4.0	4.8	302	821	11	123	1120
4	e2.7	e.95	2.1	e2.2	4.6	4.1	2.8	372	3940	9.6	108	706
5	e2.6	1.1	2.2	e2.4	4.6	4.1	2.8	109	6500	8.9	98	2000
6	e2.6	e1.5	2.1	3.0	4.5	3.7	2.7	45	3620	8.3	77	2040
7	e2.5	1.8	2.1	2.5	4.5	3.4	2.7	42	1730	7.3	82	399
8	11	3.1	2.2	2.6	3.9	4.0	2.9	35	1880	5.9	55	163
9	47	13	2.2	4.2	3.9	3.8	2.7	22	4150	4.8	50	103
10	8.5	13	2.2	41	4.0	3.7	3.0	34	5480	4.0	46	64
11	e3.2	20	2.2	24	4.2	3.7	2.6	37	3470	3.6	43	48
12	e2.8	24	2.2	26	4.6	3.6	2.7	23	759	3.0	31	37
13	e2.5	21	2.3	22	4.6	3.0	2.8	52	1900	2.7	19	39
14	e2.4	18	2.4	15	4.5	3.0	2.6	289	3000	2.8	22	909
15	e2.3	14	2.5	10	4.2	3.0	3.0	76	646	2.6	54	2270
16	e2.2	9.0	2.8	8.3	4.1	3.2	2.8	44	291	2.5	56	346
17	e2.1	4.7	2.9	7.7	4.1	3.4	2.8	34	213	2.4	94	1360
18	e2.0	3.3	3.4	9.3	4.1	2.9	2.8	25	162	2.4	771	1140
19	e1.9	2.5	3.1	13	4.0	3.6	2.7	19	131	2.1	308	6830
20	e1.8	2.5	2.8	16	3.8	4.8	2.5	17	88	2.3	57	7480
21	e1.9	2.5	e2.7	17	3.9	5.9	2.6	16	67	2.1	55	3750
22	e1.7	2.5	e2.6	15	4.1	5.6	2.7	14	55	2.0	563	491
23	e1.6	2.4	e2.5	12	4.1	5.0	2.6	16	44	1.6	221	323
24	e1.5	2.3	e2.7	9.7	4.1	5.0	6.3	747	37	2.1	60	253
25	e1.4	2.2	3.3	8.1	4.1	5.3	10	2980	30	3.1	36	183
26	e1.3	2.4	2.7	7.2	4.1	5.6	96	6930	25	4.8	22	128
27	e1.2	2.4	2.5	6.8	4.4	5.8	147	5320	21	575	17	85
28	e1.1	2.4	2.4	5.9	4.6	4.4	34	1910	18	14400	15	67
29	e1.0	2.1	2.5	5.4	---	4.1	20	448	16	6880	14	59
30	e.96	2.1	2.3	5.6	---	4.1	13	286	14	2360	25	50
31	e.91	---	2.3	5.7	---	4.0	---	205	---	292	31	---
TOTAL	123.57	179.27	76.8	314.5	120.9	128.4	396.1	20487.2	39355	24633.9	3489	32671
MEAN	3.99	5.98	2.47	10.1	4.32	4.14	13.2	661	1312	795	113	1089
MAX	47	24	3.4	41	5.3	5.9	147	6930	6500	14400	771	7480
MIN	.91	.80	2.1	2.2	3.8	2.9	2.5	9.2	14	1.6	14	37
AC-FT	245	356	152	624	240	255	786	40640	78060	48860	6920	64800

CAL YR 1990 TOTAL 116478.64 MEAN 319 MAX 10700 MIN .80 AC-FT 231000
WTR YR 1991 TOTAL 121975.44 MEAN 334 MAX 14400 MIN .80 AC-FT 241900

e Estimated

RED RIVER BASIN

353

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 409,300 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.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 368,600 acre-ft, May 30, 1987, elevation, 964.14 ft; minimum since first major filling, 59,170 acre-ft, Dec. 4-5, 1978, elevation, 931.56 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 231,700 acre-ft, Sept. 20, elevation, 954.01 ft; minimum, 193,300 acre-ft, Nov. 3, elevation, 950.46 ft.

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

949	178,800	959	293,800
951	198,900	961	321,600
953	220,400	963	351,100
956	255,300	965	382,400

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196900	193800	195100	195100	199200	199300	199700	201300	207300	202100	211000	210300
2	196700	193500	198500	196300	199200	200700	199800	202600	206500	202000	210800	210500
3	197900	195800	194700	196200	199200	199200	200400	205100	206900	202000	210500	210900
4	196900	195400	194400	194900	199500	199200	200700	207400	206400	201800	210300	217900
5	196800	194300	194300	195500	199600	199200	200700	205800	205800	201500	210000	218900
6	196700	195900	194800	197100	199600	200000	200700	205100	206900	201300	209700	218700
7	196500	195200	194100	196000	199700	199800	200600	204000	207700	201100	209400	217700
8	196500	196500	194200	196000	199700	199800	201000	204400	210400	200900	210200	214200
9	196800	195400	194200	198000	199800	198800	200800	203400	212900	200500	209200	211400
10	196300	195600	194100	197300	199800	198600	199900	202700	213400	200000	208800	210200
11	196200	195600	194100	197500	199800	198600	200400	202700	212400	199800	208600	208800
12	196300	195600	195300	197500	199800	199700	200400	203000	213700	199700	208300	207200
13	195900	195600	194000	197800	199800	199600	200700	202700	211700	201000	208500	206700
14	196400	195500	194000	198000	201300	198100	201600	202500	213200	200000	208500	211700
15	196000	195500	194100	198000	199600	198000	200100	202500	212300	199800	209100	216400
16	195800	195600	194600	198100	199500	198800	200300	202600	211000	199700	208900	218400
17	196600	195200	195300	198400	199700	198800	200700	202400	209600	199400	208600	219800
18	195400	195500	194700	198900	201300	198800	200900	202600	208200	199100	208700	227100
19	194600	195600	194500	199000	199600	198400	200700	202600	206800	198800	208600	230400
20	196600	195400	196200	199000	199500	198800	200600	202500	205300	198400	208100	230900
21	195200	195800	196700	198900	199500	198900	200000	202100	204400	198200	208500	227500
22	194300	195600	196100	198900	199600	199100	200300	202100	203500	198100	208300	224700
23	194300	195500	195200	199100	199300	199200	200300	203200	203900	197800	208100	221100
24	195200	195500	194200	198900	200900	199100	201300	208200	203800	199300	207900	218400
25	193900	195500	194100	199400	199300	198900	201700	210100	203500	198500	207900	217100
26	193900	195600	194100	199000	199200	198200	201900	212400	203200	199000	207200	213600
27	194000	195800	194300	199200	199000	199100	202000	213200	203100	207100	206700	210400
28	193700	195500	194400	199100	199200	199300	202000	212800	202700	210800	206700	207800
29	193700	195100	196300	200500	---	199600	201500	210900	202300	211800	206400	205800
30	193800	194600	194900	199100	---	199800	202300	209000	202100	211500	209300	204300
31	193800	---	194800	199100	---	199900	---	207900	---	211300	210200	---
MAX	198500	196500	198500	200500	201300	200700	202300	213200	213700	211800	211000	230900
MIN	193700	193500	194000	194900	199000	198000	199700	201300	202100	197800	206400	204300
(+)	950.51	950.59	950.61	951.02	951.03	951.10	951.33	951.87	951.31	952.18	952.08	951.52
(++)	-3,400	+800	+200	+4,300	+100	+700	+2,400	+5,600	+5,800	+9,200	-1,100	-5,900

CAL YR 1990 MAX 341800 MIN 193500 (++) -2,300
WTR YR 1991 MAX 230900 MIN 193500 (++) +7,100

(+) 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, 8.2 mi upstream from Cow Creek, and at mile 25.8.

DRAINAGE AREA.-- 583 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 fair. 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, 14 years (water years 1978-91), 168 ft³/s, 121,700 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, 2,070 ft³/s, Sept. 24, gage height, 20.51 ft; minimum daily discharge, .06 ft³/s Apr. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.3	e.31	.81	.34	.30	.30	.40	.19	732	6.0	25	239
2	2.0	e.30	.84	.41	.32	.29	.46	1.3	735	6.0	25	240
3	1.2	.81	.81	.38	.35	.30	.68	6.9	736	5.8	25	239
4	.82	1.8	.81	.30	.35	.37	.68	2.2	738	5.7	25	267
5	.59	e.26	.81	.40	.45	.40	.71	1.1	435	5.7	25	221
6	.45	e.21	.81	.76	.46	.35	.73	218	29	5.6	25	626
7	.40	e.21	.81	.37	.36	.35	.62	424	29	5.6	25	936
8	.42	1.7	.81	.30	.35	.35	.62	536	32	5.5	25	939
9	.44	3.2	.81	.39	.35	.35	.64	754	29	5.5	25	941
10	.34	2.5	.81	1.7	.35	.38	.56	454	243	5.5	25	807
11	.27	e1.8	.81	.44	.30	.42	.48	32	720	5.5	25	645
12	.21	e1.5	.81	.25	.32	.36	e.42	31	718	5.4	25	654
13	.20	e1.2	.81	.20	.34	.35	e.37	30	721	5.5	26	531
14	.20	e1.1	.69	.23	.38	.39	e.39	25	721	5.5	25	379
15	.20	e.93	.68	.20	.39	.48	e.32	2.2	721	5.4	25	382
16	.20	e.90	1.1	.20	.40	.61	e.20	2.0	722	3.4	25	591
17	.20	e.87	1.1	.25	.40	.63	e.15	1.9	717	1.5	25	947
18	.20	e.93	.80	1.1	.38	.57	e.11	1.9	716	1.5	25	1020
19	.20	e.87	.63	.73	.43	.57	e.10	1.9	717	1.5	25	997
20	.22	e.85	.62	.40	.39	.42	e.10	1.9	716	1.5	25	1340
21	.25	e.83	.58	.32	.35	.58	e.09	1.9	445	1.5	26	1900
22	.29	e.81	.51	.30	.37	.72	e.08	1.8	28	1.5	25	1710
23	.30	e.82	.40	.30	.39	.50	e.06	1.8	28	1.4	25	1680
24	.36	e.80	.46	.30	.35	.50	.35	2.3	27	1.2	25	1910
25	3.2	e.81	.61	.30	.35	.50	1.7	1.8	22	1.3	25	1930
26	2.9	e.87	.65	.30	.35	.46	1.0	1.7	6.7	1.4	25	1850
27	1.8	e.82	.64	.30	.36	.40	.65	1.7	6.5	3.3	25	1810
28	e.66	e.80	.63	.32	.30	.45	.40	308	6.4	1.3	25	1180
29	e.45	e.82	.70	.31	---	.44	.33	733	6.2	10	25	1150
30	e.37	.81	.41	.30	---	.42	.28	731	6.2	25	93	903
31	e.32	---	.28	.30	---	.41	---	732	---	25	237	---
TOTAL	21.96	30.44	22.05	12.70	10.19	13.62	13.68	5044.49	11509.0	166.5	1057	28744
MEAN	.71	1.01	.71	.41	.38	.44	.46	163	384	5.37	34.1	958
MAX	3.2	3.2	1.1	1.7	.46	.72	1.7	754	738	25	237	1930
MIN	.20	.21	.28	.20	.30	.29	.06	.19	6.2	1.2	25	221
AC-FT	44	60	44	25	20	27	27	10010	22830	330	2100	57010

CAL YR 1990 TOTAL 119315.26 MEAN 327 MAX 2460 MIN .05 AC-FT 236700
WTR YR 1991 TOTAL 48645.83 MEAN 128 MAX 1930 MIN .06 AC-FT 92520

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, 3.8 mi downstream from Little Wichita River, and at mile 872.

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.-- 53 years (water years 1939-91), 2,387 ft³/s, 1,729,000 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)
May 27	0230	27,200	17.17	July 29	0400	36,000	18.18
June 5	1800	*89,500	*21.79	Sept. 20	1030	29,900	17.22
June 9	0400	47,800	19.22				

Minimum discharge, 265 ft³/s Mar. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	493	286	395	e350	578	433	357	938	2970	1860	6220	1600
2	456	290	399	e480	578	365	358	893	2650	1730	3740	2930
3	434	315	363	527	575	350	862	2140	9520	1650	2660	4260
4	426	420	346	466	578	366	887	3700	46800	1590	2050	3100
5	830	434	343	505	596	377	626	4120	80300	1530	1720	7610
6	709	547	348	510	705	313	552	3910	42400	1470	1510	11100
7	600	582	327	531	623	315	542	2750	20800	1390	1350	8500
8	578	650	340	553	571	329	543	2230	30600	1250	1260	5670
9	555	781	351	604	549	348	519	2330	43700	1150	1190	4260
10	708	988	357	1010	537	353	479	2620	30600	1080	1140	4300
11	878	1150	357	1430	520	375	447	2010	19600	1020	1130	5020
12	674	1270	355	1700	509	314	428	1860	13800	953	1140	4010
13	609	1380	350	1240	494	280	403	1650	9200	893	1150	3610
14	541	1260	349	1130	477	284	390	1740	14000	889	1310	3630
15	480	961	363	1010	452	297	374	3360	12200	836	1270	10700
16	436	806	419	885	437	332	338	2670	10200	834	1420	11700
17	425	706	454	814	441	356	329	2020	6660	815	1310	8460
18	405	649	451	981	443	355	355	1520	5720	2160	1430	10800
19	382	597	498	1280	407	384	365	1240	4820	2150	1710	17600
20	434	557	482	1340	405	408	329	1060	4320	1680	2280	28000
21	408	535	e420	1110	424	493	310	860	4050	1370	2330	20900
22	349	500	e350	936	420	1250	309	710	3660	1150	1780	14400
23	340	479	e350	846	407	729	309	713	3050	1010	1710	7670
24	330	470	e370	768	411	544	327	731	2810	890	1860	6400
25	315	467	e430	705	387	508	476	5980	2740	966	1540	5940
26	307	475	494	681	384	493	607	23600	2720	918	1460	5710
27	307	441	504	674	382	474	1620	25400	2670	1140	1230	5340
28	305	408	466	653	395	419	1920	14300	2440	12800	1120	4980
29	295	400	502	617	---	382	1750	7610	2230	30000	1070	4490
30	290	390	e420	570	---	372	1220	4250	2040	17600	1160	4070
31	291	---	e350	571	---	369	---	3460	---	10500	1410	---
TOTAL	14598	19194	12303	25477	13685	12967	18331	132375	439270	105274	53680	236760
MEAN	471	640	397	822	489	418	611	4270	14640	3396	1732	7892
MAX	878	1380	504	1700	705	1250	1920	25400	80300	30000	6220	28000
MIN	290	286	327	350	382	280	309	710	2040	815	1070	1600
AC-FT	28960	38070	24400	50530	27140	25720	36360	262600	871300	208800	106500	469600

CAL YR 1990	TOTAL	1900224	MEAN	5206	MAX	107000	MIN	286	AC-FT	3769000
WTR YR 1991	TOTAL	1003914	MEAN	2970	MAX	80300	MIN	280	AC-FT	2150000

e Estimated

RED RIVER MAIN STEM

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, 1985.

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, 9,680 microsiemens July 19; minimum daily, 750 microsiemens Sept. 18.

WATER TEMPERATURE: Maximum daily, 30.0°C July 9, 21, Aug. 6; minimum daily, 1.0°C Dec. 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
NOV									
26...	1030	480	6930	7.9	20.0	1200	1000	300	99
JAN									
14...	0940	1150	4670	8.6	6.0	730	660	180	69
MAY									
28...	1255	13100	2240	8.5	27.0	280	260	97	8.0
JUN									
04...	1020	55400	930	7.2	24.5	150	130	58	0.53
JUL									
30...	1355	15300	850	8.2	28.0	170	76	53	10

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	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, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV									
26...	1100	14	8.5	130	870	1800	1.0	5.2	4260
JAN									
14...	800	13	2.4	72	640	1200	0.50	0.10	2940
MAY									
28...	320	8	7.8	20	290	490	0.40	1.8	1230
JUN									
04...	110	4	5.5	13	160	190	0.40	4.7	537
JUL									
30...	89	3	5.4	98	90	140	0.30	11	457

07315500 RED RIVER NEAR TERRAL, OK--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1990 TO SEPTEMBER 1991

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	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. 1990	14598	5870	3610	142000	1500	58000	760	30000	1000
NOV. 1990	19194	5780	3550	184000	1400	74500	750	39000	990
DEC. 1990	12303	3670	2180	72300	840	27900	490	16300	660
JAN. 1991	25477	5460	3340	229000	1300	92500	710	49100	940
FEB. 1991	13685	6510	4030	149000	1700	61300	840	31100	1100
MAR. 1991	12967	6070	3740	131000	1500	53700	790	27500	1000
APR. 1991	18331	4610	2790	138000	1100	54600	610	30100	810
MAY 1991	132375	2640	1540	549000	580	205700	360	127400	490
JUNE 1991	439270	1800	1030	1224E3	380	448400	250	290700	340
JULY 1991	105274	2750	1660	472000	660	186500	360	103200	490
AUG. 1991	53680	3320	1960	284000	750	108500	440	64400	600
SEPT 1991	236760	1600	917	586000	330	213500	220	139900	300
TOTAL	1083914	**	**	4161000	**	1585000	**	949000	**
WTD. AVG.	2970	2410	1420	**	540	**	320	**	440

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3400	5760	2720	6790	6740	6880	6300	3040	2450	4810	1180	3070
2	3520	5710	e2750	6120	6780	6640	6320	2010	2290	5120	1630	3820
3	e3780	5690	e3800	5920	e6750	6760	6120	e2200	2320	5070	2040	e1500
4	3840	5160	4900	e6300	6720	6730	4210	e2300	1110	4880	2460	1900
5	5330	4780	3690	6000	e6700	6800	3430	2490	1170	4850	3290	1460
6	8790	4810	6180	e5700	5010	e6860	4160	1820	1250	4880	3780	880
7	8340	4810	3120	5580	5440	8940	e4500	2070	1300	4720	e3900	1370
8	8150	4190	2820	6040	6030	6900	4990	1670	1770	4610	4050	1250
9	7020	4320	e3140	5810	6240	8990	4790	1730	1800	4950	e4100	1140
10	6900	4510	3470	4350	6340	7050	4860	1900	1730	5110	e4300	2090
11	5180	4110	3740	3720	6370	7290	5490	1830	1380	5260	e4500	5170
12	5370	5450	4840	3470	6410	7330	5570	e2600	1490	5460	4500	3650
13	5770	5640	2660	4250	6580	7010	5460	3520	2020	5410	4480	3070
14	e5680	6050	2590	4630	6770	7030	5380	4440	2840	5210	4200	3050
15	5590	5710	1930	4980	6720	e7000	5460	3220	e2500	e5200	4120	1070
16	5540	6130	e1800	8000	6600	e6900	5760	2300	e2200	5190	4280	750
17	5560	6610	e3500	8950	8970	6790	5740	2670	2040	5130	4010	1000
18	5740	6700	5450	6320	7080	6520	5240	3870	2360	5650	4370	850
19	5820	7150	2860	4670	6980	6860	5550	4870	3170	9680	4090	770
20	5910	7280	4350	4670	6840	6780	5780	5600	3290	9330	3500	1440
21	6090	7070	e4500	4900	6740	6540	e5900	5930	3430	8160	4650	1590
22	5970	6780	e4300	5450	6810	2710	6000	5860	3600	7570	3960	1360
23	5700	6850	e4100	5890	6800	4660	5850	5730	4260	6990	3840	1840
24	5840	6890	e3900	6400	6840	5240	6020	5140	4500	6380	2680	1900
25	5760	6890	e3700	6630	6640	5910	5830	5390	4600	6430	3270	1880
26	5810	6800	e3500	6890	6550	6380	3790	2290	4720	5700	4400	1710
27	5730	6620	e3300	7360	6550	5680	6260	2340	5020	5730	3660	1740
28	5780	6450	3110	8920	6700	5610	2780	2440	4980	2670	3610	2180
29	5730	6510	e3450	6880	---	6030	2400	2070	5350	900	3680	2540
30	5720	6630	3840	7040	---	6090	2980	2470	5030	800	3880	2630
31	5690	---	6350	6930	---	6030	---	2590	---	990	4260	---
MEAN	5780	5940	3690	5790	6560	6420	5100	3170	2870	5250	3700	1960

e Estimated

RED RIVER MAIN STEM

07316500 RED RIVER NEAR TERRAL, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	e20.0	9.0	5.0	9.0	15.0	14.0	15.0	25.0	25.0	28.0	26.0
2	24.0	18.0	e9.0	6.0	8.0	14.0	15.0	22.0	24.0	26.0	29.0	25.0
3	e25.0	18.0	e9.0	8.0	e9.0	13.0	15.0	e22.0	23.0	26.0	27.0	e25.0
4	23.0	14.0	8.0	e7.0	11.0	12.0	16.0	e22.0	e24.0	26.0	27.0	25.0
5	26.0	10.0	8.0	6.0	e11.0	15.0	20.0	22.0	25.0	26.0	27.0	25.0
6	25.0	12.0	e8.0	e6.0	12.0	e13.5	20.0	18.0	25.0	26.0	30.0	25.0
7	25.0	10.0	8.0	6.0	10.0	10.0	e20.0	18.0	26.0	28.0	e29.0	26.0
8	25.0	12.0	8.0	9.0	12.0	12.0	20.0	20.0	e26.0	27.0	29.0	26.0
9	20.0	13.0	e9.0	8.0	13.0	15.0	19.0	20.0	26.0	30.0	e29.0	24.0
10	15.0	14.0	11.0	5.0	14.0	11.0	21.0	21.0	25.0	27.0	e28.0	27.0
11	25.0	15.0	12.0	5.0	12.0	13.0	19.0	22.0	25.0	26.0	e28.0	26.0
12	27.0	18.0	14.0	5.0	12.0	14.0	19.0	e15.0	26.0	26.0	27.0	27.0
13	17.0	15.0	14.0	9.0	14.0	14.0	20.0	19.0	e26.0	26.0	26.0	27.0
14	e18.0	17.0	12.0	8.0	15.0	11.0	20.0	22.0	26.0	29.0	24.0	27.0
15	19.0	16.0	13.0	10.0	8.0	e13.0	19.0	24.0	e26.0	e28.0	25.0	26.0
16	21.0	16.0	e12.0	10.0	7.0	e15.0	17.0	24.0	e27.0	27.0	25.0	24.0
17	21.0	15.0	e12.0	11.0	8.0	17.0	22.0	23.0	27.0	27.0	27.0	25.0
18	18.0	17.0	11.0	11.0	13.0	13.0	20.0	24.0	27.0	27.0	26.0	23.0
19	19.0	16.0	10.0	9.0	12.0	13.0	19.0	24.0	26.0	27.0	27.0	19.0
20	16.0	18.0	11.0	8.0	12.0	15.0	16.0	24.0	27.0	26.0	27.0	21.0
21	15.0	20.0	e10.0	7.0	11.0	19.0	e17.0	24.0	28.0	30.0	27.0	18.0
22	12.0	23.0	e7.0	8.0	12.0	16.0	18.0	24.0	27.0	28.0	28.0	20.0
23	18.0	14.0	e2.0	7.0	11.0	17.0	15.0	24.0	27.0	28.0	27.0	20.0
24	18.0	13.0	e1.0	10.0	15.0	15.0	18.0	24.0	28.0	28.0	27.0	20.0
25	16.0	18.0	e3.0	8.0	7.0	16.0	20.0	23.0	e27.0	21.0	25.0	21.0
26	15.0	20.0	e3.0	9.0	10.0	20.0	22.0	e24.0	27.0	26.0	26.0	21.0
27	14.0	15.0	e4.0	8.0	10.0	15.0	17.0	25.0	27.0	25.0	26.0	21.0
28	16.0	12.0	4.0	9.0	13.0	15.0	20.0	26.0	28.0	28.0	28.0	20.0
29	17.0	e8.0	e6.0	10.0	---	13.0	15.0	26.0	26.0	26.0	26.0	20.0
30	20.0	8.0	10.0	7.0	---	13.0	18.0	25.0	28.0	27.0	25.0	21.0
31	18.0	---	3.0	7.0	---	20.0	---	26.0	---	27.0	25.0	---
MEAN	19.8	15.1	8.4	7.8	11.1	14.4	18.4	22.3	26.2	26.8	26.9	23.4

e Estimated

RED RIVER BASIN

359

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 good.

AVERAGE DISCHARGE.-- 31 years, 177 ft³/s, 128,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 49,600 ft³/s, May 3, 1990, gage height, 32.41 ft; maximum gage height, 33.14 ft, May 29, 1987; no flow at times in many 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)
Jan. 11	1100	1,420	21.45	June 9	1600	2,040	23.28
Mar. 22	1900	3,360	25.05	July 30	0100	*4,170	*25.67
Apr. 3	2400	2,000	23.19	Sept. 22	0200	1,450	21.59
May 6	0500	1,830	22.79				

Minimum daily discharge, 3.6 ft³/s July 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e6.6	14	e18	33	26	29	21	18	8.9	112	285
2	11	e6.5	13	e17	32	27	30	19	33	8.3	55	169
3	e9.8	25	13	e19	31	25	1160	559	282	7.4	41	155
4	e8.7	397	12	e21	31	24	1620	1070	423	6.5	34	133
5	e8.2	454	12	23	37	23	504	1400	334	6.2	30	218
6	e7.7	65	11	44	489	23	93	1450	219	5.6	26	589
7	e7.3	35	10	325	687	21	55	227	458	4.9	24	841
8	e7.7	65	10	279	177	19	43	266	665	4.5	22	325
9	e8.0	625	9.6	130	82	19	37	664	1840	4.1	21	344
10	e7.1	415	9.2	528	51	18	31	666	1370	4.0	18	171
11	e6.9	179	8.9	1370	44	16	27	202	949	4.0	15	75
12	e6.5	71	8.6	1030	41	17	26	95	166	3.9	13	46
13	e6.2	36	8.2	198	39	17	26	59	78	3.6	13	36
14	e6.0	25	8.0	101	38	16	25	43	55	13	15	32
15	e5.9	17	7.9	68	35	16	23	37	124	74	12	114
16	e5.9	14	9.9	72	31	17	21	33	66	46	12	464
17	e5.7	13	32	59	31	30	163	30	43	25	14	1080
18	e5.6	12	110	458	31	38	761	27	35	14	13	798
19	e5.3	11	64	952	30	29	165	24	29	8.9	11	754
20	e5.1	10	37	576	29	28	94	22	26	6.8	9.2	986
21	33	10	26	272	29	44	47	21	23	5.2	8.7	1260
22	41	9.7	19	133	30	1920	34	20	20	4.4	8.3	853
23	16	9.2	e16	78	29	1830	28	20	18	3.7	7.8	141
24	11	8.9	e14	58	28	186	25	73	17	8.5	7.4	121
25	10	8.7	e16	48	29	74	65	195	16	30	7.1	316
26	e8.8	8.9	e18	43	27	50	212	197	14	42	7.3	413
27	e8.3	66	e20	40	27	209	175	120	13	46	7.4	169
28	e7.8	220	e18	39	25	173	61	48	12	963	8.1	84
29	e7.3	37	e16	38	---	57	35	30	11	2300	6.8	54
30	e7.0	19	e15	37	---	42	27	23	9.7	3440	12	44
31	e6.8	---	e14	34	---	35	---	19	---	1540	257	---
TOTAL	304.6	2879.5	600.3	7106	2223	5069	5842	7680	7382.7	8642.4	848.1	11070
MEAN	9.83	96.0	19.4	229	79.4	164	188	248	245	279	27.4	369
MAX	41	625	110	1370	687	1920	1620	1450	1840	3440	257	1260
MIN	5.1	6.5	7.9	16	25	16	21	19	9.7	3.6	6.8	32
AC-FT	604	5710	1190	14090	4410	10050	11190	15230	14600	17140	1680	21960

CAL YR 1990 TOTAL 227060.24 MEAN 622 MAX 37800 MIN .13 AC-FT 450400
WTR YR 1991 TOTAL 59427.6 MEAN 163 MAX 3440 MIN 3.6 AC-FT 117900

e Estimated

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.-- Lat 33°43'40", long 97°09'35", in SW 1/4 sec.36, T.9 S., R.1 E., Love County, OK, Hydrologic Unit 11130201, on downstream right bank at 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.

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.

AVERAGE DISCHARGE.-- 55 years, 3,109 ft³/s, 2,252,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 265,000 ft³/s May 31, 1987, gage height, 40.00 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 28	0300	33,100	18.40	June 9	2300	48,900	20.70
June 6	1900	*64,500	*23.35	July 30	unknown	25,500	18.80
				Sept. 21	0900	35,400	18.81

Minimum daily discharge, 390 ft³/s, Mar. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	561	942	e800	880	535	767	2340	e8000	e2150	11300	1340
2	910	546	892	e830	844	537	715	1880	e7000	2070	e7000	1880
3	854	541	849	855	820	522	760	3250	e5850	e1900	e4000	2750
4	812	648	834	937	807	516	2380	5120	16900	e1790	e3800	5060
5	766	2060	813	987	802	506	3540	5760	46200	e1650	e3000	4970
6	727	2500	803	966	897	501	2750	6590	60900	e1600	e2500	5570
7	988	1510	768	991	1860	479	1590	6790	36600	e1600	e2000	14300
8	1210	1260	769	1250	2790	465	1130	5430	24400	e1580	e1700	12700
9	1180	1570	763	1420	1630	476	985	4110	39100	e1450	e1400	9070
10	1120	2740	753	1400	1120	451	901	4730	41100	e1250	e1300	6830
11	983	2720	744	2660	954	437	823	4590	25600	1160	e1200	5830
12	1010	2040	743	4270	870	425	801	4070	19200	e1100	e1100	6040
13	1280	e2000	721	4110	825	406	791	3200	13100	e1000	1030	6020
14	1130	e1900	697	3140	771	390	724	2990	9840	e980	e1000	4750
15	1020	e1800	704	2280	723	396	675	2720	12900	e1050	1030	4300
16	933	e1650	734	1990	692	402	634	3510	14900	e1000	1060	9620
17	866	e1500	798	1800	686	469	622	4220	12700	e880	1030	17900
18	788	e1300	906	1980	687	568	640	3580	9120	e850	1140	13700
19	742	e1200	966	e3400	647	569	2550	2960	7680	e800	1040	14600
20	720	e1100	1000	e3900	622	531	1580	2420	6430	e1950	1100	26200
21	752	1020	944	e3300	617	513	907	1980	5550	e2250	1490	33400
22	764	1050	e850	2660	638	1230	697	1740	5140	e1780	2370	23600
23	818	1010	e750	2080	604	5430	612	1610	4970	e1370	2260	16500
24	765	964	e830	1650	590	5770	578	1630	3930	e1150	1590	11100
25	688	933	e780	1430	571	2550	794	1740	3420	e1250	1430	e10000
26	648	965	e800	1280	547	1340	704	3320	3150	e1800	1530	e9100
27	629	1160	814	1150	539	1430	768	28200	2970	e1400	1220	e8600
28	613	1350	850	1080	535	1840	1150	21200	2820	e1380	1130	e8200
29	596	1490	876	1020	---	1870	1790	e15000	2610	e5000	924	e7800
30	586	1120	920	970	---	1160	2450	e12000	2320	25500	987	7600
31	575	---	e850	914	---	889	---	e10000	---	e17000	1060	---
TOTAL	26481	42200	25453	57700	24568	33603	35808	178580	454400	87690	64741	309330
MEAN	854	1407	821	1861	877	1084	1194	5761	15150	2829	2088	10310
MAX	1280	2740	1000	4270	2790	5770	3540	28200	60900	25500	11300	33400
MIN	575	541	697	800	535	390	578	1510	2320	800	924	1340
AC-FT	52530	83720	50490	114400	48730	66650	71030	354200	901300	173900	128400	613600

CAL YR 1990 TOTAL 2919794 MEAN 7999 MAX 131000 MIN 504 AC-FT 5791000
WTR YR 1991 TOTAL 1340562 MEAN 3873 MAX 60900 MIN 390 AC-FT 2659000

e Estimated

07316500 WASHITA RIVER NEAR CHEYENNE, OK

LOCATION.-- Lat 35°37'35", long 99°40'05", in SE 1/4 sec. 5, T.13 N., R.23 W., Roger Mills County, Hydrologic Unit 11130301, on left 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 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.

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, 30 years (water years 1962-91), 16.6 ft³/s, 12,030 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, 204 ft³/s, May 30, gage height, 8.37 ft; no flow for several days in July and August.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	3.6	7.7	e9.0	17	13	19	4.0	22	4.3	.00	4.0
2	5.8	4.0	6.8	e9.4	17	13	17	8.8	18	3.8	.00	4.0
3	6.2	7.7	7.3	e8.2	17	13	15	24	22	3.5	.00	3.0
4	5.8	19	7.1	e7.6	17	13	14	14	17	3.3	.03	3.1
5	5.1	15	8.0	e7.6	16	13	14	9.5	13	3.0	.01	3.7
6	5.0	11	7.9	e7.4	15	12	14	7.9	12	2.6	.01	3.2
7	4.5	8.6	7.1	e7.2	14	11	13	6.3	39	2.2	.03	22
8	4.5	12	7.7	e8.0	15	11	13	7.1	39	1.8	.03	23
9	6.1	14	8.1	e8.2	14	11	11	7.2	27	1.0	.00	15
10	6.2	11	8.6	e8.0	14	11	11	6.4	20	.55	.00	11
11	5.4	9.6	8.7	e8.8	14	12	10	6.5	16	.32	.00	7.4
12	4.8	8.7	8.9	e12	14	11	9.7	7.2	13	1.3	.00	5.5
13	4.4	8.2	8.4	e15	14	12	8.3	6.8	11	2.1	.00	5.4
14	4.1	8.6	8.8	17	13	11	7.8	5.8	8.7	3.0	.00	32
15	3.7	8.2	8.8	19	13	10	8.9	5.1	6.6	3.3	.00	12
16	3.7	7.6	9.0	18	13	13	8.2	4.9	5.8	2.9	.00	7.4
17	3.4	7.5	11	17	14	16	8.7	4.5	4.7	2.0	22	5.9
18	2.9	7.6	10	18	13	15	7.6	3.5	3.7	.88	6.1	11
19	3.3	7.3	10	19	13	14	8.0	2.4	3.4	.29	2.0	16
20	3.5	7.2	9.5	18	13	14	6.9	2.4	2.4	.08	2.2	10
21	2.9	8.2	e8.0	17	13	13	8.4	3.5	2.2	.07	1.3	8.7
22	3.4	7.2	e6.8	16	13	12	9.4	2.2	66	.21	.84	7.1
23	3.7	7.3	e6.0	16	12	11	7.4	1.7	23	.09	.59	6.1
24	3.5	7.8	e5.7	16	13	11	7.6	4.9	17	.00	.25	5.6
25	3.7	7.5	e5.6	15	12	11	7.5	2.8	13	.00	.01	5.3
26	3.8	7.4	e5.4	17	15	11	8.1	2.9	9.8	.00	.00	4.6
27	3.8	7.9	e6.2	15	14	11	6.2	2.3	7.3	.41	.00	3.9
28	3.4	7.5	e10	16	14	11	5.5	1.1	6.0	.17	.00	3.3
29	3.5	6.7	e9.0	16	---	22	5.6	.78	5.3	.00	.01	2.8
30	3.3	7.3	e6.0	e12	---	23	4.4	70	4.7	.01	.00	2.6
31	3.6	---	e6.2	e11	---	22	---	28	---	.00	.14	---
TOTAL	134.0	261.2	244.3	409.4	396	407	295.2	264.48	458.6	43.18	35.55	254.6
MEAN	4.32	8.71	7.88	13.2	14.1	13.1	9.84	8.53	15.3	1.39	1.15	8.49
MAX	7.0	19	11	19	17	23	19	70	66	4.3	22	32
MIN	2.9	3.6	5.4	7.2	12	10	4.4	.78	2.2	.00	.00	2.6
AC-FT	266	518	485	812	785	807	586	525	910	86	71	505

CAL YR 1990 TOTAL 9546.70 MEAN 26.2 MAX 1560 MIN .00 AC-FT 18940
WTR YR 1991 TOTAL 3203.51 MEAN 8.78 MAX 70 MIN .00 AC-FT 6350

e Estimated

RED RIVER BASIN

07324200 WASHITA RIVER NEAR HAMMON, OK

LOCATION.-- Lat 35°39'23", long 99°18'21", on west line of sec. 26, T.14 N., R.20 W., Custer County, Hydrologic Unit 11130301, on right bank near county road bridge, 2.2 mi downstream from Quartermaster Creek, 4.7 mi northeast of Hammon, and at mile 494.5.

DRAINAGE AREA.-- 1,387 mi².

PERIOD OF RECORD.-- October 1969 to September 1987, October 1989 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1,643.22 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good, except for estimated winter periods, which were poor. Flow regulated since 1961 by numerous flood-retarding structures.

AVERAGE DISCHARGE.-- 20 years, (water years 1969-87, 90-91) 44.7 ft³/s, 32,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 6,000 ft³/s, May 17, 1982, gage height, 23.44 ft, from rating curve extended above 2,500 ft³/s on basis of slope-area measurement; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 807 ft³/s, May 30, gage height, 12.70 ft; minimum daily discharge, 3.3 ft³/s, Aug. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	19	29	e34	42	37	41	19	128	20	8.5	23
2	24	18	30	e39	42	36	41	21	94	19	e6.6	36
3	27	21	28	e35	42	36	38	160	83	18	e5.4	23
4	26	37	28	e34	42	35	37	67	77	16	e5.0	35
5	23	44	28	e33	43	36	36	45	66	15	7.0	24
6	21	40	29	e35	42	35	35	37	82	14	7.5	14
7	20	35	29	e34	41	33	34	32	108	13	4.8	41
8	19	34	29	35	40	32	34	32	86	12	4.2	61
9	22	43	30	38	41	32	31	32	75	11	3.7	28
10	23	43	30	40	41	32	30	29	66	10	3.7	21
11	23	38	31	e39	40	30	28	27	58	10	3.6	18
12	22	35	31	e48	40	31	28	28	53	9.9	3.3	16
13	21	34	31	e51	40	31	27	27	48	12	4.5	14
14	21	35	31	e48	38	32	25	25	44	12	6.0	14
15	20	35	31	48	38	33	24	23	39	13	4.4	14
16	19	35	31	48	37	37	23	27	36	10	3.8	19
17	18	32	33	49	38	41	22	26	34	9.5	6.4	16
18	17	31	35	48	38	43	21	20	32	8.4	10	18
19	17	31	35	46	38	42	20	19	33	7.2	4.9	25
20	17	31	34	46	37	41	20	17	32	e6.1	3.9	21
21	16	39	e26	45	36	39	20	17	25	e5.8	120	19
22	16	36	e24	43	36	37	20	18	69	e5.6	56	18
23	17	33	e21	43	36	35	20	18	101	e5.4	21	16
24	18	32	e20	42	35	34	22	234	85	e5.3	13	16
25	18	32	e19	42	34	33	154	111	51	e5.1	9.9	15
26	19	32	e21	39	35	33	46	58	39	e5.0	7.3	14
27	19	32	e24	41	34	32	32	38	33	10	5.9	14
28	18	30	e26	42	36	31	26	26	29	64	5.4	13
29	18	29	e31	43	---	32	23	20	26	19	4.6	12
30	18	29	e30	40	---	35	20	412	23	13	8.4	12
31	19	---	e28	40	---	39	---	294	---	10	13	---
TOTAL	620	995	883	1288	1082	1085	978	1959	1755	394.3	371.7	630
MEAN	20.0	33.2	28.5	41.5	38.6	35.0	32.6	63.2	58.5	12.7	12.0	21.0
MAX	27	44	35	51	43	43	164	412	128	64	120	61
MIN	16	18	19	33	34	30	20	17	23	5.0	3.3	12
AC-FT	1230	1970	1750	2550	2150	2150	1940	3890	3480	782	737	1250

CAL YR 1990 TOTAL 35292 MEAN 96.7 MAX 2440 MIN 16 AC-FT 70000
WTR YR 1991 TOTAL 12041.0 MEAN 33.0 MAX 412 MIN 3.3 AC-FT 23880

e Estimated

RED RIVER BASIN

363

07324300 FOSS RESERVOIR NEAR FOSS, OK

LOCATION.-- 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, 3.6 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, 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, 181,200 acre-ft, May 31, elevation, 1,642.48 ft; minimum, 169,800 acre-ft, Aug. 29, elevation, 1,640.78 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Date	Elevation (feet)*	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30	1641.73	176,100	-	-
Oct. 31	1641.46	174,300	-1,800	150
Nov. 30	1641.81	176,600	+2,300	155
Dec. 31	1642.10	178,600	+2,000	183
CAL YR 90	-	-	+11,200	2,019
Jan. 31	1642.05	178,200	-400	168
Feb. 28	1641.57	175,000	-3,200	149
Mar. 31	1641.66	175,800	+800	176
Apr. 30	1641.69	175,800	+200	276
May 31	1642.44	180,900	+5,100	182
June 30	1641.54	174,800	-6,100	204
July 31	1641.01	171,300	-3,500	305
Aug. 31	1640.86	170,300	-1,000	237
Sept. 30	1641.09	171,800	+1,500	177
WTR YR 91	-	-	-4,300	2,362

* Elevation at 0800 on the following day.

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK

LOCATION.-- Lat 35°32'20", long 99°10'10", in SW 1/4 SW 1/4 sec. 1, T.12 N., R.19 W., Custer County, Hydrologic Unit 11130302, on right bank at downstream side county road bridge, 0.4 mi downstream from Oak Creek, 0.9 mi downstream from Foss Dam, 2.5 mi west of Stafford, 6.0 mi north of Foss, and at mile 473.5.

DRAINAGE AREA.-- 1,551 mi².

PERIOD OF RECORD.-- March 1956 to April 1957, February to December 1958, July 1961 to September 1987, October 1989 to current year.

GAGE.-- Water-stage recorder. Elevation of gage is 1,560 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.-- No estimated daily discharges. Records good. Flow completely regulated since 1961 by Foss Reservoir (station 07324300), except for 55 mi² intervening area.

AVERAGE DISCHARGE.-- 28 years, (water years 1962-87, 1990-91), 33.3 ft³/s, 24,130 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge 14,000 ft³/s, Apr. 9, 1957, gage height, 20.40 ft, from rating curve extended above 3,600 ft³/s, on basis of velocity-area study; no flow at times in 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.-- Flood in May 1959 reached a stage of 23.4 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 458 ft³/s, May 30, gage height, 13.48 ft; minimum daily discharge, 3.2 ft³/s, Aug. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	8.3	6.4	6.7	144	4.6	4.7	4.2	289	5.7	4.5	20
2	8.2	8.2	6.4	6.8	143	4.3	4.9	7.5	24	5.8	4.5	5.1
3	8.5	9.6	6.4	6.6	142	4.2	4.8	19	106	6.2	4.3	4.3
4	8.5	12	6.5	6.7	142	4.8	5.1	5.6	307	5.7	4.2	4.0
5	8.4	8.5	6.7	6.8	142	5.5	5.2	4.5	305	5.2	4.3	3.9
6	8.4	7.6	6.3	7.0	141	5.7	5.0	4.7	303	5.7	3.8	4.0
7	8.3	7.4	6.3	6.8	141	5.5	5.1	4.5	328	5.3	3.7	4.9
8	8.3	8.6	6.3	6.7	141	5.5	5.1	4.8	350	5.4	4.0	5.6
9	8.4	8.9	6.3	7.0	141	5.7	4.9	4.9	322	5.9	3.9	4.1
10	8.2	8.0	6.2	7.0	142	5.8	4.8	4.5	309	5.7	3.6	3.8
11	8.1	7.6	6.0	6.4	142	5.8	4.8	4.1	302	5.8	3.7	3.7
12	8.1	7.6	6.2	6.1	141	5.4	5.0	4.2	298	5.6	4.1	3.8
13	8.1	7.3	6.0	6.0	141	5.2	5.1	4.1	295	6.9	4.2	4.9
14	8.2	7.1	6.0	5.9	141	5.0	5.0	4.0	294	8.1	3.8	4.1
15	7.9	56	6.1	5.9	141	4.8	5.3	4.1	291	5.5	3.2	3.9
16	7.9	62	6.1	5.9	59	5.4	5.4	11	290	5.9	3.3	3.7
17	7.9	7.3	6.0	5.8	4.1	5.5	5.5	3.6	189	5.9	3.5	3.4
18	7.8	7.3	5.6	78	77	5.1	4.8	3.7	131	5.8	3.7	11
19	7.8	7.4	5.5	141	133	4.8	4.6	3.9	131	5.4	3.8	7.1
20	7.5	7.5	5.5	141	134	5.1	4.8	3.7	130	5.2	3.3	4.2
21	7.2	7.5	5.5	143	134	5.0	5.3	3.7	60	5.3	5.6	3.9
22	7.3	7.4	5.7	144	63	4.8	4.5	4.0	10	5.2	4.4	3.9
23	7.5	7.4	5.9	144	4.3	4.8	4.3	6.3	9.1	5.2	3.6	4.2
24	7.8	7.3	6.1	144	4.3	5.0	5.7	271	12	5.0	3.5	4.3
25	7.8	7.1	6.4	144	4.4	5.0	5.0	203	7.1	3.9	3.7	4.4
26	7.9	7.2	6.2	144	4.2	5.0	4.6	161	7.2	4.1	3.7	4.2
27	8.0	7.2	6.5	142	4.2	5.6	4.6	149	6.8	4.7	3.5	4.1
28	7.9	7.2	7.5	142	4.4	5.2	4.2	143	6.4	4.8	3.5	4.2
29	7.7	6.8	6.3	142	---	5.1	4.2	197	6.4	4.7	3.5	4.3
30	8.3	6.3	6.0	142	---	4.8	4.2	337	6.1	4.8	26	4.1
31	8.3	---	6.6	143	---	4.8	---	330	---	4.7	6.9	---
TOTAL	248.4	335.6	191.5	2044.1	2754.9	158.8	146.5	1915.6	5125.1	169.1	145.3	151.1
MEAN	8.01	11.2	6.18	65.9	98.4	5.12	4.88	61.8	171	5.45	4.69	5.04
MAX	8.5	62	7.5	144	144	5.8	5.7	337	350	8.1	26	20
MIN	7.2	6.3	5.5	5.8	4.1	4.2	4.2	3.6	6.1	3.9	3.2	3.4
AC-FT	493	666	380	4050	5460	315	291	3800	10170	335	288	300

CAL YR 1990 TOTAL 26842.0 MEAN 73.5 MAX 396 MIN 5.2 AC-FT 53240
WTR YR 1991 TOTAL 13386.0 MEAN 36.7 MAX 350 MIN 3.2 AC-FT 26550

RED RIVER BASIN

365

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 good, except for estimated winter periods. 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, 30 years (water years 1962-91), 89.3 ft³/s, 64,700 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 daily discharge, 980 ft³/s, Sept. 16; minimum daily discharge, 11 ft³/s, Aug. 17, 19, 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	28	40	e41	165	44	42	27	415	38	14	135
2	35	27	40	e40	163	43	40	30	381	35	13	109
3	35	35	38	e40	163	43	39	251	153	34	13	55
4	35	87	38	e41	163	42	39	124	257	35	13	51
5	33	82	38	e41	163	41	38	70	332	32	17	43
6	31	57	38	e43	162	40	38	54	329	28	21	48
7	29	47	38	e45	161	40	38	46	356	26	13	60
8	29	55	38	e46	161	39	37	45	400	25	13	92
9	32	74	39	e46	162	38	35	45	368	23	13	54
10	36	66	39	e50	162	38	33	43	345	22	13	35
11	35	54	40	52	162	38	32	41	340	22	12	28
12	32	50	41	55	163	38	32	42	322	22	12	24
13	31	47	40	55	163	37	31	43	315	27	16	23
14	30	46	40	53	161	37	34	39	311	57	16	30
15	29	45	39	52	160	36	32	33	308	35	15	50
16	29	97	41	51	160	38	31	47	307	25	12	e980
17	27	72	42	50	82	43	30	69	300	23	11	125
18	26	47	44	49	59	50	29	38	201	22	12	233
19	26	45	43	119	124	49	29	33	190	21	11	255
20	26	45	42	156	151	45	28	31	192	19	11	101
21	26	45	41	157	155	42	28	30	183	17	76	81
22	26	44	e39	159	157	40	28	35	121	17	61	68
23	26	42	e37	160	87	39	29	45	95	17	32	51
24	27	42	e38	161	55	39	33	549	69	17	20	47
25	27	42	e39	162	50	37	115	387	65	19	16	47
26	27	42	e40	162	47	36	72	277	56	18	15	43
27	27	41	e43	164	45	39	51	233	57	18	14	36
28	26	41	e47	164	44	41	44	211	53	18	14	37
29	27	39	e45	163	---	45	34	200	47	18	14	32
30	26	39	e40	159	---	45	29	481	42	16	158	29
31	27	---	e39	159	---	45	---	417	---	15	186	---
TOTAL	913	1523	1246	2895	3650	1267	1150	4016	6890	761	877	3002
MEAN	29.5	50.8	40.2	93.4	130	40.9	38.3	130	230	24.5	28.3	100
MAX	36	97	47	184	165	50	115	549	415	57	186	980
MIN	26	27	37	40	44	36	28	27	42	15	11	23
AC-FT	1810	3020	2470	5740	7240	2510	2280	7970	13670	1510	1740	5950

CAL YR 1990 TOTAL 53035 MEAN 145 MAX 2120 MIN 23 AC-FT 105200
WTR YR 1991 TOTAL 28190 MEAN 77.2 MAX 980 MIN 11 AC-FT 55910

e Estimated

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 1007: 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 fair. 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.

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, 30 years (water years 1962-91), 319 ft³/s, 231,100 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, 26.70 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, 5,290 ft³/s, June 3, gage height, 21.73 ft; minimum daily discharge, 43 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	113	143	e139	254	137	154	109	837	e132	e58	875
2	151	113	144	e141	256	136	144	107	3240	e128	53	683
3	154	117	159	e145	260	134	134	117	5000	e168	48	657
4	158	148	159	e148	260	132	129	145	4330	191	44	556
5	156	209	148	152	258	136	126	214	2510	181	43	579
6	150	240	141	156	257	129	123	230	1870	145	46	380
7	140	217	141	156	255	126	124	157	2330	134	46	292
8	135	195	140	162	253	123	120	156	1890	129	45	321
9	132	246	189	186	252	123	118	146	1680	121	50	468
10	130	344	192	187	252	125	116	143	1460	115	52	269
11	131	262	189	194	253	124	115	131	1240	109	52	220
12	131	222	163	194	253	121	113	127	1090	104	44	180
13	134	194	146	185	252	122	111	122	1210	99	49	160
14	130	178	145	181	251	122	109	123	1460	137	51	191
15	127	170	144	177	247	122	108	120	897	174	62	203
16	125	162	148	178	244	126	106	113	730	140	63	154
17	120	160	157	170	240	142	106	105	663	137	58	1150
18	123	159	163	164	242	151	103	99	614	118	55	1820
19	117	203	161	164	211	153	102	107	571	104	55	2390
20	111	171	155	162	166	147	101	115	470	95	56	1910
21	108	161	153	172	171	143	98	103	412	91	60	1060
22	108	159	140	235	227	138	103	98	366	e82	69	717
23	109	157	135	242	235	128	103	365	359	e76	77	561
24	115	154	137	248	235	123	109	857	308	e70	112	584
25	117	152	158	254	211	121	178	1460	271	68	100	716
26	119	154	147	255	162	121	218	1520	227	69	81	420
27	118	152	140	251	152	119	184	853	202	72	70	e270
28	117	151	146	256	e143	120	189	547	e178	75	62	e220
29	114	147	166	256	---	146	143	414	e160	72	58	e180
30	113	149	158	257	---	237	121	508	e145	e67	947	e170
31	112	---	e144	258	---	171	---	765	---	e62	1750	---
TOTAL	3956	5359	4731	6003	6452	4192	3808	10176	36720	3445	4416	18354
MEAN	128	179	153	194	230	135	127	328	1224	111	142	612
MAX	158	344	192	257	260	237	218	1520	5000	191	1750	2390
MIN	108	113	135	139	143	119	98	98	145	62	43	154
AC-FT	7850	10630	9380	11910	12800	8310	7550	20180	72830	6830	8760	36410

CAL YR 1990 TOTAL 194824 MEAN 534 MAX 7710 MIN 91 AC-FT 386400
WTR YR 1991 TOTAL 107612 MEAN 295 MAX 5000 MIN 43 AC-FT 213400

e Estimated

RED RIVER BASIN

367

07325800 COBB CREEK NEAR EAKLY, OK

LOCATION.-- Lat 35°17'28", 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. U.S. Army Corps of Engineers' satellite telemeter at station.

AVERAGE DISCHARGE.-- 23 years, 24.8 ft³/s, 17,970 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, 684 ft³/s, Aug. 30, gage height, 11.64 ft; minimum daily discharge, 4.4 ft³/s, Aug. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	15	18	19	17	18	18	15	33	7.1	4.4	e25
2	13	15	17	19	17	18	18	18	150	7.3	4.8	e22
3	15	17	18	17	18	18	17	21	60	11	5.0	20
4	15	33	18	18	19	17	17	19	31	11	5.4	18
5	14	25	17	18	19	17	17	17	24	9.6	5.9	15
6	13	21	17	20	18	18	17	17	21	8.1	4.8	13
7	13	19	17	19	18	18	17	15	29	7.1	4.5	17
8	13	29	17	19	18	15	17	19	28	6.7	4.5	43
9	14	30	18	20	18	15	17	19	23	6.8	7.6	19
10	14	24	18	29	18	18	18	17	20	6.5	7.6	18
11	14	23	18	27	19	16	15	17	18	6.3	7.5	15
12	13	21	19	25	19	18	15	19	18	6.6	7.8	14
13	14	19	19	23	19	17	15	18	15	41	8.4	15
14	13	18	19	22	17	18	15	17	14	29	8.4	24
15	13	17	19	22	16	15	14	16	13	12	6.9	16
16	13	17	21	21	15	18	14	15	13	8.7	5.4	15
17	13	17	23	20	15	31	14	14	12	7.5	5.3	14
18	13	17	23	20	15	22	14	13	12	7.1	5.4	111
19	13	18	21	20	16	20	14	13	12	7.6	6.1	69
20	13	18	20	19	16	20	14	54	11	6.6	6.2	35
21	12	20	18	19	15	18	14	41	10	6.2	11	e29
22	13	20	e17	18	16	18	16	26	8.9	6.0	7.3	e24
23	15	19	e18	18	16	17	15	108	11	5.5	6.3	e21
24	13	19	e19	18	16	18	18	175	11	5.8	e5.8	e18
25	14	19	20	18	16	16	40	65	10	6.9	e5.4	e16
26	14	20	19	18	18	17	27	33	9.6	6.1	e5.1	14
27	14	20	18	18	17	18	22	23	9.1	6.1	4.8	13
28	14	20	19	18	17	17	20	18	8.3	6.3	4.5	13
29	14	19	19	18	---	26	18	16	7.5	5.1	5.1	13
30	15	18	e17	18	---	21	17	23	7.3	4.8	220	13
31	15	---	e18	18	---	19	---	19	---	4.5	e40	---
TOTAL	422	607	579	616	476	554	522	918	647.7	276.9	437.2	710
MEAN	13.6	20.2	18.7	19.9	17.0	17.9	17.4	29.6	21.6	8.93	14.1	23.7
MAX	15	33	23	29	19	31	40	175	150	41	220	111
MIN	12	15	17	17	15	15	14	13	7.3	4.5	4.4	13
AC-FT	837	1200	1150	1220	944	1100	1040	1820	1280	549	867	1410

CAL YR 1990 TOTAL 10035.5 MEAN 27.5 MAX 1000 MIN 7.7 AC-FT 19910
WTR YR 1991 TOTAL 6765.8 MEAN 18.5 MAX 220 MIN 4.4 AC-FT 13420

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, 87,480 acre-ft, June 5, 6, elevation, 1,343.77 ft; minimum, 75,240 acre-ft, Aug. 29, elevation 1,340.81 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

Date	Elevation (feet)*	Contents (acre-feet)	Change in contents (acre-feet)	Diversions (acre-feet)
Sept. 30	1,341.93	79,730	-	-
Oct. 31	1,341.75	79,000	-730	706
Nov. 30	1,342.26	81,090	+2,090	563
Dec. 31	1,342.14	80,590	-500	674
CAL YR 90	-	-	-1,000	9,593
Jan. 31	1,342.19	80,800	+210	635
Feb. 28	1,342.10	80,420	-380	524
Mar. 31	1,342.50	82,090	+1,670	538
Apr. 30	1,342.17	80,720	-1,370	855
May 31	1,342.78	83,250	+2,530	823
June 30	1,341.86	79,440	-3,810	912
July 31	1,341.38	77,430	-2,010	1,037
Aug. 31	1,341.44	77,750	+320	1,020
Sept. 30	1,342.16	80,670	+2,920	762
WTR YR 91	-	-	+940	9,049

* Elevation at 2400

RED RIVER BASIN

369

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, 1989, 319 mi².

PERIOD OF RECORD.-- October 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1980, 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, 1989 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, 1989, water-stage recorder at site 0.8 mi downstream at datum 1.92 ft lower.

REMARKS.-- Records fair. Flow regulated since March 1959 by Fort Cobb Reservoir (station 07325900).

AVERAGE DISCHARGE.-- Prior to regulation by Fort Cobb Reservoir, 19 years (water years 1940-58), 50.2 ft³/s, 36,340 acre-ft/yr; since regulation by Fort Cobb Reservoir, 33 years (water years 1959-91), 27.0 ft³/s, 19,560 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, 1956.

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, 556 ft³/s, June 2, gage height, 12.19 ft; minimum daily discharge, 2.0 ft³/s, Oct. 2, 12-15, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.7	2.6	2.6	2.7	2.4	3.2	2.9	122	3.0	2.7	e2.8
2	2.0	2.7	2.6	2.6	2.7	2.2	3.3	4.8	189	3.1	e2.8	e2.9
3	2.8	2.8	2.7	2.5	2.7	2.3	32	4.0	22	3.5	e2.7	e2.9
4	2.2	3.8	2.8	2.5	47	2.2	123	3.1	13	3.1	e2.7	e2.7
5	2.1	2.6	2.8	2.5	97	2.2	124	2.7	27	2.9	e2.7	e2.7
6	2.2	2.5	2.9	2.4	97	2.4	124	2.8	67	2.9	e2.7	e2.6
7	2.2	2.5	2.9	2.3	97	2.3	125	3.0	181	2.9	e2.7	e2.8
8	2.4	3.1	2.9	2.4	97	2.3	126	5.3	230	2.9	e2.8	e2.7
9	2.5	2.7	2.9	2.5	97	2.3	126	2.8	223	2.9	e2.7	e2.6
10	2.1	2.4	2.9	3.0	97	2.3	127	2.8	225	2.9	e2.7	e2.6
11	2.1	2.4	2.9	2.6	97	2.3	128	2.6	226	2.9	e2.8	e2.6
12	2.0	2.2	2.9	2.3	98	2.4	128	2.9	224	2.9	e2.9	e2.6
13	2.0	2.1	2.9	2.3	99	2.4	127	58	224	2.9	e2.7	e2.7
14	2.0	2.3	2.9	55	51	2.5	127	118	224	2.9	e2.8	e2.6
15	2.0	2.4	2.9	177	3.1	2.5	64	118	223	2.7	e2.7	e2.6
16	2.1	2.6	2.9	177	2.8	3.3	4.4	119	222	2.7	e2.7	e2.7
17	2.0	2.6	3.0	176	2.9	3.2	3.8	119	221	2.8	e2.7	e2.6
18	2.1	2.6	69	176	2.7	2.5	3.7	119	219	2.9	e2.7	e2.7
19	2.2	2.6	136	176	2.8	2.5	3.4	120	220	e2.9	e2.7	e2.7
20	2.5	2.7	134	176	2.6	2.5	3.0	58	222	e2.8	e2.7	e2.6
21	2.6	2.7	134	143	2.5	2.5	2.9	3.9	223	e2.9	e3.1	e2.6
22	2.5	2.7	134	14	2.5	2.7	3.5	3.1	223	e2.8	e2.8	e2.7
23	2.5	2.7	134	9.4	2.5	2.8	3.3	9.2	223	e2.8	e2.7	e2.6
24	2.5	2.7	71	3.4	2.3	2.8	4.0	6.8	122	e2.8	e2.8	e3.0
25	2.5	2.7	4.0	3.2	2.3	2.8	4.7	3.1	5.1	e2.7	e2.7	e2.7
26	2.4	2.7	3.3	3.1	2.3	3.1	3.1	2.8	4.1	e2.7	e2.7	e2.6
27	2.4	2.7	3.3	3.0	2.3	3.3	3.0	2.4	3.8	e2.8	e2.7	e2.6
28	2.4	2.7	3.3	2.8	2.4	3.2	2.8	52	3.4	e2.8	e2.7	e2.7
29	2.3	2.6	3.2	2.7	---	4.2	2.8	117	3.2	e2.8	e3.7	e2.7
30	2.5	2.6	2.7	2.6	---	3.3	2.9	120	3.1	e2.7	e4.0	e2.6
31	2.7	---	2.6	2.6	---	3.3	---	117	---	e2.7	e3.2	---
TOTAL	70.9	79.1	882.8	1335.3	1018.1	83.0	1538.8	1306.0	4337.7	89.0	87.7	80.5
MEAN	2.29	2.64	28.5	43.1	36.4	2.68	51.3	42.1	145	2.87	2.83	2.68
MAX	2.8	3.8	136	177	99	4.2	128	120	230	3.5	4.0	3.0
MIN	2.0	2.1	2.6	2.3	2.3	2.2	2.8	2.4	3.1	2.7	2.7	2.6
AC-FT	141	157	1750	2650	2020	165	3050	2590	8600	177	174	160

CAL YR 1990 TOTAL 28465.6 MEAN 78.0 MAX 973 MIN 2.0 AC-FT 56460

WTR YR 1991 TOTAL 10908.9 MEAN 29.9 MAX 230 MIN 2.0 AC-FT 21640

e Estimated

RED RIVER BASIN

07326500 WASHITA RIVER AT ANADARKO, OK

LOCATION.-- 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 1969 gage located 100 ft upstream at same datum.

REMARKS.-- Records fair. 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, 28 years (water years 1964-91), 397 ft³/s, 287,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 44,700 ft³/s, Oct. 21, 1963, gage height, 25.20 ft (from HWM); no flow Aug. 1, 1964.

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, 5,260 ft³/s, June 4, gage height, 17.94 ft; minimum daily discharge, 68 ft³/s, Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e230	152	191	e280	297	185	235	187	1350	203	89	1410
2	e218	151	193	e270	295	183	213	203	2820	195	86	975
3	213	156	190	e260	291	181	201	332	4960	212	82	718
4	210	176	199	e270	292	178	199	258	5200	215	78	649
5	205	203	208	e290	313	175	257	204	4270	212	83	596
6	203	229	206	e310	354	175	259	245	2780	186	76	649
7	198	278	194	e340	355	174	256	303	2480	164	72	449
8	193	279	190	e380	351	171	255	256	2830	150	71	335
9	191	267	190	e420	349	189	254	260	2250	141	69	305
10	186	273	198	e380	351	189	250	226	1960	133	68	501
11	179	409	232	e350	351	188	248	216	1700	122	71	292
12	178	321	234	e330	353	188	246	228	1500	115	72	235
13	176	273	226	e310	360	187	242	215	1580	111	73	204
14	178	244	204	e300	359	186	242	215	1630	112	73	199
15	178	225	198	e280	332	167	241	264	e1500	133	73	181
16	170	214	200	e330	285	178	215	260	e1000	210	73	256
17	166	206	217	e350	279	195	182	255	841	178	82	186
18	182	202	224	e360	274	202	157	247	e800	161	81	1270
19	163	202	281	e350	279	196	154	241	e720	150	78	1940
20	161	229	e276	e310	e230	197	151	241	e650	133	75	2420
21	158	220	e268	e290	e205	192	149	238	e615	122	85	1690
22	154	201	e248	e285	203	185	168	183	e600	115	85	999
23	154	199	e240	279	242	184	181	196	e560	109	84	679
24	155	198	e235	280	258	177	172	528	530	102	88	619
25	157	196	e235	282	260	171	215	1170	424	96	97	864
26	160	194	e240	287	251	170	263	1650	333	89	121	715
27	161	191	e250	292	208	178	280	1520	291	96	101	430
28	161	192	e280	294	189	179	243	935	257	96	88	322
29	158	193	e350	295	---	196	249	692	234	98	92	254
30	157	192	e360	298	---	214	212	774	214	94	214	213
31	154	---	e350	297	---	275	---	1030	---	92	1110	---
TOTAL	5485	6665	7307	9649	8166	5681	6589	13788	46879	4345	3690	20555
MEAN	177	222	236	311	292	183	219	444	1563	140	119	685
MAX	230	409	360	420	360	275	280	1650	5200	215	1110	2420
MIN	154	151	190	260	189	166	149	183	214	89	68	181
AC-FT	10880	13220	14490	19140	16200	11270	13030	27310	92980	8620	7320	40770

CAL YR 1990 TOTAL 250351 MEAN 686 MAX 6450 MIN 123 AC-FT 496600
WTR YR 1991 TOTAL 138759 MEAN 380 MAX 5200 MIN 68 AC-FT 275200

e Estimated

RED RIVER BASIN

371

07327445 CHETONIA CREEK TRIBUTARY BELOW CYRIL, OK

LOCATION.-- Lat 34°52'59", long 98°11'31", in NE 1/4 NW 1/4 sec.30, T.5 N., R.9 W., Caddo County, Hydrologic Unit 11130302, on downstream side of dual culvert on county road, 1 mi south and .35 mi east of Cyril, OK.

DRAINAGE AREA.-- 3.35 mi².

PERIOD OF RECORD.-- October 1989 to July 1991 (discontinued).

GAGE.-- Water-stage recorder. Datum of gage is 1,255.88 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 57 ft³/s, June 12, 1991, gage height 8.44 ft; minimum discharge, .16 ft³/s, Oct. 13, 1989.

EXTREMES FOR CURRENT PERIOD.-- Maximum discharge, 57 ft³/s, June 12, gage height, 8.44 ft; minimum discharge, .38 ft³/s, Apr. 20 and 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.61	e.69	.74	e.67	e.61	.67	.63	.39	.64	.67	---	---
2	e.60	.88	e.71	e.68	e.60	.67	.69	.65	17	.73	---	---
3	1.0	1.1	e.72	e.67	e.60	.62	.75	.96	4.7	1.6	---	---
4	e.70	1.7	e.69	.67	e.59	.67	.67	.60	1.7	1.0	---	---
5	e.68	.97	.68	.69	e.58	.67	.63	.51	1.5	.92	---	---
6	e.66	.94	.67	.84	e.58	.68	.62	.51	1.2	.79	---	---
7	e.64	.94	.67	.75	.57	e.65	.62	.50	2.5	.67	---	---
8	1.0	1.7	.68	.74	.60	e.63	.59	.98	1.4	.64	---	---
9	e.73	1.6	e.67	.83	.56	e.64	.52	.67	1.1	.67	---	---
10	e.68	1.2	e.67	1.5	.56	e.62	.51	e.55	.86	.65	---	---
11	e.66	1.1	e.68	1.0	.56	e.62	.53	e.54	.71	.62	---	---
12	e.65	1.0	e.67	.86	.56	e.62	.56	.64	3.1	.62	---	---
13	e.64	.94	e.68	.61	.56	e.62	.53	e.54	16	.60	---	---
14	e.62	.89	e.66	.81	.56	e.62	.50	e.52	2.5	.73	---	---
15	e.60	.88	.74	.75	.56	.74	.45	e.58	e1.9	.59	---	---
16	e.61	.88	.84	.75	.58	1.3	e.40	e.51	e1.6	.62	---	---
17	e.62	.87	1.3	.68	.62	1.0	e.45	e.52	1.6	.60	---	---
18	e.60	.86	.96	.74	.59	.69	e.41	e.50	1.4	.56	---	---
19	e.61	.92	.86	.81	.56	.67	e.39	e.48	1.5	.50	---	---
20	e.60	.94	.81	.76	.53	.67	e.38	e.49	1.4	.47	---	---
21	e.58	.94	e.78	.67	.56	.71	e.38	e.48	1.3	.47	---	---
22	e.57	.99	e.76	.67	.56	.71	1.9	e.47	1.3	.44	---	---
23	e.59	1.1	e.73	.67	.57	.69	.62	2.7	1.2	.43	---	---
24	e.60	.88	e.71	.74	.62	.68	2.8	5.1	1.0	.42	---	---
25	e.60	.88	e.72	.73	.59	.71	2.5	4.2	1.1	.46	---	---
26	e.61	.93	.74	.67	.59	.76	.85	1.1	.95	.47	---	---
27	e.60	.92	.74	.67	.60	.71	.58	.66	.94	.86	---	---
28	e.59	.81	.75	e.64	.62	.62	.51	.53	.94	.65	---	---
29	e.59	.62	e.70	e.63	---	.90	.48	.44	.90	.54	---	---
30	e.61	.67	e.67	e.62	---	.63	.41	.71	.74	.51	---	---
31	e.66	---	e.66	e.59	---	.62	---	.49	---	.51	---	---
TOTAL	20.11	29.74	23.06	23.31	16.24	21.81	21.86	28.62	74.88	20.01	---	---
MEAN	.65	.99	.74	.75	.58	.70	.73	.92	2.49	.65	---	---
MAX	1.0	1.7	1.3	1.5	.62	1.3	2.8	5.1	17	1.6	---	---
MIN	.57	.62	.66	.59	.53	.62	.38	.39	.64	.42	---	---
AC-FT	40	59	46	46	32	43	43	57	148	40	---	---

CAL YR 1990 TOTAL 1015.53 MEAN 2.78 MAX 25 MIN .22 AC-FT 2010

e Estimated

RED RIVER BASIN

07328100 WASHITA RIVER AT ALEX, OK

LOCATION.-- 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 228.5.

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 995.00 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1988, datum 5.00 ft higher.

REMARKS.-- Records good. 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.-- 25 years, 506 ft³/s, 368,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 23,400 ft³/s, Oct. 21, 1983, gage height, 28.78 ft (present datum); no flow Aug. 13-18, 1970, Aug. 30 to Sept. 1, 1971.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 6,570 ft³/s, June 3, gage height, 12.34 ft.; minimum daily discharge, 96 ft³/s, Aug. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	553	232	295	e540	443	357	381	299	908	182	134	1110
2	517	228	302	595	443	324	443	262	3350	163	124	1960
3	517	229	299	529	447	315	371	700	5930	329	121	2910
4	503	344	295	530	451	304	342	831	5250	567	117	2410
5	484	402	290	544	458	304	313	765	5180	417	116	1590
6	456	409	292	646	459	290	305	551	4880	292	107	1330
7	422	388	303	734	494	276	376	391	3400	258	109	1270
8	439	440	304	704	536	260	383	741	2870	220	115	1250
9	455	625	287	529	541	250	361	1030	3010	192	106	1010
10	436	644	282	611	541	250	338	758	2500	164	100	712
11	415	562	287	668	541	248	324	614	2200	145	96	690
12	389	550	301	594	549	241	315	507	1900	129	101	704
13	371	626	356	531	555	235	326	556	1900	119	98	519
14	357	544	369	489	556	228	323	485	2230	116	125	1250
15	343	476	358	460	545	227	319	447	1950	211	130	1230
16	340	419	339	434	550	241	308	378	1920	183	119	1500
17	302	380	379	444	515	341	359	363	1490	189	125	1700
18	265	348	512	520	469	440	345	330	1200	225	140	1410
19	256	340	538	538	455	468	202	298	1050	201	137	3310
20	251	346	472	531	439	410	173	325	952	154	119	3180
21	299	347	456	522	441	371	158	712	909	e145	128	3110
22	271	383	e420	508	413	364	336	465	820	e140	143	2460
23	248	372	e390	499	356	330	298	495	748	e130	141	1800
24	239	333	e380	476	332	293	307	941	682	e151	134	1750
25	234	329	e370	438	387	281	612	1560	649	148	127	2510
26	235	331	e360	440	410	264	705	1820	611	102	128	1890
27	234	333	e350	432	427	307	648	1730	416	122	135	1570
28	235	327	e360	443	413	264	538	1700	310	147	162	1210
29	237	306	e370	449	---	268	460	1270	248	152	152	964
30	238	300	e420	447	---	304	366	949	210	146	455	841
31	233	---	e470	446	---	403	---	904	---	141	1310	---
TOTAL	10774	11893	11206	16271	13166	9458	11235	22977	59673	5980	5354	49150
MEAN	348	396	361	525	470	305	374	741	1989	193	173	1638
MAX	553	644	538	734	556	468	812	1730	5930	567	1310	3310
MIN	233	228	282	432	332	227	158	262	210	102	96	519
AC-FT	21370	23590	22230	32270	26110	18760	22280	45570	118400	11880	10620	97490

CAL YR 1990 TOTAL 421505 MEAN 1155 MAX 11700 MIN 125 AC-FT 836100
WTR YR 1991 TOTAL 227137 MEAN 622 MAX 5930 MIN 96 AC-FT 450500

e Estimated

RED RIVER BASIN

373

07328180 NORTH CRINER CREEK NEAR CRINER, OK

LOCATION.-- Lat 34°58'17", long 97°35'04", in SE 1/4 SE 1/4 sec.23, T.6 N., R.4 W. (revised), McClain County, Hydrologic Unit 11130303, near left bank on downstream side of county road bridge, 1.2 mi west of Criner, and at mile .83.

DRAINAGE AREA.-- 7.33 mi²

PERIOD OF RECORD.-- October 1989 to current year.

GAGE.-- Water-stage recorder. Datum of gage is 1023.66 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. U.S. Geological Survey's satellite telemeter at station. Flow partially regulated by retention ponds 1.5 mi northwest of gage.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 329 ft³/s, May 2, 1990, gage height, 8.83 ft; minimum daily discharge, 0.06 ft³/s, Dec. 29, 1990 to Jan. 1, 1991, July 26, 1991.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 118 ft³/s, May 8, gage height, 6.59 ft; minimum daily discharge, 0.06 ft³/s, Dec. 29-Jan. 1, July 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.57	.49	.42	e.06	e1.0	.82	.71	.73	.81	e.10	.18	.86
2	.56	.53	.42	e.70	e1.0	.82	.77	3.3	1.6	e.09	.16	3.1
3	.67	.54	.45	1.2	e1.0	.82	1.1	9.3	1.9	2.0	.15	e2.0
4	.71	.95	.45	1.3	1.0	.81	1.1	3.9	1.5	2.4	.14	e1.2
5	.69	1.0	.45	1.3	1.2	.84	1.1	2.1	4.6	2.0	.14	e.85
6	.66	.97	.46	2.1	1.3	.90	.84	1.5	2.1	1.4	.13	e.70
7	.66	.88	.45	2.1	1.2	.85	.77	1.3	1.7	.83	.13	e2.2
8	.67	.86	.43	1.8	1.1	.79	.78	24	1.6	e.44	.12	e1.2
9	.65	1.1	.42	1.7	1.1	.80	.83	6.5	1.4	e.38	2.3	e.54
10	.66	.92	.42	3.0	1.0	.85	.65	3.2	1.3	e.32	5.1	.42
11	.67	.85	.42	2.3	1.0	.90	.48	2.2	1.2	e.27	4.7	.26
12	.67	.82	.41	1.8	1.0	.77	.50	1.7	1.0	e.22	4.5	.24
13	.66	.82	.40	1.6	1.0	.83	.53	1.5	1.1	e.18	4.3	.17
14	.66	.82	.41	1.5	.88	.60	.56	1.4	1.0	e.14	3.7	.47
15	.66	.82	.46	1.6	.69	.52	.54	1.2	.78	e.12	1.8	.34
16	.66	.70	.48	1.6	.57	.57	.50	1.2	.63	e.11	.77	6.4
17	.73	.51	.48	1.4	.61	1.2	.45	1.1	.45	e.10	.59	4.2
18	.77	.50	.48	1.3	.69	1.3	.67	.98	.31	e.09	.41	5.1
19	.84	.50	.48	1.4	.75	1.1	.74	.90	.21	e.08	.33	4.2
20	.97	.49	.48	1.4	.69	.77	.74	.90	.18	e.08	.28	3.9
21	.80	.48	.40	1.2	.71	.76	.70	.93	.17	e.08	.50	3.8
22	.78	.48	.27	1.1	.76	.93	1.1	.95	.13	e.07	.42	3.1
23	.77	.48	e.12	e1.0	.77	.88	1.1	5.2	.14	e.07	.26	1.4
24	.64	.45	e.10	e1.0	.82	.74	2.1	6.1	.19	e.07	.23	1.2
25	.59	.45	e.09	e1.0	.78	.70	3.2	3.7	.16	e.07	.21	1.1
26	.55	.45	e.08	e1.0	.79	.70	2.1	2.3	.14	e.06	.20	.84
27	.48	.45	e.07	e.98	.74	1.2	1.5	1.6	e.10	.67	.19	.78
28	.45	.45	e.07	e.96	.74	1.2	1.1	1.3	e.10	e.40	.18	.72
29	.44	.45	e.06	1.2	---	1.2	1.0	1.1	e.08	e.31	.18	.67
30	.51	.44	e.06	1.1	---	1.0	.85	.97	.11	.23	.26	.61
31	.45	---	e.06	e1.1	---	.77	---	.89	---	.19	.35	---
TOTAL	20.25	19.65	10.25	42.80	24.89	26.74	29.11	93.95	26.69	13.57	32.91	52.57
MEAN	.65	.65	.33	1.38	.89	.86	.97	3.03	.89	.44	1.06	1.75
MAX	.97	1.1	.48	3.0	1.3	1.3	3.2	24	4.6	2.4	5.1	6.4
MIN	.44	.44	.06	.06	.57	.52	.45	.73	.08	.06	.12	.17
AC-FT	40	39	20	85	49	53	58	186	53	27	65	104

CAL YR 1990 TOTAL 1620.95 MEAN 4.44 MAX 151 MIN .06 AC-FT 3220
WTR YR 1991 TOTAL 393.38 MEAN 1.08 MAX 24 MIN .06 AC-FT 780

e Estimated

RED RIVER BASIN

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 right bank near end of bridge on U.S. Highway 77 (revised), 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 fair. 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, 800,200 acre-ft/yr; since regulation, 30 years (water years 1962-91), 783 ft³/s, 567,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 43,800 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, 6,830 ft³/s, June 6, gage height, 10.44 ft; minimum daily discharge, 100 ft³/s, Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	462	261	311	610	509	505	431	454	798	603	218	755
2	460	261	314	588	516	480	460	432	919	578	199	1480
3	461	277	329	518	515	442	536	1500	4310	571	178	2870
4	471	860	329	476	525	424	454	1110	5870	691	163	3460
5	448	520	325	541	538	401	428	1100	5970	826	149	2800
6	421	466	328	676	559	397	425	857	5900	742	137	1660
7	407	433	326	688	568	383	399	882	4800	650	126	1580
8	424	435	335	601	570	375	417	964	3680	585	113	2220
9	475	643	349	579	609	367	449	1290	3170	532	109	1290
10	445	612	351	762	636	354	442	1120	2990	465	106	1020
11	418	555	347	720	632	351	448	843	2550	412	106	828
12	396	500	352	672	632	354	415	711	2240	375	106	766
13	375	489	363	619	628	346	404	621	2030	347	106	818
14	358	515	386	554	616	344	404	616	2190	334	109	747
15	346	517	430	569	613	348	398	602	2190	322	106	1210
16	339	517	445	602	603	351	386	541	2070	305	111	1590
17	334	430	499	588	620	408	376	512	2010	372	111	2110
18	317	425	496	553	610	449	374	490	1680	329	102	1880
19	282	428	470	573	554	498	432	478	1450	323	100	2710
20	265	379	e480	593	529	563	355	498	1320	336	111	3770
21	269	375	470	632	522	546	278	538	1230	304	125	3010
22	274	367	e450	613	515	519	292	661	1170	260	126	2650
23	295	358	e420	583	515	495	429	552	1070	237	125	1920
24	275	365	e405	559	470	465	487	774	991	219	120	1370
25	261	358	e395	554	429	424	676	1330	951	530	116	1730
26	256	358	e387	531	444	406	837	1600	945	344	113	1970
27	253	367	e383	531	475	399	701	1440	933	362	109	1450
28	253	347	e377	528	489	417	615	1520	788	396	109	1140
29	255	335	e393	524	---	430	551	1370	684	334	111	881
30	258	326	544	524	---	403	518	996	649	269	160	740
31	261	---	544	500	---	386	---	801	---	235	288	---
TOTAL	10812	13079	12333	18161	15441	13030	13817	27003	67548	13188	4068	52425
MEAN	349	436	398	586	551	420	461	871	2252	425	131	1747
MAX	475	860	544	762	636	563	837	1600	5970	826	288	3770
MIN	253	261	311	476	429	344	278	432	649	219	100	740
AC-FT	21450	25940	24460	36020	30630	25850	27410	53560	134000	26160	8070	104000

CAL YR 1990 TOTAL 596355 MEAN 1634 MAX 26400 MIN 179 AC-FT 1183000
WTR YR 1991 TOTAL 260905 MEAN 715 MAX 5970 MIN 100 AC-FT 517500

e Estimated

RED RIVER BASIN

375

07329000 RUSH CREEK AT PURDY, OK

LOCATION.-- Lat 34°41'48", 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 fair. 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, 9 years (water years 1983-91), 83.4 ft³/s, 60,400 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, 1,550 ft³/s, June 5, gage height, 12.73 ft; minimum daily discharge, 5.4 ft³/s, Aug. 19, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	12	19	e24	26	23	e20	21	36	13	18	51
2	8.8	13	19	e23	25	e21	e21	37	197	14	15	37
3	12	13	21	e25	26	e22	e36	495	276	23	14	27
4	14	53	21	e27	27	23	e28	259	170	25	12	420
5	14	44	20	29	28	19	e22	341	429	22	11	357
6	12	32	20	57	29	23	e21	122	666	19	8.8	233
7	11	27	19	47	26	20	e21	75	384	17	7.7	237
8	15	28	21	39	25	18	e20	347	249	16	7.1	196
9	27	99	20	38	25	17	e20	207	166	14	6.4	113
10	22	71	20	99	24	17	e21	111	133	13	6.1	81
11	18	44	20	83	24	18	e20	91	101	12	5.9	64
12	15	35	21	60	24	18	e20	85	87	11	6.0	51
13	13	30	22	e45	25	18	e19	78	553	10	6.8	39
14	13	27	21	e38	33	17	e20	67	423	9.6	8.1	257
15	12	26	21	e32	28	16	e20	60	237	8.1	6.7	222
16	11	24	24	e31	e24	18	e20	54	163	7.5	6.2	327
17	11	22	33	e31	e25	30	e19	48	116	6.8	6.1	239
18	10	21	40	e30	e25	30	e21	42	93	6.8	5.6	246
19	9.1	22	34	e30	e23	26	e20	36	79	6.4	5.4	405
20	8.6	23	30	e30	e24	24	e18	31	71	6.6	5.5	215
21	8.6	24	27	e30	e25	27	e19	26	64	6.6	8.8	131
22	9.0	22	e25	e29	e24	45	e160	25	55	5.8	7.6	95
23	9.0	20	e23	e29	e23	36	e110	148	46	5.7	6.6	81
24	8.6	20	e21	e28	e24	26	e70	435	38	6.3	6.0	608
25	8.8	20	e23	27	e22	23	190	339	31	141	5.7	683
26	9.4	21	27	30	e20	20	112	192	23	74	5.7	353
27	9.8	22	29	29	e21	e21	70	98	19	108	5.7	195
28	9.6	21	29	28	e22	e20	49	59	17	80	5.6	127
29	10	20	e27	30	---	e23	37	48	15	41	5.4	99
30	11	19	e26	28	---	e21	28	43	14	29	31	86
31	12	---	e25	27	---	e20	---	41	---	22	23	---
TOTAL	371.4	875	748	1133	697	700	1272	4059	4951	780.4	279.5	6283
MEAN	12.0	29.2	24.1	36.5	24.9	22.6	42.4	131	165	25.2	9.02	209
MAX	27	99	40	99	33	45	190	495	666	141	31	683
MIN	8.8	12	19	23	20	16	18	21	14	5.7	5.4	27
AC-FT	737	1740	1480	2250	1380	1390	2520	8050	9820	1550	554	12460

CAL YR 1990 TOTAL 38137.8 MEAN 104 MAX 2930 MIN 6.6 AC-FT 75650
WTR YR 1991 TOTAL 22149.3 MEAN 60.7 MAX 683 MIN 5.4 AC-FT 43930

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. 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.-- 22 years, 253 ft³/s, 183,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 40,600 ft³/s, May 3, 1990, gage height, 26.13 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)
May 3	0530	4,660	11.89	Sept. 16	1400	4,210	11.44
July 27	1630	5,030	12.45	Sept. 24	1730	*5,410	*12.88

Minimum daily discharge, 7.7 ft³/s, July 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	24	55	86	59	51	35	44	113	e23	e79	41
2	23	26	53	88	57	48	35	51	101	e21	e53	47
3	25	30	51	90	56	46	39	2810	815	e25	e41	47
4	26	765	49	79	56	46	42	1020	480	e32	e35	426
5	25	233	47	84	64	47	45	1810	427	e23	e31	1020
6	23	99	47	197	66	41	42	1040	879	e20	e27	410
7	22	71	47	262	61	39	41	651	949	e17	25	762
8	25	77	46	159	56	37	40	584	2070	e15	22	1000
9	76	375	45	128	54	37	34	598	1440	e15	20	448
10	56	233	46	576	56	36	32	483	576	e16	19	303
11	37	106	47	402	55	36	33	340	375	12	17	206
12	31	81	48	223	53	38	41	279	e305	12	16	156
13	29	68	50	168	e50	37	36	238	e275	12	18	125
14	28	61	52	141	47	35	35	195	e320	26	17	161
15	28	56	50	136	47	35	36	173	e190	22	16	249
16	27	52	49	154	46	38	32	142	e133	14	16	2110
17	26	49	e60	114	50	49	31	121	e118	12	14	1340
18	25	48	e67	140	50	48	35	105	e99	10	13	1530
19	24	47	e56	172	48	41	38	e96	e91	9.3	12	2050
20	25	48	e50	150	45	39	34	174	e78	8.5	11	1070
21	29	47	e45	118	43	40	31	103	e82	8.3	13	772
22	27	47	e43	107	46	42	145	86	e67	8.0	13	576
23	27	45	e41	96	46	39	74	86	e59	7.7	14	468
24	27	44	e40	91	45	38	53	258	e51	14	12	2030
25	26	43	e40	85	42	36	521	1210	e46	39	11	1940
26	26	47	e38	81	45	37	162	725	e39	15	10	1100
27	26	59	57	78	43	37	91	457	e35	2300	9.6	725
28	25	68	64	76	47	36	69	354	e31	1530	9.3	556
29	25	61	84	74	---	39	59	281	e27	595	8.7	462
30	25	57	115	66	---	38	50	271	e25	346	36	376
31	25	---	92	62	---	36	---	143	---	e110	120	---
TOTAL	892	3067	1674	4483	1433	1242	1991	14928	10296	5317.8	758.6	22506
MEAN	28.8	102	54.0	145	51.2	40.1	66.4	482	343	172	24.5	750
MAX	76	765	115	576	66	51	521	2810	2070	2300	120	2110
MIN	22	24	38	62	42	35	31	44	25	7.7	8.7	41
AC-FT	1770	6060	3320	8890	2840	2460	3950	29610	20420	10550	1500	44640

CAL YR 1990 TOTAL 231078 MEAN 633 MAX 23100 MIN 13 AC-FT 458300
WTR YR 1991 TOTAL 68588.4 MEAN 188 MAX 2810 MIN 7.7 AC-FT 136000

e Estimated

RED RIVER BASIN

377

07329852 ROCK CREEK AT SULPHUR, OK

LOCATION.-- Lat 34°29'43", long 96°59'18", in SE 1/4 SE 1/4 sec.4, T.1 S. R.3 E., Murray County, Hydrologic Unit 11130303, 80 ft west of campsite 69 in Rock Creek Campground, in the Chickasaw National Park at Sulphur, OK, and at mile 11.0.

DRAINAGE AREA.-- 44.1 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- Oct. 1, 1989, to current year.

GAGE.-- Water-stage recorder. Datum of gage is 896.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair. Flow regulated by numerous flood-retarding structures.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 10,400 ft³/s, Apr. 26, 1990, gage height 19.65 ft; minimum daily discharge, 6.8 ft³/s, Jan. 14, 15, 1990.

EXTREMES FOR CURRENT PERIOD.--

Water year 1990: Maximum discharge, 10,400 ft³/s, Apr. 26, gage height, 19.65 ft³/s; minimum daily discharge, 6.8 ft³/s, Jan. 14, 15.

Water year 1991: Maximum discharge, 6,730 ft³/s, June 8, gage height, 16.47 ft; minimum daily discharge, 12 ft³/s, Oct. 25, 26, 28-31, Nov. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e35	e130	e19	8.0	210	103	90	416	57	20	24	15
2	e34	e75	e18	8.0	99	71	76	3450	59	19	21	15
3	e34	e65	e18	8.4	64	57	64	2590	48	19	18	15
4	e33	e55	e17	9.2	48	50	59	609	41	19	42	15
5	e33	e49	e16	8.8	40	47	61	546	38	19	18	15
6	e32	e46	e16	8.8	36	55	102	517	34	19	17	15
7	e32	e43	e15	8.4	32	70	71	491	31	17	15	16
8	e32	e39	e14	8.4	30	64	60	472	31	17	15	19
9	e31	e36	e14	8.4	32	56	57	455	30	17	15	16
10	e31	e35	e13	8.0	32	55	68	428	30	17	15	15
11	e31	e34	e12	8.4	30	1440	60	415	30	20	15	15
12	e31	e33	e13	7.6	28	549	56	384	29	18	15	16
13	e30	e32	e12	7.6	28	428	53	338	28	18	15	16
14	e30	e31	11	6.8	27	1390	53	308	28	17	15	15
15	e30	e31	11	6.8	27	528	52	253	27	17	15	15
16	e29	e31	9.7	7.2	27	415	50	131	25	17	15	16
17	e29	e30	10	7.6	27	356	77	73	23	17	15	194
18	e28	e30	9.2	20	27	304	320	59	23	17	15	52
19	e28	e29	9.5	1260	28	196	1070	76	24	17	15	26
20	e28	e29	8.8	e600	28	146	1710	61	23	17	15	22
21	e29	e28	8.7	e280	58	113	660	51	22	16	15	2160
22	e29	e28	11	e150	105	84	505	47	23	18	16	553
23	e30	e28	12	e90	61	95	418	46	23	17	15	453
24	e30	e27	11	44	44	78	391	45	41	17	15	372
25	e30	e27	e9.0	36	38	72	688	49	23	17	15	307
26	e29	e26	8.8	29	35	67	3060	45	23	17	15	277
27	e29	e24	8.4	24	34	115	540	43	208	17	15	183
28	e32	e22	8.4	22	73	538	e450	44	49	17	15	94
29	e40	e21	e8.3	20	---	264	e400	42	29	16	15	70
30	e850	e20	e8.2	20	---	170	374	62	23	16	15	57
31	e250	---	e8.1	19	---	115	---	52	---	16	15	---
TOTAL	1999	1134	368.1	2750.4	1348	8091	11695	12598	1123	542	516	5069
MEAN	64.5	37.8	11.9	88.7	48.1	261	390	406	37.4	17.5	16.6	169
MAX	850	130	19	1260	210	1440	3060	3450	208	20	42	2160
MIN	28	20	8.1	6.8	27	47	50	42	22	16	15	15
AC-FT	3970	2250	730	5480	2670	18050	23200	24990	2230	1080	1020	10050

WTR YR 1990 TOTAL 47233.5 MEAN 129 MAX 3450 MIN 6.8 AC-FT 93690

e Estimated

RED RIVER BASIN

07329852 ROCK CREEK AT SULPHUR, OK--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	12	22	30	36	26	24	e32	20	27	33	17
2	18	12	21	47	36	27	45	e31	150	25	26	17
3	19	13	21	53	36	26	e298	e770	215	28	23	16
4	18	81	20	39	36	24	e140	e190	94	32	21	16
5	16	40	19	47	38	24	e80	e72	90	27	20	16
6	16	24	19	118	39	24	e30	e40	88	25	20	16
7	16	20	19	82	36	24	e29	e30	339	23	19	26
8	20	27	19	59	35	23	e27	e70	2120	22	19	19
9	22	67	19	53	37	22	e27	e60	488	22	19	16
10	18	48	18	250	36	22	e26	e45	391	21	19	15
11	16	30	18	112	32	22	e28	e35	349	20	19	15
12	15	24	18	73	32	22	e27	e52	256	20	19	15
13	15	22	17	62	32	22	e26	e30	196	25	19	15
14	15	20	17	67	29	22	e25	e29	151	32	19	14
15	14	19	17	144	27	22	e29	e31	113	21	18	34
16	14	19	21	101	26	25	e27	30	212	20	17	170
17	14	19	29	70	26	52	e26	26	124	19	17	48
18	13	19	45	104	27	35	e52	25	84	18	17	117
19	13	19	35	92	27	29	e35	24	63	18	16	74
20	13	19	27	73	25	27	e31	26	50	18	16	41
21	14	19	24	59	27	28	e28	25	42	18	17	27
22	13	20	21	54	34	56	e59	25	67	18	16	23
23	13	19	19	52	27	39	e50	26	272	17	18	23
24	13	19	19	49	26	31	e36	191	101	22	16	22
25	12	18	e18	48	26	28	e54	128	69	27	16	22
26	12	24	e18	45	24	28	e40	65	54	20	16	20
27	13	67	e19	45	24	34	e36	46	44	746	16	19
28	12	58	21	45	24	28	e34	34	34	162	16	18
29	12	34	48	45	---	27	e34	26	30	103	15	18
30	12	25	49	40	---	25	e33	23	28	75	17	18
31	12	---	32	36	---	24	---	22	---	49	17	---
TOTAL	465	857	729	2184	860	868	1436	2259	6334	1720	574	927
MEAN	15.0	28.6	23.5	70.5	30.7	28.0	47.9	72.9	211	55.5	18.5	30.9
MAX	22	81	49	250	39	56	298	770	2120	746	33	170
MIN	12	12	17	30	24	22	24	22	20	17	15	14
AC-FT	922	1700	1450	4330	1710	1720	2850	4480	12560	3410	1140	1840

CAL YR 1990 TOTAL 46783.4 MEAN 125 MAX 3450 MIN 6.8 AC-FT 90810
WTR YR 1991 TOTAL 19213 MEAN 52.6 MAX 2120 MIN 12 AC-FT 38110

e Estimated

RED RIVER BASIN

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07329852 ROCK CREEK AT SULPHUR, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- April 1990 to current year.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)
APR 10...	0830	1028	80020	71	*549	--	13.0	14.0	740	10.6	--
MAY 15...	1155	1028	80020	257	*339	8.5	26.5	22.0	735	8.3	--
JUN 25...	1400	1028	80020	24	813	8.4	29.0	27.0	740	10.3	134
AUG 06...	1245	1028	80020	17	918	8.4	27.0	23.0	745	13.0	158
SEP 17...	1225	1028	80020	40	516	8.2	28.5	22.5	745	9.9	117

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)
APR 10...	260	--	75	18	24	17	0.6	2.1	--	--	--
MAY 15...	150	5	47	9.1	11	13	0.4	1.9	173	5	150
JUN 25...	290	30	65	30	80	31	2	2.9	312	0	258
AUG 06...	280	19	64	30	76	37	2	3.4	302	10	264
SEP 17...	160	3	39	14	32	30	1	3.6	185	0	152

DATE	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, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
APR 10...	17	33	0.20	8.6	346	330	0.47	66.4	0.100	0.020
MAY 15...	11	14	0.10	8.4	185	193	0.25	128	<0.100	0.030
JUN 25...	20	100	0.20	10	420	442	0.57	27.0	0.100	0.030
AUG 06...	15	100	0.30	11	497	458	0.68	22.4	0.100	0.020
SEP 17...	15	52	0.50	6.9	--	254	0.35	27.1	0.300	0.040

*SPECIFIC CONDUCTANCE, LAB (US/CM)

RED RIVER BASIN

#7329852 ROCK CREEK AT SULPHUR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)
APR 10...	0.03	0.28	0.30	0.40	1.8	0.030	<1	60	<10	3
MAY 15...	0.04	0.67	0.70	--	--	0.070	<1	30	<10	6
JUN 25...	0.04	0.47	0.50	0.60	2.7	0.010	<1	120	<10	18
AUG 06...	0.03	0.18	0.20	0.30	1.3	0.020	<1	120	<10	2
SEP 17...	0.05	0.36	0.40	0.70	3.1	0.060	<1	90	<10	4
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
APR 10...	<10	46	<100	12	<0.10	<1	20	28	5.4	28
MAY 15...	<10	19	<100	4	<0.10	<1	<10	40	28	79
JUN 25...	<10	14	<100	6	0.10	<1	10	324	21	66
AUG 06...	<10	29	<100	35	<0.10	<1	<10	1	0.05	57
SEP 17...	<10	20	<100	11	<0.10	<1	20	63	6.7	25

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)
AUG 21...	0909	3.00	19.5	740	1028	1028	17	5.24	841	7.7	8.1
21...	0911	6.00	19.5	740	1028	1028	17	5.24	840	7.6	8.1
21...	0913	9.00	19.5	740	1028	1028	17	5.24	839	8.2	8.2
21...	0915	12.0	19.5	740	1028	1028	17	5.24	839	8.2	8.2
21...	0917	15.0	19.5	740	1028	1028	17	5.24	840	8.2	8.2
21...	0919	18.0	19.5	740	1028	1028	17	5.24	840	8.2	8.2
21...	0921	21.0	19.5	740	1028	1028	17	5.24	840	8.3	8.2
21...	0923	24.0	19.5	740	1028	1028	17	5.24	842	8.4	8.2
21...	0925	27.0	19.5	740	1028	1028	17	5.24	845	8.4	8.2
21...	0927	30.0	19.5	740	1028	1028	17	5.24	846	8.4	8.2
21...	0929	33.0	19.5	740	1028	1028	17	5.24	848	8.4	8.2

RED RIVER BASIN

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07329852 ROCK CREEK AT SULPHUR, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DISCHARGE, INST. (CUBIC FEET PER SECOND)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)
NOV 16...	0900	1028	80020	20	748	7.8	15.5	15.5	740	8.9	92	290
MAR 20...	0830	1028	80020	27	750	8.0	16.0	14.0	735	9.4	94	270
MAY 16...	1200	1028	80020	30	684	8.5	27.5	22.5	732	10.5	127	--
AUG 21...	0930	1028	80020	17	840	8.2	23.0	19.5	740	8.2	93	290
DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	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	POTASSIUM, DIS-SOLVED (MG/L AS K)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	
NOV 16...	20	73	28	50	30	1	3.2	329	0	270	20	
MAR 20...	0	70	24	51	29	1	2.7	345	0	283	26	
MAY 16...	--	--	--	--	--	--	--	301	5	255	16	
AUG 21...	19	66	31	55	29	1	3.1	334	0	274	20	
DATE	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)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	
NOV 16...	98	0.20	7.7	435	446	0.59	23.0	--	<0.010	<0.100	0.050	
MAR 20...	82	0.30	7.4	439	433	0.60	32.1	0.061	0.010	0.071	0.020	
MAY 16...	69	0.30	7.7	383	--	--	--	--	--	--	--	
AUG 21...	110	0.20	11	459	461	0.62	21.7	--	<0.010	0.150	<0.010	
DATE	NITROGEN AMMONIA TOTAL (MG/L AS NH4)	NITROGEN ORGANIC TOTAL (MG/L AS N)	NITROGEN AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHATE, TOTAL (MG/L AS PO4)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS Cd)	
NOV 16...	0.06	0.25	0.30	--	--	<0.010	--	<0.010	<1	130	<10	
MAR 20...	0.03	0.18	0.20	0.27	1.2	0.050	0.09	0.030	<1	110	<10	
MAY 16...	--	--	--	--	--	--	--	--	<1	--	<1	
AUG 21...	--	--	0.60	0.75	3.3	<0.010	--	<0.010	<1	120	<1	
DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
NOV 16...	2	10	9	<100	7	<0.20	<1	<10	10	0.53	9	
MAR 20...	<1	10	9	3	16	<0.10	8	<10	--	--	--	
MAY 16...	2	8	--	5	--	<0.10	<1	<10	--	--	--	
AUG 21...	2	<1	<3	<1	2	0.20	<1	<10	--	--	--	

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK

LOCATION.-- Lat 34°14'00", long 96°58'32", in SW 1/4 SE 1/4 sec.3, T.4 S., R.3 E., Carter County, Hydrologic Unit 11130303, on right 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. 18, 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 1961; 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, 30 years (water years 1962-91), 1,584 ft³/s, 1,148,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 118,000 ft³/s, May 3, 1990, gage height, 44.26 ft; maximum gage height, 45.24 ft, May 30, 1987; no flow Aug. 28, Sept. 14 to Oct. 1, 7-12, 1956.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 27,300 ft³/s, June 8, gage height, 21.24 ft; minimum daily discharge, 228 ft³/s, Aug. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	794	e280	774	854	873	645	454	1170	1340	695	1870	762
2	702	e285	736	959	842	730	450	1040	1400	641	1650	1100
3	639	e280	719	1160	814	730	2890	11500	4430	614	1230	3500
4	603	1220	698	1120	789	689	2230	e11000	7110	654	1060	4120
5	569	2900	678	1030	802	665	1830	e7000	6830	656	954	7640
6	535	1480	624	1320	851	652	1580	e8000	8150	811	544	3970
7	503	1180	577	2100	1070	635	1380	3320	8490	777	433	4110
8	491	1040	558	1930	1100	601	1260	2730	20000	652	389	e7000
9	569	1500	554	1850	1090	551	1170	3480	13600	586	355	e4000
10	604	2040	552	2780	937	518	789	3350	8240	515	e320	e3000
11	547	1450	548	3750	917	489	669	2590	7050	473	e300	e2500
12	540	1260	537	2700	904	457	730	2120	5870	e445	e290	e2000
13	515	1070	528	2270	903	431	740	1790	5150	428	e310	e1700
14	478	885	522	2040	901	428	653	1370	5240	504	318	e1650
15	450	834	523	1880	883	424	610	1050	5130	576	e310	e1900
16	421	805	578	2000	864	483	575	949	4880	466	e290	9450
17	340	733	690	1870	835	631	543	811	4350	e450	e270	14000
18	312	663	867	2120	823	616	595	679	4000	e447	e250	9480
19	298	543	1090	2220	806	603	556	586	3520	e445	e250	11300
20	279	491	1030	2000	745	622	578	817	2770	e442	e250	8830
21	314	477	992	1790	714	1210	580	1250	2480	e439	e260	7290
22	266	479	e980	1620	706	3590	764	722	1810	e435	e270	8050
23	e290	452	e920	1510	687	1720	1290	763	1980	e432	e280	5140
24	e280	436	e900	1410	682	1220	882	1430	1610	e430	e270	5710
25	e280	428	e890	1340	667	922	1440	e3500	1720	459	e260	9700
26	e252	438	e900	1200	657	821	1920	4290	1580	616	e244	6800
27	e252	771	e890	1120	642	839	1850	3100	1120	2260	e240	4900
28	e251	1200	e880	1080	634	732	1650	2560	1020	6940	e232	3910
29	e251	1040	1070	1060	---	644	1450	2660	893	3030	228	3110
30	e252	862	1480	1030	---	824	1280	2280	774	2630	843	2450
31	e255	---	1090	931	---	561	---	1840	---	2200	1040	---
TOTAL	13112	27562	24335	52044	23138	24463	33388	87747	142317	31128	15810	157072
MEAN	423	919	785	1679	826	789	1113	2831	4744	1004	510	5236
MAX	794	2900	1480	3750	1100	3590	2890	11500	20000	6940	1870	14000
MIN	251	260	522	854	634	424	450	586	774	428	228	762
AC-FT	28010	54670	48270	103200	45890	48520	68230	174000	282300	61740	31360	311600

CAL YR 1990 TOTAL 1654224 MEAN 4532 MAX 94400 MIN 251 AC-FT 3281000
WTR YR 1991 TOTAL 632116 MEAN 1732 MAX 20000 MIN 228 AC-FT 1254000

e Estimated

RED RIVER BASIN

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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 1990.

WATER TEMPERATURE: April 1947 to January 1982, February 1984 to April 1990.

REMARKS.-- Samples were collected bimonthly and specific conductance, pH, water temperature, alkalinity, 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.

MISCELLANEOUS WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FW L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	OXYGEN, DIS- SOLVED (MG/L)	PH (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG												
14...	0858	15.0	22.5	746	1028	1028	*318	7.14	1210	7.2	8.1	19
14...	0902	35.0	22.5	746	1028	1028	*318	7.14	1220	6.7	8.1	24
14...	0905	55.0	22.5	746	1028	1028	*318	7.14	1220	6.7	8.2	26
14...	0907	75.0	22.5	746	1028	1028	*318	7.14	1220	6.9	8.2	31
14...	0915	95.0	22.5	746	1028	1028	*318	7.14	1220	7.0	8.2	34
14...	0920	115	22.5	746	1028	1028	*318	7.14	1220	7.0	8.2	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
15...	1230	1028	80020	834	1170	8.1	25.0	18.0	56	750	6.8	71
JAN												
29...	1600	1028	80020	1060	1170	8.4	0.0	7.0	41	745	9.7	82
MAR												
20...	1145	1028	80020	622	1300	8.2	19.5	14.5	30	741	10.6	108
MAY												
07...	1145	1028	80020	3320	651	8.1	23.0	18.5	300	748	8.6	94
JUN												
26...	1045	1028	80020	1600	961	8.4	31.0	28.0	140	743	9.2	122
AUG												
14...	0830	1028	80020	*318	1210	8.3	20.0	23.0	15	746	7.0	84

*Mean daily discharge

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN DIS- SOLVED (MG/L AS N)	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)
NOV 15...	--	130	100	560	320	140	50	66	20	1	4.2	280
JAN 29...	--	140	--	510	200	130	46	53	18	1	2.6	371
MAR 20...	--	100	61	570	--	130	59	75	22	1	3.1	--
MAY 07...	--	K770	860	260	110	65	24	30	20	0.8	3.9	183
JUN 26...	--	K110	300	440	250	110	40	43	17	0.9	5.1	223
AUG 14...	0.91	110	280	490	290	100	57	81	26	2	4.6	232
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 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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
NOV 15...	0	236	440	74	0.40	11	882	931	1.20	1990	0.280	--
JAN 29...	7	316	310	62	0.30	11	806	808	1.10	2310	0.690	0.680
MAR 20...	--	--	430	86	0.30	4.7	924	918	1.26	1550	0.070	0.037
MAY 07...	0	150	140	34	0.20	6.9	408	394	0.55	3660	--	--
JUN 26...	1	184	310	49	0.40	11	747	681	1.02	3230	0.300	0.310
AUG 14...	4	197	310	82	0.30	11	828	767	1.13	711	0.170	0.190
DATE	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)	NITRO- GEN, N02+N03 TOTAL (MG/L AS N)	NITRO- GEN, N02+N03 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, ORGANIC DIS- SOLVED (MG/L AS N)
NOV 15...	--	0.020	<0.010	--	0.300	0.300	--	0.720	--	0.93	0.64	--
JAN 29...	3.0	0.010	0.020	0.07	0.700	0.700	0.050	0.060	0.06	0.08	0.65	--
MAR 20...	0.16	0.020	0.020	0.07	0.090	0.057	0.020	0.010	0.03	0.01	0.38	--
MAY 07...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 26...	1.4	0.020	0.010	0.03	0.320	0.320	0.010	0.010	0.01	0.01	1.1	--
AUG 14...	0.84	0.040	0.020	0.07	0.210	0.210	0.030	0.030	0.04	0.04	0.87	0.67
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (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 DIS- SOLVED (MG/L AS P)	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)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	
NOV 15...	0.70	--	1.0	4.4	0.130	0.09	0.050	0.030	0.020	0.06	<10	
JAN 29...	0.70	--	1.4	6.2	0.160	0.18	0.100	0.060	0.070	0.21	--	
MAR 20...	0.40	--	0.49	2.2	0.120	0.21	0.040	0.070	0.010	0.03	10	
MAY 07...	--	--	--	--	--	--	--	--	--	--	--	
JUN 26...	1.1	--	1.4	6.3	0.340	0.15	0.110	0.050	0.050	0.15	--	
AUG 14...	0.90	0.70	1.1	4.9	0.170	0.21	0.120	0.070	0.050	0.15	100	

RED RIVER BASIN

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07331000 WASHITA RIVER NEAR DICKSON, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 15...	2	200	<0.5	<1.0	<1	<3	2	4	<1	23	5
JAN 29...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	2	130	<0.5	<1.0	2	<3	2	8	<1	22	12
MAY 07...	--	--	--	--	--	--	--	--	--	--	--
JUN 26...	--	--	--	--	--	--	--	--	--	--	--
AUG 14...	2	200	<0.5	<1.0	2	<3	5	8	<1	20	6
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
NOV 15...	0.3	<10	5	<2	<1.0	1500	<6	3	245	552	17
JAN 29...	--	--	--	--	--	--	--	--	226	647	18
MAR 20...	<0.1	<10	1	<1	<1.0	1600	<6	<3	99	186	34
MAY 07...	--	--	--	--	--	--	--	--	1430	12800	65
JUN 26...	--	--	--	--	--	--	--	--	369	1590	97
AUG 14...	0.1	<10	2	<1	<1.0	1500	<6	<3	29	25	51

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 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.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 6,028,000 acre-ft, May 6, 1990, elevation, 644.76 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, 3,404,000 acre-ft, June 13, elevation, 624.76 ft. Minimum, 2,584,000 acre-ft, Apr. 22, elevation, 618.32 ft.

Capacity table (elevation, in feet, and contents, in acre-ft)			
614	2,399,000	632	4,240,000
620	2,920,000	638	5,029,000
626	3,538,000	645	6,066,000

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2620000	2612000	2645000	2624000	2623000	2614000	2642000	2627000	2722000	2799000	2760000	2648000
2	2617000	2608000	2663000	2630000	2625000	2619000	2629000	2630000	2721000	2788000	2757000	2649000
3	2624000	2628000	2654000	2628000	2632000	2607000	2630000	2675000	2721000	2776000	2747000	2652000
4	2620000	2629000	2647000	2616000	2635000	2607000	2627000	2696000	2705000	2772000	2729000	2662000
5	2618000	2627000	2637000	2621000	2636000	2609000	2625000	2721000	2726000	2765000	2712000	2667000
6	2616000	2629000	2637000	2631000	2640000	2610000	2622000	2728000	2799000	2759000	2704000	2665000
7	2619000	2635000	2629000	2631000	2641000	2607000	2615000	2710000	2678000	2753000	2695000	2675000
8	2631000	2647000	2629000	2633000	2643000	2605000	2615000	2696000	3073000	2745000	2681000	2682000
9	2628000	2650000	2632000	2641000	2658000	2607000	2612000	2683000	3194000	2741000	2673000	2670000
10	2625000	2656000	2632000	2651000	2662000	2607000	2602000	2678000	3315000	2735000	2669000	2655000
11	2625000	2665000	2628000	2649000	2665000	2606000	2605000	2671000	3364000	2731000	2669000	2645000
12	2627000	2673000	2632000	2658000	2658000	2611000	2615000	2662000	3394000	2725000	2666000	2640000
13	2627000	2676000	2628000	2668000	2658000	2607000	2615000	2651000	3381000	2727000	2667000	2644000
14	2629000	2674000	2624000	2677000	2655000	2599000	2612000	2640000	3349000	2714000	2684000	2653000
15	2630000	2669000	2628000	2674000	2646000	2596000	2607000	2631000	3320000	2709000	2660000	2668000
16	2632000	2668000	2633000	2668000	2638000	2605000	2602000	2627000	3335000	2707000	2657000	2668000
17	2639000	2660000	2636000	2663000	2631000	2606000	2602000	2627000	3316000	2697000	2653000	2675000
18	2634000	2657000	2638000	2662000	2633000	2603000	2600000	2627000	3289000	2690000	2654000	2663000
19	2629000	2652000	2636000	2666000	2624000	2601000	2595000	2627000	3213000	2685000	2651000	2658000
20	2638000	2644000	2644000	2672000	2619000	2603000	2590000	2628000	3151000	2676000	2645000	2674000
21	2636000	2641000	2642000	2668000	2616000	2615000	2586000	2630000	3089000	2673000	2643000	2702000
22	2632000	2634000	2634000	2664000	2617000	2643000	2590000	2634000	3042000	2669000	2644000	2698000
23	2628000	2635000	2624000	2658000	2619000	2666000	2592000	2635000	3050000	2665000	2642000	2675000
24	2627000	2636000	2624000	2647000	2625000	2682000	2605000	2649000	3025000	2667000	2641000	2672000
25	2620000	2638000	2610000	2647000	2621000	2682000	2614000	2642000	2978000	2664000	2642000	2668000
26	2616000	2644000	2609000	2641000	2617000	2681000	2619000	2653000	2936000	2663000	2639000	2660000
27	2619000	2654000	2611000	2640000	2612000	2685000	2621000	2680000	2899000	2678000	2635000	2658000
28	2619000	2652000	2615000	2637000	2609000	2685000	2632000	2710000	2864000	2689000	2628000	2658000
29	2616000	2647000	2627000	2638000	---	2672000	2628000	2728000	2840000	2700000	2626000	2657000
30	2615000	2641000	2628000	2636000	---	2665000	2630000	2732000	2814000	2735000	2638000	2654000
31	2614000	---	2621000	2627000	---	2654000	---	2731000	---	2755000	2640000	---
MAX	2639000	2676000	2663000	2677000	2665000	2685000	2642000	2732000	3394000	2799000	2760000	2702000
MIN	2614000	2608000	2609000	2618000	2609000	2596000	2586000	2627000	2705000	2663000	2626000	2640000
(+)	616.66	616.97	616.75	616.81	616.61	617.12	616.85	617.98	618.88	618.24	616.96	617.12
(++)	-9,000	+27,000	-20,000	+8,000	-18,000	+45,000	-24,000	+101,000	+83,000	-59,000	-115,000	+14,000

CAL YR 1990 MAX 6011000 MIN 2448000 (++) +176,000
WTR YR 1991 MAX 3394000 MIN 2586000 (++) +31,000

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

07332500 BLUE RIVER NEAR BLUE, OK

LOCATION (REVISED).-- Lat 33°59'49", long 96°14'27", on line between sec.27 and 34, T.8 S., R.10 E., Bryan County, Hydrologic Unit 11140102, on left bank on downstream side near end 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 503.60 ft (revised) 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.

AVERAGE DISCHARGE.-- 55 years, 313 ft³/s, 8.93 in/yr, 226,800 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. 23	1300	4,360	18.18	June 9	0900	*23,600	*31.32
Apr. 18	1830	4,470	18.43	June 23	0800	5,160	19.93
May 3	1500	4,730	19.07				

Minimum daily discharge, 69 ft³/s, Dec. 13, 15, Aug. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	72	135	200	158	104	187	256	138	251	179	109
2	106	70	120	180	154	104	188	238	134	235	160	99
3	103	70	153	184	152	99	333	3870	205	223	146	96
4	104	97	175	171	152	95	846	2510	750	218	138	95
5	103	542	132	158	158	94	371	981	358	246	131	86
6	97	232	106	511	278	93	252	497	298	221	127	82
7	94	146	96	964	307	88	222	359	420	199	121	90
8	291	115	88	427	196	82	215	378	7750	182	108	107
9	1290	701	85	279	167	81	194	1330	21500	172	104	199
10	512	410	81	953	155	83	168	789	9760	166	109	149
11	205	200	80	1040	148	82	153	465	2620	165	107	95
12	145	140	79	500	145	80	608	343	804	160	106	84
13	121	116	69	298	144	80	376	290	604	154	106	80
14	103	95	70	241	140	79	454	279	493	150	122	76
15	96	86	69	805	130	72	250	547	422	218	113	77
16	90	78	88	1070	120	72	186	391	512	158	104	77
17	85	76	274	480	119	86	182	254	2270	136	100	662
18	85	76	704	937	122	145	3660	221	1210	125	97	e1500
19	85	76	564	1840	122	152	1890	215	503	118	92	791
20	78	74	241	1520	116	110	399	222	397	119	89	388
21	143	71	101	555	112	95	276	199	348	117	86	256
22	139	71	134	349	113	2200	829	197	441	112	84	184
23	97	77	98	291	112	4020	1200	197	3660	109	83	160
24	83	80	86	264	107	873	467	188	1920	107	84	173
25	74	72	103	239	104	359	1680	331	734	700	80	197
26	75	72	104	219	102	280	660	291	486	e1300	76	184
27	73	317	106	209	99	416	392	223	372	357	77	147
28	73	742	129	203	101	873	480	185	322	925	72	132
29	73	315	314	190	---	350	1610	163	287	1090	69	122
30	72	176	845	182	---	261	454	151	267	301	72	118
31	70	---	381	169	---	211	---	145	---	207	127	---
TOTAL	4875	5485	5870	15408	4033	11819	19142	16703	59985	8939	3269	6615
MEAN	157	182	189	497	144	381	638	539	1999	288	105	220
MAX	1290	742	845	1640	307	4020	3660	3870	21500	1300	179	1500
MIN	70	70	69	158	99	72	153	145	134	107	69	76
AC-FT	9870	10840	11640	30560	8000	23440	37970	33130	118900	17730	6480	13120

CAL YR 1990 TOTAL 346892 MEAN 950 MAX 36300 MIN 16 AC-FT 688100
WTR YR 1991 TOTAL 182103 MEAN 444 MAX 21500 MIN 69 AC-FT 921500

e Estimated

RED RIVER BASIN

07334000 MUDDY BOGGY CREEK NEAR FARRIS, OK

LOCATION.-- Lat 34°18'17", 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 439.58 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 7 ft higher. Prior to Oct. 1, 1989, water-stage recorder at same site and datum 5 ft higher.

REMARKS.-- Records fair. Some regulation since June 1959 by Atoka Reservoir, drainage area, 178 mi². pipeline diversions to Oklahoma City since November 1963, and since April 1987 by McGee Creek Lake, drainage area 178 mi². U.S. Army Corps of Engineers' satellite telemeter at station.

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, 51.94 ft, current datum, from rating curve extended above 37,000 ft³/s; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 12,800 ft³/s, June 9, gage height, 36.31 ft; minimum daily discharge, 12 ft³/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	28	813	e2400	134	73	865	1490	173	98	195	25
2	82	27	877	e2200	116	69	427	937	144	79	136	101
3	42	26	730	e1800	105	60	432	6380	e300	68	98	119
4	28	29	1420	1540	100	59	2370	6250	e500	88	78	78
5	20	341	1180	976	109	62	2910	4920	e2000	135	62	65
6	16	1190	653	1210	248	81	1070	2570	2990	100	52	58
7	12	537	345	2620	450	57	746	1830	3170	94	45	78
8	1540	273	253	2690	348	54	852	1720	6460	78	40	78
9	1090	333	182	1950	165	52	750	2530	12500	62	35	61
10	1160	649	146	1920	147	50	940	2260	11400	51	30	455
11	1350	664	124	3060	131	49	480	1930	9890	39	28	258
12	697	378	107	2850	122	48	1360	1790	7800	32	25	111
13	204	234	91	1540	115	48	1240	910	2340	27	24	67
14	142	157	100	907	106	45	1340	369	1590	24	23	47
15	105	117	92	958	101	44	1250	2330	1470	22	23	36
16	84	89	103	2380	108	43	1330	3330	3360	25	25	36
17	69	70	188	2460	94	54	1190	1580	2920	30	22	100
18	59	58	628	2320	87	451	1680	1060	2030	26	20	1220
19	49	51	1350	2700	79	838	1160	881	1180	22	19	593
20	49	41	1510	3340	74	378	1000	1010	987	19	22	972
21	62	37	1090	2380	75	308	900	1010	736	17	22	724
22	56	44	e900	1190	71	6990	2170	828	467	15	18	299
23	58	48	e600	709	68	5400	1870	831	2540	14	16	159
24	49	112	e350	560	64	2880	918	711	2510	14	17	105
25	42	106	e250	428	62	1700	799	502	1560	62	18	76
26	37	87	e200	315	61	1770	598	1310	1030	90	19	59
27	34	796	e220	264	62	2270	1080	1130	340	56	21	48
28	32	2970	e300	219	58	3240	991	473	229	1800	24	41
29	31	3190	e450	190	---	2010	3020	314	168	2930	25	36
30	31	1350	e800	190	---	1340	2810	236	128	790	21	32
31	29	---	e2200	181	---	1130	---	200	---	313	19	---
TOTAL	7335	14032	18052	48447	3480	31631	38348	53622	82912	7220	1220	6137
MEAN	237	468	582	1563	124	1020	1278	1730	2764	233	39.4	205
MAX	1540	3190	2200	3340	450	6990	3020	6380	12500	2930	195	1220
MIN	12	26	91	181	58	43	427	200	128	14	16	25
AC-FT	14550	27830	35810	96090	6860	62740	76060	106400	164500	14320	2420	12170

CAL YR 1990 TOTAL 819891 MEAN 2246 MAX 45700 MIN 12 AC-FT 1626000
WTR YR 1991 TOTAL 312416 MEAN 856 MAX 12500 MIN 12 AC-FT 819700

e Estimated

RED RIVER BASIN

389

07334200 BYRDS MILL SPRING NEAR FITTSTOWN, OK

LOCATION.-- Lat 34°35'40", 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- Creek only, April 1959 to current year. Combined flow from December 1989 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. Flow meters on diversion pipe and wells, to City of Ada.

REMARKS.-- Records fair. Prior to December 1989 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. Satellite telemeter at station.

AVERAGE DISCHARGE.-- Creek only: 32 years, 8.15 ft³/s, 5,905 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Combined flow: maximum daily discharge, 43 ft³/s, May 4, 5, 1990; minimum daily discharge, 13 ft³/s, several days in 1990.

EXTREMES FOR CURRENT YEAR.-- Combined flow: maximum daily discharge, 33 ft³/s, June 23-30; minimum daily discharge, 17 ft³/s, Dec. 4.

DISCHARGE, CUBIC FEET PER SECOND, CREEK FLOW, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	12	13	11	15	15	14	16	16	22	14	12
2	13	12	13	11	15	15	14	16	16	21	14	12
3	13	12	13	12	15	15	14	16	16	20	14	14
4	13	12	13	12	15	15	14	16	16	20	14	12
5	13	13	13	12	15	15	14	17	16	20	14	12
6	13	13	13	12	15	15	14	17	16	20	14	12
7	13	13	12	12	15	15	14	17	16	19	13	12
8	13	13	12	12	15	15	15	17	18	19	13	12
9	13	13	12	13	15	15	15	17	19	19	13	12
10	13	13	12	13	15	14	15	17	20	19	13	12
11	13	13	13	13	15	14	15	17	20	19	13	12
12	13	13	13	13	15	14	15	17	21	18	14	12
13	13	13	12	13	15	14	15	17	20	18	15	12
14	13	13	12	13	15	14	15	17	20	17	15	12
15	13	13	12	14	15	14	15	17	20	15	15	12
16	13	13	12	14	15	14	15	17	21	15	15	12
17	13	13	12	14	15	14	15	17	22	15	15	12
18	13	13	12	14	15	13	15	17	22	14	14	13
19	13	13	12	15	15	13	15	17	22	14	14	13
20	13	13	12	15	15	13	15	17	22	14	14	13
21	13	13	12	15	15	13	15	17	22	14	14	13
22	13	12	12	15	15	13	15	17	22	14	13	13
23	12	12	12	15	15	13	15	17	23	14	13	13
24	12	12	12	15	15	14	15	18	23	14	13	14
25	12	12	12	15	15	14	15	18	23	13	13	14
26	12	12	12	15	15	14	15	18	23	13	13	15
27	12	13	12	15	15	13	15	18	23	14	13	15
28	12	13	11	15	15	14	16	18	23	14	13	15
29	12	13	11	15	---	14	16	18	23	14	12	15
30	12	14	11	15	---	14	16	18	23	14	12	14
31	13	---	11	15	---	14	---	17	---	16	12	---
TOTAL	396	382	376	423	420	436	448	530	607	512	421	386
MEAN	12.8	12.7	12.1	13.6	15.0	14.1	14.9	17.1	20.2	16.5	13.6	12.9
MAX	14	14	13	15	15	15	16	18	23	22	15	15
MIN	12	12	11	11	15	13	14	16	16	13	12	12
AC-FT	785	758	746	839	833	865	885	1050	1200	1020	835	766

CAL YR 1990 TOTAL 5593.1 MEAN 15.3 MAX 34 MIN 3.8 AC-FT 11090
WTR YR 1991 TOTAL 5335 MEAN 14.6 MAX 23 MIN 11 AC-FT 10580

07334200 BYRDS WILL SPRING NEAR FITTSTOWN, OK--Continued

DISCHARGE, CUBIC FEET PER SECOND, COMBINED SPRING FLOW, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	20	18	20	22	22	22	24	26	32	25	21
2	21	19	18	20	22	22	22	24	26	30	25	21
3	21	19	18	20	22	22	22	24	26	29	25	23
4	21	19	17	20	22	22	22	24	26	28	25	20
5	21	20	18	20	22	22	22	25	26	29	25	20
6	21	20	19	20	22	22	22	25	26	29	25	20
7	21	20	20	20	22	22	22	25	26	28	24	21
8	21	20	20	20	22	22	23	25	28	28	24	21
9	21	20	20	21	22	22	23	25	29	28	24	20
10	21	20	20	21	22	22	23	25	30	28	24	21
11	21	20	20	21	22	22	23	25	30	29	24	21
12	21	20	20	21	22	22	23	25	31	26	24	21
13	21	20	19	21	22	22	23	25	30	26	23	21
14	21	20	19	21	22	22	23	25	30	26	23	21
15	21	20	19	22	22	22	23	25	30	26	23	21
16	21	20	19	21	22	22	23	25	31	26	23	21
17	21	20	19	21	22	22	23	25	32	26	23	22
18	21	20	19	21	22	21	23	25	32	25	22	23
19	21	20	19	22	22	21	23	25	32	25	22	23
20	21	20	19	22	22	21	23	25	32	25	22	23
21	21	20	19	22	22	21	23	25	32	25	22	23
22	21	19	19	22	22	21	23	25	32	26	21	23
23	20	19	19	22	22	21	23	25	33	25	21	23
24	20	19	19	22	22	22	23	26	33	25	21	25
25	20	19	19	22	22	22	23	26	33	24	21	25
26	20	19	19	22	22	22	23	26	33	24	21	24
27	20	19	20	22	22	21	23	26	33	25	21	24
28	20	18	20	22	22	22	24	26	33	25	22	24
29	20	18	20	22	---	22	24	26	33	25	21	24
30	20	20	20	22	---	22	24	26	33	25	21	24
31	22	---	20	22	---	22	---	27	---	27	21	---
TOTAL	646	587	594	657	616	675	686	780	907	825	708	664
MEAN	20.8	19.6	19.2	21.2	22.0	21.8	22.9	25.2	30.2	26.6	22.8	22.1
MAX	23	20	20	22	22	22	24	27	33	32	25	26
MIN	20	18	17	20	22	21	22	24	26	24	21	20
AC-FT	1280	1160	1180	1300	1220	1340	1360	1550	1800	1640	1400	1320
CAL YR 1990	TOTAL 8635		MEAN 23.7	MAX 43	MIN 13	AC-FT 17130						
WTR YR 1991	TOTAL 8345		MEAN 22.9	MAX 33	MIN 17	AC-FT 16550						

07334200 BYRDS MILL SPRING NEAR FITTSTOWN, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1953, 1955-58, October 1989 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 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER)	AGENCY ANALYZING SAMPLE (CODE NUMBER)	DISCHARGE, INST. (CUBIC FEET PER SECOND)	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)	
DEC 04...	1230	1028	80020	13	610	7.4	4.0	17.0	743	7.8	83	
MAR 19...	1145	1028	80020	13	660	7.5	18.5	17.5	731	7.6	83	
MAY 15...	1430	1028	80020	17	625	7.4	26.0	18.0	730	8.3	92	
AUG 20...	1345	1028	80020	15	605	7.6	31.0	17.5	740	8.2	88	
DATE		HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARBONATE (MG/L AS CaCO3)	CALCIUM DISSOLVED (MG/L AS Ca)	MAGNESIUM DISSOLVED (MG/L AS Mg)	SODIUM DISSOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM DISSOLVED (MG/L AS K)	BICARBONATE WATER DISINTEGRATED FIELD (MG/L AS HCO3)	CARBONATE WATER DISINTEGRATED FIELD (MG/L AS CO3)	ALKALINITY WATER DISINTEGRATED FIELD (MG/L AS CaCO3)
DEC 04...	330	0	74	36	5.2	3	0.1	1.8	409	0	335	
MAR 19...	340	0	77	37	4.8	3	0.1	1.4	438	0	359	
MAY 15...	330	0	73	35	4.6	3	0.1	1.4	410	0	336	
AUG 20...	340	9	76	36	4.2	3	0.1	1.5	401	0	329	
DATE		SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE DISSOLVED (MG/L AS CL)	FLUORIDE DISSOLVED (MG/L AS F)	SILICA DISSOLVED (MG/L AS SiO2)	SOLIDS RESIDUE AT 180 DEG. C (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)
DEC 04...	12	8.1	<0.10	11	324	353	0.44	11.7	<0.010	0.800	0.040	
MAR 19...	7.6	8.4	<0.10	11	--	364	0.49	13.3	<0.010	0.630	<0.010	
MAY 15...	15	--	0.20	11	343	--	0.47	16.0	<0.010	0.990	0.020	
AUG 20...	8.8	7.0	0.10	11	326	346	0.44	13.2	<0.010	0.940	<0.010	
DATE		NITROGEN AMMONIA DISSOLVED (MG/L AS NH4)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM DISSOLVED (UG/L AS BA)	BERYLLIUM DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM DISSOLVED (UG/L AS CR)	COBALT DISSOLVED (UG/L AS CO)	COPPER DISSOLVED (UG/L AS CU)	IRON DISSOLVED (UG/L AS FE)
DEC 04...	0.05	0.010	0.03	<1	64	<0.5	<1.0	<5	<3	<10	<3	
MAR 19...	--	<0.010	--	<1	53	<0.5	<1.0	<5	<3	<10	7	
MAY 15...	0.03	<0.010	--	<1	51	<0.5	<1.0	<5	<3	<10	7	
AUG 20...	--	<0.010	--	<1	51	<0.5	<1.0	<5	<3	<10	13	
DATE		LEAD DISSOLVED (UG/L AS Pb)	LITHIUM DISSOLVED (UG/L AS Li)	MANGANESE DISSOLVED (UG/L AS Mn)	MERCURY DISSOLVED (UG/L AS Hg)	MOLYBDENUM DISSOLVED (UG/L AS Mo)	NICKEL DISSOLVED (UG/L AS Ni)	SELENIUM DISSOLVED (UG/L AS Se)	SILVER DISSOLVED (UG/L AS Ag)	STRONTIUM DISSOLVED (UG/L AS Sr)	VANADIUM DISSOLVED (UG/L AS V)	ZINC DISSOLVED (UG/L AS Zn)
DEC 04...	<10	7	2	<0.1	<10	<10	<1	<1.0	190	<6	4	
MAR 19...	<10	<4	<1	<0.1	<10	<10	2	<1.0	160	<6	5	
MAY 15...	<10	<4	<1	<0.1	<10	<10	<1	<1.0	150	<6	9	
AUG 20...	<10	<4	2	0.2	<10	<10	<1	<1.0	150	<6	18	

RED RIVER BASIN

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. Prior to Sept. 19, 1985, gage 500 ft downstream at same datum.

REMARKS.-- No estimated daily discharges. Records good. Some regulation by Atoka and McGee Creek Reservoirs. U.S. Army Corp of Engineers' telemeter at site.

AVERAGE DISCHARGE.-- 9 years, 2,084 ft³/s, 1,510,000 acre-ft/year.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 76,700 ft³/s, May 6, 1990, gage height, 55.27 ft; minimum daily discharge, 1.8 ft³/s, Sept. 8, 1984.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 21,200 ft³/s, June 12, gage height, 43.28 ft; minimum daily discharge, 100 ft³/s, Aug. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	867	143	2550	4570	676	326	1660	4620	306	811	1270	149
2	677	137	1490	2970	606	357	1210	2420	274	679	884	146
3	548	138	1300	2510	550	349	803	4930	523	545	638	169
4	427	161	1360	2540	516	294	961	7500	853	492	423	225
5	331	212	2120	2480	683	272	4130	9190	3140	690	317	246
6	271	516	1760	2490	1210	262	4800	9980	4630	610	265	185
7	235	1540	1060	3650	1080	255	2620	9330	5670	466	233	165
8	1900	990	630	4970	1080	245	2120	6900	6890	383	204	176
9	6330	980	490	5030	1040	235	1490	4340	7410	330	184	189
10	6010	1030	398	4800	743	227	1340	4740	9820	288	169	228
11	3580	1310	342	4880	595	222	1300	4300	15700	258	159	634
12	2310	1260	314	5790	525	220	4770	3290	20300	234	163	550
13	1230	874	290	5670	475	218	6350	2430	20900	215	157	326
14	551	594	272	3700	448	210	6600	1410	18800	200	151	235
15	375	431	260	2640	424	205	3970	3570	15800	189	150	193
16	295	348	273	3220	385	204	2390	4490	13300	178	154	174
17	249	297	377	4950	356	251	2270	4180	11500	185	147	157
18	233	263	1270	5080	382	326	6910	2230	10100	206	145	205
19	234	242	2460	5470	348	697	7270	1650	8950	206	138	1580
20	199	231	2930	6140	326	1370	7190	2350	8050	192	131	1380
21	269	219	2940	6520	309	904	5830	2050	6990	176	125	1890
22	356	213	2140	6120	313	3190	3460	1610	4820	163	148	1610
23	286	217	1270	3750	313	6940	4780	1340	4240	151	141	1100
24	227	221	906	2310	298	7970	4570	1170	4980	147	123	837
25	202	222	646	1760	286	8290	3930	1100	5060	215	111	590
26	182	263	441	1420	278	7550	3090	802	3610	287	105	435
27	167	277	494	1140	269	5700	1940	1900	2440	436	100	358
28	156	1470	624	986	263	5110	2330	1510	1550	852	106	294
29	148	4230	908	859	---	5020	3910	786	1210	3160	108	254
30	143	4440	2150	769	---	3370	5240	528	969	4790	204	226
31	140	---	4790	695	---	2120	---	401	---	2620	160	---
TOTAL	29188	23468	39255	109879	14757	62909	109234	107127	218785	20354	7513	14906
MEAN	942	782	1266	3544	527	2029	3641	3456	7293	657	242	497
MAX	6330	4440	4790	6520	1210	8290	7270	9980	20900	4790	1270	1890
MIN	140	137	260	695	263	204	803	401	274	147	100	146
AC-FT	57890	46550	77860	217900	29270	124800	216700	212500	434000	40370	14900	29570

CAL YR 1990 TOTAL 1891285 MEAN 5182 MAX 76000 MIN 51 AC-FT 3751000
WTR YR 1991 TOTAL 757375 MEAN 2075 MAX 20900 MIN 100 AC-FT 1502000

RED RIVER BASIN

393

07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.-- Lat 33°52'30", long 95°30'00", 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 (gauge 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. Gauge-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 fair. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi upstream from station. U.S. Army Corps of Engineers' satellite telemeter at station.

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, 47 years (water years 1945-91), 8,710 ft³/s, 6,310,000 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, 1958, gage height, 4.49 ft.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 51,300 ft³/s, June 23, gage height, 17.26 ft; minimum daily discharge, 1,060 ft³/s, Oct. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6400	1600	7970	6780	5480	4040	10200	12400	12000	e17000	13800	4170
2	5340	1910	6220	6950	5110	4150	9800	9050	11900	15300	13000	4120
3	4490	2060	4040	4880	4560	3290	9120	15200	12300	12900	12700	3610
4	3570	2590	2670	3800	3180	1700	9240	35600	13000	11900	12400	2590
5	2980	2700	2830	4600	3480	3870	11500	31700	17400	11000	12200	3710
6	2670	2010	4480	e6000	5390	3600	14200	23200	34200	9910	12100	4640
7	3030	3720	6230	e8900	6980	2760	12400	19200	37700	9400	10600	8230
8	3720	5360	4920	e9900	6150	2390	11400	22200	43400	9040	8860	10700
9	9780	4070	4050	9240	5350	2260	10300	26700	48600	8790	8450	11100
10	12200	3380	2650	10600	3210	3170	7520	28900	49500	8510	8390	16700
11	10600	4750	1590	11300	2350	2070	7050	19600	44800	7330	8120	18500
12	6680	3870	1470	11900	2020	1310	17300	16900	42700	6870	5030	14700
13	4580	2470	2370	13900	2480	1170	20600	15300	43500	6730	3530	10600
14	3350	1850	2270	8860	4850	1550	24100	14100	46100	6730	4770	8100
15	2620	2000	2210	6120	5560	3010	18300	15300	48600	6430	4830	7160
16	1990	3670	2520	9290	5530	3290	12000	17200	47600	6490	4440	4050
17	1570	4720	2000	14000	5570	2850	9020	14200	44400	6400	4400	3670
18	1440	4930	2140	15200	5810	2680	15300	11000	39800	6340	4300	9850
19	1320	4950	3710	18900	5300	1550	19700	9520	45200	6280	4240	23300
20	1540	4950	5710	19300	5180	2300	17200	9890	47200	6210	3280	25200
21	1590	4890	5430	17300	5300	3130	13800	10000	46500	6140	3230	21500
22	2180	4920	4750	15400	e4500	4140	11700	9270	44500	6050	4060	22400
23	2130	5890	4550	12700	e4000	9930	13100	7620	48700	6170	3890	31300
24	2390	6060	5390	11100	e3400	13700	13200	7320	38800	6120	3310	30400
25	2960	3060	5680	10800	e2500	14200	10100	8640	29100	6580	3920	23800
26	2940	1550	4660	10200	e1950	12100	11800	7620	34100	6390	3800	20000
27	3220	1280	3640	7890	2230	13700	9480	7410	e32600	6900	2960	19300
28	3010	1300	3760	7340	3460	12700	7420	7520	e27800	8110	2930	16700
29	2030	4940	3090	7170	---	13800	9720	8370	e22900	9200	3730	12500
30	1280	9030	3040	6800	---	13300	13600	12200	e19800	11200	4480	11400
31	1060	---	5300	5310	---	11100	---	12200	---	11900	4370	---
TOTAL	114640	110280	121340	310430	120880	174810	380170	463330	1074700	264320	199940	404000
MEAN	3698	3676	3914	10010	4317	5639	12670	14950	35820	8526	6450	13470
MAX	12200	9030	7970	19300	6980	14200	24100	35600	49500	17000	13600	31300
MIN	1060	1280	1470	3800	1950	1170	7050	7320	11900	6050	2930	2590
AC-FT	227400	218700	240700	615700	239800	346700	754100	919000	2132000	524300	396600	801300

CAL YR 1990 TOTAL 8573211 MEAN 23490 MAX 269000 MIN 517 AC-FT 170000000
WTR YR 1991 TOTAL 3738840 MEAN 10240 MAX 49500 MIN 1060 AC-FT 74160000

e Estimated

RED RIVER BASIN

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 157.6.

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.-- 26 years, 82.7 ft³/s, 28.0 in/yr, 59,920 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 27,400 ft³/s, May 19, 1990, gage height, 19.60 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)
Oct. 7	1900	2,270	9.52	Apr. 13	1645	10,100	14.51
Oct. 8	1500	8,910	13.99	May 3	0415	2,180	9.06
Mar. 22	0815	*11,200	*14.98	July 27	1515	3,930	10.98
Apr. 12	0630	8,120	13.62	July 28	0730	10,200	14.56

Minimum daily discharge, 0.68 ft³/s July 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	9.8	67	197	33	154	124	83	20	7.2	50	2.8
2	6.5	11	79	188	30	148	100	67	22	5.9	35	2.3
3	8.8	11	227	159	29	104	124	882	18	5.9	26	2.6
4	20	57	147	133	28	84	103	297	13	8.9	19	2.4
5	21	82	114	128	41	72	88	258	11	6.1	14	6.5
6	17	60	92	533	96	64	82	170	10	4.9	10	5.9
7	577	51	75	413	88	54	159	122	8.2	4.2	8.3	6.1
8	1840	45	63	217	80	46	185	95	7.5	3.6	6.5	20
9	1480	141	53	177	73	40	140	76	6.4	3.1	5.5	17
10	325	124	42	406	65	35	109	64	5.7	2.6	4.4	12
11	165	97	39	314	57	32	90	53	16	2.3	3.9	9.0
12	105	77	37	212	52	31	1880	43	12	1.9	3.3	7.3
13	75	64	33	163	51	28	3240	36	9.1	1.6	4.5	6.2
14	58	53	30	132	45	26	909	30	7.5	1.5	5.4	5.4
15	43	46	28	390	38	24	403	28	7.7	1.3	3.4	4.7
16	35	39	29	303	35	22	246	27	56	1.2	3.4	6.0
17	30	34	13	208	35	44	193	24	34	1.1	4.5	22
18	25	31	65	172	34	39	950	19	22	1.0	4.0	29
19	21	28	99	172	31	35	325	19	17	.97	2.9	28
20	18	26	90	145	28	35	205	24	13	.89	2.4	24
21	26	26	112	122	26	40	153	41	9.9	.81	2.5	20
22	23	27	101	108	24	2370	142	45	73	.78	2.7	16
23	19	24	86	95	22	469	106	58	159	.68	2.1	13
24	16	22	77	81	21	237	83	43	55	184	1.8	11
25	14	20	66	70	21	181	84	168	37	132	1.5	9.3
26	13	23	60	62	19	126	60	102	28	61	1.5	7.6
27	11	63	77	56	18	215	157	70	21	775	1.5	6.5
28	11	99	94	52	17	174	153	51	16	2300	2.1	5.7
29	9.8	85	652	45	---	249	149	39	13	286	1.6	5.2
30	9.3	75	627	42	---	204	107	31	9.5	122	1.6	4.8
31	9.1	---	281	37	---	157	---	25	---	73	2.3	---
TOTAL	5036.5	1550.8	3655	5532	1135	5517	10859	3090	737.5	3981.43	237.6	318.1
MEAN	162	51.7	118	178	40.5	178	362	99.7	24.6	128	7.66	10.6
MAX	1840	141	652	533	96	2370	3240	882	159	2300	50	29
MIN	6.5	9.8	13	37	17	22	68	19	5.7	.68	1.5	2.3
AC-FT	9990	3080	7250	10970	2250	10940	21540	6130	1460	7900	471	631
CFSM	4.05	1.29	2.94	4.45	1.01	4.44	9.03	2.49	.61	3.20	.19	.26
IN.	4.67	1.44	3.39	5.13	1.05	5.12	10.07	2.87	.68	3.69	.22	.30

CAL YR 1990 TOTAL 57107.13 MEAN 156 MAX 5360 MIN .15 AC-FT 113300 CFSM 3.90 IN. 52.90
WTR YR 1991 TOTAL 41649.93 MEAN 114 MAX 3240 MIN .68 AC-FT 82610 CFSM 2.85 IN. 38.64

RED RIVER BASIN

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07335700 KIAMICHI 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, alkalinity, and dissolved oxygen were determined in the field.

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	GAGE HEIGHT (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	SEDI- MENT, SUS- PENDED (MG/L)
AUG											
08...	1235	8.00	28.5	741	1028	1028	12	3.35	25	6.8	3
08...	1237	10.0	28.5	741	1028	1028	12	3.35	25	6.9	3
08...	1239	14.0	28.5	741	1028	1028	12	3.35	25	6.9	3
08...	1241	18.0	27.0	741	1028	1028	12	3.35	24	6.9	3
08...	1243	22.0	27.0	741	1028	1028	12	3.35	24	6.9	2
08...	1245	26.0	27.0	741	1028	1028	12	3.35	24	6.9	2
08...	1247	30.0	27.5	741	1028	1028	12	3.35	25	6.9	3
08...	1249	34.0	27.5	741	1028	1028	12	3.35	25	6.9	--
08...	1251	38.0	27.5	741	1028	1028	12	3.35	25	6.9	--
08...	1253	42.0	27.5	741	1028	1028	12	3.35	25	6.9	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DIS- CHARGE, INST. (CUBIC FEET PER SECOND)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (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)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
NOV												
07...	1000	1028	80020	53	25	7.0	12.0	12.0	--	740	9.2	88
MAR												
05...	0945	1028	80020	71	28	6.6	16.0	9.5	7.0	730	9.3	85
JUN												
18...	1315	1028	80020	23	25	6.8	26.0	24.5	9.0	740	8.5	105
AUG												
06...	1100	1028	80020	12	27	6.9	30.0	26.0	6.3	741	--	--

DATE	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)
NOV											
07...	61	140	--	--	--	--	--	--	--	--	9
MAR											
05...	K6	K18	5	0	0.94	0.65	1.7	40	0.3	0.50	7
JUN											
18...	32	37	7	0	1.2	0.90	2.0	35	0.3	1.0	8
AUG											
06...	55	130	8	0	1.5	0.99	2.0	33	0.3	0.90	10

RED RIVER BASIN

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CACO3)	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 SI02)	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)	NITROGEN, NITRITE TOTAL (MG/L AS N)
NOV 07...	0	7	<1.0	0.40	0.40	--	--	--	--	--	<0.010
MAR 05...	0	6	2.4	1.4	<0.10	7.6	24	19	0.03	4.61	<0.010
JUN 18...	0	6	1.4	1.6	0.10	8.2	23	21	0.03	1.42	<0.010
AUG 06...	0	8	2.4	2.6	<0.10	8.8	28	24	0.04	0.91	0.010
DATE	NITROGEN, NITRITE DIS- SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS NH4)	NITROGEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS- SOLVED (MG/L AS N)
NOV 07...	<0.010	<0.100	<0.100	0.020	--	0.03	--	--	--	<0.20	--
MAR 05...	<0.010	<0.050	<0.050	0.020	0.020	0.03	0.03	0.38	--	0.40	--
JUN 18...	<0.010	<0.050	<0.050	--	0.020	--	0.03	0.29	0.28	0.30	0.30
AUG 06...	<0.010	<0.050	<0.050	--	0.020	--	0.03	--	--	<0.20	<0.20
DATE	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS- SOLVED (MG/L AS P)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	PHOSPHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUMINUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYLLIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHROMIUM, DIS- SOLVED (UG/L AS CR)
NOV 07...	0.040	0.020	<0.010	<0.010	--	--	--	--	--	--	--
MAR 05...	0.020	0.020	<0.010	<0.010	--	50	<1	9	<0.5	<1.0	<1
JUN 18...	--	0.050	<0.010	0.010	0.03	60	<1	11	<0.5	<1.0	2
AUG 06...	0.020	0.010	<0.010	<0.010	--	80	<1	15	<0.5	<1.0	<1
DATE	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYBDENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	<3	1	56	<1	<4	2	0.5	<10	10	<1	<1.0
JUN 18...	<3	3	170	1	<4	8	<0.1	<10	1	<1	<1.0
AUG 06...	<3	2	160	<1	<4	7	0.2	<10	2	<1	<1.0
DATE	STRONTIUM, DIS- SOLVED (UG/L AS SR)	VANADIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	ALPHA, COUNT, 2 SIGMA WAT DIS AS NAT U (UG/L)	ALPHA COUNT, 2 SIGMA WAT DIS AS TH-230 (PCI/L)	ALPHA, 2 SIGMA SED SUS TOT DRY AS TH-230 (PCI/L)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	BETA, 2 SIGMA WATER, DISS, AS CS-137 (PCI/L)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)
NOV 07...	--	--	--	<0.6	<0.6	0.30	<0.60	0.20	0.9	0.50	<0.6
MAR 05...	9	<6	7	--	--	--	--	--	--	--	--
JUN 18...	12	<6	10	<0.6	<0.6	0.20	<0.60	0.30	0.8	0.50	<0.6
AUG 06...	14	<6	3	--	--	--	--	--	--	--	--

RED RIVER BASIN

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07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	BETA, 2 SIGMA WATER, DISS, AS SR90 /Y90 (PCI/L)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	BETA, 2 SIGMA SED, SUSP TOT DRY SR90Y90 (PCI/L)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	RA-226 2 SIGMA WATER, DISS, (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)	URANIUM NATURAL 2 SIGMA WATER, DISS, (UG/L)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 07...	0.8	0.50	<0.6	0.50	0.11	0.020	0.01	<1.0	49	7.0	<1
MAR 05...	--	--	--	--	--	--	--	--	<1	--	38
JUN 18...	0.8	0.40	<0.6	0.50	<0.02	--	<0.01	<1.0	116	7.1	1
AUG 06...	--	--	--	--	--	--	--	--	<1	--	75

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; 488,100 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.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 489,300 acre-ft, May 3, 4, 1990, elevation, 612.14 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, 293,600 acre-ft, Apr. 15, 16, elevation, 600.38 ft; minimum contents, 264,800 acre-ft, Sept. 16, elevation, 598.29 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	273900	273400	277100	282200	273900	274500	275200	273400	273900	274300	271400	267100
2	273700	273400	277100	281800	273900	274500	273800	273700	276100	274200	270100	267100
3	273400	273300	276400	280200	273900	274500	273800	283400	276300	274100	270100	266900
4	273500	274300	275400	278900	273900	274500	274300	286400	276300	273900	270900	266900
5	273500	274500	274200	277900	273500	275000	274600	287800	276700	273500	270600	266900
6	273500	274500	274200	277600	274300	275300	274700	288300	275800	273400	270400	266900
7	274200	274500	274200	277600	274300	275400	276800	287400	274200	273000	269600	266500
8	274600	274500	274200	278900	274300	275400	276500	283400	273900	272800	269900	266500
9	276100	276000	274200	275200	274300	275400	276900	280100	273900	272300	269900	266500
10	276100	276000	274200	275000	274300	275400	274500	277900	273900	272000	269500	266500
11	276100	276300	274100	274700	274300	275300	273900	276000	274200	271500	269100	266500
12	276100	276500	273800	274700	273800	275600	282700	274200	274500	271400	268500	266400
13	276100	276500	273900	274800	273900	275600	288500	273300	274500	271000	268500	266000
14	275800	276700	273900	274500	274300	275200	292600	273000	274500	271000	268500	265500
15	275800	276700	273900	275300	273400	274700	293600	273000	274500	270600	268500	265300
16	275700	276700	274100	276300	272300	274200	293300	273000	275200	270400	268500	266300
17	276100	276700	275800	276000	272400	274900	291900	273000	275200	270100	268700	266700
18	274900	276300	277500	273900	272800	274900	293500	273100	275200	269500	268700	267200
19	274500	275200	278600	273500	272800	274900	293000	273400	274700	268800	268700	267200
20	274300	274600	278000	273900	272800	274900	291200	273900	274700	268400	268500	267200
21	274500	274100	276900	273900	272800	275600	289500	274500	274200	268300	268500	266900
22	274500	274300	276900	273900	272800	281600	289100	274500	275300	268000	268500	266500
23	274300	274100	276900	273900	272800	282900	287400	274700	275400	267900	268400	266500
24	274300	274300	276800	274700	272800	282900	283900	275000	275400	268400	268100	266500
25	274300	274300	276800	275200	272800	281800	280500	276700	275800	268400	267700	266500
26	274200	274300	276800	275400	272800	278600	277200	276800	275700	268400	267700	266300
27	274200	277100	276800	275400	272700	284800	278200	276900	275300	270100	267500	266100
28	274100	277100	277100	275400	272700	284800	278000	276400	274700	271000	267500	266000
29	273900	277100	281100	275400	---	283200	276900	274900	274700	271600	267200	265600
30	273800	277100	282200	274100	---	280700	274600	273900	274500	271500	267200	265600
31	273700	---	282200	273800	---	277600	---	274100	---	271500	267100	---
MAX	276100	277100	282200	282200	274300	284800	293600	288300	276700	274300	271400	267200
MIN	273400	273300	273800	273500	272300	274200	273800	273000	273900	267900	267100	265300
(+)	598.95	599.20	599.57	598.96	598.88	599.35	599.24	598.98	599.01	598.79	598.46	598.35
(++)	-200	+3,400	+5,100	-8,400	-1,100	+4,900	-3,000	-500	+400	-3,000	-4,400	-1,500
CAL YR 1990	MAX 489300	MIN 280900	(++)	+19,900								
WTR YR 1991	MAX 293600	MIN 265300	(++)	-8,300								

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

RED RIVER BASIN

399

07335790 KIAMICHI RIVER NEAR CLAYTON, OK

LOCATION.-- Lat 34°34'32", 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 right bank near downstream bridge abutment on U.S. Highway 271, approximately 1 mi southeast of Clayton, and at mile 101.6.

DRAINAGE AREA.-- 700 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.-- Records good. 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.-- 10 years (water years 1982-91), 1,093 ft³/s, 791,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 40,200 ft³/s, May 4, 1990, gage height, 22.23 ft; no flow Oct. 3-10, 1983.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge 13,700 ft³/s, Apr. 13, gage height, 14.35 ft; minimum daily discharge, 1.1 ft³/s, July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	e75	1210	2540	209	736	2120	1220	177	43	321	13
2	114	64	1210	2420	190	1670	1310	529	556	34	221	31
3	93	51	1680	2580	177	878	758	1270	723	29	161	42
4	88	262	1770	2280	165	588	682	1990	307	25	124	50
5	77	1780	1320	2110	166	459	541	1160	187	21	96	91
6	64	825	869	3190	324	375	435	924	600	17	74	99
7	64	545	560	5370	501	298	692	1420	894	13	56	95
8	1530	442	472	3440	448	246	1960	2410	107	12	44	78
9	6520	1420	395	2910	393	215	2220	2110	86	12	33	292
10	4630	1590	340	3180	370	190	1760	1550	73	10	24	223
11	1520	1010	298	3430	410	171	1150	1280	64	8.4	18	153
12	996	753	272	2050	513	154	9660	1240	58	7.0	14	103
13	730	598	243	1590	417	189	11900	718	55	5.6	17	74
14	576	502	221	1370	319	289	10800	182	61	4.7	15	55
15	474	502	216	2060	250	198	8030	163	65	3.9	72	40
16	395	649	200	3070	158	128	2990	146	57	3.7	103	43
17	324	610	359	2600	150	137	2240	138	50	3.1	60	89
18	270	580	983	2630	147	157	2710	139	66	2.5	317	765
19	222	635	2450	2470	142	172	3130	139	119	2.0	192	802
20	189	1060	2470	1830	136	154	2060	213	80	1.7	88	536
21	e230	213	2610	1350	127	501	1700	293	58	1.6	54	360
22	e190	204	1420	1050	122	6780	1820	366	50	1.4	37	253
23	e170	206	944	694	115	6800	2080	265	163	1.2	26	194
24	e180	208	710	594	114	2450	2300	322	681	1.1	19	157
25	e152	179	605	492	108	1840	2420	8060	280	1.6	15	128
26	e142	174	556	419	106	1850	1990	1720	173	2.1	13	108
27	e130	194	608	373	103	2600	1870	855	124	556	11	90
28	e117	1130	1150	616	98	2970	2410	832	93	3090	11	72
29	e106	897	1940	1080	---	2870	2350	1070	73	4210	11	60
30	e95	716	4380	907	---	2970	1970	732	56	926	22	51
31	80	---	2790	584	---	2530	---	349	---	501	20	---
TOTAL	20581	18074	35231	61259	6478	41465	88058	33803	6136	9550.8	2289	5147
MEAN	664	602	1136	1976	231	1338	2935	1090	205	308	73.8	172
MAX	6520	1780	4380	5370	513	6800	11900	8060	894	4210	321	802
MIN	64	51	200	373	98	128	435	138	50	1.1	11	13
AC-FT	40820	35850	69880	121500	12850	82250	174700	67050	12170	18940	4540	10210

CAL YR 1990 TOTAL 790901.5 MEAN 2167 MAX 36800 MIN 9.5 AC-FT 1569000
WTR YR 1991 TOTAL 328071.6 MEAN 899 MAX 11900 MIN 1.1 AC-FT 650700

e Estimated

RED RIVER BASIN

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 fair. 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.

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, 8 years (water years 1983-91), 1,788 ft³/s, 21.33 in/yr, 1,295,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 62,300 ft³/s, May 3, 1990, gage height, 42.65 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 27,700 ft³/s, Apr. 13, gage height, 27.18 ft; minimum daily discharge, 11 ft³/s, July 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	83	793	e3300	648	192	3360	2370	448	118	458	58
2	101	77	1120	e3000	354	1680	2540	1370	743	99	319	63
3	88	73	1750	e2800	317	1640	1630	9020	1660	86	241	74
4	84	119	2190	2800	349	984	1330	7880	972	75	195	82
5	74	530	1770	e2500	784	712	1110	5080	538	66	163	84
6	63	1260	1210	e3350	932	578	854	2820	368	61	136	102
7	59	655	846	e6750	894	480	1240	1610	813	55	115	145
8	8060	459	582	e6680	853	405	4360	2820	4460	47	99	156
9	11000	665	485	3650	709	346	4080	3110	2810	41	91	159
10	7810	1710	416	4530	614	300	3120	2450	928	37	82	163
11	2940	1350	366	5670	554	268	2250	1740	582	33	69	274
12	1300	886	328	3310	586	245	14900	1550	584	31	63	233
13	855	662	297	2430	663	219	22700	1450	384	29	58	190
14	618	522	270	1910	546	201	22300	766	267	27	57	156
15	472	431	246	2070	432	260	13600	357	206	24	59	130
16	380	400	247	4610	370	259	6830	311	1140	22	82	114
17	311	511	451	4060	264	234	3770	272	798	19	89	103
18	260	479	1940	4310	248	241	5040	245	281	18	164	106
19	221	453	3610	5160	236	250	5080	320	196	16	151	498
20	191	708	2730	4370	222	269	3510	1460	171	15	296	593
21	255	691	2600	2270	209	327	2600	1590	181	14	205	368
22	229	248	e2100	1660	198	10900	3520	1040	196	13	149	253
23	184	206	e1600	1480	185	12400	3440	906	1010	11	117	200
24	164	196	e1100	1070	174	6810	3110	645	913	12	97	162
25	152	194	e930	901	167	2980	3640	4540	769	26	82	134
26	142	186	e800	760	158	2720	3480	5940	440	17	72	111
27	130	211	e770	660	150	4840	3420	1630	287	16	64	93
28	117	747	e1500	593	146	5930	4260	957	217	451	58	81
29	106	1280	e4000	976	---	4770	4550	1010	172	4600	54	71
30	95	813	e5000	1190	---	4850	3600	1100	142	2700	58	62
31	89	---	e4000	1010	---	3780	---	728	---	773	56	---
TOTAL	36676	16805	46047	89630	11962	70030	159224	66687	22576	9552	3997	5018
MEAN	1183	560	1485	2891	427	2259	5307	2151	753	308	129	167
MAX	11000	1710	5000	6750	932	12400	22700	9020	4460	4600	456	593
MIN	59	73	246	593	146	192	854	245	142	11	54	58
AC-FT	72750	33330	91330	177800	23730	136900	315800	132300	44780	18950	7930	9950
CFSM	1.04	.49	1.31	2.54	.38	1.99	4.66	1.89	.66	.27	.11	.15
IN.	1.20	.55	1.51	2.93	.39	2.29	5.20	2.18	.74	.31	.13	.16

CAL YR 1990 TOTAL 1260050 MEAN 3454 MAX 57000 MIN 12 AC-FT 2501000 CFSM 3.04 IN. 41.22
WTR YR 1991 TOTAL 538204 MEAN 1475 MAX 22700 MIN 11 AC-FT 1068000 CFSM 1.30 IN. 17.59

e Estimated

RED RIVER BASIN

401

07336600 HUGO LAKE NEAR HUGO, OK

LOCATION.-- Lat 34°00'42", long 96°22'49" in NW 1/4 SW 1/4 sec.25, T.8 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, 1,681,500 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.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,056,000 acre-ft, May 6, 1990, elevation, 440.05 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, 394,000 acre-ft, Apr. 15-16, elevation, 417.76 ft; minimum, 147,100 acre-ft, Sept. 30, elevation, 403.70 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160400	158300	193300	220200	161400	161900	203000	199100	203000	200600	188000	150900
2	160100	158300	193700	219700	160100	165700	200900	200200	204000	200300	178200	150700
3	160500	158300	194300	215400	159100	166800	201500	228900	207300	199900	168700	150600
4	160700	160500	193400	210400	160500	166900	202700	254600	207800	199700	160900	150300
5	160400	160100	190300	207000	167200	163800	203000	271500	206000	199400	157900	150100
6	160000	163400	186800	208900	171400	159100	202300	268800	203900	199300	157900	149400
7	160900	165100	184700	215700	170000	156800	204200	251500	202900	198700	157500	149800
8	200200	167200	185200	215900	167800	158900	210200	236200	211500	198400	157200	149900
9	249700	170400	185700	208100	165000	158000	210200	226500	219200	197800	156800	149900
10	265100	174600	185900	210400	162000	158700	206400	218600	221300	197300	156100	149800
11	263400	178600	186200	208900	158800	159500	203000	211600	222700	196900	155400	149700
12	250400	180900	186200	202000	157500	161300	249700	204200	223900	196400	154700	149600
13	234100	182600	184600	191700	158900	161900	309800	200800	224500	196300	154500	149400
14	218300	184000	184400	184900	161400	161100	378900	199600	223700	195700	154100	149100
15	201800	185200	185400	188000	159500	161500	394000	199000	221600	195200	153500	148900
16	185600	186200	186900	191500	159300	162700	382400	199000	225200	194500	153000	148700
17	174100	185600	189100	190200	160300	164700	366900	199600	225500	193900	154800	148300
18	165100	185700	195700	190500	161100	165500	358800	200000	218100	193400	154900	148300
19	158900	185700	202400	195200	160500	166500	338200	202000	212800	192700	154600	147600
20	159900	184900	202900	196800	159500	167400	315400	204000	210700	192600	154600	147900
21	162700	186000	204300	192100	158400	168100	292000	203600	208900	192000	153700	148100
22	163200	186800	203500	185700	158400	201200	275200	200600	208400	191700	153200	148700
23	162800	187400	198200	178300	158800	229200	256200	199900	213900	191100	153200	148400
24	160800	187800	192700	170300	159800	238900	235700	203800	212100	191800	152700	148900
25	158400	188000	187100	165500	158000	233600	219100	210400	203800	191400	152300	148300
26	157300	188400	184800	164400	157300	221900	209500	224700	200500	190900	151800	148300
27	158000	191200	187400	163900	157300	217900	214200	225200	200500	191800	151300	147800
28	167900	192100	190900	162700	157500	213400	218100	211600	200600	192600	150700	147600
29	157900	195200	199800	163000	---	208700	214400	203000	200800	200600	150100	147300
30	158300	195400	211600	162300	---	207800	203600	202000	200600	200200	150800	147100
31	158300	---	219700	161800	---	205400	---	202600	---	194600	151100	---
MAX	265100	195400	219700	220200	171400	238900	394000	271500	225500	200600	188000	150900
MIN	157300	158300	184400	161800	157300	156800	200900	199000	200500	190900	150100	147100
(+)	404.55	407.18	408.75	404.81	404.49	407.85	407.73	407.66	407.53	407.13	404.02	403.70
(++)	-2,400	+37,100	+24,300	-57,900	-4,300	+47,900	-1,800	-1,000	-2,000	-6,000	-43,500	-4,000

CAL YR 1990 MAX 1062000 MIN 146600 (++) +73,100
WTR YR 1991 MAX 394000 MIN 147100 (++) -13,600

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

RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX

LOCATION (REVISED).-- Lat 33°40'59", long 94°41'39", Bowie County, Hydrologic Unit 11140106, on right 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 189 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.-- 23 years (water years 1969-91), 13,520 ft³/s, 9,795,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 279,000 ft³/s May 6, 1990, gage height, 34.42 ft, from rating curve extended above 269,000 ft³/s; 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 1938 occurred in February 1938, stage unknown.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 50,200 ft³/s June 10, gage height, 22.50 ft; minimum daily, 1,630 ft³/s Sept. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5430	1870	7210	7180	8330	4400	15500	25500	13200	19100	11900	5080
2	5940	1710	10200	10400	7860	7900	13800	20700	12800	16900	13700	4040
3	5070	2000	10800	11200	7580	8490	12300	18300	12600	13700	14600	3810
4	4580	2350	9790	11700	7210	7450	10700	28200	12700	10900	14200	2720
5	3860	2580	8040	10400	8060	6030	9430	40000	13700	9220	13300	2190
6	3290	3200	7850	10800	9550	8180	10300	37500	17900	8470	10900	2040
7	2890	2930	8350	15600	9970	8050	13100	32200	31000	7060	9470	2480
8	5070	2790	8550	16300	11800	6220	13200	31400	36400	6410	8780	3930
9	9780	5080	7080	18400	e11400	4170	13100	32100	42300	6050	6660	6500
10	13500	6490	5680	19900	e10200	3220	13900	34200	48900	5810	5860	8220
11	15300	5390	4860	22600	8010	3270	12000	32400	49200	5610	5670	10500
12	15500	4890	3540	22300	8740	3460	15400	26400	43400	5070	5270	15400
13	e15100	5280	2830	21800	5540	2640	28400	23400	41700	4410	4140	13000
14	e14100	4120	3270	21800	3980	2170	38300	19900	42500	4160	3120	10000
15	12400	3030	3690	17300	4760	2090	37700	17500	45100	4030	2720	7110
16	11400	2520	3080	13500	6230	2500	34000	17200	48900	3890	3280	5220
17	10700	2770	3150	14700	6530	3500	29600	18300	47800	3810	3180	3060
18	8890	4590	3800	19000	6990	3630	30400	16900	45600	3780	3500	3020
19	6660	5270	3970	21600	7260	3540	34500	14200	42700	3740	3870	2690
20	5920	5510	4920	23700	7000	2960	35400	13100	46200	3680	3900	1630
21	3240	5800	9050	25300	6860	2370	32500	13000	48500	3630	3550	2040
22	2530	5850	11600	23600	7130	3040	30300	13100	47700	3580	2640	8870
23	2930	5350	11200	21400	7680	4690	30200	13800	47200	3530	3160	21500
24	3160	5430	10100	18800	7160	10600	30400	10800	48600	3540	3830	25300
25	3930	6000	10000	16700	6220	14800	30600	10300	41400	3640	3300	31100
26	4280	5430	10100	14600	5100	17700	28100	10500	33300	3870	2650	25500
27	4270	3490	9760	12400	4240	18600	27700	10900	33300	4290	3820	21500
28	3480	2750	7640	10600	3180	19800	23600	11200	31200	4360	2700	20000
29	3580	2510	7100	9870	---	19800	22100	15000	25700	5310	2390	16800
30	3200	2770	7300	9430	---	19000	22900	13600	22800	6500	2900	14600
31	2340	---	6410	9160	---	17300	---	13600	---	10500	4090	---
TOTAL	212300	119730	220920	499440	202370	239590	699430	635200	1074200	198550	183030	299850
MEAN	6848	3991	7126	16110	7227	7729	23310	20490	35810	6405	5904	9995
MAX	15500	6490	11600	25300	11600	19800	38300	40000	49200	19100	14600	31100
MIN	2340	1710	2830	7180	3180	2090	9430	10300	12600	3530	2390	1630
AC-FT	421100	237500	438200	990600	401400	475200	1387000	1260000	2131000	393800	363000	594800

CAL YR 1990 TOTAL 11202226 MEAN 30690 MAX 278000 MIN 841 AC-FT 22220000
WTR YR 1991 TOTAL 4584610 MEAN 12560 MAX 49200 MIN 1630 AC-FT 9094000

e Estimated

RED RIVER MAIN STEM

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07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Chemical and biochemical analyses: January 1988 to current year. Pesticide analyses: October 1970 to July 1981. Sediment analyses: November 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1988 to September 1991 (discontinued).

WATER TEMPERATURE: January 1988 to September 1991 (discontinued).

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, 2,140 microsiemens July 13, 1980; minimum daily, 114 microsiemens Oct. 31, 1984. WATER TEMPERATURE (1988-89): Maximum daily, 4.0°C on several days during July and August of 1989 and 1970; minimum daily, 0.0°C Jan. 11, 1977.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,510 microsiemens Sep. 12; minimum daily, 192 microsiemens Oct. 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (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)
NOV 06...	1350	3340	990	8.1	15.0	10.3	104	3.0	270	86	72
DEC 18...	1350	3700	900	7.4	11.5	10.6	100	1.9	240	90	64
FEB 13...	0900	5950	400	7.5	12.0	10.0	96	1.5	120	54	35
APR 10...	1834	13700	740	7.9	18.5	9.3	100	0.8	170	89	48
JUN 05...	1518	13900	1280	7.9	26.5	8.3	105	0.8	300	170	79
JUN 12...	0944	45000	588	7.8	23.0	7.2	84	1.1	150	63	41
JUL 24...	1523	3600	1270	8.3	32.0	7.7	107	3.5	300	160	79

DATE	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- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	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, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV 06...	21	89	2	4.4	180	120	120	0.30	5.8	540
DEC 18...	19	79	2	3.8	150	120	110	0.40	7.5	494
FEB 13...	8.2	29	1	2.7	67	42	39	0.10	7.3	220
APR 10...	14	86	2	3.0	84	110	110	0.10	5.1	405
JUN 05...	25	130	3	3.9	130	200	190	0.20	5.6	710
JUN 12...	11	53	2	3.3	85	69	81	0.40	6.1	316
JUL 24...	24	120	3	4.8	140	170	200	0.20	9.0	690

RED RIVER MAIN STEM

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)
NOV 06...	--	<0.010	<0.100	0.020	0.58	0.60	0.050	0.020	--	--
DEC 18...	--	<0.010	0.200	0.020	0.38	0.40	0.030	0.020	--	--
FEB 13...	0.180	0.020	0.200	0.040	0.46	0.50	0.050	0.030	--	--
APR 10...	0.160	0.040	0.200	0.050	0.65	0.70	0.120	0.050	620	22900
JUN 05...	0.150	0.040	0.190	0.030	0.57	0.60	0.090	0.040	323	12100
JUN 12...	0.100	0.100	0.200	0.110	0.59	0.70	0.090	0.110	824	100000
JUL 24...	--	<0.010	<0.050	0.040	0.66	0.70	0.070	<0.010	60	583

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	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)
NOV 06...	--	--	--	--	--	--	--	--	--	--
DEC 18...	--	1	150	<0.5	2.0	<5	<3	<10	30	<10
FEB 13...	--	--	--	--	--	--	--	--	--	--
APR 10...	30	--	--	--	--	--	--	--	--	--
JUN 05...	55	--	--	--	--	--	--	--	--	--
JUN 12...	74	--	--	--	--	--	--	--	--	--
JUL 24...	63	2	140	0.7	3.0	<5	<3	<10	6	20

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)
NOV 06...	--	--	--	--	--	--	--	--	--	--
DEC 18...	<4	44	<0.1	<10	<10	<1	<1.0	610	<6	28
FEB 13...	--	--	--	--	--	--	--	--	--	--
APR 10...	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--
JUN 12...	--	--	--	--	--	--	--	--	--	--
JUL 24...	17	11	<0.1	10	<10	<1	5.0	810	7	10

07336820 RED RIVER NEAR DE KALB, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1990 TO SEPTEMBER 1991

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	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. 1990	212300	433	240	138000	60	34400	47	26900	120
NOV. 1990	119730	885	497	161000	140	43700	110	35000	220
DEC. 1990	220920	584	324	193000	82	48700	64	38300	160
JAN. 1991	499440	464	256	345000	63	84700	49	66000	130
FEB. 1991	202370	735	412	225000	110	59900	87	47800	190
MAR. 1991	239590	508	281	182000	70	45300	55	35500	140
APR. 1991	699430	419	232	437000	57	107300	44	83700	110
MAY 1991	635200	540	300	514000	76	129900	60	102200	140
JUNE 1991	1074200	1040	590	1712E3	170	484500	140	392500	260
JULY 1991	198550	1140	645	346000	190	99800	150	81300	280
AUG. 1991	183030	1050	595	294000	170	83700	140	67900	260
SEPT 1991	299850	1320	753	610000	230	182800	190	150100	310
TOTAL	4584610	**	**	5156000	**	1405000	**	1127000	**
WTD. AVG.	12560	742	417	**	110	**	91	**	190

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	585	969	e689	495	901	487	631	396	e1160	1300	435	e812
2	795	927	e572	340	e928	e539	758	394	1300	1270	705	890
3	906	e882	558	260	e942	e608	836	473	1330	e1210	e1010	911
4	892	e895	555	340	864	636	900	e405	1330	1200	e1020	1130
5	e920	924	490	e382	762	627	1050	e332	1260	1220	1010	1120
6	e948	985	320	e356	526	558	e1030	290	1180	1240	1040	1050
7	e990	1020	280	332	409	545	e830	289	1260	e1200	1290	e1030
8	e330	1030	e274	510	340	697	846	308	e1210	1150	1330	e1150
9	470	e1020	e573	320	e351	e700	850	325	e1140	1160	1290	1350
10	484	805	855	e254	e450	e722	750	e350	933	1180	e1250	1440
11	350	e639	871	280	468	760	770	e445	692	1180	e1270	1450
12	268	670	e855	311	441	795	600	e605	579	700	1280	1510
13	e230	674	784	e323	420	810	e438	743	688	774	1190	1400
14	e215	668	706	334	685	803	e335	830	792	e768	1090	1340
15	200	635	569	e346	e767	835	313	964	e891	740	1100	e1350
16	193	592	e535	e355	e838	e825	311	1010	e1020	689	1060	1360
17	192	e551	e659	372	e1070	e782	298	995	1100	935	959	1300
18	198	e785	892	508	1090	798	311	793	e1090	1230	e1070	1250
19	248	965	837	e533	e1080	826	353	e789	e1070	1250	1120	1190
20	e278	988	e555	e550	1070	839	e336	823	e1110	e1240	e1150	1490
21	e303	e980	445	568	1040	844	e291	828	e1180	e1240	1180	e1480
22	362	935	e480	495	983	833	288	709	e1160	1240	1200	e1210
23	600	950	e506	461	925	e775	310	670	e1100	1250	1170	1300
24	752	e1020	e538	490	e940	e562	318	550	e1070	1250	e1180	1350
25	782	e1100	e575	585	991	350	308	e540	1070	1260	e1250	1350
26	540	1110	e611	e616	856	271	290	e562	e1020	1250	1230	1330
27	e538	1080	658	e775	510	228	e254	645	1000	e1240	1220	1300
28	e745	870	725	920	516	284	241	708	1260	e1210	1310	e1330
29	950	832	e783	850	---	436	278	512	1290	1120	1190	e1330
30	1010	e773	775	882	---	470	295	457	e1290	996	822	1350
31	1000	---	599	888	---	e508	---	846	---	765	e727	---
MEAN	557	876	617	485	756	637	514	600	1090	1110	1100	1260

e Estimated

RED RIVER MAIN STEM

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	18.0	---	4.0	6.0	15.0	16.0	21.0	---	29.0	28.0	---
2	25.0	19.0	---	4.0	---	---	16.0	21.0	28.0	30.0	29.0	30.0
3	25.0	---	13.0	5.0	---	---	17.0	21.0	26.0	---	---	26.0
4	25.0	---	12.0	5.0	10.0	12.0	17.0	---	27.0	28.0	---	27.0
5	---	15.0	11.0	---	11.0	13.0	18.0	---	28.0	29.0	30.0	28.0
6	---	14.0	10.0	---	12.0	15.0	---	20.0	25.0	30.0	30.0	28.0
7	---	14.0	10.0	7.0	11.0	13.0	---	20.0	25.0	---	30.0	---
8	---	14.0	---	6.0	11.0	12.0	19.0	20.0	---	30.0	30.0	---
9	22.0	---	---	6.0	---	---	20.0	20.0	---	30.0	30.0	26.0
10	18.0	12.0	9.0	---	---	---	19.0	---	23.0	29.0	---	27.0
11	17.0	---	10.0	6.0	12.0	13.0	19.0	---	24.0	29.0	---	29.0
12	18.0	13.0	---	6.0	12.0	16.0	20.0	---	25.0	29.0	29.0	29.0
13	---	14.0	13.0	---	14.0	11.0	---	24.0	26.0	28.0	28.0	28.0
14	---	14.0	13.0	7.0	13.0	11.0	---	25.0	27.0	---	26.0	28.0
15	21.0	15.0	13.0	---	---	10.0	19.0	24.0	---	27.0	26.0	---
16	21.0	16.0	---	---	---	---	20.0	24.0	---	26.0	27.0	29.0
17	21.0	---	---	8.0	---	---	21.0	24.0	26.0	28.0	28.0	28.0
18	19.0	---	12.0	8.0	13.0	13.0	21.0	24.0	---	29.0	---	29.0
19	17.0	16.0	11.0	---	---	14.0	21.0	---	27.0	29.0	28.0	25.0
20	---	18.0	---	---	10.0	15.0	---	25.0	27.0	---	---	21.0
21	---	---	12.0	7.0	11.0	17.0	---	25.0	27.0	---	28.0	---
22	16.0	18.0	---	7.0	12.0	20.0	18.0	25.0	---	29.0	26.0	---
23	15.0	17.0	---	7.0	11.0	---	18.0	25.0	---	30.0	28.0	24.0
24	15.0	---	---	7.0	---	---	19.0	25.0	---	30.0	---	24.0
25	15.0	---	---	7.0	11.0	17.0	19.0	---	27.0	29.0	---	22.0
26	16.0	18.0	---	---	10.0	18.0	20.0	---	---	29.0	28.0	22.0
27	---	19.0	7.0	---	10.0	18.0	---	26.0	28.0	---	28.0	22.0
28	---	15.0	5.0	7.0	12.0	17.0	20.0	28.0	28.0	---	28.0	---
29	17.0	13.0	---	9.0	---	16.0	21.0	28.0	28.0	28.0	29.0	---
30	17.0	12.0	12.0	7.0	---	15.0	21.0	28.0	---	27.0	29.0	22.0
31	17.0	---	3.0	7.0	---	---	---	28.0	---	26.0	---	---
MEAN	19.2	15.4	10.4	6.5	11.2	14.6	19.1	24.0	26.4	28.7	28.3	26.1

RED RIVER BASIN

407

07337300 PINE CREEK LAKE NEAR WRIGHT CITY, OK

LOCATION.-- Lat 34°06'43", long 95°04'46" in NE 1/4 NW 1/4 sec.23, T.6 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.-- 635 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.

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, 276,700 acre-ft, May 6, 7, elevation, 467.20 ft; minimum 52,080 acre-ft, Oct. 6, 7, elevation, 437.55 ft.

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

434	40,320	445	85,440
438	46,850	448	102,600
439	57,610	482	217,470
442	70,490	474	369,400

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52530	53640	54970	71240	54020	57900	69890	241200	72320	72640	68020	63210
2	52090	53640	55120	69440	54090	63380	65880	234000	72740	72500	67350	63290
3	52200	53680	56510	67080	54130	65700	64450	252300	73890	72220	66680	63290
4	52230	54470	57860	64410	54820	68100	65800	264800	74270	72130	66060	63120
5	52200	54700	56240	61890	56510	63160	66970	273700	72880	71990	65320	62990
6	52080	55770	54400	64410	57850	58100	68110	276700	72550	71800	64840	62990
7	52230	55570	53560	69250	56310	54380	70540	274600	72740	71660	64410	63120
8	61920	54590	54090	68340	54020	53830	73980	268300	72830	71470	64020	63210
9	110400	55000	54400	64620	54400	54050	73260	257900	73020	71140	63550	63210
10	115200	56390	54590	66460	54510	54090	71240	246100	73120	70980	63120	63040
11	110100	57370	54780	66480	54400	54400	70440	234200	73380	70720	62740	62950
12	101300	57900	54850	63630	54090	54860	110600	222100	73500	70540	62230	62490
13	91900	57660	54280	59930	53710	55120	165700	209800	73450	70220	62150	61980
14	80940	56510	53790	56000	53530	55230	197700	197900	73450	70080	62100	61420
15	70630	55230	53830	56980	53450	55570	206700	186100	73360	69650	61980	60950
16	61520	54590	54400	56530	53530	55890	211700	174400	73360	69670	62020	60520
17	55000	54320	55160	57850	54210	56590	218400	162400	73450	69390	62490	60030
18	52160	54130	56360	57760	54660	57180	234100	149200	73500	69160	62660	59210
19	52310	53900	59740	59300	54850	57800	240100	137900	73650	68930	62910	59590
20	52600	53710	60520	59910	54740	58290	243800	126800	73650	68660	63080	59590
21	53230	54020	60130	58380	54360	59260	243700	115500	73650	68470	63120	59450
22	53710	54240	60290	56240	54130	62440	243800	104400	73790	68250	63120	59110
23	53860	54320	59500	54550	54020	91200	243400	94620	74080	68020	63210	58580
24	53420	54400	58380	53900	53860	93690	239200	88930	74220	67750	63160	57900
25	52940	54590	57140	54000	53680	91600	235600	103900	74130	67710	63080	57340
26	53050	54890	56390	54360	53680	86250	230500	104300	73740	67710	63040	56790
27	53270	55380	56080	54890	53710	84280	232800	100500	73210	68160	62950	56160
28	53270	55650	56200	54850	53710	81870	234800	91030	72930	68470	62820	55540
29	53530	55540	60990	54240	---	79060	241900	81250	72830	69120	62660	54930
30	53560	55230	70080	53830	---	76680	243900	74370	72740	68980	63080	54360
31	53640	---	72740	53900	---	73500	---	72360	---	68520	63120	---
MAX	115200	57900	72740	71240	57850	93690	243900	276700	74270	72640	68020	63290
MIN	52080	53640	53560	53830	53450	53830	64450	72360	72320	67710	61980	54360
(+)	437.97	438.39	442.48	438.04	437.99	442.64	464.43	442.40	442.48	441.57	440.34	438.16
(++)	+520	+1,590	+17,510	-18,840	-190	+19,790	+170,400	-171,540	+380	-4,220	-6,400	-8,760
CAL YR 1990	MAX 352300	MIN 41600	(++)	+31,020								
WTR YR 1991	MAX 276700	MIN 52080	(++)	+1,240								

(+) ELEVATION, IN FEET, AT END OF MONTH

(++) CHANGE IN CONTENTS, IN ACRE-Feet

RED RIVER BASIN

07337900 GLOVER RIVER NEAR GLOVER, OK
(Formerly published as Glover Creek near Glover)

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. Prior to October 1990, published as Glover Creek near Glover.

GAGE.-- Water-stage recorder. Datum of gage is 378.70 ft above National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.-- 30 years, 479 ft³/s, 20.65 in/yr, 347,000 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)
Oct. 9	1100	10,500	10.39	Apr. 18	0800	16,600	13.06
Mar. 22	1900	19,100	14.01	May 3	2200	14,000	11.99
Apr. 13	2100	*49,000	*22.64	May 25	0900	23,100	15.74

Minimum daily discharge, 1.3 ft³/s, July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	46	340	989	169	731	576	743	257	15	81	451
2	19	42	298	768	152	2120	464	539	218	13	56	306
3	19	40	1270	644	136	968	397	8240	554	12	39	213
4	22	43	1060	524	133	861	429	6760	362	11	29	161
5	17	78	692	451	887	513	373	4590	245	10	22	134
6	14	315	525	2290	1870	412	304	2070	176	9.0	19	593
7	16	226	412	4070	1180	329	297	1040	146	7.7	17	382
8	3040	183	328	1700	787	262	952	807	124	7.4	14	881
9	7020	338	259	1070	594	218	792	719	104	6.7	11	814
10	2220	733	217	2610	470	187	572	544	88	5.6	10	509
11	998	528	185	2620	379	161	434	452	79	5.6	10	324
12	650	384	161	1430	309	146	9360	381	69	4.8	11	227
13	453	292	146	980	263	133	17800	314	61	4.2	13	167
14	333	231	130	753	229	123	13100	254	56	3.8	15	137
15	247	189	118	1340	191	110	3260	228	51	3.2	76	106
16	195	152	118	2040	160	101	1550	233	46	2.9	150	85
17	161	140	242	1180	147	109	1080	220	46	2.7	88	73
18	135	122	439	1040	141	145	9640	194	48	2.5	297	81
19	113	108	725	1350	139	201	3030	207	39	2.3	333	272
20	97	97	623	1400	128	165	1400	271	38	2.0	211	279
21	91	89	516	986	114	146	879	231	38	1.9	137	191
22	101	95	505	752	109	5850	1170	221	40	1.8	99	141
23	120	107	483	613	108	4030	1320	186	64	1.6	66	115
24	114	124	359	514	102	1630	823	169	58	1.3	52	93
25	96	112	294	430	93	968	1140	8970	39	1.9	48	78
26	83	100	259	362	87	716	906	2410	34	2.8	42	68
27	74	101	370	312	82	1080	2400	1100	27	6.3	33	60
28	66	807	749	274	76	1620	3390	735	22	20	26	53
29	61	625	1350	241	---	1020	3510	544	20	268	24	43
30	54	443	3250	218	---	931	1230	409	18	203	97	34
31	50	---	1530	186	---	705	---	323	---	121	636	---
TOTAL	17501	6690	17933	34137	9235	26491	82578	44104	3167	761.0	2762	7071
MEAN	565	223	578	1101	330	855	2753	1423	106	24.5	89.1	236
MAX	7020	733	3250	4070	1070	5850	17800	8970	554	268	636	881
MIN	14	40	118	186	76	101	297	169	18	1.3	10	34
AC-FT	34710	13270	35570	67710	18320	52540	163800	87480	6280	1510	5480	14030
CFSM	1.79	.71	1.84	3.50	1.05	2.71	8.74	4.52	.34	.08	.28	.75
IN.	2.07	.79	2.12	4.03	1.09	3.13	9.75	5.21	.37	.09	.33	.84

CAL YR 1990 TOTAL 342126.44 MEAN 937 MAX 36000 MIN .00 AC-FT 678600 CFSM 2.98 IN. 40.40
WTR YR 1991 TOTAL 252430.0 MEAN 692 MAX 17800 MIN 1.3 AC-FT 500700 CFSM 2.20 IN. 29.81

RED RIVER BASIN

409

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.

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, 21 years (water years 1971-91), 1,826 ft³/s, 1,323,000 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, 13,500 ft³/s, Apr. 15, gage height, 31.60 ft (from HWM); minimum daily discharge, 22 ft³/s, July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	100	1250	e2500	2870	2010	3510	3560	2290	79	394	598
2	384	100	1230	e3300	2720	2100	3360	3560	728	e70	352	430
3	359	96	1850	3400	2590	2080	3240	6190	624	e68	325	409
4	201	95	2390	e3420	2510	1920	1890	9280	845	e64	312	272
5	139	109	2390	e3410	2890	2200	927	9670	1090	e56	301	235
6	113	163	2490	e3410	3750	3230	675	9070	1350	e52	291	244
7	133	318	2450	e3420	3550	3590	492	7240	782	e49	225	550
8	3050	863	1580	e3500	3560	e2800	720	5320	275	e48	121	507
9	4270	1670	816	e4100	3500	e1000	2480	5730	198	e42	106	1130
10	5700	1750	717	e4800	3000	e600	2860	6690	181	38	108	1120
11	e8200	1450	653	e4800	2690	e450	2720	7240	170	36	110	949
12	e6500	1150	826	e4700	2530	e380	5860	7420	163	35	103	755
13	e6300	978	593	e4700	2410	e330	8630	7420	152	33	111	643
14	e6200	1190	896	e4720	2340	302	10500	7350	141	31	102	572
15	e5900	1450	810	4720	2280	277	12800	7290	129	29	54	529
16	5420	1420	446	4930	2180	260	10800	7250	124	27	49	496
17	4980	1000	590	6510	2100	300	7780	7160	123	25	60	474
18	3510	596	941	8140	2110	403	7030	7080	117	23	67	456
19	1650	559	1250	8550	2080	396	7750	7040	112	22	104	459
20	372	542	1630	9320	2010	399	5970	7460	117	24	169	619
21	216	484	2480	9750	1960	354	2760	7420	124	25	127	669
22	204	285	2160	9290	1970	477	3190	7100	154	24	83	585
23	203	239	2190	8750	1970	5170	4560	6840	215	23	63	527
24	200	239	1500	5120	1930	5050	4310	6430	322	23	54	495
25	621	246	e1510	4430	1890	3190	4570	6740	189	24	e48	479
26	594	243	e1520	4040	1870	3550	5270	8530	134	27	e45	453
27	251	246	e1530	3650	1840	4220	6300	7610	224	40	e43	435
28	168	300	e1530	3410	1830	4880	7110	5730	249	e55	e40	423
29	151	1180	e1540	3210	---	4840	7480	6070	231	e70	e38	417
30	137	1430	e1540	3060	---	4360	6340	6260	122	e180	e37	407
31	124	---	e1900	2910	---	3810	---	5290	---	459	133	---
TOTAL	64731	20499	44978	151970	68930	64728	151874	213040	11675	1799	4175	16337
MEAN	2080	683	1451	4902	2462	2088	5062	6872	389	58.0	135	545
MAX	6500	1750	2490	9750	3750	5170	12800	9670	2290	459	394	1130
MIN	113	95	446	2500	1830	260	492	3560	112	22	37	235
AC-FT	128400	40660	89210	301400	136700	128400	301200	422600	23160	3570	8280	32400

CAL YR 1990 TOTAL 1170986 MEAN 3208 MAX 39800 MIN 56 AC-FT 2323000
WTR YR 1991 TOTAL 814738 MEAN 2232 MAX 12800 MIN 22 AC-FT 1616000

e Estimated

RED RIVER BASIN

07338900 BROKEN BOW LAKE NEAR BROKEN BOW, OK

LOCATION.-- Lat 34°00'35", long 94°41'00", in SW 1/4 sec.3, T.5 S., R.25 E., McCurtain County, Hydrologic Unit 11140108, at intake structure on upstream side of dam on Mountain Fork, 9.0 mi 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 827.5 ft, top of flood pool and spillway gages, 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.

EXTREMES FOR PERIOD OF RECORD.-- Maximum contents, 1,283,000 acre-ft, May 23, 1990, elevation, 822.64 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, 1,182,000 acre-ft, Apr. 19, elevation 816.69 ft; minimum 854,900 acre-ft, Sept. 16-17, elevation, 594.95 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	862900	910700	907400	947000	912300	910700	923500	1110000	920500	907200	901400	866900
2	862000	910100	910400	945500	912700	915700	920500	1100000	921400	905900	900700	866200
3	862900	910000	913600	940700	913300	919400	919200	1132000	918500	905600	900400	865700
4	862000	910600	916700	936500	913700	920400	917500	1149000	915400	905500	900300	865700
5	859400	910000	917400	931300	916400	920400	915700	1161000	913800	905200	899600	865700
6	858700	909000	917200	938300	921200	919100	917200	1163000	912100	905200	897700	865900
7	882000	909200	916700	945400	921800	915400	919700	1160000	911600	904900	894700	865900
8	947600	909700	917000	943100	917700	913800	919200	1155000	911300	902900	892800	866300
9	974500	910800	917500	938300	911900	913800	918200	1144000	911300	902500	891800	866700
10	978500	913500	916500	943700	907400	913800	915700	1132000	910400	901400	891400	865000
11	972700	915900	914000	948600	906500	913300	913600	1117000	910400	900800	891000	862800
12	961200	917500	913000	949500	908200	910900	970100	1101000	910100	899600	890000	860600
13	952100	919100	913300	948500	909700	909400	1059000	1086000	910100	899300	889600	857200
14	943400	916000	911700	942100	909600	909900	1122000	1069000	908900	899300	889100	856500
15	935500	913800	912300	939500	909000	910300	1135000	1053000	908600	898300	888300	856000
16	929900	912700	913800	940200	909600	906500	1142000	1036000	908400	896300	886800	855000
17	927200	910300	914700	935000	911100	907600	1144000	1020000	908600	892300	886600	856000
18	922900	910400	917400	930700	910300	906900	1178000	1004000	908600	891500	886900	859400
19	919200	910100	918800	927200	907600	909400	1182000	987500	908300	889100	886600	860800
20	919200	908700	919200	926500	907200	909300	1176000	972200	908300	888600	885900	861200
21	920200	907300	922800	920200	906300	910300	1164000	956800	908300	887900	884500	861200
22	919100	906000	925300	919900	905000	934600	1154000	947400	908300	885100	882000	861900
23	917400	903100	928900	921100	905200	939800	1140000	940100	909600	883700	879500	861900
24	916700	902500	928500	921400	906200	934500	1126000	939100	910900	882700	879000	861900
25	916000	901800	926900	921500	905500	930500	1114000	955900	910700	882200	878000	861300
26	914000	899700	926100	920500	905000	929600	1099000	960000	910600	881100	875800	861000
27	913800	901200	926500	919500	904900	927200	1096000	960900	909700	883100	873700	860400
28	913800	902800	928700	918200	904000	924600	1106000	954100	909000	899700	871000	859400
29	913300	905500	937100	917100	---	925600	1116000	940400	908700	903800	886600	859400
30	913100	905700	943400	918400	---	925800	1115000	928300	908400	904300	886900	868200
31	912700	---	946600	914700	---	925100	---	920500	---	901400	866900	---
MAX	978500	919100	946600	949500	921800	939800	1182000	1163000	921400	907200	901400	866900
MIN	858700	899700	907400	914700	904000	906500	913600	920500	908300	881100	866900	856000
(+)	599.12	598.63	601.49	599.26	598.51	599.99	612.56	599.67	598.82	598.32	595.83	595.19
(++)	+49.400	-7.000	+40.900	-31.900	-10.700	+21.100	+189.900	-194.500	-12.100	-7.000	-34.500	-8.700

CAL YR 1990 MAX 1281000 MIN 858700 (++) +78,000
WTR YR 1991 MAX 1182000 MIN 856000 (++) -5,100

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

RED RIVER BASIN

411

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 11140100, 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.-- Records good. Flow completely regulated except for 33 mi² intervening area, since October 1968 by Broken Bow Lake (station 07338900). U.S. Army Corps of Engineers' satellite telemeter at station.

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, 22 years (water years 1970-91), 1,459 ft³/s, 1,057,000 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, 11,800 ft³/s, Apr. 18, gage height, 9.24 ft; minimum daily discharge, 163 ft³/s, Aug. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	466	877	525	2360	1420	794	2330	5590	2900	343	1540	841
2	440	809	274	3790	1230	496	2260	8090	470	799	556	483
3	445	597	788	3850	273	249	2540	5090	1390	792	661	581
4	607	302	976	4360	264	325	2220	1480	2370	571	429	623
5	1360	411	1120	4160	467	1120	2010	811	1520	434	264	656
6	858	651	1820	5030	530	1750	1260	1080	1420	525	717	702
7	559	637	1270	4540	1140	1030	306	4780	1050	215	1320	747
8	2280	718	1100	5830	3760	1080	1310	5030	619	537	2000	557
9	1950	606	698	5790	3880	664	1900	8490	327	744	1240	642
10	1680	609	745	5440	3810	e450	2270	9020	308	321	415	1600
11	5320	315	1670	4190	2340	e300	2340	11200	598	367	306	2010
12	7680	293	1330	3880	489	e400	2990	11200	484	294	163	1960
13	6190	279	830	3910	234	e350	2290	11200	515	435	344	2130
14	5380	1540	700	4990	311	e664	1580	11300	340	427	366	1670
15	5460	2280	859	7360	430	1110	609	11300	601	199	376	731
16	3560	1440	294	5950	592	2670	519	11300	320	571	580	647
17	2300	1230	596	6260	317	1250	4270	11300	271	1480	797	735
18	2330	870	482	5690	440	1050	4130	11300	258	1300	358	457
19	2140	593	1090	5300	1160	367	4360	11500	251	667	316	465
20	978	1250	1630	3760	1530	332	e6000	11200	243	698	515	380
21	296	1140	3680	4840	570	261	e8000	9980	234	293	450	551
22	860	1020	2450	3530	1210	558	e8500	7030	239	744	1240	482
23	1120	1820	1780	1240	572	2660	e8600	5550	237	668	1570	340
24	791	1360	1740	1190	254	5890	e8400	3050	224	469	1040	557
25	890	810	1910	804	403	5070	e8300	2560	389	317	357	395
26	1130	1630	2430	1710	635	2650	e8500	2380	431	314	769	452
27	639	936	1980	1370	455	3190	e7900	2430	480	324	1500	391
28	298	342	1950	1610	860	2900	e2000	4380	637	241	1510	524
29	299	419	2020	1360	---	2320	603	10000	559	520	2580	479
30	520	393	3980	1140	---	2120	2540	9740	241	972	2690	525
31	550	---	4830	1370	---	2080	---	5030	---	1570	1610	---
TOTAL	59356	26177	47527	116604	29576	46150	110837	225191	19926	18151	28659	23313
MEAN	1915	873	1533	3761	1056	1489	3695	7264	664	586	924	777
MAX	7680	2280	4830	7360	3880	5890	8600	11500	2900	1570	2690	2130
MIN	296	279	274	804	234	249	306	811	224	199	163	340
AC-FT	117700	51920	94270	231300	58660	91540	219800	446700	39520	36000	56850	46240

CAL YR 1990 TOTAL 865506 MEAN 2371 MAX 9000 MIN 111 AC-FT 1717000
WTR YR 1991 TOTAL 751467 MEAN 2059 MAX 11500 MIN 163 AC-FT 1491000

e Estimated

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Miscellaneous Sites

Discharge measurements in the following table were made at miscellaneous sites throughout the state.

Discharge measurements made at miscellaneous sites during water years 1990-91

Station number	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
ARKANSAS RIVER BASIN						
07161000	Cimarron River at Perkins, OK.	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, at bridge on U.S. Highway 177, 1.0 mi south of Perkins.	10,852	1939-89* 1990-91	10-16-89 01-09-90 02-26-90 04-09-90 05-21-90 06-27-90 08-16-90 09-20-90 11-14-90 01-16-91 03-05-91 05-07-91 06-27-91 08-22-91	551 659 2,790 1,950 3,100 518 261 261 261 346 257 383 366 567
07231955	Gaines Creek near Higgins, OK.	Lat 34°48'57", long 95°28'46", in NE 1/4, SE 1/4, sec. 14, T. 5 N., R. 17 E., Latimer County, Hydrologic Unit 11090204, 1.0 mi downstream Beaver Creek, 3.0 mi west of Higgins.	152	1978-80 1990-91	08-06-90 09-18-90 10-30-90 12-12-90 01-22-91 02-28-91 04-23-91 06-17-91 08-05-91 09-25-91	50 5.0 0 31 141 9.8 188 6.6 0 6.7
07231958	Pit Creek near Gowen, OK.	Lat 34°51'17", long 95°29'22", in SW 1/4, SW 1/4, sec. 35, T. 5 N., R. 17 E., Latimer County, Hydrologic Unit 11090204, 2.2 mi southwest of Gowen.	5.74	1990-91	08-06-90 09-18-90 12-12-90 01-22-91 04-23-91 08-05-91 09-24-91	.49 0 1.2 4.7 4.0 0 0
07231960	Gaines Creek near Gowen, OK.	Lat 34°53'43", long 95°26'13", in NE 1/4, NE 1/4, sec. 19, T. 5 N., R. 18 E., Latimer County, Hydrologic Unit 11090204, 1.1 mi upstream from Beaver Creek, 2.4 mi northeast of Gowen.	182	1990-91	08-07-90 09-18-90 10-31-90 12-13-90 02-28-91 04-23-91 06-18-91 08-05-91 09-24-91	82 21 6.4 35 10 277 6.2 1.2 11
RED RIVER BASIN						
07327443	Chetonia Creek Tributary above Cyril, OK.	Lat 34°54'47", long 98°11'21", in NE 1/4 NW 1/4 sec. 18, T. 5 N., R. 9 W., Caddo County, Hydrologic Unit 11130302, 3.0 mi upstream from Chetonia Creek, and 1.0 mi north of Cyril.	1.43	1990-91	11-28-89 01-18-90 02-07-90 05-23-90 08-15-90 11-28-90 01-22-91 02-25-91 04-22-91 06-14-91 08-02-91	.13 .06 .12 .70 .21 .08 .08 .08 .09 .78 .09

*Continuous streamflow records for this period.

Flood hydrograph stations

The following tables contain 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 indirect methods. 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 current year.

DISCHARGE, IN CUBIC FEET PER SECOND, AND RAINFALL, IN INCHES, AT INDICATED TIME,
WATER YEAR ENDING SEPT. 30, 1991

DATE	HOUR	DISCHARGE**	RAINFALL*	DATE	HOUR	DISCHARGE**	RAINFALL*
May 2	2205	N/A	.00	May 3	0015	N/A	.11
	2250	N/A	.07		0020	N/A	.12
	2345	N/A	.11		0035	N/A	.14
	2400	N/A	.06		0040	N/A	.13
					0055	N/A	.13
					0110	N/A	.11
					0125	N/A	.07
					0140	N/A	.17
					0155	N/A	.11
					0245	N/A	.08
					0250	N/A	.00

*.24 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

*1.20 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

DATE	HOUR	DISCHARGE**	RAINFALL*
May 4	1730	N/A	0
	1735	N/A	.02
	1740	N/A	.26
	1745	N/A	.22
	1815	N/A	.10
	1845	N/A	0
	1850	N/A	.02
	1855	N/A	.10
	1900	N/A	.01
	1905	N/A	0

*.78 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

07165500 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, 1991

DATE	HOUR	DISCHARGE	RAINFALL	DATE	HOUR	DISCHARGE	RAINFALL
Mar. 21	1445		0	Sept. 3	2320		0
	1450		.01		2325		.12
	1455		.05		2330		.21
	1500		.47		2335		.14
	1505		.51		2340	94	.13
	1510		.05		2345	123	.13
	1515		0		2350	151	.18
	1525	233	0		2355	187	.22
	1530	395	.01		2400	237	.26
	+1535	398	0	Sept. 4	0005	290	.20
	1600	123	0		0010	341	.15
	1645	50	0		0015	353	.14
					0020	376	.24
					0025	372	.12
					0030	343	.05
					0035	284	.04
					0040	256	.03
					0100	159	.05
					0200	76	.17
					0205	74	0

+Maximum discharge for year.

DISCHARGE AT PARTIAL-RECORD STATIONS--Continued

07170010 Brook Hollow at S 136th St at Tulsa, OK

LOCATION.--Lat 36°07'19", long 95°49'32" SE 1/4, SW 1/4, sec.18, 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 current year.

DISCHARGE, IN CUBIC FEET PER SECOND, AND RAINFALL, IN INCHES, AT INDICATED TIME,
WATER YEAR ENDING SEPT. 30, 1991

DATE	HOUR	DISCHARGE**	RAINFALL*	DATE	HOUR	DISCHARGE**	RAINFALL*
June 7	1710	N/A	.00	Sept. 18	0055	N/A	.00
	1715	N/A	.05		0100	N/A	.03
	1720	N/A	.19		0105	N/A	.06
	1725	N/A	.37		0110	N/A	.03
	1730	N/A	.19		0130	N/A	.06
	1735	N/A	.14		0205	N/A	.09
	1740	N/A	.13		0210	N/A	.07
	1745	N/A	.04		0215	N/A	.15
	1755	N/A	.04		0230	N/A	.15
	1800	N/A	.04		0400	N/A	.08
	1810	N/A	.03		0455	N/A	.13
	1840	N/A	.02		0555	N/A	.23
	1850	N/A	.05		0655	N/A	.21
	1905	N/A	.03		0755	N/A	.12
	1915	N/A	.01		0820	N/A	.04
	2315	N/A	.03		1550	N/A	.04
	2320	N/A	.00		1555	N/A	.00

*1.49 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°09'04", long 95°51'39", 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, and at mile 0.6 (revised).

DRAINAGE AREA.--3.53 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, 1991

DATE	HOUR	DISCHARGE**	RAINFALL*	DATE	HOUR	DISCHARGE**	RAINFALL*
June 7	1720	N/A	.00	Sept. 3	1945	N/A	.00
	1725	N/A	.25		1950	N/A	.02
	1730	N/A	.62		1955	N/A	.29
	1735	N/A	.47		2000	N/A	.29
	1740	N/A	.34		2005	N/A	.14
	1745	N/A	.21		2010	N/A	.13
	1750	N/A	.18		2015	N/A	.08
	1755	N/A	.11		2020	N/A	.13
	1800	N/A	.05		2025	N/A	.06
	1805	N/A	.07		2035	N/A	.02
	1810	N/A	.05		2210	N/A	.02
	1815	N/A	.03		2240	N/A	.03
	1835	N/A	.02		2245	N/A	.05
	1940	N/A	.08		2250	N/A	.12
	2320	N/A	.01		2255	N/A	.13
	2325	N/A	.00		2300	N/A	.12
					2305	N/A	.05
					2310	N/A	.04
					2320	N/A	.06
					2340	N/A	.08
					2400	N/A	.08

*2.49 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

*1.94 inches of rainfall this date.

**No discharge peaks high enough to be recorded this year.

Sept. 4	0010	N/A	.06
	0030	N/A	.07
	0100	N/A	.09
	0205	N/A	.11
	0210	N/A	.00

*2.27 inches of rainfall for the rainfall event Sept. 3, 4.

DISCHARGE AT PARTIAL-RECORD STATIONS--Continued

415

07229030 Merkle Creek at Norman, OK

LOCATION.--Lat 35°12' 24", long 97°28' 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, at mile 1.1 mi.

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, 1991

DATE	HOUR	DISCHARGE	RAINFALL	DATE	HOUR	DISCHARGE	RAINFALL
May 7	2200		.08	May 8	0010	554	
	2215		.15		0015	529	.15
	2230		.36		0030	722	.02
	2245	396	.33		0045	695	.02
	2300	710	.03		0100	631	.08
	2315	549	.12		0115	610	.07
	2330	558	.06		0130	875	.10
	2345	489	.06		0145	558	.02
	2400	469	.30		0200	504	.06
					0215	512	.10
					0230	578	.14
					0245	586	.06
					0300	594	.03
					0315	574	.01
					0330	533	0
					0345	478	0
					0400	386	0
					0415	<345	0
June 1	2400		.16	Sept. 2	0715		0
June 2	0015		.07		0730		.38
	0030	<341	.19		0745	<341	.11
	0045	345	.15		0800	379	.04
	0100	363	.05		0815	443	.04
	0115	352	0		0820	449	
	0130	<349	.01		0830	460	.02
	0145	<349	.03		0845	412	.01
	0155	373			0900	386	.01
	0200	358	.07		0915	369	0
	0215	359	.02		0930	345	.01
	0230	356	.02		0945	<341	0
	0245		.01		1515		0
	0300		0		1530		.11
	0315		.01		1545		.43
	0330		0		1600		.02
	0345		.02		1615		0
	0400		0		1630		0
	0415		.01		1645	<341	.01
	0430		0		1655	369	
	0445		0		1700	<341	0
	0500		.02		1715	359	0
	0515		0		1730	366	0
	0530		.02		1745	349	0
	0545		.12		1800	<345	0
	0600		.01				
	0615		0				
	0630		.01				

DISCHARGE AT PARTIAL-RECORD STATIONS--Continued

07229055 Bishop Creek at Norman, OK

LOCATION.--Lat 35°12'13", long 97°25'52", 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.

DRAINAGE AREA.--2.1 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, 1991

DATE	HOUR	DISCHARGE	RAINFALL	DATE	HOUR	DISCHARGE	RAINFALL
May 7	2130		.03	May 8	0015	511	.07
	2145		.21		0030	747	.04
	2200		.04		0035	778	
	2215		.09		0045	736	.08
	2230		.25		0100	554	.09
	2245	145	.04		0115	447	.04
	2300	218	.16		0130	401	.01
	2315	291	.10		0145	337	.01
	2330	238	.08		0200	267	.09
	2345	246	.28		0215	214	.17
	2400	305	.29		0230	215	.05
					0245	308	.05
					0300	342	.01
					0315	302	.01
					0330	247	.00
					0345	203	.00
					0400	164	.00
					0415	135	.00
					0430	<133	.00
Sept. 1	0545		.12	Sept. 16	0100		.19
	0600		.23		0115		.07
	0615		.28		0130		.08
	0630	<132	.17		0145		.16
	0645	261	.03		0200		.29
	0650	272			0215	135	.17
	0700	232	.02		0230	279	.04
	0715	142	.01		0245	371	.01
	0730	<132	.03		0300	321	.07
	0745		.03		0315	215	.11
	0800		.02		0330	169	.19
	0815		.02		0345	190	.28
	0830		.01		0400	274	.18
	0845		.02		0415	455	.35
	0900		.01		0430	545	.23
	0915		.01		0445	689	.04
	0930		.00		0500	807	.00
					0515	686	.01
					0530	484	.01
					0545	379	.09
					0600	313	.04
					0615	274	.01
					0630	254	.02
					0645	218	.01
					0700	179	.00
					0715	153	.00
					0730	<134	.01

GROUND-WATER LEVELS

CADD0 COUNTY

WELL-IDENTIFICATION NUMBER.-- 351308090341601. Local number 09N-13W-28 DDD 1.

LOCATION.-- Lat 35°13'08", long 098°34'16", Hydrologic Unit 11130302, 2.0 mi east of Alfalfa.

AQUIFER.-- Rush Springs Formation.

WELL CHARACTERISTICS.-- Drilled well, diameter 8 in., depth 335 ft.

DATUM.-- Altitude of land-surface datum is 1,440 ft. Measuring point: top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.-- 1948 to current year.

REVISED RECORDS.-- WDR OK-91-1: 1985 (L).

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 34.71 ft below land-surface datum, Aug. 1, 13, 1949; lowest water level (revised), 52.89 ft below land-surface datum, Apr. 5, 1985.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42.92	43.17	43.30	43.47	43.66	43.47	43.86	44.11	44.05	43.76	---	44.84
2	42.81	43.13	43.21	43.59	43.63	43.74	43.73	43.95	44.05	44.01	44.59	44.84
3	42.86	43.15	43.48	43.64	43.55	43.79	43.88	43.93	43.98	43.99	44.84	44.85
4	43.03	43.19	43.44	---	43.61	43.78	43.95	44.03	43.94	43.75	44.82	44.85
5	42.92	43.08	43.25	---	43.63	43.70	43.91	44.17	43.94	43.69	44.51	44.63
6	42.83	43.24	43.40	---	43.69	43.84	43.83	44.08	43.96	43.79	44.34	44.66
7	42.98	43.32	43.43	---	43.71	43.85	43.76	44.03	43.90	43.93	44.38	44.62
8	43.01	43.11	43.39	---	43.62	43.85	43.82	44.04	43.85	44.19	44.72	44.60
9	43.05	43.22	43.40	43.50	43.56	43.93	44.02	44.04	43.83	44.21	44.73	44.86
10	42.93	43.23	43.36	43.43	43.68	43.75	43.85	44.00	43.80	44.21	44.83	44.67
11	42.89	43.29	43.24	43.53	43.65	43.64	43.79	44.09	43.74	44.22	44.82	44.63
12	42.99	43.28	43.33	43.53	43.48	43.70	43.85	44.05	43.71	44.27	44.83	44.63
13	42.84	43.23	43.50	43.41	43.54	43.82	43.98	44.04	43.88	44.42	44.58	44.81
14	42.92	43.22	43.33	43.40	43.72	43.83	44.26	44.03	43.66	---	44.79	44.60
15	42.99	43.22	43.54	43.46	43.78	43.85	44.01	44.03	43.67	---	44.86	44.66
16	42.92	43.37	---	43.61	43.51	43.79	43.96	44.04	43.70	---	44.89	44.73
17	43.04	43.20	---	43.60	43.43	43.86	43.91	44.14	43.66	---	44.83	44.65
18	43.10	43.11	---	43.56	43.66	43.84	43.92	44.20	43.66	---	44.81	44.72
19	42.86	43.18	---	43.39	43.82	43.78	44.06	44.22	43.67	---	44.59	44.74
20	42.92	43.16	---	43.65	43.74	43.72	44.10	44.13	43.62	---	44.69	44.64
21	43.12	43.25	---	43.61	43.68	43.74	43.98	44.12	43.59	---	44.60	44.52
22	43.01	43.29	---	43.43	43.73	43.80	44.04	44.20	43.62	---	44.84	44.60
23	43.12	43.29	---	43.55	43.64	43.97	43.99	44.20	43.65	---	44.81	44.59
24	43.24	43.17	---	43.59	43.76	43.87	44.00	44.14	43.62	---	44.72	44.56
25	43.11	43.17	---	43.61	43.78	43.77	43.95	44.11	43.61	---	45.00	44.51
26	43.14	43.11	---	43.56	43.73	43.74	43.86	44.09	43.61	---	44.99	44.53
27	43.59	43.32	---	43.42	43.61	43.86	44.01	44.16	43.64	---	44.96	44.49
28	43.32	43.53	43.31	43.45	43.55	43.80	43.92	44.13	43.67	---	45.00	44.51
29	43.17	43.49	43.52	43.61	---	43.91	44.05	44.04	43.71	---	44.89	44.52
30	43.13	43.18	43.64	43.69	---	44.03	44.07	43.95	43.66	---	44.73	44.49
31	43.13	---	43.62	43.70	---	43.96	---	43.99	---	---	44.64	---
MEAN	43.03	43.23	---	---	43.65	43.81	43.94	44.08	43.75	---	---	44.61
MAX	43.59	43.53	---	---	43.82	44.03	44.26	44.22	44.05	---	---	44.74
MIN	42.81	43.08	---	---	43.43	43.47	43.73	43.93	43.59	---	---	44.49

GROUND-WATER LEVELS

CADD0 COUNTY--Continued

WELL-IDENTIFICATION NUMBER.-- 352423098341701. Local number 11N-13W-21 DDD 1.

LOCATION.-- Lat 35°24'23", long 098°34'17", Hydrologic Unit, 11130302, 7 mi north of Eakly.

AQUIFER.-- Rush Springs Formation.

WELL CHARACTERISTICS.-- Unused industrial well, diameter 5 in., depth 210 ft.

DATUM.-- Altitude of land-surface datum is 1,610 ft. Measuring point: instrument shelf 2.75 ft above land-surface datum.

PERIOD OF RECORD.-- 1965 to 1981, 1983 to current year.

REVISED RECORDS.-- WDR OK-91-1: 1985 (L). 1987.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 58.06 ft below land-surface datum, Aug. 2, 1985; lowest water level (revised), 75.94 ft below land-surface datum, Nov. 21, 1985.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66.50	66.48	66.51	66.53	---	---	66.49	---	66.48	66.51	---	67.55
2	66.38	66.51	66.44	66.57	---	---	66.29	---	66.50	66.55	---	67.55
3	66.34	66.52	66.75	66.65	---	---	66.29	66.24	66.42	66.57	66.97	67.58
4	66.55	66.55	66.70	66.53	---	---	---	66.28	66.44	---	67.00	67.59
5	66.50	66.45	66.47	66.44	---	---	---	66.30	66.50	---	67.00	67.56
6	66.38	66.50	66.60	66.63	---	---	---	66.32	66.57	---	67.00	67.62
7	66.50	66.74	66.64	66.61	---	---	66.28	66.33	66.54	---	67.15	67.58
8	66.55	66.49	66.59	66.51	---	---	66.31	66.35	66.51	---	67.12	67.53
9	66.59	66.60	66.58	66.58	---	---	66.52	66.41	66.52	---	67.16	67.62
10	66.49	66.61	66.54	66.46	---	---	66.42	66.47	66.51	---	67.21	67.64
11	66.41	66.67	66.41	66.51	---	---	66.30	66.49	66.46	---	67.25	67.59
12	66.51	66.68	66.45	66.54	---	---	66.35	66.42	66.43	---	67.28	67.59
13	66.35	66.62	66.68	66.44	---	---	66.43	66.41	66.41	---	67.27	67.57
14	66.40	66.58	66.47	66.40	---	---	66.47	66.39	66.42	---	67.27	67.54
15	66.51	66.55	66.64	66.40	---	---	66.47	66.38	66.47	---	67.28	67.64
16	66.44	66.70	66.49	66.55	---	---	66.42	66.39	66.51	---	67.27	67.76
17	66.53	66.55	66.36	66.60	---	---	66.35	66.50	66.47	---	67.34	67.65
18	66.60	66.40	66.39	66.56	---	---	66.31	66.56	66.48	---	67.36	67.78
19	66.38	66.48	66.43	---	---	---	66.42	66.54	66.51	---	67.36	67.83
20	66.42	66.47	66.56	---	---	---	66.45	66.49	66.43	---	67.39	67.69
21	66.72	66.50	66.61	---	---	66.32	66.32	66.46	66.40	---	67.44	67.53
22	66.53	66.57	66.61	---	---	66.32	66.34	66.46	66.45	---	67.45	67.67
23	66.54	66.57	66.68	---	---	66.35	66.36	66.47	66.50	---	67.45	67.72
24	66.66	66.43	66.62	---	---	66.36	66.36	66.46	66.47	---	67.49	67.69
25	66.60	66.41	66.55	---	---	66.33	66.32	66.43	66.47	---	67.47	67.66
26	66.50	66.34	66.61	---	---	66.28	66.22	66.40	66.45	---	67.42	67.75
27	66.68	66.52	66.50	---	---	66.27	66.21	66.49	66.47	---	67.44	67.70
28	66.69	66.71	66.39	---	---	66.35	66.23	66.50	66.51	---	67.51	67.74
29	66.57	66.80	66.58	---	---	66.35	---	66.43	66.51	---	67.55	67.78
30	66.55	66.47	66.74	---	---	66.60	---	66.32	66.49	---	67.54	67.75
31	66.54	---	66.65	---	---	66.63	---	66.40	---	---	67.54	---
MEAN	66.52	66.55	66.56	---	---	---	---	---	66.48	---	---	67.65
MAX	66.72	66.80	66.75	---	---	---	---	---	66.57	---	---	67.83
MIN	66.34	66.34	66.36	---	---	---	---	---	66.40	---	---	67.53

GROUND-WATER LEVELS

CANADIAN COUNTY

WELL-IDENTIFICATION NUMBER.-- 353107097453701. Local number 12N-05W-18 ADA 1.

LOCATION.-- Lat 35°31'07'', long 097°45'37'', Hydrologic Unit 11100301, 0.5 mi northwest of Yukon.

AQUIFER.-- Terrace, low, deposits.

WELL CHARACTERISTICS.-- Drilled abandoned city well, diameter 12 in., depth 47.2 ft.

DATUM.-- Altitude of land-surface datum 1,270 ft. Measuring point: top west edge of casing 0.80 ft above land-surface datum.

PERIOD OF RECORD.-- 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level (correction), 2.36 ft below land-surface datum, May 28, 1987: lowest water level, 15.31 ft below land-surface datum, Oct. 6, 1981.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.81	10.49	10.91	11.21	11.38	11.46	11.83	12.16	11.00	11.00	11.23	12.09
2	9.78	10.52	10.90	11.25	11.37	11.55	11.81	12.12	10.93	10.99	11.27	11.77
3	9.79	10.55	11.00	11.27	11.35	11.67	11.84	12.01	10.92	10.54	11.33	11.67
4	9.87	10.55	11.00	11.24	11.38	11.54	11.87	12.05	10.91	10.19	11.38	10.42
5	9.84	10.53	10.96	11.23	11.39	11.50	11.88	12.09	10.91	10.31	11.42	10.48
6	9.82	10.57	11.01	11.29	11.41	11.59	11.87	12.08	10.91	10.38	11.47	10.58
7	9.89	10.64	11.03	11.29	11.42	11.61	11.87	12.05	10.84	10.42	11.53	10.59
8	9.91	10.58	11.04	11.27	11.39	11.62	11.89	11.49	10.80	10.45	11.56	10.54
9	9.94	10.59	11.05	11.30	11.37	11.65	11.93	11.45	10.80	10.45	11.61	10.58
10	9.91	10.61	11.06	11.25	11.41	11.61	11.93	11.52	10.78	10.48	11.65	10.60
11	9.91	10.65	11.04	11.28	11.41	11.67	11.92	11.54	10.77	10.53	11.69	10.58
12	9.97	10.66	11.08	11.29	11.36	11.59	11.95	11.53	10.76	10.57	11.73	10.57
13	9.93	10.66	11.13	11.25	11.36	11.66	11.98	11.53	10.76	10.60	11.75	10.55
14	9.98	10.67	11.10	11.24	11.44	11.68	11.99	11.52	10.77	10.62	11.77	10.48
15	10.04	10.69	11.16	11.26	11.46	11.69	12.01	11.52	10.79	10.65	11.80	10.49
16	10.04	10.74	11.13	11.31	11.39	11.67	12.03	11.53	10.81	10.68	11.83	10.52
17	10.10	10.71	11.08	11.31	11.35	11.67	12.04	11.57	10.82	10.71	11.87	10.46
18	10.17	10.68	11.05	11.31	11.43	11.69	12.05	11.60	10.84	10.74	11.90	10.39
19	10.11	10.72	11.07	11.25	11.49	11.67	12.09	11.62	10.87	10.81	11.93	10.23
20	10.15	10.73	11.11	11.32	11.49	11.65	12.11	11.60	10.87	10.88	11.95	10.20
21	10.24	10.77	11.13	11.33	11.47	11.67	12.08	11.59	10.89	10.91	11.95	10.16
22	10.23	10.79	11.14	11.27	11.50	11.70	12.09	11.60	10.92	10.93	11.98	10.16
23	10.25	10.80	11.16	11.31	11.48	11.75	12.12	11.53	10.96	10.95	11.99	10.17
24	10.32	10.78	11.15	11.33	11.51	11.74	12.13	11.14	10.96	10.97	12.02	10.15
25	10.33	10.80	11.15	11.34	11.52	11.73	12.05	11.02	10.97	10.99	12.03	10.14
26	10.32	10.80	11.18	11.34	11.52	11.73	12.05	11.08	10.97	11.02	12.04	10.14
27	10.39	10.86	11.16	11.29	11.49	11.76	12.10	11.13	10.97	11.04	12.06	10.13
28	10.42	10.94	11.12	11.30	11.48	11.76	12.10	11.13	10.97	11.06	12.09	10.14
29	10.42	10.95	11.19	11.34	---	11.79	12.14	11.11	10.98	11.10	12.12	10.15
30	10.45	10.88	11.23	11.38	---	11.83	12.16	11.07	10.98	11.14	12.13	10.14
31	10.47	---	11.22	11.39	---	11.84	---	11.07	---	11.19	12.14	---
MEAN	10.09	10.70	11.09	11.29	11.43	11.66	12.00	11.55	10.88	10.75	11.78	10.51
MAX	10.47	10.95	11.23	11.39	11.52	11.84	12.16	12.16	11.08	11.19	12.14	12.09
MIN	9.78	10.49	10.90	11.21	11.35	11.46	11.81	11.02	10.76	10.19	11.23	10.13

GROUND-WATER LEVELS

COMANCHE COUNTY

WELL-IDENTIFICATION NUMBER.-- 343540098342001. Local number 01N-13W-04 BAA 1.

LOCATION.-- Lat 34°35'36", long 098°34'22", Hydrologic Unit 11130203, 4 mi southeast of Cache.

AQUIFER.-- Lower Arbuckle Group.

WELL CHARACTERISTICS.-- Test well, diameter 6 in., depth 997 ft.

DATUM.-- Altitude of land-surface datum is 1,200 ft. Measuring point: top of casing 1.8 ft above land-surface datum.

PERIOD OF RECORD.-- 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 71.03 ft below land-surface datum, Sept. 25, 1974; lowest water level, 88.62 ft below land-surface datum, May 10, 1972.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 6, 1990	73.71	Apr. 23, 1991	73.63
Jan. 16, 1991	73.43	June 14, 1991	73.50
Feb. 27, 1991	73.46	July 30, 1991	74.20

GROUND-WATER LEVELS

CUSTER COUNTY

WELL-IDENTIFICATION NUMBER.-- 354112098430601. Local number 14N-14W-17 CBD 1.

LOCATION.-- Lat 35°41'12", long 098°43'06", Hydrologic Unit 11090201, 4 mi south of Thomas.

AQUIFER.-- Rush Springs Formation.

WELL CHARACTERISTICS.-- Drilled unused irrigation well, diameter 16 in., depth 320 ft.

DATUM.-- Altitude of land-surface datum is 1,685 ft. Measuring point: shelter base 2.26 ft above land-surface datum.

REMARKS.-- Digital recorder installed May 20, 1981, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 22.63 ft below land-surface datum, Nov. 14, 1989; lowest water level, 30.08 ft below land-surface datum Sept. 10, 1972.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.42	23.26	23.31	23.45	23.61	23.60	23.86	24.15	24.11	23.84	23.93	---
2	23.37	23.27	23.28	23.48	23.61	23.69	23.81	24.11	24.10	23.85	23.92	---
3	23.36	23.28	23.37	23.50	23.58	23.72	23.87	24.10	24.07	23.85	23.93	---
4	23.42	23.30	23.37	23.46	23.61	23.69	23.90	24.13	24.05	23.85	23.93	---
5	23.38	23.25	23.31	23.45	23.61	23.63	23.90	24.17	24.04	23.85	23.93	---
6	23.33	23.27	23.35	23.51	23.63	23.72	23.88	24.15	24.05	23.87	23.95	---
7	23.37	23.33	23.37	23.50	23.65	23.74	23.86	24.14	24.02	23.91	23.96	---
8	23.38	23.27	23.36	23.47	23.62	23.75	23.88	24.14	24.00	23.94	23.95	---
9	23.39	23.29	23.36	23.50	23.60	23.78	23.94	24.14	23.99	23.95	23.96	---
10	23.35	23.29	23.35	23.46	23.64	23.73	23.90	24.15	23.97	23.96	23.97	---
11	23.32	23.31	23.31	23.49	23.63	23.67	23.87	24.15	23.94	23.99	23.98	---
12	23.34	23.32	23.33	23.50	23.58	23.69	23.90	24.14	23.92	24.02	23.98	---
13	23.28	23.30	23.39	23.46	23.59	23.75	23.93	24.14	23.90	24.03	23.98	---
14	23.30	23.28	23.34	23.46	23.65	23.76	23.94	24.13	23.89	24.04	---	---
15	23.32	23.28	23.39	23.47	23.68	23.77	23.95	24.13	23.90	24.04	---	---
16	23.28	23.33	23.36	23.52	23.59	23.76	23.95	24.14	23.90	24.04	---	---
17	23.32	23.29	23.32	23.53	23.55	23.78	23.95	24.16	23.89	24.02	---	---
18	23.36	23.25	23.32	23.53	23.63	23.78	23.97	24.17	23.89	24.00	---	---
19	23.27	23.26	23.34	23.47	23.70	23.76	24.03	24.17	23.89	24.00	---	---
20	23.27	23.24	23.39	23.55	23.68	23.74	24.06	24.17	23.87	24.01	---	---
21	23.34	23.27	23.41	23.56	23.67	23.75	24.03	24.16	23.85	24.01	---	---
22	23.30	23.29	23.42	23.50	23.69	23.77	24.06	24.16	23.86	24.01	---	---
23	23.29	23.29	23.45	23.54	23.66	23.83	24.08	24.16	23.87	23.99	---	---
24	23.33	23.25	23.43	23.55	23.70	23.81	24.09	24.14	23.86	23.99	---	---
25	23.32	23.25	23.42	23.56	23.71	23.78	24.08	24.13	23.85	23.98	---	---
26	23.28	23.22	23.45	23.55	23.71	23.77	24.06	24.12	23.84	23.98	---	---
27	23.32	23.28	23.41	23.51	23.66	23.81	24.10	24.14	23.84	23.97	---	---
28	23.33	23.38	23.36	23.51	23.63	23.80	24.09	24.15	23.85	23.95	---	---
29	23.29	23.39	23.43	23.56	---	23.84	24.12	24.13	23.84	23.96	---	---
30	23.29	23.30	23.48	23.60	---	23.88	24.14	24.09	23.84	23.94	---	---
31	23.28	---	23.47	23.62	---	23.88	---	24.10	---	23.94	---	---
MEAN	23.33	23.29	23.38	23.51	23.64	23.76	23.97	24.14	23.93	23.96	---	---
MAX	23.42	23.39	23.48	23.62	23.71	23.88	24.14	24.17	24.11	24.04	---	---
MIN	23.27	23.22	23.28	23.45	23.55	23.60	23.81	24.09	23.84	23.84	---	---

GROUND-WATER LEVELS

DELAWARE COUNTY

WELL-IDENTIFICATION NUMBER.-- 361415094452501. Local Number, 20N-24E-04 DCA 1.

LOCATION (REVISED).-- Lat 36°14'07", long 094°45'13", Hydrologic Unit 11070209, 3.3 mi northeast of Kansas, OK.

AQUIFER.-- Keokuk Limestone.

WELL CHARACTERISTICS.-- Drilled unused stock well, diameter 6 in., depth 38 ft.

DATUM.-- Altitude of land-surface datum is 1,150 ft. Measuring point: top of casing 1.85 ft above land-surface datum.

PERIOD OF RECORD.-- 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 5.92 ft below land-surface datum, May 5, 1990; lowest, 33.52 ft below land-surface datum, Jan. 12, 1990.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.27	30.35	26.18	17.62	18.15	27.69	30.45	30.20	30.96	31.77	32.29	32.46
2	30.18	30.47	26.39	18.05	18.75	27.83	30.44	30.21	31.01	31.79	32.28	32.47
3	30.19	30.56	25.15	18.82	19.26	28.00	30.41	30.15	31.05	31.81	32.19	32.48
4	29.42	30.61	23.68	19.35	19.83	28.03	30.13	30.11	31.09	31.82	32.14	32.11
5	28.76	30.67	23.04	19.72	20.40	27.95	29.88	30.14	31.12	31.84	32.14	31.29
6	28.77	30.77	23.18	19.65	20.97	28.13	29.79	30.19	31.16	31.86	32.20	31.08
7	29.00	30.90	23.75	17.25	21.60	28.42	29.76	30.21	31.18	31.88	32.25	31.14
8	29.23	30.90	24.26	15.30	22.06	28.55	29.81	30.23	31.21	31.90	32.25	31.22
9	28.33	30.94	24.81	14.37	22.41	28.73	30.01	30.29	31.25	31.90	32.24	31.34
10	27.08	31.03	25.29	11.98	22.86	28.79	30.06	30.37	31.27	31.92	32.28	31.46
11	26.75	31.10	25.82	9.22	23.33	28.74	30.09	30.44	31.28	31.95	32.31	31.55
12	26.93	31.15	25.94	8.26	23.60	28.75	30.15	30.46	31.31	31.97	32.32	31.64
13	27.15	31.18	26.52	7.93	23.72	28.99	30.14	30.51	31.33	31.99	32.33	31.72
14	27.40	31.22	26.83	7.77	24.30	29.17	29.67	30.56	31.35	32.01	32.34	31.79
15	27.84	31.26	27.14	7.24	24.92	29.31	29.31	30.59	31.39	32.03	32.36	31.87
16	28.07	31.33	27.46	6.59	25.15	29.37	29.15	30.63	31.43	32.04	32.36	31.95
17	28.27	31.35	27.08	6.81	25.20	29.40	29.10	30.70	31.46	32.04	32.34	31.98
18	28.68	31.31	24.00	7.45	25.51	29.53	29.10	30.78	31.49	32.04	32.25	32.01
19	28.76	31.38	21.83	7.73	26.05	29.57	29.28	30.83	31.52	32.07	32.23	31.88
20	28.82	31.42	20.97	8.30	26.39	29.55	29.40	30.86	31.53	32.10	32.26	31.78
21	29.08	31.47	21.17	9.34	26.56	29.62	29.38	30.89	31.54	32.12	32.26	31.70
22	29.24	31.52	21.77	10.11	26.76	29.68	29.40	30.92	31.57	32.12	32.23	31.71
23	29.34	31.56	22.43	11.07	26.96	29.88	29.51	30.96	31.62	32.14	32.24	31.54
24	29.52	31.54	23.13	12.18	27.17	29.95	29.66	30.97	31.64	32.15	32.29	31.31
25	29.68	31.58	23.64	13.07	27.42	29.95	29.69	30.84	31.66	32.17	32.32	31.23
26	29.73	31.35	24.22	13.93	27.56	29.96	29.71	30.65	31.68	32.21	32.34	31.24
27	29.88	29.84	24.58	14.40	27.67	30.09	29.83	30.66	31.70	32.22	32.36	31.27
28	30.06	27.54	24.78	15.08	27.73	30.12	29.88	30.73	31.73	32.22	32.39	31.33
29	30.11	26.47	23.65	15.75	---	30.27	29.99	30.77	31.75	32.25	32.41	31.42
30	30.20	26.09	19.78	16.62	---	30.39	30.09	30.80	31.75	32.27	32.41	31.48
31	30.29	---	18.00	17.48	---	30.43	---	30.87	---	32.29	32.44	---
MEAN	28.94	30.63	24.07	12.85	24.01	29.19	29.78	30.57	31.40	32.03	32.29	31.65
MAX	30.29	31.58	27.46	19.72	27.73	30.43	30.45	30.97	31.75	32.29	32.44	32.48
MIN	26.75	26.09	18.00	6.59	18.15	27.69	29.10	30.11	30.96	31.77	32.14	31.08

GROUND-WATER LEVELS

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DEWEY COUNTY

WELL-IDENTIFICATION NUMBER.-- 355850090522701. Local number 17N-16W-02 ACB 1.

LOCATION.-- Lat 35°58'50", long 98°52'27", Hydrologic Unit 11090201, 6.5 miles southeast of Taloga.

AQUIFER.-- Rush Springs.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 8 in., depth 240 ft.

DATUM.-- Altitude of land-surface datum is 1,810 ft. Measuring point: shelter base 2.89 ft above land-surface datum.

PERIOD OF RECORD.-- April 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 113.31 ft below land-surface datum, Sept. 21, 1991; lowest water level, 116.36 ft below land-surface datum, May 27, 1989.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114.53	114.25	114.22	114.14	114.25	113.56	114.04	114.15	113.85	113.73	---	113.83
2	114.31	114.33	114.13	114.28	114.17	114.05	113.74	113.86	113.90	113.79	---	113.62
3	114.35	114.41	114.48	114.40	113.99	114.21	113.97	113.74	113.82	---	---	113.64
4	114.71	114.51	114.48	114.13	114.08	113.97	114.13	113.89	113.80	---	---	113.68
5	114.53	114.26	114.13	113.99	114.10	113.69	114.05	114.16	113.87	---	---	113.60
6	114.31	114.34	114.32	114.31	114.16	114.10	113.87	114.01	113.98	---	---	113.65
7	114.57	114.69	114.36	114.23	114.23	114.26	113.72	113.88	113.92	---	---	113.59
8	114.63	114.33	114.27	114.04	114.05	114.22	113.81	113.90	113.85	---	---	113.51
9	114.70	114.41	114.28	114.22	113.91	114.38	114.20	113.85	113.85	---	113.69	113.62
10	114.47	114.42	114.19	114.01	114.09	114.05	113.96	113.89	113.82	---	113.71	113.68
11	114.33	114.50	113.99	114.12	114.03	113.73	113.72	113.92	113.77	---	113.71	113.60
12	114.53	114.49	114.08	114.16	113.79	113.79	113.85	113.81	113.71	---	113.68	113.58
13	114.26	114.37	114.42	113.96	113.80	114.13	113.98	113.79	113.68	---	113.66	113.53
14	114.36	114.29	114.14	113.94	114.17	114.15	113.98	113.76	113.70	---	113.64	113.47
15	114.54	114.29	114.33	114.03	114.34	114.11	113.99	113.75	113.81	---	113.61	113.60
16	114.36	114.56	114.17	114.25	113.86	114.02	113.92	113.78	113.89	---	113.56	113.77
17	114.51	114.36	113.98	114.30	113.63	114.07	113.87	113.94	113.80	---	113.65	113.63
18	114.76	114.09	114.02	114.22	114.03	114.09	113.86	114.01	113.81	---	113.68	113.76
19	114.29	114.21	114.10	113.90	114.37	113.94	114.11	114.01	113.85	---	113.66	113.83
20	114.29	114.16	114.31	114.28	114.22	113.75	114.17	113.91	113.74	---	113.62	113.68
21	114.71	114.27	114.38	114.33	114.07	113.84	113.83	113.82	113.67	---	113.65	113.42
22	114.48	114.39	114.37	113.96	114.12	113.91	113.82	113.81	113.75	---	113.68	113.57
23	114.42	114.37	114.42	114.10	113.94	114.30	113.86	113.82	113.82	---	113.67	113.66
24	114.82	114.15	114.31	114.19	114.10	114.13	113.94	113.83	113.80	---	113.71	113.60
25	114.53	114.14	114.19	114.15	114.18	113.89	113.84	113.77	113.75	---	113.69	113.53
26	114.31	114.00	114.31	114.14	114.06	113.80	113.65	113.73	113.74	---	113.60	113.59
27	114.53	114.32	114.10	113.84	113.82	113.95	113.90	113.83	113.74	---	113.56	113.54
28	114.58	114.75	113.86	113.91	113.67	113.97	113.78	113.90	113.77	---	113.60	113.59
29	114.36	114.76	114.20	114.14	---	114.09	113.94	113.79	113.76	---	113.63	113.65
30	114.34	114.21	114.45	114.29	---	114.35	114.05	113.64	113.71	---	113.63	113.62
31	114.33	---	114.35	114.35	---	114.25	---	113.70	---	---	113.63	---
MEAN	114.47	114.35	114.24	114.14	114.04	114.02	113.92	113.86	113.80	---	---	113.61
MAX	114.76	114.76	114.48	114.40	114.37	114.38	114.20	114.16	113.98	---	---	113.83
MIN	114.26	114.00	113.86	113.84	113.63	113.56	113.65	113.64	113.67	---	---	113.42

GROUND-WATER LEVELS

ELLIS COUNTY

WELL-IDENTIFICATION NUMBER.-- 361536099464601. Local number 21N-24W-33 BBB 1.

LOCATION.-- Lat 36°15'35", long 099°46'59", Hydrologic Unit 11100203, 4 mi southwest of Gage.

AQUIFER.-- Ogallala Formation.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 5 in., depth 205 ft.

DATUM.-- Altitude of land-surface datum is 2,295 ft. Measuring point: top of wooden recorder base 3.10 ft above land-surface datum.

REMARKS.-- Digital recorder installed June 2, 1981, mean-daily water levels published thereafter.

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

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 75.96 ft below land-surface datum, April 29, 1990; lowest water level, 84.40 ft below land-surface datum, May 15, 1977.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77.09	77.08	76.82	76.79	76.79	76.34	77.08	77.40	76.90	76.13	77.90	79.02
2	76.98	77.05	76.78	76.82	76.79	76.42	76.90	77.34	76.93	76.31	77.85	78.88
3	76.88	77.16	76.84	76.93	76.69	76.57	76.88	77.23	76.95	76.30	77.82	78.68
4	76.99	77.31	76.93	76.88	76.69	76.56	76.96	77.24	76.95	76.09	77.85	78.53
5	77.00	77.17	76.83	76.74	76.78	76.41	76.96	77.37	76.99	77.88	77.83	78.40
6	76.89	77.06	76.83	76.83	76.92	76.45	76.88	77.36	77.07	77.81	77.86	78.32
7	76.93	77.18	76.89	76.86	77.07	76.60	76.75	77.27	77.10	77.90	77.93	78.21
8	76.97	77.08	76.86	76.76	77.10	76.68	76.70	77.25	77.10	78.02	77.90	78.09
9	77.04	77.06	76.84	76.79	77.04	76.85	76.88	77.21	77.09	78.17	77.89	78.05
10	77.00	77.05	76.81	76.71	77.10	76.92	77.00	77.19	77.09	78.40	77.91	78.06
11	76.87	77.08	76.69	76.70	77.05	76.89	77.03	77.19	77.06	78.61	77.93	78.01
12	76.91	77.09	76.62	76.72	76.91	76.76	77.04	77.13	77.02	78.68	77.95	77.97
13	76.81	77.05	76.75	76.63	76.73	76.81	77.08	77.09	76.97	78.67	77.95	77.92
14	76.74	76.96	76.72	76.56	76.76	76.89	77.18	77.04	76.94	78.77	77.96	77.83
15	76.82	76.91	76.75	76.54	76.85	76.93	77.44	76.98	76.98	78.84	77.95	77.82
16	76.76	77.00	76.73	76.60	76.71	76.92	77.63	76.96	77.07	78.80	77.92	77.90
17	76.77	77.00	76.62	76.69	76.51	76.88	77.78	77.02	77.08	78.56	77.93	77.90
18	76.95	76.84	76.55	76.72	76.52	76.90	77.83	77.11	77.16	78.29	77.96	77.92
19	76.83	76.78	76.53	76.60	76.70	76.84	77.84	77.18	77.21	78.09	77.96	78.01
20	76.73	76.70	76.59	76.66	76.76	76.70	77.88	77.18	77.17	78.00	77.93	77.99
21	76.91	76.69	76.69	76.78	76.76	76.67	77.93	77.15	77.10	77.97	77.92	77.86
22	76.90	76.77	76.76	76.67	76.78	76.66	78.00	77.11	77.09	77.96	77.96	77.83
23	76.87	76.81	76.82	76.65	76.70	76.86	77.90	77.10	77.13	77.95	77.98	77.90
24	76.96	76.73	76.85	76.69	76.75	76.93	77.75	77.06	77.22	77.93	78.03	77.89
25	77.00	76.67	76.80	76.68	76.83	76.85	77.58	77.07	77.26	77.95	78.06	77.88
26	76.95	76.54	76.86	76.72	76.80	76.77	77.36	77.02	77.33	77.97	78.06	77.88
27	77.00	76.57	76.79	76.57	76.67	76.81	77.32	77.02	77.33	77.96	78.12	77.83
28	77.09	76.81	76.62	76.51	76.51	76.87	77.22	77.06	77.46	77.95	78.38	77.82
29	77.02	77.02	76.64	76.53	---	76.87	77.22	77.04	77.75	77.98	78.64	77.85
30	76.97	76.90	76.77	76.65	---	77.02	77.29	76.91	77.99	77.96	78.80	77.86
31	77.05	---	76.83	76.75	---	77.11	---	76.87	---	77.93	78.95	---
MEAN	76.93	76.94	76.76	76.70	76.80	76.77	77.31	77.13	77.15	78.19	78.03	78.07
MAX	77.09	77.31	76.93	76.93	77.10	77.11	78.00	77.40	77.99	78.84	78.95	79.02
MIN	76.73	76.54	76.53	76.51	76.51	76.34	76.70	76.87	76.90	77.81	77.82	77.82

GROUND-WATER LEVELS

425

ELLIS COUNTY--Continued

WELL-IDENTIFICATION NUMBER.-- 363224099684601. Local number, 24N-26W-22 CCB 1.

LOCATION.-- Lat 36°32'24", long 099°58'46", Hydrologic Unit 11100201, 3.5 mi northwest of Catesby.

AQUIFER.-- Ogallala Formation.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 6 in., depth 94 ft.

DATUM.-- Altitude of land-surface datum is 2,340 ft. Measuring point: top edge of shelter base 2.40 ft above land-surface datum.

PERIOD OF RECORD.-- 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 36.29 ft below land-surface datum, May 29, 1990; lowest daily water level, 40.98 ft below land-surface datum, Sept. 10, 1985.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37.26	37.28	37.30	37.26	37.26	37.12	37.18	37.31	37.42	37.55	37.77	37.97
2	37.21	37.30	37.26	37.31	37.24	37.20	37.13	37.26	37.40	37.56	37.78	37.96
3	37.26	37.34	37.34	37.32	37.21	37.21	37.19	37.26	37.36	37.57	37.80	37.97
4	37.31	37.35	37.31	37.25	37.25	37.17	37.20	37.31	37.35	37.57	37.81	37.97
5	37.27	37.27	37.26	37.25	37.24	37.12	37.18	37.35	37.37	37.57	37.81	37.95
6	37.25	37.33	37.32	37.30	37.26	37.20	37.15	37.31	37.38	37.58	37.83	37.96
7	37.31	37.36	37.30	37.27	37.27	37.21	37.11	37.31	37.38	37.60	37.83	37.95
8	37.32	37.30	37.29	37.24	37.22	37.22	37.15	37.33	37.37	37.61	37.84	37.93
9	37.32	37.33	37.29	37.27	37.21	37.26	37.21	37.31	37.37	37.60	37.85	37.97
10	37.26	37.32	37.27	37.23	37.23	37.17	37.14	37.33	37.38	37.62	37.86	37.98
11	37.26	37.34	37.22	37.26	37.21	37.12	37.11	37.34	37.38	37.64	37.86	37.97
12	37.31	37.34	37.26	37.24	37.16	37.15	37.14	37.32	37.37	37.65	37.87	37.97
13	37.23	37.31	37.30	37.21	37.18	37.20	37.18	37.32	37.37	37.66	37.88	37.97
14	37.30	37.29	37.24	37.21	37.23	37.20	37.17	37.32	37.39	37.66	37.87	37.96
15	37.30	37.29	37.30	37.21	37.25	37.19	37.17	37.32	37.43	37.66	37.87	38.00
16	37.27	37.37	37.25	37.26	37.15	37.17	37.17	37.34	37.44	37.67	37.87	38.01
17	37.34	37.29	37.23	37.26	37.14	37.20	37.18	37.38	37.44	37.66	37.89	37.99
18	37.33	37.27	37.22	37.25	37.22	37.19	37.18	37.40	37.45	37.65	37.90	38.03
19	37.24	37.27	37.24	37.19	37.26	37.15	37.24	37.40	37.46	37.67	37.90	38.03
20	37.30	37.24	37.28	37.29	37.23	37.12	37.25	37.39	37.45	37.69	37.90	38.01
21	37.36	37.29	37.29	37.27	37.22	37.13	37.18	37.38	37.45	37.70	37.91	37.96
22	37.30	37.30	37.30	37.21	37.23	37.15	37.20	37.39	37.48	37.71	37.92	38.03
23	37.32	37.30	37.32	37.24	37.19	37.22	37.21	37.40	37.49	37.72	37.92	38.02
24	37.36	37.25	37.28	37.24	37.23	37.18	37.23	37.40	37.48	37.73	37.93	38.04
25	37.33	37.24	37.28	37.26	37.24	37.14	37.20	37.40	37.49	37.73	37.94	38.02
26	37.29	37.21	37.29	37.22	37.22	37.12	37.19	37.39	37.50	37.74	37.93	38.03
27	37.37	37.30	37.24	37.19	37.16	37.16	37.23	37.42	37.51	37.74	37.93	38.02
28	37.34	37.38	37.19	37.18	37.12	37.16	37.22	37.43	37.52	37.75	37.95	38.05
29	37.30	37.36	37.28	37.24	---	37.19	37.27	37.41	37.53	37.76	37.96	38.05
30	37.31	37.26	37.31	37.26	---	37.24	37.30	37.37	37.53	37.76	37.97	38.06
31	37.30	---	37.29	37.27	---	37.23	---	37.39	---	37.78	37.97	---
MEAN	37.30	37.30	37.28	37.25	37.22	37.18	37.19	37.35	37.43	37.66	37.88	37.99
MAX	37.37	37.38	37.34	37.32	37.27	37.26	37.30	37.43	37.53	37.78	37.97	38.06
MIN	37.21	37.21	37.19	37.18	37.12	37.12	37.11	37.26	37.35	37.55	37.77	37.93

GROUND-WATER LEVELS

GRADY COUNTY

WELL-IDENTIFICATION NUMBER.-- 344656098031401. Local number 04N-08W-33 BBB 1.

LOCATION.-- Lat 34°46'56", long 098°03'14", Hydrologic Unit 11130208, 5.6 mi west of Rush Springs on Hwy 17.

AQUIFER.-- Rush Springs Formation.

WELL CHARACTERISTICS.-- Drilled test well, diameter 6 in., depth 254 ft.

DATUM.-- Altitude of land-surface datum is 1,335 ft. Measuring point: top of casing 3.98 ft above land-surface datum.

PERIOD OF RECORD.-- 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level (revised), 72.35 ft below land-surface datum, Sept. 15, 1987; lowest water level, 85.67 ft below land-surface datum, Feb. 29, 1968.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76.14	76.09	76.21	76.45	76.77	76.39	77.12	77.41	77.50	77.72	---	---
2	76.01	76.10	76.14	76.53	76.71	76.65	76.92	77.25	77.57	77.74	---	---
3	75.95	76.10	76.43	76.66	76.58	76.83	77.00	77.18	77.51	77.73	---	---
4	76.21	76.21	76.48	76.49	76.60	76.72	77.14	77.27	77.51	77.71	---	---
5	76.15	76.11	76.24	76.39	76.62	76.50	77.13	77.47	77.56	77.70	---	---
6	76.00	76.14	76.30	76.58	76.71	76.73	77.04	77.43	77.63	77.69	---	---
7	76.10	76.36	76.41	76.57	76.78	76.88	76.92	77.34	77.62	77.73	---	---
8	76.16	76.15	76.36	76.45	76.70	76.94	76.93	77.32	77.59	77.77	---	---
9	76.26	76.23	76.36	76.52	76.58	77.07	77.20	77.32	77.61	77.73	---	---
10	76.17	76.27	76.31	---	76.69	76.91	77.11	77.36	77.59	77.70	---	---
11	76.06	76.34	76.15	---	76.69	76.64	76.97	77.39	77.54	77.76	---	---
12	76.12	76.34	76.16	---	76.48	76.64	77.02	77.35	77.62	77.81	---	---
13	76.00	76.28	76.40	---	76.42	76.83	77.08	77.32	77.50	77.83	---	---
14	75.97	76.24	76.27	---	76.69	76.90	77.11	77.30	77.52	77.85	---	---
15	76.11	76.22	76.40	---	76.67	76.94	77.18	77.29	77.54	77.84	---	---
16	76.06	76.36	76.30	76.54	76.58	76.89	77.16	77.31	77.60	77.83	---	---
17	76.10	76.26	76.12	76.62	76.37	76.93	77.11	77.42	77.62	77.80	---	---
18	76.33	76.08	76.14	76.59	76.58	76.98	77.07	77.52	77.63	77.77	---	---
19	76.07	76.12	76.18	76.35	76.67	76.88	77.25	77.51	77.65	77.77	---	---
20	76.01	76.11	76.32	76.60	76.65	76.77	77.32	77.48	77.61	77.85	---	---
21	76.27	76.16	76.42	76.69	76.75	76.76	77.13	77.45	77.54	77.89	---	---
22	76.19	76.24	76.47	76.45	76.78	76.83	77.12	77.45	77.58	77.91	---	---
23	76.12	76.25	76.59	76.49	76.70	77.09	77.17	77.47	77.65	77.91	---	---
24	76.25	76.11	76.54	76.60	76.77	77.05	77.21	77.46	77.67	77.89	---	---
25	76.26	76.08	76.42	76.60	76.91	76.91	77.16	77.42	77.68	77.91	---	---
26	76.12	76.01	76.49	76.60	76.84	76.83	77.04	77.41	77.67	---	---	---
27	76.21	76.18	76.40	76.37	76.73	76.92	77.17	77.50	77.68	---	---	---
28	76.29	76.54	76.23	76.40	76.55	76.88	77.12	77.52	77.69	---	---	---
29	76.19	76.60	76.36	76.52	---	77.00	77.26	77.45	77.70	77.91	---	---
30	76.14	76.28	76.63	76.71	---	77.24	77.31	77.36	77.72	---	---	---
31	76.13	---	76.59	76.80	---	77.23	---	77.40	---	---	---	---
MEAN	76.13	76.22	76.35	---	76.68	76.86	77.12	77.39	77.60	---	---	---
MAX	76.33	76.60	76.63	---	76.91	77.24	77.32	77.52	77.72	---	---	---
MIN	75.95	76.01	76.12	---	76.37	76.39	76.92	77.18	77.50	---	---	---

GROUND-WATER LEVELS

427

HARMON COUNTY

WELL-IDENTIFICATION NUMBER.-- 344143099560001. Local number 03N-26W-33 ABA 1

LOCATION.-- Lat 34°41'43'', long 099°56'06'', Hydrologic Unit 11130101, 1 mi northwest of Hollis.

AQUIFER.-- Blaine Gypsum.

WELL CHARACTERISTICS.-- Drilled unused irrigation well, diameter 16 in., depth 237 ft.

DATUM.-- Altitude of land-surface datum is 1,640 ft. Measuring point: top of casing 1.53 ft above land-surface datum.

PERIOD OF RECORD.-- 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.-- (REVISED) Highest water level, 31.38 ft below land-surface datum, July 4, 1987; lowest water level, 114.58 ft below land-surface datum, Sept. 6, 1983.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.62	40.13	39.04	38.38	38.09	37.57	40.92	40.56	37.86	35.28	51.21	54.19
2	41.40	40.15	38.94	38.43	38.04	37.78	40.74	40.40	37.38	35.66	52.96	53.36
3	41.29	40.22	39.13	38.52	37.91	37.94	40.84	40.25	36.74	36.12	54.38	52.61
4	41.38	40.27	39.13	38.37	37.92	37.82	40.89	40.26	36.52	36.67	54.63	51.89
5	41.23	40.06	38.90	38.25	37.93	37.66	40.90	40.42	36.50	37.10	56.21	51.16
6	41.03	40.05	38.94	38.40	37.98	37.81	40.82	40.33	36.08	38.14	57.17	50.35
7	41.04	40.19	38.98	38.37	38.03	37.94	40.73	40.20	35.28	39.80	57.87	48.65
8	41.02	39.84	38.91	38.22	37.93	38.01	40.60	40.00	34.96	41.14	58.11	47.55
9	41.04	39.82	38.85	38.29	37.82	38.22	40.68	39.94	34.88	43.04	58.78	46.92
10	40.85	39.77	38.78	38.16	37.90	38.16	40.48	39.91	34.82	44.06	58.06	46.41
11	40.68	39.78	38.63	38.20	37.88	38.02	40.29	39.90	34.76	46.16	57.88	45.92
12	40.70	39.74	38.64	38.17	37.69	38.18	40.30	39.82	34.71	46.89	58.43	45.48
13	40.49	39.64	38.79	38.05	37.68	38.54	40.37	39.75	34.58	48.39	57.95	45.06
14	40.44	39.56	38.62	37.97	37.87	38.71	40.42	39.66	34.50	---	56.30	44.67
15	40.47	39.50	38.71	37.99	38.03	38.81	40.53	39.60	34.51	---	55.16	44.38
16	40.33	39.60	38.59	38.11	37.79	38.88	40.50	39.58	34.55	---	54.04	44.18
17	40.36	39.47	38.44	38.18	37.61	39.01	40.41	39.63	34.51	---	53.10	43.86
18	40.49	39.27	38.40	38.15	37.78	39.07	40.36	39.67	34.52	---	52.30	43.46
19	40.42	39.25	38.39	37.92	38.01	39.07	40.49	39.66	34.56	---	51.93	42.70
20	40.49	39.18	38.49	38.14	37.99	39.08	40.59	39.60	34.52	---	52.14	42.27
21	40.76	39.20	38.59	38.19	37.91	39.16	40.38	39.54	34.58	---	52.67	41.80
22	40.67	39.24	38.61	37.96	37.94	39.40	40.36	39.54	34.68	---	53.67	41.55
23	40.63	39.22	38.68	37.99	37.84	39.77	40.48	39.28	34.71	---	55.01	41.31
24	40.77	39.05	38.60	38.04	37.92	40.01	40.71	38.90	34.69	---	56.15	41.03
25	40.71	38.98	38.48	38.03	38.02	40.21	40.72	38.21	34.66	---	57.07	40.77
26	40.39	38.86	38.53	38.02	37.98	40.49	40.50	38.04	34.64	---	57.82	40.56
27	40.40	38.99	38.41	37.81	37.81	40.97	40.54	38.04	34.65	---	58.74	40.34
28	40.41	39.28	38.25	37.78	37.69	40.95	40.41	38.04	34.69	---	58.14	40.17
29	40.26	39.40	38.35	37.91	---	40.89	40.46	37.96	34.79	---	57.49	40.02
30	40.21	39.11	38.54	38.04	---	41.05	40.46	37.84	35.03	---	56.19	39.85
31	40.18	---	38.50	38.11	---	41.01	---	37.85	---	51.40	55.11	---
MEAN	40.71	39.56	38.67	38.13	37.89	39.04	40.56	39.43	35.13	---	55.69	45.08
MAX	41.62	40.27	39.13	38.52	38.09	41.05	40.92	40.56	37.86	---	58.78	54.19
MIN	40.18	38.86	38.25	37.78	37.61	37.57	40.29	37.84	34.50	---	51.21	39.85

GROUND-WATER LEVELS

JOHNSTON COUNTY

WELL-IDENTIFICATION NUMBER.-- 341243090534501. Local number 04S-04E-16 BBC 1.

LOCATION.-- Lat 34°12'45", long 096°53'51", Hydrologic Unit 11130304, 2.0 mi northwest of Mannsville.

AQUIFER.-- Antlers Sand.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 4 in., depth 51.8 ft.

DATUM.-- Altitude of land-surface datum is 745 ft. Measuring point: top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.-- 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 13.65 ft below land-surface datum, June 1, 2, 1990; lowest water level, 31.05 ft below land-surface datum, Feb. 29, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.45	20.83	21.83	22.84	23.45	23.83	---	22.70	23.48	22.25	22.44	22.73
2	19.46	20.87	21.84	22.87	23.46	23.84	---	22.71	23.52	22.22	22.43	22.75
3	19.52	20.89	21.91	22.90	23.46	23.88	---	22.68	23.56	22.20	22.42	22.76
4	19.59	20.93	21.98	22.92	23.47	23.88	---	22.69	23.58	22.19	22.42	22.79
5	19.62	20.96	21.98	22.94	23.47	23.88	---	22.74	23.61	22.18	22.40	22.80
6	19.65	20.99	22.00	22.97	23.50	23.91	---	22.76	23.65	22.17	22.40	22.84
7	19.72	21.06	22.04	23.00	23.52	23.93	---	22.77	23.68	22.17	22.40	22.85
8	19.79	21.10	22.06	23.05	23.54	23.93	23.01	22.77	23.52	22.17	22.40	22.83
9	19.82	21.14	22.08	23.08	23.54	23.97	23.02	22.77	23.17	22.17	22.39	22.81
10	19.87	21.17	22.09	23.09	23.57	23.99	23.00	22.81	23.02	22.17	22.38	22.76
11	19.90	21.21	22.11	23.12	23.60	23.98	22.95	22.85	22.95	22.18	22.39	22.73
12	19.92	21.23	22.14	23.15	23.60	23.98	22.91	22.88	22.88	22.20	22.39	22.68
13	19.95	21.25	22.22	23.15	23.59	24.02	22.89	22.89	22.81	22.22	22.39	22.63
14	20.00	21.31	22.25	23.16	23.59	24.05	22.88	22.90	22.76	22.26	22.39	22.59
15	20.10	21.34	22.31	23.18	23.61	24.07	22.87	22.91	22.73	22.28	22.39	22.57
16	20.15	21.38	22.33	23.22	23.64	24.08	22.84	22.92	22.67	22.31	22.39	22.51
17	20.20	21.41	22.34	23.25	23.64	24.08	22.79	22.97	22.83	22.32	22.40	22.32
18	20.25	21.42	22.37	23.29	23.66	24.10	22.75	23.01	22.60	22.33	22.41	22.22
19	20.25	21.44	22.40	23.29	23.70	24.11	22.75	23.05	22.57	22.34	22.43	22.17
20	20.31	21.47	22.43	23.31	23.72	24.11	22.75	23.06	22.55	22.37	22.45	22.07
21	20.41	21.53	22.48	23.33	23.71	24.14	22.73	23.08	22.51	22.41	22.47	21.98
22	20.43	21.56	22.51	23.30	23.72	24.19	22.70	23.10	22.47	22.43	22.49	21.95
23	20.46	21.59	22.56	23.32	23.72	24.19	22.69	23.12	22.40	22.45	22.51	21.90
24	20.50	21.61	22.61	23.34	23.73	24.19	22.69	23.17	22.39	22.47	22.56	21.82
25	20.54	21.63	22.63	23.35	23.76	24.13	22.67	23.21	22.37	22.52	22.59	21.76
26	20.56	21.67	22.67	23.36	23.77	23.99	22.64	23.23	22.35	22.55	22.61	21.66
27	20.61	21.71	22.69	23.32	23.78	23.87	22.65	23.28	22.33	22.56	22.63	21.58
28	20.68	21.78	22.71	23.35	23.81	23.87	22.64	23.30	22.31	22.54	22.67	21.51
29	20.72	21.82	22.74	23.37	---	23.81	22.66	23.31	22.29	22.51	22.68	21.43
30	20.76	21.83	22.79	23.41	---	---	22.67	23.36	22.27	22.48	22.69	21.37
31	20.78	---	22.82	23.43	---	---	---	23.43	---	22.46	22.71	---
MEAN	20.13	21.34	22.32	23.18	23.62	---	---	22.98	22.85	22.33	22.47	22.31
MAX	20.78	21.83	22.82	23.43	23.81	---	---	23.43	23.68	22.56	22.71	22.85
MIN	19.45	20.83	21.83	22.84	23.45	---	---	22.68	22.27	22.17	22.38	21.37

GROUND-WATER LEVELS

429

LINCOLN COUNTY

WELL-IDENTIFICATION NUMBER.-- 354442096400801. Local number 15N-06E-29 AAA 1.

LOCATION.-- Lat 35°45'10", long 096°40'50", Hydrologic Unit 11100303, 1 mi west of junction of Hwy 99 and 86 in Stroud.

AQUIFER.-- Vamoosa Formation.

WELL CHARACTERISTICS.-- Drilled unused public supply well, diameter 6 in., depth 339 ft.

DATUM.-- Altitude of land-surface datum is 890 ft. Measuring point: top of casing 1 ft above land-surface datum.

REMARKS.-- Digital recorder installed May 28, 1981, mean-daily levels published thereafter.

PERIOD OF RECORD.-- 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 154.03 ft below land-surface datum, Sept. 25, 1991; lowest water level, 184.01 ft below land-surface datum, Nov. 10, 1977.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155.57	155.17	155.18	180.07	157.09	155.54	155.52	155.02	154.56	155.77	157.38	155.08
2	155.39	155.14	155.04	157.71	157.13	155.73	155.24	154.93	154.82	155.35	157.47	155.07
3	156.10	155.18	155.17	157.50	158.86	155.96	155.08	154.83	154.82	155.08	157.59	155.03
4	155.86	155.21	155.47	157.26	158.63	155.88	155.33	154.65	154.65	155.02	157.74	154.97
5	156.00	155.22	155.24	158.97	158.64	155.49	155.30	154.86	154.85	155.02	157.80	154.87
6	155.57	155.25	155.63	157.35	158.66	155.51	155.08	154.90	154.96	155.02	157.88	154.85
7	155.67	155.45	155.52	157.39	158.78	155.72	154.92	155.03	155.01	155.16	157.92	154.79
8	155.66	155.25	155.46	157.23	158.77	155.75	154.84	154.92	154.90	158.29	157.82	154.67
9	155.73	155.27	155.37	157.19	158.69	155.94	155.22	154.82	154.96	158.47	157.92	154.67
10	155.80	155.43	155.44	158.98	158.67	155.95	155.23	154.80	154.96	155.88	158.11	154.67
11	155.59	155.43	155.22	158.87	158.55	155.66	155.02	154.84	155.25	158.06	158.28	154.80
12	155.59	155.45	155.05	157.53	158.38	155.47	154.98	154.82	155.25	155.89	158.42	154.54
13	155.50	155.40	155.22	158.82	158.07	155.66	154.88	154.92	155.11	155.78	158.42	154.47
14	155.44	155.54	155.15	158.66	158.51	155.75	154.95	154.86	154.80	155.54	158.40	154.38
15	155.43	155.38	155.15	158.52	158.75	155.82	155.16	154.81	154.98	155.41	158.22	154.36
16	155.34	155.45	155.10	157.14	158.55	155.77	155.07	154.65	154.99	155.35	158.38	154.42
17	155.27	155.40	154.89	157.11	158.14	158.04	155.10	154.71	154.80	155.19	158.45	154.38
18	155.54	155.21	154.88	158.92	158.27	155.81	154.90	154.82	154.78	155.15	158.51	154.42
19	155.33	155.13	154.86	158.65	158.58	155.73	154.93	154.83	154.74	155.05	158.75	154.55
20	155.25	155.12	155.01	158.87	158.80	155.52	155.13	154.78	154.58	155.07	157.68	154.50
21	155.53	155.89	156.03	158.99	158.44	155.39	155.03	154.75	154.61	155.10	158.93	154.30
22	155.50	155.50	158.30	158.94	158.55	155.32	154.86	154.82	154.55	155.01	158.37	154.24
23	155.37	155.40	158.54	158.87	158.57	155.69	154.83	154.75	154.63	155.43	158.11	154.29
24	155.46	155.16	158.41	157.10	158.89	155.54	154.88	154.67	154.82	155.42	155.97	154.19
25	155.52	154.96	158.06	158.95	158.70	155.48	154.93	154.71	154.65	155.38	155.83	154.13
26	155.33	154.78	158.07	157.01	158.53	155.28	154.88	154.72	154.84	155.63	155.66	154.11
27	155.40	154.84	158.02	158.83	158.12	155.22	154.87	154.76	154.75	155.93	155.52	154.11
28	155.52	155.23	155.76	158.57	155.78	155.25	154.58	154.79	154.99	158.53	155.42	154.11
29	155.45	155.51	155.97	158.82	---	155.22	154.77	154.74	158.04	158.92	155.36	154.16
30	155.36	155.35	158.49	157.10	---	155.44	154.90	154.61	155.52	157.05	155.25	154.15
31	155.23	---	157.21	157.11	---	155.54	---	154.52	---	157.13	155.16	---
MEAN	155.53	155.29	155.58	157.13	158.56	155.62	155.00	154.79	154.90	155.64	157.25	154.50
MAX	156.10	155.89	157.21	180.07	157.13	158.04	155.52	155.03	156.04	157.13	158.75	155.08
MIN	155.23	154.78	154.86	158.52	155.78	155.22	154.58	154.52	154.55	155.01	155.16	154.11

GROUND-WATER LEVELS

LOGAN COUNTY

WELL-IDENTIFICATION NUMBER.-- 354525097242201. Local number 15N-02W-22 CCB 1.

LOCATION.-- Lat 35°45'25", long 097°24'22", Hydrologic Unit 11050002, 4.0 mi east of Waterloo.

AQUIFER.-- Garber Sandstone.

WELL CHARACTERISTICS.-- Drilled unused domestic well, diameter 6 in., depth 146 ft.

DATUM.-- Altitude of land-surface datum is 1,225 ft. Measuring point: top of casing at land-surface datum.

PERIOD OF RECORD.-- 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest daily water level, 70.46 ft below land-surface datum, June 3, 1987; lowest daily water level, 88.58 ft below land-surface datum, May 8, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80.86	---	81.09	81.28	81.55	80.59	---	81.36	81.57	---	81.50	81.59
2	80.68	---	80.96	81.30	81.47	80.94	---	81.34	81.57	---	81.45	81.59
3	---	---	---	81.46	---	81.33	81.15	81.24	81.55	---	81.50	81.64
4	---	81.08	---	81.34	---	81.33	81.52	81.35	81.55	---	81.52	81.67
5	---	80.92	---	81.03	---	81.33	81.52	81.70	81.58	---	81.49	81.60
6	---	81.00	---	81.30	---	81.32	81.41	81.70	81.58	---	81.56	81.69
7	---	81.35	---	81.34	81.45	81.41	---	81.58	81.57	---	81.67	81.64
8	81.13	81.06	---	81.16	81.41	81.45	---	81.51	81.57	---	81.55	81.52
9	81.18	81.10	---	81.27	---	81.50	81.42	81.48	81.56	---	81.55	81.61
10	80.94	81.14	---	81.05	---	81.44	81.39	81.50	81.56	---	81.65	81.72
11	80.98	81.25	80.85	81.09	---	81.07	81.18	81.54	81.55	---	81.70	81.67
12	80.89	81.28	80.81	81.16	---	80.80	81.17	81.43	81.61	---	81.68	81.61
13	80.66	81.20	80.84	80.99	---	---	81.16	81.39	81.49	---	81.59	81.54
14	80.89	81.08	80.85	80.86	81.10	---	81.17	81.35	81.49	---	81.57	81.47
15	80.91	81.03	81.13	80.84	81.38	---	81.39	81.26	81.49	---	81.54	81.54
16	80.80	81.21	81.12	81.13	81.33	80.90	---	81.26	81.50	---	81.47	81.77
17	80.84	81.16	80.84	81.24	---	81.27	---	81.43	81.54	81.51	81.49	81.72
18	80.84	80.81	80.82	81.24	---	81.40	---	81.60	81.55	81.38	81.55	81.83
19	80.79	80.82	80.83	80.99	81.37	81.32	81.44	81.65	81.55	81.32	81.58	82.06
20	80.83	80.81	80.99	81.21	81.37	81.01	81.64	81.58	81.58	81.48	81.58	81.92
21	---	80.81	---	81.46	81.36	81.01	81.47	81.53	81.56	81.57	81.57	81.60
22	---	80.83	---	---	81.40	81.03	81.26	81.42	81.57	81.59	81.62	81.61
23	---	80.83	---	---	81.28	81.24	81.29	81.34	81.59	81.57	81.65	81.74
24	---	80.82	---	81.34	81.31	81.25	81.32	81.51	---	81.52	81.74	81.67
25	---	80.81	---	81.35	81.42	81.21	81.28	81.57	---	81.55	81.73	81.61
26	---	80.65	---	81.35	81.42	81.09	81.04	81.61	---	81.64	81.63	81.66
27	---	80.68	---	---	81.18	80.93	81.19	81.58	---	81.57	81.55	81.64
28	---	---	80.99	---	80.92	---	81.13	81.51	---	81.52	81.56	81.70
29	---	---	81.06	---	---	---	81.26	81.46	---	81.56	81.60	81.78
30	---	80.75	81.44	81.36	---	---	81.36	81.51	---	81.56	81.56	81.77
31	---	---	81.50	81.57	---	---	---	81.58	---	81.53	81.54	---
MEAN	---	---	---	---	---	---	---	81.48	---	---	81.58	81.67
MAX	---	---	---	---	---	---	---	81.70	---	---	81.74	82.06
MIN	---	---	---	---	---	---	---	81.24	---	---	81.45	81.47

GROUND-WATER LEVELS

431

MAJOR COUNTY

WELL-IDENTIFICATION NUMBER.-- 361442098092001. Local number 20N-09W-04 AAA 1.

LOCATION.-- Lat 36°14'42", long 098°09'21", Hydrologic Unit 11050002, 1.5 mi east of Ames.

AQUIFER.-- Cimarron Terrace.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 6 in., depth 60 ft.

DATUM.-- Altitude of land-surface datum is 1,225 ft. Measuring point: shelter base 2.10 ft above land-surface datum.

REMARKS.-- Digital recorder installed Aug. 25, 1983, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 1.73 ft below land-surface datum, June 1, 1987; lowest water level, 25.97 ft below land-surface datum, Sept. 15, 1971.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.70	9.89	10.00	10.18	10.42	10.28	10.68	10.88	10.88	10.99	11.50	12.01
2	9.62	9.95	9.93	10.29	10.40	10.54	10.55	10.76	10.65	11.03	11.51	11.99
3	9.63	10.00	10.15	10.34	10.31	10.58	10.66	10.72	10.43	11.04	11.55	12.01
4	9.77	10.03	10.15	10.21	10.37	10.46	10.73	10.80	10.36	11.04	11.57	12.02
5	9.71	9.91	10.00	10.17	10.38	10.31	10.70	10.93	10.39	11.06	11.58	11.99
6	9.67	9.96	10.12	10.32	10.44	10.54	10.63	10.86	10.43	11.11	11.65	12.02
7	9.80	10.08	10.13	10.30	10.47	10.60	10.56	10.85	10.41	11.16	11.68	11.99
8	9.82	9.91	10.10	10.22	10.38	10.60	10.59	10.86	10.37	11.18	11.69	11.96
9	9.84	9.97	10.11	10.32	10.32	10.67	10.78	10.84	10.38	11.18	11.73	12.03
10	9.74	9.99	10.08	10.20	10.41	10.49	10.67	10.88	10.37	11.22	11.76	12.05
11	9.71	10.05	9.97	10.27	10.37	10.33	10.59	10.89	10.34	11.28	11.78	12.03
12	9.79	10.07	10.02	10.29	10.25	10.38	10.64	10.84	10.33	11.29	11.80	12.05
13	9.68	10.03	10.19	10.18	10.25	10.53	10.73	10.85	10.32	11.29	11.83	12.03
14	9.74	9.99	10.05	10.16	10.44	10.57	10.74	10.86	10.34	11.27	11.83	12.02
15	9.82	9.99	10.18	10.18	10.51	10.60	10.74	10.87	10.40	11.25	11.85	12.08
16	9.76	10.14	10.10	10.32	10.27	10.56	10.73	10.87	10.45	11.29	11.86	12.12
17	9.85	10.01	9.99	10.34	10.16	10.60	10.71	10.94	10.45	11.29	11.91	12.07
18	9.93	9.89	10.00	10.33	10.35	10.60	10.72	10.96	10.50	11.31	11.91	12.14
19	9.73	9.93	10.04	10.18	10.52	10.54	10.84	10.96	10.57	11.34	11.91	12.15
20	9.77	9.88	10.17	10.38	10.47	10.44	10.83	10.92	10.58	11.39	11.90	12.10
21	9.97	9.96	10.22	10.38	10.43	10.45	10.69	10.89	10.60	11.40	11.92	12.00
22	9.87	10.02	10.24	10.19	10.49	10.49	10.69	10.90	10.67	11.41	11.93	12.09
23	9.88	10.03	10.27	10.29	10.40	10.69	10.71	10.91	10.74	11.41	11.94	12.11
24	9.98	9.92	10.22	10.34	10.51	10.65	10.78	10.87	10.74	11.42	11.96	12.12
25	9.95	9.92	10.19	10.36	10.52	10.58	10.71	10.80	10.75	11.42	11.96	12.09
26	9.86	9.84	10.25	10.33	10.48	10.55	10.62	10.77	10.78	11.44	11.95	12.15
27	9.98	10.01	10.15	10.19	10.38	10.68	10.75	10.83	10.81	11.43	11.95	12.14
28	9.99	10.22	10.02	10.20	10.32	10.65	10.68	10.86	10.87	11.43	11.98	12.17
29	9.90	10.20	10.21	10.33	---	10.74	10.79	10.84	10.92	11.47	11.99	12.20
30	9.91	9.97	10.32	10.41	---	10.81	10.86	10.78	10.94	11.47	12.00	12.19
31	9.92	---	10.27	10.44	---	10.76	---	10.82	---	11.49	12.01	---
MEAN	9.82	9.99	10.12	10.28	10.39	10.56	10.70	10.86	10.56	11.28	11.82	12.07
MAX	9.99	10.22	10.32	10.44	10.52	10.81	10.86	10.96	10.94	11.49	12.01	12.20
MIN	9.62	9.84	9.93	10.16	10.16	10.28	10.55	10.72	10.32	10.99	11.50	11.96

GROUND-WATER LEVELS

MC CURTAIN COUNTY

WELL-IDENTIFICATION NUMBER.--335337094461101. Local number 08S-24E-01 BBD 1.

LOCATION.-- Lat 33°53'37", long 094°45'11", Hydrologic Unit 11140107, 3.0 mi east of Idabel.

AQUIFER.-- Antlers Sand.

WELL CHARACTERISTICS.-- Drilled unused irrigation well, diameter 6 in., depth 66 ft.

DATUM.-- Altitude of land-surface datum is 408 ft. Measuring point: top of casing 1.50 ft above land-surface datum.

PERIOD OF RECORD.-- 1969 to 1971, 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level (revised), 1.70 ft measured Feb. 20, 1989 below land-surface datum; lowest water level, 8.94 ft below land-surface datum, Oct. 3, 1970.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.22	7.14	6.66	2.69	2.32	2.69	3.64	2.13	2.91	5.03	6.28	6.75
2	7.23	7.16	6.54	2.63	2.39	2.64	3.67	2.14	2.98	5.08	6.31	6.75
3	7.23	7.17	6.32	2.60	2.43	2.67	3.69	2.03	3.05	5.13	6.35	6.71
4	7.27	7.15	6.20	2.57	2.45	2.68	3.75	1.99	3.13	5.18	6.38	6.72
5	7.30	7.14	6.04	2.53	2.32	2.64	3.80	1.97	3.24	5.24	6.41	6.72
6	7.30	7.16	5.86	2.41	2.29	2.63	3.83	2.00	3.32	5.30	6.46	6.74
7	7.31	7.19	5.70	2.34	2.30	2.68	3.83	2.00	3.38	5.35	6.50	6.70
8	7.13	7.19	5.54	2.30	2.28	2.71	3.85	2.00	3.48	5.40	6.51	6.70
9	7.01	7.10	5.40	2.27	2.29	2.77	3.89	2.01	3.56	5.46	6.48	6.71
10	6.99	7.09	5.29	2.14	2.28	2.83	3.94	2.02	3.62	5.51	6.51	6.72
11	6.96	7.09	5.18	2.10	2.30	2.85	3.96	2.04	3.67	5.57	6.55	6.73
12	6.94	7.08	5.07	2.10	2.29	2.86	3.74	2.07	3.74	5.63	6.59	6.74
13	6.91	7.06	5.02	2.07	2.27	2.91	3.52	2.11	3.81	5.69	6.57	6.75
14	6.88	7.04	4.98	2.04	2.30	2.98	3.41	2.14	3.89	5.74	6.52	6.75
15	6.88	7.03	4.92	1.97	2.44	3.05	3.32	2.16	3.95	5.79	6.56	6.76
16	6.87	7.02	4.87	1.96	2.50	3.10	3.21	2.18	4.02	5.85	6.59	6.77
17	6.86	7.01	4.78	1.98	2.50	3.12	3.09	2.23	4.08	5.89	6.61	6.78
18	6.89	6.98	4.68	2.01	2.53	3.16	2.86	2.28	4.15	5.93	6.62	6.78
19	6.90	6.96	4.60	1.99	2.61	3.19	2.79	2.32	4.23	5.97	6.65	6.81
20	6.90	6.95	4.50	1.97	2.68	3.22	2.74	2.33	4.30	6.02	6.69	6.84
21	6.90	6.94	4.09	2.02	2.72	3.24	2.68	2.36	4.37	6.06	6.72	6.85
22	6.91	6.89	3.89	2.02	2.72	3.26	2.58	2.43	4.44	6.10	6.74	6.87
23	6.93	6.88	3.73	2.01	2.70	3.31	2.54	2.58	4.50	6.13	6.77	6.88
24	6.95	6.87	3.64	2.02	2.69	3.35	2.51	2.62	4.57	6.16	6.80	6.88
25	6.99	6.85	3.49	2.03	2.71	3.38	2.39	2.60	4.65	6.19	6.84	6.88
26	7.00	6.83	3.37	2.05	2.77	3.42	2.34	2.61	4.72	6.21	6.87	6.89
27	7.03	6.78	3.18	2.04	2.79	3.43	2.14	2.66	4.78	6.19	6.89	6.91
28	7.07	6.76	3.05	2.07	2.80	3.45	2.14	2.70	4.85	6.15	6.91	6.94
29	7.09	6.77	2.91	2.14	---	3.46	2.11	2.74	4.91	6.17	6.94	6.96
30	7.11	6.73	2.79	2.19	---	3.54	2.12	2.78	4.97	6.21	6.82	6.98
31	7.13	---	2.75	2.26	---	3.60	---	2.84	---	6.24	6.74	---
MEAN	7.04	7.00	4.68	2.18	2.49	3.06	3.14	2.29	3.98	5.76	6.62	6.80
MAX	7.31	7.19	6.66	2.69	2.80	3.60	3.96	2.84	4.97	6.24	6.94	6.98
MIN	6.86	6.73	2.75	1.96	2.27	2.63	2.11	1.97	2.91	5.03	6.28	6.70

GROUND-WATER LEVELS

433

MURRAY COUNTY

WELL-IDENTIFICATION NUMBER.-- 343022096565701. Local number 01S-03E-01 BBB 1.

LOCATION.-- Lat 34°30'22", long 096°56'57", Hydrologic Unit 11130303, 1 mi south of Sulphur.

AQUIFER.-- Simpson Group.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 6 in., drilled depth 436 ft.

DATUM.-- Altitude of land-surface datum is 1,080 ft. Measuring point: top of casing at land-surface datum.

REMARKS.-- West observation well, measured depth 99 ft, Feb. 8, 1992.

PERIOD OF RECORD.-- August 1972 to current year. Records August 1972 to December 1985 provided by National Park Service.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level (correction), 23.10 ft below land-surface datum, Mar. 20, 1975; lowest water level (correction), 34.93 ft below land-surface datum, Sept. 1, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.64	29.37	28.67	28.38	27.19	28.40	28.74	27.22	28.31	27.50	27.65	29.02
2	28.69	29.38	28.65	28.34	27.26	28.41	28.74	27.31	28.37	27.58	27.65	29.05
3	28.72	29.39	28.63	28.31	27.33	28.44	28.59	27.28	28.29	27.66	27.69	29.07
4	28.75	29.39	28.63	28.24	27.38	28.50	28.27	27.04	28.04	27.73	27.74	29.08
5	28.80	29.32	28.64	28.15	27.42	28.54	27.99	26.83	27.85	27.79	27.80	29.09
6	28.85	29.25	28.64	28.02	27.46	28.56	27.75	26.68	27.76	27.84	27.85	29.11
7	28.89	29.21	28.64	27.84	27.51	28.60	27.54	26.57	27.72	27.89	27.92	29.14
8	28.93	29.18	28.65	27.68	27.57	28.65	27.36	26.49	27.52	27.95	28.00	29.14
9	28.97	29.09	28.65	27.55	27.62	28.69	27.24	26.45	27.17	28.02	28.06	29.10
10	29.00	28.97	28.65	27.43	27.66	28.76	27.20	26.43	26.91	28.08	28.12	29.08
11	29.00	28.91	28.66	27.27	27.70	28.81	27.22	26.49	26.70	28.13	28.18	29.07
12	29.00	28.86	28.66	27.14	27.74	28.84	27.29	26.60	26.54	28.18	28.24	29.07
13	29.01	28.80	28.66	27.02	27.74	28.85	27.36	26.72	26.41	28.23	28.30	29.07
14	29.00	28.76	28.66	26.93	27.75	28.88	27.43	26.83	26.32	28.30	28.36	29.07
15	29.00	28.73	28.66	26.88	27.81	28.91	27.52	26.96	26.27	28.38	28.40	29.07
16	29.00	28.73	28.68	26.82	27.86	28.95	27.61	27.08	26.23	28.45	28.44	29.05
17	29.00	28.73	28.69	26.81	27.88	28.98	27.68	27.20	26.25	28.50	28.47	28.84
18	29.02	28.73	28.65	26.79	27.89	28.98	27.74	27.32	26.33	28.55	28.51	28.80
19	29.06	28.71	28.59	26.71	27.92	28.99	27.78	27.45	26.43	28.59	28.55	28.31
20	29.07	28.70	28.53	26.63	27.98	28.98	27.84	27.58	26.53	28.64	28.59	28.04
21	29.09	28.69	28.49	26.61	28.05	28.96	27.91	27.70	26.63	28.70	28.63	27.83
22	29.12	28.68	28.47	26.62	28.11	28.95	27.90	27.81	26.72	28.76	28.67	27.66
23	29.15	28.69	28.47	26.64	28.15	28.92	27.73	27.91	26.82	28.82	28.70	27.55
24	29.18	28.70	28.49	26.67	28.19	28.90	27.58	27.99	26.91	28.87	28.73	27.51
25	29.20	28.70	28.49	26.73	28.23	28.87	27.45	28.02	27.00	28.92	28.78	27.50
26	29.22	28.68	28.49	26.80	28.29	28.83	27.27	28.04	27.09	28.97	28.83	27.48
27	29.23	28.67	28.50	26.86	28.35	28.78	27.14	28.08	27.18	28.97	28.88	27.47
28	29.25	28.66	28.51	26.92	28.39	28.76	27.10	28.14	27.26	28.66	28.91	27.47
29	29.29	28.67	28.51	26.97	---	28.74	27.10	28.19	27.35	28.30	28.93	27.40
30	29.33	28.67	28.46	27.03	---	28.73	27.15	28.23	27.43	28.00	28.96	27.51
31	29.36	---	28.42	27.12	---	28.74	---	28.27	---	27.76	29.00	---
MEAN	29.03	28.90	28.59	27.22	27.80	28.77	27.64	27.32	27.08	28.28	28.37	28.48
MAX	29.36	29.39	28.69	28.38	28.39	28.99	28.74	28.27	28.37	28.97	29.00	29.14
MIN	28.64	28.66	28.42	26.61	27.19	28.40	27.10	26.43	26.23	27.50	27.65	27.47

GROUND-WATER LEVELS

OKLAHOMA COUNTY

WELL-IDENTIFICATION NUMBER.-- 352449097293201. Local number 11N-03W-23 BCD 1.

LOCATION.-- Lat 35°24'49", long 097°29'32", Hydrologic Unit 11100302, 1 mi west of Interstate 35, and SE 51st Street, in Oklahoma City.

AQUIFER.-- Garber Sandstone.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 8 in., depth 261 ft.

DATUM.-- Altitude of land-surface datum is 1,270 ft. Measuring point: top of casing .50 ft above land-surface datum.

PERIOD OF RECORD.-- 1977 to 1991 (discontinued).

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 82.23 ft below land-surface datum, June 13, 1991; lowest water level, 114.59 ft below land-surface datum, Mar. 10, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83.69	83.64	83.67	83.83	83.84	82.99	83.77	83.72	82.83	82.56	83.00	83.18
2	83.48	83.66	83.57	83.85	83.78	83.19	83.47	83.55	82.88	82.63	82.95	---
3	83.33	83.69	83.86	84.00	83.59	83.58	83.41	83.25	82.66	82.62	82.99	---
4	83.67	83.76	84.10	83.91	83.56	83.47	83.68	83.27	82.59	82.58	83.03	---
5	83.64	83.60	83.80	83.63	83.59	83.13	83.68	83.54	82.63	82.55	82.99	---
6	83.40	83.55	83.76	83.85	83.68	83.19	83.53	83.58	82.71	82.56	83.05	---
7	83.52	83.94	83.97	83.89	83.84	83.60	83.32	83.47	82.68	82.62	83.16	---
8	83.66	83.72	83.91	83.69	83.74	83.67	83.24	83.33	82.44	82.69	83.17	---
9	83.79	83.66	83.91	83.78	83.54	83.87	83.61	83.15	82.39	82.62	83.17	---
10	83.69	83.70	83.84	83.55	83.63	83.84	83.60	83.12	82.38	82.59	83.18	---
11	83.51	83.81	83.61	83.52	83.65	83.41	83.32	83.15	82.35	82.65	83.21	---
12	83.59	83.86	83.50	83.59	83.38	83.13	83.34	83.06	82.28	82.76	83.20	---
13	83.41	83.76	83.87	83.36	83.12	83.42	83.39	82.99	82.27	82.82	83.18	---
14	83.30	83.67	83.76	83.19	83.49	83.61	83.45	82.93	82.26	82.88	83.18	---
15	83.55	83.65	83.86	83.18	83.84	83.65	83.55	82.90	82.31	82.88	83.17	---
16	83.48	83.82	83.82	83.43	83.55	83.67	83.51	82.89	82.44	82.87	83.17	---
17	83.49	83.81	83.47	83.60	83.09	83.51	83.45	83.03	82.43	82.82	83.17	---
18	83.93	83.45	83.33	83.59	83.23	83.66	83.34	83.19	82.45	82.72	83.18	---
19	83.61	83.47	83.33	83.28	83.70	83.54	83.59	83.24	82.52	82.69	83.19	---
20	83.41	83.45	83.48	83.46	83.61	83.28	83.80	83.20	82.48	82.81	83.20	---
21	83.80	83.48	83.67	83.75	83.67	83.24	83.57	83.12	82.39	82.91	83.19	---
22	83.77	83.63	83.61	83.41	83.66	83.18	83.42	83.09	82.42	82.94	83.23	---
23	83.66	83.68	83.93	83.40	83.59	83.53	83.45	83.08	82.53	82.94	83.25	---
24	83.84	83.49	83.97	83.58	83.59	83.70	83.55	82.97	82.55	82.90	83.32	---
25	83.91	83.41	83.79	83.55	83.82	83.51	83.43	82.80	82.52	82.94	83.33	---
26	83.70	83.25	83.89	83.64	83.75	83.33	83.17	82.74	82.52	83.02	83.26	---
27	83.80	83.41	83.75	83.24	83.57	83.22	83.27	82.84	82.53	83.01	83.22	---
28	83.99	83.99	83.47	83.25	83.31	83.42	83.21	82.93	82.57	82.97	83.23	---
29	83.85	84.27	83.54	83.32	---	83.37	83.33	82.85	82.59	83.00	83.26	---
30	83.78	83.88	83.95	83.65	---	83.82	83.51	82.71	82.57	83.02	83.23	---
31	83.74	---	84.05	83.85	---	83.91	---	82.68	---	83.02	83.19	---
MEAN	83.64	83.67	83.75	83.58	83.59	83.47	83.47	83.11	82.51	82.79	83.17	---
MAX	83.99	84.27	84.10	84.00	83.84	83.91	83.80	83.72	82.88	83.02	83.33	---
MIN	83.30	83.25	83.33	83.18	83.09	82.99	83.17	82.68	82.26	82.55	82.95	---

GROUND-WATER LEVELS

435

OSAGE COUNTY

WELL-IDENTIFICATION NUMBER.-- 362935096291501. Local number, 23N-09E-10 AAD 1.

LOCATION.-- Lat 36°29'01", long 096°19'06", Hydrologic Unit 11070107, 4.2 mi southeast of Wynona.

AQUIFER.-- Vamoosa Formation.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 13 in., depth 55 ft.

DATUM.-- Altitude of land-surface datum is 835 ft. Measuring point: metal plate on top of casing 2.45 ft (revised) above land-surface datum.

REMARKS.-- Digital recorder installed June 10, 1981, mean daily water levels thereafter.

PERIOD OF RECORD.-- 1971 to current year.

REVISED RECORDS.-- WDR OK-91-1: 1982 (H), 1981, 1982.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level (revised), 3.96 ft below land-surface datum, Mar. 14, 1990; Lowest water level, 9.45 ft below land-surface datum, Oct. 6, 1981.

REVISIONS.-- The highest water level has been revised to 3.96, May 14, 1990. The following figures supersede those published for water years 1981, 1982.

June 27, 1981	8.83	Feb. 15, 1982	8.21	Feb. 25, 1982	8.48
29	8.84	16	8.24	26	8.35
Dec. 26	8.87	17	8.27	27	8.30
Feb. 4, 1982	8.89	18	8.48	28	8.34
5	8.73	Feb. 20	8.26	Mar. 1	8.20
6	8.86	21	8.23	2	8.08
7	8.51	22	8.22		
8	8.52	23	8.28		

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.37	6.19	6.23	6.39	6.30	5.88	6.38	5.84	5.30	5.48	6.18	6.83
2	6.19	6.26	6.08	6.49	6.24	6.11	6.19	5.65	5.33	5.55	6.18	6.82
3	6.12	6.25	6.41	6.63	6.08	6.25	6.17	5.49	5.26	5.56	6.29	6.83
4	6.38	6.25	6.51	6.45	6.10	6.28	5.61	5.28	5.55	6.33	6.84	
5	6.26	6.10	6.23	6.28	6.10	5.73	6.19	5.84	5.27	5.56	6.31	6.82
6	6.10	6.14	6.35	6.48	6.17	6.14	6.03	5.81	5.28	5.61	6.41	6.91
7	6.26	6.42	6.42	6.43	6.27	6.31	5.90	5.77	5.27	5.67	6.49	6.89
8	6.33	6.17	6.37	6.29	6.15	6.29	5.90	5.65	5.21	5.73	6.42	6.83
9	6.38	6.18	6.38	6.39	6.02	6.48	6.22	5.53	5.13	5.86	6.44	6.93
10	6.26	6.23	6.32	6.12	6.15	6.25	6.11	5.54	5.10	5.68	6.50	7.02
11	6.18	6.30	6.15	6.18	6.10	5.92	5.95	5.56	5.07	5.77	6.52	6.99
12	6.25	6.31	6.17	6.22	5.88	5.85	5.98	5.45	5.09	5.87	6.52	7.00
13	6.07	6.24	6.48	6.01	5.77	6.21	6.00	5.46	5.09	5.90	6.51	6.97
14	6.11	6.20	6.27	5.95	6.16	6.32	6.07	5.45	5.12	5.92	6.47	6.90
15	6.27	6.18	6.41	5.90	6.38	6.36	6.14	5.42	5.19	5.92	6.50	6.93
16	6.14	6.36	6.34	6.14	6.00	6.26	6.08	5.34	5.31	5.93	6.50	6.92
17	6.21	6.25	6.07	6.20	5.74	6.18	6.01	5.37	5.28	5.89	6.56	6.77
18	6.49	6.03	6.07	6.14	6.00	6.28	5.88	5.49	5.32	5.85	6.65	6.81
19	6.18	6.10	6.15	5.86	6.35	6.18	6.09	5.51	5.38	5.88	6.71	6.88
20	6.12	6.05	6.27	6.12	6.26	5.96	6.14	5.45	5.31	6.02	6.72	6.75
21	6.44	6.10	6.40	6.28	6.16	6.00	5.92	5.39	5.26	6.10	6.70	6.56
22	6.33	6.21	6.46	5.98	6.23	6.00	5.82	5.28	5.31	6.11	6.76	6.62
23	6.30	6.19	6.52	6.04	6.09	6.39	5.87	5.14	5.41	6.12	6.80	6.67
24	6.44	6.04	6.49	6.18	6.26	6.34	5.98	4.97	5.41	6.16	6.87	6.59
25	6.44	6.06	6.42	6.15	6.29	6.14	5.76	4.86	5.40	6.18	6.86	6.54
26	6.26	5.91	6.51	6.17	6.20	6.02	5.50	4.91	5.40	6.26	6.82	6.83
27	6.42	6.12	6.35	5.86	6.03	6.10	5.62	5.09	5.43	6.22	6.83	6.82
28	6.49	6.56	6.14	5.95	5.89	6.17	5.48	5.19	5.47	6.13	6.88	6.86
29	6.33	6.65	6.31	6.06	---	6.27	5.56	5.14	5.47	6.18	6.89	6.72
30	6.31	6.25	6.59	6.25	---	6.55	5.69	5.08	5.46	6.19	6.78	6.69
31	6.29	---	6.58	6.36	---	6.49	---	5.16	---	6.19	6.79	---
MEAN	6.28	6.21	6.34	6.19	6.12	6.17	5.96	5.40	5.29	5.90	6.59	6.80
MAX	6.49	6.65	6.59	6.63	6.38	6.55	6.38	5.84	5.47	6.26	6.89	7.02
MIN	6.07	5.91	6.07	5.86	5.74	5.68	5.48	4.86	5.07	5.48	6.18	6.54

GROUND-WATER LEVELS

OTTAWA COUNTY

WELL-IDENTIFICATION NUMBER.-- 365229094520201. Local number 28N-23E-30 DBC 1.

LOCATION.-- Lat 36°52'29", long 094°52'02", Hydrologic Unit 11070206, 200 ft northwest of the intersection of Central and I Streets in Miami.

AQUIFER.-- Roubidoux Formation.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 8 in., reduced to 3.5 in., depth 1,490 ft.

DATUM.-- Altitude of land-surface datum 770 ft. Measuring point: top of 8 in. casing 1.00 ft below land-surface datum.

PERIOD OF RECORD.-- 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 332.93 ft below land-surface datum, Apr. 13, 1991; lowest water level, 469.44 ft below land-surface datum, July 31 to Aug. 2, 1983.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	358.13	350.65	343.92	344.81	342.27	339.24	337.24	---	340.69	342.82	353.41	---
2	359.35	352.20	340.78	344.71	342.33	339.42	337.02	---	339.98	345.51	352.55	---
3	358.39	351.03	341.37	344.56	341.67	338.95	337.40	---	340.29	347.40	354.90	356.22
4	360.12	351.74	343.53	344.18	340.84	338.69	336.83	---	340.87	345.46	355.43	---
5	359.80	349.26	343.43	343.25	341.00	338.51	336.87	---	340.12	343.18	353.39	---
6	357.38	347.38	343.08	342.85	341.48	338.81	337.39	---	341.32	345.79	354.40	355.92
7	356.78	349.14	340.68	343.14	341.55	339.19	337.07	---	341.22	344.57	355.34	355.71
8	355.00	350.05	339.85	342.91	341.41	338.77	336.75	---	340.05	344.69	353.32	355.23
9	357.50	350.11	340.09	343.21	341.03	338.84	337.49	---	339.36	347.21	354.84	351.37
10	357.88	347.11	339.20	342.91	340.98	338.82	337.75	---	341.39	346.39	352.97	350.93
11	356.81	347.45	338.90	343.47	340.78	338.68	337.07	---	341.43	347.28	352.38	354.15
12	355.16	346.97	338.71	343.27	340.81	338.43	336.11	---	340.17	346.20	352.18	352.96
13	352.77	348.69	338.43	342.74	340.49	338.99	336.31	---	336.35	346.85	352.41	355.66
14	353.41	348.01	337.66	342.52	340.66	339.03	---	---	337.08	347.94	352.69	357.09
15	355.25	348.12	338.79	342.84	340.81	338.53	---	---	340.66	350.44	352.27	356.48
16	350.69	347.62	340.56	343.07	340.82	338.19	---	---	342.21	347.75	355.50	352.56
17	352.38	346.58	337.22	343.24	340.45	337.62	---	---	341.07	348.63	354.86	349.54
18	354.51	346.07	338.88	343.08	339.43	337.56	---	---	341.98	347.95	356.08	348.94
19	354.29	345.91	340.53	342.55	340.94	336.43	---	---	341.37	347.15	358.03	352.09
20	351.51	343.72	336.97	343.01	341.32	335.54	---	---	340.30	351.64	357.75	354.00
21	350.33	344.12	338.51	342.47	339.97	334.92	---	338.38	341.26	349.80	356.71	353.64
22	351.79	343.83	340.57	342.82	340.57	335.85	---	339.97	341.81	349.10	356.73	352.83
23	353.32	342.82	341.98	342.35	340.66	336.28	---	339.66	344.42	348.17	356.31	351.16
24	352.99	344.30	341.69	342.57	340.19	337.46	---	338.91	342.53	351.35	356.58	350.42
25	353.31	344.63	342.88	342.67	339.09	336.45	---	339.59	343.83	354.02	357.24	350.78
26	353.03	345.33	342.90	342.65	339.69	337.17	---	339.95	342.35	353.16	357.00	351.08
27	349.46	345.68	343.10	341.95	339.46	337.34	---	339.29	343.57	352.81	358.10	351.24
28	351.84	345.80	342.78	341.52	339.35	337.52	---	340.22	347.03	352.25	358.21	349.58
29	352.28	345.69	342.34	340.92	---	337.13	---	340.66	347.11	353.86	356.62	350.04
30	349.84	345.97	342.43	341.50	---	337.34	---	340.80	344.49	350.70	354.44	351.12
31	351.94	---	342.63	342.04	---	337.25	---	340.04	---	351.73	357.12	---
MEAN	354.43	347.20	340.79	342.88	340.72	337.84	---	---	341.54	348.44	355.15	---
MAX	360.12	352.20	343.92	344.71	342.33	339.42	---	---	347.11	354.02	358.21	---
MIN	349.46	342.82	336.97	340.92	339.09	334.92	---	---	336.35	342.82	352.18	---

GROUND-WATER LEVELS

437

OTTAWA COUNTY--Continued

WELL-IDENTIFICATION NUMBER.-- 365732094513201. Local number, 29N-23E-30 CDD 1.

LOCATION (REVISED)-- Lat 36°57'34", long 094°51'27", Hydrologic Unit 11070206, 2.2 mi southeast of Picher.

AQUIFER.-- Roubidoux Formation.

WELL CHARACTERISTICS.-- Abandoned mine air shaft. Diameter 8 in., depth 289 ft.

DATUM.-- Altitude of land-surface datum is 820 ft. Measuring point: top of casing 1 ft above land-surface datum.

PERIOD OF RECORD.-- 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest daily water level, 21.21 ft below land-surface datum Feb. 23, 1985; lowest, 170.70 ft below land-surface datum, Sept. 9, 1975.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.63	25.81	26.55	24.77	24.47	24.46	24.61	24.43	24.57	---	---	28.56
2	26.58	25.71	26.54	24.86	24.47	24.46	24.59	24.43	24.58	---	---	28.57
3	25.70	25.70	26.41	24.99	24.46	24.54	24.57	24.43	24.59	---	---	28.58
4	24.65	25.71	26.54	24.98	24.47	24.52	24.57	24.42	24.62	---	---	28.56
5	24.70	25.68	26.40	24.93	24.47	24.48	24.58	24.16	24.65	---	---	28.56
6	24.71	25.74	26.42	24.99	24.50	24.51	24.56	24.32	24.69	---	---	28.61
7	24.82	25.89	26.47	24.95	24.52	24.68	24.55	24.37	24.70	---	27.62	28.62
8	24.81	25.87	26.49	24.88	24.50	24.68	24.56	24.40	24.64	---	27.62	28.59
9	24.55	25.85	26.54	24.89	24.49	24.75	24.64	24.42	24.67	---	27.66	28.64
10	24.57	25.92	26.53	24.36	24.54	24.82	24.63	24.44	24.68	---	27.76	28.70
11	24.60	26.00	26.44	24.29	24.54	24.70	24.62	24.46	24.69	---	27.83	28.71
12	24.65	26.06	26.41	24.38	24.50	24.60	24.65	24.46	24.73	---	27.86	28.73
13	24.64	26.07	26.59	24.32	24.48	24.71	24.45	24.48	24.77	---	27.89	28.74
14	24.69	26.09	26.57	24.23	24.58	24.88	24.35	24.49	24.83	---	27.90	28.74
15	24.82	26.12	26.65	23.96	24.66	25.00	24.39	24.50	24.90	---	27.93	28.79
16	24.81	26.19	26.67	24.12	24.55	25.00	24.43	24.51	24.47	---	27.95	28.83
17	24.85	26.26	26.15	24.29	24.51	24.98	24.25	24.55	24.50	---	27.98	28.81
18	25.06	26.16	25.35	24.34	24.58	25.01	23.41	24.60	24.55	---	28.06	28.86
19	25.04	26.19	25.21	24.32	24.69	25.00	24.22	24.60	24.62	---	28.13	28.95
20	25.03	26.21	25.17	24.38	24.67	24.90	24.31	24.59	24.65	---	28.18	28.90
21	25.23	26.22	25.22	24.41	24.63	24.85	24.34	24.60	24.69	---	28.21	28.80
22	25.29	26.29	25.32	24.41	24.67	24.82	24.37	24.61	24.75	---	28.27	28.80
23	25.33	26.32	25.42	24.45	24.63	24.90	24.41	24.57	24.85	---	28.32	28.84
24	25.43	26.28	25.49	24.48	24.69	25.04	24.43	24.36	24.93	---	28.39	28.78
25	25.51	26.31	25.51	24.47	24.70	25.03	24.41	24.33	24.99	---	28.40	28.76
26	25.51	26.27	25.60	24.44	24.63	24.98	24.40	24.42	25.06	---	28.40	28.80
27	25.60	26.28	25.57	24.43	24.55	24.70	24.15	24.48	25.15	---	28.43	28.81
28	25.74	26.52	25.48	24.45	24.48	24.42	24.29	24.51	---	---	28.48	28.85
29	25.74	26.68	25.03	24.40	---	24.46	24.35	24.52	---	---	28.53	28.90
30	25.77	26.61	24.77	24.43	---	24.58	24.39	24.48	---	---	28.53	28.90
31	25.81	---	24.79	24.47	---	24.61	---	24.52	---	---	28.55	---
MEAN	25.19	26.10	25.95	24.52	24.56	24.75	24.42	24.47	---	---	---	28.74
MAX	26.63	26.68	26.67	24.99	24.70	25.06	24.65	24.61	---	---	---	28.95
MIN	24.55	25.68	24.77	23.96	24.46	24.42	23.41	24.16	---	---	---	28.56

OTTAWA COUNTY--Continued

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.1	.1	.3	.0	.0	.0	---	---	.3
2	.0	.0	.8	.0	.0	.0	.0	.0	.0	---	---	.1
3	2.5	.0	.0	.0	.1	.0	.5	.1	.0	---	---	.6
4	.0	.9	.0	.0	.1	.0	.0	1.0	.0	---	---	.1
5	.0	.0	.0	.5	.0	.0	.0	.0	.0	---	---	.0
6	.0	.0	.0	.0	.1	.0	.0	.0	.0	---	---	.0
7	.1	.0	.0	.0	.0	.0	.0	.0	.0	---	---	.0
8	1.0	.1	.0	.2	.0	.0	.2	.0	.0	---	---	.0
9	.1	.1	.0	.1	.0	.0	.0	.0	.0	---	---	.0
10	.0	.0	.0	.6	.0	.0	.0	.0	.0	---	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	---	.0	.0
12	.0	.0	.0	.0	.1	.0	.0	.0	.0	---	.1	.0
13	.0	.0	.0	.0	.2	.0	1.1	.0	.0	---	.0	.0
14	.0	.0	.1	.2	.0	.0	.2	.2	.0	---	.0	.0
15	.0	.0	.0	.7	.0	.0	.0	.0	.0	---	.0	.0
16	.0	.0	.0	.0	.0	.4	.0	.0	.1	---	.2	1.2
17	.1	.0	1.8	.0	.1	.1	1.6	.0	.0	---	.0	.0
18	.0	.0	.0	.0	.0	.0	.1	.0	.0	---	.0	.2
19	.1	.0	.1	.1	.0	.0	.0	.0	.0	---	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	---	.0	.0
21	.0	.1	.0	.0	.0	.1	.0	.1	.0	---	.2	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	---	.0	.4
23	.0	.0	.0	.0	.0	.0	.0	.7	.0	---	.0	.0
24	.0	.0	.0	.0	.0	.0	.0	.9	.0	---	.0	.2
25	.0	.0	.0	.2	.4	.0	.2	.0	.0	---	.0	.0
26	.0	.2	.0	.0	.1	.0	.9	.0	.0	---	.0	---
27	.1	.1	.1	.0	.0	1.5	.2	.0	---	---	.2	---
28	.0	.0	.4	.1	.0	.0	.0	.0	---	---	.0	---
29	.0	.0	.3	.2	---	.0	.1	.0	---	---	.0	---
30	.0	.0	.0	.0	---	.0	.0	.0	---	---	.1	---
31	.0	---	.0	.0	---	.0	---	.1	---	---	.0	---
TOTAL	4.0	1.5	3.4	3.0	1.3	2.4	5.1	3.1	---	---	---	---

GROUND-WATER LEVELS

439

PONTOTOC COUNTY

WELL-IDENTIFICATION NUMBER.-- 343467096404601. Local number 01N-00E-04 CAD 1.

LOCATION.-- Lat 34°34'57", long 096°40'45", Hydrologic Unit 11140102, 3.3 mi southwest of Fittstown.

AQUIFER.-- Arbuckle Group.

WELL CHARACTERISTICS.-- Drilled oil test well, diameter 18 in., depth 396 ft.

DATUM.-- Altitude of land-surface datum is 1,155 ft. Measuring point: base of recorder shelter 2.83 ft above land-surface datum.

REMARKS.-- Well originally 1,707 ft deep.

PERIOD OF RECORD.-- 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest observed water level, 70.19 ft below land-surface datum, May 17, 1990; lowest water level (correction), 128.23 ft below land-surface datum, Apr. 10, 1967.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106.04	108.50	109.05	109.01	102.91	104.38	105.74	101.56	99.41	88.78	95.58	101.25
2	106.07	108.57	108.97	108.98	102.87	104.54	105.61	101.45	99.51	88.98	95.64	101.43
3	106.07	108.64	109.01	108.96	102.80	104.72	105.47	101.29	99.44	89.20	95.78	101.65
4	106.20	108.71	109.02	108.83	102.78	104.80	105.26	101.12	99.36	89.39	95.92	101.84
5	106.24	108.72	108.93	108.67	102.78	104.80	104.95	100.98	99.28	89.60	96.08	101.97
6	106.25	108.75	108.90	108.53	102.84	104.97	104.59	100.78	99.24	89.83	96.25	102.16
7	106.34	108.84	108.94	108.26	102.92	105.12	104.25	100.54	99.15	90.10	96.46	102.31
8	106.45	108.82	108.93	107.92	102.94	105.25	103.94	100.32	98.48	90.37	96.62	102.36
9	106.55	108.85	108.93	107.65	102.94	105.41	103.78	100.13	96.74	90.61	96.80	102.43
10	106.63	108.87	108.92	107.30	102.99	105.48	103.58	99.96	95.15	90.80	97.03	102.52
11	106.67	108.86	108.88	106.95	103.05	105.47	103.32	99.80	93.89	---	97.14	102.62
12	106.75	108.84	108.87	106.60	103.03	105.52	103.16	99.64	92.91	---	---	102.70
13	106.79	108.81	108.95	106.19	103.01	105.68	103.03	99.49	92.15	---	---	102.80
14	106.86	108.79	108.94	105.84	103.19	105.86	102.93	99.36	91.53	---	---	102.90
15	106.98	108.78	109.00	105.53	103.35	106.02	102.87	99.25	91.07	---	---	103.03
16	107.06	108.81	109.00	105.36	103.34	106.06	102.77	99.18	90.62	92.76	---	103.12
17	107.16	108.81	108.96	105.15	103.31	106.13	102.68	99.17	90.28	93.01	---	103.00
18	107.34	108.76	108.97	104.94	103.43	106.22	102.60	99.17	89.84	93.26	---	102.82
19	107.37	108.77	108.99	104.62	103.65	106.27	102.60	99.18	89.61	93.55	---	102.52
20	107.41	108.79	109.01	104.46	103.75	106.29	102.59	99.14	89.43	93.67	98.98	102.12
21	107.56	108.83	109.03	104.31	103.79	106.34	102.47	99.13	89.30	94.18	99.14	101.78
22	107.65	108.88	109.07	103.99	103.89	106.35	102.38	99.14	89.25	94.48	99.35	101.53
23	107.73	108.92	109.12	103.77	103.97	106.37	102.30	99.17	89.08	94.75	99.57	101.39
24	107.83	108.92	109.13	103.64	104.07	106.27	102.21	99.16	88.82	95.00	99.77	101.25
25	107.92	108.93	109.09	103.45	104.23	106.12	102.39	99.11	88.63	95.29	99.98	101.15
26	107.97	108.94	109.11	103.30	104.32	106.02	101.88	99.11	88.49	95.59	100.15	101.11
27	108.08	109.00	109.06	103.08	104.36	105.91	101.80	99.15	88.44	95.69	100.33	101.08
28	108.19	109.12	109.01	102.98	104.38	105.80	101.63	99.19	88.46	95.52	100.52	101.09
29	108.25	109.17	109.01	102.89	---	105.82	101.62	99.20	88.55	95.43	100.72	101.12
30	108.32	109.10	109.09	102.91	---	105.90	101.59	99.21	88.64	95.42	100.88	101.14
31	108.42	---	109.09	102.93	---	105.85	---	99.29	---	95.50	101.05	---
MEAN	107.13	108.84	109.00	105.71	103.39	105.67	103.20	99.75	92.82	---	---	102.01
MAX	108.42	109.17	109.13	109.01	104.38	106.37	105.74	101.56	99.51	---	---	103.12
MIN	106.04	108.50	108.87	102.89	102.78	104.38	101.59	99.11	88.44	---	---	101.08

GROUND-WATER LEVELS

ROGER MILLS COUNTY

WELL-IDENTIFICATION NUMBER.-- 354527099470501. Local number 15N-24W-19 DDA 1.

LOCATION.-- Lat 35°45'27", long 099°47'05", Hydrologic Unit 11130301, 4.5 mi southwest of Roll.

AQUIFER.-- Ogallala Formation.

WELL CHARACTERISTICS.-- Drilled unused irrigation well, diameter 12 in., depth 122 ft.

DATUM.-- Altitude of land-surface datum is 2,315 ft. Measuring point: shelter base 2.28 ft above land-surface datum.

REMARKS.-- Digital recorder installed May 19, 1981, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- 1970 to current year.

REVISED RECORDS.-- WDR OK-90-1; 1983, 1984.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 52.53 ft below land-surface datum, Mar. 2, 1989; lowest water level, 57.27 ft below land-surface datum, June 5, 1973.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53.27	53.22	53.34	53.40	53.52	53.22	53.50	53.62	53.58	53.65	53.67	53.74
2	53.15	53.26	53.24	53.52	53.48	53.47	53.35	53.47	53.61	53.66	53.65	53.73
3	53.22	53.32	53.50	53.53	53.40	53.50	53.56	53.47	53.57	53.67	53.69	53.76
4	53.38	53.35	53.42	53.37	53.48	53.38	53.59	53.57	53.58	53.64	53.70	53.76
5	53.25	53.19	53.26	53.38	53.47	53.24	53.54	53.68	53.64	53.62	53.67	53.72
6	53.16	53.34	53.44	53.52	53.54	53.48	53.44	53.57	53.68	53.63	53.72	53.76
7	53.33	53.44	53.40	53.44	53.56	53.51	53.37	53.55	53.65	53.66	53.73	53.72
8	53.35	53.26	53.38	53.37	53.44	53.53	53.46	53.58	53.63	53.67	53.69	53.70
9	53.39	53.37	53.38	53.47	53.40	53.63	53.64	53.54	53.64	53.61	53.72	53.76
10	53.24	53.36	53.34	53.35	53.50	53.41	53.43	53.58	53.63	53.61	53.73	53.77
11	53.21	53.42	53.22	53.44	53.44	53.28	53.38	53.59	53.60	53.67	53.73	53.74
12	53.32	53.41	53.32	53.41	53.28	53.39	53.45	53.54	53.57	53.71	53.72	53.73
13	53.13	53.35	53.44	53.31	53.36	53.49	53.52	53.53	53.55	53.71	53.72	53.71
14	53.26	53.32	53.27	53.31	53.50	53.48	53.50	53.49	53.57	53.70	53.70	53.68
15	53.28	53.32	53.45	53.33	53.55	53.48	53.50	53.49	53.63	53.68	53.69	53.76
16	53.18	53.50	53.29	53.47	53.28	53.43	53.50	53.52	53.66	53.68	53.67	53.62
17	53.38	53.29	53.24	53.47	53.23	53.54	53.46	53.60	53.62	53.64	53.72	53.74
18	53.39	53.24	53.23	53.44	53.47	53.49	53.48	53.64	53.65	53.60	53.73	53.85
19	53.15	53.27	53.27	53.27	53.59	53.41	53.63	53.64	53.66	53.61	53.72	53.84
20	53.25	53.22	53.38	53.56	53.50	53.35	53.61	53.59	53.60	53.67	53.70	53.75
21	53.41	53.32	53.42	53.49	53.46	53.37	53.42	53.56	53.58	53.70	53.74	53.65
22	53.26	53.34	53.43	53.32	53.52	53.43	53.49	53.57	53.63	53.70	53.74	53.78
23	53.30	53.34	53.52	53.44	53.40	53.61	53.50	53.59	53.65	53.69	53.74	53.75
24	53.41	53.23	53.41	53.45	53.53	53.50	53.52	53.57	53.64	53.70	53.76	53.78
25	53.35	53.22	53.41	53.49	53.55	53.40	53.44	53.55	53.63	53.70	53.74	53.73
26	53.25	53.13	53.46	53.40	53.50	53.35	53.38	53.51	53.62	53.71	53.70	53.77
27	53.42	53.35	53.34	53.30	53.35	53.49	53.50	53.59	53.63	53.68	53.69	53.74
28	53.38	53.55	53.22	53.29	53.28	53.42	53.42	53.60	53.65	53.69	53.71	53.78
29	53.28	53.50	53.43	53.47	---	53.54	53.54	53.55	53.64	53.71	53.73	53.80
30	53.29	53.24	53.53	53.51	---	53.68	53.60	53.45	53.62	53.69	53.74	53.79
31	53.27	---	53.46	53.56	---	53.61	---	53.53	---	53.70	53.74	---
MEAN	53.29	53.32	53.37	53.42	53.45	53.46	53.49	53.56	53.62	53.67	53.71	53.75
MAX	53.42	53.55	53.53	53.56	53.59	53.68	53.64	53.68	53.68	53.71	53.76	53.85
MIN	53.13	53.13	53.22	53.27	53.23	53.22	53.35	53.45	53.55	53.60	53.65	53.65

GROUND-WATER LEVELS

441

TEXAS COUNTY

WELL-IDENTIFICATION NUMBER.-- 363033101440701. Local number 01N-12E-35 BDD 1.

LOCATION.-- Lat 36°30'33", long 101°44'07", Hydrologic Unit 11100103, 2.5 mi east of Texhoma.

AQUIFER.-- Ogallala Formation.

WELL CHARACTERISTICS.-- Drilled well, diameter 7 in., depth 386 ft.

DATUM.-- Altitude of land-surface datum is 3,430 ft. Measuring point: top of float line hole on north side 1.70 ft above land-surface datum.

REMARKS.-- Digital recorder installed Mar. 17, 1980, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 188.13 ft below land-surface datum, Apr. 15, 1959; lowest water level, 211.20 ft below land-surface datum, Aug. 24, 25, 1991.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	209.98	210.18	210.02	210.00	210.10	209.50	210.55	210.89	210.30	210.49	210.97	210.84
2	209.74	210.24	209.93	210.07	210.03	209.81	210.21	210.62	210.37	210.63	210.93	210.76
3	209.75	210.41	210.17	210.18	209.90	210.07	210.39	210.48	210.34	210.68	211.02	210.75
4	210.02	210.52	210.17	209.95	210.02	209.99	210.61	210.59	210.33	210.64	211.02	210.81
5	209.93	210.17	209.93	209.82	210.04	209.78	210.65	210.80	210.43	210.57	210.94	210.68
6	209.76	210.19	210.07	210.06	210.05	210.00	210.52	210.70	210.50	210.57	210.96	210.67
7	209.94	210.45	210.10	210.02	210.14	210.14	210.31	210.53	210.46	210.65	210.99	210.63
8	209.99	210.18	210.01	209.86	210.00	210.19	210.37	210.60	210.40	210.79	211.00	210.62
9	210.09	210.25	210.00	209.99	209.88	210.42	210.72	210.51	210.36	210.74	211.06	210.78
10	209.88	210.24	209.97	209.86	209.96	210.24	210.56	210.53	210.37	210.75	211.06	210.85
11	209.73	210.31	209.75	209.94	209.92	209.98	210.34	210.86	210.35	210.85	211.09	210.82
12	209.93	210.31	209.79	209.95	209.74	209.92	210.45	210.63	210.25	210.98	211.08	210.83
13	209.68	210.18	210.01	209.81	209.71	210.13	210.61	210.60	210.19	211.04	211.06	210.81
14	209.76	210.02	209.80	209.77	209.93	210.16	210.61	210.50	210.19	211.04	211.00	210.75
15	209.86	210.01	209.98	209.81	210.04	210.13	210.65	210.42	210.31	210.95	210.90	210.88
16	209.73	210.27	209.85	209.93	209.75	210.12	210.66	210.49	210.43	210.88	210.91	211.07
17	209.88	210.08	209.74	210.03	209.57	210.23	210.68	210.65	210.34	210.85	211.03	210.97
18	210.06	209.88	209.69	210.01	209.82	210.33	210.60	210.68	210.37	210.78	211.09	211.04
19	209.72	209.87	209.72	209.74	210.11	210.32	210.68	210.72	210.47	210.79	211.09	211.12
20	209.76	209.78	209.89	210.02	210.07	210.16	210.73	210.87	210.39	210.81	211.05	211.03
21	210.09	209.87	210.01	210.10	210.01	210.21	210.41	210.59	210.33	210.86	211.11	210.80
22	209.94	210.03	210.03	209.83	210.06	210.19	210.40	210.52	210.41	210.92	211.15	210.93
23	209.95	210.05	210.12	209.89	209.90	210.47	210.41	210.61	210.46	211.00	211.13	210.95
24	210.14	209.89	210.08	209.95	210.00	210.42	210.47	210.82	210.46	211.04	211.17	210.88
25	210.10	209.83	209.99	209.97	210.09	210.29	210.45	210.54	210.41	211.03	211.17	210.79
26	209.97	209.64	210.04	209.95	210.05	210.26	210.37	210.40	210.42	211.02	211.10	210.75
27	210.15	209.86	209.90	209.73	209.82	210.33	210.57	210.40	210.42	210.99	211.00	210.68
28	210.20	210.25	209.64	209.69	209.63	210.40	210.54	210.44	210.46	211.01	210.91	210.68
29	210.09	210.39	209.87	209.88	---	210.47	210.69	210.39	210.48	211.04	210.93	210.75
30	210.17	209.98	210.07	210.01	---	210.77	210.84	210.19	210.48	210.99	210.94	210.79
31	210.23	---	210.07	210.11	---	210.78	---	210.17	---	210.98	210.91	---
MEAN	209.94	210.11	209.95	209.93	209.94	210.20	210.53	210.55	210.38	210.85	211.02	210.82
MAX	210.23	210.52	210.17	210.18	210.14	210.78	210.84	210.89	210.50	211.04	211.17	211.12
MIN	209.68	209.64	209.64	209.69	209.57	209.50	210.21	210.17	210.19	210.49	210.90	210.62

GROUND-WATER LEVELS

WASHITA COUNTY

WELL-IDENTIFICATION NUMBER.-- 352142099122501. Local number 10N-19W-10 BBB 1.

LOCATION.-- Lat 35°21'49", long 099°12'19", Hydrologic Unit 11130302, 2 mi west of Burns Flat.

AQUIFER.-- Elk City Sandstone.

WELL CHARACTERISTICS.-- Drilled unused well, diameter 8 in., depth 107 ft.

DATUM.-- Altitude of land-surface datum is 1,920 ft. Measuring point: top of casing 1.35 ft above land-surface datum.

REMARKS.-- Digital recorder installed May 20, 1981, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- April 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest water level, 28.17 ft below land-surface datum Feb. 17, 1991; lowest water level (revised), 34.87 ft below land-surface datum, Apr. 4, 1982.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.26	28.24	28.25	28.24	28.27	28.20	28.33	28.40	28.44	28.49	28.67	28.66
2	28.24	28.24	28.22	28.26	28.27	28.26	28.28	28.36	28.45	28.50	28.69	28.66
3	28.25	28.24	28.28	28.28	28.24	28.28	28.32	28.35	28.43	28.50	28.73	28.66
4	28.29	28.26	28.28	28.25	28.26	28.25	28.34	28.37	28.44	28.50	28.71	28.66
5	28.26	28.22	28.23	28.23	28.26	28.22	28.33	28.42	28.45	28.51	28.67	28.66
6	28.24	28.25	28.26	28.27	28.27	28.28	28.31	28.40	28.47	28.52	28.67	28.66
7	28.27	28.28	28.26	28.26	28.28	28.31	28.28	28.39	28.47	28.55	28.67	28.65
8	28.27	28.24	28.25	28.23	28.26	28.33	28.29	28.39	28.47	28.57	28.66	28.64
9	28.29	28.26	28.25	28.25	28.26	28.37	28.36	28.38	28.47	28.57	28.65	28.66
10	28.26	28.26	28.24	28.22	28.27	28.32	28.31	28.40	28.47	28.58	28.66	28.66
11	28.24	28.27	28.20	28.24	28.26	28.26	28.28	28.40	28.46	28.60	28.66	28.65
12	28.26	28.27	28.22	28.23	28.22	28.27	28.30	28.39	28.45	28.62	28.65	28.65
13	28.22	28.26	28.26	28.20	28.23	28.29	28.32	28.38	28.44	28.64	28.64	28.64
14	28.26	28.25	28.22	28.20	28.27	28.30	28.33	28.37	28.44	28.61	28.64	28.63
15	28.26	28.24	28.26	28.20	28.29	28.29	28.33	28.37	28.46	28.59	28.67	28.65
16	28.24	28.28	28.22	28.24	28.23	28.28	28.33	28.38	28.48	28.59	28.65	28.67
17	28.27	28.24	28.19	28.25	28.19	28.30	28.32	28.42	28.47	28.59	28.65	28.65
18	28.29	28.22	28.19	28.25	28.25	28.31	28.33	28.44	28.48	28.58	28.66	28.68
19	28.23	28.22	28.20	28.20	28.29	28.28	28.39	28.44	28.49	28.59	28.66	28.70
20	28.24	28.22	28.23	28.26	28.28	28.26	28.42	28.44	28.48	28.66	28.66	28.67
21	28.29	28.23	28.24	28.26	28.27	28.26	28.35	28.43	28.47	28.68	28.65	28.63
22	28.26	28.25	28.25	28.21	28.28	28.27	28.35	28.43	28.48	28.66	28.66	28.65
23	28.26	28.24	28.27	28.23	28.26	28.32	28.35	28.43	28.48	28.64	28.66	28.65
24	28.28	28.21	28.26	28.25	28.29	28.31	28.36	28.42	28.48	28.63	28.67	28.65
25	28.27	28.21	28.24	28.25	28.31	28.27	28.34	28.42	28.48	28.63	28.67	28.63
26	28.25	28.19	28.26	28.24	28.29	28.26	28.32	28.40	28.48	28.63	28.66	28.64
27	28.29	28.24	28.23	28.20	28.25	28.29	28.35	28.43	28.48	28.62	28.66	28.63
28	28.29	28.30	28.20	28.20	28.23	28.27	28.32	28.45	28.49	28.61	28.66	28.64
29	28.26	28.31	28.24	28.23	---	28.30	28.36	28.44	28.50	28.62	28.67	28.66
30	28.26	28.24	28.27	28.27	---	28.35	28.38	28.40	28.49	28.63	28.66	28.65
31	28.25	---	28.26	28.28	---	28.36	---	28.41	---	28.65	28.66	---
MEAN	28.26	28.25	28.24	28.24	28.26	28.29	28.33	28.40	28.47	28.59	28.66	28.65
MAX	28.29	28.31	28.28	28.28	28.31	28.37	28.42	28.45	28.50	28.68	28.73	28.70
MIN	28.22	28.19	28.19	28.20	28.19	28.20	28.28	28.35	28.43	28.49	28.64	28.63

GROUND-WATER LEVELS

443

WOODS COUNTY

WELL-IDENTIFICATION NUMBER.-- 365143098404201. Local number 28N-14W-35 BCC 1.

LOCATION.-- Lat 36°51'50", long 098°40'55", Hydrologic Unit 11060002, 4 mi north of Alva.

AQUIFER.-- Cedar Hills Sandstone.

WELL CHARACTERISTICS.-- Drilled unused municipal well, diameter 13 in., depth 54 ft.

DATUM.-- Altitude of land-surface datum is 1,360 ft. Measuring point: edge of large hole in steel plate 2.60 ft above land-surface datum.

REMARKS.-- Digital recorder installed July 30, 1980, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest daily water level, 14.78 ft below land-surface datum, Aug. 28, 1987; lowest water level, 24.25 ft below land-surface datum, Mar. 15, 1979.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.06	21.32	21.52	21.68	21.84	21.90	22.10	22.25	22.39	22.30	22.53	22.15
2	21.04	21.34	21.51	21.72	21.84	21.98	22.07	22.23	22.39	22.31	22.54	22.02
3	21.06	21.35	21.57	21.71	21.83	21.97	22.12	22.23	22.39	22.31	22.56	21.95
4	21.08	21.36	21.55	21.68	21.86	21.95	22.13	22.27	22.40	22.31	22.56	21.91
5	21.08	21.34	21.52	21.69	21.86	21.91	22.12	22.28	22.41	22.31	22.56	21.88
6	21.08	21.37	21.57	21.73	21.87	21.99	22.11	22.27	22.42	22.32	22.58	21.87
7	21.11	21.39	21.57	21.72	21.86	21.99	22.10	22.28	22.42	22.34	22.58	21.85
8	21.12	21.36	21.57	21.71	21.86	22.00	22.14	22.28	22.42	22.36	22.59	21.83
9	21.13	21.39	21.58	21.74	21.86	22.02	22.16	22.28	22.43	22.35	22.60	21.84
10	21.12	21.41	21.58	21.71	21.88	21.96	22.12	22.29	22.43	22.37	22.61	21.84
11	21.12	21.42	21.55	21.74	21.87	21.93	22.11	22.29	22.43	22.40	22.62	21.84
12	21.15	21.42	21.58	21.74	21.86	21.97	22.15	22.28	22.43	22.42	22.62	21.84
13	21.12	21.42	21.61	21.72	21.87	22.03	22.17	22.29	22.43	22.43	22.63	21.83
14	21.16	21.43	21.57	21.74	21.91	22.03	22.17	22.30	22.44	22.44	22.63	21.83
15	21.17	21.43	21.62	21.75	21.91	22.04	22.16	22.30	22.46	22.44	22.64	21.85
16	21.17	21.46	21.60	21.77	21.84	22.02	22.17	22.30	22.47	22.44	22.64	21.87
17	21.20	21.43	21.58	21.77	21.83	22.04	22.18	22.33	22.46	22.44	22.66	21.85
18	21.21	21.42	21.60	21.77	21.91	22.04	22.19	22.33	22.47	22.44	22.66	21.88
19	21.17	21.45	21.62	21.74	21.94	22.02	22.21	22.34	22.48	22.46	22.67	21.89
20	21.21	21.44	21.64	21.80	21.92	21.99	22.20	22.33	22.46	22.47	22.67	21.87
21	21.25	21.47	21.64	21.79	21.92	22.02	22.17	22.33	22.44	22.49	22.68	21.84
22	21.24	21.48	21.65	21.75	21.94	22.05	22.19	22.34	22.46	22.49	22.68	21.88
23	21.26	21.48	21.66	21.80	21.91	22.08	22.21	22.34	22.46	22.49	22.69	21.88
24	21.28	21.47	21.65	21.80	21.96	22.06	22.21	22.34	22.42	22.50	22.70	21.88
25	21.27	21.48	21.66	21.81	21.95	22.04	22.19	22.35	22.37	22.51	22.70	21.87
26	21.27	21.47	21.67	21.80	21.95	22.04	22.17	22.35	22.34	22.51	22.70	21.89
27	21.30	21.51	21.64	21.77	21.91	22.08	22.22	22.36	22.33	22.51	22.71	21.88
28	21.30	21.53	21.62	21.79	21.90	22.08	22.21	22.37	22.32	22.52	22.72	21.91
29	21.30	21.53	21.68	21.83	---	22.11	22.24	22.36	22.31	22.52	22.71	21.92
30	21.31	21.48	21.70	21.84	---	22.12	22.25	22.35	22.30	22.52	22.67	21.92
31	21.32	---	21.69	21.84	---	22.11	---	22.37	---	22.53	22.42	---
MEAN	21.18	21.43	21.61	21.76	21.89	22.02	22.16	22.31	22.41	22.43	22.63	21.89
MAX	21.32	21.63	21.70	21.84	21.96	22.12	22.25	22.37	22.48	22.53	22.72	22.15
MIN	21.04	21.32	21.51	21.68	21.83	21.90	22.07	22.23	22.30	22.30	22.42	21.83

GROUND-WATER LEVELS

WOODWARD COUNTY

WELL-IDENTIFICATION NUMBER.-- 361714099315101. Local number 21N-22W-23 BBB 1.

LOCATION.-- Lat 36°17'25", long 099°31'58", Hydrologic Unit 11100203, 11 mi west of Sharon.

AQUIFER.-- Ogallala Formation.

WELL CHARACTERISTICS.-- Drilled test hole, diameter 6 in., depth 322 ft.

DATUM.-- Altitude of land-surface datum is 2,335 ft. Measuring point: top of shelf 2 ft above land-surface datum.

REMARKS.-- Digital recorder installed Sept. 30, 1982, mean-daily water levels published thereafter.

PERIOD OF RECORD.-- 1957 to 1963, 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.-- Highest daily water level, 21.78 ft below land-surface datum, Nov. 15, 1987; lowest water level, 32.64 ft below land-surface datum, May 19, 1971.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.17	24.20	24.23	24.42	24.54	24.51	24.74	24.87	24.91	25.06	25.11	25.16
2	24.14	24.19	24.23	24.42	24.54	24.51	24.69	24.86	24.92	25.06	25.08	25.17
3	24.11	24.20	24.24	24.42	24.53	24.57	24.68	24.82	24.93	25.07	25.08	25.17
4	24.16	24.22	24.28	24.42	24.53	24.58	24.72	24.83	24.93	25.07	25.09	25.18
5	24.17	24.20	24.26	24.41	24.54	24.56	24.74	24.87	24.94	25.07	25.09	25.19
6	24.15	24.19	24.26	24.41	24.55	24.55	24.73	24.89	24.97	25.06	25.09	25.19
7	24.16	24.24	24.30	24.41	24.57	24.61	24.70	24.88	24.98	25.07	25.10	25.20
8	24.19	24.23	24.30	24.41	24.57	24.63	24.68	24.88	24.98	25.08	25.10	25.18
9	24.22	24.22	24.30	24.43	24.55	24.66	24.73	24.88	24.98	25.08	25.09	25.18
10	24.21	24.23	24.31	24.43	24.55	24.66	24.75	24.88	24.99	25.07	25.10	25.20
11	24.16	24.25	24.29	24.43	24.56	24.59	24.70	24.90	24.99	25.07	25.10	25.21
12	24.18	24.27	24.28	24.45	24.55	24.55	24.69	24.89	24.98	25.07	25.11	25.20
13	24.16	24.27	24.32	24.45	24.51	24.59	24.72	24.88	24.98	25.08	25.11	25.20
14	24.14	24.25	24.34	24.43	24.53	24.63	24.74	24.88	24.98	25.08	25.10	25.19
15	24.18	24.24	24.34	24.43	24.58	24.64	24.76	24.87	25.00	25.09	25.10	25.18
16	24.18	24.27	24.35	24.45	24.57	24.65	24.75	24.87	25.03	25.09	25.08	25.21
17	24.17	24.28	24.31	24.49	24.51	24.64	24.76	24.90	25.03	25.09	25.09	25.22
18	24.23	24.23	24.30	24.50	24.50	24.66	24.76	24.93	25.03	25.08	25.10	25.22
19	24.20	24.22	24.29	24.47	24.55	24.66	24.78	24.95	25.04	25.07	25.11	25.24
20	24.15	24.21	24.32	24.47	24.58	24.62	24.81	24.95	25.04	25.08	25.11	25.25
21	24.20	24.21	24.36	24.51	24.58	24.61	24.79	24.94	25.03	25.09	25.10	25.21
22	24.21	24.24	24.38	24.49	24.59	24.61	24.76	24.92	25.03	25.10	25.11	25.18
23	24.19	24.26	24.39	24.47	24.58	24.66	24.76	24.92	25.04	25.11	25.12	25.21
24	24.22	24.25	24.41	24.49	24.58	24.69	24.79	24.92	25.04	25.11	25.13	25.21
25	24.24	24.23	24.41	24.49	24.61	24.67	24.82	24.91	25.04	25.11	25.13	25.21
26	24.21	24.20	24.41	24.51	24.62	24.64	24.78	24.90	25.04	25.12	25.13	25.21
27	24.21	24.20	24.41	24.48	24.60	24.63	24.79	24.91	25.04	25.12	25.11	25.21
28	24.25	24.28	24.36	24.47	24.56	24.66	24.80	24.93	25.05	25.12	25.11	25.20
29	24.22	24.33	24.34	24.46	---	24.67	24.80	24.93	25.05	25.12	25.12	25.21
30	24.21	24.28	24.36	24.51	---	24.72	24.84	24.91	25.06	25.12	25.15	25.22
31	24.21	---	24.41	24.53	---	24.74	---	24.89	---	25.12	25.16	---
MEAN	24.19	24.24	24.32	24.46	24.56	24.62	24.75	24.90	25.00	25.09	25.11	25.20
MAX	24.25	24.33	24.41	24.53	24.62	24.74	24.84	24.95	25.06	25.12	25.16	25.25
MIN	24.11	24.19	24.23	24.41	24.50	24.51	24.68	24.82	24.91	25.06	25.08	25.16

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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 2.54×10^{-2}	millimeters (mm) 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 4.047×10^{-1} 4.047×10^{-3}	square meters (m ²) square hectometers (hm ²) 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 3.785×10^0 3.785×10^{-3}	liters (L) cubic decimeters (dm ³) cubic meters (m ³)
million gallons	3.785×10^3 3.785×10^{-3}	cubic meters (m ³) cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1 2.832×10^{-2}	cubic decimeters (dm ³) cubic meters (m ³)
cfs-days	2.447×10^3 2.447×10^{-3}	cubic meters (m ³) cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3 1.233×10^{-3} 1.233×10^{-6}	cubic meters (m ³) cubic hectometers (hm ³) cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1 2.832×10^1 2.832×10^{-2}	liters per second (L/s) cubic decimeters per second (dm ³ /s) cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2} 6.309×10^{-2} 6.309×10^{-5}	liters per second (L/s) cubic decimeters per second (dm ³ /s) cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1 4.381×10^{-2}	cubic decimeters per second (dm ³ /s) 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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