

LIBRARY

AUG 1

Division of Geology and Land Survey
Division of Environmental Quality



SURPLUS

U.S. GEOLOGICAL SURVEY
BUREAU OF RECLAMATION DENVER LIBRARY



Water Resources Data Missouri Water Year 1989



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MO-89-1
Prepared in cooperation with the Missouri Department of
Natural Resources, Division of Geology and Land Survey and
Division of Environmental Quality; Missouri State Highway
Commission; and with other State and Federal agencies

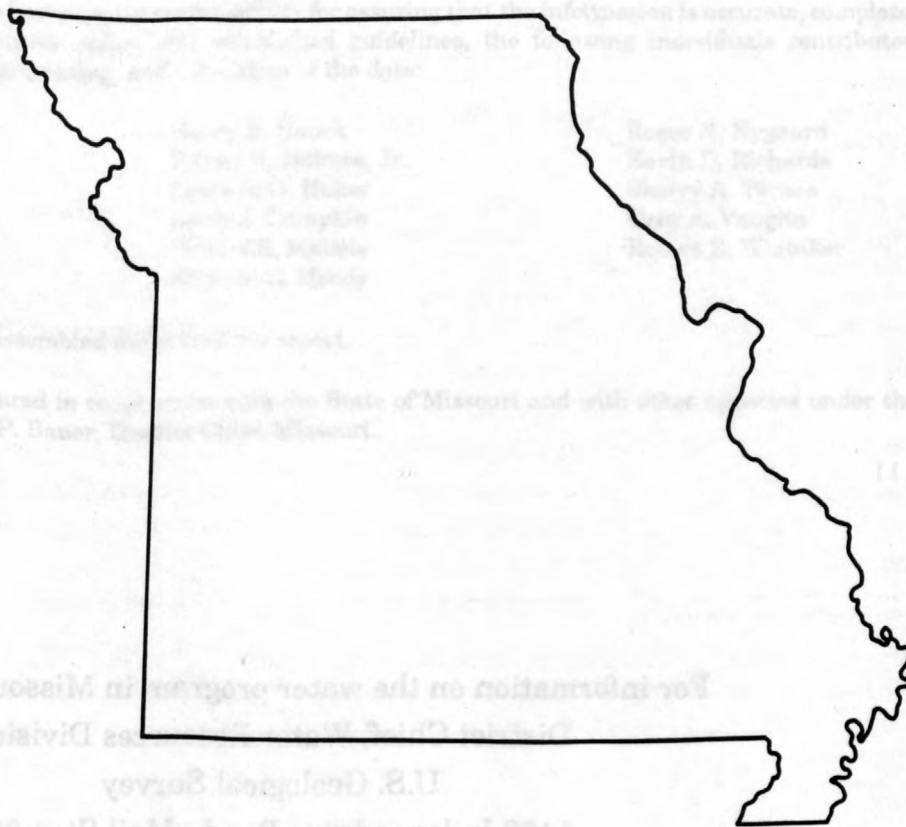
19375 / 1989 Water Year

1988																											
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			1	2	3	4	5					1	2	3							
2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10							
9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17							
16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24							
23	24	25	26	27	28	29	27	28	29	30				25	26	27	28	29	30	31							
30	31																										
1989																											
JANUARY							FEBRUARY							MARCH													
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	7				1	2	3	4				1	2	3	4							
8	9	10	11	12	13	14	5	6	7	8	9	10	11	5	6	7	8	9	10	11							
15	16	17	18	19	20	21	12	13	14	15	16	17	18	12	13	14	15	16	17	18							
22	23	24	25	26	27	28	19	20	21	22	23	24	25	19	20	21	22	23	24	25							
29	30	31					26	27	28					26	27	28	29	30	31								
APRIL							MAY							JUNE													
S	M	T	W	T	F																						



Water Resources Data Missouri Water Year 1989

by L.A. Waite, J.V. Davis, H.L. Reed, D.O. Hatten, and T.J. Perkins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MO-89-1

Prepared in cooperation with the Missouri Department of Natural Resources, Division of Geology and Land Survey and Division of Environmental Quality; Missouri State Highway Commission; and with other State and Federal agencies

DEPARTMENT OF THE INTERIOR
MANUEL LUJAN, JR, Secretary
U.S. GEOLOGICAL SURVEY
Dallas L. Peck, Director

For information on the water program in Missouri write to:

District Chief, Water Resources Division

U.S. Geological Survey

1400 Independence Road - Mail Stop 200

Rolla, Missouri 65401

1990

PREFACE

This hydrologic-data report for Missouri is one of a series of annual reports that document hydrologic data collected from the U.S. Geological Survey's surface- and ground-water data collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by local, State, 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 personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

Gary L. Alexander
Terry W. Alexander
Suzanne R. Femmer
H. Craig French
Roy D. Glenn
George L. Gray

Henry S. Hauck
Robert R. Holmes, Jr.
Leonard G. Huber
Larry J. Lumpkin
Gilbert B. Malone
Michael C. Moody

Roger N. Nygaard
Kevin D. Richards
Sherry A. Ternes
Greg A. Vaughn
Robert E. Whitaker

Felicia D. Headrick assembled the text of the report.

This report was prepared in cooperation with the State of Missouri and with other agencies under the general supervision of Daniel P. Bauer, District Chief, Missouri.

REPORT DOCUMENTATION PAGE		1. REPORT NO. USGS/WRD/HD-90/300	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data - Missouri Water Year 1989				5. Report Date June 1990
				6.
7. Author(s) L.A. Waite, J.V. Davis, H.L. Reed, D.O. Hatten, and T.J. Perkins				8. Performing Organization Rept. No. USGS-WDR-MO-89-1
9. Performing Organization Name and Address U.S. Geological Survey Water Resources Division 1400 Independence Road Mail Stop 200 Rolla, Missouri 65401				10. Project/Task/Work Unit No.
				11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Geological Survey Water Resources Division 1400 Independence Road Mail Stop 200 Rolla, Missouri 65401				13. Type of Report & Period Covered Annual; Oct. 1, 1988 to Sept. 30, 1989
				14.
15. Supplementary Notes Prepared in cooperation with the State of Missouri and other agencies.				
16. Abstract (Limit 200 words) The U.S. Geological Survey, Water Resources Division, in cooperation with local, State, and Federal agencies and organizations, obtains a large quantity of data pertaining to the water resources of Missouri each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of Missouri. Water resources data for the 1989 water year for Missouri consist of records of stage, discharge, and water quality of lakes and reservoirs; contains records for water discharge at 109 gaging stations; stage and contents at 11 lakes and reservoirs; water level records for 49 ground-water monitoring wells; water quality at 52 surface water sampling stations (including 2 lakes); and data for 19 crest-stage stations.				
17. Document Analysis. a. Descriptors *Missouri, *Hydrologic data, *Surface water, *Quality water, Gaging stations, Streamflow, Flow rates, Lakes, Reservoirs, Chemical analysis, Sediments, Water temperature, Water analysis, Water levels, Data collection, Sites b. Identifiers/Open-Ended Terms c. COSATI Field/Group				
18. Availability Statement No restriction on distribution This report may be purchased from: Books and Open-File Reports Section Denver, Colorado 80225		19. Security Class (This Report) Unclassified		21. No. of Pages 372
		20. Security Class (This Page) Unclassified		22. Price

CONTENTS

	Page
Preface	iii
Hydrologic-data stations, in downstream order, for which records are published.....	vi
Ground-water monitoring stations.....	xi
Introduction.....	1
Cooperation	2
Water use.....	3
Missouri water-use fact sheet.....	3
Physiography.....	4
Hydrologic conditions.....	4
Streamflow	6
Chemical quality of streamflow	8
Downstream order and station number.....	9
Numbering system for miscellaneous sites	9
Special networks and programs	10
Explanation of stage and water-discharge records	10
Collection and computation of data	10
Accuracy of field data and computed results.....	12
Other data available	13
Explanation of ground-water records.....	13
Collection and computation of data	13
Data presentation	13
Explanation of water-quality records.....	14
Collection and examination of data	14
Water analysis	14
Water temperature	15
Sediment	15
Discontinued streamflow stations.....	16
Discontinued surface-water-quality stations.....	18
Access to WATSTORE data.....	20
Definition of terms	21
Publications on techniques of water-resources investigations.....	25
Hydrologic-data station records	27
Ground-water monitoring wells	287
Discharge at partial-record stations	336
Crest-stage partial-record stations.....	336
Annual maximum discharge at crest-stage partial-record stations, water year 1989.....	336
Analyses of samples collected at water-quality partial-record stations.....	340
Index	345

ILLUSTRATIONS AND TABLES

		Page
Figure	1. Major water-use categories and percentage of surface water used in Missouri during 1985	3
	2. Major water-use categories and percentage of ground water used in Missouri during 1985	3
	3. Major drainage basins, physiographic areas, and areas of greater-than-average discharge during 1989	5
	4. Comparison of 1989 water-year streamflow to long-term means	7
	5. System for numbering miscellaneous sites (latitude and longitude).....	8
	6. Map showing location of ground-water monitoring wells.....	286
	7. Map showing location of hydrologic-data stations	350
Table	1. Precipitation and departures from normal, in inches.....	4
	2. Comparisons of peak discharge for the 1989 water year with those for period of record for selected stations.....	6
	3. Comparisons of 1989 7-day low flows to 7-day, 2-year low flows and minimum daily flows for the period of record at selected stations.....	8

HYDROLOGIC-DATA STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

(Letter after station name designates type of data: (d) discharge, (c) chemical, (m) microbiological,
(t) water temperature, (s) sediment, (r) radiochemical, and (e) elevation and contents)

	Page
UPPER MISSISSIPPI RIVER BASIN	
Mississippi River:	
DES MOINES RIVER BASIN	
Des Moines River at St. Francisville (cms).....	27
FOX RIVER BASIN	
Fox River at Wayland (d).....	31
WYACONDA RIVER BASIN	
Wyaconda River above Canton (d).....	32
FABIUS RIVER BASIN	
North Fabius River at Monticello (d).....	33
Middle Fabius River near Monticello (d).....	34
South Fabius River near Taylor (d).....	35
NORTH RIVER BASIN	
North River at Palmyra (d).....	36
Mississippi River at Hannibal (cm).....	37
BEAR CREEK BASIN	
Bear Creek at Hannibal (d).....	39
SALT RIVER BASIN	
North Fork Salt River at Hagers Grove (d).....	40
North Fork Salt River near Shelbyna (ds).....	42
Crooked Creek near Paris (d).....	47
South Fork Salt River above Santa Fe (d).....	49
Middle Fork Salt River at Paris (ds).....	51
Elk Fork Salt River near Madison (d).....	56
Lick Creek at Perry (d).....	58
Salt River near Center (d).....	60
Salt River near New London (dcs).....	62
Spencer Creek below Plum Creek near Frankford (d).....	68
CUIVRE RIVER BASIN	
Cuivre River near Troy (dcm).....	70
Mississippi River at Grafton, IL (d).....	74
Mississippi River below Grafton, IL (cm).....	76
Mississippi River at Alton, IL (s).....	78
Mississippi River below Alton, IL (cm).....	80
MISSOURI RIVER BASIN	
Missouri River:	
TARKIO RIVER BASIN	
Tarkio River at Fairfax (d).....	82
Missouri River at Rulo, NB (d).....	83
NODAWAY RIVER BASIN	
Nodaway River near Graham (d).....	84
Nodaway River near Oregon (cm).....	85
Missouri River at St. Joseph (dcms).....	87

HYDROLOGIC-DATA STATIONS, IN DOWNSTREAM ORDER

	Page
MISSOURI RIVER BASIN--Continued	
PLATTE-RIVER BASIN	
One Hundred and Two River at Maryville (d)	91
Platte River near Agency (d)	92
Smithville Reservoir near Smithville (e)	93
Little Platte River at Smithville (d)	94
Platte River at Sharps Station (dcm)	95
KANSAS RIVER BASIN	
Kansas River at DeSoto, KS (d)	98
Missouri River at Kansas City (ds)	99
BLUE RIVER BASIN	
Blue River near Kansas City (d)	101
LITTLE BLUE RIVER BASIN	
Longview Reservoir at Kansas City (e)	102
Little Blue River below Longview Dam at Kansas City (d)	103
Blue Springs Reservoir near Blue Springs (e)	104
East Fork Little Blue River near Blue Springs (d)	105
Little Blue River near Lake City (d)	106
Missouri River at Waverly (d)	107
GRAND RIVER BASIN	
Grand River near Gallatin (d)	108
Thompson River at Trenton (d)	109
Medicine Creek near Galt (d)	110
Grand River near Sumner (dcm)	111
CHARITON RIVER BASIN	
Chariton River at Livonia (d)	115
Chariton River at Novinger (d)	116
Chariton River near Prairie Hill (d)	117
Mussel Fork near Musselfork (d)	118
LITTLE CHARITON RIVER BASIN	
Long Branch Reservoir near Macon (e)	119
East Fork Little Chariton River near Macon (d)	120
East Fork Little Chariton River near Huntsville (dcm)	121
LAMINE RIVER BASIN	
Lamine River near Otterville (d)	124
Blackwater River at Blue Lick (d)	125
Missouri River at Boonville (d)	126
Hinkson Creek at Columbia (dt)	127
Cedar Creek near Columbia (dc)	130
Cedar Creek near Ashland (cm)	135
OSAGE RIVER BASIN	
Osage River above Schell City (dcm)	137
Sac River near Dadeville (d)	140
Turnback Creek above Greenfield (d)	141
Little Sac River near Walnut Grove (cm)	142
Little Sac River near Morrisville (d)	144
Stockton Lake near Stockton (e)	145

HYDROLOGIC-DATA STATIONS, IN DOWNSTREAM ORDER

	Page
MISSOURI RIVER BASIN--Continued	
Sac River near Stockton (d).....	146
Sac River at Highway J below Stockton (d)	147
Cedar Creek near Pleasant View (d).....	148
Sac River near Caplinger Mills (d)	149
Pomme de Terre River near Polk (d)	150
Lindley Creek near Polk (d).....	151
Pomme de Terre Lake near Hermitage (e).....	152
Pomme de Terre River near Hermitage (d).....	153
South Grand River near Clinton (d)	154
Elm Branch near Windsor (c).....	155
West Fork Tebo Creek near Lewis (cm)	156
Harry S. Truman Reservoir at Warsaw (e)	158
Osage River below Harry S. Truman Dam at Warsaw (d)	159
Niangua River:	
Spring Branch:	
Bennett Spring at Bennett Springs (d).....	160
Lake of the Ozarks near Bagnell.	161
Osage River near Bagnell (d)	162
Osage River near St. Thomas (d)	163
Osage River below St. Thomas (cm).....	164
GASCONADE RIVER BASIN	
Big Piney River near Big Piney (d).....	166
Big Piney River at Devil's Elbow (cm).....	168
Gasconade River above Jerome (cm).....	170
Little Piney Creek at Newburg (d).....	172
Gasconade River at Jerome (d)	173
Gasconade River near Rich Fountain (d).....	174
Missouri River at Hermann (dcmts)	175
LOWER MISSISSIPPI RIVER BASIN	
Mississippi River at St. Louis (dts)	180
MERAMEC RIVER BASIN	
Meramec River near Steelville (d)	186
Meramec River near Sullivan (dcm)	188
Bourbeuse River near High Gate (d)	192
Bourbeuse River at Union (d)	194
Big River at Irondale (d).....	196
Big River near Richwoods (d).....	198
Big River at Byrnesville (d).....	200
Meramec River near Eureka (dcm).....	202
Meramec River at Paulina Hills (cm)	206
Mississippi River at Chester, IL (ds)	208
HEADWATER DIVERSION CHANNEL BASIN	
Castor River at Zalma (d).....	213
Mississippi River at Thebes, IL (dcms).....	214
ST. FRANCIS RIVER BASIN	
St. Francis River near Roselle (d)	224

HYDROLOGIC-DATA STATIONS, IN DOWNSTREAM ORDER

	Page
LOWER MISSISSIPPI RIVER BASIN--Continued	
Little St. Francis River at Fredericktown (d).....	226
St. Francis River near Mill Creek (d)	228
St. Francis River near Saco (dcms).....	230
Big Creek at Chloride (c).....	236
Big Creek at Des Arc (d).....	237
St. Francis River near Patterson (d).....	239
Wappapello Lake at Wappapello (e)	241
St. Francis River at Wappapello (d).....	242
Right Chute of Little River:	
Little River Ditch 251 near Lilbourn (d).....	244
Little River Ditch 1 near Morehouse (d)	245
Little River Ditches near Kennett (cm).....	246
WHITE RIVER BASIN	
White River:	
James River near Springfield (d)	248
James River at Galena (d).....	249
Table Rock Lake near Branson (e).....	250
White River below Table Rock Dam near Branson (ct)	251
White River near Branson (d)	255
Lake Taneycomo at School of the Ozarks (ct).....	256
Lake Taneycomo at Branson (cm).....	260
North Fork River near Tecumseh (d)	262
Black River:	
East Fork Black River at Lesterville (d)	263
Black River near Annapolis (d).....	264
Clearwater Lake near Piedmont (e)	265
Black River at Leeper (d)	266
Black River at Poplar Bluff (d).....	267
Current River:	
Jacks Fork at Eminence (d)	268
Current River at Van Buren (d).....	269
Big Spring near Van Buren (d).....	270
Current River at Doniphan (dcm).....	271
Spring River:	
Eleven Point River:	
Greer Spring at Greer (d).....	274
Eleven Point River near Bardley (d).....	275
ARKANSAS RIVER BASIN	
Arkansas River:	
Neosho River:	
Spring River near Waco (d)	276
Center Creek near Carterville (dcm).....	277
Center Creek near Smithfield (cm)	280
Shoal Creek above Joplin (d)	282
Elk River near Tiff City (dcm).....	283

GROUND-WATER MONITORING STATIONS

	Page
AUDRAIN COUNTY	
Scotts Corner.....	287
Vandalia	288
BARTON COUNTY	
Lamar	289
BENTON COUNTY	
Warsaw	290
BOLLINGER COUNTY	
Duck Creek	291
BUCHANAN COUNTY	
St. Joseph	292
CALLAWAY COUNTY	
Jefferson City	293
CAPE GIRARDEAU COUNTY	
Delta	294
CARTER COUNTY	
Big Spring.....	295
CLARK COUNTY	
Wayland.....	296
COOPER COUNTY	
Arrow Rock	297
DUNKLIN COUNTY	
Malden.....	298
FRANKLIN COUNTY	
St. Clair	299
Washington	300
GRUNDY COUNTY	
Spickard.....	301
HOWELL COUNTY	
West Plains 2.....	302
JASPER COUNTY	
Atlas Powder	303
JEFFERSON COUNTY	
DeSoto.....	304
LAFAYETTE COUNTY	
Wellington	305
LAWRENCE COUNTY	
Aurora.....	306
LINCOLN COUNTY	
Troy.....	307
MADISON COUNTY	
Fredericktown	308
MARION COUNTY	
Hannibal.....	309

GROUND-WATER MONITORING STATIONS

	Page
MCDONALD COUNTY	
Longview	310
Noel.....	311
MISSISSIPPI COUNTY	
East Prairie	312
MONTGOMERY COUNTY	
New Florence.....	313
PEMISCOT COUNTY	
Steele	314
PERRY COUNTY	
National Lead.....	315
PETTIS COUNTY	
Sedalia	316
PHELPS COUNTY	
Conservation	317
Industrial Park	318
Rolla	319
POLK COUNTY	
Halfway	320
PULASKI COUNTY	
St. Robert.....	321
RIPLEY COUNTY	
Naylor	322
ST. CHARLES COUNTY	
O'Fallon	323
Wentzville.....	324
ST. CLAIR COUNTY	
Osceola	325
ST. LOUIS COUNTY	
Columbia Bottoms.....	326
SCHUYLER COUNTY	
Vandike	327
SCOTT COUNTY	
Sikeston	328
SHANNON COUNTY	
Akers.....	329
Ozark Lead 1	330
Ozark Lead 2.....	331
TEXAS COUNTY	
Fairview	332
VERNON COUNTY	
Nevada East	333
Nevada West	334
WASHINGTON COUNTY	
Potosi	335

THIS IS A BLANK PAGE

THIS IS A BLANK PAGE

WATER RESOURCES DATA FOR MISSOURI, 1989

INTRODUCTION

The U.S. Geological Survey, in cooperation with local, State, and Federal agencies and organizations, obtains a large quantity of data pertaining to the water resources of Missouri each water year (October 1 to September 30). These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of Missouri. To make these data readily available to interested parties outside the U.S. Geological Survey, the data are published annually in this report series, entitled "WATER RESOURCES DATA FOR MISSOURI." This volume contains records for water discharge at 109 gaging stations; stage and contents at 11 lakes and reservoirs; water level records for 49 ground-water monitoring wells; water quality at 52 sampling stations (including 2 lakes); and data for 19 crest-stage stations.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey Water-Supply Papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these Water-Supply Papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperature, and suspended sediment were published from 1941 to 1970 in an annual series of Water-Supply Papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of Water-Supply Papers entitled, "Ground-Water Levels in the United States." Water-Supply Papers are in the libraries of the principal cities in the United States or may be purchased from the U.S. Geological Survey, Books and Open-File Reports, Federal Center, Building 810, Box 25425, Denver, CO 80225.

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

Beginning with water year 1975, water data for streamflow, water quality, and ground water are published in Survey reports on a State-boundary basis. These reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report MO-89-1." For archiving and general distribution, the reports for water years 1971-74 also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Building 810, Box 25425, Denver, CO 80225.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of the title page or by telephone (303) 236-7476.

WATER RESOURCES DATA FOR MISSOURI, 1989

COOPERATION

The U.S. Geological Survey and organizations of the State of Missouri have had cooperative agreements for the systematic collection of streamflow records since 1921, and for water-quality records since 1964. Organizations that assisted in collecting data through cooperative agreements are:

Missouri Department of Conservation,
Jerry J. Presley, Director.

Missouri Department of Health,
Dr. John Bagby, Director.

Missouri Department of Natural Resources,
G. Tracy Mehan, III, Director.

Division of Geology and Land Survey,
Dr. James H. Williams, Director.

Division of Environmental Quality,
John Young, Acting Director.

Land Reclamation Commission,
Daniel R. Schuette, Director.

Missouri State Highway and Transportation Commission,
Wayne Muri, Chief Engineer.

City Utilities of Springfield,
R. David Plank, Manager, Engineering Division.

City of Cape Girardeau,
R. Ronald Fischer, City Manager.

The following Federal and State agencies and organizations assisted in collection of records published in this report by providing funds or services:

U.S. Army Corps of Engineers, in collecting records for
85 gaging stations, 3 water-quality stations, and 9 sediment stations.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration,
National Weather Service.

National Park Service, Midwest Region.

Little River Drainage District.

Union Electric Company of Missouri.

Missouri Park Board.

WATER RESOURCES DATA FOR MISSOURI, 1989

WATER USE

Listed below are general water-use facts for the state of Missouri. Figures 1 and 2 show the major water uses and percentage of surface and ground water for 1985.

MISSOURI WATER-USE FACT SHEET

1. Total offstream water use was 6,110 million gallons per day (Mgal/d).
2. Ground-water use was 640 Mgal/d, about 10 percent of total offstream use. The largest ground-water use was for irrigation in southeastern Missouri.
3. Offstream surface-water use was 5,470 Mgal/d, about 90 percent of total offstream use. The largest use was in the St. Louis and Kansas City metropolitan areas.
4. Consumptive use of freshwater was 498 Mgal/d, which was about 8 percent of total use. Irrigation consumptive use was about 44 percent of total consumptive use.
5. The largest use of water in Missouri was for onstream hydroelectric power generation, about 20,100 Mgal/d.
6. Total population was 5.03 million, an increase of 2.3 percent from 1980.
7. Per capita water use for all offstream uses was 1,210 gallons per day.
8. Public water supplied was 645 Mgal/d: 27 percent ground water and 73 percent surface water.
9. Domestic water use was 408 Mgal/d: 13 percent self-supplied and 87 percent public-supplied.
10. Commercial water use was 77.6 Mgal/d: 22 percent self-supplied and 78 percent public-supplied.
11. Industrial water use was 221 Mgal/d: 40 percent self-supplied and 60 percent public-supplied.
12. Mining water use was 27.6 Mgal/d, mostly from dewatering of active and inactive lead mines.
13. The largest offstream use of water was 4,930 Mgal/d (mostly surface water) to produce 48,500 gigawatt hours of electricity. This was 81 percent of the total offstream water use.
14. Non-irrigation agricultural water use was 40.8 Mgal/d for fish culture and livestock use.
15. The largest use of ground water was 283 Mgal/d for irrigation. Total irrigation water use was 306 Mgal/d.
16. About 2,230 municipal and other sewage-treatment facilities released 885 Mgal/d of effluent.

SURFACE WATER

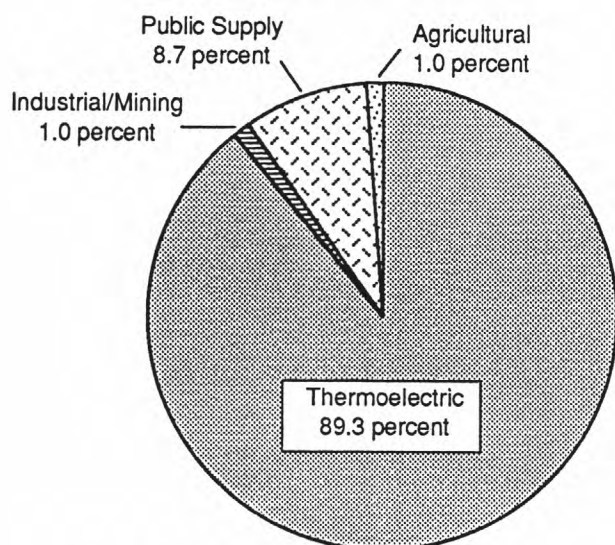


Figure 1.--Major water-use categories and percentage of surface water used in Missouri during 1985.

GROUND WATER

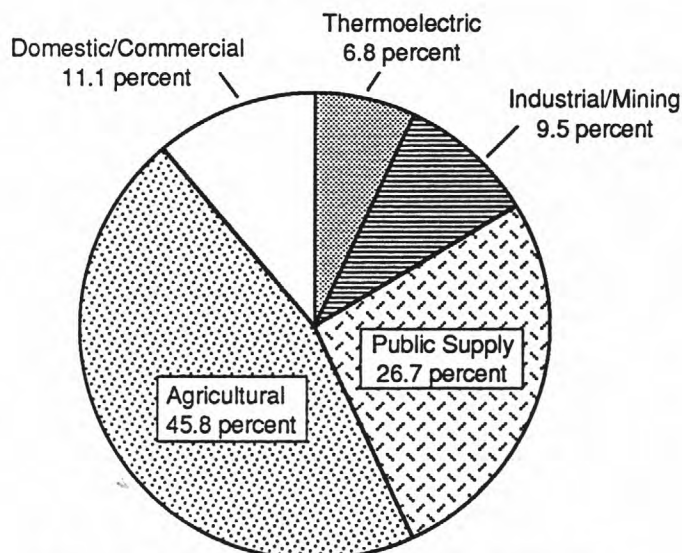


Figure 2.--Major water-use categories and percentage of ground water used in Missouri during 1985.

WATER RESOURCES DATA FOR MISSOURI, 1989

PHYSIOGRAPHY

Missouri has three distinct physiographic areas--the Central Lowland in the north and west, the Mississippi Alluvial Plain, and between them the Ozarks Plateaus (fig. 3).

The Central Lowland includes most of the area north of the Missouri River and a large part of the area south of the river in the western part of the State. Elevations range from about 450 to 1,000 feet above sea level. The area has numerous, wide, flat valleys incised by rivers.

The Ozarks Plateaus in the southern part of the State is wooded, rugged, and has deep, narrow valleys with sharp ridges separating the valleys. Elevations range from about 1,000 to 1,600 feet above sea level.

The Mississippi Alluvial Plain (Bootheel) is a relatively flat area of about 3,000 square miles in the extreme southeast part of the State. Elevations range from about 200 to 300 feet above sea level. The area is well drained and contains excellent farmland.

HYDROLOGIC CONDITIONS

Precipitation was greater than normal in the West Ozarks, East Ozarks, and Mississippi Alluvial Plain (Bootheel) and was less than normal in the remainder of the State during the 1989 water year. The normal precipitation for the standard period 1951-80 ranged from about 36 inches in the northwest to about 47 inches in the southeast. Precipitation data for the six National Weather Service divisions in Missouri are listed in table 1.

Table 1.--*Precipitation and departures from normal, in inches*

National Weather Service Division (fig. 4)	<u>October-March</u>		<u>April-September</u>		<u>Water Year 1989</u>	
	Precipitation	Departure from normal (1951-80)	Precipitation	Departure from normal (1951-80)	Precipitation	Departure from normal (1951-80)
Northwest Prairie	7.66	-3.72	24.74	+0.04	32.40	-3.68
Northeast Prairie	14.35	+0.82	19.84	-2.75	34.19	-1.93
West Central Plains	13.85	-0.16	22.42	-2.05	36.27	-2.21
West Ozarks	20.82	+4.81	22.22	-1.97	43.04	+2.84
East Ozarks	24.35	+6.11	21.35	-1.88	45.70	+4.23
Bootheel	36.17	+13.45	20.31	-3.75	56.48	+9.70

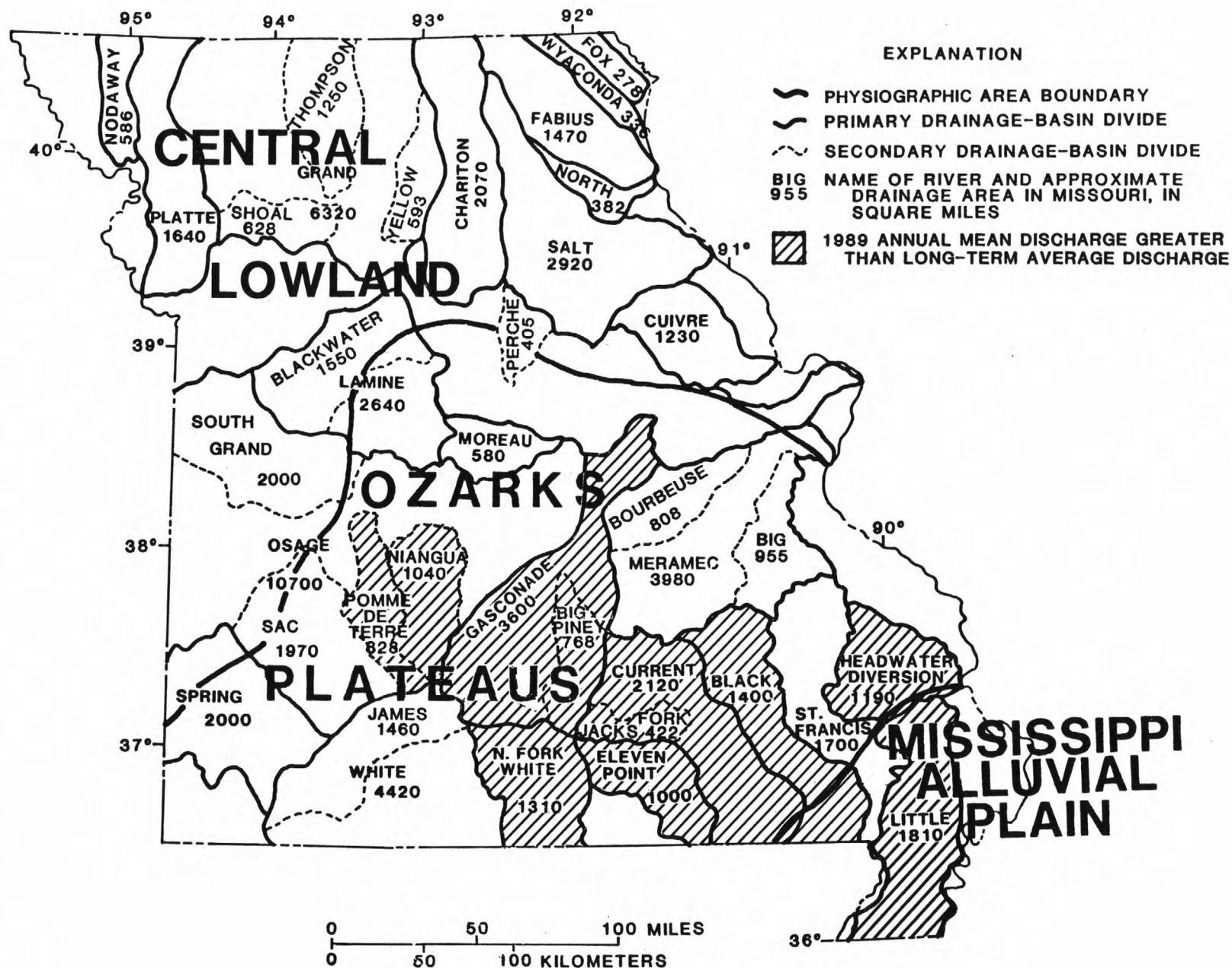


Figure 3.--Major drainage basins, physiographic areas, and areas of greater-than-average discharge during 1989.

WATER RESOURCES DATA FOR MISSOURI, 1989

Streamflow

Streamflow varies in Missouri and generally reflects precipitation patterns unless a stream is regulated. Monthly mean discharges during water year 1989 and long-term monthly mean discharges at representative stations are shown in figure 4. Streamflow reflected precipitation patterns and generally was considerably less than long-term means in northern Missouri throughout most of the year and variable elsewhere.

Peak discharges for water year 1989 are compared to the peak discharges for the period of record at 17 selected gaging stations in table 2. The 7-day average low flow for water year 1989 is compared to the 7-day, 2-year low flow and minimum flow for selected stations in table 3. The 7-day, 2-year low flow is the 7-day average minimum flow with a recurrence interval of 2 years.

Table 2.--*Comparisons of peak discharge for the 1989 water year with those for period of record for selected stations*

Station identification	Peak discharge during <u>1989 water year</u>		Peak discharge for <u>period of record</u>	
	Cubic feet per second	Date	Cubic feet per second	Date
05508000 Salt River near New London	3,600	July 28	107,000	Apr. 22, 1973
05587450 Mississippi River at Grafton, Il.	157,000	Apr. 6	535,000	Apr. 29, 1973
06818000 Missouri River at St. Joseph	161,000	Sept. 10	397,000	Apr. 22, 23, 1952
06893000 Missouri River at Kansas City	196,000	Sept. 10	573,000	July 14, 1951
06893890 East Fork Little Blue River near Blue Springs	36	Sept. 9	11,000	Aug. 13, 1982
06894000 Little Blue River near Lake City	3,490	Sept. 9	42,300	Aug. 13, 1982
06895500 Missouri River at Waverly	193,000	Sept. 11	549,000	July 16, 1951
06897500 Grand River near Gallatin	20,700	Sept. 10	69,100	June 24, 1947
06905500 Chariton River near Prairie Hill	3,990	Sept. 11	31,900	Apr. 23, 1973
06909000 Missouri River at Boonville	217,000	Sept. 12	550,000	July 17, 1951
06934500 Missouri River at Hermann	207,000	Sept. 12, 13	676,000	June 6-7, 1903
07010000 Mississippi River at St. Louis	326,000	Sept. 13	1,019,000	June 10-11, 1903
07016500 Bourbeuse River at Union	9,590	Mar. 22	73,300	Dec. 5, 1982
07018500 Big River at Byrnesville	5,980	Nov. 21	43,000	Nov. 21, 1985
07019000 Meramec River near Eureka	19,500	Apr. 4	145,000	Dec. 6, 1982
07020500 Mississippi River at Chester, Il.	327,000	Sept. 14	886,000	July 3, 1947
07022000 Mississippi River at Thebes, Il.	317,000	Sept. 14, 15	893,000	Apr. 30, 1973 May 27, 1943

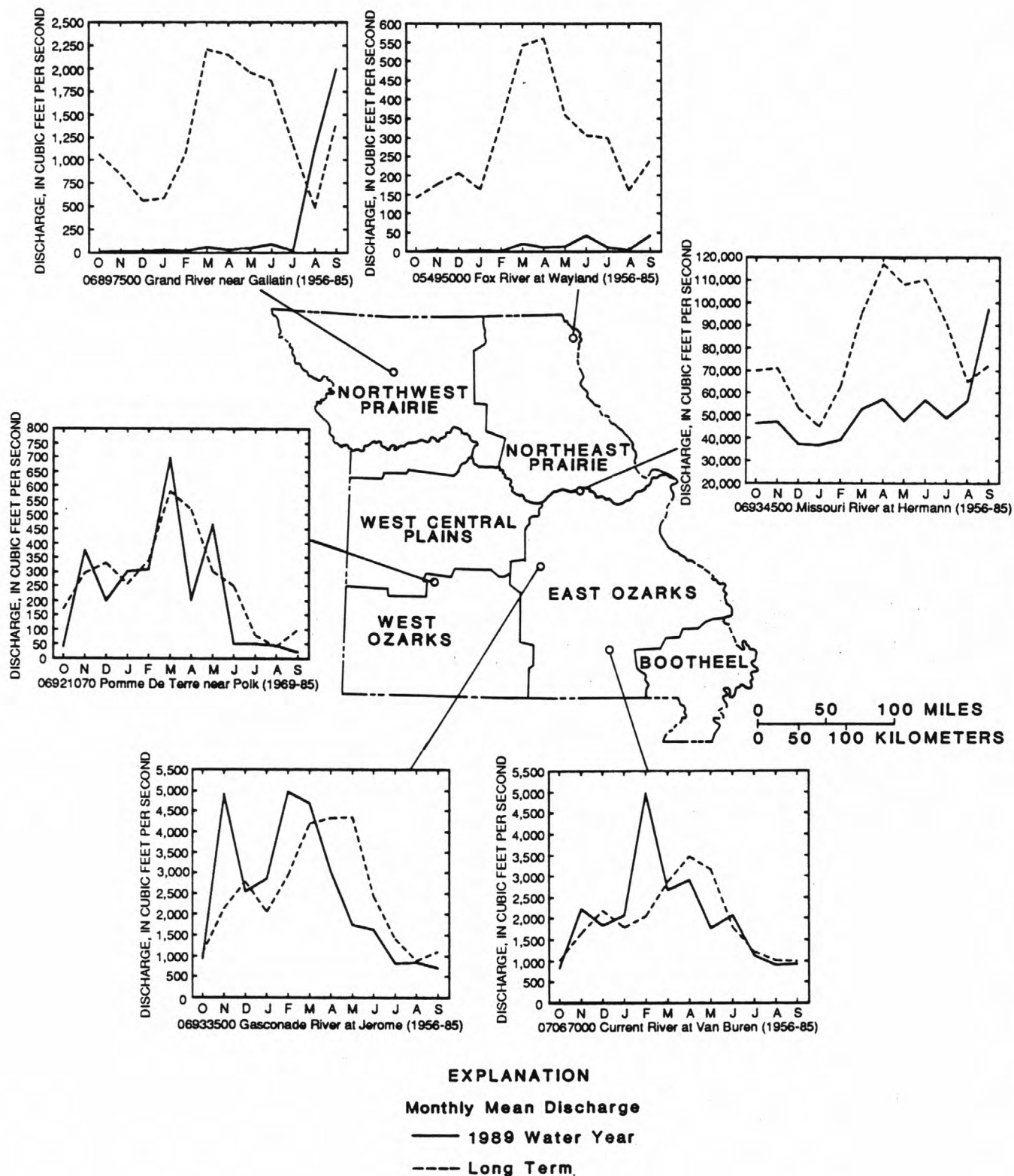


Figure 4.--Comparison of 1989 water-year streamflow to long-term means.

WATER RESOURCES DATA FOR MISSOURI, 1989

Table 3.—*Comparisons of 1989 7-day low flows to 7-day, 2-year low flows and minimum daily flows for the period of record at selected stations*

[Flows in cubic feet per second]

Station identification and period of record (water years) used	Average 7-day <u>low flows</u>		Minimum daily flows for <u>period of record used</u>	
	1989	2-year	Discharge	Years of occurrence
05495000 Fox River at Wayland (1922-85)	0.1	1.3	0	Several years
06813000 Tarkio River at Fairfax (1922-85)	0.2	9.0	0	Several years
06921070 Pomme de Terre River near Polk (1969-85)	6.0	3.0	0.3	1980
07016500 Bourbeuse River at Union (1921-85)	20	32	11	1956
07067000 Current River at Van Buren (1912-85)	757	700	473	1956
07187000 Shoal Creek above Joplin (1942-85)	84	92	12	1954

Chemical Quality of Streamflow

Samples for determining the chemical quality of streamflow were collected at 53 stations in Missouri. Data collected at these stations, in addition to streamflow data, include some or all of the following properties or constituents: water temperature, specific conductance, dissolved oxygen, pH, carbonate, bicarbonate, alkalinity, inorganic constituents, nutrients, trace metals, indicator bacteria, and sediment.

Missouri streams generally are not contaminated by industrial wastes. Localized contamination may occur near urban areas, industrialized centers, agricultural-chemical-use areas, and waste-dump sites. Range of dissolved-solids concentrations in selected streams during water year 1989 is given in the following table:

Station identification	Dissolved-solids concentration (<u>milligrams per liter</u>)	
	Minimum	Maximum
Des Moines River at St. Francisville	269	412
Missouri River at St. Joseph	228	564
Grand River near Sumner	183	343
Missouri River at Hermann	207	459
Center Creek near Cartersville	167	234

WATER RESOURCES DATA FOR MISSOURI, 1989

Daily suspended-sediment samples and data on the particle-size of suspended sediment were collected at 8 stations in Missouri. At three Missouri River stations, point suspended-sediment samples and particle-size data were collected periodically. The following table lists two selected stations in the Central Lowland and Mississippi River at Thebes and their respective daily mean suspended-sediment concentrations during water year 1989:

Station identification	Daily mean suspended-sediment concentration (milligrams per liter)	
	Minimum	Maximum
Middle Fork Salt River at Paris	4	1,010
Salt River near New London	1	340
Mississippi River at Thebes	28	4,920

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the mainstream. 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 on which a station is situated is indicated by an indentation in a list of stations in the front of the report. Each indentation represents one rank. The downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 06909000, which appears just to the left of the station name, includes the 2-digit part number "06" plus the 6-digit downstream-order number "909000".

NUMBERING SYSTEM FOR MISCELLANEOUS SITES

The 8-digit downstream-order station numbers are not assigned to miscellaneous sites where only random water-quality samples or discharge measurements are taken. The miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the miscellaneous sites and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, and the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the sites within a 1-second grid. See figure 5 below.

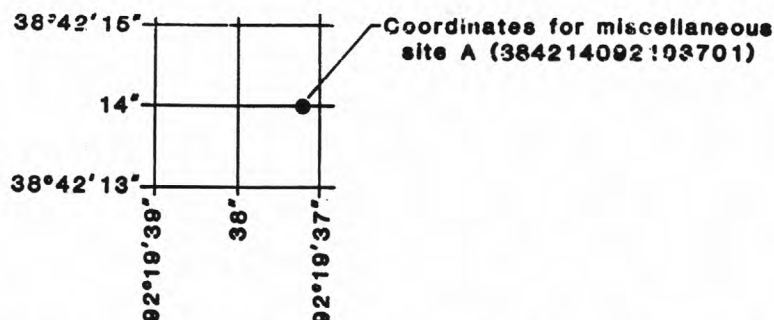


Figure 5.--System for numbering miscellaneous sites (latitude and longitude).

WATER RESOURCES DATA FOR MISSOURI, 1989

SPECIAL NETWORKS AND PROGRAMS

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

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and Computation of Data

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

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

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

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

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

WATER RESOURCES DATA FOR MISSOURI, 1989

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

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

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

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

At the bottom of each page are shown selected summary statistics for the current water year and for the period of record. Included are average flow, highest and lowest annual means, highest and lowest daily means, instantaneous peak flow and peak stage, instantaneous low flow, annual runoff in inches, and the 10, 50, and 95 percentile flows.

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

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

WATER RESOURCES DATA FOR MISSOURI, 1989

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

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "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 and the line headed "IN." expresses the average discharge in inches.

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

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

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

Accuracy of Field Data and Computed Results

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

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

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharge of less than 1 ft³/s; to tenths between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures above 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of 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.

WATER RESOURCES DATA FOR MISSOURI, 1989

Other Data Available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the District Office.

EXPLANATION OF GROUND-WATER RECORDS

Collection and Computation of Data

Measurements of water levels are made 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 15-digit number that appears in the upper left corner of the table. The secondary identification is the well map number and name shown at the beginning of each record.

Water-level records are obtained from direct measurements with a steel tape or M-scope, or from the graph or punched tape of a 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 the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. The method and frequency of measurement is given in the station 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 in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements 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 water levels 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 landline location; and a geographic point of reference.

FORMATIONS OPEN TO THE WELL.--This entry designates by name (if a name exists) and geologic age the formation(s) to which the well is open.

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

WATER RESOURCES DATA FOR MISSOURI, 1989

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

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 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 identifies wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF PROCESSED RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and 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.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. Daily maximum water levels are reported for wells equipped with a recording device. Missing records are indicated by dashes in place of the water level.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

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

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

Water Analysis

Most methods for collecting and analyzing water samples are described in the publications listed in the section "Publications on Techniques of Water-Resources Investigations".

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogenous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

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 bi-hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the District Office.

WATER RESOURCES DATA FOR MISSOURI, 1989

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 daily, the water temperatures are taken at about the same time each day. Large streams have a small daily temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

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

Sediment

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

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

The daily suspended-sediment concentrations at Mississippi River at St. Louis are derived from turbidity readings from the Howard Bend water-treatment plant and the East St. Louis water-treatment plant. Approximately once a week, two depth-integrated verticals are taken to adjust the relation between suspended sediment and turbidity.

DISCONTINUED STREAMFLOW STATIONS

The following continuous-record streamflow stations in Missouri have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected for the period of record shown for each station.

Station number	Station name	Drainage area (mi ²)	Period of record
05497500	Middle Fabius River near Baring	185	1930-61
05500500	North River at Bethel	58.0	1930-73
05503000	Oak Dale Branch near Emden	2.64	1955-75
05503500	North Fork Salt River near Hunnewell	626	1931-40, 1979-88
05506000	Youngs Creek near Mexico	67.4	1930-82
05506190	Middle Fork Salt River at Duncan's Bridge	200	1980-82
05507000	Elk Fork Salt River near Paris	262	1930-54, 1980-82
05507500	Salt River near Monroe City	2230	1939-81
05509700	Calumet Creek near Clarksville	15.7	1965-72
06816000	Mill Creek at Oregon	4.90	1950-76
06817500	Nodaway River near Burlington Junction	1240	1922-83
06818900	Platte River at Ravenwood	486	1921-23, 1924-25, 1928-32, 1958-71
06820000	White Cloud Creek near Maryville	6.06	1948-70
06821000	Jenkins Branch at Gower	2.72	1950-76
06821280	Line Creek at Riverside	19.2	1975-81
06893560	Brush Creek at Main Street in Kansas City	14.8	1970-79
06893600	Rock Creek at Independence	5.20	1967-74
06893670	Shoal Creek at Claycomo	29.8	1975-81
06894500	East Fork Fishing River at Excelsior Spring	20.0	1950-72
06894680	Sni-A-Bar Creek near Tarsney	29.1	1970-79
06895000	Crooked River near Richmond	159	1948-70
06896000	Wakenda Creek at Carrollton	248	1948-70
06896500	Thompson Branch near Albany	5.58	1955-72
06897000	East Fork Big Creek near Bethany	95.0	1934-72
06898100	Thompson River at Mount Moriah	891	1960-77
06898500	Weldon River near Mercer	246	1939-59
06899000	Weldon River at Mill Grove	494	1929-72
06899700	Shoal Creek near Braymer	391	1957-77
06901500	Locust Creek near Linneus	550	1928-72
06902200	West Yellow Creek near Brookfield	135	1959-77
06902500	Hamilton Branch near New Boston	2.51	1955-72
06906350	Thomas Hill Lake near Thomas Hill	147	1966-74
06906470	Middle Fork Chariton River below Salisbury	201	1964-70
06906600	Burge Branch near Arrow Rock	0.33	1959-73
06906700	Flat Creek near Sedalia	148	1958-67
06907000	Lamine River at Clifton City	598	1922-71
06907500	South Fork Blackwater near Elm	16.6	1954-79
06907700	Blackwater River at Valley City	547	1958-73
06908500	Shiloh Branch near Marshall	2.87	1952-65
06909500	Moniteau Creek near Fayette	81	1948-69
06910000	Petite Saline Creek near Boonville	182	1948-67
06910500	Moreau River near Jefferson City	561	1947-74
06918444	Chesapeake Spring at Chesapeake	--	1926, 1932, 1936, 1954, 1963-65, 1965-67, 1968
06918700	Oak Grove Branch near Brighton	1.30	1956-75
06918800	Little Sac River at Aldrich	304	1967-68
06921000	Pomme De Terre River near Bolivar	225	1950-69
06921500	Pomme De Terre River at Hermitage	655	1921-65
06921590	South Grand River at Archie	356	1969-86
06921600	South Grand River at Ulrich	670	1960-69
06921720	Big Creek at Blairstown	414	1960-74
06921740	Brushy Creek near Blairstown	1.15	1960-75
06922000	South Grand River near Brownington	1660	1921-71
06922800	Big Buffalo Creek near Stover	24.2	1965-77
06926200	Van Cleve Branch near Meta	0.75	1956-72
06925200	Starks Creek at Preston	4.18	1956-76

DISCONTINUED STREAMFLOW STATIONS---Continued

Station number	Station name	Drainage area (mi ²)	Period of record
06924000	Niangua River near Decaturville	627	1929-69
06927000	Maries River at Westphalia	257	1947-70
06927200	Big Hollow near Fulton	4.05	1957-72
06927800	Osage Fork Gasconade River at Drynob	404	1962-81
06928000	Gasconade River near Hazlegreen	1250	1928-71
06928200	Laquey Branch near Hazlegreen	1.58	1958-72
06928500	Gasconade River near Waynesville	1680	1914-71
06928700	Beeler Branch near Cabool	7.78	1967-76
06931500	Little Beaver Creek near Rolla	6.45	1947-75
06935500	Loutre River at Mineola	202	1947-67
06936500	Coldwater Creek near St. Louis	43.6	1959-61, 1972-65
07010350	Meramec River at Cook Station	199	1965-81
07010500	Meramec Spring near St. James	--	1903-06, 1921-29, 1965-86
07011500	Green Acre Branch near Rolla	0.62	1947-75
07015000	Bourbeuse River near St. James	21.3	1947-81
07015500	Lanes Fork near Rolla	0.225	1952-71
07016000	Bourbeuse River near Spring Bluff	608	1943-81
07017500	Dry Branch near Bonne Terre	3.35	1955-75
07019690	Sandy Creek near Pevely	32.5	1966-68, 1969-72
07019790	Plattin Creek at Plattin	65.8	1965-72
07020270	Saline Creek near Minnith	82.6	1968-81
07033800	Brewers Creek near Ironton	2.19	1964-66
07035500	Barnes Creek near Fredericktown	3.35	1955-75
07037700	Clark Creek near Piedmont	4.39	1956-76
07041000	Little River Ditch 81 near Kennett	111	1926-79
07042000	Little River Ditch 1 near Kennett	235	1926-79
07043000	Castor River at Aquilla	175	1945-81
07044000	Little River Ditch 251 near Kennett	883	1926-79
07045000	Little River Ditch 66 near Kennett	--	1926-79
07045500	Little River Ditch 66-A near Kennett	--	1927-65
07046000	Little River Ditch 259 near Kennett	89.0	1926-79
07050150	Roaring River Spring near Cassville	--	1965-68
07050580	James River near Strafford	165	1973-86
07052100	Wilsons Creek near Springfield	31.4	1972-82
07052150	Wilsons Creek below Springfield	47.2	1967-72
07052160	Wilsons Creek near Battlefield	55.0	1968-70, 1972-82
07052250	James River near Boaz	462	1972-80
07057800	Hodgson Mill Spring at Sycamore	--	1965-68
07058000	Bryant Creek near Tecumseh	570	1944-85
07064300	Fudge Hollow near Licking	1.72	1956-76
07064400	Montauk Springs at Montauk	--	1964-68
07064500	Big Creek near Yukon	8.36	1949-75
07065000	Round Spring at Round Spring	--	1928-39, 1965-79
07065500	Alley Spring at Alley	--	1928-39, 1965-79
07066500	Current River near Eminence	1272	1921-75
07068250	Middle Fork Little Black River at Grandin	6.85	1980-84
07068300	North Prong Little Black River near Grandin	39.4	1980-84
07068380	Little Black River near Grandin	79.5	1980-84
07068510	Little Black River below Fairdealing	194	1980-86
07068540	Logan Creek at Oxly	37.5	1980-84
07068600	Little Black River at Success, AR	386	1980-86
07068863	Fourche River near Poynor	87.2	1976-83
07070500	Eleven Point River near Thomasville	361	1950-76
07185500	Stahl Creek near Miller	3.86	1950-76
07185700	Spring River at La Russell	306	1947-81
07185765	Spring River at Carthage	425	1966-80
07186600	Turkey Creek near Joplin	41.8	1963-72

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

The following surface-water-quality stations in Missouri have been discontinued or converted to partial-record stations. Water-quality data (daily or periodic samples with collection frequency not less than quarterly) were collected and published for the period of record shown for each station. Discontinued project stations with less than three years of record are not included. Information regarding these stations may be obtained from the District Chief at the address given on the back of the title page of this report.

[Type of record: (B) biological, (C) chemical, (M) microbiological (S) sediment, (T) temperature]

Station number	Station name	Drainage area (mi ²)	Period of record	Type of record
05495000	Fox River at Wayland	400	1967-72	C
05495150	Mississippi River at Canton	--	1969-75	C,T
05498000	Middle Fabius River near Monticello	393	1980-86	S
05500000	South Fabius River near Taylor	620	1972-73, 1979-88	C,M
05501000	North River at Palmyra	373	1972-75	C
05503500	North Fork Salt River near Hunnewell	626	1980-88	S
06821200	Platte River at Platte City	--	1967-75	C
06894100	Missouri River at Sibley	--	1972-75	C,T
06899620	Thompson River near Chillicothe	--	1968-75, 1983-87	C,M
06905500	Chariton River near Prairie Hill	1870	1962-63, 1967-75, 1978-86	B,C,M,T
06906200	East Fork Chariton River near Macon	112	1971-74	C
06906320	East Fork Chariton River near Clifton Hill	--	1963-73	C
06906470	Middle Fork Little Chariton River below Salisbury	201	1983-86	C,M
06906600	Burge Branch near Arrow Rock	0.33	1961-64	S
06908800	Lamine River near Blackwater	2610	1979-86	B,C,M,T
06909000	Missouri River at Boonville	505700	1953-59, 1960-64	T
06916650	Marais Des Cygnes River near Worland	3230	1962-63, 1972-75, 1977-81	C,M
06918440	Sac River near Dadeville	257	1974-78, 1980-82, 1983-87	C,M,T
06918990	Stockton Lake near Stockton	1160	1974-77	T
06921070	Pomme De Terre River near Polk	276	1970-74, 1983-86	C,M,T
06921350	Pomme De Terre River near Hermitage	615	1974-77	T
06921500	Pomme De Terre River at Hermitage	615	1970-78	T
06921600	South Grand River at Ulrich	670	1983-87	C,M
06922200	Tebo Creek at Leesville	--	1978-83	B,C,M,T
06922500	Osage River at Warsaw	11500	1969-78	T
06922800	Big Buffalo Creek near Stover	24.2	1965-77	T
06923700	Niangua River at Bennett Springs	--	1982-88	C,M
06928600	Gasconade River near Hooker	--	1977-86	C,M
06935840	Missouri River near St. Louis	--	1969-74	C,T
07001000	Mississippi River at East St. Louis, IL	--	1969-73	C
07013050	Crooked Creek near Dillard	--	1982-88	C
07016400	Bourbeuse River above Union	808	1963-74, 1983-87	C,M
07018100	Big River near Richwoods (DeSoto)	735	1963-75, 1983-87	C,M
07020850	Mississippi River at Cape Girardeau	--	1969-74	C,T
07021800	Headwater Diversion Channel near Allenville	--	1969-75	C
07040100	St. Francis River at St. Francis, AR	--	1969-75	C
07050750	James River near Nixa	273	1966-75, 1977-80	T
07051600	James River near Wilsons Creek	--	1967-82, 1983-87	C,M
07052100	Wilsons Creek near Springfield	31.4	1972-82	C,T
07052150	Wilsons Creek below Springfield	47.2	1967-70, 1970-72	C,T
07052160	Wilsons Creek near Battlefield	55.0	1972-82	C,T
07052200	James River west of Nixa	440	1962-63, 1965-67	C
07052250	James River near Boaz	462	1967-82, 1983-87	C,M,T
07052340	Finley Creek at Riverdale	--	1967-75	C
07057500	North Fork River near Tecumseh	561	1969-72, 1978-79, 1983-87	C,M

DISCONTINUED SURFACE-WATER-QUALITY STATIONS--Continued

Station number	Station name	Drainage area (mi ²)	Period of record	Type of record
07061500	Black River near Annapolis	484	1969-72	C
07063000	Black River at Poplar Bluff	1245	1983-87	C,M
07063050	Black River below Poplar Bluff	--	1969-75	C
07063300	Main Ditch near Neelyville	--	1969-75	C
07068050	Current River near Doniphan	--	1969-75	C
07068250	Middle Fork Little Black River at Grandin	6.85	1980-84	T
07068300	North Prong Little Black River near Grandin	39.4	1980-84	C,M
07068380	Little Black River near Grandin	79.5	1980-84	C,M,S,T
07068510	Little Black River below Fairdealing	194	1980-86	C,M,S,T
07068540	Logan Creek at Oxly	37.5	1980-84	C,M,S,T
07068550	Little Black River near Naylor	--	1969-75	C
07068600	Little Black River at Success, AR	386	1980-86	C,M,S,T
07068863	Fourche River near Poynor	87.2	1976-83	T
07068867	Fourche River near Middlebrook, AR	--	1969-75	C
07069170	Spring River near Thayer	--	1969-75	C
07071500	Eleven Point River near Bardley	793	1983-87	C,M
07071900	Eleven Point River below Bardley	--	1969-75	C
07186000	Spring River near Waco	1164	1965-75, 1977-78, 1980-81	C
07186600	Turkey Creek near Joplin	41.8	1963-77	C,M
07187000	Shoal Creek above Joplin	427	1968-68, 1979-80, 1981-82	C,M
07187560	Shoal Creek near Galena, KS	--	1968-75	C
07188500	Lost Creek at Seneca	42	1967-75	C
07188820	Little Sugar Creek at Caverna	--	1967-75	C
07189100	Buffalo Creek at Tiff City	--	1967-75	C

WATER RESOURCES DATA FOR MISSOURI, 1989

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 U.S. 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 over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.

* Daily Values Files - Contains over 220 million daily values of streamflow, 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 Data - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemicals characteristics of both surface and ground water.

* Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes 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 provide direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk. 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 offices. (See address on the back of the title page.)

WATER RESOURCES DATA FOR MISSOURI, 1989

DEFINITION OF TERMS

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

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

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

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

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

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

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

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, ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

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

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.

WATER RESOURCES DATA FOR MISSOURI, 1989

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

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

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

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

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

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

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 8-digit number.

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

Micrograms per liter ($\mu\text{g/L}$, $\mu\text{g/L}$) is a unit for expressing the concentration of chemical constituents in solution. Micrograms per liter represent the mass of solute per unit volume (liter) of water.

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

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "mean sea level."

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

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

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

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

WATER RESOURCES DATA FOR MISSOURI, 1989

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

Recurrence interval as applied to floods, is the average number of years within which a given flood peak will be equaled or exceeded once. For example, a 100-year flood discharge will be exceeded on the average of once in 100 years. In terms of probability, there is a 1 percent chance that such a flood will occur in any year.

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 stream are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

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

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

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

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

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

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

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

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

Stage-discharge relation is the relation between gage height (stage) and 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.

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

WATER RESOURCES DATA FOR MISSOURI, 1989

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

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of 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 water year.

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

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

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

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

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

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 soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 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 September 30, 1980, is called "1980 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.

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

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

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

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

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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

DES MOINES RIVER BASIN

05490600 DES MOINES RIVER AT ST. FRANCISVILLE, MO
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 40°27'45", long 91°34'00", Clark County, in SW 1/4, NW 1/4, sec.4, T.65 N., R.6 W., Hydrologic Unit 07100009, at bridge on County Highway B at St. Francisville, and 8 mi upstream from Sugar Creek.

DRAINAGE AREA.--14,300 mi².

PERIOD OF RECORD.--August 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1973 to September 1974, October 1975 to September 1981.

WATER TEMPERATURE: October 1973 to September 1974, October 1975 to September 1981.

SUSPENDED-SEDIMENT: April 1978 to September 1982, April 1983 to current year.

REMARKS.--The number of missing days of record exceeds 20 percent of the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (water years 1976-80): Maximum daily, 1,080 microsiemens, Jan. 25, 1977; minimum daily, 214 microsiemens, Sept. 2, 1980.

WATER TEMPERATURE (water years 1976-80): Maximum daily, 35.0°C, July 6, 1977; minimum, 0.0°C on many days during winter periods.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,010 mg/L, Apr. 13, 1981; minimum daily mean, 4 mg/L, Nov. 25, 1988.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 765,000 tons, Mar. 20, 1982; minimum daily, 10 tons, Nov. 25, 1988.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 524 mg/L, May 29; minimum daily mean, 4 mg/L, Nov. 25.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 21,000 tons, Sept. 11; minimum daily, 10 tons, Nov. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- PER ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	COLI- FORM, FECAL, (PER- CENT UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)
NOV												
02...	0930	610	695	8.60	4.0	2.4	12.2	95	K2	K6	270	99
JAN												
10...	0915	1570	745	8.20	0.0	2.3	14.4	100	K1	K24	320	100
MAR												
09...	1100	2460	677	8.60	0.5	2.5	17.2	120	K1	160	260	74
MAY												
09...	0805	3200	542	8.70	15.5	21	9.8	100	36	K14	210	58
JUL												
12...	0830	2210	409	8.70	27.5	8.2	6.1	79	80	110	140	42
SEP												
06...	0945	1470	483	8.60	23.5	20	8.0	96	92	220	200	76

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV												
02...	54	32	42	4.8	156	--	110	56	0.40	0.54	411	0.56
JAN												
10...	78	30	35	6.1	--	219	94	38	0.30	2.7	372	0.51
MAR												
09...	62	26	33	5.4	192	--	98	43	0.40	1.4	412	0.56
MAY												
09...	44	24	28	5.6	143	--	79	36	0.30	<0.01	318	0.43
JUL												
12...	23	21	25	4.9	86	--	65	34	0.30	2.2	269	0.37
SEP												
06...	48	20	22	5.9	120	--	81	26	0.40	2.8	295	0.40

K--Results based on colony count outside the acceptable range (non-ideal colony count).

DES MOINES RIVER BASIN

05490600 DES MOINES RIVER AT ST. FRANCISVILLE, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 02...	677	0.020	0.550	0.020	0.020	0.50	0.050	0.020	<0.010	40	66	22
JAN 10...	1580	0.010	1.20	0.180	0.270	1.0	0.210	0.110	0.090	16	68	46
MAR 09...	2740	0.020	1.60	--	0.320	0.90	0.310	0.280	0.240	24	159	28
MAY 09...	2750	0.010	0.530	0.020	<0.010	0.60	0.260	0.020	<0.010	180	1560	49
JUL 12...	1610	0.010	<0.100	0.020	0.020	0.90	0.070	0.010	<0.010	58	346	57
SEP 06...	1170	<0.010	0.630	0.010	<0.010	1.3	0.080	0.040	0.030	67	266	79

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 02...	<10	1	93	<0.5	2	<1	<3	2	9	<5
MAY 09...	10	2	68	1	2	<1	<3	8	6	1
JUL 12...	<10	2	55	<0.5	<1	2	<3	9	3	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 02...	20	41	<0.1	<10	3	<1	<1.0	350	<6	<3
MAY 09...	12	<1	<0.1	<10	3	<1	<1.0	220	<6	9
JUL 12...	13	4	<0.1	<10	1	1	<1.0	170	<6	12

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
AUG 09...	0	0	5	27	51	66	77	85	97	100

DES MOINES RIVER BASIN

05490600 DES MOINES RIVER AT ST. FRANCISVILLE, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	1250	---	75	819	---	27	949	---	39
2	1170	---	64	871	40	94	1010	---	55
3	1170	---	64	824	42	93	966	---	40
4	1040	---	50	972	64	168	916	---	34
5	1020	---	47	914	113	279	1010	---	55
6	899	---	33	893	130	313	949	---	39
7	914	---	36	914	123	304	879	5	32
8	913	---	36	935	78	197	905	9	35
9	942	---	39	876	12	28	9000	---	10500
10	1070	---	51	913	10	24	---	---	---
11	998	---	43	968	8	20	---	---	---
12	956	---	39	1100	5	15	---	---	---
13	1470	89	353	990	5	13	---	---	---
14	1900	72	369	976	5	13	1340	---	95
15	1330	61	219	1070	5	14	904	---	35
16	1490	68	274	1040	6	17	1300	---	85
17	1200	78	253	985	10	27	1200	---	70
18	1040	67	188	1460	5	20	1390	---	98
19	991	83	222	1300	11	39	1420	---	109
20	1070	97	280	1080	16	47	1760	---	180
21	853	86	198	1050	17	48	1760	---	180
22	939	34	86	998	16	43	1520	---	128
23	911	---	35	969	15	39	1540	---	130
24	969	---	39	988	10	27	1500	---	120
25	896	---	33	960	4	10	1290	---	82
26	899	---	33	981	16	42	1190	---	66
27	927	---	37	1110	13	39	1450	---	110
28	853	---	29	1010	6	16	1330	---	90
29	865	---	30	1110	5	15	1390	---	100
30	863	---	30	1110	5	15	1410	---	105
31	918	---	36	---	---	---	1690	---	160
TOTAL	32726	---	3321	30186	---	2046	---	---	---
JANUARY			FEBRUARY			MARCH			
1	1440	---	115	1620	---	150	2240	---	325
2	2270	---	340	2800	---	580	2270	---	340
3	2450	---	410	2850	---	600	2220	---	315
4	2050	---	260	3190	---	780	2790	---	560
5	1810	---	200	2820	---	590	3090	---	710
6	1920	---	225	2370	---	380	2780	---	540
7	1850	---	205	2480	---	410	2890	---	610
8	1350	---	95	3320	---	920	2680	---	510
9	1270	---	79	3260	---	850	2470	---	410
10	1500	---	120	2850	---	600	2760	---	545
11	1710	---	170	2650	---	500	2900	46	650
12	1530	---	128	2530	---	440	2770	68	509
13	1400	---	100	2450	---	410	2410	174	1130
14	1580	---	138	2280	---	340	5420	428	6260
15	1510	17	69	2510	---	430	7370	343	6830
16	1230	18	60	2750	---	540	6870	208	3860
17	1500	17	69	2980	---	670	6460	175	3050
18	1530	16	66	2380	---	380	3840	150	1560
19	1450	15	59	2410	---	400	4500	105	1280
20	1520	15	62	2670	---	510	3660	75	741
21	1590	15	64	2680	---	510	3360	48	435
22	1370	15	55	2500	---	430	2690	40	291
23	1310	15	53	2310	---	350	2380	35	225
24	1370	16	59	2270	---	340	3110	42	353
25	1340	13	47	2210	---	320	3350	50	452
26	1350	12	44	2150	---	290	3260	53	467
27	1360	11	40	2230	---	320	3120	62	522
28	1340	10	36	2250	---	330	3180	73	627
29	1330	10	36	---	---	---	3320	63	565
30	1210	---	72	---	---	---	3080	50	416
31	1440	---	110	---	---	---	3080	50	416
TOTAL	47880	---	3586	71770	---	13370	106320	---	35504

DES MOINES RIVER BASIN

05490600 DES MOINES RIVER AT ST. FRANCISVILLE, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4030	237	2580	2380	73	469	5460	281	4140
2	4490	208	2520	2660	78	560	4340	160	1870
3	4480	40	484	3030	93	761	4850	218	2850
4	4250	114	1310	3170	74	633	5750	438	6800
5	4240	80	916	3820	115	1190	4980	461	6200
6	4270	52	600	3820	132	1360	4370	302	3560
7	4120	46	512	3590	117	1130	4480	180	2180
8	3580	52	503	3500	103	973	4390	150	1780
9	3010	27	219	3520	92	874	4270	145	1670
10	2600	15	105	2850	61	469	4230	140	1600
11	1850	11	55	2470	77	514	4180	138	1560
12	1850	7	35	2460	45	299	4110	170	1890
13	1710	6	28	2410	76	495	4030	183	1990
14	1620	8	35	2380	62	398	3920	175	1850
15	1620	12	52	2340	48	303	3890	160	1680
16	1740	13	61	2390	47	303	3480	125	1170
17	1550	19	80	2160	40	233	3230	90	785
18	1740	48	226	2330	135	849	2600	71	498
19	1990	50	269	2160	74	432	2110	72	410
20	1830	31	153	2410	134	872	2110	62	353
21	2170	44	258	2540	87	597	1960	45	238
22	3150	37	315	2050	82	454	1790	32	155
23	2510	27	183	1720	45	209	1690	27	123
24	2210	49	292	1650	81	361	1590	20	86
25	1730	15	70	1770	91	435	1490	30	121
26	1890	16	82	2770	149	1110	1420	42	161
27	1750	17	80	3640	352	3460	1250	80	270
28	2070	22	123	6030	465	7570	2730	260	1920
29	2340	286	1810	9590	524	13600	2880	335	2600
30	2080	141	792	7900	392	8360	3020	280	2280
31	---	---	---	6280	295	5000	---	---	---
TOTAL	78470	---	14748	101790	---	54273	100600	---	52790
JULY			AUGUST			SEPTEMBER			
1	3690	200	1990	1440	74	288	3550	---	1030
2	3710	168	1680	1060	44	126	4510	---	1900
3	3700	160	1600	1240	36	121	3200	---	820
4	3520	178	1690	1090	32	94	2600	---	480
5	2990	152	1230	1060	26	74	2170	---	300
6	2320	89	557	1200	32	104	1800	---	190
7	1710	32	148	1230	25	83	1660	---	155
8	1780	52	250	1020	17	47	1080	---	52
9	1770	49	234	1080	20	58	---	---	---
10	1580	15	64	952	24	62	---	---	---
11	1500	28	113	1130	25	76	19100	---	21000
12	1420	58	222	990	17	45	17700	---	19000
13	1430	100	386	936	13	33	13700	---	18500
14	1430	146	564	977	25	66	7880	---	7400
15	1430	139	537	1080	23	67	4590	---	1900
16	1430	167	645	955	20	52	3750	---	1200
17	1940	192	1010	960	26	67	2850	---	590
18	2600	147	1030	893	22	53	2020	---	260
19	2700	115	838	1100	15	45	2070	---	270
20	2640	128	912	875	15	35	1690	---	160
21	2760	125	931	1010	23	63	1750	---	175
22	3190	130	1120	1090	28	82	1790	---	150
23	2980	120	966	823	29	64	1850	22	110
24	2760	86	641	1220	19	63	1710	22	102
25	2560	68	470	1180	26	83	1570	30	127
26	2470	68	453	1150	29	90	1640	26	115
27	2470	52	347	1220	25	82	1350	12	44
28	1990	28	150	1080	36	105	1140	10	31
29	1640	30	133	1700	---	165	1040	11	31
30	1780	41	197	2620	---	490	1020	11	30
31	2060	60	334	2670	---	550	---	---	---
TOTAL	71950	---	21442	37031	---	3433	---	---	---

05495000 FOX RIVER AT WAYLAND, MO

LOCATION.--Lat 40°23'33", long 91°35'50", in NW 1/4 sec.31, T.65 N., R.6 W., Clark County, Hydrologic Unit 07110001, on left bank 30 ft downstream from bridge on U.S. Highway 136, 0.8 mi west of Wayland, and 5.0 mi downstream from Brush Creek, and at mile 15.2.

DRAINAGE AREA.--400 mi², approximately.

PERIOD OF RECORD.--February 1922 to current year.

REVISED RECORDS.--WSP 785: 1934.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 501.52 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1929, nonrecording gage at bridge 2.8 mi upstream at different datum; Oct. 1, 1929, to June 11, 1936, nonrecording gage, at bridge 90 ft upstream, June 1936 to Aug. 1988 upstream 300 ft. at present datum.

REMARKS.--Estimated daily discharges: Feb. 5-8. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	.07	4.7	4.8	4.5	1.7	6.7	32	95	35	83	9.5
2	3.1	.07	4.4	4.6	4.6	1.8	9.4	18	213	22	27	10
3	1.7	.08	4.3	4.3	4.3	2.1	14	12	68	14	13	9.3
4	.98	.19	4.0	4.1	3.9	17	21	9.4	47	9.4	7.5	9.1
5	.79	.15	3.8	4.4	3.3	63	19	8.5	77	6.4	4.2	9.2
6	2.1	.15	2.9	5.1	2.8	56	14	7.5	97	4.5	2.5	7.7
7	1.9	.14	2.8	7.1	2.5	50	10	6.2	47	3.3	1.4	5.6
8	1.3	.25	2.6	9.5	2.3	61	9.6	5.1	30	2.4	.92	43
9	1.0	1.6	2.5	4.4	2.0	92	8.5	4.9	20	1.5	.62	63
10	.80	2.0	2.4	4.1	1.8	51	7.2	3.9	14	1.0	.41	233
11	.65	1.8	2.5	3.7	1.7	43	5.8	3.9	18	.70	.25	762
12	.53	3.6	2.5	4.4	1.6	40	5.3	3.4	251	2.0	.16	259
13	.39	4.8	2.4	4.2	1.6	43	4.8	2.5	300	1.5	.12	121
14	.32	4.5	2.4	3.3	1.8	42	4.2	5.6	139	85	.09	69
15	.27	4.9	2.1	3.1	1.9	33	3.8	6.4	97	37	.09	44
16	.21	6.9	1.9	3.2	2.3	25	3.6	5.0	49	19	.09	32
17	.16	5.1	2.3	3.4	2.1	20	3.2	4.2	32	11	.08	22
18	.13	4.9	2.5	3.6	2.0	17	2.9	4.0	23	7.8	.06	17
19	.11	4.8	2.7	3.7	2.1	14	3.5	4.1	17	7.7	.09	12
20	.11	4.7	2.6	3.6	2.4	12	3.5	4.4	12	11	.16	9.4
21	.30	10	2.3	3.2	2.5	10	3.2	3.2	9.6	6.6	.17	7.0
22	.26	11	2.5	3.1	3.6	8.5	2.7	17	9.0	6.5	.15	5.2
23	.40	8.8	3.4	2.9	2.0	7.5	2.7	33	27	5.6	.37	3.6
24	.27	7.2	3.3	3.2	1.6	6.6	2.6	21	35	3.5	.63	2.8
25	.16	5.9	2.9	3.8	1.6	5.8	2.8	16	12	2.6	1.1	2.7
26	.12	6.0	3.3	4.4	2.5	5.2	2.8	12	7.0	1.6	1.8	2.3
27	.11	6.2	5.8	4.5	2.2	5.3	2.4	182	5.7	1.1	2.0	1.5
28	.10	5.4	8.4	4.8	1.9	6.7	3.4	92	4.5	.88	1.4	1.1
29	.05	4.7	7.9	5.1	---	6.1	74	50	24	.72	40	1.1
30	.06	4.7	5.6	5.2	---	6.5	60	33	64	5.4	32	1.1
31	.07	---	4.5	4.8	---	6.7	---	23	---	106	15	---
MEAN	.71	4.02	3.49	4.31	2.48	24.5	10.6	20.4	61.5	13.6	7.62	59.2
MAX	3.6	11	8.4	9.5	4.6	92	74	182	300	106	83	762
MIN	.05	.07	1.9	2.9	1.6	1.7	2.4	2.5	4.5	.70	.06	1.1
IN.	.00	.01	.01	.01	.01	.07	.03	.06	.17	.04	.02	.17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	180	174	142	155	322	447	456	303	379	203	115	183
MEAN	180	174	142	155	322	447	456	303	379	203	115	183
MAX	1313	1375	1330	1133	1433	2264	2750	1868	2223	2789	1509	1999
(WY)	1987	1929	1983	1969	1982	1979	1973	1973	1947	1982	1970	1970
MIN	.00	.01	.02	.19	.42	8.56	2.35	1.39	.06	.21	.02	.17
(WY)	1957	1957	1957	1957	1957	1956	1956	1956	1956	1936	1936	1937

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	17.6	255
HIGHEST ANNUAL MEAN		677
LOWEST ANNUAL MEAN		17.6
HIGHEST DAILY MEAN	762	19900
LOWEST DAILY MEAN	.05	.00
INSTANTANEOUS PEAK FLOW	946	26400
INSTANTANEOUS PEAK STAGE	6.12	21.71
INSTANTANEOUS LOW FLOW	0.02	0
ANNUAL RUNOFF (INCHES)	.60	8.65
10 PERCENTILE	42	526
50 PERCENTILE	4.4	37
95 PERCENTILE	.11	.51

WYACONDA RIVER BASIN

05496000 WYACONDA RIVER ABOVE CANTON, MO

LOCATION.--Lat 40°08'32", long 91°33'55", in SW 1/4 SW 1/4 NE 1/4 sec.28, T.62 N., R.6 W., Lewis County, Hydrologic Unit 07110001, on left bank on downstream side of bridge on State Highway 16, 1.9 mi upstream from Sugar Creek, and 2.5 mi west of Canton, and at mile 16.7.

DRAINAGE AREA.--393 mi².

PERIOD OF RECORD.--October 1932 to September 1972, October 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 517.41 ft above National Geodetic Vertical Datum of 1929. Prior to May 1, 1939, nonrecording gage 500 ft downstream at datum 2.00 ft lower. Sept. 25, 1975, to Sept. 17, 1979, nonrecording gage at present site and at datum 2.00 ft lower.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	1.2	3.2	5.2	3.6	3.5	3.6	20	12	12	147	57
2	2.5	1.3	2.8	4.5	3.3	2.8	4.8	14	56	8.1	52	29
3	1.9	1.3	2.4	4.4	3.8	3.4	14	10	91	6.1	26	20
4	1.6	1.7	2.2	4.1	2.5	25	13	9.4	124	4.3	16	15
5	1.2	1.8	2.1	4.6	2.5	12	9.8	7.6	143	3.2	11	11
6	1.0	2.3	1.8	5.4	2.1	8.9	8.5	5.2	49	2.3	7.7	8.5
7	1.3	2.3	1.9	5.9	2.0	20	6.9	3.5	27	1.7	5.3	8.1
8	1.2	2.1	1.9	6.5	1.9	34	6.4	3.1	18	1.3	3.7	44
9	.97	3.4	1.7	4.8	2.0	38	6.9	3.4	13	.93	2.8	50
10	.73	4.6	1.6	3.3	1.8	33	5.9	2.9	9.6	.58	2.4	34
11	.56	3.4	1.5	2.9	1.3	27	4.7	2.5	7.7	.39	1.8	15
12	.57	3.9	1.3	3.2	1.0	18	3.3	2.2	106	.50	1.3	16
13	.55	4.1	1.4	3.4	1.5	15	4.0	1.7	310	.36	.98	27
14	.44	4.1	3.9	2.7	1.3	14	3.0	1.5	95	.39	.80	20
15	.38	4.8	3.3	3.1	1.4	14	2.8	1.3	42	.34	.59	15
16	.36	6.6	3.2	3.0	1.5	11	2.3	1.2	26	.29	.52	11
17	.36	7.3	2.3	2.7	1.5	9.2	2.1	1.4	18	.24	.49	8.2
18	.40	6.3	1.8	2.9	1.6	7.9	2.2	1.6	15	.34	.46	5.8
19	.45	5.5	1.6	2.8	1.6	6.7	2.5	2.7	12	.82	.51	4.8
20	.58	4.4	2.4	3.5	2.3	6.5	2.3	3.2	9.3	1.0	1.6	3.6
21	.89	3.5	2.7	2.8	2.3	5.9	2.2	4.8	7.2	15	.99	2.8
22	.84	2.9	3.8	2.3	2.0	5.2	2.2	2.6	5.4	20	.63	2.1
23	.70	2.8	4.0	2.4	2.1	4.8	3.2	2.0	5.2	3.2	1.9	1.5
24	.66	2.3	4.0	2.5	1.9	3.8	2.5	1.4	5.5	3.4	4.7	1.2
25	.56	2.4	3.6	3.0	1.8	3.6	2.4	2.1	10	3.5	2.1	.90
26	.44	3.4	4.7	3.7	1.7	4.8	2.7	2.5	5.4	2.3	1.5	.79
27	.38	3.9	6.0	3.3	1.9	3.2	4.2	2.0	10	1.4	2.4	.93
28	.54	3.7	7.4	3.4	3.3	9.2	77	2.3	19	2.3	3.3	.95
29	.76	3.7	6.2	4.1	---	7.0	226	11	43	2.2	223	.76
30	.96	3.5	5.7	3.6	---	4.3	43	12	19	66	315	.70
31	1.2	---	6.0	3.3	---	4.0	---	9.2	---	910	145	---
MEAN	.94	3.48	3.17	3.65	2.05	11.8	15.8	4.85	43.8	34.7	31.7	13.9
MAX	4.1	7.3	7.4	6.5	3.8	38	226	20	310	910	315	57
MIN	.36	1.2	1.3	2.3	1.0	2.8	2.1	1.2	5.2	.24	.46	.70
IN.	.00	.01	.01	.01	.01	.03	.04	.01	.12	.10	.09	.04

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	149	160	158	153	345	414	410	329	357	251	125	169
MAX	1677	1463	1399	946	1389	1346	1809	1736	2594	2389	2242	2510
(WY)	1987	1986	1983	1946	1985	1985	1983	1986	1947	1982	1970	1986
MIN	.00	.00	.47	.10	2.05	7.53	3.38	1.69	.66	.02	.00	.02
(WY)	1954	1954	1954	1954	1989	1957	1956	1934	1956	1934	1934	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	14.2	251
HIGHEST ANNUAL MEAN		751
LOWEST ANNUAL MEAN		14.2
HIGHEST DAILY MEAN	910	16500
LOWEST DAILY MEAN	.24	.00
INSTANTANEOUS PEAK FLOW	1550	17700
INSTANTANEOUS PEAK STAGE	10.81	31.33
INSTANTANEOUS LOW FLOW	0.21	0
ANNUAL RUNOFF (INCHES)	.49	8.66
10 PERCENTILE	.22	519
50 PERCENTILE	3.3	29
95 PERCENTILE	.46	.49

05497000 NORTH FABIUS RIVER AT MONTICELLO, MO

LOCATION.--Lat 40°06'30", long 91°42'51", in SW 1/4 SE 1/4 sec.6, T.61 N., R.7 W., Lewis County, Hydrologic Unit 07110002, on right bank upstream from bridge on State Highway 16, 1.0 mi south of Monticello, and 19.0 mi upstream from Middle Fabius River.

DRAINAGE AREA.--452 mi².

PERIOD OF RECORD.--February 1922 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 925: 1937-39(M). WSP 1308: 1922(M), 1924-26(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 540.73 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 22, 1930, nonrecording gage at site 400 ft downstream at datum 0.03 ft lower. Nov. 22, 1930, to Nov. 28, 1967, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Oct. 9 to Nov. 4. Records good except for estimated daily discharges and period with ice effect, Dec. 11 to Mar. 10, which are fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	3.0	7.0	10	2.4	3.9	8.7	5.8	17	28	17	225
2	3.3	3.1	6.3	9.5	2.3	4.6	12	5.7	15	20	13	116
3	3.3	3.5	5.5	9.3	2.2	5.3	17	4.6	29	15	20	55
4	3.4	4.2	5.7	8.4	1.9	18	18	4.2	147	12	13	32
5	3.2	5.4	5.9	9.9	1.6	6.1	15	4.5	216	9.1	9.4	23
6	2.7	6.3	5.9	13	1.5	7.3	13	3.7	97	7.2	6.6	20
7	2.4	8.5	5.8	11	1.4	18	10	2.9	53	6.0	4.7	18
8	2.3	8.4	5.7	9.0	1.8	22	8.9	2.7	33	5.1	3.8	34
9	1.9	7.8	6.8	6.6	1.5	37	8.1	3.4	23	4.2	2.8	146
10	1.4	8.4	6.0	4.7	1.7	67	7.3	2.5	18	3.5	2.4	45
11	1.4	8.4	5.3	5.1	2.0	41	8.1	2.0	15	2.7	1.9	26
12	1.3	9.1	3.4	5.8	2.3	31	6.7	2.0	114	3.4	1.4	22
13	1.1	10	2.3	5.1	3.2	27	6.0	1.9	320	16	1.1	35
14	.98	12	2.1	5.4	4.0	27	5.6	1.7	118	202	.93	37
15	.90	9.8	1.5	5.9	3.9	24	5.6	1.3	60	81	.64	24
16	.90	12	.58	5.4	4.2	21	4.8	1.2	36	33	.75	19
17	1.0	10	.51	6.7	2.8	18	4.2	1.0	25	19	.51	14
18	1.1	10	.74	7.8	2.7	16	4.0	1.0	21	14	.20	12
19	1.5	10	.74	4.6	1.9	15	4.1	2.2	18	13	.30	9.4
20	2.1	9.2	.90	3.1	1.2	14	3.7	2.5	15	12	2.7	8.0
21	2.1	8.4	2.2	5.0	1.1	13	3.1	1.8	12	16	2.8	7.1
22	1.8	7.8	3.1	1.8	3.0	12	2.9	2.0	11	14	2.1	6.7
23	1.6	7.5	2.8	1.3	2.9	11	2.6	1.6	12	12	3.4	5.9
24	1.4	7.5	2.1	1.2	2.6	11	2.7	1.3	17	7.6	3.2	4.8
25	1.2	7.5	5.4	1.2	2.3	9.7	2.7	2.6	8.8	5.8	3.1	3.9
26	.98	8.6	3.7	1.6	2.4	9.1	3.0	3.2	7.4	13	3.6	3.6
27	1.3	9.1	4.3	1.5	3.2	8.9	4.6	2.7	21	10	3.9	3.4
28	1.7	9.4	10	1.3	3.9	13	102	24	253	7.1	7.0	3.1
29	2.2	8.4	4.5	2.1	---	12	17	35	127	6.8	363	2.7
30	2.7	7.1	7.5	2.3	---	10	7.8	24	54	235	144	2.2
31	2.8	---	9.3	2.2	---	9.3	---	19	---	91	406	---
MEAN	1.94	8.01	4.31	5.41	2.42	17.5	10.6	5.61	63.8	29.8	33.7	32.1
MAX	4.2	12	10	13	4.2	67	102	35	320	235	406	225
MIN	.90	3.0	.51	1.2	1.1	3.9	2.6	1.0	7.4	2.7	.20	2.2
IN.	.00	.02	.01	.01	.01	.04	.03	.01	.16	.08	.09	.08

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	199	196	177	193	349	465	518	363	412	270	125	193
MEAN	1496	1347	1521	1679	1346	2336	3171	2149	3148	3131	2149	1966
MAX	1987	1929	1983	1974	1937	1979	1973	1973	1947	1982	1970	1970
(WY)	.01	1.06	.73	.14	2.42	7.91	7.15	1.71	.07	.00	.00	.51
MIN	1957	1957	1957	1940	1989	1956	1956	1934	1934	1934	1934	1953
(WY)												

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	18.0	288
HIGHEST ANNUAL MEAN		830
LOWEST ANNUAL MEAN		18.0
HIGHEST DAILY MEAN	406	17900
LOWEST DAILY MEAN	.20	.00
INSTANTANEOUS PEAK FLOW	576	20700
INSTANTANEOUS PEAK STAGE	8.91	33.03
INSTANTANEOUS LOW FLOW	0.16	0
ANNUAL RUNOFF (INCHES)	.54	8.65
10 PERCENTILE	30	562
50 PERCENTILE	5.5	45
95 PERCENTILE	.98	1.2

FABIUS RIVER BASIN

05498000 MIDDLE FABIUS RIVER NEAR MONTICELLO, MO

LOCATION.--Lat 40°05'37", long 91°44'08", in SE 1/4 sec.12, T.61 N., R.8 W., Lewis County, Hydrologic Unit 07110002, on left bank on downstream end of bridge pier on State Highway 16, 2.5 mi southwest of Monticello, 8 mi downstream from Radish Branch, and 17 miles upstream from mouth.

DRAINAGE AREA.--393 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 540.46 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 4, 1967, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 17, 1945, reached a stage of 23.3 ft, from floodmarks.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.13	4.9	3.5	4.9	2.4	2.8	3.5	5.7	33	524	146
2	.00	.23	4.7	3.5	2.1	2.5	4.9	4.4	2.8	22	117	67
3	.08	.36	3.9	3.3	2.0	3.5	10	3.0	2.0	15	51	39
4	.06	.66	2.7	2.7	1.6	16	11	2.4	4.6	10	29	26
5	.00	.80	3.4	3.5	1.4	12	9.2	2.5	30	7.2	19	18
6	.00	1.2	3.7	3.7	1.3	11	7.0	2.0	80	5.8	13	15
7	.00	1.5	3.7	3.8	1.3	8.4	6.0	1.5	34	4.6	9.3	12
8	.00	1.6	3.4	2.7	1.4	16	5.6	1.3	21	3.7	7.1	17
9	.00	2.0	3.4	2.8	1.4	28	5.1	1.3	15	2.9	5.4	156
10	.00	2.8	3.4	3.1	1.2	26	4.5	1.5	10	2.5	4.1	48
11	.00	3.1	2.9	2.9	1.3	22	5.1	1.1	8.1	2.2	3.0	18
12	.00	5.5	2.7	2.7	1.5	18	3.7	.80	11	2.6	1.6	11
13	.00	6.2	2.7	2.2	1.8	14	3.3	.60	69	2.5	1.6	19
14	.00	6.3	3.0	2.4	1.8	11	3.0	.63	105	1.8	1.6	22
15	.00	7.8	2.8	2.5	2.1	9.6	2.9	.68	47	3.2	1.1	16
16	.00	9.9	2.2	2.2	2.0	8.0	2.8	.58	29	36	1.0	11
17	.00	6.6	2.0	2.5	2.0	7.2	4.9	.49	20	25	.86	8.4
18	.00	4.7	2.0	2.4	2.1	6.6	3.2	.47	16	18	.82	7.1
19	.00	4.6	2.1	2.3	2.5	5.9	2.8	.95	12	14	.74	6.2
20	.00	4.9	2.8	2.4	2.6	5.5	2.7	.78	9.5	11	1.2	5.6
21	.01	4.1	2.6	2.2	2.6	4.7	2.7	.46	7.3	22	1.1	4.8
22	.00	3.7	2.6	2.4	2.6	4.4	2.6	.67	6.0	20	.95	4.0
23	.10	3.4	2.7	2.3	3.0	4.1	2.5	.27	8.1	18	3.8	3.4
24	.10	3.4	2.6	2.0	2.7	3.5	2.6	.36	9.0	5.7	2.7	3.4
25	.11	5.2	2.5	2.3	2.5	3.6	3.3	1.4	7.1	4.5	2.1	2.9
26	.07	6.1	4.7	2.7	2.6	3.9	3.8	2.4	11	3.4	2.1	2.4
27	.08	5.4	7.2	2.3	2.5	4.4	4.9	1.7	29	2.8	4.6	2.2
28	.08	5.0	4.3	2.7	2.6	6.6	9.6	1.6	20	17	7.4	1.8
29	.10	5.3	7.6	3.0	---	6.0	6.2	1.9	83	9.7	1000	1.7
30	.10	5.2	4.4	3.5	---	4.8	4.0	1.9	64	151	977	1.8
31	.13	---	3.7	3.8	---	3.8	---	2.7	---	567	653	---
MEAN	.034	3.92	3.46	2.78	2.12	9.14	4.76	1.48	25.9	33.7	111	23.2
MAX	.13	9.9	7.6	3.8	4.9	28	11	4.4	105	567	1000	156
MIN	.00	.13	2.0	2.0	1.2	2.4	2.5	.27	2.0	1.8	.74	1.7
IN.	.00	.01	.01	.01	.01	.03	.01	.00	.07	.10	.33	.07

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	182	169	167	207	326	478	489	351	311	281	113	164
MEAN	1368	1481	1418	1179	1359	1521	2719	1679	2582	2149	1758	1815
MAX	(WY) 1987	1986	1983	1969	1969	1979	1973	1973	1947	1981	1970	1970
MIN	.00	.00	.11	.31	1.23	6.32	3.83	1.48	1.04	.78	.56	.09
(WY)	1954	1954	1957	1957	1957	1957	1956	1989	1956	1988	1988	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	18.7	269
HIGHEST ANNUAL MEAN	749	1973
LOWEST ANNUAL MEAN	18.7	1989
HIGHEST DAILY MEAN	1000	15100
LOWEST DAILY MEAN	.00	Several Years
INSTANTANEOUS PEAK FLOW	1600	17700
INSTANTANEOUS PEAK STAGE	9.79	27.14
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	.65	9.30
10 PERCENTILE	21	601
50 PERCENTILE	3.3	39
95 PERCENTILE	.01	1.1

FABIUS RIVER BASIN

35

05500000 SOUTH FABIUS RIVER NEAR TAYLOR, MO

LOCATION.--Lat 39°53'49", long 91°34'49", in SW 1/4 NW 1/4 sec.21, T.59 N., R.6 W., Marion County, Hydrologic Unit 07110003, on right bank at downstream side of county highway bridge, 4.5 mi southwest of Taylor, 5.0 mi downstream from Grassy Creek, and 5.3 mi upstream from confluence with North Fabius River.

DRAINAGE AREA.--620 mi².

PERIOD OF RECORD.--October 1934 to current year. Prior to December 1934 monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 825: 1936.

GAGE.--Water-stage recorder. Datum of gage is 482.91 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 14, 1936, nonrecording gage at bridge 4.0 mi downstream at datum 21.94 ft lower. May 14, 1936, to Dec. 2, 1940, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1928 reached a stage of 18.49 ft, from floodmarks, at present site and datum.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	.55	4.8	6.6	5.2	5.6	6.1	3.3	7.7	3.3	1230	342
2	1.4	.54	4.4	5.9	4.9	5.5	9.7	3.2	6.5	2.3	360	162
3	.94	.54	4.1	5.3	5.7	7.1	20	2.9	6.5	2.1	150	102
4	.67	.59	4.0	4.9	4.8	25	68	2.9	6.1	2.0	91	70
5	.50	.63	3.8	5.0	5.3	53	62	2.9	5.4	1.4	66	53
6	.43	.66	3.8	6.1	5.1	70	42	3.3	8.9	1.2	49	46
7	.38	.65	3.6	7.1	4.8	56	28	3.2	11	1.4	35	39
8	.35	.61	3.3	6.6	4.2	30	20	3.0	12	1.3	26	47
9	.37	.86	3.2	5.9	4.3	22	15	3.6	9.4	1.2	19	143
10	.44	1.3	3.0	6.2	3.7	18	12	3.5	7.7	1.4	15	160
11	.47	1.4	2.8	5.6	3.3	16	10	2.7	6.7	1.2	11	101
12	.47	2.6	2.7	5.4	3.3	15	9.4	2.2	8.4	1.8	9.0	76
13	.47	2.6	2.9	4.7	3.4	15	8.5	1.8	7.7	1.6	7.4	63
14	.52	3.1	3.2	4.3	3.8	15	7.9	1.7	5.8	1.3	5.9	57
15	.50	4.0	3.4	4.1	4.2	12	7.7	1.7	4.8	1.1	5.0	49
16	.47	6.6	3.2	4.0	4.3	11	7.0	1.6	4.3	1.1	4.3	46
17	.49	12	3.1	3.9	4.0	9.7	6.3	1.5	3.5	.92	4.0	33
18	.54	6.0	4.0	3.8	4.0	9.4	6.1	1.7	3.1	1.2	3.1	23
19	.54	4.6	3.8	3.8	4.3	8.6	5.9	2.6	3.0	.98	2.9	16
20	.57	4.6	3.8	3.6	4.7	8.5	5.7	2.3	2.6	23	2.6	13
21	.67	4.3	3.8	3.4	5.0	8.1	5.3	2.5	2.3	89	2.4	11
22	.65	4.0	4.2	3.3	9.3	7.4	4.6	2.4	2.2	52	2.2	10
23	1.0	3.6	4.9	3.3	6.6	6.9	4.4	2.2	2.0	28	1.9	8.5
24	.87	3.3	5.2	3.3	5.3	6.5	4.4	2.0	1.9	17	1.7	6.8
25	.86	3.2	4.7	3.7	4.6	6.0	4.2	22	1.9	16	1.4	6.1
26	.83	5.4	5.1	4.0	4.9	5.9	4.0	37	2.0	16	1.4	5.4
27	.70	7.1	7.9	4.0	5.3	5.7	4.5	37	4.4	14	2.2	4.8
28	.64	6.7	13	3.9	5.6	6.4	4.6	31	9.9	11	4.5	3.9
29	.56	5.4	12	4.2	---	6.8	4.4	23	11	14	248	3.4
30	.51	5.1	8.9	4.4	---	6.1	3.7	14	5.7	20	1700	3.4
31	.48	---	7.4	5.3	---	5.9	---	9.6	---	618	1440	---
MEAN	.64	3.42	4.77	4.70	4.78	15.6	13.4	7.56	5.81	30.5	177	56.8
MAX	1.5	12	13	7.1	9.3	70	68	37	12	618	1700	342
MIN	.35	.54	2.7	3.3	3.3	5.5	3.7	1.5	1.9	.92	1.4	3.4
IN.	.00	.01	.01	.01	.01	.03	.02	.01	.01	.06	.33	.10

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	284	275	252	286	510	716	744	593	498	354	171	201
MAX	2690	3103	2137	2000	2340	2659	3989	3437	3891	2877	2335	2841	
(WY)	1987	1986	1983	1965	1982	1973	1973	1935	1947	1969	1970	1970	
MIN	.00	.00	1.52	2.12	4.78	15.0	13.4	7.56	5.68	.71	.00	.39	
(WY)	1957	1957	1957	1954	1989	1956	1989	1989	1977	1988	1936	1953	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	27.4	397
HIGHEST ANNUAL MEAN		1105
LOWEST ANNUAL MEAN		27.4
HIGHEST DAILY MEAN	1700	18800
LOWEST DAILY MEAN	.35	.00
INSTANTANEOUS PEAK FLOW	2420	19700
INSTANTANEOUS PEAK STAGE	6.46	19.5
INSTANTANEOUS LOW FLOW	0.35	0
ANNUAL RUNOFF (INCHES)	.60	8.71
10 PERCENTILE	.36	937
50 PERCENTILE	4.7	57
95 PERCENTILE	.45	1.7

NORTH RIVER BASIN

05501000 NORTH RIVER AT PALMYRA, MO

LOCATION.--Lat 39°49'06", long 91°31'13", in SE 1/4 SW 1/4 sec.13, T.58 N., R.6 W., Marion County, Hydrologic Unit 07110004, on right bank 100 ft upstream from City Waterworks dam, 1,000 ft upstream from upstream bridge on dual U.S. Highways 24 and 61, 0.5 mi north of Palmyra, and 7.0 mi upstream from mouth.

DRAINAGE AREA.--373 mi².

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 464.81 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1945, nonrecording gage at bridge 1,000 ft downstream; Oct. 1, 1945, to June 22, 1951, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage prior to 1934, about 28.0 ft, from floodmarks, date unknown, at site 1,000 ft downstream, present datum.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.6	6.9	10	7.1	9.2	21	7.6	26	6.1	218	85
2	1.6	1.6	6.1	9.6	7.1	9.5	21	6.9	19	4.2	86	49
3	.90	1.6	5.7	9.1	6.9	15	125	6.3	15	3.1	42	32
4	.69	1.9	5.4	8.5	6.4	102	324	6.4	14	2.3	25	21
5	.85	1.8	5.1	9.0	6.1	106	131	6.5	12	1.7	17	16
6	.86	1.8	5.0	11	5.8	68	71	6.2	9.7	1.2	12	15
7	.76	2.0	5.0	20	5.5	59	49	5.9	7.5	.94	9.5	13
8	.86	2.2	5.4	16	5.2	44	40	5.6	6.1	.65	6.7	22
9	1.2	2.7	5.1	13	4.9	34	33	5.3	5.7	.41	4.9	524
10	1.3	4.3	5.0	12	4.8	29	26	5.0	5.2	.23	4.1	239
11	1.3	4.4	4.7	11	4.9	26	21	4.6	4.4	.12	3.2	104
12	1.7	8.5	4.4	9.7	5.0	25	18	4.1	5.4	.38	2.1	69
13	2.0	13	4.1	9.0	5.8	27	16	3.7	20	.95	1.8	41
14	2.2	13	4.1	8.5	6.1	26	15	3.4	17	.72	1.3	30
15	2.3	10	4.0	8.1	6.8	31	15	3.5	9.4	.52	1.2	28
16	2.5	9.4	3.7	7.5	6.8	29	13	3.4	6.7	.62	1.7	22
17	2.6	6.9	3.7	8.1	6.6	26	12	3.6	5.2	.31	1.3	15
18	2.5	6.4	3.7	7.4	6.4	23	11	4.1	4.6	.20	.72	10
19	2.4	7.4	3.8	6.7	6.4	23	11	5.3	4.6	.51	.43	7.2
20	2.8	6.2	4.2	6.2	7.0	26	10	5.1	3.4	.57	.33	5.8
21	3.4	4.7	4.2	5.8	7.4	28	9.6	4.8	2.8	1.1	.30	4.6
22	2.9	3.9	5.2	5.7	7.1	26	9.1	4.5	2.8	2.0	.73	4.0
23	.48	3.6	6.7	5.7	6.6	26	8.8	3.9	2.7	1.6	.72	4.0
24	.66	3.5	7.1	5.6	6.6	26	8.6	3.4	3.0	1.1	.97	3.3
25	.73	3.3	6.8	5.9	6.4	26	9.0	15	26	1.0	1.0	3.8
26	.92	5.5	7.6	6.2	6.5	24	9.1	127	18	3.0	.75	4.4
27	1.1	6.6	11	6.3	7.0	18	11	64	12	2.1	.55	4.4
28	1.2	8.3	13	6.0	8.1	14	10	33	7.8	1.4	1.8	4.5
29	1.2	9.4	14	6.7	---	14	12	28	5.2	1.7	1560	4.7
30	1.3	8.3	14	7.4	---	16	9.4	51	6.2	101	422	4.7
31	1.5	---	12	7.2	---	25	---	44	---	236	177	---
MEAN	1.58	5.46	6.35	8.67	6.33	31.6	36.0	15.5	9.58	12.2	84.0	46.3
MAX	3.4	13	14	20	8.1	106	324	127	26	236	1560	524
MIN	.48	1.6	3.7	5.6	4.8	9.2	8.6	3.4	2.7	.12	.30	3.3
IN.	.00	.02	.02	.03	.02	.10	.11	.05	.03	.04	.26	.14

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	168	176	175	184	316	455	473	407	315	235	107	125
MEAN	168	176	175	184	316	455	473	407	315	235	107	125
MAX	1742	2639	1832	991	1720	2783	2691	2249	2296	2045	1357	1351
(WY)	1987	1986	1983	1969	1982	1973	1973	1935	1947	1969	1970	1970
MIN	.00	.00	.23	.66	.92	6.54	31.7	15.5	4.77	.52	.00	.17
(WY)	1957	1957	1957	1954	1954	1956	1936	1989	1936	1936	1936	1940

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	22.1	257
HIGHEST ANNUAL MEAN		748
LOWEST ANNUAL MEAN		22.1
HIGHEST DAILY MEAN	1560	32600
LOWEST DAILY MEAN	.12	.00
INSTANTANEOUS PEAK FLOW	3350	57500
INSTANTANEOUS PEAK STAGE	13.76	29.70
INSTANTANEOUS LOW FLOW	0.08	0
ANNUAL RUNOFF (INCHES)	.80	9.35
10 PERCENTILE	31	457
50 PERCENTILE	5.9	37
95 PERCENTILE	.71	1.3

MISSISSIPPI RIVER MAIN STEM

05501600 MISSISSIPPI RIVER AT HANNIBAL, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 39°43'26", long 91°21'44", Marion County, Hydrologic Unit 07110004, at railroad bridge upstream from Highway 36 bridge at Hannibal, Mo.

PERIOD OF RECORD.--Water years 1982 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT										
13...	0800	430	8.60	14.0	8.2	79	26	K24	200	40
NOV										
02...	1230	442	8.60	8.0	9.2	79	30	K8	--	--
DEC										
06...	0715	431	9.10	3.0	12.2	92	25	K2	--	--
JAN										
10...	1500	424	9.20	0.5	17.5	123	41	K14	220	71
FEB										
08...	0915	457	8.90	1.0	--	--	22	K4	--	--
MAR										
09...	0800	465	8.90	1.5	14.8	106	25	K8	--	--
APR										
03...	1410	370	8.10	8.5	9.5	83	36	550	140	0
MAY										
08...	1315	347	8.80	13.5	9.1	89	18	45	--	--
JUN										
06...	0700	370	8.20	23.5	4.2	50	42	38	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
13...	43	23	17	2.8	162	0.7	34	27	0.10	245
NOV										
02...	--	--	--	--	174	0.8	--	--	--	235
DEC										
06...	--	--	--	--	164	0.2	--	--	--	242
JAN										
10...	52	23	18	2.7	154	0.1	30	20	0.10	254
FEB										
08...	--	--	--	--	182	0.3	--	--	--	272
MAR										
09...	--	--	--	--	178	0.3	--	--	--	274
APR										
03...	35	13	14	4.4	142	2.2	31	18	0.10	227
MAY										
08...	--	--	--	--	125	0.2	--	--	--	212
JUN										
06...	--	--	--	--	128	1.6	--	--	--	210

K--Results based on colony count outside the acceptable range (non-ideal colony count).

05501600 MISSISSIPPI RIVER AT HANNIBAL, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L) AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L) AS N) (00610)	PHOS- PHOROUS TOTAL (MG/L) AS P) (00665)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L) AS AL) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L) AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L) AS CD) (01025)	COPPER, TOTAL RECOV- ERABLE (UG/L) AS CU) (01042)	COPPER, DIS- SOLVED (UG/L) AS CU) (01040)
OCT 13...	3	0.300	<0.010	0.150	260	<10	<1	<1	22	3
NOV 02...	15	0.200	0.160	0.170	380	<10	--	--	--	--
DEC 06...	16	0.400	0.020	0.160	260	<10	--	--	--	--
JAN 10...	18	0.500	0.030	0.090	80	--	1	--	90	--
FEB 08...	13	1.10	<0.010	0.190	150	<10	--	--	--	--
MAR 09...	16	1.40	0.030	0.130	190	<10	--	--	--	--
APR 03...	21	1.50	0.660	0.160	2200	<10	<1	<1	10	20
MAY 08...	22	0.500	0.030	0.130	490	<10	--	--	--	--
JUN 06...	47	0.600	0.130	0.140	1700	10	--	--	--	--

[illegible]

05502000 BEAR CREEK AT HANNIBAL, MO

LOCATION.--Lat 39°40'43", long 91°24'41", in SE 1/4 NW 1/4 sec. 1, T.56 N., R.5 W., Ralls County, Hydrologic Unit 07110004, at bridge on Industrial Drive over Bear Creek, on right downstream bank at Hannibal, and 4.65 mi upstream from mouth.

DRAINAGE AREA.--31.0 mi².

PERIOD OF RECORD.--October 1938 to September 1942, October 1947 to current year in reports of Geological Survey. Monthly discharge only for some periods, published in WSP 1308. October 1936 to November 1938 (gage heights and discharge measurements only) in reports of Missouri Geological Survey.

REVISED RECORDS.--WSP 1115: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 508.91 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 26, 1948, nonrecording gage, water-stage recorder Mar. 26, 1948, to Sept. 30, 1953, at datum 2.00 feet higher and Oct. 1, 1953, to Oct. 30 1961, at present datum. Oct. 31, 1961, to Sept. 5, 1972, water-stage recorder 400 ft downstream at present datum. Sept. 6, 1972, to July 2, 1986, water-stage recorder 525 ft upstream at present datum.

REMARKS.--Estimated daily discharges: July 17 to Aug. 15. Records fair except those above 95 ft³/s, which are poor. High flow regulated by Bear Creek flood control reservoir, 1.0 mi upstream, since Aug. 7, 1961. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.83	.88	1.8	1.8	1.9	3.1	.82	1.9	.09	11	5.9
2	.00	.99	.82	1.7	1.4	1.9	13	.82	1.7	.07	4.0	2.9
3	.00	.99	.81	1.7	1.2	15	41	.81	1.7	.05	1.9	1.8
4	.00	.63	.72	1.5	1.2	35	50	1.0	1.5	.04	1.1	1.4
5	.00	.47	.67	3.6	2.1	10	27	.93	1.2	.03	.60	1.3
6	.00	.55	.67	8.1	3.1	5.1	7.8	.69	.98	.00	.33	1.4
7	.00	.55	.67	5.1	1.7	3.5	6.6	.64	.88	.00	.21	1.6
8	.00	.52	.67	2.9	1.4	3.0	5.7	.60	.82	.00	.15	1.9
9	.00	1.2	.62	1.7	1.2	2.9	4.3	.67	1.2	.00	.09	102
10	.00	2.2	.61	1.6	1.6	2.9	3.4	.64	1.1	.00	.05	185
11	.00	1.1	.61	1.7	1.5	2.9	3.1	.70	1.1	.00	.04	71
12	.00	3.4	.50	1.9	1.3	2.9	3.1	.89	5.8	.00	.02	8.5
13	.00	2.1	.59	1.5	1.9	2.9	2.7	.75	2.0	.00	.02	6.4
14	.00	.88	.67	1.6	2.1	2.8	2.6	.69	1.1	.00	.01	6.3
15	.00	1.8	.65	1.6	1.9	2.2	2.4	.67	.99	.00	.00	5.6
16	.01	2.1	.54	1.4	1.5	1.8	2.1	.61	.96	.00	.00	4.5
17	.18	1.2	.57	1.5	1.5	2.0	1.8	.60	.76	.05	.00	3.6
18	.05	.76	.57	1.4	1.4	2.1	2.1	.55	.80	2.3	.00	3.0
19	.01	.67	.70	1.3	1.4	1.9	2.2	.71	.77	56	.00	2.3
20	.10	.75	.88	1.3	1.8	4.0	1.6	.91	.58	55	.00	2.1
21	.13	.63	.70	1.2	2.0	4.4	1.6	.74	.42	31	.04	2.1
22	.20	.56	3.5	1.2	1.4	3.5	1.4	.66	.37	42	.28	1.8
23	.19	.55	3.8	1.2	1.3	3.1	1.4	.74	.33	18	.38	1.4
24	.31	.55	2.4	1.2	1.3	2.7	1.2	.66	.29	9.4	.23	1.2
25	.53	.70	1.6	1.9	1.6	2.4	1.1	20	.24	5.2	.19	1.1
26	.70	6.1	2.0	2.4	2.3	2.3	.92	24	.23	2.9	.32	1.1
27	.74	4.7	8.3	1.8	2.5	2.3	1.6	22	.42	1.9	.37	1.1
28	.80	2.3	9.2	1.8	2.4	9.6	1.5	21	.33	1.2	.70	1.0
29	.82	1.5	3.9	2.3	---	6.6	1.2	6.3	.23	11	140	.99
30	.88	1.1	2.5	2.9	---	4.8	.95	3.2	.13	100	165	1.0
31	.77	---	2.0	1.5	---	3.8	---	2.3	---	30	93	---
MEAN	.21	1.41	1.72	2.07	1.71	4.91	6.62	3.75	1.03	11.8	13.5	14.9
MAX	.88	6.1	9.2	8.1	3.1	35	50	24	5.8	100	165	185
MIN	.00	.47	.50	1.2	1.2	1.8	.92	.55	.13	.00	.00	.99
IN.	.01	.05	.06	.08	.06	.18	.24	.14	.04	.44	.50	.54

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	13.0	14.7	15.4	13.4	26.2	30.8	33.9	24.1	23.0	24.0	14.2	12.2
MEAN	115	225	155	84.0	124	125	193	92.5	158	193	131	190
MAX	1970	1986	1983	1969	1985	1973	1973	1970	1939	1981	1970	1970
(WY)	.00	.00	.11	.27	.85	.88	1.16	1.51	.58	.00	.00	.01
MIN	1957	1957	1964	1977	1964	1956	1956	1956	1963	1954	1953	1988
(WY)												

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	5.33	20.3
HIGHEST ANNUAL MEAN		57.5
LOWEST ANNUAL MEAN		2.47
HIGHEST DAILY MEAN	185	2010
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	381	6500
INSTANTANEOUS PEAK STAGE	5.36	14.05
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	2.33	8.91
10 PERCENTILE	5.8	35
50 PERCENTILE	1.1	3.3
95 PERCENTILE	.00	.00

SALT RIVER BASIN

05502300 NORTH FORK SALT RIVER AT HAGERS GROVE, MO

LOCATION.--Lat 39°49'40", long 92°14'10", in NE 1/4 SW 1/4 sec.15, T.58 N., R.12 W., Shelby County, Hydrologic Unit 07110005, at bridge on State Highway 151, 200 ft downstream from old channel carrying Bear Creek, 0.25 mi west of Hagers Grove, 2.5 mi upstream from Ten Mile Creek, and at mile 143.8.

DRAINAGE AREA.--365 mi².

PERIOD OF RECORD.--September 1974 to current year. (Prior to October 1983 published as "Salt River at Hagers Grove, Mo."). September 1939 to August 1974, gage height and miscellaneous measurements published by U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder, wire-weight gage, and crest-stage gage. Datum of gage is 702.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-6, Oct. 23 to Nov. 2, and Feb. 3-15. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1928 reached a stage of 19.1 ft, according to information furnished by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	1.3	5.4	15	4.0	9.1	7.1	2.1	48	20	255	162
2	3.2	4.7	4.5	9.2	3.6	6.5	10	3.6	53	12	121	93
3	2.8	3.1	2.7	8.4	3.1	14	15	3.3	42	6.3	66	61
4	3.2	3.9	1.8	5.7	2.8	38	19	3.0	34	3.9	40	46
5	2.8	3.2	3.6	9.4	2.5	87	38	3.2	21	2.7	25	31
6	2.8	2.8	4.9	12	2.3	152	35	4.5	44	1.9	25	31
7	2.8	2.8	3.4	8.2	2.0	103	21	4.2	30	1.1	15	27
8	2.6	3.5	2.8	7.6	1.8	62	15	2.6	16	.68	9.2	34
9	2.4	4.8	3.0	6.1	1.5	39	11	3.0	9.3	.63	5.8	447
10	2.1	6.3	3.0	5.5	1.6	32	7.9	3.2	6.3	.59	4.2	229
11	1.8	3.7	2.6	5.7	1.8	22	6.3	3.1	8.3	.56	3.2	95
12	1.6	11	2.1	5.3	2.1	16	5.1	1.4	10	1.4	2.5	64
13	1.8	7.1	2.5	4.5	2.5	14	4.7	2.0	56	1.2	2.8	46
14	2.0	3.6	3.8	3.9	3.0	12	4.6	2.5	65	.76	1.6	98
15	2.2	8.5	3.0	3.9	3.9	9.3	4.3	2.2	47	3.2	1.5	56
16	2.0	10	3.0	3.9	9.1	6.8	3.7	1.6	34	5.3	1.7	48
17	1.8	8.3	3.0	4.3	7.0	5.5	3.5	1.2	21	3.4	1.2	38
18	1.3	7.7	2.8	4.5	5.9	5.1	3.8	1.0	15	2.8	1.0	21
19	1.7	8.8	3.4	3.9	4.1	4.4	3.3	2.0	9.5	2.2	.94	13
20	2.7	10	5.8	3.9	7.3	4.4	4.3	2.3	6.0	.96	1.3	9.6
21	1.9	6.8	6.2	3.5	4.9	5.1	2.7	2.6	7.7	.89	1.4	7.2
22	1.3	4.9	5.2	3.3	17	4.8	2.1	1.5	28	1.3	1.5	5.6
23	1.2	3.8	5.5	3.6	13	4.7	2.4	1.1	126	4.8	1.5	4.1
24	1.2	3.8	5.4	3.4	8.5	4.2	2.7	1.3	41	11	3.5	4.2
25	1.2	4.2	3.8	4.6	6.1	3.8	2.3	3.9	12	91	42	3.3
26	1.1	6.7	5.7	5.8	5.4	3.5	2.4	3.4	4.5	65	68	3.2
27	1.4	5.5	11	4.3	11	3.4	3.1	2.1	256	40	380	2.8
28	2.0	7.9	9.4	4.9	7.3	7.6	2.5	182	109	22	284	2.7
29	1.8	4.0	5.7	6.3	---	6.0	1.8	417	44	11	1850	2.7
30	1.4	3.7	8.9	6.7	---	4.8	1.3	139	31	1870	1030	2.6
31	1.4	---	21	4.5	---	6.5	---	89	---	694	327	---
MEAN	2.02	5.55	5.00	5.86	5.18	22.5	8.20	28.9	41.2	93.0	148	56.3
MAX	3.2	11	21	15	17	152	38	417	256	1870	1850	447
MIN	1.1	1.3	1.8	3.3	1.5	3.4	1.3	1.0	4.5	.56	.94	2.6
IN.	.01	.02	.02	.02	.01	.07	.03	.09	.13	.29	.47	.17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	234	324	247	91.9	352	481	424	418	260	269	92.4	115
MAX	1201	1426	1319	406	1599	1177	2036	1316	1074	1688	440	588	
(WY)	1987	1986	1983	1982	1982	1979	1983	1981	1984	1981	1982	1986	
MIN	2.02	4.40	2.20	1.13	5.18	22.5	8.20	10.4	3.55	4.01	3.90	3.41	
(WY)	1989	1976	1977	1977	1989	1989	1989	1980	1988	1988	1984	1988	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	35.4	276
HIGHEST ANNUAL MEAN		553
LOWEST ANNUAL MEAN		35.4
HIGHEST DAILY MEAN	1870	18800
LOWEST DAILY MEAN	.56	.18
INSTANTANEOUS PEAK FLOW	3520	26900
INSTANTANEOUS PEAK STAGE	10.25	19.7
INSTANTANEOUS LOW FLOW	0.25	.18
ANNUAL RUNOFF (INCHES)	1.32	10.25
10 PERCENTILE	.52	507
50 PERCENTILE	4.6	30
95 PERCENTILE	1.2	2.1

SALT RIVER BASIN

41

05502300 NORTH FORK SALT RIVER AT HAGERS GROVE, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-.50	-.61	-.38	-.14	-.41	-.22	-.39	-.51	.15	-.17	1.45	.87
2	-.51	-.48	-.41	-.32	-.42	-.37	-.37	-.46	.25	-.29	.66	.40
3	-.53	-.51	-.42	-.34	-.39	-.35	-.31	-.49	-.03	-.39	.19	.12
4	-.51	-.47	-.52	-.41	-.31	-.09	-.24	-.49	-.01	-.43	-.10	-.02
5	-.53	-.50	-.45	-.37	-.25	.28	-.01	-.51	-.13	-.48	-.29	-.20
6	-.53	-.53	-.39	-.27	-.26	.72	.03	-.45	.18	-.53	-.26	-.23
7	-.53	-.54	-.43	-.32	-.26	.71	-.18	-.44	.01	-.60	-.39	-.23
8	-.53	-.50	-.48	-.36	-.23	.27	-.26	-.52	-.17	-.63	-.51	-.34
9	-.55	-.51	-.50	-.34	-.23	-.04	-.34	-.49	-.30	-.63	-.58	2.43
10	-.56	-.42	-.42	-.38	-.22	-.07	-.38	-.48	-.35	-.65	-.63	1.26
11	-.58	-.48	-.45	-.38	-.20	-.15	-.41	-.52	-.38	-.66	-.65	.35
12	-.59	-.26	-.49	-.33	-.24	-.24	-.43	-.58	-.29	-.53	-.68	.17
13	-.58	-.34	-.50	-.37	-.29	-.28	-.45	-.55	.16	-.58	-.70	-.11
14	-.57	-.38	-.43	-.46	-.38	-.29	-.45	-.56	.32	-.63	-.72	.30
15	-.56	-.28	-.45	-.46	-.42	-.35	-.45	-.51	.19	-.69	-.73	.11
16	-.57	-.20	-.45	-.46	-.18	-.39	-.47	-.56	.05	-.41	-.70	-.09
17	-.57	-.24	-.45	-.44	-.25	-.42	-.48	-.59	-.11	-.45	-.75	-.10
18	-.62	-.29	-.45	-.40	-.35	-.43	-.48	-.61	-.20	-.53	-.75	-.30
19	-.60	-.29	-.47	-.42	-.42	-.45	-.48	-.55	-.27	-.52	-.77	-.43
20	-.52	-.29	-.38	-.42	-.14	-.45	-.48	-.51	-.36	-.62	-.77	-.49
21	-.57	-.37	-.40	-.46	-.31	-.46	-.51	-.50	-.36	-.64	-.74	-.53
22	-.60	-.41	-.41	-.47	-.09	-.44	-.55	-.58	-.34	-.60	-.69	-.55
23	-.60	-.40	-.38	-.42	-.23	-.44	-.54	-.60	.69	-.40	-.72	-.62
24	-.62	-.43	-.38	-.43	-.27	-.45	-.50	-.63	.16	-.48	-.62	-.54
25	-.62	-.41	-.46	-.44	-.26	-.46	-.53	-.51	-.24	.67	-.10	-.62
26	-.63	-.38	-.42	-.37	-.29	-.47	-.52	-.48	-.41	.31	.08	-.63
27	-.60	-.39	-.25	-.41	-.07	-.48	-.48	-.52	2.47	.06	.05	-.65
28	-.57	-.37	-.30	-.42	-.27	-.34	-.51	-.57	.73	-.13	1.14	-.66
29	-.58	-.41	-.37	-.38	---	-.41	-.54	2.40	.10	-.29	6.26	-.65
30	-.60	-.42	-.38	-.35	---	-.44	-.59	1.01	-.03	9.15	4.93	-.69
31	-.60	---	-.10	-.39	---	-.48	---	.46	---	3.46	1.85	---

SALT RIVER BASIN

05502500 NORTH FORK SALT RIVER NEAR SHELBYNA, MO

LOCATION.--Lat 39°44'29", long 92°02'26", in SW 1/4 NE 1/4 sec.17, T.57 N., R.10 W., Shelby County, Hydrologic Unit 0711005, on right bank near downstream end of bridge on State Highway 15, 3 mi north of Shelbyna, 15 mi upstream from Black Creek, and at mi 122.3.

DRAINAGE AREA.--481 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1930 to February 1934, March 1934 to September 1972 (discontinued). March 1988 to current year (prior to March 1988 published as "Salt River near Shelbyna, Mo."). Fragmentary record prior to October 1933 monthly discharge only for period October 1933 to February 1934 published in WSP 1308.

GAGE.--Water-stage recorder crest-stage with concrete control since Mar. 25, 1988. Datum of gage is 664.58 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1934, nonrecording gage at site 100 ft downstream and present datum. Mar. 1, 1934, to Nov. 2, 1962, water-stage recorder at site 175 ft downstream at present datum. Nov. 3, 1962, to Sept. 30 1972, water-stage recorder at site 100 ft upstream at present datum. Oct. 1972 to Sept. 30, 1979, gage-height records collected by St. Louis U.S. Army Corps of Engineers at site 100 ft downstream. Oct. 1979 to Sept. 1981 gage-height data collected by U.S. Geological Survey at site 100 ft downstream.

REMARKS.--No estimated daily discharges. Water-discharge records poor. Several observations of water temperature and specific conductance were made during the year. Water pumped from river at the gage by City of Shelbyna.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1928 reached a stage of 23.54 ft, from floodmarks, discharge, 18,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	1.6	8.0	95	6.8	27	1.5	.00	72	16	290	199
2	3.7	1.5	4.7	55	4.2	26	7.3	.00	34	9.9	140	95
3	3.0	1.4	6.0	28	.99	42	18	.00	33	7.4	65	47
4	2.3	.39	6.0	13	.00	73	31	.68	24	5.7	35	26
5	3.1	.00	4.2	19	.00	65	22	1.5	19	4.4	23	18
6	3.0	.00	2.1	54	.00	127	45	1.4	13	3.5	17	16
7	2.2	.00	2.0	56	.00	209	35	1.2	24	3.0	15	16
8	1.9	.00	4.2	19	.00	77	15	2.2	19	3.4	11	164
9	2.4	.00	3.6	5.6	.00	53	8.4	4.0	12	3.5	8.2	453
10	2.7	.00	2.4	4.5	.00	27	5.5	2.5	9.4	2.0	5.8	404
11	2.4	.76	1.1	4.6	.00	17	3.9	1.2	9.3	1.8	7.0	169
12	1.8	3.7	.72	11	.00	9.1	3.0	.76	12	.82	7.7	80
13	1.2	3.7	.69	7.6	.04	5.7	2.1	1.0	13	.23	7.2	45
14	1.1	5.6	1.5	5.8	1.3	4.5	1.8	.64	44	.17	6.5	58
15	1.9	5.9	1.7	5.5	3.5	4.6	1.9	.15	37	.00	8.3	86
16	3.0	6.9	1.1	1.2	5.5	6.3	1.3	.00	27	.00	7.7	44
17	3.3	21	1.1	2.1	7.6	7.6	1.0	.04	17	.44	7.6	35
18	2.2	23	.97	3.1	8.8	5.9	.91	.96	13	3.9	4.1	20
19	.16	19	2.3	2.9	9.9	4.9	.95	5.1	9.4	3.7	2.6	13
20	.00	12	7.5	2.9	11	7.4	.92	5.7	7.9	2.8	3.1	8.8
21	.00	12	11	1.4	9.2	7.0	1.6	6.3	6.1	.73	4.4	7.3
22	.00	13	18	.98	9.6	3.9	1.4	10	7.2	1.1	9.1	5.8
23	.38	11	50	1.6	10	5.0	.80	13	58	1.8	11	4.2
24	.61	8.0	34	1.7	6.7	5.8	.78	11	58	1.6	8.9	3.1
25	.45	6.4	25	2.4	7.0	7.4	.49	15	20	3.7	9.7	3.5
26	.02	11	18	4.0	12	9.5	.57	.84	8.8	44	49	5.0
27	.00	12	43	3.4	16	6.3	1.5	.04	47	33	80	5.3
28	.00	12	67	3.1	29	3.5	2.0	.84	177	18	293	5.6
29	.00	9.8	64	3.6	---	8.6	1.4	686	57	13	1310	5.4
30	.20	12	70	5.5	---	5.8	.33	193	23	950	1560	6.1
31	.72	---	66	7.0	---	2.8	---	93	---	1070	441	---
MEAN	1.54	7.12	17.0	13.9	5.68	27.9	7.24	36.8	30.4	71.3	143	68.3
MAX	4.0	23	70	95	29	209	45	686	177	1070	1560	453
MIN	.00	.00	.69	.98	.00	2.8	.33	.00	6.1	.00	2.6	3.1
IN.	.00	.02	.04	.03	.01	.07	.02	.09	.07	.17	.34	.16

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	148	143	138	211	360	462	490	368	456	248	121	144
MEAN	148	143	138	211	360	462	490	368	456	248	121	144
MAX	809	1212	835	1319	1395	1417	1944	2310	4171	2906	1214	1831
(WY)	1958	1962	1972	1965	1949	1948	1944	1935	1947	1969	1970	1970
MIN	.00	.00	.00	.01	3.41	6.41	7.24	14.7	2.93	.00	.00	.00
(WY)	1953	1954	1954	1954	1954	1956	1989	1941	1988	1936	1936	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	36.2	277
HIGHEST ANNUAL MEAN		655
LOWEST ANNUAL MEAN		36.2
HIGHEST DAILY MEAN	1560	18600
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	2510	23000
INSTANTANEOUS PEAK STAGE	10.20	27.4
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	1.02	7.81
10 PERCENTILE	61	640
50 PERCENTILE	5.1	30
95 PERCENTILE	.00	.24

05502500 NORTH FORK SALT RIVER NEAR SHELBY, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.83	---	5.96	6.46	6.08	6.18	5.73	5.70	6.07	5.82	6.58	6.36
2	5.82	5.66	5.91	6.38	6.03	6.16	5.81	5.71	5.89	5.76	6.20	6.09
3	5.81	5.68	5.92	6.29	5.95	6.20	5.89	5.70	5.91	5.73	6.01	5.95
4	5.80	5.66	5.93	6.18	5.87	6.32	6.00	5.79	5.86	5.71	5.91	5.87
5	5.78	5.60	5.91	6.17	5.82	6.30	5.94	5.83	5.83	5.69	5.86	5.83
6	5.81	5.52	5.86	6.37	5.78	6.31	6.03	5.84	5.79	5.67	5.81	5.81
7	5.78	5.41	5.84	6.38	5.75	6.48	6.04	5.83	5.87	5.65	5.80	5.81
8	5.78	5.30	5.89	6.23	5.74	6.03	5.93	5.87	5.83	5.66	5.78	5.82
9	5.79	5.19	5.89	6.10	5.72	6.10	5.85	5.93	5.79	5.68	5.74	6.70
10	5.80	5.42	5.87	6.09	5.70	5.98	5.82	5.90	5.75	5.63	5.71	6.88
11	5.80	5.74	5.82	6.08	5.71	5.93	5.79	5.86	5.75	5.64	5.71	6.28
12	5.78	5.87	5.81	6.15	5.72	5.87	5.77	5.83	5.76	5.60	5.73	6.06
13	5.76	5.87	5.81	6.11	5.77	5.83	5.74	5.85	5.78	5.56	5.72	5.94
14	5.76	5.92	5.84	6.09	5.91	5.80	5.74	5.84	5.92	5.57	5.71	5.94
15	5.77	5.92	5.85	6.11	5.98	5.79	5.74	5.81	5.91	5.48	5.75	6.07
16	5.80	5.92	5.83	5.98	6.01	5.82	5.73	5.77	5.88	5.38	5.73	5.94
17	5.81	6.04	5.83	6.01	6.04	5.85	5.71	5.77	5.83	5.47	5.74	5.91
18	5.80	6.07	5.82	6.03	6.06	5.82	5.71	5.83	5.80	5.67	5.68	5.86
19	5.70	6.06	5.83	6.04	6.07	5.81	5.71	5.95	5.76	5.67	5.66	5.81
20	5.65	6.01	5.94	6.03	6.10	5.84	5.71	5.96	5.75	5.67	5.65	5.78
21	5.62	5.97	5.99	5.98	6.06	5.85	5.72	5.95	5.72	5.60	5.68	5.77
22	5.60	6.01	5.99	5.96	6.08	5.79	5.73	6.01	5.73	5.59	5.75	5.76
23	5.67	5.99	6.17	5.98	6.08	5.80	5.71	6.03	5.80	5.64	5.77	5.74
24	5.68	5.96	6.13	5.99	6.04	5.81	5.71	6.02	5.99	5.60	5.76	5.73
25	5.66	5.94	6.08	5.99	6.03	5.83	5.70	6.05	5.86	5.64	5.73	5.73
26	5.62	5.99	6.12	6.05	6.09	5.85	5.70	5.82	5.75	5.93	5.96	5.77
27	5.54	6.00	6.26	6.02	6.12	5.88	5.75	5.80	5.75	5.90	6.07	5.77
28	5.47	6.00	6.39	6.01	6.18	5.76	5.79	5.74	6.32	5.83	6.65	5.78
29	5.38	5.97	6.38	6.02	---	5.86	5.78	7.65	6.00	5.78	7.45	5.78
30	5.58	6.01	6.41	6.05	---	5.83	5.74	6.32	5.85	5.78	9.44	5.78
31	---	---	6.39	6.07	---	5.77	---	6.07	---	8.12	6.94	---

SALT RIVER BASIN

05502500 NORTH FORK SALT RIVER NEAR SHELBYNA, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: March 1988 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,040 mg/L, July 30, 1989; minimum daily mean, 3 mg/L, Oct. 30, 1988.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 6,760 tons, Aug. 29, 1989; minimum daily, 0.00 tons on several days.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,040 mg/L, July 30; minimum daily mean, 3 mg/L, Oct. 30.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 6,760 tons, Aug. 29; minimum daily, 0.00 tons on several days.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
AUG 29...	1430	1570	55	65	71	86	98	99	100	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
AUG 08...	1	1	5	12	17	21	27	38	61	100

SALT RIVER BASIN

45

05502500 NORTH FORK SALT RIVER NEAR SHELBYNA, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	4.0	33	.36	---	7	---	8.0	45	.97
2	3.7	42	.42	1.5	6	.03	4.7	21	.27
3	3.0	41	.33	1.4	6	.02	6.0	53	.85
4	2.3	38	.24	.39	5	.01	6.0	29	.47
5	3.1	35	.29	.00	8	.00	4.2	28	.31
6	3.0	23	.18	.00	8	.00	2.1	8	.05
7	2.2	18	.11	.00	6	.00	2.0	15	.08
8	1.9	12	.06	.00	7	.00	4.2	27	.30
9	2.4	15	.10	.00	8	.00	3.6	34	.33
10	2.7	21	.16	.00	27	.00	2.4	7	.05
11	2.4	23	.15	.76	28	.06	1.1	8	.03
12	1.8	15	.07	3.7	26	.26	.72	19	.04
13	1.2	4	.01	3.7	25	.25	.69	8	.02
14	1.1	8	.02	5.6	31	.47	1.5	4	.01
15	1.9	25	.13	5.9	41	.65	1.7	6	.03
16	3.0	25	.20	6.9	27	.50	1.1	8	.02
17	3.3	26	.23	21	38	2.1	1.1	10	.03
18	2.2	32	.19	23	118	7.3	.97	17	.04
19	.16	35	.02	19	62	3.2	2.3	14	.09
20	.00	27	.00	12	44	1.4	7.5	13	.27
21	.00	19	.00	12	50	1.6	11	14	.42
22	.00	10	.00	13	26	.92	18	8	.40
23	.38	8	.01	11	31	.92	50	9	1.3
24	.61	14	.02	8.0	34	.75	34	13	1.2
25	.45	9	.01	6.4	50	.86	25	25	1.7
26	.02	5	.00	11	35	1.0	18	17	.80
27	.00	5	.00	12	33	1.1	43	24	2.7
28	.00	4	.00	12	32	1.0	67	25	4.5
29	.00	4	.00	9.8	48	1.3	64	---	14.8
30	.20	3	.00	12	33	1.1	70	---	16.8
31	---	5	---	---	---	---	66	---	15.5
TOTAL	---	---	---	---	---	---	527.88	---	64.38
JANUARY			FEBRUARY			MARCH			
1	95	---	25.3	6.8	6	.10	27	---	4.68
2	55	---	12.2	4.2	---	.39	26	---	4.45
3	28	---	4.92	.99	---	.06	42	---	8.47
4	13	---	1.76	.00	---	.00	73	---	17.8
5	19	---	2.93	.00	---	.00	65	---	15.2
6	54	---	11.9	.00	---	.00	127	---	37.3
7	56	---	12.4	.00	---	.00	209	---	72.6
8	19	---	2.92	.00	---	.00	77	---	19.1
9	5.6	---	.57	.00	---	.00	53	---	11.6
10	4.5	---	.43	.00	---	.00	27	---	4.68
11	4.6	---	.44	.00	---	.00	17	---	2.52
12	11	---	1.41	.00	---	.00	9.1	28	.69
13	7.6	---	.86	.04	---	.0	5.7	29	.45
14	5.8	---	.60	1.3	---	.08	4.5	45	.55
15	5.5	---	.56	3.5	---	.30	4.6	42	.52
16	1.2	---	.07	5.5	---	.56	6.3	41	.69
17	2.1	---	.15	7.6	---	.86	7.6	33	.68
18	3.1	---	.25	8.8	---	1.04	5.9	38	.61
19	2.9	22	.17	9.9	---	1.22	4.9	31	.41
20	2.9	13	.10	11	---	1.41	7.4	42	.85
21	1.4	14	.05	9.2	---	1.11	7.0	10	.18
22	.98	7	.02	9.6	---	1.17	3.9	14	.14
23	1.6	8	.03	10	---	1.24	5.0	11	.14
24	1.7	18	.08	6.7	---	.72	5.8	17	.26
25	2.4	38	.24	7.0	---	.77	7.4	21	.42
26	4.0	30	.32	12	---	1.58	9.5	39	1.0
27	3.4	9	.08	16	---	2.32	6.3	39	.66
28	3.1	8	.07	29	---	5.15	3.5	27	.26
29	3.6	15	.14	---	---	---	8.6	86	2.0
30	5.5	16	.24	---	---	---	5.8	88	1.4
31	7.0	12	.23	---	---	---	2.8	43	.32
TOTAL	430.48	---	81.44	159.13	---	20.08	864.6	---	210.63

SALT RIVER BASIN

05502500 NORTH FORK SALT RIVER NEAR SHELBYNA, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1.5	47	.19	.00	50	.00	72	144	28
2	7.3	92	1.8	.00	34	.00	34	851	78
3	18	62	3.0	.00	20	.00	33	51	4.5
4	31	93	7.7	.68	33	.06	24	51	3.3
5	22	89	5.3	1.5	30	.12	19	41	2.1
6	45	41	5.0	1.4	23	.09	13	43	1.5
7	35	39	3.7	1.2	22	.07	24	52	3.4
8	15	20	.80	2.2	21	.12	19	47	2.4
9	8.4	21	.47	4.0	24	.26	12	19	.61
10	5.5	21	.31	2.5	26	.17	9.4	31	.79
11	3.9	26	.27	1.2	18	.06	9.3	27	.69
12	3.0	28	.22	.76	15	.03	12	28	.92
13	2.1	27	.15	1.0	22	.06	13	35	1.2
14	1.8	26	.12	.64	15	.03	44	39	4.7
15	1.9	26	.13	.15	12	.00	37	65	6.5
16	1.3	30	.10	.00	24	.00	27	82	6.0
17	1.0	38	.10	.04	36	.00	17	154	7.1
18	.91	37	.09	.96	29	.08	13	174	6.1
19	.95	25	.07	5.1	16	.21	9.4	56	1.4
20	.92	27	.07	5.7	29	.45	7.9	44	.93
21	1.6	29	.13	6.3	24	.41	6.1	54	.89
22	1.4	32	.12	10	19	.52	7.2	82	1.6
23	.80	47	.10	13	30	1.1	58	182	29
24	.78	45	.09	11	33	.98	58	325	51
25	.49	103	.14	15	39	1.6	20	277	15
26	.57	96	.15	.84	84	.19	8.8	127	3.0
27	1.5	39	.16	.04	70	.01	47	123	16
28	2.0	38	.21	84	156	101	177	231	111
29	1.4	37	.14	686	748	1390	57	319	49
30	.33	31	.03	193	643	335	23	224	14
31	---	---	---	93	397	100	---	---	---
TOTAL	217.35	---	30.86	1141.21	---	1932.62	911.1	---	450.63
JULY			AUGUST			SEPTEMBER			
1	16	88	3.8	290	222	174	199	106	57
2	9.9	68	1.8	140	119	45	95	103	26
3	7.4	75	1.5	65	102	18	47	91	12
4	5.7	23	.35	35	71	6.7	26	66	4.6
5	4.4	40	.47	23	52	3.2	18	26	1.2
6	3.5	79	.75	17	39	1.8	16	36	1.6
7	3.0	63	.51	15	93	3.8	16	36	1.6
8	3.4	47	.43	11	31	.92	164	187	83
9	3.5	49	.46	8.2	19	.42	453	301	369
10	2.0	71	.38	5.8	24	.38	404	209	228
11	1.8	105	.51	7.0	32	.61	169	128	58
12	.82	76	.17	7.7	31	.65	80	137	30
13	.23	69	.04	7.2	19	.37	45	77	9.4
14	.17	78	.04	6.5	21	.37	58	55	8.7
15	.00	55	.00	8.3	30	.67	86	54	12
16	.00	52	.00	7.7	51	1.1	44	53	6.3
17	.44	46	.06	7.6	53	1.1	35	60	5.7
18	3.9	37	.39	4.1	31	.34	20	65	3.5
19	3.7	44	.44	2.6	38	.26	13	42	1.5
20	2.8	55	.42	3.1	31	.26	8.8	54	1.3
21	.73	76	.15	4.4	101	1.2	7.3	37	.72
22	1.1	146	.43	9.1	191	4.7	5.8	40	.62
23	1.8	39	.19	11	170	5.1	4.2	44	.50
24	1.6	37	.16	8.9	207	5.0	3.1	28	.23
25	3.7	38	.38	9.7	228	6.0	3.5	33	.31
26	44	77	9.2	49	102	14	5.0	32	.44
27	33	120	11	80	46	9.9	5.3	23	.33
28	18	96	4.7	293	43	34	5.6	20	.31
29	13	112	3.9	1310	1910	6760	5.4	20	.30
30	950	2040	6130	1560	56	234	6.1	22	.37
31	1070	506	1460	441	143	170	---	---	---
TOTAL	2209.59	---	7632.63	4447.9	---	7503.85	2048.1	---	924.53

SALT RIVER BASIN

05503800 CROOKED CREEK NEAR PARIS, MO

LOCATION.--Lat 39°35'06", long 91°59'36", near NW corner S 1/2 sec.2, T.55 N., R.10 W., Monroe County, Hydrologic Unit 07110005 on right bank downstream from county road bridge, 7 mi north of Paris, 1.4 mi north of State Route 15, and at mile 8.9.

DRAINAGE AREA.--80.0 mi².

PERIOD OF RECORD.--October 1979 to current year. March 1966 to October 1979 published by U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 650.00 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 8, 1967, wire-weight gage and Nov. 9, 1967, to Sept. 1979 recording gage at datum 50 ft lower.

REMARKS.--Estimated daily discharges: Oct. 1-5, Dec. 11 to Jan. 10, and Feb. 16 to Mar. 10. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.04	.00	10	.07	.00	12
2	.00	.00	.00	.00	.00	.00	.06	.00	6.8	.06	.00	3.8
3	.00	.00	.00	.00	.00	.00	.43	.00	6.0	.04	.00	.75
4	.00	.00	.00	.00	.00	.02	3.0	.00	5.0	.02	.00	.34
5	.00	.00	.00	.00	.00	.15	.25	.00	1.9	.01	.00	.24
6	.00	.00	.00	.00	.00	.13	.15	.00	1.0	.00	.00	.22
7	.00	.00	.00	.00	.00	.12	.12	.00	.57	.00	.00	.20
8	.00	.00	.00	.00	.00	.11	.11	.00	.48	.00	.00	71
9	.00	.00	.00	.00	.00	.10	.10	.00	.40	.00	.00	336
10	.00	.00	.00	.00	.00	.09	.09	.00	.35	.00	.00	169
11	.00	.00	.00	.00	.00	.09	.06	.00	.32	.00	.00	36
12	.00	.00	.00	.00	.00	.09	.05	.00	1.2	.00	.00	13
13	.00	.00	.00	.00	.00	.09	.04	.00	2.3	.00	.00	5.6
14	.00	.00	.00	.00	.00	.09	.04	.00	.32	.00	.00	9.8
15	.00	.00	.00	.00	.00	.08	.04	.00	.91	.00	.00	4.9
16	.00	.00	.00	.00	.00	.08	.04	.00	.85	.00	.00	1.3
17	.00	.00	.00	.00	.00	.07	.03	.00	.46	.00	.00	.85
18	.00	.00	.00	.00	.00	.06	.03	.00	.51	.00	.00	1.4
19	.00	.00	.00	.00	.00	.05	.02	.00	.41	.00	.00	.54
20	.00	.00	.00	.00	.00	.08	.02	.00	.28	.00	.00	.35
21	.00	.00	.00	.00	.00	.08	.02	.00	.23	.00	.00	.25
22	.00	.00	.00	.00	.00	.07	.02	.00	2.6	.00	1.6	.20
23	.00	.00	.00	.00	.00	.06	.02	.00	85	.00	.50	.18
24	.00	.00	.00	.00	.00	.06	.02	.00	9.3	.00	.28	.16
25	.00	.00	.00	.00	.00	.05	.02	65	2.1	.00	32	.14
26	.00	.00	.00	.00	.00	.04	.02	39	.31	.00	70	.12
27	.00	.00	.00	.00	.00	.04	.02	23	.21	.00	4.9	.11
28	.00	.00	.00	.00	.00	.04	.01	396	.15	.00	17	.11
29	.00	.00	.00	.00	---	.04	.0	759	.12	.00	150	.10
30	.00	.00	.00	.00	---	.04	.00	140	.09	.00	124	.10
31	.00	---	.00	.00	---	.04	---	20	---	.00	35	---
MEAN	.00	.00	.00	.00	.00	.066	.16	46.5	4.67	.006	14.0	22.3
MAX	.00	.00	.00	.00	.00	.15	3.0	759	85	.07	150	336
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.10
IN.	.00	.00	.00	.00	.00	.00	.00	.67	.07	.00	.20	.31

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	42.9	81.8	80.0	22.4	81.3	77.8	65.9	76.2	63.8	52.8	17.2	26.0
MAX		320	550	247	86.4	359	208	319	291	187	398	48.0	192
(WY)		1987	1986	1983	1982	1985	1984	1983	1981	1982	1981	1982	1986
MIN		.00	.00	.00	.00	.00	.07	.16	1.53	.03	.00	.00	.00
(WY)		1980	1981	1989	1989	1989	1989	1989	1988	1988	1988	1988	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	7.38	57.1
HIGHEST ANNUAL MEAN		99.7
LOWEST ANNUAL MEAN		7.38
HIGHEST DAILY MEAN	759	3870
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	1470	12100
INSTANTANEOUS PEAK STAGE	6.95	15.53
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	1.25	9.70
10 PERCENTILE	1.2	80
50 PERCENTILE	.00	3.2
95 PERCENTILE	.00	.00

SALT RIVER BASIN

05503800 CROOKED CREEK NEAR PARIS, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.79	.98	---	1.11	---	2.18	2.12	2.55	2.22	1.95	2.64
2	---	.79	.98	---	1.11	---	2.18	2.12	2.47	2.20	1.93	2.52
3	---	.79	.97	---	1.11	---	2.24	2.11	2.42	2.18	1.91	2.43
4	---	.79	.97	---	1.10	---	2.55	2.11	2.42	2.16	1.89	2.36
5	---	.79	.97	---	1.08	---	2.37	2.12	2.36	2.15	1.88	2.33
6	.98	.79	.97	---	1.08	---	2.30	2.11	2.32	2.14	1.96	2.32
7	.98	.79	.96	---	1.08	---	2.27	2.10	2.29	2.13	2.09	2.31
8	.97	.79	.95	---	1.08	---	2.25	2.09	2.27	2.12	2.09	2.28
9	.97	.79	.95	---	1.10	---	2.24	2.10	2.25	2.10	2.09	3.82
10	.96	.80	.94	---	1.07	2.17	2.23	2.10	2.24	2.08	2.07	3.70
11	.93	.82	---	1.11	1.08	2.19	2.20	2.10	2.23	2.07	2.04	2.90
12	.92	.90	---	1.13	1.12	2.19	2.19	2.08	2.32	2.06	2.03	2.65
13	.93	.90	---	1.13	1.09	2.19	2.18	2.07	2.36	2.07	2.01	2.53
14	.92	.90	---	1.12	1.09	2.19	2.18	2.06	2.24	2.05	1.98	2.55
15	.91	.90	---	1.12	1.11	2.18	2.18	2.06	2.29	2.03	1.97	2.54
16	.89	.97	---	---	1.12	2.18	2.18	2.05	2.31	2.03	2.04	2.46
17	.88	.96	---	---	---	2.17	2.17	2.03	2.26	2.02	2.03	2.39
18	.87	.96	---	.99	---	2.16	2.17	2.03	2.28	2.01	2.01	2.46
19	.85	.96	---	1.08	---	2.15	2.16	2.06	2.26	2.01	1.99	2.40
20	.85	.96	---	1.08	---	2.18	2.16	2.06	2.22	2.01	1.97	2.37
21	.85	.96	---	1.08	---	2.19	2.16	2.07	2.20	2.00	1.98	2.33
22	.84	.95	---	1.08	---	2.18	2.16	2.06	2.20	2.00	2.47	2.31
23	.84	.95	---	1.08	---	2.18	2.16	2.06	3.48	2.00	2.42	2.30
24	.84	.95	---	1.08	---	2.18	2.16	2.05	2.64	2.00	2.38	2.28
25	.82	.93	---	1.08	---	2.18	2.16	2.11	2.51	1.98	2.30	2.26
26	.80	.99	---	1.09	---	2.17	2.16	2.94	2.39	1.98	3.21	2.24
27	.80	.99	---	1.09	---	2.17	2.16	2.89	2.35	1.97	2.57	2.22
28	.80	1.00	---	1.09	---	2.18	2.15	2.58	2.30	1.95	2.78	2.22
29	.79	1.00	---	1.11	---	2.18	2.14	5.35	2.26	1.93	4.14	2.21
30	.78	.98	---	1.11	---	2.18	2.13	3.48	2.23	1.95	3.59	2.21
31	.79	---	---	1.11	---	2.18	---	2.72	---	1.96	2.90	---

05504800 SOUTH FORK SALT RIVER ABOVE SANTA FE, MO

LOCATION.--Lat 39°19'34", long 91°50'02", in SE 1/4, SE 1/4, sec.31, T.53 N., R.8 W., Audrain County, Hydrologic Unit 07110006, on left bank near downstream side of bridge on county road, 4.0 mi southwest of Santa Fe, 1.0 mi upstream from Littleby Creek, and at mile 104.2 above mouth of Salt River.

DRAINAGE AREA.--233 mi².

PERIOD OF RECORD.--October 1986 to current year. Published as "near Santa Fe" October 1968 to September 1975 and as "at Santa Fe" February 1940 to September 1968 and October 1975 to September 1986.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 644.87 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 5, 1940, nonrecording gage; Feb. 5, 1940, to Sept. 30, 1968, and Oct. 1975 to Sept. 1986, water-stage recorder 8.0 mi downstream at datum 613.05; Oct. 1, 1968, to Sept. 30, 1975, water-stage recorder, 1.0 mi downstream at datum 639.09 ft higher.

REMARKS.--Estimated daily discharges: Apr. 13 to May 9. Records good except for estimated daily discharges, which are fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	5.9	8.5	18	5.4	60	26	4.0	64	9.8	70	129
2	7.3	5.7	5.8	13	4.6	40	47	3.7	38	6.2	24	159
3	5.5	7.1	3.8	10	4.2	32	356	3.3	87	6.8	15	92
4	3.9	7.5	2.7	8.9	4.0	51	470	3.3	83	6.5	9.3	34
5	3.0	7.5	2.2	30	4.0	87	201	3.3	31	5.3	6.5	18
6	2.4	7.3	1.6	275	3.7	66	97	3.5	19	3.9	4.8	13
7	2.1	7.4	1.1	264	3.7	35	63	4.0	13	3.7	3.7	11
8	2.0	7.8	.95	90	3.6	21	50	3.5	11	3.5	3.0	12
9	2.1	8.2	.77	45	3.1	16	41	8.5	9.8	4.1	2.7	381
10	3.0	19	.82	23	2.9	13	34	4.9	27	3.0	2.5	528
11	4.6	18	.87	16	2.9	14	25	2.9	54	2.6	2.2	134
12	4.3	13	.75	12	3.1	59	20	2.6	1340	2.3	2.2	56
13	4.0	22	.73	9.9	3.9	42	16	2.6	758	2.1	2.2	27
14	3.8	19	.77	8.5	4.7	25	14	2.4	199	1.8	2.2	19
15	4.1	21	.70	7.8	10	18	13	2.2	93	4.2	2.0	14
16	5.0	16	.56	7.2	9.0	13	13	2.2	50	5.3	2.0	11
17	5.7	36	.57	6.6	9.5	11	11	2.1	27	5.1	2.3	9.5
18	5.6	44	.60	5.9	8.7	9.2	11	1.9	23	4.6	3.2	7.9
19	6.7	19	.64	5.9	8.4	8.1	11	3.2	57	4.3	3.9	7.0
20	7.2	12	.70	5.3	8.3	11	9.3	5.9	55	3.5	5.8	6.2
21	7.9	8.4	.61	4.9	9.6	308	8.9	9.9	24	3.1	49	5.5
22	6.6	9.9	2.1	4.6	11	208	8.2	6.7	21	3.6	598	4.7
23	4.2	5.3	90	4.3	13	87	8.6	14	15	5.6	420	4.2
24	4.6	3.2	125	4.3	12	53	7.5	14	12	4.3	132	3.7
25	6.0	2.4	50	4.4	11	36	7.1	266	11	5.7	71	3.5
26	8.9	6.7	21	5.1	50	27	7.1	194	21	6.6	57	3.4
27	7.7	25	61	5.1	107	21	5.9	84	299	6.3	193	2.9
28	7.1	28	341	5.5	89	24	5.2	1910	52	5.1	683	2.9
29	7.8	24	126	5.0	---	34	4.3	2580	22	36	880	3.2
30	7.4	14	65	5.1	---	51	4.0	358	17	65	624	3.4
31	6.3	---	32	5.3	---	37	---	113	---	214	157	---
MEAN	5.25	14.3	30.6	29.5	14.7	48.9	53.2	181	118	14.3	130	56.9
MAX	8.9	44	341	275	107	308	470	2580	1340	214	880	528
MIN	2.0	2.4	.56	4.3	2.9	8.1	4.0	1.9	9.8	1.8	2.0	2.9
IN.	.03	.07	.15	.15	.07	.24	.25	.90	.56	.07	.64	.27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	144	132	144	138	214	319	327	289	255	219	52.6	122
MEAN	144	132	144	138	214	319	327	289	255	219	52.6	122
MAX	1646	1378	1447	792	1031	1715	1734	2238	1307	2415	544	1060
(WY)	1942	1986	1983	1974	1985	1973	1944	1943	1942	1969	1982	1970
MIN	.01	.36	.58	1.18	1.91	2.74	4.43	5.92	3.28	1.31	.46	.22
(WY)	1954	1954	1964	1963	1954	1954	1963	1980	1988	1944	1964	1960

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	58.4	196
HIGHEST ANNUAL MEAN		509
LOWEST ANNUAL MEAN		10.7
HIGHEST DAILY MEAN	2580	May 29
LOWEST DAILY MEAN	.56	Dec 16
INSTANTANEOUS PEAK FLOW	6930	May 28
INSTANTANEOUS PEAK STAGE	18.54	May 28
INSTANTANEOUS LOW FLOW	0.54	Dec 16
ANNUAL RUNOFF (INCHES)	3.40	11.43
10 PERCENTILE	96	328
50 PERCENTILE	8.5	16
95 PERCENTILE	1.9	.33

SALT RIVER BASIN

05504800 SOUTH FORK SALT RIVER ABOVE SANTA FE, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.95	4.05	4.18	4.37	3.99	4.99	4.45	3.90	5.01	4.23	5.12	5.28
2	4.05	4.04	4.10	4.25	3.94	4.73	4.37	---	4.73	4.01	4.48	4.98
3	4.02	4.07	4.04	4.16	3.92	4.59	6.46	---	5.29	4.02	4.32	5.32
4	3.97	4.09	3.98	4.11	3.91	4.73	7.69	3.86	5.31	3.99	4.14	4.69
5	3.93	4.09	3.96	4.10	3.91	5.08	6.23	---	4.64	3.95	4.03	4.39
6	3.91	4.09	3.92	5.95	3.90	5.06	5.33	3.87	4.43	3.91	3.96	4.24
7	3.90	4.08	3.89	6.76	3.89	4.67	4.98	---	4.25	3.89	3.90	4.17
8	3.89	4.10	3.88	5.28	3.89	4.42	4.82	---	4.15	3.89	3.85	4.17
9	3.89	4.09	3.86	4.85	3.86	4.32	4.74	---	4.14	3.87	3.82	5.40
10	3.90	4.18	3.86	4.50	3.84	4.26	4.67	3.97	4.08	3.84	3.81	8.49
11	4.01	4.37	3.87	4.34	3.84	4.24	4.54	3.85	4.78	3.82	3.80	5.69
12	4.00	4.32	3.87	4.24	3.85	5.00	4.42	3.82	10.59	3.79	3.78	4.95
13	3.99	4.19	3.85	4.15	3.90	4.78	4.33	3.82	9.10	3.78	3.78	4.57
14	3.98	4.36	3.86	4.10	3.93	4.54	4.28	3.81	6.19	3.76	3.79	4.41
15	3.99	4.49	3.85	4.07	4.17	4.36	4.25	3.79	5.31	3.93	3.80	4.31
16	4.02	4.38	3.83	4.04	4.12	4.27	---	3.78	4.82	3.98	3.77	4.21
17	4.05	4.63	3.83	4.02	4.14	4.19	4.17	3.78	4.56	3.96	3.79	4.14
18	4.04	4.84	3.84	4.00	4.10	4.12	4.17	3.76	4.49	3.89	3.86	4.07
19	4.06	4.44	3.84	3.99	4.09	4.08	4.17	3.83	---	4.03	3.87	4.04
20	4.09	4.26	3.85	3.98	4.09	4.11	---	3.92	4.94	3.87	3.94	4.01
21	4.10	4.15	3.84	3.95	4.13	6.55	4.10	4.18	4.50	3.86	4.23	3.98
22	4.07	4.23	3.84	3.94	4.18	6.28	---	4.00	4.49	3.86	5.36	3.95
23	3.99	4.09	5.50	3.93	4.24	5.23	---	4.02	4.33	4.07	7.73	3.92
24	4.00	4.02	5.65	3.92	4.22	4.86	4.05	4.31	4.29	3.91	5.69	3.90
25	4.01	3.97	4.92	3.92	4.16	4.65	4.04	4.26	4.26	3.98	4.87	3.88
26	4.14	4.08	4.54	3.96	4.81	4.50	4.00	6.24	4.04	4.01	4.96	3.87
27	4.10	4.68	4.43	3.94	5.30	4.37	3.98	4.98	6.64	4.03	4.49	3.84
28	4.08	4.50	7.34	3.98	5.25	4.40	---	4.82	4.95	3.96	8.93	3.83
29	4.10	4.54	5.58	3.96	---	4.56	---	13.28	4.44	3.98	8.78	3.86
30	4.09	4.32	5.02	3.96	---	4.76	3.91	6.93	4.35	3.84	8.68	3.87
31	4.06	---	4.65	3.97	---	4.60	---	5.48	---	6.20	5.73	---

05506500 MIDDLE FORK SALT RIVER AT PARIS, MO

LOCATION.--Lat 39°29'01", long 92°00'49", in NE 1/4 NE 1/4 NE 1/4 sec.10, T.54 N., R.10 W., Monroe County, Hydrologic Unit 07110006, on left bank downstream side of bridge on State highway 24 at Paris, about 1 mile upstream from Wabash Railroad bridge, 14 mi upstream from Elk Fork Salt River, and at mi 106 above mouth of Salt River.

DRAINAGE AREA.--356 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 630.00 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 22, 1940, nonrecording gage at present site, from Jan. 1940 to Sept. 1958, a water-stage recorder 1.4 mi downstream, from Sept. 1958 to July 1968, 1.5 mi downstream, and July 1968 to Apr. 1973, 1.5 mi downstream. All gages prior to Jan. 22, 1940 were at datum 8.29 ft lower.

REMARKS.--No estimated daily discharges. Water-discharge records fair. City of Paris uses water from the same pool gage is in. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	5.2	3.4	3.2	7.7	1.6	.00	169	38	585	196
2	.00	.00	2.5	5.3	3.4	7.8	8.4	.00	75	25	157	60
3	.00	.00	2.2	6.8	3.4	8.5	41	.00	137	19	62	32
4	.00	.00	2.0	6.3	3.4	15	57	.00	84	15	35	17
5	.00	.00	1.1	8.1	3.4	11	92	.00	46	13	21	12
6	.00	.00	1.1	13	3.4	8.6	66	.00	31	11	13	12
7	.00	.00	1.7	8.3	3.4	5.7	35	.00	19	9.9	9.8	11
8	.00	.00	2.2	4.3	3.2	5.5	21	1.8	13	8.4	7.6	76
9	.00	.00	2.8	3.4	1.6	11	15	6.9	13	7.7	5.9	1660
10	.00	.00	4.3	3.4	1.1	15	13	23	12	5.4	5.2	1240
11	.00	.00	4.5	2.0	1.1	14	11	15	9.0	1.2	4.5	390
12	.00	.00	4.3	1.1	1.1	9.3	8.9	11	15	.82	4.5	142
13	.00	.00	3.4	2.1	2.2	8.1	7.6	7.8	15	.00	4.0	70
14	.00	.00	2.1	2.2	2.2	6.5	5.4	9.6	9.7	.00	2.1	52
15	.00	.00	1.1	2.2	2.2	7.9	4.5	9.9	9.3	.00	.00	72
16	.00	.36	.67	2.2	2.2	9.0	3.7	9.3	9.9	.00	.41	127
17	.00	3.9	.57	2.2	2.2	8.6	3.4	4.9	11	.00	.00	71
18	.00	5.7	.00	2.2	2.2	7.3	3.0	3.6	14	.35	.00	39
19	.00	6.5	.00	2.2	2.2	5.5	1.2	4.9	12	1.1	.00	28
20	.00	5.3	.70	2.2	2.2	8.2	.00	4.5	11	.59	.00	20
21	.00	5.5	.00	2.2	2.2	8.8	.85	5.8	9.1	.76	4.6	14
22	.00	5.1	3.3	2.2	2.2	7.3	.74	3.9	7.7	1.1	25	11
23	.00	3.7	6.6	1.4	2.1	6.3	.14	1.7	238	1.1	13	8.5
24	.00	2.3	5.5	1.2	1.1	5.1	.00	.00	218	1.1	6.5	6.2
25	.00	3.6	5.5	3.0	2.0	5.4	.00	120	86	2.0	5.3	5.0
26	.00	7.8	6.3	3.2	4.5	5.5	.00	363	41	2.2	11	4.1
27	.00	6.8	9.6	1.1	4.5	3.9	.00	175	27	4.1	7.8	3.4
28	.00	6.8	7.3	3.3	5.3	4.5	.00	1450	61	4.6	65	3.0
29	.00	6.2	6.0	3.4	---	3.5	.00	5730	235	30	262	2.0
30	.00	5.5	3.1	4.5	---	2.2	.00	3550	81	163	577	.00
31	.00	---	3.4	4.0	---	1.3	---	980	---	1230	605	---
MEAN	.00	2.50	3.19	3.63	2.61	7.55	13.3	403	57.3	51.5	80.6	146
MAX	.00	7.8	9.6	13	5.3	15	92	5730	238	1230	605	1660
MIN	.00	.00	.00	1.1	1.1	1.3	.00	.00	7.7	.00	.00	.00
IN.	.00	.01	.01	.01	.01	.02	.04	1.31	.18	.17	.26	.46

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	183	176	169	169	274	435	465	344	322	243	98.9	130
MEAN	1815	2083	1255	829	1634	1837	3164	1396	1747	2100	1195	1427
MAX	1987	1986	1983	1946	1985	1973	1973	1981	1947	1981	1958	1961
(WY)	.00	.00	.37	1.08	2.61	3.26	13.3	12.6	2.31	.37	1.13	.18
MIN	1957	1954	1954	1954	1989	1956	1989	1941	1988	1954	1953	1953
(WY)												

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	64.9	250
HIGHEST ANNUAL MEAN	743	1973
LOWEST ANNUAL MEAN	53.1	1956
HIGHEST DAILY MEAN	5730	May 29
LOWEST DAILY MEAN	.00	Many Days
INSTANTANEOUS PEAK FLOW	6390	May 29
INSTANTANEOUS PEAK STAGE	11.65	May 29
INSTANTANEOUS LOW FLOW	0.00	Many Days
ANNUAL RUNOFF (INCHES)	2.48	9.54
10 PERCENTILE	63	579
50 PERCENTILE	4.2	30
95 PERCENTILE	.00	.62

SALT RIVER BASIN

05506500 MIDDLE RORK SALT RIVER AT PARIS, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.57	3.28	3.77	3.75	3.75	3.80	3.72	3.67	4.42	4.00	5.62	4.58
2	3.60	3.27	3.74	3.77	3.75	3.80	3.73	3.65	4.12	3.94	4.44	4.10
3	3.61	3.24	3.74	3.78	3.75	3.80	3.88	3.65	4.14	3.90	4.11	3.97
4	3.63	3.21	3.74	3.78	3.75	3.86	4.03	3.68	4.17	3.87	3.99	3.89
5	3.63	3.19	3.73	3.77	3.75	3.83	4.14	3.68	4.03	3.84	3.92	3.83
6	3.63	3.18	3.73	3.84	3.75	3.81	4.09	3.68	3.97	3.83	3.84	3.83
7	3.62	3.15	3.73	3.80	3.75	3.79	3.97	3.67	3.89	3.82	3.82	3.83
8	3.60	3.13	3.74	3.77	3.75	3.77	3.88	3.69	3.85	3.80	3.79	3.82
9	3.60	3.12	3.74	3.75	3.74	3.81	3.85	3.75	3.84	3.79	3.77	7.24
10	3.59	3.16	3.76	3.75	3.73	3.86	3.83	3.92	3.83	3.79	3.77	6.77
11	3.58	3.16	3.76	3.75	3.73	3.86	3.81	3.84	3.80	3.74	3.76	5.09
12	3.58	3.27	3.76	3.73	3.73	3.80	3.79	3.80	3.82	3.73	3.76	4.37
13	3.57	3.36	3.75	3.74	3.75	3.79	3.77	3.77	3.87	3.72	3.76	4.12
14	3.57	3.49	3.75	3.74	3.75	3.79	3.76	3.78	3.81	3.72	3.75	4.05
15	3.56	3.59	3.73	3.74	3.75	3.79	3.74	3.78	3.80	3.72	3.72	4.05
16	3.56	3.71	3.73	3.74	3.75	3.79	3.73	3.78	3.80	3.72	3.73	4.32
17	3.56	3.75	3.73	3.74	3.75	3.79	3.73	3.74	3.82	3.72	3.71	4.14
18	3.53	3.77	3.72	3.74	3.75	3.78	3.74	3.73	3.86	3.72	3.71	4.01
19	3.51	3.78	3.72	3.74	3.75	3.76	3.72	3.74	3.85	3.73	3.71	3.94
20	3.50	3.77	3.74	3.74	3.75	3.79	3.70	3.73	3.82	3.73	3.70	3.91
21	3.50	3.77	3.72	3.74	3.75	3.79	3.71	3.75	3.80	3.73	3.72	3.87
22	3.50	3.77	3.72	3.74	3.75	3.78	3.71	3.73	3.79	3.73	3.95	3.85
23	3.47	3.76	3.78	3.73	3.75	3.77	3.71	3.71	3.83	3.73	3.84	3.84
24	3.47	3.74	3.77	3.73	3.73	3.76	3.70	3.69	4.61	3.73	3.78	3.81
25	3.44	3.75	3.77	3.73	3.73	3.76	3.68	3.73	4.19	3.74	3.76	3.81
26	3.42	3.80	3.78	3.75	3.77	3.76	3.68	5.07	4.01	3.74	3.79	3.82
27	3.37	3.78	3.81	3.73	3.77	3.75	3.69	4.45	3.95	3.74	3.80	3.80
28	3.37	3.78	3.79	3.74	3.78	3.76	3.69	4.12	3.90	3.77	4.10	3.80
29	3.34	3.78	3.78	3.75	---	3.74	3.67	11.11	4.72	3.75	4.40	3.79
30	3.32	3.77	3.75	3.77	---	3.72	3.66	9.71	4.18	4.16	5.36	3.77
31	3.30	---	3.75	3.77	---	3.72	---	6.47	---	6.77	5.55	---

05506500 MIDDLE FORK SALT RIVER AT PARIS, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: August 1980 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,170 mg/L, July 23, 1981; minimum daily mean, 3 mg/L, Nov. 4, 1987, May 16, 1988.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 40,200 tons, Mar. 5, 1985; minimum daily, 0.00 tons, Oct. 3, 8, 9, 10, 1983, Oct. 19, 1987, many days in Sept. 1988, and several days in 1989.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,010 mg/L, May 29; minimum daily mean, 4 mg/L, May 5, 7, and 8.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 15,500 tons, May 29; minimum daily, 0.00 tons, several days.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
MAY 30...	1235	6350	68	73	79	86	97	98	99	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
AUG 08...	0	0	1	11	23	33	43	54	67	85

SALT RIVER BASIN

05506500 MIDDLE FORK SALT RIVER AT PARIS, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.00	14	.00	.00	10	.00	5.2	7	.10
2	.00	27	.00	.00	12	.00	2.5	7	.05
3	.00	33	.00	.00	13	.00	2.2	7	.04
4	.00	17	.00	.00	13	.00	2.0	8	.04
5	.00	15	.00	.00	16	.00	1.1	13	.04
6	.00	19	.00	.00	17	.00	1.1	17	.05
7	.00	25	.00	.00	17	.00	1.7	25	.12
8	.00	26	.00	.00	11	.00	2.2	28	.17
9	.00	24	.00	.00	8	.00	2.8	24	.17
10	.00	22	.00	.00	10	.00	4.3	24	.28
11	.00	20	.00	.00	12	.00	4.5	---	.35
12	.00	18	.00	.00	14	.00	4.3	---	.36
13	.00	25	.00	.00	15	.00	3.4	---	.30
14	.00	29	.00	.00	18	.00	2.1	---	.18
15	.00	36	.00	.00	28	.00	1.1	---	.09
16	.00	34	.00	.36	8	.00	.67	---	.03
17	.00	21	.00	3.9	14	.03	.57	---	.02
18	.00	16	.00	5.7	18	.17	.00	---	.00
19	.00	15	.00	6.5	23	.28	.00	55	.00
20	.00	16	.00	5.3	15	.18	.70	72	.13
21	.00	15	.00	5.5	12	.16	.00	---	.00
22	.00	14	.00	5.1	14	.20	3.3	---	.20
23	.00	16	.00	3.7	13	.13	6.6	---	.70
24	.00	19	.00	2.3	11	.07	5.5	---	.40
25	.00	17	.00	3.6	10	.09	5.5	---	.44
26	.00	15	.00	7.8	10	.21	6.3	---	.90
27	.00	14	.00	6.8	8	.15	9.6	---	1.5
28	.00	11	.00	6.8	8	.15	7.3	---	.80
29	.00	9	.00	6.2	6	.10	6.0	---	.69
30	.00	8	.00	5.5	5	.08	3.1	---	.33
31	.00	10	.00	---	---	---	3.4	28	.35
TOTAL	0.00	---	0.00	75.06	---	2.00	99.04	---	8.83
JANUARY			FEBRUARY			MARCH			
1	3.4	24	.30	3.2	80	.65	7.7	---	.90
2	5.3	20	.36	3.4	---	.31	7.8	---	.91
3	6.8	17	.35	3.4	---	.31	8.5	---	.92
4	6.3	18	.37	3.4	---	.31	15	---	2.0
5	8.1	37	.93	3.4	---	.31	11	---	1.7
6	13	48	1.8	3.4	---	.31	8.6	---	1.5
7	8.3	35	.88	3.4	---	.31	5.7	---	1.0
8	4.3	22	.33	3.2	---	.30	5.5	---	1.0
9	3.4	34	.41	1.6	---	.12	11	---	1.7
10	3.4	32	.38	1.1	---	.09	15	---	2.4
11	2.0	40	.34	1.1	---	.09	14	---	2.0
12	1.1	76	.45	1.1	---	.09	9.3	---	1.5
13	2.1	52	.42	2.2	---	.18	8.1	37	1.0
14	2.2	27	.22	2.2	---	.18	6.5	35	.83
15	2.2	14	.12	2.2	---	.18	7.9	34	.91
16	2.2	10	.09	2.2	---	.18	9.0	33	.89
17	2.2	25	.21	2.2	---	.18	8.6	32	.82
18	2.2	29	.24	2.2	---	.18	7.3	31	.70
19	2.2	14	.12	2.2	---	.18	5.5	35	.63
20	2.2	16	.13	2.2	---	.18	8.2	44	1.1
21	2.2	19	.16	2.2	---	.18	8.8	48	1.3
22	2.2	21	.18	2.2	---	.18	7.3	39	.90
23	1.4	22	.14	2.1	---	.17	6.3	31	.62
24	1.2	24	.14	1.1	---	.09	5.1	---	.40
25	3.0	20	.17	2.0	---	.17	5.4	---	.41
26	3.2	14	.16	4.5	---	.40	5.5	---	.42
27	1.1	21	.13	4.5	---	.40	3.9	---	.25
28	3.3	49	.42	5.3	---	.50	4.5	22	.33
29	3.4	61	.51	---	---	---	3.5	16	.15
30	4.5	56	.66	---	---	---	2.2	29	.17
31	4.0	66	.69	---	---	---	1.3	27	.10
TOTAL	112.4	---	11.81	73.2	---	6.73	234.0	---	29.46

SALT RIVER BASIN

05506500 MIDDLE FORK SALT RIVER AT PARIS, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1.6	39	.17	.00	12	.00	169	271	122
2	8.4	48	1.0	.00	7	.00	75	189	34
3	41	49	5.7	.00	5	.00	137	172	65
4	57	30	4.9	.00	5	.00	84	140	31
5	92	35	9.1	.00	4	.00	46	116	14
6	66	26	4.8	.00	5	.00	31	68	5.7
7	35	14	1.4	.00	4	.00	19	57	2.8
8	21	24	1.4	1.8	4	.02	13	51	1.9
9	15	28	1.3	6.9	7	.13	13	38	1.3
10	13	28	1.1	23	8	.48	12	37	1.2
11	11	20	.64	15	8	.32	9.0	42	1.0
12	8.9	10	.26	11	8	.24	15	48	2.0
13	7.6	7	.16	7.8	8	.17	15	55	2.2
14	5.4	5	.08	9.6	9	.24	9.7	43	1.1
15	4.5	7	.10	9.9	9	.25	9.3	24	.60
16	3.7	10	.12	9.3	8	.20	9.9	17	.46
17	3.4	8	.10	4.9	7	.09	11	18	.54
18	3.0	9	.10	3.6	9	.08	14	17	.69
19	1.2	9	.05	4.9	24	.31	12	20	.71
20	.00	7	.02	4.5	34	.42	11	13	.38
21	.85	8	.04	5.8	23	.35	9.1	24	.59
22	.74	7	.04	3.9	11	.11	7.7	18	.37
23	.14	10	.03	1.7	7	.03	238	191	219
24	.00	7	.01	.00	9	.00	218	422	276
25	.00	5	.00	120	78	102	86	233	55
26	.00	6	.00	363	724	764	41	130	14
27	.00	7	.00	175	346	159	27	86	6.3
28	.00	6	.00	1450	428	3010	61	90	16
29	.00	8	.00	5730	1010	15500	235	142	99.8
30	.00	11	.00	3550	762	7220	81	132	29
31	---	---	---	980	500	1360	---	---	---
TOTAL	400.43	---	32.62	12491.60	---	28118.44	1718.7	---	1004.64
JULY			AUGUST			SEPTEMBER			
1	38	128	13	585	397	701	196	121	71
2	25	123	8.3	157	129	59	60	100	16
3	19	117	5.7	62	107	18	32	88	7.6
4	15	112	4.5	35	103	9.7	17	82	3.8
5	13	106	3.7	21	85	4.8	12	66	2.3
6	11	67	2.0	13	66	2.3	12	61	2.0
7	9.9	44	1.2	9.8	47	1.3	11	51	1.5
8	8.4	30	.68	7.6	45	.93	76	---	20
9	7.7	24	.51	5.9	34	.53	1660	---	650
10	5.4	19	.28	5.2	37	.52	1240	---	420
11	1.2	20	.06	4.5	24	.29	390	120	143
12	.82	37	.08	4.5	30	.36	142	80	33
13	.00	36	.00	4.0	---	.39	70	73	14
14	.00	---	.00	2.1	---	.20	52	---	10
15	.00	---	.00	.00	---	.00	72	---	18
16	.00	---	.00	.41	---	.02	127	---	30
17	.00	---	.00	.00	41	.00	71	47	8.9
18	.35	44	.04	.00	42	.00	39	56	6.1
19	1.1	43	.13	.00	44	.00	28	72	5.4
20	.59	41	.06	.00	39	.00	20	45	2.5
21	.76	37	.07	4.6	32	.39	14	36	1.4
22	1.1	72	.21	25	25	1.7	11	20	.59
23	1.1	52	.16	13	31	1.1	8.5	48	1.1
24	1.1	15	.04	6.5	41	.72	6.2	58	.98
25	2.0	18	.09	5.3	---	.50	5.0	52	.71
26	2.2	21	.12	11	---	1.5	4.1	50	.54
27	4.1	19	.21	7.8	---	1.0	3.4	49	.41
28	4.6	14	.17	65	---	15	3.0	47	.35
29	30	14	1.2	262	165	154	2.0	45	.24
30	163	50	75	577	311	551	.00	44	.00
31	1230	535	1880	605	155	286	---	---	---
TOTAL	1596.42	---	1997.51	2499.21	---	1812.25	4384.20	---	1471.42

SALT RIVER BASIN

05506800 ELK FORK SALT RIVER NEAR MADISON, MO

LOCATION.--Lat 39°26'05", long 92°10'04", in SE 1/4 NE 1/4 SW 1/4 sec.29, T.54 N., R.11 W., Monroe County, Hydrologic Unit 07110006, on downstream side of highway, 25 ft to the left of bridge on State Highway AA, 500 ft downstream from Allen Creek, 3.5 mi southeast of Madison, and at mile 29.8.

DRAINAGE AREA.--200 mi².

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

REVISED RECORDS.--WDR MO 1973: 1970 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 690.16 ft above National Geodetic Vertical Datum of 1929 (Missouri State Highway and Transportation Commission bench mark).

REMARKS.--No estimated daily discharges. Records good except for May 10-28, July 1-12, July 22 to Aug. 9, and Aug. 30 to Sept. 26, when the manometer-orifice was silted over, which are fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 9, 1967, reached a stage of 31.25 ft, from floodmark, discharge, 31,200 ft³/s, by contracted-opening method. Flood in 1871 reached nearly the same stage, from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	2.1	1.6	2.1	2.5	17	4.7	1.3	31	7.3	158	58
2	3.8	2.3	1.2	1.6	1.9	15	4.6	1.3	18	6.2	40	31
3	2.0	2.1	.84	1.4	1.4	11	25	1.3	151	4.5	20	24
4	1.1	2.2	.57	1.1	1.0	11	123	1.2	274	2.7	12	16
5	1.1	2.4	.41	2.4	.77	13	65	1.1	64	2.3	7.4	11
6	1.0	2.6	.31	4.1	.70	13	25	1.0	29	1.9	4.6	9.0
7	.94	2.6	.22	8.4	.69	12	14	2.3	16	1.8	3.1	7.9
8	.94	2.5	.13	9.1	.57	8.3	9.9	1.8	11	1.3	2.1	490
9	.93	2.5	.08	10	.49	6.0	6.8	3.6	7.5	1.2	1.7	2610
10	.84	3.9	.08	6.7	.49	5.1	5.4	1.7	5.3	1.2	1.5	1680
11	.98	4.3	.04	4.5	.55	4.9	4.3	1.0	4.3	1.0	1.2	175
12	.96	7.4	.03	3.3	.65	4.7	3.4	.87	5.7	.94	.95	77
13	.94	3.7	.04	2.6	1.2	4.6	3.0	.83	29	.89	.91	46
14	.94	7.8	.07	2.0	1.9	4.8	2.9	.79	48	.76	.77	58
15	.91	7.2	.08	1.8	2.7	4.3	2.7	.83	30	.83	.70	64
16	.87	5.6	.06	1.5	3.6	2.8	2.3	.72	15	.94	.73	42
17	.96	2.8	.08	1.3	2.8	2.4	2.0	.72	8.7	.99	.70	26
18	1.4	.70	.10	1.2	2.3	2.4	2.0	.72	8.1	1.4	.69	18
19	1.3	.14	.13	1.0	1.9	2.8	2.2	1.3	7.4	1.5	.66	13
20	1.1	.26	.13	.94	1.9	4.5	1.9	1.6	10	1.2	.81	9.1
21	1.1	1.5	.13	.83	2.1	5.2	1.8	6.2	7.7	1.1	35	7.3
22	1.0	1.0	.43	.76	2.1	8.7	1.6	2.0	6.8	1.2	50	6.1
23	1.2	.02	.70	.67	1.5	8.5	1.7	1.0	515	1.5	31	4.8
24	1.7	.01	.67	.57	1.3	7.6	1.4	1.6	175	1.2	16	3.8
25	1.8	.10	.50	.91	1.4	8.8	1.4	16	38	.89	11	3.5
26	1.9	.69	.75	1.4	3.2	6.5	1.4	63	19	1.0	22	3.0
27	2.2	.77	1.9	1.5	3.3	4.5	1.2	53	37	1.1	50	2.5
28	2.4	3.4	2.7	1.7	13	3.5	1.4	1390	52	124	442	2.6
29	2.4	3.5	7.5	2.5	---	3.7	1.5	1880	33	47	1350	2.6
30	2.3	2.2	4.7	2.1	---	4.5	1.5	190	15	703	888	2.2
31	2.2	---	3.0	2.0	---	5.3	---	57	---	988	141	---
MEAN	1.56	2.61	.94	2.64	2.07	6.98	10.8	119	55.7	61.6	106	183
MAX	5.1	7.8	7.5	10	13	17	123	1880	515	988	1350	2610
MIN	.84	.01	.03	.57	.49	2.4	1.2	.72	4.3	.76	.66	2.2
IN.	.01	.01	.01	.02	.01	.04	.06	.69	.31	.36	.61	1.02

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	137	152	169	117	184	276	319	203	203	147	39.9	95.6
MEAN	137	152	169	117	184	276	319	203	203	147	39.9	95.6
MAX	1077	1248	750	533	935	1154	1651	666	1005	1409	256	577
(WY)	1987	1986	1983	1974	1985	1973	1973	1981	1969	1981	1985	1986
MIN	.25	1.24	.94	.95	2.07	3.02	10.8	11.5	1.61	1.06	.82	.63
(WY)	1981	1981	1989	1977	1989	1981	1989	1988	1988	1988	1980	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	46.3	170
HIGHEST ANNUAL MEAN		364
LOWEST ANNUAL MEAN		23.6
HIGHEST DAILY MEAN	2610	24100
LOWEST DAILY MEAN	.01	.00
INSTANTANEOUS PEAK FLOW	5020	42300
INSTANTANEOUS PEAK STAGE	17.17	33.4
INSTANTANEOUS LOW FLOW	0.01	.00
ANNUAL RUNOFF (INCHES)	3.14	11.53
10 PERCENTILE	42	286
50 PERCENTILE	1.7	14
95 PERCENTILE	.19	.48

SALT RIVER BASIN

57

05506800 ELK FORK SALT RIVER NEAR MADISON, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.44	3.22	3.39	3.41	3.44	3.90	3.46	3.12	4.13	3.63	5.29	4.54
2	3.38	3.24	3.35	3.37	3.39	3.84	3.43	3.10	3.88	3.52	4.29	4.13
3	3.25	3.23	3.31	3.35	3.34	3.71	3.70	3.14	5.04	3.41	3.90	3.95
4	3.11	3.22	3.27	3.32	3.30	3.71	5.18	3.12	6.32	3.30	3.71	3.81
5	3.09	3.25	3.25	3.36	3.27	3.79	4.69	3.07	4.61	3.26	3.55	3.67
6	3.09	3.26	3.23	3.53	3.26	3.72	4.09	3.05	4.11	3.23	3.43	3.59
7	3.06	3.27	3.22	3.74	3.26	3.75	3.82	3.29	3.84	3.19	3.33	3.57
8	3.06	3.26	3.19	3.70	3.24	3.63	3.70	3.24	3.67	3.14	3.24	3.74
9	3.04	3.24	3.23	3.79	1.82	3.54	3.58	3.25	3.55	3.12	3.19	13.73
10	3.02	3.35	3.17	3.67	3.23	3.50	3.52	3.24	3.46	3.11	3.16	12.63
11	3.04	3.35	3.15	3.56	3.23	3.48	3.47	3.07	3.39	3.09	3.12	5.47
12	3.06	3.75	3.15	3.49	3.25	3.47	3.41	3.06	3.45	3.07	3.08	4.73
13	3.05	3.51	3.14	3.45	3.30	3.46	3.36	3.05	4.09	3.07	3.07	4.34
14	3.04	3.74	3.15	3.40	3.38	3.48	3.35	3.02	4.17	3.05	3.05	4.44
15	3.04	3.72	3.16	3.38	3.42	3.47	3.32	3.01	4.14	3.04	3.04	4.60
16	3.03	3.63	3.14	3.36	3.50	3.36	3.28	3.02	3.80	3.06	3.04	4.32
17	3.04	3.51	3.16	3.35	3.46	3.29	3.26	3.01	3.60	3.08	3.04	4.03
18	3.14	3.32	3.16	3.33	3.42	3.29	3.23	2.97	3.58	3.14	3.03	3.86
19	3.15	3.21	3.18	3.31	3.38	3.34	3.27	3.12	3.51	3.16	3.02	3.72
20	3.11	3.21	3.18	3.30	3.38	3.48	3.22	3.19	3.61	3.13	3.04	3.60
21	3.08	3.26	3.18	3.29	3.40	3.48	3.20	3.73	3.57	3.09	3.13	3.52
22	3.08	3.37	3.18	3.28	3.40	3.64	3.16	3.27	3.54	3.11	4.02	3.48
23	3.09	3.13	3.28	3.27	3.34	3.65	3.20	3.00	3.59	3.17	4.12	3.42
24	3.17	3.11	3.28	3.25	3.34	3.58	3.15	3.02	5.30	3.13	3.82	3.36
25	3.19	3.16	3.25	3.26	3.32	3.66	3.15	3.31	4.26	3.07	3.67	3.35
26	3.20	3.29	3.27	3.34	3.50	3.57	3.12	3.99	3.93	3.09	3.57	3.33
27	3.24	3.30	3.39	3.36	3.45	3.48	3.09	4.57	3.83	3.10	3.58	3.26
28	3.25	3.49	3.42	3.35	3.61	3.44	3.13	3.98	4.38	3.11	6.68	3.28
29	3.25	3.54	3.73	3.42	---	3.41	3.15	11.81	4.22	4.17	9.21	3.27
30	3.24	3.45	3.58	3.40	---	3.43	3.17	5.48	3.79	3.98	8.56	3.24
31	3.24	---	3.49	3.38	---	3.52	---	4.52	---	8.48	5.27	---

SALT RIVER BASIN

05507600 LICK CREEK AT PERRY, MO

LOCATION.--Lat 39°25'53", long 91°40'34", near center of NW 1/4 SW 1/4 sec.27, T.54 N., R.7 W., Ralls County, Hydrologic Unit 07110007, on right bank and downstream side of State Highway 154 bridge, 0.1 mi west of Perry and at mile 11.9.

DRAINAGE AREA.--104 mi².

PERIOD OF RECORD.--October 1979 to current year. Prior to October 1979 gages were maintained and operated by U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 625.00 ft above National Geodetic Vertical Datum of 1929. Prior to November 1967 nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	3.6	5.1	1.5	21	5.8	.77	17	3.9	.42	5.2
2	.00	.00	2.7	3.9	1.5	12	58	.81	11	2.5	.27	9.3
3	.00	.00	2.1	3.1	1.1	25	265	.87	150	1.7	.15	9.1
4	.00	.00	1.6	2.7	.61	111	193	.98	32	1.3	.11	4.7
5	.00	.00	1.4	73	.65	50	46	1.1	13	.96	.07	2.5
6	.00	.00	1.2	256	.93	24	30	1.2	8.2	.69	.04	1.8
7	.00	.00	1.1	66	.71	14	38	1.0	5.8	.53	.03	1.4
8	.00	.00	.94	25	.84	6.3	24	.81	4.5	.43	.02	1.7
9	.00	.00	.82	15	.43	4.7	16	.89	3.6	.35	.02	142
10	.00	.00	.74	8.2	.70	4.7	12	1.8	2.9	.31	.01	63
11	.00	.00	.67	5.7	.70	8.3	9.5	2.6	3.0	.22	.00	16
12	.00	.61	.57	4.5	.70	11	7.7	3.0	71	.15	.00	7.7
13	.00	.04	.56	3.3	1.0	10	6.3	3.0	31	.14	.00	4.5
14	.00	.02	.60	2.7	1.2	7.4	5.3	3.1	12	.10	.00	3.4
15	.00	.22	.55	2.5	1.6	5.9	4.9	2.5	7.2	.06	.00	2.3
16	.00	1.1	.37	2.1	1.7	4.2	4.3	2.5	5.0	.05	1.1	1.6
17	.00	.35	.35	1.9	1.6	3.5	3.6	2.4	3.4	.04	.14	1.1
18	.00	.60	.35	1.7	1.7	3.0	3.3	2.9	3.2	.36	.05	.64
19	.00	.79	.40	1.6	1.7	3.4	3.1	3.4	2.7	.49	.04	1.6
20	.00	.78	.49	1.5	2.2	13	2.7	3.8	2.0	.33	.04	.94
21	.00	.67	.43	1.4	2.9	63	2.3	2.5	1.6	.29	.66	.61
22	.00	.39	3.0	1.3	3.4	27	2.1	1.9	1.4	.35	38	.46
23	.00	.26	38	1.2	2.0	13	1.9	1.7	1.2	.33	68	.39
24	.00	.31	25	1.1	2.2	9.0	1.6	1.5	1.1	.24	12	.23
25	.00	.70	10	1.4	2.1	7.7	1.4	362	.90	2.5	5.6	.17
26	.00	5.8	7.5	2.3	7.0	6.5	1.3	259	.76	9.3	3.0	.14
27	.00	8.5	76	2.2	16	5.3	1.3	26	353	3.6	1.8	.10
28	.00	6.9	101	1.8	20	8.7	1.2	1390	37	1.6	6.6	.05
29	.00	5.5	29	1.7	---	9.3	1.0	3800	12	.96	24	.04
30	.00	4.8	17	1.7	---	7.5	.81	132	6.3	.93	30	.04
31	.00	---	7.5	1.7	---	7.2	---	32	---	.68	10	---
MEAN	.00	1.28	10.8	16.2	2.81	16.3	25.1	195	26.8	1.14	6.52	9.42
MAX	.00	8.5	101	256	20	111	265	3800	353	9.3	68	142
MIN	.00	.00	.35	1.1	.43	3.0	.81	.77	.76	.04	.00	.04
IN.	.00	.01	.12	.18	.03	.18	.27	2.16	.29	.01	.07	.10

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	19.0	115	120	39.7	102	78.1	78.3	69.7	60.9	76.5	29.5	18.4
MEAN	19.0	115	120	39.7	102	78.1	78.3	69.7	60.9	76.5	29.5	18.4
MAX	95.9	652	442	151	389	340	302	221	221	481	143	120
(WY)	1987	1986	1983	1982	1985	1984	1984	1983	1982	1981	1982	1982
MIN	.00	.05	.05	.00	1.67	.41	2.49	1.27	.03	1.14	.00	.01
(WY)	1989	1981	1980	1980	1981	1981	1981	1988	1988	1989	1984	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	26.3	66.9
HIGHEST ANNUAL MEAN		111
LOWEST ANNUAL MEAN		15.1
HIGHEST DAILY MEAN	3800	4800
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	8200	9360
INSTANTANEOUS PEAK STAGE	20.32	26.24
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	3.43	8.74
10 PERCENTILE	25	79
50 PERCENTILE	1.5	3.4
95 PERCENTILE	.00	.00

SALT RIVER BASIN

59

05507600 LICK CREEK AT PERRY, MO---Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.77	---	5.32	5.39	5.18	6.03	5.42	5.14	5.71	5.34	5.02	5.41
2	4.75	---	5.27	5.33	5.16	5.61	5.35	5.14	5.55	5.26	4.99	5.36
3	---	---	5.23	5.29	5.02	5.61	6.89	5.15	7.32	5.20	4.97	5.55
4	---	---	5.18	5.27	4.99	6.61	7.19	5.15	6.01	5.15	4.95	5.38
5	---	---	5.16	5.29	4.98	6.12	6.18	5.18	5.67	5.11	4.92	5.26
6	---	4.75	5.14	7.57	5.10	5.95	5.81	5.20	5.51	5.07	4.90	5.19
7	---	4.75	5.12	6.35	4.92	5.85	6.04	5.18	5.42	5.04	4.87	5.16
8	---	4.75	5.10	5.90	5.09	5.44	5.86	5.15	5.36	5.02	4.85	5.12
9	---	---	5.09	5.75	4.85	5.37	5.72	5.15	5.32	5.01	4.84	5.54
10	---	4.87	5.08	5.51	5.07	5.34	5.62	5.23	5.28	5.00	4.82	6.34
11	---	4.93	5.06	5.42	5.07	5.46	5.55	5.30	5.25	4.98	4.81	5.74
12	---	5.41	5.04	5.37	5.06	5.57	5.49	5.32	6.57	4.96	4.80	5.51
13	---	5.12	5.04	5.30	5.11	5.57	5.44	5.33	5.96	4.96	4.79	5.36
14	---	5.08	5.04	5.26	5.14	5.47	5.41	5.34	5.64	4.94	4.79	5.32
15	---	5.04	5.04	5.26	5.18	5.42	5.40	5.29	5.48	4.92	4.78	5.25
16	---	5.31	5.01	5.23	5.19	5.37	5.37	5.30	5.39	4.91	5.22	5.20
17	---	5.23	5.01	5.20	5.17	5.31	5.34	5.29	5.31	4.90	4.96	5.15
18	4.77	5.25	5.01	5.19	5.19	5.26	5.32	5.31	5.30	4.89	4.91	5.10
19	4.75	5.29	5.02	5.18	5.19	5.30	5.32	5.37	5.27	5.03	4.89	5.22
20	4.75	5.28	5.03	5.17	5.22	5.51	5.30	5.41	5.22	5.01	4.87	5.14
21	4.77	5.27	5.02	5.16	5.27	6.31	5.27	5.31	5.18	4.98	4.91	5.10
22	4.77	5.23	5.02	5.15	5.29	5.94	5.26	5.26	5.17	5.00	5.10	5.08
23	4.82	5.21	6.10	5.14	4.92	5.66	5.25	5.24	5.14	5.00	6.32	5.07
24	4.78	5.20	5.90	5.13	5.24	5.53	5.22	5.22	5.12	4.98	5.64	5.05
25	4.77	5.26	5.58	5.12	5.21	5.49	5.22	5.37	5.10	4.97	5.43	5.04
26	4.76	5.44	5.48	5.23	5.47	5.45	5.21	7.28	5.08	5.55	5.29	5.03
27	4.75	5.51	5.51	5.24	5.71	5.39	5.20	5.91	9.01	5.33	5.20	5.01
28	4.75	5.46	6.65	5.19	5.77	5.52	5.19	5.61	6.07	5.20	5.56	5.00
29	4.75	5.41	5.95	5.19	---	5.53	5.18	17.50	5.64	5.11	5.77	4.99
30	4.75	5.37	5.87	5.19	---	5.47	5.15	6.79	5.44	5.11	5.98	4.99
31	4.75	---	5.49	5.18	---	5.48	---	6.03	---	5.07	5.58	---

05507800 SALT RIVER NEAR CENTER, MO

LOCATION.--Lat 39°34'26", long 91°34'15", near SE corner, sec.4, T.55 N., R.6 W., Ralls County, Hydrologic Unit 07110007, on left bank at left downstream end of bridge on Highway A, 0.5 mi downstream from Clarence Cannon Recharge Dam, 5 mi northwest of Center, at mile 53.1.

DRAINAGE AREA.--2,350 mi², approximately.

PERIOD OF RECORD.--October 1979 to current year. Prior to October 1979, gage heights only by U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 500.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1979 nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station. Flow regulated by Clarence Cannon Recharge Dam 0.5 mi upstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	16	81	70	102	69	62	61	410	51	520	1940
2	56	73	81	61	102	85	62	80	825	51	1140	1220
3	54	135	81	60	105	169	64	68	101	52	1570	390
4	52	163	81	60	106	102	60	58	138	53	1850	1650
5	52	176	81	65	106	74	58	82	120	51	346	1340
6	50	138	81	65	106	76	57	74	159	442	54	1460
7	53	139	81	60	103	73	55	61	123	138	50	1250
8	51	165	81	60	92	73	54	51	104	53	45	2060
9	47	147	82	945	174	72	107	47	120	51	56	732
10	44	103	90	196	110	69	669	74	138	55	58	63
11	48	101	90	120	52	73	279	66	150	57	51	2180
12	48	98	348	119	61	74	31	55	161	1130	60	2390
13	46	93	68	115	69	73	614	84	139	2710	60	2770
14	43	86	58	112	66	70	264	77	114	834	56	2390
15	40	91	73	112	68	78	102	66	98	67	58	2340
16	41	97	71	107	70	65	91	56	129	63	60	2580
17	40	98	74	101	66	84	96	77	122	61	141	2030
18	45	104	73	102	68	66	101	70	121	64	74	3610
19	46	104	67	102	68	66	91	64	105	80	62	2240
20	46	104	66	105	68	72	161	88	102	66	54	2420
21	46	97	68	102	67	79	116	78	1330	68	52	2380
22	46	95	72	98	64	79	71	64	536	66	82	2700
23	45	87	68	96	63	76	53	51	209	62	581	1240
24	48	86	68	98	65	70	41	48	198	61	495	66
25	50	84	68	103	66	71	48	85	142	1210	201	110
26	50	87	68	103	64	68	92	93	102	1780	405	122
27	47	80	69	100	63	227	70	81	469	2640	376	55
28	646	80	68	100	71	219	63	69	1150	3090	556	47
29	691	81	68	100	---	79	85	61	15	1220	418	43
30	76	81	73	100	---	75	72	52	50	327	84	63
31	42	---	81	96	---	71	---	52	---	60	2200	---
MEAN	89.8	103	83.2	124	81.6	87.0	126	67.5	256	539	381	1463
MAX	691	176	348	945	174	227	669	93	1330	3090	2200	3610
MIN	40	16	58	60	52	65	31	47	15	51	45	43
IN.	.04	.05	.04	.06	.04	.04	.06	.03	.12	.26	.19	.69

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	772	1884	2612	1155	1862	2718	2577	1805	2361	2025	823	980
MEAN	772	1884	2612	1155	1862	2718	2577	1805	2361	2025	823	980
MAX	4355	6038	10360	3703	8098	10530	10310	6741	6240	10810	2396	3205
(WY)	1987	1987	1983	1986	1982	1985	1983	1981	1982	1981	1982	1982
MIN	4.62	14.8	31.4	30.5	81.6	87.0	126	67.5	126	75.2	13.9	25.3
(WY)	1980	1981	1980	1980	1989	1989	1989	1989	1988	1983	1980	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	283	1795
HIGHEST ANNUAL MEAN		2703
LOWEST ANNUAL MEAN		283
HIGHEST DAILY MEAN	3610	65600
LOWEST DAILY MEAN	15	.44
INSTANTANEOUS PEAK FLOW	7090	72800
INSTANTANEOUS PEAK STAGE	11.54	33.00
INSTANTANEOUS LOW FLOW	15	.44
ANNUAL RUNOFF (INCHES)	1.63	10.37
10 PERCENTILE	744	5200
50 PERCENTILE	79	249
95 PERCENTILE	47	19

05507800 SALT RIVER NEAR CENTER, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.36	2.74	3.13	3.11	3.20	4.69	2.54	2.33	2.54	2.19	2.25	4.39
2	3.03	3.11	3.13	3.05	3.19	4.41	2.50	2.48	4.63	2.18	2.96	4.67
3	3.02	3.05	3.13	3.04	3.20	4.26	2.49	2.40	2.57	2.19	2.88	3.22
4	3.00	3.44	3.13	3.04	3.20	4.18	2.48	2.31	2.80	2.20	3.75	2.29
5	3.01	3.49	3.13	3.04	3.20	4.16	2.48	2.48	2.68	2.18	2.96	3.12
6	3.00	3.37	3.13	3.07	3.20	4.19	2.47	2.43	2.62	2.18	2.23	2.28
7	3.01	3.24	3.13	3.05	3.20	4.15	2.46	2.34	2.72	2.46	2.19	2.50
8	3.02	3.45	3.13	3.03	3.18	4.14	2.45	2.27	2.59	2.20	2.16	3.50
9	2.99	3.43	3.13	3.05	3.42	4.12	2.45	2.21	2.69	2.19	2.12	4.47
10	2.98	3.20	3.15	3.30	3.82	4.09	3.17	2.43	2.77	2.18	2.25	2.27
11	3.00	3.20	3.16	3.26	3.32	4.09	3.03	2.37	2.85	2.25	2.19	4.56
12	2.99	3.20	3.16	3.24	4.75	4.10	2.01	2.29	2.91	2.19	2.26	5.64
13	3.00	3.18	3.03	3.24	4.93	4.08	2.15	2.50	2.79	2.94	2.26	6.52
14	2.98	3.16	2.99	3.22	4.97	4.08	2.92	2.44	2.66	5.61	2.25	4.04
15	2.96	3.15	3.07	3.22	5.00	3.96	2.60	2.37	2.56	2.31	2.25	6.14
16	2.96	3.19	3.09	3.22	5.01	3.36	2.56	2.31	2.75	2.28	2.27	6.37
17	2.96	3.19	3.08	3.18	5.01	2.95	2.49	2.46	2.66	2.28	2.25	5.64
18	2.98	3.21	3.11	3.19	4.94	2.74	2.60	2.40	2.69	2.28	2.35	7.74
19	2.99	3.21	3.07	3.19	4.90	2.71	2.51	2.36	2.61	2.30	2.30	4.47
20	2.99	3.23	3.06	3.19	4.89	2.72	2.93	2.52	2.55	2.30	2.19	6.30
21	2.99	3.19	3.07	3.20	4.88	2.76	2.86	2.46	8.34	2.31	2.16	5.80
22	2.99	3.18	3.07	3.18	4.86	2.74	2.44	2.36	3.01	2.32	2.38	5.49
23	2.99	3.16	3.07	3.17	4.86	2.70	2.30	2.25	2.67	2.28	2.38	6.31
24	2.98	3.15	3.07	3.17	4.80	2.65	2.22	2.21	2.93	2.27	3.83	2.28
25	3.00	3.14	3.07	3.18	4.75	2.62	2.12	2.41	2.76	2.28	2.30	2.21
26	3.00	3.15	3.07	3.20	4.74	2.60	2.60	2.54	2.64	2.56	2.44	2.43
27	2.99	3.11	3.08	3.18	4.73	2.59	2.40	2.47	2.25	3.01	2.57	2.20
28	4.43	3.12	3.07	3.18	4.71	3.81	2.34	2.38	6.12	4.46	3.43	2.13
29	5.26	3.13	3.07	3.18	---	2.64	2.51	2.34	1.77	3.00	3.63	2.08
30	3.31	3.13	3.07	3.18	---	2.59	2.43	2.27	2.18	2.70	2.42	2.27
31	3.29	---	3.14	3.18	---	2.57	---	2.20	---	2.26	2.38	---

SALT RIVER BASIN

05508000 SALT RIVER NEAR NEW LONDON, MO

LOCATION.--Lat 39°36'44", long 91°24'30", in NE 1/4 NW 1/4 sec.36, T.56 N., R.5 W., Ralls County, Hydrologic Unit 07110007, on left bank near downstream end of bridge on north bound side of dual U.S. Highway 61, 9.9 miles downstream from Clarence Cannon Recharge Dam, 2.0 mi north of New London, 8.0 mi upstream from Spencer Creek and at mile 35.5.

DRAINAGE AREA.--2,480 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1922 to current year.

GAGE.--Water-stage recorder. Datum of gage is 477.03 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 7, 1931, nonrecording gage 400 ft upstream at datum 0.03 ft higher; Apr. 7, 1931, to Jan. 17, 1935, nonrecording gage at site 180 ft upstream at datum 0.04 ft lower, Jan. 1935 to Apr. 1985 water stage records 400 ft upstream same datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station. Flow regulated by Clarence Cannon Recharge Dam 9.9 mi upstream since Sept. 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1858, reached a stage of 27.6 ft, present site and datum, based on comparison of June 1928 flood crest at stone marker 1.0 mi downstream of gage.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	42	90	69	100	68	84	75	70	35	60	2650
2	72	30	90	68	100	71	97	68	1070	43	750	2330
3	52	74	90	66	100	88	340	80	245	44	1300	522
4	51	163	90	66	100	176	360	76	131	44	2050	262
5	50	178	90	79	101	107	150	69	139	44	1490	2310
6	50	183	89	109	99	73	112	80	125	44	116	767
7	50	141	88	86	110	83	99	77	151	475	54	1510
8	52	167	88	74	107	76	92	67	119	82	47	2140
9	52	182	90	416	95	73	85	61	105	47	42	2930
10	52	158	90	723	186	71	191	53	116	44	45	334
11	49	117	92	136	122	72	595	70	137	44	50	438
12	47	131	97	126	54	73	100	67	169	51	47	2740
13	47	117	377	121	63	73	75	61	159	2090	50	3170
14	48	107	70	118	70	72	547	81	134	2610	51	2180
15	48	100	61	116	71	70	143	79	109	167	51	2730
16	46	126	69	112	71	80	116	68	100	68	52	2700
17	45	115	70	109	71	81	108	61	122	60	53	2190
18	44	112	69	106	71	77	111	77	127	56	119	3650
19	45	118	68	104	70	71	114	77	116	69	64	2200
20	49	118	68	103	71	77	122	74	98	74	55	2710
21	51	113	68	103	71	83	170	84	860	62	56	2540
22	49	107	80	106	69	82	117	82	1010	58	189	2860
23	50	103	86	104	67	80	81	70	133	57	117	2470
24	48	97	73	102	67	78	64	58	212	55	925	219
25	47	95	70	105	68	77	52	144	158	334	141	88
26	47	130	70	109	68	76	58	461	124	1230	232	147
27	48	105	87	107	68	76	91	163	94	2370	465	96
28	132	91	93	106	68	292	75	113	1390	3600	469	70
29	986	89	76	108	---	139	67	125	277	2110	2230	64
30	343	90	72	105	---	93	81	100	35	1130	286	59
31	77	---	71	103	---	87	---	73	---	113	406	---
MEAN	95.2	117	89.7	131	84.9	90.2	150	93.4	261	558	389	1636
MAX	986	183	377	723	186	292	595	461	1390	3600	2230	3650
MIN	44	30	61	66	54	68	52	53	35	35	42	59
IN.	.04	.05	.04	.06	.04	.04	.07	.04	.12	.26	.18	.74

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
MEAN	1062	1133	1145	1249	1902	2819	3125	2316	2403	1479	826	995
MAX	9124	6589	11100	6417	8787	13040	19110	12210	11490	14270	6689	9346
(WY)	1970	1929	1983	1974	1982	1973	1973	1943	1947	1969	1958	1970
MIN	1.94	2.82	3.85	12.5	9.79	33.7	150	73.4	45.8	2.49	.18	9.73
(WY)	1957	1954	1954	1954	1934	1956	1989	1934	1977	1936	1936	1976

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	Period
AVERAGE FLOW	307	1701
HIGHEST ANNUAL MEAN		4692
LOWEST ANNUAL MEAN		307
HIGHEST DAILY MEAN	3650	98200
LOWEST DAILY MEAN	30	.00
INSTANTANEOUS PEAK FLOW	6010	107000
INSTANTANEOUS PEAK STAGE	8.87	31.8
INSTANTANEOUS LOW FLOW	26	.00
ANNUAL RUNOFF (INCHES)	1.68	9.31
10 PERCENTILE	758	4520
50 PERCENTILE	91	262
95 PERCENTILE	47	16

SALT RIVER BASIN

63

05508000 SALT RIVER NEAR NEW LONDON, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.60	2.10	2.35	2.31	2.45	2.27	2.38	2.29	2.21	2.01	2.21	7.10
2	2.35	1.99	2.35	2.30	2.45	2.28	2.36	2.23	5.79	2.09	5.14	7.59
3	2.18	2.24	2.35	2.29	2.45	2.29	2.97	2.31	3.15	2.09	5.96	3.45
4	2.17	2.61	2.35	2.28	2.42	2.83	3.45	2.28	2.48	2.10	6.33	2.55
5	2.16	2.66	2.35	2.28	2.45	2.51	2.71	2.24	2.54	2.10	5.61	6.75
6	2.16	2.74	2.35	2.55	2.42	2.29	2.53	2.30	2.47	2.09	2.50	4.20
7	2.16	2.55	2.34	2.43	2.49	2.30	2.47	2.30	2.64	4.60	2.17	5.52
8	2.17	2.64	2.34	2.35	2.50	2.33	2.42	2.25	2.47	2.34	2.12	6.03
9	2.18	2.70	2.35	2.30	2.39	2.31	2.39	2.22	2.40	2.13	2.09	7.24
10	2.18	2.68	2.35	4.89	2.39	2.29	2.50	2.15	2.43	2.10	2.06	3.35
11	2.16	2.46	2.35	2.63	2.59	2.29	4.10	2.26	2.49	2.09	2.14	2.56
12	2.14	2.50	2.37	2.59	2.17	2.30	2.49	2.25	2.63	2.14	2.12	7.01
13	2.14	2.46	4.15	2.56	2.21	2.30	2.13	2.20	2.64	6.43	2.13	7.60
14	2.14	2.42	2.32	2.54	2.28	2.30	4.13	2.31	2.53	6.96	2.14	6.99
15	2.15	2.38	2.23	2.54	2.28	2.28	2.58	2.31	2.43	2.73	2.14	7.32
16	2.13	2.51	2.29	2.52	2.28	2.35	2.45	2.26	2.37	2.25	2.14	7.61
17	2.12	2.45	2.31	2.50	2.29	2.36	2.43	2.20	2.48	2.21	2.15	6.68
18	2.12	2.43	2.31	2.49	2.29	2.34	2.39	2.29	2.49	2.17	2.63	6.87
19	2.12	2.45	2.30	2.47	2.28	2.29	2.45	2.29	2.47	2.22	2.23	6.23
20	2.15	2.45	2.30	2.47	2.28	2.32	2.40	2.28	2.40	2.27	2.17	7.19
21	2.17	2.44	2.30	2.46	2.29	2.37	2.66	2.33	2.35	2.21	2.13	7.15
22	2.17	2.42	2.29	2.48	2.27	2.37	2.49	2.32	5.89	2.19	2.17	8.05
23	2.16	2.40	2.44	2.48	2.26	2.35	2.33	2.27	2.52	2.18	2.48	7.29
24	2.16	2.38	2.34	2.46	2.26	2.34	2.24	2.19	2.79	2.16	5.40	2.95
25	2.13	2.37	2.32	2.46	2.27	2.33	2.17	2.18	2.63	2.15	2.61	2.28
26	2.14	2.54	2.30	2.50	2.27	2.32	2.10	3.85	2.50	4.93	3.24	2.20
27	2.14	2.42	2.37	2.49	2.27	2.31	2.38	2.67	2.42	6.40	4.28	2.33
28	2.15	2.36	2.48	2.48	2.27	3.23	2.29	2.44	6.06	7.65	3.98	2.16
29	4.63	2.35	2.35	2.49	---	2.65	2.23	2.47	3.18	6.49	7.15	2.11
30	3.45	2.35	2.33	2.48	---	2.43	2.31	2.41	2.05	5.73	3.18	2.08
31	2.34	---	2.32	2.47	---	2.39	---	2.29	---	2.47	2.49	---

SALT RIVER BASIN

05508000 SALT RIVER NEAR NEW LONDON, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1967 to July 1975, July 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1979 to September 1981.

WATER TEMPERATURE: March 1979 to September 1981.

SUSPENDED-SEDIMENT: July 1980 to September 1989.

REMARKS.--Discontinued as National stream-quality accounting network station Sept. 1986. Discontinued as daily sediment station Sept. 1989. Sediment record good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 733 microsiemens, Jan. 12, 1981; minimum daily, 86 microsiemens, Dec. 3, 1979.

WATER TEMPERATURE: Maximum daily, 36.0°C, July 18, 19, 21, Aug. 23, 24, 1980; minimum daily, 0.0°C, Mar. 1, 1980.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,380 mg/L, Dec. 2, 1982; minimum daily mean, 1 mg/L, Dec. 17, 1987, Dec. 2, 1988, and Mar. 1, 1989.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 143,000 tons, May 18, 1981; minimum daily, 0.20 tons, Mar. 1, 1989.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 340 mg/L, Aug. 23; minimum daily mean, 1 mg/L, Dec. 2 and Mar. 1.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 2,170 tons, Sept. 1; minimum daily, 0.20 tons, Mar. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED SATUR-ATION (00301)	HARD-NESS TOTAL (MG/L AS CaCO3) (00900)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS Ca) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) (00925)
MAR 08...	1530	76	364	8.20	3.0	8.1	14.3	106	150	34	47	7.9
APR 04...	1045	370	306	8.00	10.5	77	8.7	80	130	23	41	7.5
MAY 08...	1045	67	312	8.10	16.0	6.8	8.3	86	130	31	40	7.1
JUN 06...	1130	120	309	8.10	24.5	27	6.5	79	130	28	40	7.2
JUL 11...	1430	45	295	8.20	33.0	9.8	7.1	101	120	23	36	6.5
AUG 07...	1015	54	275	8.10	26.5	6.8	6.7	84	--	--	--	--
SEP 05...	1230	1560	253	7.80	23.5	6.5	6.1	73	110	28	33	5.6

DATE	SODIUM, DIS-SOLVED (MG/L AS Na) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER WH FET FIELD (MG/L AS HCO3) (00440)	CAR-BONATE WATER WH FET FIELD (MG/L AS CO3) (00445)	ALKA-LINITY WAT WH TOT IT (MG/L AS CaCO3) (00419)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)
MAR 08...	11	4.3	140	0	116	52	13	0.20	2.4	221	20
APR 04...	9.5	4.8	130	0	110	37	11	0.20	5.0	198	--
MAY 08...	12	5.0	120	0	98	33	12	0.20	1.3	177	--
JUN 06...	11	4.9	120	0	102	31	15	0.30	2.8	172	--
JUL 11...	12	5.2	110	0	94	31	12	0.20	4.6	166	25
AUG 07...	--	--	98	0	80	32	11	0.20	--	171	24
SEP 05...	8.8	5.1	95	0	78	28	9.1	0.20	1.5	150	32

05508000 SALT RIVER NEAR NEW LONDON, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L) AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L) AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L) AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L) AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L) AS C) (00681)
MAR 08...	<1	0.010	0.610	0.140	0.140	1.2	0.050	0.050	0.010	6.0	4.8
APR 04...	--	0.020	0.630	0.150	0.130	1.1	0.120	0.050	0.010	10	6.6
MAY 08...	--	<0.010	<0.100	0.070	0.090	0.70	0.030	0.010	<0.010	6.0	4.9
JUN 06...	--	0.020	0.200	--	0.110	1.3	0.030	0.010	0.010	7.0	5.3
JUL 11...	<1	<0.010	<0.100	0.020	0.030	0.50	0.030	0.010	0.010	6.0	4.9
AUG 07...	<1	<0.010	<0.100	0.020	<0.010	0.90	0.050	0.020	0.010	5.6	5.2
SEP 05...	<1	<0.010	<0.100	0.010	<0.010	0.70	0.060	0.010	0.010	5.8	5.9

DATE	ALUM- INUM, DIS- SOLVED (UG/L) AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L) AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L) AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L) AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L) AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L) AS CR) (01030)	COBALT, DIS- SOLVED (UG/L) AS CO) (01035)	COPPER, DIS- SOLVED (UG/L) AS CU) (01040)	IRON, DIS- SOLVED (UG/L) AS FE) (01046)	LEAD, DIS- SOLVED (UG/L) AS PB) (01049)
JUL 11...	10	2	76	<0.5	<1	<1	<3	2	8	<1

DATE	LITHIUM DIS- SOLVED (UG/L) AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN) (01056)	MERCURY DIS- SOLVED (UG/L) AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L) AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L) AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L) AS SE) (01145)	SILVER, DIS- SOLVED (UG/L) AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L) AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L) AS V) (01085)	ZINC, DIS- SOLVED (UG/L) AS ZN) (01090)
JUL 11...	<4	43	<0.1	<10	<1	<1	<1.0	120	<6	11

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
AUG 09...	0	0	2	10	22	27	34	48	77	100

SALT RIVER BASIN

05508000 SALT RIVER NEAR NEW LONDON, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	123	15	4.9	42	3	.33	90	2	.49
2	72	13	2.5	30	6	.47	90	1	.24
3	52	20	2.7	74	9	1.7	90	4	.98
4	51	20	2.7	163	10	4.3	90	6	1.5
5	50	14	1.9	178	6	2.8	90	4	.98
6	50	7	1.0	183	14	6.7	89	19	4.6
7	50	8	1.1	141	15	5.6	88	17	4.1
8	52	8	1.2	167	7	3.1	88	20	4.8
9	52	8	1.1	182	9	4.3	90	18	4.4
10	52	8	1.2	158	12	5.0	90	15	3.7
11	49	15	2.0	117	7	2.2	92	9	2.3
12	47	16	2.0	131	4	1.4	97	10	2.7
13	47	15	1.9	117	4	1.2	377	37	37
14	48	15	2.0	107	6	1.7	70	27	5.0
15	48	12	1.6	100	9	2.4	61	24	4.0
16	46	20	2.5	126	6	2.0	69	25	4.6
17	45	22	2.7	115	7	2.1	70	19	3.7
18	44	12	1.5	112	8	2.4	69	23	4.2
19	45	16	2.0	118	3	.95	68	11	2.1
20	49	13	1.8	118	2	.63	68	9	1.7
21	51	10	1.4	113	2	.61	68	7	1.3
22	49	29	3.8	107	2	.57	80	4	.89
23	50	11	1.5	103	3	.83	86	6	1.4
24	48	16	2.1	97	7	1.8	73	12	2.4
25	47	17	2.2	95	6	1.5	70	14	2.7
26	47	13	1.7	130	8	2.8	70	36	6.8
27	48	11	1.4	105	24	6.8	87	42	10
28	132	13	4.8	91	7	1.7	93	28	7.0
29	986	21	56	89	14	3.4	76	29	6.0
30	343	73	68	90	7	1.7	72	28	5.5
31	77	13	2.6	---	---	---	71	23	4.4
TOTAL	2950	---	185.8	3499	---	72.99	2782	---	141.48
JANUARY			FEBRUARY			MARCH			
1	69	24	4.5	100	19	5.2	68	1	.20
2	68	23	4.2	100	21	5.5	71	2	.43
3	66	22	3.9	100	15	4.1	88	8	1.9
4	66	23	4.1	100	18	5.0	176	10	4.8
5	79	41	8.7	101	30	8.3	107	10	2.9
6	109	178	52	99	26	7.0	73	12	2.4
7	86	151	35	110	22	6.5	83	12	2.8
8	74	82	16	107	14	4.1	76	13	2.8
9	416	105	158	95	24	6.1	73	8	1.5
10	723	60	117	186	19	9.4	71	9	1.7
11	136	55	20	122	5	1.8	72	7	1.3
12	126	21	7.2	54	8	1.1	73	9	1.8
13	121	24	7.9	63	3	.56	73	11	2.2
14	118	47	15	70	9	1.7	72	9	1.8
15	116	43	13	71	12	2.3	70	8	1.5
16	112	26	8.0	71	2	.42	80	16	3.4
17	109	21	6.2	71	5	1.1	81	15	3.2
18	106	20	5.8	71	5	1.1	77	27	5.7
19	104	19	5.4	70	18	3.3	71	14	2.6
20	103	22	6.2	71	8	1.5	77	11	2.4
21	103	20	5.6	71	9	1.7	83	7	1.5
22	106	18	5.2	69	9	1.6	82	5	1.0
23	104	16	4.5	67	4	.80	80	6	1.2
24	102	16	4.4	67	6	1.0	78	11	2.4
25	105	16	4.6	68	8	1.4	77	15	3.1
26	109	18	5.4	68	7	1.2	76	8	1.6
27	107	17	5.0	68	4	.82	76	14	2.8
28	106	13	3.7	68	2	.41	292	8	6.3
29	108	12	3.4	---	---	---	139	23	8.6
30	105	22	6.1	---	---	---	93	23	5.8
31	103	19	5.4	---	---	---	87	15	3.5
TOTAL	4065	---	551.4	2378	---	85.01	2795	---	85.13

SALT RIVER BASIN

05508000 SALT RIVER NEAR NEW LONDON, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	84	55	13	75	25	5.0	70	61	12
2	97	183	48	68	19	3.5	1070	100	297
3	340	172	158	80	17	3.6	245	47	31
4	360	119	116	76	21	4.4	131	52	18
5	150	136	55	69	12	2.2	139	68	25
6	112	73	22	80	14	3.1	125	54	18
7	99	116	31	77	14	3.0	151	55	23
8	92	34	8.3	67	19	3.5	119	43	14
9	85	14	3.2	61	20	3.3	105	36	10
10	191	20	10	53	17	2.4	116	18	5.8
11	595	14	22	70	16	2.9	137	39	14
12	100	15	4.1	67	17	3.0	169	43	20
13	75	8	1.7	61	19	3.2	159	32	14
14	547	10	15	81	30	6.6	134	29	11
15	143	9	3.6	79	25	5.4	109	30	9.0
16	116	13	4.0	68	19	3.5	100	43	12
17	108	26	7.5	61	20	3.4	122	30	10
18	111	26	7.7	77	21	4.3	127	43	15
19	114	15	4.7	77	14	3.0	116	36	11
20	122	13	4.3	74	19	3.9	98	45	12
21	170	20	9.2	84	24	5.5	860	224	812
22	117	25	7.8	82	32	7.0	1010	79	214
23	81	21	4.6	70	23	4.4	133	24	8.7
24	64	14	2.4	58	22	3.4	212	14	8.3
25	52	12	1.7	144	22	8.5	158	12	5.1
26	58	13	2.0	461	26	32	124	20	6.9
27	91	20	4.9	163	28	12	94	39	9.8
28	75	32	6.5	113	41	13	1390	125	469
29	67	25	4.5	125	46	16	277	38	29
30	81	21	4.7	100	38	10	35	20	1.9
31	---	---	---	73	44	8.7	---	---	---
TOTAL	4497	---	587.4	2894	---	193.7	7835	---	2146.5
JULY			AUGUST			SEPTEMBER			
1	35	17	1.6	60	19	3.0	2650	303	2170
2	43	18	2.1	750	41	82	2330	92	577
3	44	36	4.3	1300	35	122	522	65	92
4	44	20	2.4	2050	47	262	262	25	18
5	44	27	3.3	1490	23	93	2310	64	401
6	44	27	3.3	116	12	3.6	767	23	47
7	475	30	38	54	7	1.0	1510	49	199
8	82	54	12	47	9	1.2	2140	71	410
9	47	24	3.0	42	14	1.6	2930	49	390
10	44	24	2.8	45	6	.70	334	30	27
11	44	27	3.2	50	6	.77	438	30	35
12	51	20	2.8	47	7	.86	2740	85	632
13	2090	52	294	50	6	.76	3170	43	371
14	2610	70	492	51	10	1.4	2180	30	176
15	167	24	11	51	8	1.1	2730	58	425
16	68	26	4.8	52	9	1.2	2700	31	229
17	60	18	2.9	53	11	1.6	2190	15	87
18	56	8	1.2	119	11	3.5	3650	111	1100
19	69	15	2.8	64	7	1.1	2200	63	372
20	74	18	3.5	55	15	2.3	2710	58	422
21	62	15	2.6	56	9	1.3	2540	47	319
22	58	16	2.6	189	258	158	2860	42	323
23	57	9	1.4	117	340	108	2470	31	206
24	55	13	1.9	925	83	207	219	7	4.2
25	334	14	13	141	21	8.0	88	3	.83
26	1230	53	174	232	27	17	147	3	1.0
27	2370	48	306	465	56	71	96	7	1.8
28	3600	62	600	469	57	72	70	13	2.4
29	2110	28	159	2230	311	1930	64	42	7.3
30	1130	16	50	286	85	66	59	16	2.6
31	113	12	3.5	406	29	31	---	---	---
TOTAL	17310	---	2205.0	12062	---	3253.99	49076	---	9048.13

SALT RIVER BASIN

05508805 SPENCER CREEK BELOW PLUM CREEK NEAR FRANKFORD, MO

LOCATION.--Lat 39°31'13", long 91°20'32", in NW ¼, NW ¼, NW ¼, sec.27, T.55 N., R.4 W., Ralls County, Hydrologic Unit 07110007, on left bank 25 ft downstream from bridge on U.S. Highway 61, 0.75 mi downstream from Plum Creek, 2.5 mi northwest of Frankford, and at mile 4.5.

DRAINAGE AREA.--206 mi².

PERIOD OF RECORD.--October 1, 1979 to current year, March 27, 1930 to September 1978, fragmentary record.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 485.00 ft above National Geodetic Vertical Datum of 1929. Mar. 24, 1930, to Sept. 30, 1936, nonrecording gage at site 0.75 mi upstream at datum 3.63 ft higher; Oct. 7, 1961, to July 15, 1974, fragmentary record, at present site and datum unknown; July 26, 1974, to Apr. 15, 1975, from nonrecording gage present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	.20	3.2	3.1	5.5	32	17	5.8	59	7.4	1.2	38
2	.22	.18	2.6	2.0	4.9	29	43	5.7	40	5.2	.86	17
3	.16	.22	2.3	1.5	4.0	30	535	6.0	151	3.7	.80	11
4	.11	.24	1.8	1.2	3.5	193	540	6.0	152	2.9	.65	6.5
5	.13	.15	1.7	22	3.2	127	183	6.3	59	2.1	.47	5.1
6	.15	.18	1.6	281	3.2	54	102	6.4	31	1.9	.38	5.1
7	.16	.18	1.5	139	2.7	37	70	5.8	19	1.9	.18	4.6
8	.14	.17	1.2	55	2.7	24	56	4.8	14	1.6	.12	29
9	.19	.24	1.1	25	2.4	17	41	5.5	10	1.3	.15	913
10	.19	.30	.99	20	2.2	16	32	6.7	38	1.3	.15	307
11	.18	.14	.78	13	2.2	22	27	6.1	19	.95	.11	107
12	.16	.44	.83	11	2.2	37	25	4.9	38	.74	.11	47
13	.18	.37	1.0	8.4	3.1	34	21	4.1	36	.73	.10	25
14	.64	.32	1.1	7.1	3.8	26	20	3.8	15	.43	.08	22
15	.37	.53	.79	6.6	4.8	17	19	3.8	9.1	.23	.14	18
16	.37	1.6	.75	5.7	5.2	13	18	2.9	7.6	.26	.14	14
17	.34	.78	.83	5.4	5.2	11	17	2.8	6.2	.27	.16	10
18	.26	.45	.94	5.0	5.2	9.5	15	2.8	5.6	2.6	.14	7.2
19	.22	.68	1.1	4.5	5.2	8.4	14	2.7	5.2	140	.11	5.3
20	.22	.68	1.3	3.8	5.7	28	13	2.6	4.6	26	.26	4.2
21	.29	.53	1.1	3.5	7.0	182	14	2.3	3.9	8.2	.79	3.6
22	.25	.49	2.5	3.5	6.8	114	14	3.3	3.9	4.5	3.6	2.4
23	.23	.60	18	3.1	6.0	59	15	4.6	2.8	2.6	67	.83
24	.19	1.2	27	2.9	5.3	42	15	7.7	2.3	22	17	1.3
25	.19	1.3	8.7	3.2	5.3	31	14	1030	2.1	12	7.6	1.8
26	.14	2.9	4.6	5.1	8.7	25	13	613	13	17	413	2.7
27	.22	2.3	22	6.4	15	20	13	149	321	32	113	3.0
28	.20	3.7	117	5.7	35	21	12	76	108	7.3	200	3.1
29	.19	5.1	33	5.7	---	26	9.0	1630	30	3.0	658	3.1
30	.15	3.7	13	6.2	---	24	7.3	296	13	2.2	184	3.2
31	.19	---	5.5	6.3	---	21	---	104	---	1.7	76	---
MEAN	.22	1.00	9.03	21.7	5.93	42.9	64.5	129	40.6	10.1	56.3	54.0
MAX	.64	5.1	117	281	35	193	540	1630	321	140	658	913
MIN	.11	.14	.75	1.2	2.2	8.4	7.3	2.3	2.1	.23	.08	.83
IN.	.00	.01	.05	.12	.03	.24	.35	.72	.22	.06	.32	.29

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	62.8	263	291	91.0	218	209	231	167	123	228	37.6	42.9
MAX	376	1310	984	274	766	738	777	520	451	1788	93.7	163
(WY)	1987	1986	1983	1982	1985	1984	1983	1983	1982	1981	1985	1986
MIN	.22	1.00	1.86	2.58	3.40	9.23	26.6	15.1	2.23	.84	1.17	.32
(WY)	1989	1989	1980	1980	1980	1981	1986	1988	1988	1988	1984	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	36.5	163
HIGHEST ANNUAL MEAN		239
LOWEST ANNUAL MEAN		36.5
HIGHEST DAILY MEAN	1630	May 29
LOWEST DAILY MEAN	.08	Aug 14
INSTANTANEOUS PEAK FLOW	3280	May 25
INSTANTANEOUS PEAK STAGE	9.37	May 25
INSTANTANEOUS LOW FLOW	0	Many Days
ANNUAL RUNOFF (INCHES)	2.41	10.76
10 PERCENTILE	60	227
50 PERCENTILE	4.7	23
95 PERCENTILE	.14	.34

05508805 SPENCER CREEK BELOW PLUM CREEK NEAR FRANKFORD, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.44	2.49	2.74	2.74	2.62	2.92	2.79	2.63	3.09	2.67	2.42	2.94
2	2.45	2.49	2.72	2.70	2.60	2.88	2.78	2.61	2.96	2.62	2.38	2.78
3	2.44	2.50	2.69	2.66	2.58	2.85	4.31	2.62	2.91	2.58	2.37	2.69
4	2.43	2.52	2.68	2.64	2.56	3.64	4.75	2.61	3.54	2.54	2.38	2.62
5	2.43	2.50	2.67	2.63	2.55	3.44	3.63	2.63	3.08	2.51	2.35	2.56
6	2.44	2.51	2.66	4.10	2.55	2.88	3.28	2.62	2.91	2.48	2.35	2.59
7	2.43	2.48	2.66	3.48	2.53	2.84	3.14	2.61	2.80	2.48	2.31	2.58
8	2.45	2.50	2.64	3.08	2.53	2.86	3.06	2.60	2.75	2.46	2.28	2.54
9	2.45	2.51	2.63	2.79	2.53	2.78	2.97	2.62	2.70	2.43	2.27	5.13
10	2.44	2.54	2.62	2.83	2.53	2.76	2.91	2.63	3.00	2.45	2.28	4.08
11	2.44	2.50	2.60	2.74	2.53	2.80	2.87	2.63	2.81	2.43	2.26	3.32
12	2.44	2.57	2.60	2.72	2.53	2.93	2.86	2.60	2.76	2.38	2.26	3.02
13	2.45	2.53	2.61	2.69	2.54	2.94	2.82	2.56	2.96	2.40	2.27	2.85
14	2.46	2.54	2.63	2.65	2.56	2.87	2.80	2.54	2.77	2.37	2.30	2.82
15	2.50	2.54	2.61	2.64	2.60	2.79	2.80	2.56	2.69	2.33	2.32	2.80
16	2.52	2.67	2.59	2.62	2.61	2.74	2.79	2.52	2.65	2.32	2.34	2.73
17	2.51	2.60	2.60	2.60	2.61	2.72	2.79	2.52	2.64	2.31	2.32	2.67
18	2.51	2.56	2.61	2.60	2.61	2.69	2.77	2.54	2.61	2.32	2.31	2.64
19	2.49	2.59	2.62	2.59	2.61	2.67	2.74	2.52	2.59	3.59	2.31	2.57
20	2.51	2.59	2.64	2.58	2.61	2.73	2.74	2.51	2.59	2.88	2.35	2.55
21	2.52	2.57	2.63	2.56	2.63	3.65	2.75	2.50	2.56	2.68	2.43	2.55
22	2.50	2.57	2.63	2.56	2.65	3.36	2.74	2.51	2.55	2.59	2.41	2.59
23	2.52	2.57	2.77	2.54	2.63	3.07	2.77	2.57	2.51	2.52	3.20	2.52
24	2.48	2.63	3.08	2.54	2.61	2.97	2.75	2.63	2.51	2.46	2.81	2.65
25	2.49	2.64	2.87	2.54	2.60	2.90	2.76	2.85	2.47	2.74	2.64	2.72
26	2.48	2.74	2.78	2.59	2.67	2.85	2.74	5.08	2.46	2.61	5.73	2.80
27	2.51	2.70	2.79	2.63	2.74	2.82	2.74	3.49	4.46	2.94	3.24	2.82
28	2.50	2.71	3.55	2.62	2.93	2.83	2.73	3.17	3.36	2.68	3.22	2.83
29	2.49	2.79	3.07	2.62	---	2.87	2.69	7.81	2.93	2.53	5.10	2.86
30	2.48	2.76	2.93	2.63	---	2.85	2.64	3.96	2.76	2.50	3.64	2.88
31	2.49	---	2.80	2.63	---	2.83	---	3.31	---	2.46	3.17	---

CUIVRE RIVER BASIN

05514500 CUIVRE RIVER NEAR TROY, MO

LOCATION.--Lat 39°00'59", long 90°59'00", in SE 1/4 sec.14, T.49 N., R.1 W., Lincoln County, Hydrologic Unit 07110008, on downstream side of right end of downstream bridge on dual U.S. Highway 61, 1.2 mi downstream from confluence of North and West Forks Cuivre River and 2 mi north of Troy.

DRAINAGE AREA.--903 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1922 to July 1972, May 1979 to current year.

REVISED RECORDS.--WSP 855: 1933(m), 1935(m), 1937(m). WSP 895: 1939. WSP 1005: 1942(m). WSP 1308: 1922-25(m).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 450.27 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gage at site 3 mi downstream at datum 4.31 ft lower. Oct. 1, 1930, to July 1939, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1895 was 5 or 6 feet lower at Frenchmens Bluff, 3 mi downstream, than the October 1941 flood which is the highest flood since 1888.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	3.7	86	198	101	280	202	64	359	30	8.2	91
2	7.4	4.0	69	162	95	229	839	60	240	28	7.3	62
3	5.3	4.4	60	150	90	195	4680	57	246	24	7.3	44
4	3.9	4.7	50	203	79	302	2700	57	309	21	7.1	30
5	3.0	4.3	44	786	77	528	1080	54	227	19	6.3	26
6	2.6	4.0	41	3270	76	335	631	49	165	17	5.0	22
7	2.4	4.0	38	1230	75	229	493	46	126	16	4.1	18
8	2.4	4.4	35	602	70	181	410	43	93	14	3.8	31
9	2.5	6.3	32	339	66	161	348	55	77	13	3.5	317
10	2.9	33	30	242	64	440	293	61	65	12	3.2	912
11	2.8	25	27	194	63	1530	248	59	58	11	3.2	530
12	2.7	50	26	166	63	665	219	52	60	10	3.0	210
13	2.5	62	26	142	70	405	194	43	57	9.4	2.8	95
14	2.7	73	26	124	95	309	178	40	56	8.1	2.7	69
15	2.7	59	23	115	186	240	175	38	61	7.2	2.6	50
16	3.2	68	22	104	364	193	166	36	52	7.1	3.4	39
17	3.4	146	22	98	306	179	157	34	51	7.0	3.4	34
18	3.5	111	21	94	222	180	143	31	54	7.2	3.9	28
19	3.8	82	21	88	188	153	133	32	53	7.6	5.9	23
20	4.0	69	22	83	192	3610	124	31	54	8.0	9.7	20
21	4.2	73	20	76	255	4780	117	29	39	14	18	17
22	4.1	59	1450	73	298	1180	111	29	32	21	46	14
23	5.4	47	4630	71	229	664	105	29	28	12	39	11
24	4.3	39	709	70	180	467	101	28	25	9.5	95	8.3
25	4.2	33	336	71	162	370	95	30	23	8.5	70	7.5
26	3.8	842	234	86	173	304	90	708	21	22	44	6.2
27	3.7	702	424	120	291	255	86	255	21	21	48	5.4
28	4.0	317	1450	153	318	247	80	1050	19	11	580	4.8
29	3.8	180	645	135	---	246	74	11300	18	8.8	379	3.9
30	3.8	116	414	119	---	230	68	2850	17	10	233	3.4
31	3.9	---	296	110	---	222	---	883	---	10	144	---
MEAN	3.87	108	365	306	159	623	478	585	90.2	13.7	57.8	91.1
MAX	11	842	4630	3270	364	4780	4680	11300	359	30	580	912
MIN	2.4	3.7	20	70	63	153	68	28	17	7.0	2.6	3.4
IN.	.00	.13	.47	.39	.18	.80	.59	.75	.11	.02	.07	.11

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	460	509	539	492	841	999	1159	920	702	519	281	384
MEAN	460	509	539	492	841	999	1159	920	702	519	281	384
MAX	6704	4503	5924	2465	4250	3596	5549	6311	4735	4366	1994	5509
(WY)	1942	1986	1983	1949	1962	1922	1922	1929	1970	1981	1923	1926
MIN	1.10	1.30	1.11	1.63	1.80	2.51	25.8	17.1	11.0	.44	.23	.24
(WY)	1965	1954	1964	1954	1954	1954	1954	1934	1936	1934	1936	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	241	648
HIGHEST ANNUAL MEAN		1821
LOWEST ANNUAL MEAN		27.3
HIGHEST DAILY MEAN	11300	76400
LOWEST DAILY MEAN	2.4	.00
INSTANTANEOUS PEAK FLOW	15300	120000
INSTANTANEOUS PEAK STAGE	22.91	33.4
INSTANTANEOUS LOW FLOW	2.1	0
ANNUAL RUNOFF (INCHES)	3.63	9.74
10 PERCENTILE	404	1210
50 PERCENTILE	59	91
95 PERCENTILE	3.0	2.6

CUIVRE RIVER BASIN

71

05514500 CUIVRE RIVER NEAR TROY, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.57	3.37	4.11	4.59	4.19	4.88	4.61	4.01	5.15	3.72	3.38	4.15
2	3.49	3.38	4.00	4.46	4.15	4.72	4.57	3.99	4.76	3.68	3.34	3.96
3	3.44	3.39	3.93	4.40	4.13	4.58	15.66	3.97	5.04	3.62	3.35	3.83
4	3.39	3.41	3.86	4.46	4.06	4.69	11.25	3.97	5.09	3.58	3.35	3.70
5	3.35	3.40	3.82	4.70	4.05	5.69	7.12	3.98	4.74	3.55	3.34	3.65
6	3.33	3.39	3.79	11.64	4.05	5.11	5.91	3.95	4.49	3.53	3.30	3.59
7	3.32	3.38	3.77	7.43	4.02	4.70	5.53	3.93	4.33	3.51	3.27	3.54
8	3.31	3.40	3.73	5.91	3.99	4.51	5.28	3.91	4.16	3.49	3.26	3.48
9	3.33	3.40	3.71	5.10	3.95	4.45	5.08	3.97	4.07	3.46	3.24	5.02
10	3.33	3.64	3.69	4.75	3.95	4.58	4.93	4.03	3.99	3.45	3.23	6.75
11	3.34	3.78	3.66	4.58	3.94	8.60	4.78	4.02	3.94	3.43	3.23	5.75
12	3.33	3.82	3.63	4.48	3.94	6.05	4.68	3.98	3.95	3.41	3.22	4.71
13	3.32	4.06	3.64	4.38	3.98	5.29	4.58	3.92	3.93	3.40	3.21	4.19
14	3.33	4.21	3.64	4.30	4.12	4.96	4.52	3.89	3.89	3.37	3.21	4.01
15	3.34	4.04	3.61	4.25	4.47	4.76	4.50	3.87	3.97	3.35	3.21	3.85
16	3.35	4.05	3.59	4.21	5.07	4.58	4.47	3.85	3.90	3.35	3.25	3.74
17	3.36	4.56	3.59	4.16	4.97	4.49	4.44	3.83	3.90	3.34	3.23	3.67
18	3.38	4.42	3.57	4.14	4.65	4.51	4.38	3.81	3.91	3.34	3.24	3.60
19	3.38	4.25	3.58	4.11	4.55	4.43	4.33	3.80	3.91	3.36	3.32	3.54
20	3.39	4.13	3.59	4.08	4.53	5.50	4.30	3.80	3.94	3.36	3.38	3.49
21	3.39	4.18	3.56	4.03	4.76	15.50	4.26	3.78	3.82	3.37	3.45	3.45
22	3.39	4.08	3.58	4.01	4.92	7.35	4.24	3.77	3.75	3.60	3.84	3.40
23	3.46	3.99	15.47	4.00	4.72	6.01	4.21	3.79	3.70	3.45	3.77	3.35
24	3.40	3.93	6.21	3.99	4.47	5.45	4.19	3.78	3.66	3.40	3.84	3.30
25	3.40	3.86	5.08	3.98	4.46	5.15	4.17	3.79	3.63	3.38	3.97	3.29
26	3.38	5.58	4.71	4.06	4.45	4.95	4.15	6.69	3.61	3.38	3.82	3.25
27	3.38	6.15	4.75	4.20	4.77	4.80	4.12	4.82	3.60	3.60	3.87	3.23
28	3.39	5.04	7.72	4.41	4.95	4.75	4.10	4.43	3.59	3.44	6.85	3.22
29	3.38	4.56	5.97	4.35	---	4.73	4.07	22.30	3.57	3.39	5.23	3.20
30	3.38	4.29	5.33	4.28	---	4.70	4.03	10.57	3.55	3.41	4.67	3.17
31	3.38	---	4.96	4.24	---	4.69	---	6.71	---	3.41	4.41	---

CUIVRE RIVER BASIN

05514500 CUIVRE RIVER NEAR TROY, MO--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

REMARKS.--National stream-quality accounting network station since October 1986.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)
NOV												
03...	0800	4.3	395	8.00	6.5	7.2	10.9	91	K8	150	190	17
JAN												
11...	0815	198	298	7.80	1.0	110	13.5	96	400	4000	130	32
MAR												
10...	1100	210	353	8.20	4.0	16	15.5	118	K8	260	130	17
APR												
04...	1445	2860	204	7.80	10.0	180	9.7	87	K16000	K24000	83	20
MAY												
09...	1330	55	421	8.10	16.0	7.1	9.6	99	300	400	190	17
JUL												
11...	1110	11	420	8.00	30.5	6.8	8.0	108	72	K18	200	23
SEP												
05...	0930	27	262	7.80	23.0	22	6.6	78	1000	250	110	6

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV												
03...	59	11	9.3	3.4	168	21	12	0.20	6.5	222	0.30	2.58
JAN												
11...	42	6.5	6.6	4.6	102	26	9.8	0.10	9.6	223	0.30	119
MAR												
10...	42	6.9	9.8	5.9	116	35	15	0.20	3.7	206	0.28	117
APR												
04...	26	4.5	6.2	4.7	64	22	8.0	0.10	9.5	141	0.19	1090
MAY												
09...	58	11	11	3.4	171	31	12	0.20	1.2	235	0.32	34.9
JUL												
11...	62	11	11	6.3	176	22	12	0.20	8.4	226	0.31	6.71
SEP												
05...	35	5.9	9.0	6.1	98	15	9.4	0.20	7.2	164	0.22	12.0

K--Results based on colony count outside the acceptable range (non-ideal colony count).

05514500 CUIVRE RIVER NEAR TROY, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (80155)	
NOV 03...	0.010	<0.100	0.020	0.020	0.60	0.060	0.010	<0.010	24	0.28	63
JAN 11...	0.010	1.50	0.190	--	1.5	0.190	0.070	0.060	80	43	99
MAR 10...	0.020	2.00	0.180	0.170	0.50	0.060	0.020	0.020	28	16	49
APR 04...	0.020	1.30	0.270	0.200	1.6	0.230	0.100	0.050	806	6220	49
MAY 09...	<0.010	<0.100	0.080	0.050	0.90	0.070	0.020	<0.010	37	5.5	52
JUL 11...	<0.010	<0.100	0.030	0.030	0.60	0.030	0.010	<0.010	147	4.4	82
SEP 05...	0.030	0.370	0.010	0.010	1.0	0.150	0.030	0.020	27	2.0	73

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 03...	<10	<1	120	<0.5	3	<1	<3	1	32	<5
MAY 09...	<10	<1	110	<0.5	4	<1	<3	10	5	<1
JUL 11...	<10	1	140	<0.5	<1	<1	<3	5	7	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 03...	<4	730	<0.1	<10	3	<1	1.0	130	<6	8
MAY 09...	<4	240	<0.1	<10	2	<1	<1.0	130	<6	15
JUL 11...	5	330	<0.1	<10	<1	<1	<1.0	150	<6	22

MISSISSIPPI RIVER MAIN STEM

05587450 MISSISSIPPI RIVER AT GRAFTON, IL

LOCATION.--Lat 38°58'05", long 90°25'42", in NE 1/4 sec. 15, T.6N., R.12W., Jersey County, Hydrologic Unit 07110009, on left bank two tenths of a mile downstream from the mouth of Illinois River and 15.3 miles above Lock and Dam 26, 23.0 miles above mouth of Missouri River and at mile 218.6 upstream of the mouth of Ohio River.

DRAINAGE AREA.--171,300 mi², approximately.

PERIOD OF RECORD.--Gage height: August 1879 thru September 1892, 1929 to September 1986. October 1986 to current year. Stages also available from reports of National Weather Service. Discharge intermittently from 1880 to 1928, computed daily 1928 to 1932 by National Weather Service and or U.S. Army Corps of Engineers. Discharge previously published as "Mississippi River at Alton, Illinois" 1927 to September 1986.

GAGE.--Water-stage recorder. Datum of gage is 403.79 above National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder 15.3 miles downstream.

REMARKS.--No estimated daily discharges. Records fair. Natural flow of river affected by many navigation dams in upper Mississippi River basin. Flood water from Missouri River overtops or breaches the levees at extreme high stages.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1844 reached a stage of 435.89 ft, present datum.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36900	26100	36800	37000	43900	40800	121000	74100	71900	51100	35700	43800
2	23300	32800	41900	41000	46100	44800	127000	75500	76100	51200	37700	51800
3	23300	34300	34300	36600	42800	46100	135000	74800	79000	48400	39700	61400
4	28200	30200	36300	41500	44900	41300	142000	81100	93200	51800	33100	60300
5	32700	21600	33500	48800	37300	34000	156000	71800	103000	50700	32100	64500
6	37800	23300	34100	46400	31100	37300	157000	67100	113000	51700	39900	60500
7	28700	32700	37500	39400	34700	44400	154000	70300	115000	44500	47900	58200
8	24000	30400	33100	40600	39200	50600	141000	73700	111000	40700	42000	60600
9	24300	36000	34000	42000	46900	49800	143000	73500	105000	35500	39800	81000
10	23700	30900	31400	37900	44100	49400	144000	73400	97900	38400	37700	85800
11	21300	36300	35600	39200	42600	51700	140000	72100	105000	38800	38600	97600
12	23900	36100	26500	31000	46400	61500	131000	71500	103000	38800	35500	101000
13	31200	34700	24700	42000	44500	73400	121000	70000	94800	41100	29400	96500
14	33700	38600	20100	38300	43100	69800	107000	70600	80500	41100	28100	84400
15	28700	38600	24100	38500	40900	74100	99800	70300	67000	45800	26200	74300
16	20700	25100	21900	38200	43300	91400	101000	72100	64600	36100	29700	66500
17	33000	35600	20700	40800	42400	99400	104000	69700	59000	37600	33700	60100
18	23300	41100	27200	34700	42200	94100	103000	68200	55800	38600	37000	54700
19	29400	36300	43800	40200	39400	91300	95800	66000	49200	21400	37800	51000
20	35800	36500	26100	42800	37500	101000	97600	59300	56700	32700	37200	51200
21	28400	43400	39100	41400	38900	102000	89900	63300	56700	45600	37900	53200
22	29200	43400	38800	39800	40600	93100	86300	62700	62300	44100	34900	52200
23	24900	46600	45500	37700	38000	93200	85300	59700	61000	45800	34200	51500
24	21900	44200	36200	35700	44900	94300	85600	64100	53700	50000	32300	55300
25	25200	45200	35100	37800	44300	77100	84700	63000	51700	44400	42900	56700
26	28500	42200	49000	30400	30400	77000	81600	66100	52600	45300	39400	49300
27	29300	25100	40100	36800	42400	67300	76700	58800	54900	41400	37500	50300
28	28800	25300	40800	39800	33500	74500	80900	65600	48800	37700	38300	48200
29	31100	34000	45100	36900	---	84200	79800	76600	45600	43300	42900	44100
30	29400	25200	44600	36600	---	108000	79200	78500	46900	36400	54000	44600
31	28800	---	36700	40300	---	122000	---	76000	---	42900	45800	---
MEAN	28050	34390	34660	39040	40940	72220	111700	69660	74500	42350	37380	62350
MAX	37800	46600	49000	48800	46900	122000	157000	81100	115000	51800	54000	101000
MIN	20700	21600	20100	30400	30400	34000	76700	58800	45600	21400	26200	43800
IN.	.19	.22	.23	.26	.25	.49	.73	.47	.49	.29	.25	.41

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	141600	90530	87250	71860	78240	95910	127100	76450	65940	48170	52480	59470
MEAN	141600	90530	87250	71860	78240	95910	127100	76450	65940	48170	52480	59470
MAX	334900	171300	130100	89630	101100	108300	138500	90540	87020	71750	82820	78210
(WY)	1987	1987	1987	1987	1988	1987	1987	1987	1987	1987	1987	1987
MIN	28050	34390	34660	39040	40940	72220	111700	69140	36310	30420	37230	37850
(WY)	1989	1989	1989	1989	1989	1989	1989	1988	1988	1988	1988	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	53860	95375
HIGHEST ANNUAL MEAN	123300	1987
LOWEST ANNUAL MEAN	53860	1989
HIGHEST DAILY MEAN	157000	Apr 6
LOWEST DAILY MEAN	20100	Dec 14
INSTANTANEOUS PEAK FLOW	163000	Apr 5
INSTANTANEOUS PEAK STAGE	419.70	Mar 20
INSTANTANEOUS LOW FLOW	20100	Dec 14
ANNUAL RUNOFF (INCHES)	4.29	7.60
10 PERCENTILE	94600	135000
50 PERCENTILE	43700	72600
95 PERCENTILE	24600	29100

MISSISSIPPI RIVER MAIN STEM

75

05587450 MISSISSIPPI RIVER AT GRAFTON, IL--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.23	15.18	15.44	15.31	15.46	15.29	14.81	15.55	15.33	15.29	15.12	15.35
2	15.04	15.20	15.44	15.38	15.35	15.16	14.80	15.50	15.39	15.40	15.17	15.28
3	15.16	15.26	15.34	15.28	15.50	15.19	15.07	15.37	15.38	15.40	15.32	15.54
4	15.24	15.28	15.36	15.28	15.23	15.41	15.20	---	15.60	15.33	15.22	15.39
5	15.25	15.11	15.34	15.40	15.19	15.20	15.10	15.49	15.22	15.47	15.32	15.48
6	15.27	15.26	15.22	15.42	15.01	15.24	14.81	15.42	15.19	15.29	15.48	15.39
7	15.14	15.20	15.25	15.22	15.33	15.22	14.91	15.40	---	15.39	15.46	15.32
8	14.96	15.26	15.35	15.20	15.44	15.49	15.20	15.52	15.13	15.28	15.25	15.38
9	15.23	15.27	15.29	15.36	15.38	15.25	15.63	15.53	15.02	15.27	15.34	15.63
10	15.09	15.32	15.29	15.15	15.23	15.21	15.64	15.43	15.15	15.37	15.21	15.47
11	15.05	15.21	15.36	15.19	15.26	15.35	15.62	15.48	15.30	15.39	15.34	15.36
12	15.18	15.34	15.33	15.35	15.44	15.35	15.56	15.35	15.37	15.33	15.19	15.38
13	15.31	15.17	15.64	15.35	15.37	15.57	15.37	15.38	15.27	15.27	15.14	15.40
14	15.31	15.31	15.42	15.24	15.29	15.40	15.24	15.40	15.22	15.21	15.28	15.26
15	15.11	15.21	15.01	15.30	15.21	15.63	15.48	15.42	15.08	15.31	15.25	15.29
16	15.37	15.37	14.87	15.16	15.29	15.44	15.47	15.38	15.28	15.29	15.32	15.40
17	15.17	15.17	15.03	15.18	15.24	15.79	15.32	15.40	15.15	15.30	15.36	15.32
18	15.39	15.35	15.36	15.21	15.16	15.53	15.47	15.37	15.36	15.18	15.43	15.42
19	15.32	15.32	15.55	15.21	15.24	15.32	15.41	15.54	15.06	15.22	15.44	15.47
20	15.32	15.56	15.41	15.23	15.20	15.70	15.55	15.39	15.49	15.38	15.46	15.34
21	15.25	15.45	15.53	15.15	15.18	15.74	15.67	15.40	15.32	15.37	15.28	15.31
22	15.01	15.53	15.24	15.22	15.24	15.55	15.70	15.46	15.47	15.31	15.36	15.36
23	15.40	15.44	15.58	15.27	15.15	15.44	15.64	15.45	15.52	15.33	15.12	15.34
24	15.02	15.39	15.09	15.23	15.28	15.57	15.73	15.55	15.06	15.41	15.24	15.50
25	15.35	15.47	15.20	15.29	15.38	15.26	15.58	15.56	15.35	15.26	15.32	15.46
26	15.02	15.51	15.27	15.30	15.14	15.29	15.49	15.67	15.50	15.46	15.25	15.42
27	15.08	15.31	15.33	15.21	15.23	15.36	15.57	15.41	15.33	15.26	15.31	15.33
28	15.33	15.39	15.28	15.32	15.29	15.55	15.52	15.46	15.40	15.20	15.22	15.37
29	15.20	15.40	15.34	15.20	---	15.46	15.55	15.59	15.28	15.27	15.44	15.29
30	15.23	15.29	15.39	15.27	---	15.28	15.53	15.67	15.44	15.44	15.43	15.39
31	15.21	---	15.13	15.39	---	14.76	---	15.44	---	15.21	15.24	---

MISSISSIPPI RIVER MAIN STEM

05587455 MISSISSIPPI RIVER BELOW GRAFTON, IL

WATER-QUALITY RECORDS

LOCATION.--Lat. 38°57'04", long. 90°22'16", in sec. 19, T.6N., R.11W., Jersey County, Hydrologic Unit 07110009, 11.3 mi above Lock and Dam 26, 19.0 mi above mouth of Missouri River, and at mi 214.6 upstream of the mouth of the Ohio River.

DRAINAGE AREA.--171,300 mi², approximately.

PERIOD OF RECORD.--March to September 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)	
MAR 14...	1130	85000	538	8.90	4.0	23	9.6	76	K16	420	210	37	
MAY 04...	1030	81000	394	8.20	17.5	24	7.4	79	K6	K4	170	42	
JUL 13...	1220	42000	397	8.50	30.5	14	8.1	110	K6	<1	170	44	
SEP 07...	1030	58800	449	8.00	25.5	31	6.5	80	25	K24	170	39	
DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
MAR 14...	50	21	28	3.4	176	52	41	0.20	4.1	321	0.44	73700	
MAY 04...	40	17	14	3.9	126	36	19	0.20	0.95	223	0.30	48800	
JUL 13...	41	17	17	2.8	124	36	20	0.20	0.57	244	0.33	27700	
SEP 07...	39	18	26	4.0	140	40	32	0.30	2.6	263	0.36	41800	

05587455 MISSISSIPPI RIVER BELOW GRAFTON, IL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
	MAR 14...	0.030	1.50	0.060	0.070	0.70	0.140	0.140	0.040	--	--	--
	MAY 04...	0.050	1.60	0.080	0.050	0.70	0.110	0.080	0.030	69	15100	74
JUL 13...	0.070	0.570	0.070	0.060	1.2	0.190	0.080	0.050	16	1810	90	
SEP 07...	0.050	1.40	0.020	0.010	1.3	0.270	0.120	0.100	102	16200	91	
DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)		
	MAY 04...	<10	1	57	1	<1	<1	<3	9	14	<1	
	JUL 13...	<10	2	62	<0.5	<1	<1	<3	4	6	<1	
DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)		
	MAY 04...	<4	8	<0.1	<10	2	<1	<1.0	100	<6	9	
	JUL 13...	6	13	<0.1	<10	1	<1	<1.0	110	<6	6	

MISSISSIPPI RIVER MAIN STEM

05587500 MISSISSIPPI RIVER AT ALTON, IL

WATER-QUALITY RECORDS

LOCATION.--Lat 38°53'06", long 90°10'51", in NE 1/4 sec.14, T.5 N., R.10 W., Madison County, Hydrologic Unit 07110009, at Missouri and Illinois Bridge and Belt Railroad bridge, 7.7 mi upstream from Missouri River, and at mile 202.7 upstream from Ohio River.

DRAINAGE AREA.--171,500 mi², approximately.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: October 1980 to October 1985, October 1986 to September 1989 (discontinued).

REMARKS.--Discharge records taken from Mississippi at Grafton, IL (05587450). Sediment discharge computed from streamflow discharge at Grafton, IL. Station moved to Grafton, IL.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATION: Maximum daily mean, 2,120 mg/L, May 13, 1981; minimum daily mean, 5 mg/L, Sept. 29, 1989.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 1,120,000 tons, July 7, 8, 1981; minimum daily, 595 tons, Sept. 29, 1989.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 356 mg/L, May 1; minimum daily mean, 5 mg/L, Sept. 29.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 86,700 tons, Apr. 10; minimum daily, 595 tons, Sept. 29.

SEDIMENT, SUSPENDED CONCENTRATION (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	80	24	55	21	57	62	356	89	56	19	22
2	26	80	65	57	15	32	71	110	81	48	9	24
3	35	72	76	54	10	22	60	47	112	44	24	26
4	39	82	29	47	17	22	76	30	107	29	31	35
5	37	82	10	39	---	21	67	35	104	36	30	46
6	43	74	17	52	---	11	63	37	162	25	32	100
7	44	98	17	45	---	22	67	41	104	20	50	117
8	34	259	10	44	---	14	89	30	93	21	34	94
9	43	287	17	41	---	19	221	33	111	25	26	105
10	49	282	17	38	27	32	223	68	92	31	20	110
11	61	279	10	37	21	63	209	36	101	32	13	104
12	36	250	10	36	14	38	210	43	106	34	16	96
13	76	245	18	36	24	23	225	51	106	25	15	92
14	77	178	100	37	62	31	194	38	110	18	19	83
15	77	281	86	42	164	84	170	43	117	18	15	80
16	70	287	55	28	77	48	194	40	114	21	24	78
17	52	291	64	14	55	58	227	41	111	46	25	82
18	75	280	65	18	81	58	204	20	44	70	19	83
19	22	289	60	19	100	63	193	20	40	25	15	83
20	38	233	68	14	67	77	175	17	42	25	30	82
21	22	244	31	14	81	31	167	12	48	25	81	73
22	26	73	18	10	73	53	218	11	49	20	88	36
23	45	42	70	14	35	47	231	14	49	25	32	22
24	31	38	83	23	57	49	135	43	47	40	26	34
25	47	48	81	19	110	88	297	77	42	34	26	34
26	48	54	60	15	80	65	125	60	47	30	16	14
27	58	31	52	22	92	90	307	39	42	24	16	6
28	60	32	58	16	39	87	204	79	44	25	43	7
29	68	15	44	15	---	93	213	49	108	27	30	5
30	68	10	44	22	---	80	228	110	98	21	25	7
31	89	---	46	26	---	71	---	125	---	15	25	---
TOTAL	1519	4596	1405	949	---	1549	5125	1755	2520	935	874	1780
MEAN	49	153	45	31	---	50	171	57	84	30	28	59
MAX	89	291	100	57	---	93	307	356	162	70	88	117
MIN	22	10	10	10	---	11	60	11	40	15	9	5

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2290	5660	2390	5480	2530	6300	20300	71300	17200	7730	1830	2600
2	1650	7050	7340	6350	1900	3880	24300	22400	16700	6640	916	3360
3	2170	6710	7030	5350	1220	2800	21900	9460	24000	5750	2570	4310
4	2960	6680	2840	5240	2110	2480	29300	6600	26900	4060	2770	5700
5	3280	4810	1110	5200	1900	1940	28200	6720	29000	4930	2600	8010
6	4360	4650	1560	6490	1860	1100	26700	6790	49500	3490	3450	16300
7	3420	8640	1730	4740	1710	2600	27700	7810	32300	2400	6470	18400
8	2190	21200	1250	4860	3500	1960	33800	5890	28000	2310	3860	15400
9	2800	27900	1580	4680	5100	2620	85500	6610	31600	2400	2790	23000
10	3160	23500	1470	3920	3170	4220	86700	13400	24300	3210	2040	25500
11	3490	27400	1220	3880	2410	8860	79000	7050	28700	3350	1350	27400
12	2320	24400	797	3050	1780	6290	74300	8240	29600	3560	1530	26200
13	6390	23000	1170	4110	2870	4560	73600	9650	27100	2770	1190	24000
14	7050	18600	5610	3860	7270	5890	55900	7320	23900	2000	1440	18900
15	5960	29300	5560	4410	18100	16900	45800	8180	21200	2230	1060	16000
16	3890	19400	3260	2850	9050	11900	52900	7700	19900	2050	1920	14000
17	4640	28000	3590	1590	6260	15600	63600	7640	17700	4670	2270	13300
18	4730	31100	4810	1710	9280	14600	56700	3750	6630	7300	1900	12300
19	1730	28300	7150	2100	10900	15400	49800	3640	5310	1440	1530	11400
20	3690	22900	4780	1630	6760	21000	46000	2680	6430	2210	3010	11300
21	1700	28600	3240	1570	8460	8670	40500	2070	7350	3080	8290	10500
22	2030	8530	1920	1230	7980	13300	50700	1900	8240	2380	8290	5070
23	3020	5240	8570	1410	3600	11800	53200	2270	8070	3090	2950	3060
24	1830	4480	8110	2170	6870	12600	31200	7500	6810	5400	2270	5080
25	3180	5850	7680	1900	13200	18200	68000	13000	5860	4080	3010	5210
26	3710	6160	7900	1220	6580	13600	27600	10700	6670	3670	1700	1860
27	4610	2090	5620	2190	10500	16300	63600	6180	6230	2680	1620	815
28	4660	2220	6340	1700	3560	17500	44600	14000	5800	2540	4450	911
29	5680	1360	5360	1450	---	21100	45900	10100	13300	3160	3470	595
30	5410	711	5270	2140	---	23200	48700	23400	12400	2060	3640	843
31	6880	---	4600	2860	---	23200	---	25600	---	1740	3090	---
TOTAL	114880	434441	130857	101340	160430	330370	1456000	339550	546700	108380	89276	331324
MEAN	3710	14500	4220	3270	5730	10700	48500	11000	18200	3500	2880	

MISSISSIPPI RIVER MAIN STEM

05587550 MISSISSIPPI RIVER BELOW ALTON, IL
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 38°51'41", long 90°08'15", Madison County, Hydrologic Unit 07110009, 1.0 mi downstream from gaging station, 6.7 mi upstream from Missouri River and at mile 201.7 upstream from Ohio River.

DRAINAGE AREA.--171,500 mi², approximately above gage.

PERIOD OF RECORD.--Water years 1975 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURE: October 1974 to September 1981.

REMARKS.--Records of discharge are given for gaging station 05587450 Mississippi River at Grafton, IL.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 704 microsiemens, Jan. 24, 1977; minimum, 286 microsiemens, July 5, 1978.

WATER TEMPERATURE: Maximum, 30.0°C several days during July; minimum, 0.0°C many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)
NOV												
03...	1130	38700	464	8.70	10.0	6.6	11.0	100	K10	K8	210	41
JAN												
11...	1200	39100	523	8.70	1.5	21	14.7	107	68	1800	170	22
MAR												
14...	0910	75300	559	8.80	4.5	21	12.6	101	K8	170	220	46
MAY												
04...	1300	79600	423	8.00	18.0	19	6.9	74	120	94	170	42
JUL												
13...	0955	46600	426	8.30	30.5	6.0	6.2	84	K7	K19	190	51
SEP												
07...	1445	60100	466	8.00	26.0	20	5.4	68	31	37	170	42

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV												
03...	45	23	23	3.3	166	38	29	0.20	0.14	262	0.36	27400
JAN												
11...	39	18	22	2.9	152	53	37	0.30	2.1	305	0.41	32200
MAR												
14...	52	22	31	3.6	177	52	48	0.20	3.9	343	0.47	69700
MAY												
04...	41	17	15	3.8	132	41	22	0.20	1.2	242	0.33	52000
JUL												
13...	43	19	19	3.5	132	42	25	0.20	1.0	266	0.36	33500
SEP												
07...	40	18	28	4.2	134	43	35	0.30	2.7	254	0.35	41200

K--Results based on colony count outside the acceptable range (non-ideal colony count).

MISSISSIPPI RIVER MAIN STEM

81

05587550 MISSISSIPPI RIVER BELOW ALTON, IL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 03...	0.020	0.420	0.020	0.020	0.60	0.150	0.070	0.050	40	4180	49
JAN 11...	0.020	0.800	0.090	0.040	1.4	0.140	0.030	0.030	32	3380	81
MAR 14...	0.030	1.60	0.060	0.070	1.8	0.150	0.040	0.030	68	13800	73
MAY 04...	0.070	2.00	0.090	0.060	1.1	0.170	0.090	0.050	48	10300	79
JUL 13...	0.080	0.730	0.130	0.130	0.90	0.130	0.100	0.070	9	1130	97
SEP 07...	0.050	1.40	0.030	0.020	1.0	0.250	0.170	0.130	76	12300	87

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 03...	<10	3	55	<0.5	2	<1	<3	6	6	6
JAN 11...	10	<1	33	<0.5	<1	1	<3	5	10	<5
MAY 04...	<10	1	56	0.9	<1	<1	<3	7	14	<1
JUL 13...	<10	2	67	<0.5	<1	1	<3	13	5	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 03...	7	4	<0.1	<10	4	<1	2.0	120	<6	<3
JAN 11...	5	3	<0.1	<10	1	<1	<1.0	110	<6	6
MAY 04...	<4	2	<0.1	<10	2	<1	<1.0	100	<6	8
JUL 13...	7	2	<0.1	<10	2	<1	<1.0	130	<6	17

MISSOURI RIVER BASIN BELOW SIOUX CITY, IOWA

TARKIO RIVER BASIN

06813000 TARKIO RIVER AT FAIRFAX, MO

LOCATION.--Lat 40°20'20", long 95°24'32", in NW 1/4 SW 1/4, sec.22, T.64 N., R.40 W., Atchison County, Hydrologic Unit 10240005, on left bank 50 ft downstream from bridge on State Road J, 0.5 mi west of Fairfax, and 2 mi downstream from Cow Branch, and at mile 13.3.

DRAINAGE AREA.--508 mi².

PERIOD OF RECORD.--March 1922 to current year.

REVISED RECORDS.--WSP 856; 1937.

GAGE.--Water-stage recorder. Datum of gage is 867.66 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 50 ft downstream at datum 2.0 ft higher. Oct. 1, 1931 to Oct. 22, 1953, nonrecording gage at site 50 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 16, Dec. 26 to Jan. 19, and Feb. 2 to Mar. 10. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	14	18	16	50	18	16	43	1.9	103	9.6	39
2	18	13	20	15	26	15	15	36	3.7	89	9.7	17
3	14	15	18	14	20	20	14	24	25	79	11	36
4	11	16	16	15	15	25	15	31	9.5	72	8.9	474
5	8.6	14	17	16	10	20	16	28	4.4	60	7.8	270
6	8.8	15	17	17	8.0	25	16	24	1.2	51	5.4	105
7	9.3	16	18	17	8.0	40	16	20	.00	46	3.6	233
8	11	16	12	15	8.0	70	16	18	.98	41	2.6	4070
9	11	15	16	13	8.0	110	15	13	2.9	37	2.4	9680
10	10	18	24	14	8.5	350	14	12	.00	33	1.7	4280
11	8.5	16	22	14	9.0	262	13	9.8	.71	30	.95	1000
12	7.9	21	21	14	10	109	13	6.8	6.2	28	.38	569
13	7.6	23	24	13	12	64	13	11	2.9	27	.43	415
14	8.2	21	23	12	11	46	13	10	.00	25	.23	332
15	8.0	26	14	11	10	35	14	10	.00	107	.04	277
16	8.0	72	17	11	10	29	15	6.8	.00	281	.40	232
17	6.8	151	19	11	11	24	16	9.0	.00	110	2.5	199
18	6.7	89	21	12	12	20	16	13	.61	234	.10	172
19	5.9	47	23	12	12	21	16	9.5	.53	269	.00	151
20	14	31	28	12	13	20	14	8.1	.00	88	.00	132
21	21	24	18	15	13	18	12	11	.00	48	.45	117
22	15	22	24	16	11	19	15	9.3	964	31	36	104
23	13	21	24	15	10	17	16	14	1490	27	145	89
24	20	21	23	13	9.0	17	17	7.1	305	22	29	80
25	12	19	15	15	10	17	17	3.3	4180	20	12	79
26	11	20	15	14	20	17	11	2.3	1690	20	6.0	78
27	17	19	15	12	18	19	7.4	.62	367	17	20	73
28	9.6	18	14	28	20	18	13	1.8	233	15	1790	68
29	11	20	14	45	---	18	45	2.5	173	12	1580	65
30	11	19	15	82	---	20	43	.64	130	11	304	63
31	13	---	16	90	---	18	---	.40	---	10	89	---
MEAN	11.7	28.4	18.7	20.0	13.7	49.1	16.4	12.8	320	65.9	132	783
MAX	27	151	28	90	50	350	45	43	4180	281	1790	9680
MIN	5.9	13	12	11	8.0	15	7.4	.40	.00	10	.00	17
IN.	.03	.06	.04	.05	.03	.11	.04	.03	.70	.15	.30	1.72

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	134	119	95.4	98.6	187	294	253	296	413	263	165	188
MAX	1124	990	553	612	890	1717	1160	1595	1963	1478	1199	1303
(WY)	1974	1978	1974	1960	1973	1979	1984	1987	1947	1929	1982	1977
MIN	2.31	3.06	3.55	1.35	5.55	10.5	4.44	6.17	12.7	.98	.21	1.20
(WY)	1940	1940	1940	1940	1940	1938	1956	1956	1956	1934	1934	1939

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	Period
AVERAGE FLOW	122	209
HIGHEST ANNUAL MEAN		677
LOWEST ANNUAL MEAN		23.6
HIGHEST DAILY MEAN	9680	11100
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	10200	16300
INSTANTANEOUS PEAK STAGE	24.61	25.48
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	3.25	5.59
10 PERCENTILE	122	447
50 PERCENTILE	17	65
95 PERCENTILE	.47	4.3

06813500 MISSOURI RIVER AT RULO, NE

LOCATION.--Lat 40°03'13", long 95°25'19", in NW 1/4 NW 1/4 sec.17, T.1 N., R.18 E., Richardson County, Hydrologic Unit 10240005, on right bank at downstream side of bridge on U.S. Highway 159 at Rulo, 3.2 mi upstream from Big Nemaha River, and at mile 498.0.

DRAINAGE AREA.--414,900 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--October 1949 to current year in reports of Geological Survey. Gage-height record collected at site 80 ft upstream January 1886 to December 1899 published in reports of Missouri River Commission September 1929 to September 1950 in files of Kansas City office of U.S. Army Corps of Engineers.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft above National Geodetic Vertical Datum of 1929. Oct. 1949 to Sept. 12, 1950, nonrecording gage at site 80 ft upstream and Sept. 13, 1950, to Apr. 19, 1983, recording gage on downstream end of middle pier, all at same datum.

REMARKS.--Estimated daily discharges: Aug. 5-7. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. U.S. Army Corps of Engineers satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1881 reached a stage of 22.9 ft, from floodmark, discharge not determined.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47800	37500	19700	15300	26100	24200	38200	37300	37000	43200	41100	34100
2	41900	37000	20400	16000	26800	23300	38500	37100	34600	41300	37200	33500
3	40600	37500	21200	17400	23100	22800	37000	36800	37400	41000	36300	33300
4	39800	37600	20600	18200	15500	22900	35600	36500	37400	42000	36100	41700
5	39100	38200	20400	17700	12100	22000	35900	36200	36400	41200	35400	55200
6	39300	38400	21000	18200	8980	18900	35400	36000	35500	39700	34900	50500
7	39000	38500	20600	21100	8190	17300	35500	36200	35700	38500	35600	47000
8	38800	38600	20500	25600	13600	18500	35900	35900	35600	38500	34800	53800
9	39000	38700	20400	25200	21400	21900	35900	35900	38100	36200	34600	114000
10	38800	38200	21000	20000	21400	31000	36200	35300	38600	35400	34500	106000
11	39100	36100	19900	15300	22300	40200	36000	35200	38100	36100	34600	75500
12	38600	35100	18300	13400	22600	43100	36600	35400	38400	34700	34200	58700
13	38600	34700	18400	14500	23700	47400	36500	35700	38000	33500	34100	49800
14	39400	33400	18000	17600	25000	43800	37100	36000	37600	35300	34300	44400
15	39400	31800	18000	19400	25900	38500	37300	35900	37300	35700	34400	42500
16	39300	30700	19500	19600	25700	35700	37300	36400	36400	36900	34900	41500
17	39800	29200	21000	19500	24700	33100	37200	36200	35600	37100	34900	39900
18	40100	26900	20800	20100	24100	30100	37300	36200	36100	38400	34400	39300
19	39800	24300	19300	21100	24100	28500	37600	36700	35700	43500	34200	38800
20	40500	23000	18800	21300	24100	24800	37300	36800	35500	43300	34500	37900
21	40200	22700	20400	22000	23700	23500	36400	37400	35500	42600	34600	37000
22	40100	22600	22400	22800	22400	23300	36900	37300	35900	39900	35100	36500
23	39900	21800	24000	22700	20900	23200	36800	36900	42700	38400	36400	36400
24	39000	21500	24600	22100	21800	23000	36900	36900	40200	37600	36600	35700
25	38400	21300	24100	22800	22600	22900	37200	37000	45900	37600	35900	35200
26	38400	20700	22300	23700	21600	22900	36500	37800	57000	36200	35300	34900
27	38300	21200	21100	23000	21600	23100	37300	37600	44500	35500	35600	35000
28	38300	21100	19400	21600	23400	24600	39900	37000	43700	36500	42700	34600
29	38000	21300	18900	20900	---	28200	39600	36900	41500	35600	51500	34600
30	37800	21200	18600	22600	---	33200	37600	37600	41100	35400	39000	34600
31	37700	---	16200	24300	---	36400	---	40200	---	40500	35000	---
MEAN	39510	30030	20320	20160	21330	28140	36980	36650	38770	38300	36220	46400
MAX	47800	38700	24600	25600	26800	47400	39900	40200	57000	43500	51500	114000
MIN	37700	20700	16200	13400	8190	17300	35400	35200	34600	33500	34100	33300
IN.	.11	.08	.06	.06	.05	.08	.10	.10	.10	.11	.10	.12

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	45310	42990	27440	22510	28530	42750	53100	51120	54540	47350	44260	45510
MAX	77770	69430	55240	42280	52560	79590	102900	94370	130600	77010	67800	69780	
(WY)	1987	1976	1987	1973	1983	1979	1984	1984	1984	1984	1975	1975	
MIN	25580	17000	11330	12430	14530	19380	34520	35130	38460	33860	34070	34200	
(WY)	1962	1962	1964	1964	1964	1964	1963	1963	1977	1963	1961	1963	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	32770		42150	
HIGHEST ANNUAL MEAN			65930	1984
LOWEST ANNUAL MEAN			29670	1963
HIGHEST DAILY MEAN	114000	Sep 9	216000	Jun 16 1984
LOWEST DAILY MEAN	8190	Feb 7	5200	Jan 27 1961
INSTANTANEOUS PEAK FLOW	118000	Sep 9	358000	Apr 22 1952
INSTANTANEOUS PEAK STAGE	20.94	Sep 9	25.60	Apr 22 1952
INSTANTANEOUS LOW FLOW	8000	Feb 7	4420	Jan 13 1957
ANNUAL RUNOFF (INCHES)	1.08		1.39	

NODAWAY RIVER BASIN

06817700 NODAWAY RIVER NEAR GRAHAM, MO

LOCATION.--Lat 40°12'08", long 95°04'07", NE 1/4 NE 1/4 NE 1/4 sec.9, T.62 N., R.37 W., Holt County, Hydrologic Unit 10240010, at right downstream end of bridge on Highway A, 0.15 mi east of Maitland and 1.5 mi west of Graham.

DRAINAGE AREA.--1,380 mi², approximately.

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 852.09 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 29 to Jan. 21 and Feb. 4 to Mar 10. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	37	68	65	573	48	77	87	45	417	128	247
2	70	38	67	60	333	45	78	88	45	362	235	183
3	100	37	62	55	222	50	75	79	96	318	158	144
4	81	37	59	55	100	60	69	78	46	287	132	561
5	64	39	58	58	60	60	74	82	41	247	103	633
6	56	41	58	60	40	80	62	75	38	208	90	443
7	50	41	56	62	35	90	59	63	35	177	81	386
8	49	37	71	55	33	120	58	59	32	155	76	10400
9	48	38	78	50	30	150	55	52	28	136	70	23600
10	48	39	65	40	30	1450	56	49	49	122	63	23000
11	45	38	68	41	35	2520	61	45	83	113	60	6240
12	42	39	55	42	40	1540	50	41	69	103	58	2840
13	40	40	58	40	45	768	47	38	54	99	57	2000
14	42	43	64	40	50	480	40	38	44	92	55	1580
15	42	50	91	38	50	325	42	54	38	170	54	1320
16	40	67	57	36	50	255	46	40	33	263	52	1130
17	40	83	67	36	50	200	45	34	30	190	49	975
18	39	319	65	40	55	158	48	34	34	157	53	861
19	37	306	65	45	55	133	53	42	37	203	54	760
20	37	168	66	50	55	131	56	41	37	653	55	675
21	38	119	92	55	55	116	60	39	31	409	54	602
22	39	96	72	57	50	106	60	41	847	254	72	537
23	43	82	80	58	40	116	58	37	5610	191	70	482
24	43	74	73	59	37	103	63	33	1790	159	60	438
25	41	64	108	57	35	99	61	33	4440	136	74	399
26	39	66	89	55	50	95	59	33	5980	115	407	376
27	39	63	101	58	45	96	58	33	2280	105	223	357
28	37	84	67	65	50	103	60	36	1090	95	4000	342
29	37	66	55	73	---	94	54	32	708	88	3850	320
30	37	62	60	85	---	89	79	33	519	84	899	301
31	37	---	65	499	---	81	---	37	---	82	380	---
MEAN	47.2	77.1	69.7	67.4	82.2	315	58.8	48.6	807	200	380	2738
MAX	100	319	108	499	573	2520	79	88	5980	653	4000	23600
MIN	37	37	55	36	30	45	40	32	28	82	49	144
IN.	.04	.06	.06	.06	.06	.26	.05	.04	.65	.17	.32	2.21

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	679	521	674	408	837	908	1611	1642	1371	1030	653	855
MAX	2313	1058	1758	1199	1839	1717	3614	3899	4936	2681	2758	2738	
(WY)	1987	1987	1983	1983	1983	1983	1984	1984	1984	1986	1987	1989	
MIN	47.2	77.1	69.7	67.4	82.2	315	58.8	48.6	68.5	75.1	46.2	50.1	
(WY)	1989	1989	1989	1989	1989	1989	1989	1989	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	405	872
HIGHEST ANNUAL MEAN		1516
LOWEST ANNUAL MEAN		320
HIGHEST DAILY MEAN	23600	23600
LOWEST DAILY MEAN	28	28
INSTANTANEOUS PEAK FLOW	26600	26600
INSTANTANEOUS PEAK STAGE	23.34	23.34
INSTANTANEOUS LOW FLOW	26	23
ANNUAL RUNOFF (INCHES)	3.98	8.58
10 PERCENTILE	477	2090
50 PERCENTILE	63	343
95 PERCENTILE	35	42

NODAWAY RIVER BASIN

85

06817800 NODAWAY RIVER NEAR OREGON, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 39°58'19", long 94°59'46", in SE 1/4 sec.36, T.60 N., R.37 W., Holt County, Hydrologic Unit 10240010, at bridge on U.S. Highway I-29, 7 mi east of Oregon.

PERIOD OF RECORD.--November 1968 to July 1975, July 1977 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB TOT FLD WH WAT MG/L AS CACO3 (00902)
OCT											
12...	1050	59	450	7.60	10.0	12.5	110	25	K30	200	21
NOV											
01...	1000	56	470	8.10	6.5	12.3	100	29	25	--	--
DEC											
06...	1045	72	480	7.90	1.5	15.4	110	48	34	--	--
JAN											
10...	1030	50	490	8.10	0.0	17.0	116	11	K3	250	39
FEB											
07...	1130	30	445	7.90	0.0	9.4	64	46	600	--	--
MAR											
07...	1115	133	415	7.90	0.0	13.4	90	28	K1	--	--
APR											
04...	1130	82	410	8.90	12.0	10.9	101	29	K10	190	29
MAY											
02...	1045	78	418	8.40	13.0	9.2	87	48	41	--	--
JUN											
06...	1130	77	362	8.10	25.0	8.2	100	68	K2700	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
12...	54	16	16	4.9	180	8.8	37	15	0.30	255
NOV										
01...	--	--	--	--	198	3.0	--	--	--	271
DEC										
06...	--	--	--	--	191	4.7	--	--	--	295
JAN										
10...	70	18	18	3.1	210	3.2	44	18	0.30	309
FEB										
07...	--	--	--	--	156	3.8	--	--	--	292
MAR										
07...	--	--	--	--	189	4.6	--	--	--	241
APR										
04...	53	15	13	5.6	165	0.4	43	12	0.30	235
MAY										
02...	--	--	--	--	170	1.3	--	--	--	252
JUN										
06...	--	--	--	--	140	2.1	--	--	--	211

K--Results based on colony count outside the acceptable range (non-ideal colony count).

NODAWAY RIVER BASIN

06817800 NODAWAY RIVER NEAR OREGON, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L) AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L) AS N) (00610)	PHOS- PHOROUS TOTAL (MG/L) AS P) (00665)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L) AS AL) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L) AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L) AS CD) (01025)	COPPER, TOTAL RECOV- ERABLE (UG/L) AS CU) (01042)	COPPER, DIS- SOLVED (UG/L) AS CU) (01040)
OCT 12...	<1	<0.100	0.020	0.040	150	<10	<1	<1	5	1
NOV 01...	15	<0.100	<0.010	0.050	230	<10	--	--	--	--
DEC 06...	10	1.80	0.020	0.080	200	<10	--	--	--	--
JAN 10...	12	1.10	0.050	0.060	100	<10	<1	1	5	2
FEB 07...	69	2.60	0.760	0.300	2100	130	--	--	--	--
MAR 07...	53	1.30	0.200	0.130	1400	<10	--	--	--	--
APR 04...	21	<0.100	0.050	0.190	1100	<10	1	<1	5	2
MAY 02...	49	<0.100	0.030	0.140	1000	<10	--	--	--	--
JUN 06...	177	0.500	0.050	0.180	9100	60	--	--	--	--

[illegible]

MISSOURI RIVER MAIN STEM

87

06818000 MISSOURI RIVER AT ST. JOSEPH, MO

LOCATION.--Lat 39°45'12", long 94°51'28", in NW 1/4 SW 1/4 sec.17, T.57 N., R.35 W., Buchanan County, Hydrologic Unit 10240011, on left bank at left abutment of St. Joseph and Grand Island Railroad bridge in St. Joseph. River mile 448.2.

DRAINAGE AREA.--420,300 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Gage-height records collected in vicinity 1873-99 are contained in reports of Missouri River Commission; since 1900 in reports of National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area

GAGE.--Water-stage recorder. Datum of gage is 788.19 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 21, 1931, nonrecording gage and Oct. 21, 1931, to Dec. 31, 1933, water-stage recorder at same site at datum 5.50ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. Discharge measurements made weekly except during ice-flow periods. Some regulation from many upstream reservoirs. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 29, 1881, reached a stage of 27.2 ft, present datum, discharge, about 370,000 ft³/s, computed by U.S. Army Corps of Engineers. Flood of June 1844 reached a stage of 24.5 ft, discharge, about 350,000 ft³/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47700	40200	22500	15100	28300	26100	38300	38300	41300	44500	40000	38300
2	42600	40000	21400	14600	30800	26300	40100	37900	37400	43900	37600	36600
3	39600	39900	22600	15900	29400	25000	39100	37700	45600	41000	35000	35800
4	38600	40100	23000	17700	20100	25100	36500	37500	41200	42200	34300	39900
5	38300	41000	22100	18500	12200	25200	35500	37200	38700	42100	33700	68900
6	37200	41500	22200	17900	9010	22800	35400	36700	37300	40300	33700	61600
7	38100	41400	22400	19500	5260	18500	34500	36500	36400	38400	33500	55200
8	37500	41400	22100	24300	4600	17500	35100	36600	36200	37800	33500	56200
9	38000	41600	21800	29000	12200	20000	35000	36200	37000	37000	33300	143000
10	38100	41900	21800	26000	19900	24900	34900	35900	38700	34300	33000	161000
11	38600	39800	22100	18900	20500	44800	34600	35200	37200	34600	32800	116000
12	38600	38500	20300	13900	22400	48300	34800	35100	36300	34900	32800	71300
13	38500	38000	19000	12300	24200	53500	34800	35400	35900	32600	32100	55300
14	39200	37000	19000	14500	25900	49000	35300	35900	35600	32700	32500	47600
15	39900	35500	18400	18700	27000	41400	35900	35900	36000	34500	32700	42600
16	39900	34400	18500	20500	27100	37300	36000	36300	35500	35400	33200	40600
17	40600	32800	20600	20600	26600	35100	35800	36100	34400	36200	33500	39000
18	41200	30100	22100	20600	25600	31700	36100	36300	35300	36400	33000	37500
19	41000	27300	21100	21400	25400	29200	36400	36600	35900	40100	32700	36900
20	41200	24400	19300	22100	25900	26900	37000	37000	34900	43900	33000	36300
21	41700	23200	19400	22100	25900	23100	35900	38000	35300	43800	33600	35800
22	41500	23000	21600	22800	25000	22700	36400	38500	35600	40500	34200	35100
23	41300	22900	24400	23200	22700	22200	36600	37000	45200	37700	35600	35200
24	41000	22200	26200	22700	21400	22100	36900	37000	47100	36200	36600	35200
25	40600	22300	26600	22700	23500	21600	37500	36900	42500	35800	36600	34800
26	40400	22300	25200	24000	23700	21600	37600	37500	71700	35000	35900	34800
27	40600	22100	23600	24800	22600	21300	37500	38400	55200	33100	36900	35000
28	41000	22300	21300	24000	23300	22100	38800	37500	47100	33000	46100	34800
29	40300	22000	19800	22200	---	24300	43300	37500	45100	33300	75000	34400
30	40100	23000	19300	22500	---	29600	39500	37400	41200	31900	53800	34100
31	40000	---	18100	25200	---	35800	---	40400	---	33800	41000	---
MEAN	40090	32400	21540	20590	21800	28870	36700	36980	40430	37320	36810	52290
MAX	47700	41900	26600	29000	30800	53500	43300	40400	71700	44500	75000	161000
MIN	37200	22000	18100	12300	4600	17500	34500	35100	34400	31900	32100	34100
IN.	.11	.09	.06	.06	.05	.08	.10	.10	.11	.10	.10	.14

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	38600	35610	22370	19450	26530	45000	57800	51770	65090	53720	41040	40210
MAX	87650	70980	61820	45740	60570	96800	203000	104800	144700	101400	74110	75230
(WY)	1987	1976	1987	1973	1983	1979	1952	1984	1984	1944	1951	1951
MIN	11840	12510	7600	5026	8400	15650	22570	21910	34830	26250	11680	11040
(WY)	1940	1937	1938	1940	1940	1957	1957	1931	1956	1934	1934	1934

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	33850		41460	
HIGHEST ANNUAL MEAN			72080	1984
LOWEST ANNUAL MEAN			20490	1940
HIGHEST DAILY MEAN	161000	Sep 10	380000	Apr 22 1952
LOWEST DAILY MEAN	4600	Feb 8	2300	Jan 9 1937
INSTANTANEOUS PEAK FLOW	165000	Sep 10	397000	Apr 22 1952
INSTANTANEOUS PEAK STAGE	22.54	Sep 10	26.82	Apr 22 1952
INSTANTANEOUS LOW FLOW	4040	Feb 8	2300	Jan 9 1937
ANNUAL RUNOFF (INCHES)	1.10		1.33	
10 PERCENTILE	43500		70500	
50 PERCENTILE	34900		37300	
95 PERCENTILE	18500		11500	

MISSOURI RIVER MAIN STEM

06818000 MISSOURI RIVER AT ST. JOSEPH, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1984 to December 1984, July 1985 through September 1985, and April 1986 to September 1986.

DISSOLVED OXYGEN: May 1984 to November 1984, July 1985 through September 1985, and April 1986 to September 1986.

INSTRUMENTATION.--Water-quality monitor May 1984 to Dec. 1984, July 1985 to Sept. 1985, and Apr. 1986 to Sept. 1986.

REMARKS.--Discontinued as National stream-quality accounting network station, Sept. 1986.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
12...	0730	38800	730	7.90	13.5	24	9.0	86	140	K50
NOV										
01...	0650	40200	760	8.10	8.0	18	12.5	106	62	47
DEC										
06...	0745	22100	775	8.00	3.5	23	13.0	98	180	71
JAN										
10...	0740	27300	700	8.20	0.0	140	14.4	98	4300	4500
FEB										
07...	0755	5360	820	8.00	0.0	14	12.7	86	K920	K460
MAR										
07...	0745	19100	770	8.30	0.0	15	13.2	89	200	860
APR										
04...	0730	37000	625	8.10	9.5	45	9.0	79	1000	500
MAY										
02...	0745	37800	720	8.40	16.5	35	9.5	97	210	130
JUN										
06...	0730	37800	724	8.30	20.5	92	7.4	83	730	K370
JUL										
18...	0730	36000	758	8.30	25.0	37	6.9	84	K4300	210
AUG										
08...	0730	33500	803	8.50	26.5	40	7.3	91	60	K30
SEP										
12...	0715	75200	385	7.60	19.5	430	5.2	56	31000	21000

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT									
12...	220	56	52	22	68	5.5	204	180	17
NOV									
01...	240	72	57	24	71	5.3	168	190	17
DEC									
06...	260	58	64	24	66	5.8	193	160	24
JAN									
10...	240	64	63	21	58	6.1	184	150	24
FEB									
07...	300	57	76	27	68	7.7	246	200	19
MAR									
07...	250	65	64	22	71	6.6	173	170	27
APR									
04...	210	56	54	18	48	6.6	152	130	16
MAY									
02...	230	66	57	22	65	6.6	170	190	17
JUN									
06...	230	62	56	21	69	6.3	164	190	17
JUL									
18...	220	60	55	21	72	5.8	163	200	16
AUG									
08...	240	73	58	23	78	5.9	152	230	18
SEP									
12...	120	13	31	9.2	25	5.9	114	73	8.7

K--Results based on colony count outside the acceptable range (non-ideal colony count).

06818000 MISSOURI RIVER AT ST. JOSEPH, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 12...	0.50	8.0	470	0.64	49200	<0.010	0.220	0.010	<0.010
NOV 01...	0.40	9.4	485	0.66	52600	<0.010	0.310	0.010	0.010
DEC 06...	0.40	16	505	0.69	30100	0.010	0.860	0.090	0.110
JAN 10...	0.40	17	455	0.62	33500	0.010	1.00	0.230	0.230
FEB 07...	0.50	15	567	0.77	8210	0.020	0.920	0.300	0.300
MAR 07...	0.50	18	507	0.69	26100	0.010	0.960	0.180	0.180
APR 04...	0.40	17	385	0.52	38500	0.030	0.970	0.080	0.030
MAY 02...	0.50	8.2	463	0.63	47300	0.010	0.150	0.050	0.040
JUN 06...	0.50	8.1	477	0.65	48700	0.010	0.510	0.050	0.030
JUL 18...	0.40	8.1	502	0.68	48800	<0.010	0.220	0.030	0.020
AUG 08...	0.50	7.3	504	0.69	45600	<0.010	<0.100	0.020	0.010
SEP 12...	0.30	9.6	235	0.32	47700	0.070	0.930	0.300	0.100

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
OCT 12...	0.50	0.120	0.030	0.030	--	--	--	--	--
NOV 01...	0.30	0.060	0.060	0.040	407	44200	13	--	<10
DEC 06...	0.70	0.170	0.090	0.080	--	--	--	--	--
JAN 10...	1.5	0.180	0.090	0.100	855	63000	42	16000	40
FEB 07...	1.0	0.140	0.080	0.070	--	--	--	640	20
MAR 07...	0.80	0.170	0.100	0.100	426	22000	9	2200	<10
APR 04...	0.60	0.290	0.090	0.070	--	--	--	5500	20
MAY 02...	0.40	0.150	0.060	0.040	490	50000	34	3300	20
JUN 06...	0.90	0.250	0.050	0.060	--	--	--	8700	<10
JUL 18...	0.70	0.120	0.050	0.050	--	--	--	2800	10
AUG 08...	0.50	0.170	0.060	0.050	--	--	--	410	<10
SEP 12...	1.6	0.500	0.100	0.090	1700	345000	80	38000	80

MISSOURI RIVER MAIN STEM

06818000 MISSOURI RIVER AT ST. JOSEPH, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)
NOV 01...	2	67	<0.5	2	<1	<3	2	7	<5	47
JAN 10...	3	100	<0.5	4	<1	<3	2	26	<5	40
MAY 02...	2	97	<0.5	<1	<1	<3	3	11	<5	43
JUL 18...	2	110	<0.5	1	<1	<3	2	7	<1	47

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 01...	6	<0.1	<10	3	2	<1.0	520	<6	8
JAN 10...	7	<0.1	<10	6	2	<1.0	480	<6	9
MAY 02...	<1	<0.1	<10	3	1	<1.0	490	<6	<3
JUL 18...	<1	0.2	<10	2	2	<1.0	530	<6	17

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
SEP 12...	1145	71000	1480	284000	96	98	99	100
12...	1230	71000	2130	408000	82	87	96	100
12...	1300	71000	1850	355000	77	83	99	100
12...	1315	71000	1750	335000	84	89	99	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT 19...	0	3	19	32	85	91	92	100
20...	0	1	8	13	52	67	79	100
MAR 28...	0	2	38	96	99	100	--	--
APR 11...	1	1	2	44	86	96	100	--
MAY 09...	2	2	3	38	95	99	100	--
JUN 13...	1	1	3	72	89	98	100	--
JUL 25...	0	0	28	98	100	--	--	--
AUG 08...	0	0	2	66	96	99	100	--
SEP 12...	1	1	1	59	96	100	--	--

PLATTE RIVER BASIN

06819500 ONE HUNDRED AND TWO RIVER AT MARYVILLE, MO

LOCATION.--Lat 40°20'45", long 94°49'56", in SW 1/4 SW 1/4 sec.15, T.64 N., R.35 W., Nodaway County, Hydrologic Unit 10240013, on right bank at intake for City Waterworks, just upstream from City Waterworks dam, 150 ft upstream from bridge on U.S. Highway 136, 0.3 mi downstream from Thill Branch, 1 mi east of Maryville and at mile 64.0.

DRAINAGE AREA.--515 mi².

PERIOD OF RECORD.--October 1932 to current year. April to June 1934 monthly discharge only, published in WSP 1310. June 1934 to October 1971, published as "near Maryville".

GAGE.--Water-stage recorder. Datum of gage is 964.65 ft above National Geodetic Vertical Datum of 1929. Nonrecording gage prior to Sept. 15, 1958. Prior to June 20, 1934, at present site and datum. June 20, 1934, to Oct. 31, 1971, at site 3 mi upstream at datum 5.68 ft higher.

REMARKS.--Estimated daily discharges: Aug. 1-29. Records poor. Some regulation at low flow by City Waterworks. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 16, 1926, reached a stage of 15 ft, present site, from floodmark; discharge, 14,500 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.00	.75	.66	6.8	4.8	9.5	.00	.00	4.0	.00	14
2	.02	.00	.83	.81	3.4	8.9	12	.12	.00	3.3	.00	5.3
3	.00	.00	.80	1.7	3.4	9.1	6.2	.55	.72	1.2	.00	11
4	.00	.00	.98	1.6	1.7	11	4.5	.96	.33	.00	.00	202
5	.00	.00	.77	2.5	.02	9.3	4.5	.82	.07	.00	.00	102
6	.00	.00	.73	1.6	.85	15	2.6	.31	.05	.00	.00	48
7	.00	.00	1.4	1.2	3.0	46	1.2	.20	.00	.00	.00	1370
8	.00	.00	1.5	.28	2.9	55	3.2	.34	.00	.00	.00	7750
9	.00	.00	1.4	.88	1.6	66	2.4	.13	.00	.00	.00	15100
10	.00	.0	1.1	1.2	.01	93	.81	.08	.00	.00	.00	7340
11	.00	.32	.73	.95	.00	157	.24	.00	.00	.00	.00	918
12	.00	.34	.33	1.4	.69	95	.44	.00	.00	.00	.00	374
13	.00	.67	.48	1.7	2.8	54	.00	.00	.00	.00	.00	231
14	.00	.75	1.7	1.6	2.8	29	.00	.00	.00	.00	.00	185
15	.00	.75	1.5	.99	.24	11	.00	.00	.00	.00	.00	145
16	.00	.09	1.1	.76	.00	4.4	.00	.00	.00	.00	.00	116
17	.00	2.0	.46	1.1	.00	4.4	.00	.00	.00	.00	.00	92
18	.00	1.7	.37	2.5	.05	2.4	.00	.00	.00	.00	.00	77
19	.00	.85	1.0	2.8	1.9	2.2	.00	.00	.00	.22	.00	67
20	.00	.29	1.7	2.7	3.6	3.0	.00	.00	.00	2.9	.00	58
21	.00	.21	1.2	2.3	3.6	1.4	.00	.00	.00	1.9	.00	50
22	.00	.45	1.3	1.7	1.7	.88	.00	.00	.00	1.1	.00	41
23	.00	.82	1.6	1.9	1.2	.57	.00	.00	.00	.10	.00	31
24	.00	1.3	1.7	1.8	3.1	1.3	.00	.00	.00	.40	.00	25
25	.00	1.3	1.3	2.9	4.0	3.8	.00	.00	.00	.20	.00	23
26	.00	1.0	2.1	2.9	3.1	3.1	.00	.00	229	.12	.00	20
27	.00	1.1	1.9	1.9	2.9	6.4	.00	.00	156	.0	1.7	18
28	.00	1.2	1.4	4.5	3.2	29	.00	.00	62	.00	1490	20
29	.00	1.5	.87	4.7	---	18	.00	.00	24	.00	1850	18
30	.00	.96	.86	4.6	---	21	.00	.00	9.3	.00	131	18
31	.00	---	.72	5.4	---	8.3	---	.00	---	.00	38	---
MEAN	.046	.59	1.12	2.05	2.09	25.0	1.59	.11	16.0	.50	113	1149
MAX	1.4	2.0	2.1	5.4	6.8	157	12	.96	229	4.0	1850	15100
MIN	.00	.00	.33	.28	.00	.57	.00	.00	.00	.00	.00	5.3
IN.	.00	.00	.00	.00	.00	.06	.00	.00	.03	.00	.25	2.49

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
MEAN	153	121	84.5	103	238	410	338	407	466	208	134	171
MAX	1897	945	818	1186	1240	1874	1655	2242	3187	1452	992	1312
(WY)	1974	1942	1983	1960	1973	1979	1984	1982	1947	1986	1982	1977
MIN	.05	.59	1.12	.11	2.09	3.42	.74	.11	5.18	.50	.18	.03
(WY)	1989	1989	1989	1977	1989	1954	1956	1989	1988	1989	1988	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989
AVERAGE FLOW	108								236			
HIGHEST ANNUAL MEAN									658		1982	
LOWEST ANNUAL MEAN									18.6		1934	
HIGHEST DAILY MEAN	15100	Sep 9							25500	Oct 12	1973	
LOWEST DAILY MEAN	.00	Many Days							.00	Several Years		
INSTANTANEOUS PEAK FLOW	16200	Sep 9							28000	Oct 12	1973	
INSTANTANEOUS PEAK STAGE	16.91	Sep 9							19.25	Oct 12	1973	
INSTANTANEOUS LOW FLOW	0	Many Days							0	Several Years		
ANNUAL RUNOFF (INCHES)	2.85								6.22			
10 PERCENTILE	26								474			
50 PERCENTILE	.40								30			
95 PERCENTILE	.00								1.1			

PLATTE RIVER BASIN

06820500 PLATTE RIVER NEAR AGENCY, MO

LOCATION.--Lat 39°41'19", long 94°42'15", in NE 1/4 NW 1/4 sec.10, T.56 N., R.34 W., Buchanan County, Hydrologic Unit 10240012, on left bank 10 ft downstream from bridge of U.S. Highway 169, 1.5 mi downstream from Third Fork, 3.5 mi northeast of Agency, and at mile 66.8.

DRAINAGE AREA.--1,760 mi², approximately.

PERIOD OF RECORD.--May 1924 to August 1930 (published as "at Agency"), May 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 807.38 ft above National Geodetic Vertical Datum of 1929. May 22, 1924 to Aug. 9, 1930, nonrecording gage at site 4 mi downstream at different datum. May 13, 1932 to Nov. 14, 1965, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 9-12, Jan. 9-11, Feb. 3-16, May 4-26, 30, 31, and June 3 to Sept. 30. Records poor. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage height and U.S. Army Corps of Engineers satellite telemeters at stations.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	9.0	9.0	32	56	41	40	20	88	200	9.0	1000
2	9.5	7.5	9.9	27	24	44	36	17	105	100	7.0	500
3	6.0	5.7	12	34	22	57	66	20	858	60	5.0	200
4	7.1	4.7	11	31	20	45	59	21	450	40	3.5	350
5	15	5.2	11	37	18	38	42	22	230	25	2.5	600
6	19	5.0	11	42	16	44	36	25	119	20	2.0	1000
7	20	7.1	11	35	15	61	35	20	65	15	1.5	2000
8	11	7.0	8.2	21	15	79	38	30	30	13	1.2	3500
9	9.3	4.9	7.0	20	16	67	32	148	20	11	1.0	5000
10	7.8	14	8.7	22	17	62	30	36	15	9.0	.70	9000
11	6.6	6.9	6.3	24	18	89	24	16	10	7.5	1.0	15000
12	6.1	19	7.3	26	19	126	20	10	8.5	6.5	1.0	14000
13	7.7	15	11	29	20	137	20	11	7.2	6.0	1.0	13000
14	5.0	9.5	13	30	21	142	18	11	6.5	80	1.0	11000
15	4.3	38	11	24	22	196	18	11	5.5	200	1.5	5000
16	3.3	61	11	24	22	139	20	10	5.0	130	2.0	1000
17	3.9	21	13	28	23	97	18	30	50	100	1.8	750
18	4.6	30	12	32	21	74	20	50	150	93	1.5	550
19	4.3	17	16	27	20	53	17	100	100	60	10	450
20	5.0	28	24	24	21	44	16	500	50	40	40	400
21	5.6	45	20	19	21	42	16	200	30	25	20	350
22	5.6	49	24	27	22	35	19	70	15	20	13	300
23	25	36	20	23	20	33	19	25	10	35	9.0	250
24	12	23	19	24	20	31	19	24	9.0	60	15	230
25	14	17	16	30	24	26	18	23	8.5	45	10	215
26	8.9	42	23	36	44	23	18	22	200	35	20	200
27	5.9	24	64	27	46	22	16	42	400	25	500	180
28	5.8	11	22	47	47	43	17	40	200	18	2000	160
29	12	11	30	102	---	32	16	101	100	15	5000	145
30	9.0	8.9	32	63	---	83	19	69	150	13	6000	130
31	9.3	---	27	60	---	62	---	52	---	11	3000	---
MEAN	9.05	19.4	16.8	33.1	23.9	66.7	26.1	57.3	117	49.0	538	2882
MAX	25	61	64	102	56	196	66	500	858	200	6000	15000
MIN	3.3	4.7	6.3	19	15	22	16	10	5.0	6.0	.70	130
IN.	.01	.01	.01	.02	.01	.04	.02	.04	.07	.03	.35	1.83

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	695	534	347	390	822	1361	1376	1444	1957	871	461	904
MAX	8584	4620	3248	3714	4912	6345	6835	6815	13640	7553	2935	7853	
(WY)	1974	1962	1983	1974	1973	1979	1973	1982	1947	1965	1987	1926	
MIN	.02	6.14	5.59	2.72	14.0	12.7	9.89	26.9	41.7	10.2	2.62	6.76	
(WY)	1957	1956	1939	1940	1940	1938	1956	1956	1988	1936	1934	1955	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	317	930
HIGHEST ANNUAL MEAN		2671
LOWEST ANNUAL MEAN		67.4
HIGHEST DAILY MEAN	15000	50800
LOWEST DAILY MEAN	.70	.00
INSTANTANEOUS PEAK FLOW	18100	53000
INSTANTANEOUS PEAK STAGE	25.27	35.05
INSTANTANEOUS LOW FLOW	.70	0
ANNUAL RUNOFF (INCHES)	2.45	7.17
10 PERCENTILE	196	2020
50 PERCENTILE	24	177
95 PERCENTILE	4.3	9.5

PLATTE RIVER BASIN

93

06821140 SMITHVILLE RESERVOIR NEAR SMITHVILLE, MO

LOCATION.--Lat 39°23'50", long 94°33'25", SW 1/4 sec.13, T.53 N., R.33 W., Clay County, Hydrologic Unit 10240012, in control tower at outlet works on the Little Platte River, and 1.0 mi northeast of Smithville and 5.0 mi north of Kansas City.

DRAINAGE AREA.--213 mi².

PERIOD OF RECORD.--July 1981 to current year. Records collected at same site since 1976 and are available from U.S. Army Corps of Engineers.

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

REMARKS.--Lake is formed by a rolled earthfill type dam. Storage began on July 13, 1976. An uncontrolled limited service type spillway, 50 ft wide, is located at the right abutment. Capacity of surcharge pool (elevations 876.2 ft to 891.1 ft), 182,209 acre-ft; of flood control pool (elevations 864.2 to 876.2 ft), 101,800 acre-ft; and of multipurpose pool (elevations 799.0 ft to 864.2 ft), 144,600 acre-ft. Lake is used for flood control, water supply, water quality control, recreation, and fish and wildlife enhancement.

COOPERATION.--Records furnished by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 217,000 acre-ft, Nov. 15-17, 1985, maximum elevation 873.17 ft, Nov. 16, 17, 1985; minimum, 2,360 acre-ft, Jan. 13, 1980, elevation, 819.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 153,000 acre-ft, Sept. 17, 18, maximum elevation, 865.29 ft; minimum contents, 131,000 acre-ft, May 17, elevation, 862.25 ft.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	863.27	862.75	862.62	862.47	862.50	862.33	862.42	862.42	863.31	863.74	863.35	863.92
2	863.27	862.75	862.61	862.46	862.41	862.33	862.49	862.39	863.31	863.73	863.34	863.92
3	863.24	862.75	862.63	862.46	862.36	862.36	862.55	862.37	863.38	863.72	863.31	863.90
4	863.24	862.76	862.62	862.46	862.33	862.36	862.59	862.39	863.39	863.72	863.30	863.87
5	863.18	862.75	862.61	862.47	862.31	862.35	862.58	862.39	863.38	863.71	863.29	863.93
6	863.16	862.70	862.61	862.48	862.31	862.33	862.59	862.35	863.38	863.69	863.28	864.09
7	863.13	862.69	862.62	862.48	862.31	862.32	862.60	862.33	863.37	863.68	863.23	864.22
8	863.12	862.68	862.59	862.44	862.31	862.32	862.63	862.33	863.37	863.65	863.17	864.25
9	863.11	862.67	862.57	862.43	862.29	862.33	862.58	862.39	863.35	863.63	863.15	865.12
10	863.10	862.66	862.56	862.42	862.31	862.34	862.57	862.31	863.34	863.60	863.14	865.19
11	863.09	862.65	862.53	862.43	862.31	862.37	862.55	862.31	863.31	863.57	863.12	865.20
12	863.07	862.67	862.50	862.43	862.31	862.37	862.55	862.29	863.31	863.55	863.10	865.22
13	863.05	862.67	862.50	862.42	862.32	862.37	862.54	862.28	863.32	863.54	863.09	865.20
14	863.03	862.67	862.52	862.42	862.31	862.35	862.54	862.27	863.30	863.53	863.06	865.27
15	863.02	862.69	862.53	862.41	862.32	862.33	862.56	862.26	863.26	863.52	863.05	865.27
16	863.01	862.69	862.46	862.41	862.32	862.32	862.55	862.26	863.24	863.57	863.09	865.28
17	863.01	862.66	862.46	862.41	862.31	862.33	862.57	862.25	863.23	863.56	863.07	865.29
18	863.00	862.66	862.46	862.41	862.30	862.31	862.55	862.29	863.34	863.55	863.05	865.29
19	862.98	862.66	862.46	862.41	862.30	862.30	862.53	862.50	863.35	863.54	863.06	865.27
20	862.95	862.64	862.49	862.41	862.30	862.29	862.53	862.62	863.29	863.52	863.05	865.22
21	862.93	862.61	862.50	862.40	862.30	862.29	862.52	862.63	863.36	863.50	863.13	865.15
22	862.92	862.61	862.48	862.39	862.32	862.28	862.53	862.17	863.36	863.47	863.12	865.10
23	862.92	862.60	862.47	862.39	862.32	862.28	862.54	863.20	863.37	863.46	863.20	865.02
24	862.89	862.62	862.48	862.39	862.32	862.29	862.53	863.21	863.36	863.43	863.19	864.91
25	862.89	862.60	862.47	862.39	862.31	862.30	862.53	863.27	863.35	863.44	863.15	864.84
26	862.86	862.67	862.47	862.40	862.30	862.30	862.52	863.27	863.34	863.43	863.16	864.81
27	862.83	862.67	862.52	862.39	862.34	862.31	862.52	863.24	863.70	863.41	863.16	864.74
28	862.82	862.64	862.49	862.40	862.35	862.40	862.51	863.23	863.75	863.41	863.60	864.67
29	862.81	862.64	862.42	862.43	---	862.41	862.46	863.23	863.77	863.40	863.84	864.63
30	862.78	862.62	862.47	862.43	---	862.47	862.43	863.23	863.75	863.39	863.92	864.59
31	862.76	---	862.47	862.43	---	862.44	---	863.25	---	863.38	863.93	---
MAX	863.27	862.76	862.63	862.48	862.50	862.47	862.63	863.27	863.77	863.74	863.93	865.29
MIN	862.76	862.60	862.42	862.39	862.29	862.28	862.42	862.25	863.23	863.38	863.05	863.87
(-)	135000	134000	133000	132000	132000	132000	132000	138000	141000	139000	143000	147000
(=)	-3000	-1000	-1000	-1000	0	0	0	+6000	+3000	-2000	+4000	+3000

CAL YR 1988 (=)-16000
WTR YR 1989 (=)+ 8000

(-) Contents, in acre feet, at end of month
(=) Change in contents

PLATTE RIVER BASIN

06821150 LITTLE PLATTE RIVER AT SMITHVILLE, MO

LOCATION.--Lat 39°23'17", long 94°34'44", in NW 1/4 SW 1/4 sec.23, T.53 N., R.33 W., Clay County, Hydrologic Unit 10240012, on left bank behind city equipment shelter on old bridge abutment, 500 ft upstream from town bridge in Smithville, 1,500 ft upstream from bridge on U.S. Highway 169, 0.5 mi downstream from Wilkerson Creek, 2.4 mile downstream from Smithville Lake and at mile 11.1.

DRAINAGE AREA.--234 mi².

PERIOD OF RECORD.--June 1965 to current year. Occasional measurements 1942, 1943, 1946, 1962-65.

REVISED RECORDS.--WDR MO 1970: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 778.18 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Mar. 23, 1966, nonrecording gage at site 1,500 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Feb. 2-13. Records fair. Construction of dam for Smithville Lake (station 06821140) began in June 1974 and partial regulation began Aug. 6, 1977. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1947 reached a stage of 37.4 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.8	12	13	14	12	15	12	16	13	11	15
2	10	9.7	12	13	13	11	92	12	16	13	11	14
3	10	9.9	11	13	12	12	38	12	26	12	11	14
4	9.9	10	11	13	11	12	20	13	15	12	12	48
5	9.7	10	11	13	10	12	16	13	13	12	24	28
6	9.7	11	11	13	10	13	15	13	13	13	12	539
7	10	11	11	13	10	12	16	13	12	12	12	30
8	11	11	11	12	10	12	15	13	12	12	12	723
9	11	11	11	12	10	12	14	13	11	12	11	2430
10	11	11	11	13	11	12	13	13	12	12	11	59
11	11	11	11	13	11	12	13	13	12	12	11	25
12	11	12	11	13	12	12	13	13	12	12	12	22
13	11	12	11	13	13	12	22	13	12	13	12	236
14	11	11	11	13	14	12	12	13	11	13	12	204
15	11	12	11	13	14	12	12	13	11	68	12	41
16	11	11	11	13	14	12	12	13	11	46	13	28
17	11	11	11	13	13	12	12	13	14	16	13	24
18	11	11	11	13	13	12	12	16	29	13	12	115
19	11	10	11	13	13	12	12	37	14	13	13	235
20	11	11	11	13	13	14	13	16	12	12	23	233
21	11	11	11	13	12	14	12	112	12	12	16	229
22	11	11	11	13	12	14	12	40	11	12	13	226
23	10	11	11	14	13	14	12	18	12	12	20	220
24	11	11	12	14	12	14	12	15	47	12	14	219
25	11	13	11	15	12	14	12	15	12	12	13	219
26	11	21	12	15	12	13	12	15	156	12	13	218
27	11	12	15	15	12	14	12	14	82	12	13	216
28	10	11	15	15	12	34	12	13	15	11	522	215
29	10	12	13	15	---	17	12	13	14	11	350	214
30	9.9	12	13	15	---	25	12	13	13	11	23	212
31	9.9	---	13	15	---	26	---	12	---	11	16	---
MEAN	10.6	11.4	11.6	13.5	12.1	14.2	16.9	18.3	21.9	15.1	41.1	242
MAX	11	21	15	15	14	34	92	112	156	68	522	2430
MIN	9.7	9.7	11	12	10	11	12	12	11	11	11	14
IN.	.05	.05	.06	.07	.05	.07	.08	.09	.10	.07	.20	1.15

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
MEAN	166	125	73.3	83.2	101	166	230	286	237	224	90.0	214
MAX	1108	755	274	318	322	1261	640	1583	1289	2126	663	1006
(WY)	1974	1978	1986	1983	1973	1973	1978	1974	1967	1965	1981	1977
MIN	.35	.60	.05	.07	9.47	4.73	9.85	11.4	13.3	1.08	.19	.11
(WY)	1967	1967	1977	1977	1967	1981	1981	1988	1988	1976	1976	1976

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	35.5	157
HIGHEST ANNUAL MEAN		403
LOWEST ANNUAL MEAN		35.4
HIGHEST DAILY MEAN	2430	41000
LOWEST DAILY MEAN	9.7	.00
INSTANTANEOUS PEAK FLOW	5910	76600
INSTANTANEOUS PEAK STAGE	30.29	44.8
INSTANTANEOUS LOW FLOW	9.7	0
ANNUAL RUNOFF (INCHES)	2.06	9.11
10 PERCENTILE	29	346
50 PERCENTILE	13	27
95 PERCENTILE	11	1.2

06821190 PLATTE RIVER AT SHARPS STATION, MO

LOCATION.--Lat 39°24'03", long 94°43'36", in NW 1/4 SE 1/4 SW 1/4 sec.16, T.53 N., R.34 W., Platte County, Hydrologic Unit 10240012, on downstream side of center pier at Sharps bridge, 0.2 mi upstream from Jowler Creek, 3.3 mi downstream from Little Platte River, 3.6 mi south of Camden Point, and at mile 25.1.

DRAINAGE AREA.--2,380 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 754.23 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Nov. 6-16, Dec. 16-21, 29-31, Jan. 1-10, and Feb. 1, 2, 7-12. Water-discharge records poor. Some regulation from Smithville Lake (station 06821140) 17.0 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	20	61	48	110	63	238	31	97	297	22	3710
2	41	24	55	46	73	80	197	35	170	384	20	1320
3	24	25	43	45	47	69	358	36	245	301	17	752
4	22	25	53	46	35	63	274	37	477	173	14	580
5	19	22	53	45	29	67	255	36	1040	99	13	695
6	20	25	50	50	28	53	199	39	612	66	16	1460
7	21	21	45	55	27	63	150	45	294	50	12	1840
8	27	22	49	50	26	64	97	42	149	38	12	1110
9	29	18	49	40	25	78	85	35	88	28	13	6560
10	31	25	38	35	25	87	78	55	56	23	16	10500
11	28	37	34	32	26	75	67	118	42	20	17	11400
12	28	30	38	29	27	87	58	85	37	18	13	13300
13	29	45	41	40	28	153	59	50	34	16	12	16400
14	28	47	32	39	33	148	51	38	40	15	12	18500
15	26	49	40	41	33	296	52	33	30	21	13	15300
16	26	52	49	42	33	320	47	29	25	310	26	6590
17	22	72	48	41	34	265	40	27	21	132	21	2070
18	23	86	53	41	36	180	44	30	203	98	16	1290
19	20	65	47	42	35	151	44	107	438	127	15	1140
20	20	52	36	43	34	96	42	247	240	91	28	984
21	17	57	43	47	33	90	40	333	88	58	83	847
22	19	51	39	41	31	82	39	1620	44	41	48	719
23	16	63	42	45	36	71	35	713	40	34	51	628
24	25	80	40	47	35	62	39	288	40	45	84	564
25	22	79	43	44	36	53	39	152	50	98	33	504
26	29	250	41	46	44	51	37	139	35	85	66	455
27	21	205	49	54	49	48	37	103	489	65	51	433
28	22	140	73	58	44	69	31	80	734	51	1370	408
29	20	98	50	79	---	133	29	78	417	42	3550	395
30	20	71	45	96	---	98	29	136	189	29	7730	387
31	20	---	50	145	---	204	---	84	---	25	7980	---
MEAN	25.1	61.9	46.1	50.1	37.6	110	93.0	157	215	92.9	689	4028
MAX	64	250	73	145	110	320	358	1620	1040	384	7980	18500
MIN	16	18	32	29	25	48	29	27	21	15	12	387
IN.	.01	.03	.02	.02	.02	.05	.04	.08	.10	.05	.33	1.89

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	1667	855	1239	648	1411	2356	2151	2911	2710	2169	1211	1618
MAX	6847	2081	4555	2153	3980	8745	5259	7688	10790	8740	3535	4410
(WY)	1986	1986	1983	1983	1982	1979	1983	1982	1984	1986	1987	1982
MIN	25.1	61.9	46.1	50.1	37.6	110	93.0	157	75.2	52.5	47.7	75.9
(WY)	1989	1989	1989	1989	1989	1989	1989	1989	1988	1988	1988	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	464	1739
HIGHEST ANNUAL MEAN		3376
LOWEST ANNUAL MEAN		464
HIGHEST DAILY MEAN	18500	28300
LOWEST DAILY MEAN	12	12
INSTANTANEOUS PEAK FLOW	18700	29000
INSTANTANEOUS PEAK STAGE	31.14	34.55
INSTANTANEOUS LOW FLOW	12	12
ANNUAL RUNOFF (INCHES)	2.65	9.92
10 PERCENTILE	460	4330
50 PERCENTILE	48	616
95 PERCENTILE	18	38

PLATTE RIVER BASIN

06821190 PLATTE RIVER AT SHARPS STATION, MO--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1979 to September 1981.

WATER TEMPERATURE: April 1979 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)	
NOV													
01...	1245	21	505	7.80	7.5	13	11.4	95	170	63	200	21	
JAN													
10...	1350	35	570	8.20	0.0	5.2	17.3	118	K2	K13	230	35	
MAY													
02...	1330	39	522	8.10	15.0	27	7.2	71	460	160	220	21	
JUL													
18...	1115	86	468	8.00	24.5	72	6.9	83	1400	1300	210	13	
DATE		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV													
01...	59	13	24	5.2	187	43	19	0.30	4.6	294	0.40	16.7	
JAN													
10...	67	15	26	5.3	216	43	22	0.30	4.0	297	0.40	28.1	
MAY													
02...	65	13	27	5.8	203	42	22	0.40	3.4	317	0.43	33.4	
JUL													
18...	66	12	17	6.0	204	26	13	0.30	6.2	275	0.37	63.9	

K--Results based on colony count outside the acceptable range (non-ideal colony count).

PLATTE RIVER BASIN

97

06821190 PLATTE RIVER AT SHARPS STATION, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 01...	0.040	0.940	0.070	0.080	0.80	0.190	0.130	0.100	36	2.0	56
JAN 10...	<0.010	0.350	0.290	0.300	1.0	0.270	0.170	0.130	19	1.8	44
MAY 02...	0.080	0.550	0.260	0.280	1.8	0.260	0.060	0.070	68	7.2	96
JUL 18...	0.010	0.160	0.040	0.050	1.7	0.090	0.050	0.040	202	47	96

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 01...	<10	2	140	<0.5	3	<1	<3	4	13	<5
JAN 10...	10	1	130	<0.5	<1	<1	<3	4	33	<5
MAY 02...	10	2	210	<0.5	<1	<1	<3	1	14	<5
JUL 18...	<10	2	230	<0.5	<1	<1	<3	2	6	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 01...	11	320	<0.1	10	3	<1	1.0	290	<6	11
JAN 10...	12	330	<0.1	<10	3	<1	<1.0	290	<6	10
MAY 02...	10	820	0.3	20	2	<1	<1.0	320	<6	14
JUL 18...	8	380	0.5	<10	4	<1	<1.0	330	<6	25

KANSAS RIVER BASIN

06892350 KANSAS RIVER AT DESOTO, KS

LOCATION.--Lat 38°59'00", long 94°57'52", in SE 1/4 NE 1/4 NE 1/4 sec.27, T.12 S., R.22 E., Leavenworth County, Hydrologic Unit 10270104, on left bank at downstream side of bridge on county road, north edge of DeSoto, 0.4 mi upstream from Kill Creek and at mile 31.0.

DRAINAGE AREA.--59,756 mi², of which a large area is noncontributing.

PERIOD OF RECORD.--July 1917 to current year. Monthly discharge only for some periods published in WSP 1310. Prior to October 1973, published as "at Bonner Springs."

REVISED RECORDS.--WSP 806: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 758.87 ft above National Geodetic Vertical Datum of 1929. July 9, 1917 to Apr. 23, 1934, nonrecording gage; Apr. 24, 1934, to Nov. 25, 1960, water-stage recorder at site 9.7 mi downstream at datum 11.81 ft lower; Nov. 26, 1960, to Feb. 9, 1961, nonrecording gage; Feb. 10, 1961, to Sept. 30, 1971, water-stage recorder at site 10.2 mi downstream at datum 17.81 ft lower; and Oct. 1, 1971, to Sept. 30, 1973, at site 10.2 mi downstream at datum 22.81 ft lower.

REMARKS.--Estimated daily discharges: Dec. 12, Jan. 8, 9, Feb. 2-21, 23, 28, and Mar. 1, 4, 5. Records good except those for estimated daily discharges, which are poor. Natural flow of stream affected by lake and reservoirs in Colorado, Nebraska, and Kansas, and by numerous diversions upstream from station. Diurnal fluctuations caused by hydroelectric plant 20.8 mi upstream; since storage capacity is small, daily flows are not affected appreciably. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1844, July 13, 1951.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	983	1840	933	1010	918	850	2090	731	743	1480	2410	4360
2	1070	1870	925	780	850	737	2130	755	837	2070	2590	4080
3	1120	1830	922	764	810	1100	2310	805	818	2880	2020	3370
4	1150	1970	926	999	800	970	1680	883	904	5540	1690	2880
5	1070	2280	923	1130	790	930	1410	884	946	4280	1640	4590
6	1050	1970	919	527	785	892	1480	864	872	3450	1470	9310
7	1040	1880	932	767	780	596	1090	852	753	3050	1400	32800
8	1460	1840	934	730	775	821	1060	828	758	2930	1460	24900
9	1790	1840	743	650	775	1090	1050	885	802	4510	1410	48600
10	1790	2000	761	505	775	1140	1090	1180	645	5440	1740	57600
11	1800	1940	894	812	770	937	1100	819	937	4870	1760	35100
12	1810	1500	870	957	770	987	1070	757	1120	4200	1790	27800
13	1820	1090	842	994	770	912	1000	769	1240	3610	2060	27700
14	1810	1050	889	779	770	888	821	848	912	6240	2070	29700
15	1860	1090	739	877	770	881	962	777	520	4060	1810	28000
16	1910	1070	951	880	770	921	946	723	697	3370	1720	27400
17	1900	1050	849	865	770	935	885	683	1220	3280	1560	24900
18	1930	1040	856	713	770	845	885	865	1240	3020	1970	18900
19	1890	1050	882	823	770	931	933	1240	1910	2700	2270	15200
20	1910	1070	825	834	770	873	926	1080	2390	2460	2270	13000
21	1640	1130	794	821	890	981	910	923	1890	2420	2690	10400
22	1590	1430	961	740	920	884	774	927	1150	3310	3200	8210
23	1820	1240	910	822	920	896	727	1060	1160	4620	3120	5610
24	1920	974	812	840	913	925	863	876	1250	5370	2730	4620
25	1860	1010	1010	822	1320	899	1060	937	1080	5350	3540	4190
26	1850	1340	859	937	1130	925	639	909	1410	5570	3090	3650
27	1870	1100	952	918	1050	792	736	973	2850	5060	3280	3350
28	1780	1020	974	810	1000	1330	770	1550	1530	4040	3410	3200
29	1830	995	997	1080	---	1280	737	1820	1330	2650	5090	3090
30	1850	994	854	1190	---	1530	729	1240	1720	2120	5800	2980
31	1850	---	975	991	---	2390	---	1110	---	2040	6290	---
MEAN	1646	1417	891	851	854	1002	1095	953	1188	3742	2560	16320
MAX	1930	2280	1010	1190	1320	2390	2310	1820	2850	6240	6290	57600
MIN	983	974	739	505	770	596	639	683	520	1480	1400	2880
IN.	.03	.03	.02	.02	.01	.02	.02	.02	.02	.07	.05	.30

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	5805	4263	3199	2797	4367	7026	9459	10470	14770	11120	5951	6588
MAX	51630	42320	21940	15990	20800	36560	43570	39040	78870	133200	23390	44660	
(WY)	1974	1974	1974	1973	1949	1973	1973	1945	1951	1951	1951	1951	
MIN	365	504	465	364	635	632	845	953	1188	1106	454	525	
(WY)	1957	1957	1957	1957	1957	1967	1956	1989	1989	1936	1934	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	2700	7161
HIGHEST ANNUAL MEAN		29350
LOWEST ANNUAL MEAN		1326
HIGHEST DAILY MEAN	57600	486000
LOWEST DAILY MEAN	505	160
INSTANTANEOUS PEAK FLOW	64000	510000
INSTANTANEOUS PEAK STAGE	17.72	37.3
INSTANTANEOUS LOW FLOW	465	160
ANNUAL RUNOFF (INCHES)	.61	1.63

MISSOURI RIVER MAIN STEM

99

06893000 MISSOURI RIVER AT KANSAS CITY, MO

LOCATION.--Lat 39°06'43", long 94°35'16", in sec.32, T.50 N., R.33 W., Jackson County, Hydrologic Unity 10300101, on downstream side of right pier of Chicago, Burlington and Quincy Railroad bridge at Kansas City, 1.4 mi downstream from Kansas River, and at mile 366.1.

DRAINAGE AREA.--485,200 mi², approximately.

PERIOD OF RECORD.--October 1897 to current year. Prior to August 1928 monthly discharge only, published in WSP 1310. Gage-height records collected at same site 1873-99 are contained in reports of Missouri River Commission; those since 1900 are contained in reports of National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 716.40 ft above National Geodetic Vertical Datum of 1929. Prior to May 4, 1931, nonrecording gage, and May 4, 1931, to Aug. 23, 1934, water-stage recorder, at present site and datum. Aug. 24, 1934, to May 15, 1947, water-stage recorder at site 200 ft upstream at same datum. May 16, 1947, to Feb. 28, 1948, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 1, Feb. 3, 5-7, and June 5-7. Records good. Discharge measurements made weekly except during ice-flow periods. Some regulation from many upstream reservoirs. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1844, reached a stage of 38.0 ft, discharge, about 625,000 ft³/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45600	39900	23400	19100	25600	23400	36200	39100	43100	40900	35500	47900
2	47800	40200	23200	17300	27900	25600	40600	38200	43300	44000	41500	42200
3	42900	40000	22100	16300	29400	25400	42500	37800	40500	43200	39300	39400
4	40700	39800	22700	16800	25400	24700	41000	37700	46300	42100	36100	39900
5	39900	40100	23300	18600	20100	24500	37900	37600	40900	43700	35100	51100
6	39400	40200	22700	19800	15200	24500	37300	37100	37900	42500	34600	75700
7	38600	40300	22500	19000	12300	23100	36700	36400	36500	40400	34400	79900
8	39300	40600	22700	20100	9460	20400	35600	36400	35700	38700	34100	83400
9	39100	40900	22300	23600	7300	20100	35900	36500	35600	38900	33900	145000
10	39300	41300	21900	27900	9900	22400	36000	36100	36600	40000	33800	196000
11	39000	41500	21800	26100	22900	30200	35900	35800	37900	38600	33800	178000
12	39400	40000	22000	21200	21000	49500	35800	35100	37200	38200	33700	131000
13	39300	38000	21200	17400	22100	52600	35900	34800	36200	37800	33900	107000
14	39400	37500	19800	15500	23400	53800	35800	35300	35900	36200	33500	99500
15	40200	36500	19600	16100	25400	46300	36300	35700	35500	41600	33800	90500
16	41000	35300	19300	19300	26700	38900	36800	35600	35300	41200	34000	82300
17	41300	34000	19500	21600	27100	35700	36800	35700	34900	37300	33900	71700
18	42100	32800	20600	21800	26000	33400	36600	37000	35900	37200	33900	61300
19	42400	30700	21800	21400	25200	30000	36800	38300	35600	37100	34400	55400
20	42000	28400	21600	21800	25200	28300	37000	37300	36000	40400	34400	52000
21	42200	26300	20300	22600	25400	26300	37000	38000	35100	43400	34800	48800
22	42200	25300	19900	22800	25100	23300	35700	41300	34900	43300	35000	45700
23	42500	25200	21200	23300	24000	22600	35600	39500	35600	41600	37300	42500
24	42200	24600	23300	24000	22100	22300	35700	37000	45400	40400	36800	40600
25	41600	24000	24800	24200	22200	21900	36000	37100	45100	39500	37200	40000
26	41100	25200	25600	24000	23400	21600	36400	36900	50700	39500	37600	38900
27	40900	24000	25600	24700	23700	21500	36300	37400	69600	38800	36700	38200
28	40900	23100	23100	25800	23000	23200	36700	38800	50600	36800	44600	38400
29	41400	23200	21400	25200	---	22600	38400	38000	45300	35500	66900	38100
30	40700	23200	20200	23900	---	25700	41800	38000	43300	35000	71100	37800
31	40200	---	19900	23600	---	30400	---	38700	---	33800	54200	---
MEAN	41120	33400	21910	21450	22020	28850	37100	37230	40410	39600	38380	71270
MAX	47800	41500	25600	27900	29400	53800	42500	41300	69600	44000	71100	196000
MIN	38600	23100	19300	15500	7300	20100	35600	34800	34900	33800	33500	37800
IN.	.10	.08	.05	.05	.05	.07	.09	.09	.09	.09	.09	.16

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	46460	41690	26950	23010	32210	53510	69070	64780	81650	67240	47950	49100
MAX	135200	93340	75370	60980	77690	133700	215000	138500	193000	222900	99160	121300	
(WY)	1974	1974	1987	1973	1973	1979	1952	1984	1947	1951	1951	1951	
MIN	12360	13230	7906	5010	9308	16090	26030	26420	37280	28210	12480	13200	
(WY)	1940	1937	1938	1940	1940	1957	1957	1934	1956	1934	1934	1934	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	36070	50330
HIGHEST ANNUAL MEAN		90840
LOWEST ANNUAL MEAN		22300
HIGHEST DAILY MEAN	196000	558000
LOWEST DAILY MEAN	7300	1500
INSTANTANEOUS PEAK FLOW	200000	573000
INSTANTANEOUS PEAK STAGE	20.88	36.2
INSTANTANEOUS LOW FLOW	6940	1500
ANNUAL RUNOFF (INCHES)	1.01	1.42
10 PERCENTILE	44900	91500
50 PERCENTILE	36000	42300
95 PERCENTILE	19700	13200

MISSOURI RIVER MAIN STEM

06893000 MISSOURI RIVER AT KANSAS CITY, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1988 to September 1989.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
JUL								
24...	0915	40400	831	89700	69	72	97	100
24...	0930	40400	635	68600	81	84	98	100
24...	1100	40400	374	40400	98	98	100	--
24...	1145	40400	601	64900	88	89	97	100
SEP								
14...	1030	101000	1410	385000	80	85	99	100
14...	1130	101000	256	69800	0	17	59	100
14...	1200	101000	1160	316000	90	93	96	100
14...	1230	101000	1050	286000	97	99	100	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
OCT								
19...	1	1	4	5	39	62	79	100
NOV								
14...	0	3	15	24	33	43	67	100
MAR								
27...	0	0	19	97	100	--	--	--
APR								
10...	1	1	1	27	63	90	100	--
MAY								
08...	1	1	7	25	64	91	100	--
JUN								
15...	1	1	40	88	96	99	100	--
JUL								
24...	1	2	73	96	98	100	--	--
AUG								
07...	1	3	66	92	98	99	100	--
SEP								
14...	0	0	1	7	42	89	100	--

BLUE RIVER BASIN

101

06893500 BLUE RIVER NEAR KANSAS CITY, MO

LOCATION.--Lat 38°57'26", long 94°33'31", in SE 1/4 NE 1/4 sec.28, T.48 N., R.33 W., Jackson County, Hydrologic Unit 10300101, on downstream side of right pier of bridge on Bannister Road, 0.4 mi downstream from Indian Creek, in Kansas City and at mile 23.2.

DRAINAGE AREA.--188 mi².

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

REVISED RECORDS.--WSP 926: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.73 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 1, 1939, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records fair. Low flow regulated by commercial plants above station. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of November 17, 1928, reached a stage of about 39 ft, from information by City of Kansas City.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	19	37	42	71	40	170	29	225	314	43	48
2	49	23	34	39	60	41	706	37	65	175	30	36
3	39	19	32	39	49	44	424	53	53	54	26	30
4	34	20	31	36	49	70	230	41	42	38	26	1180
5	31	20	30	41	47	52	160	37	59	31	21	447
6	28	19	29	59	46	48	187	33	39	28	21	1200
7	26	21	28	39	43	43	144	28	33	24	19	262
8	24	21	27	35	42	39	121	46	32	21	18	979
9	24	29	26	33	40	37	103	35	28	20	18	4140
10	22	36	25	30	41	34	87	28	24	20	17	331
11	21	25	25	30	43	35	80	25	424	18	17	172
12	19	272	25	30	46	36	73	25	285	51	17	141
13	19	56	25	29	63	37	67	24	83	26	57	355
14	18	42	25	28	55	36	68	30	54	24	40	252
15	19	82	24	28	56	34	69	29	41	1650	23	139
16	18	81	24	29	54	34	64	21	35	485	20	98
17	18	37	24	26	46	33	58	21	33	120	17	79
18	15	30	24	25	41	32	54	424	290	73	16	71
19	15	27	26	26	40	31	52	772	59	57	172	61
20	15	46	77	25	52	136	46	103	43	47	63	52
21	16	40	29	24	54	67	45	106	35	41	93	44
22	14	31	27	25	47	50	41	468	29	174	52	42
23	96	28	26	25	39	46	39	149	75	164	1060	37
24	29	26	27	25	40	44	39	114	34	69	111	33
25	21	146	25	109	38	40	37	173	27	50	66	33
26	18	280	30	51	44	37	34	80	211	41	59	30
27	18	89	487	37	51	73	32	57	456	37	52	27
28	18	57	103	224	48	1550	33	59	91.0	32	227	25
29	18	49	64	153	---	239	28	45	52.0	30	278	24
30	18	41	54	98	---	476	28	38	38	26	87	24
31	18	---	46	79	---	294	---	45	---	77	71	---
MEAN	25.9	57.1	48.9	49.0	48.0	123	111	102	99.8	130	91.5	346
MAX	96	280	487	224	71	1550	706	772	456	1650	1060	4140
MIN	14	19	24	24	38	31	28	21	24	18	16	24
IN.	.16	.34	.30	.30	.27	.75	.66	.63	.59	.79	.56	2.06

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	133	92.9	83.2	95.3	122	193	262	207	284	155	80.9	166
MEAN	133	92.9	83.2	95.3	122	193	262	207	284	155	80.9	166
MAX	790	771	472	445	740	1407	1279	702	1285	1616	431	1395
(WY)	1987	1962	1974	1941	1985	1973	1944	1974	1967	1951	1982	1986
MIN	.00	.00	.00	.00	2.66	4.36	6.41	17.8	7.44	1.72	.94	.05
(WY)	1940	1940	1940	1940	1940	1957	1954	1956	1953	1946	1947	1939

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	103	157
HIGHEST ANNUAL MEAN	365	1973
LOWEST ANNUAL MEAN	12.8	1956
HIGHEST DAILY MEAN	4140	Sep 9
LOWEST DAILY MEAN	14	Oct 22
INSTANTANEOUS PEAK FLOW	8580	Sep 9
INSTANTANEOUS PEAK STAGE	22.92	Sep 9
INSTANTANEOUS LOW FLOW	10	Oct 22
ANNUAL RUNOFF (INCHES)	7.41	11.32
10 PERCENTILE	184	274
50 PERCENTILE	40	43
95 PERCENTILE	18	1.9

LITTLE BLUE RIVER BASIN

06893791 LONGVIEW RESERVOIR AT KANSAS CITY, MO

LOCATION.--Lat 38°55'29", long 94°27'35", SE 1/4 NE 1/4 NW 1/4 sec.4, T.48 N., R.32 W., Jackson Country, Hydrologic Unit 10300101, in the U.S. Army Corps of Engineers Administration building at the right end of dam on Little Blue River at Kansas City and 3.1 miles upstream from Cedar Creek.

DRAINAGE AREA.--50.3 mi².

PERIOD OF RECORD.--October 1985 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.--Lake is formed by a rolled earthfill type dam. Closure began June 16, 1983. Storage began on Sept. 16, 1985. An uncontrolled limited service type spillway 200 ft wide is located at the left abutment. Capacity of surcharge pool (909.0 ft to 922.9 ft), 35,370 acre-ft; of flood control pool (elevation 891.0 ft to 909.0 ft), 24,800 acre-ft; and of multipurpose pool (elevation 816.0 ft to 891.0 ft), 22,100 acre-ft. Lake is used for flood control, water quality control, recreation and fish and wildlife enhancement.

COOPERATION.--Records furnished by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 28,700 acre-ft, Oct. 3, 1986, elevation, 897.17 ft; minimum, 2,680 acre-ft, Oct. 1, 1985, elevation, 849.40 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,400 acre-ft, Sept. 9, elevation, 893.33 ft; minimum, 20,800 acre-ft, Dec. 25, elevation, 889.50 ft.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	890.61	889.75	889.95	889.99	890.00	889.83	890.66	890.90	891.43	891.18	890.89	891.19
2	890.59	889.72	889.92	889.99	890.00	889.83	890.78	890.90	891.44	891.54	890.87	891.16
3	890.56	889.70	889.91	889.98	889.96	889.83	891.23	890.90	891.40	891.52	890.84	891.11
4	890.52	889.69	889.89	889.97	889.94	889.86	891.30	890.90	891.36	891.46	890.82	891.09
5	890.50	889.66	889.86	889.97	889.93	889.85	891.30	890.80	891.37	891.43	890.78	891.48
6	890.47	889.63	889.85	889.98	889.91	889.83	891.31	890.85	891.35	891.39	890.75	891.82
7	890.39	889.60	889.83	889.97	889.90	889.83	891.34	890.82	891.33	891.36	890.72	892.07
8	890.35	889.57	889.81	889.97	889.90	889.81	891.31	890.79	891.34	891.32	890.67	891.85
9	890.33	889.53	889.79	889.95	889.88	889.80	891.30	890.82	891.31	891.28	890.58	893.33
10	890.31	889.53	889.76	889.93	889.87	889.79	891.27	890.81	891.29	891.25	890.55	892.89
11	890.28	889.53	889.73	889.92	889.86	889.77	891.24	890.79	891.28	891.00	890.52	892.34
12	890.25	889.51	889.70	889.92	889.85	889.77	891.22	890.76	891.52	890.97	890.49	892.08
13	890.21	889.67	889.68	889.91	889.86	889.76	891.20	890.73	891.50	890.99	890.46	891.91
14	890.18	889.67	889.66	889.88	889.85	889.76	891.18	890.71	891.46	890.91	890.46	891.89
15	890.13	889.64	889.64	889.86	889.86	889.76	891.18	890.70	891.42	890.98	890.45	891.72
16	890.11	889.72	889.62	889.85	889.87	889.74	891.17	890.68	891.37	891.50	890.42	891.62
17	890.09	889.70	889.60	889.84	889.87	889.72	891.15	890.66	891.32	891.53	890.39	891.53
18	890.07	889.68	889.58	889.83	889.86	889.70	891.14	890.75	891.40	891.52	890.36	891.45
19	890.04	889.65	889.56	889.82	889.86	889.70	891.12	891.50	891.43	891.50	890.33	891.41
20	890.01	889.66	889.57	889.81	889.85	889.80	891.12	891.51	891.40	891.49	890.43	891.34
21	890.00	889.67	889.57	889.79	889.86	889.76	891.10	891.45	891.39	891.20	890.48	891.31
22	889.97	889.65	889.54	889.77	889.86	889.76	891.08	891.58	891.34	891.20	890.48	891.27
23	889.99	889.64	889.52	889.75	889.85	889.74	891.06	891.72	891.34	891.23	891.17	891.19
24	889.97	889.61	889.51	889.75	889.83	889.75	891.05	891.63	891.30	891.05	891.26	891.18
25	889.94	889.59	889.50	889.75	889.82	889.74	891.04	891.86	891.27	891.05	891.25	891.15
26	889.93	889.92	889.50	889.83	889.81	889.73	891.03	891.76	891.26	891.00	891.21	891.13
27	889.88	889.99	889.91	889.84	889.83	889.73	891.01	891.64	891.28	890.98	891.18	891.11
28	889.87	889.99	890.02	889.82	889.84	890.27	890.99	891.56	891.29	890.97	891.24	891.07
29	889.83	889.97	890.02	889.98	---	890.42	890.96	891.50	891.24	890.94	891.30	891.05
30	889.79	889.96	890.00	890.00	---	890.49	890.93	891.45	891.20	890.91	891.29	891.03
31	889.77	---	890.00	890.01	---	890.64	---	891.39	---	890.90	891.25	---
MAX	890.61	889.99	890.02	890.01	890.00	890.64	891.34	891.86	891.52	891.54	891.30	893.33
MIN	889.77	889.51	889.50	889.75	889.81	889.70	890.66	890.66	891.20	890.90	890.33	891.03
(-)	21000	21200	21200	21200	21100	21800	22100	22500	22300	22000	22400	22200
(=)	-800	+200	0	0	-100	+700	+300	+400	-200	-300	+400	-200

CAL YR 1988 (=) . . . -1400

WTR YR 1989 (=) . . . +400

(-) Contents, in acre feet, at end of month

(=) Change in contents

06893793 LITTLE BLUE RIVER BELOW LONGVIEW DAM AT KANSAS CITY, MO

LOCATION.--Lat 38°55'26", long 94°28'05", in NE 1/4 SW 1/4 NW 1/4 sec.4, T.47 N., R.32 W., Jackson County, Hydrologic Unit 10300101, on right bank 300 ft downstream from Longview Dam.

DRAINAGE AREA.--50.3 mi².

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

REVISED RECORDS.--WDR MO-77-1: 1975-76. WDR MO-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 798.60 ft above National Geodetic Vertical Datum of 1929. Aug. 1, 1966, to Oct. 24, 1974, at site 0.7 mi upstream at datum 24.90 ft higher. Oct. 25, 1974, to Sept. 30, 1985, at site 0.5 mi downstream at present datum.

REMARKS.--Estimated daily discharges: Oct. 1-14 and Jan. 8-26. Records good. Construction of dam began Oct. 1982 and storage began Sept. 1985. Several observations of water temperature and specific conductance were made during the year. Complete regulation by Longview Reservoir (station 06893791) 300 ft upstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	7.1	5.8	7.1	7.1	6.4	6.6	7.9	29	11	7.6	16
2	8.3	7.1	5.9	7.1	7.1	6.4	8.7	7.9	29	25	7.6	13
3	8.3	7.1	6.1	7.1	7.0	6.4	16	7.9	27	22	7.9	11
4	8.3	7.1	6.4	7.0	6.5	6.4	20	8.3	24	19	7.8	23
5	8.3	7.1	6.4	6.8	6.4	6.1	20	8.3	23	16	8.0	52
6	8.3	7.1	6.6	6.8	6.4	6.1	21	7.9	21	13	7.9	108
7	8.3	7.3	6.8	6.8	6.3	6.1	23	7.7	17	11	7.4	111
8	8.3	7.1	6.8	6.8	5.8	6.1	21	7.9	16	9.9	7.1	97
9	8.3	6.2	6.8	6.8	5.8	6.1	20	7.4	13	8.8	7.3	353
10	8.3	6.4	6.8	6.8	5.8	6.1	17	7.1	10	7.6	7.5	234
11	8.3	6.1	6.8	6.8	5.8	6.2	16	6.6	10	7.4	7.2	156
12	8.3	6.5	6.8	6.8	6.0	6.2	15	5.8	22	6.4	7.1	105
13	8.3	6.4	6.8	6.8	6.1	6.1	14	5.8	22	6.2	7.1	82
14	8.3	6.4	7.2	6.8	6.1	6.1	13	5.8	18	6.1	7.1	70
15	8.3	6.7	7.5	6.8	6.1	6.1	12	5.8	15	10	7.1	55
16	8.3	7.1	7.5	6.8	6.1	6.1	13	5.8	13	25	7.1	44
17	8.3	7.1	7.5	6.8	6.1	6.1	11	5.7	11	21	7.1	36
18	8.0	7.1	7.5	6.8	6.1	6.1	9.4	7.1	16	18	6.8	29
19	7.9	7.1	7.3	6.8	6.1	5.9	8.7	38	17	14	6.4	24
20	7.5	7.1	7.2	6.8	6.1	5.8	9.1	38	15	12	6.4	21
21	7.5	7.1	7.2	6.8	6.1	5.8	7.8	36	13	9.2	6.4	18
22	7.5	7.1	7.1	6.8	6.1	5.8	9.3	57	10	8.5	6.5	15
23	7.5	7.1	7.1	6.8	6.2	5.8	8.0	64	9.4	8.7	18	12
24	7.5	7.1	7.1	6.8	6.4	5.8	9.1	55	12	8.4	21	9.8
25	7.5	7.1	7.1	6.8	6.4	5.8	8.2	78	13	8.6	19	8.7
26	7.5	7.6	7.2	6.8	6.4	5.7	8.2	65	11	7.9	17	7.9
27	7.5	7.1	8.2	6.8	6.4	5.8	8.6	52	12	7.7	15	7.4
28	7.5	7.1	7.5	6.8	6.4	9.3	7.5	44	11	7.6	18	7.0
29	7.5	5.6	7.1	6.8	---	6.4	7.3	41	9.9	7.9	21	7.0
30	7.5	5.6	7.1	6.8	---	6.4	7.7	34	8.7	7.7	21	7.0
31	7.1	---	7.1	6.8	---	6.4	---	27	---	7.7	19	---
MEAN	7.95	6.86	6.98	6.84	6.26	6.19	12.5	24.4	15.9	11.6	10.6	58.0
MAX	8.3	7.6	8.2	7.1	7.1	9.3	23	78	29	25	21	353
MIN	7.1	5.6	5.8	6.8	5.8	5.7	6.6	5.7	8.7	6.1	6.4	7.0
IN.	.18	.15	.16	.16	.13	.14	.28	.56	.35	.27	.24	1.29

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	44.9	25.6	24.8	26.7	32.8	56.2	58.7	56.1	84.2	14.4	15.7	36.7
MAX	283	87.2	108	113	245	480	232	184	366	57.3	119	225	
(WY)	1987	1985	1974	1974	1985	1973	1982	1982	1967	1981	1982	1986	
MIN	2.86	3.58	1.96	.70	5.56	5.64	4.98	5.56	4.85	2.65	.24	2.13	
(WY)	1979	1967	1977	1977	1986	1986	1986	1986	1986	1975	1984	1978	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	14.5	39.8
HIGHEST ANNUAL MEAN		108
LOWEST ANNUAL MEAN		11.0
HIGHEST DAILY MEAN	353	3940
LOWEST DAILY MEAN	5.6	.00
INSTANTANEOUS PEAK FLOW	409	18700
INSTANTANEOUS PEAK STAGE	5.98	21.24
INSTANTANEOUS LOW FLOW	.13	0
ANNUAL RUNOFF (INCHES)	3.91	10.74
10 PERCENTILE	23	57
50 PERCENTILE	7.0	9.6
95 PERCENTILE	5.6	1.4

LITTLE BLUE RIVER BASIN

06893885 BLUE SPRINGS RESERVOIR NEAR BLUE SPRINGS, MO

LOCATION.--Lat 39°01'03", long 94°20'06", sec.33, T.49 N., R.31 W., Jackson County, Hydrologic Unit 10300101, in maintenance building at right end of dam on East Fork Little Blue River, 2.2 mi west of Blue Springs and 2.5 mi upstream from mouth.

DRAINAGE AREA.--32.8 mi².

PERIOD OF RECORD.--August 19, 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Lake is formed by a rolled earth filled type dam. An uncontrolled limited service type spillway 300 ft wide is located on left abutment. Capacity of surcharge pool, 3310 acre-ft (elevations 820.3 to 823.6 ft); of flood control pool, 1,590 acre-ft (elevations 802.0 to 820.3 ft); and of multi-purpose pool, 10,640 acre-ft (elevations 760.0 to 802.0 ft).

COOPERATION.--Records provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,367 acre-ft, Sept. 30, 1989, elevation, 793.39 ft; minimum contents, 142 acre-ft, Oct. 22, 29, 30, Nov. 1-11, 1988, elevation, 773.10 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,367 acre-ft, Sept. 30, 1989, elevation, 793.39 ft; minimum contents, 142 acre-ft, Oct. 22, 29, 30, Nov. 1-11, 1988, elevation, 773.10 ft.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	773.40	773.10	774.50	775.90	777.50	778.80	781.10	784.55	786.04	787.65	787.55	788.40
2	773.40	773.10	774.50	776.00	777.60	778.80	781.50	784.55	786.17	787.66	787.53	788.43
3	773.40	773.10	774.60	776.00	777.60	778.80	781.90	784.55	786.28	787.67	787.53	788.46
4	773.40	773.10	774.60	776.10	777.60	778.90	782.10	784.60	786.35	787.67	787.51	788.51
5	773.40	773.10	774.60	776.20	777.70	779.00	782.30	784.60	786.43	787.67	787.50	788.56
6	773.40	773.10	774.60	776.20	777.70	779.00	782.60	784.60	786.51	787.66	787.47	788.75
7	773.40	773.10	774.60	776.30	777.70	779.00	782.80	784.60	786.57	787.66	787.48	789.06
8	773.20	773.10	774.60	776.40	777.70	779.00	783.10	784.60	786.62	787.64	787.40	789.23
9	773.20	773.10	774.60	776.40	777.70	779.00	783.30	784.60	786.68	787.63	787.39	790.58
10	773.20	773.10	774.60	776.50	777.70	779.00	783.40	784.60	786.71	787.61	787.37	791.35
11	773.20	773.10	774.60	776.50	778.00	779.00	783.50	784.55	786.74	787.58	787.35	791.80
12	773.20	773.30	774.60	776.50	778.10	779.00	783.60	784.55	786.90	787.56	787.33	792.04
13	773.20	773.30	774.60	776.60	778.10	779.00	783.70	784.55	786.90	787.55	787.31	792.24
14	773.20	773.30	774.60	776.70	778.10	779.20	783.80	784.55	786.94	787.53	787.30	792.50
15	773.20	773.30	774.60	776.70	778.20	779.30	784.00	784.55	786.97	787.51	787.28	792.68
16	773.20	773.30	774.60	776.70	778.20	779.30	784.10	784.55	786.99	787.65	787.33	792.82
17	773.20	773.60	774.60	776.70	778.30	779.30	784.10	784.55	787.01	787.68	787.33	792.93
18	773.20	773.60	774.60	776.80	778.30	779.30	784.20	784.70	787.16	787.66	787.32	793.03
19	773.20	773.60	774.60	776.90	778.30	779.30	784.20	784.80	787.24	787.66	787.32	793.11
20	773.20	773.60	774.60	776.80	778.40	779.40	784.20	784.80	787.28	787.64	787.38	793.19
21	773.20	773.60	774.60	776.80	778.40	779.50	784.20	784.90	787.33	787.62	787.39	793.24
22	773.10	773.60	774.70	776.90	778.50	779.50	784.30	785.00	787.37	787.60	787.39	793.29
23	773.20	773.60	774.70	776.90	778.50	779.60	784.40	785.10	787.40	787.59	787.48	793.31
24	773.20	773.60	774.70	776.90	778.50	779.60	784.40	785.20	787.44	787.59	787.49	793.32
25	773.20	773.60	774.70	776.90	778.50	779.60	784.50	785.27	787.49	787.59	787.47	793.34
26	773.20	774.30	774.70	777.00	778.50	779.70	783.90	785.38	787.51	787.59	787.47	793.36
27	773.20	774.50	775.50	777.10	778.80	779.70	783.90	785.46	787.60	787.58	787.46	793.37
28	773.20	774.50	775.40	777.20	778.80	780.00	783.90	785.55	787.61	787.58	787.87	793.37
29	773.10	774.50	775.60	777.30	---	780.40	784.55	785.79	787.63	787.55	788.16	793.37
30	773.10	774.50	775.70	777.40	---	780.60	784.55	785.88	787.65	787.54	788.23	793.39
31	773.20	---	775.80	777.40	---	780.70	---	785.94	---	787.55	788.34	---
MAX	773.40	774.50	775.80	777.40	778.80	780.70	784.55	785.94	787.65	787.68	788.34	793.39
MIN	773.10	773.10	774.50	775.90	777.50	778.80	781.10	784.55	786.04	787.51	787.28	788.40
(-)	146	221	313	459	641	962	1852	2257	2816	2780	3079	5367
(=)		+75	+92	+146	+182	+321	+890	+405	+559	-36	+299	+2288

(-) Contents, in acre-feet, at end of month.

(=) Change in contents, in acre-feet.

LITTLE BLUE RIVER BASIN

105

06893890 EAST FORK LITTLE BLUE RIVER NEAR BLUE SPRINGS, MO

LOCATION.--Lat 39°01'32", long 94°20'37", in NE 1/4, NE 1/4, NW 1/4 sec.33, T.49 N., R.31 W., Jackson County, Hydrologic Unit 10300101, on left downstream side of bridge on east bound lane of U.S. Highway 40, 2.6 mi west of Blue Springs and 1.5 miles upstream from mouth.

DRAINAGE AREA.--34.4 mi².

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Estimated daily discharges: Feb. 3-17, 23, 24. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. Flow impounded or detained in Jackson County Lake at times, and by Blue Springs Reservoir subsequent to July 1986.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.0	.04	.05	.13	.11	.47	.09	.35	.05	.01	.11
2	.0	.0	.03	.05	.09	.11	5.4	.08	.21	.05	.0	.11
3	.00	.01	.04	.05	.05	.15	1.5	.09	.21	.05	.00	.10
4	.02	.01	.02	.03	.00	.14	.63	.11	.13	.04	.00	.14
5	.00	.01	.00	.04	.00	.08	.45	.12	.13	.02	.00	.58
6	.0	.0	.00	.07	.00	.07	.43	.09	.11	.03	.00	2.0
7	.00	.01	.00	.05	.00	.08	.32	.09	.09	.07	.00	.40
8	.00	.0	.0	.01	.00	.08	.30	.08	.10	.07	.00	13
9	.00	.01	.06	.00	.00	.08	.30	.07	.09	.07	.00	36
10	.00	.01	.06	.0	.01	.10	.29	.07	.08	.03	.00	.82
11	.00	.03	.01	.02	.01	.10	.27	.06	.20	.01	.00	.41
12	.00	.32	.01	.01	.01	.09	.25	.05	.40	.01	.00	.32
13	.00	.14	.03	.00	.02	.08	.23	.05	.18	.0	.00	.98
14	.0	.10	.03	.00	.01	.08	.21	.05	.12	.00	.00	.61
15	.0	.33	.0	.01	.01	.07	.23	.05	.11	.44	.0	.40
16	.0	.23	.0	.01	.01	.07	.24	.05	.09	.14	.03	.29
17	.01	.09	.00	.01	.01	.06	.22	.04	.08	.07	.02	.23
18	.00	.07	.02	.01	.01	.06	.21	.21	1.3	.05	.00	.19
19	.00	.05	.02	.01	.02	.05	.20	1.7	.24	.04	.03	.15
20	.00	.05	.04	.01	.03	.25	.19	.23	.15	.03	.05	.14
21	.00	.07	.01	.00	.04	.24	.20	.24	.10	.03	.03	.12
22	.00	.04	.00	.01	.02	.17	.18	.42	.07	.03	.03	.12
23	.04	.04	.00	.01	.01	.15	.18	.27	.08	.03	.35	.10
24	.05	.02	.00	.01	.05	.13	.18	.19	.07	.03	.06	.11
25	.03	1.0	.00	.10	.13	.12	.16	.23	.06	.03	.03	.11
26	.02	1.1	.01	.10	.13	.12	.16	.13	.06	.03	.01	.10
27	.03	.25	1.5	.06	.12	.12	.15	.11	.14	.03	2.4	.10
28	.00	.12	.21	.31	.12	5.1	.12	.59	.07	.02	3.0	.10
29	.00	.09	.11	.34	---	.57	.11	.26	.05	.01	.40	.09
30	.00	.06	.08	.20	---	2.1	.09	.14	.04	.01	.20	.09
31	.00	---	.06	.16	---	.80	---	.11	---	.01	.13	---
MEAN	.007	.14	.077	.056	.037	.37	.46	.20	.17	.049	.22	1.93
MAX	.05	1.1	1.5	.34	.13	5.1	5.4	1.7	1.3	.44	3.0	.36
MIN	.00	.00	.00	.00	.00	.05	.09	.04	.04	.00	.00	.09
IN.	.00	.00	.00	.00	.00	.01	.01	.01	.01	.00	.01	.06

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	30.0	15.9	13.6	11.8	16.3	34.0	45.2	34.7	46.6	15.3	25.3	26.2
MEAN	30.0	15.9	13.6	11.8	16.3	34.0	45.2	34.7	46.6	15.3	25.3	26.2
MAX	276	47.8	43.2	43.7	51.7	107	204	122	174	45.1	230	179
(WY)	1987	1986	1983	1985	1975	1978	1984	1982	1984	1981	1982	1977
MIN	.01	.12	.03	.00	.04	.37	.46	.20	.17	.05	.00	.00
(WY)	1989	1977	1977	1977	1989	1989	1989	1989	1989	1989	1988	1976

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	.31	26.2
HIGHEST ANNUAL MEAN		58.3
LOWEST ANNUAL MEAN		.31
HIGHEST DAILY MEAN	36	4850
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	147	11000
INSTANTANEOUS PEAK STAGE	7.13	22.14
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	0.12	10.4
10 PERCENTILE	.32	56
50 PERCENTILE	.06	8.2
95 PERCENTILE	.00	.00

LITTLE BLUE RIVER BASIN

06894000 LITTLE BLUE RIVER NEAR LAKE CITY, MO

LOCATION.--Lat 39°06'02", long 94°18'01", in SW 1/4 SE 1/4 sec.35 T.50 N., R.31 W., Jackson County, Hydrologic Unit 10300101, on right bank 50 ft downstream from bridge on west bound lane of State Highway 78, 3 mi southwest of Lake City, and 10.5 mi upstream from mouth.

DRAINAGE AREA.--184 mi².

PERIOD OF RECORD.--March 1948 to current year.

GAGE.--Water-stage recorder. Datum of gage is 719.15 ft above National Geodetic Vertical Datum of 1929. Prior to July 24, 1957, nonrecording gage at site 50 ft downstream at same datum. Water-stage recorder July 24, 1957, to Apr. 28, 1977. Nonrecording gage Apr. 29, 1977, to May 10, 1979. May 11, 1979, to Sept. 12, 1983, water-stage recorder at site 50 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Mar. 5, 6. Records good. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	9.9	18	17	21	16	69	12	117	211	7.9	33
2	19	9.6	17	16	19	15	328	12	87	152	7.1	24
3	16	9.6	16	15	14	15	248	17	71	49	5.7	19
4	14	9.5	15	14	12	21	113	28	53	35	5.1	66
5	13	9.5	14	14	12	19	81	22	49	28	6.7	217
6	13	9.2	14	26	13	19	83	15	45	23	4.4	711
7	13	9.0	13	18	13	16	86	13	33	19	3.8	313
8	13	8.9	13	15	14	15	66	13	30	16	3.4	930
9	13	9.3	12	12	14	14	52	15	26	14	3.4	3490
10	12	16	12	12	14	14	44	17	23	12	3.4	725
11	12	11	12	13	14	17	40	14	25	11	3.4	405
12	12	111	12	13	14	19	39	13	138	10	3.4	245
13	12	46	12	12	16	18	36	12	87	9.9	3.4	319
14	11	18	12	11	18	17	34	11	45	8.0	3.4	247
15	10	20	12	11	16	16	39	12	33	466	37	143
16	11	74	10	11	17	15	34	12	27	281	66	104
17	11	27	10	11	16	14	31	11	23	59	7.5	82
18	11	18	9.8	12	14	15	26	79	251	36	5.1	64
19	11	15	11	12	14	15	22	576	80	37	27	52
20	11	16	19	12	14	50	20	104	44	26	21	44
21	12	22	17	12	16	51	20	87	31	15	55	37
22	11	20	14	11	16	27	19	158	25	12	25	32
23	38	16	12	11	13	20	18	136	25	14	632	26
24	26	14	11	11	14	18	18	95	24	15	66	23
25	18	19	11	29	16	16	17	256	20	18	30	22
26	13	277	16	40	18	16	16	135	18	12	23	20
27	12	72	267	20	17	16	15	96	238	9.5	226	18
28	12	33	77	39	17	424	13	269	46	8.1	769	17
29	10	24	32	67	---	112	14	112	25	6.7	176	16
30	10	22	22	36	---	163	14	67	19	7.2	82	16
31	10	---	19	25	---	130	---	50	---	8.6	48	---
MEAN	14.1	32.5	24.6	18.6	15.2	43.6	55.2	79.6	58.6	52.5	76.1	282
MAX	38	277	267	67	21	424	328	576	251	466	769	3490
MIN	10	8.9	9.8	11	12	14	13	11	18	6.7	3.4	16
IN.	.09	.20	.15	.12	.09	.27	.33	.50	.36	.33	.48	1.71

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	143	96.3	81.9	88.4	123	198	218	202	262	126	97.3	157
MEAN	143	96.3	81.9	88.4	123	198	218	202	262	126	97.3	157
MAX	983	854	368	347	576	1153	1069	834	1216	928	1455	1018
(WY)	1987	1962	1983	1982	1985	1973	1983	1974	1967	1951	1982	1961
MIN	.13	.49	1.36	1.36	3.09	4.15	11.3	27.9	10.3	.26	.02	.20
(WY)	1954	1957	1956	1957	1957	1956	1954	1956	1953	1954	1953	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	62.6	150
HIGHEST ANNUAL MEAN	369	1982
LOWEST ANNUAL MEAN	11.5	1956
HIGHEST DAILY MEAN	3490	Sep 9
LOWEST DAILY MEAN	3.4	Aug 8
INSTANTANEOUS PEAK FLOW	6600	Sep 9
INSTANTANEOUS PEAK STAGE	17.79	Sep 9
INSTANTANEOUS LOW FLOW	3.4	Aug 8-14
ANNUAL RUNOFF (INCHES)	4.62	11.05
10 PERCENTILE	117	279
50 PERCENTILE	18	46
95 PERCENTILE	8.0	1.8

MISSOURI RIVER MAIN STEM

107

06895500 MISSOURI RIVER AT WAVERLY, MO

LOCATION.--Lat 39°12'54", long 93°30'54", sec.14, T.51 N., R.23 W., Lafayette County, Hydrologic Unit 10300101 on downstream side of pier of bridge on State Highway 24, and U.S. Highway 65 at Waverly, and at mile 293.5

DRAINAGE AREA.--487,200 mi², approximately.

PERIOD OF RECORD.--October 1928 to current year. Gage-height records collected at same site 1878-79, 1883-99 are contained in reports of Missouri River Commission; since 1915 in reports of National Weather Service. Daily discharge not computed Apr. 1, 1977 to Mar. 31, 1978.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 646.00 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1934, at datum 5.00 ft lower; Mar. 30, 1929, to Apr. 4, 1934, nonrecording gage, Apr. 5, 1934, to June 13, 1943, water-stage recorder, June 14, 1943, to Sept. 15, 1944, nonrecording gage, Sept. 16, 1944, to May 28, 1969, water-stage recorder all at present site and datum; May 29, 1969, to Jan. 8, 1984, water-stage recorder at site 450 ft downstream, present datum. Jan. 9, 1984, to May 24, 1984, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Feb. 8-13. Records good. Discharge measurements made weekly except during ice-flow periods. Some regulation from many upstream reservoirs. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44400	40900	23400	21000	24100	23900	31200	42700	39900	44200	35300	53600
2	48600	40700	23500	20500	25300	24000	36400	40000	44200	44200	37400	45900
3	48800	41100	23300	19100	27700	25700	43600	39000	42700	47200	42800	40200
4	43800	41000	22400	17900	30000	26200	45300	38900	42200	44700	40200	37200
5	41900	41000	22400	18200	28400	25500	42100	38800	48000	44500	37100	39200
6	41100	41300	23000	19500	21100	25100	38900	38600	42900	46000	36200	61800
7	40600	41500	22700	20800	17000	25000	38600	38100	40500	44500	35500	81500
8	40300	41400	22400	20400	15600	23600	37900	37600	38500	41900	35200	85500
9	40900	41800	22500	20500	13000	20800	36400	37600	37500	39900	35000	122000
10	41100	42100	22400	22700	11100	19600	36500	37400	37400	39900	34600	179000
11	41100	42200	22000	26600	14000	20400	36700	37200	38700	40500	34500	193000
12	40800	42200	21800	26600	20900	28600	36900	36900	40500	39000	34500	168000
13	40800	39900	22000	22500	22200	50500	36800	36200	39800	38700	34400	127000
14	40500	37500	21600	18900	22300	57500	37000	36100	38100	37900	34600	112000
15	40400	37100	20500	17100	23200	53100	36900	36500	37600	37000	34300	102000
16	41300	36400	20100	17100	24800	43800	37400	36800	37100	47600	35100	92600
17	41600	34700	19900	19100	26400	37000	37700	36500	36600	44600	35000	83100
18	41500	33300	19800	21100	27100	34500	37700	37400	37800	39700	34600	73700
19	42000	32000	20600	21600	26500	32300	37300	43600	38800	39600	34800	64600
20	42200	30000	21700	21300	25700	29800	37700	45400	37700	39700	35600	58900
21	42000	27800	22000	21500	25600	28400	38100	39700	37600	43600	35700	55100
22	42200	26000	21000	22100	25900	26600	38200	42700	36500	46500	35900	51400
23	43100	25200	20400	22400	25700	24200	36900	46300	36100	46200	37400	47800
24	43100	25000	21200	22900	24900	23400	37200	41800	37300	43900	40700	44200
25	42700	24700	22800	23800	23400	23200	37500	39400	48400	42600	38400	42200
26	41900	24800	24400	24300	22700	23000	37700	39900	46600	41700	38900	41300
27	41500	26100	26000	24300	23800	22800	37700	38800	65400	41700	39200	40300
28	41500	24700	27100	24700	24600	23500	37500	39300	67100	40600	42900	39900
29	41600	23600	24700	26000	---	27100	37900	41500	50200	38500	58700	40000
30	41600	23400	22600	26200	---	25200	40000	39700	46500	37600	87600	39800
31	41200	---	21400	24700	---	26900	---	39500	---	37100	68900	---
MEAN	42130	34310	22310	21790	22960	29070	37920	39350	42270	41980	40030	75430
MAX	48800	42200	27100	26600	30000	57500	45300	46300	67100	47600	87600	193000
MIN	40300	23400	19800	17100	11100	19600	31200	36100	36100	37000	34300	37200
IN.	.10	.08	.05	.05	.05	.07	.09	.09	.10	.10	.09	.17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	46230	41890	27640	23490	32780	54050	72000	66020	84190	69510	47760	48070
MAX	141900	96020	74470	65720	79780	133500	220600	136000	192100	246400	100400	126600
(WY)	1974	1974	1987	1973	1973	1979	1952	1984	1947	1951	1951	1951
MIN	12430	13290	7903	5023	9224	16850	25860	26160	35830	28840	12790	13430
(WY)	1940	1937	1938	1940	1940	1957	1957	1934	1956	1934	1934	1934

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	37470	51110
HIGHEST ANNUAL MEAN		94120
LOWEST ANNUAL MEAN		22410
HIGHEST DAILY MEAN	193000	538000
LOWEST DAILY MEAN	11100	1700
INSTANTANEOUS PEAK FLOW	197000	549000
INSTANTANEOUS PEAK STAGE	26.27	29.22
INSTANTANEOUS LOW FLOW	11100	1700
ANNUAL RUNOFF (INCHES)	1.05	1.43
10 PERCENTILE	46700	94200
50 PERCENTILE	37500	42600
95 PERCENTILE	20200	13400

GRAND RIVER BASIN

06897500 GRAND RIVER NEAR GALLATIN, MO

LOCATION.--Lat 39°55'37", long 93°56'33", in SW 1/4 NW 1/4 sec.16, T.59 N., R.27 W., Davies County, Hydrologic Unit 10280101, on left bank 100 ft upstream from bridge on State Highway 6, 50 ft downstream from Chicago, Rock Island and Pacific Railroad Co. Bridge, 1 mi northeast of Gallatin, 6 mi upstream from Honey Creek, and at mile 90.

DRAINAGE AREA.--2,250 mi², approximately.

PERIOD OF RECORD.--June 1921 to current year.

REVISED RECORDS.--WSP 786: 1933-34. WSP 1280: 1922. WDR MO-81-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 717.56 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 31, 1922, nonrecording gage at site 100 ft upstream at datum 5.00 ft lower. Jan. 31, 1922, to Nov. 15, 1936, nonrecording gage, at site about 1,100 ft upstream at datum 4.83 ft lower. Nov. 16, 1936, to Nov. 14, 1937, nonrecording gage, and Nov. 15, 1937, to Sept. 21, 1961, water-stage recorder on center pier of highway bridge at datum 5.00 ft lower. Sept. 22-27, 1961, nonrecording gage at railroad bridge, 100 ft upstream at datum, 5.00 ft lower. Sept. 28, 1961, to Mar. 4, 1964, water-stage recorder on downstream side of left bank pier of highway bridge and wire-weight gage for stages below 7.2 ft at datum 5.00 ft lower. Mar. 5, 1964, to Mar. 5, 1982, at present site at datum 5.00 ft. lower.

REMARKS.--Estimated daily discharges: Dec. 11, 12, 16-19, Jan. 8, 9, 13, Feb. 3-8, 15, 17, 18, 21-25, and Aug. 29, 30. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. National Weather Service and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 45 ft, July 8, 1909, from floodmarks.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	15	23	25	52	39	43	16	100	33	70	903
2	19	15	21	26	35	45	43	17	62	27	143	512
3	18	15	20	26	30	45	46	19	52	45	51	374
4	16	17	20	25	20	38	47	22	431	26	31	279
5	16	16	19	28	15	38	48	24	511	30	21	214
6	16	16	18	29	14	42	59	24	248	26	14	291
7	16	15	18	27	13	52	50	24	119	15	12	347
8	16	16	19	26	14	60	43	26	68	12	11	342
9	16	17	17	24	15	77	39	27	42	10	9.8	17700
10	16	17	17	27	15	90	34	25	33	11	8.9	20700
11	14	20	17	27	16	101	33	22	29	9.2	9.3	9240
12	14	23	17	26	16	95	31	20	27	6.8	8.9	2800
13	15	23	17	25	16	85	30	20	24	6.8	8.9	1340
14	15	22	18	26	17	85	29	19	21	8.5	8.5	886
15	14	23	16	27	17	86	27	18	19	12	7.7	671
16	14	22	16	26	23	91	27	18	18	12	8.4	535
17	13	22	17	29	22	77	24	18	18	19	7.7	438
18	13	26	18	32	22	64	22	24	23	27	7.0	371
19	13	25	18	31	23	57	22	48	19	28	7.3	314
20	14	24	20	32	24	50	21	311	17	31	7.8	270
21	14	23	19	28	23	46	20	183	17	22	9.6	231
22	14	22	20	31	22	44	20	88	16	17	40	190
23	14	22	23	33	22	40	19	58	17	14	139	155
24	13	22	23	29	25	39	18	46	20	11	76	129
25	16	24	22	29	28	36	17	42	19	9.9	52	110
26	16	29	25	30	30	35	16	34	36	9.3	28	89
27	15	29	30	30	33	35	17	29	81	9.1	63	76
28	14	27	24	32	38	40	18	32	448	9.2	2470	67
29	14	27	25	37	---	40	16	35	95	12	15900	61
30	14	26	26	40	---	39	16	80	45	31	12100	57
31	14	---	25	49	---	42	---	110	---	166	3240	---
MEAN	15.0	21.3	20.3	29.4	22.9	56.5	29.8	47.7	89.2	22.8	1115	1990
MAX	20	29	30	49	52	101	59	311	511	166	15900	20700
MIN	13	15	16	24	13	35	16	16	16	6.8	7.0	57
IN.	.01	.01	.01	.02	.01	.03	.01	.02	.04	.01	.57	.99

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	875	883	498	512	946	1704	1798	1658	2346	1179	555	1085
MEAN	875	883	498	512	946	1704	1798	1658	2346	1179	555	1085
MAX	8965	8613	5463	4212	6196	8760	7906	7703	22670	7499	4136	11610
(WY)	1974	1929	1983	1932	1962	1979	1927	1945	1947	1958	1987	1926
MIN	3.09	8.18	6.15	3.94	5.61	18.7	12.0	15.4	51.9	13.3	7.05	10.2
(WY)	1957	1939	1939	1940	1939	1938	1956	1956	1988	1936	1936	1955

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	288	1167
HIGHEST ANNUAL MEAN		3045
LOWEST ANNUAL MEAN		129
HIGHEST DAILY MEAN	20700	67000
LOWEST DAILY MEAN	6.8	2.0
INSTANTANEOUS PEAK FLOW	24300	69100
INSTANTANEOUS PEAK STAGE	25.99	39.55
INSTANTANEOUS LOW FLOW	5.4	2.2
ANNUAL RUNOFF (INCHES)	1.74	7.05
10 PERCENTILE	131	2400
50 PERCENTILE	25	207
95 PERCENTILE	10	14

GRAND RIVER BASIN

109

06899500 THOMPSON RIVER AT TRENTON, MO

LOCATION.--Lat 40°04'46", long 93°38'39" in NE 1/4 SW 1/4 sec.18, T.61 N., R.24 W., Grundy County, Hydrologic Unit 10280102, at downstream side of center pier of bridge in Trenton, 1.8 mi downstream from Weldon River, and at mile 26.0.

DRAINAGE AREA.--1,670 mi², approximately.

PERIOD OF RECORD.--June 1921 to September 1923 (published as "near Hickory"), August 1928 to current year. Monthly discharge only for some periods, published in WSP 1310. Gage-height records collected in vicinity 1910-14 and since 1925 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1116: 1945 (M). WDR MO-83-1: 1981

GAGE.--Water-stage recorder and nonrecording gage. Datum of gage is 721.87 ft above National Geodetic Vertical Datum of 1929. June 25, 1921, to Aug. 26, 1923, nonrecording gage at two sites 12 mi downstream (by old channel route) at different datums. Aug. 1, 1928, to Sept. 15, 1930, nonrecording gage at present site and datum. Sept. 16, 1930, to May 31, 1945, nonrecording gage at site 1.5 mi downstream at datum 3.46 ft lower. June 1, 1945, to Dec. 7, 1959, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 11-14, 16-21, 23, 24, 27, 28, Jan. 1, 2, and Feb. 4-26. Records poor. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 30.7 ft, July 6, 1909, present site and datum, from information by local residents, discharge, 50,000 ft³/s, determination by U.S. Army Corps of Engineers, occurred before new channel was dredged.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	15	37	35	34	94	47	33	223	140	157	668
2	23	14	35	33	31	102	49	33	176	212	76	378
3	24	15	33	32	29	116	57	28	160	105	50	260
4	20	20	29	25	25	124	53	37	155	67	39	163
5	18	20	28	33	20	120	41	43	118	46	27	125
6	15	21	26	38	18	171	42	48	86	34	21	131
7	17	18	25	31	16	303	42	48	69	28	19	134
8	22	24	23	26	17	210	44	45	74	21	21	125
9	28	23	22	22	18	167	38	38	81	16	23	11800
10	27	27	21	28	18	189	33	32	52	14	19	9500
11	22	28	21	25	19	179	33	24	51	15	14	5330
12	21	40	21	22	19	140	31	20	48	16	12	2660
13	21	40	24	24	19	756	30	16	37	17	17	1570
14	24	32	23	28	19	485	31	17	30	22	13	1110
15	19	33	20	33	20	292	29	13	32	39	11	832
16	20	48	20	32	25	215	30	11	32	47	12	618
17	18	41	21	28	24	158	31	9.3	36	31	8.3	474
18	13	34	22	29	23	122	32	28	64	32	5.8	361
19	14	35	22	30	25	105	33	77	55	33	8.9	280
20	25	31	22	27	30	94	31	101	32	32	9.6	223
21	21	36	22	26	28	77	32	70	22	25	8.1	182
22	21	44	23	26	25	71	28	56	19	25	17	150
23	20	40	25	24	25	61	28	43	19	23	17	125
24	19	41	24	22	30	58	27	39	17	19	12	107
25	15	43	21	27	40	51	28	44	18	13	20	95
26	16	53	20	29	60	48	25	29	17	18	33	84
27	16	52	25	25	96	52	23	47	163	19	462	75
28	14	37	28	30	96	68	30	246	53	14	6620	69
29	15	40	30	50	---	59	28	572	31	17	12800	63
30	14	37	31	42	---	50	27	204	102	291	3850	62
31	16	---	34	38	---	42	---	258	---	941	1490	---
MEAN	19.5	32.7	25.1	29.7	30.3	154	34.4	74.5	69.1	76.5	835	1258
MAX	28	53	37	50	96	756	57	572	223	941	12800	11800
MIN	13	14	20	22	16	42	23	9.3	17	13	5.8	62
IN.	.01	.02	.02	.02	.02	.11	.02	.05	.05	.05	.58	.84

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	631	681	462	470	902	1593	1589	1506	1784	770	538	630
MEAN	631	681	462	470	902	1593	1589	1506	1784	770	538	630
MAX	4678	6280	4209	3682	4377	5765	5580	5494	16460	4567	3990	3601
(WY)	1974	1962	1983	1946	1962	1979	1973	1935	1947	1969	1959	1961
MIN	11.1	9.53	6.48	4.74	13.0	17.6	10.7	10.2	13.9	6.00	9.32	12.9
(WY)	1957	1956	1956	1956	1956	1938	1956	1956	1956	1934	1936	1955

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	220	961
AVERAGE FLOW	220	961
HIGHEST ANNUAL MEAN		2315
LOWEST ANNUAL MEAN		117
HIGHEST DAILY MEAN	12800	73800
LOWEST DAILY MEAN	5.8	1.0
INSTANTANEOUS PEAK FLOW	22400	95000
INSTANTANEOUS PEAK STAGE	15.20	25.7
INSTANTANEOUS LOW FLOW	3.3	1.0
ANNUAL RUNOFF (INCHES)	1.79	7.81
10 PERCENTILE	180	2250
50 PERCENTILE	32	200
95 PERCENTILE	14	17

GRAND RIVER BASIN

06900000 MEDICINE CREEK NEAR GALT, MO

LOCATION.--Lat 40°07'45", corr, long 93°21'45", in SW 1/4 NW 1/4 sec.34, T.62 N., R.22 W., Sullivan County, Hydrologic Unit 10280103, on left bank 15 ft upstream from bridge on State Highway 6, 1.2 mi east of Galt, 2 mi upstream from West Medicine Creek, and at mile 32.0.

DRAINAGE AREA.--225 mi².

PERIOD OF RECORD.--July 1921 to September 1975, October 1977 to current year. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS.--WSP 1340: 1926. WSP 1730: 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 767.48 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1934, nonrecording gage at site 150 ft downstream at following datums: prior to Oct. 1, 1924, at datum 6.97 ft higher; Oct. 1, 1924, to Sept. 30, 1926, at datum 4.97 ft higher; Oct. 1, 1926, to Dec. 2, 1934, at datum 1.97 ft higher; Dec. 3, 1934, to Apr. 25, 1956, nonrecording gage, and Apr. 26 to Sept. 30, 1956; water-stage recorder at site 30 ft downstream at datum 2.00 ft higher; Oct. 1, 1956, to Apr. 5, 1969, water-stage recorder at site 30 ft downstream at present datum; Apr. 6, 1969, to July 24, 1975, water-stage recorder; July 25, 1975, to Aug. 21, 1978, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 31, Jan. 1, Feb. 12-15, and Apr. 27 to June 1. Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Discharge of 8,000 ft³/s was determined for flood of July 1909, by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	2.9	.82	4.8	7.1	9.8	.47	5.0	30	16	5.7	82
2	9.2	2.6	.35	4.8	.99	11	.97	6.0	18	13	6.2	65
3	5.3	2.0	.41	6.2	.06	16	13	5.0	13	9.0	6.6	48
4	2.5	7.4	.24	6.2	.01	28	4.5	6.0	15	6.2	4.8	35
5	2.7	8.3	.15	9.0	.49	44	.37	7.0	13	3.4	3.4	27
6	2.1	6.0	.05	13	.75	43	.14	8.5	4.8	2.0	5.0	24
7	2.2	4.8	.00	10	.52	51	.02	10	2.0	2.0	3.3	19
8	2.0	3.4	.00	2.0	.24	41	.23	11	15	2.0	.98	278
9	2.2	2.0	.02	2.0	.06	34	.43	9.0	45	2.0	.00	3240
10	2.5	3.5	.15	7.6	.15	34	.99	5.0	13	1.2	.06	2380
11	2.7	12	.00	7.6	.60	25	.51	4.0	6.2	1.2	.00	327
12	2.4	12	.00	2.0	1.1	18	.28	3.0	3.8	3.4	.00	131
13	2.0	15	.40	3.4	1.4	16	.19	2.0	7.6	18	.15	87
14	1.5	12	3.4	6.2	1.7	11	.04	2.0	16	6.8	.40	62
15	2.0	13	.40	9.0	1.9	11	.22	1.5	9.0	5.8	.15	52
16	1.2	20	.15	6.2	1.3	10	.13	1.4	4.8	7.4	1.2	38
17	1.6	17	1.2	2.0	1.0	8.7	.57	1.2	7.6	8.1	.34	32
18	1.8	11	4.8	7.6	2.7	3.6	.58	3.5	20	11	.00	26
19	2.3	9.6	9.0	7.6	4.0	3.5	.67	10	9.0	9.8	.00	22
20	7.7	8.8	4.8	1.7	5.4	5.5	.34	20	4.8	7.2	.00	20
21	7.6	7.4	7.6	1.9	3.3	3.7	.98	15	3.4	4.6	.00	15
22	7.5	7.3	4.8	3.6	5.9	4.2	.93	11	3.4	7.1	6.7	15
23	6.7	6.1	6.2	4.6	9.3	1.3	1.0	9.0	3.4	6.0	28	18
24	5.2	8.2	3.4	4.1	5.7	3.2	2.2	7.0	2.0	3.4	17	15
25	3.8	5.5	9.0	5.5	7.4	2.4	1.3	9.0	3.4	2.4	8.0	13
26	3.9	20	13	6.7	10	.38	1.4	6.0	16	3.4	8.0	12
27	3.4	11	10	4.8	9.1	.56	2.0	20	296	2.2	224	10
28	2.9	.55	10	7.2	11	21	5.0	50	156	1.3	112	8.7
29	3.3	.75	12	12	---	6.5	4.0	100	59	1.3	2200	10
30	2.0	.95	12	11	---	.48	3.0	70	30	24	1540	9.9
31	2.6	---	12	11	---	.46	---	45	---	9.7	180	---
MEAN	3.70	8.03	4.08	6.17	3.33	15.1	1.55	14.9	27.7	6.48	141	237
MAX	10	20	13	13	11	51	13	100	296	24	2200	3240
MIN	1.2	.55	.00	1.7	.01	.38	.02	1.2	2.0	1.2	.00	8.7
IN.	.02	.04	.02	.03	.02	.08	.01	.08	.14	.03	.72	1.18

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	105	98.9	71.8	71.3	144	237	251	195	258	134	72.0	99.2
MAX	688	1133	507	372	623	944	963	918	2555	942	1008	1006	
(WY)	1986	1962	1983	1960	1937	1982	1947	1935	1947	1969	1932	1926	
MIN	.91	1.32	1.01	.03	.52	2.43	1.55	2.44	3.21	.60	.22	.99	
(WY)	1954	1938	1939	1940	1939	1938	1989	1956	1956	1934	1936	1954	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	39.1	143
HIGHEST ANNUAL MEAN		369
LOWEST ANNUAL MEAN		9.25
HIGHEST DAILY MEAN	3240	17300
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	3650	24200
INSTANTANEOUS PEAK STAGE	6.55	20.9
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	2.36	8.65
10 PERCENTILE	29	259
50 PERCENTILE	4.8	23
95 PERCENTILE	.04	1.1

GRAND RIVER BASIN

111

06902000 GRAND RIVER NEAR SUMNER, MO

LOCATION.--Lat 39°38'25", long 93°16'25", in NE ¼, sec.29, T.56 N., R.21 W., Livingston County, Hydrologic Unit 10280103, near right bank on downstream side of pier of bridge on State Highway 139, 240 ft downstream from Chicago, Burlington and Quincy Railroad bridge, 2 mi southwest of Sumner, 2.5 mi downstream from Locust Creek and at mile 41.0.

DRAINAGE AREA.--6,880 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Prior to April 1924 monthly discharge only, published in WSP 1310.

GAGE.--Water-stage recorder. Datum of gage is 631.18 ft above National Geodetic Vertical Datum of 1929. Prior to July 11, 1926, nonrecording gage at site 200 ft upstream at same datum. July 11, 1926, to July 9, 1939, nonrecording gage at same site and datum. July 10, 1939, to Aug. 8, 1952, water-stage recorder at site 200 ft upstream at same datum. Aug. 9, 1952, to Nov. 12, 1953, nonrecording gage at site 120 ft upstream and at same datum. Nov. 13, 1953, to July 6, 1964, water-stage recorder and nonrecording gage, for stages below 8.3 ft, at site 120 ft upstream and at same datum. July 7, 1964, to May 26, 1965, nonrecording gage at present site and datum. Auxiliary water-stage recorder at site 3.2 mi downstream from base gage at datum 631.30 ft above National Geodetic Vertical Datum of 1929. Mar. 15, 1939, to Aug. 4, 1942, auxiliary nonrecording gage at various sites. Aug. 5, 1942, to Dec. 14, 1956, auxiliary nonrecording gage at present site.

REMARKS.--Estimated daily discharges: Oct. 1-4, Dec. 11-13, 15-19, 27-31, Jan. 1, 8-11, Feb. 2-28, Mar. 1, 6, and Sept. 9-12. Water-discharge records fair except for estimated daily discharges, which are poor. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 9, 1909, reached a stage of 36.7 ft, from floodmark.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	39	104	105	131	160	224	84	591	460	892	5740
2	85	39	106	108	100	167	238	75	499	392	786	2970
3	70	40	101	103	80	172	524	71	404	567	367	1900
4	56	43	95	105	60	189	1100	69	567	380	279	1370
5	51	46	90	98	45	179	939	69	705	281	210	1030
6	50	47	87	121	40	170	622	69	740	204	158	840
7	48	47	85	151	40	237	398	66	625	166	118	837
8	48	46	68	130	40	350	311	64	364	151	86	1030
9	48	52	73	100	45	366	261	69	233	124	67	7860
10	48	48	67	95	45	365	218	194	199	108	56	39900
11	48	47	65	100	50	342	187	123	221	97	50	34200
12	48	57	63	108	55	351	165	84	181	87	48	16400
13	46	62	73	103	60	330	153	65	151	81	41	6960
14	44	72	74	103	60	396	145	53	151	78	36	4590
15	42	89	72	99	65	687	133	46	153	78	34	3380
16	42	210	70	97	80	506	126	39	141	89	33	2530
17	42	205	75	93	90	381	121	34	119	112	33	1980
18	41	136	80	101	100	314	117	32	119	116	31	1670
19	41	115	83	103	95	268	117	999	147	90	29	1400
20	42	101	86	99	100	238	124	2480	239	88	29	1090
21	42	92	91	98	110	215	130	1650	162	90	32	922
22	43	85	89	96	105	190	110	1080	115	122	46	805
23	49	81	88	96	100	173	103	1220	93	814	96	704
24	48	82	87	95	100	161	103	713	87	227	115	633
25	47	84	95	97	110	148	100	311	83	209	147	559
26	43	96	96	102	120	139	95	368	82	132	139	494
27	42	123	94	103	135	134	90	266	183	90	245	446
28	41	129	90	101	150	151	88	175	1430	70	1070	411
29	40	115	95	107	---	250	88	1890	1680	59	11100	382
30	40	111	100	117	---	247	87	2360	929	78	29900	374
31	40	---	105	129	---	222	---	1120	---	1820	16700	---
MEAN	48.9	84.6	85.4	105	82.5	264	241	514	380	241	2031	4780
MAX	100	210	106	151	150	687	1100	2480	1680	1820	29900	39900
MIN	40	39	63	93	40	134	87	32	82	59	29	374
IN.	.01	.01	.01	.02	.01	.04	.04	.09	.06	.04	.34	.78

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	2821	2976	1945	2021	3644	5997	6525	5300	7278	3412	1747	3020
MAX	20630	29030	15440	14750	19250	34220	26680	23750	67270	23000	9194	28090	
(WY)	1974	1932	1983	1932	1962	1979	1973	1935	1947	1958	1987	1926	
MIN	37.1	40.3	53.0	32.1	57.0	79.5	67.3	130	176	52.8	41.0	62.5	
(WY)	1957	1957	1956	1940	1939	1957	1956	1956	1988	1934	1936	1955	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	737	3880
HIGHEST ANNUAL MEAN		10020
LOWEST ANNUAL MEAN		367
HIGHEST DAILY MEAN	39900	166000
LOWEST DAILY MEAN	29	10
INSTANTANEOUS PEAK FLOW	41600	180000
INSTANTANEOUS PEAK STAGE	32.38	39.5
INSTANTANEOUS LOW FLOW	28	10
ANNUAL RUNOFF (INCHES)	1.45	7.66
10 PERCENTILE	906	9910
50 PERCENTILE	106	938
95 PERCENTILE	39	77

GRAND RIVER BASIN

06902000 GRAND RIVER NEAR SUMNER, MO--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1962 to June 1963 and August 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1974 to September 1981.

WATER TEMPERATURE: January 1974 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT										
13...	1000	46	490	7.70	10.0	12	9.6	84	K70	K45
NOV										
02...	0915	39	495	8.05	7.5	8.0	12.0	101	20	92
DEC										
07...	0945	86	480	7.90	3.0	10	14.4	106	110	63
JAN										
11...	0940	100	495	7.80	0.0	10	15.5	106	55	220
FEB										
08...	0930	40	635	7.40	0.0	13	11.4	76	330	84
MAR										
08...	0730	325	430	7.40	0.5	18	13.6	93	44	89
APR										
05...	0755	995	352	7.80	9.0	130	9.5	82	6000	4000
MAY										
03...	0845	74	487	8.10	12.5	22	9.9	93	47	24
JUN										
07...	1000	653	332	8.10	23.5	110	7.1	84	570	1000
JUL										
19...	0900	89	417	8.20	23.0	23	7.5	88	54	98

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT									
13...	210	6	63	13	21	3.1	216	35	14
NOV									
02...	210	10	63	13	21	3.0	206	34	14
DEC									
07...	200	10	60	13	22	3.1	191	39	15
JAN									
11...	210	22	63	13	23	3.4	194	41	17
FEB									
08...	250	2	74	15	25	3.6	252	52	18
MAR									
08...	180	23	54	11	22	4.1	172	53	17
APR									
05...	150	31	44	8.7	13	5.7	115	45	11
MAY									
03...	210	17	62	13	23	4.0	200	37	16
JUN									
07...	130	21	40	7.9	11	5.4	112	30	9.2
JUL									
19...	170	12	51	10	19	4.2	160	35	12

K--Results based on colony count outside the acceptable range (non-ideal colony count).

GRAND RIVER BASIN

113

06902000 GRAND RIVER NEAR SUMNER, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 13...	0.20	9.9	288	0.39	35.8	<0.010	<0.100	0.020	0.010
NOV 02...	0.20	9.3	292	0.40	30.7	<0.010	<0.100	<0.010	<0.010
DEC 07...	0.20	5.5	287	0.39	66.6	<0.010	<0.100	<0.010	<0.010
JAN 11...	0.20	7.5	286	0.39	77.2	<0.010	0.220	0.220	0.240
FEB 08...	0.30	7.7	338	0.46	0.0	0.060	<0.100	0.030	0.040
MAR 08...	0.20	4.7	253	0.34	222	0.010	0.250	0.090	0.090
APR 05...	0.20	8.7	214	0.29	575	0.040	1.30	0.200	0.120
MAY 03...	0.30	6.6	296	0.40	59.1	<0.010	<0.100	0.020	0.030
JUN 07...	0.30	8.2	205	0.28	361	0.070	0.770	0.110	0.060
JUL 19...	0.20	6.3	241	0.33	57.9	<0.010	0.150	0.040	0.060

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
OCT 13...	0.70	0.080	0.020	0.020	--	--	--	--	--
NOV 02...	0.30	0.060	0.030	<0.010	52	5.5	43	--	<10
DEC 07...	0.50	0.080	0.010	<0.010	--	--	--	--	--
JAN 11...	0.70	0.070	0.010	<0.010	76	21	27	--	10
FEB 08...	0.60	0.110	0.010	0.010	--	--	--	60	<10
MAR 08...	1.1	0.140	0.040	<0.010	--	--	--	1200	<10
APR 05...	1.1	0.400	0.060	0.040	--	--	--	9600	130
MAY 03...	0.60	0.160	0.020	0.020	54	11	67	--	<10
JUN 07...	1.3	0.290	0.040	0.040	--	--	--	8500	30
JUL 19...	1.3	0.070	0.060	0.010	66	16	87	--	<10

GRAND RIVER BASIN

06902000 GRAND RIVER NEAR SUMNER, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)
NOV 02...	<1	100	<0.5	3	<1	4	<1	15	<5	9
JAN 11...	<1	110	<0.5	<1	<1	<3	1	56	<5	9
MAY 03...	1	170	<0.5	<1	<1	<3	1	55	<5	8
JUL 19...	1	100	<0.5	<1	<1	<3	2	19	<1	7
DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	
NOV 02...	2700	<0.1	<10	2	<1	<1.0	270	<6	4	
JAN 11...	1900	<0.1	<10	4	<1	<1.0	250	<6	16	
MAY 03...	990	0.4	10	<1	<1	<1.0	270	<6	32	
JUL 19...	180	<0.1	<10	2	<1	<1.0	220	<6	4	

CHARITON RIVER BASIN

06904050 CHARITON RIVER AT LIVONIA, MO

LOCATION.--Lat 40°29'00", long 92°41'10", in NW 1/4 SE 1/4 NW 1/4 sec.34, T.66 N., R.16 W., Schuyler County, Hydrologic Unit 10280201, on left bank 10 ft downstream from bridge on U.S. Highway 136, 1 mi upstream from Shoal Creek, and 0.5 mi east of Livonia, and at mile 90.9.

DRAINAGE AREA.--864 mi².

PERIOD OF RECORD.--May 1974 to current year. Occasional discharge measurements were made from October 1962 to May 1974.

REVISED RECORDS.--WDR MO-83-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 770.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 9-11, 15-31, Jan. 4, 8, 9, 16, 19, 21, 22, and Feb. 2 to Mar. 3. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. Considerable regulation by Rathbun Lake (station 06903880) 51 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	28	29	42	32	22	36	30	122	55	61	150
2	33	28	28	40	30	30	32	34	85	58	43	100
3	32	28	30	37	25	50	32	38	516	39	38	65
4	32	30	29	36	22	107	34	38	240	35	39	48
5	31	31	29	32	20	133	33	34	137	33	38	42
6	30	30	29	34	20	178	31	34	83	32	35	42
7	30	29	29	35	20	144	32	31	63	31	33	40
8	31	29	27	32	20	105	32	33	55	31	33	41
9	30	29	26	35	20	83	33	31	73	30	32	1260
10	30	29	25	36	20	69	32	30	70	29	32	2170
11	30	28	28	43	22	78	32	35	67	29	31	1100
12	29	28	29	42	25	88	32	31	124	36	32	367
13	29	28	35	41	24	74	30	29	181	45	30	178
14	27	28	44	39	23	60	30	32	239	42	30	123
15	27	40	42	38	22	49	30	32	228	33	31	95
16	27	64	40	37	22	42	31	30	109	31	30	77
17	27	73	40	35	23	36	29	29	72	31	30	65
18	28	47	42	35	23	32	29	34	68	33	29	59
19	28	31	44	32	24	31	30	43	55	33	29	53
20	27	27	46	28	24	30	29	54	53	32	34	50
21	26	26	42	26	24	29	28	57	45	32	33	43
22	27	25	40	30	23	27	29	44	37	35	33	39
23	28	25	36	31	22	27	30	36	36	38	34	38
24	29	25	32	31	21	27	29	44	34	38	39	37
25	29	25	30	33	22	28	32	225	33	42	39	36
26	29	25	30	31	25	29	30	382	47	38	39	36
27	29	26	32	27	24	32	31	187	304	36	35	35
28	28	28	31	33	23	40	33	128	245	37	50	34
29	26	31	35	32	---	49	31	550	94	45	1260	34
30	27	31	40	32	---	47	30	631	51	171	687	33
31	28	---	49	34	---	40	---	256	---	120	352	---
MEAN	29.0	31.7	34.5	34.5	23.0	58.6	31.1	104	119	43.5	106	216
MAX	34	73	49	43	32	178	36	631	516	171	1260	2170
MIN	26	25	25	26	20	22	28	29	33	29	29	33
IN.	.04	.04	.05	.05	.03	.08	.04	.14	.15	.06	.14	.28

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	440	538	708	329	493	898	869	747	769	957	509	505
MEAN	440	538	708	329	493	898	869	747	769	957	509	505
MAX	1219	1527	2005	1679	1956	1890	1898	1897	1839	3481	1765	1413
(WY)	1986	1978	1983	1983	1983	1982	1983	1978	1980	1982	1982	1982
MIN	27.2	29.7	19.9	13.6	23.0	58.6	31.1	52.1	33.6	23.6	32.3	29.6
(WY)	1977	1977	1977	1977	1989	1989	1989	1980	1988	1988	1988	1976

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	69.3	646
HIGHEST ANNUAL MEAN		1253
LOWEST ANNUAL MEAN		69.3
HIGHEST DAILY MEAN	2170	8960
LOWEST DAILY MEAN	20	13
INSTANTANEOUS PEAK FLOW	2380	6800
INSTANTANEOUS PEAK STAGE	13.49	24.26
INSTANTANEOUS LOW FLOW	18	13
ANNUAL RUNOFF (INCHES)	1.09	10.15
10 PERCENTILE	96	1480
50 PERCENTILE	33	288
95 PERCENTILE	24	26

CHARITON RIVER BASIN

06904500 CHARITON RIVER AT NOVINGER, MO

LOCATION.--Lat 40°14'05", long 92°41'14", on south line of SE 1/4 NE 1/4 sec.28, T.63 N., R.16 W., Adair County, Hydrologic Unit 10280202, on downstream side of center pier on bridge on State Highway 6, 0.6 mi east of Novinger, 1 mi downstream from Rye Creek, 2 mi upstream from Spring Creek, and at mile 73.1.

DRAINAGE AREA.--1,370 mi², approximately.

PERIOD OF RECORD.--October 1930 to September 1952. October 1954 to current year. Prior to February 1931 monthly discharge only, published in WSP 1310.

REVISED RECORDS.--WSP 896: 1939. WSP 1116: 1932(M).

GAGE.--Water-stage recorder. Datum of gage is 737.65 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 20, 1939, nonrecording gage at bridge over old channel, 500 ft east, at the same datum. Dec. 20, 1939, to Sept. 30, 1952, and Oct. 1, 1954, to Aug. 1, 1956, water-stage recorder, supplemented by nonrecording gage, at same site and datum. Aug. 3, 1956, to May 16, 1957, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 10-20, 22-24, 26-29, Jan. 9-19, 29-31, Feb. 1 to Mar. 8, Mar. 24-27, Apr. 21, 24-27, June 3, and Sept. 29, 30. Records poor. Several observations of water temperature and specific conductance were made during the year. Some regulation by Rathbun Lake (station 06903880). U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 28.6 ft, June 1917.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	36	37	70	40	30	49	31	241	69	122	338
2	42	36	35	59	35	40	43	44	124	141	63	188
3	39	37	33	54	32	60	48	49	1060	77	45	146
4	37	42	32	55	28	110	65	49	779	47	37	92
5	36	41	32	58	25	150	67	48	318	38	36	82
6	34	42	32	50	25	300	45	45	160	33	34	73
7	35	39	31	51	25	250	39	42	88	31	33	69
8	35	38	29	39	25	200	36	42	63	29	31	66
9	37	38	28	40	25	154	36	41	55	28	29	1250
10	36	38	28	45	25	134	33	39	73	27	30	4720
11	34	38	30	50	25	122	32	35	95	27	30	2320
12	32	44	32	45	27	147	32	33	123	33	29	861
13	32	42	35	43	30	137	29	32	341	42	28	394
14	32	37	37	41	28	87	29	29	303	51	29	236
15	29	37	40	40	26	68	28	28	373	43	29	161
16	29	123	40	40	27	51	28	28	191	36	29	122
17	31	222	41	40	27	49	28	27	102	32	28	98
18	30	120	45	39	27	44	28	25	185	37	28	80
19	30	77	48	39	27	41	29	73	103	37	30	69
20	34	56	50	39	28	40	29	101	62	36	34	60
21	32	46	46	27	30	32	29	91	48	34	36	52
22	27	41	45	39	29	34	30	69	38	38	41	48
23	34	38	43	34	28	29	30	43	34	42	38	43
24	34	36	40	37	26	26	35	34	30	40	41	41
25	34	36	31	38	27	26	33	91	29	36	46	38
26	35	40	35	40	30	25	34	427	29	35	55	36
27	34	39	38	36	29	28	34	331	602	34	69	36
28	34	38	37	34	28	38	32	564	587	31	57	35
29	33	44	45	40	---	84	32	1450	261	35	2210	34
30	31	45	59	42	---	95	32	1030	112	236	2140	33
31	34	---	72	42	---	68	---	506	---	241	810	---
MEAN	33.9	52.9	38.9	43.4	28.0	87.1	35.8	177	220	54.7	203	394
MAX	46	222	72	70	40	300	67	1450	1060	241	2210	4720
MIN	27	36	28	27	25	25	28	25	29	27	28	33
IN.	.03	.04	.03	.04	.02	.07	.03	.15	.18	.05	.17	.32

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	516	575	538	498	774	1417	1382	1179	1419	767	481	498
MEAN	516	575	538	498	774	1417	1382	1179	1419	767	481	498
MAX	3352	5051	3318	3074	2889	4101	5302	4846	9687	5205	3614	3380
(WY)	1974	1932	1983	1946	1962	1979	1973	1973	1947	1982	1932	1965
MIN	1.04	3.09	3.85	3.43	6.99	8.97	6.06	7.91	24.9	3.32	1.29	4.56
(WY)	1957	1957	1957	1956	1957	1957	1956	1956	1934	1936	1936	1937

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	114	836
HIGHEST ANNUAL MEAN		2191
LOWEST ANNUAL MEAN		81.6
HIGHEST DAILY MEAN	4720	21700
LOWEST DAILY MEAN	25	.10
INSTANTANEOUS PEAK FLOW	5250	22900
INSTANTANEOUS PEAK STAGE	9.27	28.50
INSTANTANEOUS LOW FLOW	16	0.1
ANNUAL RUNOFF (INCHES)	1.13	8.28
10 PERCENTILE	163	2220
50 PERCENTILE	39	184
95 PERCENTILE	27	7.9

06905500 CHARITON RIVER NEAR PRAIRIE HILL, MO

LOCATION.--Lat 39°32'25", long 92°47'23", in NW 1/4 SW 1/4 sec.26, T.55 N., R.17 W., Chariton County, Hydrologic Unit 10280202, on right bank on downstream side of road at bridge on State Highway 129, 3.2 mi northwest of Prairie Hill, 13.5 mi upstream from Puzzle Creek, and at mile 19.6.

DRAINAGE AREA.--1,870 mi², approximately.

PERIOD OF RECORD.--October 1928 to current year. Prior to Oct. 1, 1953, published as "near Keytesville". Prior to May 1929, monthly discharge only, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 632.05 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1953, nonrecording gage at site 8.2 mi downstream at datum 13.68 ft lower. Oct. 1, 1953, to July 2, 1958, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Jan. 16 and Feb. 3-28. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. Some regulation by Rathbun Lake (station 06903880). National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	38	44	64	49	51	109	35	774	231	180	1430
2	48	36	46	58	52	59	102	37	466	125	169	771
3	46	36	46	58	45	64	116	37	292	89	104	318
4	44	38	41	54	40	75	152	40	1070	114	73	190
5	43	37	40	55	35	54	200	41	1140	81	54	141
6	43	41	39	64	30	56	188	40	552	62	44	120
7	43	41	39	76	30	223	141	41	308	54	39	102
8	44	41	40	71	31	307	99	40	185	49	36	234
9	46	42	35	70	31	244	75	56	128	46	36	656
10	43	45	33	70	31	189	64	105	101	43	34	292
11	43	42	25	62	32	160	58	58	89	40	34	3990
12	42	52	35	46	33	145	47	41	131	38	34	2770
13	41	52	38	51	35	142	48	34	423	37	33	1500
14	41	51	40	41	40	164	46	34	406	43	33	804
15	40	55	47	45	38	157	43	32	351	45	34	364
16	40	60	40	50	35	131	41	29	295	51	33	235
17	39	49	43	51	35	109	39	28	291	52	34	173
18	36	48	50	52	35	87	38	30	176	46	32	134
19	36	160	58	53	35	75	39	35	120	43	31	112
20	40	143	63	49	35	70	38	40	181	41	32	95
21	40	100	61	44	38	62	38	69	111	40	41	84
22	41	67	56	40	37	53	38	107	74	42	39	76
23	42	56	48	37	36	46	35	110	92	45	48	70
24	37	51	49	36	35	48	36	98	61	46	53	66
25	35	47	57	44	34	42	36	94	56	42	43	61
26	36	52	48	44	35	41	36	98	228	40	43	57
27	37	50	50	45	40	39	35	76	3250	39	60	55
28	37	47	62	45	45	50	37	731	811	37	83	52
29	36	46	65	49	---	50	34	6750	918	38	138	52
30	37	45	76	46	---	55	32	2220	527	86	939	52
31	37	---	86	46	---	86	---	1200	---	136	2840	---
MEAN	40.7	55.6	48.4	52.1	36.7	101	68.0	400	454	62.0	175	502
MAX	50	160	86	76	52	307	200	6750	3250	231	2840	3990
MIN	35	36	25	36	30	39	32	28	56	37	31	52
IN.	.03	.03	.03	.03	.02	.06	.04	.25	.27	.04	.11	.30

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	746	816	740	722	1102	1923	2012	1815	2013	1194	640	694
MEAN	746	816	740	722	1102	1923	2012	1815	2013	1194	640	694
MAX	5695	6574	5449	4516	4102	5724	8981	7800	14830	9206	4856	4615
(WY)	1974	1962	1983	1946	1937	1973	1973	1973	1947	1981	1932	1965
MIN	9.59	9.77	13.0	12.9	18.1	37.3	45.9	84.1	25.8	13.4	7.97	13.6
(WY)	1957	1957	1957	1957	1957	1957	1956	1956	1934	1934	1936	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	166	1197
HIGHEST ANNUAL MEAN		3353
LOWEST ANNUAL MEAN		166
HIGHEST DAILY MEAN	6750	30000
LOWEST DAILY MEAN	25	4.6
INSTANTANEOUS PEAK FLOW	10800	31900
INSTANTANEOUS PEAK STAGE	12.86	21.96
INSTANTANEOUS LOW FLOW	17	4.6
ANNUAL RUNOFF (INCHES)	1.21	8.69
10 PERCENTILE	230	3130
50 PERCENTILE	49	317
95 PERCENTILE	34	23

CHARITON RIVER BASIN

06906000 MUSSEL FORK NEAR MUSSELFORK, MO

LOCATION.--Lat 39°31'26", long 92°56'59", in SW 1/4 SW 1/4 SE 1/4 sec.32, T.55 N., R.18 W., Chariton County, Hydrologic Unit 10280202, on left bank at downstream side of pier of bridge on State Highway 5, 4.5 mi southwest of Musselfork, and 1.5 mi upstream from Long Branch.

DRAINAGE AREA.--267 mi².

PERIOD OF RECORD.--October 1948 to December 1951, October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 639.25 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1952, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 7-17 and Feb. 2-9, 17-24. Records poor. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	.56	.00	4.4	4.3	12	6.5	3.8	74	19	5.3	62
2	2.5	.50	.00	3.7	3.5	9.2	7.7	2.8	44	13	21	27
3	.80	.64	.69	3.4	2.0	8.0	41	3.7	30	11	12	15
4	.30	.65	1.3	3.1	1.0	9.6	130	4.7	24	8.2	6.9	9.6
5	.85	.46	1.9	3.4	1.0	15	163	3.2	27	6.5	4.9	7.0
6	2.2	.28	2.0	4.7	1.0	19	45	3.7	39	5.4	3.3	6.0
7	3.0	.06	1.8	4.5	1.1	28	23	3.6	21	4.5	2.3	5.0
8	3.6	.50	1.4	3.5	1.2	28	16	3.7	15	4.0	1.4	26
9	3.9	1.3	.74	2.0	1.4	17	13	4.6	12	3.5	.90	462
10	4.1	2.2	.75	1.5	1.5	11	10	66	9.2	3.1	.51	121
11	4.4	2.6	.73	2.0	1.7	8.1	8.2	47	8.0	3.0	.21	24
12	4.4	3.4	.73	1.8	1.7	7.3	6.5	16	7.2	2.9	.63	24
13	3.9	3.6	.87	1.7	2.2	6.7	5.2	9.5	50	2.6	.85	15
14	3.8	3.9	1.1	1.7	2.3	6.5	4.9	6.3	256	2.3	.40	41
15	3.7	3.7	1.3	1.8	2.3	6.6	4.4	4.6	69	3.2	.60	29
16	1.2	3.9	.97	2.5	2.1	6.0	4.2	3.5	30	3.5	1.1	14
17	1.5	4.0	1.1	3.0	2.1	5.3	4.8	4.7	18	3.6	1.3	8.6
18	1.6	4.1	1.2	3.2	2.2	4.5	5.7	4.6	15	3.7	1.4	6.2
19	.00	4.9	1.4	3.1	2.5	3.9	5.7	6.6	13	3.4	1.5	5.1
20	.00	5.6	1.9	3.1	2.4	3.9	6.3	7.1	11	4.2	2.1	4.7
21	.00	4.0	1.9	2.8	2.0	3.7	6.4	6.5	9.6	4.1	2.5	3.9
22	.00	1.1	2.1	2.7	1.8	3.5	.57	9.3	13	4.4	11	3.2
23	.15	2.2	2.2	2.5	1.5	3.5	2.3	8.9	11	5.1	10	3.2
24	.38	3.3	2.4	2.4	2.0	3.1	3.5	7.2	8.7	5.3	4.7	2.8
25	.76	4.2	2.6	2.6	3.6	2.7	2.4	7.3	8.0	5.1	3.0	2.7
26	1.4	4.9	2.9	2.8	20	2.2	3.2	10	40	5.2	2.0	2.7
27	1.2	5.0	3.6	3.3	18	2.0	3.6	7.4	1450	4.7	8.5	2.6
28	.85	5.4	5.1	3.3	18	3.6	2.7	12	294	4.2	43	2.6
29	.71	5.7	5.6	3.6	---	4.8	2.4	764	59	3.7	120	2.5
30	.62	5.8	5.1	5.1	---	6.7	2.6	1630	25	9.1	68	2.4
31	.58	---	5.3	4.8	---	6.8	---	257	---	12	65	---
MEAN	1.83	2.95	1.96	3.03	3.80	8.33	18.0	94.5	89.7	5.60	13.1	31.4
MAX	4.4	5.8	5.6	5.1	20	28	163	1630	1450	19	120	462
MIN	.00	.06	.00	1.5	1.0	2.0	.57	2.8	7.2	2.3	.21	2.4
IN.	.01	.01	.01	.01	.01	.04	.08	.41	.37	.02	.06	.13

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	168	163	174	147	249	318	463	335	315	245	71.3	156
MAX	1246	976	1335	729	1453	1370	2585	1538	1225	3029	303	1295	
(WY)	1986	1986	1983	1965	1982	1973	1973	1973	1981	1981	1987	1973	
MIN	.04	1.05	.61	.44	.89	8.33	18.0	9.77	2.37	1.99	.74	.59	
(WY)	1964	1977	1964	1964	1964	1989	1989	1980	1988	1977	1964	1976	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	22.9	234
HIGHEST ANNUAL MEAN		719
LOWEST ANNUAL MEAN		22.9
HIGHEST DAILY MEAN	1630	18300
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	1960	23100
INSTANTANEOUS PEAK STAGE	16.75	22.11
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	1.16	11.89
10 PERCENTILE	25	517
50 PERCENTILE	3.9	28
95 PERCENTILE	.51	.79

LITTLE CHARITON RIVER BASIN

119

06906190 LONG BRANCH RESERVOIR NEAR MACON, MO

LOCATION.--Lat 39°45'05", long 92°30'20", NW 1/4 sec.10, T.57 N., R.14 W., Macon County, in Administration building at left end of dam on East Fork Little Chariton River, 2 mi west of junction U.S. Highway 63 and 36 in Macon and 2 mi below confluence with Long Branch.

DRAINAGE AREA.--109 mi².

PERIOD OF RECORD.--September 1978 to current year. Contents published 1982 to current year. Records collected at same site since 1978 and are available from U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Lake is formed by a rolled earthfill type dam. Closure began on Sept. 3, 1976. Storage began on Aug. 2, 1978. An uncontrolled limited service type spillway, 50 ft wide, is located at the right abutment. Capacity of surcharge pool (elevations 801.0 ft to 820.7 ft), 98,590 acre-ft; of flood control pool (elevations 791.0 ft to 801.0 ft), 30,600 acre-ft; and of multipurpose pool (elevations 751.1 ft to 791.0), 34,640 acre-ft. Lake is used for flood control, water supply, water quality control, and recreation.

COOPERATION.--Records furnished by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 59,800 acre-ft, July 28, 1981, elevation, 799.56 ft; minimum, 14,300 acre-ft, Dec. 5, 1980, elevation, 780.21 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 28,400 acre-ft, June 29-30, elevation, 788.29 ft; minimum, 23,700 acre-ft, May 24, elevation, 785.95.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	788.12	787.49	787.24	787.04	786.89	786.73	786.53	786.27	787.91	788.28	787.89	787.85
2	788.12	787.49	787.22	787.03	786.86	786.71	786.52	786.28	787.94	788.27	787.89	787.86
3	788.12	787.46	787.21	787.01	786.86	786.71	786.58	786.26	787.96	788.25	787.87	787.83
4	788.09	787.45	787.21	787.01	786.84	786.71	786.60	786.24	787.97	788.23	787.85	787.80
5	788.05	787.48	787.19	787.01	786.83	786.70	786.63	786.25	787.97	788.23	787.83	787.78
6	788.03	787.45	787.17	787.08	786.81	786.70	786.62	786.23	787.97	788.20	787.82	787.79
7	788.02	787.42	787.17	787.08	786.81	786.68	786.61	786.18	787.95	788.18	787.78	787.83
8	787.99	787.40	787.18	787.07	786.80	786.68	786.66	786.15	787.93	788.16	787.73	787.81
9	787.99	787.36	787.15	787.06	786.78	786.67	786.60	786.24	787.91	788.13	787.69	787.98
10	787.95	787.42	787.14	787.04	786.78	786.67	786.59	786.20	787.88	788.11	787.67	788.09
11	787.95	787.35	787.13	787.04	786.77	786.65	786.57	786.18	787.83	788.08	787.65	788.09
12	787.93	787.35	787.10	787.03	786.77	786.65	786.55	786.15	787.83	788.06	787.62	788.10
13	787.90	787.37	787.08	787.02	786.77	786.65	786.52	786.12	787.86	788.05	787.60	788.09
14	787.85	787.36	787.07	787.01	786.77	786.65	786.50	786.10	787.84	788.02	787.56	788.11
15	787.83	787.35	787.08	787.00	786.77	786.65	786.50	786.07	787.83	787.99	787.54	788.11
16	787.81	787.43	787.07	786.99	786.77	786.61	786.47	786.05	787.80	787.98	787.54	788.11
17	787.79	787.39	787.05	786.98	786.77	786.60	786.44	786.02	787.79	787.96	787.52	788.09
18	787.78	787.36	787.03	786.97	786.77	786.59	786.45	786.00	787.78	787.94	787.49	788.08
19	787.75	787.36	787.01	786.96	786.77	786.58	786.45	786.01	787.78	787.94	787.46	788.07
20	787.74	787.39	787.01	786.95	786.76	786.56	786.42	786.02	787.77	787.92	787.44	788.06
21	787.72	787.36	787.04	786.92	786.76	786.57	786.39	786.01	787.75	787.90	787.41	788.04
22	787.72	787.34	787.02	786.90	786.76	786.55	786.39	786.00	787.73	787.88	787.41	788.00
23	787.71	787.30	787.01	786.88	786.76	786.53	786.37	785.98	787.74	787.89	787.41	787.99
24	787.68	787.29	787.04	786.88	786.76	786.52	786.36	785.95	787.74	787.89	787.42	787.95
25	787.65	787.27	787.03	786.87	786.75	786.51	786.34	786.04	787.73	787.89	787.39	787.92
26	787.62	787.29	787.02	786.89	786.75	786.50	786.34	786.04	787.72	787.88	787.36	787.91
27	787.56	787.29	787.06	786.88	786.73	786.49	786.31	786.02	788.19	787.83	787.38	787.88
28	787.57	787.29	787.08	786.87	786.73	786.56	786.31	785.98	788.28	787.82	787.41	787.85
29	787.56	787.27	787.06	786.88	---	786.57	786.31	787.14	788.29	787.80	787.68	787.84
30	787.54	787.25	787.05	786.88	---	786.57	786.29	787.84	788.29	787.84	787.82	787.83
31	787.51	---	787.04	786.86	---	786.56	---	787.88	---	787.88	787.84	---
MAX	788.12	787.49	787.24	787.08	786.89	786.73	786.66	787.88	788.29	788.28	787.89	788.11
MIN	787.51	787.25	787.01	786.86	786.73	786.49	786.29	785.95	787.72	787.80	787.36	787.78
(-)	26800	26300	25800	25500	25200	24900	24400	27600	28400	27600	27500	27500
(=)	-1300	-500	-500	-300	-300	-300	-500	+3200	+800	-800	-100	0

CAL YR 1988 (=)-10000

WTR YR 1989 (=)- 600

(-) Contents, in acre feet, at end of month

(=) Change in contents

LITTLE CHARITON RIVER BASIN

06906200 EAST FORK LITTLE CHARITON RIVER NEAR MACON, MO

LOCATION.--Lat 39°44'59", long 92°31'03", NW 1/4, NW 1/4, NW 1/4, sec.18, T.57 N., R.14 W., Macon County, Hydrologic Unit 10280203, on right bank 250 ft downstream from Long Branch Lake and 3 mi west of Macon.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--September 1971 to current year. Partial-record station May 1970 to August 1971.

GAGE.--Water-stage recorder. Datum of gage is 741.43 ft above National Geodetic Vertical Datum of 1929. Sept. 8, 1971, to Aug. 1, 1985, water-stage recorder at site 400 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature and specific conductance were made during the year. Complete regulation from Long Branch Reservoir (station 06906190) 250 ft. upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	7.5	7.5	7.3	7.5	7.0	7.4	6.9	6.9	5.6	5.5	5.9
2	6.8	8.3	7.5	7.3	7.5	7.0	7.4	7.0	6.9	6.1	14	6.4
3	6.6	8.3	7.5	7.3	7.5	7.0	7.4	7.0	6.9	5.9	10	6.9
4	6.6	7.9	7.5	7.3	7.3	7.0	7.3	7.1	6.8	5.9	10	6.9
5	6.6	7.0	7.5	7.4	7.0	7.0	7.3	6.9	6.9	5.9	10	6.8
6	6.7	7.4	7.5	7.5	7.0	7.0	7.3	6.9	6.9	5.9	10	7.0
7	6.6	7.5	7.5	7.5	6.8	7.2	7.2	7.1	7.0	5.9	10	7.0
8	6.6	7.5	7.5	7.5	6.8	7.3	7.3	7.3	7.0	5.7	10	7.1
9	6.6	7.5	7.4	7.5	6.8	7.4	7.2	7.3	6.9	5.4	10	7.0
10	6.6	7.3	7.5	7.5	6.8	7.5	7.2	7.2	7.0	5.5	10	7.1
11	6.6	7.0	7.5	7.5	6.8	7.5	7.1	7.2	7.0	5.5	10	7.1
12	6.6	7.0	7.5	7.5	6.8	7.5	7.2	7.2	6.9	5.5	10	7.0
13	6.6	7.0	7.5	7.5	6.8	7.5	7.1	7.1	7.0	5.5	10	7.0
14	6.8	7.0	7.5	7.5	6.8	7.5	7.3	7.3	7.1	5.5	10	7.1
15	7.0	7.1	7.5	7.5	6.8	7.5	7.3	7.2	7.1	5.2	10	7.1
16	7.0	7.2	7.5	7.7	6.9	7.3	7.3	7.2	7.3	5.2	10	7.1
17	6.6	7.3	7.5	7.8	6.9	7.3	7.3	7.3	7.5	5.2	9.9	7.2
18	6.6	7.3	7.5	7.8	6.8	7.3	7.2	7.2	7.7	5.3	7.4	7.5
19	6.6	7.3	7.5	7.8	6.8	7.3	7.3	7.2	7.9	5.2	4.6	7.5
20	6.6	7.3	7.7	7.8	6.8	7.3	7.2	7.1	7.8	5.2	4.6	7.5
21	6.6	7.3	7.7	7.6	6.8	7.3	7.4	7.1	5.4	5.2	4.6	7.5
22	6.6	7.3	7.8	7.5	6.8	7.3	7.3	7.0	5.1	5.3	4.7	7.2
23	6.7	7.3	7.8	7.5	6.8	7.3	7.3	7.0	5.1	5.2	5.4	7.2
24	6.6	7.3	7.8	7.5	6.8	7.4	7.4	7.2	5.2	5.3	5.9	7.3
25	6.7	7.3	7.5	7.7	6.9	7.4	7.4	7.2	5.3	5.4	6.0	7.4
26	6.8	7.3	7.5	7.8	7.0	7.5	7.4	7.1	5.4	5.5	6.1	7.4
27	7.3	7.3	7.5	7.6	7.0	7.5	7.4	7.2	5.4	5.5	6.0	7.4
28	7.3	7.5	7.4	7.5	7.0	7.5	7.4	22	5.3	5.5	6.0	7.4
29	7.3	7.5	7.3	7.5	---	7.4	7.0	7.1	5.2	5.6	5.9	7.4
30	7.3	7.5	7.3	7.5	---	7.2	6.9	7.0	5.3	5.7	5.9	7.4
31	7.3	---	7.3	7.5	---	7.2	---	7.0	---	5.8	5.9	---
MEAN	6.78	7.38	7.52	7.54	6.94	7.30	7.27	7.60	6.51	5.52	8.01	7.13
MAX	7.3	8.3	7.8	7.8	7.5	7.5	7.4	22	7.9	6.1	14	7.5
MIN	6.6	7.0	7.3	7.3	6.8	7.0	6.9	6.9	5.1	5.2	4.6	5.9
IN.	.07	.07	.08	.08	.06	.08	.07	.08	.06	.06	.08	.07

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	79.0	76.7	94.0	64.2	63.6	160	205	172	90.2	70.2	60.7	86.2
MAX	425	354	298	299	205	688	939	510	349	340	401	727	
(WY)	1974	1986	1983	1974	1975	1973	1973	1973	1984	1981	1981	1973	
MIN	.00	.05	.00	.00	.00	7.30	7.27	7.21	.95	.10	.02	.00	
(WY)	1976	1976	1979	1979	1979	1989	1989	1988	1977	1977	1975	1976	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	7.13	102	
HIGHEST ANNUAL MEAN		317	1973
LOWEST ANNUAL MEAN		7.13	1989
HIGHEST DAILY MEAN	22	5460	Apr 22 1973
LOWEST DAILY MEAN	4.6	.00	Many Years
INSTANTANEOUS PEAK FLOW	114	8700	Apr 21 1973
INSTANTANEOUS PEAK STAGE	8.21	20.60	Apr 21 1973
INSTANTANEOUS LOW FLOW	0.52	0	Many Years
ANNUAL RUNOFF (INCHES)	.86	12.37	
10 PERCENTILE	7.6	292	
50 PERCENTILE	7.1	24	
95 PERCENTILE	5.3	.00	

06906300 EAST FORK LITTLE CHARITON RIVER NEAR HUNTSVILLE, MO

LOCATION.--Lat 39°27'18", long 92°34'07", in NW 1/4 NW 1/4 NW 1/4 sec.26, T.54 N., R.15 W., Randolph County, Hydrologic Unit 10280203, on right bank downstream end of bridge on State Highway C, 1 mi downstream from Sugar Creek, and 1.5 mi northwest of Huntsville.

DRAINAGE AREA.--220 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1962 to current year. Occasional low-flow measurements, water years 1942-43, 1945-46.

GAGE.--Water-stage recorder. Datum of gage is 655.86 ft above National Geodetic Vertical Datum of 1929 (levels by Missouri State Highway and Transportation Commission). From July 18, 1972, to Sept. 23, 1974, at datum 0.63 ft higher and from Sept. 24, 1974, at present datum.

REMARKS.--Estimated daily discharges: Dec. 11, Jan. 9, Feb. 4-7, 22-24, and June 5-7. Water-discharge records poor. Some regulation by Long Branch Reservoir (station 06906190) 34 mi upstream since 1978. Low flow affected by operation of pumps 7 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	7.7	4.0	5.8	8.8	12	3.2	.37	15	1.5	8.9	2.2
2	5.1	8.2	3.5	6.2	7.2	12	7.0	.20	20	5.6	1.3	3.8
3	5.4	8.9	4.1	6.3	5.2	12	53	2.8	34	5.4	1.1	5.5
4	3.2	9.6	3.8	5.8	4.5	15	51	2.9	17	2.0	8.2	3.6
5	3.6	10	5.2	8.8	3.0	12	26	1.1	9.9	.78	5.3	3.9
6	4.3	11	4.0	12	2.0	15	18	.97	8.6	3.3	5.4	9.9
7	6.1	8.7	2.6	11	2.5	11	16	1.5	7.2	3.6	5.9	13
8	6.7	6.8	2.7	7.3	4.9	13	9.7	1.4	3.4	2.7	5.8	283
9	7.2	7.5	2.8	6.0	5.6	12	6.0	1.6	2.1	3.2	5.4	1010
10	8.2	9.7	2.9	7.3	6.6	12	6.6	6.1	3.2	2.7	7.5	145
11	8.0	10	2.8	7.2	7.6	9.8	9.3	3.1	5.5	2.4	5.6	45
12	6.7	13	2.7	7.4	7.5	12	11	2.6	55	1.6	3.0	28
13	6.4	11	2.5	4.0	7.4	13	9.3	1.8	106	1.5	3.5	22
14	6.8	8.5	3.5	1.5	7.4	8.5	8.7	3.2	20	.81	3.7	53
15	7.3	6.5	3.9	1.0	7.2	12	3.4	3.3	8.8	.66	4.3	28
16	7.6	7.1	2.7	1.3	7.5	12	.02	2.6	5.2	.90	3.3	11
17	8.5	8.9	3.3	2.5	7.6	10	2.6	1.3	7.4	1.5	2.0	9.1
18	7.1	7.2	4.5	3.8	8.2	11	5.5	.68	19	1.4	1.4	10
19	5.6	4.7	4.4	5.2	8.3	4.5	6.6	1.2	12	1.5	2.1	12
20	7.0	3.1	4.9	5.0	7.8	2.2	3.6	2.6	7.0	2.4	6.0	9.1
21	7.7	6.5	5.5	5.7	7.6	3.8	2.1	2.7	3.9	2.5	20	11
22	7.3	4.5	5.3	7.1	6.0	3.6	12	4.1	3.8	2.3	42	10
23	7.8	3.3	6.2	7.1	5.0	4.7	11	5.3	160	4.8	11	7.7
24	8.1	5.7	6.9	6.7	8.0	6.5	11	3.0	29	5.1	4.2	6.7
25	8.0	7.1	6.9	8.2	13	14	4.4	15	13	3.2	2.1	9.9
26	6.7	7.5	6.5	10	18	12	1.6	38	8.5	2.6	7.1	11
27	5.9	9.3	12	8.9	15	14	2.3	12	7.5	1.8	13	10
28	8.2	7.2	12	7.9	13	16	3.3	484	26	4.0	38	8.6
29	8.2	4.0	7.8	8.4	---	19	1.1	785	9.5	7.9	307	9.7
30	5.4	4.2	6.9	8.3	---	8.1	.52	69	3.1	50	48	11
31	5.8	---	6.5	7.1	---	4.6	---	24	---	36	24	---
MEAN	6.50	7.58	4.95	6.48	7.59	10.6	10.2	47.9	21.0	5.34	19.6	60.1
MAX	8.5	13	12	12	18	19	53	785	160	50	307	1010
MIN	1.6	3.1	2.5	1.0	2.0	2.2	.02	.20	2.1	.66	1.1	2.2
IN.	.03	.04	.03	.03	.04	.06	.05	.25	.11	.03	.10	.30

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	145	135	131	131	156	273	349	240	215	162	71.6	140
MEAN	145	135	131	131	156	273	349	240	215	162	71.6	140
MAX	1019	756	666	527	732	1107	2079	705	1069	1191	400	783
(WY)	1987	1986	1983	1965	1985	1973	1973	1973	1969	1969	1981	1973
MIN	.22	1.65	.44	.46	.78	10.6	10.2	10.7	2.42	.05	.46	.04
(WY)	1964	1964	1964	1964	1964	1989	1989	1965	1977	1977	1964	1976

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	17.3	179
HIGHEST ANNUAL MEAN		510
LOWEST ANNUAL MEAN		17.3
HIGHEST DAILY MEAN	1010	17000
LOWEST DAILY MEAN	.02	.00
INSTANTANEOUS PEAK FLOW	1720	30000
INSTANTANEOUS PEAK STAGE	12.79	20.78
INSTANTANEOUS LOW FLOW	0.00	0
ANNUAL RUNOFF (INCHES)	1.07	11.04
10 PERCENTILE	17	455
50 PERCENTILE	6.7	40
95 PERCENTILE	1.3	.67

LITTLE CHARITON RIVER BASIN

06906300 EAST FORK LITTLE CHARITON RIVER NEAR HUNTSVILLE, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1963 to June 1969, October 1973 to July 1975, July 1979 to November 1981, October 1982 to June 1987, October 1988 to September 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT											
19...	1230	5.7	789	7.70	13.5	8.5	81	19	42	350	250
NOV											
01...	1230	7.9	920	8.00	8.0	11.5	97	27	39	--	--
DEC											
12...	1430	2.5	1190	7.80	1.0	14.1	99	27	K2	--	--
JAN											
10...	1430	6.9	1000	7.50	0.5	14.4	99	23	K12	450	350
FEB											
09...	1500	6.1	924	7.80	0.5	14.6	98	24	20	--	--
MAR											
14...	0800	7.2	946	7.80	8.0	11.5	99	18	K7	--	--
APR											
11...	1230	12	1420	7.30	8.5	12.9	109	11	140	730	670
MAY											
18...	1230	0.68	1220	7.60	20.5	8.0	89	35	33	--	--
JUN											
07...	1200	7.9	1120	7.60	23.5	8.7	103	25	180	--	--
JUL											
18...	1310	1.5	854	7.70	26.0	8.8	109	36	31	310	190
AUG											
03...	0800	0.74	710	7.60	27.0	6.7	84	33	210	--	--
SEP											
13...	0845	16	927	7.40	15.5	8.3	81	18	270	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
19...	85	33	57	5.9	104	4.0	340	7.6	0.30	626
NOV										
01...	--	--	--	--	118	2.3	--	--	--	725
DEC										
12...	--	--	--	--	108	3.3	--	--	--	916
JAN										
10...	110	43	60	5.8	98	6.0	500	7.2	0.30	815
FEB										
09...	--	--	--	--	131	4.0	--	--	--	705
MAR										
14...	--	--	--	--	96	2.9	--	--	--	758
APR										
11...	180	69	57	6.8	68	6.6	790	18	0.30	1230
MAY										
18...	--	--	--	--	124	6.0	--	--	--	1000
JUN										
07...	--	--	--	--	96	4.7	--	--	--	930
JUL										
18...	77	29	49	5.3	120	4.6	320	9.5	0.50	591
AUG										
03...	--	--	--	--	88	4.3	--	--	--	518
SEP										
13...	--	--	--	--	85	6.5	--	--	--	690

K--Results based on colony outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

LAMINE RIVER BASIN

06906800 LAMINE RIVER NEAR OTTERVILLE, MO

LOCATION.--Lat 38°42'09", long 92°58'42", in NE 1/4, NE 1/4, NW 1/4, sec.2, T.45 N., R.19 W., Cooper County, Hydrologic Unit 10300103, on left bank at the left downstream end of County Highway A, 7.2 mi downstream from confluence of Flat Creek and Richland Creek, 2.2 mi upstream from Otter Creek and 1.1 mi east of Otterville.

DRAINAGE AREA.--543 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 652.87 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: May 27-31 and Aug. 1-21. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	6.1	48	156	102	97	189	36	55	56	150	119
2	17	5.6	38	138	89	90	195	33	46	39	90	72
3	12	5.7	33	141	72	90	1420	33	42	34	50	47
4	9.8	9.3	28	144	57	109	3150	33	69	27	30	38
5	14	7.0	24	149	50	164	791	32	813	22	22	32
6	14	4.7	22	271	46	172	479	29	428	18	17	64
7	10	3.8	22	329	43	131	631	26	187	16	14	96
8	8.3	3.2	20	217	43	115	528	46	115	14	13	59
9	8.4	4.8	19	150	40	112	348	137	88	12	12	50
10	7.9	7.5	19	118	38	328	260	88	61	11	12	172
11	7.2	10	17	101	41	518	212	65	50	9.9	11	189
12	7.3	81	17	90	42	300	183	46	164	9.1	11	97
13	7.6	170	17	77	57	216	159	37	2240	8.3	10	57
14	7.9	128	16	68	155	175	141	31	556	7.3	10	46
15	7.7	75	15	63	267	143	133	28	246	8.1	9.0	45
16	8.2	63	15	58	513	116	125	24	160	9.1	9.0	45
17	8.1	55	14	53	375	99	111	22	113	8.8	40	45
18	7.7	46	14	50	238	88	97	21	291	8.9	20	46
19	5.6	35	14	47	190	76	88	24	466	9.0	15	30
20	4.5	31	14	43	186	573	78	26	218	8.8	1000	23
21	3.9	31	16	40	234	1800	72	27	135	8.5	4500	20
22	3.6	30	36	38	275	724	67	43	85	9.1	2800	16
23	12	28	605	36	173	389	63	149	332	14	506	13
24	12	26	239	35	139	272	59	114	351	31	1360	12
25	16	24	131	37	120	210	56	126	143	14	732	11
26	18	61	90	44	111	174	52	215	85	8.9	315	10
27	14	141	1220	78	107	149	49	100	918	7.8	274	9.5
28	9.4	108	1210	71	104	162	45	80	601	7.1	309	9.5
29	7.7	78	435	72	---	228	43	70	182	6.6	274	9.0
30	7.5	61	254	100	---	196	39	65	96	120	242	8.5
31	6.6	---	191	108	---	199	---	60	---	238	159	---
MEAN	9.64	44.7	157	101	140	265	329	60.2	311	25.8	420	49.7
MAX	18	170	1220	329	513	1800	3150	215	2240	238	4500	189
MIN	3.6	3.2	14	35	38	76	39	21	42	6.6	9.0	8.5
IN.	.02	.09	.33	.21	.27	.56	.68	.13	.64	.05	.89	.10

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	10.1	57.8	536	149	448	493	886	52.5	161	18.4	239	27.8
MAX	10.5	71.0	915	198	756	721	1444	60.2	311	25.8	420	49.7
(WY)	1988	1988	1988	1988	1988	1988	1988	1989	1989	1989	1989	1989
MIN	9.64	44.7	156	101	139	265	329	44.9	10.5	11.0	58.3	6.00
(WY)	1989	1989	1989	1989	1989	1989	1989	1988	1988	1988	1988	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	159	*****
HIGHEST ANNUAL MEAN		351 1988
LOWEST ANNUAL MEAN		159 1989
HIGHEST DAILY MEAN	4500 Aug 21	19000 Apr 2 1988
LOWEST DAILY MEAN	3.2 Nov 8	3.2 Nov 8 1988
INSTANTANEOUS PEAK FLOW	6940 Aug 21	24400 Apr 2 1988
INSTANTANEOUS PEAK STAGE	11.9 Aug 21	19.12 Apr 2 1988
INSTANTANEOUS LOW FLOW	3.1 Nov 8	3.1 Nov 8 1988
ANNUAL RUNOFF (INCHES)	3.98	*****
10 PERCENTILE	309	451
50 PERCENTILE	53	47
95 PERCENTILE	7.4	5.5

***** Indicates not enough data, therefore statistic is not computed

06908000 BLACKWATER RIVER AT BLUE LICK, MO

LOCATION.--Lat 38°59'32", long 93°11'48", in SW 1/4 SW 1/4 SW 1/4 sec.26, T.49 N., R.21 W., Saline County, Hydrologic Unit 10300104, on left bank at upstream side of bridge on northbound lane of U.S. Highway 65, 1.2 mi downstream from Finney Creek, 1.8 mi southeast of Blue Lick, and at mile 30.3.

DRAINAGE AREA.--1,120 mi².

PERIOD OF RECORD.--June 1922 to September 1933, May 1938 to current year.

REVISED RECORDS.--WSP 1006: 1929. WDR MO-83-1: 1982.

GAGE.--Water-stage recorder. Datum of gage is 593.79 ft above National Geodetic Vertical Datum of 1929. Prior to July 25, 1925, nonrecording gage at site 75 ft downstream at datum 0.10 ft lower. July 25 to Sept. 30, 1933, and May 23, 1938, to Dec. 3, 1956, nonrecording gage at site 25 ft downstream at same datum. Prior to Oct. 1, 1986, at site 0.5 mi upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 11-27, Feb. 5, 6, 8, 10, 11, May 2-10, 16-18, and Aug. 12-17. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	6.3	40	38	78	59	96	17	76	266	218	183
2	6.7	5.8	29	29	53	53	128	16	65	926	106	115
3	7.2	5.5	23	25	20	49	1170	15	262	1080	53	71
4	8.4	5.3	18	21	16	81	2360	14	294	305	37	50
5	7.9	5.4	15	20	15	496	1410	13	425	166	28	114
6	7.4	5.3	13	33	14	334	400	11	1350	111	22	612
7	6.7	5.3	12	111	13	138	380	11	366	76	18	1250
8	6.2	5.2	11	83	12	100	426	9.8	176	56	15	476
9	5.9	6.1	9.7	55	11	77	281	9.1	171	45	13	3270
10	5.7	8.7	9.3	35	11	63	178	20	88	36	11	4220
11	5.5	7.3	8.9	26	13	55	129	56	74	30	10	1700
12	5.2	139	8.5	21	16	49	105	39	1110	26	9.5	348
13	5.0	325	8.5	18	17	45	90	28	1690	20	9.0	202
14	5.0	168	8.0	16	19	41	82	21	648	17	8.5	632
15	4.5	75	7.5	16	33	36	75	17	209	39	8.0	824
16	4.5	173	7.5	16	78	32	74	15	117	180	8.0	354
17	4.1	303	7.5	15	110	30	79	13	81	366	30	196
18	3.7	123	7.5	14	164	27	67	11	1240	144	138	130
19	3.7	59	7.5	13	121	23	57	479	2900	121	72	91
20	3.7	37	7.0	13	97	24	49	2870	1200	195	39	67
21	3.8	25	10	13	96	62	45	1240	345	98	53	54
22	4.1	20	35	13	99	476	41	329	196	71	74	43
23	11	17	100	13	91	246	38	1930	135	264	171	35
24	19	17	60	13	80	132	35	1210	153	226	470	29
25	15	16	40	14	56	104	34	390	110	267	1130	24
26	19	27	20	14	60	78	32	1000	71	418	458	21
27	17	106	26	14	76	64	29	477	2120	164	283	19
28	12	197	170	22	69	61	26	214	3300	85	1670	18
29	9.5	110	185	28	---	79	22	334	1970	51	2020	16
30	8.0	63	100	59	---	127	19	221	481	235	1420	15
31	6.9	---	59	108	---	124	---	119	---	657	368	---
MEAN	7.71	68.9	34.3	30.0	54.9	109	265	360	714	217	289	506
MAX	19	325	185	111	164	496	2360	2870	3300	1080	2020	4220
MIN	3.7	5.2	7.0	13	11	23	19	9.1	65	17	8.0	15
IN.	.01	.07	.04	.03	.05	.11	.26	.37	.71	.22	.30	.50

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	592	582	429	459	684	1048	1387	975	1203	743	279	568
MEAN	592	582	429	459	684	1048	1387	975	1203	743	279	568
MAX	9500	6100	3359	2326	5206	4706	8473	5446	4416	8855	1668	5979
(WY)	1987	1929	1983	1974	1985	1973	1973	1943	1969	1951	1951	1961
MIN	.13	.32	1.66	1.55	5.54	9.50	29.6	9.93	18.4	1.78	1.61	.13
(WY)	1957	1957	1957	1957	1954	1956	1977	1932	1956	1933	1930	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	221	748
HIGHEST ANNUAL MEAN		1959
LOWEST ANNUAL MEAN		95.8
HIGHEST DAILY MEAN	4220	Sep 10
LOWEST DAILY MEAN	3.7	Oct 18
INSTANTANEOUS PEAK FLOW	4440	Sep 10
INSTANTANEOUS PEAK STAGE	22.63	Sep 10
INSTANTANEOUS LOW FLOW	3.2	Oct 18
ANNUAL RUNOFF (INCHES)	2.68	
10 PERCENTILE	474	
50 PERCENTILE	49	
95 PERCENTILE	5.6	

MISSOURI RIVER MAIN STEM

06909000 MISSOURI RIVER AT BOONVILLE, MO

LOCATION.--Lat 38°58'42", long 92°45'13", sec.35, T.49 N., R.17 W., Cooper County, Hydrologic Unit 10300102, on downstream side of second pier from right abutment of Missouri-Kansas-Texas Railroad Co. bridge at Boonville, and at mile 196.6.

DRAINAGE AREA.--501,700 mi², approximately.

PERIOD OF RECORD.--October 1925 to current year. Gage-height records collected at same site 1893-99 are contained in reports of Missouri River Commission; since 1900 in reports of National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 565.42 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1928, nonrecording gage at site 0.4 mi downstream at datum 3.14 ft lower. Oct. 1, 1928, to May 9, 1931, nonrecording gage at site 50 ft upstream from present site at present datum. May 10, 1931, to Apr. 12, 1934, water-stage recorder at site 0.4 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Discharge measurements made weekly except during ice-flow periods. Some regulation from many upstream reservoirs. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1844, reached a stage of 32.7 ft, discharge, about 710,000 ft³/s, computed by U.S. Army Corps of Engineers. Flood of June 6, 1903, reached a stage of 30.5 ft, discharge, about 612,000 ft³/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48800	43500	25400	23000	27400	26600	26800	39200	43400	49600	40300	81300
2	45200	42900	25300	22000	25800	26700	30400	42400	41900	47300	38300	61000
3	48300	42600	25300	21600	25700	26200	36800	41300	44700	46700	38000	50000
4	48900	42300	25300	20700	27500	27100	50100	39500	45500	48600	42400	42500
5	43800	41700	24800	19400	30100	28400	54700	39200	43500	46700	42500	38600
6	41800	41300	24300	19000	30500	28700	47100	38800	50800	44700	38700	38900
7	41400	41500	24400	20100	25100	27900	42200	38400	46800	45900	37200	64700
8	40900	41400	24600	20900	20100	27400	40700	38200	42400	45000	36600	85400
9	40600	41500	24400	21200	17200	27000	39300	37800	40100	42600	36200	106000
10	41100	41700	24300	20800	16100	24800	37800	37400	38500	40600	35800	172000
11	41500	42100	24300	21400	14900	22800	37600	37400	38000	39800	35700	214000
12	41700	43200	24100	24100	13800	22800	38000	37300	39000	40400	35600	218000
13	41400	43400	23800	26900	15600	26400	38100	36900	44100	39400	35600	180000
14	41300	40800	23800	25300	21900	50200	38200	36400	45100	38700	35600	134000
15	41000	38700	23800	21500	25000	60800	38200	35900	40300	39100	35800	118000
16	40800	38300	23000	18900	25600	56100	38300	36100	39000	37800	35900	105000
17	41400	38600	22300	18000	26800	46200	38700	36300	38300	43800	35700	94900
18	42100	36600	21900	18700	28300	38600	39000	36400	38200	47400	35900	84400
19	42000	34900	21600	20600	29300	36000	39000	37200	42900	40400	35300	74500
20	42500	33600	21800	22200	29400	34600	38600	44200	43100	39300	35200	66900
21	42900	31800	22600	22600	28400	33200	38800	51400	39600	39500	36100	61700
22	42500	29600	23400	22700	27800	33200	39100	43900	38600	42500	36800	57900
23	42600	27900	23200	23100	27800	30700	39200	44000	37700	46300	38400	53800
24	43400	26900	22300	23800	27900	27800	37900	49600	37300	47100	36900	50400
25	43600	26600	22100	24200	27500	25900	37400	44800	38000	44700	41100	47000
26	43600	26800	22900	25000	26300	25100	37900	41200	45400	43300	40100	44500
27	43100	26800	24800	25600	25300	24500	38000	41500	52800	42500	38300	43100
28	42900	27500	27800	25900	25500	24300	38100	40200	76100	41900	44800	41900
29	43100	27800	29500	26000	---	24200	37900	43100	73700	41200	48600	40800
30	43800	26200	27800	26700	---	26400	37800	50700	55600	39500	82000	40500
31	44100	---	25000	27700	---	28000	---	47300	---	40200	112000	---
MEAN	42970	36280	24190	22570	24740	31250	39060	40770	44680	42980	41850	83720
MAX	48900	43500	29500	27700	30500	60800	54700	51400	76100	49600	112000	218000
MIN	40600	26200	21600	18000	13800	22800	26800	35900	37300	37800	35200	38600
IN.	.10	.08	.06	.05	.05	.07	.09	.09	.10	.10	.10	.19

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	53560	49380	33210	28590	41340	66190	87990	79170	99580	80070	52940	55470
MAX	187800	124500	106200	90150	106300	183900	229200	169200	283700	299700	114400	141800	
(WY)	1974	1929	1983	1973	1982	1973	1927	1927	1947	1951	1951	1951	
MIN	12920	14270	8050	4919	9693	16550	29800	26950	36540	30220	14320	17440	
(WY)	1940	1940	1938	1940	1940	1957	1957	1934	1956	1934	1934	1939	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	39590	60630
HIGHEST ANNUAL MEAN		107200
LOWEST ANNUAL MEAN		23730
HIGHEST DAILY MEAN	218000	534000
LOWEST DAILY MEAN	13800	1800
INSTANTANEOUS PEAK FLOW	223000	550000
INSTANTANEOUS PEAK STAGE	24.98	32.82
INSTANTANEOUS LOW FLOW	13500	1800
ANNUAL RUNOFF (INCHES)	1.08	1.65
10 PERCENTILE	49600	118000
50 PERCENTILE	38500	47000
95 PERCENTILE	21300	15100

06910230 HINKSON CREEK AT COLUMBIA, MO

LOCATION.--Lat 38°55'42", long 92°20'26", in NE 1/4 NW 1/4 SW 1/4 sec.24, T.48 N., R.13 W., Boone County, Hyrdologic Unit 10300102, on left bank 400 ft downstream from bridge on State Highway 163, 2.7 mi south of junction of State Highway 163 and Business Route I-70 in Columbia, 1 mi upstream from Flat branch and at the south edge of Columbia.

DRAINAGE AREA.--70.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1966 to January 1982, 1987 to current year. Occasional low flow measurements, 1942, 1943, 1946, 1952, 1953, 1962, and 1963.

GAGE.--Water-stage recorder. Datum of gage is 583.52 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 6-20, Dec. 30 to Jan. 3, Feb. 3-13, 17-19, 22-25 and Mar. 6-10. Water-discharge records poor. Gage is equipped with a U.S. Geological Survey temperature recorder.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	1.0	.85	1.5	4.2	25	9.1	.90	15	2.2	113	69
2	.33	1.0	.28	1.0	6.9	22	76	2.7	10	1.6	52	43
3	.08	1.3	.18	.90	5.0	19	325	6.2	11	1.2	14	12
4	.06	8.7	.17	5.8	3.5	31	226	12	10	.41	7.4	8.8
5	.05	3.5	.20	19	2.5	32	60	17	7.5	.40	5.1	7.1
6	.05	.71	.25	160	2.0	20	40	15	5.3	1.5	3.6	15
7	.04	.64	.30	46	1.8	15	33	13	3.7	.27	2.6	13
8	.05	.34	.35	25	1.6	12	40	195	3.7	.15	2.1	56
9	.06	10	.40	13	1.4	15	27	164	3.2	.11	1.6	561
10	.06	27	.45	9.9	1.3	20	21	51	2.6	.11	1.4	176
11	.06	1.8	.55	7.1	2.0	25	16	26	27	.11	1.5	60
12	.19	78	.70	5.9	3.5	24	13	16	114	.10	1.6	26
13	.09	10	.76	3.5	4.5	12	10	11	338	.10	1.6	19
14	.09	1.1	.90	3.2	9.9	5.6	9.8	7.6	66	.09	1.6	32
15	.17	31	1.0	3.2	34	3.5	14	5.5	29	5.1	1.9	18
16	.72	51	.85	2.2	30	2.8	9.4	4.1	18	5.3	10	14
17	.54	8.0	.75	1.7	20	2.5	8.2	3.5	11	.77	1.8	11
18	.89	1.1	.65	1.3	10	2.0	6.6	3.2	65	1.7	.89	8.7
19	.13	.77	.60	.99	20	1.6	5.6	59	87	1.7	8.6	6.8
20	.97	8.7	.55	.94	22	151	4.4	25	26	1.2	1.9	5.5
21	.66	4.4	.70	.80	23	178	3.4	11	14	.40	147	4.2
22	1.5	1.2	114	.64	15	45	2.9	17	8.9	.67	497	2.9
23	4.6	1.2	62	.76	10	26	2.1	19	6.3	2.0	173	1.5
24	4.7	1.1	20	.99	9.0	18	1.9	19	4.6	.73	307	.80
25	4.8	5.2	8.3	7.4	15	12	1.8	83	2.1	.37	68	.70
26	3.9	58	15	8.1	24	9.5	1.7	65	2.8	.18	84	.47
27	2.8	21	217	3.1	25	7.5	1.5	24	63	.10	131	.35
28	1.7	5.2	77	2.5	26	18	5.0	107	23	.10	778	.77
29	1.2	1.1	36	3.2	---	14	1.9	214	9.4	.09	745	.73
30	.81	1.0	15	2.7	---	15	1.1	45	5.1	1280	221	.52
31	.70	---	2.5	2.4	---	15	---	24	---	251	93	---
MEAN	1.12	11.5	18.7	11.1	11.9	25.8	32.6	40.8	33.1	50.3	112	39.2
MAX	4.8	78	217	160	34	178	325	214	338	1280	778	561
MIN	.04	.34	.17	.64	1.3	1.6	1.1	.90	2.1	.09	.89	.35
IN.	.02	.18	.31	.18	.18	.42	.52	.67	.53	.83	1.84	.62

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	39.8	25.0	34.6	40.6	46.7	80.2	82.2	78.8	65.4	55.0	16.8	20.9
MEAN	39.8	25.0	34.6	40.6	46.7	80.2	82.2	78.8	65.4	55.0	16.8	20.9
MAX	275	73.8	138	166	135	386	223	269	261	301	112	120
(WY)	1970	1969	1974	1969	1974	1973	1970	1974	1981	1981	1989	1970
MIN	.50	.58	.34	.30	3.20	1.81	4.77	7.64	.70	.51	.00	.03
(WY)	1967	1981	1980	1977	1981	1981	1971	1980	1988	1976	1976	1976

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	32.6	49.1
HIGHEST ANNUAL MEAN		111
LOWEST ANNUAL MEAN		13.3
HIGHEST DAILY MEAN	1280	4610
LOWEST DAILY MEAN	.04	.00
INSTANTANEOUS PEAK FLOW	4290	10000
INSTANTANEOUS PEAK STAGE	15.21	19.62
INSTANTANEOUS LOW FLOW	.04	0
ANNUAL RUNOFF (INCHES)	6.31	9.50
10 PERCENTILE	66	86
50 PERCENTILE	5.1	6.4
95 PERCENTILE	.10	.07

06910230 HINKSON CREEK AT COLUMBIA, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--September 1986 to current year.

INSTRUMENTATION.--Digital temperature recorder. June 20, 1989, changed to thermograph recorder.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 29.5 °C, Aug. 4, 5, and 6; minimum daily, 0.0 °C, Jan. 13 and Feb. 2, 3.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	9.6	6.8	8.1	---	---	---	.4	.2	.3
2	---	---	---	10.9	9.1	9.8	---	---	---	.8	.3	.6
3	---	---	---	12.3	10.3	11.1	---	---	---	2.5	.8	1.5
4	---	---	---	16.1	12.0	14.2	---	---	---	1.9	.3	.9
5	---	---	---	15.4	11.3	13.3	---	---	---	4.4	1.0	2.3
6	---	---	---	11.0	8.9	9.7	---	---	---	3.8	2.5	2.9
7	---	---	---	9.7	7.6	8.7	---	---	---	6.2	2.3	3.8
8	---	---	---	10.2	9.0	9.5	---	---	---	2.3	.4	.7
9	---	---	---	14.7	9.5	10.6	---	---	---	.5	.4	.5
10	---	---	---	14.1	10.6	11.6	---	---	---	1.0	.5	.6
11	---	---	---	10.7	8.5	9.2	---	---	---	2.8	.5	1.4
12	---	---	---	10.1	8.9	9.4	---	---	---	2.8	.3	1.8
13	---	---	---	10.9	7.8	9.3	---	---	---	.3	.0	.2
14	---	---	---	12.3	8.6	10.1	---	---	---	.6	.2	.3
15	---	---	---	17.1	12.0	13.2	---	---	---	1.9	.3	.7
16	---	---	---	15.6	8.9	11.9	---	---	---	1.0	.3	.5
17	---	---	---	9.0	6.2	7.7	---	---	---	2.5	.4	1.2
18	---	---	---	9.5	8.4	8.9	---	---	---	2.8	.7	1.7
19	24.6	11.5	12.5	10.6	9.4	9.9	---	---	---	3.3	.6	1.9
20	12.5	11.4	11.8	10.3	7.4	8.9	---	---	---	3.0	1.7	2.3
21	12.4	11.3	11.9	7.4	4.9	5.9	1.6	.4	---	2.1	.7	1.2
22	12.2	9.9	11.0	6.2	3.9	5.1	4.1	.0	3.8	2.8	.8	1.5
23	13.3	11.4	12.6	6.5	5.2	5.9	3.9	2.1	3.1	3.3	1.2	2.4
24	11.7	9.7	10.2	8.1	6.2	6.9	3.9	2.0	3.0	6.1	3.1	4.3
25	11.3	10.0	10.5	10.9	8.1	8.7	2.0	.2	1.4	9.4	6.0	7.2
26	10.9	9.6	10.0	15.4	10.9	12.3	3.7	1.7	2.3	7.4	4.6	6.3
27	10.1	9.4	9.7	10.7	8.0	9.3	5.6	.4	2.7	4.9	2.5	3.7
28	10.0	8.4	9.3	---	---	---	.4	.1	.2	4.9	3.1	3.8
29	8.8	7.7	8.1	---	---	---	.2	.2	.2	6.5	4.9	5.6
30	8.2	6.8	7.7	---	---	---	.2	.2	.2	6.6	3.9	5.3
31	8.4	6.3	7.4	---	---	---	.2	.2	.2	7.0	4.3	5.6
MONTH	---	---	---	---	---	---	---	---	---	9.4	.0	2.4

MISSOURI RIVER BASIN

06910230 HINKSON CREEK AT COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	6.7	2.9	4.6	3.3	1.4	1.8	---	---	---	18.3	15.0	15.6
2	2.9	.0	1.5	5.5	1.5	3.0	---	---	---	15.0	12.2	13.3
3	.2	.0	.1	8.2	5.1	6.4	---	---	---	15.0	12.2	13.3
4	.2	.2	.2	8.2	3.1	5.7	---	---	---	15.6	13.3	13.9
5	.3	.2	.2	3.1	1.6	1.8	---	---	---	17.0	14.7	15.8
6	.3	.3	.3	1.7	1.6	1.7	---	---	---	16.7	13.0	14.1
7	.4	.3	.3	3.1	1.7	2.0	---	---	---	15.8	12.5	13.6
8	.4	.4	.4	4.4	1.7	2.6	---	---	---	15.3	12.0	14.1
9	.5	.4	.4	7.7	1.9	4.3	---	---	---	14.7	14.7	14.7
10	.5	.5	.5	11.2	4.8	7.6	---	---	---	17.8	12.5	14.7
11	.6	.5	.5	13.7	7.5	10.3	11.1	8.9	10.6	18.9	13.9	16.4
12	.6	.6	.6	12.5	10.3	11.2	13.3	8.3	10.6	19.4	13.9	16.4
13	.7	.6	.6	10.7	7.8	9.3	13.9	8.3	11.1	20.0	15.8	17.5
14	.7	.7	.7	---	---	---	15.0	10.0	12.8	19.7	18.0	18.9
15	.8	.7	.7	---	---	---	16.7	11.7	13.9	21.1	16.7	18.6
16	.8	.8	.8	---	---	---	16.1	11.7	14.4	21.1	18.3	19.4
17	.9	.8	.8	12.0	8.3	10.0	18.3	15.0	16.1	21.4	19.4	19.7
18	.9	.9	.9	10.3	7.0	8.6	17.2	14.4	15.0	21.1	19.7	20.3
19	.9	.9	.9	7.8	5.6	6.7	16.7	11.1	13.3	21.1	20.0	20.3
20	1.0	.9	1.0	7.2	5.0	6.1	16.1	12.2	13.9	23.3	19.2	21.1
21	2.1	1.0	1.3	5.8	3.3	4.4	18.3	12.8	15.0	22.2	19.2	20.0
22	1.1	1.0	1.1	8.9	3.3	6.1	18.9	15.6	17.2	19.7	18.3	18.9
23	1.1	1.1	1.1	10.0	4.7	7.5	20.0	17.2	18.3	23.9	18.9	20.8
24	1.2	1.1	1.2	12.8	7.2	10.0	20.6	17.2	18.9	23.6	21.1	22.5
25	3.1	1.2	1.8	14.4	9.4	12.0	22.8	19.4	20.6	23.9	19.2	20.6
26	2.9	1.3	2.1	17.8	12.2	15.0	23.3	20.0	21.1	20.9	17.8	19.2
27	3.9	1.3	2.1	17.8	15.0	16.4	23.3	20.6	21.7	22.0	17.2	19.4
28	4.2	1.3	2.4	18.0	15.8	17.0	23.9	18.9	21.7	20.8	15.9	18.0
29	---	---	---	17.0	14.7	15.8	23.3	18.9	20.6	20.9	15.6	18.0
30	---	---	---	15.3	11.1	13.3	20.0	15.6	17.2	23.9	20.3	21.4
31	---	---	---	12.5	8.9	10.6	---	---	---	25.6	22.0	23.9
MONTH	6.7	.0	1.0	---	---	---	---	---	---	25.6	12.0	17.9
JUNE				JULY			AUGUST			SEPTEMBER		
1	26.1	23.3	24.2	25.0	24.4	24.7	26.7	24.2	25.3	25.6	24.2	24.7
2	25.8	21.7	23.3	24.7	23.6	24.4	27.5	24.2	25.6	25.0	22.8	23.6
3	25.3	22.8	23.9	25.6	24.2	24.7	27.8	26.1	26.7	24.2	22.0	22.8
4	24.2	22.0	22.5	25.6	24.4	25.0	29.5	26.7	27.8	23.3	21.4	22.0
5	23.6	21.1	22.0	26.1	25.0	25.6	29.5	27.8	28.3	22.2	21.1	21.7
6	23.6	20.6	21.4	26.1	24.7	25.1	29.5	27.2	28.0	22.2	21.4	22.0
7	23.0	21.4	22.0	25.9	25.3	25.6	27.2	23.9	24.7	23.9	21.4	22.5
8	23.0	21.1	22.5	26.7	25.9	26.1	24.4	21.7	22.5	24.2	22.5	23.3
9	22.8	20.3	21.4	27.2	26.7	27.0	22.8	21.4	22.0	22.8	20.8	21.4
10	22.0	20.0	21.1	28.0	27.2	27.5	22.0	21.4	21.7	20.6	19.4	20.0
11	22.0	20.6	20.9	28.3	28.0	28.0	22.2	21.7	22.0	20.0	19.4	19.7
12	21.7	20.3	20.9	28.3	27.8	28.0	22.2	21.7	22.0	19.4	17.5	18.3
13	21.4	20.0	20.6	27.8	27.2	27.5	22.2	21.7	22.0	17.5	15.6	16.4
14	21.4	19.7	20.6	27.8	26.1	27.0	22.0	22.0	22.0	16.1	15.3	15.6
15	20.9	19.2	19.4	26.4	22.2	23.9	22.2	22.0	22.0	17.0	15.6	16.4
16	21.1	17.0	18.6	22.8	21.7	22.2	22.2	21.4	21.7	18.0	16.7	17.2
17	21.4	18.9	20.0	23.3	22.8	23.0	22.0	20.6	21.1	18.6	16.7	17.5
18	22.5	19.4	20.6	23.9	23.9	23.9	21.7	21.1	21.4	19.2	17.5	18.3
19	24.7	20.6	22.2	23.9	23.0	23.3	22.0	20.9	21.1	19.2	17.8	18.3
20	26.7	21.7	24.2	23.3	22.0	22.2	22.5	22.0	22.2	19.2	17.2	18.0
21	27.2	23.0	25.3	22.5	22.0	22.2	22.5	22.2	22.2	18.9	17.2	18.0
22	26.7	24.4	25.6	22.2	21.7	22.0	22.0	21.7	21.7	18.9	17.2	18.0
23	26.7	24.4	25.6	22.2	21.4	22.0	24.2	22.0	22.8	17.2	13.9	15.0
24	26.1	23.9	24.7	23.3	21.7	22.2	23.6	22.2	22.8	14.2	12.0	13.0
25	25.6	24.7	25.3	23.9	22.2	22.2	22.2	21.7	22.0	13.6	12.2	13.0
26	26.1	25.6	25.9	24.7	23.9	24.4	22.5	22.0	22.0	13.9	13.0	13.3
27	24.7	24.2	24.7	25.6	24.7	25.3	25.0	22.0	23.0	13.9	12.5	13.3
28	27.2	22.8	24.7	26.1	25.6	25.9	23.3	22.0	22.5	14.2	12.5	13.0
29	27.2	24.2	25.6	26.4	25.9	26.1	23.3	22.0	21.7	14.7	13.3	13.9
30	25.9	22.8	23.9	26.7	22.2	23.3	23.6	21.7	22.5	15.3	14.2	14.7
31	---	---	---	25.3	22.5	23.6	25.6	22.8	24.2	---	---	---
MONTH	27.2	17.0	22.8	28.3	21.4	24.6	29.5	20.6	23.1	25.6	12.0	18.2

MISSOURI RIVER BASIN

06910410 CEDAR CREEK NEAR COLUMBIA, MO

LOCATION.--Lat 38°57'16", long 92°08'57", in NW 1/4 SW 1/4 sec. 10, T.48 N., R.11 W., Boone County, Hydrologic Unit 10300102, on road fill at left upstream end of Interstate 70 north outer road bridge, 1 mi downstream from Manacle Creek and 9.5 mi east of Columbia.

DRAINAGE AREA.--44.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1964 to Feb. 1976. April 1986 to current year.

GAGE.--Water stage recorder. Datum of gage is 776.45 ft above National Geodetic Vertical Datum of 1929. Water stage recorder June 1964 to Feb. 1976 at present site and datum.

REMARKS.--No estimated daily discharges. Water-discharge records fair.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.04	.55	.35	.57	3.6	3.5	1.2	3.3	.18	19	35
2	.04	.05	.40	.31	.53	2.7	28	1.2	2.4	.13	8.1	24
3	.01	.06	.36	.40	.46	2.7	108	1.1	2.1	.10	5.0	8.0
4	.01	.08	.29	.56	.37	7.2	106	1.3	1.7	.12	3.6	4.9
5	.0	.06	.27	5.4	.36	8.0	30	1.3	1.5	.15	2.7	3.6
6	.01	.05	.26	80	.34	3.8	14	.91	1.4	.15	2.1	7.5
7	.01	.05	.19	22	.33	2.9	9.9	1.1	1.2	.14	1.6	15
8	.01	.06	.16	3.8	.38	2.0	10	44	1.1	.16	1.5	19
9	.02	.66	.14	1.6	.31	3.0	6.7	98	.95	.16	1.4	419
10	.02	2.2	.14	1.3	.35	8.9	5.2	11	.81	.12	1.3	71
11	.01	.13	.10	1.2	.35	13	4.1	4.3	84	.10	1.6	17
12	.01	7.6	.09	1.0	.37	5.5	3.9	2.4	559	.10	1.6	8.2
13	.0	3.0	.13	.75	.79	4.4	3.0	2.3	346	.10	1.6	6.3
14	.0	1.6	.13	.64	1.6	2.9	2.5	2.4	32	.16	1.5	6.5
15	.01	4.0	.11	.63	2.8	1.7	2.9	2.4	7.1	.23	2.4	5.9
16	.03	17	.08	.61	2.6	1.2	2.7	2.3	5.0	.19	3.5	4.8
17	.04	3.0	.07	.63	1.8	1.3	2.2	2.5	1.8	.19	1.9	3.7
18	.03	1.2	.06	.63	1.3	1.1	1.9	2.7	13	.19	1.6	2.8
19	.03	.83	.08	.60	2.0	.96	1.8	87	2.8	.23	1.5	2.4
20	.06	1.3	.10	.56	3.8	57	1.6	15	1.1	.75	2.2	2.2
21	.08	1.0	.07	.48	3.8	102	1.5	5.5	.69	.69	104	2.0
22	.05	.58	15	.46	3.7	26	1.5	4.4	.46	.63	295	1.8
23	.10	.40	22	.46	1.9	11	1.3	4.8	.30	.78	99	1.7
24	.06	.32	2.0	.43	1.3	6.4	1.3	5.3	.32	.67	209	2.0
25	.05	.37	.79	.58	2.3	4.2	1.2	26	.41	.58	25	2.2
26	.05	9.9	1.1	.87	16	3.2	1.0	70	2.4	.55	28	2.3
27	.05	4.9	53	.74	10	2.6	1.3	7.1	2.3	.46	136	2.3
28	.04	1.8	29	.69	5.9	4.4	1.6	49	.73	.36	840	2.0
29	.02	1.0	3.4	.68	---	5.2	1.5	202	.31	.27	527	2.1
30	.04	.68	1.2	.68	---	3.8	1.4	19	.15	1380	110	2.1
31	.05	---	.56	.62	---	4.1	---	6.7	---	281	26	---
MEAN	.033	2.13	4.25	4.18	2.37	9.90	12.0	22.1	35.9	53.9	79.5	22.9
MAX	.10	17	53	80	16	102	108	202	559	1380	840	419
MIN	.00	.04	.06	.31	.31	.96	1.0	.91	.15	.10	1.3	1.7
IN.	.00	.05	.11	.11	.06	.25	.30	.57	.89	1.39	2.05	.57

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	36.4	14.1	29.7	38.8	30.8	54.6	62.4	50.5	41.2	31.2	15.4	25.6
MAX	253	44.0	107	140	83.1	319	170	215	237	257	111	128	
(WY)	1970	1974	1974	1974	1974	1973	1970	1974	1969	1969	1968	1970	
MIN	.03	.13	.31	.94	1.45	2.49	2.29	1.20	.22	.02	.12	.01	
(WY)	1965	1967	1965	1967	1967	1968	1971	1988	1988	1975	1964	1988	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	20.9	36.7
HIGHEST ANNUAL MEAN		86.8
LOWEST ANNUAL MEAN		6.15
HIGHEST DAILY MEAN	1380	3620
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	3590	5140
INSTANTANEOUS PEAK STAGE	14.49	16.13
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	6.33	11.12
10 PERCENTILE	24	47
50 PERCENTILE	1.2	2.8
95 PERCENTILE	.04	.03

MISSOURI RIVER BASIN

131

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1986 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1986 to current year.

pH: April 1986 to current year.

INSTRUMENTATION.--Water-quality monitor Apr. 1986 to current year.

REMARKS.--The number of missing days of specific conductance and pH record exceeds 20 percent of the year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	ACIDITY (MG/L AS H) (71825)
OCT									
20...	0900	0.06	--	2000	7.20	11.5	7.4	68	0.2
NOV									
02...	0730	0.03	2050	--	7.00	6.5	8.3	68	0.3
DEC									
13...	1000	0.14	1540	--	6.30	1.0	7.7	54	0.2
JAN									
11...	1100	1.2	666	--	6.80	1.0	11.1	78	0.2
FEB									
10...	0920	0.32	1800	--	6.30	0.5	9.7	66	0.3
MAR									
14...	1100	3.0	595	--	6.90	8.0	11.2	97	<0.1
APR									
12...	1200	4.6	847	--	6.80	9.0	11.0	95	<0.1
MAY									
19...	0930	238	242	--	6.90	16.5	7.8	81	0.1
JUN									
08...	1230	0.96	1120	--	6.50	20.0	6.3	70	0.2
JUL									
19...	0930	0.21	1920	--	7.00	21.5	5.6	64	0.2
AUG									
02...	1430	8.3	710	--	6.70	23.5	8.3	98	0.2
SEP									
12...	1510	8.7	608	--	6.60	18.0	7.7	80	<0.1

DATE	ALKA- LITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT								
20...	66	1200	1840	13	580	70	5500	5600
NOV								
02...	62	1300	1930	11	740	190	--	6800
DEC								
13...	52	940	1510	14	6000	5100	7900	7900
JAN								
11...	50	340	543	94	6800	2900	1900	2100
FEB								
10...	70	1100	1690	52	11000	10000	--	8800
MAR								
14...	36	250	437	39	3600	1300	1800	1900
APR								
12...	48	390	655	3	4200	2500	2800	2600
MAY								
19...	31	86	180	882	27000	320	1600	830
JUN								
08...	50	540	877	8	2400	10	3300	1600
JUL								
19...	112	1200	1810	52	4100	40	5900	5000
AUG								
02...	36	330	540	60	4400	1300	2300	<10
SEP								
12...	59	290	503	28	4300	770	1700	1800

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1710	1600	1670	2040	2000	2020	887	749	816	---	---	---
2	1700	1680	1690	2250	2020	2050	984	886	935	---	---	---
3	1700	1680	1690	2070	2020	2050	1030	983	1010	---	---	---
4	1700	1670	1690	2060	2030	2040	1110	1000	1060	---	---	---
5	1700	1660	1680	2060	2020	2050	1150	1100	1130	---	---	---
6	1690	1660	1680	2080	2030	2050	1200	1140	1170	---	---	---
7	1700	1660	1680	2070	2030	2050	1250	1210	1230	---	---	---
8	1710	1660	1690	2070	2030	2050	1280	1250	1260	---	---	---
9	1710	1680	1690	2080	1370	1940	1350	1280	1320	---	---	---
10	1720	1620	1690	2030	1280	1620	1410	1340	1370	---	---	---
11	1710	1610	1690	1310	1260	1290	1460	1410	1430	---	---	---
12	1730	1610	1680	1300	886	1020	1490	1450	1470	---	---	---
13	1730	1700	1720	896	713	827	1640	1460	1560	---	---	---
14	1750	1710	1730	920	723	844	1630	1580	1620	---	---	---
15	1750	1710	1730	1130	867	976	1670	1610	1630	---	---	---
16	1750	1710	1730	1080	576	838	1700	1670	1680	---	---	---
17	1760	1660	1720	721	573	628	1720	1690	1710	---	---	---
18	1770	1670	1740	833	720	783	1750	1710	1740	---	---	---
19	1770	1650	1720	895	837	875	1770	1740	1760	---	---	---
20	1780	1730	1760	971	884	911	1750	1630	1690	---	---	---
21	1800	1730	1770	1040	971	1010	1700	1650	1680	---	---	---
22	1830	1780	1800	1030	955	997	---	---	---	---	---	---
23	1860	1800	1830	975	913	945	---	---	---	---	---	---
24	1890	1810	1860	980	921	953	---	---	---	---	---	---
25	1910	1870	1890	996	895	976	---	---	---	---	---	---
26	1930	1890	1910	1330	482	731	---	---	---	---	---	---
27	1950	1910	1930	810	492	661	---	---	---	---	---	---
28	1970	1910	1940	829	696	762	---	---	---	---	---	---
29	1990	1930	1970	714	694	705	---	---	---	---	---	---
30	2010	1970	1990	760	702	734	---	---	---	---	---	---
31	2030	1990	2010	---	---	---	---	---	---	---	---	---
MONTH	2030	1600	1770	2250	482	1250	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	913	851	879	1420	1390	1400
2	---	---	---	---	---	---	1030	853	964	1440	1370	1400
3	---	---	---	---	---	---	845	525	667	1460	1420	1440
4	---	---	---	---	---	---	517	468	496	1480	1450	1470
5	---	---	---	---	---	---	580	488	528	1540	1470	1510
6	---	---	---	---	---	---	602	570	585	1540	1520	1540
7	---	---	---	---	---	---	640	602	620	1540	1520	1530
8	---	---	---	---	---	---	676	634	661	1540	1090	1310
9	---	---	---	---	---	---	688	667	681	1100	307	556
10	---	---	---	---	---	---	730	688	708	646	502	570
11	---	---	---	---	---	---	792	730	755	714	621	652
12	---	---	---	---	---	---	---	---	---	724	629	672
13	---	---	---	---	---	---	880	840	857	797	723	759
14	---	---	---	---	---	---	920	880	895	842	795	818
15	---	---	---	---	---	---	994	920	949	894	840	868
16	---	---	---	---	---	---	1080	1000	1030	963	884	920
17	---	---	---	853	781	829	1160	1080	1120	1110	967	1030
18	---	---	---	885	843	867	1210	1160	1190	1220	1110	1180
19	---	---	---	916	875	895	1250	1210	1220	---	---	---
20	---	---	---	1370	498	768	1310	1240	1270	533	301	435
21	---	---	---	579	489	538	1320	1300	1310	905	533	704
22	---	---	---	563	522	539	1320	1290	1300	1050	905	1000
23	---	---	---	605	553	582	1330	1310	1320	1110	1040	1080
24	---	---	---	657	595	620	1340	1320	1330	1130	1100	1120
25	---	---	---	709	647	670	1350	1330	1340	1150	834	1030
26	---	---	---	801	709	759	1360	1340	1350	---	---	---
27	---	---	---	833	791	812	1380	1350	1370	599	497	532
28	---	---	---	904	823	864	1420	1380	1400	751	321	653
29	---	---	---	875	796	831	1430	1410	1420	471	251	312
30	---	---	---	869	797	842	1430	1400	1410	505	363	439
31	---	---	---	879	850	867	---	---	---	608	505	563
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

CEDAR CREEK BASIN

133

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	730	608	687	1090	945	981	---	---	---	656	426	560
2	802	730	773	1100	939	1050	---	---	---	683	542	589
3	854	782	824	1170	1080	1120	---	---	---	674	571	621
4	935	814	879	1170	1080	1130	928	856	904	754	677	717
5	1010	926	968	1300	1140	1170	1000	918	968	838	754	812
6	1080	999	1030	1320	1200	1260	1050	1000	1030	898	767	858
7	1120	1070	1090	1400	1220	1330	1130	1050	1090	925	594	773
8	1130	910	1110	1460	1370	1390	1180	1120	1160	711	481	593
9	1220	1070	1170	1590	1370	1510	1250	1180	1210	580	268	338
10	1280	1220	1250	1630	1540	1570	1320	1240	1280	451	297	379
11	1320	140	1170	1760	1530	1660	1390	1290	1350	560	443	504
12	290	100	232	1790	1600	1740	1430	1380	1400	639	550	596
13	320	290	304	1780	1690	1720	1470	1430	1450	710	600	669
14	370	300	330	1890	1700	1820	1530	1470	1510	740	700	727
15	460	370	413	1920	1850	1880	1680	1530	1550	800	740	774
16	518	460	487	1930	1840	1880	1760	1260	1390	869	790	828
17	620	520	569	2090	1830	1980	1410	1330	1370	940	870	916
18	670	610	638	2100	1840	1960	1480	1390	1450	980	920	961
19	660	570	607	2090	1870	2020	1540	1480	1510	1020	960	993
20	623	593	605	2060	1960	2000	1590	1460	1550	1040	990	1020
21	709	613	679	2040	1750	1910	1460	393	765	1060	1010	1040
22	774	699	745	1950	1540	1830	469	288	379	1120	1060	1080
23	870	765	812	1760	1490	1620	455	288	371	1150	1110	1140
24	947	861	899	1670	1440	1510	549	254	365	1180	1150	1160
25	1020	919	970	1530	1420	1470	601	540	570	1260	1170	1230
26	1090	1010	1040	---	---	---	676	485	606	1290	1270	1280
27	1490	884	1100	1540	1300	1400	813	221	589	1280	1270	1280
28	931	867	885	1710	1390	1530	411	240	291	1310	1280	1290
29	1100	931	1070	1670	1510	1590	397	235	305	1350	1310	1330
30	1100	1080	1090	1650	275	800	489	294	409	1360	1330	1350
31	---	---	---	---	---	---	598	491	543	---	---	---
MONTH	1490	100	814	---	---	---	---	---	---	1360	268	880

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.0	5.8	5.9	6.1	5.9	6.0	5.2	5.0	5.1	---	---	---
2	6.0	5.8	5.9	6.8	5.9	6.3	5.2	5.1	5.2	---	---	---
3	6.0	5.7	5.9	6.5	6.3	6.5	5.2	5.1	5.2	---	---	---
4	6.0	5.8	5.9	6.7	6.4	6.6	5.2	5.1	5.2	---	---	---
5	6.0	5.8	5.9	6.7	6.6	6.6	5.3	5.2	5.2	---	---	---
6	6.0	5.7	5.9	6.6	6.5	6.6	5.3	5.2	5.3	---	---	---
7	6.0	5.7	5.8	6.6	6.4	6.5	5.3	5.2	5.3	---	---	---
8	6.0	5.6	5.8	6.5	6.3	6.5	5.3	5.2	5.2	---	---	---
9	5.9	5.6	5.7	6.6	6.4	6.5	5.3	5.2	5.3	---	---	---
10	6.0	5.8	5.9	6.8	5.8	6.3	5.3	5.3	5.3	---	---	---
11	6.1	5.8	6.0	5.9	5.7	5.8	5.4	5.3	5.3	---	---	---
12	6.1	5.8	6.0	6.5	5.8	6.1	5.3	5.2	5.3	---	---	---
13	6.2	6.0	6.1	6.0	5.7	5.8	6.4	5.2	5.6	---	---	---
14	6.4	6.0	6.1	5.9	5.8	5.9	5.8	5.7	5.8	---	---	---
15	6.5	6.1	6.3	6.0	5.7	5.8	5.8	5.7	5.8	---	---	---
16	6.5	6.1	6.3	6.2	4.6	5.4	5.9	5.8	5.9	---	---	---
17	6.8	6.4	6.6	5.0	4.6	4.9	5.8	5.6	5.7	---	---	---
18	6.9	6.5	6.7	5.0	5.0	5.0	5.7	5.5	5.6	---	---	---
19	6.6	6.5	6.5	5.1	5.0	5.1	5.5	5.4	5.4	---	---	---
20	7.3	6.5	6.9	5.2	5.0	5.1	5.7	5.4	5.6	---	---	---
21	7.0	6.9	6.9	5.1	4.9	5.0	5.6	5.5	5.6	---	---	---
22	7.0	6.8	6.9	5.0	4.8	4.9	---	---	---	---	---	---
23	7.1	6.9	7.0	5.0	4.9	4.9	---	---	---	---	---	---
24	6.9	6.8	6.9	5.1	4.9	5.0	---	---	---	---	---	---
25	6.9	6.7	6.8	5.4	5.1	5.2	---	---	---	---	---	---
26	6.8	6.6	6.7	6.2	5.4	5.9	---	---	---	---	---	---
27	6.7	6.5	6.6	6.1	5.4	5.8	---	---	---	---	---	---
28	6.5	6.4	6.4	5.4	5.0	5.1	---	---	---	---	---	---
29	6.5	6.3	6.4	5.1	5.0	5.1	---	---	---	---	---	---
30	6.3	6.1	6.2	5.1	5.0	5.1	---	---	---	---	---	---
31	6.2	6.0	6.1	---	---	---	---	---	---	---	---	---
MONTH	7.3	5.6	6.3	6.8	4.6	5.7	---	---	---	---	---	---

CEDAR CREEK BASIN

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	7.0	6.8	6.9	8.0	6.2	7.0
2	---	---	---	---	---	---	7.1	6.8	6.9	8.1	6.3	7.0
3	---	---	---	---	---	---	7.2	7.0	7.1	7.9	7.5	7.7
4	---	---	---	---	---	---	7.2	6.9	7.1	7.9	7.3	7.7
5	---	---	---	---	---	---	7.0	6.8	6.9	7.7	7.0	7.5
6	---	---	---	---	---	---	6.9	6.8	6.9	7.5	6.7	7.2
7	---	---	---	---	---	---	6.9	6.7	6.9	7.3	6.7	7.0
8	---	---	---	---	---	---	6.8	6.7	6.8	7.2	6.3	6.9
9	---	---	---	---	---	---	6.9	6.8	6.9	7.0	6.1	6.8
10	---	---	---	---	---	---	6.8	6.7	6.8	6.8	5.8	6.3
11	---	---	---	---	---	---	6.7	6.6	6.7	6.6	5.6	6.0
12	---	---	---	---	---	---	---	---	---	6.5	6.0	6.1
13	---	---	---	---	---	---	6.1	6.0	6.1	6.4	6.0	6.1
14	---	---	---	---	---	---	6.1	5.9	6.0	6.1	6.0	6.1
15	---	---	---	---	---	---	6.1	5.8	5.9	6.8	6.0	6.2
16	---	---	---	---	---	---	6.0	5.7	5.8	6.9	6.2	6.3
17	---	---	---	7.0	7.0	7.0	6.3	5.6	5.8	6.5	6.3	6.3
18	---	---	---	7.1	7.0	7.1	6.3	5.7	5.8	7.8	6.4	6.6
19	---	---	---	7.2	7.1	7.1	6.9	6.0	6.2	7.7	6.5	7.0
20	---	---	---	7.2	7.1	7.2	7.1	6.1	6.4	7.2	7.1	7.2
21	---	---	---	7.3	7.1	7.2	7.2	6.1	6.4	7.2	7.1	7.2
22	---	---	---	7.4	7.3	7.4	7.3	6.0	6.4	7.2	7.1	7.2
23	---	---	---	7.4	7.2	7.3	7.3	5.9	6.1	7.1	7.1	7.1
24	---	---	---	7.3	7.1	7.2	7.5	5.8	6.4	7.2	7.1	7.1
25	---	---	---	7.1	7.0	7.1	7.5	5.7	6.3	7.2	7.0	7.1
26	---	---	---	7.0	6.9	7.0	8.0	6.0	6.8	7.9	7.1	7.5
27	---	---	---	6.9	6.6	6.8	8.0	6.0	6.6	7.6	7.4	7.5
28	---	---	---	6.6	6.4	6.5	8.0	5.9	7.1	7.8	7.4	7.5
29	---	---	---	6.6	6.3	6.4	7.9	5.9	6.1	8.0	7.5	7.7
30	---	---	---	6.9	6.5	6.7	8.0	6.0	6.4	7.5	7.1	7.3
31	---	---	---	7.0	6.9	6.9	---	---	---	7.2	7.0	7.1
MONTH	---	---	---	---	---	---	---	---	---	8.1	5.6	6.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	7.1	6.9	7.0	6.7	6.4	6.5	6.6	6.3	6.4	6.5	6.2	6.4
2	7.0	6.8	6.9	6.6	6.4	6.5	6.5	6.2	6.3	6.7	6.5	6.6
3	6.9	6.7	6.8	6.6	6.4	6.5	6.5	6.3	6.4	6.6	6.5	6.5
4	6.8	6.6	6.7	6.7	6.5	6.6	6.5	6.3	6.4	6.5	6.4	6.4
5	6.7	6.5	6.5	6.8	6.6	6.7	6.4	6.3	6.4	6.4	6.3	6.3
6	6.6	6.3	6.4	7.4	6.5	7.0	6.4	6.2	6.3	6.5	6.2	6.3
7	6.5	6.3	6.4	7.4	7.1	7.3	6.3	6.2	6.3	6.5	6.2	6.4
8	6.7	6.3	6.5	7.2	7.1	7.2	6.3	6.3	6.3	6.7	6.3	6.4
9	6.5	6.4	6.5	7.2	7.0	7.2	6.3	6.1	6.3	7.1	6.5	6.9
10	6.5	6.4	6.5	7.1	7.0	7.1	6.3	6.3	6.3	7.0	6.7	6.9
11	7.0	6.5	6.6	7.2	7.0	7.1	6.3	6.3	6.3	6.7	6.7	6.7
12	7.0	6.6	6.8	7.1	7.0	7.0	6.4	6.3	6.3	6.8	6.6	6.7
13	6.9	6.6	6.8	7.1	6.9	7.1	6.3	6.2	6.3	6.7	6.7	6.7
14	6.9	6.6	6.8	7.0	6.9	6.9	6.2	6.2	6.2	6.7	6.6	6.7
15	6.9	6.7	6.8	7.1	6.9	7.0	6.3	6.2	6.2	6.7	6.6	6.7
16	7.0	6.7	6.9	7.1	6.8	6.9	6.2	5.5	5.9	6.6	6.5	6.6
17	6.9	6.7	6.8	7.0	6.8	6.9	5.5	5.2	5.4	6.5	6.3	6.4
18	6.9	6.6	6.8	7.1	6.7	6.9	5.5	5.2	5.4	6.4	6.3	6.4
19	6.9	6.6	6.8	7.4	6.7	7.1	5.4	5.1	5.3	6.4	6.3	6.3
20	7.3	6.7	6.8	7.4	6.9	7.1	5.6	5.3	5.4	6.4	6.3	6.3
21	6.8	6.7	6.7	7.0	6.8	6.9	6.8	4.3	6.3	6.3	6.3	6.3
22	6.8	6.7	6.7	6.8	6.7	6.8	6.9	6.5	6.7	6.3	6.1	6.3
23	6.8	6.6	6.8	6.8	6.6	6.7	6.7	6.4	6.6	6.3	6.2	6.3
24	6.8	6.7	6.8	6.7	6.6	6.7	6.8	6.4	6.6	6.3	6.3	6.3
25	7.1	6.7	7.0	6.7	6.5	6.6	6.5	6.4	6.4	6.3	6.2	6.3
26	7.1	6.5	6.8	6.8	6.3	6.4	6.7	6.3	6.4	6.3	6.1	6.2
27	6.6	6.5	6.5	6.5	6.2	6.4	6.9	6.4	6.5	6.1	6.1	6.1
28	6.7	6.5	6.6	6.5	6.4	6.5	6.9	6.5	6.8	6.1	6.1	6.1
29	6.7	6.4	6.5	6.6	6.4	6.5	6.9	6.7	6.8	6.1	6.1	6.1
30	6.7	6.5	6.6	6.9	6.4	6.6	6.8	6.5	6.7	6.1	6.0	6.1
31	---	---	---	6.6	6.5	6.6	6.5	6.3	6.4	---	---	---
MONTH	7.3	6.3	6.7	7.4	6.2	6.8	6.9	4.3	6.3	7.1	6.0	6.4

CEDAR CREEK BASIN

06910414 CEDAR CREEK NEAR ASHLAND, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 38°45'29", long 92°10'28", in NW 1/4 NW 1/4, sec.21, T.46 N., R.11 W., Boone County, Hydrologic Unit 10300102, at bridge on County Highway Y, 5.0 mi east of Ashland.

PERIOD OF RECORD.--November 1983 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT 19...	1030	1.0	430	7.70	14.0	6.4	61	13	K14	240	65
NOV 01...	1000	0.10	431	7.80	8.0	6.2	52	19	K6	--	--
DEC 12...	1230	4.0	556	8.20	1.5	12.5	88	20	K4	--	--
JAN 10...	1200	15	349	7.50	0.5	13.5	92	28	K130	170	80
FEB 09...	1030	2.0	547	7.90	0.5	14.7	97	15	K1	--	--
MAR 14...	1400	4.0	429	8.10	10.5	12.6	115	15	K4	--	--
APR 11...	0830	53	396	7.90	5.5	12.4	97	<10	38	190	78
MAY 18...	0830	13	412	7.80	19.0	7.8	84	31	40	--	--
JUN 07...	0830	1.1	438	8.10	20.5	8.9	99	26	100	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 19...	74	13	7.1	3.0	180	7.0	57	7.0	0.20	285
NOV 01...	--	--	--	--	190	5.8	--	--	--	279
DEC 12...	--	--	--	--	150	1.8	--	--	--	402
JAN 10...	52	9.1	5.7	3.8	88	5.4	88	8.0	0.20	243
FEB 09...	--	--	--	--	161	3.9	--	--	--	356
MAR 14...	--	--	--	--	100	1.5	--	--	--	290
APR 11...	60	9.8	8.2	3.0	112	2.7	83	7.8	0.20	257
MAY 18...	--	--	--	--	128	3.9	--	--	--	273
JUN 07...	--	--	--	--	128	2.0	--	--	--	261

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

OSAGE RIVER BASIN

137

06918070 OSAGE RIVER ABOVE SCHELL CITY, MO

LOCATION.--Lat 38°03'20", long 94°08'44", in SE 1/4 SW 1/4 NW 1/4 sec.20, T.38 N., R.29 W., Bates County, Hydrologic Unit 10290105, on downstream side of left pier of bridge on State Highway M, 0.8 mi downstream from Shaw Branch, 0.2 mi upstream from McKenzie Creek, and 3.0 mi northwest of Schell City.

DRAINAGE AREA.--5,410 mi², by U.S. Army Corps of Engineers.

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder and slope gage 1.7 miles downstream. Datum of gage is 700.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor except from April 6 to July 8 and July 19 to Sept. 17, which are fair. No estimated daily discharges. Periods of low flow could not be calculated using fall computations. Stage discharge relation affected by backwater from Truman Reservoir. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 133,000 ft³/s, Oct. 5, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 24,500 ft³/s, Aug. 26.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1380	2090	2090	778	10600	144	1030	735	7400	7060
2	---	---	943	1750	1370	806	8960	137	5000	1710	7880	4560
3	---	---	800	1540	1080	760	5400	136	6760	4030	4530	2520
4	---	---	707	1370	735	848	4540	130	4750	2900	1820	1790
5	360	---	592	1130	492	1340	4150	135	4390	1200	1090	2340
6	307	---	584	905	440	1480	3100	146	8950	641	776	3040
7	242	---	546	855	---	1130	2370	153	9220	447	619	4520
8	203	---	454	812	---	848	2010	172	7590	325	530	5220
9	180	---	349	741	---	920	1730	205	3890	---	476	3840
10	---	---	325	606	---	1270	1470	276	2160	---	451	6670
11	---	169	---	620	---	1810	1250	330	1680	---	432	7440
12	---	288	---	578	326	1970	1090	273	3910	---	416	5810
13	---	1900	---	501	415	1590	968	234	7910	---	394	3510
14	---	3280	238	429	529	960	868	232	8050	---	386	2900
15	---	1700	328	372	721	840	807	219	7340	---	380	4290
16	---	1210	---	426	1630	670	738	254	4960	---	394	5790
17	---	1950	---	481	2170	527	705	255	2360	---	410	5430
18	---	1750	---	637	1720	508	670	321	1540	---	1300	---
19	---	1000	---	629	1250	539	610	1100	1220	3460	2230	---
20	285	707	---	580	1160	2330	531	2160	1010	4660	4410	---
21	342	1420	---	408	1880	5750	469	1690	857	2760	10500	---
22	274	3410	151	246	2560	5280	426	5800	699	1430	15200	---
23	231	2740	429	214	2000	3310	392	10200	630	1090	14900	---
24	301	1720	1080	229	1400	2050	387	11000	526	1440	18600	---
25	338	1210	984	241	1000	1440	355	8920	513	1720	22100	---
26	364	1580	700	687	855	1200	296	5050	706	1040	24500	---
27	265	4440	1940	1830	741	1020	237	2440	1740	769	23800	---
28	221	5770	5320	1450	776	1040	191	1640	3160	629	19100	---
29	---	4360	6040	1750	---	3770	174	1260	1980	530	13600	---
30	---	2280	5070	3600	---	5270	160	951	1100	496	8680	---
31	---	---	3020	3360	---	6880	---	670	---	2810	7360	---
TOTAL	---	---	---	31067	---	58934	55654	56633	105631	---	214664	---
MEAN	---	---	---	1002	---	1901	1855	1827	3521	---	6925	---
MAX	---	---	---	3600	---	6880	10600	11000	9220	---	24500	---
MIN	---	---	---	214	---	508	160	130	513	---	380	---

OSAGE RIVER BASIN

06918070 OSAGE RIVER ABOVE SCHELL CITY, MO--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1979 to current year, formerly published as 06918080 Osage River near Schell City, Mo.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1979 to September 1981.

WATER TEMPERATURE: March 1979 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,950 microsiemens, Oct. 11, 1980; minimum daily, 114 microsiemens, June 12, 1981.

WATER TEMPERATURE: Maximum daily, 32.0°C, July 11, 1980; minimum daily, 0.0°C, Feb. 5, 1980, Feb. 11-14, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)
NOV												
03...	0830	211	486	7.80	11.5	30	9.0	83	K55	K60	220	91
JAN												
05...	1145	1130	412	7.80	3.0	30	13.2	98	200	460	180	84
MAR												
08...	0830	879	509	8.10	2.0	25	12.6	89	230	K170	230	91
MAY												
10...	1610	328	573	8.10	18.5	27	7.7	81	K48	K16	260	63
JUL												
19...	0830	2970	557	7.80	25.0	110	5.7	68	440	620	230	70
SEP												
08...	0945	5470	302	7.80	24.0	160	5.3	62	2200	2600	140	13

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV												
03...	62	15	23	4.6	120	110	13	0.20	7.8	305	0.41	174
JAN												
05...	53	12	16	3.7	99	100	10	0.20	8.7	271	0.37	827
MAR												
08...	70	14	19	3.4	150	100	14	0.20	4.6	339	0.46	805
MAY												
10...	82	13	22	3.9	184	85	16	0.30	4.1	334	0.45	296
JUL												
19...	72	13	28	4.2	147	100	23	0.30	11	360	0.49	2890
SEP												
08...	45	5.6	8.4	4.9	120	21	7.2	0.20	11	182	0.25	2690

K--Results based on colony count outside the acceptable range (non-ideal colony count).

OSAGE RIVER BASIN

139

06918070 OSAGE RIVER ABOVE SCHELL CITY, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 03...	0.020	0.250	0.040	0.030	0.50	0.060	0.040	0.020	38	22	73
JAN 05...	<0.010	0.550	0.070	0.060	0.60	0.120	0.040	0.030	37	113	83
MAR 08...	0.010	0.340	0.080	0.050	0.90	0.140	0.050	0.030	--	--	--
MAY 10...	<0.010	<0.100	0.030	0.010	0.60	0.110	0.030	0.020	69	61	79
JUL 19...	0.030	0.270	0.100	0.070	1.1	0.260	0.060	0.040	342	2740	90
SEP 08...	0.030	0.560	0.060	0.020	1.4	0.200	0.110	0.090	300	4430	97

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 03...	20	1	79	<0.5	<1	1	<3	1	27	<5
JAN 05...	50	<1	55	<0.5	1	2	<3	1	54	<5
MAY 10...	<10	1	120	<0.5	<1	<1	<3	3	7	3
JUL 19...	530	1	110	<0.5	<1	2	<3	8	570	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 03...	11	110	<0.1	<10	5	<1	1.0	350	<6	13
JAN 05...	8	96	<0.1	<10	<1	2	<1.0	270	<6	23
MAY 10...	9	39	<0.1	<10	4	<1	<1.0	450	<6	10
JUL 19...	14	92	<0.1	<10	7	<1	<1.0	400	<6	22

06918440 SAC RIVER NEAR DADEVILLE, MO

LOCATION.--Lat 37°26'35", long 93°41'05", in NE 1/4 NE 1/4 NW 1/4 sec.9, T.31 N., R.25 W., Dade County, Hydrologic Unit 10290106, on downstream side of bridge on State Highway 245, 2 mi upstream from Cave Spring Branch and 2 mi south of Dadeville.

DRAINAGE AREA.--257 mi².

PERIOD OF RECORD.--June 1966 to current year. Annual maximum, water years 1965-66.

GAGE.--Water-stage recorder. Datum of gage is 869.78 ft above National Geodetic Vertical Datum of 1929 (levels by Missouri State Highway and Transportation Commission). Prior to June 1966, crest-stage gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	39	290	395	374	277	496	129	212	69	324	65
2	53	38	264	399	353	266	489	126	198	64	195	53
3	47	37	242	424	326	258	494	125	191	59	147	45
4	44	37	222	433	297	293	457	122	180	54	117	38
5	41	36	207	435	281	326	413	118	203	50	97	35
6	40	35	196	411	264	344	384	113	170	47	82	33
7	41	34	191	378	250	335	360	107	153	44	69	30
8	39	33	187	344	238	327	342	106	145	41	61	28
9	38	33	175	320	224	333	319	105	135	39	56	43
10	37	39	168	303	217	490	297	99	124	37	52	64
11	35	48	159	287	215	1310	282	94	124	35	48	58
12	33	185	151	274	210	1910	271	89	139	34	45	51
13	33	206	146	255	257	1370	257	86	167	34	50	49
14	32	150	142	250	269	1050	247	83	145	33	179	67
15	31	126	135	243	328	825	237	79	126	32	54	77
16	40	159	129	230	431	682	226	75	115	32	45	69
17	46	152	126	219	445	599	219	74	106	32	41	63
18	40	137	122	211	423	533	208	79	101	235	37	58
19	39	128	119	200	398	482	200	278	95	249	43	52
20	39	339	116	191	391	524	192	119	88	111	49	46
21	40	489	111	184	395	591	187	98	81	93	48	41
22	38	385	140	179	369	536	181	5130	75	74	38	38
23	46	340	163	173	343	500	174	1870	71	62	33	36
24	54	318	161	167	332	468	166	752	71	91	30	35
25	56	305	156	185	322	436	161	570	97	55	35	33
26	52	582	155	232	313	407	154	469	69	47	31	33
27	48	540	349	236	305	386	149	385	65	41	28	30
28	45	433	537	262	292	403	145	332	234	38	28	28
29	43	365	477	363	---	391	138	296	97	36	26	27
30	42	322	429	404	---	385	133	261	77	64	49	26
31	40	---	400	398	---	496	---	232	---	649	86	---
MEAN	42.3	202	212	290	316	566	266	406	128	83.3	71.7	45.0
MAX	58	582	537	435	445	1910	496	5130	234	649	324	77
MIN	31	33	111	167	210	258	133	74	65	32	26	26
IN.	.19	.88	.95	1.30	1.28	2.54	1.15	1.82	.56	.37	.32	.20

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	134	301	329	228	300	449	401	253	191	98.1	62.3	72.6
MAX	780	1139	1007	650	918	1170	1232	705	714	328	205	186
(WY)	1987	1986	1988	1973	1985	1975	1973	1983	1974	1967	1968	1975
MIN	17.1	16.8	19.7	14.0	23.5	32.7	30.1	30.1	39.2	22.1	10.1	6.78
(WY)	1979	1981	1977	1981	1981	1981	1981	1977	1972	1980	1980	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	219	235
HIGHEST ANNUAL MEAN		520
LOWEST ANNUAL MEAN		50.2
HIGHEST DAILY MEAN	5130	8000
LOWEST DAILY MEAN	26	4.5
INSTANTANEOUS PEAK FLOW	7430	13600
INSTANTANEOUS PEAK STAGE	17.90	20.83
INSTANTANEOUS LOW FLOW	25	4.0
ANNUAL RUNOFF (INCHES)	11.57	12.40
10 PERCENTILE	435	505
50 PERCENTILE	145	113
95 PERCENTILE	32	18

06918460 TURNBACK CREEK ABOVE GREENFIELD, MO

LOCATION.--Lat 37°24'09", long 93°48'06", on line between secs.21 and 28, T.31 N., R.26 W., Dade County, Hydrologic Unit 10290106, on downstream side of left pier of bridge on State Highway O, 1.5 mi downstream from Limestone Creek, and 2 mi southeast of Greenfield.

DRAINAGE AREA.--252 mi².

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

REVISED RECORDS.--WDR MO-84-1 1968, 1970, 1972-74, 1976, 1978-79, 1983 (p).

GAGE.--Water-stage recorder. Datum of gage is 870.34 ft above National Geodetic Vertical Datum of 1929 (levels by Missouri State Highway and Transportation Commission).

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	34	252	436	440	280	582	131	172	62	727	71
2	56	33	227	422	403	267	560	128	161	58	501	66
3	51	33	207	421	363	260	565	128	152	56	390	62
4	49	33	189	405	328	323	505	126	147	53	315	57
5	47	33	175	395	312	331	456	123	162	48	266	54
6	46	32	165	378	283	317	423	115	143	45	229	53
7	47	32	161	349	257	307	393	111	132	43	198	49
8	44	32	159	316	241	302	368	110	128	40	178	46
9	41	32	150	293	226	331	340	113	117	38	160	58
10	40	37	142	276	216	710	317	106	110	37	143	102
11	38	38	135	261	210	1570	299	100	106	36	129	82
12	36	149	129	245	205	1390	285	97	140	36	118	77
13	36	177	124	227	273	1040	271	94	192	36	119	75
14	34	132	120	220	288	850	259	92	142	34	160	89
15	33	115	114	211	432	708	249	89	124	33	110	105
16	34	125	108	199	511	615	238	85	112	36	101	108
17	36	117	104	190	485	553	227	84	103	36	94	102
18	34	109	101	181	458	497	219	90	97	1480	86	93
19	33	105	98	172	431	456	209	247	91	608	90	86
20	33	230	96	164	432	541	200	146	84	309	123	79
21	34	325	91	157	444	589	194	137	79	237	97	71
22	34	288	222	152	400	522	186	4480	77	209	87	66
23	37	268	320	147	367	497	179	1010	71	185	79	62
24	37	248	263	145	349	473	174	607	69	307	73	58
25	36	234	231	186	336	442	168	462	66	318	70	56
26	36	507	216	290	323	414	162	372	63	245	66	54
27	35	438	537	271	312	392	155	306	72	197	63	51
28	35	370	628	317	300	490	148	264	109	167	58	49
29	34	323	529	535	---	452	142	232	72	143	57	47
30	34	283	473	511	---	486	135	206	66	143	67	45
31	34	---	451	481	---	634	---	187	---	1290	92	---
MEAN	39.2	164	223	289	344	550	287	341	112	212	163	69.1
MAX	61	507	628	535	511	1570	582	4480	192	1480	727	108
MIN	33	32	91	145	205	260	135	84	63	33	57	45
IN.	.18	.73	1.02	1.32	1.42	2.52	1.27	1.56	.50	.97	.74	.31

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	148	318	324	238	326	483	441	291	226	131	96.2	96.8
MEAN	148	318	324	238	326	483	441	291	226	131	96.2	96.8
MAX	921	1385	982	765	1020	1377	1291	719	833	445	354	338
(WY)	1987	1986	1988	1973	1985	1973	1973	1983	1974	1976	1982	1986
MIN	23.4	21.7	27.6	19.9	27.5	39.5	39.3	93.9	44.3	24.2	14.4	11.6
(WY)	1979	1981	1981	1981	1981	1981	1981	1981	1972	1972	1980	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	233	259
HIGHEST ANNUAL MEAN		564
LOWEST ANNUAL MEAN		84.1
HIGHEST DAILY MEAN	4480	May 22
LOWEST DAILY MEAN	32	Nov 6
INSTANTANEOUS PEAK FLOW	9580	May 22
INSTANTANEOUS PEAK STAGE	17.88	May 22
INSTANTANEOUS LOW FLOW	31	Nov 9
ANNUAL RUNOFF (INCHES)	12.53	13.95
10 PERCENTILE	481	548
50 PERCENTILE	152	127
95 PERCENTILE	35	25

OSAGE RIVER BASIN

06918600 LITTLE SAC RIVER NEAR WALNUT GROVE, MO

WATER-QUALITY RECORDS

LOCATION.--Lat. 37°23'55", long. 93°24'36", in NW 1/4 SE 1/4, sec. 24, T.31N., R.23W., Greene County, Hydrologic Unit 10290106, at bridge on County Highway BB, 7.5 mi east of Walnut Grove.

PERIOD OF RECORD.--Water years 1984 to February 1986, October 1988 to September 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB TOT FLD MG/L AS CACO3 (00902)
OCT											
03...	1245	33	530	8.20	16.0	9.6	96	20	210	250	41
NOV											
01...	1130	32	568	8.10	10.5	12.6	113	16	43	--	--
DEC											
06...	1015	114	431	8.00	8.0	13.0	109	<10	43	--	--
JAN											
03...	1130	275	391	8.10	8.0	13.1	110	11	84	190	30
FEB											
07...	1530	88	427	8.20	2.5	17.0	124	<10	K3	--	--
MAR											
09...	0900	195	380	8.00	5.0	12.3	95	14	26	--	--
APR											
03...	1130	290	379	8.20	13.0	11.2	107	11	250	190	22
MAY											
09...	1135	72	515	8.10	16.0	8.3	84	14	270	--	--
JUN											
06...	1110	88	451	8.10	19.0	8.7	94	25	230	--	--
JUL											
17...	1100	42	551	8.20	23.5	6.0	70	17	220	220	31
AUG											
03...	1330	88	473	8.10	25.0	7.0	85	20	440	--	--
SEP											
05...	1420	48	530	8.00	24.0	7.2	85	23	370	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
03...	87	6.9	20	3.5	205	2.5	20	28	0.20	321
NOV										
01...	--	--	--	--	212	3.3	--	--	--	334
DEC										
06...	--	--	--	--	194	3.8	--	--	--	267
JAN										
03...	64	8.2	7.5	2.0	164	2.5	15	13	0.40	222
FEB										
07...	--	--	--	--	202	2.5	--	--	--	252
MAR										
09...	--	--	--	--	178	3.4	--	--	--	217
APR										
03...	60	8.6	6.5	1.7	164	2.0	13	11	0.10	213
MAY										
09...	--	--	--	--	214	3.3	--	--	--	304
JUN										
06...	--	--	--	--	172	2.6	--	--	--	260
JUL										
17...	77	6.8	31	4.2	190	2.3	23	37	0.30	357
AUG										
03...	--	--	--	--	181	2.8	--	--	--	277
SEP										
05...	--	--	--	--	188	3.7	--	--	--	309

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

OSAGE RIVER BASIN

06918740 LITTLE SAC RIVER NEAR MORRISVILLE, MO

LOCATION.--Lat 37°28'58", long 93°29'07", SW 1/4 SW 1/4 sec.20, T.32 N., R.23 W., Polk County, Hydrologic Unit 10290106, on downstream side of center pier of Hamilton Bridge of State Highway 215, 0.7 mi upstream from Slagle Creek and 3 mi west of Morrisville.

DRAINAGE AREA.--237 mi².

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

REVISED RECORDS.--WDR MO-84-1 1969-70, 1972-75, 1977-79, 1981, 1983 (P).

GAGE.--Water-stage recorder. Elevation of gage is 881 ft (from topographic map).

REMARKS.--Estimated daily discharges: Feb. 3-11. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	33	271	514	309	198	543	57	114	34	202	38
2	46	31	226	514	275	195	477	56	104	33	100	28
3	40	30	196	562	250	184	507	55	97	31	70	24
4	36	29	174	501	235	467	435	54	92	28	53	22
5	33	29	154	454	220	552	351	51	141	26	44	19
6	30	27	143	406	205	519	305	49	101	23	37	19
7	30	26	138	358	190	438	279	48	82	22	32	18
8	28	25	143	297	180	369	247	48	73	21	28	16
9	26	24	129	263	165	424	223	48	66	19	27	23
10	25	27	120	245	155	1200	200	46	60	19	26	28
11	23	32	115	231	150	2810	182	42	59	17	24	34
12	22	495	107	206	144	2660	167	42	62	17	22	28
13	21	282	102	186	265	1640	159	41	68	17	22	27
14	20	159	98	180	332	1080	155	39	63	16	22	29
15	19	130	86	171	614	787	145	37	57	18	20	32
16	109	396	80	159	617	631	137	36	50	19	19	34
17	104	216	74	147	499	543	129	37	45	18	19	31
18	66	156	73	142	422	471	123	40	42	23	19	27
19	54	134	71	133	359	402	118	339	41	29	20	24
20	46	1190	68	125	380	664	109	60	38	29	22	21
21	42	833	65	130	431	742	105	65	35	23	22	21
22	39	544	77	124	343	553	106	9370	32	23	20	18
23	41	448	137	121	286	463	105	1890	31	24	20	18
24	60	382	153	116	252	396	83	745	31	27	19	17
25	63	344	141	158	237	345	77	533	36	26	69	17
26	56	1490	135	334	224	311	79	406	30	21	19	17
27	49	924	679	274	222	285	74	298	46	19	19	16
28	44	574	715	284	217	365	70	233	84	16	19	15
29	43	429	499	587	---	374	64	195	44	16	19	15
30	37	334	412	449	---	447	59	156	36	63	21	15
31	34	---	411	367	---	737	---	128	---	628	44	---
MEAN	43.1	326	193	282	292	686	194	492	62.0	43.4	36.1	23.0
MAX	109	1490	715	587	617	2810	543	9370	141	628	202	38
MIN	19	24	65	116	144	184	59	36	30	16	19	15
IN.	.21	1.53	.94	1.37	1.28	3.34	.91	2.39	.29	.21	.18	.11

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	140	345	324	221	294	492	405	236	181	71.6	34.8	89.5
MAX	808	1256	1045	665	1139	1290	1263	658	656	342	144	291	
(WY)	1987	1986	1988	1973	1985	1973	1973	1979	1981	1979	1988	1970	
MIN	14.0	10.8	12.5	9.05	31.1	38.9	32.7	30.9	20.7	11.6	4.90	3.15	
(WY)	1977	1981	1977	1981	1981	1972	1981	1977	1972	1980	1980	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	223		235	
HIGHEST ANNUAL MEAN			516	1973
LOWEST ANNUAL MEAN			58.6	1977
HIGHEST DAILY MEAN	9370	May 22	13200	Feb 23 1985
LOWEST DAILY MEAN	15	Sep 28	.60	Sep 15 1980
INSTANTANEOUS PEAK FLOW	13200	May 22	22300	Nov 1 1972
INSTANTANEOUS PEAK STAGE	18.04	May 22	21.95	Nov 1 1972
INSTANTANEOUS LOW FLOW	14	Sep 8	0.3	Sep 15 1980
ANNUAL RUNOFF (INCHES)	12.77		13.49	
10 PERCENTILE	504		506	
50 PERCENTILE	81		83	
95 PERCENTILE	19		8.7	

OSAGE RIVER BASIN

145

06918990 STOCKTON LAKE NEAR STOCKTON, MO

LOCATION.--Lat 37°41'38", long 93°45'55", SW 1/4 SE 1/4 SW 1/4 sec.10, T.34 N., R.26 W., Cedar County, Hydrologic Unit 10290106, in power house at dam on Sac River, 2 mi east of Stockton.

DRAINAGE AREA.--1,160 mi².

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

GAGE.--Water-stage recorder. Non-recording gage prior to May 30, 1973. Datum of gage is at National Geodetic Vertical Datum of 1929 (level by U.S. Army Corps of Engineers).

REMARKS.--Lake is formed by a rock shell earthfill type dam. Spillway is equipped with 4 taintor gates, 40 ft by 30.5 ft, crest elevation, 861.5 ft. Embankment closed and river diverted on Sept. 23, 1968. Gates closed and storage began on Dec. 12, 1969; minimum power elevation 830.0 ft reached on May 1, 1970. Gross storage at top of flood control pool is 1,666,659 acre-ft at elevation 892 ft, of which 779,550 acre-ft between elevations 867 ft and 892 ft is used for flood control, and 887,109 acre-ft between elevations 760 ft and 867 ft is used for multipurpose and power. Sedimentation reserve is 25,000 acre-ft. Lake is used for flood control, hydroelectric power, and recreational purposes.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,450,000 acre-ft, Apr. 28, 1973, elevation, 885.94 ft; minimum, since initial filling to minimum power pool level, 352,000 acre-ft, Aug. 27 to Sept. 4, 1970, elevation, 839.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 955,000 acre-ft, Mar. 28, 29, 31, elevation, 870.16 ft, Mar. 28; minimum, 726,000 acre-ft, Nov. 19, elevation, 860.61 ft.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 24:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	862.00	860.80	861.82	863.90	866.12	866.33	870.10	867.01	869.99	868.91	869.20	867.62
2	861.98	860.81	861.82	864.08	865.95	866.41	870.10	866.75	870.02	868.91	869.16	867.61
3	861.73	860.81	861.88	864.21	865.74	866.38	870.01	866.52	870.07	868.86	869.09	867.62
4	861.54	860.80	861.90	864.36	865.57	866.24	869.97	866.27	870.14	868.82	868.91	867.46
5	861.43	860.74	862.04	864.56	865.51	866.42	869.93	865.98	870.11	868.77	868.85	867.47
6	861.20	860.78	862.08	864.70	865.28	866.57	869.89	865.76	870.02	868.70	868.78	867.48
7	860.95	860.74	862.13	864.80	865.29	866.46	869.82	865.51	869.90	868.63	868.79	867.36
8	860.96	860.77	862.17	864.90	865.28	866.43	869.69	865.27	869.81	868.63	868.79	867.26
9	860.95	860.78	862.21	864.84	865.33	866.41	869.74	865.09	869.72	868.62	868.78	867.28
10	860.67	860.79	862.23	864.86	865.37	866.69	869.59	864.92	869.77	868.53	868.78	867.31
11	860.66	860.76	862.23	864.91	865.41	867.30	869.42	864.79	869.83	868.44	868.78	867.32
12	860.67	860.99	862.24	864.98	865.50	867.86	869.24	864.80	869.82	868.39	868.61	867.31
13	860.67	861.06	862.13	865.04	865.57	868.24	869.07	864.80	869.76	868.27	868.55	867.38
14	860.66	861.09	861.98	865.11	865.65	868.40	868.88	864.81	869.68	868.28	868.39	867.40
15	860.67	861.11	861.79	865.13	865.60	868.49	868.82	864.82	869.62	868.35	868.16	867.42
16	860.79	860.92	861.61	865.22	865.55	868.55	868.66	864.83	869.50	868.36	868.01	867.44
17	860.79	860.80	861.64	865.24	865.61	868.69	868.45	864.88	869.42	868.24	867.79	867.46
18	860.79	860.70	861.67	865.29	865.74	868.82	868.30	865.10	869.33	868.46	867.56	867.41
19	860.79	860.61	861.82	865.32	865.87	868.96	868.11	865.09	869.26	868.55	867.67	867.41
20	860.80	860.93	861.70	865.37	865.99	869.11	867.88	865.12	869.27	868.59	867.68	867.41
21	860.79	861.02	861.75	865.42	866.09	869.30	867.66	865.18	869.17	868.59	867.56	867.41
22	860.82	861.17	862.21	865.45	866.03	869.47	867.62	869.04	869.21	868.61	867.55	867.34
23	860.89	861.28	862.39	865.41	865.89	869.56	867.60	869.61	869.15	868.59	867.56	867.34
24	860.83	861.39	862.46	865.33	865.92	869.70	867.66	869.84	869.16	868.76	867.56	867.33
25	860.82	861.59	862.56	865.45	866.00	869.82	867.66	869.90	869.17	868.67	867.72	867.27
26	860.85	861.91	862.65	865.50	866.10	869.93	867.56	869.79	869.05	868.55	867.65	867.26
27	860.82	862.12	862.97	865.55	866.18	870.09	867.46	869.87	868.97	868.37	867.62	867.26
28	860.81	862.18	863.25	865.70	866.26	870.16	867.34	869.94	868.96	868.20	867.63	867.24
29	860.81	862.03	863.46	865.91	---	870.15	867.25	870.01	868.87	867.96	867.64	867.25
30	860.81	861.89	863.60	866.05	---	870.08	867.13	869.93	868.87	868.29	867.75	867.25
31	860.81	---	863.76	866.18	---	870.15	---	869.95	---	869.18	867.64	---
MAX	862.00	862.18	863.76	866.18	866.26	870.16	870.10	870.01	870.14	869.18	869.20	867.62
MIN	860.66	860.61	861.61	863.90	865.28	866.24	867.13	864.79	868.87	867.96	867.55	867.24
(-)	730000	754000	797000	855000	857000	955000	878000	949000	922000	930000	891000	881000
(=)	-27000	+24000	+43000	+58000	+2000	+98000	-77000	+71000	-27000	+8000	-39000	-10000

CAL YR 1988 (=)-213000

WTR YR 1989 (=)+124000

(-) Contents, in acre feet, at end of month

(=) Change in contents

OSAGE RIVER BASIN

06919000 SAC RIVER NEAR STOCKTON, MO

LOCATION.--Lat 37°41'51", long 93°45'43", in SE 1/4 NW 1/4 SE 1/4 sec.10, T.34 N., R.26 W., Cedar County, Hydrologic Unit 10290106, on left bank 0.5 mi upstream from bridge on State Highway 32, 0.5 mi downstream from Stockton Dam, 2.0 mi upstream from Bear Creek, 2.0 mi east of Stockton, and at mile 49.5

DRAINAGE AREA.--1,160 mi², approximately.

PERIOD OF RECORD.--July 1921 to current year.

REVISED RECORDS.--WSP 926: 1940.

GAGE.--Water-stage recorder. Datum of gage is 758.12 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1973, all previous gages at site 0.5 mi downstream and at datum 6.00 ft higher. Prior to May 4, 1960, nonrecording gage. Datum lowered 6.00 ft Oct. 1, 1978.

REMARKS.--Estimated daily discharges: Nov. 26, 27, Dec. 3-10, Dec. 22 to Jan. 8, Jan 11-15, Jan. 25, 28, 31, Feb. 13-14, Mar. 10-13, 17-28, May 22-28, June 11, July 30-31, and Sept. 10-17 due to backwater from Bear Creek. Records poor. Several observations of water temperature and specific conductance were made during the year. Flow completely regulated by Stockton Lake (station 06918990) 0.5 mi upstream since Dec. 12, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage prior to 1943, 29.3 ft in July 1909.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	34	1840	60	1810	56	2850	1490	64	66	2220	145
2	64	34	432	60	3310	56	2560	3280	62	64	1690	340
3	2840	32	60	60	3450	1330	3180	3360	58	419	1720	140
4	1490	147	60	60	3400	3120	2330	3100	56	789	2670	1920
5	1500	55	60	60	1910	295	1980	3350	1110	611	1110	85
6	2460	55	60	60	3530	102	2000	3300	1530	717	1150	63
7	2800	56	60	60	788	2610	1830	3030	1520	962	97	1170
8	200	56	60	60	555	1870	2990	2970	1430	91	60	1560
9	60	55	60	2140	455	1980	180	2550	1500	58	60	105
10	2680	56	60	719	60	900	3020	1930	290	781	60	60
11	175	881	466	60	60	60	3240	1460	60	922	60	60
12	26	120	1860	60	60	60	2980	230	739	890	1640	60
13	33	39	635	60	60	740	2830	45	1040	1280	1600	60
14	29	433	855	240	600	1650	3240	46	1410	115	2730	60
15	27	653	2330	70	2590	1790	1900	45	952	62	3140	60
16	30	2290	2400	416	2790	1930	2500	44	1410	60	2900	60
17	29	1680	155	60	1120	80	3260	45	1220	1190	3070	60
18	34	1290	62	60	64	60	2840	46	1000	180	3150	734
19	31	1260	56	60	57	60	3030	50	1150	53	178	109
20	30	80	59	62	56	1400	3410	52	202	53	60	60
21	31	1180	60	58	551	680	3400	53	814	52	2310	60
22	32	76	60	56	1660	70	1280	53	958	52	176	381
23	33	65	60	881	3020	818	578	53	982	52	68	211
24	34	63	60	1310	986	70	58	53	208	52	60	57
25	34	69	60	70	57	60	57	1230	66	1800	56	558
26	34	63	60	723	56	60	1300	3120	1100	1690	1100	145
27	33	63	780	487	56	60	1660	200	1090	2530	610	60
28	35	1120	70	60	56	1270	1560	60	541	2510	86	60
29	35	2810	60	60	---	2050	1250	60	1050	3010	60	60
30	35	2820	60	300	---	2940	1520	1180	104	155	60	60
31	35	---	60	60	---	2330	---	267	---	60	1540	---
MEAN	483	588	420	276	1185	986	2160	1186	791	688	1145	285
MAX	2840	2820	2400	2140	3530	3120	3410	3360	1530	3010	3150	1920
MIN	26	32	56	56	56	56	57	44	56	52	56	57
IN.	.48	.57	.42	.27	1.06	.98	2.08	1.18	.76	.68	1.14	.27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	539	645	767	904	992	1252	1783	1673	1373	804	610	579
MAX	5254	4618	3867	3993	3098	4879	9843	11350	5661	5744	5560	2999	
(WY)	1942	1973	1986	1950	1949	1945	1927	1943	1935	1958	1927	1945	
MIN	4.72	6.20	13.2	15.3	13.9	3.36	22.1	24.4	13.7	11.1	6.62	2.19	
(WY)	1957	1972	1971	1970	1970	1970	1970	1970	1971	1971	1954	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	845		991	
HIGHEST ANNUAL MEAN			2871	1927
LOWEST ANNUAL MEAN			64.1	1971
HIGHEST DAILY MEAN	3530	Feb 6	79800	May 19 1943
LOWEST DAILY MEAN	26	Oct 12	.00	Sep 9 1954
INSTANTANEOUS PEAK FLOW	6230	Aug 13	120000	May 19 1943
INSTANTANEOUS PEAK STAGE	17.66	Aug 13	31.8	May 19 1943
INSTANTANEOUS LOW FLOW	18	Oct 11	0	Sep 9 1954
ANNUAL RUNOFF (INCHES)	9.90		11.60	
10 PERCENTILE	2740		2600	
50 PERCENTILE	169		362	
95 PERCENTILE	35		30	

06919020 SAC RIVER AT HIGHWAY J BELOW STOCKTON, MO

LOCATION.--Lat 37°44'07", long 93°46'47", NW 1/4 sec.4, T.34 N., R.26 W., Cedar County, Hydrologic Unit 10290106, on right bank on downstream side of bridge on State Highway J, 4.5 mi downstream from Bear Creek, 6.3 mi downstream from Stockton Lake, 3 mi north of Stockton and at mile 44.9.

DRAINAGE AREA.--1,292 mi², approximately.

PERIOD OF RECORD.--October 1973 to current year. Occasional discharge measurements in water year 1973.

GAGE.--Water-stage recorder. Datum of gage is 750.19 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 28 to Dec. 1, Dec. 7-20, Jan. 8-30, and Feb. 7-21. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. Considerable regulation by Stockton Lake (station 06918990) 6.3 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	49	1700	215	1400	132	2850	1670	125	87	2090	421
2	60	48	300	208	3020	148	2630	3290	116	80	1820	173
3	2340	47	107	196	3140	1440	3310	3400	109	152	1790	309
4	1390	102	100	172	3170	2770	2370	3070	105	893	2520	1900
5	1570	74	94	168	1960	632	2060	3370	992	565	1390	216
6	2190	70	89	217	3000	160	2180	3400	1650	631	1140	94
7	2560	72	85	194	1500	2210	1800	3130	1580	897	233	991
8	604	69	85	160	700	2140	2920	2910	1500	305	88	1790
9	76	67	80	2200	600	1690	537	2680	1660	68	86	268
10	2080	69	80	900	200	1690	2620	1840	831	561	82	122
11	801	680	500	150	150	848	3300	1710	158	891	80	101
12	44	512	1900	125	125	402	3010	695	410	877	1310	105
13	47	145	650	125	125	741	2800	99	1170	1300	1760	109
14	49	451	900	250	500	1540	3120	93	1690	381	2560	193
15	44	844	2300	110	2700	1780	2150	89	1020	62	3180	176
16	46	2070	2500	400	2800	1930	2270	87	1450	70	2750	143
17	59	1840	250	110	1500	438	3230	88	1530	1020	3040	120
18	62	1070	100	95	200	163	2890	90	1150	587	3090	754
19	55	1370	90	95	125	146	2900	118	1240	78	611	270
20	53	154	80	90	100	2130	3350	123	596	68	147	99
21	53	1200	77	90	550	1290	3370	108	795	66	2070	94
22	50	141	424	90	1700	354	1540	4360	1100	61	463	134
23	50	117	851	800	2760	945	693	1970	1090	60	142	472
24	49	113	264	1300	1530	235	122	342	571	68	115	81
25	49	117	194	175	120	208	112	1070	97	1790	107	326
26	49	368	161	750	96	186	1150	3130	1010	1770	1020	325
27	49	262	1340	500	86	172	1690	736	1240	2340	687	81
28	48	1000	647	200	86	1080	1690	184	511	2370	200	78
29	48	3000	303	350	---	2080	1420	158	1200	2950	114	77
30	52	2600	245	500	---	2940	1720	1030	321	639	140	72
31	51	---	233	175	---	2240	---	704	---	724	1440	---
MEAN	476	624	540	358	1212	1125	2193	1476	901	723	1170	336
MAX	2560	3000	2500	2200	3170	2940	3370	4360	1690	2950	3180	1900
MIN	44	47	77	90	86	132	112	87	97	60	80	72
IN.	.42	.54	.48	.32	.98	1.00	1.89	1.32	.78	.65	1.04	.29

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	479	621	1274	1347	1220	1665	2058	1592	1249	936	814	892
MAX	966	1933	3983	3051	2763	4230	4613	3263	3699	2302	1762	1567	
(WY)	1987	1986	1986	1974	1988	1975	1974	1983	1983	1979	1982	1982	
MIN	51.1	60.1	61.9	66.7	98.8	64.8	60.5	113	269	121	77.2	213	
(WY)	1974	1981	1981	1981	1981	1977	1981	1977	1977	1977	1977	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	924	1178
HIGHEST ANNUAL MEAN		1827
LOWEST ANNUAL MEAN		256
HIGHEST DAILY MEAN	4360	May 22
LOWEST DAILY MEAN	44	Oct 12
INSTANTANEOUS PEAK FLOW	7000	May 22
INSTANTANEOUS PEAK STAGE	18.62	May 22
INSTANTANEOUS LOW FLOW	34	Oct 12
ANNUAL RUNOFF (INCHES)	9.72	12.38
10 PERCENTILE	2670	3210
50 PERCENTILE	454	563
95 PERCENTILE	54	59

OSAGE RIVER BASIN

06919500 CEDAR CREEK NEAR PLEASANT VIEW, MO

LOCATION.--Lat 37°50'03", long 93°52'31", in NE 1/4 sec.2, T.35 N., R.27 W., Cedar County, Hydrologic Unit 10290106, on downstream side of right pier of bridge on State Highway 39, 1.5 mi north of Pleasant View, 1.8 mi downstream from Alder Creek, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--420 mi², approximately.

PERIOD OF RECORD.--April 1923 to September 1926, October 1948 to current year.

REVISED RECORDS.--WSP 1146: 1923-26, drainage area. WSP 1176: 1924(M).

GAGE.--Water-stage recorder. Datum of gage is 739.46 ft above National Geodetic Vertical Datum of 1929. Apr. 22, 1923, to Sept. 30, 1926, and Oct. 1, 1948, to May 10, 1950 nonrecording gage at site 50 ft downstream at same datum. May 11, 1950 to Dec. 17, 1952, nonrecording gage, at present site and datum.

REMARKS.--Estimated daily discharges: Feb. 6-9. Records good except for estimated daily discharges, which are fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 27.7 ft, July 20, 1909, from floodmark.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	11	160	618	506	167	700	34	132	39	3330	211
2	20	9.1	131	742	379	155	457	32	161	55	837	129
3	16	6.9	113	802	296	147	420	32	145	58	304	96
4	22	6.5	100	587	223	201	384	31	139	46	204	76
5	18	5.9	88	450	180	466	306	30	1100	35	149	64
6	14	4.8	80	457	160	362	261	28	1000	28	112	66
7	12	3.9	77	485	145	276	236	26	339	22	88	61
8	9.7	3.0	73	360	135	230	215	25	221	19	73	51
9	8.3	2.0	70	274	125	405	192	25	173	16	60	92
10	7.4	3.7	67	233	115	1510	168	25	146	14	49	713
11	6.6	3.8	64	213	112	2310	158	23	1150	12	42	360
12	5.4	190	60	197	113	1500	148	22	1850	10	35	203
13	4.5	1200	56	173	130	751	133	21	828	9.6	31	157
14	3.7	384	53	157	144	549	123	20	499	8.6	27	515
15	3.0	165	48	150	322	414	122	19	316	8.0	25	925
16	5.7	224	45	143	746	320	110	17	239	7.6	24	440
17	88	308	42	134	519	274	102	17	192	7.3	25	272
18	46	184	39	126	325	243	95	16	158	47	54	195
19	38	118	37	117	270	213	88	18	134	1540	60	149
20	39	108	36	108	273	1460	83	21	112	655	70	119
21	29	720	35	99	317	3570	78	29	94	166	312	98
22	24	646	76	92	309	1560	74	8680	79	100	273	83
23	18	376	2590	89	251	858	70	11500	86	79	151	69
24	14	306	1710	85	187	635	64	5390	92	121	109	58
25	10	231	528	275	171	494	60	593	73	216	286	52
26	13	307	350	1360	168	400	55	599	62	157	1010	48
27	18	769	1480	762	172	339	50	413	59	152	185	44
28	21	514	3370	531	172	400	46	258	48	87	199	40
29	23	301	1390	1900	---	737	41	199	40	59	138	35
30	19	208	744	1370	---	571	37	152	37	105	126	31
31	15	---	644	703	---	639	---	120	---	1910	222	---
MEAN	19.2	244	463	445	249	715	169	917	323	187	278	182
MAX	88	1200	3370	1900	746	3570	700	11500	1850	1910	3330	925
MIN	3.0	2.0	35	85	112	147	37	16	37	7.3	24	31
IN.	.05	.65	1.27	1.22	.62	1.96	.45	2.52	.86	.51	.76	.48

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	200	327	295	256	401	597	531	436	352	221	80.6	146
MEAN	200	327	295	256	401	597	531	436	352	221	80.6	146
MAX	2994	1794	1327	1063	2307	2275	2458	2969	1753	2229	641	1663
(WY)	1987	1986	1974	1949	1985	1973	1973	1961	1981	1958	1950	1951
MIN	.00	.00	.06	.12	.14	.23	4.09	39.1	4.95	.03	.00	.00
(WY)	1954	1954	1954	1954	1954	1954	1956	1988	1953	1954	1954	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	351		319
HIGHEST ANNUAL MEAN			731
LOWEST ANNUAL MEAN			16.0
HIGHEST DAILY MEAN	11500	May 23	26200
LOWEST DAILY MEAN	2.0	Nov 9	.00
INSTANTANEOUS PEAK FLOW	20200	May 22	37000
INSTANTANEOUS PEAK STAGE	24.90	May 22	27.35
INSTANTANEOUS LOW FLOW	1.5	Nov 9	0
ANNUAL RUNOFF (INCHES)	11.36		10.32
10 PERCENTILE	759		667
50 PERCENTILE	126		70
95 PERCENTILE	8.0		.14

06919900 SAC RIVER NEAR CAPLINGER MILLS, MO

LOCATION.--Lat 37°52'12", long 93°48'11", in NW 1/4, NE 1/4, SW 1/4 sec.21, T.35 N., R.26 W., St. Clair County, Hydrologic Unit 10290106, on right downstream wingwall of bridge on State Highway W, 1.5 mi downstream from Cedar Creek and 5 mi north of Caplinger Mills.

DRAINAGE AREA.--1,810 mi².

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 720.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. Some regulation from Stockton Lake (station 06918990). U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	80	3060	1000	1280	388	3790	1730	384	178	5110	1770
2	103	75	856	1100	3540	367	3400	3160	374	165	3060	320
3	1270	72	351	1230	3820	1450	3480	3420	362	168	2110	530
4	1860	66	272	929	3590	2210	2960	3200	339	663	2700	1160
5	2410	133	247	771	3040	2350	2850	3340	1190	693	2150	1170
6	1780	86	227	836	2730	691	2980	3360	2850	686	1070	212
7	2870	77	223	818	2820	1640	2190	3170	2110	789	1110	187
8	1690	71	214	673	819	3450	2580	3100	2020	1020	187	1950
9	142	69	202	1480	676	1710	2020	2890	1960	122	156	1250
10	1130	69	194	2180	386	4000	1760	2090	1890	99	137	836
11	2030	70	186	566	313	3710	3600	1800	1240	843	124	583
12	116	1410	1110	443	310	2520	3350	1640	2250	955	214	364
13	74	1370	1650	397	332	1390	3100	166	2220	1000	1860	326
14	71	662	750	368	382	2250	3210	132	1900	1410	2560	665
15	67	1560	1920	548	2090	2510	3180	121	1560	115	3070	1350
16	65	1760	2770	557	3840	2570	2060	113	1610	93	3060	726
17	146	2920	1380	388	3150	1420	3130	110	1980	95	2970	464
18	126	1180	172	317	797	567	3340	114	1420	1570	3130	393
19	124	2010	148	300	556	502	2910	137	1380	1380	1910	1140
20	119	711	142	283	561	3440	3330	169	1610	1050	262	284
21	106	1850	137	263	984	6420	3490	163	280	279	1880	241
22	96	1100	350	255	981	2780	2690	10800	1280	185	1840	207
23	90	595	3600	431	3230	2160	1020	18400	1430	146	386	636
24	82	518	2560	1780	2780	1240	392	8300	1370	181	305	180
25	77	446	937	927	522	913	220	1410	263	1150	363	147
26	74	682	664	2150	405	769	226	3770	239	1930	1790	665
27	82	1230	2630	1600	403	682	1740	2430	1480	2290	1340	155
28	85	1820	4920	900	404	771	1770	642	1290	2490	933	135
29	92	2110	2330	2430	---	3010	1750	495	736	2920	382	124
30	91	3340	1290	2370	---	3430	1580	420	1160	1990	351	118
31	88	---	1070	1200	---	3480	---	1810	---	2020	642	---
MEAN	557	938	1179	951	1598	2090	2470	2665	1339	925	1521	610
MAX	2870	3340	4920	2430	3840	6420	3790	18400	2850	2920	5110	1950
MIN	65	66	137	255	310	367	220	110	239	93	124	118
IN.	.35	.58	.75	.61	.92	1.33	1.52	1.70	.83	.59	.97	.38

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	963	1202	1844	1581	1847	2474	2646	2051	1680	1046	879	977
MAX	6105	4069	5838	3683	5202	5630	5394	3919	4023	2530	1726	1599
(WY)	1987	1986	1986	1985	1985	1985	1985	1983	1979	1979	1982	1978
MIN	61.1	66.7	56.6	53.5	101	82.7	76.3	278	465	165	84.8	223
(WY)	1981	1981	1981	1981	1981	1981	1981	1981	1978	1988	1977	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1403	1597
HIGHEST ANNUAL MEAN		2691
LOWEST ANNUAL MEAN		399
HIGHEST DAILY MEAN	18400	51200
LOWEST DAILY MEAN	65	44
INSTANTANEOUS PEAK FLOW	21800	60000
INSTANTANEOUS PEAK STAGE	25.79	30.00
INSTANTANEOUS LOW FLOW	63	44
ANNUAL RUNOFF (INCHES)	10.52	11.98
10 PERCENTILE	3180	3920
50 PERCENTILE	1030	940
95 PERCENTILE	86	72

LOCATION.--Lat 37°40'56", long 93°22'12", in NE 1/4, NW 1/4, NW 1/4, sec.17, T.34 N., R.22 W., Polk County, Hydrologic Unit 10290107, on right bank 150 ft upstream from Jefferson Bridge on State Highway D and 5 mi southwest of Polk.

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

GAGE.--Water-stage recorder. Datum of gage is 872.61 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	34	258	543	342	215	523	62	87	33	158	37
2	38	32	220	584	295	206	428	59	78	25	89	27
3	37	29	194	564	282	203	522	60	72	21	66	21
4	34	28	170	470	214	491	533	60	69	18	51	18
5	29	26	150	545	197	710	434	60	74	16	38	17
6	26	25	139	503	177	447	329	57	83	12	30	15
7	25	25	133	400	173	477	298	52	72	11	23	13
8	23	24	132	322	160	395	272	51	62	9.7	19	12
9	23	26	124	274	137	430	238	50	56	7.8	16	21
10	22	42	113	249	144	1360	209	50	52	6.8	14	53
11	20	33	106	231	153	3540	190	47	58	6.1	12	38
12	19	382	98	213	153	3090	177	43	62	4.7	11	32
13	17	454	92	189	411	1320	164	41	57	5.3	10	27
14	16	200	90	176	513	845	154	38	62	4.3	9.4	37
15	14	147	84	176	710	611	145	37	58	7.3	9.0	37
16	62	440	77	163	741	495	136	34	49	24	10	33
17	112	234	72	151	499	424	133	33	44	22	11	29
18	88	155	70	143	408	390	123	33	45	23	8.6	26
19	63	131	69	134	359	330	118	339	43	37	12	24
20	51	1250	67	125	361	604	110	71	35	33	17	21
21	45	867	64	117	438	737	106	52	31	20	22	18
22	40	512	130	112	341	518	101	9970	28	16	56	15
23	41	450	183	109	272	472	106	1370	26	15	42	13
24	43	444	201	105	244	401	102	471	24	20	23	11
25	92	387	162	116	233	350	94	316	22	427	149	9.7
26	71	2560	146	292	227	315	85	271	51	82	236	9.5
27	59	1080	731	314	223	288	82	203	34	48	60	9.4
28	50	554	776	281	227	282	76	163	23	30	52	8.1
29	44	403	506	756	---	439	70	139	76	22	31	7.7
30	41	314	412	547	---	417	65	118	53	183	50	7.7
31	36	---	408	417	---	822	---	100	---	416	56	---
MEAN	42.6	376	199	301	308	698	204	466	52.9	51.8	44.9	21.6
MAX	112	2560	776	756	741	3540	533	9970	87	427	236	53
MIN	14	24	64	105	137	203	65	33	22	4.3	8.6	7.7
IN.	.18	1.52	.83	1.26	1.16	2.91	.83	1.95	.21	.22	.19	.00

MEAN	168	371	383	247	350	574	505	286	215	75.2	41.0	104
MAX	1094	1408	1488	639	1496	1673	1491	938	1043	326	154	604
(WY)	1987	1986	1983	1975	1985	1973	1983	1979	1981	1976	1985	1977
MIN	8.88	15.4	14.2	10.8	42.5	61.6	26.8	41.5	15.9	4.16	2.72	1.70
(WY)	1979	1977	1977	1977	1981	1981	1981	1977	1988	1980	1980	1980

FOR PERIOD OF RECORD

AVERAGE FLOW	231			276			
HIGHEST ANNUAL MEAN				532			1985
LOWEST ANNUAL MEAN				124			1980
HIGHEST DAILY MEAN	9970	May	22	18500	Oct	1	1986
LOWEST DAILY MEAN	4.3	Jul	14	.30	Aug	10	1980
INSTANTANEOUS PEAK FLOW	13800	May	22	23100	Oct	1	1986
INSTANTANEOUS PEAK STAGE	17.93	May	22	23.08	Oct	1	1986
INSTANTANEOUS LOW FLOW	4.0	Jul	14	0.3	Aug	10	1980
ANNUAL RUNOFF (INCHES)	11.34			13.56			
10 PERCENTILE	492			568			
50 PERCENTILE	83			85			
95 PERCENTILE	11			7.1			

06921200 LINDLEY CREEK NEAR POLK, MO

LOCATION.--Lat 37°45'02", long 93°15'58", in NE 1/4 SE 1/4 sec.29, T.35 N., R.21 W., Polk County, Hydrologic Unit 10290107, on left bank 30 ft upstream from county highway bridge, 0.5 mi downstream from Panther Creek, 2.5 mi northeast of Polk, and 11 mi upstream from Ingalls Creek.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--April 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 884.08 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 25, 1957, nonrecording gage at site 30 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records poor. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1914 reached a stage of about 25.2 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	2.5	54	197	106	59	179	8.8	16	1.0	13	42
2	3.8	2.5	40	219	93	55	152	9.1	14	.94	5.8	25
3	3.3	2.4	31	195	76	56	154	12	13	.67	3.0	18
4	2.5	2.3	21	143	53	196	188	12	11	.45	2.0	14
5	1.7	2.3	16	224	45	178	129	11	13	.28	1.4	12
6	1.4	2.3	14	277	35	155	120	9.0	11	.23	1.0	11
7	1.2	2.4	17	189	29	131	117	7.9	8.7	.21	.78	9.5
8	1.1	2.4	17	134	25	125	110	7.7	7.0	.18	.64	10
9	1.1	2.4	13	112	22	163	94	8.1	6.2	.16	.62	40
10	1.1	3.1	12	99	19	948	81	8.3	5.5	.14	.62	49
11	1.2	4.2	10	90	23	1170	74	7.5	7.8	.13	.64	28
12	1.1	117	8.2	80	24	421	68	6.9	16	.11	.63	19
13	.91	41	7.5	62	140	258	60	6.4	13	.10	.63	16
14	.72	8.4	7.2	63	98	208	56	6.0	10	.09	.56	49
15	1.4	7.0	6.0	66	278	150	57	5.5	7.5	.08	.40	43
16	3.0	92	4.8	57	206	126	50	5.1	5.5	27	5.6	26
17	3.5	23	3.9	50	141	113	42	5.0	4.3	8.9	27	20
18	3.7	8.3	3.5	45	117	107	36	5.5	3.6	4.7	4.0	15
19	3.5	5.6	3.3	36	108	94	32	250	3.2	30	2.7	12
20	2.8	403	3.3	29	123	389	27	40	2.8	9.1	2.7	9.8
21	2.9	165	2.7	23	146	410	25	17	2.3	3.5	28	7.2
22	2.9	105	135	21	102	248	22	1630	2.0	2.4	61	5.0
23	2.5	105	189	20	77	192	18	186	1.8	2.0	17	3.3
24	2.2	143	106	17	63	154	16	110	1.6	1.6	6.8	2.3
25	2.2	169	71	43	64	129	15	95	1.3	1.5	63	3.2
26	3.5	778	70	153	66	115	14	288	1.6	1.0	198	7.0
27	12	290	902	109	66	104	13	110	1.5	.86	150	7.8
28	9.8	145	382	120	77	190	12	70	1.4	.67	173	6.6
29	6.1	101	249	269	---	160	11	50	1.2	.50	154	6.5
30	3.8	72	186	171	---	184	9.5	32	1.1	3.9	122	5.0
31	2.6	---	175	132	---	300	---	21	---	69	81	---
MEAN	3.04	93.6	89.0	111	86.5	235	66.0	98.1	6.50	5.53	36.4	17.4
MAX	12	778	902	277	278	1170	188	1630	16	69	198	49
MIN	.72	2.3	2.7	17	19	55	9.5	5.0	1.1	.08	.40	2.3
IN.	.03	.93	.92	1.14	.80	2.42	.66	1.01	.06	.06	.37	.17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	86.3	96.8	121	91.1	128	200	169	134	77.3	35.0	14.6	35.3
MAX	812	566	526	357	764	855	650	843	421	534	100	258	
(WY)	1987	1986	1983	1973	1985	1973	1983	1961	1985	1958	1958	1958	
MIN	.00	.04	.38	.75	1.49	16.9	4.86	8.23	.73	.08	.00	.00	
(WY)	1977	1964	1964	1964	1964	1981	1981	1988	1988	1980	1976	1960	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	70.8	98.4
HIGHEST ANNUAL MEAN		232
LOWEST ANNUAL MEAN		25.9
HIGHEST DAILY MEAN	1630	12000
LOWEST DAILY MEAN	.08	.00
INSTANTANEOUS PEAK FLOW	5490	31900
INSTANTANEOUS PEAK STAGE	14.94	23.60
INSTANTANEOUS LOW FLOW	.08	0
ANNUAL RUNOFF (INCHES)	8.58	11.93
10 PERCENTILE	180	177
50 PERCENTILE	17	25
95 PERCENTILE	.61	.00

OSAGE RIVER BASIN

06921325 POMME DE TERRE LAKE NEAR HERMITAGE, MO

LOCATION.--Lat 37°54'06", long 93°19'05", in NE 1/4 sec.2, T.36 N., R.22 W., Hickory County, Hydrologic Unit 10290107, in intake tower at dam on Pomme de Terre River, and 3 mi southwest of Hermitage.

DRAINAGE AREA.--611 mi².

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

GAGE.--Water-stage recorder. Non-recording gage prior to Nov. 9, 1961. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Lake is formed by earthfill embankment with a concrete gravity section-type dam. Closure operation began on June 28, 1960; conservation pool level reached June 15, 1963. Capacity at top of flood control pool, 648,700 acre-ft at elevation, 874 ft, crest of spillway, of which 407,200 acre-ft between elevations 839 ft and 874 ft is used for flood control, and 228,700 acre-ft between elevation 783 ft and 839 ft is used for conservation and 12,840 acre-ft below elevation 783 ft is sediment storage. Lake used for flood control and recreational purposes.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 481,000 acre-ft, Apr. 30, 1973, elevation, 862.35 ft, minimum, since initial filling to conservation pool level, 216,000 acre-ft, Mar. 3, 1964, elevation, 835.61 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 276,000 acre-ft, May 23-24, elevation, 843.71 ft, May 23; minimum, 241,000 acre-ft, Nov. 11, elevation, 838.89 ft.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	839.44	839.00	841.81	840.96	840.08	839.22	841.59	839.16	842.48	840.64	840.45	840.61
2	839.42	839.00	841.54	840.86	839.97	839.23	841.59	839.14	842.29	840.62	840.46	840.61
3	839.39	838.98	841.27	840.78	839.84	839.23	841.50	839.15	842.08	840.59	840.46	840.59
4	839.35	838.97	840.93	840.68	839.70	839.30	841.53	839.15	841.87	840.55	840.43	840.57
5	839.33	838.95	840.62	840.52	839.51	839.51	841.66	839.13	841.71	840.52	840.41	840.60
6	839.30	838.94	840.30	840.45	839.32	839.73	841.72	839.12	841.50	840.48	840.37	840.58
7	839.30	838.92	839.98	840.28	839.14	839.83	841.62	839.09	841.27	840.45	840.33	840.55
8	839.27	838.91	839.66	840.08	839.05	839.80	841.48	839.08	841.14	840.41	840.29	840.53
9	839.25	838.91	839.33	839.90	838.98	839.72	841.44	839.07	841.03	840.37	840.25	840.59
10	839.24	838.90	839.22	839.62	838.97	839.77	841.41	839.06	840.97	840.33	840.21	840.57
11	839.19	838.89	839.11	839.34	839.00	841.00	841.36	839.04	840.97	840.29	840.17	840.56
12	839.16	839.10	839.01	839.05	839.04	842.23	841.30	839.02	841.06	840.24	840.13	840.56
13	839.13	839.17	839.02	839.05	839.11	842.84	841.28	839.00	841.06	840.21	840.09	840.53
14	839.10	839.31	839.03	839.08	839.26	842.88	841.33	838.98	841.06	840.16	840.08	840.60
15	839.07	839.38	839.05	839.09	839.46	842.68	841.23	838.97	841.04	840.22	840.05	840.62
16	839.05	839.44	839.07	839.11	839.62	842.40	841.02	838.95	841.03	840.26	840.00	840.63
17	839.08	839.57	839.08	839.11	839.67	842.06	840.83	838.93	840.99	840.22	840.02	840.62
18	839.07	839.64	839.09	839.11	839.63	841.75	840.61	838.94	840.97	840.34	839.97	840.60
19	839.08	839.67	839.08	839.11	839.55	841.39	840.37	839.09	840.96	840.34	839.94	840.58
20	839.07	839.82	839.13	839.08	839.46	841.16	840.13	839.28	840.94	840.31	839.99	840.58
21	839.08	840.35	839.12	839.11	839.39	841.44	839.89	839.30	840.91	840.28	840.09	840.53
22	839.07	840.51	839.20	839.13	839.30	841.42	839.63	839.93	840.88	840.26	840.19	840.50
23	839.07	840.60	839.56	839.16	839.19	841.21	839.38	843.71	840.85	840.23	840.19	840.47
24	839.07	840.69	839.65	839.17	839.13	840.92	839.24	843.64	840.83	840.21	840.17	840.42
25	839.05	840.78	839.70	839.19	839.15	840.91	839.18	843.20	840.80	840.26	840.17	840.39
26	839.06	841.21	839.80	839.29	839.17	840.92	839.18	842.88	840.77	840.30	840.37	840.34
27	839.05	842.14	840.20	839.43	839.20	840.92	839.19	842.87	840.75	840.31	840.44	840.31
28	839.04	842.43	841.05	839.58	839.22	840.99	839.19	842.89	840.73	840.29	840.50	840.26
29	839.04	842.32	841.11	839.68	---	841.09	839.19	842.89	840.69	840.26	840.56	840.24
30	839.02	842.09	841.08	840.14	---	841.17	839.17	842.85	840.66	840.23	840.57	840.21
31	839.01	---	841.03	840.17	---	841.36	---	842.66	---	840.39	840.61	---
MAX	839.44	842.43	841.81	840.96	840.08	842.88	841.72	843.71	842.48	840.64	840.61	840.63
MIN	839.01	838.89	839.01	839.05	838.97	839.22	839.17	838.93	840.66	840.16	839.94	840.21
(-)	242000	267000	258000	251000	243000	261000	243000	267000	251000	248000	250000	247000
(=)	-3000	+25000	-9000	-7000	-8000	+18000	-18000	+24000	-16000	-3000	+2000	-3000

CAL YR 1988 (=) -13000

WTR YR 1989 (=) +2000

(-) Contents, in acre feet, at end of month
(=) Change in contents, in acre feet

06921350 POMME DE TERRE RIVER NEAR HERMITAGE, MO

LOCATION.--Lat 37°54'20", long 93°19'45", in NW 1/4 NW 1/4 sec.2, T.36 N., R.22 W., Hickory County, Hydrologic Unit 10290107, on right bank 2,000 ft downstream from outlet of Pomme de Terre Lake, 2.5 mi southwest of Hermitage, 4.5 mi upstream from Green Branch, and at mile 43.4.

DRAINAGE AREA.--615 mi².

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

GAGE.-- Water-stage recorder. Datum of gage is 749.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 28. Records good. Several observations of water temperature and specific conductance were made during the year. Flow regulated by Pomme de Terre Lake (station 06921325) 0.5 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	48	1690	1300	1050	314	866	126	1020	107	108	107
2	89	48	1680	1300	1050	315	1090	125	1020	107	108	107
3	89	48	1670	1300	1050	316	952	123	1010	107	108	107
4	89	48	1670	1450	1050	320	692	124	1010	107	108	110
5	89	48	1660	1610	1040	321	240	126	1010	107	108	107
6	88	48	1650	1600	1040	321	858	128	1010	107	108	106
7	88	48	1650	1600	767	748	1090	129	840	107	109	106
8	88	48	1640	1600	574	1060	903	128	497	107	108	105
9	88	48	1000	1590	311	1060	541	125	329	107	108	107
10	88	48	519	1590	92	1060	543	125	102	108	108	105
11	88	48	519	1580	91	1070	546	124	103	108	108	104
12	88	50	271	844	91	1070	410	123	103	108	108	104
13	88	48	54	242	92	1650	112	121	104	108	108	104
14	88	48	54	243	92	2130	493	119	104	109	108	106
15	88	48	54	242	605	2120	970	89	104	112	108	103
16	89	49	54	242	1020	2120	973	54	104	110	108	102
17	65	48	54	242	1020	2110	1030	52	104	109	108	102
18	47	48	54	242	1020	2110	1120	50	105	113	108	102
19	47	48	54	242	1020	2100	1130	51	105	110	109	102
20	47	50	54	181	1020	2120	1130	48	105	110	108	101
21	47	175	54	94	1020	2100	1130	48	105	109	115	101
22	48	306	76	94	1020	2100	1130	67	105	109	109	101
23	48	304	200	94	818	2100	885	1200	105	109	108	103
24	48	302	451	94	330	1390	485	2540	105	110	109	102
25	48	303	449	95	310	526	219	2640	106	108	109	101
26	48	304	448	95	311	529	126	1780	107	108	109	101
27	48	303	800	95	312	531	127	288	107	108	109	101
28	48	1060	1310	96	313	536	126	289	107	108	108	100
29	48	1710	1310	96	---	537	126	289	107	108	109	99
30	48	1700	1300	527	---	539	125	734	107	111	108	100
31	48	---	1300	1050	---	541	---	1020	---	109	107	---
MEAN	69.3	248	766	699	662	1157	672	419	332	109	108	104
MAX	89	1710	1690	1610	1050	2130	1130	2640	1020	113	115	110
MIN	47	48	54	94	91	314	112	48	102	107	107	99
IN.	.13	.45	1.44	1.31	1.12	2.17	1.22	.79	.60	.20	.20	.19

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	243	542	704	480	612	890	872	838	475	329	97.4	113
MEAN	243	542	704	480	612	890	872	838	475	329	97.4	113
MAX	1131	2872	2886	1878	2100	3487	2948	4799	2157	1635	480	613
(WY)	1987	1987	1986	1988	1975	1985	1984	1961	1985	1981	1978	1970
MIN	13.1	7.50	20.5	20.4	21.5	24.6	26.8	26.4	31.9	26.0	18.6	1.27
(WY)	1969	1977	1963	1962	1963	1963	1963	1963	1969	1970	1961	1960

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	445	516
HIGHEST ANNUAL MEAN		1163
LOWEST ANNUAL MEAN		67.8
HIGHEST DAILY MEAN	2640	9000
LOWEST DAILY MEAN	47	.00
INSTANTANEOUS PEAK FLOW	2670	9000
INSTANTANEOUS PEAK STAGE	8.24	15.02
INSTANTANEOUS LOW FLOW	46	0
ANNUAL RUNOFF (INCHES)	9.82	11.40
10 PERCENTILE	1310	1770
50 PERCENTILE	109	109
95 PERCENTILE	50	25

OSAGE RIVER BASIN

06921760 SOUTH GRAND RIVER NEAR CLINTON, MO

LOCATION.--Lat 38°22'16", long 93°51'23", in NW 1/4 SW 1/4 SE 1/4 sec. 1, T.41N., R.27W., Henry County, Hydrologic Unit 10290108 at right upstream end of bridge on State Highway 18, 4.4 mi west of Clinton and 5.4 mi downstream from Big Creek.

DRAINAGE AREA.--1,270 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above National Geodetic Vertical Datum of 1929. Auxilliary water-stage recorder 3.3 mi upstream from base gage at same datum.

REMARKS.--Estimated daily discharges: Oct. 1-4. Records poor. Stage discharge relation affected by backwater from Truman Reservoir and daily values are calculated using fall computations. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	38	164	236	243	118	519	68	369	234	249	480
2	30	40	126	193	191	117	473	62	361	589	238	350
3	35	37	106	159	136	131	798	57	426	970	151	276
4	30	35	89	135	126	346	2500	53	408	531	105	220
5	28	33	80	109	111	949	2440	52	938	266	72	849
6	30	32	77	90	98	801	1330	47	1490	170	56	1310
7	27	31	71	130	84	419	872	45	930	122	44	1670
8	32	27	68	183	81	249	653	47	535	93	38	2250
9	43	28	70	169	68	195	513	45	363	84	36	1410
10	44	31	59	132	63	171	388	37	276	66	34	2290
11	41	31	55	116	61	179	275	38	227	52	29	1830
12	34	33	50	99	60	189	202	35	208	43	28	1010
13	53	43	41	102	64	184	161	37	835	38	29	636
14	68	49	38	99	62	161	140	41	714	36	30	926
15	72	53	33	87	68	134	130	42	379	41	28	1530
16	64	61	45	82	80	129	125	41	270	36	30	1210
17	67	104	47	79	115	122	115	40	216	36	56	780
18	63	107	50	77	153	113	110	50	435	119	85	508
19	65	84	41	75	156	119	104	1920	1100	801	77	354
20	66	76	39	68	151	145	98	4590	874	570	275	256
21	53	68	39	69	154	822	92	4880	408	229	1180	198
22	55	54	43	65	161	1200	89	5420	237	141	3660	155
23	50	51	38	63	154	793	87	15100	179	122	3810	130
24	52	49	49	58	128	502	82	9060	132	141	9820	114
25	45	56	64	56	121	362	79	4090	112	164	14800	101
26	52	75	67	62	115	285	78	2260	101	141	5490	90
27	46	320	96	62	118	218	77	1610	462	105	1650	82
28	44	491	247	76	115	183	74	1110	1570	75	964	75
29	40	375	444	97	---	568	73	826	902	60	676	68
30	38	249	360	177	---	791	70	643	380	54	726	66
31	42	---	290	274	---	614	---	482	---	54	639	---
MEAN	46.4	92.0	99.5	112	116	365	425	1704	528	199	1455	707
MAX	72	491	444	274	243	1200	2500	15100	1570	970	14800	2290
MIN	27	27	33	56	60	113	70	35	101	36	28	66
IN.	.04	.08	.09	.10	.09	.33	.37	1.55	.46	.18	1.32	.62

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	---	---	1069	249	451	622	1764	853	336	357	571	368
MAX	---	---	1622	386	787	879	3798	1704	528	644	1455	707
(WY)	---	---	1987	1988	1988	1988	1988	1989	1989	1987	1989	1989
MIN	---	---	99.5	112	116	365	425	116	33.8	199	45.7	29.0
(WY)	---	---	1989	1989	1989	1989	1989	1988	1988	1989	1988	1987

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	491	*****	
HIGHEST ANNUAL MEAN	491		1989
LOWEST ANNUAL MEAN	491		1989
HIGHEST DAILY MEAN	15100	May 23	62300 Oct 1 1986
LOWEST DAILY MEAN	27	Oct 7, Nov 8	15 Sep 12 1987
INSTANTANEOUS PEAK FLOW	18700	Aug 24	66000 Oct 1 1986
INSTANTANEOUS PEAK STAGE	18.30	Aug 25	*****
INSTANTANEOUS LOW FLOW	27	Oct 7, Nov 8	*****
ANNUAL RUNOFF (INCHES)	5.25		*****
10 PERCENTILE	947		974
50 PERCENTILE	110		111
95 PERCENTILE	33		32

***** Indicates not enough data, therefore statistic is not computed

OSAGE RIVER BASIN

155

06922070 ELM BRANCH NEAR WINDSOR, MO

WATER-QUALITY RECORDS

LOCATION.--Lat. 38°30'32", long. 93°31'15", in NW 1/4 SW 1/4 NE 1/4 sec. 13, T.43N., R.24W., Henry County, Hydrologic Unit 10290108, at bridge on County Highway E, 1 mi south of Windsor.

PERIOD OF RECORD.--October 1988 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION) (00301)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT												
06...	1545	0.13	635	639	7.40	10.5	4.3	38	176	130	170	600
NOV												
03...	1345	0.10	844	892	7.60	9.0	2.5	22	258	110	30	60
DEC												
20...	1300	0.36	610	619	8.00	5.5	9.3	74	189	66	90	690
JAN												
05...	1545	0.40	512	525	7.60	3.5	10.5	79	129	99	40	430
FEB												
07...	1230	0.35	679	685	7.20	0.5	8.0	55	214	99	100	900
MAR												
07...	1345	0.50	477	499	8.20	2.5	17.4	125	115	92	50	340
APR												
05...	1245	2.8	384	388	7.60	11.0	9.9	88	82	130	70	340
MAY												
11...	1220	0.40	639	631	7.70	12.5	3.1	29	184	75	40	1500
JUN												
08...	1130	0.20	477	471	7.40	20.5	3.1	34	125	77	30	730

OSAGE RIVER BASIN

06922190 WEST FORK TEBO CREEK NEAR LEWIS, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 38°25'16", long 93°39'36", in NW 1/4, NW 1/4, NW 1/4, sec.23, T.42 N., R.25 W., Henry County, Hydrologic Unit 10290108, at bridge on county road, 2 miles southeast of Lewis.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT												
06...	1430	0.10	1840	7.90	11.5	9.6	86	230	1100	950	270	99
NOV												
03...	1230	0.50	2140	7.80	12.5	8.2	78	36	1300	1100	340	110
DEC												
20...	1430	1.0	2170	8.30	4.5	12.9	100	51	1300	1100	330	110
JAN												
05...	1415	1.0	2000	8.00	3.5	12.9	98	82	1100	940	280	98
FEB												
07...	1030	1.0	2430	7.40	0.5	12.3	85	26	1600	1400	400	150
MAR												
07...	1505	1.0	1640	8.10	2.5	15.2	110	K4	950	800	240	85
APR												
05...	1000	6.0	1560	8.10	10.5	12.1	107	510	870	730	220	79
MAY												
11...	1005	1.0	2130	7.90	15.5	8.3	82	120	1300	1100	320	110
JUN												
08...	1000	1.0	1630	7.80	20.5	7.4	82	530	910	750	230	81
JUL												
19...	1210	0.50	2110	8.00	23.0	8.1	94	210	1300	1200	340	120
AUG												
01...	1305	0.50	2060	7.90	25.0	7.5	90	270	1300	1100	340	110
SEP												
08...	1210	0.50	1960	8.00	25.5	6.2	76	160	1200	1000	300	110

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)
OCT											
06...	62	7.2	134	1100	4.9	0.40	7.6	--	<0.100	0.60	0.040
NOV											
03...	70	7.0	166	1300	5.2	0.30	9.0	2030	<0.100	0.40	0.070
DEC											
20...	72	6.2	182	1200	6.2	0.30	7.4	1970	<0.100	0.30	0.020
JAN											
05...	63	6.2	166	1200	5.2	0.30	7.1	1850	0.100	0.70	0.020
FEB											
07...	83	7.2	230	1600	5.2	0.30	8.5	2470	<0.100	0.40	0.020
MAR											
07...	48	5.5	155	930	6.5	0.30	6.1	1500	0.200	0.50	0.040
APR											
05...	46	6.0	142	840	6.8	0.30	5.6	1350	<0.100	0.40	0.020
MAY											
11...	75	7.4	181	1300	4.9	0.30	6.2	1830	<0.100	0.30	0.030
JUN											
08...	50	7.3	164	860	6.8	0.40	8.6	1410	0.500	0.90	0.030
JUL											
19...	80	7.7	188	1300	4.5	0.40	8.0	2020	<0.100	0.60	0.020
AUG											
01...	81	8.5	185	1300	4.4	0.40	9.0	2040	0.200	0.50	0.030
SEP											
08...	64	8.5	169	1200	4.7	0.40	8.0	1880	0.100	0.50	0.060

K--Results based on colony count outside the acceptable range (non-ideal colony count).

OSAGE RIVER BASIN

157

06922190 WEST FORK TEBO CREEK NEAR LEWIS, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01108)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G) AS CD) (01028)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01029)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G) AS CU) (01043)
OCT 06...	110	3000	<1	1	2	20	54	20
JAN 05...	80	6500	1	1	3	30	3	20
APR 05...	90	36000	<1	2	2	20	2	10
JUL 19...	120	4000	<1	1	2	20	3	10

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G) AS FE) (01170)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G) AS PB) (01052)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01053)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G) AS ZN) (01093)
OCT 06...	260	18000	9	40	--	2600	60	90
JAN 05...	180	52000	<5	40	420	3200	<10	150
APR 05...	200	21000	<5	<10	250	2900	10	90
JUL 19...	180	18000	1	40	230	3300	<10	90

06922440 HARRY S. TRUMAN RESERVOIR AT WARSAW, MO

LOCATION.-- Lat 38°15'30", long 93°23'40", in sec.7, T.40 N., R.22 W., Benton County, Hydrologic Unit 10290105, in control room near middle of dam on Osage River, and 1.5 mi northwest of Warsaw and at mile 175.

DRAINAGE AREA.--11,500 mi².

PERIOD OF RECORD.--October 1981 to current year. Records collected at same site since 1977 and are available from U.S. Army Corps of Engineers.

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

REMARKS.--Lake is formed by a rolled earthfill type dam. Storage began on July 21, 1977. Spillway is equipped with 4 tainter gates 40 ft wide by 47.3 ft high. Capacity of surcharge pool (elevations 739.6 ft to 751.1 ft), 2,911,000 acre-ft; of flood control pool (elevations 706.0 ft to 739.6 ft, 4,006,000 acre-ft; and of multipurpose pool (elevations 635.0 ft to 706.0), 1,203,000 acre-ft. Lake is used for flood control, hydroelectric power, recreation, fish and wildlife conservation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,020,000 acre-ft, Oct. 11, 12, 1986, elevation, 738.69 ft, Oct. 11, 1986; minimum, 41,700 acre-ft, Nov. 14, 1978, elevation, 661.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,430,000 acre-ft, May 25, elevation, 709.66 ft; minimum, 1,120,000 acre-ft, Apr. 28, elevation, 704.46 ft.

RESERVOIR ELEVATION SURFACE WATER (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 24:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	706.89	706.10	706.72	707.82	706.94	706.53	706.37	704.68	707.43	706.92	706.89	707.59
2	706.95	706.02	706.72	707.61	706.67	706.53	706.63	704.81	707.19	706.98	707.04	707.39
3	706.84	706.04	706.75	707.32	706.51	706.63	706.88	704.97	707.20	706.97	707.01	707.18
4	706.83	706.06	706.76	707.02	706.73	706.59	706.90	705.11	707.25	707.02	706.63	707.29
5	706.82	706.12	706.84	706.85	706.96	706.90	707.00	705.26	707.19	706.97	706.57	707.28
6	706.63	706.02	706.75	706.81	706.79	706.72	707.05	705.40	707.26	706.84	706.59	707.15
7	706.65	706.02	706.74	707.02	706.91	706.41	706.94	705.49	707.26	706.66	706.54	707.04
8	706.75	706.00	706.57	707.11	706.67	706.30	706.77	705.66	707.30	706.63	706.37	707.04
9	706.76	706.06	706.45	706.75	706.50	706.32	706.62	705.78	706.95	706.54	706.33	707.18
10	706.67	706.03	706.45	706.70	706.48	706.60	706.27	705.89	706.93	706.35	706.32	707.32
11	706.73	705.82	706.46	706.83	706.51	707.04	706.04	705.97	706.79	706.23	706.24	707.71
12	706.75	706.03	706.05	706.91	706.57	707.35	705.80	706.07	706.89	706.22	706.16	707.70
13	706.72	706.14	706.12	706.97	706.47	707.17	705.66	706.06	707.08	706.22	706.15	707.64
14	706.71	706.32	706.10	706.83	706.21	706.98	705.56	706.07	707.14	706.24	706.12	707.45
15	706.70	706.61	705.98	706.86	705.99	706.69	705.53	706.08	707.16	706.37	706.06	707.31
16	706.73	706.44	705.94	706.79	706.24	706.66	705.40	706.08	707.05	706.38	706.09	707.37
17	706.72	706.40	706.02	706.83	706.54	706.70	705.33	706.07	707.01	706.39	706.09	707.56
18	706.73	706.38	706.06	706.82	706.78	706.80	705.21	706.13	706.91	706.48	706.07	707.25
19	706.68	706.38	706.13	706.83	706.91	706.94	705.01	706.22	706.75	706.48	706.42	706.91
20	706.67	706.54	706.09	706.73	707.10	707.20	704.85	706.44	706.77	706.62	706.61	706.90
21	706.56	706.42	706.09	706.74	707.11	707.67	704.80	706.67	706.56	706.63	707.64	706.86
22	706.59	706.67	706.34	706.76	706.72	707.83	704.76	707.78	706.63	706.69	708.23	706.73
23	706.65	706.77	706.57	706.56	706.53	707.79	704.89	708.56	706.48	706.72	708.33	706.77
24	706.51	706.88	706.77	706.50	706.66	707.63	704.92	709.34	706.50	706.70	708.36	706.80
25	706.51	707.03	706.86	706.63	706.78	707.32	704.73	709.66	706.52	706.62	708.56	706.75
26	706.50	707.21	707.01	706.57	706.90	707.00	704.54	709.46	706.58	706.57	708.94	706.69
27	706.47	707.45	707.33	706.55	706.83	706.64	704.48	709.33	706.63	706.40	708.96	706.65
28	706.41	707.38	707.45	706.75	706.64	706.51	704.46	709.01	706.83	706.32	708.91	706.54
29	706.39	707.28	707.48	707.03	---	706.40	704.54	708.74	706.81	706.42	708.77	706.53
30	706.40	707.06	707.39	707.20	---	706.25	704.62	708.12	706.84	706.62	708.52	706.54
31	706.21	---	707.64	707.27	---	706.13	---	707.76	---	706.64	708.07	---
MAX	706.95	707.45	707.64	707.82	707.11	707.83	707.05	709.66	707.43	707.02	708.96	707.71
MIN	706.21	705.82	705.94	706.50	705.99	706.13	704.46	704.68	706.48	706.22	706.06	706.53
(-)	1220000	1260000	1300000	1280000	1240000	1210000	1130000	1310000	1250000	1240000	1320000	1230000
(=)	-30000	+40000	+40000	-20000	-40000	-30000	-80000	+180000	-60000	-10000	+80000	-90000

CAL YR 1988 (=) -440000

WTR YR 1989 (=) -20000

(-) Contents, in acre feet, at end of month

(=) Change in contents, in acre feet

06922450 OSAGE RIVER BELOW HARRY S. TRUMAN DAM AT WARSAW, MO

LOCATION.--Lat 38°15'41", long 93°24'16", NE 1/4 SW 1/4 sec.17, T.40 N., R.22 W., Benton County, Hydrologic Unit 10290109, on right bank 2,000 ft below Harry S. Truman Dam, and 1.5 mi northwest of Warsaw.

DRAINAGE AREA.--11,500 mi² (7,856 mi² uncontrolled area below other reservoirs).

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

GAGE.--Acoustic flow monitor. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records are fair above 500 ft³/s and poor below 500 ft³/s. Records not published prior to 1982 water year due to test period of acoustic flow monitor which included periods of unreliable record. Flow completely regulated by Harry S. Truman Dam (station 06922440) 2,000 ft upstream.

COOPERATION.--For discharge below 500 ft³/s and days of no acoustic velocity meter record data was provided by the U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	2610	13100	0	13900	5000	7330	200	11700	309	6410	23600
2	0	2340	3100	12100	12800	2070	8190	71	11000	451	9180	10700
3	4110	0	2150	12800	10300	800	8100	0	8110	4920	9260	9570
4	3510	0	0	12600	0	6450	9210	0	7030	2120	13200	5400
5	1390	0	3190	10800	0	0	6970	0	7660	3020	4700	4910
6	5860	0	5440	5220	9050	9380	7500	0	12200	5270	130	7600
7	1640	358	2040	457	1530	11300	8310	0	12300	5610	3990	7810
8	0	0	6870	0	8740	7890	10200	0	12200	417	4180	8200
9	0	1500	5080	14500	5690	7730	7670	0	12400	3340	313	4620
10	4050	0	0	6220	1850	2340	11900	50	6280	5120	500	5080
11	0	6760	1650	0	0	0	11600	100	7540	3660	1790	423
12	321	0	12500	0	0	0	11000	50	4060	443	1670	7590
13	0	0	1390	0	5010	11200	8710	0	6590	349	2520	8080
14	46	0	0	5270	8910	13400	7160	0	10100	250	2150	9530
15	0	0	5020	888	10100	11000	5880	50	9590	250	3200	10200
16	0	3920	3210	3590	1050	7400	7180	100	8390	250	3750	4940
17	0	5400	0	596	0	4540	6600	100	6150	301	3060	5020
18	0	4440	0	1240	0	0	8510	50	6570	3890	3750	11700
19	1150	1210	0	1770	0	0	10300	0	6740	3430	365	9570
20	1290	0	0	3790	0	12100	8130	0	3030	3610	500	4000
21	2360	5880	0	1930	5620	11700	5330	363	6770	3550	3220	2820
22	0	0	0	0	15000	10400	4920	8260	653	333	5660	3470
23	0	0	0	4030	11200	11500	200	21600	6120	260	14100	0
24	2260	0	0	5050	2310	10600	694	20700	250	3470	17800	0
25	303	0	0	2750	0	11500	4920	15100	245	5260	22100	2030
26	0	0	0	3530	0	11600	5060	19200	218	4560	23000	1720
27	561	0	8060	7600	5350	11700	4030	11300	580	7310	21300	2110
28	1120	9200	12300	0	5880	7540	200	11400	150	4360	22600	2600
29	0	12400	12600	0	---	9440	200	10600	3460	229	23300	564
30	0	12800	12100	3790	---	14000	200	19400	426	250	24200	1210
31	5570	---	0	1390	---	12700	---	11800	---	4440	23700	---
MEAN	1146	2294	3542	3933	4796	7590	6540	4855	6284	2614	8890	5836
MAX	5860	12800	13100	14500	15000	14000	11900	21600	12400	7310	24200	23600
MIN	0	0	0	0	0	0	200	0	150	229	130	0
IN.	.17	.33	.52	.58	.64	1.11	.93	.71	.89	.38	1.31	.83

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	10380	12040	14800	8859	10900	17780	19320	15930	13270	7814	3908	3166
	MAX	52090	42250	36740	20340	20050	44920	32720	35940	31450	17550	9064	5836
	(WY)	1987	1987	1986	1985	1982	1985	1984	1983	1983	1982	1982	1989
	MIN	614	935	3542	3933	4796	4217	4581	4855	585	1100	550	621
	(WY)	1988	1983	1989	1989	1989	1986	1982	1989	1988	1988	1986	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	4856	11510
HIGHEST ANNUAL MEAN		17280
LOWEST ANNUAL MEAN		4856
HIGHEST DAILY MEAN	24200	71100
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	24200	71100
INSTANTANEOUS PEAK STAGE	*****	*****
INSTANTANEOUS LOW FLOW	0	0
ANNUAL RUNOFF (INCHES)	5.76	13.7

***** Indicates not enough data, therefore statistic is not computed

OSAGE RIVER BASIN

06923500 BENNETT SPRING AT BENNETT SPRINGS, MO

LOCATION.--Lat 37°43'03", long 92°51'26", in NW 1/4 sec.1, T.34 N., R.18 W., Dallas County, Hydrologic Unit 10290110, on left bank 300 ft downstream from spring outlet, 1.5 mi upstream from Niangua River and at Bennett Springs.

PERIOD OF RECORD.--September 1916 to March 1920, October 1928 to September 1941, October 1965 to current year. Prior to March 1920 and October 1939 to September 1941 monthly discharge only published in WSP 1310. Occasional discharge measurements 1923, 1964, 1965.

GAGE.--Water stage recorder. Prior to May 26, 1987, nonrecording stage. Datum of gage 864.71 ft above National Geodetic Vertical Datum of 1929. Sept. 1916 to Mar. 1920, in the vicinity, datum unknown; Oct. 17, 1928, to Apr. 11, 1934, at site 1,780 ft downstream at datum 2.30 ft lower; Apr. 12 to Dec. 13, 1934, nonrecording gage; Dec. 14, 1934, to Sept. 17, 1941, water-stage recorder at present site and datum; and Sept 18, 1941, to May 25, 1987, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Oct. 1-10 and Nov. 6-29. Records fair except for estimated daily discharge Nov. 6-29, which are poor. Several observations of water temperature and specific conductance were made during the year. Occasional runoff from drainage area of 42.4 mi² included in records.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	115	285	204	216	186	319	171	146	124	124	116
2	120	117	268	211	204	185	311	168	144	124	122	115
3	120	115	253	228	196	187	308	166	143	123	122	113
4	120	114	239	236	187	213	309	165	139	121	121	113
5	120	114	228	243	182	261	296	164	138	120	120	112
6	120	114	218	258	177	256	286	160	138	119	120	112
7	120	114	209	249	172	245	279	158	137	120	119	111
8	120	114	197	230	167	235	275	157	136	119	119	111
9	120	114	188	217	161	231	266	156	135	119	119	113
10	120	114	183	207	161	270	257	153	133	119	117	117
11	120	120	176	200	163	565	249	150	133	118	116	114
12	119	150	172	192	163	638	246	149	138	117	115	113
13	117	155	168	182	188	516	240	149	136	118	115	113
14	117	150	167	180	203	445	237	148	135	119	115	114
15	118	145	163	177	215	392	233	146	132	130	115	114
16	122	165	161	171	233	355	230	146	131	134	115	113
17	120	160	160	168	228	327	225	144	129	129	116	112
18	119	160	159	164	221	308	220	144	127	127	115	111
19	119	155	158	161	218	291	214	144	127	127	115	110
20	117	250	157	158	216	290	209	142	126	125	115	110
21	117	245	152	157	223	305	208	141	126	124	115	110
22	118	240	152	156	215	297	204	216	126	122	123	110
23	118	240	163	155	204	290	201	257	126	120	120	109
24	117	235	163	155	198	281	197	216	123	119	117	108
25	117	235	161	158	196	273	190	195	123	119	115	108
26	117	700	160	188	196	264	186	202	124	120	115	108
27	115	650	175	192	195	258	184	189	124	120	115	106
28	115	450	224	188	191	257	181	172	129	119	121	105
29	115	350	220	218	---	262	178	163	125	119	116	105
30	115	313	211	228	---	263	175	156	123	121	116	105
31	115	---	205	223	---	320	---	151	---	125	120	---
MEAN	118	214	190	195	196	305	237	166	132	122	118	111
MAX	122	700	285	258	233	638	319	257	146	134	124	117
MIN	115	114	152	155	161	185	175	141	123	117	115	105

STATISTICS OF MONTHLY FLOW DATA, FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
MEAN	133	154	167	159	183	231	252	235	188	143	125
MAX	578	508	436	295	447	712	504	487	704	262	193
(WY)	1987	1973	1983	1985	1985	1973	1973	1929	1935	1935	1970
MIN	81.3	76.0	78.9	78.6	81.3	85.2	84.8	92.3	85.0	79.7	77.5
(WY)	1938	1938	1938	1940	1934	1936	1936	1934	1936	1934	1936

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	175		174
HIGHEST ANNUAL MEAN			296
LOWEST ANNUAL MEAN			93.4
HIGHEST DAILY MEAN	700	Nov 26	6350
LOWEST DAILY MEAN	105	Sep 28-30	55
INSTANTANEOUS PEAK FLOW	2510	Nov 26	14400
INSTANTANEOUS PEAK STAGE	5.22	Nov 26	11.1
INSTANTANEOUS LOW FLOW	105	Sep 27-30	55
ANNUAL RUNOFF (INCHES)	*****		*****
10 PERCENTILE	262		286
50 PERCENTILE	155		134
95 PERCENTILE	112		83

***** Indicates not enough data, therefore statistic is not computed

OSAGE RIVER BASIN

06925500 LAKE OF THE OZARKS NEAR BAGNELL, MO

LOCATION.--Lat 38°12'19", long 92°37'21", in SE 1/4 sec.19, T.40 N., R.15 W., Miller County, Hydrologic Unit 10290111, at left end of powerhouse section near left end of Bagnell Dam on Osage River, 2 mi southwest of Bagnell, and at mile 81.7.

DRAINAGE AREA.--14,000 mi².

PERIOD OF RECORD.--April 1931 to current year. Gage-height records collected at same site since 1932 and are contained in reports of the National Weather Service, published as Osage River at Bagnell Dam, Lakeside.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum, adjustment of 1912. To obtain National Geodetic Vertical Datum of 1929 subtract 0.88 ft.

REMARKS.--Lake is formed by concrete gravity dam. Spillway is equipped with 12 taintor gates 34 ft wide by 22 ft high. Storage began in 1931. Usable capacity 1,218,000 acre-ft between elevations 630.00 ft (maximum draw-down) and 660.00 ft (top of gates). Dead storage, 708,800 acre-ft. Figures given herein are usable contents. Lake is used for flood control, power, and recreational purposes.

COOPERATION.--Records were provided by Union Electric Company of Missouri.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,527,000 acre-ft, May 22, 1943, elevation, 665.45 ft; minimum, 322,100 acre-ft, Feb. 13, 1948, elevation, 639.95 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,208,300 acre-ft, Aug. 21, elevation, 659.83 ft; minimum, 903,400 acre-ft, Apr. 7, elevation, 654.15 ft.

MONTH END ELEVATION AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)	Contents (acre-ft)	Change in contents (acre-feet)
Sept. 30	658.15	1,112,800	-----
Oct. 31	658.56	1,135,500	+22700
Nov. 30	659.75	1,203,700	+68300
Dec. 31	659.00	1,160,600	-43100
CAL YR 1988	-----	-----	-17800
Jan. 31	658.58	1,136,700	-23900
Feb. 28	655.48	970,500	-166200
Mar. 31	655.67	980,300	+9800
Apr. 30	656.54	1,025,500	+45200
May 31	658.76	1,146,800	+121300
June 30	658.87	1,153,100	+6300
July 31	659.24	1,174,400	+21300
Aug. 31	659.38	1,182,400	+8000
Sept. 30	658.51	1,132,800	-49600
WTR YR 1989	-----	-----	+20000

OSAGE RIVER BASIN

06926000 OSAGE RIVER NEAR BAGNELL, MO

LOCATION.--Lat 38°11'29", long 92°36'26", in NW 1/4 NE 1/4 SE 1/4 sec.29, T.40 N., R.15 W., Miller County, Hydrologic Unit 10290111, on center pier of U.S. Highway 54 bridge, 1.3 mi downstream from hydroelectric plant of Union Electric Company of Missouri, and at mile 80.5.

DRAINAGE AREA.--14,000 mi², approximately.

PERIOD OF RECORD.--October 1880 to current year. Monthly discharge only for some periods published in WSP 1310. Gage-height records collected in this vicinity 1880-1931 are contained in reports of Missouri River Commission or National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 549.13 ft above National Geodetic Vertical Datum of 1929 (levels by Missouri State Highway and Transportation Commission). Nonrecording gage from Oct. 1880 to Oct. 15, 1930 and recording gage from Oct. 15, 1930 to Sept. 30, 1979 at site 1.7 mi downstream at datum 0.56 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated by Lake of the Ozarks (station 06925500) 1.3 mi upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage prior to 1943, 43.1 ft in June 1844 (former site and datum), discharge, 164,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1490	524	13800	1650	13000	11400	14000	567	17200	896	6820	27400
2	789	517	13000	1470	14600	9180	14500	707	16300	810	6620	15400
3	775	521	1020	12000	14600	9780	16600	825	2920	819	9620	13100
4	1960	533	1520	19300	11700	1530	19400	519	751	821	11400	11400
5	1340	525	6030	16600	2000	908	24800	506	9620	827	9020	10700
6	785	499	1900	13600	15500	4680	17800	514	13800	1810	2820	12400
7	735	1560	4600	4260	10100	13500	14400	529	13400	940	5640	10100
8	781	783	6480	1980	10600	16400	3140	572	16600	902	4180	13100
9	789	564	2870	7100	10600	13900	1710	583	14800	873	3410	10400
10	794	626	1290	11600	10900	5300	13300	560	2250	4720	3480	1320
11	1400	542	733	5570	10300	945	12100	967	918	7960	3860	5990
12	1150	600	9500	9860	10400	572	11400	596	5860	3010	4070	5520
13	2390	528	12100	6540	4510	9060	11100	561	10500	917	3540	13100
14	2360	511	6860	2420	3100	19600	11300	564	13000	1730	2820	13000
15	1610	563	4400	1050	6900	23800	1370	695	12500	1050	3510	13700
16	1040	3040	3450	9780	2170	22900	524	685	12400	783	1210	2240
17	1010	3100	1060	9860	2980	20600	6420	767	2050	766	2030	852
18	767	7540	562	6800	672	7440	11000	747	1200	4960	2490	10400
19	1860	5500	513	6320	522	649	9800	786	6300	6300	2460	13500
20	791	2280	522	6820	524	13000	3100	770	10100	5980	2560	10700
21	1310	6330	2500	1330	4750	20600	4430	770	7180	7160	19300	10600
22	829	4850	3580	557	9320	17500	1360	1760	6880	1580	30000	7960
23	771	1140	3950	10100	10700	20200	522	10400	6980	782	19800	1480
24	755	545	3350	8940	11700	18800	1010	13800	2390	817	29400	719
25	782	547	926	5810	1170	13200	2190	19100	1010	1480	27800	712
26	777	4820	539	9280	698	1980	5220	18400	1990	7580	28400	702
27	777	5760	13900	11900	7100	12200	7560	14000	1060	8160	27400	714
28	1820	11100	25300	4800	8760	9500	1440	2880	1100	9300	28800	691
29	2180	12400	24600	606	---	9220	568	1740	1700	2220	28200	506
30	615	12500	18200	10000	---	10200	535	13900	989	905	27900	506
31	529	---	10800	14700	---	13600	---	22600	---	6000	25500	---
MEAN	1154	3028	6447	7503	7496	11360	8087	4270	7125	2995	12390	7964
MAX	2390	12500	25300	19300	15500	23800	24800	22600	17200	9300	30000	27400
MIN	529	499	513	557	522	572	522	506	751	766	1210	506
IN.	.10	.24	.53	.62	.56	.94	.64	.35	.57	.25	1.02	.63

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	6693	8266	7313	7979	9758	13700	17000	15540	14510	8742	5181	5756
MAX	59310	45280	25590	26750	34720	57300	81050	92260	78160	96780	38810	54540	
(WY)	1942	1987	1983	1985	1949	1973	1927	1943	1935	1951	1927	1951	
MIN	471	538	717	586	535	359	452	516	515	492	508	486	
(WY)	1957	1957	1940	1940	1964	1931	1931	1956	1931	1931	1930	1954	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	6646	9975
HIGHEST ANNUAL MEAN		24640
LOWEST ANNUAL MEAN		1046
HIGHEST DAILY MEAN	30000	212000
LOWEST DAILY MEAN	499	235
INSTANTANEOUS PEAK FLOW	35300	220000
INSTANTANEOUS PEAK STAGE	17.43	48.8
INSTANTANEOUS LOW FLOW	499	183
ANNUAL RUNOFF (INCHES)	6.45	9.67
10 PERCENTILE	15800	27600
50 PERCENTILE	3570	3980
95 PERCENTILE	535	440

06926500 OSAGE RIVER NEAR ST. THOMAS, MO

LOCATION.--Lat 38°20'20", long 92°13'34", in SE 1/4 SW 1/4 sec.35, T.42 N., R.12 W., Cole County, Hydrologic Unit 10290111, on left bank 0.5 mi downstream from Sugar Creek, 2.5 mi south of St. Thomas, and at mile 43.1.

DRAINAGE AREA.--14,500 mi², approximately.

PERIOD OF RECORD.--August 1931 to current year.

GAGE.--Water-stage recorder. Datum of gage is 528.06 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Feb. 9-10. Records fair. Several observations of water temperature and specific conductance were made during the year. Considerable regulation by Lake of the Ozarks (station 06925500) 38.6 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage prior to 1943, about 39.4 in June 1844.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6690	666	11900	9030	14600	8750	14700	825	19100	1090	7280	25300
2	1570	633	16500	2070	12300	9160	14200	804	15300	986	7420	19500
3	977	626	7370	3980	13200	8900	15500	880	11700	924	7920	12800
4	904	627	1300	17700	11700	7350	18100	985	2140	933	12200	14200
5	2320	625	2520	16900	8220	2350	25000	775	1840	951	10200	11500
6	1310	603	5150	17700	6430	2370	19600	716	13400	968	10200	10500
7	891	699	2040	9850	9620	6710	14600	695	10700	1800	2510	11500
8	824	1450	5300	4340	9770	15300	12500	715	15100	1170	6340	12100
9	856	811	6170	3630	10500	15300	3120	765	14400	1070	4120	13600
10	858	726	2720	8690	10500	12600	5490	762	11100	1060	3650	7220
11	860	668	1320	9420	9000	7650	13300	729	1780	6560	3710	2500
12	1470	1570	2090	5770	8620	3620	10100	960	3020	7290	4160	7650
13	1150	1930	10700	9390	7680	3170	11900	810	5270	2170	3980	8510
14	2660	940	8890	5020	3310	15500	9400	712	12400	1100	3780	13100
15	2410	766	5900	2670	3910	22600	7900	703	12100	1670	2940	13600
16	1600	1230	4190	2570	5730	22100	1670	783	11600	1180	4030	11700
17	1150	3690	2850	10400	2710	19600	2550	790	8970	866	1740	2620
18	1060	4740	1130	7980	2800	16900	7600	864	1690	894	2260	2470
19	1030	6710	772	6090	1230	4630	10200	871	1200	5990	2740	11900
20	1680	6940	701	5810	1060	6690	7290	897	8240	6890	2810	11700
21	941	3340	676	5350	1070	22400	3710	881	8350	6530	9700	9640
22	1250	8080	3420	1450	5210	18500	3540	1250	6480	6850	30300	9910
23	1060	4160	5110	2350	9370	20300	1650	3430	6410	1610	19400	6720
24	992	1600	4070	10500	11900	18800	972	11500	6530	1000	27300	1840
25	933	1060	3690	6760	7180	17400	1210	15600	1810	1140	27600	965
26	912	4920	1500	6860	1480	9390	3110	18300	1020	2340	27900	860
27	897	8100	5850	9620	2300	4580	6090	14200	1800	8260	27000	810
28	1030	8150	25700	10000	7830	13200	6990	11100	1090	8380	28100	807
29	1980	12400	25300	3620	---	7570	1610	2400	1070	9660	27500	773
30	2250	12300	16700	2990	---	9290	922	4680	1560	2140	26900	626
31	829	---	15300	11400	---	11800	---	19300	---	1820	27100	---
MEAN	1463	3359	6672	7416	7115	11760	8484	3828	7239	3074	12350	8564
MAX	6690	12400	25700	17700	14600	22600	25000	19300	19100	9660	30300	25300
MIN	824	603	676	1450	1060	2350	922	695	1020	866	1740	626
IN.	.12	.26	.53	.59	.51	.94	.65	.30	.56	.24	.98	.66

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	7352	8627	8013	8285	10400	14570	16860	15740	14890	9818	4841	5999
MAX	68630	45630	42600	27550	36660	60660	71820	92370	82990	103400	24850	57610	
(WY)	1987	1987	1986	1985	1975	1973	1973	1943	1935	1951	1950	1951	
MIN	550	628	781	640	684	798	626	715	924	706	620	564	
(WY)	1961	1957	1940	1940	1964	1954	1956	1932	1956	1956	1956	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	6772	10440
HIGHEST ANNUAL MEAN		24520
LOWEST ANNUAL MEAN		1237
HIGHEST DAILY MEAN	30300	215000
LOWEST DAILY MEAN	603	373
INSTANTANEOUS PEAK FLOW	32000	21600
INSTANTANEOUS PEAK STAGE	15.55	43.8
INSTANTANEOUS LOW FLOW	570	346
ANNUAL RUNOFF (INCHES)	6.34	9.78
10 PERCENTILE	15400	29000
50 PERCENTILE	4430	4360
95 PERCENTILE	762	597

OSAGE RIVER BASIN

06926510 OSAGE RIVER BELOW ST. THOMAS, MO
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 38°25'18", long 92°12'31", in NW 1/4 NW 1/4 sec.1, T.42 N., R.12 W., Cole County, Hydrologic Unit 10290111, at bridge on State Highway B, 3.8 mi north of St. Thomas, 8.6 mi downstream from gaging station, and at mile 34.5.

DRAINAGE AREA.--14,500 mi² approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURE: October 1974 to September 1981.

REMARKS.--Records of discharge are given for gaging station 06926500 Osage River near St. Thomas.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 398 microsiemens, Jan. 1, 1981; minimum daily, 140 microsiemens, Sept. 3, 1981.

WATER TEMPERATURE: Maximum daily, 30.0°C, July 29, 1977, July 25, Aug. 11, 1980; minimum daily, 0.0°C, Jan. 21, 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (MG/L) (00301)	COLI- FORM, FECAL, 0.7 KF AGAR UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)
NOV												
01...	0800	666	256	8.20	12.0	2.1	10.4	96	<1	K3	140	29
JAN												
10...	0800	8550	260	8.00	4.5	5.0	17.4	132	K8	26	140	18
MAR												
07...	1330	4420	325	8.10	1.0	6.1	14.7	101	K1	K13	150	19
MAY												
17...	1500	804	307	8.10	20.5	2.7	9.0	99	K5	21	160	25
JUL												
18...	1000	788	324	7.90	24.5	2.5	7.4	89	K1	30	140	22
SEP												
15...	0900	14400	286	7.80	23.0	5.5	4.8	55	1000	1200	140	21

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L AC-FT) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV												
01...	36	11	5.7	2.8	108	28	5.3	0.10	2.1	157	0.21	282
JAN												
10...	36	12	4.7	2.6	124	23	5.1	0.10	3.8	162	0.22	3740
MAR												
07...	37	14	5.7	2.4	136	24	6.4	0.10	1.3	167	0.23	1990
MAY												
17...	38	15	5.5	2.4	132	23	6.1	0.10	1.1	143	0.19	310
JUL												
18...	38	12	6.1	2.5	128	26	6.6	0.20	2.2	168	0.23	357
SEP												
15...	36	11	6.3	2.8	105	25	6.3	0.10	3.8	166	0.23	6450

K--Results based on colony count outside the acceptable range (non-ideal colony count).

06926510 OSAGE RIVER BELOW ST. THOMAS, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 01...	0.020	<0.100	0.030	0.020	0.40	0.040	0.030	0.020	11	20	48
JAN 10...	<0.010	1.10	0.030	0.020	0.40	0.030	0.020	0.020	20	462	72
MAR 07...	<0.010	0.190	<0.010	<0.010	0.40	0.030	<0.010	<0.010	--	--	--
MAY 17...	<0.010	<0.100	0.030	0.040	0.30	0.030	0.020	<0.010	7	15	58
JUL 18...	<0.010	<0.100	0.040	0.040	0.40	0.030	<0.010	0.010	221	470	99
SEP 15...	0.020	<0.100	0.080	0.080	0.30	0.040	0.050	0.040	35	1360	29

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 01...	10	1	59	<0.5	<1	<1	<3	2	17	6
JAN 10...	<10	1	60	<0.5	<1	<1	<3	<1	9	<5
MAY 17...	<10	1	76	<0.5	<1	<1	<3	6	7	4
JUL 18...	<10	1	63	<0.5	<1	2	<3	2	5	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 01...	5	35	<0.1	<10	5	<1	1.0	110	<6	<3
JAN 10...	6	8	<0.1	<10	2	<1	<1.0	99	<6	5
MAY 17...	5	110	<0.1	<10	1	<1	<1.0	98	<6	<3
JUL 18...	<4	39	<0.1	<10	2	<1	<1.0	100	<6	7

GASCONADE RIVER BASIN

06930000 BIG PINEY RIVER NEAR BIG PINEY, MO

LOCATION.--Lat 37°39'58", long 92°03'02", in NE 1/4, SE 1/4, sec.8. T.34 N., R.10 W., Pulaski County, on downstream side of left pier of Ross bridge, 3 mi east of Big Piney, 14.8 mi upstream from Spring Creek, and at mi 22.

DRAINAGE AREA.--560 mi², approximately.

PERIOD OF RECORD.--October 1921 to September 30, 1982, April 7, 1988 to current year.

REVISED RECORDS.--WSP 826: 1935. WSP 1176: 1943, 1945. WSP 1340: 1922-23, 1927-28(M), 1933(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 800.99 ft above National Geodetic Vertical Datum of 1929. Prior to July 12, 1961, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharge. Records good. Several observations of water-temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,200 ft³/s, Apr. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER #987 TO SEPTEMBER #988

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	294	264	242	#89	#44
2	---	---	---	---	---	---	---	289	246	250	#74	#44
3	---	---	---	---	---	---	---	286	238	424	#60	#44
4	---	---	---	---	---	---	---	293	224	342	#52	#44
5	---	---	---	---	---	---	---	294	246	249	#50	#53
6	---	---	---	---	---	---	---	287	205	248	#64	#75
7	---	---	---	---	---	---	#200	272	#98	#97	#70	#56
8	---	---	---	---	---	---	#060	267	#95	#85	#66	#46
9	---	---	---	---	---	---	935	274	#89	#74	#60	#40
#0	---	---	---	---	---	---	837	294	#80	#70	#57	#36
#1	---	---	---	---	---	---	772	288	#74	#75	#56	#34
#2	---	---	---	---	---	---	734	274	#70	#73	#54	#37
#3	---	---	---	---	---	---	673	262	#69	#69	#45	#35
#4	---	---	---	---	---	---	643	254	#65	#65	#48	#36
#5	---	---	---	---	---	---	564	244	#60	#58	#50	#32
#6	---	---	---	---	---	---	520	238	#64	#52	#54	#32
#7	---	---	---	---	---	---	489	227	#65	#49	#44	#29
#8	---	---	---	---	---	---	494	220	#66	#66	#44	#55
#9	---	---	---	---	---	---	493	248	#64	#95	#64	#90
20	---	---	---	---	---	---	466	243	#52	345	#54	#68
21	---	---	---	---	---	---	439	209	#49	327	#52	#57
22	---	---	---	---	---	---	425	273	#47	287	#49	#52
23	---	---	---	---	---	---	403	564	#45	242	#82	#56
24	---	---	---	---	---	---	379	942	#44	247	#69	#88
25	---	---	---	---	---	---	357	845	#40	#92	#76	#96
26	---	---	---	---	---	---	343	596	#43	#78	#67	#94
27	---	---	---	---	---	---	332	464	#48	#70	#60	#80
28	---	---	---	---	---	---	348	380	#43	#64	#53	#69
29	---	---	---	---	---	---	340	333	#48	#98	#52	#60
30	---	---	---	---	---	---	302	303	#62	265	#48	#72
31	---	---	---	---	---	---	---	279	---	242	#44	---
MEAN	---	---	---	---	---	---	---	337	#76	245	#58	#55
MAX	---	---	---	---	---	---	---	942	264	424	#89	#96
MIN	---	---	---	---	---	---	---	209	#40	#49	#44	#29

06930000 BIG PINEY RIVER NEAR BIG PINEY, MO

LOCATION.--Lat 37°39'58", long 92°03'02", in NE 1/4, SE 1/4, sec.8. T.34 N., R.10 W., Pulaski County, on downstream side of left pier of Ross bridge, 3 mi east of Big Piney, 14.8 mi upstream from Spring Creek, and at mi 22.

DRAINAGE AREA.--560 mi², approximately.

PERIOD OF RECORD.--October 1921 to September 30, 1982, April 4, 1988 to current year.

REVISED RECORDS.--WSP 826: 1935. WSP 1176: 1943, 1945. WSP 1340: 1922-23, 1927-28(M), 1933(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 800.99 ft above National Geodetic Vertical Datum of 1929. Prior to July 12, 1961, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharge: May 29 to June 27. Records good except for period of estimated daily discharge, which is fair. Several observations of water-temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	248	162	891	899	648	530	1530	251	320	239	223	161
2	342	162	750	899	588	484	1200	246	290	223	206	162
3	384	162	624	935	842	462	1060	245	270	217	198	162
4	313	172	526	911	1100	482	1090	241	250	216	190	156
5	265	184	446	841	920	516	1130	241	500	209	185	150
6	237	174	395	839	915	615	953	239	1000	198	185	145
7	220	181	376	840	656	580	887	235	880	184	180	141
8	207	177	362	757	410	533	851	235	780	167	181	138
9	201	171	346	637	372	545	791	237	700	172	173	146
10	194	174	331	551	319	919	712	232	650	166	165	155
11	187	169	317	496	319	2190	651	229	590	161	160	167
12	179	185	304	449	339	2060	603	223	540	160	153	164
13	175	190	293	405	642	1570	563	219	500	154	152	165
14	170	197	286	376	9240	1300	524	219	800	152	151	227
15	166	213	275	362	3820	1100	497	217	730	156	149	210
16	170	306	265	347	3620	934	468	214	630	154	152	220
17	169	993	256	332	2200	829	441	214	560	156	151	238
18	188	573	250	319	1640	755	414	214	500	168	157	247
19	203	1150	245	310	1360	687	387	216	450	167	159	217
20	196	4810	242	299	1190	668	362	214	410	172	176	196
21	188	5400	237	288	1090	668	344	212	380	193	274	182
22	183	1800	247	278	990	636	329	623	350	197	488	173
23	186	1230	283	270	860	594	317	2350	320	190	252	166
24	187	969	774	269	764	561	305	1240	300	196	220	159
25	182	812	761	270	702	528	290	844	280	190	209	157
26	179	2720	620	317	657	494	281	695	260	266	192	152
27	178	5090	588	771	632	465	276	561	250	298	182	148
28	174	2140	1780	862	582	480	270	492	230	243	217	145
29	170	1410	1710	764	---	522	264	425	316	223	193	145
30	166	1090	1210	773	---	737	258	375	274	217	174	145
31	164	---	1000	726	---	1440	---	350	---	217	164	---
MEAN	206	1106	548	561	1336	803	602	411	477	194	194	171
MAX	384	5400	1780	935	9240	2190	1530	2350	1000	298	488	247
MIN	164	162	237	269	319	462	258	212	230	152	149	138
IN.	.42	2.20	1.13	1.16	2.49	1.65	1.20	.85	.95	.40	.40	.34

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	272	452	442	533	636	844	962	871	566	298	247	232
MAX	1261	2127	1940	2554	2237	2565	3637	2874	2892	1969	1947	1056
(WY)	1950	1952	1943	1950	1982	1945	1927	1943	1928	1951	1927	1965
MIN	82.3	107	98.5	98.5	127	154	188	142	111	89.3	93.5	72.9
(WY)	1957	1956	1956	1956	1934	1981	1954	1932	1934	1934	1954	1954

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	544	531
HIGHEST ANNUAL MEAN		1179
LOWEST ANNUAL MEAN		149
HIGHEST DAILY MEAN	9240	21100
LOWEST DAILY MEAN	138	.00
INSTANTANEOUS PEAK FLOW	13400	32700
INSTANTANEOUS PEAK STAGE	14.43	20.7
INSTANTANEOUS LOW FLOW	137	69
ANNUAL RUNOFF (INCHES)	13.19	12.87
10 PERCENTILE	1010	1040
50 PERCENTILE	295	253
95 PERCENTILE	155	107

GASCONADE RIVER BASIN

06930450 BIG PINEY RIVER AT DEVIL'S ELBOW, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 37°50'53", long 92°03'44" in SE 1/4 NE 1/4 sec.18, T.36 N., R.10 W., Pulaski County, Hydrologic Unit 10290202, at bridge on County Highway V at Devil's Elbow.

PERIOD OF RECORD.--July 1977 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT											
18...	1000	264	305	8.20	16.5	8.4	85	<10	27	180	10
31...	1500	320	330	8.50	11.0	13.5	121	12	K4	--	--
DEC											
13...	1630	500	290	8.10	6.0	12.7	102	10	K10	--	--
JAN											
09...	1330	900	272	8.00	6.0	11.9	95	13	K3	140	4
FEB											
06...	1030	960	261	8.00	1.5	13.4	93	20	120	--	--
MAR											
07...	1600	600	269	8.30	5.0	14.1	109	10	<1	--	--
APR											
10...	1415	940	265	7.70	10.0	12.2	106	<10	K9	140	10
MAY											
15...	1400	420	307	8.00	17.5	9.7	101	18	K7	--	--
JUN											
06...	1630	700	280	8.20	21.5	9.1	103	<10	K38	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
18...	36	23	3.2	1.4	174	2.1	6.8	4.1	<0.10	175
31...	--	--	--	--	184	1.1	--	--	--	184
DEC										
13...	--	--	--	--	142	2.2	--	--	--	162
JAN										
09...	28	16	2.5	1.4	132	2.9	9.5	4.2	0.10	142
FEB										
06...	--	--	--	--	126	2.4	--	--	--	150
MAR										
07...	--	--	--	--	136	1.3	--	--	--	148
APR										
10...	28	17	2.4	1.2	130	5.0	6.8	3.2	0.10	144
MAY										
15...	--	--	--	--	160	3.1	--	--	--	165
JUN										
06...	--	--	--	--	148	1.8	--	--	--	148

K--Results based on colony count outside the acceptable range (non-ideal colony count).

169

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

GASCONADE RIVER BASIN

06930800 GASCONADE RIVER ABOVE JEROME, MO
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 37°55'12", long 91°58'33", in NE 1/4, sec.24, T.37 N., R.10 W., Phelps County, Hydrologic Unit 10290203, at bridge on County Highway D at Jerome, 150 ft upstream from Little Piney Creek, 0.7 mi upstream from gaging station.

DRAINAGE AREA.--2,570 mi².

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1978 to September 1981.

WATER TEMPERATURE: March 1978 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 588 microsiemens, Sept. 23, 1981; minimum, 133 microsiemens, Sept. 1, 1981.

WATER TEMPERATURE: Maximum daily, 34.0°C, Aug. 11, 17, 1980; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL AS CACO3 (00900)	HARD- NESS NONCARB DISSOLV FIELD CACO3 (00904)
OCT												
18...	1200	614	318	8.20	16.5	2.6	8.6	87	24	K12	190	11
31...	1315	612	338	8.30	11.0	1.2	11.8	106	K6	<1	200	17
DEC												
13...	1500	1520	294	8.10	6.0	2.4	12.6	101	K4	K12	160	10
JAN												
09...	1530	3260	270	8.00	6.0	2.4	11.7	93	K9	21	150	10
FEB												
06...	1230	3080	289	8.10	1.5	2.7	13.0	90	34	K6	160	12
MAR												
07...	1100	3110	294	8.50	3.0	3.5	14.0	102	K3	K5	160	11
APR												
10...	1130	3100	295	8.20	10.5	2.1	11.1	98	25	K15	160	12
MAY												
15...	1030	893	322	8.10	18.0	1.0	8.1	85	K6	K3	180	13
JUN												
06...	1400	2370	315	8.20	23.0	4.5	8.1	94	130	320	170	12
JUL												
18...	0730	629	349	8.00	22.5	2.5	7.7	89	39	220	160	0
SEP												
15...	1200	595	334	8.00	17.5	3.4	9.5	97	200	K20	180	4

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L AC-FT) (70300)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT												
18...	36	24	3.1	1.6	180	6.8	4.9	<0.10	5.8	186	0.25	308
31...	40	25	3.3	1.7	188	6.8	5.0	<0.10	5.4	193	0.26	319
DEC												
13...	33	19	2.9	1.3	154	13	5.2	0.10	8.4	198	0.27	813
JAN												
09...	32	17	2.6	1.6	140	8.8	5.2	0.10	6.9	161	0.22	1420
FEB												
06...	33	19	3.0	1.5	138	9.6	5.8	0.10	5.6	157	0.21	1310
MAR												
07...	31	19	2.9	1.2	148	8.5	5.2	0.10	4.3	158	0.21	1330
APR												
10...	31	19	2.7	1.5	142	7.6	4.8	0.10	3.9	151	0.21	1260
MAY												
15...	37	22	2.8	1.6	168	7.0	4.4	0.10	4.4	173	0.24	417
JUN												
06...	34	21	2.7	1.6	166	6.0	6.2	0.10	8.8	171	0.23	1090
JUL												
18...	33	20	2.8	1.7	168	7.0	4.4	0.10	9.1	170	0.23	289
SEP												
15...	36	21	3.1	1.6	167	6.0	4.0	0.10	9.2	181	0.25	291

K--Results based on colony count outside the acceptable range (non-ideal colony count).

GASCONADE RIVER BASIN

171

06930800 GASCONADE RIVER ABOVE JEROME, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 18...	<0.010	0.120	--	0.080	0.20	0.010	0.010	<0.010	--	--	--
31...	0.010	<0.100	0.020	0.020	0.20	0.020	0.010	<0.010	15	25	36
DEC 13...	<0.010	0.740	0.010	0.010	0.30	0.030	0.020	0.020	1	4.1	33
JAN 09...	<0.010	0.490	0.030	0.010	0.30	0.020	0.010	0.010	10	88	65
FEB 06...	--	--	--	--	--	--	--	--	7	58	71
MAR 07...	<0.010	0.420	<0.010	<0.010	0.20	0.020	0.010	0.010	--	--	--
APR 10...	<0.010	0.200	0.010	<0.010	<0.20	<0.010	<0.010	0.020	21	176	46
MAY 15...	0.010	0.150	0.020	0.020	0.20	0.010	0.010	<0.010	28	68	8
JUN 06...	<0.010	0.320	<0.010	0.020	0.80	0.030	0.020	0.030	37	237	--
JUL 18...	<0.010	0.180	0.040	0.040	0.30	0.010	<0.010	<0.010	10	17	52
SEP 15...	<0.010	0.360	0.020	0.020	<0.20	0.030	0.020	0.030	11	18	36

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
OCT 31...	<10	<1	54	<0.5	2	1	<3	<1	11	10
JAN 09...	40	<1	44	<0.5	<1	1	<3	2	82	14
MAY 15...	<10	<1	55	<0.5	<1	<1	<3	2	8	2
JUL 18...	<10	1	48	<0.5	<1	<1	<3	2	5	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 31...	5	8	<0.1	<10	1	<1	<1.0	43	<6	41
JAN 09...	5	17	<0.1	<10	2	<1	1.0	35	<6	81
MAY 15...	4	16	<0.1	<10	<1	<1	<1.0	41	<6	5
JUL 18...	<4	12	<0.1	<10	1	<1	<1.0	37	<6	5

GASCONADE RIVER BASIN

06932000 LITTLE PINEY CREEK AT NEWBURG, MO

LOCATION.--Lat 37°54'35", long 91°54'12", in SW 1/4 SE 1/4 sec.22, T.37 N., R.9 W., Phelps County, Hydrologic Unit 10290203, on left bank at downstream side of bridge on State Highway P and T at Newburg, and 2 mi upstream from Mill Creek.

DRAINAGE AREA.--200 mi², approximately.

PERIOD OF RECORD.--October 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 693.40 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1951, all gages at datum 3.0 ft higher. Prior to Nov. 21, 1963, nonrecording gage at site 100 ft downstream. Nov. 21, 1963, to May 9, 1966, nonrecording gage at present site.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 16.7 ft, Aug. 20, 1915, from floodmark, present datum; discharge, 30,000 ft³/s, from rating curve based on discharge measurements made in 1935 and extended above 25,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	58	196	187	140	112	419	89	66	71	74	91
2	97	58	171	189	162	110	459	85	66	72	75	86
3	82	58	151	213	162	119	516	85	65	72	71	80
4	74	60	132	219	160	137	441	82	69	69	69	76
5	70	60	119	248	158	146	351	82	105	68	68	74
6	68	58	111	303	147	150	315	78	83	67	69	69
7	66	57	108	269	128	141	302	76	77	66	65	68
8	64	56	98	223	122	137	291	83	74	65	62	67
9	64	58	91	196	109	157	257	84	72	64	59	71
10	63	70	88	182	108	429	229	78	69	63	58	70
11	61	60	82	169	108	584	205	73	73	62	56	67
12	60	87	81	157	104	457	202	71	79	63	55	67
13	60	77	81	139	129	373	189	71	87	64	56	66
14	59	69	81	135	149	332	180	71	80	64	57	113
15	59	72	78	131	200	289	173	70	74	66	56	112
16	61	206	72	112	215	250	163	67	73	66	54	99
17	60	123	75	116	201	238	154	65	71	64	53	89
18	57	102	72	112	190	222	146	69	87	86	53	81
19	57	104	69	112	182	207	137	66	89	78	61	77
20	57	311	66	110	173	253	130	65	81	77	66	72
21	57	275	64	105	166	291	125	64	77	90	229	72
22	57	232	103	103	149	273	121	110	77	79	144	71
23	63	206	205	98	132	258	118	91	78	75	101	68
24	61	191	182	96	124	245	112	79	77	88	86	65
25	59	181	152	104	119	234	107	75	74	94	144	65
26	58	1120	136	132	119	223	105	91	72	79	370	65
27	57	541	248	139	124	214	100	76	76	72	200	64
28	57	349	279	138	117	220	98	77	77	70	147	64
29	57	281	162	143	---	273	95	76	75	69	124	64
30	64	231	218	147	---	620	92	71	72	74	106	64
31	58	---	200	146	---	610	---	68	---	76	97	---
MEAN	64.3	180	128	157	146	268	211	77.0	76.5	72.0	96.3	75.2
MAX	107	1120	279	303	215	620	516	110	105	94	370	113
MIN	57	56	64	96	104	110	92	64	65	62	53	64
IN.	.37	1.01	.74	.91	.76	1.54	1.18	.44	.43	.42	.56	.42

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	99.5	124	151	142	177	228	246	245	209	99.7	81.6	78.3
MAX	913	676	1300	770	678	822	1335	871	1545	524	493	364
(WY)	1950	1986	1983	1950	1985	1945	1945	1957	1935	1951	1946	1934
MIN	26.9	33.1	35.7	34.9	35.6	42.8	42.0	43.7	32.2	27.6	27.6	28.1
(WY)	1957	1957	1956	1956	1934	1956	1956	1932	1934	1934	1936	1954

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	129	156
HIGHEST ANNUAL MEAN	391	1985
LOWEST ANNUAL MEAN	47.0	1954
HIGHEST DAILY MEAN	1120	19600
LOWEST DAILY MEAN	53	24
INSTANTANEOUS PEAK FLOW	2770	32500
INSTANTANEOUS PEAK STAGE	7.02	16.6
INSTANTANEOUS LOW FLOW	52	24
ANNUAL RUNOFF (INCHES)	8.77	10.58
10 PERCENTILE	237	273
50 PERCENTILE	87	83
95 PERCENTILE	59	37

GASCONADE RIVER BASIN

173

06933500 GASCONADE RIVER AT JEROME, MO

LOCATION.--Lat 37°55'47", long 91°58'38", in NE 1/4 NE 1/4 SE 1/4 sec.13, T.37 N., R.10 W., Phelps County, Hydrologic Unit 10290203, on left bank at Jerome, 0.5 mi downstream from Little Piney Creek, and at mile 107.

DRAINAGE AREA.--2,840 mi², approximately.

PERIOD OF RECORD.--April 1903 to July 1906 (published as "at Arlington") and January 1923 to current year. October to December 1922 monthly discharge only, published in WSP 1310. Gage-height records collected intermittently in the vicinity 1885-1926 and at same site since 1938 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 172: 1904. WSP 566: Drainage area. WSP 1340: 1903-04, 1928 (M).

GAGE.--Water-stage recorder. Datum of gage is 657.64 ft above National Geodetic Vertical Datum of 1929. Prior to July 26, 1904, nonrecording gage at site 0.8 mi downstream at different datum. July 26, 1904, to July 21, 1906, nonrecording gage at site 0.5 mi upstream from present site at datum about 0.85 ft higher than present gage. Jan. 3, 1923, to Sept. 29, 1928, nonrecording gage at site 400 ft downstream from present site at datum 0.14 ft lower than present datum. Sept. 30, 1928, to Jan. 17, 1939, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of January 6, 1897, reached a stage of about 29.0 ft, discharge, 120,000 ft³/s. A stage of 28.6 ft was reached on Aug. 20, 22, 1915, discharge, 114,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	693	5530	4350	3730	2480	6300	1330	1610	1050	725	764
2	1230	684	4430	3940	3380	2390	6220	1280	1470	1090	712	742
3	1420	679	3710	3970	3180	2330	6380	1240	1340	1080	672	731
4	1510	679	3170	4390	3420	2360	5560	1220	1260	999	640	694
5	1580	689	2780	4760	3660	2550	5170	1210	1320	1060	614	663
6	1440	684	2500	4960	3310	2950	4760	1180	2030	1090	600	651
7	1270	665	2300	4710	2880	3280	4300	1140	3500	1010	578	621
8	1140	664	2160	4230	2660	3210	4040	1150	3000	929	557	600
9	1060	679	2060	3650	2480	3090	3750	1160	2320	872	545	610
10	991	722	1950	3180	2310	3780	3440	1120	1940	822	542	619
11	929	687	1850	2830	2200	8180	3130	1090	1750	777	527	598
12	873	831	1750	2600	2070	14000	2900	1060	1720	742	521	604
13	825	932	1660	2400	2090	16000	2730	1040	1590	733	511	602
14	786	1250	1580	2250	5010	11400	2570	1010	1820	696	510	699
15	755	1390	1500	2150	16200	7910	2470	992	2170	708	508	755
16	750	1650	1430	2060	17800	6090	2350	968	2070	737	505	728
17	721	1810	1370	1970	12900	4980	2280	956	1860	766	501	768
18	699	3010	1300	1900	9720	4300	2170	951	1740	773	486	989
19	702	3100	1240	1820	6980	3780	2080	941	1580	764	529	983
20	725	5250	1190	1740	5630	3570	2000	923	1450	723	580	910
21	734	12700	1140	1630	4860	3550	1910	911	1340	741	1600	856
22	720	14800	1170	1540	4350	3490	1830	1070	1240	711	2760	801
23	765	11600	1400	1470	3860	3450	1780	2650	1170	693	2140	744
24	753	6340	1510	1420	3370	3220	1720	7170	1110	700	1390	696
25	733	4930	2000	1430	3010	3010	1660	5420	1130	744	1100	663
26	720	9590	2470	1550	2790	2840	1600	3520	1060	688	1370	635
27	707	18400	2750	1740	2670	2700	1550	2860	1050	726	949	611
28	698	20100	3340	2600	2570	2680	1500	2490	1020	801	811	590
29	691	14300	5910	3760	---	2710	1440	2190	1040	744	784	580
30	704	7610	6570	3590	---	3490	1370	1960	1110	739	875	570
31	702	---	5190	3880	---	5110	---	1770	---	751	814	---
MEAN	919	4904	2545	2854	4967	4674	3032	1741	1627	821	837	703
MAX	1580	20100	6570	4960	17800	16000	6380	7170	3500	1090	2760	989
MIN	691	664	1140	1420	2070	2330	1370	911	1020	688	486	570
IN.	.37	1.93	1.03	1.16	1.82	1.90	1.19	.71	.64	.33	.34	.28

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1437	2225	2498	2305	2938	4002	4489	4112	3126	1584	1231	1177
MEAN	1437	2225	2498	2305	2938	4002	4489	4112	3126	1584	1231	1177
MAX	10390	10120	17740	10980	11540	13110	20450	15360	18500	10730	9244	7707
(WY)	1950	1984	1983	1950	1985	1945	1945	1943	1935	1951	1927	1905
MIN	289	368	392	368	491	597	504	668	517	339	324	293
(WY)	1957	1957	1956	1956	1964	1956	1956	1932	1934	1934	1936	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	2447	2578
HIGHEST ANNUAL MEAN		6491
LOWEST ANNUAL MEAN		544
HIGHEST DAILY MEAN	20100	Nov 28
LOWEST DAILY MEAN	486	Aug 18
INSTANTANEOUS PEAK FLOW	21900	Nov 27
INSTANTANEOUS PEAK STAGE	12.41	Nov 27
INSTANTANEOUS LOW FLOW	483	Aug 18
ANNUAL RUNOFF (INCHES)	11.70	12.32
10 PERCENTILE	74600	74300
50 PERCENTILE	27500	27400
95 PERCENTILE	12300	12300

06934000 GASCONADE RIVER NEAR RICH FOUNTAIN, MO

LOCATION.--Lat 38°23'20", long 91°49'15", in SE 1/4, sec. 16, T.41 N., R.8 W., Osage County, Hydrologic Unit 10290203, on downstream side of State Highway 89 bridge, 100 ft downstream from Brush Creek Slough, 800 ft upstream from Swan Creek and 4 miles east of Rich Fountain.

DRAINAGE AREA.--3,180 mi² (by U.S. Army Corps of Engineers).

PERIOD OF RECORD.--October 1921 to September 1959, October 31, 1986 to current year. From 1959 to 1986 annual peaks only.

GAGE.--Water-stage recorder. Datum of gage 553.70 ft above National Geodetic Vertical Datum of 1929. From Oct. 10, 1921, to Sept. 13, 1932, chain gage on former bridge, 50 ft downstream. Sept. 14, 1932, to Mar. 9, 1934, wire-weight gage on former bridge. Mar. 10, 1934, to Aug. 26, 1956, water-stage recorder on former bridge. Aug. 26, 1956, to May 11, 1966, gage readings were obtained by measuring from a reference point on present bridge. May 11, 1966, to Oct. 31, 1986, type A wire-weight gage on present bridge. All gages have been maintained at present datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1220	746	6890	5220	4170	2930	6150	1510	1970	1210	838	1030
2	1250	733	5410	4640	3900	2790	7210	1450	1770	1140	808	920
3	1300	727	4510	4580	3680	2720	9280	1410	1600	1170	788	877
4	1450	736	3920	4830	3490	2820	7300	1380	1480	1140	750	861
5	1560	720	3470	5460	3850	3040	6110	1340	1440	1070	721	825
6	1620	713	3150	6780	3840	3240	5710	1300	1450	1130	688	788
7	1460	703	2900	5930	3530	3580	5380	1270	2320	1170	654	771
8	1310	687	2630	5160	3130	3690	4970	1360	3860	1070	633	746
9	1190	725	2390	4530	2950	3640	4630	1350	3120	990	619	774
10	1100	821	2200	4030	2680	4910	4170	1290	2580	926	609	722
11	1020	810	2050	3640	2480	8300	3890	1230	2260	870	604	722
12	953	1630	1920	3320	2290	12100	3600	1180	2300	849	597	701
13	901	1290	1790	3050	2220	15600	3360	1150	2170	813	581	696
14	856	1100	1700	2860	2370	15400	3170	1120	1910	776	579	775
15	823	1350	1600	2640	8910	9720	3030	1100	2240	747	576	834
16	839	1780	1500	2440	17000	7230	2910	1070	2530	762	572	892
17	817	1940	1430	2270	17100	5950	2780	1040	2340	805	563	836
18	799	2080	1380	2130	11500	5010	2660	1030	2220	824	562	870
19	736	3320	1330	2010	8280	4440	2560	1030	1980	869	581	1110
20	754	3890	1270	1870	6480	7530	2420	1010	1790	842	660	1090
21	794	7680	1210	1780	5550	6100	2300	982	1610	832	1100	1020
22	768	14400	1660	1680	4870	4730	2210	1090	1500	837	2320	957
23	857	14300	1880	1620	4390	4280	2120	1250	1390	796	3030	887
24	839	9240	1790	1560	4000	4070	2040	3910	1300	790	2330	828
25	817	6150	1850	1600	3630	3790	1970	6890	1230	842	1670	777
26	788	12200	2530	1880	3360	3560	1860	4770	1250	846	1440	744
27	779	13600	3500	1920	3200	3350	1810	3630	1160	771	1800	712
28	759	20400	3930	2140	3050	3320	1730	3120	1140	811	1400	687
29	747	20500	4330	3410	---	3250	1650	2830	1090	909	1030	669
30	739	11700	6650	4020	---	3420	1580	2490	1110	900	954	661
31	750	---	6370	4010	---	5280	---	2210	---	864	1040	---
MEAN	987	5222	2875	3323	5211	5477	3685	1864	1870	915	1003	826
MAX	1620	20500	6890	6780	17100	15600	9280	6890	3860	1210	3030	1110
MIN	736	687	1210	1560	2220	2720	1580	982	1090	747	562	661
IN.	.36	1.83	1.04	1.21	1.71	1.99	1.29	.68	.66	.33	.36	.29

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1786	2222	2436	2625	3148	4446	5395	4817	4002	1844	1457	1204
MEAN	1786	2222	2436	2625	3148	4446	5395	4817	4002	1844	1457	1204
MAX	12060	9226	12750	12700	7637	14640	22720	17520	19810	12630	9365	3850
(WY)	1950	1952	1988	1950	1949	1945	1945	1943	1935	1951	1927	1945
MIN	288	394	403	374	558	620	531	717	647	385	334	295
(WY)	1957	1957	1956	1956	1954	1956	1956	1932	1934	1954	1936	1954

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	2750		2942	
HIGHEST ANNUAL MEAN			6560	1927
LOWEST ANNUAL MEAN			629	1954
HIGHEST DAILY MEAN	20500	Nov 29	91100	Apr 16 1945
LOWEST DAILY MEAN	562	Aug 18	275	Sep 19 1954
INSTANTANEOUS PEAK FLOW	21900	Nov 28	134000	Dec 6 1982
INSTANTANEOUS PEAK STAGE	13.43	Nov 28	33.27	Dec 6 1982
INSTANTANEOUS LOW FLOW	544	Aug 19	275	Sep 19 1954
ANNUAL RUNOFF (INCHES)	11.74		12.56	
10 PERCENTILE	5650		6320	
50 PERCENTILE	1660		1440	
95 PERCENTILE	685		470	

MISSOURI RIVER MAIN STEM

175

06934500 MISSOURI RIVER AT HERMANN, MO

LOCATION.--Lat 38°42'36", long 91°26'21", in SW 1/4 sec.25, T.46 N., R.5 W., Montgomery County, Hydrologic Unit 10300200, on downstream side of third pier from right abutment of bridge on State Highway 19 at Hermann. River mile 97.9.

DRAINAGE AREA.--524,200 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to current year. Prior to August 1928 monthly discharge only published in WSP 1310. Gage-height records 1873-99 collected at site 480 ft downstream are contained in reports of Missouri River Commission; since 1900 in reports of National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder and nonrecording gage. Datum of gage is 481.56 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 26, 1930, nonrecording gage at site 480 ft downstream at datum 0.07 ft lower. Sept. 26, 1930, to Mar. 27, 1932, nonrecording gage, Mar. 28, 1932, to June 12, 1945, water-stage recorder, June 13, 1945, to Apr. 2, 1946, May 13 to Sept. 30, 1978, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Discharge measurements made weekly except during period of no navigation in winter months. Some regulation from many upstream reservoirs. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1844 reached a stage of 35.5 ft, discharge, about 892,000 ft³/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54300	45900	51900	50800	42900	37300	51200	43100	71100	59700	54600	136000
2	58300	45300	47100	42100	47100	40100	55800	43200	66200	53000	51300	109000
3	52400	44600	47800	34700	44700	40900	73400	45200	62300	50500	49600	88000
4	51800	44200	40100	35100	44100	40100	93500	46400	58600	49000	48000	73600
5	53700	44000	33800	48800	42900	38700	91600	44900	52800	50200	52400	65800
6	50600	43800	32400	57900	40900	35100	93500	44200	50600	50100	53400	58500
7	48000	43600	34300	55000	40600	34700	84400	43800	64000	48200	49400	57200
8	46500	43800	31800	43100	42000	39200	75600	44300	65800	48600	42700	75800
9	45800	44400	33000	35700	36800	47400	67800	47900	66000	48600	42400	101000
10	45200	45300	34600	33000	33500	48800	56600	44700	63300	46300	41400	130000
11	45000	45100	31200	36500	32100	54300	55400	43000	57700	44200	40400	181000
12	45000	46000	29200	37400	31200	50000	60700	41800	50000	46300	40100	207000
13	45100	49100	28700	34500	30100	44900	57500	41000	52800	48300	40400	207000
14	44900	50200	35800	38400	29100	45600	57600	40300	61700	44800	40500	178000
15	44800	47500	36100	36000	27600	70500	55400	39200	65800	42300	40300	145000
16	45300	44600	32600	31100	40200	87900	52500	38100	61500	42300	40300	129000
17	44300	44000	30000	27700	49900	84400	46300	38000	57900	42800	41000	112000
18	43500	45400	28200	32500	47100	74500	45300	38300	54000	43500	39700	97300
19	43700	46100	26100	31600	42700	62700	50500	38600	47800	49200	39000	89800
20	43300	48300	25000	29800	39600	56900	53300	39300	47600	49300	39400	88200
21	44100	48900	24500	30500	38400	81000	49800	42500	54400	48200	39500	81100
22	44700	48600	26800	31200	37300	76100	45600	50500	52100	48300	49900	74600
23	44700	53800	39300	27800	38600	65200	45400	49200	48500	49600	71900	70100
24	44700	51300	38700	27100	42600	62500	43600	49000	47600	49500	67400	63700
25	45100	43100	34200	35100	45200	57700	41900	65700	46700	49500	73300	56500
26	45600	41800	31800	35600	40600	52100	40500	73200	43100	48200	73400	51700
27	45500	52500	33200	35900	34700	43900	42000	68600	44700	47100	75400	48500
28	45100	53400	50800	38700	32800	38700	46700	62900	53700	51400	90600	47000
29	44600	54600	65900	39400	---	45500	48300	60200	69500	52200	98000	46000
30	45000	59100	63300	35200	---	41900	44400	52800	72900	53800	107000	45000
31	46000	---	56700	34200	---	43600	---	59000	---	60900	116000	---
MEAN	46660	47280	37250	36850	39120	52970	57540	47710	57020	48900	56410	97110
MAX	58300	59100	65900	57900	49900	87900	93500	73200	72900	60900	116000	207000
MIN	43300	41800	24500	27100	27600	34700	40500	38000	43100	42300	39000	45000
IN.	.10	.10	.08	.08	.08	.12	.12	.10	.12	.11	.12	.21

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	64690	64360	48060	42510	57440	89830	114800	106400	119900	95130	60280	63760
MAX	286700	152700	178900	129000	136800	267500	333400	231400	320600	445200	130300	208900	
(WY)	1987	1986	1983	1973	1982	1973	1973	1943	1935	1951	1951	1951	
MIN	15170	16630	12110	6827	12280	22810	36490	31930	38770	33560	18200	21830	
(WY)	1940	1940	1938	1940	1940	1964	1956	1934	1934	1936	1936	1937	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	52040	77260
HIGHEST ANNUAL MEAN		140500
LOWEST ANNUAL MEAN		29750
HIGHEST DAILY MEAN	207000	615000
LOWEST DAILY MEAN	24500	4200
INSTANTANEOUS PEAK FLOW	214000	676000
INSTANTANEOUS PEAK STAGE	22.27	35.79
INSTANTANEOUS LOW FLOW	24500	4200
ANNUAL RUNOFF (INCHES)	1.36	2.01
10 PERCENTILE	73900	153000
50 PERCENTILE	46700	58400
95 PERCENTILE	31400	19900

MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURE: October 1974 to current year.

DISSOLVED OXYGEN: June 1984 to September 1984, April 1985 to September 1985, and April 1986 to September 1986.

INSTRUMENTATION.--Water-quality monitor June 1984 to Sept. 1984, Apr. 1985 to Sept. 1985, and Apr. 1986 to Sept. 1986.

REMARKS.--Water temperature and specific conductance samples collected daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: (water years 1976-to current year): Maximum daily, 2,150 microsiemens, Dec. 9, 1978; minimum daily, 205 microsiemens, Apr. 16, 1979.

WATER TEMPERATURE: (water years 1976-to current year): Maximum daily, 32.5°C, July 31, 1987; minimum daily, 0.0°C on many days during winter period.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 814 microsiemens, Jan. 26; minimum daily, 442 microsiemens, Mar. 22.

WATER TEMPERATURE: Maximum daily, 30.0°C, July 10, 11, 12; minimum daily, 0.0°C, Feb. 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL AS CAC03 (00900)	HARD- NESS NONCARB DISSOLV FIELD AS CAC03 (00904)
OCT												
12...	1030	45200	680	8.60	14.0	28	9.0	88	500	K48	210	52
NOV												
01...	1200	46100	735	8.60	9.5	18	11.6	104	82	K18	240	67
DEC												
05...	1230	33500	668	8.30	5.0	15	11.5	91	K24	K6	230	43
JAN												
09...	1130	35900	551	8.20	1.5	17	13.2	95	68	410	220	38
FEB												
07...	1100	39300	566	8.20	0.5	12	15.8	110	82	68	220	48
MAR												
08...	1030	37500	665	8.30	2.5	9.7	13.3	98	96	K22	220	42
APR												
06...	0930	94600	478	8.10	12.0	60	9.0	85	K1600	4800	170	27
MAY												
03...	1045	45100	719	8.40	18.5	19	8.4	91	K36	K16	220	54
JUN												
05...	1115	65500	685	8.20	23.0	66	6.9	82	260	140	220	64
JUL												
19...	1300	49900	748	8.20	28.0	50	7.0	89	270	88	220	63
AUG												
02...	1000	51400	614	8.10	27.0	61	7.3	91	480	330	190	49
SEP												
13...	1130	209000	333	7.60	20.5	850	2.4	26	6000	13000	120	10

K--Results based on colony count outside the acceptable range (non-ideal colony count).

MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT 12...	51	21	60	5.4	150	160	18	0.30	7.0	636	0.86	77600
NOV 01...	57	23	70	5.2	168	170	20	0.40	7.2	465	0.63	57900
DEC 05...	58	21	51	5.1	194	120	23	0.30	11	417	0.57	37700
JAN 09...	55	19	38	4.5	176	84	17	0.20	11	323	0.44	31300
FEB 07...	54	21	41	4.3	172	95	20	0.20	11	346	0.47	36700
MAR 08...	54	20	52	4.9	182	120	27	0.30	10	415	0.56	42000
APR 06...	43	15	27	4.6	142	80	16	0.20	8.2	300	0.41	76600
MAY 03...	54	21	66	6.5	158	180	22	0.50	6.7	461	0.63	56100
JUN 05...	54	21	61	5.7	142	170	21	0.40	7.6	431	0.59	76200
JUL 19...	56	20	66	7.0	166	180	19	0.50	8.2	454	0.62	61200
AUG 02...	49	17	52	5.8	152	150	18	0.40	7.6	388	0.53	53800
SEP 13...	35	8.7	18	5.5	122	51	7.7	0.30	8.5	209	0.28	118000
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
OCT 12...	<0.010	<0.100	0.030	<0.010	0.40	0.180	0.090	<0.010	82	10000	83	
NOV 01...	0.010	0.270	0.010	0.010	0.40	0.150	0.060	0.050	85	10600	52	
DEC 05...	0.010	0.830	0.050	0.050	0.60	0.160	0.080	0.080	106	9590	37	
JAN 09...	<0.010	0.550	0.110	--	0.60	0.100	0.050	0.050	155	15000	29	
FEB 07...	<0.010	0.740	0.040	0.040	0.60	0.110	0.070	0.060	56	5940	57	
MAR 08...	<0.010	0.780	0.060	0.060	0.50	0.120	0.120	0.090	304	30800	9	
APR 06...	0.020	0.910	0.040	0.040	0.50	0.120	0.080	0.050	--	--	--	
MAY 03...	<0.010	0.140	0.020	<0.010	0.30	0.190	0.100	0.050	218	26500	36	
JUN 05...	0.010	0.530	0.040	0.080	1.0	0.110	0.080	0.070	410	72500	59	
JUL 19...	<0.010	0.380	0.030	0.020	0.80	0.240	0.090	0.100	--	--	--	
AUG 02...	<0.010	0.520	0.010	0.020	0.60	0.130	0.150	0.090	--	--	--	
SEP 13...	0.020	0.980	0.020	0.030	0.90	0.110	0.050	0.050	2200	1240000	94	

MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALUM- DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 01...	<10	3	74	<0.5	3	<1	<3	2	9	<5
MAY 03...	<10	3	94	1	1	<1	<3	8	9	<1
JUL 19...	<10	3	100	<0.5	<1	1	<3	7	7	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 01...	44	3	<0.1	<10	2	2	1.0	490	<6	3
MAY 03...	39	2	<0.1	<10	1	1	<1.0	460	<6	17
JUL 19...	41	65	<0.1	<10	5	2	<1.0	470	<6	8

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, DIS- SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- SUS- PENDE (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70331)
MAY 23...	0830	50100	271	36700	89	89	94	97	100	--
MAY 23...	0840	50100	343	46400	82	82	95	99	100	--
AUG 23...	0930	73000	223	44000	--	--	--	--	--	85
AUG 23...	1000	73000	228	44900	84	84	100	--	--	--
AUG 23...	1030	73000	976	192000	58	59	66	100	--	--
AUG 23...	1100	73000	461	90900	--	--	--	--	--	45
AUG 23...	1130	73000	232	45700	--	--	--	--	--	84
SEP 11...	1015	183000	2890	1430000	97	98	99	100	--	--
SEP 11...	1300	183000	3220	1590000	93	95	100	--	--	--
SEP 14...	1050	180000	2300	1120000	94	96	98	100	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)
FEB 17...	0	2	81	96	99	100	--	--
MAY 12...	1	1	76	98	99	100	--	--
MAY 23...	2	3	47	75	89	95	98	100
JUN 08...	1	1	68	98	100	--	--	--
AUG 23...	0	0	54	86	98	100	--	--
SEP 11...	1	1	40	87	99	100	--	--
SEP 14...	1	2	76	93	97	98	100	--

MISSOURI RIVER MAIN STEM

179

06934500 MISSOURI RIVER AT HERMANN, MO---Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	691	785	650	606	575	730	530	652	578	530	574	498
2	699	785	650	598	620	724	523	717	579	550	652	508
3	731	788	647	681	646	776	524	724	557	553	655	510
4	736	788	706	646	649	788	497	722	555	610	641	593
5	725	777	708	597	718	792	493	697	554	615	680	612
6	724	779	713	552	720	794	495	713	553	677	697	620
7	721	787	725	544	701	699	525	715	554	682	697	389
8	720	792	710	641	696	683	529	721	554	687	690	374
9	719	786	733	750	624	678	537	727	648	685	690	365
10	720	785	708	758	614	678	540	728	679	681	691	366
11	756	787	710	722	613	657	540	728	682	679	723	358
12	759	785	728	718	662	658	540	732	685	678	728	338
13	758	783	710	740	674	658	543	732	685	677	729	337
14	757	783	532	740	675	773	566	733	686	694	739	325
15	762	782	665	731	750	676	570	733	684	695	744	487
16	757	781	690	730	758	668	573	719	685	693	762	502
17	766	755	654	720	773	551	672	714	651	723	766	507
18	762	753	649	715	745	531	685	717	650	720	768	510
19	769	719	540	665	742	523	686	636	640	721	780	512
20	769	718	499	688	735	453	695	633	640	711	655	510
21	770	681	663	744	758	447	700	710	635	706	640	582
22	772	677	689	746	755	442	700	716	723	708	645	601
23	771	624	651	747	754	465	699	641	740	697	636	605
24	767	622	701	801	709	463	706	662	740	694	635	610
25	774	662	704	809	701	463	710	664	742	695	634	678
26	773	632	671	814	694	591	709	667	742	696	639	692
27	771	675	670	735	718	609	710	654	743	700	639	619
28	777	634	630	721	720	614	705	650	625	670	640	614
29	774	667	613	715	---	646	705	650	612	660	573	686
30	774	674	605	736	---	651	706	621	611	660	566	693
31	773	---	601	739	---	654	---	617	---	562	564	---
TOTAL	23297	22046	20525	21849	19499	19535	18313	21445	19412	20709	20872	15601
MEAN	752	735	662	705	696	630	610	692	647	668	673	520
MAX	777	792	733	814	773	794	710	733	743	723	780	693
MIN	691	622	499	544	575	442	493	617	553	530	564	325
MED	762	778	670	722	705	657	571	714	649	685	655	510

WTR YR 1989 TOTAL 243103 MEAN 666 MAX 814 MIN 325 MED 686

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.5	11.0	7.0	4.0	5.5	4.5	12.5	18.0	22.5	25.5	28.0	24.0
2	19.5	11.0	7.0	4.0	5.0	4.0	12.5	19.0	22.5	26.0	28.0	24.5
3	19.0	11.0	6.5	4.0	4.5	3.0	12.5	19.0	23.0	26.5	28.0	25.0
4	18.0	10.5	6.5	4.0	4.5	3.0	11.5	18.0	23.5	27.0	28.5	25.0
5	17.5	10.5	6.5	4.5	3.0	3.5	11.5	18.0	23.0	27.5	29.0	25.5
6	17.0	10.0	6.5	5.0	2.0	3.5	11.5	18.0	23.5	29.0	26.5	24.0
7	16.5	10.0	6.0	5.0	1.0	4.5	12.0	18.0	23.0	29.0	26.5	23.5
8	16.5	9.5	6.0	5.0	.0	4.5	12.0	18.5	23.0	29.5	27.0	22.0
9	16.0	9.5	6.0	5.0	1.0	5.0	11.0	18.5	23.0	29.0	26.0	21.5
10	16.0	9.0	6.0	5.0	1.0	5.0	11.0	19.0	23.5	30.0	26.5	21.0
11	15.5	9.0	5.5	5.0	2.0	6.5	11.0	18.5	23.0	30.0	26.5	20.5
12	15.0	9.0	5.0	5.0	2.0	6.5	11.0	19.0	22.5	30.0	26.0	20.0
13	15.0	9.5	5.0	5.0	2.0	6.5	12.0	19.0	23.0	29.0	26.0	19.0
14	15.5	9.0	4.5	5.5	2.0	13.0	12.5	19.0	23.0	28.0	25.5	19.0
15	15.0	9.0	4.5	5.0	1.5	12.5	13.0	18.0	23.0	26.0	25.0	20.0
16	15.0	9.0	4.5	5.5	1.5	12.0	13.5	18.0	23.0	26.0	24.5	21.0
17	14.5	9.5	4.5	5.5	1.5	7.5	14.0	18.0	22.0	24.0	22.5	21.5
18	14.5	9.0	4.5	5.5	3.0	7.5	14.0	18.5	22.5	24.0	24.5	22.5
19	15.0	8.5	4.5	5.0	3.0	7.5	14.0	19.0	24.0	24.0	24.5	23.0
20	15.0	9.0	4.5	5.5	3.0	7.0	16.0	19.0	25.0	23.0	24.5	23.0
21	14.5	8.5	4.0	5.5	3.0	7.0	17.0	22.0	26.0	23.5	24.5	21.0
22	14.0	8.5	4.5	5.5	3.0	7.0	18.0	22.0	27.0	23.5	25.0	19.0
23	14.0	8.5	4.0	5.5	3.0	9.0	19.0	21.0	27.0	25.0	24.5	19.5
24	13.5	8.0	4.0	6.0	3.0	10.0	20.0	22.0	27.0	26.0	24.5	19.0
25	13.5	7.5	3.5	6.0	4.0	11.0	21.0	22.0	27.0	26.5	24.5	19.0
26	13.5	7.0	4.0	6.0	4.0	14.0	21.0	22.0	27.0	27.0	25.0	19.5
27	13.5	7.5	4.0	6.5	4.0	14.0	21.0	21.0	27.0	27.5	25.5	19.0
28	13.0	7.5	4.0	6.5	4.5	14.0	20.5	21.5	26.0	27.5	26.0	19.0
29	12.5	7.0	4.5	7.0	---	12.5	20.0	22.0	26.0	27.5	26.5	19.5
30	12.0	8.0	4.0	7.0	---	12.5	20.0	23.0	26.0	28.0	26.0	19.0
31	11.5	---	4.0	7.5	---	12.5	---	23.0	---	25.0	26.5	---
MEAN	15.2	9.0	5.0	5.4	2.8	8.1	14.9	19.7	24.2	26.8	25.9	21.3
MAX	19.5	11.0	7.0	7.5	5.5	14.0	21.0	23.0	27.0	30.0	29.0	25.5
MIN	11.5	7.0	3.5	4.0	.0	3.0	11.0	18.0	22.0	23.0	22.5	19.0

WTR YR 1989 MEAN 14.9 MAX 30.0 MIN .0

MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO

LOCATION.--Lat 38°37'44", long 90°10'47", Hydrologic Unit 07140101, on downstream side of west pier of Eads Bridge at St. Louis, 15 mi downstream from Missouri River, 19.2 mi upstream from Meramec River, and at mile 180.0 above the Ohio River.

DRAINAGE AREA.--697,000 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Discharge: January 1861 to current year. Monthly discharge only for some periods, published in WSP 1311.

Gage heights: March 1933 to current year in reports of Geological Survey. Since January 1861 in reports of Mississippi River commission. Since January 1890 in reports of National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 379.94 ft above National Geodetic Vertical Datum of 1929. Prior to May 5, 1934, nonrecording gage 0.4 mi downstream and May 5, 1934, to Dec. 9, 1952, water-stage recorder at site 20 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin and by many reservoirs and diversions for irrigation in Missouri River basin. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 27, 1844, reached a stage of 41.32 ft, from floodmarks, discharge, 1,300,000 ft³/s, computed by U.S. Army Corps of Engineers. Flood in April 1785 may have reached a stage 42.0 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82200	73500	110000	99300	87400	73800	161000	136000	143000	112000	91800	145000
2	80100	65800	107000	98600	95600	73000	171000	130000	153000	112000	88400	176000
3	81300	69500	100000	95600	108000	74700	194000	127000	162000	102000	84400	162000
4	85300	73100	91100	83700	109000	80200	226000	127000	168000	102000	82600	149000
5	87000	74000	87300	87000	96700	86700	248000	132000	176000	101000	79800	145000
6	97300	72600	77400	106000	71200	81900	236000	129000	176000	99300	91200	132000
7	89500	71000	75700	119000	57100	79300	233000	121000	172000	95100	110000	119000
8	77200	78000	73000	113000	67600	85800	226000	121000	173000	88000	103000	114000
9	67900	76300	75100	95600	81500	97500	224000	124000	181000	82500	91100	152000
10	62500	87200	69700	81300	77900	93900	223000	127000	170000	83400	76200	202000
11	62600	80300	72600	71500	71000	103000	210000	124000	172000	83100	79400	251000
12	56200	78400	67900	73700	69400	118000	199000	119000	174000	81300	76300	312000
13	65600	86400	59100	87900	75500	131000	193000	115000	163000	81800	66100	326000
14	65600	87000	58600	84300	77500	140000	179000	113000	146000	86100	60000	310000
15	65400	92200	53700	82900	76600	140000	168000	112000	134000	87500	59700	265000
16	64900	102000	53800	85900	74900	153000	162000	110000	129000	76300	59800	230000
17	69000	91200	52000	81500	76700	184000	165000	107000	125000	64100	65600	204000
18	69900	85100	51400	76800	87800	187000	160000	101000	114000	65400	68500	182000
19	72800	89700	64800	73700	91300	159000	152000	104000	105000	65400	70900	157000
20	77300	105000	65600	77600	87400	168000	153000	111000	103000	75800	73100	145000
21	78700	111000	64600	71000	83500	189000	152000	105000	103000	88800	79600	149000
22	74500	111000	63900	65700	80900	183000	150000	105000	114000	98400	75700	145000
23	75500	108000	75300	67900	78000	173000	139000	110000	120000	96300	75700	139000
24	72400	108000	85800	68300	74600	160000	139000	111000	111000	100000	94000	131000
25	66400	108000	77900	66800	81300	143000	140000	114000	97900	98400	105000	132000
26	70100	105000	77700	73200	89700	127000	138000	130000	93700	96800	111000	118000
27	65000	102000	83300	79300	83500	118000	128000	142000	96100	97100	115000	110000
28	72600	99500	91000	80200	78100	119000	133000	137000	91000	88900	109000	101000
29	71400	101000	91900	83800	---	123000	145000	147000	88000	85400	111000	93200
30	73900	106000	113000	80600	---	146000	138000	155000	92700	90200	129000	89500
31	74200	---	109000	81600	---	169000	---	150000	---	93100	126000	---
MEAN	73360	89930	77390	83650	81770	127700	176200	122500	134900	89600	87380	169500
MAX	97300	111000	113000	119000	109000	189000	248000	155000	181000	112000	129000	326000
MIN	56200	65800	51400	65700	57100	73000	128000	101000	88000	64100	59700	89500
IN.	.12	.14	.13	.14	.12	.21	.28	.20	.22	.15	.14	.27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	137900	139400	117800	111200	140400	228000	303300	273800	255100	206700	130500	131200
MEAN	137900	139400	117800	111200	140400	228000	303300	273800	255100	206700	130500	131200
MAX	575300	359200	452400	307800	301400	521800	692500	584500	600600	653300	242000	306200
(WY)	1987	1986	1983	1973	1974	1973	1973	1973	1947	1951	1981	1951
MIN	44170	47920	42130	31340	41900	74550	110100	79500	70260	67130	43510	54640
(WY)	1940	1940	1938	1940	1940	1964	1934	1934	1934	1936	1936	1939

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	109400	181600
HIGHEST ANNUAL MEAN		331900
LOWEST ANNUAL MEAN		67700
HIGHEST DAILY MEAN	326000	851000
LOWEST DAILY MEAN	51400	27800
INSTANTANEOUS PEAK FLOW	327000	1019000
INSTANTANEOUS PEAK STAGE	19.87	38.00
INSTANTANEOUS LOW FLOW	51400	18000
ANNUAL RUNOFF (INCHES)	2.14	3.56
10 PERCENTILE	170000	353000
50 PERCENTILE	96100	146000
95 PERCENTILE	64900	56500

MISSISSIPPI RIVER MAIN STEM

181

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.08	.47	4.17	3.10	1.36	.03	9.47	7.00	7.63	4.92	2.27	6.86
2	1.26	-.25	4.11	2.90	2.45	-.13	9.91	6.36	8.48	4.99	1.93	11.22
3	1.13	-.28	3.60	2.73	3.91	.11	11.74	6.22	9.59	3.42	1.17	9.16
4	1.81	.22	2.40	1.26	4.26	.54	14.14	5.84	9.67	3.56	1.18	8.42
5	1.88	.76	1.95	1.08	3.17	1.80	16.29	6.48	10.83	3.27	.64	8.11
6	3.18	.34	.93	3.33	.27	1.01	15.27	6.33	10.73	3.21	1.04	6.63
7	2.76	.39	.54	5.41	-2.10	.70	14.83	5.24	10.51	2.62	4.16	5.35
8	1.39	1.06	-.07	4.86	-1.48	1.19	14.28	5.06	10.25	1.98	3.78	4.35
9	-.26	.66	.46	2.78	.90	3.03	14.00	5.59	11.33	1.07	2.39	7.14
10	-.80	2.05	-.46	1.24	.61	2.29	14.03	6.16	10.24	1.14	.25	11.62
11	-.71	1.41	-.05	-.22	-.32	3.08	12.96	5.97	10.37	1.10	.57	14.39
12	-1.99	.82	-.44	-.41	-.67	4.96	12.03	5.84	10.61	.77	.42	18.56
13	-.67	2.49	-1.94	1.71	.12	5.86	11.79	5.17	9.83	.97	-.75	19.84
14	-1.13	1.52	-1.72	1.38	.43	7.53	10.83	5.04	8.33	1.70	-1.77	19.44
15	-.52	2.51	-2.73	.93	.37	7.40	9.64	4.98	6.93	2.02	-1.82	16.97
16	-.91	3.46	-2.66	1.54	.12	8.37	9.14	4.87	6.19	.39	-1.91	14.70
17	-.12	2.58	-2.82	1.01	.14	11.22	9.57	4.43	6.60	-1.02	-.99	12.95
18	-.29	1.53	-3.17	.40	1.59	12.13	9.24	3.82	4.57	-.96	-.90	11.39
19	.11	1.83	-1.66	-.09	2.22	9.92	8.55	3.36	4.02	-1.24	-.43	8.89
20	.95	3.11	-.79	.50	1.72	9.79	8.41	4.50	3.21	-.14	-.67	7.49
21	1.15	4.27	-1.01	-.17	1.29	12.26	8.48	3.65	3.75	1.63	1.04	8.20
22	1.47	4.48	-1.43	-1.09	.89	11.88	8.36	3.69	4.64	3.26	.20	7.76
23	.71	4.21	-.26	-.78	.82	11.11	7.09	4.04	5.43	2.57	.12	7.25
24	1.52	4.20	1.69	-.68	-.03	9.90	6.98	4.22	4.83	3.11	2.15	6.01
25	-.38	4.31	.59	-.99	.71	8.57	7.41	4.50	3.61	3.00	3.62	6.38
26	.75	4.03	.44	-.23	2.01	6.68	7.32	5.58	2.51	2.68	4.23	5.28
27	-.21	3.82	1.00	.64	1.31	5.65	5.99	7.61	3.31	2.98	4.72	4.37
28	.40	3.42	2.08	.70	.65	5.36	6.81	7.05	2.80	2.05	4.31	3.24
29	.32	3.67	1.80	1.23	---	5.65	7.68	7.82	2.48	1.32	3.60	2.24
30	.58	4.32	4.43	.80	---	7.59	7.06	8.75	2.00	1.87	5.73	1.76
31	.57	---	4.36	.92	---	10.24	---	8.43	---	2.30	5.92	---

MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--

WATER TEMPERATURES: October 1951 to current year.

SEDIMENT RECORDS: April 1948 to current year.

REMARKS.--Sediment discharge for many days computed from turbidity readings.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,720 mg/L, Feb. 24, 1985; minimum daily mean, 19 mg/L, Jan. 21, 22, 1967.

SEDIMENT LOADS: Maximum daily, 9,830,000 tons, Feb. 24, 1985; minimum daily, 2,800 tons, Jan. 21, 1967.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,530 mg/L, Sept. 12; minimum daily mean, 26 mg/L, Dec. 19.

SEDIMENT LOADS: Maximum daily, 1,290,000 tons, Sept. 12; minimum daily, 3,750 tons, Dec. 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	19.0	---	---	---	---
2	---	---	---	---	---	2.0	---	---	---	---	---	---
3	20.5	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	2.5	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	10.0	---	---	---	---	---
7	---	10.5	---	---	---	---	---	---	---	29.0	27.0	26.0
8	---	---	---	---	---	---	---	---	24.5	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	7.5	---	---	---	---	---
11	16.5	---	---	---	---	---	---	---	---	---	---	24.5
12	---	---	---	---	---	---	---	---	23.5	31.0	---	23.5
13	---	---	---	2.0	---	---	---	---	---	---	---	---
14	---	11.0	4.5	---	3.0	---	---	---	---	---	27.0	---
15	---	---	3.5	---	---	---	---	18.5	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	7.5	15.0	---	---	---	---	---
18	17.0	---	---	4.0	---	---	---	---	---	27.0	26.0	20.5
19	---	---	4.0	---	---	---	---	---	23.0	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	26.0	---
22	---	---	---	---	---	5.0	---	20.0	---	---	---	---
23	---	7.0	---	4.0	---	---	---	---	---	---	---	---
24	14.0	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	26.0	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	3.5	---	---	---	20.0	---	27.5	---	---	---
28	---	---	---	---	---	---	---	---	---	---	27.0	18.0
29	---	7.5	---	---	---	---	---	---	---	---	---	---
30	---	---	---	5.5	---	---	---	22.0	---	---	---	---
31	11.0	---	---	---	---	---	---	---	---	28.0	---	---

MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. FALL DIAM. % FINER THAN (70337)	SED. SUSP. FALL DIAM. % FINER THAN (70338)	SED. SUSP. FALL DIAM. % FINER THAN (70339)	SED. SUSP. FALL DIAM. % FINER THAN (70340)	SED. SUSP. FALL DIAM. % FINER THAN (70342)	SED. SUSP. FALL DIAM. % FINER THAN (70343)	SED. SUSP. FALL DIAM. % FINER THAN (70344)	SED. SUSP. FALL DIAM. % FINER THAN (70345)
JUN 19...	1200	106000	49	60	70	80	97	98	99	100
SEP 12...	1000	312000	43	50	57	72	89	91	98	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN (80164)	BED MAT. SIEVE DIAM. % FINER THAN (80165)	BED MAT. SIEVE DIAM. % FINER THAN (80166)	BED MAT. SIEVE DIAM. % FINER THAN (80167)	BED MAT. SIEVE DIAM. % FINER THAN (80168)	BED MAT. SIEVE DIAM. % FINER THAN (80169)	BED MAT. SIEVE DIAM. % FINER THAN (80170)	BED MAT. SIEVE DIAM. % FINER THAN (80171)	BED MAT. SIEVE DIAM. % FINER THAN (80172)
AUG 18...	0	1	17	79	93	97	98	99	100

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	OCTOBER			NOVEMBER			DECEMBER		
1	82200	61	13600	73500	37	7400	110000	95	28200
2	80100	72	15700	65800	36	6380	107000	90	26000
3	81300	78	17100	69500	34	6470	100000	85	23000
4	85300	80	18400	73100	33	6530	91100	80	19700
5	87000	82	19200	74000	32	6330	87300	75	17800
6	97300	84	22000	72600	30	5940	77400	70	14700
7	89500	85	20600	71000	29	5540	75700	65	13400
8	77200	87	18200	78000	29	6070	73000	60	11900
9	67900	89	16300	76300	29	5920	75100	56	11300
10	62500	91	15400	87200	29	6750	69700	51	9520
11	62600	93	15700	80300	29	6200	72600	46	8950
12	56200	87	13200	78400	29	6040	67900	41	7460
13	65600	81	14400	86400	28	6640	59100	36	5700
14	65600	76	13400	87000	28	6670	58600	31	4870
15	65400	70	12300	92200	29	7290	53700	30	4360
16	64900	64	11200	102000	30	8300	53800	29	4220
17	69000	58	10900	91200	31	7630	52000	28	3940
18	69900	53	9950	85100	32	7320	51400	27	3750
19	72800	52	10300	89700	33	7930	64800	26	4550
20	77300	52	10800	105000	34	9530	65600	29	5170
21	78700	51	10800	111000	34	10300	64600	32	5660
22	74500	50	10200	111000	35	10600	63900	36	6150
23	75500	50	10200	108000	36	10600	75300	39	7900
24	72400	49	9660	108000	48	13900	85800	42	9740
25	66400	48	8580	108000	59	17200	77900	45	9520
26	70100	46	8770	105000	71	20000	77700	48	10200
27	65000	45	7860	102000	82	22600	83300	52	11600
28	72600	43	8480	99500	94	25100	91000	50	12200
29	71400	42	8050	101000	105	28600	91900	47	11800
30	73900	40	8030	106000	100	28600	113000	45	13800
31	74200	39	7750	---	---	---	109000	43	12700
TOTAL	2274300	---	397030	2697800	---	324380	2399200	---	339760

MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	99300	41	11000	87400	42	9980	73800	114	22800
2	98600	39	10400	95600	42	11000	73000	119	23500
3	95600	37	9510	108000	43	12400	74700	126	25500
4	83700	35	7840	109000	43	12600	80200	134	28900
5	87000	36	8540	96700	43	11200	86700	141	33000
6	106000	38	10900	71200	43	8310	81900	148	32700
7	119000	40	12800	57100	43	6690	79300	155	33300
8	113000	41	12600	67600	44	7950	85800	163	37700
9	95600	43	11100	81500	44	9630	97500	170	44700
10	81300	45	9810	77900	44	9240	93900	177	44900
11	71500	46	8950	71000	44	8460	103000	184	51300
12	73700	48	9560	69400	44	8310	118000	192	61100
13	87900	50	11800	75500	45	9070	131000	199	70400
14	84300	46	10500	77500	45	9350	140000	206	77900
15	82900	43	9570	76600	49	10200	140000	213	80700
16	85900	39	9110	74900	54	10900	153000	221	91200
17	81500	36	7870	76700	59	12100	184000	228	113000
18	76800	32	6700	87800	63	15000	187000	232	117000
19	73700	---	6500	91300	68	16700	159000	235	101000
20	77600	32	6620	87400	73	17100	168000	239	108000
21	71000	31	5980	83500	77	17400	189000	242	124000
22	65700	31	5470	80900	82	17900	183000	246	122000
23	67900	30	5590	78000	86	18200	173000	251	117000
24	68300	32	5920	74600	91	18400	160000	255	110000
25	66800	34	6090	81300	96	21000	143000	260	100000
26	73200	35	6990	89700	100	24300	127000	264	90700
27	79300	37	7930	83500	105	23700	118000	269	85700
28	80200	39	8370	78100	110	23100	119000	274	87900
29	83800	40	9110	---	---	---	123000	278	92400
30	80600	42	9120	---	---	---	146000	283	111000
31	81600	42	9270	---	---	---	169000	287	131000
TOTAL	2593300	---	271520	2289700	---	380190	3959800	---	2370300
APRIL			MAY			JUNE			
1	161000	292	127000	136000	73	26700	143000	152	58900
2	171000	297	137000	130000	73	25500	153000	151	62200
3	194000	301	158000	127000	73	24900	162000	149	65100
4	226000	306	187000	127000	73	24900	168000	147	66700
5	248000	310	208000	132000	73	25900	176000	145	69100
6	236000	315	201000	129000	73	25300	176000	144	68200
7	233000	294	185000	121000	73	23800	172000	142	65800
8	226000	273	167000	121000	73	23800	173000	140	65400
9	224000	253	153000	124000	73	24400	181000	169	82600
10	223000	232	140000	127000	73	25000	170000	198	90900
11	210000	211	120000	124000	73	24400	172000	227	105000
12	199000	190	102000	119000	73	23500	174000	256	120000
13	193000	169	88200	115000	73	22700	163000	254	112000
14	179000	148	71700	113000	73	22300	146000	253	99600
15	168000	128	57900	112000	73	22100	134000	251	90800
16	162000	107	46700	110000	71	21000	129000	249	86800
17	165000	86	38300	107000	68	19700	125000	247	83500
18	160000	86	37100	101000	66	18000	114000	246	75600
19	152000	86	35300	104000	63	17800	105000	244	69200
20	153000	86	35500	111000	61	18300	103000	232	64500
21	152000	86	35200	105000	59	16600	103000	220	61200
22	150000	86	34800	105000	56	15900	114000	208	64000
23	139000	86	32200	110000	69	20400	120000	196	63500
24	139000	86	32200	111000	81	24300	111000	184	55100
25	140000	86	32400	114000	94	28800	97900	172	45500
26	138000	86	31900	130000	106	37200	93700	160	40500
27	128000	86	29600	142000	119	45500	96100	148	38400
28	133000	82	29600	137000	131	48500	91000	167	41000
29	145000	79	31000	147000	144	57000	88000	186	44100
30	138000	76	28300	155000	156	65300	92700	205	51200
31	---	---	---	150000	154	62500	---	---	---
TOTAL	5285000	---	2612900	3796000	---	882000	4046400	---	2106400

MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	112000	224	67600	91800	115	28500	145000	181	71000
2	112000	242	73300	88400	114	27200	176000	197	93800
3	102000	261	72000	84400	113	25800	162000	214	93400
4	102000	280	77200	82600	112	25000	149000	230	92400
5	101000	299	81600	79800	111	23900	145000	246	96200
6	99300	318	85300	91200	110	27100	132000	262	93300
7	95100	337	86500	110000	109	32400	119000	278	89300
8	88000	311	73900	103000	108	30000	114000	358	110000
9	82500	285	63600	91100	103	25400	152000	437	180000
10	83400	260	58500	76200	98	20300	202000	517	282000
11	83100	234	52500	79400	94	20100	251000	597	405000
12	81300	208	45700	76300	89	18300	312000	1530	1290000
13	81800	195	43100	66100	84	15000	326000	1440	1270000
14	86100	182	42300	60000	79	12900	310000	1350	1130000
15	87500	169	39900	59700	72	11700	265000	1260	905000
16	76300	156	32100	59800	66	10600	230000	1180	731000
17	64100	143	24700	65600	59	10400	204000	1090	599000
18	65400	130	23000	68500	52	9560	182000	1000	491000
19	65400	124	22000	70900	63	12000	157000	911	386000
20	75800	119	24300	73100	74	14600	145000	823	322000
21	88800	113	27200	79600	85	18200	149000	735	296000
22	98400	108	28600	75700	85	17300	145000	646	253000
23	96300	102	26600	75700	85	17300	139000	558	209000
24	100000	97	26100	94000	85	21500	131000	469	166000
25	98400	91	24200	105000	85	24000	132000	381	136000
26	96800	95	24900	111000	85	25400	118000	293	93300
27	97100	99	26100	115000	101	31300	110000	204	60700
28	88900	104	24900	109000	117	34400	101000	116	31600
29	85400	108	24800	111000	133	39800	93200	85	21400
30	90200	112	27200	129000	149	51900	89500	69	16700
31	93100	116	29200	126000	165	56200	---	---	---
TOTAL	2777500	---	1378900	2708900	---	738060	5085700	---	10014100
YEAR	39913600		21815482						

MERAMEC RIVER BASIN

07013000 MERAMEC RIVER NEAR STEELVILLE, MO

LOCATION.--Lat 37°59'58", long 91°21'39", in NE 1/4 sec.21, T.38 N., R.4 W., Crawford County, Hydrologic Unit 07140102, on left bank 20 ft downstream from railroad bridge, 400 ft upstream from highway bridge, 0.8 mi upstream from Whittenburg Creek, 1.5 mi north of Steelville, and at mile 149.4.

DRAINAGE AREA.--781 mi².

PERIOD OF RECORD.--October 1922 to current year. Prior to January 1923 monthly discharges only, published in WSP 1311. Gage-height records for 1916-33 at site 1 mi upstream in reports of National Weather Service.

REVISED RECORDS.--WSP 897: 1939. WSP 1007: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is 681.68 ft above National Geodetic Vertical Datum of 1929. Prior to May 24, 1934, and July 20, 1966, to July 20, 1967, nonrecording gage, and May 24, 1934, to Oct. 10, 1942, water-stage recorder at site 400 ft downstream at present datum. July 21, 1967, to Feb. 13, 1973, at site 1,900 ft downstream and at datum 2.0 ft lower.

REMARKS.--Estimated daily discharges: June 24-27. Records good. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 20, 1915, reached a stage of 26.5 ft, discharge, 60,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	220	175	716	727	470	372	2690	395	231	260	183	199
2	261	173	592	673	454	362	1810	358	223	234	185	190
3	339	173	507	723	573	363	2500	334	217	217	182	184
4	272	175	439	884	660	383	2350	316	215	201	173	176
5	232	175	391	884	581	410	1890	303	236	194	169	170
6	212	176	356	1360	516	449	1440	298	269	187	165	167
7	200	175	337	1290	467	437	1340	280	299	182	162	167
8	191	174	315	1020	429	412	1290	295	271	180	161	166
9	189	174	296	813	373	408	1230	337	248	178	159	166
10	187	180	273	686	342	671	1060	339	232	171	159	166
11	183	182	252	607	328	2520	929	324	227	170	158	166
12	178	202	240	546	303	2370	844	298	232	174	157	166
13	175	203	233	487	309	1550	767	277	240	184	157	171
14	175	226	225	442	1660	1160	698	273	245	175	156	241
15	170	217	216	408	2150	938	655	266	294	170	156	463
16	173	344	207	372	1790	764	614	258	301	169	160	427
17	171	580	202	350	1490	654	579	248	273	167	159	333
18	172	454	196	330	1040	575	536	240	275	177	159	269
19	167	378	192	310	850	501	497	238	299	186	159	231
20	167	1110	192	289	738	592	461	233	333	187	162	209
21	169	2980	188	270	667	1660	437	227	286	206	190	195
22	171	1420	202	263	598	1420	415	244	256	218	305	185
23	175	903	505	256	518	1070	399	294	239	235	284	177
24	175	697	598	247	456	863	380	352	228	219	221	169
25	175	591	543	243	424	740	362	322	218	219	204	167
26	177	2040	462	274	411	648	350	311	210	311	226	167
27	176	3680	443	578	406	581	331	320	204	234	394	166
28	174	2200	1280	600	391	537	322	291	461	200	350	164
29	173	1270	1470	545	---	596	379	272	371	187	274	162
30	172	913	1050	533	---	1900	450	251	304	182	233	161
31	174	---	832	503	---	3850	---	243	---	183	214	---
MEAN	192	745	450	565	693	960	933	292	265	199	199	205
MAX	339	3680	1470	1360	2150	3850	2690	395	461	311	394	463
MIN	167	173	188	243	303	362	322	227	204	167	156	161
IN.	.28	1.06	.66	.83	.92	1.42	1.33	.43	.38	.29	.29	.29

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	289	470	580	546	655	877	1031	925	748	347	258	256
MAX	2562	2684	4712	3155	2397	2842	4305	3665	4644	3287	1181	1755	
(WY)	1950	1986	1983	1950	1985	1945	1927	1957	1935	1951	1982	1934	
MIN	85.2	118	116	114	126	141	138	131	134	92.9	104	82.2	
(WY)	1957	1965	1965	1956	1934	1954	1954	1977	1932	1934	1936	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	472	581
HIGHEST ANNUAL MEAN		1473
LOWEST ANNUAL MEAN		177
HIGHEST DAILY MEAN	3850	44500
LOWEST DAILY MEAN	156	76
INSTANTANEOUS PEAK FLOW	4660	51200
INSTANTANEOUS PEAK STAGE	7.24	26.15
INSTANTANEOUS LOW FLOW	156	74
ANNUAL RUNOFF (INCHES)	8.21	10.10
10 PERCENTILE	979	1070
50 PERCENTILE	279	261
95 PERCENTILE	163	116

MERAMEC RIVER BASIN

187

07013000 MERAMEC RIVER NEAR STEELVILLE, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.08	1.90	2.98	2.99	2.61	2.44	5.31	2.48	2.09	2.14	1.91	1.98
2	2.10	1.89	2.79	2.90	2.56	2.42	4.17	2.41	2.07	2.09	1.92	1.94
3	2.34	1.89	2.68	2.92	2.63	2.42	4.88	2.36	2.06	2.04	1.92	1.93
4	2.21	1.89	2.56	3.17	2.91	2.45	4.73	2.33	2.04	1.96	1.87	1.90
5	2.11	1.90	2.48	3.15	2.79	2.49	4.32	2.30	2.09	1.96	1.86	1.87
6	2.05	1.91	2.42	3.70	2.71	2.58	3.84	2.29	2.12	1.93	1.84	1.85
7	2.01	1.90	2.38	3.69	2.62	2.55	3.70	2.26	2.24	1.92	1.81	1.85
8	1.98	1.90	2.35	3.38	2.55	2.51	3.63	2.23	2.17	1.90	1.80	1.84
9	1.96	1.89	2.31	3.12	2.47	2.49	3.61	2.35	2.13	1.89	1.79	1.84
10	1.95	1.92	2.26	2.93	2.39	2.64	3.40	2.35	2.08	1.86	1.79	1.84
11	1.94	1.91	2.22	2.81	2.36	5.33	3.24	2.33	2.07	1.86	1.78	1.84
12	1.92	2.01	2.19	2.73	2.32	4.96	3.13	2.28	2.07	1.84	1.78	1.84
13	1.89	1.99	2.18	2.64	2.32	4.01	3.03	2.23	2.09	1.91	1.78	1.85
14	1.90	2.08	2.15	2.56	2.39	3.58	2.94	2.22	2.10	1.89	1.77	2.01
15	1.88	2.04	2.14	2.51	4.54	3.32	2.88	2.20	2.13	1.86	1.77	2.53
16	1.90	2.22	2.11	2.44	4.08	3.10	2.82	2.19	2.23	1.85	1.77	2.50
17	1.88	2.71	2.09	2.40	3.94	2.95	2.78	2.17	2.17	1.85	1.79	2.31
18	1.90	2.52	2.08	2.36	3.40	2.84	2.71	2.14	2.17	1.84	1.79	2.17
19	1.87	2.37	2.06	2.33	3.15	2.73	2.66	2.13	2.16	1.92	1.79	2.08
20	1.87	2.49	2.06	2.30	3.00	2.72	2.60	2.12	2.29	1.90	1.82	2.02
21	1.87	---	2.05	2.25	2.90	4.27	2.54	2.11	2.19	1.98	1.90	1.97
22	1.88	---	2.02	2.24	2.81	3.88	2.53	2.13	2.12	2.02	2.14	1.93
23	1.91	---	2.50	2.22	2.68	3.48	2.49	2.20	2.09	2.07	2.20	1.91
24	1.90	---	2.79	2.21	2.59	3.23	2.46	2.35	---	2.03	2.05	1.87
25	1.90	---	2.74	2.19	2.53	3.07	2.43	2.30	---	1.99	1.97	1.86
26	1.91	---	2.60	2.23	2.51	2.94	2.40	2.27	---	2.28	1.99	1.86
27	1.91	---	2.51	2.74	2.50	2.86	2.37	2.27	---	2.08	2.41	1.86
28	1.90	---	3.33	2.81	2.47	2.78	2.33	2.23	2.61	1.98	2.34	1.84
29	1.89	3.69	3.86	2.72	---	2.83	2.40	2.20	2.35	1.94	2.16	1.83
30	1.88	3.25	3.40	2.69	---	3.65	2.58	2.15	2.23	1.89	2.07	1.83
31	1.89	---	3.12	2.66	---	6.74	---	2.12	---	1.91	2.02	---

MERAMEC RIVER BASIN

07014500 MERAMEC RIVER NEAR SULLIVAN, MO

LOCATION.--Lat 38°09'30", long 91°06'30", in SE 1/4 NE 1/4 sec.35, T.40 N., R.2 W., Crawford County, Hydrologic Unit 07140102, on right bank at upstream side of Sappington Bridge, 3.8 mi downstream from Brazil Creek, 4.0 mi southeast of Sullivan, and at mile 117.0.

DRAINAGE AREA.--1,475 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1921 to September 1933, October 1943 to current year. Monthly discharge only for October 1943, published in WSP 1311.

REVISED RECORDS.--WSP 1007: 1922, (M), 1924-30, 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 581.82 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 21, 1952, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Feb. 5-9. Water-discharge records good except for estimated daily discharges, which are fair. Water diverted from river 0.5 mi above gage by mining company. Several observations of temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 1915 reached a stage of 33.5 ft, from information by local residents, discharge, 90,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	488	335	1670	1720	1110	925	5320	1000	566	562	449	409
2	642	333	1390	1570	1090	890	3670	905	550	534	428	397
3	760	331	1200	1590	1310	878	3960	847	552	506	418	376
4	691	342	1060	1850	1710	895	4510	815	541	487	408	364
5	597	346	954	2170	1500	946	3920	791	582	467	390	353
6	525	354	875	3490	1300	1030	3100	769	641	446	373	345
7	472	365	829	3280	1200	1020	2770	742	677	429	356	339
8	434	365	793	2570	1100	971	2680	819	639	412	343	327
9	417	358	749	2090	1020	966	2590	1190	588	399	336	327
10	399	401	712	1760	923	1450	2340	1100	556	388	329	342
11	383	387	680	1530	887	4040	2120	973	540	376	318	345
12	366	425	649	1360	850	4870	1940	874	544	380	315	346
13	350	472	630	1210	844	3510	1800	813	556	396	312	355
14	340	522	616	1100	2430	2740	1670	770	598	377	306	503
15	336	563	601	1020	4470	2310	1560	742	860	372	303	604
16	341	788	580	947	3610	1980	1470	707	774	371	306	672
17	347	1450	565	886	3270	1730	1370	681	684	363	329	627
18	349	1110	552	838	2500	1530	1290	663	673	367	328	555
19	346	891	548	797	2090	1370	1220	648	945	435	323	505
20	339	2950	542	759	1840	2060	1150	637	1010	457	336	467
21	346	6270	531	723	1660	4150	1090	617	820	608	370	436
22	340	3830	621	696	1500	3480	1040	639	693	874	481	420
23	362	2340	953	677	1320	2720	1010	697	619	737	540	401
24	365	1770	1270	662	1170	2270	968	772	572	626	480	381
25	359	1450	1230	654	1080	2000	925	754	541	551	423	374
26	362	2240	1110	748	1020	1790	893	758	519	563	436	370
27	361	5390	1190	1110	1000	1610	858	729	514	638	517	355
28	357	4490	2320	1410	967	1490	853	706	537	548	582	355
29	340	2820	3070	1310	---	1520	1120	658	681	528	530	351
30	339	2080	2430	1230	---	1960	1090	620	610	480	474	347
31	336	---	1970	1180	---	5250	---	589	---	464	430	---
MEAN	413	1526	1061	1385	1599	2076	2010	775	639	488	396	412
MAX	760	6270	3070	3490	4470	5250	5320	1190	1010	874	582	672
MIN	336	331	531	654	844	878	853	589	514	363	303	327
IN.	.32	1.15	.83	1.08	1.13	1.62	1.52	.61	.48	.38	.31	.31

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	600	995	1245	1162	1433	1926	2286	1880	1324	721	517	481
MAX	4307	5692	8307	6304	5264	5786	8287	7022	8742	6142	2030	1549	
(WY)	1950	1986	1983	1950	1982	1945	1927	1957	1945	1951	1982	1945	
MIN	156	249	231	216	281	295	347	292	263	205	199	146	
(WY)	1957	1957	1956	1956	1954	1954	1954	1932	1932	1954	1964	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1060	1212
HIGHEST ANNUAL MEAN	3014	1985
LOWEST ANNUAL MEAN	340	1954
HIGHEST DAILY MEAN	6270	70600
LOWEST DAILY MEAN	303	131
INSTANTANEOUS PEAK FLOW	7020	77300
INSTANTANEOUS PEAK STAGE	10.28	32.0
INSTANTANEOUS LOW FLOW	300	131
ANNUAL RUNOFF (INCHES)	9.76	11.16
10 PERCENTILE	2290	2350
50 PERCENTILE	696	579
95 PERCENTILE	336	235

MERAMEC RIVER BASIN

189

07014500 MERAMEC RIVER NEAR SULLIVAN, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.95	1.64	4.11	4.17	3.03	2.69	9.11	2.86	1.98	1.98	1.73	1.64
2	2.16	1.63	3.62	3.88	2.90	2.62	6.79	2.66	1.94	1.93	1.68	1.61
3	2.52	1.62	3.26	3.84	3.21	2.59	6.79	2.55	1.95	1.86	1.66	1.56
4	2.41	1.66	3.01	4.27	4.01	2.60	7.63	2.48	1.93	1.82	1.63	1.53
5	2.19	1.66	2.79	4.47	3.83	2.71	7.32	2.44	2.01	1.78	1.59	1.50
6	2.04	1.66	2.63	6.56	3.82	2.86	6.15	2.40	2.10	1.72	1.55	1.48
7	1.93	1.70	2.53	6.56	3.82	2.85	5.61	2.34	2.21	1.69	1.51	1.46
8	1.86	1.71	2.46	5.54	3.81	2.76	5.49	2.30	2.15	1.64	1.47	1.43
9	1.82	1.67	2.36	4.78	2.88	2.73	5.41	3.14	2.04	1.62	1.45	1.43
10	1.77	1.76	2.28	4.24	2.67	3.06	5.03	3.03	1.96	1.58	1.44	1.47
11	1.75	1.75	2.21	3.83	2.62	6.48	4.66	2.80	1.92	1.56	1.41	1.47
12	1.71	1.80	2.15	3.55	2.56	8.36	4.38	2.61	1.94	1.52	1.41	1.47
13	1.67	1.92	2.10	3.30	2.52	6.77	4.15	2.48	1.96	1.58	1.40	1.50
14	1.65	2.00	2.06	3.06	2.97	5.68	3.93	2.40	1.96	1.56	1.38	1.71
15	1.64	2.10	2.04	2.90	8.67	5.00	3.76	2.35	2.63	1.55	1.37	1.96
16	1.66	2.33	1.98	2.77	6.69	4.47	3.62	2.28	2.43	1.54	1.36	2.25
17	1.66	3.94	1.95	2.65	6.50	4.05	3.46	2.23	2.25	1.52	1.44	2.12
18	1.66	3.37	1.92	2.54	5.32	3.73	3.34	2.19	2.19	1.51	1.44	1.92
19	1.65	2.85	1.90	2.46	4.64	3.48	3.20	2.16	2.33	1.66	1.41	1.77
20	1.64	5.38	1.90	2.38	4.22	3.81	3.09	2.13	2.88	1.67	1.45	1.68
21	1.66	10.21	1.87	2.31	3.93	7.61	2.99	2.09	2.53	2.01	1.52	1.61
22	1.66	7.45	1.86	2.24	3.69	6.75	2.90	2.10	2.27	2.67	1.79	1.56
23	1.70	5.22	2.74	2.20	3.39	5.64	2.84	2.21	2.11	2.37	1.96	1.53
24	1.70	4.29	3.44	2.17	3.15	4.93	2.77	2.39	2.00	2.15	1.82	1.48
25	1.68	3.72	3.30	2.13	2.97	4.48	2.69	2.38	1.94	1.97	1.67	1.46
26	1.69	4.95	3.10	2.27	2.86	4.14	2.63	2.39	1.88	1.87	1.66	1.45
27	1.69	8.55	2.88	2.82	2.83	3.86	2.57	2.31	1.87	2.17	1.75	1.43
28	1.69	8.05	4.40	3.54	2.77	3.64	2.51	2.29	1.87	1.96	2.03	1.42
29	1.65	5.94	6.29	3.37	---	3.60	2.99	2.19	2.26	1.94	1.92	1.42
30	1.65	4.77	5.34	3.22	---	3.92	2.95	2.11	2.10	1.80	1.79	1.41
31	1.64	---	4.58	3.14	---	7.97	---	2.04	---	1.77	1.69	---

MERAMEC RIVER BASIN

07014500 MERAMEC RIVER NEAR SULLIVAN, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1963 to July 1975, July 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT											
13...	1345	350	350	--	8.70	12.0	8.5	79	12	K5	200
NOV											
08...	1030	367	375	--	8.50	9.0	11.1	97	19	K3	--
DEC											
07...	0900	837	283	--	8.30	6.5	11.3	93	<10	K14	--
JAN											
13...	0930	1220	263	--	8.20	5.0	11.8	92	10	K8	140
FEB											
09...	0900	1030	293	--	8.30	0.0	15.7	106	<10	K1	--
MAR											
15...	0900	2350	237	--	8.20	9.5	8.8	78	20	20	--
APR											
05...	1130	4030	203	--	8.10	11.5	9.7	90	22	K360	100
MAY											
05...	0830	793	312	--	8.10	15.5	8.9	91	<10	20	--
JUN											
07...	0845	677	343	--	8.30	21.5	7.5	87	21	40	--
JUL											
20...	0900	428	338	--	8.20	22.0	7.9	90	12	64	180
AUG											
04...	0900	409	--	357	8.00	26.5	7.2	89	14	K150	--
SEP											
13...	1500	351	353	--	8.00	18.5	8.4	88	<10	22	--

DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT											
13...	19	39	25	3.3	1.1	182	0.7	9.5	4.1	<0.10	196
NOV											
08...	--	--	--	--	--	199	1.2	--	--	--	210
DEC											
07...	--	--	--	--	--	136	1.3	--	--	--	153
JAN											
13...	2	28	16	2.4	1.3	134	1.6	13	3.1	<0.10	135
FEB											
09...	--	--	--	--	--	152	1.4	--	--	--	156
MAR											
15...	--	--	--	--	--	112	1.4	--	--	--	131
APR											
05...	4	21	12	2.1	1.2	98	1.5	11	2.5	0.10	119
MAY											
05...	--	--	--	--	--	158	2.4	--	--	--	164
JUN											
07...	--	--	--	--	--	180	1.4	--	--	--	176
JUL											
20...	1	36	21	4.6	1.3	176	2.2	9.0	3.7	0.10	191
AUG											
04...	--	--	--	--	--	187	3.6	--	--	--	203
SEP											
13...	--	--	--	--	--	168	3.3	--	--	--	187

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
OCT 13...	<1	<0.100	<0.010	0.010	70	<10	<1	<1	4	1
NOV 08...	<1	<0.100	0.040	0.010	50	<10	--	--	--	--
DEC 07...	11	0.400	<0.010	0.020	150	20	--	--	--	--
JAN 13...	1	0.300	0.020	0.010	110	20	<1	<1	5	<10
FEB 09...	1	0.100	0.010	<0.010	60	<10	--	--	--	--
MAR 15...	18	0.200	0.020	0.020	330	20	--	--	--	--
APR 05...	31	0.300	0.100	0.030	660	40	<1	<1	5	6
MAY 05...	36	<0.100	<0.010	0.010	60	<10	--	--	--	--
JUN 07...	1	0.200	<0.010	0.010	150	<10	--	--	--	--
JUL 20...	3	0.200	0.030	<0.010	270	20	<1	<1	--	3
AUG 04...	9	0.100	0.010	0.010	120	<10	--	--	--	--
SEP 13...	2	0.200	0.010	0.040	130	<10	--	--	--	--

[illegible]

MERAMEC RIVER BASIN

07015720 BOURBEUSE RIVER NEAR HIGH GATE, MO

LOCATION.--Lat 38°08'49", long 91°34'50", in SW 1/4 NE 1/4 sec.4, T.39 N., R.6 W., Phelps County, Hydrologic Unit 07140103, on downstream side of right bridge pier on State Highway B, 1.8 mi downstream from Lanes Fork, 5 mi east of High Gate, and 11 mi north of St. James.

DRAINAGE AREA.--135 mi².

PERIOD OF RECORD.--July 1965 to current year. Occasional low-flow measurements 1963, 1964.

REVISED RECORDS.--WDR MO-83-1: 1982.

GAGE.--Water-stage recorder. Datum of gage is 804.1 ft above National Geodetic Vertical Datum of 1929 (levels by Missouri State Highway and Transportation Commission). Prior to Aug. 17, 1966, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 30, 31, Feb. 3-11, 15, and Mar. 6-8. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1957 reached a stage of about 23 ft, from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	1.6	76	134	62	52	251	11	3.2	1.7	2.7	2.3
2	3.1	1.7	62	191	77	55	886	10	2.9	1.6	3.0	2.4
3	3.9	1.7	54	434	120	69	908	9.4	2.6	1.6	2.4	2.1
4	2.2	1.8	45	340	95	89	376	9.0	2.5	1.5	2.0	1.9
5	1.6	1.8	39	632	75	110	201	8.3	3.2	1.4	1.7	1.6
6	1.3	1.9	36	1150	60	95	168	7.6	4.4	1.3	1.5	1.5
7	1.1	2.0	40	356	50	92	255	6.9	4.3	1.3	1.4	1.3
8	1.0	1.9	41	199	45	90	340	34	3.1	1.2	1.3	1.2
9	.99	2.4	34	137	40	106	201	57	2.5	1.2	1.2	1.1
10	.95	20	31	109	38	1580	133	27	2.2	1.1	1.1	1.1
11	.89	13	28	93	37	1420	103	16	2.3	1.1	1.1	1.0
12	.81	52	25	86	37	530	85	12	3.1	1.1	1.0	1.0
13	.78	45	24	74	71	257	73	11	3.7	1.1	1.0	1.0
14	.79	17	24	69	82	171	66	9.5	8.4	1.0	1.1	1.8
15	.83	21	21	67	280	115	62	8.3	5.3	1.1	1.0	3.8
16	1.1	300	19	59	221	86	56	7.5	3.5	1.1	1.0	3.4
17	1.2	51	18	54	154	72	50	6.6	2.8	1.1	1.0	2.1
18	1.2	26	17	50	111	61	44	6.2	6.5	1.2	1.0	1.5
19	1.2	30	16	45	92	55	38	5.8	10	1.6	1.2	1.2
20	1.4	484	16	41	83	1350	33	5.5	7.6	1.8	1.4	1.0
21	1.7	224	13	37	83	719	30	5.0	4.6	2.0	225	.93
22	1.5	115	164	34	67	300	28	6.8	3.4	1.8	44	.86
23	3.6	107	423	33	55	179	26	11	2.9	1.9	20	.83
24	3.8	185	206	32	51	127	23	9.3	2.5	2.7	8.5	.79
25	3.5	177	127	34	45	97	21	7.0	2.2	49	5.5	.76
26	2.8	3040	108	77	44	79	19	18	2.0	13	4.7	.73
27	2.0	687	695	84	49	68	16	14	3.0	5.3	13	.72
28	1.8	228	565	70	50	92	15	7.1	2.5	3.4	6.3	.68
29	1.8	139	273	85	---	124	29	5.4	2.0	2.6	3.8	.67
30	1.8	95	186	85	---	572	14	4.4	1.8	2.7	3.0	.67
31	1.7	---	146	73	---	840	---	3.7	---	3.1	2.4	---
MEAN	1.75	202	115	160	81.2	311	152	11.6	3.70	3.66	11.8	1.40
MAX	3.9	3040	695	1150	280	1580	908	57	10	49	225	3.8
MIN	.78	1.6	13	32	37	52	14	3.7	1.8	1.0	1.0	.67
IN.	.01	1.67	.98	1.37	.63	2.66	1.25	.10	.03	.03	.10	.01

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	56.7	162	219	127	192	243	225	139	108	24.9	28.5	31.5
MAX	552	799	1213	549	634	747	568	637	962	93.8	373	369	
(WY)	1987	1986	1983	1969	1985	1984	1979	1983	1985	1977	1982	1965	
MIN	.34	.94	1.89	.65	12.4	1.32	1.57	3.88	.95	.25	.19	.14	
(WY)	1967	1981	1977	1977	1981	1981	1981	1977	1972	1972	1971	1971	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	88.0	128
HIGHEST ANNUAL MEAN		315
LOWEST ANNUAL MEAN		21.7
HIGHEST DAILY MEAN	3040	21000
LOWEST DAILY MEAN	.67	.00
INSTANTANEOUS PEAK FLOW	8980	49300
INSTANTANEOUS PEAK STAGE	14.73	23.65
INSTANTANEOUS LOW FLOW	0.65	0
ANNUAL RUNOFF (INCHES)	8.85	12.87
10 PERCENTILE	198	224
50 PERCENTILE	13	18
95 PERCENTILE	.85	.19

MERAMEC RIVER BASIN

193

07015720 BOURBEUSE RIVER NEAR HIGH GATE, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.68	1.64	2.73	3.11	2.61	2.59	3.93	2.02	1.72	1.59	1.68	1.64
2	1.69	1.65	2.60	3.40	2.51	2.59	3.44	2.00	1.70	1.58	1.71	1.66
3	1.84	1.65	2.52	4.24	---	2.72	5.80	1.98	1.68	1.58	1.67	1.64
4	1.71	1.67	2.44	4.25	---	2.84	4.49	1.96	1.65	1.57	1.63	1.62
5	1.64	1.66	2.37	3.70	---	3.08	3.66	1.95	1.72	1.56	1.60	1.60
6	1.60	1.67	2.34	6.74	---	---	3.29	1.93	1.71	1.55	1.58	1.57
7	1.58	1.68	2.35	4.31	---	---	3.98	1.90	1.79	1.54	1.56	1.57
8	1.56	1.67	2.41	3.55	---	---	4.43	1.88	1.71	1.54	1.54	1.57
9	1.56	1.69	2.32	3.17	---	2.89	3.66	2.66	1.68	1.53	1.53	1.57
10	1.55	2.31	2.29	2.98	---	4.31	3.26	2.28	1.64	1.52	1.52	1.58
11	1.54	2.12	2.25	2.85	---	6.25	3.04	2.12	1.63	1.51	1.51	1.59
12	1.52	2.13	2.22	2.81	2.83	4.99	2.89	2.03	1.69	1.51	1.51	1.61
13	1.52	2.56	2.19	2.70	2.64	3.94	2.76	1.99	1.73	1.51	1.51	1.60
14	1.51	2.16	2.18	2.65	2.83	3.48	2.69	1.96	1.96	1.51	1.51	1.70
15	1.52	2.02	2.15	2.64	---	3.14	2.65	1.93	1.84	1.51	1.50	1.69
16	1.60	4.44	2.12	2.57	3.55	2.92	2.59	1.91	1.74	1.51	1.50	1.85
17	1.58	2.61	2.10	2.51	3.39	2.79	2.52	1.88	1.69	1.51	1.51	1.74
18	1.59	2.30	2.08	2.48	3.10	2.69	2.46	1.87	1.85	1.51	1.51	1.68
19	1.60	2.31	2.07	2.43	2.96	2.61	2.41	1.85	1.96	1.57	1.50	1.64
20	1.59	4.76	2.07	2.39	2.85	4.55	2.34	1.83	1.92	1.58	1.56	1.61
21	1.66	3.82	2.03	2.35	2.90	5.63	2.31	1.81	1.81	1.62	5.84	1.59
22	1.64	3.15	2.02	2.32	2.75	4.15	2.28	1.83	1.74	1.61	2.54	1.57
23	1.77	3.01	4.57	2.31	2.62	3.54	2.25	1.97	1.70	1.62	2.16	1.57
24	1.80	3.58	3.59	2.29	2.56	3.22	2.22	1.96	1.67	1.59	1.94	1.56
25	1.79	3.51	3.13	2.27	2.49	3.00	2.20	1.88	1.64	2.62	1.82	1.56
26	1.75	11.05	2.86	2.59	2.49	2.85	2.16	1.87	1.62	2.04	1.80	1.55
27	1.68	5.38	3.18	2.79	2.53	2.75	2.12	2.06	1.71	1.84	2.07	1.54
28	1.67	3.72	5.15	2.66	2.54	2.75	2.08	1.88	1.67	1.73	1.87	1.54
29	1.66	3.21	4.05	2.75	---	3.18	2.32	1.84	1.63	1.68	1.75	1.53
30	1.67	2.89	3.51	2.81	---	3.26	2.07	1.79	1.60	1.64	1.70	1.53
31	1.66	---	3.26	2.70	---	5.72	---	1.76	---	1.72	1.67	---

MERAMEC RIVER BASIN

07016500 BOURBEUSE RIVER AT UNION, MO

LOCATION.--Lat 38°26'45", long 90°59'30", in SE 1/4 sec.26, T.43 N., R.1 W., Franklin County, Hydrologic Unit 07140103, on left bank upstream side of the bridge on U.S. Highway 50, 800 ft upstream from Flat Creek, 0.5 mi east of Union, 7.0 mi upstream from Birch Creek, and at mile 13.4.

DRAINAGE AREA.--808 mi².

PERIOD OF RECORD.--June 1921 to current year; Oct. 1916 to 1921 gage heights are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 957: 1941. WSP 1147: Drainage area. WSP 1281: 1924.

GAGE.--Water-stage recorder. Datum of gage is 488.58 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1948, datum of all gages 3.00 ft higher. Prior to Oct. 21, 1933, nonrecording gage, at site 30 ft upstream. Oct. 21, 1933, to June 11, 1944, nonrecording gage, at present site.

REMARKS.--Estimated daily discharges: Feb. 3-9. Records good except for estimated daily discharges, which are fair. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 22, 1915, reached a stage of 28.5 ft, present datum, from floodmarks, discharge, about 50,000 ft³/s, determined from extension of rating curve for main channel based on measurements made since 1921 and study of overflow areas in vicinity of gaging station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	32	700	868	312	240	3550	426	116	58	58	93
2	57	26	538	748	317	240	2330	343	116	58	54	84
3	49	24	445	750	310	240	4480	263	102	55	60	81
4	58	23	373	1120	326	241	8060	218	93	53	59	94
5	61	23	324	2460	442	252	3970	192	95	52	54	114
6	50	23	288	3840	411	298	1890	173	88	51	50	83
7	38	23	262	6260	388	350	1320	162	82	50	45	67
8	37	21	237	2980	302	375	1230	159	78	51	43	58
9	34	49	211	1500	271	365	1300	219	76	51	41	54
10	31	93	181	1010	243	518	1310	1160	74	49	40	49
11	29	84	161	773	215	2550	977	653	74	47	38	47
12	25	107	153	636	196	7000	772	441	80	44	37	44
13	23	120	144	543	195	5160	644	324	78	42	37	42
14	23	145	135	481	196	1970	556	256	75	40	35	46
15	22	205	124	427	235	1260	491	216	72	38	35	45
16	24	382	112	386	359	934	440	189	74	39	35	43
17	26	569	105	355	929	719	429	169	75	39	36	41
18	27	581	98	327	951	572	406	155	107	39	34	41
19	20	491	96	302	684	485	358	144	101	48	31	42
20	19	477	92	280	549	3070	305	134	85	48	37	41
21	24	606	82	257	477	8120	281	125	81	59	48	41
22	18	1310	135	229	437	9590	261	122	83	53	55	42
23	19	1020	334	205	403	2920	245	121	86	50	51	41
24	20	657	1120	194	361	1600	231	114	91	50	62	40
25	20	537	1210	185	314	1150	219	138	91	47	125	39
26	21	1170	812	186	278	895	205	219	83	47	187	37
27	20	5140	835	200	257	729	195	222	77	47	147	36
28	20	5470	1740	239	244	631	192	210	69	46	134	36
29	19	1800	3400	281	---	581	324	179	63	50	134	36
30	20	997	1720	322	---	687	518	142	60	75	109	35
31	35	---	1090	321	---	1320	---	123	---	66	96	---
MEAN	31.2	740	557	925	379	1776	1250	249	84.2	49.7	64.7	53.1
MAX	77	5470	3400	6260	951	9590	8060	1160	116	75	187	114
MIN	18	21	82	185	195	240	192	114	60	38	31	35
IN.	.04	1.02	.79	1.32	.49	2.54	1.73	.36	.12	.07	.09	.07

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	332	510	663	604	790	1142	1217	1076	859	308	170	212
MAX	4575	3320	6107	3518	3214	4207	4425	4123	4583	2554	1037	2069	
(WY)	1950	1986	1983	1950	1985	1984	1927	1957	1942	1951	1951	1934	
MIN	15.0	28.0	35.4	30.7	41.1	42.0	94.9	66.6	33.7	23.9	21.0	19.2	
(WY)	1957	1954	1954	1956	1963	1954	1956	1932	1936	1936	1936	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	514	655
HIGHEST ANNUAL MEAN	1590	1950
LOWEST ANNUAL MEAN	106	1954
HIGHEST DAILY MEAN	9590	63000
LOWEST DAILY MEAN	18	12
INSTANTANEOUS PEAK FLOW	10600	73300
INSTANTANEOUS PEAK STAGE	14.31	33.80
INSTANTANEOUS LOW FLOW	18	11
ANNUAL RUNOFF (INCHES)	8.64	11.01
10 PERCENTILE	1140	1310
50 PERCENTILE	147	167
95 PERCENTILE	24	33

MERAMEC RIVER BASIN

195

07016500 BOURBEUSE RIVER AT UNION, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.88	.60	2.66	2.99	1.62	1.40	7.25	1.90	.87	.53	.54	.69
2	.75	.56	2.26	2.71	1.63	1.40	5.21	1.76	.88	.54	.50	.71
3	.69	.53	2.01	2.63	1.62	1.40	6.52	1.49	.82	.52	.55	.68
4	.74	.52	1.81	3.03	1.60	1.40	12.31	1.33	.76	.51	.55	.71
5	.77	.53	1.67	5.10	1.85	1.43	8.16	1.23	.76	.50	.51	.90
6	.72	.53	1.55	6.74	1.90	1.54	4.97	1.15	.73	.49	.49	.72
7	.64	.53	1.48	10.49	1.68	1.71	3.87	1.09	.69	.48	.45	.60
8	.63	.50	1.40	6.73	1.50	1.80	3.60	1.05	.67	.48	.43	.55
9	.62	.53	1.32	4.28	1.48	1.74	3.81	1.23	.66	.48	.41	.52
10	.60	.95	1.23	3.32	1.40	1.90	4.00	3.84	.64	.47	.40	.48
11	.59	.87	1.15	2.80	1.32	3.89	3.24	2.58	.63	.46	.39	.46
12	.55	.96	1.12	2.48	1.24	10.80	2.79	2.03	.68	.44	.38	.44
13	.53	.97	1.09	2.25	1.26	10.67	2.50	1.69	.68	.43	.37	.43
14	.52	1.13	1.06	2.10	1.26	5.13	2.29	1.48	.65	.41	.37	.45
15	.52	1.25	1.02	1.96	1.33	3.83	2.12	1.32	.64	.39	.36	.46
16	.55	1.78	.97	1.84	1.59	3.13	1.98	1.21	.64	.40	.35	.44
17	.53	2.20	.95	1.75	2.81	2.69	1.94	1.13	.65	.39	.37	.41
18	.58	2.21	.92	1.67	3.21	2.34	1.90	1.07	.71	.39	.35	.41
19	.51	2.20	.91	1.59	2.61	2.11	1.79	1.02	.80	.48	.33	.42
20	.43	2.10	.91	1.54	2.27	5.09	1.61	.97	.71	.45	.37	.41
21	.55	2.29	.86	1.46	2.08	11.70	1.53	.93	.68	.59	.43	.40
22	.47	3.59	.84	1.37	1.97	14.08	1.47	.90	.68	.52	.53	.42
23	.49	3.39	1.40	1.29	1.89	6.52	1.41	.91	.71	.49	.49	.42
24	.49	2.54	3.25	1.26	1.78	4.46	1.36	.86	.73	.48	.52	.41
25	.49	2.22	3.77	1.22	1.63	3.58	1.32	.85	.75	.46	.55	.39
26	.50	3.25	2.82	1.23	1.53	3.04	1.26	1.36	.70	.46	1.22	.38
27	.49	8.35	2.59	1.25	1.45	2.70	1.23	1.39	.67	.46	1.03	.36
28	.49	11.06	3.85	1.36	1.41	2.47	1.19	1.28	.62	.45	.95	.36
29	.49	4.90	7.60	1.51	---	2.30	1.38	1.19	.57	.45	1.00	.37
30	.48	3.32	4.69	1.65	---	2.43	2.24	1.01	.55	.61	.85	.35
31	.61	---	3.46	1.64	---	3.20	---	.92	---	.60	.78	---

MERAMEC RIVER BASIN

07017200 BIG RIVER AT IRONDALE, MO

LOCATION.--Lat 37°49'48", long 90°41'27", in SE 1/4 SW 1/4 sec.15, T.36 N., R.3 E., Washington County, Hydrologic Unit 07140104, on right bank 50 ft upstream from bridge on State Highway U, 0.2 mi upstream from Mill Creek, and 0.8 mi west of Irondale.

DRAINAGE AREA.--175 mi².

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 753.28 ft above National Geodetic Vertical Datum of 1929 (Missouri State Highway and Transportation Commission bench mark).

REMARKS.--Estimated daily discharges: Feb. 4 to Mar. 15. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	410	40	210	261	138	195	477	119	37	37	30	14
2	268	39	185	300	378	191	385	101	40	38	27	15
3	136	40	160	322	649	190	448	90	40	37	26	15
4	86	175	139	301	454	193	564	83	43	35	24	13
5	68	180	127	586	308	306	362	78	175	32	22	14
6	59	107	116	711	260	263	305	69	108	29	19	12
7	53	81	108	414	220	236	305	64	71	26	17	11
8	50	68	97	309	200	224	337	74	58	24	15	11
9	49	62	89	254	179	308	287	134	52	23	17	12
10	46	67	84	226	168	780	248	99	45	21	16	14
11	42	67	80	202	160	898	224	80	43	20	14	14
12	39	184	74	184	190	524	205	71	155	19	13	14
13	37	262	70	161	3800	370	189	66	484	26	13	16
14	34	168	68	149	1090	313	173	61	518	21	13	51
15	34	133	64	141	1070	262	163	56	245	19	12	40
16	38	261	59	130	733	231	150	52	148	20	18	29
17	40	190	59	121	494	210	136	49	105	20	26	23
18	48	146	57	114	401	192	126	47	341	20	20	20
19	47	1480	55	106	348	180	118	46	333	31	17	18
20	45	2560	56	98	322	404	113	44	156	38	16	16
21	43	773	53	92	329	532	104	40	106	104	19	15
22	40	431	69	89	286	338	97	76	81	61	28	15
23	44	318	378	84	246	278	91	146	65	48	25	14
24	46	259	247	83	219	246	84	90	57	49	19	13
25	44	218	195	87	210	225	77	73	50	71	17	13
26	42	821	165	240	208	206	69	78	44	190	22	13
27	42	718	616	225	208	193	165	65	65	73	20	12
28	49	396	940	182	199	203	387	54	62	50	18	12
29	47	295	404	175	---	244	230	52	47	39	16	12
30	44	243	310	164	---	904	149	45	40	37	15	13
31	45	---	273	150	---	1050	---	40	---	32	15	---
MEAN	68.2	359	181	215	481	351	226	72.3	127	41.6	19.0	16.8
MAX	410	2560	940	711	3800	1050	564	146	518	190	30	51
MIN	34	39	53	83	138	180	69	40	37	19	12	11
IN.	.45	2.29	1.19	1.42	2.86	2.31	1.44	.48	.81	.27	.13	.11

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	69.9	234	301	193	264	341	344	191	104	54.4	61.7	54.3
MAX	339	1086	1027	734	695	866	921	693	872	262	393	238	
(WY)	1971	1986	1983	1969	1985	1978	1972	1983	1985	1981	1970	1982	
MIN	6.95	10.5	13.7	11.1	24.9	38.9	66.4	24.1	9.95	4.69	4.31	3.95	
(WY)	1981	1981	1977	1981	1977	1981	1977	1977	1980	1980	1980	1971	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	177	184
HIGHEST ANNUAL MEAN		449
LOWEST ANNUAL MEAN		56.6
HIGHEST DAILY MEAN	3800	Feb 13
LOWEST DAILY MEAN	11	Sep 7, 8
INSTANTANEOUS PEAK FLOW	9660	Feb 13
INSTANTANEOUS PEAK STAGE	12.58	Feb 13
INSTANTANEOUS LOW FLOW	11.0	Sep 6-8
ANNUAL RUNOFF (INCHES)	13.76	14.28
10 PERCENTILE	371	366
50 PERCENTILE	85	59
95 PERCENTILE	14	7.7

MERAMEC RIVER BASIN

07017200 BIG RIVER AT IRONDALE--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.81	2.89	3.64	3.74	3.38	3.57	4.33	3.31	2.87	2.86	2.81	2.62
2	3.86	2.88	3.58	3.88	3.33	3.56	4.05	3.23	2.89	2.86	2.79	2.63
3	3.45	2.89	3.46	3.94	4.72	3.55	4.17	3.18	2.88	2.88	2.77	2.63
4	3.26	3.02	3.40	3.91	3.95	3.55	4.52	3.15	2.89	2.85	2.75	2.60
5	3.15	3.56	3.35	3.77	---	4.02	4.06	3.13	3.61	2.82	2.73	2.60
6	3.08	3.27	3.28	4.85	---	3.78	3.88	3.08	3.28	2.80	2.70	2.59
7	3.03	3.16	3.25	4.17	---	3.72	3.90	3.05	3.09	2.77	2.66	2.57
8	3.00	3.07	3.20	3.93	---	3.67	3.95	3.02	3.01	2.74	2.64	2.56
9	2.97	3.03	3.19	3.76	---	3.71	3.85	3.38	2.99	2.73	2.69	2.56
10	2.94	3.05	3.15	3.70	---	4.22	3.74	3.23	2.93	2.72	2.64	2.60
11	2.91	3.07	3.14	3.59	---	5.02	3.67	3.14	2.90	2.70	2.62	2.62
12	2.88	3.07	3.11	3.55	---	4.44	3.62	3.09	2.97	2.68	2.60	2.61
13	2.87	3.82	3.08	3.48	---	4.10	3.56	3.06	3.56	2.77	2.60	2.64
14	2.84	3.51	3.07	3.41	---	3.96	3.51	3.03	4.42	2.71	2.59	2.95
15	2.84	3.36	3.06	3.39	4.94	3.85	3.46	3.01	3.79	2.68	2.59	2.92
16	2.86	3.99	3.02	3.36	4.80	3.75	3.43	2.98	3.44	2.68	2.58	2.81
17	2.89	3.58	3.01	3.31	4.34	3.66	3.37	2.96	3.25	2.69	2.79	2.75
18	2.95	3.40	3.01	3.27	4.14	3.59	3.33	2.94	3.19	2.67	2.71	2.70
19	2.95	7.99	2.99	3.26	3.99	3.53	3.30	2.93	4.01	2.81	2.65	2.67
20	2.92	7.17	3.01	3.22	3.91	3.55	3.27	2.92	3.47	2.79	2.65	2.64
21	2.92	4.88	2.98	3.19	3.97	4.48	3.23	2.89	3.26	3.31	2.67	2.62
22	2.89	4.22	2.97	3.17	3.85	3.97	3.19	2.94	3.14	3.05	2.79	2.62
23	2.90	3.96	4.13	3.14	3.72	3.81	3.17	3.45	3.06	2.95	2.77	2.61
24	2.94	3.77	3.74	3.14	3.68	3.73	3.15	3.18	3.01	2.96	2.69	2.60
25	2.92	3.66	3.60	3.12	3.62	3.67	3.10	3.10	2.97	3.00	2.66	2.59
26	2.91	5.64	3.48	3.57	3.61	3.61	3.08	3.12	2.92	3.61	2.73	2.59
27	2.89	4.88	3.42	3.68	3.61	3.57	3.05	3.06	2.93	3.11	2.70	2.59
28	2.96	4.16	5.17	3.53	3.60	3.52	4.00	2.98	3.05	2.97	2.67	2.58
29	2.94	3.88	4.14	3.50	---	3.68	3.78	2.98	2.95	2.89	2.65	2.58
30	2.91	3.73	3.92	3.47	---	4.37	3.43	2.93	2.90	2.89	2.63	2.59
31	2.96	---	3.84	3.42	---	5.26	---	2.90	---	2.83	2.62	---

MERAMEC RIVER BASIN

07018100 BIG RIVER NEAR RICHWOODS, MO

LOCATION.--Lat 38°09'34", long 90°42'22", in sec.33, T.40 N., R.3 E., Jefferson County, Hydrologic Unit 07140104, on left bank downstream side of bridge on State Highway H, 1.8 mi east of Fletcher, 6.8 mi east of Richwoods, and at mile 53.7.

DRAINAGE AREA.--735 mi².

PERIOD OF RECORD.--October 1942 to current year. Prior to May 1949 monthly discharge only, published in WSP 1311. Prior to 1984 published as "Big River near De Soto, Mo."

GAGE.--Water-stage recorder. Datum of gage is 523.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 6-30 and May 30 to June 1. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 1915 reached a stage of about 29.4 ft, (former datum) from floodmark, 1.0 mi downstream adjusted to gage site by comparison with recorded flood 5.5 ft lower; discharge, 70,500 ft³/s, from rating curve extended above 37,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	161	691	840	504	555	2860	505	259	263	249	174
2	255	157	586	812	494	539	1800	432	257	243	224	171
3	592	155	515	832	1790	525	2220	392	243	245	209	158
4	362	172	456	1050	1550	525	4130	368	239	233	195	148
5	263	738	404	1230	999	609	2240	355	359	221	183	144
6	230	534	366	2940	854	855	1530	337	580	209	170	143
7	213	337	343	1660	721	762	1360	322	478	200	157	138
8	198	261	319	1260	641	683	1300	336	348	190	147	135
9	189	236	294	1060	548	692	1270	450	292	184	140	137
10	182	227	276	927	516	1400	1090	520	256	175	137	142
11	174	220	258	833	490	4340	956	485	241	168	134	143
12	166	238	250	746	453	3210	871	408	247	162	132	140
13	158	350	243	660	565	1840	802	373	419	188	130	144
14	154	525	239	580	7040	1360	747	355	1690	165	128	345
15	150	421	235	520	3440	1110	708	345	1400	153	127	481
16	157	852	227	480	3470	925	674	335	831	156	134	289
17	167	900	222	452	1960	812	628	325	582	155	158	237
18	174	597	215	429	1410	729	579	320	714	151	168	206
19	188	800	220	400	1160	653	541	319	3980	160	152	185
20	175	5270	216	376	1010	2650	509	314	1340	211	174	169
21	170	5700	213	350	1020	4530	488	299	826	390	196	159
22	164	1740	221	320	965	2130	464	334	598	401	216	153
23	176	1130	373	321	812	1430	449	482	471	373	225	148
24	182	875	612	321	697	1140	430	493	392	454	191	141
25	184	717	591	440	647	989	411	454	343	653	185	136
26	175	1100	494	610	619	879	395	1220	301	795	178	135
27	170	2340	476	680	612	792	377	868	293	579	222	135
28	167	1640	2290	760	590	757	364	528	301	429	270	133
29	168	1070	2020	680	---	835	732	412	279	315	245	133
30	166	838	1180	610	---	1790	605	330	264	383	204	135
31	164	---	945	550	---	5750	---	295	---	346	183	---
MEAN	201	1010	516	765	1271	1477	1051	429	627	289	179	175
MAX	592	5700	2290	2940	7040	5750	4130	1220	3980	795	270	481
MIN	150	155	213	320	453	525	364	295	239	151	127	133
IN.	.32	1.53	.81	1.20	1.80	2.32	1.60	.67	.95	.45	.28	.27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	285	638	861	686	929	1269	1229	947	520	407	259	262
MAX	1641	4223	4332	3845	2935	2838	4383	3840	3150	2492	1357	1492	
(WY)	1950	1986	1983	1950	1985	1985	1957	1983	1985	1951	1950	1950	
MIN	47.5	87.9	90.5	84.0	124	123	271	170	110	86.0	69.9	40.6	
(WY)	1957	1977	1956	1977	1954	1954	1981	1965	1980	1980	1955	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	660	690
HIGHEST ANNUAL MEAN	1766	1985
LOWEST ANNUAL MEAN	198	1954
HIGHEST DAILY MEAN	7040	38300
LOWEST DAILY MEAN	127	22
INSTANTANEOUS PEAK FLOW	8950	55800
INSTANTANEOUS PEAK STAGE	13.96	27.15
INSTANTANEOUS LOW FLOW	125	20
ANNUAL RUNOFF (INCHES)	12.20	12.74
10 PERCENTILE	1330	1310
50 PERCENTILE	386	275
95 PERCENTILE	142	81

MERAMEC RIVER BASIN

199

07018100 BIG RIVER NEAR RICHWOODS, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.46	2.38	4.25	4.61	3.69	3.82	8.25	3.71	---	2.77	2.84	2.41
2	2.77	2.36	3.94	4.47	3.57	3.77	6.38	3.49	2.92	2.79	2.71	2.44
3	4.11	2.35	3.73	4.54	5.85	3.73	7.41	3.36	2.84	2.80	2.61	2.38
4	3.33	2.38	3.55	5.21	6.23	3.73	10.70	3.28	2.80	2.76	2.55	2.31
5	2.95	5.40	3.40	4.95	4.99	3.80	7.40	3.24	3.01	2.69	2.49	2.29
6	2.76	3.88	3.28	---	4.70	4.69	6.09	3.19	3.97	2.62	2.43	2.29
7	2.65	3.21	3.22	---	4.23	4.41	5.68	3.14	3.68	2.57	2.37	2.25
8	2.57	2.94	3.13	---	3.96	4.20	5.57	3.11	3.25	2.52	2.31	2.24
9	2.52	2.80	3.06	---	3.72	4.13	5.55	3.50	3.06	2.50	2.27	2.24
10	2.48	2.73	2.99	---	3.68	5.06	5.17	3.68	2.92	2.46	2.25	2.28
11	2.45	2.69	2.92	---	3.65	9.72	4.87	3.65	2.82	2.42	2.23	2.29
12	2.41	2.71	2.87	---	3.53	8.83	4.67	3.41	2.81	2.38	2.22	2.27
13	2.37	3.25	2.83	---	3.49	6.69	4.50	3.29	3.28	2.60	2.21	2.28
14	2.35	3.90	2.81	---	12.43	5.76	4.36	3.24	6.93	2.42	2.20	2.78
15	2.33	3.47	2.79	---	8.29	5.23	4.25	3.21	5.92	2.34	2.18	3.76
16	2.34	4.32	2.74	---	9.18	4.82	4.16	3.17	4.65	2.35	2.20	3.01
17	2.40	4.72	2.71	---	6.92	4.53	4.04	3.14	3.98	2.36	2.33	2.80
18	2.45	4.02	2.67	---	5.86	4.32	3.90	3.13	3.63	2.32	2.42	2.62
19	2.53	3.67	2.68	---	5.33	4.12	3.79	3.12	11.29	2.36	2.33	2.51
20	2.45	10.31	2.66	---	4.99	4.19	3.69	3.11	5.80	2.53	2.45	2.43
21	2.43	12.84	2.65	---	4.94	10.43	3.63	3.06	4.63	3.24	2.55	2.37
22	2.41	6.57	2.62	---	4.92	7.23	3.56	3.04	4.01	3.40	2.63	2.34
23	2.45	5.30	3.34	---	4.55	5.90	3.51	3.61	3.61	3.29	2.80	2.31
24	2.48	4.72	3.66	---	4.24	5.29	3.46	3.56	3.36	3.31	2.54	2.28
25	2.52	4.31	3.97	---	4.09	4.95	3.41	3.56	3.19	3.40	2.51	2.25
26	2.45	4.50	3.68	---	4.00	4.69	3.36	3.39	3.04	4.56	2.45	2.24
27	2.43	7.75	3.49	---	3.99	4.49	3.31	4.76	3.03	3.81	2.70	2.23
28	2.41	6.42	6.08	---	3.93	4.32	3.27	3.80	3.03	3.50	2.57	2.22
29	2.41	5.18	7.07	---	---	4.51	4.61	3.45	2.93	3.10	2.81	2.23
30	2.41	4.62	5.43	---	---	5.26	3.98	3.21	2.91	3.16	2.61	2.24
31	2.40	---	4.88	3.83	---	11.93	---	---	---	3.23	2.51	---

MERAMEC RIVER BASIN

07018500 BIG RIVER AT BYRNESVILLE, MO

LOCATION.--Lat 38°21'45", long 90°39'05", in SE 1/4 sec.12, T.42 N., R.3 E., Jefferson County, Hydrologic Unit 07140104, on right bank on downstream side of pier of privately owned bridge at Byrnesville, 4.0 mi upstream from Heads Creek, at mile 14.1.

DRAINAGE AREA.--917 mi².

PERIOD OF RECORD.--October 1921 to current year. Prior to June 1922 monthly discharge only, published WSP 1311.

REVISED RECORDS.--WSP 667: 1927. WSP 877: 1938. WSP 1007: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 433.69 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 9, 1940, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 21, 1915, reached a stage of 30.2 ft from floodmarks, discharge, 80,000 ft³/s, by slope-area measurement of peak flow.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	162	880	1100	667	666	5000	640	365	307	357	215
2	207	160	741	1020	643	633	2720	543	336	289	275	203
3	249	158	661	1130	946	617	4170	495	322	286	240	195
4	489	163	609	1410	2290	607	4520	466	307	285	225	185
5	373	177	549	2090	1490	621	3760	440	316	273	221	175
6	297	617	497	4240	1170	758	2290	418	377	258	211	166
7	253	521	461	3570	1440	899	1830	402	546	244	198	162
8	225	369	428	2140	1130	801	1700	394	491	232	187	159
9	208	308	400	1560	835	752	1610	445	396	221	177	155
10	195	286	376	1220	745	1080	1490	506	346	212	168	155
11	185	261	354	1020	666	3740	1280	539	318	205	162	157
12	174	263	338	899	599	4800	1130	506	303	197	157	159
13	166	286	325	805	580	2850	1020	444	299	192	154	163
14	159	358	314	737	2260	1940	941	407	480	203	151	371
15	153	503	305	669	5770	1530	876	385	1710	193	148	425
16	150	697	294	618	3520	1200	831	368	1200	187	149	485
17	148	1020	282	583	2980	1060	789	351	784	183	157	339
18	157	873	274	546	1940	938	741	339	648	185	164	285
19	165	653	265	513	1540	843	693	332	2080	193	184	246
20	177	2700	265	482	1310	2750	654	326	2460	204	190	220
21	186	5980	260	452	1170	5590	621	317	1180	295	196	202
22	171	3420	343	426	1190	3610	594	332	810	421	212	191
23	170	1710	782	407	1040	2160	569	375	624	427	226	182
24	169	1230	653	394	878	1640	550	442	514	388	244	175
25	178	955	766	399	781	1350	532	511	436	477	224	169
26	182	1370	690	513	736	1160	508	503	386	615	211	162
27	178	2140	730	819	710	1030	489	1240	359	724	198	158
28	176	2390	1420	919	690	938	470	810	338	567	223	156
29	170	1620	2950	857	---	931	492	595	334	464	252	154
30	166	1140	1790	767	---	1150	726	474	316	373	275	154
31	166	---	1310	718	---	4090	---	405	---	359	233	---
MEAN	201	1083	655	1065	1418	1701	1453	476	646	312	205	211
MAX	489	5980	2950	4240	5770	5590	5000	1240	2460	724	357	485
MIN	148	158	260	394	580	607	470	317	299	183	148	154
IN.	.25	1.32	.82	1.34	1.61	2.14	1.77	.60	.79	.39	.26	.26

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	341	673	884	886	1110	1464	1624	1352	813	498	290	288
MAX	2290	4709	5594	5064	3696	4539	6190	5138	4530	3895	1490	1696	
(WY)	1950	1986	1983	1950	1982	1945	1927	1983	1928	1957	1950	1950	
MIN	49.7	99.6	103	90.4	139	137	345	177	105	56.4	41.4	48.7	
(WY)	1957	1977	1956	1977	1954	1954	1932	1932	1936	1936	1936	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	780	851
HIGHEST ANNUAL MEAN		1934
LOWEST ANNUAL MEAN		227
HIGHEST DAILY MEAN	5980	40100
LOWEST DAILY MEAN	148	25
INSTANTANEOUS PEAK FLOW	7030	43000
INSTANTANEOUS PEAK STAGE	14.37	26.47
INSTANTANEOUS LOW FLOW	148	25
ANNUAL RUNOFF (INCHES)	11.54	12.61
10 PERCENTILE	1760	1730
50 PERCENTILE	451	336
95 PERCENTILE	159	94

MERAMEC RIVER BASIN

201

07018500 BIG RIVER AT BYRNESVILLE, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.03	2.90	5.52	5.85	4.79	4.77	13.20	4.72	3.83	3.59	3.96	3.14
2	3.12	2.89	5.12	5.63	4.64	4.68	8.70	4.50	3.73	3.53	3.59	3.12
3	3.28	2.88	4.86	5.69	5.22	4.63	9.31	4.28	3.66	3.47	3.44	3.08
4	4.45	2.88	4.64	6.42	8.66	4.59	10.58	4.17	3.59	3.51	3.31	3.02
5	3.94	2.96	4.45	6.47	6.76	4.62	10.95	4.10	3.63	3.46	3.23	2.96
6	3.60	5.09	4.28	11.22	5.65	4.81	8.32	4.03	3.70	3.38	3.16	2.92
7	3.38	4.50	4.16	10.78	6.61	5.41	7.33	3.97	4.45	3.32	3.09	2.90
8	3.24	3.93	4.06	8.07	5.83	5.16	7.03	3.91	4.30	3.26	3.02	2.88
9	3.14	3.62	3.96	6.86	5.03	5.00	6.83	4.13	3.97	3.21	2.97	2.86
10	3.07	3.52	3.87	6.12	5.03	5.14	6.69	4.29	3.77	3.16	2.93	2.86
11	3.02	3.40	3.79	5.67	4.71	9.30	6.21	4.37	3.64	3.12	2.90	2.87
12	2.97	3.40	3.72	5.38	4.58	12.48	5.88	4.33	3.57	3.08	2.87	2.88
13	2.93	3.45	3.67	5.15	4.53	9.43	5.65	4.12	3.53	3.05	2.85	2.89
14	2.89	3.80	3.62	4.99	4.54	7.64	5.46	3.99	3.81	3.12	2.84	3.57
15	2.85	4.40	3.58	4.80	14.33	6.76	5.32	3.90	7.28	3.06	2.82	3.91
16	2.84	4.98	3.54	4.65	9.72	6.19	5.21	3.84	6.25	3.02	2.81	4.38
17	2.82	5.37	3.49	4.55	9.80	5.76	5.09	3.77	5.16	2.99	2.88	3.76
18	2.86	5.40	3.45	4.43	7.63	5.47	4.98	3.72	4.72	3.00	2.89	3.52
19	2.91	4.82	3.41	4.33	6.78	5.25	4.86	3.69	4.74	3.05	2.99	3.34
20	2.94	5.55	3.40	4.23	6.28	6.87	4.74	3.67	8.91	3.02	3.07	3.21
21	3.04	13.04	3.38	4.13	5.96	13.12	4.65	3.63	6.12	3.48	3.05	3.11
22	2.95	10.57	3.36	4.05	6.01	10.73	4.57	3.60	5.22	4.03	3.12	3.05
23	2.94	7.22	5.18	3.98	5.72	8.07	4.49	3.81	4.70	4.11	3.21	3.00
24	2.93	6.16	4.76	3.93	5.35	6.98	4.44	4.09	4.36	3.91	3.30	2.95
25	2.98	5.56	5.12	3.90	5.09	6.37	4.38	4.09	4.10	4.15	3.22	2.93
26	3.00	6.16	4.86	4.23	4.97	5.97	4.30	4.32	3.92	4.35	3.16	2.90
27	2.98	7.17	4.63	5.15	4.89	5.67	4.24	7.15	3.83	4.99	3.08	2.88
28	2.97	8.52	6.13	5.33	4.84	5.45	4.18	5.16	3.73	4.48	3.18	2.86
29	2.94	7.04	9.97	5.29	---	5.38	4.20	4.63	3.69	4.18	3.23	2.85
30	2.92	6.03	7.37	5.05	---	5.59	5.02	4.23	3.63	3.90	3.48	2.85
31	2.92	---	6.31	4.93	---	10.09	---	4.00	---	3.76	3.28	---

MERAMEC RIVER BASIN

07019000 MERAMEC RIVER NEAR EUREKA, MO

LOCATION.--Lat 38°30'20", long 90°35'30", in SE 1/4 sec.32, T.44 N., R.4 E., St. Louis County, Hydrologic Unit 07140102, on right bank, 44 ft upstream from bridge on north access roadway of I-44, 2.0 mi east of Eureka, 3.0 mi downstream from Big River, and at mile 34.1.

DRAINAGE AREA.--3,788 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1903 to July 1906, October 1921 to current year. Monthly discharge only for January, February, and March 1904, published in WSP 1311.

REVISED RECORDS.--WSP 877: 1938(M). WSP 977: 1942. WSP 1007: Drainage area. WSP 1281: 1924-25.

GAGE.--Water-stage recorder. Datum of gage is 404.18 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1933, nonrecording gage at site 200 ft upstream at different datum. Jan. 17, 1933, to Sept. 22, 1937, nonrecording gage, and Sept. 23, 1937, to Sept. 30, 1971, water-stage recorder at present site at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 22, 1915, reached a stage of 42.2 ft, from floodmarks, present datum, discharge, 175,000 ft³/s, by slope-area measurement of peak flow.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	733	790	4680	4810	2490	2120	12800	2520	1290	1090	1060	946
2	754	790	3680	4200	2370	2040	13000	2310	1210	1020	911	896
3	798	790	3080	4020	2580	1980	14000	2010	1130	949	826	780
4	1060	818	2650	4570	4090	1940	19600	1800	1070	918	775	711
5	1200	841	2360	6940	3840	1960	18500	1650	1100	866	735	677
6	1070	1070	2100	14100	3310	2140	11400	1540	1100	823	698	677
7	946	1250	1890	14900	3160	2430	8000	1460	1340	779	638	637
8	853	1080	1700	12700	2990	2440	6800	1420	1400	732	597	596
9	796	997	1570	7680	2680	2370	6390	1860	1310	704	564	569
10	755	993	1470	5600	2550	2650	6080	2280	1180	673	538	544
11	720	1020	1370	4500	2150	6820	5490	2910	1090	642	523	532
12	694	1060	1290	3830	2200	13700	4760	2430	1080	612	513	540
13	664	1110	1230	3350	1890	16000	4230	2120	1040	590	503	552
14	650	1180	1180	3010	2500	10900	3840	1890	1070	580	492	780
15	636	1350	1130	2730	7680	6930	3530	1740	2250	597	486	997
16	632	1880	1080	2490	8160	5410	3280	1620	2190	582	475	1230
17	635	2260	1050	2340	7920	4510	3090	1540	1870	560	487	1170
18	663	2790	1010	2180	6850	3840	2910	1460	1690	562	485	1130
19	683	2800	984	2020	5510	3370	2730	1400	2390	598	512	1010
20	720	4270	964	1870	4530	9700	2550	1340	4300	639	575	888
21	757	9520	941	1730	4000	18200	2410	1280	2580	896	583	797
22	760	10900	1030	1620	3670	18500	2280	1280	2060	1070	624	731
23	785	8100	2320	1520	3320	15300	2160	1340	1710	1270	680	670
24	782	5270	2780	1450	2950	8120	2060	1420	1480	1390	841	628
25	784	3900	3480	1430	2690	6070	1990	1530	1300	1360	900	606
26	794	4050	3400	1570	2480	5000	1880	1830	1170	1360	839	585
27	803	6490	3160	1960	2330	4310	1780	2230	1200	1460	899	555
28	807	12500	4630	2320	2230	3840	1700	2140	1060	1370	876	540
29	807	11200	7860	2680	---	3570	2180	1970	985	1260	931	534
30	801	6490	8370	2710	---	3600	2360	1630	1000	1300	1050	529
31	794	---	6020	2610	---	7490	---	1420	---	1100	946	---
MEAN	785	3585	2595	4175	3683	6363	5793	1786	1521	915	696	735
MAX	1200	12500	8370	14900	8160	18500	19600	2910	4300	1460	1060	1230
MIN	632	790	941	1430	1890	1940	1700	1280	985	560	475	529
IN.	.24	1.06	.79	1.27	1.01	1.94	1.71	.54	.45	.28	.21	.22

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	1438	2410	3131	3004	3911	5085	6055	5053	3643	1832	1113	1141
MAX	12120	15450	23620	17320	14730	13960	22580	17780	18070	12600	4286	5478	
(WY)	1950	1986	1983	1950	1982	1978	1927	1983	1945	1951	1950	1934	
MIN	235	464	426	374	538	513	945	708	503	318	255	244	
(WY)	1957	1957	1956	1956	1954	1954	1954	1932	1936	1936	1936	1956	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	2709	3143
HIGHEST ANNUAL MEAN		7407
LOWEST ANNUAL MEAN		750
HIGHEST DAILY MEAN	19600	139000
LOWEST DAILY MEAN	475	196
INSTANTANEOUS PEAK FLOW	20300	145000
INSTANTANEOUS PEAK STAGE	14.13	42.89
INSTANTANEOUS LOW FLOW	471	196
ANNUAL RUNOFF (INCHES)	9.71	11.27
10 PERCENTILE	6370	6640
50 PERCENTILE	1500	1370
95 PERCENTILE	559	434

07019000 MERAMEC RIVER NEAR EUREKA, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.37	2.43	5.56	5.63	3.83	3.56	10.13	3.89	2.83	2.66	2.67	2.45
2	2.38	2.43	4.81	5.14	3.73	3.50	10.76	3.71	2.77	2.61	2.52	2.48
3	2.42	2.43	4.32	4.94	3.81	3.45	10.48	3.49	2.70	2.55	2.43	2.39
4	2.59	2.44	4.00	5.36	5.05	3.43	13.82	3.33	2.65	2.52	2.38	2.31
5	2.87	2.49	3.74	5.65	4.87	3.43	13.87	3.24	2.68	2.47	2.33	2.27
6	2.75	2.49	3.55	10.88	4.45	3.52	10.03	3.16	2.65	2.42	2.30	2.28
7	2.62	2.93	3.40	11.53	4.34	3.77	7.81	3.10	2.86	2.38	2.24	2.23
8	2.52	2.75	3.28	10.93	4.18	3.79	6.94	3.05	2.91	2.33	2.19	2.19
9	2.45	2.66	3.18	7.73	3.94	3.73	6.61	3.27	2.85	2.30	2.15	2.16
10	2.40	2.65	3.11	6.21	3.95	3.77	6.43	3.46	2.75	2.27	2.12	2.13
11	2.35	2.68	3.02	5.41	3.60	6.41	6.10	4.22	2.67	2.24	2.11	2.11
12	2.32	2.70	2.94	4.90	4.28	10.32	5.56	3.81	2.66	2.21	2.09	2.12
13	2.28	2.75	2.89	4.53	3.39	12.20	5.17	3.51	2.62	2.18	2.08	2.13
14	2.26	2.79	2.84	4.27	3.39	9.92	4.87	3.33	2.61	2.15	2.06	2.35
15	2.25	2.92	2.80	4.04	7.07	7.14	4.64	3.19	3.73	2.19	2.05	2.59
16	2.24	3.40	---	3.86	7.47	6.07	4.46	3.09	3.58	2.17	2.03	2.76
17	2.24	3.61	2.72	3.73	7.70	5.40	4.31	3.02	3.32	2.15	2.04	2.72
18	2.27	4.01	2.68	3.60	6.99	4.91	4.17	2.96	3.16	2.14	2.05	2.70
19	2.30	4.18	2.65	3.49	6.15	4.55	4.04	2.90	3.15	2.18	2.07	2.61
20	2.33	4.18	2.62	3.39	5.39	5.41	3.90	2.87	5.66	2.19	2.17	2.49
21	2.39	8.18	2.60	3.30	4.99	12.71	3.76	2.82	3.96	2.43	2.16	2.40
22	2.40	9.72	2.57	3.23	4.73	13.41	3.66	2.79	3.51	2.63	2.21	2.33
23	2.41	8.08	3.60	3.14	4.51	12.57	3.57	2.85	3.20	2.78	2.26	2.27
24	2.42	6.04	4.03	3.08	4.23	7.95	3.51	2.90	2.99	2.90	2.42	2.22
25	2.42	5.03	4.42	3.04	4.00	6.51	3.46	2.96	2.84	2.87	2.51	2.20
26	2.43	4.82	4.59	3.13	3.82	5.75	3.39	3.30	2.74	2.84	2.42	2.18
27	2.44	5.99	4.25	3.38	3.69	5.25	3.33	3.14	2.79	2.93	2.51	2.15
28	2.45	10.01	5.34	3.62	3.63	4.88	3.27	3.52	2.63	2.87	2.46	2.13
29	2.45	10.24	7.22	3.95	---	4.66	3.81	3.43	2.57	2.82	2.49	2.12
30	2.44	6.90	8.22	4.00	---	4.59	3.64	3.12	2.54	2.90	2.64	2.11
31	2.44	---	6.52	3.92	---	6.97	---	2.94	---	2.68	2.55	---

MERAMEC RIVER BASIN

07019000 MERAMEC RIVER NEAR EUREKA, MO--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1978 to September 1981.

WATER TEMPERATURE: January 1978 to September 1981.

SUSPENDED-SEDIMENT: February 1969 to September 1970, October 1980 to May 1981, November 1981 to September 1986.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 660 microsiemens, June 11, 1980; minimum daily, 136 microsiemens, Mar. 27, 1978.

WATER TEMPERATURE: Maximum daily, 32.0°C, July 1, 9, 1978; minimum daily, 0.0°C many days during winter periods.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,380 mg/L, Nov. 21, 1985; minimum daily mean, 2 mg/L, Dec. 10, 13, 16, 17, 20, 1980, Oct. 7, 8, 1985, Aug. 11, 15, 16, 1986.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 619,000 tons, Nov. 21, 1985; minimum daily, 3.2 tons, Dec. 20, 1980.

.WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)
NOV												
07...	0900	1280	470	8.50	8.0	3.7	11.1	96	60	92	260	40
JAN												
12...	0745	3930	270	8.00	5.5	9.4	12.0	96	33	64	130	17
MAR												
13...	0920	17200	198	7.90	8.0	84	10.8	93	370	K3400	86	10
MAY												
02...	1230	2320	347	8.20	18.0	4.5	9.7	104	46	K10	170	16
JUL												
10...	0850	688	386	8.20	30.0	4.4	6.4	86	55	40	200	24
SEP												
01...	1000	897	384	8.20	26.0	49	6.6	83	>240	1400	200	19

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
NOV												
07...	50	32	6.3	1.5	210	35	8.0	0.10	4.7	245	0.33	847
JAN												
12...	29	15	3.8	1.4	114	20	5.3	0.10	8.0	155	0.21	1640
MAR												
13...	18	10	4.2	1.5	78	19	7.2	0.10	6.2	119	0.16	5530
MAY												
02...	34	21	4.9	1.6	142	24	6.1	0.10	2.8	187	0.25	1170
JUL												
10...	40	25	4.9	1.5	174	19	5.5	0.10	9.8	200	0.27	372
SEP												
01...	38	25	6.4	1.6	176	22	8.2	0.10	7.9	213	0.29	516

K--Results based on colony count outside the acceptable range (non-ideal colony count).

07019000 MERAMEC RIVER NEAR EUREKA, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (80155)
NOV 07...	<0.010	<0.100	0.010	0.030	0.30	0.030	0.020	0.010	23	79
JAN 12...	<0.010	0.330	0.030	0.020	0.30	0.040	0.020	0.020	25	265
MAR 13...	<0.010	0.170	0.030	0.070	0.40	0.060	0.030	0.020	345	16000
MAY 02...	<0.010	<0.100	0.010	<0.010	0.30	0.030	0.010	<0.010	21	132
JUL 10...	<0.010	<0.100	0.030	0.020	0.80	0.040	0.010	<0.010	36	67
SEP 01...	<0.010	<0.100	0.020	0.020	0.30	0.050	0.020	0.020	125	303

DATE	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
NOV 07...	<10	<1	230	<0.5	3	<1	<3	3	18	<5
JAN 12...	40	<1	93	<0.5	<1	1	<3	2	31	5
MAY 02...	10	<1	150	1	<1	1	<3	14	6	1
JUL 10...	<10	1	170	<0.5	<1	1	<3	12	4	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 07...	<4	12	<0.1	<10	<1	<1	1.0	59	<6	6
JAN 12...	<4	15	<0.1	<10	<1	<1	<1.0	42	<6	8
MAY 02...	<4	21	<0.1	<10	3	<1	<1.0	57	<6	15
JUL 10...	<4	15	0.3	<10	<1	<1	<1.0	61	<6	26

MERAMEC RIVER BASIN

07019280 MERAMEC RIVER AT PAULINA HILLS, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 38°27'46", long 90°24'53", Jefferson County, Hydrologic Unit 07140102, at bridge on State Highway 21 at Paulina Hills, 0.3 mi downstream from Saline Creek, and 10 mi upstream from mouth.

DRAINAGE AREA.--3,950 mi², approximately.

PERIOD OF RECORD.--August 1963 to July 1975, water years 1982 to current year.

REMARKS.--Records of discharge are given for gaging station near Eureka, Mo.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT											
14...	0745	712	402	8.50	13.0	7.8	74	17	2800	210	30
NOV											
07...	1230	1370	440	8.40	10.5	9.0	83	17	K320	--	--
DEC											
06...	1230	2290	285	8.20	5.5	12.5	100	<10	130	--	--
JAN											
12...	1100	4230	265	8.10	4.5	12.3	95	16	240	130	21
FEB											
08...	1330	3330	320	8.40	0.0	16.5	112	<10	K44	--	--
MAR											
13...	1200	18800	224	8.00	8.0	11.3	97	14	400	--	--
APR											
07...	0800	9120	222	8.00	11.0	9.2	84	51	1000	110	19
MAY											
02...	1000	2580	359	8.20	19.0	7.5	81	<10	K64	--	--
JUN											
07...	1215	1510	381	8.40	25.5	7.2	90	22	K22	--	--
JUL											
10...	1230	748	400	8.30	31.0	5.9	80	30	K32	190	19
AUG											
07...	1410	704	391	8.40	29.0	6.7	88	23	K15	--	--
SEP											
01...	1245	1020	387	8.20	27.5	6.1	79	<10	>240	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
14...	42	26	8.8	1.8	182	1	28	10	0.10	228
NOV										
07...	--	--	--	--	192	1.4	--	--	--	255
DEC										
06...	--	--	--	--	126	1.5	--	--	--	170
JAN										
12...	28	15	5.2	1.5	111	1.7	21	7.1	<0.10	166
FEB										
08...	--	--	--	--	144	1.1	--	--	--	172
MAR										
13...	--	--	--	--	94	1.8	--	--	--	125
APR										
07...	23	12	3.8	1.5	88	1.7	16	4.8	0.10	132
MAY										
02...	--	--	--	--	154	1.9	--	--	--	193
JUN										
07...	--	--	--	--	172	1.3	--	--	--	206
JUL										
10...	40	23	8.7	1.8	176	1.7	24	10	<0.10	239
AUG										
07...	--	--	--	--	164	1.2	--	--	--	221
SEP										
01...	--	--	--	--	168	2.1	--	--	--	220

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

MISSISSIPPI RIVER MAIN STEM

07020500 MISSISSIPPI RIVER AT CHESTER, IL

LOCATION.--Lat 37°54'10", long 89°51'10", in SW 1/4 sec.24, T.7 S., R.7 W., third principal meridian, Randolph County, Hydrologic Unit 07140105, on downstream side of left pier of main truss of highway bridge at Chester 8.1 mi downstream from Kaskaskia River, and at mile 109.9 above Ohio River.

DRAINAGE AREA.--708,600 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Discharge: October 1927 to current year in reports of Geological Survey. Monthly discharge only for some periods, published in WSP 1311. Since August 1873, results of discharge measurements in reports of Mississippi River Commission.

Gage heights: July 1942 to current year in reports of U.S. Geological Survey. Since May 1891, in reports of Mississippi River Commission and National Weather Service.

REVISED RECORDS.--WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 341.05 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 1, 1962, nonrecording gage 0.4 mi downstream at present datum.

REMARKS.--Estimated daily discharges: Feb. 18-24 and June 24-28. Water-discharge records good. Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin and by many reservoirs and diversions for irrigation in Missouri River basin. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 30, 1844, reached a gage height of 39.8 ft, discharge, 1,350,000 ft³/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83800	74600	115000	117000	88000	83900	207000	142000	153000	101000	94900	128000
2	83800	73700	116000	110000	93300	79200	200000	138000	149000	114000	93200	157000
3	81400	67400	112000	108000	107000	77600	220000	134000	159000	113000	89400	174000
4	83100	71200	103000	106000	114000	79400	259000	130000	167000	106000	85800	165000
5	87000	78300	95900	97700	111000	85600	294000	131000	181000	105000	83500	151000
6	90600	75800	90300	117000	99100	90300	296000	133000	184000	103000	81700	143000
7	97400	74100	81700	137000	76300	86800	279000	128000	183000	101000	93700	130000
8	91600	73700	79100	143000	63600	84500	268000	122000	178000	96900	106000	119000
9	80600	78100	77400	133000	71100	92400	257000	123000	182000	90300	101000	118000
10	72100	79600	77200	115000	80000	101000	251000	127000	184000	85300	91200	159000
11	66600	87200	74400	98900	78600	108000	239000	130000	177000	85600	80300	206000
12	64500	83400	75300	87300	72400	120000	223000	129000	180000	84700	87000	264000
13	60200	85200	70900	87700	76200	136000	212000	125000	179000	84400	77500	312000
14	65700	87900	64300	96600	90500	154000	203000	122000	169000	84600	68900	327000
15	67100	80900	62500	94600	87900	157000	187000	121000	148000	88700	63100	301000
16	66500	99000	58500	92900	90300	157000	178000	120000	135000	88500	62100	261000
17	66000	105000	57400	93700	88300	177000	175000	117000	130000	79300	63200	231000
18	68700	96800	55400	89600	89200	206000	176000	113000	122000	69200	66900	207000
19	70200	93900	55300	84500	97100	199000	170000	108000	121000	68500	70200	183000
20	73600	105000	67000	82000	100000	186000	161000	112000	108000	68700	72300	161000
21	78200	123000	69600	82600	96200	227000	162000	114000	107000	80900	77500	152000
22	81300	125000	68500	76900	92600	236000	161000	111000	107000	93400	81500	152000
23	78300	126000	72700	71800	89200	225000	156000	113000	116000	98300	78300	148000
24	79500	120000	83500	72700	84400	209000	146000	114000	121000	101000	80500	140000
25	75400	116000	91200	72800	82000	191000	145000	115000	112000	102000	96900	135000
26	71800	116000	87300	74000	87700	168000	144000	121000	105000	101000	106000	133000
27	72300	115000	87700	79500	93500	150000	139000	137000	98600	99300	112000	120000
28	68600	111000	95400	85200	88900	137000	132000	146000	101000	97500	115000	111000
29	73300	113000	100000	87900	---	137000	139000	148000	96900	91400	111000	103000
30	73400	115000	106000	89900	---	162000	148000	157000	93700	89400	116000	96800
31	74200	---	122000	87800	---	201000	---	162000	---	93000	129000	---
MEAN	75700	95360	82980	95890	88870	145300	197600	127200	141600	92420	88050	172900
MAX	97400	126000	122000	143000	114000	236000	296000	162000	184000	114000	129000	327000
MIN	60200	67400	55300	71800	63600	77600	132000	108000	93700	68500	62100	96800
IN.	.12	.15	.14	.16	.13	.24	.31	.21	.22	.15	.14	.27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	148800	152300	134500	127600	155500	248700	336100	302000	267600	228200	144100	141100
MAX	588300	380400	500100	323200	331000	528400	719100	625000	597200	676800	254400	316000	
(WY)	1987	1986	1983	1973	1974	1973	1973	1973	1973	1947	1951	1981	1951
MIN	59490	59320	51070	47810	52860	84200	137800	127200	81040	69050	69580	66030	
(WY)	1957	1957	1964	1964	1964	1964	1977	1989	1988	1988	1988	1976	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	116800		198700	
HIGHEST ANNUAL MEAN			347500	1973
LOWEST ANNUAL MEAN			96770	1956
HIGHEST DAILY MEAN	327000	Sep 14	885000	Apr 30 1973
LOWEST DAILY MEAN	55300	Dec 19	37600	Jan 1 1964
INSTANTANEOUS PEAK FLOW	330000	Sep 14	886000	Jul 3 1947
INSTANTANEOUS PEAK STAGE	21.57	Sep 14	43.32	Apr 30 1973
INSTANTANEOUS LOW FLOW	53200	Dec 19	30000	Dec 12 1937
ANNUAL RUNOFF (INCHES)	2.25		3.83	
10 PERCENTILE	182000		383000	
50 PERCENTILE	102000		161000	
95 PERCENTILE	67400		66100	

MISSISSIPPI RIVER MAIN STEM

209

07020500 MISSISSIPPI RIVER AT CHESTER, IL--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.56	1.59	6.33	6.33	2.79	2.36	14.25	8.94	10.24	4.24	4.00	7.49
2	2.56	1.52	6.59	5.39	3.33	1.70	13.39	8.61	9.63	6.26	3.75	9.57
3	2.28	.82	6.18	5.11	5.22	1.48	14.66	8.20	10.49	6.33	3.36	11.87
4	2.26	.87	5.34	5.10	6.10	1.61	17.24	7.79	11.23	5.26	2.80	11.03
5	2.86	2.12	4.27	3.75	6.03	2.20	19.37	7.83	12.31	5.15	2.59	9.93
6	3.13	1.83	3.61	5.77	4.85	3.12	20.00	8.08	12.71	4.94	2.19	9.39
7	4.24	1.46	2.47	8.08	2.04	2.67	18.92	7.80	12.63	4.70	3.26	8.19
8	3.60	1.44	2.01	9.03	-.08	2.18	18.36	6.95	12.24	4.16	5.34	6.92
9	2.39	1.95	1.65	8.21	.73	2.87	17.59	7.00	12.41	3.36	4.83	6.29
10	1.02	1.98	1.56	6.30	2.11	4.38	17.35	7.45	12.84	2.61	3.67	9.77
11	.32	3.11	1.07	4.31	2.10	5.07	16.74	7.76	12.22	2.67	2.07	13.50
12	.03	2.69	1.19	2.77	1.08	6.16	15.59	7.71	12.37	2.55	2.07	17.21
13	-.70	2.53	.74	2.42	1.24	8.02	14.76	7.30	12.53	2.48	1.82	20.44
14	.15	3.19	-.39	3.83	3.68	9.65	14.13	6.87	11.99	2.37	.74	21.50
15	.28	3.25	-.58	3.66	3.23	10.15	12.93	6.81	10.11	2.94	-.18	20.42
16	.36	4.21	-1.19	3.32	3.51	9.85	12.18	6.72	8.89	3.17	-.32	17.98
17	.20	5.35	-1.49	3.55	3.25	11.13	11.81	6.39	8.27	2.09	-.23	16.00
18	.64	4.27	-1.74	3.06	3.12	13.70	11.92	5.98	7.69	.67	.26	14.26
19	.85	3.50	-2.12	2.48	---	13.63	11.49	5.37	7.54	.55	.61	12.54
20	1.18	4.41	-.66	2.01	---	11.63	10.67	5.48	6.09	.35	.96	10.74
21	1.90	6.97	-.05	2.17	---	14.99	10.70	6.09	5.59	1.67	1.31	9.62
22	2.25	7.25	-.20	1.58	---	15.90	10.58	5.45	5.60	3.35	2.17	9.72
23	2.15	7.49	.17	.70	---	15.28	10.23	5.75	6.53	4.31	1.73	9.38
24	2.04	6.93	1.43	.84	---	14.17	9.26	5.94	7.37	4.54	1.63	8.71
25	1.92	6.34	2.82	1.00	2.17	12.96	9.10	6.06	---	4.85	3.78	8.07
26	1.04	6.28	2.36	.98	2.60	11.26	9.13	6.72	---	4.69	5.06	8.06
27	1.42	6.20	2.17	1.54	3.53	9.81	8.79	8.26	---	4.42	5.68	6.70
28	.82	5.77	3.22	2.37	2.97	8.60	7.91	9.42	4.88	4.41	6.26	5.72
29	1.32	5.97	4.04	2.75	---	8.29	8.39	9.33	4.36	3.51	5.89	4.76
30	1.40	6.32	4.36	3.10	---	10.30	9.49	10.30	3.91	3.13	6.04	3.90
31	1.48	---	6.69	2.84	---	13.33	---	10.80	---	3.60	7.74	---

MISSISSIPPI RIVER MAIN STEM

07020500 MISSISSIPPI RIVER AT CHESTER, IL--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: August 1980 to current year.

REMARKS.--Sediment record poor; the number of missing days of record exceeds 20 percent of the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,380 mg/L, Apr. 12, 1987; minimum daily mean, 13 mg/L, Mar. 18, 1981.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 3,170,000 tons, June 6, 1982; minimum daily, 3,580 tons, Mar. 18, 1981.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
SEP 12...	1320	270000	44	52	60	70	83	85	97	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
AUG 17...	0	0	13	51	79	90	96	98	100

MISSISSIPPI RIVER MAIN STEM

211

07020500 MISSISSIPPI RIVER AT CHESTER, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	83800	---	23600	74600	---	23600	115000	150	46600
2	83800	---	23600	73700	---	23000	116000	---	54000
3	81400	---	22000	67400	151	27600	112000	---	50300
4	83100	---	23100	71200	111	21500	103000	---	42400
5	87000	115	26100	78300	---	25900	95900	---	36600
6	90600	141	33500	75800	---	24300	90300	---	32300
7	97400	168	43200	74100	---	23300	81700	---	26200
8	91600	96	22900	73700	---	23000	79100	---	24500
9	80600	84	17300	78100	122	25800	77400	---	23300
10	72100	83	15200	79600	125	26800	77200	---	23200
11	66600	82	13700	87200	136	32000	74400	---	21500
12	64500	---	11700	83400	130	29300	75300	---	22000
13	60200	---	9500	85200	133	30600	70900	---	19300
14	65700	---	12400	87900	115	27400	64300	---	15600
15	67100	---	13200	90900	140	34400	62500	---	14700
16	66500	---	12800	99000	162	43300	58500	---	12600
17	66000	---	12500	105000	172	48800	57400	---	12100
18	68700	---	20100	96800	152	39700	55400	---	11200
19	70200	68	13000	93900	117	29700	55300	---	11100
20	73600	96	18100	105000	123	35000	67000	---	17100
21	78200	123	25000	123000	151	50000	69600	109	18600
22	81300	103	21600	125000	157	53000	68500	---	18000
23	78300	123	24900	126000	159	54000	72700	---	20400
24	79500	85	17200	120000	139	45000	83500	---	27400
25	75400	101	19700	116000	140	44000	91200	---	32000
26	71800	89	16400	116000	137	43000	87300	---	30100
27	72300	80	14600	115000	142	44200	87700	---	30400
28	68600	---	14000	111000	200	60100	95400	---	36200
29	73300	---	16800	113000	150	45800	100000	---	39900
30	73400	---	16800	115000	146	45500	106000	---	45000
31	74200	---	17300	---	---	---	122000	---	59900
TOTAL	2346800	---	591800	2860800	---	1079600	2572500	---	874500
JANUARY			FEBRUARY			MARCH			
1	117000	---	57000	88000	131	31200	83900	---	27700
2	110000	---	50500	93300	---	35600	79200	---	24500
3	108000	---	48700	107000	---	46800	77600	---	23500
4	106000	---	47000	114000	---	53200	79400	---	24600
5	97700	---	40000	111000	---	50400	85600	---	28900
6	117000	---	57000	99100	---	39100	90300	---	32300
7	137000	---	77600	76300	---	22600	86800	---	29700
8	143000	---	84400	63600	---	15200	84500	---	28100
9	133000	---	73300	71100	---	18500	92400	---	33900
10	115000	---	55100	80000	---	24000	101000	---	40700
11	98900	---	41000	78600	---	23100	108000	---	46700
12	87300	---	32100	72400	---	19200	120000	---	55900
13	87700	---	32400	76200	---	21600	136000	---	70500
14	96600	---	39100	90500	---	31400	154000	---	90700
15	94600	---	37600	87900	---	29500	157000	---	96000
16	92900	---	36300	90300	---	31300	157000	153	101000
17	93700	---	36900	88300	---	32500	177000	---	120000
18	89600	---	33800	89200	---	30500	206000	---	160000
19	84500	---	30100	97100	---	36500	199000	---	151000
20	82000	128	28400	100000	---	38900	186000	---	131000
21	82600	129	28800	96200	---	35800	227000	---	190000
22	76900	121	25000	92600	---	33000	236000	400	255000
23	71800	112	21900	89200	---	30500	225000	370	225000
24	72700	114	22400	84400	---	27000	209000	260	147000
25	72800	114	22500	82000	---	25400	191000	240	124000
26	74000	131	26100	87700	---	29400	168000	190	86100
27	79500	174	37400	93500	---	33700	150000	300	122000
28	85200	228	52500	88900	---	30300	137000	147	54400
29	87900	120	28400	---	---	---	137000	143	53000
30	89900	140	34000	---	---	---	162000	98	42700
31	87800	137	32500	---	---	---	201000	143	77400
TOTAL	2972600	---	1269800	2488400	---	876200	4503700	---	2693300

MISSISSIPPI RIVER MAIN STEM

07020500 MISSISSIPPI RIVER AT CHESTER, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	207000	405	226000	142000	182	69800	153000	210	86600
2	200000	365	197000	138000	133	49500	149000	238	95800
3	220000	333	198000	134000	154	55700	159000	263	113000
4	259000	641	400000	130000	153	53700	167000	262	118000
5	294000	789	526000	131000	139	49000	181000	243	119000
6	296000	574	400000	133000	131	46900	184000	236	117000
7	279000	439	330000	128000	127	43800	183000	220	108000
8	268000	364	263000	122000	133	43800	178000	192	92300
9	257000	340	236000	123000	162	53600	182000	203	99700
10	251000	216	146000	127000	155	53000	184000	238	118000
11	239000	239	154000	130000	110	38500	177000	301	144000
12	223000	210	126000	129000	110	38400	180000	331	161000
13	212000	210	120000	125000	112	37700	179000	294	142000
14	203000	201	110000	122000	112	36800	169000	216	98400
15	187000	173	87500	121000	134	43900	148000	218	86900
16	178000	141	67700	120000	153	49500	135000	204	74300
17	175000	129	60900	117000	123	39000	130000	215	75300
18	176000	142	67700	113000	---	37000	122000	238	78400
19	170000	126	57800	108000	---	36000	121000	276	90300
20	161000	120	52000	112000	---	34500	108000	290	84600
21	162000	129	56400	114000	---	32500	107000	212	61200
22	161000	136	59100	111000	---	32000	107000	163	47000
23	156000	129	54200	113000	104	31700	116000	---	56000
24	146000	121	47800	114000	105	32300	121000	---	60900
25	145000	132	51600	115000	135	42000	112000	---	52300
26	144000	129	50100	121000	189	61800	105000	---	46100
27	139000	128	47900	137000	235	87000	98600	---	40700
28	132000	152	54200	146000	271	107000	101000	---	42700
29	139000	185	69400	148000	288	115000	96900	132	34600
30	148000	204	81600	157000	261	111000	93700	137	34700
31	---	---	---	162000	207	90400	---	---	---
TOTAL	5927000	---	4397900	3943000	---	1652800	4247200	---	2578800
JULY			AUGUST			SEPTEMBER			
1	101000	147	40100	94900	---	37800	128000	---	98000
2	114000	164	50400	93200	---	36500	157000	---	201000
3	113000	176	53800	89400	---	33600	174000	---	224000
4	106000	206	58900	85800	---	31000	165000	---	212000
5	105000	478	136000	83500	---	29400	151000	---	194000
6	103000	502	140000	81700	---	28200	143000	---	184000
7	101000	418	114000	93700	---	36900	130000	---	170000
8	96900	368	96400	106000	---	47000	119000	---	159000
9	90300	313	76200	101000	---	42700	118000	---	158000
10	85300	260	59800	91200	---	35000	159000	---	254000
11	85600	---	34900	80300	---	27200	206000	---	1000000
12	84700	---	34200	81000	---	27700	264000	725	1920000
13	84400	---	34000	77500	---	25400	312000	---	1490000
14	84600	---	34200	68900	---	20200	327000	---	1200000
15	88700	---	37100	63100	---	17000	301000	---	563000
16	88500	---	37000	62100	---	16500	261000	---	375000
17	79300	---	30600	63200	82	14000	231000	---	316000
18	69200	---	24400	66900	---	19000	207000	---	274000
19	68500	---	24000	70200	---	20900	183000	---	237000
20	68700	---	24100	72300	---	22200	161000	---	207000
21	80900	---	31600	77500	---	25400	152000	---	145000
22	93400	---	40600	81500	---	28000	152000	---	145000
23	98300	---	44500	78300	---	25900	148000	---	120000
24	101000	---	46700	80500	---	27400	140000	---	111000
25	102000	---	47500	96900	---	39400	135000	---	100000
26	101000	---	46700	106000	---	47000	133000	---	93300
27	99300	---	45300	112000	---	52300	120000	---	79900
28	97500	---	43900	115000	---	55100	111000	---	61400
29	91400	---	39100	111000	---	51400	103000	---	54400
30	89400	---	38600	116000	---	56000	96800	---	49300
31	93000	---	40300	129000	---	69000	---	---	---
TOTAL	2864900	---	1604900	2729600	---	1045100	5187800	---	10395300

HEADWATER DIVERSION CHANNEL BASIN

07021000 CASTOR RIVER AT ZALMA, MO

LOCATION.--Lat 37°08'48", long 90°04'32", in SE 1/4 sec.29, T.29 N., R.9 E., Bollinger County, Hydrologic Unit 07140107, on downstream side of left bridge pier on State Highway 51 in Zalma, and 2.5 mi downstream from Perkins Creek.

DRAINAGE AREA.--423 mi².

PERIOD OF RECORD.--January 1920 to current year. Prior to October 1921 monthly discharge only published in WSP 1931.

REVISED RECORDS.--WSP 1147: 1922-23(M). WSP 1281: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 350.38 ft above National Geodetic Vertical Datum of 1929. Jan. 1920 to Oct. 1, 1925, at site 500 ft upstream at datum 49.82 ft lower, Oct. 1, 1925 to Nov. 12, 1930, at site 500 ft upstream at datum 0.18 ft higher. Nov. 13, 1930 to June 8, 1953, nonrecording gage at present site and datum. Since Dec. 18, 1949, auxiliary nonrecording gage, 6.0 mi downstream.

REMARKS.--Estimated daily discharges: Oct. 2 to Nov. 2. Records good except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1915 reached a stage of 28.0 ft, present datum, from floodmarks by local residents.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	114	615	670	618	535	4880	223	126	245	97	93
2	600	114	527	696	1170	494	2280	211	136	253	94	89
3	400	114	467	717	7570	466	2060	202	131	236	90	85
4	300	120	417	705	9510	612	6070	197	125	215	86	82
5	230	140	377	817	3370	2190	4560	198	273	198	83	80
6	200	143	345	2210	1270	1940	2050	187	393	182	84	77
7	180	143	319	2330	1080	1340	1500	179	299	169	86	75
8	170	141	295	2950	998	1090	1320	174	252	157	80	73
9	160	139	272	2000	777	1010	1140	177	229	146	75	81
10	155	140	254	1210	635	1030	897	174	207	137	73	103
11	150	137	238	903	571	1150	750	166	196	129	70	100
12	145	139	223	790	524	1240	661	159	268	124	69	96
13	140	148	213	671	1550	1030	593	153	1620	117	67	96
14	140	154	204	607	6200	875	541	150	3120	111	66	218
15	135	162	195	578	6410	763	507	159	2130	105	65	145
16	132	369	185	521	5900	658	467	153	1140	101	66	134
17	130	571	178	475	3470	589	430	144	749	100	77	125
18	130	579	172	440	1930	536	405	139	634	99	76	115
19	128	1600	168	406	1470	488	382	141	1400	100	74	105
20	126	3420	165	376	1270	455	350	154	1260	99	79	99
21	124	3240	159	347	1630	434	330	150	786	107	107	94
22	122	1740	158	325	1370	397	312	161	599	108	99	91
23	120	1080	172	307	1030	372	296	196	493	110	90	86
24	125	761	181	292	840	350	281	195	421	108	88	83
25	120	607	176	290	738	330	270	180	367	109	146	81
26	118	886	170	489	678	313	254	168	329	114	140	80
27	118	1790	203	875	639	302	242	162	297	106	129	79
28	116	1440	761	894	589	300	236	151	353	100	114	78
29	116	980	888	816	---	429	252	145	322	96	108	78
30	116	745	781	771	---	3190	242	138	271	93	99	82
31	114	---	674	687	---	6270	---	130	---	96	96	---
MEAN	174	729	327	844	2279	1006	1152	168	631	135	89.5	96.8
MAX	600	3420	888	2950	9510	6270	6070	223	3120	253	146	218
MIN	114	114	158	290	524	300	236	130	125	93	65	73
IN.	.47	1.92	.89	2.30	5.61	2.74	3.04	.46	1.66	.37	.24	.26

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	163	402	578	721	705	1043	1016	768	437	170	107	119
MAX	1576	2045	5507	3735	2279	3521	3645	2871	4082	1195	298	883	
(WY)	1985	1985	1983	1937	1989	1945	1927	1946	1928	1976	1982	1965	
MIN	37.0	59.1	72.1	60.7	95.4	98.0	142	90.2	43.9	33.4	22.5	31.5	
(WY)	1921	1921	1956	1956	1934	1941	1971	1932	1936	1936	1936	1953	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	622	517
HIGHEST ANNUAL MEAN		1088
LOWEST ANNUAL MEAN		149
HIGHEST DAILY MEAN	9510	42700
LOWEST DAILY MEAN	65	16
INSTANTANEOUS PEAK FLOW	10700	97100
INSTANTANEOUS PEAK STAGE	23.23	29.92
INSTANTANEOUS LOW FLOW	63	16
ANNUAL RUNOFF (INCHES)	19.97	16.58
10 PERCENTILE	1390	1050
50 PERCENTILE	225	182
95 PERCENTILE	80	48

MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL

LOCATION.--Lat 37°13'00", long 89°27'50", in NW 1/4 sec.17, T.15 S., R.3 W., Alexander County, Hydrologic Unit 07140105, near center span on downstream side of railroad bridge at Thebes, 5.0 mi downstream from Headwater Diversion Channel, and at mile 43.7 above Ohio River.

DRAINAGE AREA.--713,200 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Discharge: Oct. 1932 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to April 1941, published as "at Cape Girardeau, Mo.".

Gage heights: March 1933 to February 1938 and October 1939 to current year in reports of Geological Survey (prior to April 1941, published as "at Cape Girardeau, Mo."). Since November 1878, under name of "at Grays Point" in files of St. Louis District office of U.S. Army Corps of Engineers. January 1879 to May of 1896, published as "at Grays Point" and since May 1896, published as "at Cape Girardeau" in reports of Mississippi River Commission. February 1891 to February 1894 and since 1904, published as "at Cape Girardeau" in reports of National Weather Service.

REVISED RECORDS.--WSP 1341: 1844(M). WDR MO-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 300.00 ft above National Geodetic Vertical Datum of 1929. Mar. 17, 1933 to Dec. 21 1934, nonrecording gage and Dec. 22, 1934 to Apr. 4, 1941, water-stage recorder, at site 8.2 mi upstream at datum 4.65 ft higher. Apr. 5, 1941 to Sept. 30, 1941, nonrecording gage at present site and datum and Oct. 1, 1941 to Oct. 11, 1943, at datum 0.07 ft higher. Prior to Apr. 5, 1941, various auxiliary gages used. Since Oct. 1, 1943, former gage at Cape Girardeau used as auxiliary gage.

REMARKS.--Estimated daily discharges: Dec. 5-20, Jan. 8-25 and Feb. 2 to Mar. 23. Water-discharge records good except for estimated daily discharges, which are fair. Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin and by many reservoirs and diversions for irrigation in Missouri River basin. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 4, 1844, reached an elevation of 345.14 ft, present datum, at Grays Point, from floodmarks, discharge, 1,375,000 ft³/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90300	76700	124000	134000	84500	95000	205000	150000	166000	97300	93800	129000
2	92900	76900	122000	128000	88000	90800	191000	147000	159000	105000	94900	135000
3	87900	75900	122000	118000	113000	85900	193000	145000	159000	115000	93300	165000
4	84300	72100	117000	115000	118000	81200	237000	142000	167000	116000	89300	173000
5	84900	77000	106000	110000	112000	79100	272000	140000	177000	111000	86400	166000
6	87200	81100	101000	111000	110000	76800	296000	143000	185000	107000	84500	155000
7	90600	79800	94800	125000	100000	79500	295000	144000	184000	105000	84000	146000
8	94100	79300	94800	144000	85400	82200	289000	138000	182000	101000	95600	132000
9	87700	79300	83400	143000	78000	86600	280000	133000	179000	96100	104000	121000
10	78500	82100	81900	123000	82700	96700	272000	134000	183000	89400	99100	130000
11	71200	84200	80200	106000	86100	106000	264000	139000	180000	85300	89400	174000
12	66700	88500	78400	93000	81900	113000	253000	142000	185000	84600	81600	228000
13	63500	86000	78800	85900	74500	126000	242000	141000	187000	84300	81000	288000
14	61300	88300	75600	91000	87900	146000	236000	136000	187000	83600	77500	317000
15	64900	89500	69200	99300	91800	167000	225000	133000	173000	84500	70600	317000
16	66900	96700	66400	102000	89900	168000	210000	132000	155000	87700	66600	286000
17	66300	106000	63700	105000	93100	170000	197000	130000	145000	86600	65900	257000
18	67200	108000	61900	104000	89100	183000	189000	126000	140000	79700	66900	231000
19	68900	106000	60100	98900	87600	195000	181000	122000	136000	72400	69600	209000
20	70500	111000	57600	94800	87200	179000	171000	116000	132000	71300	72400	184000
21	74100	122000	68300	90900	87600	184000	162000	118000	121000	73100	75000	168000
22	78000	136000	70300	91300	87600	212000	162000	117000	122000	83500	79500	161000
23	80500	142000	70000	92400	92000	216000	161000	115000	126000	94000	81100	158000
24	78700	142000	73900	86900	99200	207000	155000	116000	135000	98400	79500	152000
25	79800	137000	82500	80300	100000	195000	150000	117000	137000	101000	85300	143000
26	76200	134000	87800	77600	98700	183000	149000	118000	128000	102000	98800	139000
27	74500	137000	87200	78400	99300	168000	148000	127000	117000	100000	106000	133000
28	74700	132000	101000	80500	98700	155000	141000	143000	115000	99400	112000	121000
29	72400	125000	110000	83700	---	148000	138000	149000	112000	96700	114000	113000
30	75400	124000	115000	85500	---	168000	145000	155000	103000	91500	112000	105000
31	75800	---	122000	86200	---	202000	---	164000	---	90700	119000	---
MEAN	76960	102500	87960	102100	92990	143400	207000	134600	152600	93330	88020	177900
MAX	94100	142000	124000	144000	118000	216000	296000	164000	187000	116000	119000	317000
MIN	61300	72100	57600	77600	74500	76800	138000	115000	103000	71300	65900	105000
IN.	.12	.16	.14	.17	.14	.23	.32	.22	.24	.15	.14	.28

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

215

MEAN	147200	151900	135000	130300	157500	247800	327700	301500	270400	224200	140200	136800
MAX	589600	389000	531700	333300	350400	542000	731000	655800	584100	687700	269200	325500
(WY)	1987	1986	1983	1973	1974	1985	1973	1973	1947	1951	1981	1951
MIN	45500	50080	53850	33650	46920	80260	115600	88170	72350	73290	45000	59890
(WY)	1940	1940	1956	1940	1940	1934	1934	1934	1934	1936	1936	1937

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	121400		197900	
HIGHEST ANNUAL MEAN			359800	1973
LOWEST ANNUAL MEAN			71730	1934
HIGHEST DAILY MEAN	317000	Sep 14	886000	May 27 1943
LOWEST DAILY MEAN	57600	Dec 20	24700	Jan 21 1940
INSTANTANEOUS PEAK FLOW	330000	Sep 14	893000	May 27 1943
INSTANTANEOUS PEAK STAGE	27.27	Apr 6	340.33	May 27 1943
INSTANTANEOUS LOW FLOW	57400	Dec 20	23400	Dec 13 1937
ANNUAL RUNOFF (INCHES)	2.32		3.79	
10 PERCENTILE	186000		386000	
50 PERCENTILE	108000		160000	
95 PERCENTILE	69500		61500	

MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 08:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.19	5.95	11.32	12.47	7.79	17.75	21.63	13.79	15.56	9.76	8.05	11.84
2	7.91	5.98	11.11	12.07	7.75	17.20	20.82	13.43	14.89	10.40	8.22	11.96
3	7.36	6.01	11.19	11.16	11.78	16.61	20.47	13.27	14.76	11.66	8.03	14.52
4	6.80	5.16	10.75	10.77	1.48	15.89	23.11	13.03	15.32	12.03	7.52	15.62
5	6.92	5.67	9.59	10.36	1.48	15.58	25.15	12.77	16.11	11.33	7.14	15.10
6	7.28	6.48	8.74	10.24	1.48	15.17	27.00	13.04	16.85	10.90	6.85	14.00
7	7.64	6.32	8.05	12.25	1.48	14.82	27.06	13.17	17.06	10.50	6.61	13.43
8	8.40	6.19	7.95	14.27	8.94	12.88	26.65	12.73	17.03	10.10	7.88	12.15
9	7.56	6.11	---	14.98	4.31	1.41	26.23	12.13	16.55	9.32	9.40	11.09
10	6.56	6.54	6.20	13.73	1.91	1.41	25.66	12.18	17.17	8.50	8.86	11.17
11	5.49	6.63	6.13	12.13	8.26	1.41	25.28	---	17.12	7.69	7.65	14.83
12	4.77	7.42	---	10.77	7.78	1.41	24.68	12.87	17.53	7.57	6.40	18.46
13	4.46	7.07	---	10.05	6.99	1.41	23.80	12.92	17.74	7.43	6.32	22.26
14	4.03	7.16	5.20	10.81	10.73	1.41	23.13	12.55	18.08	7.23	5.96	24.22
15	4.52	7.41	4.25	12.37	12.72	1.41	22.28	12.34	17.06	7.20	4.94	24.52
16	4.80	7.90	3.92	13.07	14.25	18.34	21.01	12.20	15.65	7.59	4.23	22.73
17	4.81	9.24	3.38	13.77	14.84	18.09	19.93	12.15	14.77	7.51	4.11	21.03
18	4.75	9.62	---	14.12	14.61	18.98	19.08	11.93	14.47	6.57	4.13	19.61
19	5.02	9.39	2.85	13.85	14.58	20.06	18.25	11.55	14.01	5.31	4.59	18.32
20	5.26	9.70	2.35	13.41	15.03	18.88	17.05	10.91	13.99	5.01	4.98	16.64
21	5.69	10.63	3.95	12.94	15.57	18.33	15.88	11.08	12.97	5.09	5.34	15.18
22	6.36	12.16	4.42	12.41	16.14	20.42	15.61	11.17	12.95	6.41	5.91	14.49
23	6.66	12.65	4.29	11.46	53.66	20.73	15.15	10.85	13.15	7.93	6.35	14.17
24	6.41	12.84	4.80	9.68	53.66	20.17	14.55	10.98	13.96	8.58	6.03	13.74
25	6.59	12.37	6.07	7.46	53.67	19.15	13.80	11.17	14.31	8.99	6.42	13.16
26	6.13	12.03	7.12	6.73	53.67	18.14	13.60	11.24	13.59	9.21	8.38	12.48
27	5.73	12.48	6.83	6.88	53.67	16.81	13.59	11.91	12.35	8.97	9.37	12.35
28	5.94	12.04	8.55	7.11	53.67	15.54	13.04	13.29	12.02	8.77	10.00	11.31
29	5.44	11.37	9.75	7.62	---	14.62	12.57	14.01	11.75	8.59	10.47	10.29
30	5.81	11.25	10.44	7.89	---	16.53	13.03	14.14	10.74	7.91	10.09	9.33
31	5.84	---	11.06	8.04	---	20.31	---	15.12	---	7.61	10.66	---

MISSISSIPPI RIVER MAIN STEM

217

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURE: October 1974 to September 1981.

SUSPENDED-SEDIMENT: October 1980 to current year.

REMARKS.--Discontinued as National stream-quality accounting network station Sept. 1986.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 705 microsiemens, Aug. 5-7, 1980; minimum daily, 272 microsiemens, Apr. 6, 1979.

WATER TEMPERATURE: Maximum daily, 31.5°C, July 10, 11, 1975, July 17, 1977; minimum daily, 0.0°C on several days during winter periods.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,890 mg/L, Dec. 22, 1986; minimum daily mean, 13 mg/L, Jan. 28, 1981.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 6,280,000 tons, Mar. 1, 1985; minimum daily, 2,530 tons, Jan. 28, 1981.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,800 mg/L, Sept. 14; minimum daily mean, 32 mg/L, Mar. 2.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 2,400,000 tons, Sept. 14; minimum daily, 7,720 tons, Mar. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST- CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)
OCT 24...	1255	81700	17002	74600	600	8.50	14.0	3.7	10.1	99	21
NOV 10...	1000	81700	17002	76100	645	8.40	11.5	8.5	10.9	101	19
DEC 20...	1345	81700	17002	57700	567	8.30	4.5	13	14.5	114	16
JAN 19...	1315	81700	17002	96700	586	8.10	3.5	17	14.4	109	18
FEB 16...	1145	81700	17002	89900	418	8.20	3.0	43	13.8	101	25
MAR 29...	1230	81700	17002	147000	448	7.90	11.5	25	9.8	91	25
APR 25...	1330	81700	17002	151000	475	8.30	18.0	7.8	9.5	102	22
MAY 24...	1230	81700	17002	116000	538	8.30	22.5	5.1	8.8	104	21
JUN 21...	1330	81700	17002	120000	496	8.00	25.5	38	6.0	74	26
JUL 20...	0825	81700	17002	71400	594	8.10	23.5	19	6.6	79	22
SEP 13...	1415	81700	17002	289000	470	8.00	24.0	200	5.2	62	42

MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCHI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS, TOTAL (MG/L AS CACO3) (00900)	HARD-NESS, NONCARB DISSOLV FIELD (MG/L AS CACO3) (00904)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA) (00916)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG) (00927)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA) (00929)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K) (00937)
OCT 24...	--	660	220	46	55	51	23	22	48	46	4.5
NOV 10...	5200	1200	240	69	57	55	24	24	53	54	4.4
DEC 20...	880	140	240	56	62	59	23	22	39	39	4.2
JAN 19...	K310	K310	210	46	50	49	20	20	37	38	2.6
FEB 16...	540	K2900	170	53	44	42	16	15	22	23	3.1
MAR 29...	--	--	180	46	46	44	17	16	23	23	5.3
APR 25...	K1500	80	180	42	46	44	17	17	27	27	4.8
MAY 24...	2000	K20	190	39	51	49	17	16	35	34	3.9
JUN 21...	K6900	1000	190	61	49	46	19	17	30	29	5.5
JUL 20...	1100	1300	220	64	56	54	21	20	48	48	4.6
SEP 13...	K12000	K380	170	63	50	41	20	16	31	31	7.0

K--Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, TOTAL (MG/L AS F) (00951)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	AMMONIA UN-IONIZED (MG/L AS N) (00619)
OCT 24...	3.9	164	110	28	0.4	365	72	9	0.540	<0.100	<0.008
NOV 10...	4.4	166	130	27	0.3	397	25	5	0.540	0.220	0.012
DEC 20...	4.0	200	94	27	0.3	355	--	--	1.00	0.260	0.006
JAN 19...	2.5	160	85	41	0.2	332	41	6	1.60	0.110	0.002
FEB 16...	2.8	126	54	22	0.1	228	169	11	1.00	0.150	0.003
MAR 29...	4.7	130	57	29	0.1	252	102	11	1.80	0.570	0.010
APR 25...	4.4	130	75	22	0.2	273	99	13	1.80	0.160	0.011
MAY 24...	4.2	140	92	23	0.3	309	55	8	0.860	0.190	--
JUN 21...	5.2	132	83	20	0.2	275	206	20	4.00	<0.100	<0.006
JUL 20...	4.9	156	120	24	0.3	367	88	13	5.70	0.230	0.015
SEP 13...	4.0	126	84	20	0.3	260	812	56	1.00	0.110	0.006

MISSISSIPPI RIVER MAIN STEM

219

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P) (00666)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV- ERABLE (UG/L AS B) (01022)
OCT 24...	1.7	0.220	0.080	1800	<50	3	100	73	<0.5	<0.5	90
NOV 10...	0.80	0.190	0.120	590	--	3	90	74	<0.5	<0.5	90
DEC 20...	1.1	0.130	0.070	1100	<50	3	100	76	<0.5	<0.5	80
JAN 19...	1.3	0.180	0.050	630	<50	1	80	64	<0.5	<0.5	70
FEB 16...	1.3	0.260	0.050	2800	60	2	90	49	<0.5	<0.5	50
MAR 29...	1.6	0.270	0.100	2500	100	3	100	73	<0.5	<0.5	50
APR 25...	1.2	0.210	0.080	1400	100	<1	90	68	<0.5	<0.5	50
MAY 24...	1.2	0.170	0.080	1100	160	2	90	74	<0.5	<0.5	80
JUN 21...	1.6	0.330	0.100	5100	290	3	100	77	<0.5	<0.5	80
JUL 20...	1.4	0.220	0.130	2300	<50	3	100	95	<0.5	<0.5	100
SEP 13...	1.5	0.470	0.090	15000	70	2	300	81	<2.0	<0.5	90

DATE	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01037)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 24...	80	<3	<3	<5	<5	<5	<5	12	<5	2400	<50
NOV 10...	90	<3	<3	<5	<5	<5	<5	15	13	1200	110
DEC 20...	80	<3	<3	<5	<5	<5	<5	11	5	2200	<50
JAN 19...	70	<3	<3	<5	<5	<5	<5	40	<5	1100	<50
FEB 16...	<50	<3	<3	6	<5	<5	<5	26	9	4400	<50
MAR 29...	<50	<3	<3	7	<5	<5	<5	11	6	3500	<50
APR 25...	50	--	--	<5	<5	<5	<5	6	<5	2100	<50
MAY 24...	70	<3	<3	<5	<5	<5	<5	16	6	1700	<50
JUN 21...	70	<3	<3	11	8	<5	<5	17	9	7000	<50
JUL 20...	100	<3	<3	<5	<5	<5	<5	8	6	2600	<50
SEP 13...	70	<3	<3	17	<5	9	<5	32	<5	20000	<50

MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR) (01082)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, TOTAL (UG/L AS V) (01087)
OCT 24...	27	<5	220	<5	<5	<5	<3	<3.0	340	320	6
NOV 10...	10	<5	190	39	<5	<5	<3	<3.0	360	350	<5
DEC 20...	37	<5	160	29	7	<5	<3	<3.0	350	340	5
JAN 19...	38	<5	77	9	<5	<5	<3	<3.0	260	260	<5
FEB 16...	22	<5	250	27	5	<5	<3	<3.0	180	170	8
MAR 29...	39	<5	220	<5	10	6	<3	<3.0	190	180	7
APR 25...	82	<5	210	<5	<5	<5	<3	<3.0	200	190	<5
MAY 24...	27	<5	180	<5	<5	<5	<3	<3.0	250	240	5
JUN 21...	43	<5	360	<5	14	7	<3	<3.0	230	210	14
JUL 20...	12	<5	230	<5	<5	<5	<3	<3.0	360	340	<5
SEP 13...	19	<5	960	<5	28	<5	<3	<3.0	290	250	38

DATE	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CYANIDE TOTAL (MG/L AS CN) (00720)	PHENOLS TOTAL (UG/L) (32730)	OIL AND GREASE, TOTAL RECOV- GRAVI- METRIC (MG/L) (00556)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 24...	--	<100	<100	6.2	<0.005	<5	1	98	19700	48
NOV 10...	<5	<50	<50	5.9	--	<5	<1	104	21400	50
DEC 20...	<5	<50	<50	5.5	<0.005	<5	1	--	--	--
JAN 19...	<5	<100	<100	6.7	<0.005	<5	1	51	13300	61
FEB 16...	<5	--	150	12	<0.005	<5	<1	318	77200	77
MAR 29...	<5	<50	<50	9.2	<0.005	<5	1	--	--	--
APR 25...	<5	<50	<50	7.4	<0.005	<5	1	115	46900	48
MAY 24...	<5	<50	<50	7.2	<0.005	<5	2	--	--	--
JUN 21...	<5	<50	<50	10	0.005	10	--	--	--	--
JUL 20...	<5	<100	<100	6.3	<0.005	<5	--	105	20200	76
SEP 13...	<5	<100	<100	12	--	<5	--	760	593000	76

MISSISSIPPI RIVER MAIN STEM

221

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)
JUN 21...	1330	120000	49	59	68	75	80	82	96	100	--
SEP 12...	1442	247000	32	36	43	50	58	60	68	87	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
AUG 16...	0	0	8	53	79	87	92	97	100

MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	90300	103	25000	76700	90	18500	124000	219	73400
2	92900	146	36600	76900	83	17200	122000	179	58900
3	87900	74	17500	75900	90	18500	122000	170	55800
4	84300	75	17100	72100	86	16800	117000	202	63700
5	84900	78	17900	77000	100	20700	106000	130	37200
6	87200	100	23500	81100	116	25400	101000	128	34800
7	90600	112	27400	79800	78	16800	94800	95	24300
8	94100	96	24400	79300	60	12900	94800	77	19800
9	87700	81	19100	79300	52	11200	83400	65	14700
10	78500	80	17000	82100	70	15500	81900	68	15000
11	71200	82	15800	84200	81	18400	80200	81	17500
12	66700	85	15300	88500	93	22100	78400	108	22900
13	63500	95	16200	86000	86	20000	78800	171	36300
14	61300	97	16000	88300	88	21000	75600	91	18700
15	64900	101	17700	89500	114	27600	69200	76	14200
16	66900	112	20200	96700	159	41500	66400	68	12200
17	66300	70	12600	106000	182	52100	63700	62	10700
18	67200	76	13800	108000	216	63100	61900	71	11900
19	68900	82	15300	106000	260	74400	60100	66	10700
20	70500	96	18300	111000	267	79900	57600	93	14500
21	74100	84	16700	122000	215	70700	68300	112	20700
22	78000	85	17900	136000	288	106000	70300	96	18300
23	80500	90	19500	142000	219	84100	70000	96	18200
24	78700	81	17200	142000	212	81400	73900	109	21800
25	79800	85	18300	137000	264	97800	82500	151	33700
26	76200	100	20600	134000	176	63600	87800	134	31700
27	74500	102	20400	137000	171	63200	87200	130	30600
28	74700	105	21200	132000	159	56800	101000	152	41500
29	72400	86	16900	125000	168	56600	110000	172	51100
30	75400	90	18300	124000	188	63000	115000	136	42300
31	75800	90	18400	---	---	---	122000	126	41600
TOTAL	2385900	---	592100	3075400	---	1336800	2726800	---	918700
JANUARY			FEBRUARY			MARCH			
1	134000	123	44600	84500	94	21500	95000	40	10300
2	128000	244	84300	88000	84	20000	90800	32	7840
3	118000	255	81100	113000	85	26000	85900	40	9240
4	115000	155	48200	118000	88	28000	81200	35	7720
5	110000	181	53600	112000	85	25700	79100	39	8350
6	111000	160	48100	110000	81	23900	76800	45	9330
7	125000	396	134000	100000	81	21800	79500	52	11100
8	144000	691	269000	85400	83	19200	82200	53	12800
9	143000	303	117000	78000	94	19800	86600	51	12000
10	123000	241	80000	82700	224	50100	96700	50	13100
11	106000	203	58000	86100	394	91600	106000	55	15700
12	93000	172	43100	81900	158	34900	113000	55	16700
13	85900	137	31800	74500	206	41400	126000	58	19900
14	91000	105	25900	87900	571	135000	146000	72	28400
15	99300	89	23800	91800	463	115000	167000	90	40500
16	102000	66	18200	89900	191	46500	168000	102	46100
17	105000	51	14400	93100	104	26200	170000	85	39300
18	104000	49	13700	89100	83	19900	183000	105	50100
19	98900	43	11600	87600	110	26000	195000	110	58000
20	94800	35	9030	87200	121	28500	179000	95	45700
21	90900	45	11100	87600	113	26700	184000	137	67700
22	91300	51	12700	87600	111	26200	212000	609	349000
23	92400	51	12800	92000	85	21100	216000	343	200000
24	86900	59	13800	99200	64	17100	207000	376	210000
25	80300	79	17200	100000	57	15300	195000	695	364000
26	77600	111	23200	98700	54	14400	183000	624	310000
27	78400	113	24000	99300	49	13000	168000	395	180000
28	80500	128	27800	98700	37	9900	155000	331	139000
29	83700	124	28100	---	---	---	148000	284	113000
30	85500	111	25700	---	---	---	168000	533	243000
31	86200	95	22200	---	---	---	202000	341	186000
TOTAL	3164600	---	1428030	2603800	---	964700	4444800	---	2823880

MISSISSIPPI RIVER MAIN STEM

223

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	205000	654	362000	150000	198	80100	166000	281	125000
2	191000	338	173000	147000	223	80300	159000	243	105000
3	193000	314	164000	145000	208	82000	159000	218	93900
4	237000	519	333000	142000	223	85800	167000	251	113000
5	272000	579	426000	140000	179	67600	177000	262	125000
6	296000	639	509000	143000	153	58900	185000	260	129000
7	295000	470	372000	144000	159	61400	184000	301	150000
8	289000	355	278000	138000	170	63600	182000	282	139000
9	280000	335	253000	133000	254	91300	179000	290	140000
10	272000	339	248000	134000	304	110000	183000	244	120000
11	264000	317	225000	139000	275	103000	180000	312	152000
12	253000	388	266000	142000	184	70900	185000	382	192000
13	242000	320	209000	141000	153	58400	187000	403	203000
14	236000	237	151000	136000	149	54600	187000	436	219000
15	225000	155	93800	133000	151	53900	173000	328	154000
16	210000	164	93500	132000	155	55600	155000	257	108000
17	197000	223	119000	130000	128	45000	145000	222	86900
18	189000	213	109000	126000	106	36000	140000	309	116000
19	181000	243	118000	122000	93	30400	136000	252	93300
20	171000	165	76800	116000	84	26600	132000	323	115000
21	162000	196	86100	118000	133	42500	121000	313	102000
22	162000	198	86600	117000	149	47000	122000	242	79200
23	161000	174	75400	115000	137	42400	126000	181	61600
24	155000	222	92300	116000	118	36700	135000	159	57600
25	150000	231	94000	117000	97	30800	137000	156	57900
26	149000	242	97500	118000	136	43300	128000	128	44100
27	148000	188	74900	127000	222	75900	117000	120	38100
28	141000	174	65900	143000	207	79400	115000	162	50200
29	138000	164	61400	149000	240	97100	112000	132	40200
30	145000	142	55700	155000	307	129000	103000	116	32300
31	---	---	---	164000	365	162000	---	---	---
TOTAL	6209000	---	5368900	4172000	---	2101500	4577000	---	3242300
JULY			AUGUST			SEPTEMBER			
1	97300	115	30000	93800	170	42900	129000	130	66400
2	105000	191	54200	94900	183	47000	135000	219	80000
3	115000	316	97600	93300	160	40200	165000	300	137000
4	116000	406	127000	89300	172	41900	173000	480	220000
5	111000	372	111000	86400	220	51300	166000	440	198000
6	107000	408	118000	84500	207	47500	155000	480	206000
7	105000	431	122000	84000	167	37900	146000	438	170000
8	101000	420	111000	95600	165	42400	132000	380	136000
9	96100	356	92300	104000	175	49200	121000	420	141000
10	89400	290	69600	99100	140	37300	130000	378	131000
11	85300	257	59300	89400	157	38000	174000	260	122000
12	84600	231	52500	81600	138	30300	228000	410	252000
13	84300	229	52200	81000	150	32900	288000	1310	1020000
14	83600	229	51500	77500	135	28200	317000	2800	2400000
15	84500	216	49500	70600	122	23300	317000	1780	1520000
16	87700	193	45500	66600	128	23000	286000	1640	1270000
17	86600	172	40400	65900	127	22800	257000	1640	1140000
18	79700	167	35900	66900	107	19300	231000	950	593000
19	72400	168	33100	69600	112	21400	209000	770	435000
20	71300	118	22800	72400	135	27700	184000	710	353000
21	73100	140	27500	75000	113	22500	168000	690	313000
22	83500	228	51600	79500	98	21400	161000	500	217000
23	94000	200	50500	81100	128	26900	158000	420	179000
24	98400	160	42700	79500	112	23800	152000	360	148000
25	101000	191	52000	85300	97	22800	143000	300	116000
26	102000	179	49500	98800	145	38700	139000	210	78800
27	100000	155	41900	106000	260	74000	133000	250	92700
28	99400	135	36500	112000	290	116000	121000	250	81300
29	96700	117	30600	114000	160	67100	113000	310	99000
30	91500	127	31200	112000	130	54900	105000	290	82200
31	90700	164	40200	119000	150	69000	---	---	---
TOTAL	2893100	---	1829600	2728600	---	1241600	5336000	---	11997400

ST. FRANCIS RIVER BASIN

07034000 ST. FRANCIS RIVER NEAR ROSELLE, MO

LOCATION.--Lat 37°35'45", long 90°29'50", in NE 1/4, sec.7, T.33 N., R.5 E., Madison County, Hydrologic Unit 08020202, on State Highway 72, 0.25 mi above Stouts Creek and 1.5 mi east of Roselle.

DRAINAGE AREA.--234 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 684.99 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-3, Nov. 19-20, and June 4-5, 18. Records poor except for discharges above 100 ft³/s, which are good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	9.3	146	262	149	165	952	50	24	34	58	23
2	50	9.3	121	302	331	160	571	44	25	31	42	19
3	80	10	107	455	2040	155	665	41	39	30	36	16
4	28	15	95	467	689	160	661	39	95	30	32	14
5	21	45	86	520	368	519	457	36	550	26	27	13
6	16	62	77	1560	285	412	333	36	222	22	24	12
7	14	39	74	750	215	328	334	34	120	19	20	11
8	12	27	69	447	185	309	385	33	77	18	16	9.7
9	11	22	64	291	150	433	377	38	60	16	15	9.2
10	10	22	59	224	135	1030	291	49	51	14	14	9.4
11	9.5	20	56	194	122	1400	242	45	44	13	13	9.1
12	9.0	40	53	187	117	754	212	39	186	12	12	9.2
13	8.6	116	50	164	3570	470	190	35	864	11	11	9.7
14	8.2	97	50	144	6080	346	170	33	2420	10	10	12
15	7.8	68	49	152	2190	273	163	31	824	9.6	9.5	26
16	9.7	670	47	149	1530	202	159	28	454	8.8	9.3	34
17	11	389	43	135	713	174	150	26	262	8.1	10	21
18	13	192	42	124	474	157	130	24	525	8.0	18	16
19	23	870	42	115	358	134	109	23	1050	8.3	17	14
20	27	1850	43	107	314	260	101	22	403	9.6	13	12
21	17	1140	43	97	430	915	97	21	228	16	12	11
22	13	444	53	91	337	484	93	30	151	38	12	10
23	12	268	460	90	243	322	88	82	106	73	15	9.0
24	15	190	405	88	195	249	82	79	86	190	17	8.2
25	18	148	284	89	186	207	76	65	72	368	16	7.4
26	23	442	196	164	183	177	70	54	61	364	17	7.0
27	19	696	323	200	183	158	62	57	52	180	16	6.7
28	17	403	1820	170	175	145	56	48	48	100	33	6.3
29	14	247	730	175	---	169	52	36	47	70	66	5.7
30	12	184	429	181	---	1940	51	32	39	60	83	5.4
31	10	---	311	165	---	3530	---	27	---	58	34	---
MEAN	17.8	291	207	266	784	521	246	39.9	306	59.9	23.5	12.5
MAX	80	1850	1820	1560	6080	3530	952	82	2420	368	83	34
MIN	7.8	9.3	42	88	117	134	51	21	24	8.0	9.3	5.4
IN.	.09	1.39	1.02	1.31	3.49	2.57	1.17	.20	1.46	.29	.12	.06

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	130	803	527	230	528	629	326	272	359	33.4	60.1	30.8
MAX	550	2017	952	517	1165	1130	722	814	1617	73.0	341	118
(WY)	1985	1986	1988	1985	1985	1985	1984	1986	1985	1986	1985	1984
MIN	8.28	21.7	207	57.0	242	294	186	28.8	7.70	7.78	1.65	1.54
(WY)	1988	1988	1989	1986	1987	1986	1986	1987	1988	1983	1983	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	227	327
HIGHEST ANNUAL MEAN		710
LOWEST ANNUAL MEAN		124
HIGHEST DAILY MEAN	6080	28000
LOWEST DAILY MEAN	5.4	.83
INSTANTANEOUS PEAK FLOW	11600	43000
INSTANTANEOUS PEAK STAGE	12.27	20.40
INSTANTANEOUS LOW FLOW	5.4	0.76
ANNUAL RUNOFF (INCHES)	13.17	18.97
10 PERCENTILE	484	612
50 PERCENTILE	67	86
95 PERCENTILE	8.6	4.0

ST. FRANCIS RIVER BASIN

07034000 ST. FRANCIS RIVER NEAR ROSELLE, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2.22	3.13	3.51	3.07	3.12	5.04	2.60	2.39	2.50	2.71	2.38
2	---	2.22	3.05	3.58	3.01	3.12	4.26	2.56	2.38	2.47	2.55	2.34
3	---	2.25	2.95	3.95	6.95	3.11	4.38	2.54	2.57	2.46	2.49	2.29
4	---	2.29	2.90	4.09	4.58	3.11	4.44	2.52	---	2.47	2.45	2.26
5	2.32	2.58	2.85	3.76	3.80	4.13	4.05	2.50	---	2.44	2.40	2.23
6	2.26	2.79	2.79	6.16	3.42	3.83	3.69	2.50	3.42	2.40	2.37	2.20
7	2.21	2.62	2.77	4.68	3.27	3.54	3.66	2.48	3.05	2.37	2.33	2.18
8	2.17	2.51	2.73	4.05	3.19	3.45	3.70	2.45	2.81	2.35	2.28	2.15
9	2.16	2.46	2.70	3.61	3.02	3.76	3.81	2.49	2.69	2.31	2.25	2.14
10	2.15	2.47	2.67	3.39	3.08	5.01	3.55	2.60	2.61	2.28	2.24	2.15
11	2.15	2.44	2.65	3.28	3.01	5.80	3.38	2.57	2.55	2.26	2.22	2.14
12	2.17	2.50	2.63	3.26	3.00	4.70	3.28	2.52	2.57	2.23	2.20	2.14
13	2.19	2.95	2.58	3.18	4.43	4.07	3.20	2.49	4.82	2.21	2.18	2.15
14	2.17	2.94	2.58	3.09	10.74	3.76	3.12	2.47	7.88	2.20	2.17	2.22
15	2.13	2.74	2.57	3.10	6.31	3.58	3.07	2.45	4.78	2.17	2.15	2.26
16	2.15	4.03	2.57	3.09	5.91	3.34	3.06	2.43	4.08	2.17	2.13	2.52
17	2.18	3.94	2.52	3.04	4.61	3.23	3.02	2.41	3.55	2.17	2.16	2.38
18	2.24	3.30	2.50	2.01	4.07	3.17	2.97	2.39	---	2.17	2.26	2.30
19	2.28	---	2.51	2.95	3.78	3.08	2.91	2.38	5.70	2.17	2.32	2.26
20	2.47	---	2.52	2.91	3.60	3.04	2.88	2.37	3.95	2.17	2.24	2.22
21	2.34	5.39	2.51	2.85	3.98	4.99	2.85	2.36	3.45	2.32	2.19	2.20
22	2.26	4.04	2.52	2.81	3.71	4.12	2.83	2.41	3.17	2.32	2.21	2.18
23	2.26	3.57	4.23	2.80	3.42	3.71	2.81	2.60	2.99	2.85	2.25	2.16
24	2.30	3.32	3.92	2.79	3.24	3.49	2.78	2.77	2.85	3.55	2.32	2.14
25	2.34	3.14	3.60	2.77	3.21	3.35	2.76	2.71	2.77	4.10	2.30	2.14
26	2.43	3.44	3.31	3.05	3.17	3.25	2.72	2.63	2.70	3.99	2.28	2.13
27	2.41	4.62	3.19	3.26	3.16	3.18	2.68	2.63	2.64	3.30	2.29	2.09
28	2.37	3.95	6.68	3.15	3.15	3.12	2.64	2.60	2.61	2.95	2.41	2.06
29	2.33	3.50	4.67	3.15	---	3.14	2.62	2.51	2.62	2.76	2.48	2.05
30	2.29	3.27	3.98	3.19	---	6.49	2.61	2.46	2.55	2.69	2.88	2.12
31	2.24	---	3.67	3.13	---	8.61	---	2.42	---	2.67	2.52	---

ST. FRANCIS RIVER BASIN

07035000 LITTLE ST. FRANCIS RIVER AT FREDERICKTOWN, MO

LOCATION.--Lat 37°33'33", long 90°18'46", in NW 1/4 sec.7, T.33 N., R.7 E., Madison County, Hydrologic Unit 08020202, on right bank at downstream side of State Highway 72 bridge, 0.5 mi downstream from Village Creek, 1.3 mi below City Lake, and 1.0 mi west of courthouse in Fredericktown.

DRAINAGE AREA.--90.5 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 679.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 2-15. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	8.3	84	115	93	84	376	24	6.0	14	45	10
2	66	7.3	76	148	508	78	261	21	6.0	15	15	8.8
3	32	8.2	66	214	1100	75	841	19	5.6	14	8.8	5.8
4	20	20	56	201	323	87	916	19	23	12	5.7	4.5
5	14	18	49	339	200	277	350	20	118	10	4.1	3.7
6	9.9	16	42	599	148	189	233	17	45	8.5	3.2	3.3
7	8.2	15	38	286	117	145	211	15	27	6.6	2.5	3.0
8	6.7	17	33	186	100	155	228	18	19	5.3	2.2	2.7
9	6.7	15	30	134	82	227	188	22	17	4.3	2.1	2.9
10	5.8	21	28	109	75	383	150	20	12	3.7	2.1	4.3
11	5.1	17	25	98	71	395	123	16	16	3.2	2.0	3.4
12	3.6	33	23	98	67	240	107	14	49	2.9	2.1	4.0
13	3.5	55	21	79	1170	183	94	13	186	2.9	2.0	5.1
14	3.5	37	19	78	1410	151	84	13	516	2.5	2.0	32
15	3.4	31	18	83	989	120	80	11	175	2.3	2.4	19
16	5.6	167	16	76	619	99	70	9.9	93	2.4	26	13
17	4.8	97	16	69	338	90	65	9.3	59	2.4	10	9.2
18	7.7	71	15	63	237	81	60	9.0	103	2.5	4.7	7.4
19	11	375	14	57	192	71	55	10	190	3.1	3.4	5.5
20	9.6	775	16	52	231	96	52	11	102	5.4	3.2	4.4
21	9.7	340	14	46	265	176	50	8.3	64	9.2	4.3	3.8
22	7.4	177	25	44	208	120	48	34	45	8.3	3.9	3.4
23	19	115	88	42	171	98	45	39	35	24	2.9	3.1
24	18	86	75	41	156	86	42	23	29	21	30	2.6
25	17	67	58	70	151	77	39	18	24	14	20	3.0
26	15	255	47	301	148	71	36	16	21	32	13	3.0
27	14	396	122	207	142	67	34	13	18	15	7.9	2.9
28	16	202	547	147	91	66	31	9.7	26	7.1	30	2.8
29	12	131	231	143	---	129	29	8.7	28	4.4	46	2.9
30	10	97	163	124	---	1010	25	7.7	16	5.5	20	3.2
31	9.2	---	126	104	---	1090	---	6.9	---	19	12	---
MEAN	14.4	122	70.4	140	336	201	164	16.0	69.1	9.11	10.9	6.09
MAX	73	775	547	599	1410	1090	916	39	516	32	46	32
MIN	3.4	7.3	14	41	67	66	25	6.9	5.6	2.3	2.0	2.6
IN.	.18	1.51	.90	1.79	3.86	2.56	2.02	.20	.85	.12	.14	.08

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	58.6	260	203	98.1	179	221	134	124	118	15.4	57.0	22.0
MAX	273	591	359	173	336	352	229	356	521	23.4	282	65.0	
(WY)	1985	1985	1988	1988	1989	1985	1984	1986	1985	1985	1985	1984	
MIN	1.97	11.9	70.4	28.7	81.3	132	78.5	11.7	3.33	9.11	1.10	1.50	
(WY)	1988	1988	1989	1986	1987	1987	1988	1987	1988	1989	1988	1983	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	94.7	124	
HIGHEST ANNUAL MEAN		265	1985
LOWEST ANNUAL MEAN		42.4	1987
HIGHEST DAILY MEAN	1410	5290	May 16 1986
LOWEST DAILY MEAN	2.0	.76	Oct 17 1983
INSTANTANEOUS PEAK FLOW	3580	11000	May 16 1986
INSTANTANEOUS PEAK STAGE	11.41	22.22	May 16 1986
INSTANTANEOUS LOW FLOW	1.6	0.66	Oct 08 1983
ANNUAL RUNOFF (INCHES)	14.21	18.61	
10 PERCENTILE	224	258	
50 PERCENTILE	29	39	
95 PERCENTILE	2.9	1.3	

ST. FRANCIS RIVER BASIN

227

07035000 LITTLE ST. FRANCIS RIVER AT FREDERICKTOWN, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.53	1.95	2.60	2.80	2.70	2.63	3.93	2.16	1.89	2.02	2.25	1.95
2	2.61	1.91	---	2.92	2.62	2.61	3.42	2.12	1.90	2.03	2.07	1.97
3	2.29	1.95	---	3.25	6.67	2.58	3.60	2.11	1.88	2.04	1.96	1.91
4	2.13	2.10	---	3.24	3.74	2.58	5.61	2.10	1.87	2.01	1.90	1.87
5	2.03	2.08	---	2.99	3.19	3.69	3.84	2.11	2.88	1.97	1.85	1.85
6	1.97	2.07	---	4.89	2.90	3.16	3.34	2.07	2.40	1.95	1.82	1.83
7	1.94	2.02	---	3.59	2.77	2.93	3.27	2.04	2.21	1.91	1.79	1.82
8	1.91	2.07	---	3.17	2.73	2.91	3.33	2.04	2.11	1.88	1.77	1.80
9	1.92	2.04	---	2.91	2.57	3.16	3.16	2.13	2.07	1.86	1.75	1.80
10	1.89	2.17	---	2.79	2.55	3.78	2.98	2.11	2.01	1.84	1.75	1.88
11	1.87	2.07	---	2.70	2.56	4.01	2.85	2.06	1.97	1.82	1.74	1.84
12	1.83	2.10	---	2.76	2.54	3.41	2.77	2.03	2.33	1.80	1.75	1.83
13	1.82	2.51	---	2.61	4.09	3.14	2.70	2.02	2.50	1.80	1.75	1.90
14	1.82	2.33	---	2.61	6.52	2.97	2.64	2.01	4.52	1.79	1.74	2.41
15	1.82	2.24	---	2.63	5.43	2.85	2.61	1.99	3.14	1.77	1.74	2.14
16	1.87	3.06	2.04	2.59	4.77	2.73	2.57	1.97	2.73	1.78	1.89	2.04
17	1.87	2.75	2.05	2.55	3.79	2.67	2.52	1.96	2.50	1.77	1.99	1.99
18	1.94	2.52	2.03	2.52	3.39	2.62	2.50	1.96	2.57	1.77	1.87	1.95
19	2.00	3.99	2.03	2.47	3.16	2.57	2.45	1.96	3.24	1.80	1.83	1.91
20	1.95	5.49	2.02	2.44	3.22	2.57	2.43	1.99	2.77	1.81	1.81	1.88
21	1.97	3.82	2.03	2.38	3.52	3.11	2.41	1.94	2.54	1.96	1.82	1.86
22	1.91	3.13	2.00	2.37	3.26	2.85	2.39	2.21	2.40	1.96	1.85	1.85
23	2.24	2.84	2.77	2.35	3.02	2.72	2.38	2.36	2.30	2.15	1.79	1.82
24	2.06	2.67	2.60	2.35	2.95	2.64	2.36	2.17	2.24	2.13	1.79	1.81
25	2.08	2.56	2.49	2.34	2.96	2.60	2.33	2.10	2.17	2.04	2.12	1.82
26	2.03	3.08	2.39	3.78	2.95	2.57	2.30	2.08	2.13	2.38	2.03	1.82
27	1.99	4.14	2.37	3.26	2.94	2.54	2.27	2.02	2.09	2.07	1.95	1.81
28	2.09	3.26	4.69	2.97	2.67	2.53	2.24	1.97	2.09	1.93	1.90	1.82
29	2.00	2.90	3.36	2.94	---	2.54	2.22	1.95	2.23	1.87	2.33	1.83
30	2.00	2.73	3.04	2.86	---	5.75	2.17	1.94	2.06	1.86	2.16	1.85
31	1.96	---	2.87	2.76	---	6.11	---	1.91	---	1.93	2.02	---

ST. FRANCIS RIVER BASIN

07035800 ST. FRANCIS RIVER NEAR MILL CREEK, MO

LOCATION.--Lat 37°30'09", long 90°27'28", in NE 1/4 sec. 36, T.33 N., R.5 E, Madison County, Hydrologic Unit 08020202, on downstream side of Highway E bridge, 8.7 mi southwest of Mill Creek and 2.9 mi downstream from Little St. Francis River.

DRAINAGE AREA.--505 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 556.27 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	37	450	695	459	444	2210	99	48	79	124	69
2	164	34	419	766	1260	433	1400	89	44	74	107	52
3	161	32	404	1030	5430	426	2300	82	50	74	71	44
4	105	36	364	1100	1850	428	3600	78	62	72	57	35
5	73	50	322	1300	1090	1160	1550	76	740	66	47	28
6	57	118	294	3400	790	998	1060	75	591	58	40	24
7	47	98	286	1780	643	767	957	70	377	50	33	21
8	40	76	272	1130	552	757	986	67	245	43	28	18
9	36	68	244	786	461	967	947	74	174	38	24	16
10	32	72	224	633	427	1950	744	82	131	33	22	15
11	29	72	206	551	405	2760	618	80	101	29	19	15
12	25	86	190	535	389	1690	538	71	349	26	17	18
13	23	223	161	473	5030	1140	474	65	1820	24	16	19
14	21	262	124	433	11000	880	423	61	4490	21	14	36
15	19	186	111	440	5090	714	397	59	1610	19	13	67
16	19	1070	100	423	3690	576	374	54	964	18	14	83
17	20	882	94	393	1800	509	343	51	636	18	27	68
18	23	505	87	367	1260	464	314	48	576	17	34	49
19	24	1670	88	336	974	414	273	48	1620	18	29	38
20	32	4110	87	300	884	443	243	47	821	20	29	31
21	45	2410	82	269	1100	1360	222	44	549	29	24	26
22	36	1080	89	244	900	916	201	61	432	44	22	23
23	37	702	662	231	696	674	189	152	338	176	20	19
24	38	534	781	222	593	563	173	188	253	309	23	16
25	48	438	605	234	555	496	159	130	198	571	56	15
26	50	900	470	775	535	450	143	105	156	556	81	13
27	52	1760	623	819	524	413	127	85	131	391	62	13
28	52	1090	3410	625	485	391	117	82	117	212	47	12
29	49	715	1660	593	---	434	112	69	130	123	112	11
30	46	549	1040	576	---	3480	105	59	108	88	211	11
31	39	---	796	513	---	7100	---	53	---	79	116	---
MEAN	48.1	662	476	709	1745	1103	710	77.5	595	109	49.6	30.2
MAX	164	4110	3410	3400	11000	7100	3600	188	4490	571	211	83
MIN	19	32	82	222	389	391	105	44	44	17	13	11
IN.	.11	1.46	1.09	1.62	3.60	2.52	1.57	.18	1.32	.25	.11	.07

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	32.3	368	1235	768	1261	1068	541	89.8	216	76.7	30.9	32.0
MAX	48.1	662	1995	826	1745	1296	710	127	595	109	49.6	54.2	
(WY)	1989	1989	1988	1988	1989	1988	1989	1988	1989	1989	1989	1988	
MIN	16.5	73.4	476	709	776	804	444	64.5	16.4	37.7	4.18	11.5	
(WY)	1988	1988	1989	1989	1988	1987	1987	1987	1988	1988	1988	1987	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	516	*****	
HIGHEST ANNUAL MEAN		516	1989
LOWEST ANNUAL MEAN		476	1988
HIGHEST DAILY MEAN	11000	Feb 14	11300 Dec 26 1987
LOWEST DAILY MEAN	11	Sep 29, 30	1.8 Aug 18 1988
INSTANTANEOUS PEAK FLOW	18400	Feb 14	6050 Feb 28 1987
INSTANTANEOUS PEAK STAGE	14.70	Feb 14	8.95 Feb 28 1987
INSTANTANEOUS LOW FLOW	11	Sep 28-30	5.7 Sep 28 1987
ANNUAL RUNOFF (INCHES)	13.89		*****
10 PERCENTILE	1160		1160
50 PERCENTILE	160		133
95 PERCENTILE	18		7.5

***** Indicates not enough data, therefore statistic is not computed

ST. FRANCIS RIVER BASIN

229

07035800 ST. FRANCIS RIVER NEAR MILL CREEK, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.12	1.13	2.85	3.44	2.86	2.78	5.93	1.78	1.34	1.66	1.82	1.49
2	1.97	1.11	2.67	3.52	2.74	2.76	4.68	1.72	1.29	1.59	1.85	1.35
3	2.01	1.08	2.70	3.99	9.56	2.74	4.73	1.67	1.26	1.60	1.58	1.27
4	1.70	1.09	2.58	4.24	5.49	2.71	7.46	1.64	1.43	1.58	1.44	1.18
5	1.46	1.18	2.46	3.82	4.23	4.17	5.02	1.62	3.08	1.53	1.34	1.10
6	1.33	1.80	2.38	7.47	3.62	4.09	4.16	1.60	3.23	1.45	1.26	1.05
7	1.24	1.64	2.33	5.36	3.31	3.58	3.95	1.55	2.66	1.36	1.16	.99
8	1.17	1.48	2.32	4.34	3.12	3.42	3.89	1.51	2.32	1.29	1.08	.94
9	1.13	1.39	2.23	3.67	2.83	3.71	3.99	1.58	2.11	1.23	1.02	.92
10	1.08	1.44	2.17	3.31	2.70	5.55	3.57	1.65	1.94	1.16	.97	.90
11	1.05	1.43	2.11	3.09	2.67	6.72	3.29	1.66	1.78	1.10	.92	.88
12	.99	1.43	2.05	3.07	2.62	5.24	3.10	1.57	2.20	1.05	.89	.93
13	.96	2.14	1.99	2.91	4.57	4.30	2.93	1.51	4.76	1.02	.86	.95
14	.93	2.33	1.77	2.77	13.03	3.84	2.80	1.48	8.89	.96	.82	1.13
15	.91	2.05	1.69	2.78	8.01	3.51	2.71	1.44	5.09	.91	.79	1.50
16	.90	4.25	1.63	2.75	7.54	3.16	2.64	1.41	4.06	.90	.77	1.59
17	.91	3.94	1.59	2.66	5.36	2.97	2.54	1.36	3.34	.88	.92	1.50
18	.95	2.98	1.54	2.58	4.51	2.85	2.47	1.33	3.04	.87	1.20	1.32
19	.97	4.63	1.55	2.49	4.02	2.71	2.37	1.33	5.78	.90	1.05	1.21
20	.97	7.22	1.56	2.40	3.71	2.63	2.28	1.32	3.79	.90	1.11	1.14
21	1.24	6.24	1.52	2.31	4.24	4.97	2.22	1.29	3.13	1.07	1.01	1.07
22	1.12	4.26	1.50	2.23	3.90	3.93	2.16	1.38	2.79	1.25	.97	1.02
23	1.14	3.49	3.04	2.19	3.46	3.41	2.13	1.95	2.54	2.18	.94	.97
24	1.09	3.07	3.65	2.16	3.19	3.13	2.08	2.17	2.34	2.02	.94	.92
25	1.24	2.80	3.27	2.13	3.09	2.94	2.03	1.93	2.17	3.39	1.13	.89
26	1.25	3.02	2.90	3.34	3.04	2.80	1.97	1.82	2.07	3.26	1.69	.85
27	1.25	5.39	2.73	3.75	3.02	2.70	1.91	1.69	1.92	2.72	1.52	.84
28	1.28	4.30	7.57	3.30	2.93	2.63	1.85	1.69	1.84	2.25	1.34	.82
29	1.24	3.52	5.21	3.18	---	2.62	1.83	1.56	1.89	1.91	1.47	.82
30	1.23	3.10	4.17	3.17	---	6.94	1.80	1.46	1.84	1.73	2.39	.81
31	1.16	---	3.68	3.00	---	10.83	---	1.39	---	1.64	1.83	---

ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO

LOCATION.--Lat 37°23'06", long 90°28'27", in NE 1/4 SE 1/4 NE 1/4, sec.10, T.31 N., R.5 E., Madison County, Hydrologic Unit 08020202, on right bank at downstream side of State Highway C bridge, 1.3 mi downstream from Twelvemile Creek, and 3.5 mi northwest of Saco.

DRAINAGE AREA.--664 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 472.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Water-discharge records good. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	60	712	1030	736	656	4130	175	72	157	117	104
2	192	56	619	1040	1940	634	2270	164	69	146	150	79
3	237	54	599	1370	9870	615	2310	151	61	132	119	65
4	196	61	531	1610	3620	615	6530	141	74	125	95	56
5	145	64	459	1770	1870	1500	2820	135	537	114	80	50
6	115	80	406	5770	1310	1690	1780	127	821	104	71	44
7	98	137	372	3260	1020	1210	1510	121	469	92	61	40
8	85	115	359	1870	857	1060	1460	115	310	81	52	36
9	75	96	325	1280	725	1260	1460	117	238	72	46	36
10	67	92	294	987	650	2640	1160	121	192	64	41	40
11	60	93	275	844	607	4400	962	127	184	57	36	34
12	54	105	251	803	575	2870	845	121	1420	52	33	33
13	48	190	233	732	4440	1820	759	109	3040	46	30	34
14	43	328	185	665	16700	1390	691	103	7160	44	28	48
15	41	274	161	655	8090	1110	642	98	2770	36	26	55
16	41	922	146	643	6660	897	601	90	1470	31	24	79
17	38	1410	137	606	3210	776	546	84	905	26	25	91
18	39	786	129	564	2040	712	489	76	823	26	32	80
19	38	2160	122	513	1550	642	432	74	2050	28	48	66
20	41	6080	118	457	1330	594	384	75	1250	30	44	56
21	45	4440	117	408	1600	1470	352	69	775	36	52	50
22	57	1800	117	367	1420	1300	323	83	594	40	43	44
23	62	1110	510	343	1090	930	303	121	451	114	38	38
24	59	826	1040	314	901	778	282	201	352	215	36	34
25	57	681	851	301	821	691	263	177	284	505	39	30
26	64	1120	683	1220	781	628	242	150	236	567	77	28
27	69	2950	647	1620	761	580	223	133	200	440	95	26
28	75	1860	4640	1110	720	533	204	118	192	282	85	25
29	74	1160	2900	965	---	579	196	112	199	193	70	23
30	71	863	1650	926	---	4440	183	96	188	148	124	23
31	66	---	1230	822	---	10900	---	81	---	126	170	---
MEAN	79.0	999	672	1125	2710	1610	1145	118	913	133	64.1	48.2
MAX	237	6080	4640	5770	16700	10900	6530	201	7160	567	170	104
MIN	38	54	117	301	575	533	183	69	61	26	24	23
IN.	.14	1.68	1.17	1.95	4.25	2.80	1.92	.21	1.53	.23	.11	.08

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	511	2148	1649	822	1549	1874	1079	858	992	119	246	118
MAX	2404	4900	3058	1654	2846	2858	1951	2291	4250	170	1215	304	
(WY)	1985	1986	1988	1985	1985	1985	1984	1986	1985	1985	1985	1984	
MIN	27.1	118	606	179	656	1218	606	94.7	29.1	48.8	10.7	24.2	
(WY)	1988	1988	1987	1986	1987	1986	1987	1987	1988	1988	1988	1987	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	786	992
HIGHEST ANNUAL MEAN		2084
LOWEST ANNUAL MEAN		356
HIGHEST DAILY MEAN	16700	38200
LOWEST DAILY MEAN	23	5.8
INSTANTANEOUS PEAK FLOW	23000	65800
INSTANTANEOUS PEAK STAGE	16.68	25.80
INSTANTANEOUS LOW FLOW	23	4.0
ANNUAL RUNOFF (INCHES)	16.07	20.28
10 PERCENTILE	1780	2190
50 PERCENTILE	213	281
95 PERCENTILE	34	22

ST. FRANCIS RIVER BASIN

231

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.48	1.37	3.55	4.32	3.59	3.33	8.30	1.95	1.45	1.88	1.68	1.64
2	1.97	1.35	3.21	4.22	3.38	3.27	6.30	1.90	1.44	1.83	1.81	1.47
3	2.21	1.34	3.17	4.74	12.66	3.21	5.88	1.85	1.38	1.76	1.72	1.36
4	2.07	1.34	3.01	5.30	7.88	3.17	10.66	1.80	1.37	1.71	1.57	1.30
5	1.85	1.40	2.84	4.91	5.85	4.46	7.01	1.77	2.17	1.68	1.47	1.25
6	1.66	1.42	2.71	9.66	4.81	5.55	5.63	1.73	3.96	1.62	1.40	1.20
7	1.56	1.80	2.61	7.50	4.28	4.68	5.13	1.70	2.92	1.56	1.34	1.17
8	1.49	1.67	2.59	5.82	3.93	4.33	4.95	1.66	2.47	1.50	1.27	1.14
9	1.43	1.58	2.49	4.82	3.57	4.55	5.14	1.68	2.21	1.44	1.22	1.11
10	1.39	1.55	2.39	4.24	3.30	6.41	4.58	1.68	2.03	1.39	1.18	1.18
11	1.34	1.55	2.33	3.86	3.18	8.61	4.18	1.73	1.91	1.35	1.14	1.12
12	1.30	1.56	2.25	3.78	3.09	7.08	3.88	1.70	3.18	1.33	1.11	1.10
13	1.26	1.90	2.19	3.59	3.77	5.71	3.65	1.64	6.08	1.29	1.08	1.12
14	1.23	2.49	2.01	3.36	15.94	4.98	3.45	1.60	10.87	1.27	1.06	1.23
15	1.22	2.34	1.89	3.32	10.62	4.50	3.29	1.58	6.95	1.24	1.04	1.25
16	1.21	2.47	1.83	3.30	10.49	4.04	3.18	1.54	5.23	1.18	1.03	1.47
17	1.21	5.23	1.79	3.19	7.41	3.70	3.04	1.51	4.10	1.14	1.02	1.53
18	1.22	3.74	1.74	3.07	6.03	3.52	2.91	1.47	3.56	1.12	1.08	1.47
19	1.21	4.76	1.71	2.96	5.24	3.32	2.78	1.45	5.01	1.16	1.25	1.37
20	1.21	9.11	1.68	2.84	4.75	3.13	2.65	1.46	4.85	1.13	1.19	1.30
21	1.25	8.85	1.68	2.71	5.24	4.84	2.56	1.43	3.75	1.23	1.29	1.25
22	1.34	5.75	1.66	2.60	5.04	4.89	2.47	1.50	3.20	1.23	1.20	1.20
23	1.39	4.54	2.10	2.53	4.47	4.11	2.41	1.63	2.84	1.55	1.15	1.16
24	1.35	3.88	4.33	2.48	4.02	3.72	2.34	2.02	2.58	2.12	1.12	1.12
25	1.34	3.45	3.95	2.36	3.80	3.45	2.28	1.97	2.36	2.73	1.15	1.08
26	1.39	3.51	3.46	3.50	3.70	3.26	2.21	1.85	2.20	2.93	1.30	1.06
27	1.40	7.22	3.15	5.46	3.65	3.12	2.14	1.76	2.07	2.84	1.58	1.04
28	1.45	5.83	8.66	4.50	3.55	3.00	2.07	1.68	2.01	2.39	1.50	1.02
29	1.45	4.62	7.17	4.13	---	2.98	2.04	1.67	2.04	2.05	1.40	1.01
30	1.43	3.95	5.46	4.08	---	7.04	1.98	1.58	2.01	1.85	1.72	1.01
31	1.41	---	4.71	3.82	---	13.26	---	1.50	---	1.72	1.99	---

ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1983 to June 1987, October 1988 to June 1989 (discontinued).

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: November 1988 to September 1989.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 400 mg/L, Feb. 3, 1989; minimum daily mean, 1 mg/L on several days.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 14,500 tons, Feb. 14, 1989; minimum daily, 0.10 tons, July 21 and Sept. 23, 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3) (00902)
OCT 13...	1200	46	245	7.80	13.5	9.3	87	26	K7	130	22
NOV 04...	0830	54	272	7.90	12.5	9.8	93	15	K630	--	--
DEC 15...	0900	162	158	8.00	3.0	13.2	96	14	K18	--	--
JAN 13...	0800	750	167	7.70	4.0	12.9	95	14	110	81	21
FEB 08...	1430	856	161	7.70	1.5	15.5	105	10	K8	--	--
MAR 09...	0900	1200	165	7.90	3.0	14.1	102	12	K10	--	--
APR 14...	0800	699	176	7.80	12.0	13.2	121	<10	100	77	15
MAY 17...	0830	84	251	7.90	19.0	7.7	82	29	K18	--	--
JUN 06...	0800	886	206	7.80	21.0	7.0	78	28	>1200	--	--

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT IT (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT 13...	24	16	7.1	2.5	106	3.2	20	8.7	0.10	150
NOV 04...	--	--	--	--	114	2.8	--	--	--	147
DEC 15...	--	--	--	--	62	1.2	--	--	--	98
JAN 13...	18	8.8	3.5	1.3	60	2.3	18	4.1	0.10	96
FEB 08...	--	--	--	--	53	2.0	--	--	--	98
MAR 09...	--	--	--	--	56	1.4	--	--	--	88
APR 14...	16	9.1	3.6	1.2	63	1.9	15	3.6	0.10	93
MAY 17...	--	--	--	--	100	2.4	--	--	--	141
JUN 06...	--	--	--	--	76	2.3	--	--	--	118

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	96	---	---	60	---	---	712	5	9.6
2	192	---	---	56	---	---	619	2	3.3
3	237	---	---	54	---	---	599	4	6.5
4	196	---	---	61	---	---	531	18	26
5	145	---	---	64	---	---	459	19	24
6	115	---	---	80	---	---	406	7	7.7
7	98	---	---	137	---	---	372	9	9.0
8	85	---	---	115	---	---	359	8	7.8
9	75	---	---	96	---	---	325	7	6.1
10	67	---	---	92	7	1.7	294	14	11
11	60	---	---	93	17	4.3	275	7	5.2
12	54	---	---	105	25	7.1	251	26	18
13	48	---	---	190	40	21	233	32	20
14	43	---	---	328	25	22	185	14	7.0
15	41	---	---	274	10	7.4	161	4	1.7
16	41	---	---	922	29	72	146	2	.79
17	38	---	---	1410	25	95	137	2	.74
18	39	---	---	786	25	53	129	2	.70
19	38	---	---	2160	48	280	122	3	.99
20	41	---	---	6080	75	1230	118	3	.96
21	45	---	---	4440	21	252	117	3	.95
22	57	---	---	1800	12	58	117	2	.63
23	62	---	---	1110	11	33	510	2	2.8
24	59	---	---	826	20	45	1040	3	8.4
25	57	---	---	681	20	37	851	2	4.6
26	64	---	---	1120	13	39	683	1	1.8
27	69	---	---	2950	15	119	647	3	5.2
28	75	---	---	1860	16	80	4640	43	539
29	74	---	---	1160	6	19	2900	35	274
30	71	---	---	863	5	12	1650	16	71
31	66	---	---	---	---	---	1230	9	30
TOTAL	2448	---	---	29973	---	---	20818	---	1105.46
JANUARY			FEBRUARY			MARCH			
1	1030	2	5.6	736	8	16	656	3	5.8
2	1040	4	11	1940	94	1320	634	4	7.4
3	1370	3	11	9870	400	10600	615	13	22
4	1610	4	17	3620	335	3280	615	8	13
5	1770	26	124	1870	56	284	1500	54	220
6	5770	78	1220	1310	23	80	1690	39	179
7	3260	10	88	1020	8	23	1210	24	78
8	1870	5	25	857	4	9.6	1060	9	25
9	1280	5	17	725	2	4.1	1260	3	11
10	987	3	8.0	650	8	15	2640	5	39
11	844	2	4.6	607	12	19	4400	11	130
12	803	13	28	575	12	18	2870	23	178
13	732	7	14	4440	109	2690	1820	40	199
14	665	4	7.2	16700	327	14500	1390	14	53
15	655	3	5.3	8090	246	5380	1110	1	3.3
16	643	3	5.2	6660	358	6440	897	4	11
17	606	2	3.3	3210	346	3000	776	3	6.9
18	564	2	3.0	2040	118	650	712	5	11
19	513	3	4.2	1550	29	121	642	13	23
20	457	3	3.7	1330	9	31	594	9	14
21	408	4	4.4	1600	10	42	1470	14	57
22	367	5	5.0	1420	37	140	1300	18	62
23	343	6	5.6	1090	26	76	930	15	39
24	314	7	5.9	901	6	16	778	6	12
25	301	9	7.3	821	5	12	691	3	6.2
26	1220	10	33	781	4	9.1	628	6	9.4
27	1620	11	48	761	4	8.9	580	6	8.7
28	1110	10	30	720	4	8.4	533	6	8.0
29	965	10	26	---	---	---	579	7	10
30	926	10	25	---	---	---	4440	17	199
31	822	8	18	---	---	---	10900	55	1600
TOTAL	34865	---	1813.3	75894	---	48793.1	49920	---	3240.7

ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4130	11	124	175	37	17	72	13	2.6
2	2270	19	116	164	17	7.4	69	11	2.1
3	2310	19	118	151	13	5.5	61	11	1.8
4	6530	100	1820	141	9	3.4	74	10	2.0
5	2820	83	634	135	10	3.7	537	11	16
6	1780	41	198	127	19	6.5	821	38	84
7	1510	30	122	121	6	1.8	469	110	139
8	1460	22	88	115	4	1.4	310	49	41
9	1460	14	57	117	19	6.0	238	22	14
10	1160	3	10	121	29	9.5	192	14	7.5
11	962	9	23	127	9	3.1	184	12	6.0
12	845	4	10	121	6	1.8	1420	40	210
13	759	8	16	109	16	4.6	3040	142	1140
14	691	4	8.3	103	8	2.2	7160	216	4180
15	642	4	7.7	98	9	2.4	2770	80	597
16	601	6	9.0	90	6	1.4	1470	27	108
17	546	7	9.8	84	9	2.0	905	7	16
18	489	9	12	76	22	4.6	823	8	17
19	432	37	43	74	25	4.9	2050	24	132
20	384	28	29	75	18	3.6	1250	50	168
21	352	6	5.3	69	11	2.1	775	45	95
22	323	9	7.8	83	6	1.3	594	30	48
23	303	19	15	121	15	4.7	451	17	21
24	282	33	25	201	16	8.5	352	11	10
25	263	10	7.1	177	7	3.2	284	9	6.5
26	242	27	17	150	2	.91	236	7	4.7
27	223	25	15	133	3	1.2	200	2	1.1
28	204	7	3.7	118	4	1.4	192	3	1.6
29	196	10	5.3	112	7	2.0	199	1	.57
30	183	26	13	96	9	2.3	188	1	.53
31	---	---	---	81	11	2.4	---	---	---
TOTAL	34352	---	3569.0	3665	---	122.81	27386	---	7073.00
JULY			AUGUST			SEPTEMBER			
1	157	1	.44	117	4	1.3	104	6	1.7
2	146	1	.41	150	6	2.4	79	2	.43
3	132	1	.37	119	7	2.2	65	2	.35
4	125	3	1.1	95	7	1.8	56	4	.60
5	114	2	.64	80	6	1.3	50	5	.67
6	104	1	.29	71	6	1.2	44	6	.71
7	92	1	.26	61	5	.82	40	6	.65
8	81	1	.22	52	5	.70	36	6	.58
9	72	1	.20	46	6	.75	36	4	.39
10	64	1	.18	41	4	.44	40	4	.43
11	57	1	.16	36	3	.29	34	5	.46
12	52	2	.28	33	5	.45	33	3	.27
13	46	1	.13	30	5	.40	34	7	.64
14	44	1	.12	28	7	.53	48	15	1.9
15	36	2	.20	26	5	.35	55	10	1.5
16	31	2	.17	24	5	.32	79	14	3.0
17	26	2	.14	25	4	.27	91	15	3.7
18	26	3	.21	32	6	.52	80	12	2.6
19	28	4	.30	48	6	.78	66	5	.89
20	30	2	.16	44	5	.59	56	2	.30
21	36	1	.10	52	7	.98	50	2	.27
22	40	1	.11	43	5	.58	44	1	.12
23	114	1	.31	38	5	.51	38	1	.10
24	215	1	.58	36	8	.78	34	3	.28
25	505	3	4.1	39	10	1.1	30	2	.16
26	567	11	17	77	8	1.7	28	5	.38
27	440	15	18	95	7	1.8	26	6	.42
28	282	14	11	85	5	1.1	25	5	.34
29	193	19	9.9	70	5	.94	23	5	.31
30	148	29	12	124	4	1.3	23	5	.31
31	126	7	2.4	170	5	2.3	---	---	---
TOTAL	4129	---	81.48	1987	---	30.50	1447	---	24.46

ST. FRANCIS RIVER BASIN

07036940 BIG CREEK AT CHLORIDE, MO

WATER-QUALITY RECORDS

LOCATION.--Lat. 37°27'42", long. 90°41'10", in SW 1/4 NE 1/4 sec.14, T.32 N., R.3 E., Iron County, Hydrologic Unit 08020202, at bridge on county road.

PERIOD OF RECORD.--Partial-record station 1969 to 1975 water year; water years 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE PER (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L) (01105)	ALUM- INUM, DIS- SOLVED (UG/L) (01106)	CADMIUM TOTAL RECOV- ERABLE (UG/L) AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L) AS CD) (01025)
OCT												
13...	1330	1.9	300	--	8.30	14.0	11.0	105	20	<10	8	8
NOV												
04...	1000	10	328	--	8.20	15.0	10.3	104	30	<10	10	9
DEC												
15...	1100	5.0	222	--	7.90	5.0	12.7	98	10	<10	5	5
JAN												
13...	1030	20	185	--	7.60	4.0	13.3	100	80	10	10	<7
FEB												
08...	1230	24	156	--	7.80	5.0	13.3	101	--	10	--	3
MAR												
09...	1130	33	181	--	7.50	5.0	13.7	105	70	20	5	4
APR												
14...	1100	2.6	243	--	7.40	10.0	12.3	108	50	10	12	8
MAY												
17...	1100	1.6	280	--	8.00	17.0	10.4	107	<10	<10	7	5
JUN												
06...	1130	20	191	--	7.70	18.0	9.4	99	80	10	4	4
JUL												
17...	1415	16	--	509	8.10	23.5	9.3	109	20	<10	11	9
AUG												
01...	1200	5.4	482	--	7.90	24.0	9.4	111	<10	<10	13	12
SEP												
14...	0945	3.1	329	--	7.70	17.0	9.2	94	30	<10	13	7

DATE	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01037)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT												
13...	2	<1	4	1	80	39	<5	7	2	1	30	33
NOV												
04...	<1	<1	3	<1	120	24	12	5	4	5	40	39
DEC												
15...	<1	1	2	1	40	8	12	<5	2	4	40	39
JAN												
13...	1	<3	5	<10	160	17	15	<10	3	<10	80	64
FEB												
08...	--	<1	--	1	--	16	--	<5	--	3	--	24
MAR												
09...	1	1	1	1	60	27	<5	<5	<1	6	40	44
APR												
14...	<1	<1	3	<1	20	11	<5	<5	1	2	40	36
MAY												
17...	1	<1	2	1	80	16	7	2	2	1	30	33
JUN												
06...	1	<1	8	1	150	18	7	1	7	2	20	27
JUL												
17...	--	--	5	3	70	16	8	2	--	--	80	57
AUG												
01...	<1	1	4	5	50	20	9	3	4	3	70	60
SEP												
14...	--	--	4	1	120	17	37	7	--	--	90	73

07037000 BIG CREEK AT DES ARC, MO

LOCATION.--Lat 37°17'35", long 90°37'45", in SE 1/4 sec.8, T.30 N., R.4 E., Iron County, Hydrologic Unit 08020202, at bridge on State Highway 143 at north edge of Des Arc, 420 ft above Black Creek and 6 mi above Pond Creek.

DRAINAGE AREA.--99.6 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 507.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	24	106	210	157	94	481	40	30	86	49	25
2	112	23	86	201	409	87	331	38	30	78	46	24
3	97	23	74	215	1460	82	322	37	28	67	40	24
4	75	25	65	231	538	84	904	35	30	56	36	24
5	63	25	57	261	360	176	435	35	76	49	32	22
6	55	25	50	612	279	208	319	33	86	43	32	20
7	49	24	47	399	222	179	281	32	67	39	27	19
8	44	26	42	309	177	170	262	32	56	35	24	18
9	42	26	38	252	139	196	243	34	50	32	23	19
10	38	29	38	199	128	321	206	33	44	30	21	22
11	34	29	36	167	115	482	178	31	54	27	19	24
12	30	38	33	152	103	365	157	31	566	27	17	25
13	28	69	32	132	775	281	143	31	2160	39	16	26
14	26	82	32	123	1910	235	129	32	1330	38	15	34
15	25	71	31	114	1090	192	121	30	442	32	15	29
16	25	224	30	102	832	158	109	30	296	31	15	26
17	24	225	32	94	458	139	99	30	222	28	22	23
18	22	162	32	86	333	125	89	29	230	29	22	22
19	21	470	34	79	272	111	80	28	241	30	19	20
20	21	764	31	72	241	99	72	28	187	28	21	19
21	21	473	29	65	234	108	67	27	151	32	24	18
22	20	253	32	60	200	109	63	37	130	34	23	17
23	24	164	85	57	165	99	59	48	111	56	22	17
24	25	122	147	54	119	90	55	41	96	73	19	16
25	25	98	136	54	132	81	52	37	82	120	23	16
26	24	167	118	155	123	73	50	37	70	125	28	16
27	24	300	125	267	116	70	47	41	102	100	29	17
28	25	235	350	230	104	64	47	37	178	81	35	17
29	27	170	323	214	---	83	44	37	176	67	34	17
30	27	131	279	196	---	421	41	35	107	60	29	17
31	25	---	233	176	---	1090	---	33	---	53	27	---
MEAN	37.7	150	89.8	179	400	196	183	34.2	248	52.4	25.9	21.1
MAX	112	764	350	612	1910	1090	904	48	2160	125	49	34
MIN	20	23	29	54	103	64	41	27	28	27	15	16
IN.	.44	1.68	1.04	2.07	4.18	2.27	2.05	.40	2.77	.61	.30	.24

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	101	285	262	126	202	253	181	113	175	41.4	35.6	26.4
	MAX	396	610	632	232	400	357	297	228	587	95.7	102	43.5
	(WY)	1985	1986	1988	1988	1989	1985	1984	1986	1985	1987	1985	1988
	MIN	21.7	55.5	79.2	37.0	93.6	154	106	28.9	15.0	14.2	7.67	6.50
	(WY)	1988	1987	1987	1984	1987	1987	1987	1987	1988	1984	1983	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	132	150
HIGHEST ANNUAL MEAN		267
LOWEST ANNUAL MEAN		71.8
HIGHEST DAILY MEAN	2160	6350
LOWEST DAILY MEAN	15	4.9
INSTANTANEOUS PEAK FLOW	7180	16000
INSTANTANEOUS PEAK STAGE	9.66	12.92
INSTANTANEOUS LOW FLOW	15	5.2
ANNUAL RUNOFF (INCHES)	18.04	20.46
10 PERCENTILE	277	313
50 PERCENTILE	56	59
95 PERCENTILE	19	14

ST. FRANCIS RIVER BASIN

07037000 BIG CREEK AT DES ARC, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.43	---	---	3.09	2.91	2.73	4.23	2.28	2.14	2.68	2.40	2.19
2	2.72	---	---	3.05	2.83	2.70	3.72	2.26	2.13	2.64	2.38	2.19
3	2.68	---	---	3.07	5.93	2.68	3.53	2.26	2.12	2.58	2.34	2.17
4	2.57	---	---	3.13	4.37	2.66	5.11	2.23	2.10	2.51	2.30	2.18
5	2.49	---	---	3.10	3.82	3.04	4.10	2.22	2.42	2.46	2.26	2.17
6	2.43	---	---	4.57	3.50	3.23	3.63	2.20	2.56	2.41	2.27	2.13
7	2.39	---	---	3.95	3.28	3.12	3.46	2.18	2.45	2.37	2.21	2.12
8	2.35	---	---	3.53	3.12	3.07	3.35	2.18	2.37	2.32	2.18	2.12
9	2.34	---	---	3.25	2.77	3.13	3.27	2.22	2.33	2.29	2.16	2.12
10	2.30	---	---	3.06	2.90	3.64	3.15	2.20	2.28	2.28	2.14	2.14
11	2.25	---	---	2.94	2.83	4.26	3.05	2.18	2.23	2.25	2.12	2.18
12	2.22	---	---	2.89	2.77	3.87	2.96	2.17	2.68	2.23	2.10	2.19
13	2.20	---	---	2.79	3.12	3.53	2.89	2.17	4.97	2.33	2.09	2.20
14	---	---	---	2.75	6.26	3.33	2.83	2.17	5.62	2.36	2.08	2.29
15	---	---	---	2.70	5.17	3.18	2.78	2.16	4.12	2.30	2.07	2.25
16	---	---	---	2.64	4.93	3.04	2.72	2.16	3.57	2.28	2.07	2.21
17	---	---	---	2.60	4.16	2.95	2.67	2.16	3.28	2.26	2.16	2.18
18	---	---	---	2.56	3.74	2.89	2.63	2.16	3.20	2.24	2.17	2.17
19	---	---	---	2.52	3.48	2.82	2.58	2.14	3.36	2.28	2.12	2.15
20	---	---	2.16	2.49	3.32	2.75	2.53	2.13	3.15	2.25	2.14	2.13
21	---	---	2.13	2.44	3.33	2.78	2.49	2.12	3.00	2.29	2.18	2.12
22	---	---	2.12	2.40	3.21	2.80	2.46	2.20	2.91	2.31	2.17	2.11
23	---	---	2.36	2.39	3.07	2.75	2.44	2.32	2.81	2.50	2.16	2.11
24	---	---	2.84	2.36	2.97	2.71	2.41	2.27	2.74	2.56	2.13	2.10
25	---	---	2.81	2.34	2.92	2.67	2.39	2.23	2.67	2.81	2.13	2.10
26	---	---	2.71	2.75	2.87	2.62	2.37	2.20	2.60	2.86	2.22	2.10
27	---	---	2.65	3.29	2.85	2.60	2.35	2.25	2.54	2.72	2.21	2.11
28	---	---	3.84	3.16	2.78	2.56	2.34	2.22	2.91	2.62	2.27	2.11
29	---	---	3.44	3.10	---	2.57	2.32	2.21	3.14	2.53	2.29	2.11
30	---	---	3.35	3.05	---	3.82	2.30	2.20	2.81	2.49	2.24	2.11
31	---	---	3.16	2.97	---	5.51	---	2.17	---	2.44	2.21	---

ST. FRANCIS RIVER BASIN

239

07037500 ST. FRANCIS RIVER NEAR PATTERSON, MO

LOCATION.--37°11'40", long 90°30'12", in NE 1/4 sec.16, T.29 N., R.5 E., Wayne County, Hydrologic Unit 08020202, near left bank on downstream side of pier of bridge on State Highway 34, 1 mi upstream from Clark Creek, and 3 mi east of Patterson.

DRAINAGE AREA.--956 mi².

PERIOD OF RECORD.--October 1920 to current year. Prior to June 1921, monthly discharge only, published in WSP 1311.

REVISED RECORDS.--WSP 732: 1922-23.

GAGE.--Water-stage recorder. Datum of gage is 370.45 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, nonrecording gage at site 50 ft upstream at datum 2.00 ft higher. Oct. 1, 1938, to Apr. 12, 1939, nonrecording gage and Apr. 13, 1939, to Sept. 5, 1956, water-stage recorder at site 50 ft upstream at present datum. Sept. 6, 1956, to Sept. 26, 1958, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 1915 reached a stage of 33.8 ft, present datum, from floodmarks, discharge, 100,000 ft³/s, from rating curve extended above 55,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	112	1200	1520	1170	1200	6040	346	157	435	215	212
2	406	108	1030	1420	2220	1150	3230	330	148	388	206	173
3	465	104	928	1540	11800	1110	3820	311	141	340	211	137
4	455	123	838	1830	6730	1110	7480	295	146	292	195	116
5	383	130	737	1970	3130	1730	4220	283	336	256	161	104
6	308	128	659	4660	2200	2390	2760	263	863	229	146	96
7	257	126	602	4970	1710	2060	2250	245	779	200	128	88
8	216	177	558	3180	1430	1830	2050	234	561	174	113	82
9	187	180	527	2040	1230	1850	2000	238	446	154	103	86
10	166	174	488	1600	1100	2480	1780	231	368	135	95	88
11	146	164	462	1340	1010	3970	1540	225	318	126	89	85
12	129	181	431	1230	943	3780	1390	223	2100	116	84	86
13	117	243	405	1130	2210	2740	1270	215	4990	106	80	88
14	109	349	379	1030	17600	2280	1170	211	10400	103	77	96
15	102	493	326	969	15600	1910	1090	227	4750	96	73	107
16	100	692	288	933	9620	1630	1010	195	2510	91	70	107
17	98	1680	266	876	5500	1430	933	182	1670	86	71	115
18	92	1410	246	811	3230	1310	846	176	1480	85	73	129
19	88	1930	232	746	2420	1200	767	171	2040	86	72	129
20	86	5730	222	686	2090	1120	691	166	2210	84	83	114
21	86	6350	210	628	2130	1220	640	154	1410	90	139	102
22	86	3110	206	584	2110	1930	605	177	1090	95	108	93
23	96	1930	261	543	1770	1520	566	215	887	292	97	86
24	111	1440	902	523	1520	1300	538	223	725	237	90	79
25	109	1190	1150	510	1380	1180	511	297	614	338	83	75
26	104	1340	993	864	1300	1080	476	284	530	622	85	72
27	105	2850	869	2110	1270	1020	449	258	460	618	93	69
28	116	2870	2410	1760	1240	939	425	233	516	510	147	67
29	116	1940	3910	1480	---	979	391	214	607	393	144	66
30	117	1460	2390	1390	---	3240	360	203	494	306	129	67
31	116	---	1790	1290	---	11000	---	178	---	247	138	---
MEAN	172	1290	836	1489	3774	2054	1710	232	1458	236	116	100
MAX	465	6350	3910	4970	17600	11000	7480	346	10400	622	215	212
MIN	86	104	206	510	943	939	360	154	141	84	70	66
IN.	.21	1.51	1.01	1.80	4.11	2.48	2.00	.28	1.70	.29	.14	.12

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	377	928	1296	1412	1571	2200	2295	1665	955	340	223	242
MAX	3391	5638	12380	6725	4577	6981	9221	7145	8724	2513	1478	2103	
(WY)	1985	1985	1983	1950	1951	1945	1927	1943	1928	1957	1985	1965	
MIN	29.0	48.1	60.9	64.9	125	178	287	139	33.6	21.3	11.2	14.8	
(WY)	1954	1954	1954	1956	1963	1941	1981	1930	1936	1936	1936	1953	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1100	1122
HIGHEST ANNUAL MEAN		2731
LOWEST ANNUAL MEAN		343
HIGHEST DAILY MEAN	17600	107000
LOWEST DAILY MEAN	66	8.0
INSTANTANEOUS PEAK FLOW	21600	155000
INSTANTANEOUS PEAK STAGE	18.92	35.77
INSTANTANEOUS LOW FLOW	66	8
ANNUAL RUNOFF (INCHES)	15.62	15.94
10 PERCENTILE	2350	2340
50 PERCENTILE	412	335
95 PERCENTILE	81	35

ST. FRANCIS RIVER BASIN

07037500 ST. FRANCIS RIVER NEAR PATTERSON, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.18	3.81	6.61	7.11	6.52	6.45	---	4.81	4.09	5.06	4.37	4.27
2	4.88	3.78	6.28	6.90	6.35	6.30	9.26	4.76	4.04	4.96	4.34	4.12
3	5.04	3.75	6.03	7.02	---	6.25	8.37	4.71	3.99	4.83	4.31	3.94
4	5.04	3.74	5.90	7.44	---	6.20	12.51	4.66	3.98	4.70	4.29	3.80
5	4.86	3.92	5.70	7.51	---	7.12	---	4.63	4.79	4.59	4.13	3.73
6	4.63	3.91	5.53	9.57	---	8.32	8.70	4.57	5.71	4.50	4.07	3.67
7	4.47	3.89	5.40	---	7.42	7.76	8.07	4.50	5.84	4.40	---	3.60
8	4.32	4.14	5.29	---	7.00	7.28	7.80	4.44	5.34	4.29	3.84	3.55
9	4.21	4.16	5.22	---	6.48	7.22	7.72	4.46	5.05	4.20	3.76	3.52
10	4.13	4.14	5.10	7.25	6.39	7.67	7.48	4.44	4.81	4.11	3.69	3.59
11	4.03	4.08	5.04	6.82	6.22	9.35	7.15	4.41	4.64	---	3.64	3.57
12	3.94	4.07	4.96	6.63	6.07	9.86	6.88	4.40	5.23	---	3.59	3.57
13	3.86	4.35	4.87	6.46	6.60	8.58	6.70	4.38	10.00	3.91	3.54	3.60
14	3.81	4.59	4.81	6.27	---	7.86	6.52	4.32	---	3.91	3.51	3.64
15	3.75	5.13	4.65	6.13	---	7.40	6.39	4.42	---	3.85	3.47	3.74
16	3.74	5.52	4.51	6.05	---	7.04	6.25	4.30	8.51	3.81	3.44	3.74
17	3.73	7.40	4.45	5.96	---	6.74	6.13	4.23	7.40	3.78	3.45	3.76
18	3.68	6.92	4.38	5.83	---	6.55	5.99	4.21	6.82	3.73	3.47	3.86
19	3.64	7.13	4.34	5.70	8.28	6.38	5.87	4.17	7.57	3.78	3.45	3.89
20	3.61	10.82	4.30	5.59	7.77	6.24	5.73	4.16	8.20	3.75	3.49	3.79
21	3.62	12.44	4.26	5.46	7.82	6.14	5.61	4.10	6.98	3.79	4.03	3.71
22	3.62	9.19	4.22	5.36	7.92	7.48	5.52	4.16	6.43	3.83	3.75	3.65
23	3.68	7.73	4.42	5.25	7.44	6.90	5.43	4.33	6.03	5.15	3.68	3.59
24	3.81	7.02	5.68	5.20	7.06	6.55	5.36	4.33	5.72	4.49	3.60	3.53
25	3.80	6.58	6.51	5.14	6.86	6.34	5.29	4.58	5.48	4.78	3.56	3.49
26	3.76	6.59	6.22	5.66	6.74	6.17	5.19	4.57	5.28	5.42	3.55	3.46
27	3.74	8.37	5.90	7.97	6.66	6.03	5.11	4.48	5.10	5.46	3.61	3.43
28	3.83	8.93	6.54	7.47	6.57	5.94	5.05	4.39	5.32	5.29	3.94	3.41
29	3.83	7.74	---	7.04	---	5.84	4.97	4.31	5.58	4.97	3.96	3.40
30	3.84	7.05	8.32	6.87	---	7.40	4.87	4.28	5.23	4.70	3.89	3.40
31	3.83	---	7.49	6.72	---	---	---	4.19	---	4.50	3.81	---

07039000 WAPPAPELLO LAKE AT WAPPAPELLO, MO

LOCATION.--Lat 36°55'42", long 90°17'04", in NW 1/4 SE 1/4 sec.3, T.26 N., R.7 E., Wayne County, Hydrologic Unit 08020202, at intake tower at dam on St. Francis River 0.8 mi southwest of Wappapello, and at mile 309.

DRAINAGE AREA.--1,310 mi², approximately.

PERIOD OF RECORD.--April 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to June 19, 1941, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by earthfill type dam. Closure of channel at dam began July 10, 1940; river began to flow through outlet structure July 24, 1940. Stop logs placed in outlet structure and storage began Apr. 1, 1941; conservation pool level reached Apr. 20, 1941. Capacity at bottom of outlet tunnels (gage height, -9.0 ft), 2,600 acre-ft; at conservation pool level (gage height, 7.0 ft), 30,900 acre-ft; at spillway crest (gage height, 47.0 ft), 613,000 acre-ft; at maximum pool level (gage height, 62.4 ft), uncontrollable above spillway crest, 1,022,000 acre-ft. Lake is used for flood control, power, and recreational purposes. U.S. Army Corps of Engineers satellite telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 729,800 acre-ft, Apr. 16, 1945, gage height, 51.35 ft; minimum, since initial filling to conservation pool level, 23,340 acre-ft, Mar. 1, 2, 3, 1970; minimum gage height, 4.20 ft, Sept. 26, 27, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 160,000 acre-ft, Feb. 18, elevation, 369.50 ft, minimum, 31,600 acre-ft, Mar. 29, elevation, 355.13 ft.

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66600	65000	139000	66500	34600	99300	75300	86000	62800	74300	62900	63800
2	67800	64500	135000	62600	34800	92800	89200	82900	63900	73300	62800	63800
3	68100	64100	131000	60000	52200	87000	96200	79900	63900	71500	62300	63500
4	67400	63800	127000	58000	81000	82600	115000	77900	64200	70100	61400	63000
5	66200	64700	122000	56400	88800	81200	135000	76400	66500	68700	61000	62900
6	65600	65000	118000	57400	88400	81900	144000	74900	67600	67400	61400	62800
7	65100	65200	112000	62000	82900	81900	148000	72800	68700	66300	61000	62900
8	64700	65100	109000	66700	78300	80700	149000	71100	69100	65600	61100	63100
9	64100	64800	106000	65600	74300	78200	149000	70700	69200	65000	61100	63200
10	63800	65000	102000	63100	70600	75500	149000	69900	67600	64500	61300	64900
11	63400	64600	98600	60600	67300	74400	148000	68100	65700	63900	61400	64500
12	63100	64400	94800	57900	63800	77500	146000	66200	66300	63500	61600	64300
13	63200	64400	90800	55700	61000	79400	144000	65200	76600	63700	61700	64200
14	63400	64400	86900	53300	81900	76800	142000	64300	92600	63400	61700	65400
15	63600	64300	83800	51000	118000	72700	141000	63700	112000	63100	61900	64500
16	64100	66800	80600	49200	145000	67300	138000	63000	118000	63100	61900	63200
17	64300	67100	78000	47500	159000	62500	135000	62400	118000	63000	62600	62400
18	64900	69500	75200	45700	160000	58200	134000	62300	116000	63000	62800	62200
19	65000	74300	72600	43900	156000	53500	132000	62500	115000	63100	62800	62500
20	65100	82800	70200	41900	151000	49700	128000	63400	114000	63100	63000	62800
21	65000	97300	69000	40900	148000	46400	124000	63800	113000	63200	63800	63100
22	64400	110000	67400	40000	144000	42300	120000	64400	110000	63200	63800	63300
23	63800	115000	66900	39100	140000	40400	116000	65300	106000	63300	63400	64000
24	63400	118000	66300	38000	133000	38700	112000	65500	101000	63800	63200	63100
25	63000	120000	66800	37000	126000	36300	107000	65500	96800	64200	63200	63000
26	63200	123000	67400	36700	119000	34600	103000	65600	91700	64600	63700	63000
27	63400	129000	67500	36400	113000	33000	98900	65900	86800	65000	63700	63100
28	63800	136000	69600	36200	106000	32200	95100	65100	82700	64700	63600	63100
29	64100	141000	72600	35700	---	31600	91800	64200	79600	64000	63700	63200
30	64300	141000	73100	34800	---	33300	88900	63500	76700	63100	64000	63800
31	64600	---	70400	34400	---	47800	---	63000	---	63100	64000	---
(-)	360.21	367.85	360.88	355.71	364.65	357.93	362.89	360.02	361.58	360.03	360.14	360.11
(=)	+500	+76400	-70600	-36000	+71600	-58200	+41100	-25900	+13700	-13600	+900	-200
MAX	68100	141000	139000	66700	160000	99300	149000	86000	118000	74300	64000	65400
MIN	63000	63800	66300	34400	34600	31600	75300	62300	62800	63000	61000	62200

CAL YR 1988 (=) -170600

WTR YR 1989 (=) -300

(-) Elevation, in feet NGVD, at end of month

(=) Change in contents, in acre-feet

ST. FRANCIS RIVER BASIN

07039500 ST. FRANCIS RIVER AT WAPPAPELLO, MO

LOCATION.--Lat 36°55'41", long 90°15'55", in NW 1/4 SE 1/4 sec.2, T.26 N., R.7 E., Wayne County, Hydrologic Unit 08020202, on right bank at downstream side of highway bridge, 0.5 mi southeast of Wappapello and 1.25 mi downstream from Wappapello Dam.

DRAINAGE AREA.--1,311 mi².

PERIOD OF RECORD.--October 1940 to current year. Since January 1939 in reports of Mississippi River Commission. Gage-height records collected in this vicinity since April 1920 are contained in reports of the U.S. Army Corps of Engineers.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 315.15 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1984, at datum 10.00 ft higher at present site. Prior to Oct. 14, 1940, nonrecording gage at same site.

REMARKS.--No estimated daily discharges. Records fair. Flow completely regulated by Wappapello Lake (station 07029000) 1.25 mi upstream. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1920, 30.7 ft (datum then in use), May 15, 1933, discharge 82,500 ft³/s, determined by U.S. Army Corps of Engineers. Maximum discharge, 85,000 ft³/s, determined by U.S. Army Corps of Engineers, Aug. 1915 (stage unknown).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	172	2780	4060	1490	4970	776	1970	331	1590	345	321
2	144	338	3150	3730	1690	4580	799	1910	224	1380	372	327
3	443	353	3380	3250	2830	4070	845	1740	214	1270	596	325
4	858	259	3400	2990	3500	3610	971	1310	215	1090	556	290
5	844	82	3370	2940	3930	3700	998	1230	225	1030	361	208
6	607	68	3350	3190	4540	3560	1420	1200	337	916	278	150
7	556	175	3100	3810	5120	3470	2080	1190	604	746	186	80
8	466	343	2470	4120	4500	3540	2570	1030	630	604	87	75
9	454	356	2410	4360	3830	3700	2640	683	800	512	77	78
10	452	362	2540	3840	3310	3720	2800	962	1210	494	75	172
11	407	359	2540	3410	3030	3710	3000	1130	1190	466	77	316
12	240	360	2510	3160	2930	3730	2830	1040	991	419	76	327
13	79	360	2490	2770	3100	4000	2630	786	375	347	77	298
14	68	360	2340	2680	4050	4690	2360	748	675	318	76	318
15	66	358	2060	2520	5210	4790	2390	701	1760	227	77	718
16	65	373	1910	2150	5620	4620	2560	622	2270	216	79	697
17	64	462	1660	2070	5630	4180	2430	498	2820	213	79	437
18	64	615	1600	2040	5770	3990	2060	231	2840	213	77	167
19	64	649	1510	2020	6310	3740	2270	125	2840	213	77	80
20	115	400	1300	1820	6200	3310	2840	113	2870	212	77	74
21	343	107	1170	1350	5560	3220	2910	110	3050	211	120	73
22	448	251	876	1280	5470	3300	2900	132	3140	211	311	72
23	465	532	834	1260	5510	2880	2880	218	3280	210	278	125
24	420	555	830	1250	5670	2570	2850	275	3260	210	209	202
25	245	483	824	1210	5510	2460	2830	354	3200	232	206	180
26	80	229	824	1310	5380	2120	2800	358	3120	339	206	82
27	69	94	984	1970	5280	1780	2670	449	3000	629	206	73
28	69	326	1510	2480	5180	1520	2420	670	2580	776	204	71
29	66	1460	2490	2560	---	1290	2280	654	2280	788	207	71
30	64	2380	3870	2410	---	1340	2040	558	1970	706	204	72
31	65	---	4110	1810	---	869	---	438	---	523	224	---
MEAN	273	441	2200	2575	4505	3324	2262	756	1743	558	196	216
MAX	858	2380	4110	4360	6310	4970	3000	1970	3280	1590	596	718
MIN	64	68	824	1210	1490	869	776	110	214	210	75	71
IN.	.24	.38	1.93	2.26	3.58	2.92	1.93	.66	1.48	.49	.17	.18

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	407	886	1872	2266	2302	2778	2972	2398	1321	767	408	418
MAX	3239	4959	8897	8867	7796	7072	11920	9243	5860	4866	3385	2239	
(WY)	1950	1952	1983	1950	1949	1979	1945	1983	1957	1945	1945	1982	
MIN	33.9	43.8	199	188	286	308	63.5	62.3	6.00	87.1	40.0	34.0	
(WY)	1949	1954	1945	1981	1963	1941	1981	1987	1978	1980	1965	1955	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1568		1562	
HIGHEST ANNUAL MEAN			3534	1985
LOWEST ANNUAL MEAN			406	1941
HIGHEST DAILY MEAN	6310	Feb 19	21800	Apr 16 1945
LOWEST DAILY MEAN	64	Oct 17-19, 30	.00	Several Years
INSTANTANEOUS PEAK FLOW	6420	Feb 20	22300	Apr 16 1945
INSTANTANEOUS PEAK STAGE	27.28	Feb 20	25.60	Apr 16 1945
INSTANTANEOUS LOW FLOW	63	Oct 17	0	Several Years
ANNUAL RUNOFF (INCHES)	16.24		16.18	
10 PERCENTILE	3800		4180	
50 PERCENTILE	872		655	
95 PERCENTILE	74		39	

ST. FRANCIS RIVER BASIN

243

07039500 ST. FRANCIS RIVER AT WAPPAPELLO, MO--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.99	3.80	17.34	21.94	12.80	24.42	9.32	14.79	6.65	13.53	6.63	6.38
2	3.83	6.51	18.67	21.07	12.58	23.49	9.44	14.51	5.60	12.30	6.46	6.47
3	6.43	6.64	19.61	19.49	17.27	22.36	9.55	14.38	5.50	12.06	7.92	6.45
4	9.72	6.69	19.71	18.41	19.76	20.39	10.42	12.03	5.48	10.96	8.13	6.43
5	10.05	4.07	19.62	18.18	21.14	20.77	10.22	11.64	5.63	10.76	6.73	5.46
6	8.39	3.86	19.54	18.36	22.17	20.26	11.74	11.50	5.50	10.22	6.49	5.40
7	8.16	3.82	19.43	20.81	24.86	19.94	14.57	11.41	8.30	9.49	5.45	4.01
8	7.46	6.56	16.67	21.60	23.47	19.82	16.87	11.34	8.49	8.59	4.12	3.94
9	7.36	6.66	16.04	22.87	21.50	20.63	17.18	8.57	8.52	7.76	3.96	3.92
10	7.35	6.71	16.79	21.34	19.57	20.68	17.21	9.85	11.49	7.68	3.94	3.97
11	7.34	6.69	16.82	19.80	18.53	20.65	18.49	11.10	11.74	7.44	3.96	6.36
12	6.58	6.68	16.73	19.36	18.20	20.70	17.85	11.15	11.33	7.40	3.96	6.46
13	4.03	6.70	16.63	17.68	18.17	20.77	17.69	9.43	7.01	6.62	3.96	6.46
14	3.86	6.69	16.50	17.34	20.38	23.40	16.23	9.19	5.93	6.55	3.96	5.74
15	3.82	6.68	15.12	17.20	24.51	23.71	16.02	9.14	13.38	5.63	3.96	8.96
16	3.80	6.80	14.81	15.47	25.66	23.59	16.86	8.51	15.10	5.53	3.96	9.27
17	3.78	6.75	13.52	15.12	25.69	22.16	16.96	8.31	17.83	5.50	4.00	8.11
18	3.78	8.31	13.22	15.03	25.67	21.59	15.13	5.85	17.85	5.48	3.96	5.58
19	3.78	9.14	13.08	14.92	27.02	21.16	14.83	4.60	17.85	5.50	3.96	4.01
20	3.78	7.74	11.95	14.83	27.27	19.52	17.80	4.43	17.82	5.49	3.96	3.92
21	6.39	4.44	11.69	12.21	25.57	18.99	18.10	4.40	18.56	5.48	3.97	3.91
22	7.30	3.91	9.90	11.84	25.35	19.76	18.09	4.46	18.64	5.48	6.31	3.91
23	7.45	7.85	9.66	11.76	25.13	18.40	18.01	5.53	19.31	5.47	6.48	3.88
24	7.47	8.02	9.65	11.73	25.82	16.85	17.92	5.61	19.30	5.47	5.47	5.40
25	6.64	8.05	9.60	11.68	25.43	16.95	17.84	6.64	19.09	5.48	5.44	5.44
26	4.04	6.16	9.60	11.42	25.16	15.52	17.74	6.68	18.86	6.26	5.45	4.06
27	3.86	4.27	9.61	13.71	24.91	14.38	17.64	6.68	18.65	7.91	5.46	3.92
28	3.86	3.88	12.33	16.56	24.66	13.08	16.39	8.71	17.19	9.32	5.43	3.89
29	3.82	11.42	14.94	16.89	---	11.79	16.13	8.84	16.04	9.39	5.43	3.89
30	3.79	15.95	20.98	16.85	---	12.62	15.04	8.22	15.04	9.40	5.43	3.90
31	3.79	---	21.84	14.61	---	9.98	---	7.47	---	8.22	5.42	---

ST. FRANCIS RIVER BASIN

07042500 LITTLE RIVER DITCH 251 NEAR LILBOURN, MO

LOCATION.--Lat 36°33'20", long 89°40'12", SW 1/4 SE 1/4 sec.8, T.22 N., R.13 E., New Madrid County, Hydrologic Unit 08020204, on right bank 150 ft upstream from bridge on U.S. Highway 62, 3.7 mi southwest of Lilbourn, and 4.0 mi northwest of Marston.

DRAINAGE AREA.--235 mi²

PERIOD OF RECORD.--October 1945 to current year. Prior to January 1946 monthly discharge only, published in WSP 1311.

REVISED RECORDS.--WDR MO80-1: 1980, (M).

GAGE.--Water-stage recorder, nonrecording gage and crest-stage gage. Datum of gage is 263.46 ft above National Geodetic Vertical Datum of 1929 (Missouri State Highway and Transportation Commission). Prior to Oct. 27, 1967, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: July 7 to Aug. 15 and Aug. 18 to Sept. 30. Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1945 reached a stage of 15.6 ft, from floodmark, discharge, 3,200 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	924	104	453	484	434	603	998	282	184	279	140	120
2	1070	102	398	436	414	540	635	275	181	264	130	115
3	543	106	370	386	3110	516	1000	272	182	270	135	110
4	334	159	342	344	2760	934	2940	268	184	278	130	105
5	252	334	325	433	1490	3860	1720	274	195	254	125	105
6	218	226	316	1290	832	4070	880	261	194	229	140	105
7	198	170	306	917	620	2770	771	252	192	210	135	105
8	189	147	284	1060	536	1580	661	248	187	185	130	100
9	185	138	285	584	496	1030	587	254	186	170	125	100
10	175	188	275	436	448	840	510	240	178	155	120	140
11	168	155	261	403	430	763	471	232	181	140	115	130
12	157	148	255	2450	419	685	448	229	590	125	115	125
13	150	162	256	2220	1950	625	428	226	1350	115	120	125
14	144	144	253	1370	4660	587	409	226	1080	105	115	135
15	141	142	240	1360	5140	538	408	222	898	95	110	170
16	147	368	227	743	5340	490	389	215	726	90	105	200
17	143	236	228	549	5240	470	383	209	554	85	101	180
18	137	413	226	476	4990	455	365	210	443	85	110	170
19	131	3890	230	428	4510	430	355	215	790	85	130	160
20	130	4580	231	394	4000	430	344	212	939	75	120	150
21	128	3880	212	369	3630	492	337	200	649	80	130	140
22	126	2420	206	355	2090	471	330	211	468	75	200	130
23	137	1290	212	344	1090	433	324	220	395	70	170	125
24	132	688	209	332	765	413	320	209	355	70	150	120
25	126	475	197	318	661	400	310	210	327	120	140	115
26	121	1190	192	548	614	387	299	211	310	110	130	115
27	125	2370	220	702	583	380	292	205	300	95	120	110
28	170	1360	1430	501	584	377	294	192	300	90	115	110
29	125	748	1150	704	---	378	317	193	345	110	115	110
30	113	550	643	633	---	435	285	194	290	200	130	115
31	108	---	480	481	---	1550	---	191	---	150	125	---
MEAN	224	896	352	711	2066	901	594	228	438	144	128	128
MAX	1070	4580	1430	2450	5340	4070	2940	282	1350	279	200	200
MIN	108	102	192	318	414	377	285	191	178	70	101	100
IN.	1.10	4.26	1.73	3.49	9.16	4.42	2.82	1.12	2.08	.71	.63	.61

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	138	265	383	448	532	540	463	455	291	210	141	125
MAX	578	1552	1416	2051	2066	1442	1752	1264	804	642	468	378
(WY)	1985	1958	1979	1950	1989	1975	1979	1986	1957	1957	1957	1965
MIN	36.7	41.6	49.5	55.2	83.6	86.4	97.8	146	96.2	74.4	54.7	33.2
(WY)	1954	1954	1956	1981	1977	1981	1954	1977	1988	1954	1980	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989
AVERAGE FLOW	556								332			
HIGHEST ANNUAL MEAN									774		1979	
LOWEST ANNUAL MEAN									94.7		1954	
HIGHEST DAILY MEAN	5340	Feb 16							6490	Mar 29	1975	
LOWEST DAILY MEAN	70	Jul 23, 24							29	Sep 20	1954	
INSTANTANEOUS PEAK FLOW	5360	Feb 16							6580	Mar 29	1975	
INSTANTANEOUS PEAK STAGE	14.31	Feb 16							15.16	Feb 15	1950	
INSTANTANEOUS LOW FLOW	70	Jul 23, 24							29	Sep 20	1954	
ANNUAL RUNOFF (INCHES)	32.11								19.16			
10 PERCENTILE	1110								631			
50 PERCENTILE	260								194			
95 PERCENTILE	105								59			

ST. FRANCIS RIVER BASIN

245

07043500 LITTLE RIVER DITCH 1 NEAR MOREHOUSE, MO

LOCATION.--Lat 36°50'03", long 89°43'48", in SW 1/4 SE 1/4 sec.2, T.25 N., R.12 E., Stoddard County, Hydrologic Unit 08020204, on downstream side of second pier right of left abutment of bridge on State Highway 114, 1.5 mi downstream from Little River Ditch 39, and 2.0 mi west of Morehouse.

DRAINAGE AREA.--450 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to January 1946 monthly discharge only, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 280.76 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1949, June 11, 1951, to Feb. 22, 1962, nonrecording gage at same datum. Nov. 17, 1949, to June 10, 1951, nonrecording gage at site 50 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Feb. 5. Records good except for estimated daily discharge, which is fair. Several observations of water temperature and specific conductance were made during the year. Little River Ditch 1 flows into Little River Ditch 251 at point 35.3 mi downstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1945 reached a stage of 19.85 ft, from floodmark, discharge, 5,830 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	962	116	614	1230	593	556	3100	254	172	655	132	114
2	2330	112	478	989	792	523	2100	243	207	897	123	111
3	1340	113	399	727	8290	494	1710	228	182	1020	130	106
4	891	122	358	578	6800	2900	5370	233	204	648	125	103
5	553	146	336	575	4000	8740	3310	236	618	493	119	101
6	388	149	325	2500	2400	6100	2030	221	600	363	164	100
7	300	135	309	1870	1830	3160	1670	213	418	299	141	100
8	251	125	289	2760	1440	2820	1280	216	302	255	123	96
9	221	119	269	1860	1030	2380	947	222	260	178	118	98
10	201	136	263	1040	782	2190	710	209	227	138	109	152
11	183	134	254	714	649	1840	560	203	262	126	105	132
12	168	142	246	998	556	1200	479	199	3290	116	104	121
13	158	144	245	801	3550	917	427	198	7200	108	107	120
14	155	136	242	817	11100	780	393	195	7560	96	105	139
15	151	131	217	1160	11700	677	373	202	6220	87	100	196
16	153	142	209	829	11300	548	354	193	4250	82	96	256
17	145	192	212	650	9010	583	336	194	2830	79	116	204
18	138	336	208	553	6270	570	330	193	2090	80	133	171
19	133	3610	211	478	3990	518	365	203	2600	79	168	152
20	130	6550	214	422	3190	524	358	190	1660	68	139	145
21	133	4360	191	383	4090	685	335	180	1030	71	154	136
22	127	2390	193	360	2710	579	300	196	726	69	298	123
23	134	1790	193	337	1760	441	284	209	570	61	182	114
24	130	1470	210	318	1240	388	270	204	473	62	152	106
25	128	1080	263	306	918	361	256	198	340	139	135	105
26	124	1910	283	1530	771	336	245	191	293	119	129	105
27	123	3560	298	2070	709	326	235	188	277	87	116	100
28	122	1860	2450	1240	612	322	237	182	390	79	108	98
29	115	1260	2590	1100	---	338	259	182	987	172	106	99
30	114	871	1650	977	---	2900	246	182	689	231	133	109
31	117	---	1290	731	---	5040	---	177	---	183	115	---
MEAN	333	1111	500	997	3646	1604	962	204	1564	230	132	127
MAX	2330	6550	2590	2760	11700	8740	5370	254	7560	1020	298	256
MIN	114	112	191	306	556	322	235	177	172	61	96	96
IN.	.85	2.76	1.28	2.55	8.44	4.11	2.39	.52	3.88	.59	.34	.32

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	178	439	641	749	880	978	861	722	386	273	184	183
MAX	944	2615	2875	4286	3646	2800	2851	2633	1564	817	658	703
(WY)	1985	1958	1983	1950	1989	1979	1979	1961	1989	1957	1985	1975
MIN	30.6	50.2	73.5	72.3	115	106	146	155	88.7	70.9	49.6	35.0
(WY)	1954	1954	1954	1981	1963	1981	1971	1949	1988	1954	1953	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	929	538
HIGHEST ANNUAL MEAN		1261
LOWEST ANNUAL MEAN		134
HIGHEST DAILY MEAN	11700	Feb 15 1989
LOWEST DAILY MEAN	61	Jul 23 1954
INSTANTANEOUS PEAK FLOW	12200	Feb 15 1985
INSTANTANEOUS PEAK STAGE	19.50	Feb 15 1985
INSTANTANEOUS LOW FLOW	58	Jul 23 1954
ANNUAL RUNOFF (INCHES)	28.03	16.22
10 PERCENTILE	2560	1280
50 PERCENTILE	272	204
95 PERCENTILE	100	65

ST. FRANCIS RIVER BASIN

07046001 LITTLE RIVER DITCHES NEAR KENNETT, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 36°14'11", long 89°58'06", in NW 1/4 sec.3, T.18 N., R.10 E., Dunklin County, at bridges on State Highway 84, 4 mi east of Kennett.

PERIOD OF RECORD.--November 1969 to June 1970, August 1972 to September 1973, July 1977 to June 1989 (discontinued).

REMARKS.--Analyses represent a composite of water from five ditches.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT											
13...	0830	650	341	8.20	14.0	9.5	89	20	K24	180	8
NOV											
03...	1430	321	382	8.30	15.0	10.4	102	14	21	--	--
DEC											
14...	1300	860	363	8.20	6.0	13.3	105	14	K17	--	--
JAN											
12...	1430	6600	154	7.50	9.0	14.0	118	22	380	69	9
FEB											
07...	1400	4470	142	7.50	1.0	14.0	95	15	880	--	--
MAR											
08...	1400	11700	86	7.40	2.0	13.8	96	16	K300	--	--
APR											
13...	1400	1630	344	7.90	14.0	10.5	99	<10	66	160	11
MAY											
16...	1400	617	397	8.10	22.5	9.3	105	18	20	--	--
JUN											
05...	1545	550	362	8.00	23.0	9.0	103	28	200	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
13...	49	13	12	3.1	168	2.1	24	12	0.10	235
NOV										
03...	--	--	--	--	172	1.7	--	--	--	233
DEC										
14...	--	--	--	--	166	2.0	--	--	--	228
JAN										
12...	18	5.9	4.5	3.0	60	3.7	13	6.8	0.10	106
FEB										
07...	--	--	--	--	54	3.3	--	--	--	97
MAR										
08...	--	--	--	--	26	2.0	--	--	--	58
APR										
13...	44	11	12	2.3	144	3.5	20	11	0.20	206
MAY										
16...	--	--	--	--	176	2.7	--	--	--	253
JUN										
05...	--	--	--	--	142	2.7	--	--	--	226

K--Results based on colony count outside the acceptable range (non-ideal colony count).

247

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

WHITE RIVER BASIN

07050700 JAMES RIVER NEAR SPRINGFIELD, MO

LOCATION.--Lat 37°09'00", long 93°12'12", in SW 1/4 SE 1/4 SW 1/4 sec.2, T.28 N., R.21 W., Greene County, Hydrologic Unit 11010002, on right bank on county road at Kinser bridge, 1.1 mi downstream from Pearson Creek, and 2.5 mi southeast of Springfield.

DRAINAGE AREA.--246 mi².

PERIOD OF RECORD.--October 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,143.27 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 19, 1955, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flows are affected by pumping for Blackman Water Treatment Plant 1.0 mi upstream. Several observations of water temperature and specific conductance were made during the year. Springfield City Utilities gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1909 reached a stage of about 22 ft, from information by local resident, discharge not determined.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	56	465	455	455	174	524	62	91	41	45	40
2	97	49	392	519	400	158	457	60	82	39	36	21
3	83	44	337	654	428	148	424	60	79	38	30	20
4	66	46	291	611	365	272	373	61	80	36	26	21
5	57	42	241	549	315	431	320	60	123	33	22	23
6	43	38	202	525	268	393	277	58	153	30	21	20
7	39	34	189	453	222	346	244	55	108	28	18	18
8	37	37	174	380	188	300	217	56	89	26	16	16
9	32	36	151	312	158	312	189	57	75	24	15	36
10	26	40	135	268	143	709	162	54	68	23	14	48
11	28	43	125	228	134	3510	142	52	68	22	12	40
12	37	354	111	200	131	3160	132	50	136	21	11	28
13	42	384	110	174	1310	1550	137	49	241	20	11	20
14	38	253	103	156	2310	1020	127	48	218	19	13	35
15	37	183	97	147	1390	753	121	47	155	18	18	63
16	68	755	92	129	1330	607	112	46	114	17	17	59
17	199	487	88	115	847	517	107	44	95	17	14	51
18	143	341	84	104	663	444	102	46	82	33	13	35
19	103	379	80	96	560	380	97	46	70	34	13	26
20	91	2300	75	93	502	362	91	45	67	27	16	21
21	86	1370	72	89	471	386	88	43	65	26	15	24
22	79	824	79	87	408	354	85	6020	60	24	13	20
23	125	643	254	81	346	323	83	1510	55	22	12	17
24	222	531	327	84	309	299	80	639	53	21	11	23
25	179	444	288	88	280	270	77	439	49	21	12	23
26	142	3950	228	334	253	246	74	320	46	19	22	21
27	116	1830	268	465	227	214	72	226	47	18	16	19
28	100	958	737	410	203	274	70	167	48	19	22	18
29	86	701	563	931	---	422	67	131	45	26	21	17
30	75	557	469	710	---	408	64	118	41	25	72	17
31	56	---	429	553	---	556	---	103	---	51	61	---
MEAN	84.9	590	234	323	522	623	170	347	90.1	26.4	21.2	28.0
MAX	222	3950	737	931	2310	3510	524	6020	241	51	72	63
MIN	26	34	72	81	131	148	64	43	41	17	11	16
IN.	.40	2.68	1.10	1.51	2.21	2.92	.77	1.63	.41	.12	.10	.13

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	112	241	310	193	259	425	397	352	191	122	42.4	93.6
MAX	587	1327	1370	730	972	1041	1193	1672	873	1148	262	881
(WY)	1971	1973	1983	1969	1985	1978	1965	1961	1985	1958	1958	1977
MIN	2.74	9.39	8.26	5.56	8.35	16.4	16.3	38.3	28.1	12.2	3.22	1.05
(WY)	1957	1964	1956	1981	1981	1981	1981	1977	1972	1962	1962	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989
AVERAGE FLOW	253								228			
HIGHEST ANNUAL MEAN									465		1985	
LOWEST ANNUAL MEAN									52.8		1956	
HIGHEST DAILY MEAN	6020								13900		Sep 27 1977	
LOWEST DAILY MEAN	11								.30		Sep 16 1956	
INSTANTANEOUS PEAK FLOW	11200								24800		Dec 17 1957	
INSTANTANEOUS PEAK STAGE	14.97								18.20		Dec 17 1957	
INSTANTANEOUS LOW FLOW	10								0.1		Sep 16 1956	
ANNUAL RUNOFF (INCHES)	13.98								12.58			
10 PERCENTILE	538								503			
50 PERCENTILE	90								76			
95 PERCENTILE	17								8.3			

07052500 JAMES RIVER AT GALENA, MO

LOCATION.--Lat 36°48'19", long 93°27'41", in SW 1/4 SE 1/4 SW 1/4 sec.6, T.24 N., R.23 W., Stone County, Hydrologic Unit 11010002, on downstream side of right pier of first arch span from left end of bridge on State Highways 13 and 248 in Galena, 0.7 mi upstream from Railey Creek, and 42.3 mi above mouth.

DRAINAGE AREA.--987 mi².

PERIOD OF RECORD.--October 1921 to current year (October 1921, monthly discharge only published in WSP 1311).

REVISED RECORDS.--WSP 977: 1935(M), 1941(M).

GAGE.--Water-stage recorder. Datum of gage is 921.37 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 11, 1927, nonrecording gage at site 500 ft downstream at datum 1.48 ft higher. Dec. 11, 1927, to July 22, 1939, nonrecording gage, and July 23, 1939, to Sept. 30, 1953, water-stage recorder at present site and at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Feb. 2-12. Records fair. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	416	228	1730	1460	1820	1220	2270	451	462	286	406	483
2	399	210	1490	1520	1600	1130	2180	439	429	282	325	326
3	363	201	1330	1730	1300	1080	2080	427	427	277	258	255
4	327	195	1180	1900	1100	1110	1950	438	430	255	229	212
5	297	184	1060	1780	980	1340	1700	431	562	224	206	193
6	274	175	944	1660	870	1490	1530	423	970	220	187	176
7	254	166	884	1510	780	1440	1410	400	792	213	169	168
8	233	162	880	1350	700	1380	1320	393	648	197	165	162
9	221	165	793	1200	640	1380	1230	420	547	190	195	222
10	209	171	710	1080	590	1780	1130	408	486	170	188	394
11	204	211	657	999	540	4910	1050	379	458	170	176	408
12	194	235	610	917	500	9040	988	362	515	173	163	356
13	180	697	558	837	2200	6040	928	355	1050	169	155	361
14	171	780	535	765	7790	4010	872	337	1070	165	155	411
15	186	641	504	707	4680	3180	831	324	908	162	157	471
16	184	710	472	654	4950	2710	802	329	734	153	156	681
17	212	1440	446	598	3670	2440	765	325	607	147	150	581
18	242	1260	419	552	2950	2190	728	339	522	333	146	463
19	303	1090	400	513	2580	1970	699	354	466	600	149	384
20	283	2480	382	485	2350	1820	664	336	426	422	169	323
21	274	5030	350	457	2170	1790	637	323	374	323	195	284
22	267	2840	375	435	1960	1670	623	924	344	293	169	254
23	261	2190	575	414	1770	1570	593	8740	322	274	154	234
24	360	1790	829	404	1630	1480	568	2360	354	230	140	216
25	406	1540	1060	414	1520	1400	559	1580	309	247	136	207
26	403	3970	1000	632	1440	1330	532	1210	278	237	243	204
27	368	6630	973	1170	1380	1280	524	963	290	219	250	197
28	332	3270	1210	1420	1300	1300	504	789	359	201	180	176
29	307	2500	1790	1850	---	1540	492	671	329	195	160	165
30	273	2060	1630	2390	---	1700	473	582	306	239	163	173
31	246	---	1490	2100	---	1970	---	519	---	244	914	---
MEAN	279	1441	880	1094	1991	2216	1021	849	526	242	213	305
MAX	416	6630	1790	2390	7790	9040	2270	8740	1070	600	914	681
MIN	171	162	350	404	500	1080	473	323	278	147	136	162
IN.	.33	1.63	1.03	1.28	2.10	2.59	1.15	.99	.59	.28	.25	.34

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	509	816	951	865	1086	1478	1731	1538	1164	599	414	363
MAX	2494	4407	5435	3443	3485	5372	8376	9549	6383	4010	5159	2004	
(WY)	1942	1973	1983	1937	1966	1945	1927	1943	1935	1951	1927	1977	
MIN	58.0	65.3	79.2	68.8	87.4	129	145	179	87.6	46.0	22.6	45.8	
(WY)	1954	1954	1956	1956	1954	1954	1954	1936	1936	1954	1954	1953	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	914	958
HIGHEST ANNUAL MEAN		2499
LOWEST ANNUAL MEAN		119
HIGHEST DAILY MEAN	9040	May 19 1943
LOWEST DAILY MEAN	136	Aug 25
INSTANTANEOUS PEAK FLOW	13300	May 23
INSTANTANEOUS PEAK STAGE	12.61	May 23
INSTANTANEOUS LOW FLOW	133	Aug 25
ANNUAL RUNOFF (INCHES)	12.57	13.18
10 PERCENTILE	1940	2090
50 PERCENTILE	486	424
95 PERCENTILE	163	91

WHITE RIVER BASIN

07053400 TABLE ROCK LAKE NEAR BRANSON, MO

LOCATION.--Lat 36°35'46", long 93°18'35", in NW 1/4 sec.22, T.22 N., R.22 W., Taney County, Hydrologic Unit 11010001, at dam on White River, 3 mi upstream from Fall Creek, and 6.1 mi southwest of Branson.

DRAINAGE AREA.--4,020 mi².

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

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 18, 1958, non-recording gage at same site and datum.

REMARKS.--Lake is formed by combination concrete-gravity and embankment type dam. Storage began on Sept. 9, 1956. Storage for purpose of filling to power pool level at elevation 881 ft and capacity 1,520,500 acre-ft began Nov. 24, 1958, and was reached Dec. 19, 1959. Capacity is 3,567,500 acre-ft at top of spillway gates, elevation 933 ft. Capacity is 3,462,000 acre-ft at top of flood control pool, elevation 931 ft. Capacity between elevations 915 ft and 931 ft is reserved for flood control, 760,000 acre-ft. The capacity at the lowest outlet, elevation 721.96 ft., is 3,530 acre-ft. Lake is used for flood control, power, and recreational purposes.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents 3,542,000 acre-ft, May 10, 1961, elevation, 932.52 ft; minimum, since initial filling to bottom of power pool level, 1,536,000 acre-ft, Feb. 8, 1965, elevation, 881.54 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,930,000 acre-ft, Mar. 13,14, elevation, 920.09 ft, Mar. 14; minimum, 2,210,000 acre-ft, Nov. 8, 11-14, 16, 17, minimum elevation, 902.66 ft, Nov. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2300000	2230000	2340000	2380000	2500000	2770000	2830000	2720000	2720000	2760000	2660000	2560000
2	2300000	2230000	2340000	2380000	2520000	2770000	2830000	2710000	2710000	2760000	2650000	2560000
3	2290000	2230000	2340000	2390000	2530000	2770000	2830000	2690000	2720000	2770000	2640000	2560000
4	2290000	2220000	2350000	2390000	2530000	2770000	2820000	2680000	2720000	2770000	2620000	2550000
5	2290000	2220000	2350000	2400000	2540000	2780000	2820000	2670000	2730000	2760000	2610000	2550000
6	2280000	2220000	2350000	2410000	2550000	2790000	2810000	2670000	2740000	2750000	2600000	2550000
7	2280000	2220000	2350000	2420000	2560000	2800000	2800000	2670000	2740000	2730000	2600000	2540000
8	2280000	2210000	2350000	2420000	2560000	2790000	2800000	2660000	2750000	2730000	2600000	2520000
9	2280000	2220000	2340000	2430000	2570000	2800000	2780000	2650000	2760000	2710000	2600000	2530000
10	2270000	2220000	2340000	2430000	2570000	2820000	2770000	2650000	2760000	2700000	2590000	2530000
11	2270000	2210000	2340000	2430000	2580000	2860000	2770000	2650000	2770000	2700000	2590000	2540000
12	2270000	2210000	2320000	2430000	2580000	2900000	2760000	2650000	2780000	2700000	2590000	2540000
13	2270000	2210000	2320000	2430000	2640000	2930000	2760000	2650000	2810000	2700000	2590000	2550000
14	2270000	2210000	2320000	2430000	2710000	2930000	2750000	2650000	2820000	2680000	2590000	2550000
15	2270000	2220000	2310000	2430000	2760000	2920000	2750000	2650000	2820000	2680000	2590000	2560000
16	2270000	2210000	2310000	2420000	2790000	2910000	2740000	2650000	2810000	2680000	2590000	2560000
17	2270000	2210000	2310000	2420000	2800000	2890000	2740000	2650000	2810000	2690000	2590000	2560000
18	2260000	2220000	2310000	2420000	2800000	2880000	2730000	2650000	2810000	2690000	2590000	2550000
19	2260000	2230000	2310000	2420000	2790000	2860000	2730000	2660000	2800000	2690000	2600000	2550000
20	2260000	2250000	2310000	2420000	2780000	2840000	2730000	2670000	2800000	2690000	2610000	2540000
21	2270000	2270000	2310000	2420000	2780000	2820000	2730000	2670000	2780000	2690000	2600000	2540000
22	2270000	2280000	2310000	2420000	2780000	2810000	2740000	2670000	2770000	2700000	2600000	2540000
23	2270000	2280000	2320000	2410000	2780000	2800000	2750000	2690000	2770000	2700000	2590000	2540000
24	2270000	2290000	2320000	2400000	2780000	2790000	2750000	2690000	2770000	2700000	2590000	2540000
25	2260000	2300000	2320000	2410000	2780000	2780000	2750000	2700000	2760000	2690000	2590000	2540000
26	2260000	2320000	2330000	2410000	2770000	2770000	2750000	2710000	2760000	2690000	2580000	2540000
27	2250000	2350000	2340000	2420000	2770000	2760000	2750000	2720000	2760000	2670000	2570000	2540000
28	2240000	2360000	2350000	2440000	2770000	2770000	2740000	2720000	2760000	2670000	2560000	2540000
29	2240000	2360000	2360000	2450000	---	2770000	2730000	2730000	2760000	2650000	2560000	2540000
30	2240000	2360000	2360000	2470000	---	2810000	2730000	2730000	2760000	2650000	2570000	2540000
31	2230000	---	2370000	2490000	---	2820000	---	2720000	---	2660000	2560000	---
(-)	903.34	906.55	906.88	909.99	916.57	917.73	915.76	915.44	916.30	914.01	911.68	911.06
(=)	-70000	+130000	+10000	+120000	+280000	+50000	-90000	-10000	+40000	-100000	-100000	-20000
MAX	2300000	2360000	2370000	2490000	2800000	2930000	2830000	2730000	2820000	2770000	2660000	2560000
MIN	2230000	2210000	2310000	2380000	2500000	2760000	2730000	2650000	2710000	2650000	2560000	2520000

CAL YR 1988 -550,000

WTR YR 1989 +240,000

(-) Elevation, in feet NGVD, at end of month

(=) Change in contents, in acre-feet

WATER-QUALITY RECORDS

DISSOLVED OXYGEN: June 1987 to current year

REMARKS.--The number of missing days of water temperature and dissolved oxygen record exceeds 20 percent of the year. The monitor was not operated from Jan. 3 to June 21, 1989.

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

[illegible]

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	10.2	7.9	8.5	10.4	9.2	9.5	---	---	---
2	---	---	---	10.0	7.8	8.5	13.6	8.8	9.3	---	---	---
3	---	---	---	9.7	7.6	8.3	9.2	8.6	9.0	---	---	---
4	---	---	---	10.2	7.5	8.1	10.2	8.6	9.2	---	---	---
5	---	---	---	9.3	7.0	7.8	10.3	8.7	9.1	---	---	---
6	---	---	---	8.9	7.8	8.1	---	---	---	---	---	---
7	---	---	---	8.5	7.8	8.1	---	---	---	9.3	8.6	9.0
8	---	---	---	9.0	7.9	8.2	---	---	---	9.7	8.5	9.2
9	---	---	---	8.8	7.9	8.2	---	---	---	10.0	8.7	9.1
10	---	---	---	8.7	7.9	8.2	---	---	---	10.4	8.7	9.0
11	---	---	---	9.6	7.9	8.5	---	---	---	9.7	8.7	8.9
12	---	---	---	9.0	7.9	8.3	---	---	---	9.4	8.7	8.9
13	---	---	---	9.0	8.0	8.3	---	---	---	10.0	8.7	8.9
14	---	---	---	9.1	7.9	8.1	---	---	---	9.9	8.7	8.9
15	---	---	---	9.4	7.8	8.3	---	---	---	9.5	8.6	8.9
16	---	---	---	10.6	7.8	8.3	---	---	---	9.9	8.5	9.0
17	---	---	---	10.5	7.9	8.3	---	---	---	10.4	8.5	9.0
18	---	---	---	---	---	---	---	---	---	9.2	8.4	9.0
19	---	---	---	10.7	9.1	9.5	---	---	---	9.6	8.8	9.1
20	---	---	---	12.0	8.9	9.4	---	---	---	9.2	9.0	9.1
21	8.2	7.3	7.8	10.9	8.4	9.3	---	---	---	9.3	9.1	9.2
22	8.4	7.5	7.8	11.5	8.9	9.4	---	---	---	9.7	8.8	9.2
23	8.7	7.6	7.9	11.0	8.8	9.3	---	---	---	9.9	8.6	9.2
24	8.8	7.6	7.8	10.7	8.9	9.3	---	---	---	10.4	8.4	9.1
25	8.5	7.6	7.8	10.4	8.9	9.4	---	---	---	10.0	8.4	9.2
26	---	---	---	10.1	9.0	9.4	---	---	---	10.5	8.6	9.2
27	---	---	---	10.0	9.0	9.4	---	---	---	10.7	8.5	10.0
28	---	---	---	10.6	9.1	9.6	---	---	---	10.8	9.0	9.5
29	---	---	---	9.7	9.1	9.5	---	---	---	9.6	9.0	9.2
30	9.3	8.2	8.5	11.5	9.2	9.8	---	---	---	10.3	8.8	9.2
31	---	---	---	10.6	9.1	9.5	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

07053500 WHITE RIVER NEAR BRANSON, MO

LOCATION.--Lat 36°35'51", long 93°17'42", in SE 1/4, NE 1/4, sec.22, T.22 N., R.22 W., Taney County, Hydrologic Unit 11010003, on left bank 0.9 mi downstream from Table Rock Dam, 2.1 mi upstream from Fall Creek, 5 mi southwest of Branson, 7.4 mi upstream from Missouri Pacific bridge, and at mile 527.8.

DRAINAGE AREA.--4,022 mi².

PERIOD OF RECORD.--July 1909 to December 1910 (gage heights and discharge measurements only), October 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 696.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). July 19, 1909, to Dec. 31, 1910, nonrecording gage at site 7.4 mi downstream at different datum. Oct. 1, 1951, to Mar. 6, 1952, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Table Rock Lake (station 07053400) since Sept. 9, 1956.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 16, 1945, reached a stage of 52.8 ft, from floodmark, discharge, 203,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2120	2800	9400	40	4460	4830	11200	7550	3000	140	1880	3790
2	300	2130	3340	540	9200	7300	10700	8490	2510	140	3660	150
3	2370	1520	560	40	10000	4660	11200	7460	150	100	8620	260
4	2040	2750	40	1470	8260	7410	10600	7650	140	170	6880	1030
5	660	160	1090	960	5210	6420	11200	5470	240	4480	5630	410
6	1990	160	870	40	5970	7530	11200	1940	350	6670	4940	3940
7	1710	1240	600	500	2190	8990	11200	110	160	6370	1530	6230
8	280	1170	3210	390	5580	7350	11200	7980	160	5640	1410	7650
9	140	930	3330	1740	4030	8510	11200	1950	190	6360	1440	1490
10	3500	320	1710	2510	1290	7920	9160	2490	130	8110	1400	330
11	1960	3850	2630	500	40	5340	5370	3660	150	160	1450	520
12	760	910	9730	790	40	6480	4230	130	840	1610	140	500
13	140	280	1770	870	180	10100	6300	140	220	5860	170	130
14	150	1270	830	3330	8940	14800	6830	140	8800	850	300	160
15	150	680	4180	1130	9510	14800	3490	2320	15000	140	140	130
16	100	3090	1890	3850	10700	14800	6590	370	14900	140	600	150
17	1490	1070	40	630	13400	14800	6910	1220	9950	470	170	170
18	1350	680	40	1660	13100	14900	6660	800	6780	230	140	8070
19	490	160	290	1120	13500	14900	4680	800	6760	150	180	1890
20	40	166	650	4050	13900	14300	5030	1520	5510	140	180	2120
21	40	1420	40	1040	9290	14900	7000	300	6780	180	2860	2120
22	40	390	40	40	8980	13400	4160	9160	6270	150	4010	570
23	40	400	40	5940	9790	8340	1990	7520	2770	160	2330	150
24	2020	660	40	2260	9630	7800	7400	6560	2590	1600	1000	150
25	2260	40	40	2760	6690	8660	9030	3330	2700	2790	1360	400
26	2650	40	40	2390	7980	9330	9770	1140	5570	5080	6730	140
27	3190	40	510	2710	7730	6970	9960	340	2510	7360	7020	140
28	2830	650	40	4120	6180	6400	7620	140	2180	4210	4850	2720
29	1520	2720	40	2640	---	6280	1220	870	3820	6820	570	140
30	1440	6020	1820	3130	---	6330	1000	5300	5320	190	260	140
31	2060	---	40	710	---	8890	---	6560	---	1460	5380	---
MEAN	1285	1257	1577	1739	7349	9466	7470	3336	3882	2514	2491	1526
MAX	3500	6020	9730	5940	13900	14900	11200	9160	15000	8110	8620	8070
MIN	40	40	40	40	40	4660	1000	110	130	100	140	130
IN.	.37	.35	.45	.50	1.90	2.71	2.07	.96	1.08	.72	.71	.42

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	1566	2851	3841	3451	3807	5201	5842	5710	3800	3281	2714	1931
MAX	5437	13110	15210	16070	11970	14800	14800	22650	19950	11660	11390	8988	
(WY)	1971	1975	1986	1985	1969	1985	1985	1961	1957	1957	1957	1957	
MIN	128	189	267	228	420	419	341	415	519	140	51.3	136	
(WY)	1957	1954	1956	1956	1964	1964	1981	1981	1954	1954	1954	1953	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	3629	3666
HIGHEST ANNUAL MEAN	7797	1957
LOWEST ANNUAL MEAN	729	1954
HIGHEST DAILY MEAN	15000	72000
LOWEST DAILY MEAN	40	At Times
INSTANTANEOUS PEAK FLOW	15000	89100
INSTANTANEOUS PEAK STAGE	*****	36.9
INSTANTANEOUS LOW FLOW	40	0
ANNUAL RUNOFF (INCHES)	12.25	12.38

***** Indicates not enough data, therefore statistic is not computed

WHITE RIVER BASIN

07053600 LAKE TANEYCOMO AT THE SCHOOL OF THE OZARKS, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 36°36'33", long 93°14'04", in sec.4, T.22 N., R.21 W., Taney County, Hydrologic Unit 11010003, on the right bank in the School of the Ozarks water intake pump house, and 4.75 miles below Table Rock Dam.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1984 to current year. (See remarks).

DISSOLVED OXYGEN: May 1984 to current year. (See remarks).

INSTRUMENTATION.--Water-quality monitor since May 1984.

REMARKS.--The number of missing days of water temperature and dissolved oxygen record exceeds 20 percent of the year. The monitor was not operated from Jan. 3 to June 21, 1989.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	11.4	10.5	11.1	8.4	7.7	8.1
2	---	---	---	---	---	---	11.5	10.3	11.1	8.8	7.3	7.7
3	---	---	---	12.5	10.2	11.3	11.2	10.3	10.7	9.1	8.6	8.8
4	---	---	---	11.5	10.9	11.1	11.3	10.5	10.9	---	---	---
5	11.5	10.2	11.0	10.9	10.3	10.7	10.6	9.1	10.2	---	---	---
6	11.4	10.7	11.0	10.6	9.5	10.1	11.2	9.7	10.6	---	---	---
7	11.6	10.6	11.1	12.1	9.4	10.8	11.1	10.5	10.8	---	---	---
8	11.7	11.2	11.5	11.8	10.4	11.2	10.7	10.0	10.5	---	---	---
9	12.2	11.2	11.6	13.3	10.8	11.8	10.9	9.6	10.5	---	---	---
10	11.7	10.8	11.2	12.7	12.2	12.4	10.8	9.7	10.4	---	---	---
11	12.1	10.5	11.3	12.6	12.0	12.3	10.3	9.1	10.0	---	---	---
12	13.6	10.3	11.4	12.5	11.9	12.2	10.5	9.5	10.3	---	---	---
13	12.6	11.0	11.8	---	---	---	10.9	9.8	10.4	---	---	---
14	14.0	12.0	12.6	---	---	---	10.5	9.9	10.2	---	---	---
15	13.8	12.1	12.8	---	---	---	10.4	9.4	10.1	---	---	---
16	14.9	12.9	13.6	---	---	---	10.3	9.0	9.8	---	---	---
17	14.5	11.3	13.0	---	---	---	9.4	8.3	8.9	---	---	---
18	11.6	10.9	11.3	---	---	---	8.6	7.9	8.2	---	---	---
19	11.6	10.5	11.1	---	---	---	8.9	7.9	8.2	---	---	---
20	11.5	11.3	11.4	---	---	---	10.4	8.9	9.6	---	---	---
21	---	---	---	---	---	---	10.3	9.5	9.9	---	---	---
22	---	---	---	---	---	---	9.6	9.3	9.5	---	---	---
23	---	---	---	10.6	9.3	9.9	9.5	8.9	9.1	---	---	---
24	---	---	---	10.8	9.6	10.2	8.9	8.3	8.7	---	---	---
25	---	---	---	11.5	10.4	10.8	8.6	7.8	8.2	---	---	---
26	---	---	---	11.4	10.9	11.2	8.2	8.0	8.1	---	---	---
27	---	---	---	11.3	10.6	11.1	9.2	8.0	8.5	---	---	---
28	---	---	---	10.6	8.6	10.1	8.8	7.5	8.3	---	---	---
29	---	---	---	11.4	9.6	10.8	7.5	6.4	6.9	---	---	---
30	---	---	---	11.4	9.8	11.0	9.1	5.5	7.7	---	---	---
31	---	---	---	---	---	---	8.7	8.2	8.5	---	---	---
MONTH	---	---	---	---	---	---	11.5	5.5	9.5	---	---	---

07053600 LAKE TANEYCOMO AT THE SCHOOL OF THE OZARKS, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	11.4	9.4	10.1	11.5	8.9	9.6	10.9	9.1	9.6
2	---	---	---	14.4	10.6	12.2	10.6	8.6	9.2	11.3	9.4	10.3
3	---	---	---	16.1	13.5	14.4	9.4	8.5	8.9	14.5	11.1	12.9
4	---	---	---	18.1	14.4	15.6	11.0	8.9	9.3	14.0	10.3	12.3
5	---	---	---	15.6	8.3	12.7	10.7	9.0	9.4	12.4	10.3	11.2
6	---	---	---	9.6	8.4	8.7	10.5	8.7	9.3	13.4	8.8	11.1
7	---	---	---	9.8	8.4	8.7	12.1	8.8	9.7	10.1	8.8	9.1
8	---	---	---	10.2	8.4	8.7	11.9	8.7	9.6	9.5	9.0	9.2
9	---	---	---	9.8	8.4	8.8	12.0	8.7	9.7	9.7	9.0	9.4
10	---	---	---	9.4	8.5	8.8	11.4	8.7	9.5	11.3	9.7	10.4
11	---	---	---	12.2	8.7	10.1	11.2	8.8	9.5	11.3	9.5	10.3
12	---	---	---	14.6	8.7	12.2	12.5	8.9	10.0	10.7	9.5	10.0
13	---	---	---	10.1	8.6	9.0	13.8	10.4	12.1	10.5	9.7	10.2
14	---	---	---	11.3	8.6	9.6	15.0	12.6	13.4	11.0	9.7	10.4
15	---	---	---	14.0	10.0	11.4	16.0	13.1	14.1	11.9	10.8	11.2
16	---	---	---	15.8	12.2	13.6	14.1	10.0	12.8	13.1	10.8	11.7
17	---	---	---	14.4	10.5	13.5	13.4	10.0	11.1	13.8	11.6	12.4
18	---	---	---	12.3	9.9	10.8	14.8	11.3	12.8	12.7	8.8	10.4
19	---	---	---	16.3	12.1	13.8	14.8	12.9	13.6	10.6	8.8	9.5
20	---	---	---	14.7	13.1	13.9	15.0	12.6	13.7	10.7	8.7	9.6
21	---	---	---	14.9	11.8	13.4	14.0	9.1	12.3	10.5	8.8	9.6
22	9.8	7.8	8.4	14.4	11.8	12.6	10.0	8.9	9.4	9.7	9.0	9.3
23	10.2	8.2	8.7	14.3	12.3	13.0	12.1	9.0	9.6	10.8	9.3	10.0
24	10.8	8.6	9.2	15.4	8.4	12.2	12.3	9.1	10.0	13.0	10.2	11.2
25	11.8	8.9	9.5	11.2	8.5	9.1	11.2	9.1	9.9	11.2	9.1	10.4
26	9.9	8.9	9.4	10.4	8.5	9.0	10.5	9.0	9.4	12.3	9.7	10.7
27	10.9	9.3	9.9	9.9	8.5	8.8	9.7	9.0	9.3	13.4	11.3	12.2
28	12.8	9.6	10.4	10.2	8.6	9.0	10.9	9.1	9.4	12.4	8.8	10.3
29	11.7	9.5	10.3	9.8	8.5	9.1	12.5	9.1	10.3	10.0	9.0	9.5
30	11.4	9.4	9.8	11.0	8.6	9.6	12.4	10.8	11.5	11.2	9.6	10.2
31	---	---	---	13.3	9.0	11.5	13.4	9.1	11.1	---	---	---
MONTH	---	---	---	18.1	8.3	11.1	16.0	8.5	10.6	14.5	8.7	10.5

WHITE RIVER BASIN

07053600 LAKE TANEYCOMO AT THE SCHOOL OF THE OZARKS, MO--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	7.2	5.7	6.4	10.0	8.9	9.4
2	---	---	---	---	---	---	7.7	5.4	6.6	11.1	9.5	10.1
3	---	---	---	9.2	3.6	7.1	7.3	5.7	6.4	10.5	9.9	10.1
4	---	---	---	7.0	4.7	5.5	7.8	7.1	7.4	---	---	---
5	8.7	6.2	7.1	6.5	4.8	5.3	8.7	5.6	7.7	---	---	---
6	9.1	6.1	6.8	9.2	6.0	7.2	8.5	5.3	6.8	---	---	---
7	8.0	6.2	7.2	9.2	5.3	7.1	8.3	6.4	7.4	---	---	---
8	8.6	7.4	7.8	7.2	5.0	5.9	7.5	5.7	6.6	---	---	---
9	9.1	7.0	8.0	7.8	4.9	5.6	7.3	5.5	6.1	---	---	---
10	7.8	5.9	6.6	6.4	5.3	5.9	7.7	5.3	6.4	---	---	---
11	9.1	5.3	6.8	6.9	4.8	5.7	7.9	5.8	6.9	---	---	---
12	8.4	5.6	6.6	6.7	4.7	5.7	7.4	5.4	6.3	---	---	---
13	8.5	6.5	7.4	---	---	---	8.6	6.8	7.6	---	---	---
14	10.6	8.5	9.4	---	---	---	8.5	6.2	6.8	---	---	---
15	9.6	8.1	8.7	---	---	---	8.9	6.0	7.2	---	---	---
16	9.0	7.5	8.3	---	---	---	8.5	7.0	7.7	---	---	---
17	9.0	4.8	7.2	---	---	---	9.4	8.3	8.9	---	---	---
18	6.4	4.2	5.0	---	---	---	9.4	8.5	9.1	---	---	---
19	6.1	4.1	4.9	---	---	---	10.5	8.7	9.6	---	---	---
20	6.6	4.9	5.9	---	---	---	10.5	8.7	10.0	---	---	---
21	---	---	---	---	---	---	9.6	8.9	9.2	---	---	---
22	---	---	---	---	---	---	9.2	8.6	9.0	---	---	---
23	---	---	---	---	---	---	10.2	8.9	9.5	---	---	---
24	---	---	---	6.9	5.8	6.3	10.4	9.5	10.0	---	---	---
25	---	---	---	7.0	5.6	6.0	10.6	9.6	10.1	---	---	---
26	---	---	---	7.3	6.1	6.7	10.7	9.6	10.2	---	---	---
27	---	---	---	8.5	7.4	8.0	10.8	8.9	9.8	---	---	---
28	---	---	---	8.6	7.0	8.2	9.6	8.8	9.1	---	---	---
29	---	---	---	7.6	5.6	6.8	10.6	9.3	10.0	---	---	---
30	---	---	---	8.5	6.0	7.5	11.5	9.2	9.8	---	---	---
31	---	---	---	---	---	---	9.5	8.8	9.2	---	---	---
MONTH	---	---	---	---	---	---	11.5	5.3	8.2	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

WHITE RIVER BASIN

259

07053600 LAKE TANEYCOMO AT THE SCHOOL OF THE OZARKS, MO--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	9.2	7.1	8.0	10.6	7.2	8.2	7.8	4.8	5.6
2	---	---	---	10.4	8.0	9.2	9.5	6.8	8.2	8.7	6.4	7.6
3	---	---	---	12.9	10.5	11.8	7.2	5.5	6.4	11.6	7.4	9.6
4	---	---	---	13.3	11.4	12.3	8.8	5.1	5.8	11.1	7.5	9.6
5	---	---	---	14.1	6.8	10.2	8.3	5.1	5.8	10.1	7.5	8.7
6	---	---	---	8.5	6.3	6.9	7.7	5.3	5.9	11.5	4.1	8.4
7	---	---	---	9.0	6.1	6.8	10.5	5.3	6.5	7.6	4.0	5.3
8	---	---	---	9.2	6.2	6.8	10.5	5.4	6.4	6.5	3.7	4.3
9	---	---	---	9.0	6.0	6.6	10.6	5.1	6.4	6.7	4.0	5.1
10	---	---	---	8.1	6.2	6.7	10.5	5.3	6.6	7.6	5.0	6.4
11	---	---	---	8.3	6.1	6.9	9.9	5.0	6.3	8.9	6.7	7.5
12	---	---	---	11.5	7.5	8.8	8.7	6.2	7.3	8.9	6.8	7.7
13	---	---	---	8.5	6.3	7.3	12.1	7.0	9.6	8.9	6.1	7.9
14	---	---	---	11.9	6.2	8.1	11.7	9.5	10.8	7.8	5.9	6.9
15	---	---	---	11.4	9.0	10.1	13.1	9.9	11.5	7.9	6.7	7.3
16	---	---	---	11.9	9.9	10.9	11.6	7.8	9.7	8.7	6.6	7.4
17	---	---	---	11.9	10.0	11.1	11.4	7.2	8.6	10.8	7.2	8.9
18	---	---	---	10.5	8.1	9.6	11.3	7.8	9.7	9.5	4.0	6.2
19	---	---	---	10.0	7.8	8.8	11.2	10.1	10.6	8.3	4.0	6.0
20	---	---	---	11.2	8.3	9.2	12.1	8.9	10.5	8.0	5.2	6.8
21	---	---	---	11.7	10.3	10.8	9.7	4.9	7.6	7.8	4.9	6.8
22	10.2	7.1	7.7	11.9	9.9	10.8	7.5	4.6	5.6	7.3	5.4	6.0
23	10.0	6.9	7.9	12.9	10.7	11.5	7.3	4.8	6.0	8.7	5.5	6.8
24	10.4	7.4	8.7	12.4	6.7	10.3	10.4	4.4	6.2	11.6	8.1	9.8
25	11.2	7.2	7.9	10.4	6.2	7.2	9.0	5.8	7.9	10.5	7.6	8.9
26	9.5	7.0	7.7	9.4	6.3	6.9	8.0	4.5	5.4	9.4	6.9	7.8
27	10.7	7.3	8.5	8.4	6.4	7.0	7.2	4.5	5.0	12.1	8.6	10.1
28	11.4	6.9	7.7	8.9	6.3	6.8	8.0	4.5	5.2	10.2	3.9	7.6
29	10.0	6.6	7.6	8.1	5.9	6.9	10.6	5.3	7.0	5.4	3.5	4.2
30	9.3	6.6	7.1	8.3	6.4	7.2	9.4	7.2	7.9	7.0	3.8	5.5
31	---	---	---	11.9	7.8	9.6	9.8	4.5	6.6	---	---	---
MONTH	---	---	---	14.1	5.9	8.7	13.1	4.4	7.5	12.1	3.5	7.2

WHITE RIVER BASIN

07053700 LAKE TANEYCOMO AT BRANSON, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 36°38'09", long 93°12'52", in SE 1/4 NW 1/4, sec.4, T.22 N., R.21 W., Taney County, Hydrologic Unit 11010003, 1000 ft downstream from Turkey Creek, at bridge on Business Route 65 in Branson.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	PH LAB (STAND- ARD UNITS) (00403)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT											
03...	1535	215	7.80	--	12.0	7.7	70	19	28	110	16
NOV											
01...	1600	212	7.50	--	11.5	6.8	62	15	25	--	--
DEC											
06...	1400	214	7.70	--	10.5	6.9	61	<10	21	--	--
JAN											
03...	1615	232	7.90	--	8.0	10.4	86	<10	31	110	9
FEB											
09...	0900	219	--	8.00	6.0	10.7	83	10	K7	--	--
MAR											
09...	1330	227	8.10	--	6.5	13.2	105	18	K1	--	--
APR											
03...	1520	227	8.20	--	8.5	12.5	107	10	K12	110	21
MAY											
09...	1450	231	7.90	--	8.0	9.5	79	20	110	--	--
JUN											
06...	1500	251	8.10	--	14.0	13.8	132	21	54	--	--
JUL											
17...	1700	242	8.00	--	18.0	8.8	92	16	680	110	24
AUG											
02...	1605	227	7.90	--	12.5	9.1	84	18	210	--	--
SEP											
06...	1300	216	7.80	--	14.0	11.0	105	<10	K14	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
03...	34	5.3	3.0	1.7	91	2.8	8.1	4.7	0.10	122
NOV										
01...	--	--	--	--	80	4.9	--	--	--	112
DEC										
06...	--	--	--	--	94	3.6	--	--	--	125
JAN										
03...	34	7.1	3.3	1.7	105	2.6	8.7	5.1	0.10	129
FEB										
09...	--	--	--	--	98	--	--	--	--	119
MAR										
09...	--	--	--	--	105	1.6	--	--	--	123
APR										
03...	35	6.2	4.4	1.7	92	1.1	9.2	6.2	0.10	126
MAY										
09...	--	--	--	--	98	2.4	--	--	--	123
JUN										
06...	--	--	--	--	103	1.6	--	--	--	133
JUL										
17...	35	6.2	4.9	1.6	89	1.7	8.0	7.7	0.10	165
AUG										
02...	--	--	--	--	96	2.3	--	--	--	130
SEP										
06...	--	--	--	--	92	2.8	--	--	--	129

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

WHITE RIVER BASIN

07057500 NORTH FORK RIVER NEAR TECUMSEH, MO

LOCATION.--Lat 36°37'22", long 92°14'53", in NE 1/4 SE 1/4 sec.35, T.23 N., R.12 W., Ozark County, Hydrologic Unit 11010006, on right bank 3.2 mi downstream from Spring Creek, and 3.5 mi northeast of Tecumseh.

DRAINAGE AREA.--561 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 584.67 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 12, 1945, nonrecording gage at same site and datum 0.22 ft lower.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	537	361	989	970	946	1020	1850	655	798	721	541	487
2	598	361	883	957	1140	983	1620	642	763	689	504	433
3	546	363	813	938	3270	977	1550	636	781	665	487	409
4	489	367	759	880	2070	981	1930	635	927	638	478	397
5	455	364	712	848	1630	1000	1660	631	1190	617	470	389
6	434	359	684	882	1370	1010	1470	617	1010	604	462	384
7	418	355	671	889	1190	982	1370	601	891	589	452	386
8	406	352	654	849	1070	967	1310	599	820	573	445	382
9	408	353	637	788	980	1000	1210	600	765	562	440	396
10	399	365	610	756	924	1200	1120	588	719	550	434	414
11	393	357	588	733	898	1520	1050	574	720	541	429	410
12	386	390	577	717	872	1560	1020	565	825	538	428	394
13	381	418	580	682	2350	1440	992	563	1090	535	422	391
14	378	419	576	661	7950	1350	970	558	1380	522	420	401
15	375	408	564	649	4250	1240	951	550	1600	515	421	443
16	391	415	543	630	4030	1110	926	543	1280	508	429	423
17	397	536	527	615	2810	1040	906	554	1080	504	438	452
18	391	534	512	603	2280	1000	883	568	974	514	421	432
19	379	1820	510	593	1970	940	853	564	898	514	418	413
20	379	2920	506	586	1790	921	823	548	838	516	418	399
21	377	2350	497	572	1700	898	805	547	793	535	429	391
22	375	1440	511	564	1500	855	792	6730	755	517	419	386
23	384	1110	689	557	1340	832	777	5420	733	498	411	379
24	382	941	875	552	1240	815	762	2200	717	503	406	372
25	380	844	790	559	1190	799	744	1640	696	512	410	370
26	376	3370	726	659	1170	781	725	1430	683	510	408	369
27	376	2700	734	958	1140	786	710	1220	668	496	401	365
28	372	1770	1260	945	1090	845	698	1060	677	484	398	364
29	366	1370	1300	949	---	971	700	972	835	476	391	365
30	365	1140	1120	999	---	1240	671	905	779	505	389	366
31	363	---	1010	978	---	2150	---	849	---	594	510	---
MEAN	408	962	723	759	1934	1071	1062	1121	889	550	436	399
MAX	598	3370	1300	999	7950	2150	1930	6730	1600	721	541	487
MIN	363	352	497	552	872	781	671	543	668	476	389	364
IN.	.84	1.91	1.49	1.56	3.59	2.20	2.11	2.31	1.77	1.13	.90	.79

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	403	622	708	705	857	1051	1229	1093	764	554	415	394
MAX	1040	2751	2842	2322	2872	2473	3623	2775	2515	1632	889	1015	
(WY)	1985	1986	1983	1950	1985	1945	1945	1957	1945	1951	1958	1975	
MIN	214	224	223	201	261	290	370	352	276	239	204	193	
(WY)	1957	1955	1956	1956	1964	1981	1963	1977	1954	1954	1954	1954	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	851	732
HIGHEST ANNUAL MEAN		1555
LOWEST ANNUAL MEAN		299
HIGHEST DAILY MEAN	7950	45100
LOWEST DAILY MEAN	352	187
INSTANTANEOUS PEAK FLOW	14200	133000
INSTANTANEOUS PEAK STAGE	11.82	28.10
INSTANTANEOUS LOW FLOW	350	187
ANNUAL RUNOFF (INCHES)	20.60	17.71
10 PERCENTILE	1420	1310
50 PERCENTILE	649	495
95 PERCENTILE	368	257

07061300 EAST FORK BLACK RIVER AT LESTERVILLE, MO

LOCATION.--Lat 37°27'03", long 90°49'38", in NE 1/4 SE 1/4 sec.16, T.32 N., R.2 E., Reynolds County, Hydrologic Unit 11010007, at bridge on State Highway 21, 49, and 72 at Lesterville, and 0.8 mi upstream from Black River.

DRAINAGE AREA.--94.5 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 655.34 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. Low flow regulated by Union Electric Company Tamm Sauk pumped-storage power plant lower reservoir, 4 mi upstream, since Feb. 19, 1963, capacity 6,350 acre-ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1935 reached a stage of about 13.8 ft, from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	14	98	156	79	71	452	38	24	39	10	7.9
2	103	13	80	154	222	79	232	38	23	37	9.7	19
3	85	14	69	107	1030	71	423	34	15	33	9.0	4.4
4	50	9.6	64	72	317	71	1390	24	6.6	25	8.8	1.4
5	47	31	57	266	149	114	406	23	57	21	4.2	.85
6	38	33	43	734	145	137	244	23	81	19	1.6	16
7	22	34	60	325	117	115	201	23	39	7.2	1.1	3.9
8	20	23	42	178	101	90	193	15	37	3.9	.86	2.3
9	19	16	41	143	88	118	196	24	36	2.8	.70	1.9
10	15	23	41	118	71	208	138	31	37	2.0	.66	1.4
11	5.1	29	39	96	76	381	139	31	34	2.6	.57	15
12	4.1	36	37	92	79	375	110	30	578	2.2	.50	4.2
13	16	50	31	114	1400	280	91	13	1820	8.6	.40	2.0
14	17	121	14	81	2960	349	120	8.3	1760	13	.34	31
15	17	118	6.3	61	2050	374	75	6.9	385	15	.27	5.4
16	18	486	3.9	56	1260	132	75	25	117	15	.27	2.4
17	83	215	3.2	56	421	124	66	11	127	12	.96	20
18	94	136	2.6	54	271	124	73	11	126	4.0	7.3	3.3
19	94	1420	2.4	17	182	124	67	23	122	2.5	6.6	1.7
20	88	1410	2.2	63	150	90	61	26	87	3.4	2.1	12
21	68	1120	1.9	58	144	78	49	9.3	84	28	1.2	7.3
22	24	229	2.4	43	125	141	46	17	48	32	.93	1.8
23	22	181	206	42	103	110	45	65	73	32	.73	1.1
24	34	127	272	40	102	98	40	57	46	22	3.7	.83
25	18	77	181	36	106	79	38	41	31	7.1	6.8	.81
26	30	407	180	127	57	78	52	41	30	10	2.0	.77
27	20	530	156	163	66	73	31	37	36	27	24	.70
28	19	237	687	119	89	89	10	13	61	23	27	.92
29	19	177	854	114	---	104	5.8	22	51	12	9.2	16
30	18	103	336	118	---	481	23	34	37	11	8.6	4.2
31	14	---	134	103	---	1570	---	28	---	11	8.6	---
MEAN	38.6	247	121	126	427	204	170	26.5	200	15.6	5.12	6.35
MAX	103	1420	854	734	2960	1570	1390	65	1820	39	27	31
MIN	4.1	9.6	1.9	17	57	71	5.8	6.9	6.6	2.0	.27	.70
IN.	.47	2.92	1.47	1.54	4.71	2.49	2.00	.32	2.37	.19	.06	.07

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	35.2	165	192	104	157	237	232	134	73.8	19.8	29.9	35.1
MEAN	35.2	165	192	104	157	237	232	134	73.8	19.8	29.9	35.1
MAX	252	1179	896	313	455	578	657	412	705	212	305	285
(WY)	1985	1986	1983	1969	1985	1977	1983	1961	1985	1981	1982	1970
MIN	.54	2.65	5.20	4.53	9.62	32.6	73.3	14.3	3.38	.44	.39	.26
(WY)	1964	1966	1981	1977	1963	1981	1980	1965	1978	1964	1988	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	130	119
HIGHEST ANNUAL MEAN	334	1985
LOWEST ANNUAL MEAN	25.8	1965
HIGHEST DAILY MEAN	2960	Feb 14
LOWEST DAILY MEAN	.27	Aug 15, 16
INSTANTANEOUS PEAK FLOW	3450	Feb 13
INSTANTANEOUS PEAK STAGE	7.53	Feb 13
INSTANTANEOUS LOW FLOW	.20	Aug 16
ANNUAL RUNOFF (INCHES)	18.62	17.05
10 PERCENTILE	253	229
50 PERCENTILE	41	28
95 PERCENTILE	1.0	.86

WHITE RIVER BASIN

07061500 BLACK RIVER NEAR ANNAPOLIS, MO

LOCATION.--Lat 37°20'10", long 90°47'19", in SW 1/4, NW 1/4, sec.25, T.31 N., R.2 E., Reynolds County, Hydrologic Unit 11010007, on right bank 0.4 mi downstream from Mayberry Branch, 7 mi southwest of Annapolis, 11 mi downstream from East Fork, and at mile 278.5.

DRAINAGE AREA.--484 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 569.72 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Aug. 21, 1942, at site 415 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. Small regulation from upstream reservoir since Feb. 1963. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	426	180	695	859	552	536	2370	286	242	263	184	181
2	855	179	593	797	616	491	1670	280	240	257	181	177
3	584	178	528	755	2170	500	1450	275	235	247	175	177
4	425	180	464	705	1690	489	3260	265	228	234	168	165
5	351	232	438	852	1180	590	2170	260	329	219	162	157
6	305	300	389	1740	953	676	1590	253	401	209	156	155
7	264	279	382	1630	806	653	1370	249	341	198	149	156
8	240	257	353	1190	703	598	1160	249	303	190	145	149
9	227	235	331	942	612	636	1080	260	284	183	140	146
10	217	233	316	799	561	914	904	275	268	176	137	149
11	203	235	304	699	507	1690	794	265	266	170	133	160
12	192	254	292	633	499	1820	695	257	630	169	132	171
13	188	352	281	570	1360	1500	621	242	3600	192	130	166
14	185	459	266	567	10900	1250	600	234	4470	197	127	189
15	182	508	251	487	4600	1310	527	228	2140	187	126	211
16	183	709	241	456	3700	834	512	231	1230	182	133	215
17	210	700	235	424	2530	735	481	227	864	177	149	214
18	246	532	229	424	1870	678	435	222	766	175	143	201
19	256	1910	225	366	1480	631	438	228	715	180	144	188
20	254	3930	224	357	1190	593	400	230	596	189	145	179
21	243	3420	221	385	1060	560	378	222	499	251	151	178
22	208	1720	227	343	897	652	358	250	415	351	157	170
23	198	1160	520	333	769	603	349	371	369	325	155	163
24	206	890	965	325	687	562	338	403	359	287	151	159
25	203	653	789	325	661	534	323	348	303	255	152	156
26	205	1140	701	434	587	498	318	342	278	235	160	154
27	198	2320	649	638	556	474	319	334	279	227	199	153
28	194	1640	1620	633	559	486	283	295	314	224	221	151
29	190	1110	1960	623	---	526	279	269	332	207	220	151
30	188	843	1380	615	---	1140	278	267	283	195	201	160
31	183	---	924	585	---	3120	---	256	---	189	189	---
MEAN	265	891	548	661	1581	848	858	270	719	217	159	170
MAX	855	3930	1960	1740	10900	3120	3260	403	4470	351	221	215
MIN	182	178	221	325	499	474	278	222	228	169	126	146
IN.	.63	2.06	1.31	1.57	3.40	2.02	1.98	.64	1.66	.52	.38	.39

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	270	611	683	582	732	1012	1123	828	530	276	209	219
MAX	1151	3619	3913	2509	2091	2903	3467	2928	4263	1800	1289	1005	
(WY)	1942	1986	1983	1950	1985	1945	1957	1957	1945	1951	1982	1965	
MIN	84.8	111	119	108	147	161	371	232	140	88.5	76.7	72.4	
(WY)	1957	1965	1956	1956	1963	1941	1956	1988	1972	1954	1965	1955	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	590	589
HIGHEST ANNUAL MEAN		1420
LOWEST ANNUAL MEAN		244
HIGHEST DAILY MEAN	10900	44600
LOWEST DAILY MEAN	126	66
INSTANTANEOUS PEAK FLOW	16900	98500
INSTANTANEOUS PEAK STAGE	12.64	25.81
INSTANTANEOUS LOW FLOW	126	65
ANNUAL RUNOFF (INCHES)	16.56	16.53
10 PERCENTILE	1230	1160
50 PERCENTILE	312	270
95 PERCENTILE	149	100

WHITE RIVER BASIN

265

07062000 CLEARWATER LAKE NEAR PIEDMONT, MO

LOCATION.--Lat 37°08'00", long 90°46'31", NW 1/4 sec.6, T.28 N., R.3 E., Wayne County, Hydrologic Unit 11010007, in intake tower at dam on Black River, 2.3 mi upstream from Brewer Bay, 4.5 mi west of Piedmont, and at mile 257.4.

DRAINAGE AREA.--898 mi².

PERIOD OF RECORD.--June 1948 to current year.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Lake is formed by earthfill type dam. Storage began June 3, 1948; conservation pool level reached July 4, 1948. Capacity at crest of spillway 413,700 acre-ft at elevation 567 ft, of which 391,800 acre-ft is available for flood-control storage, and 21,920 acre-ft is permanent storage which under normal operating conditions will be maintained for purposes of conservation and recreation at elevation 494 ft. Lake used for flood control and recreational purposes.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 399,400 acre-ft, May 28, 1957, elevation, 565.59 ft; minimum, since initial filling to conservation pool level, 15,800 acre-ft, Jan. 20, 23, 1972, elevation, 490.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 71,300 acre-ft, Feb. 17, elevation, 514.46 ft; minimum, 21,700 acre-ft, Oct. 12, Apr. 23-24, minimum elevation, 493.86 ft, Apr. 24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23600	22000	29300	25900	22600	34300	32000	24600	28900	28100	29000	25800
2	24600	22000	27100	24300	24400	29700	31600	25000	28800	27500	29000	25700
3	24400	22000	25200	23500	31800	26800	32200	25300	28500	27100	29000	25500
4	23100	22200	23100	23100	35000	25800	40300	25600	28300	27200	29000	25200
5	22500	22400	22300	23500	34700	25700	44000	26000	28300	27300	29000	25200
6	22100	22500	22100	25000	33100	25100	43600	26300	28500	27400	29300	25400
7	21900	22400	22000	26200	30600	23500	43000	26600	28600	27500	29300	25500
8	21900	22100	21900	27200	27100	22800	40600	26900	28400	27600	29100	25600
9	21900	22100	21900	25900	24600	22500	38000	27300	28200	27700	29000	25900
10	21900	22100	21900	23900	23600	22700	34700	27700	27900	27700	29000	26000
11	21800	22000	21900	23100	23100	24100	31000	28000	28100	27900	28900	26200
12	21700	22100	21900	22500	22700	26100	27900	28300	29600	27900	28900	26300
13	21800	22200	22000	22200	25000	26800	26500	28600	40100	27900	28800	26500
14	22000	22400	22000	22300	47400	25000	25300	28900	51300	27800	28800	26400
15	22200	22500	22000	22300	61300	23400	24000	28900	54400	27600	28700	26200
16	22400	22300	22000	22100	70200	22500	22600	28800	53300	27300	28700	26000
17	22300	22500	22000	22000	71300	22300	22000	28800	51300	27200	27800	25800
18	22100	22900	22000	22000	69500	22400	21800	28900	50700	27400	26500	25600
19	22000	25600	22000	22000	67000	22400	21800	29100	50500	27500	26700	25400
20	22000	33300	22000	22000	67800	22300	21900	29200	49100	27600	26900	25100
21	22100	40500	22000	22000	68200	22200	21900	29400	47500	27800	26900	24800
22	22100	41700	22200	22000	65000	22400	21800	29200	45700	28500	26700	23700
23	22200	41200	22500	21900	61300	22200	21700	28800	43500	29100	26700	23400
24	22100	39700	23600	21900	56900	22000	21700	29200	41200	29500	26800	23100
25	22100	37400	24400	22100	52600	22100	22000	29200	38800	29400	26700	23000
26	22000	35800	25000	22500	48300	22300	22500	29200	36300	29200	26500	23100
27	22000	36700	25400	22800	43700	22200	23000	29100	33600	29100	26300	23200
28	22000	36400	27300	23200	39100	22000	23400	29000	31300	29000	26100	23300
29	22000	34600	29000	23500	---	22200	23800	28900	29600	29000	26000	23400
30	22000	32200	28800	23400	---	24000	24200	28800	28400	28900	26000	23500
31	22000	---	27500	22800	---	30000	---	28800	---	29000	25900	---
(-)	494.05	499.73	497.24	494.54	503.00	498.60	495.37	497.97	497.77	498.06	496.38	494.97
(=)	-1400	+10200	-4700	-4700	+16300	-9100	-5800	+4600	-400	+600	-3100	-2400
MAX	24600	41700	29300	27200	71300	34300	44000	29400	54400	29500	29300	26500
MIN	21700	22000	21900	21900	22600	22000	21700	24600	27900	27100	25900	23000

CAL YR 1988-72,000

WTR YR 1989+100

(-) Elevation, in feet NGVD, at end of month

(=) Change in contents, in acre-feet

WHITE RIVER BASIN

07062500 BLACK RIVER AT LEEPER, MO

LOCATION.--Lat 37°03'32", long 90°41'12", in NE 1/4 SE 1/4 NE 1/4 sec.35, T.28 N., R.3 E., Wayne County, Hydrologic Unit 11010007, on downstream side of center pier of bridge on State Highway 49, 1 mi south of Leeper, 4 mi downstream from McKenzie Creek, 8 mi downstream from Clearwater Dam, and at mile 249.

DRAINAGE AREA.--987 mi².

PERIOD OF RECORD.--June 1921 to current year.

REVISED RECORDS.--WSP 762: 1933(M). WSP 1007: 1943. WSP 1281: 1922-23, 1927-29(M).

GAGE.--Water-stage recorder. Datum of gage is 416.54 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 22, 1937, nonrecording gage; Oct. 22, 1937, to Jan. 21, 1942, water-stage recorder; and Jan. 22 to Apr. 6, 1942, nonrecording gage; all at site 1,900 ft downstream from Highway 34 at datum 3.85 ft lower. From Apr. 7, 1942, to Jan. 28, 1981, records were obtained from water-stage recorder attached to downstream pier on Highway 34 bridge.

REMARKS.--Estimated daily discharges: Dec. 3-20 and Jan 3-23. Records good except for estimated daily discharges, which are poor. Flow regulated by Clearwater Lake (station 07062000) 8 mi upstream since June 3, 1948. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	438	315	2350	1670	1030	3250	1930	391	383	860	350	435
2	430	315	2310	1620	1200	3120	2550	385	400	834	344	433
3	587	306	1800	1400	1840	2660	3070	384	514	773	342	427
4	1160	303	1700	1200	1020	1660	1900	383	534	514	341	425
5	888	308	1440	1100	1920	1440	1050	359	522	470	334	414
6	637	301	1200	1200	2380	1360	2770	352	489	449	337	395
7	554	344	1000	1800	2390	1880	2300	348	461	414	323	389
8	414	550	900	1600	2860	1720	3020	350	530	406	346	384
9	399	430	790	1730	2560	1360	2970	352	534	399	347	393
10	396	390	720	2210	1650	1330	3030	347	531	393	316	402
11	390	379	660	1990	1170	1340	3260	345	539	356	310	399
12	360	388	600	1600	1130	1320	3070	343	462	350	309	395
13	324	388	560	1400	1310	1480	2100	338	565	367	309	390
14	267	385	520	1250	1210	2260	1880	348	1040	390	303	380
15	257	486	490	1100	1100	2510	1780	389	1420	442	293	479
16	259	745	460	980	1010	1990	1750	501	2470	456	292	496
17	278	747	430	880	2800	1510	1550	468	2460	438	419	496
18	412	766	410	800	3710	1130	1110	387	2020	350	1010	496
19	414	563	390	730	3530	1090	870	375	1440	337	375	496
20	352	549	375	690	2450	1070	809	371	1780	334	304	495
21	345	498	361	630	1020	1040	793	371	1760	331	319	493
22	346	1440	352	590	2960	902	787	436	1740	330	401	486
23	355	1670	353	560	3030	1020	765	875	1760	341	365	440
24	352	1820	363	524	3410	1020	722	474	1830	355	392	435
25	352	1940	462	504	3350	889	642	550	1800	469	473	426
26	352	2120	511	452	3260	675	464	555	1770	477	514	396
27	350	1910	677	593	3230	734	431	549	1840	475	505	326
28	331	2070	514	708	3410	994	426	541	1780	453	504	278
29	321	2300	876	723	---	790	412	521	1450	412	499	278
30	319	2310	1460	781	---	933	399	479	1260	395	478	278
31	315	---	1680	1080	---	874	---	433	---	361	439	---
MEAN	418	901	862	1100	2212	1463	1620	429	1203	443	393	415
MAX	1160	2310	2350	2210	3710	3250	3260	875	2470	860	1010	496
MIN	257	301	352	452	1010	675	399	338	383	330	292	278
IN.	.49	1.02	1.01	1.29	2.33	1.71	1.83	.50	1.36	.52	.46	.47

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	475	674	995	1118	1223	1513	1686	1438	1108	557	468	447
MAX	1748	2030	3227	3607	4172	4755	7365	4962	6910	2506	3162	2000	
(WY)	1950	1973	1983	1937	1949	1945	1927	1946	1945	1957	1957	1985	
MIN	177	218	224	209	274	314	410	280	210	170	166	183	
(WY)	1956	1965	1965	1956	1963	1941	1932	1932	1936	1934	1936	1954	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	944	973
HIGHEST ANNUAL MEAN		2219
LOWEST ANNUAL MEAN		431
HIGHEST DAILY MEAN	3710	Feb 18
LOWEST DAILY MEAN	257	Oct 15
INSTANTANEOUS PEAK FLOW	6470	Apr 3
INSTANTANEOUS PEAK STAGE	8.60	Apr 3
INSTANTANEOUS LOW FLOW	254	Oct 17
ANNUAL RUNOFF (INCHES)	12.98	13.39
10 PERCENTILE	2170	2400
50 PERCENTILE	523	518
95 PERCENTILE	314	215

07063000 BLACK RIVER AT POPLAR BLUFF, MO

LOCATION.--Lat 36°45'34", long 90°23'17", in SW 1/4 NW 1/4 sec.2, T.24 N., R.6 E., Butler County, Hydrologic Unit 11010007, on right bank at City Light and Water Plant in Poplar Bluff, 1,500 ft upstream from bridge on Business Route Highway 60, 4.8 mi downstream from Indian Creek, and at mile 211.2.

DRAINAGE AREA.--1,245 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1936 to September 1937, October 1939 to current year. Gage-height records collected at site 1,800 ft downstream September 1923 to July 1935, and since July 1935 at site 1,500 ft downstream are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 927: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 317.48 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1940, nonrecording gage at site 1,500 ft downstream at datum 2.00 ft higher; Oct. 1, 1940, to June 7, 1955, at site 1,500 ft downstream at present datum. Prior to July 12, 1985, at datum .10 lower.

REMARKS.--No estimated daily discharges. Water-discharge records good. Considerable regulation by Clearwater Lake (station 07062000) 46 mi upstream since June 3, 1948. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1904 reached a maximum discharge of 100,000 ft³/s, and flood on Mar. 12, 1935, reached a stage of 21.1 ft, present datum (affected by levees constructed since 1904).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	886	489	2760	2230	1450	3770	2510	820	676	1690	674	761
2	897	487	2770	2270	1550	3680	2760	754	655	1480	636	719
3	751	485	2520	2230	5180	3560	3280	713	659	1390	622	696
4	879	481	2170	1980	5410	3320	5010	692	789	1260	614	678
5	1350	485	2070	1710	3120	3800	3970	682	1140	1010	610	669
6	1190	482	1700	2150	2910	3130	2650	646	1040	917	615	628
7	971	466	1260	1960	3010	2490	3410	613	878	866	604	520
8	856	520	1150	2450	3010	2680	3240	606	813	809	577	492
9	708	711	1030	1980	3210	2450	3560	612	862	789	601	543
10	661	625	966	2230	2930	2170	3550	592	848	772	602	742
11	641	592	901	2580	2200	2130	3550	574	859	746	568	547
12	619	588	863	2060	1740	2090	3630	563	2040	721	555	523
13	581	604	818	1840	2550	1980	3410	557	3250	744	551	544
14	537	594	760	1570	6860	2140	2660	550	2620	699	548	985
15	471	605	736	1410	6720	2740	2320	586	2300	720	543	877
16	459	954	712	1260	6240	2900	2160	605	2320	793	532	792
17	440	1050	700	1200	4290	2440	2080	685	2870	799	609	790
18	454	1120	670	1140	4100	1950	1830	667	2940	770	731	779
19	596	2540	655	1030	4300	1630	1500	596	2600	671	1150	768
20	617	3020	643	981	4190	1550	1300	592	2150	639	727	761
21	554	2220	619	929	3570	1520	1210	569	2260	644	604	758
22	536	1450	607	881	2570	1460	1170	630	2220	629	560	754
23	544	1930	636	858	3450	1330	1140	799	2180	626	634	730
24	548	2120	672	843	3610	1380	1100	1010	2200	633	600	679
25	540	2260	705	834	3780	1360	1050	769	2220	676	692	665
26	540	2730	831	1180	3790	1240	944	808	2180	811	935	636
27	540	3430	888	1070	3750	1090	794	830	2170	823	886	510
28	538	2890	1570	1020	3720	1160	757	804	2230	815	836	464
29	508	2700	1260	1180	---	1300	1280	797	2200	764	799	450
30	497	2780	1500	1210	---	2010	987	774	1920	732	872	454
31	492	---	1980	1240	---	3130	---	724	---	794	839	---
MEAN	658	1380	1197	1532	3686	2245	2294	684	1803	846	675	664
MAX	1350	3430	2770	2580	6860	3800	5010	1010	3250	1690	1150	985
MIN	440	466	607	834	1450	1090	757	550	655	626	532	450
IN.	.61	1.24	1.11	1.42	3.08	2.08	2.06	.63	1.62	.78	.63	.60

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	636	948	1374	1588	1695	2094	2245	1940	1303	788	649	606
MEAN	636	948	1374	1588	1695	2094	2245	1940	1303	788	649	606
MAX	1913	2962	5501	5637	4938	5465	7499	5894	7741	3153	3232	2071
(WY)	1983	1973	1983	1937	1949	1945	1945	1946	1945	1957	1957	1985
MIN	259	315	335	309	376	430	709	556	415	293	270	268
(WY)	1957	1954	1954	1956	1963	1941	1956	1987	1941	1944	1944	1954

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1453	1320
HIGHEST ANNUAL MEAN	2858	1985
LOWEST ANNUAL MEAN	564	1954
HIGHEST DAILY MEAN	6860	43400
LOWEST DAILY MEAN	440	186
INSTANTANEOUS PEAK FLOW	7300	65600
INSTANTANEOUS PEAK STAGE	16.45	21.68
INSTANTANEOUS LOW FLOW	429	180
ANNUAL RUNOFF (INCHES)	15.85	14.39
10 PERCENTILE	3110	3200
50 PERCENTILE	897	769
95 PERCENTILE	516	320

WHITE RIVER BASIN

07066000 JACKS FORK AT EMINENCE, MO

LOCATION.--Lat 37°09'18", long 91°21'31", in SW 1/4 NW 1/4 sec.26, T.29 N., R.4 W., Shannon County, Hydrologic Unit 11010008, on left bank 50 ft upstream from bridge on State Highway 19, at Eminence, 1.5 mi downstream from Mahans Creek, and 8.0 mi upstream from mouth.

DRAINAGE AREA.--398 mi².

PERIOD OF RECORD.--October 1921 to current year. Monthly discharge only for October 1921, published in WSP 1311.

REVISED RECORDS.--WSP 787: 1928(M), 1934. WSP 877: 1938. WSP 927: Drainage area. WSP 1281: 1929.

GAGE.--Water-stage recorder. Datum of gage is 617.87 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 27, 1934, nonrecording gage at site 1,350 ft upstream at datum 2.11 ft higher. Jan. 27, 1934, to Jan. 10, 1935, nonrecording gage at site 75 ft downstream at datum 0.04 ft lower. Jan. 11, 1935, to July 9, 1964, nonrecording gage at site 50 ft downstream at present datum.

REMARKS.--Estimated daily discharges: June 1-13. Records fair. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of 1895 and March 1904 reached a stage of about 25 ft, present site and datum, from information by local residents.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	146	499	603	530	543	1750	308	300	255	191	169
2	347	145	439	628	801	515	1440	309	255	249	189	163
3	312	145	380	672	2510	509	1270	301	250	235	184	153
4	263	146	343	656	1860	510	1540	299	260	221	169	156
5	237	146	314	621	1410	540	1440	302	310	214	168	170
6	212	146	290	735	1080	565	1170	299	295	207	168	165
7	195	159	269	739	816	529	1010	301	260	202	177	161
8	184	156	251	603	647	509	934	309	255	196	171	161
9	179	154	252	505	551	548	810	317	250	193	166	161
10	174	160	242	450	500	947	682	310	240	191	165	146
11	168	153	235	414	477	1510	588	301	235	185	154	148
12	162	184	234	391	453	1500	550	294	350	193	156	164
13	157	204	232	360	1090	1300	530	290	500	193	154	163
14	153	238	228	339	6500	1100	505	288	1350	187	153	165
15	152	233	226	326	3010	900	490	289	1050	183	153	169
16	160	232	224	311	3090	694	481	280	746	181	147	207
17	162	288	216	297	2120	593	464	278	550	189	139	215
18	172	281	211	287	1720	552	439	289	455	200	147	203
19	172	1360	207	280	1470	515	428	279	398	200	148	193
20	168	2440	203	269	1330	480	413	270	355	204	153	180
21	163	1990	200	258	1220	462	398	268	318	221	164	178
22	160	1100	212	253	1030	427	392	959	293	216	181	175
23	167	672	1030	249	837	401	378	2790	299	216	179	168
24	162	489	1080	245	705	387	361	1320	287	213	192	165
25	160	410	679	248	651	374	350	858	273	344	189	165
26	158	1820	499	315	632	362	333	625	275	388	203	161
27	157	2070	477	1000	602	354	325	543	301	347	179	159
28	156	1340	1350	736	566	363	322	518	306	276	166	158
29	150	859	1340	612	---	441	319	433	267	219	153	158
30	147	584	932	595	---	1240	311	379	255	206	139	158
31	146	---	694	558	---	2070	---	340	---	199	173	---
MEAN	183	615	451	470	1365	701	681	482	385	223	167	169
MAX	347	2440	1350	1000	6500	2070	1750	2790	1350	388	203	215
MIN	146	145	200	245	453	354	311	268	235	181	139	146
IN.	.53	1.72	1.31	1.36	3.57	2.03	1.91	1.40	1.08	.65	.48	.47

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	223	392	453	463	553	704	827	718	472	257	206	188
MEAN	223	392	453	463	553	704	827	718	472	257	206	188
MAX	1092	1786	2462	2065	1906	1944	2920	2168	2745	1682	984	466
(WY)	1985	1974	1983	1949	1985	1945	1927	1950	1928	1951	1927	1975
MIN	76.5	98.1	96.9	89.8	120	139	203	129	109	84.8	82.6	73.1
(WY)	1957	1955	1956	1956	1934	1956	1954	1936	1936	1934	1954	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	484	453
HIGHEST ANNUAL MEAN	1072	1985
LOWEST ANNUAL MEAN	154	1954
HIGHEST DAILY MEAN	6500	24100
LOWEST DAILY MEAN	139	67
INSTANTANEOUS PEAK FLOW	12100	55800
INSTANTANEOUS PEAK STAGE	10.00	17.58
INSTANTANEOUS LOW FLOW	134	64
ANNUAL RUNOFF (INCHES)	16.51	15.45
10 PERCENTILE	1080	889
50 PERCENTILE	292	237
95 PERCENTILE	153	109

07067000 CURRENT RIVER AT VAN BUREN, MO

LOCATION.--Lat 36°59'29", long 91°00'53", in NE 1/4 NW 1/4 sec.25, T.27 N., R.1 W., Carter County, Hydrologic Unit 11010008, near right bank on downstream side of pier of bridge on U.S. Highway 60 in Van Buren, 0.4 mi downstream from Pike Creek, 4.7 mi upstream from Big Creek, and at mile 90.4.

DRAINAGE AREA.--1,667 mi².

PERIOD OF RECORD.--October 1912 to current year. Prior to July 1921 monthly discharge only, published in WSP 1311.

REVISED RECORDS.--WSP 877: 1938. WSP 897: 1939. WSP 927: Drainage area. WSP 1281: 1929.

GAGE.--Water-stage recorder. Datum of gage is 442.78 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1926, nonrecording gage at site 100 ft downstream at different datum; Sept. 1, 1926, to Oct. 19, 1934, nonrecording gage and Oct. 20, 1934, to Sept. 30, 1939, water-stage recorder, at present site and datum 3.00 ft higher, set to read same as gage 100 ft downstream.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 26, 1904, reached a stage of 29.0 ft, present datum, from floodmarks.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1030	734	2760	2760	2160	2450	6040	1450	1460	1550	963	1020
2	1250	738	2370	2610	2900	2270	5060	1400	1390	1590	931	995
3	1250	739	2100	2620	7860	2180	4550	1380	1350	1440	905	967
4	1090	758	1910	2650	6140	2170	5690	1370	1370	1330	880	940
5	983	769	1760	2640	4540	2500	5830	1370	1620	1250	867	925
6	918	835	1660	3050	3810	2490	4850	1340	1460	1180	871	912
7	879	788	1580	3300	3270	2360	4340	1300	1350	1140	856	898
8	851	777	1530	3020	2860	2280	4020	1290	1280	1100	824	894
9	839	766	1450	2660	2550	2360	3730	1330	1240	1070	807	922
10	822	785	1390	2360	2300	2710	3340	1300	1180	1040	794	971
11	807	771	1340	2170	2170	3660	3020	1250	1170	1020	781	953
12	789	812	1290	2040	2070	4490	2800	1220	2170	999	772	930
13	776	949	1260	1900	3300	4260	2640	1200	4080	1030	764	916
14	769	969	1230	1800	14000	3930	2490	1210	5800	991	759	949
15	765	1000	1190	1730	15200	3570	2390	1210	4570	963	758	1010
16	779	1350	1160	1650	10600	3130	2290	1180	3490	948	759	1050
17	788	1270	1120	1580	8400	2790	2170	1160	2770	940	782	1050
18	775	1460	1090	1520	6580	2570	2070	1200	2400	959	801	1020
19	779	2720	1080	1470	5590	2370	1970	1180	2900	989	771	975
20	777	5590	1080	1410	5030	2210	1900	1160	2330	970	799	941
21	775	6920	1060	1360	4710	2150	1830	1130	1970	1090	838	917
22	758	4650	1070	1320	4230	2080	1790	2260	1770	1110	994	902
23	785	3400	1470	1290	3770	2000	1750	6230	1620	1110	961	886
24	797	2740	2870	1270	3390	1940	1710	4640	1590	1100	941	865
25	778	2310	2420	1280	3120	1880	1670	3310	1480	1020	1040	858
26	768	2670	2050	1490	2940	1830	1620	2620	1390	1240	1290	853
27	759	6790	1900	2050	2810	1810	1570	2200	1350	1250	1160	846
28	765	5340	2910	2540	2640	1820	1540	1970	1770	1150	1280	843
29	754	4050	4170	2410	---	1950	1540	1880	2010	1100	1170	845
30	741	3270	3550	2310	---	3050	1500	1690	1720	1030	1090	858
31	734	---	3040	2250	---	5810	---	1560	---	1020	1050	---
MEAN	843	2224	1834	2081	4962	2680	2924	1774	2068	1120	912	930
MAX	1250	6920	4170	3300	15200	5810	6040	6230	5800	1590	1290	1050
MIN	734	734	1060	1270	2070	1810	1500	1130	1170	940	758	843
IN.	.58	1.49	1.27	1.44	3.10	1.85	1.96	1.23	1.38	.77	.63	.62

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1072	1631	1895	1954	2211	2778	3332	2949	2120	1303	1083	983
MEAN	1072	1631	1895	1954	2211	2778	3332	2949	2120	1303	1083	983
MAX	4087	6473	10740	7357	6764	7148	11730	8256	9761	6465	3581	1958
(WY)	1985	1986	1983	1950	1985	1945	1927	1957	1928	1951	1927	1951
MIN	492	573	535	538	658	777	805	679	628	575	532	495
(WY)	1957	1955	1956	1956	1934	1941	1956	1936	1936	1936	1954	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	2005	1939
AVERAGE FLOW	2005	1939
HIGHEST ANNUAL MEAN		4811
LOWEST ANNUAL MEAN		799
HIGHEST DAILY MEAN	15200	63000
LOWEST DAILY MEAN	734	476
INSTANTANEOUS PEAK FLOW	21900	125000
INSTANTANEOUS PEAK STAGE	12.78	25.9
INSTANTANEOUS LOW FLOW	723	473
ANNUAL RUNOFF (INCHES)	16.33	15.79
10 PERCENTILE	3880	3670
50 PERCENTILE	1410	1210
95 PERCENTILE	765	628

WHITE RIVER BASIN

07067500 BIG SPRING NEAR VAN BUREN, MO

LOCATION.--Lat 36°57'05", long 90°59'36", in SW 1/4 NE 1/4 sec. 6, T.26 N., R.1 E., Carter County, Hydrologic Unit 11010008, on right bank 400 feet downstream from spring outlet, 0.4 mi upstream from Current River, and 3.5 mi southeast of Van Buren.

PERIOD OF RECORD.--October 1921 to current year. Prior to Oct. 1, 1923, published as "near Chicopee". Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1311: 1922-23, 1928(M), 1929.

GAGE.--Nonrecording gage. Datum of gage is 429.08 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 19, 1971, nonrecording gage; prior to Oct. 1, 1934, at datum 1.0 ft higher. Water-stage recorder Feb. 19, 1971, to Mar. 15, 1978, at present datum.

REMARKS.--Estimated daily discharges: Nov. 19 to Dec. 2, Dec. 24, Dec. 28 to Jan. 1, Jan. 6-9, Jan. 15, Feb. 2-10, Feb. 14-28, Mar. 11-17, Mar. 30 to Apr. 13, May 22-30, and June 12-18 due to backwater from Current River. Records fair except for estimated daily discharges, which are poor. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	347	329	480	450	462	654	800	478	506	494	424	450
2	348	328	470	451	560	638	800	473	506	488	421	437
3	340	333	463	451	700	620	780	465	506	485	419	430
4	334	338	448	451	700	656	750	466	508	476	415	428
5	328	338	435	456	680	656	730	467	545	469	415	419
6	326	338	421	480	670	643	710	467	548	467	411	416
7	324	335	417	470	660	621	690	467	531	463	410	418
8	324	335	406	470	650	617	670	467	520	461	413	419
9	324	332	401	465	640	612	660	467	514	461	418	411
10	323	331	394	463	630	612	650	463	507	456	417	419
11	324	335	389	449	619	660	640	461	521	450	412	422
12	325	335	383	437	618	650	630	461	620	448	410	413
13	322	335	382	427	613	640	620	461	680	448	415	412
14	323	335	381	424	800	630	614	456	680	446	416	412
15	326	340	377	420	900	620	600	457	670	447	416	399
16	326	358	376	415	900	610	587	460	660	448	416	395
17	327	381	364	400	880	600	575	461	640	443	416	397
18	328	440	364	394	840	689	562	456	630	442	416	388
19	325	500	361	389	800	573	551	457	622	444	416	381
20	326	520	359	388	780	561	542	460	597	447	416	381
21	326	510	355	388	760	549	537	466	567	448	416	380
22	329	500	346	384	740	540	530	560	545	438	414	377
23	331	490	376	382	720	532	521	600	534	435	413	378
24	331	480	380	382	700	526	515	600	523	435	416	377
25	327	470	380	382	680	519	510	580	510	435	416	374
26	329	490	368	388	670	514	501	560	504	432	416	373
27	329	540	390	404	660	518	499	550	505	426	416	373
28	329	540	420	431	660	540	495	540	506	422	417	371
29	329	510	440	444	---	556	490	530	511	418	422	372
30	329	500	450	452	---	650	483	520	503	417	449	373
31	329	---	450	457	---	720	---	513	---	419	460	---
MEAN	329	408	401	427	703	604	608	493	557	449	418	400
MAX	348	540	480	480	900	720	800	600	680	494	460	450
MIN	322	328	346	382	462	514	483	456	503	417	410	371

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	356	486	628	521	535	570	661	576	510	419	377	364
	MAX	491	769	1070	721	748	705	800	888	673	538	468	417
(WY)	1985	1986	1983	1985	1985	1985	1984	1983	1986	1986	1986	1986	1986
	MIN	282	287	316	295	346	440	500	376	325	320	293	292
(WY)	1988	1988	1987	1987	1987	1983	1987	1987	1987	1987	1987	1987	1987

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	481	500
HIGHEST ANNUAL MEAN		620
LOWEST ANNUAL MEAN		361
HIGHEST DAILY MEAN	900a	2000
LOWEST DAILY MEAN	322	275
INSTANTANEOUS PEAK FLOW	900a	2000
INSTANTANEOUS PEAK STAGE	*****	*****
INSTANTANEOUS LOW FLOW	322	236
ANNUAL RUNOFF (INCHES)	*****	*****

a Estimated due to backwater from Current River

***** Indicates not enough data, therefore statistic is not computed

WHITE RIVER BASIN

271

07068000 CURRENT RIVER AT DONIPHAN, MO

LOCATION.--Lat 36°37'19", long 90°50'51", in NW 1/4 NW 1/4 sec.27, T.23 N., R.2 E., Ripley County, Hydrologic Unit 11010008, on right bank 0.5 mi upstream from U.S. Highway 160, 1 mi west of Doniphan, 2.5 mi upstream from Briar Creek, and at mile 51.3.

DRAINAGE AREA.--2,038 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1918 to current year. Prior to July 1921 monthly discharge only, published in WSP 1311.

REVISED RECORDS.--WSP 877: 1937-38(M). WSP 927: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 321.21 ft above National Geodetic Vertical Datum of 1929. July 1936 to Sept. 30, 1971, datum was 1.00 ft higher. Prior to July 3, 1936, nonrecording gages at several sites 0.5 mi downstream at various datum.

REMARKS.--Estimated daily discharges: Oct. 18. Water-discharge records good. National Weather Service gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1904 reached a stage of 25.9 ft, from floodmarks, present site and datum, discharge, 130,000 ft³/s, from rating curve extended above 60,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1500	1420	3160	3040	2730	3640	6520	2440	2360	2410	1580	1530
2	1680	1430	2920	2940	2900	3490	5860	2390	2310	2260	1540	1470
3	1790	1440	2720	2890	9390	3360	5280	2350	2250	2280	1510	1430
4	1760	1550	2620	2900	8250	3350	5680	2320	2220	2180	1480	1400
5	1600	1550	2510	2950	5900	4050	6310	2310	2640	2090	1460	1380
6	1490	1570	2380	3170	4740	3960	5680	2280	2490	2010	1470	1360
7	1420	1610	2280	3430	4090	3730	5010	2250	2330	1940	1450	1350
8	1380	1570	2220	3400	3620	3600	4620	2240	2260	1890	1420	1350
9	1360	1550	2140	3140	3280	3550	4320	2250	2200	1850	1400	1380
10	1350	1600	2060	2960	3020	3630	4030	2230	2140	1820	1390	1400
11	1340	1580	2000	2830	2830	3920	3760	2190	2180	1780	1370	1400
12	1320	1610	1960	2730	2710	4620	3570	2160	2990	1750	1360	1380
13	1310	1690	1920	2770	4710	4820	3440	2140	4730	1750	1360	1360
14	1300	1770	1880	2570	11600	4540	3330	2130	5890	1730	1350	1370
15	1310	1780	1840	2480	22200	4240	3230	2150	5370	1700	1350	1380
16	1310	2070	1800	2390	17800	3950	3160	2110	4480	1680	1350	1420
17	1350	2290	1770	2310	11600	3680	3080	2090	3750	1650	1350	1420
18	1350	2370	1740	2230	8530	3490	3000	2090	3380	1660	1360	1420
19	1350	3270	1720	2170	7010	3350	2920	2110	3290	1670	1360	1390
20	1360	5040	1710	2100	6250	3230	2850	2060	3320	1660	1380	1360
21	1370	6490	1690	2050	5900	3160	2800	2040	2970	1680	1400	1340
22	1370	5870	1680	2000	5410	3100	2740	2440	2750	1770	1420	1320
23	1400	4050	1740	1960	4900	3030	2710	4180	2580	1740	1500	1310
24	1430	3290	2370	1940	4520	2970	2660	5550	2480	1710	1440	1290
25	1430	2950	2780	1930	4250	2910	2630	3990	2400	1720	1500	1270
26	1420	3090	2590	2050	4070	2860	2580	3440	2320	1690	1670	1270
27	1420	4640	2440	2270	3930	2820	2540	3120	2230	1820	1690	1260
28	1440	6130	2720	2720	3800	2800	2510	2850	2240	1810	1580	1260
29	1430	4520	3520	2830	---	2860	2520	2730	2630	1700	1660	1260
30	1420	3650	3690	2790	---	3210	2490	2590	2580	1660	1700	1280
31	1420	---	3270	2760	---	5190	---	2460	---	1610	1630	---
MEAN	1425	2781	2317	2603	6426	3584	3728	2570	2925	1828	1467	1360
MAX	1790	6490	3690	3430	22200	5190	6520	5550	5890	2410	1700	1530
MIN	1300	1420	1680	1930	2710	2800	2490	2040	2140	1610	1350	1260
IN.	.81	1.52	1.31	1.47	3.28	2.03	2.04	1.45	1.60	1.03	.83	.74

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	1629	2296	2700	2831	3103	3836	4537	4041	2993	1966	1678	1536
MAX	4596	7343	16210	9054	7971	9260	16140	10430	12610	7676	5001	2765	
(WY)	1985	1986	1983	1949	1985	1935	1927	1957	1928	1951	1927	1982	
MIN	872	927	950	917	1122	1218	1476	1183	1075	959	951	903	
(WY)	1957	1955	1956	1956	1934	1941	1956	1936	1936	1934	1936	1954	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	2722	2757
AVERAGE FLOW		5856
HIGHEST ANNUAL MEAN		1326
LOWEST ANNUAL MEAN		90000
HIGHEST DAILY MEAN	22200	852
LOWEST DAILY MEAN	1260	122000
INSTANTANEOUS PEAK FLOW	27900	25.49
INSTANTANEOUS PEAK STAGE	11.58	852
INSTANTANEOUS LOW FLOW	1250	18.37
ANNUAL RUNOFF (INCHES)	18.14	4970
10 PERCENTILE	4470	1900
50 PERCENTILE	2270	1080
95 PERCENTILE	1320	

WHITE RIVER BASIN

07068000 CURRENT RIVER AT DONIPHAN, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1979 to September 1980, October 1981 to September 1982, water years 1984 to June 1989 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: March 1965 to September 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 27.0°C several days during summer months in 1967, 1968, 1969; minimum, 2.5°C, Jan. 9, 10, 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
OCT											
12...	1630	1310	312	--	8.00	16.0	10.5	104	16	K1	190
NOV											
03...	1000	1440	324	--	8.30	12.5	10.4	97	<10	K5	--
DEC											
14...	0930	1880	--	280	8.10	7.5	12.2	101	11	K14	--
JAN											
12...	0930	2760	--	276	8.00	8.5	11.3	94	11	31	140
FEB											
08...	0900	3650	245	--	7.80	6.0	12.1	93	<10	K14	--
MAR											
08...	1030	3600	260	--	8.20	7.0	12.5	100	12	K3	--
APR											
13...	1100	3450	250	--	8.00	12.5	10.7	98	<10	K19	130
MAY											
16...	1030	2100	298	--	7.90	18.0	9.7	101	12	25	--
JUN											
05...	1330	2600	270	--	8.10	19.5	8.8	94	18	500	--

DATE	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT											
12...	22	38	24	2.0	0.90	186	3.6	3.7	2.3	<0.10	185
NOV											
03...	--	--	--	--	--	185	1.8	--	--	--	186
DEC											
14...	--	--	--	--	--	152	2.3	--	--	--	144
JAN											
12...	5	30	17	1.5	0.90	140	2.7	5.3	1.8	0.10	150
FEB											
08...	--	--	--	--	--	126	3.9	--	--	--	147
MAR											
08...	--	--	--	--	--	128	1.6	--	--	--	130
APR											
13...	5	27	16	1.4	0.80	128	2.5	4.7	1.7	0.10	128
MAY											
16...	--	--	--	--	--	160	3.9	--	--	--	156
JUN											
05...	--	--	--	--	--	130	2.0	--	--	--	148

K--Results based on colony count outside the acceptable range (non-ideal colony count).

273

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

WHITE RIVER BASIN

07071000 GREER SPRING AT GREER, MO

LOCATION.--Lat 36°47'11", long 91°20'53", in SE 1/4 SW 1/4 sec.36, T.25 N., R.4 W., Oregon County, Hydrologic Unit 11010011, on right bank 300 ft downstream from lower outlet of spring, 1 mi north of Greer, and 1 mi upstream from Eleven Point River.

PERIOD OF RECORD.--August to December 1904 (gage heights and discharge measurements only), October 1921 to current year. October to December 1921 monthly discharge only, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 564.00 ft above National Geodetic Vertical Datum of 1929. Aug. 10 to Dec. 31, 1904, nonrecording gage at site 250 ft downstream at different datum. Nov. 17, 1921, to June 25, 1934, nonrecording gage at site 250 ft downstream at datum 0.74 ft lower than present datum.

REMARKS.--No estimated daily discharges. Records fair. Occasional runoff from drainage area of 2.97 mi² included in records.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	223	208	377	355	341	543	554	381	412	434	368	375
2	227	209	368	358	378	535	547	381	410	432	368	368
3	225	213	358	362	546	527	548	384	406	423	368	363
4	222	214	346	357	547	524	575	381	406	417	368	359
5	221	211	340	357	531	524	560	383	411	413	367	355
6	219	211	333	376	513	522	543	381	408	406	363	355
7	218	212	325	383	490	517	535	378	407	401	360	351
8	214	212	320	372	469	511	526	377	403	398	358	349
9	212	212	315	367	460	510	513	377	399	400	353	345
10	212	212	311	360	444	520	499	377	394	400	350	341
11	212	212	305	355	433	541	490	377	390	396	350	338
12	211	216	303	348	423	552	480	377	402	392	349	334
13	208	225	300	339	499	558	474	377	448	387	346	332
14	208	225	300	334	629	559	469	375	477	386	346	326
15	211	224	299	332	648	548	464	372	487	387	346	325
16	212	236	291	328	650	533	458	374	478	389	347	325
17	211	239	285	324	636	526	449	372	477	382	350	325
18	208	241	282	321	624	517	447	372	469	381	350	324
19	208	305	278	318	615	511	439	369	463	381	350	318
20	208	380	285	314	614	510	434	368	457	378	347	315
21	208	395	288	308	610	503	429	366	448	375	346	312
22	208	386	286	305	606	489	425	393	442	375	345	312
23	208	372	297	304	597	481	419	446	437	377	345	311
24	211	363	306	301	585	474	414	458	432	377	341	307
25	211	350	303	297	582	472	410	457	428	378	339	304
26	208	371	300	306	578	465	406	448	427	381	345	304
27	208	413	300	324	570	459	398	442	422	381	346	303
28	209	414	341	329	560	460	395	433	420	380	343	297
29	211	398	356	333	---	474	394	427	432	375	341	296
30	208	386	359	341	---	508	388	422	438	372	355	296
31	208	---	356	346	---	551	---	415	---	369	375	---
MEAN	213	282	317	337	542	514	469	395	431	391	352	329
MAX	227	414	377	383	650	559	575	458	487	434	375	375
MIN	208	208	278	297	341	459	388	366	390	369	339	296

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	253	277	299	324	344	389	437	438	400	333	292	263
MAX	447	586	750	648	652	674	724	776	861	611	563	503
(WY)	1985	1985	1928	1928	1949	1975	1927	1927	1927	1945	1927	1928
MIN	111	111	113	108	144	152	180	142	140	127	122	120
(WY)	1957	1955	1956	1956	1981	1981	1936	1936	1936	1936	1936	1955

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	380	337
HIGHEST ANNUAL MEAN		566
LOWEST ANNUAL MEAN		174
HIGHEST DAILY MEAN	650	1010
LOWEST DAILY MEAN	208	104
INSTANTANEOUS PEAK FLOW	661	1770
INSTANTANEOUS PEAK STAGE	1.54	2.97
INSTANTANEOUS LOW FLOW	208	104
ANNUAL RUNOFF (INCHES)	*****	*****
10 PERCENTILE	525	548
50 PERCENTILE	374	316
95 PERCENTILE	212	145

***** Indicates not enough data, therefore statistic is not computed

WHITE RIVER BASIN

275

07071500 ELEVEN POINT RIVER NEAR BARDLEY, MO

LOCATION.--Lat 36°38'55", long 91°12'03", in NE 1/4 SE 1/4 sec.17, T.23 N., R.2 W., Oregon County, Hydrologic Unit 11010011, on downstream side of right pier of main truss of bridge on U.S. Highway 160, 7 mi southwest of Bardley, 7.5 mi upstream from Fredericks Fork, and at mile 53.7.

DRAINAGE AREA.--793 mi².

PERIOD OF RECORD.--October 1921 to current year. October 1921 monthly discharge only, published in WSP 1311.

REVISED RECORDS.--WSP 827: 1927-28, 1935. WSP 927: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 410.84 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1934, nonrecording gage at site 100 ft upstream at datum 0.06 ft higher. June 26, 1934, to Oct. 19, 1939, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 19.7 ft, August 1915, from floodmarks, discharge, 44,000 ft³/s, from rating curve extended above 25,000 ft³/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	426	306	913	750	815	1340	1990	870	847	881	590	549
2	430	305	852	748	862	1300	1730	853	827	846	584	537
3	412	307	809	758	4590	1280	1630	844	817	823	581	518
4	389	325	766	745	2680	1260	3190	836	859	799	572	504
5	368	319	727	761	1960	1460	2260	828	1390	777	563	496
6	364	311	703	941	1680	1490	1870	812	1130	759	556	488
7	357	306	685	975	1490	1390	1710	796	994	739	551	480
8	350	305	665	924	1360	1340	1600	787	931	723	546	482
9	348	302	633	858	1240	1330	1490	788	885	712	541	486
10	344	312	614	819	1170	1400	1380	779	839	700	535	495
11	338	299	596	791	1130	1540	1310	765	822	686	528	483
12	331	319	577	766	1080	1580	1270	754	883	680	526	473
13	324	336	568	726	1590	1530	1230	742	1050	672	519	467
14	325	343	560	704	6110	1480	1190	739	1250	664	518	464
15	324	335	543	690	4810	1410	1170	730	1260	655	512	461
16	341	438	524	666	4090	1310	1140	721	1200	648	512	454
17	329	495	516	645	2970	1250	1110	717	1130	640	509	448
18	324	460	506	633	2460	1220	1090	727	1080	645	503	446
19	317	1230	501	618	2170	1160	1060	720	1030	642	498	443
20	316	2020	498	601	2030	1140	1030	708	984	633	528	437
21	315	1530	485	582	2040	1120	1010	700	951	636	522	431
22	312	1200	482	571	1890	1080	998	1030	921	624	504	424
23	329	1040	492	565	1720	1050	982	1780	894	614	493	421
24	324	928	518	559	1620	1040	972	1360	870	606	488	414
25	320	852	514	560	1550	1020	959	1180	848	626	496	411
26	315	993	502	597	1520	1000	935	1090	831	644	499	411
27	313	1330	521	670	1470	987	917	1030	824	625	501	407
28	318	1190	710	692	1420	987	913	962	833	614	493	402
29	307	1070	822	734	---	1010	906	920	897	611	485	402
30	304	984	796	810	---	1190	892	890	890	610	497	411
31	306	---	770	818	---	2400	---	864	---	604	543	---
MEAN	339	683	625	719	2126	1293	1331	881	966	682	526	458
MAX	430	2020	913	975	6110	2400	3190	1780	1390	881	590	549
MIN	304	299	482	559	815	987	892	700	817	604	485	402
IN.	.49	.96	.91	1.05	2.79	1.88	1.87	1.28	1.36	.99	.76	.64

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	416	560	708	783	839	1062	1292	1142	895	608	483	423
MAX	1291	2003	4048	3007	2223	3556	5037	2952	3107	1559	1354	1183
(WY)	1985	1985	1983	1985	1949	1945	1927	1973	1928	1951	1927	1975
MIN	168	176	170	159	224	264	339	266	245	213	199	181
(WY)	1957	1957	1956	1956	1963	1981	1981	1936	1936	1936	1936	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989
AVERAGE FLOW	876								767			
HIGHEST ANNUAL MEAN									1782		1985	
LOWEST ANNUAL MEAN									310		1981	
HIGHEST DAILY MEAN	6110	Feb 14							26800	Apr 14	1927	
LOWEST DAILY MEAN	299	Nov 11							155	Jan 26	1956	
INSTANTANEOUS PEAK FLOW	7280	Feb 14							49800	Dec 3	1982	
INSTANTANEOUS PEAK STAGE	9.02	Feb 14							21.64	Dec 3	1982	
INSTANTANEOUS LOW FLOW	297	Nov 11							152	Jan 27	1956	
ANNUAL RUNOFF (INCHES)	15.00								13.13			
10 PERCENTILE	1490								1420			
50 PERCENTILE	738								540			
95 PERCENTILE	317								224			

ARKANSAS RIVER BASIN

07186000 SPRING RIVER NEAR WACO, MO

LOCATION.--Lat 37°14'44", long 94°33'58", on line between SE 1/4 sec.7 and NE 1/4 sec.18, T.29 N., R.33 W., Jasper County, Hydrologic Unit 11070207, on left bank on downstream side of left pier of county highway bridge, 0.8 mi downstream from Blackberry Creek, 1.5 mi east of Waco, and 47.6 mi upstream from mouth.

DRAINAGE AREA.--1,164 mi².

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

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 833.23 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 23, 1935, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Feb. 6 and 7. Records good except for periods of estimated daily discharge, which are fair. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	404	94	596	2590	1260	644	2120	283	239	168	4940	1110
2	349	93	529	2740	1050	609	1440	280	222	241	2800	529
3	277	93	475	2210	892	590	1250	277	217	212	1010	364
4	224	93	428	1490	742	913	1150	283	241	170	656	293
5	191	90	396	1210	654	1220	1020	281	310	142	518	250
6	178	88	372	1300	600	994	901	274	624	127	419	235
7	171	87	364	1240	560	792	824	261	463	118	350	223
8	165	86	424	1010	515	735	763	260	296	111	298	199
9	160	91	430	833	492	955	716	275	246	109	262	1860
10	154	119	368	740	462	3020	668	271	224	101	234	2290
11	148	114	352	694	452	6600	629	259	684	98	215	1040
12	143	3220	322	655	460	5040	604	250	2110	110	196	615
13	138	3180	301	609	573	3510	583	238	1130	116	189	702
14	133	1750	286	573	840	1950	559	230	512	111	180	2010
15	127	683	266	555	2230	1540	543	225	336	113	164	1780
16	126	960	247	537	2960	1280	528	220	266	171	164	1000
17	122	779	231	510	1910	1140	509	216	230	251	165	679
18	116	541	220	487	1220	1040	489	221	207	579	159	542
19	112	388	216	457	1030	951	469	256	187	3720	769	438
20	115	1520	213	422	973	994	450	407	176	3170	1300	368
21	121	3180	202	393	1160	2140	431	387	160	1050	964	317
22	115	2290	1620	372	1150	2060	416	1330	167	486	429	283
23	116	1320	6440	356	952	1280	400	3140	247	398	283	260
24	110	967	3460	341	793	1060	383	2740	166	406	229	236
25	105	764	2140	926	734	941	368	1360	196	584	197	217
26	103	2340	951	3230	707	862	355	531	192	580	1200	200
27	100	2570	3710	2080	695	800	340	401	171	448	791	189
28	104	1600	6010	1900	675	1120	322	339	156	316	498	180
29	103	956	4140	4900	---	1810	306	298	199	248	275	172
30	99	698	2240	3460	---	1530	292	269	170	212	4210	165
31	96	---	1860	1830	---	2520	---	246	---	1640	3130	---
MEAN	152	1025	1284	1311	955	1634	661	526	358	526	877	625
MAX	404	3220	6440	4900	2960	6600	2120	3140	2110	3720	4940	2290
MIN	96	86	202	341	452	590	292	216	156	98	159	165
IN.	.15	.98	1.27	1.30	.85	1.62	.63	.52	.34	.52	.87	.60

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	679	862	685	676	913	1177	1437	1377	1369	657	467	453
MAX	6997	6726	3878	3222	6372	5809	7542	11640	5521	4323	7812	3236
(WY)	1942	1986	1988	1973	1985	1973	1927	1943	1928	1976	1927	1945
MIN	21.0	30.5	33.3	29.7	31.0	33.6	38.2	120	73.4	15.2	7.71	22.0
(WY)	1957	1954	1964	1964	1964	1954	1956	1932	1954	1954	1954	1956

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	829	888
HIGHEST ANNUAL MEAN		2705
LOWEST ANNUAL MEAN		61.4
HIGHEST DAILY MEAN	6600	81800
LOWEST DAILY MEAN	86	4.5
INSTANTANEOUS PEAK FLOW	7360	103000
INSTANTANEOUS PEAK STAGE	12.16	30.94
INSTANTANEOUS LOW FLOW	86	4.2
ANNUAL RUNOFF (INCHES)	9.67	10.35
10 PERCENTILE	2110	1770
50 PERCENTILE	439	289
95 PERCENTILE	107	45

07186400 CENTER CREEK NEAR CARTERVILLE, MO

LOCATION.--Lat 37°08'26", long 94°22'57", in NW 1/4 NW 1/4 NW 1/4 sec.24, T.28 N., R.32 W., Jasper County, Hydrologic Unit 11070207, on downstream side of right pier of bridge on State Highway HH, 1.5 mi downstream from Grove Creek, 3 mi east of Carterville, and 17 mi above mouth.

DRAINAGE AREA.--232 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 913.21 ft above National Geodetic Vertical Datum of 1929 (Missouri State Highway and Transportation Commission).

REMARKS.--Estimated daily discharges: Feb. 5-9. Water-discharge records good.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of October 2, 1959, reached a stage of 18.57 ft, from floodmark.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	44	191	566	361	243	484	115	71	61	487	193
2	59	44	176	472	329	234	425	114	69	53	194	158
3	55	44	165	423	296	229	391	113	72	50	154	133
4	53	44	152	378	277	244	354	115	80	47	126	115
5	51	44	142	356	265	238	315	110	88	46	110	105
6	50	43	136	336	250	242	286	105	74	44	99	95
7	50	43	137	313	240	230	269	102	70	43	88	84
8	48	43	132	287	225	224	256	105	69	41	80	77
9	46	45	123	267	215	227	240	108	65	40	74	138
10	46	54	119	254	205	293	226	100	63	40	68	165
11	44	56	115	243	193	1710	216	97	67	39	64	133
12	43	158	112	232	188	976	208	95	73	44	60	116
13	42	211	108	219	212	703	200	94	73	47	57	130
14	40	166	106	213	229	579	193	91	67	41	54	172
15	39	145	101	205	428	501	187	89	64	40	52	171
16	47	138	96	196	540	433	181	88	61	47	50	177
17	44	141	94	190	404	390	175	85	60	50	50	173
18	44	132	91	184	363	355	169	88	58	72	47	158
19	43	128	89	177	340	320	163	113	57	125	84	142
20	45	356	90	170	339	304	157	104	55	92	155	129
21	45	381	85	164	397	350	153	101	53	73	126	118
22	44	285	205	159	348	319	149	127	52	66	104	111
23	51	250	304	156	317	298	145	110	53	61	91	105
24	51	225	260	152	301	284	141	99	56	64	80	99
25	49	209	229	204	288	271	137	92	66	73	72	94
26	48	270	211	261	278	258	133	88	60	60	69	89
27	47	282	415	255	267	247	129	83	58	56	64	84
28	46	248	641	283	255	257	125	79	66	52	58	79
29	46	225	443	596	---	290	121	76	60	48	55	74
30	45	207	386	452	---	283	118	73	59	46	834	70
31	44	---	393	398	---	589	---	71	---	862	378	---
MEAN	47.4	155	195	283	298	391	215	97.7	64.6	81.4	132	123
MAX	64	381	641	596	540	1710	484	127	88	862	834	193
MIN	39	43	85	152	188	224	118	71	52	39	47	70
IN.	.24	.75	.97	1.40	1.34	1.94	1.03	.49	.31	.40	.65	.59

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	116	274	234	174	219	346	342	229	229	125	64.1	108
MAX	507	1318	992	579	782	1189	1154	669	849	861	132	388	
(WY)	1987	1986	1974	1973	1985	1975	1973	1983	1974	1976	1989	1986	
MIN	19.1	23.6	21.4	18.6	21.6	34.4	59.3	71.0	35.2	25.7	19.2	17.8	
(WY)	1965	1964	1964	1964	1964	1981	1963	1963	1972	1972	1972	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	173	204
HIGHEST ANNUAL MEAN		491
LOWEST ANNUAL MEAN		51.4
HIGHEST DAILY MEAN	1710	10000
LOWEST DAILY MEAN	39	9.7
INSTANTANEOUS PEAK FLOW	2610	36300
INSTANTANEOUS PEAK STAGE	7.62	17.68
INSTANTANEOUS LOW FLOW	38	9.4
ANNUAL RUNOFF (INCHES)	10.12	11.96
10 PERCENTILE	354	405
50 PERCENTILE	122	98
95 PERCENTILE	44	27

ARKANSAS RIVER BASIN

07186400 CENTER CREEK NEAR CARTERVILLE, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1962 to September 1975, water years 1980 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL AS CAC03 (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CAC03 (00902)
OCT											
05...	0915	50	369	7.60	13.5	7.7	72	16	110	170	35
NOV											
02...	1615	42	380	8.00	13.5	12.0	116	14	33	--	--
DEC											
07...	1400	134	327	7.90	9.0	10.9	93	<10	120	--	--
JAN											
04...	1600	370	280	8.00	9.5	9.6	83	19	27	130	25
FEB											
08...	0900	225	287	7.80	3.0	14.6	107	<10	20	--	--
MAR											
08...	1430	222	295	8.30	6.5	13.6	109	13	K4	--	--
APR											
04...	1345	342	287	8.10	14.0	10.1	97	<10	50	140	27
MAY											
10...	1300	100	332	8.10	16.5	10.0	101	15	58	--	--
JUN											
07...	1305	71	341	8.00	21.0	7.7	86	24	220	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CAC03) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
05...	61	3.7	12	1.9	133	6.5	15	11	0.20	225
NOV										
02...	--	--	--	--	137	2.7	--	--	--	234
DEC										
07...	--	--	--	--	121	3.0	--	--	--	203
JAN										
04...	48	2.5	5.4	1.7	105	2.0	13	7.8	0.20	167
FEB										
08...	--	--	--	--	128	3.9	--	--	--	167
MAR										
08...	--	--	--	--	128	1.3	--	--	--	172
APR										
04...	51	2.5	5.6	1.4	111	1.7	11	6.8	0.10	170
MAY										
10...	--	--	--	--	126	1.9	--	--	--	189
JUN										
07...	--	--	--	--	129	2.5	--	--	--	204

K--Results based on colony count outside the acceptable range (non-ideal colony count).

279

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

07186480 CENTER CREEK NEAR SMITHFIELD, MO

WATER-QUALITY RECORDS

LOCATION.--Lat 37°09'20", long 94°36'10", NE 1/4 sec.14, T.28 N., R.34 W., Jasper County, Hydrologic Unit 11070207, at bridge on county road, 1 mi south of Smithfield.

PERIOD OF RECORD.--October 1968 to July 1975, July 1977 to June 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARD-NESS TOTAL (MG/L CACO3) (00900)	HARD-NESS WH WAT TOT FLD (MG/L AS CACO3) (00902)
OCT 06...	1030	140	490	7.60	13.5	9.3	87	16	220	230	110
NOV 02...	1500	125	499	8.00	13.5	11.8	114	16	K18	--	--
DEC 07...	1515	250	395	7.90	9.0	11.5	99	<10	160	--	--
JAN 05...	0815	460	339	7.90	8.5	11.0	94	18	840	160	55
FEB 08...	1030	434	346	7.70	2.0	12.1	86	<10	K72	--	--
MAR 08...	1530	300	354	8.30	6.5	13.8	110	13	K15	--	--
APR 04...	1500	450	338	8.10	14.5	10.4	101	12	60	160	50
MAY 10...	1410	190	390	8.00	16.5	10.4	105	13	K26	--	--
JUN 07...	1425	160	453	7.90	21.0	8.0	90	39	68	--	--

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT 06...	86	3.9	11	1.9	124	6.1	81	10	0.30	322
NOV 02...	--	--	--	--	138	2.7	--	--	--	311
DEC 07...	--	--	--	--	128	3.1	--	--	--	251
JAN 05...	60	2.8	6.2	1.7	107	2.6	37	7.6	0.20	208
FEB 08...	--	--	--	--	128	4.9	--	--	--	227
MAR 08...	--	--	--	--	131	1.3	--	--	--	214
APR 04...	60	2.8	6.1	1.5	112	1.7	32	7.4	0.10	205
MAY 10...	--	--	--	--	127	2.5	--	--	--	229
JUN 07...	--	--	--	--	117	2.9	--	--	--	282

K--Results based on colony count outside the acceptable range (non-ideal colony count).

281

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

ARKANSAS RIVER BASIN

07187000 SHOAL CREEK ABOVE JOPLIN, MO

LOCATION.--Lat 37°01'23", long 94°30'58", in SE 1/4 NE 1/4 NE 1/4 sec.34, T.27 N., R.33 W., Newton County, Hydrologic Unit 11070207, on right bank 250 ft upstream from mouth of Spring Creek, 1,400 ft downstream from bridge on State Highway 86, 0.5 mi south of city limits of Joplin and 13.2 mi above mouth.

DRAINAGE AREA.--427 mi².

PERIOD OF RECORD.--October 1941 to current year.

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 886.87 ft above National Geodetic Vertical Datum of 1929. Prior to July 21, 1966, water-stage recorder at site 1.8 mi upstream, at datum 15.5 ft higher.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	85	268	501	519	392	756	259	179	144	1170	106
2	141	84	249	533	477	379	731	255	177	143	631	100
3	131	84	233	537	437	367	696	258	194	131	426	97
4	124	85	219	510	395	388	645	265	204	123	342	93
5	118	82	205	486	368	394	569	259	204	119	289	92
6	118	81	197	457	347	396	527	246	186	115	254	97
7	120	79	199	429	326	369	491	240	176	109	216	93
8	118	79	195	394	313	356	468	238	175	106	195	88
9	118	83	185	364	296	373	443	243	168	102	181	130
10	114	114	176	345	287	502	414	237	161	98	172	188
11	109	104	170	332	281	1350	394	229	171	92	160	195
12	104	215	161	318	272	1690	387	224	193	108	150	154
13	102	263	157	302	284	1570	371	225	202	122	144	188
14	98	247	155	293	357	1310	360	224	184	110	139	197
15	95	208	152	285	477	1130	353	221	169	107	130	203
16	106	206	148	274	692	983	346	219	160	112	128	204
17	104	189	144	264	751	887	340	215	152	128	126	195
18	97	177	142	255	698	806	333	220	150	144	122	175
19	92	177	138	243	635	729	327	255	143	146	145	153
20	93	255	140	231	616	710	313	259	138	150	204	142
21	99	332	134	223	609	676	309	249	132	126	178	134
22	95	345	220	218	565	611	307	319	129	124	197	127
23	109	315	282	215	520	569	303	268	132	141	147	118
24	107	285	286	209	491	536	296	239	148	162	130	110
25	108	269	264	220	474	510	290	222	165	178	122	106
26	98	297	252	251	454	484	283	235	143	170	116	100
27	94	341	314	268	438	458	278	234	135	143	113	96
28	94	337	425	294	414	495	276	213	149	129	106	92
29	90	311	494	440	---	501	272	201	150	121	101	90
30	89	288	475	580	---	514	266	188	139	114	119	89
31	85	---	462	561	---	695	---	181	---	597	116	---
MEAN	107	201	234	349	457	682	405	237	164	142	218	132
MAX	148	345	494	580	751	1690	756	319	204	597	1170	204
MIN	85	79	134	209	272	356	266	181	129	92	101	88
IN.	.29	.52	.63	.94	1.11	1.84	1.06	.64	.43	.38	.59	.34

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	300	391	334	300	374	537	655	678	527	321	219	228
MEAN	300	391	334	300	374	537	655	678	527	321	219	228
MAX	1709	2034	1570	1145	1233	1961	3281	4691	1969	1550	2337	1043
(WY)	1960	1986	1974	1973	1968	1973	1945	1943	1957	1976	1950	1945
MIN	48.3	55.4	57.3	54.9	61.7	57.9	56.0	120	81.4	47.0	37.1	47.0
(WY)	1957	1964	1964	1964	1964	1954	1954	1963	1954	1954	1954	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	276	405
HIGHEST ANNUAL MEAN		1008
LOWEST ANNUAL MEAN		77.8
HIGHEST DAILY MEAN	1690	36700
LOWEST DAILY MEAN	79	15
INSTANTANEOUS PEAK FLOW	1960	62100
INSTANTANEOUS PEAK STAGE	5.49	16.8
INSTANTANEOUS LOW FLOW	75	12
ANNUAL RUNOFF (INCHES)	8.79	12.88
10 PERCENTILE	521	808
50 PERCENTILE	214	227
95 PERCENTILE	91	66

07189000 ELK RIVER NEAR TIFF CITY, MO

LOCATION.--(Revised) Lat 36°37'53", long 94°35'12", in NE 1/4, NE 1/4, sec.22, T.22 N., R.34 W., McDonald County, Hydrologic Unit 11070208, on downstream side of second pier from right bank 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.

WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--No estimated daily discharges. Water-discharge records good. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	106	568	1150	1690	886	2480	378	448	302	4900	235
2	181	103	499	1320	1360	838	2020	369	434	283	1490	214
3	165	99	442	1340	1210	807	1690	361	793	269	993	199
4	152	99	398	1210	1090	842	1410	362	830	251	771	191
5	142	97	363	1080	986	864	1260	356	982	234	626	182
6	139	96	332	969	891	866	1120	339	716	220	518	175
7	138	95	317	857	805	829	1020	325	602	210	429	166
8	133	93	305	754	730	812	949	329	525	201	357	160
9	131	95	291	668	660	880	881	342	474	191	311	177
10	125	104	276	600	606	1730	817	343	412	183	286	318
11	120	109	264	548	565	7100	764	322	429	175	266	330
12	115	225	252	503	549	9330	724	307	697	174	247	923
13	111	505	244	462	823	5780	687	300	1080	182	234	873
14	106	559	235	427	4850	3720	662	291	1240	180	220	968
15	102	490	227	401	5420	2670	638	296	1070	172	211	1060
16	108	457	219	377	6830	2040	607	326	910	163	205	913
17	114	494	211	356	4340	1690	584	316	779	1120	207	767
18	118	444	204	336	2970	1460	576	321	674	1350	199	642
19	115	413	200	321	2260	1300	573	434	593	759	191	543
20	109	651	193	305	1870	1190	549	756	521	569	374	469
21	109	1150	190	291	1650	1110	523	829	460	428	338	415
22	108	1090	202	281	1460	1030	511	4450	411	361	282	367
23	113	875	287	274	1300	965	498	3240	398	320	249	323
24	119	716	378	267	1180	887	486	1750	392	292	223	295
25	125	613	386	282	1100	833	470	1240	352	277	203	275
26	127	597	379	430	1030	806	452	1010	331	260	191	258
27	124	794	461	840	981	771	439	856	332	235	234	244
28	118	851	847	1020	939	791	424	737	348	217	248	231
29	115	756	1130	2810	---	898	409	650	367	202	212	220
30	111	652	1070	3120	---	1040	392	569	329	189	208	209
31	108	---	996	2190	---	1970	---	504	---	1630	243	---
MEAN	126	448	399	832	1791	1830	820	742	598	374	505	411
MAX	193	1150	1130	3120	6830	9330	2480	4450	1240	1630	4900	1060
MIN	102	93	190	267	549	771	392	291	329	163	191	160
IN.	.17	.57	.53	1.10	2.14	2.42	1.05	.98	.76	.49	.67	.53

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	567	844	1347	779	1110	1469	1596	858	631	236	207	202
MAX	2888	3581	3430	2509	2537	2707	3411	1797	1573	374	559	712
(WY)	1987	1986	1988	1985	1985	1985	1986	1985	1985	1989	1985	1986
MIN	84.6	77.1	106	64.6	100	161	204	403	170	129	84.7	50.3
(WY)	1983	1981	1981	1981	1981	1981	1981	1981	1988	1988	1988	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	733		818
HIGHEST ANNUAL MEAN			1648
LOWEST ANNUAL MEAN			185
HIGHEST DAILY MEAN	9330	Mar 12	33700
LOWEST DAILY MEAN	93	Nov 8	38
INSTANTANEOUS PEAK FLOW	10400	Aug 1	137000
INSTANTANEOUS PEAK STAGE	12.02	Aug 1	28.4
INSTANTANEOUS LOW FLOW	93	Nov 8	5.1
ANNUAL RUNOFF (INCHES)	11.41		12.74

ARKANSAS RIVER BASIN

07189000 ELK RIVER NEAR TIFF CITY, MO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1962 to June 1963; November 1965 to July 1975; October 1980 to September 1981; water years 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)
OCT											
05...	1615	143	273	8.10	17.0	12.2	123	12	K14	140	13
NOV											
02...	1315	99	279	8.30	16.0	15.0	152	<10	K12	--	--
DEC											
07...	1100	316	286	8.00	9.5	11.1	96	<10	140	--	--
JAN											
04...	1400	1200	269	8.10	8.5	12.6	106	<10	K12	140	18
FEB											
08...	1400	727	256	7.90	4.0	12.2	90	<10	K6	--	--
MAR											
08...	1220	807	255	8.10	6.5	13.2	105	13	K1	--	--
APR											
04...	1010	1290	240	8.20	13.0	11.3	106	<10	38	120	13
MAY											
10...	1045	342	266	8.10	16.5	11.2	113	13	21	--	--
JUN											
07...	1030	603	269	7.90	19.5	8.3	90	22	57	--	--
JUL											
18...	1430	1130	229	7.90	22.0	5.1	58	17	2800	120	19
AUG											
02...	0830	1550	267	7.90	22.0	6.6	75	20	1300	--	--
SEP											
07...	0830	165	294	7.90	24.5	7.1	84	<10	31	--	--

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINEITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT										
05...	50	3.0	5.4	2.0	124	1.9	7.0	7.8	0.10	166
NOV										
02...	--	--	--	--	120	1.2	--	--	--	157
DEC										
07...	--	--	--	--	124	2.4	--	--	--	170
JAN										
04...	50	3.2	3.6	1.5	120	1.8	8.4	5.3	<0.10	156
FEB										
08...	--	--	--	--	126	3.1	--	--	--	153
MAR										
08...	--	--	--	--	120	1.8	--	--	--	144
APR										
04...	45	2.4	3.2	1.4	109	1.3	7.1	4.2	0.10	134
MAY										
10...	--	--	--	--	114	1.8	--	--	--	142
JUN										
07...	--	--	--	--	112	2.7	--	--	--	160
JUL										
18...	42	2.8	3.2	2.7	98	2.4	6.0	4.6	0.10	153
AUG										
02...	--	--	--	--	112	2.7	--	--	--	160
SEP										
07...	--	--	--	--	136	3.3	--	--	--	177

K--Results based on colony count outside the acceptable range (non-ideal colony count).

285

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

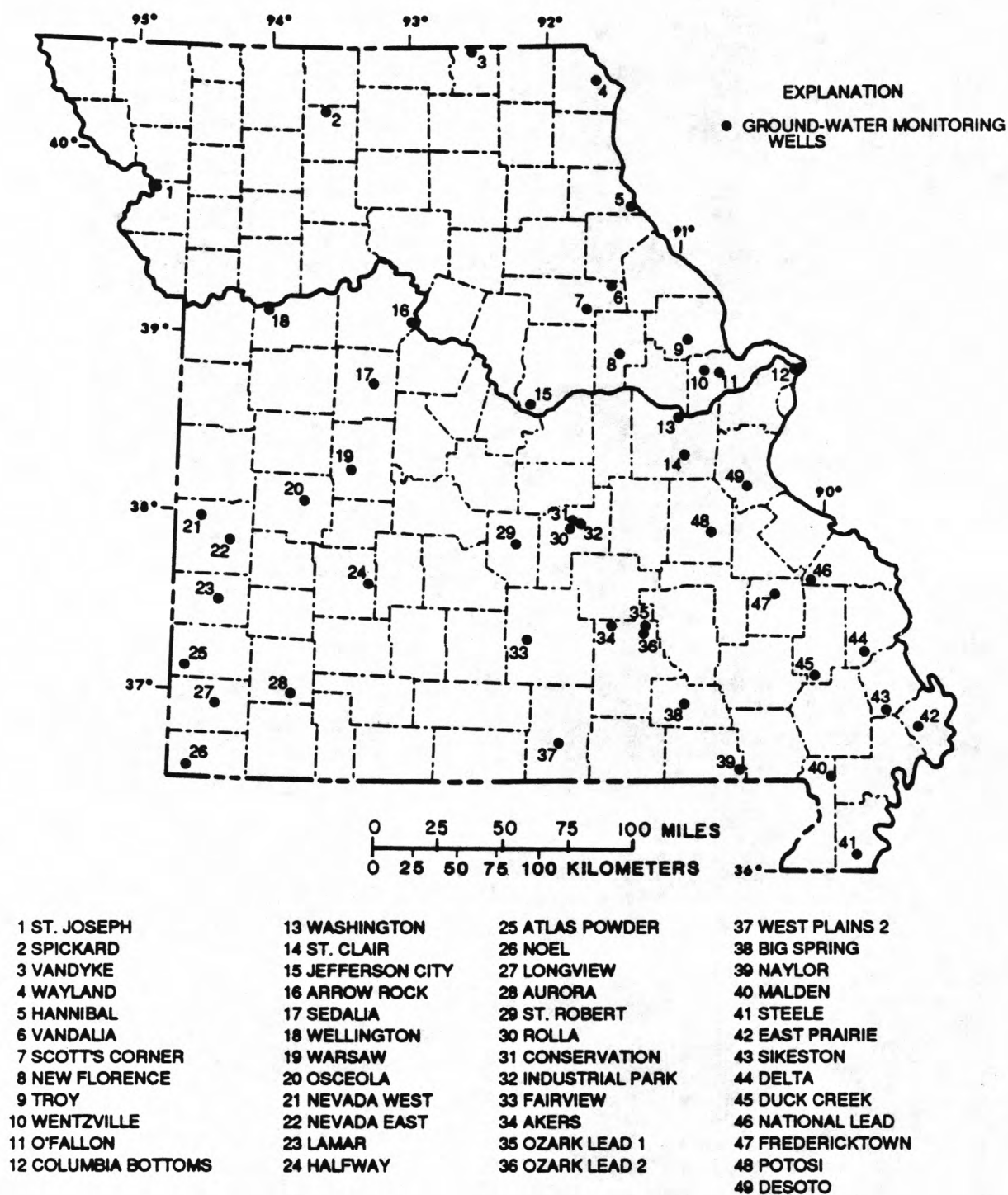


Figure 6.--Ground-water monitoring wells.

COUNTY--Audrain

WELL IDENTIFICATION NUMBER--390950091384801

LOCATION--T.51N., R.7W., 25ccc, lat. 39°09'50", long. 91°38'48", at Laddonia R-6 School, Scotts Corner, intersection of State Highway 54, State Highway 19, and County Road BB.

FORMATIONS OPEN TO THE WELL--Keokuk Limestone, Burlington Limestone, Chouteau Group, undifferentiated Devonian, Kimmswick Formation, Decorah Formation, Plattin Formation, Joachim Dolomite, and St. Peter Sandstone.

WELL CHARACTERISTICS--Total depth 650 feet, cased to unknown depth.

INSTRUMENTATION--Graphic recorder, installed April 1, 1981.

DATUM--795 feet above NGVD of 1929.

Measuring point: Base of recorder platform, at land surface.

PERIOD OF PROCESSED RECORD--April 18, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224.53	222.94	221.28	222.48	223.71	224.81	225.85	225.60	225.66	225.49	227.57	231.63
2	224.46	222.84	221.23	222.49	223.72	224.56	226.07	225.54	225.82	225.51	227.75	231.73
3	224.63	222.55	221.33	222.71	223.74	224.61	226.12	225.43	225.71	225.46	227.90	231.77
4	224.73	222.24	221.49	222.80	223.92	224.89	226.19	225.34	225.70	225.46	228.00	231.72
5	224.78	222.04	221.30	222.79	224.12	225.27	226.27	225.33	225.55	225.47	228.12	231.68
6	224.74	222.05	221.33	222.80	224.32	225.27	226.36	225.34	225.35	225.48	228.33	231.68
7	224.62	222.11	221.33	223.01	224.28	225.30	226.36	225.42	225.42	225.49	228.53	231.52
8	224.32	222.20	221.72	222.80	224.05	225.06	226.36	225.41	225.51	225.50	228.74	231.39
9	224.09	222.50	222.07	223.00	223.76	225.04	226.24	225.36	225.51	225.51	228.91	231.25
10	223.94	222.25	221.96	223.37	223.73	225.36	226.22	225.45	225.52	225.51	229.04	---
11	224.02	222.25	221.72	223.32	223.93	225.66	225.98	225.73	225.52	225.51	229.15	---
12	224.20	222.48	221.31	223.34	224.09	225.36	225.75	225.72	225.59	225.51	229.32	---
13	224.23	222.05	221.04	222.98	224.08	225.31	225.82	225.67	225.65	225.52	229.50	---
14	223.91	222.03	221.40	223.01	224.06	225.33	226.03	225.66	225.67	225.52	229.67	---
15	223.64	222.16	222.14	223.11	223.77	225.23	226.11	225.40	225.54	225.53	229.97	---
16	223.49	221.94	221.96	223.22	224.03	225.16	225.99	225.38	225.39	225.57	230.08	---
17	223.41	221.60	222.02	223.14	224.28	225.17	225.74	225.50	225.37	225.67	230.32	---
18	223.73	221.98	221.43	223.07	224.35	225.33	225.80	225.54	225.37	225.79	230.40	---
19	223.76	222.04	221.46	223.24	224.57	225.58	225.99	225.47	225.38	225.85	230.56	230.82
20	223.55	221.91	221.80	223.27	224.71	225.64	226.12	225.41	225.38	225.84	230.78	230.75
21	223.35	221.67	221.93	223.31	224.48	225.76	226.03	225.66	225.39	225.75	230.97	230.64
22	223.21	221.79	222.30	223.50	224.35	226.06	225.94	225.73	225.43	225.80	231.06	230.41
23	222.85	221.98	222.42	223.57	224.13	225.87	225.97	225.69	225.45	225.89	231.27	230.53
24	223.05	221.89	222.09	223.49	224.18	225.47	225.81	225.55	225.46	226.09	231.36	230.63
25	223.09	221.69	221.96	223.46	224.46	225.68	225.71	225.49	225.47	226.20	231.60	230.40
26	223.19	221.32	222.46	223.26	224.80	225.70	225.58	225.55	225.47	226.43	231.69	230.34
27	222.95	221.13	222.49	223.59	225.07	225.47	225.55	225.67	225.48	226.59	231.82	230.51
28	223.19	220.76	222.44	223.78	225.13	225.81	225.69	225.69	225.49	226.77	231.88	230.45
29	223.37	220.88	222.21	223.80	---	225.86	225.78	225.75	225.49	226.93	232.02	230.24
30	223.33	221.28	222.53	223.78	---	225.70	225.77	225.61	225.49	227.13	231.99	230.11
31	223.20	---	222.71	223.82	---	225.74	---	225.50	---	227.38	231.97	---
MEAN	223.79	221.95	221.83	223.20	224.21	225.39	225.97	225.54	225.51	225.88	230.01	---
MAX	224.78	222.94	222.71	223.82	225.13	226.06	226.36	225.75	225.82	227.38	232.02	---
MIN	222.95	220.76	221.04	222.48	223.71	224.56	225.55	225.33	225.35	225.46	227.57	---

COUNTY--Audrain

WELL IDENTIFICATION NUMBER--391825091285001

LOCATION--T.52N., R.5W., 5ddd, lat. 39°18'25", long. 91°28'50", west of intersection of Highland Street and Walsh Boulevard in Vandalia, well number 3.

FORMATIONS OPEN TO THE WELL--Kimmswick Formation, Decorah Formation, Platin Formation, Joachim Formation, and St. Peter Sandstone.

WELL CHARACTERISTICS--Drilled January 1, 1939, total depth 700 feet, 425 feet of 10-inch casing, open hole.
DGLS Log Number: 5,230

INSTRUMENTATION--Graphic recorder.

DATUM--765 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.6 feet above land surface.

REMARKS--Several days missing when recorder did not operate properly.

PERIOD OF PROCESSED RECORD--June 17, 1970, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212.84	213.88	214.10	213.94	212.34	210.81	208.25	207.44	206.67	204.96	204.31	203.01
2	213.00	213.78	214.07	213.88	212.54	210.46	207.96	207.36	206.14	204.87	---	203.35
3	213.17	213.54	214.05	213.85	212.84	210.08	207.83	206.96	206.64	204.74	---	203.32
4	213.29	213.40	214.28	213.92	212.75	210.32	207.87	206.38	205.91	204.67	---	203.15
5	213.44	213.52	213.99	213.47	212.52	210.40	207.98	206.20	205.24	204.61	---	202.63
6	213.51	213.63	213.77	213.49	212.54	210.27	207.80	206.11	205.14	204.53	---	202.31
7	213.54	213.79	213.93	213.39	212.40	210.39	207.60	205.89	205.17	204.48	---	202.04
8	213.36	214.02	214.14	213.83	212.54	210.38	207.50	205.40	204.82	204.56	---	202.00
9	213.31	213.78	213.94	213.81	212.42	210.29	207.74	205.24	204.82	204.62	---	201.71
10	213.23	214.03	213.88	213.73	212.09	210.00	207.77	205.27	204.70	204.59	---	201.82
11	213.41	214.13	213.98	213.56	211.95	209.71	207.45	205.19	204.36	204.57	---	201.83
12	213.62	213.73	213.75	213.73	211.87	209.68	207.27	205.21	204.33	204.45	---	201.87
13	213.66	213.93	213.52	213.81	211.57	209.36	207.20	205.34	204.58	204.51	---	201.90
14	213.47	213.90	213.53	213.40	211.80	208.99	206.93	205.37	205.16	204.30	---	201.93
15	213.38	213.60	214.05	213.47	211.88	209.42	206.88	205.37	205.35	---	---	202.12
16	213.41	213.85	213.75	213.44	212.11	209.35	206.62	205.48	204.96	---	---	201.95
17	213.36	214.09	213.75	213.25	211.95	209.13	206.65	205.62	204.79	---	---	202.03
18	213.69	214.01	213.45	213.25	211.61	209.45	206.50	205.83	204.96	---	---	201.98
19	213.80	213.91	213.25	213.22	211.26	209.22	206.53	205.89	204.88	---	---	201.67
20	213.78	214.00	213.38	213.42	210.98	208.95	206.49	205.67	204.85	---	---	201.33
21	213.67	214.22	213.67	213.27	211.57	209.18	206.23	206.07	204.80	---	---	201.26
22	213.65	214.09	213.30	213.02	211.89	209.09	206.00	206.42	204.91	---	203.27	201.14
23	213.50	213.94	213.27	212.93	211.88	208.92	205.88	206.31	204.91	---	203.26	201.93
24	213.71	213.75	213.28	212.91	211.53	208.72	205.90	206.70	204.85	---	203.82	202.35
25	213.83	213.67	214.30	212.84	211.03	208.60	205.97	206.84	204.68	---	203.60	202.07
26	213.85	213.43	214.16	212.96	210.90	208.46	205.86	206.61	204.71	---	203.54	202.13
27	213.75	213.72	214.03	212.90	210.69	208.46	205.82	206.42	204.97	---	203.54	202.47
28	214.11	213.96	214.24	212.75	210.77	208.33	205.60	206.65	204.98	---	203.43	202.85
29	214.22	213.83	214.18	212.63	---	208.24	205.63	206.92	205.00	---	203.43	203.06
30	214.17	213.96	213.98	212.48	---	208.26	205.97	207.00	205.19	204.30	203.31	203.18
31	213.97	---	213.96	212.16	---	208.44	---	206.98	---	204.42	203.11	---
MEAN	213.57	213.84	213.84	213.31	211.86	209.40	206.86	206.13	205.08	---	---	202.21
MAX	214.22	214.22	214.30	213.94	212.84	210.81	208.25	207.44	206.67	---	---	203.35
MIN	212.84	213.40	213.25	212.16	210.69	208.24	205.60	205.19	204.33	---	---	201.14

COUNTY--Barton

WELL IDENTIFICATION NUMBER--373115094161501

LOCATION--T.32N., R.30W., 30abb, lat. 37°31'15", long. 94°16'15", at Lamar Water and Light, well number 2.

FORMATIONS OPEN TO THE WELL--Cotter Dolomite, Jefferson City Dolomite, Roubidoux Formation, and Gasconade Formation.

WELL CHARACTERISTICS--Unused municipal well, drilled April 1, 1954, total depth 981 feet, 575 feet of 8-inch casing, open hole.

INSTRUMENTATION--Graphic recorder, installed June 17, 1968.

DATUM--975 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 2.3 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD.--June 17, 1968, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	288.77	287.67	290.03	288.95	287.56	287.39	286.79	284.54	278.40	---	---	---
2	288.43	287.97	290.08	288.89	287.80	287.09	286.57	283.73	278.18	---	---	---
3	288.15	288.20	290.17	288.90	288.13	286.77	286.45	283.02	277.87	---	---	---
4	287.87	288.36	290.00	288.93	288.06	287.19	286.20	282.74	278.15	---	---	---
5	287.62	288.29	290.27	288.43	287.87	287.28	286.09	281.78	278.51	---	---	---
6	287.29	288.26	290.35	288.45	287.85	287.29	286.29	281.20	278.70	---	---	---
7	286.97	288.41	290.36	288.40	287.83	287.36	286.43	281.08	278.91	---	---	283.38
8	286.47	288.25	290.57	288.89	288.04	287.42	286.49	280.97	278.96	---	---	283.18
9	286.09	288.60	290.41	288.81	288.05	287.42	286.27	280.53	---	---	---	282.96
10	285.76	288.41	290.20	288.65	287.72	287.23	286.15	280.39	---	---	---	282.84
11	285.59	288.51	290.20	288.47	287.59	287.07	286.04	280.56	---	---	---	282.69
12	285.45	288.94	290.10	288.72	287.49	287.01	284.57	280.80	---	---	---	282.53
13	285.20	288.79	289.87	288.82	287.25	286.90	285.16	280.62	---	---	---	282.30
14	284.91	288.95	289.72	288.43	287.48	286.67	285.77	280.64	---	---	---	282.06
15	285.08	289.31	290.20	288.48	287.60	287.14	286.04	281.21	---	---	---	281.87
16	285.27	289.07	290.02	288.51	287.83	287.09	286.42	282.83	---	---	---	281.68
17	285.55	289.00	289.92	288.32	287.76	286.91	286.47	282.04	---	---	---	281.54
18	285.48	289.25	289.65	288.34	287.58	287.30	286.51	281.40	---	---	---	281.39
19	285.69	289.38	289.32	288.31	287.31	287.09	286.47	281.05	---	---	---	281.25
20	286.00	289.37	289.37	288.50	287.10	286.93	286.66	281.30	---	---	---	281.11
21	286.11	289.24	289.62	288.38	287.27	287.20	286.83	280.95	---	---	---	280.94
22	286.44	289.42	289.28	288.14	287.62	287.10	287.02	280.40	---	---	---	280.78
23	286.67	289.64	289.20	287.98	287.70	286.98	287.18	280.10	---	---	---	---
24	286.70	289.95	289.24	287.98	287.54	286.84	287.21	279.63	---	---	---	---
25	286.77	290.11	289.44	287.98	287.31	286.85	287.21	279.38	---	---	---	---
26	286.87	290.35	289.13	288.15	287.27	286.79	287.28	279.45	---	---	---	---
27	287.17	290.06	289.08	288.14	287.11	286.78	287.34	279.42	---	---	---	---
28	286.94	289.94	289.31	287.90	287.33	286.73	287.27	279.03	---	---	---	---
29	287.06	290.16	289.22	287.86	---	286.67	286.60	278.72	---	---	---	---
30	287.20	290.05	289.00	287.75	---	286.75	285.60	278.46	---	---	---	---
31	287.44	---	288.95	287.48	---	286.97	---	278.41	---	---	---	---
MEAN	286.55	289.06	289.75	288.39	287.61	287.04	286.45	280.85	---	---	---	---
MAX	288.77	290.35	290.57	288.95	288.13	287.42	287.34	284.54	---	---	---	---
MIN	284.91	287.67	288.95	287.48	287.10	286.67	284.57	278.41	---	---	---	---

COUNTY--Benton

WELL IDENTIFICATION NUMBER--381650093215001

LOCATION--T.40N., R.22W., 4bad, lat. 38°16'50" long. 93°21'50", approximately 2 miles north of the intersection of State Highways 65 and 7, on State Highway 65.

FORMATIONS OPEN TO THE WELL--Gasconade Formation, Gunter Sandstone, Eminence Dolomite, Potosi Dolomite, Derby-Doe Run Dolomite, Davis Dolomite, Bonnetterre Formation, and Lamotte Sandstone.

WELL CHARACTERISTICS--Drilled September 20, 1955, total depth-1,406 feet, 210 feet of 12-inch casing, open hole.
DGLS Log Number: 14,232

INSTRUMENTATION--Graphic recorder, installed July 20, 1979.

DATUM--740 feet above NGVD of 1929.

Measuring point: Base of recorder platform, at land surface.

PERIOD OF PROCESSED RECORD--July 20, 1979, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.62	35.68	35.72	35.02	34.22	34.15	36.00	34.87	34.71	35.12	36.00	35.18
2	35.72	35.54	35.72	34.95	34.46	33.87	35.53	34.87	34.70	35.13	35.95	---
3	35.79	35.42	35.71	34.94	34.77	33.55	35.25	34.81	34.60	35.21	35.84	---
4	35.89	35.35	35.89	34.94	34.70	33.95	35.25	34.62	34.66	35.28	35.78	---
5	35.94	35.50	35.66	34.54	34.53	34.03	35.25	34.71	34.68	35.33	35.82	---
6	35.96	35.63	35.47	34.60	34.54	34.01	35.03	34.89	34.67	35.40	35.90	---
7	35.93	35.67	35.57	34.57	34.52	34.10	34.84	34.84	34.60	35.46	---	---
8	35.73	35.89	35.81	35.00	34.75	34.14	34.74	34.64	34.63	35.44	---	35.14
9	35.69	35.69	35.69	34.93	34.73	34.36	34.92	34.73	34.76	35.43	---	35.16
10	35.60	35.95	35.63	34.82	34.48	34.93	35.01	34.90	34.85	35.51	---	---
11	35.71	35.94	35.72	34.69	34.43	34.76	34.81	34.90	34.75	35.59	---	---
12	35.79	35.63	35.62	34.97	34.37	34.49	34.65	34.80	34.65	35.63	---	---
13	35.74	35.81	35.48	35.04	34.17	34.50	34.66	34.72	34.73	35.68	---	35.17
14	35.58	35.72	35.48	34.71	34.42	35.67	34.49	34.76	34.78	35.74	---	35.09
15	35.48	35.44	35.96	34.79	34.56	37.49	34.48	34.84	34.85	35.79	---	35.05
16	35.53	35.73	35.79	34.83	34.77	37.83	34.31	34.83	34.85	35.85	---	35.01
17	35.46	35.84	35.79	34.68	34.65	38.13	34.42	34.82	34.82	35.83	---	35.01
18	35.74	35.72	35.57	34.74	34.42	37.91	34.51	34.69	34.86	35.75	---	35.00
19	35.72	35.67	35.33	34.75	34.16	36.96	34.61	34.72	34.91	35.78	---	34.98
20	35.61	35.77	35.48	34.95	33.94	37.09	34.52	34.93	34.90	35.80	---	34.98
21	35.62	35.90	35.75	34.85	34.06	38.76	34.44	34.90	34.86	35.84	35.90	34.96
22	35.49	35.78	35.45	34.66	34.35	38.18	34.38	34.75	34.92	35.94	35.84	34.86
23	35.46	35.64	35.42	34.58	34.44	37.63	34.32	34.71	35.03	36.02	35.77	35.18
24	35.58	35.42	35.47	34.61	34.28	36.77	34.38	34.43	35.07	36.04	35.71	35.11
25	35.66	35.35	35.68	34.63	34.02	36.31	34.44	34.40	35.06	36.06	35.65	35.01
26	35.66	35.19	35.37	34.78	34.03	35.91	34.46	34.64	35.02	36.09	35.57	35.10
27	35.56	35.49	35.29	34.72	33.89	35.66	34.47	34.80	35.04	36.03	35.53	35.17
28	35.90	35.62	35.47	34.55	34.06	35.48	34.45	34.62	35.13	35.98	35.47	35.07
29	35.93	35.48	35.34	34.47	---	35.48	34.66	34.47	35.23	35.95	35.41	35.02
30	35.90	35.61	35.11	34.34	---	35.78	34.81	34.46	35.20	35.93	35.37	34.93
31	35.77	---	35.06	34.07	---	36.48	---	34.58	---	35.96	35.26	---
MEAN	35.70	35.64	35.56	34.73	34.38	35.75	34.74	34.73	34.85	35.70	---	---
MAX	35.96	35.95	35.96	35.04	34.77	38.76	36.00	34.93	35.23	36.09	---	---
MIN	35.46	35.19	35.06	34.07	33.89	33.55	34.31	34.40	34.60	35.12	---	---

COUNTY--Bollinger

WELL IDENTIFICATION NUMBER--370245090042901

LOCATION--T.28N., R.09E., 32dad, lat. 37°02'45", long. 90°04'29", Missouri Conservation Commission,
2.0 miles north of Kinder.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled October 8, 1956, total depth 115 feet, 60 feet of 8-inch casing, 10.5
feet of 4-inch casing, 4.5 feet of 4-inch screen.

DGLS Log Number: 15,040

INSTRUMENTATION--Digital recorder, installed December 17, 1980.

DATUM--344 feet above NGVD of 1929.

Measuring point: 2.7 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.16	---	---	---	---	---	---	---	---	---	10.49	10.13
2	10.74	---	---	---	---	4.91	---	---	---	---	10.31	10.20
3	10.62	---	---	---	---	4.83	---	---	---	---	10.21	10.22
4	10.62	---	---	---	---	4.94	---	---	---	---	10.17	10.21
5	10.64	---	---	---	---	4.55	---	---	---	---	10.18	10.54
6	10.61	---	---	---	---	4.28	---	---	---	---	10.20	10.86
7	10.57	---	---	---	---	4.29	---	---	---	---	10.65	10.95
8	10.53	---	---	---	---	---	---	---	---	---	10.95	10.73
9	10.49	---	---	---	---	---	---	---	---	---	11.08	10.63
10	10.47	---	---	---	---	---	---	---	---	---	11.27	10.52
11	10.45	---	---	---	---	---	---	---	---	---	11.36	10.44
12	10.49	---	---	---	---	---	---	---	---	---	11.32	10.34
13	10.49	---	---	---	---	---	---	---	---	---	11.25	10.17
14	10.43	---	---	---	---	---	---	---	---	9.04	11.15	9.68
15	10.42	---	---	---	---	---	---	---	---	9.40	11.38	9.31
16	10.41	---	---	---	---	---	---	---	---	9.51	11.77	9.23
17	---	---	---	---	---	---	---	---	---	9.62	11.28	9.25
18	---	---	---	---	---	---	---	---	---	9.68	10.98	9.27
19	---	---	---	---	---	---	---	---	---	9.85	10.79	9.28
20	---	---	---	---	---	---	---	---	---	10.01	10.68	9.32
21	---	---	---	---	---	---	---	---	---	10.12	10.62	9.33
22	---	---	---	---	---	---	---	---	---	10.08	10.57	9.27
23	---	---	---	---	---	---	---	---	---	9.99	10.52	9.54
24	---	---	---	---	---	---	---	---	---	10.04	10.47	9.59
25	---	---	---	---	---	---	---	---	---	10.22	10.44	9.53
26	---	---	---	---	---	---	---	---	---	10.68	10.36	9.61
27	---	---	---	---	---	---	---	---	---	10.98	10.35	9.70
28	---	---	---	---	---	---	---	---	---	11.32	10.32	9.62
29	---	---	---	---	---	---	---	---	---	11.61	10.28	9.54
30	---	---	---	---	---	---	---	---	---	11.18	10.23	9.42
31	---	---	---	---	---	---	---	---	---	10.75	10.16	---
MEAN	---	---	---	---	---	---	---	---	---	---	10.70	9.88
MAX	---	---	---	---	---	---	---	---	---	---	11.77	10.95
MIN	---	---	---	---	---	---	---	---	---	---	10.16	9.23

COUNTY--Buchanan

WELL IDENTIFICATION NUMBER--394254094523901

LOCATION--T.57N., R.35W., 31bcbb, lat. 37°42'54", long. 94°52'39", 0.2 miles north of Highway U on Erie Street.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled May 2, 1957, total depth 83.5 feet, 58 feet of 8-inch casing, 13 feet of 4-inch casing, 4 feet of 4-inch screen.

DGLS Log Number: 16,116

INSTRUMENTATION--Digital recorder, installed March 28, 1984.

DATUM--820 feet above NGVD of 1929.

Measuring point: 0.75 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--March 23, 1989 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	26.96	26.37	25.71	25.17	25.58	25.09
2	---	---	---	---	---	---	26.93	26.34	25.71	25.10	25.60	25.22
3	---	---	---	---	---	---	26.93	26.30	25.68	25.08	25.57	25.25
4	---	---	---	---	---	---	26.93	26.21	25.65	25.08	25.56	25.21
5	---	---	---	---	---	---	26.93	26.17	25.65	25.07	25.62	25.16
6	---	---	---	---	---	---	26.93	26.18	25.65	25.06	25.71	25.01
7	---	---	---	---	---	---	26.93	26.18	25.65	25.08	25.74	24.88
8	---	---	---	---	---	---	26.84	26.13	25.65	25.09	25.74	24.79
9	---	---	---	---	---	---	26.83	26.12	25.65	25.09	25.72	24.66
10	---	---	---	---	---	---	26.83	26.15	25.65	25.14	25.73	24.35
11	---	---	---	---	---	---	26.82	26.15	25.65	25.25	25.74	23.88
12	---	---	---	---	---	---	26.76	25.95	25.65	25.27	25.78	23.56
13	---	---	---	---	---	---	26.75	25.72	25.65	25.28	25.79	23.39
14	---	---	---	---	---	---	26.73	25.63	25.65	25.30	25.79	23.24
15	---	---	---	---	---	---	26.69	25.60	25.65	25.34	25.83	23.02
16	---	---	---	---	---	---	26.59	25.53	25.65	25.38	25.84	23.03
17	---	---	---	---	---	---	26.53	25.54	25.65	25.36	25.88	23.10
18	---	---	---	---	---	---	26.54	25.61	25.65	25.35	25.90	23.20
19	---	---	---	---	---	---	26.55	25.62	25.67	25.38	25.90	23.34
20	---	---	---	---	---	---	26.54	25.70	25.64	25.40	25.89	23.44
21	---	---	---	---	---	---	26.51	25.73	25.58	25.38	25.87	23.54
22	---	---	---	---	---	---	26.47	25.69	25.59	25.34	25.88	23.62
23	---	---	---	---	---	26.90	26.41	25.68	25.60	25.31	25.92	23.71
24	---	---	---	---	---	26.91	26.40	25.67	25.57	25.29	25.94	23.79
25	---	---	---	---	---	26.92	26.38	25.67	25.48	25.31	25.93	23.81
26	---	---	---	---	---	26.93	26.38	25.70	25.39	25.34	25.89	23.92
27	---	---	---	---	---	26.93	26.39	25.75	25.31	25.37	25.88	24.01
28	---	---	---	---	---	26.95	26.39	25.72	25.26	25.41	25.82	24.03
29	---	---	---	---	---	26.96	26.39	25.64	25.25	25.43	25.61	24.05
30	---	---	---	---	---	26.97	26.39	25.63	25.23	25.44	25.32	24.08
31	---	---	---	---	---	26.97	---	25.68	---	25.50	25.12	---
MEAN	---	---	---	---	---	---	26.65	25.86	25.58	25.27	25.74	24.05
MAX	---	---	---	---	---	---	26.96	26.37	25.71	25.50	25.94	25.25
MIN	---	---	---	---	---	---	26.38	25.53	25.23	25.06	25.12	23.02

COUNTY--Callaway

WELL IDENTIFICATION NUMBER--383549092094201

LOCATION--T.44N., R.11W., 10ccd, lat. 38°35'49", long. 92°09'42", Jefferson City Airport.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled April 20, 1956, total depth 95 feet, 60 feet of 8-inch casing, 31 feet of 4-inch casing, and 4 feet of 4-inch well screen.

INSTRUMENTATION--Digital recorder, installed May 1, 1980.

DATUM--550.7 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 10.0 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--May 15, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.46	---	---	---	---	30.33	30.52	29.72	29.41	29.06	28.76	28.47
2	28.47	---	---	---	---	30.34	30.52	29.72	29.39	29.05	28.72	28.45
3	---	---	---	---	---	30.35	30.30	29.71	29.37	29.03	28.70	28.42
4	---	---	---	---	---	30.38	30.10	29.70	29.36	29.02	28.68	28.39
5	---	---	---	---	---	30.39	30.06	29.70	29.35	29.01	28.67	28.37
6	---	---	---	---	---	30.40	30.03	29.70	29.33	29.00	28.67	28.35
7	---	---	---	---	---	30.42	29.99	29.69	29.31	28.99	28.67	28.33
8	---	---	---	---	---	30.43	29.96	29.68	29.30	28.98	28.66	28.31
9	---	---	---	---	---	30.44	29.95	29.67	29.29	28.97	28.67	28.30
10	---	---	---	---	30.02	30.45	29.92	29.66	29.28	28.97	28.68	28.27
11	---	---	---	---	30.03	30.46	29.90	29.65	29.26	28.96	28.69	28.24
12	---	---	---	---	30.05	30.47	29.88	29.64	29.25	28.95	28.70	28.65
13	---	---	---	---	30.07	30.49	29.86	29.63	29.23	28.95	28.71	28.94
14	---	---	---	---	30.09	30.50	29.84	29.63	29.22	28.95	28.72	28.87
15	---	---	---	---	30.12	30.53	29.83	29.63	29.21	28.95	28.73	28.80
16	---	---	---	---	30.13	30.53	29.81	29.62	29.19	28.95	28.74	28.73
17	---	---	---	---	30.15	30.53	29.81	29.62	29.18	28.94	28.75	28.66
18	---	---	---	---	30.16	30.53	29.80	29.62	29.17	28.94	28.76	28.60
19	---	---	---	---	30.18	30.51	29.79	29.62	29.16	28.94	28.76	28.54
20	---	---	---	---	30.19	30.50	29.78	29.62	29.14	28.93	28.77	28.49
21	---	---	---	---	30.22	30.49	29.77	29.62	29.13	28.93	28.76	28.45
22	---	---	---	---	30.24	30.46	29.77	29.61	29.12	28.93	28.71	28.41
23	---	---	---	---	30.25	30.45	29.76	29.61	29.11	28.94	28.67	28.40
24	---	---	---	---	30.26	30.44	29.76	29.59	29.10	28.93	28.64	28.38
25	---	---	---	---	30.26	30.44	29.75	29.57	29.10	28.93	28.61	28.36
26	---	---	---	---	30.28	30.44	29.74	29.54	29.09	28.92	28.58	28.35
27	---	---	---	---	30.29	30.45	29.74	29.51	29.08	28.91	28.56	28.35
28	---	---	---	---	30.31	30.46	29.73	29.48	29.08	28.90	28.54	28.34
29	---	---	---	---	---	30.47	29.73	29.46	29.08	28.90	28.52	28.34
30	---	---	---	---	---	30.49	29.73	29.44	29.07	28.87	28.50	28.34
31	---	---	---	---	---	30.51	---	29.42	---	28.81	28.48	---
MEAN	---	---	---	---	---	30.45	29.90	29.62	29.21	28.95	28.67	28.46
MAX	---	---	---	---	---	30.53	30.52	29.72	29.41	29.06	28.77	28.94
MIN	---	---	---	---	---	30.33	29.73	29.42	29.07	28.81	28.48	28.24

COUNTY--Cape Girardeau.

WELL IDENTIFICATION NUMBER--371125089445301

LOCATION--T.29N., R.12E., 8dbd, lat. 37°11'25", long. 89°44'53", 0.2 mile east of junction of State Highway 25 and County Road P, east of Delta.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled October 10, 1956, total depth 75 feet, 60 feet of 8-inch casing, 10.5 feet of 4-inch casing, and 4.5 feet of 4-inch screen.

INSTRUMENTATION--Graphic recorder from November 1, 1956, to November 6, 1980. Digital recorder installed November 6, 1980.

DATUM--335 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

PERIOD OF PROCESSED RECORD--November 6, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.79	21.16	18.28	17.96	17.77	18.01	16.21	19.22	20.13	18.36	21.62	21.71
2	19.25	21.19	18.56	17.86	17.97	18.04	16.32	19.31	20.12	18.23	21.90	21.82
3	18.97	21.16	18.69	17.85	17.15	18.04	16.41	19.33	20.14	18.46	22.00	21.85
4	19.16	21.07	18.92	18.08	16.41	17.92	16.00	19.29	19.97	18.69	21.92	21.82
5	19.46	20.67	19.04	18.06	16.48	16.89	16.06	19.41	19.73	18.91	22.00	21.82
6	19.70	20.53	19.08	17.60	16.90	16.41	16.20	19.55	19.66	19.20	21.77	21.85
7	19.91	20.58	19.19	17.22	17.22	16.70	16.27	19.57	19.65	19.39	21.61	21.95
8	20.04	20.71	19.44	17.07	17.51	16.92	16.36	19.53	19.71	19.68	21.66	21.92
9	20.14	20.72	19.57	17.00	17.80	17.01	16.59	19.68	19.84	19.84	21.82	21.87
10	20.26	20.76	19.58	17.20	17.91	16.85	16.76	19.79	19.86	20.02	21.97	21.78
11	20.39	20.91	19.73	17.42	18.06	16.67	16.85	19.81	19.07	20.31	22.08	21.69
12	20.60	20.78	19.82	17.47	18.26	16.78	16.97	19.78	17.71	20.40	22.11	21.57
13	20.76	20.83	19.81	17.64	17.98	16.89	17.14	19.84	17.10	20.60	22.15	21.36
14	20.77	20.83	19.85	17.65	16.90	17.02	17.23	19.86	16.89	20.93	22.35	21.04
15	20.81	20.76	20.13	17.60	15.98	17.40	17.37	19.89	17.20	21.28	22.62	20.79
16	20.83	20.56	20.21	17.68	15.67	17.66	17.54	19.93	17.58	21.32	22.55	20.69
17	20.88	20.33	20.18	17.79	15.82	17.72	17.72	19.96	17.89	21.65	22.29	20.73
18	20.99	20.18	20.23	17.90	16.12	17.96	17.90	19.96	17.91	21.38	22.04	20.79
19	21.09	19.19	20.21	18.09	16.36	18.03	18.08	20.01	17.72	21.58	21.89	20.86
20	21.10	17.99	20.27	18.30	16.54	17.94	18.19	20.12	17.85	21.75	21.81	20.97
21	21.09	17.69	20.45	18.51	16.53	18.09	18.31	20.07	18.12	21.79	21.68	21.07
22	21.14	17.74	20.44	18.58	16.68	18.07	18.41	19.95	18.38	21.74	21.52	21.12
23	21.05	17.89	20.42	18.68	17.06	18.00	18.52	19.83	18.60	21.63	21.47	21.34
24	21.05	18.05	20.25	18.78	17.37	18.02	18.67	19.79	18.76	21.41	21.50	21.43
25	21.06	18.23	20.16	18.87	17.51	18.11	18.78	19.90	18.89	21.25	21.47	21.42
26	21.13	18.18	20.05	18.49	17.61	18.22	18.88	20.07	19.02	21.23	21.46	21.50
27	21.10	17.67	19.90	17.83	17.72	18.35	18.95	20.13	18.99	21.32	21.55	21.61
28	21.20	17.60	19.12	17.65	17.81	18.46	18.97	20.08	18.46	21.64	21.60	21.62
29	21.24	17.76	18.23	17.65	---	18.38	19.07	20.06	18.38	21.73	21.65	21.63
30	21.23	17.99	17.96	17.60	---	17.43	19.17	20.10	18.50	21.52	21.68	21.60
31	21.19	---	17.97	17.64	---	16.45	---	20.13	---	21.46	21.68	---
MEAN	20.59	19.66	19.54	17.86	17.11	17.56	17.53	19.80	18.73	20.60	21.85	21.44
MAX	21.24	21.19	20.45	18.87	18.26	18.46	19.17	20.13	20.14	21.79	22.62	21.95
MIN	18.97	17.60	17.96	17.00	15.67	16.41	16.00	19.22	16.89	18.23	21.46	20.69

COUNTY--Carter

WELL IDENTIFICATION NUMBER--365652090594201

LOCATION--T.26N., R.1.E., 6cbc, lat. 36°56'52", long. 90°59'42", Big Spring National Scenic Riverways Park, next to west entrance sign.

FORMATIONS OPEN TO THE WELL--Eminence Dolomite.

WELL CHARACTERISTICS--total depth 56 feet.

INSTRUMENTATION--Digital recorder, installed February 1980.

DATUM--470 feet above NGVD of 1929.

Measuring point: 0.5 feet above land surface.

PERIOD OF PROCESSED RECORD--October 27, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	17.26	11.36	10.48	9.41	4.09	3.77	7.90	10.22	8.38	13.50	12.26
2	---	17.60	11.74	10.32	8.44	4.10	3.77	8.02	10.33	8.64	13.67	12.44
3	---	17.88	11.92	10.26	5.49	4.20	3.79	8.02	10.56	8.78	13.77	12.53
4	---	18.10	12.49	10.50	5.41	4.50	3.76	8.02	10.11	8.93	13.86	12.62
5	---	18.13	12.61	10.17	5.28	3.65	3.89	8.21	9.65	9.23	14.00	12.86
6	---	18.31	12.70	8.88	5.27	3.59	4.02	8.37	9.58	9.44	14.12	13.05
7	---	18.46	13.01	8.69	5.33	3.65	4.10	8.38	9.67	9.63	14.33	13.26
8	---	18.79	13.49	9.00	5.63	3.55	4.47	8.40	9.91	9.77	14.45	13.44
9	---	19.04	13.72	9.11	5.95	3.44	4.78	8.71	10.29	10.02	14.60	13.48
10	---	19.15	13.83	9.37	6.03	3.42	4.98	8.85	10.44	10.27	14.74	13.01
11	---	19.15	14.17	9.62	6.21	3.44	5.12	8.90	8.22	10.48	14.83	12.89
12	---	19.15	14.40	10.04	6.52	3.59	5.35	8.83	5.37	10.62	14.91	13.05
13	---	19.18	14.43	10.54	5.23	3.60	5.53	9.07	4.78	10.84	14.97	13.13
14	---	19.18	14.54	10.49	3.31	3.78	5.61	9.35	4.85	11.15	15.07	13.38
15	---	19.18	15.25	10.80	1.83	4.22	5.77	9.45	5.17	11.29	15.15	13.49
16	---	19.18	15.32	11.15	1.94	4.35	5.92	9.63	5.61	11.51	15.28	13.72
17	---	18.80	15.41	11.21	2.00	4.51	6.11	9.69	5.90	11.68	15.44	13.95
18	---	17.98	15.50	11.40	2.05	4.94	6.31	9.75	6.21	11.75	15.54	14.09
19	---	15.47	15.52	11.69	2.18	4.97	6.48	10.02	6.48	11.85	15.55	14.21
20	---	13.24	15.70	12.02	2.00	5.14	6.53	10.27	6.72	12.03	15.56	14.35
21	---	12.50	16.19	12.27	2.23	5.54	6.61	10.13	7.01	12.27	15.64	14.46
22	---	12.26	16.21	12.28	2.71	5.59	6.67	9.40	7.23	12.56	15.71	14.53
23	---	12.25	16.02	12.43	2.99	5.72	6.80	8.98	7.39	12.66	15.77	14.96
24	---	12.28	15.83	12.66	3.13	5.89	7.01	8.47	7.55	12.71	15.88	15.11
25	---	12.45	16.16	12.84	3.15	6.07	7.09	9.03	7.67	12.66	15.70	15.16
26	---	11.67	16.07	12.03	3.36	6.21	7.20	9.35	7.86	12.74	15.09	15.34
27	19.18	10.51	15.64	11.01	3.54	6.36	7.27	9.40	8.01	12.85	14.78	15.55
28	19.06	10.33	12.59	10.47	3.86	6.43	7.36	9.41	8.15	12.97	14.80	15.59
29	17.51	10.38	10.92	9.99	---	6.29	7.64	9.53	8.23	13.11	14.94	15.65
30	16.76	10.87	10.38	9.45	---	4.84	7.76	9.75	8.31	13.25	14.16	15.69
31	16.89	---	10.38	9.29	---	3.92	---	10.03	---	13.35	12.49	---
MEAN	---	15.96	13.98	10.66	4.30	4.63	5.72	9.07	7.92	11.21	14.78	13.91
MAX	---	19.18	16.21	12.84	9.41	6.43	7.76	10.27	10.56	13.35	15.88	15.69
MIN	---	10.33	10.38	8.69	1.83	3.42	3.76	7.90	4.78	8.38	12.49	12.26

COUNTY--Clark

WELL IDENTIFICATION NUMBER--402356091344001

LOCATION--T.65N., R.6W., 29cad, lat. 40°23'56", long 91°34'40", north edge of Wayland, County Highway B.

FORMATIONS OPEN TO THE WELL--Alluvium and undifferentiated Pleistocene glacial drift.

WELL CHARACTERISTICS--Drilled on October 1, 1974, total depth 160 feet, casing depth unknown.

INSTRUMENTATION--Graphic recorder, installed October 8, 1974.

DATUM--540 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 3.0 feet above land surface.

REMARKS--Several months missing when recorder was not operational. Well may be completed in a former channel of the Des Moines River.

PERIOD OF PROCESSED RECORD--December 4, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.07	49.30	49.27	49.50	---	---	---	---	---	48.70	48.82	51.28
2	49.31	49.05	49.67	51.26	---	---	---	---	---	51.64	49.33	51.31
3	48.96	49.22	49.11	49.39	---	---	---	---	---	51.61	52.49	50.75
4	49.29	49.26	49.44	49.40	---	---	---	---	---	51.21	51.02	51.28
5	49.13	49.33	49.12	49.32	---	---	---	---	---	50.76	49.32	51.44
6	48.92	49.43	49.12	48.96	---	---	---	---	50.38	51.22	49.15	50.62
7	48.97	49.37	50.42	49.57	---	---	---	---	50.18	51.52	51.89	50.50
8	49.04	49.16	---	49.43	---	---	---	---	50.10	51.29	51.26	50.32
9	49.22	49.18	---	49.78	---	---	---	---	50.17	51.79	50.96	50.15
10	49.46	49.18	---	49.37	---	---	---	---	49.89	52.14	50.96	50.54
11	49.36	49.37	---	49.42	---	---	---	---	49.54	51.25	50.99	50.39
12	49.45	49.30	49.44	49.50	---	---	---	---	49.41	51.07	51.10	50.22
13	49.32	49.56	49.56	49.30	---	---	---	---	49.72	50.47	51.02	50.05
14	49.04	49.56	50.53	49.27	---	---	---	---	49.56	50.76	51.40	50.08
15	49.46	49.30	---	49.30	---	---	---	---	49.39	50.37	50.98	50.09
16	49.39	49.21	49.31	49.63	---	---	---	---	49.48	50.22	51.46	50.06
17	49.30	49.24	49.65	49.22	---	---	---	---	49.73	50.85	50.75	50.27
18	49.22	49.10	50.38	---	---	---	---	---	49.68	50.38	51.47	50.31
19	49.10	49.09	49.67	---	---	---	---	---	49.73	50.15	51.19	51.33
20	49.01	49.28	49.68	---	---	---	---	---	50.13	50.12	51.80	50.41
21	48.94	49.37	49.54	---	---	---	---	---	50.01	50.46	52.03	50.26
22	49.19	49.16	49.36	---	---	---	---	---	50.19	50.37	51.71	50.47
23	49.18	49.42	49.30	---	---	---	---	---	49.76	50.16	51.64	50.33
24	49.26	49.03	49.49	---	---	---	---	---	50.01	50.59	51.52	50.44
25	49.07	49.40	49.31	---	---	---	---	---	50.16	50.81	51.59	50.42
26	49.20	49.01	49.13	---	---	---	---	---	50.75	50.89	51.28	50.49
27	49.00	49.29	49.38	---	---	---	---	---	50.24	50.61	51.54	---
28	48.76	49.46	49.32	---	---	---	---	---	50.13	50.69	51.49	---
29	49.08	49.12	49.57	---	---	---	---	---	50.22	51.33	51.23	---
30	49.19	49.07	49.58	---	---	---	---	---	49.82	50.36	51.78	---
31	49.31	---	49.39	---	---	---	---	---	---	50.71	51.36	---
MEAN	49.17	49.26	---	---	---	---	---	---	---	50.79	51.11	---
MAX	49.46	49.56	---	---	---	---	---	---	---	52.14	52.49	---
MIN	48.76	49.01	---	---	---	---	---	---	---	48.70	48.82	---

COUNTY--Cooper

WELL IDENTIFICATION NUMBER--390207092570801

LOCATION--T.49N., R.19W., 12bac, lat 39°02'07", long. 92°57'08", 2.5 miles south of Arrow Rock, State Highway 41.

FORMATIONS OPEN TO THE WELL--Burlington Limestone, Sedalia Formation, and Chouteau Group.

WELL CHARACTERISTICS--Total depth 230 feet.

INSTRUMENTATION--Graphic recorder, installed March 29, 1962.

DATUM--700 feet above NGVD of 1929.

Measuring point: Base of platform recorder, 1.3 feet above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--January 15, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57.30	57.75	58.22	58.64	59.02	59.48	59.70	59.50	59.45	---	---	59.14
2	57.34	57.72	58.25	58.64	59.17	59.41	59.67	59.49	59.45	---	---	59.18
3	57.42	57.70	58.22	58.68	59.35	59.21	59.64	59.48	59.46	---	---	59.17
4	57.47	57.65	58.40	58.75	59.33	59.45	59.65	59.47	59.46	---	---	59.18
5	57.50	57.70	58.29	58.55	59.26	59.57	59.67	59.46	59.51	---	---	59.12
6	57.50	57.77	58.18	58.59	59.24	59.58	59.68	59.52	59.51	---	---	59.01
7	57.51	57.80	58.25	58.60	59.26	59.62	59.67	59.53	59.50	---	---	58.97
8	57.47	57.96	58.44	58.87	59.37	59.67	59.56	59.49	59.53	---	---	58.91
9	57.41	57.85	58.39	58.86	59.40	59.69	59.59	59.46	59.55	---	---	58.87
10	57.38	57.95	58.33	58.79	59.28	59.64	59.60	59.50	59.54	---	---	58.91
11	57.42	58.01	58.40	58.75	59.26	59.59	59.60	59.54	59.55	---	59.51	58.94
12	57.51	57.81	58.35	58.89	59.28	59.60	59.56	59.55	59.56	---	59.49	58.96
13	57.54	57.90	58.25	58.98	59.22	59.58	59.54	59.55	59.54	---	59.45	58.94
14	57.48	57.91	58.25	58.84	59.35	59.57	59.51	59.53	59.55	---	59.43	58.89
15	57.42	57.82	58.59	58.86	59.41	59.79	59.47	59.54	59.57	---	59.41	58.79
16	57.43	57.96	58.51	58.92	59.54	59.78	59.44	59.55	59.57	---	59.37	58.77
17	57.44	58.04	58.45	58.90	59.56	59.70	59.45	59.54	59.56	---	59.36	58.75
18	57.62	58.00	58.40	58.91	59.46	59.91	59.46	59.55	59.56	---	59.41	58.68
19	57.63	57.97	58.29	58.95	59.36	59.84	59.48	59.49	59.55	---	59.40	58.61
20	57.59	58.00	58.38	59.07	59.30	59.73	59.47	59.48	59.54	---	59.40	58.60
21	57.56	58.15	58.60	59.05	59.33	59.88	59.46	59.49	59.54	---	59.30	58.59
22	57.56	58.12	58.47	58.98	59.51	59.90	59.45	59.48	59.56	---	59.26	58.49
23	57.50	58.04	58.45	58.97	59.59	59.84	59.46	59.47	59.56	---	59.27	58.57
24	57.60	57.94	58.51	58.98	59.53	59.77	59.44	59.46	59.57	---	59.28	58.58
25	57.66	57.93	58.68	58.99	59.39	59.78	59.43	59.46	59.58	---	59.29	58.48
26	57.71	57.85	58.57	59.08	59.41	59.79	59.44	59.48	59.59	---	59.28	58.46
27	57.63	57.96	58.52	59.11	59.39	59.79	59.44	59.47	59.56	---	59.29	58.56
28	57.83	58.10	58.67	59.09	59.43	59.78	59.43	59.47	59.57	---	59.23	58.62
29	57.87	58.06	58.68	59.03	---	59.76	59.46	59.46	---	---	59.23	58.60
30	57.87	58.13	58.59	59.05	---	59.69	59.48	59.44	---	---	59.26	58.45
31	57.80	---	58.62	58.95	---	59.70	---	59.45	---	---	59.20	---
MEAN	57.55	57.92	58.43	58.88	59.36	59.68	59.53	59.50	---	---	---	58.79
MAX	57.87	58.15	58.68	59.11	59.59	59.91	59.70	59.55	---	---	---	59.18
MIN	57.30	57.65	58.18	58.55	59.02	59.21	59.43	59.44	---	---	---	58.45

COUNTY--Dunklin

WELL IDENTIFICATION NUMBER--362957089581901

LOCATION--T.22N., R.10E., 34cdc, lat 36°29'57", long. 89°58'19", 0.1 mile north of junction of State Highways 62 and 25, at McGuire, 4 miles south of Malden.

Owner: Missouri Department of Natural Resources, Division of Geology and Land Survey.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled August 8, 1956, total depth 108 feet, 62 feet of 8-inch casing, 42 feet of 4-inch casing, and 4 feet of 4-inch screen.

DGLS Log Number: 14,673

INSTRUMENTATION--Graphic recorder installed August 8, 1956; Digital recorder, after December 17, 1980.

DATUM--287 feet above NGVD of 1929.

Measuring point: Base of recorder, 1.8 feet above land-surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--December 17, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.53	15.48	---	---	12.26	10.03	10.44	11.30	12.49	12.51	13.27	14.22
2	15.47	15.49	---	---	12.29	10.04	10.40	11.35	12.51	12.54	13.30	14.25
3	15.42	15.50	---	---	12.23	10.09	10.40	11.37	12.54	12.56	13.32	14.29
4	15.38	15.49	---	---	12.11	10.13	10.24	11.41	12.57	12.59	13.35	14.31
5	15.35	15.47	---	---	12.03	9.79	10.11	11.47	12.60	12.60	13.38	14.34
6	15.31	15.46	---	---	11.97	9.43	10.02	11.52	12.62	12.62	13.42	14.36
7	15.27	15.45	---	---	11.93	9.25	9.98	11.55	12.65	12.64	13.46	14.39
8	15.23	15.46	---	---	11.92	9.17	10.06	11.58	12.68	12.65	13.49	14.41
9	15.19	15.42	---	13.11	11.88	9.16	10.17	11.65	12.72	12.67	13.53	14.44
10	15.17	15.43	---	13.06	11.86	9.15	10.25	11.69	12.74	12.69	13.50	14.47
11	15.16	15.43	---	13.00	11.87	9.18	10.29	11.72	12.61	12.71	13.48	14.51
12	15.16	15.38	---	12.92	11.87	9.28	10.35	11.76	12.43	12.72	13.52	14.54
13	15.17	15.40	---	12.77	11.83	9.32	10.41	11.80	12.34	12.75	13.56	14.56
14	15.15	15.39	---	12.64	11.66	9.40	10.45	11.85	12.28	12.77	13.59	14.56
15	15.15	---	---	12.52	11.09	9.60	10.51	11.90	12.24	12.79	13.63	14.56
16	15.15	---	---	12.40	10.31	9.67	10.56	11.94	12.23	12.82	13.66	14.57
17	15.16	---	---	12.31	9.91	9.71	10.61	11.97	12.21	12.84	13.71	14.59
18	15.19	---	---	12.26	9.74	9.83	10.67	12.01	12.20	12.85	13.75	14.60
19	15.21	---	---	12.22	9.67	9.86	10.72	12.06	12.21	12.88	13.78	14.62
20	15.22	---	---	12.20	9.61	9.92	10.75	12.10	12.23	12.90	13.81	14.64
21	15.24	---	---	12.18	9.61	10.02	10.79	12.13	12.26	12.94	13.86	14.65
22	15.26	---	---	12.16	9.64	10.07	10.83	12.17	12.29	12.98	13.89	14.66
23	15.26	---	---	12.17	9.68	10.13	10.88	12.19	12.32	13.01	13.93	14.70
24	15.31	---	---	12.19	9.70	10.19	10.94	12.22	12.35	13.04	13.96	14.72
25	15.34	---	---	12.22	9.69	10.26	10.99	12.27	12.38	13.07	14.00	14.74
26	15.37	---	---	12.27	9.75	10.32	11.04	12.32	12.41	13.10	14.03	14.76
27	15.39	---	---	12.25	9.82	10.39	11.08	12.34	12.45	13.12	14.07	14.79
28	15.43	---	---	12.25	9.95	10.44	11.13	12.36	12.48	13.15	14.10	14.80
29	15.45	---	---	12.25	---	10.48	11.20	12.39	12.50	13.17	14.14	14.82
30	15.46	---	---	12.24	---	10.52	11.25	12.43	12.51	13.21	14.17	14.84
31	15.47	---	---	12.21	---	10.49	---	12.46	---	13.24	14.19	---
MEAN	15.29	---	---	---	10.92	9.85	10.58	11.91	12.43	12.84	13.70	14.56
MAX	15.53	---	---	---	12.29	10.52	11.25	12.46	12.74	13.24	14.19	14.84
MIN	15.15	---	---	---	9.61	9.15	9.98	11.30	12.20	12.51	13.27	14.22

COUNTY--Franklin

WELL IDENTIFICATION NUMBER--382100090592801

LOCATION--T.42N., R.01W., 26ddb, lat. 38°21'00", long. 90°59'28", Missouri Highway Department Maintenance buildings, north outerbound road to Interstate 44, between State Highway 47 intersection and exit 239.

FORMATIONS OPEN TO THE WELL--Roubidoux Formation and Gasconade Formation.

WELL CHARACTERISTICS--Drilled April 28, 1956, total depth 255 feet, 80 feet of 8-inch casing, open hole.
DGLS Log Number: 14,462

INSTRUMENTATION--Digital recorder, installed April 1, 1980.

DATUM--739 feet above NGVD of 1929.

Measuring point: Base of recorder, 2.2 feet above land surface.

REMARKS--Several days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--April 2, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	67.60	67.21	66.16	66.43	66.53	65.08	65.80	66.68	66.88	67.36	---
2	---	67.71	66.98	66.19	66.65	66.30	64.81	65.82	66.72	66.86	67.34	---
3	---	67.78	66.87	65.70	66.59	66.06	64.56	65.85	66.60	66.94	67.28	---
4	---	67.94	67.08	65.50	66.38	66.36	64.50	65.65	66.70	67.02	67.17	---
5	---	67.70	67.33	65.39	66.40	66.52	64.52	65.18	66.70	67.08	67.13	---
6	---	67.91	67.21	65.93	66.41	66.50	64.61	65.92	66.70	67.16	67.25	---
7	---	67.86	67.17	66.01	66.54	66.70	64.57	65.14	66.68	67.21	67.40	---
8	---	67.49	67.34	65.88	66.73	66.72	64.45	65.83	66.69	67.19	67.42	---
9	---	67.61	67.25	65.83	66.43	66.64	64.83	65.77	66.83	67.19	67.49	---
10	---	67.53	67.11	65.87	66.29	66.29	65.01	65.99	66.99	67.27	67.57	---
11	---	67.32	67.05	66.20	66.43	65.90	64.93	65.84	66.89	67.34	67.60	---
12	---	67.39	67.57	65.95	66.20	65.84	64.84	65.03	66.70	67.35	67.61	---
13	---	67.56	67.48	65.91	66.35	65.61	64.96	65.66	66.76	67.37	67.63	---
14	---	67.47	67.32	66.09	66.46	65.34	64.85	65.93	66.84	67.45	67.66	---
15	---	67.36	67.32	66.04	66.66	65.87	64.71	64.87	66.90	67.50	67.68	---
16	---	67.24	67.13	65.98	66.65	65.08	64.85	65.73	66.95	67.52	67.76	---
17	---	67.36	67.14	66.12	66.42	65.78	64.95	65.94	66.96	67.53	67.87	---
18	---	67.21	67.52	66.20	66.13	66.15	65.12	66.06	66.85	67.48	67.92	---
19	---	67.08	67.47	66.44	65.95	66.12	65.27	66.03	66.72	67.42	67.82	---
20	---	66.97	67.10	66.28	65.83	65.64	64.75	65.26	66.63	67.44	67.78	---
21	---	66.92	66.82	66.19	66.08	65.47	65.00	65.55	66.59	67.43	67.79	67.39
22	67.26	66.80	67.01	66.20	66.41	65.34	63.50	66.28	66.64	67.53	67.72	67.30
23	67.35	66.70	67.01	66.28	66.51	65.21	64.84	66.35	66.74	67.56	67.69	67.60
24	67.46	66.93	66.64	66.28	66.38	64.45	65.27	66.26	66.80	67.53	67.66	67.57
25	---	66.96	66.62	66.43	66.09	64.84	65.03	66.23	66.80	67.55	67.62	67.47
26	---	66.85	66.71	66.36	66.15	64.71	65.11	66.48	66.77	67.56	67.61	67.56
27	---	66.98	66.45	66.26	66.12	65.27	64.50	66.05	66.76	67.50	67.64	67.64
28	67.66	67.12	66.29	66.21	66.33	65.26	65.48	66.63	66.85	67.46	67.64	67.54
29	67.55	67.02	66.29	66.14	---	65.23	65.60	66.45	66.97	67.44	67.68	67.50
30	67.47	67.06	66.31	65.99	---	65.23	65.81	66.42	66.94	67.33	67.64	67.46
31	67.44	---	66.22	66.17	---	65.25	---	66.56	---	67.30	67.58	---
MEAN	---	67.31	67.00	66.07	66.36	65.75	64.88	65.89	66.78	67.34	67.58	---
MAX	---	67.94	67.57	66.44	66.73	66.72	65.81	66.63	66.99	67.56	67.92	---
MIN	---	66.70	66.22	65.39	65.83	64.45	63.50	64.87	66.59	66.86	67.13	---

COUNTY--Franklin

WELL IDENTIFICATION NUMBER--383212091012301

LOCATION--T.44N., R.1W., 27cbb, lat. 38°32'12", long. 91°01'23", east of Washington, 0.5 miles south of junction of State Highway 100 and County Road A, and 0.25 miles west of County Road A.

FORMATIONS OPEN TO THE WELL--Jefferson City Dolomite, Roubidoux Formation, Gasconade Formation, Eminence Dolomite, Potosi Dolomite, Derby-Doerun Dolomite, Davis Dolomite, and Bonnetterre Formation.

WELL CHARACTERISTICS--Drilled January 1, 1931, total depth 1,360 feet, 76 feet of 10-inch casing, open hole.
DGLS Log Number: 2,402

INSTRUMENTATION--Graphic recorder, installed April 30, 1956.

DATUM--575 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 2.6 feet above land surface.

REMARKS--Obstruction at 337 feet. Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--July 27, 1964, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	82.09	83.44	88.43
2	---	---	---	---	---	---	---	---	---	82.30	84.19	88.85
3	---	---	---	---	---	---	---	---	---	82.63	84.67	88.80
4	---	---	---	---	---	---	---	---	---	82.90	84.50	88.49
5	---	---	---	---	---	---	---	---	---	83.07	84.43	88.22
6	---	---	---	---	---	---	---	---	---	83.17	84.26	88.10
7	---	---	---	---	---	---	---	---	---	83.58	84.07	88.12
8	---	---	---	---	---	---	---	---	81.09	84.03	84.12	88.26
9	---	---	---	---	---	---	---	---	81.34	84.67	84.56	88.26
10	---	---	---	---	---	---	---	---	81.68	85.15	85.62	88.15
11	---	---	---	---	---	---	---	---	81.55	85.69	86.26	87.86
12	---	---	---	---	---	---	---	---	81.24	86.16	87.07	87.71
13	---	---	---	---	---	---	---	---	81.40	86.52	87.93	87.53
14	---	---	---	---	---	---	---	---	81.66	86.90	88.57	87.17
15	---	---	---	---	---	---	---	---	81.93	87.13	89.34	87.01
16	---	---	---	---	---	---	---	---	82.12	86.87	89.91	86.96
17	---	---	---	---	---	---	---	---	82.24	86.65	89.57	86.84
18	---	---	---	---	---	---	---	---	81.93	86.70	89.15	86.65
19	---	---	---	---	---	---	---	---	81.48	86.68	88.59	86.57
20	---	---	---	---	---	---	---	---	81.36	86.59	87.95	86.64
21	---	---	---	---	---	---	---	---	81.40	86.45	87.37	86.62
22	---	---	---	---	---	---	---	---	81.58	86.32	87.02	86.51
23	---	---	---	---	---	---	---	---	82.01	85.93	86.89	86.89
24	---	---	---	---	---	---	---	---	82.38	85.32	86.86	86.87
25	---	---	---	---	---	---	---	---	82.58	84.89	86.85	86.76
26	---	---	---	---	---	---	---	---	82.58	84.68	86.82	87.16
27	---	---	---	---	---	---	---	---	82.75	84.47	86.54	87.76
28	---	---	---	---	---	---	---	---	83.02	84.40	86.13	87.91
29	---	---	---	---	---	---	---	---	82.64	84.33	86.66	87.51
30	---	---	---	---	---	---	---	---	82.31	83.91	87.53	87.32
31	---	---	---	---	---	---	---	---	---	83.52	88.05	---
MEAN	---	---	---	---	---	---	---	---	---	84.96	86.61	87.53
MAX	---	---	---	---	---	---	---	---	---	87.13	89.91	88.85
MIN	---	---	---	---	---	---	---	---	---	82.09	83.44	86.51

COUNTY--Grundy

WELL IDENTIFICATION NUMBER--401444093442001

LOCATION--T.63N., R.25W., 20bdb, lat. 40°14'44", long. 93°44'20", approximately 8 miles west of Spickard, State Highway C, University of Missouri Agriculture Center.

FORMATIONS OPEN TO THE WELL--Glacial Drift.

WELL CHARACTERISTICS--Drilled October 31, 1958, total depth 140 feet, 136 feet of casing and 4 feet of screen.

INSTRUMENTATION--Graphic recorder, installed November 5, 1958; Digital recorder, after December 22, 1980.

DATUM--788 feet above NGVD of 1929.

Measuring point: Base of recorder, 2.5 feet above land surface.

PERIOD OF PROCESSED RECORD--December 1980 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.98	17.73	16.38	---	14.71	14.10	13.77	13.44	12.97	12.79	18.10	18.55
2	19.92	17.64	16.33	15.31	14.64	14.08	13.73	13.37	12.97	12.80	18.05	18.51
3	19.84	17.55	16.36	15.23	14.62	14.08	13.69	13.38	12.97	12.84	17.96	18.42
4	19.77	17.49	16.29	15.22	14.60	14.08	13.66	13.41	12.95	12.94	17.88	18.30
5	19.69	17.47	16.20	15.25	14.64	14.05	13.70	13.39	12.94	13.14	17.80	18.22
6	19.60	17.43	16.19	15.27	14.57	14.01	13.69	13.34	12.93	13.45	17.76	18.10
7	19.51	17.41	16.21	15.21	14.52	14.00	13.68	13.37	12.95	13.84	17.85	18.00
8	19.39	17.39	16.14	15.18	14.51	13.99	13.62	13.39	12.94	14.27	18.02	17.89
9	19.30	17.30	16.10	15.18	14.44	13.92	13.69	13.38	12.89	14.80	18.24	17.78
10	19.20	17.30	16.09	15.19	14.41	13.94	13.67	13.34	12.88	15.31	18.54	17.76
11	19.16	17.19	16.00	15.10	14.42	13.96	13.65	13.32	12.90	15.67	---	17.70
12	19.10	17.11	15.93	15.10	14.45	13.96	13.62	13.32	12.91	16.00	---	17.65
13	19.01	17.09	15.95	15.08	14.46	13.96	13.61	13.33	12.90	16.18	---	17.56
14	18.90	17.01	15.93	15.03	14.41	13.92	13.56	13.32	12.89	16.21	---	17.47
15	18.81	16.91	15.89	15.03	14.34	13.95	13.59	13.31	12.84	16.26	---	17.40
16	18.75	16.95	15.80	15.01	14.28	---	13.59	13.21	12.85	16.26	---	17.33
17	18.67	16.91	15.73	15.04	14.23	---	13.59	13.13	12.85	16.23	18.82	17.27
18	18.65	16.86	15.74	14.99	14.26	---	13.56	13.18	12.84	16.19	18.87	17.22
19	18.58	16.83	15.77	14.93	14.30	---	13.54	13.16	12.85	16.18	18.85	17.18
20	18.46	16.83	15.67	14.90	14.27	---	13.51	13.13	12.87	16.30	18.94	17.13
21	18.40	16.79	15.66	14.89	14.21	---	13.49	13.12	12.87	16.57	19.14	17.08
22	18.31	16.72	15.66	14.88	14.16	---	13.50	13.08	12.85	16.91	19.31	17.01
23	18.22	16.66	15.66	14.89	14.15	---	13.57	13.09	12.75	17.26	19.42	17.02
24	18.18	16.59	15.56	14.86	14.13	13.89	13.59	13.15	12.76	17.60	19.48	16.96
25	18.14	16.51	15.54	14.79	14.17	13.86	13.53	13.18	12.79	17.82	19.45	16.89
26	18.06	16.45	15.56	14.73	14.11	13.85	13.48	13.07	12.78	18.05	19.37	16.86
27	18.01	16.48	15.49	14.69	14.02	13.82	13.50	13.01	12.77	18.25	19.23	16.82
28	18.01	16.43	15.46	14.63	14.05	13.80	13.52	13.02	12.76	18.31	19.03	16.75
29	17.97	16.41	15.44	14.68	---	13.76	13.49	13.04	12.77	18.28	18.86	16.71
30	17.89	16.41	15.42	14.71	---	13.76	13.46	13.04	12.79	18.20	18.77	16.67
31	17.80	---	---	14.74	---	13.78	---	12.99	---	18.15	18.63	---
MEAN	18.82	16.99	---	---	14.36	---	13.59	13.23	12.87	15.91	---	17.47
MAX	19.98	17.73	---	---	14.71	---	13.77	13.44	12.97	18.31	---	18.55
MIN	17.80	16.41	---	---	14.02	---	13.46	12.99	12.75	12.79	---	16.67

PERIOD OF PROCESSED RECORD--December 18, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

COUNTY--Jasper

WELL IDENTIFICATION NUMBER--370600094223501

LOCATION--T.28N., R.32W., 36dcb, lat. 37°06'00", long. 94°22'35", 0.8 miles north of Old Highway 66, County Road AA, Atlas Chemical Industries, Inc.

FORMATIONS OPEN TO THE WELL--Cotter Dolomite, Jefferson City Dolomite, Roubidoux Formation, Gasconade Formation, Eminence Dolomite, Potosi Dolomite, Bonnetterre Formation, Lamotte Sandstone, and undifferentiated Precambrian.

WELL CHARACTERISTICS--Drilled January 25, 1941, total depth 1,747 feet, 375 feet of 10-inch casing, open hole.
DGLS Log Number: 6,507

INSTRUMENTATION--Graphic recorder, installed February 8, 1956.

DATUM--970 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 3.5 feet above land surface.

PERIOD OF PROCESSED RECORD--August 9, 1978, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.17	25.06	20.79	16.71	15.78	16.58	14.58	16.80	16.50	17.33	14.12	17.56
2	23.35	25.25	20.79	16.46	16.06	16.51	14.40	16.71	16.52	17.37	14.99	17.68
3	23.43	25.56	20.79	16.33	16.06	16.47	14.42	16.64	16.53	17.52	16.01	17.65
4	23.41	26.01	20.91	16.50	16.08	16.67	14.62	16.51	16.55	17.59	16.87	17.61
5	23.34	26.57	20.79	16.29	16.07	16.69	14.76	16.56	16.55	17.60	17.37	17.56
6	23.17	26.93	20.70	16.65	16.08	16.66	14.74	16.63	16.56	17.64	17.66	17.49
7	22.94	27.09	20.73	16.89	16.03	16.61	14.79	16.56	16.62	17.76	17.88	17.61
8	22.76	27.40	20.75	17.25	15.83	16.64	14.91	16.42	16.70	17.92	18.00	17.82
9	22.75	27.39	20.66	17.30	15.68	16.56	15.16	16.48	16.82	17.97	18.03	17.87
10	22.65	27.67	20.53	17.40	15.76	16.04	15.33	16.50	16.87	17.99	18.05	17.62
11	22.47	27.82	20.56	17.50	15.75	14.63	15.35	16.45	16.84	18.04	18.03	17.55
12	22.06	27.33	20.48	17.77	15.68	14.12	15.43	16.42	16.80	17.98	17.97	17.53
13	21.85	26.43	20.38	17.88	15.78	14.08	15.54	16.42	16.83	17.96	17.97	17.35
14	21.90	25.72	20.43	17.79	15.63	14.15	15.57	16.45	16.92	18.15	18.03	16.80
15	22.18	25.24	20.77	17.94	15.74	14.65	15.68	16.45	16.98	18.29	18.02	16.47
16	22.63	25.20	20.65	18.04	16.15	14.79	15.70	16.41	17.01	18.21	18.02	16.42
17	22.80	24.94	20.61	18.02	16.41	14.83	15.86	16.35	17.05	18.04	18.05	16.44
18	23.09	24.57	20.53	18.14	16.28	15.13	15.95	16.28	17.12	17.78	18.07	16.47
19	23.24	24.33	20.39	18.22	16.14	15.22	16.07	16.25	17.20	17.53	17.93	16.52
20	23.42	23.73	20.53	18.41	16.10	15.29	16.08	16.28	17.19	17.43	17.48	16.59
21	23.75	22.84	20.67	18.39	16.23	15.47	16.15	16.19	17.23	17.41	17.29	16.60
22	23.91	22.25	20.23	18.35	16.42	15.45	16.18	15.88	17.32	17.45	17.28	16.63
23	24.09	21.85	18.56	18.36	16.46	15.44	16.21	15.79	17.38	17.41	17.37	16.78
24	24.22	21.50	18.25	18.42	16.36	15.42	16.29	15.71	17.42	17.33	17.43	16.78
25	24.32	21.38	18.28	18.27	16.25	15.47	16.37	15.78	17.40	17.13	17.46	16.76
26	24.33	21.08	18.18	17.63	16.29	15.49	16.47	16.02	17.35	17.00	17.50	16.82
27	24.21	20.92	18.07	17.29	16.31	15.50	16.63	16.17	17.36	16.97	17.54	16.86
28	24.53	20.82	17.33	16.96	16.49	15.48	16.76	16.15	17.42	16.99	17.51	16.82
29	24.63	20.66	16.98	16.58	---	15.32	16.87	16.21	17.50	17.05	17.48	16.80
30	24.83	20.77	16.84	15.96	---	15.25	16.86	16.28	17.43	17.12	17.39	16.77
31	24.97	---	16.85	15.77	---	15.01	---	16.41	---	15.73	17.40	---
MEAN	23.37	24.48	19.77	17.40	16.07	15.54	15.66	16.33	17.00	17.54	17.43	17.07
MAX	24.97	27.82	20.91	18.42	16.49	16.69	16.87	16.80	17.50	18.29	18.07	17.87
MIN	21.85	20.66	16.84	15.77	15.63	14.08	14.40	15.71	16.50	15.73	14.12	16.42

COUNTY--Jefferson

WELL IDENTIFICATION NUMBER--380501090335501

LOCATION--T.39N., R.4E., 22dab, lat. 38°05'01", long. 90°33'55", 2.5 miles south of DeSoto, County Road E.

FORMATIONS OPEN TO THE WELL--Jefferson City Dolomite, Roubidoux Formation, Gasconade Formation, Eminence Dolomite, Potosi Dolomite, Derby-Doerun Dolomite, Davis Dolomite, and Bonnetterre Formation.

WELL CHARACTERISTICS--Mineral test hole, total depth 1,500 feet, cased to an unknown depth.

INSTRUMENTATION--Graphic recorder, installed November 18, 1960.

DATUM--790 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 0.9 feet above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--June 6, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116.37	115.96	---	---	---	117.33	116.10	117.83	117.51	117.08	117.16	116.41
2	116.40	115.34	---	---	---	115.79	114.42	117.80	117.69	116.27	117.23	117.63
3	117.42	113.72	---	---	---	113.48	113.60	117.95	116.40	116.14	116.53	118.70
4	118.23	112.98	---	---	---	114.46	114.38	116.32	116.44	116.74	115.75	118.49
5	119.33	---	---	---	---	115.91	116.12	115.28	116.39	117.10	115.53	118.30
6	119.56	---	---	---	---	115.81	115.69	116.36	116.54	117.54	115.83	118.04
7	119.28	---	---	---	---	117.54	114.74	116.32	116.24	117.84	117.02	117.57
8	118.01	---	---	117.50	---	118.62	113.64	116.27	115.90	117.61	117.38	117.06
9	116.37	---	---	116.94	---	118.78	115.98	115.37	116.28	117.07	117.70	116.39
10	115.68	---	---	115.77	---	117.09	117.72	117.49	117.75	117.02	118.12	117.30
11	115.75	---	---	---	---	114.70	117.41	118.03	117.79	117.29	118.19	118.11
12	117.40	---	---	---	---	114.95	116.44	117.17	116.06	117.10	117.82	118.76
13	118.58	---	---	---	---	113.89	117.29	115.94	115.80	116.66	117.28	118.77
14	117.28	---	---	---	---	112.75	116.60	116.05	116.39	116.71	116.98	117.70
15	115.94	---	---	---	---	115.12	116.08	116.86	116.84	117.08	116.51	117.06
16	115.22	---	---	---	---	116.88	115.67	117.04	117.49	117.11	116.48	117.06
17	115.01	---	---	---	---	115.46	115.55	117.12	117.63	117.00	117.17	117.85
18	115.90	---	---	---	---	117.10	116.43	116.61	117.22	116.38	117.96	118.53
19	116.40	---	---	---	---	118.31	117.41	115.50	117.11	115.52	117.35	118.54
20	116.34	---	---	---	---	115.30	117.29	116.28	117.14	115.35	116.29	118.48
21	115.74	---	---	---	---	116.41	116.25	117.40	116.82	115.80	116.49	118.24
22	115.72	---	---	---	---	117.01	115.57	116.27	116.86	117.29	116.69	116.89
23	114.07	---	---	---	---	116.19	115.02	116.40	117.23	118.48	116.67	117.52
24	115.02	---	---	---	---	115.23	115.07	115.63	117.65	118.64	116.54	---
25	115.85	---	---	---	---	114.98	115.30	114.56	117.38	118.68	116.79	---
26	116.85	---	---	---	---	115.22	115.46	116.09	116.81	118.71	---	---
27	115.91	---	---	115.12	---	115.28	115.55	118.84	116.34	118.11	---	---
28	117.67	---	---	114.37	---	115.17	114.95	119.27	116.92	117.16	---	---
29	119.05	---	---	113.71	---	114.57	115.49	117.77	117.95	116.73	---	---
30	119.00	---	---	113.18	---	114.14	117.58	116.73	117.98	116.31	---	117.44
31	117.49	---	---	---	---	115.44	---	116.92	---	116.56	117.02	---
MEAN	116.87	---	---	---	---	115.77	115.83	116.76	116.95	117.07	---	---
MAX	119.56	---	---	---	---	118.78	117.72	119.27	117.98	118.71	---	---
MIN	114.07	---	---	---	---	112.75	113.60	114.56	115.80	115.35	---	---

PERIOD OF PROCESSED RECORD--July 27, 1988 to present.

[illegible]

COUNTY--Lawrence

WELL IDENTIFICATION NUMBER--365645093431601

LOCATION--T.26N., R.26W., 24dac, lat. 36°56'45", long. 93°43'16", 0.8 miles south of Aurora, Highway 39 at Watch Tower.

FORMATIONS OPEN TO THE WELL--Mississippian Residuum, Pierson Formation, Northview Formation, Compton Formation, Cotter Dolomite, Jefferson City Dolomite, Roubidoux Formation, Upper Gasconade Formation, Lower Gasconade Formation, Gunter Sandstone Member of Gasconade Formation, Eminence Dolomite.

WELL CHARACTERISTICS--Total depth 1,425 feet, 195 feet of 16-inch casing, 572 feet of 12-inch casing.

INSTRUMENTATION--Graphic recorder.

DATUM--1,460 feet above NGVD of 1929.

REMARKS--Reflects earthquake effects; near the Ritchey Fault. Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	109.48	109.42	---	104.62	104.47	104.39	103.34	103.89	105.03	106.28
2	---	---	109.45	109.36	108.32	104.47	104.63	104.35	103.32	103.95	105.06	106.46
3	---	---	109.41	109.33	---	104.29	104.69	104.33	103.32	104.02	105.06	106.54
4	---	---	109.46	109.27	108.27	104.43	104.67	104.39	103.30	104.09	105.07	106.60
5	---	---	109.36	109.03	---	104.39	104.64	104.37	103.28	104.12	105.09	106.71
6	---	---	109.30	109.01	108.14	104.31	104.74	104.25	103.24	104.18	105.14	106.75
7	---	---	109.30	108.94	108.15	104.32	104.83	104.22	103.23	104.23	105.20	106.84
8	---	---	109.40	109.03	108.24	104.29	104.96	104.27	103.21	104.25	105.24	106.91
9	---	---	109.35	108.94	---	104.23	104.83	104.27	103.15	104.27	105.27	107.00
10	---	---	109.32	108.87	107.97	104.10	104.77	104.11	103.18	104.32	105.31	107.15
11	---	---	109.35	108.77	107.98	103.90	104.81	104.10	103.20	104.38	105.34	107.23
12	---	---	109.33	108.83	---	103.64	104.86	104.10	103.17	104.41	105.36	107.31
13	---	---	109.28	108.83	107.86	103.38	104.85	104.11	103.22	104.43	105.41	107.31
14	---	---	109.29	108.66	107.89	103.15	104.89	104.05	103.27	104.47	105.46	107.31
15	---	---	109.48	108.69	107.87	103.11	104.89	104.00	103.32	104.54	105.48	107.36
16	---	---	109.41	108.69	107.85	103.29	104.92	103.97	103.38	104.61	105.53	107.32
17	---	109.50	109.43	108.61	---	103.53	104.87	103.95	103.39	104.64	105.58	107.35
18	---	109.51	109.36	108.62	---	103.54	104.84	103.94	103.41	104.64	105.61	107.37
19	---	109.52	109.31	108.59	---	103.69	104.74	103.94	103.48	104.67	105.61	107.39
20	---	109.60	109.40	---	---	103.88	104.75	103.83	103.50	104.68	105.62	107.39
21	---	109.65	109.49	108.63	---	103.85	104.78	103.78	103.51	104.71	105.66	107.40
22	---	109.60	109.41	108.56	105.22	103.95	104.78	103.82	103.56	104.77	105.70	107.36
23	---	109.56	109.45	108.57	105.12	104.06	104.79	103.75	103.62	104.83	105.72	107.60
24	---	109.50	109.51	---	104.98	104.16	104.74	103.77	103.66	104.86	105.76	107.57
25	---	109.48	109.59	108.61	104.81	104.19	104.68	103.76	103.69	104.88	105.80	107.55
26	---	109.41	109.51	108.69	104.72	104.24	104.64	103.64	103.71	104.92	105.84	107.66
27	---	109.53	109.53	108.67	104.62	104.28	104.63	103.48	103.72	104.93	105.89	107.75
28	---	109.55	109.64	108.55	104.64	104.32	104.61	103.49	103.80	104.93	105.93	107.72
29	---	109.46	109.58	108.54	---	104.38	104.52	104.25	103.86	104.95	106.01	107.76
30	---	109.49	109.48	108.44	---	104.42	104.42	103.50	103.90	104.97	106.18	107.72
31	---	---	109.44	108.31	---	104.36	---	103.41	---	105.01	106.20	---
MEAN	---	---	109.42	---	---	104.02	104.74	103.99	103.43	104.53	105.52	107.22
MAX	---	---	109.64	---	---	104.62	104.96	104.39	103.90	105.01	106.20	107.76
MIN	---	---	109.28	---	---	103.11	104.42	103.41	103.15	103.89	105.03	106.28

COUNTY--Lincoln

WELL IDENTIFICATION NUMBER--385836090584201

LOCATION--T.49N., R.1W., 26dac, lat. 38°58'36", long. 90°58'42", corner of Cap and Geis Streets in Troy, well number 4.

FORMATIONS OPEN TO THE WELL--Kimmswick Formation, Decorah Formation, Platin Formation, Joachim Dolomite, and St. Peter Sandstone.

WELL CHARACTERISTICS--Drilled April 12, 1946, total depth 813 feet, 400 feet of 8-inch casing, open hole.
DGLS Log Number: 9,108

INSTRUMENTATION--Graphic recorder, installed April 15, 1980.

DATUM--535 feet above NGVD of 1929.

Measuring point: Base of recorder platform, at land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--December 18, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	88.55	90.96	89.43
2	---	---	---	---	---	---	---	---	---	88.09	90.22	89.63
3	---	---	---	---	---	---	---	---	---	87.81	90.36	88.06
4	---	---	---	---	---	---	---	---	---	88.30	90.26	---
5	---	---	---	---	---	---	---	---	---	88.34	89.93	---
6	---	---	---	---	---	---	---	---	---	89.20	89.15	---
7	---	---	---	---	---	---	---	---	---	90.15	88.90	---
8	---	---	---	---	---	---	---	---	85.58	90.93	89.09	---
9	---	---	---	---	---	---	---	---	86.35	90.95	89.18	---
10	---	---	---	---	---	---	---	---	86.87	91.17	89.09	---
11	---	---	---	---	---	---	---	---	85.68	91.52	89.04	---
12	---	---	---	---	---	---	---	---	84.07	92.06	88.88	---
13	---	---	---	---	---	---	---	---	84.67	93.26	88.45	---
14	---	---	---	---	---	---	---	---	85.70	93.83	88.32	---
15	---	---	---	---	---	---	---	---	86.66	94.88	88.93	---
16	---	---	---	---	---	---	---	---	87.23	94.95	89.49	---
17	---	---	---	---	---	---	---	---	85.88	94.76	89.81	---
18	---	---	---	---	---	---	---	---	84.40	94.59	89.95	---
19	---	---	---	---	---	---	---	---	83.39	95.97	89.64	---
20	---	---	---	---	---	---	---	---	83.87	97.21	88.54	---
21	---	---	---	---	---	---	---	---	83.07	98.03	87.87	---
22	---	---	---	---	---	---	---	---	83.03	98.50	88.34	84.90
23	---	---	---	---	---	---	---	---	83.82	97.29	88.70	85.11
24	---	---	---	---	---	---	---	---	84.77	96.11	89.44	83.97
25	---	---	---	---	---	---	---	---	84.06	96.65	90.13	82.94
26	---	---	---	---	---	---	---	---	83.32	97.13	90.36	83.27
27	---	---	---	---	---	---	---	---	83.11	95.89	88.85	83.67
28	---	---	---	---	---	---	---	---	84.63	95.26	87.54	83.76
29	---	---	---	---	---	---	---	---	86.33	94.28	88.13	83.90
30	---	---	---	---	---	---	---	---	87.58	92.97	88.79	84.13
31	---	---	---	---	---	---	---	---	---	91.90	89.15	---
MEAN	---	---	---	---	---	---	---	---	---	93.24	89.21	---
MAX	---	---	---	---	---	---	---	---	---	98.50	90.96	---
MIN	---	---	---	---	---	---	---	---	---	87.81	87.54	---

COUNTY--Madison

WELL IDENTIFICATION NUMBER--372202090180501

LOCATION--T.33N., R.7E., 20bcd, lat. 37°22'02", long. 90°18'05", approximately 2 miles south of Fredericktown, State Highway 72.

FORMATIONS OPEN TO THE WELL--Bonneterre Formation and Lamotte Sandstone.

WELL CHARACTERISTICS--Drilled February 4, 1939, total depth 590 feet, 187 feet of 8-inch casing, open hole.
DGLS Log Number: 5,330

INSTRUMENTATION--Graphic recorder, installed November 18, 1958.

DATUM--857 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

PERIOD OF PROCESSED RECORD--November 27, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103.81	104.00	103.56	103.37	101.98	100.83	100.92	100.73	102.13	101.78	102.92	103.28
2	103.87	103.93	103.66	103.40	102.21	100.64	100.65	100.84	102.00	101.85	102.88	103.42
3	103.98	103.79	103.60	103.25	102.38	100.44	100.49	100.79	102.05	101.94	102.82	103.41
4	104.08	103.63	103.47	103.29	102.50	100.67	100.61	100.65	102.01	102.02	102.81	103.37
5	104.17	103.55	103.61	103.20	102.26	100.79	100.61	100.84	102.07	102.10	102.86	103.37
6	104.17	103.77	103.33	102.73	102.12	100.85	100.39	101.03	102.05	102.17	103.01	103.33
7	104.13	103.97	103.12	102.77	102.01	101.09	100.12	101.01	102.02	102.16	103.07	103.30
8	103.95	104.11	103.24	102.78	102.00	101.19	100.09	100.86	102.08	102.14	103.13	103.21
9	103.83	104.27	103.44	103.08	102.10	101.17	100.27	101.14	102.28	102.21	103.19	103.23
10	103.75	104.04	103.26	102.89	101.74	100.94	100.27	101.29	102.27	102.26	103.22	103.36
11	103.81	104.34	103.21	102.74	101.50	100.71	100.09	101.28	102.07	102.29	103.20	103.42
12	104.01	104.35	103.32	102.50	101.55	100.69	99.99	101.15	102.05	102.35	103.17	103.46
13	104.13	104.02	103.11	102.73	101.26	100.42	100.01	101.20	102.10	102.43	103.15	103.40
14	103.97	104.23	103.01	102.58	101.50	100.20	100.12	101.34	102.12	102.48	103.11	103.35
15	103.87	104.20	103.16	102.33	101.58	100.62	100.13	101.42	102.18	102.52	103.12	103.36
16	103.79	103.94	103.58	102.43	101.84	100.65	100.18	101.47	102.18	102.54	103.18	103.40
17	103.80	104.11	103.30	102.38	101.69	100.44	100.09	101.48	102.06	102.50	103.28	103.47
18	103.88	104.35	103.42	102.25	101.37	100.75	99.98	101.42	102.00	102.44	103.25	103.46
19	104.04	104.21	103.21	102.31	101.01	100.62	99.85	101.52	101.94	102.46	103.13	103.43
20	104.01	104.00	103.14	102.37	100.67	100.41	99.93	101.70	101.87	102.56	103.17	103.41
21	103.87	104.07	103.37	102.57	100.61	100.70	99.93	101.59	101.86	102.78	103.22	103.33
22	103.94	104.29	103.61	102.41	100.85	100.69	100.01	101.64	101.87	102.89	103.23	103.20
23	103.75	104.14	103.36	102.31	101.04	100.60	99.98	101.63	101.89	102.90	103.21	103.54
24	103.82	103.95	103.36	102.29	100.93	100.56	100.09	101.53	101.85	102.94	103.22	103.53
25	103.93	103.74	103.51	102.35	100.62	100.62	100.16	101.71	101.78	102.96	103.27	103.42
26	104.03	103.58	103.80	102.37	100.47	100.65	100.23	102.07	101.75	102.90	103.31	103.52
27	104.00	103.30	103.56	102.57	100.41	100.71	100.24	102.14	101.84	102.83	103.34	103.63
28	104.04	103.54	103.47	102.48	100.61	100.69	100.26	102.01	101.95	102.81	103.32	103.53
29	104.28	103.70	103.81	102.39	---	100.64	100.56	101.94	101.94	102.78	103.32	103.47
30	104.27	103.53	103.68	102.26	---	100.73	100.70	102.00	101.86	102.83	103.32	103.38
31	104.18	---	103.46	102.14	---	100.98	---	102.10	---	102.90	103.22	---
MEAN	103.97	103.95	103.41	102.63	101.46	100.70	100.23	101.40	102.00	102.47	103.15	103.40
MAX	104.28	104.35	103.81	103.40	102.50	101.19	100.92	102.14	102.28	102.96	103.34	103.63
MIN	103.75	103.30	103.01	102.14	100.41	100.20	99.85	100.65	101.75	101.78	102.81	103.20

COUNTY--Marion

WELL IDENTIFICATION NUMBER--395043091262601

LOCATION--T.58N., R.5W., 10ab, lat. 39°50'43", long. 91°26'26", 4.1 miles east of Palmyra, State Highway 169, and 3.2 miles north on County Road JJ, the Rural Electric Association Northwest Power Plant.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled May 22, 1957, total depth 85 feet, 58 feet pf 8-inch casing, 23 feet of 4-inch casing, and 4 feet of 4-inch well screen.

DGLS Log Number: 16,183

INSTRUMENTATION--Graphic recorder, installed May 28, 1957.

DATUM--480 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 4.0 feet above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--June 14, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.60	38.69	37.78	37.95	38.51	---	---	---	36.85	33.83	34.55	35.37
2	38.70	38.42	37.55	38.12	38.30	---	---	---	36.87	33.82	34.68	35.51
3	38.38	38.14	37.63	38.43	38.28	---	---	---	36.01	33.82	34.88	35.62
4	37.91	38.30	37.94	38.49	38.25	---	---	---	35.25	33.74	34.98	35.85
5	37.69	38.57	38.46	38.27	38.24	---	---	---	35.09	33.91	34.69	34.30
6	38.09	38.77	38.44	38.10	38.36	---	---	---	35.38	34.11	34.02	34.45
7	38.57	38.47	38.58	38.04	38.46	---	---	---	35.94	34.29	34.23	34.65
8	38.76	38.22	38.54	38.02	38.37	---	---	---	35.82	34.63	34.45	34.65
9	38.92	37.96	38.22	38.02	37.96	---	---	---	35.40	34.61	34.77	33.30
10	39.01	38.01	38.18	38.26	37.73	---	---	---	35.56	34.50	34.82	33.47
11	38.96	38.34	38.26	38.53	37.70	---	---	---	36.11	34.39	35.00	34.57
12	38.53	38.47	38.36	38.68	37.71	---	---	---	35.91	34.44	34.73	34.53
13	38.44	38.58	38.29	38.66	37.89	---	---	---	35.35	34.45	34.47	33.70
14	38.36	38.14	38.34	38.61	---	---	---	---	34.41	34.27	34.45	33.19
15	38.34	37.95	38.31	38.66	---	---	---	---	33.50	34.38	34.48	33.69
16	38.37	38.10	38.54	38.63	---	---	---	---	33.27	34.81	34.78	34.20
17	38.49	38.14	39.15	38.53	---	---	---	---	32.83	35.13	34.98	34.32
18	38.42	38.29	38.99	38.10	---	---	---	---	32.46	34.93	35.22	34.80
19	38.17	38.36	38.70	38.29	---	---	---	---	32.71	34.70	35.25	35.00
20	38.10	38.12	38.60	38.48	---	---	---	---	33.18	34.53	35.48	34.50
21	38.20	37.76	38.45	38.56	---	---	---	---	33.00	34.25	35.18	34.30
22	38.27	37.71	37.96	38.56	---	---	---	---	33.32	34.24	34.96	34.33
23	38.47	37.94	38.08	38.47	---	---	---	---	33.32	34.34	34.85	34.40
24	38.54	38.07	38.31	38.41	---	---	---	37.67	33.82	34.50	34.98	34.28
25	38.57	37.81	38.41	38.24	---	---	---	37.79	34.09	34.67	35.51	34.40
26	38.51	37.69	38.18	38.20	---	---	---	37.90	33.67	34.75	35.48	34.57
27	38.14	37.79	38.20	38.30	---	---	---	37.66	33.96	34.82	35.06	34.90
28	38.08	38.04	38.18	38.40	---	---	---	37.18	34.31	34.87	34.85	35.07
29	38.17	38.14	38.05	38.43	---	---	---	36.79	34.56	34.78	35.39	34.97
30	38.45	37.95	37.99	38.53	---	---	---	36.78	34.27	34.48	35.41	34.85
31	38.63	---	37.95	38.61	---	---	---	36.96	---	34.43	35.39	---
MEAN	38.41	38.16	38.28	38.37	---	---	---	---	34.54	34.43	34.90	34.52
MAX	39.01	38.77	39.15	38.68	---	---	---	---	36.87	35.13	35.51	35.85
MIN	37.69	37.69	37.55	37.95	---	---	---	---	32.46	33.74	34.02	33.19

COUNTY--McDonald

WELL IDENTIFICATION NUMBER--364317094421701

LOCATION--T.23N., R.30W., 18aad, lat. 36°43'17", long. 94°42'17", 0.2 mile south of Longview, State Highway 76 at Missouri Highway Department.

FORMATIONS OPEN TO THE WELL--Keokuk Limestone, Burlington Limestone, Reeds Spring Formation, Northview Formation, and Compton Formation.

WELL CHARACTERISTICS--Drilled December 31, 1955, total depth 346 feet, 44 feet of 8-inch casing, open hole.
DGLS Log Number: 14,147

INSTRUMENTATION--Graphic recorder, installed January 3, 1956.

DATUM--1,290 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 2.2 feet above land surface.

PERIOD OF PROCESSED RECORD--June 6, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163.03	162.88	161.67	161.03	159.33	161.01	163.15	163.02	163.74	163.26	164.08	163.86
2	163.05	162.69	161.66	160.99	159.63	161.37	163.45	163.00	163.78	163.26	164.05	163.32
3	163.24	162.56	161.50	161.08	159.91	161.75	163.53	163.02	163.98	163.13	164.10	163.55
4	163.28	162.51	161.60	161.14	159.93	161.36	163.20	163.26	164.05	163.02	164.04	163.76
5	163.32	162.69	161.40	160.67	159.76	161.23	163.07	163.21	164.05	162.99	163.98	163.85
6	163.25	162.82	161.26	160.66	159.98	161.22	163.32	163.09	163.96	162.92	163.89	164.05
7	163.18	162.81	161.38	160.71	159.90	161.17	163.34	163.14	164.04	162.83	163.83	164.14
8	163.01	163.11	161.53	161.37	160.11	161.17	163.48	163.32	164.06	162.99	163.83	164.10
9	162.86	162.89	161.47	161.40	160.29	161.00	163.22	163.31	163.92	163.27	163.75	163.98
10	162.89	163.14	161.19	161.19	160.12	160.90	163.08	163.08	163.84	163.36	163.73	163.96
11	162.98	163.27	161.19	161.05	160.35	161.30	163.23	163.13	163.98	163.44	163.74	163.91
12	163.10	162.73	161.15	161.13	160.15	161.45	163.34	163.28	164.12	163.56	163.77	163.96
13	163.16	162.83	161.03	161.35	160.17	161.74	163.34	163.33	164.06	163.70	163.84	163.88
14	163.65	162.80	160.87	160.98	160.26	162.16	163.44	163.28	164.01	163.77	163.85	163.84
15	163.27	162.46	161.45	160.95	160.23	161.81	163.48	163.16	163.94	163.75	163.77	163.83
16	163.20	162.43	161.49	160.99	160.41	161.94	163.67	163.26	163.86	163.78	163.82	163.81
17	163.15	162.65	161.27	160.60	160.67	162.28	163.57	163.55	163.85	163.90	163.78	163.82
18	163.29	162.33	161.06	160.47	160.98	162.03	163.42	163.80	163.77	164.02	163.70	163.81
19	163.23	162.08	160.80	160.40	161.38	162.26	163.59	164.02	163.68	163.98	163.88	163.80
20	163.07	162.02	160.82	160.48	161.70	162.59	163.54	164.21	163.70	163.94	163.94	163.77
21	163.04	162.23	161.24	160.36	161.44	162.25	163.47	164.23	163.68	163.96	163.78	163.62
22	162.90	162.05	161.18	160.02	161.06	162.41	163.39	163.90	163.60	163.88	163.68	163.46
23	162.76	161.84	161.04	159.82	160.96	162.66	163.33	163.79	163.42	163.74	163.58	163.66
24	162.95	161.60	160.92	159.74	161.12	162.87	163.47	163.75	163.39	163.62	163.55	163.62
25	162.97	161.41	161.25	159.77	161.38	162.91	163.64	163.90	163.39	163.73	163.47	163.45
26	163.05	161.17	161.04	159.86	161.48	162.98	163.63	163.69	163.45	163.79	163.52	163.47
27	162.92	161.49	160.93	159.96	161.60	163.01	163.64	163.49	163.40	163.92	163.43	163.56
28	163.17	161.74	161.23	159.67	161.26	163.10	163.53	163.59	163.15	164.06	163.47	163.41
29	163.15	161.45	161.23	159.63	---	163.20	163.27	163.77	162.95	164.10	163.45	163.30
30	163.13	161.54	160.99	159.54	---	163.25	163.07	163.90	163.02	164.11	163.48	163.18
31	162.97	---	161.06	159.33	---	162.99	---	163.81	---	164.13	163.70	---
MEAN	163.10	162.34	161.22	160.53	160.56	162.04	163.40	163.49	163.73	163.61	163.76	163.72
MAX	163.65	163.27	161.67	161.40	161.70	163.25	163.67	164.23	164.12	164.13	164.10	164.14
MIN	162.76	161.17	160.80	159.33	159.33	160.90	163.07	163.00	162.95	162.83	163.43	163.18

COUNTY--McDonald

WELL IDENTIFICATION NUMBER--363237094290901

LOCATION--T.21N., R.33W., 22aa, lat. 36°32'37", long. 94°29'09", at Noel Water Company, Noel.

FORMATIONS OPEN TO THE WELL--Swan Creek Member of the Cotter Dolomite, Roubidoux Formation, and Gasconade Formation.

WELL CHARACTERISTICS--Drilled December 19, 1931, total depth 850 feet, 99 feet of 6-inch casing, open hole.
DGLS Log Number: 3,451

INSTRUMENTATION--Graphic recorder, installed May 2, 1962.

DATUM--830 feet above NGVD of 1929

Measuring point: Base of recorder platform, 1.7 feet above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--December 11, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	235.97	227.36	210.00	---	---	225.70	225.53	223.05	232.54	230.69	219.50	228.46
2	238.34	227.36	210.00	---	---	227.51	220.61	226.05	234.77	226.55	222.11	229.81
3	238.34	227.36	---	---	---	228.12	220.78	227.86	233.91	224.16	223.73	226.02
4	238.34	227.36	---	---	---	226.97	225.05	229.34	229.72	225.73	225.70	219.78
5	238.34	227.36	---	---	---	221.82	227.65	231.30	225.89	224.07	226.91	218.36
6	238.35	227.36	---	---	---	217.41	229.31	231.51	229.74	226.27	221.48	221.62
7	238.71	227.35	---	---	---	217.59	230.17	225.14	230.81	228.66	218.11	---
8	238.95	227.34	---	---	---	223.11	227.06	221.78	231.94	230.49	220.89	---
9	238.95	227.34	---	---	---	225.63	222.27	226.12	233.75	226.00	223.05	---
10	238.95	227.34	---	---	---	227.56	220.60	228.87	233.88	224.02	225.22	---
11	238.95	227.34	---	---	---	228.35	223.88	230.79	228.68	226.97	227.05	---
12	238.95	227.46	---	---	---	226.08	226.29	232.18	224.10	227.57	227.32	---
13	238.95	227.47	---	---	---	224.17	228.10	231.50	225.89	228.62	221.10	---
14	234.23	227.44	---	---	---	227.79	228.96	225.53	227.54	229.79	217.48	---
15	228.71	227.36	---	---	---	229.37	226.17	222.46	228.83	230.18	220.69	---
16	228.68	227.36	---	---	---	230.52	221.48	226.30	229.95	227.27	222.80	---
17	227.73	227.27	---	---	232.95	231.90	218.77	229.20	230.32	222.84	223.55	---
18	227.38	227.09	---	---	232.08	229.29	222.80	230.45	227.99	223.98	225.47	---
19	227.38	227.29	---	---	225.02	222.26	225.48	231.82	225.90	224.94	225.13	---
20	227.38	227.24	---	---	223.52	222.86	227.11	231.44	227.47	225.86	218.44	---
21	227.38	227.09	---	---	227.13	226.56	228.68	226.32	229.11	227.29	216.27	---
22	227.45	227.08	---	---	229.65	229.59	228.66	222.81	230.51	228.49	220.65	---
23	227.41	227.08	---	---	231.30	231.27	222.75	226.87	231.39	228.71	224.44	---
24	227.36	---	---	---	232.27	232.31	220.12	230.14	231.84	224.14	226.52	---
25	227.36	---	---	---	229.94	228.65	224.83	233.00	232.07	225.69	228.88	---
26	227.36	---	---	---	223.37	222.27	227.26	233.91	227.87	227.93	228.94	---
27	227.36	210.00	---	---	221.76	222.54	229.29	234.21	228.13	229.76	223.96	---
28	227.36	210.00	---	---	225.23	224.59	231.08	231.51	229.33	230.71	221.21	---
29	227.36	210.00	---	---	---	226.85	231.50	227.22	230.49	229.97	224.56	---
30	227.36	210.00	---	---	---	229.12	226.42	224.52	231.27	224.12	226.20	---
31	227.36	---	---	---	---	229.61	---	228.77	---	218.56	227.30	---
MEAN	232.35	---	---	---	---	226.37	225.62	228.45	229.85	226.78	223.38	---
MAX	238.95	---	---	---	---	232.31	231.50	234.21	234.77	230.71	228.94	---
MIN	227.36	---	---	---	---	217.41	218.77	221.78	224.10	218.56	216.27	---

COUNTY--Mississippi

WELL IDENTIFICATION NUMBER--364646089212201

LOCATION--T.25N., R.16E., 29ccb, lat. 36°46'46", long. 89°21'22", on State Highway 102, 0.2 miles north of junction of State Highways 80 and 102, 1 mile east of East Prairie, next to old Highway Department buildings.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled October 15, 1956, total depth 117 feet, 64 feet of 8-inch casing, 49 feet of 4-inch casing, and 4 feet of 4-inch well screen.

INSTRUMENTATION--Graphic recorder installed, November 1, 1956; Digital recorder, after November 8, 1980.

DATUM--305 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--November 8, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	7.60	6.16	6.96	8.45	9.63	10.13	11.00	11.57
2	---	---	---	---	7.27	6.14	6.98	8.51	9.65	10.15	11.01	11.60
3	---	---	---	---	6.63	6.21	6.81	8.53	9.73	10.18	11.01	11.63
4	---	---	---	---	6.67	6.29	6.29	8.52	9.71	10.22	11.03	11.87
5	---	---	---	---	6.90	5.43	6.31	8.70	9.71	10.25	11.10	11.95
6	---	---	---	---	7.11	4.81	6.41	9.03	9.73	10.29	11.17	12.06
7	---	---	---	---	7.29	5.04	6.38	8.81	9.75	10.33	11.19	12.12
8	---	---	---	---	7.49	5.41	6.45	8.74	9.79	10.48	11.19	12.07
9	---	---	---	8.11	7.49	5.60	6.63	8.85	9.85	11.26	11.22	12.06
10	---	---	---	8.06	7.53	5.65	6.77	8.91	9.87	11.56	11.40	12.00
11	---	---	---	7.52	7.65	5.77	6.87	8.92	9.73	10.96	11.85	11.88
12	---	---	---	7.28	7.61	6.01	6.99	8.92	9.46	10.64	11.97	11.88
13	---	---	---	7.06	6.45	6.15	7.12	8.98	9.41	10.57	11.39	11.88
14	---	---	---	6.94	5.26	6.29	7.18	9.06	9.35	10.57	11.30	11.81
15	---	---	---	7.04	4.53	6.65	7.28	9.13	9.41	10.57	11.43	11.78
16	---	---	---	7.11	4.31	6.80	7.38	9.16	9.47	10.59	11.62	11.77
17	---	---	---	7.25	4.48	6.84	7.49	9.16	9.48	10.63	11.73	11.80
18	---	---	---	7.40	4.75	7.04	7.58	9.17	9.44	10.67	11.60	11.82
19	---	---	---	7.61	5.04	7.07	7.68	9.25	9.47	10.71	11.55	11.84
20	---	---	---	7.71	4.97	7.04	7.72	9.34	9.53	10.72	11.53	11.85
21	---	---	---	7.76	4.91	7.00	7.77	9.34	9.61	10.77	11.47	11.86
22	---	---	---	7.85	5.26	6.96	7.83	9.34	9.65	10.82	11.86	11.85
23	---	---	---	7.94	5.66	7.01	7.91	9.34	9.67	10.83	11.77	11.91
24	---	---	---	8.03	5.90	7.11	7.99	9.34	9.86	10.84	11.67	11.91
25	---	---	---	7.95	5.96	7.24	8.06	9.40	10.02	10.88	11.58	11.90
26	---	---	---	7.70	6.06	7.33	8.15	9.47	10.04	11.61	11.52	11.93
27	---	---	---	7.62	6.10	7.41	8.23	9.48	10.08	11.58	11.52	12.14
28	---	---	---	7.55	6.16	7.45	8.25	9.47	10.12	11.25	11.54	12.25
29	---	---	---	7.34	---	7.45	8.36	9.50	10.15	11.12	11.54	12.29
30	---	---	---	7.31	---	7.42	8.41	9.55	10.16	11.03	11.54	12.13
31	---	---	---	7.39	---	7.03	---	9.61	---	11.00	11.54	---
MEAN	---	---	---	---	6.18	6.51	7.34	9.10	9.72	10.75	11.45	11.91
MAX	---	---	---	---	7.65	7.45	8.41	9.61	10.16	11.61	11.97	12.29
MIN	---	---	---	---	4.31	4.81	6.29	8.45	9.35	10.13	11.00	11.57

COUNTY--Montgomery

WELL IDENTIFICATION NUMBER--385432091264701

LOCATION--T.48N., R.5W., 23cca, lat. 38°54'32", long. 91°26'47", New Florence Water Tower, well number 1-A.
Owner: City of New Florence

FORMATIONS OPEN TO THE WELL--Joachim Dolomite, St. Peter Sandstone, Powell Dolomite, Jefferson City Dolomite, and Roubidoux Formation.

WELL CHARACTERISTICS--Drilled April 1, 1956, total depth 1,030 feet, 323 feet of 8-inch casing, open hole.
DGLS Log Number: 14,429

INSTRUMENTATION--Graphic recorder, installed May 29, 1981.

DATUM--877 feet above NGVD of 1929.

Measuring point: Base of recorder platform at land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--June 15, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323.78	323.73	---	324.15	324.11	323.85	324.05	325.21	324.71	---	---	332.61
2	323.74	323.79	324.15	324.11	323.97	324.22	324.27	325.06	324.68	---	---	332.82
3	323.62	323.81	324.35	324.24	324.04	324.11	324.27	325.02	324.52	---	---	332.86
4	323.59	323.63	324.53	324.21	324.32	323.95	324.16	325.04	324.58	---	---	332.81
5	323.59	323.71	324.32	324.40	324.55	324.31	324.10	325.16	324.61	---	---	332.83
6	323.69	323.84	324.24	324.37	324.50	324.38	324.17	325.08	324.56	---	---	332.77
7	323.81	323.96	324.23	324.27	324.35	324.02	324.03	324.82	---	---	---	332.76
8	323.83	324.22	324.26	324.20	324.07	324.13	323.96	324.82	---	---	---	332.67
9	323.85	324.09	324.24	324.12	324.14	324.32	323.96	324.97	---	---	---	332.75
10	323.74	324.10	324.19	324.03	324.03	324.31	323.84	324.96	---	---	---	332.87
11	323.62	324.37	324.36	323.83	324.05	324.19	323.98	324.79	---	---	---	332.96
12	323.67	324.05	324.06	324.10	324.35	324.13	324.01	324.62	---	---	---	333.04
13	323.78	324.03	323.92	324.24	324.34	323.99	324.12	324.66	---	---	---	333.00
14	323.82	324.14	323.91	324.55	324.07	324.04	324.08	324.72	---	---	---	332.97
15	323.82	323.99	324.07	324.62	323.76	324.01	324.03	324.68	---	---	---	333.00
16	323.90	323.71	324.37	324.48	323.90	323.97	323.96	324.70	---	---	---	333.01
17	323.65	324.11	324.31	324.39	324.19	323.95	323.87	324.62	---	---	---	333.10
18	323.62	324.25	324.30	324.43	324.23	323.93	323.82	324.49	---	---	---	333.15
19	323.70	324.14	324.19	324.41	324.17	323.91	323.81	324.62	---	---	---	333.18
20	323.77	324.01	324.30	324.72	324.34	323.94	323.82	324.96	---	---	---	333.21
21	323.74	---	324.45	324.55	324.37	324.11	323.83	324.87	---	---	---	333.21
22	324.03	---	324.26	324.32	324.43	324.05	323.87	324.73	---	---	---	333.14
23	323.91	---	324.14	324.34	324.34	323.91	323.87	324.73	---	---	---	333.51
24	323.84	---	324.28	324.30	324.17	323.79	323.83	324.52	---	---	---	333.53
25	323.70	---	324.23	324.04	324.10	323.80	323.81	324.50	---	---	---	333.43
26	323.75	---	324.13	324.33	324.17	323.95	324.02	324.79	---	---	---	333.50
27	323.71	---	324.19	324.37	323.97	324.12	324.40	325.01	---	---	---	333.57
28	323.48	---	324.22	324.71	323.72	324.03	324.73	324.85	---	---	---	333.47
29	323.44	---	324.42	324.73	---	324.01	324.89	324.64	---	---	332.76	333.41
30	323.48	---	324.40	324.57	---	323.93	325.01	324.57	---	---	332.71	333.35
31	323.67	---	324.21	324.32	---	323.78	---	324.65	---	---	332.61	---
MEAN	323.72	---	---	324.34	324.17	324.04	324.09	324.80	---	---	---	333.08
MAX	324.03	---	---	324.73	324.55	324.38	325.01	325.21	---	---	---	333.57
MIN	323.44	---	---	323.83	323.72	323.78	323.81	324.49	---	---	---	332.61

COUNTY--Pemiscot

WELL IDENTIFICATION NUMBER--360422089484801

LOCATION--T.17N., R.11E., 36abb, lat. 36°04'22", long. 89°48'48", Missouri Highway Department Maintenance buildings, approximately 2 miles south of State Highways 164 and 161, east outer boundary road to Interstate 55.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled August 22, 1956, total depth 132 feet, 62 feet of 8-inch casing, 66 feet of 4-inch casing, and 4 feet of 4-inch screen.

DGLS Log Number: 14,804

INSTRUMENTATION--Digital recorder installed, November 6, 1980.

DATUM--260 feet above NGVD of 1929.

Measuring point: Base of recorder, 1.6 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--November 6, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	10.79	8.67	9.78	11.26	12.15	11.46	13.25	14.56
2	---	---	---	---	10.79	8.77	9.79	11.34	12.19	11.56	13.29	14.61
3	---	---	---	---	10.05	8.89	9.45	11.37	12.24	11.63	13.33	14.64
4	---	---	---	---	9.72	9.05	8.94	11.39	12.29	11.70	13.37	14.67
5	---	---	---	---	9.66	8.51	8.76	11.50	12.35	11.80	13.43	14.70
6	---	---	---	---	9.75	7.98	8.71	11.58	12.38	12.00	13.49	14.74
7	---	---	---	---	9.91	7.92	8.76	11.61	12.41	12.03	13.55	14.77
8	---	---	---	---	10.10	7.98	8.98	11.63	12.48	12.01	13.60	14.80
9	---	---	---	10.81	10.18	8.08	9.24	11.74	12.54	12.07	13.65	14.83
10	---	---	---	10.86	10.24	8.19	9.41	11.80	12.54	12.16	13.67	14.88
11	---	---	---	10.81	10.36	8.31	9.53	11.83	11.59	12.27	13.67	14.91
12	---	---	---	10.26	10.44	8.51	9.65	11.87	10.78	12.26	13.72	14.95
13	---	---	---	9.87	10.11	8.64	9.78	11.93	10.51	12.33	13.76	14.98
14	---	---	---	9.62	9.05	8.78	9.86	11.99	10.30	12.37	13.81	14.99
15	---	---	---	9.51	8.16	9.08	9.98	12.04	10.23	12.41	13.85	15.01
16	---	---	---	9.54	7.73	9.23	10.08	12.22	10.24	12.46	13.91	15.03
17	---	---	---	9.62	7.64	9.32	10.18	12.23	10.28	12.51	13.98	15.06
18	---	---	---	9.78	7.57	9.51	10.28	12.25	10.28	12.54	14.05	15.09
19	---	---	---	9.94	7.59	9.57	10.38	12.27	10.34	12.65	14.08	15.11
20	---	---	---	10.14	7.49	9.54	10.44	12.33	10.46	12.81	14.12	15.14
21	---	---	---	10.25	7.18	9.43	10.52	12.32	10.59	12.82	14.17	15.16
22	---	---	---	10.35	7.32	9.42	10.59	12.25	10.71	12.83	14.21	15.17
23	---	---	---	10.47	7.56	9.50	10.68	12.22	10.82	12.86	14.25	15.23
24	---	---	---	10.59	7.72	9.63	10.77	12.25	10.93	12.91	14.28	15.25
25	---	---	---	10.68	7.81	9.74	10.84	12.32	11.03	12.97	14.32	15.26
26	---	---	---	10.62	8.00	9.77	10.91	12.17	11.12	13.01	14.36	15.29
27	---	---	---	10.58	8.19	9.94	10.97	11.89	11.22	13.05	14.41	15.33
28	---	---	---	10.60	8.46	10.00	11.03	11.87	11.31	13.08	14.45	15.33
29	---	---	---	10.62	---	9.87	11.14	11.93	11.38	13.12	14.47	15.34
30	---	---	---	10.64	---	9.79	11.20	12.01	11.44	13.16	14.49	15.31
31	---	---	---	10.67	---	9.77	---	12.09	---	13.21	14.52	---
MEAN	---	---	---	---	8.91	9.08	10.02	11.92	11.30	12.45	13.92	15.00
MAX	---	---	---	---	10.79	10.00	11.20	12.33	12.54	13.21	14.52	15.34
MIN	---	---	---	---	7.18	7.92	8.71	11.26	10.23	11.46	13.25	14.56

COUNTY--Perry

WELL IDENTIFICATION NUMBER--373559090082901

LOCATION--T.34N., R.8E., 34 CDB, lat. 37°35'59", long. 90°08'29", 1.5 miles east of Higdon on County Road J.

FORMATIONS OPEN TO THE WELL--700 feet of unknown bedrock, Derby-Doerun Dolomite, Davis Dolomite, Bonnetterre Formation, and Lamotte Sandstone.

WELL CHARACTERISTICS--Mineral test hole, total depth 1,526 feet, cased to an unknown depth.

DGLS Log Number: P.H. 17

INSTRUMENTATION--Graphic recorder, installed July 18, 1960.

DATUM--1,010 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.4 feet above land surface.

PERIOD OF PROCESSED RECORD--May 18, 1983, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180.62	180.74	180.78	180.64	180.00	180.16	179.86	179.38	179.63	178.93	179.45	179.72
2	180.69	180.73	180.95	180.72	180.27	179.91	179.58	179.43	179.47	178.98	179.41	179.90
3	180.73	180.61	180.86	180.61	180.60	179.62	179.47	179.28	179.54	179.06	179.35	179.88
4	180.78	180.52	180.83	180.79	180.70	179.75	179.68	179.08	179.51	179.12	179.33	179.81
5	180.72	180.75	180.93	180.70	180.53	179.81	179.79	179.22	179.58	179.17	179.37	179.84
6	180.68	180.96	180.63	180.29	180.54	179.84	179.70	179.38	179.54	179.21	179.50	179.77
7	180.51	181.07	180.43	180.36	180.56	180.09	179.48	179.29	179.52	179.17	179.58	179.75
8	180.42	181.25	180.61	180.54	180.72	180.19	179.56	179.10	179.61	179.14	179.57	179.69
9	180.41	180.94	180.78	180.90	180.83	180.21	179.83	179.37	179.81	179.17	179.62	179.67
10	180.49	181.25	180.57	180.80	180.55	180.02	179.89	179.49	179.72	179.24	179.62	179.82
11	180.68	181.23	180.58	180.73	180.39	179.81	179.74	179.42	179.47	179.20	179.58	179.87
12	180.78	180.89	180.66	180.58	180.42	179.79	179.65	179.28	179.36	179.16	179.53	179.89
13	180.63	181.13	180.41	180.89	180.13	179.53	179.60	179.33	179.34	179.22	179.54	179.81
14	180.55	181.08	180.32	180.68	180.41	179.28	179.41	179.46	179.33	179.27	179.53	179.74
15	180.51	180.79	180.63	180.55	180.51	---	179.36	179.51	179.39	179.28	179.52	179.78
16	180.59	180.93	180.93	180.67	180.83	---	179.28	179.53	179.37	179.28	179.59	179.79
17	180.62	181.13	180.59	180.60	180.75	---	179.33	179.48	179.28	179.22	179.70	179.87
18	180.82	180.97	180.69	180.49	180.46	---	179.38	179.36	179.23	179.13	179.69	179.87
19	180.78	180.69	180.47	180.55	180.17	---	179.43	179.46	179.20	179.14	179.56	179.85
20	180.68	180.73	180.50	180.66	179.85	---	179.30	179.63	179.17	179.22	179.57	179.86
21	180.68	181.05	180.84	180.79	179.89	---	179.19	179.42	179.18	179.42	179.65	179.81
22	180.71	180.94	180.96	180.59	180.22	---	179.09	179.45	179.20	179.52	179.66	179.69
23	180.58	180.76	180.70	180.47	180.45	179.82	179.05	179.39	179.22	179.46	179.64	180.08
24	180.79	180.58	180.66	180.44	180.44	179.75	179.11	179.25	179.17	179.45	179.66	180.09
25	180.87	180.46	180.95	180.46	180.08	179.78	179.14	179.42	179.10	179.47	179.70	179.93
26	180.92	180.19	181.10	180.48	179.90	179.81	179.14	179.79	179.06	179.43	179.74	180.01
27	180.79	180.40	180.74	180.59	179.81	179.87	179.09	179.78	179.14	179.34	179.79	180.12
28	181.09	180.73	180.70	180.43	179.95	179.82	179.06	179.58	179.24	179.33	179.77	179.98
29	181.08	180.75	181.02	180.32	---	179.70	179.33	179.48	179.18	179.32	179.78	179.93
30	180.97	180.71	180.85	180.20	---	179.70	179.41	179.55	179.04	179.37	179.78	179.86
31	180.78	---	180.69	180.02	---	179.91	---	179.62	---	179.43	179.69	---
MEAN	180.71	180.83	180.72	180.57	180.36	---	179.43	179.43	179.35	179.25	179.60	179.86
MAX	181.09	181.25	181.10	180.90	180.83	---	179.89	179.79	179.81	179.52	179.79	180.12
MIN	180.41	180.19	180.32	180.02	179.81	---	179.05	179.08	179.04	178.93	179.33	179.67

COUNTY--Pettis

WELL IDENTIFICATION NUMBER--384830093192501

LOCATION--T.47N., R.22W., 34cad, lat. 38°48'30", long. 93°19'25", 5 miles west of Sedalia, County Road T.

FORMATIONS OPEN TO THE WELL--Jefferson City Dolomite, Roubidoux Formation, Gasconade Formation, Eminence Dolomite, Potosi Dolomite, Derby-Doerun Dolomite, and Davis Dolomite.

WELL CHARACTERISTICS--Drilled May 6, 1971, total depth 1,410 feet, 432 feet of 13-inch casing, open hole.
DGLS Log Number: 26,814

INSTRUMENTATION--Graphic recorder, installed January 12, 1973.

DATUM--825 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 2.9 feet above land surface.

PERIOD OF PROCESSED RECORD--January 12, 1973, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148.77	148.71	149.71	149.69	149.60	149.92	149.87	150.19	150.34	150.47	150.87	150.99
2	148.88	148.88	149.69	149.69	149.86	149.62	149.72	150.20	150.30	150.45	150.82	151.20
3	149.03	149.06	149.71	149.72	150.20	149.32	149.69	150.16	150.18	150.54	150.71	151.21
4	149.14	149.14	149.93	149.75	150.14	149.80	149.87	149.92	150.21	150.61	150.66	151.17
5	149.23	148.99	149.65	149.33	149.99	149.90	150.06	150.02	150.23	150.66	150.71	151.17
6	149.25	148.85	149.47	149.43	149.98	149.92	149.96	150.20	150.20	150.72	150.84	151.08
7	149.25	148.79	149.64	149.43	149.97	150.01	149.84	150.16	150.14	150.77	150.97	151.03
8	149.09	148.57	149.89	149.90	150.27	150.07	149.87	149.96	150.19	150.71	150.95	150.97
9	148.85	148.92	149.72	149.82	150.17	150.05	150.14	150.11	150.30	150.66	150.97	151.00
10	148.88	149.44	149.68	149.75	149.91	149.86	150.30	150.27	150.42	150.71	151.03	151.13
11	148.75	149.46	149.79	149.61	149.88	149.79	150.13	150.28	150.29	150.74	151.07	151.19
12	148.61	148.90	149.64	149.94	149.78	149.80	150.10	150.15	150.15	150.76	151.11	151.28
13	148.60	148.59	149.47	150.03	149.62	149.64	150.17	150.05	150.26	150.78	151.06	151.24
14	148.78	148.65	149.52	149.70	149.88	149.41	150.01	150.11	150.36	150.79	151.06	151.15
15	148.88	149.00	150.03	149.82	150.06	149.90	150.01	150.17	150.47	150.77	151.03	151.15
16	148.84	148.67	149.79	149.82	150.30	149.89	149.83	150.16	150.49	150.79	151.05	151.13
17	148.84	148.53	149.82	149.69	150.22	149.76	149.96	150.15	150.46	150.71	151.14	151.15
18	149.14	148.63	149.55	149.76	149.97	150.19	150.06	149.99	150.45	150.63	151.18	151.18
19	149.16	148.65	149.30	149.79	149.73	150.01	150.15	149.98	150.48	150.64	151.00	151.20
20	149.10	148.54	149.51	150.04	149.55	149.87	150.04	150.22	150.42	150.67	150.99	151.21
21	149.19	148.35	149.79	149.90	149.73	150.13	149.95	150.18	150.35	150.69	151.00	151.16
22	149.06	148.47	149.49	149.71	150.08	150.03	149.85	150.06	150.39	150.81	151.01	151.06
23	148.99	148.60	149.52	149.65	150.14	149.95	149.77	150.10	150.49	150.88	151.01	151.41
24	149.12	148.80	149.62	149.68	149.98	149.81	149.81	149.88	150.49	150.91	151.02	151.35
25	149.22	148.87	149.87	149.71	149.71	149.85	149.86	149.95	150.46	150.94	151.03	151.27
26	149.22	148.99	149.59	149.91	149.75	149.78	149.88	150.26	150.40	150.98	151.05	151.42
27	148.92	149.33	149.63	149.86	149.63	149.79	149.85	150.46	150.41	150.93	151.10	151.49
28	148.49	149.52	149.90	149.74	149.86	149.75	149.81	150.29	150.52	150.84	151.07	151.39
29	148.44	149.40	149.81	149.70	---	149.77	150.01	150.13	150.62	150.78	151.10	151.33
30	148.46	149.56	149.65	149.60	---	149.85	150.15	150.10	150.57	150.75	151.08	151.23
31	148.63	---	149.66	149.35	---	150.02	---	150.22	---	150.81	150.97	---
MEAN	148.93	148.90	149.68	149.73	149.93	149.85	149.96	150.13	150.37	150.74	150.99	151.20
MAX	149.25	149.56	150.03	150.04	150.30	150.19	150.30	150.46	150.62	150.98	151.18	151.49
MIN	148.44	148.35	149.30	149.33	149.55	149.32	149.69	149.88	150.14	150.45	150.66	150.97

COUNTY--Phelps

WELL IDENTIFICATION NUMBER--375749091475001

LOCATION--T.37N., R.8W., 3bab, lat. 37°57'49", long. 91°47'50", Missouri Conservation Commission, Rolla.

FORMATIONS OPEN TO THE WELL--Cotter Formation, Jefferson City Formation, Roubidoux Formation, Upper Gasconade Formation.

WELL CHARACTERISTICS--Drilled November 5, 1951, total depth 450 feet, 212 feet of 6-inch casing.

DGLS Log Number: 11,789

INSTRUMENTATION--Digital recorder, installed September 8, 1980.

DATUM--1,192 feet above NGVD of 1929.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	342.68	348.99	---	---	---	---	347.86	348.17	349.58	350.69	354.24	354.69
2	348.63	348.99	---	---	---	---	347.84	348.28	349.58	350.68	353.95	355.26
3	348.63	348.99	---	---	---	---	347.84	348.31	349.58	350.68	353.61	355.23
4	348.73	348.99	---	---	---	---	347.84	348.31	349.58	350.68	353.59	355.14
5	349.30	348.99	---	---	---	---	348.03	348.31	349.58	350.68	353.75	355.19
6	349.50	348.99	---	---	---	---	348.14	348.31	349.58	350.75	354.37	354.98
7	349.51	348.99	---	---	---	---	348.10	348.31	349.57	351.15	354.83	354.57
8	349.52	348.99	---	---	---	---	348.08	348.24	349.55	351.21	354.93	354.25
9	349.52	348.99	---	---	---	---	348.11	348.18	349.55	351.21	355.32	354.79
10	349.52	348.99	---	---	---	---	348.62	348.53	349.61	351.40	355.81	354.95
11	349.52	348.98	---	---	---	---	348.75	348.66	349.75	351.49	355.99	355.31
12	349.48	348.98	---	---	---	---	348.69	348.65	349.74	351.49	355.89	355.35
13	349.24	348.98	---	---	---	---	348.62	348.64	349.74	351.49	355.91	354.81
14	349.01	348.98	---	---	---	346.28	348.63	348.64	349.73	351.49	355.58	354.96
15	348.99	348.98	---	---	---	346.88	348.62	348.65	349.73	351.51	355.46	354.97
16	348.99	348.91	---	---	---	347.45	348.43	348.76	349.73	351.53	355.68	355.22
17	348.99	---	---	---	---	347.42	347.96	348.94	349.73	351.53	355.84	355.48
18	348.90	---	---	---	---	347.82	347.97	348.94	349.73	351.22	355.84	355.51
19	348.99	---	---	---	---	348.12	348.18	348.91	349.77	350.86	355.00	355.37
20	348.99	---	---	---	---	348.08	348.22	349.01	349.81	350.85	354.71	355.28
21	348.97	---	---	---	---	348.25	347.79	349.11	349.68	350.89	354.73	354.68
22	348.99	---	---	---	---	348.44	347.53	349.03	349.59	351.59	354.82	355.55
23	348.99	---	---	---	---	348.49	347.42	349.02	349.86	352.11	354.46	356.22
24	348.99	---	---	---	---	348.49	347.41	349.02	350.00	352.42	354.55	355.61
25	348.99	---	---	---	---	348.49	347.40	349.02	350.01	352.43	354.61	355.69
26	348.99	---	---	---	---	348.49	347.39	349.02	349.82	352.50	354.62	356.51
27	348.99	---	---	---	---	348.34	347.39	349.60	349.80	352.51	354.81	356.20
28	348.99	---	---	---	---	347.56	347.24	349.81	349.97	353.54	354.86	355.69
29	348.99	---	---	---	---	347.54	347.14	349.77	350.56	353.49	354.95	355.42
30	348.99	---	---	---	---	347.54	347.87	349.77	350.71	353.28	354.80	354.63
31	348.99	---	---	---	---	347.69	---	349.69	---	353.84	354.19	---
MEAN	348.89	---	---	---	---	---	347.97	348.83	349.77	351.65	354.89	355.25
MAX	349.52	---	---	---	---	---	348.75	349.81	350.71	353.84	355.99	356.51
MIN	342.68	---	---	---	---	---	347.14	348.17	349.55	350.68	353.59	354.25

COUNTY--Phelps

WELL IDENTIFICATION NUMBER--375625091480401

LOCATION--T.37N., R.8W., 10cca, lat. 37°56'25", long. 91°48'04", Rolla Inn (formerly Holiday Inn).

FORMATIONS OPEN TO THE WELL--Gunter Sandstone Member of the Gasconade Formation and Eminence Dolomite.

WELL CHARACTERISTICS--Drilled July 1, 1962, total depth 650 feet, 420 feet of 6-inch casing, open hole.

INSTRUMENTATION--Graphic recorder, installed January 2, 1968.

DATUM--975 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--November 7, 1983, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184.00	181.18	178.23	---	---	---	178.97	182.47	183.48	180.45	184.90	186.94
2	183.12	179.97	179.35	---	---	---	178.49	181.85	184.54	181.85	184.17	187.75
3	182.18	179.72	179.11	---	---	---	177.40	182.98	184.01	181.94	185.39	187.12
4	182.25	181.15	178.57	---	---	---	177.15	182.58	182.65	180.77	185.23	186.25
5	183.69	180.92	178.07	---	---	---	178.67	182.04	181.15	180.32	184.66	187.18
6	183.02	180.40	179.40	---	---	---	179.37	183.64	180.08	182.35	186.28	187.05
7	183.43	180.95	179.35	---	---	---	178.29	183.89	179.79	183.00	186.10	186.20
8	184.49	181.45	178.94	---	---	---	177.83	182.52	181.74	182.66	185.18	187.48
9	183.34	180.49	178.40	---	---	---	179.19	183.27	182.04	182.83	186.68	187.55
10	182.07	179.91	179.44	---	---	---	179.09	182.73	181.01	184.90	186.90	186.91
11	183.14	179.81	179.33	---	---	---	178.31	182.25	180.23	185.24	186.25	187.93
12	183.62	180.84	178.15	---	---	---	177.85	183.76	180.82	184.65	188.00	187.89
13	182.85	180.57	177.71	---	---	---	179.36	183.74	180.30	186.31	187.75	186.93
14	181.92	179.42	179.11	---	---	---	179.36	183.10	179.31	186.51	186.86	187.54
15	183.01	178.80	179.93	---	---	---	178.72	184.30	179.11	185.80	188.00	186.83
16	182.97	180.01	179.71	---	---	---	178.02	184.11	180.98	187.15	187.73	185.99
17	181.74	179.72	---	---	---	---	178.87	183.39	181.42	186.81	186.95	186.94
18	181.56	179.33	---	---	---	---	178.63	184.57	180.43	185.78	188.31	186.38
19	183.19	178.27	---	---	---	---	177.91	184.24	179.64	186.63	188.06	185.57
20	182.87	179.36	---	---	---	---	177.57	183.49	181.17	185.77	187.37	186.99
21	181.78	179.17	---	---	---	179.83	178.87	184.56	180.96	185.11	188.14	187.10
22	181.34	178.18	---	---	---	179.24	178.97	183.79	180.01	186.34	187.66	186.18
23	182.32	177.65	---	---	---	179.11	178.50	182.97	179.83	185.87	186.71	187.44
24	181.85	178.54	---	---	---	180.73	179.78	184.01	181.32	184.96	187.91	186.82
25	181.12	178.03	---	---	---	180.69	179.80	183.74	181.25	185.55	187.85	185.90
26	180.88	176.52	---	---	---	179.76	179.52	183.26	180.44	184.72	187.12	187.39
27	182.40	176.21	---	---	---	179.26	181.18	185.36	179.94	184.09	188.73	187.58
28	182.49	177.50	---	---	---	180.25	181.28	184.68	181.73	185.17	188.26	186.64
29	181.48	177.40	---	---	---	179.53	180.94	183.13	181.95	184.77	187.20	187.86
30	180.86	178.32	---	---	---	178.39	182.56	185.30	180.96	184.18	188.19	187.64
31	181.91	---	---	---	---	178.09	---	184.59	---	185.33	187.95	---
MEAN	182.48	179.33	---	---	---	---	179.01	183.56	181.08	184.45	186.98	187.00
MAX	184.49	181.45	---	---	---	---	182.56	185.36	184.54	187.15	188.73	187.93
MIN	180.86	176.21	---	---	---	---	177.15	181.85	179.11	180.32	184.17	185.57

COUNTY--Polk

WELL IDENTIFICATION NUMBER--373701093151601

LOCATION--T.33N., R.21W., 5adc, lat. 37°37'1", long. 93°15'16", 0.2 miles east of junction of State Highway 32 and County Road H, east of Halfway, Missouri Highway Department buildings.

FORMATIONS OPEN TO THE WELL--Cotter Dolomite and Jefferson City Dolomite.

WELL CHARACTERISTICS--Drilled March 5, 1956, total depth 200 feet, 43 feet of 8-inch casing, open hole.
DGLS Log Number: 14,308

INSTRUMENTATION--Graphic recorder, installed March 5, 1956.

DATUM--1,114 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 2.2 feet above land surface.

PERIOD OF PROCESSED RECORD--June 14, 1983, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60.48	61.04	57.09	55.15	51.80	51.21	47.10	50.62	51.51	54.51	56.17	---
2	60.45	60.80	57.21	54.83	52.14	50.96	46.76	51.38	51.69	54.59	56.01	---
3	60.60	60.63	57.28	54.39	52.52	50.48	46.65	51.74	51.45	54.92	55.90	---
4	60.79	60.54	57.17	54.70	52.79	50.65	46.78	50.99	51.44	55.08	55.85	---
5	61.11	60.50	57.53	54.19	52.68	50.57	46.98	51.15	51.39	55.27	56.00	56.99
6	61.22	60.80	57.36	53.37	52.70	50.28	47.53	51.36	51.58	55.48	56.41	56.91
7	61.62	60.84	57.10	52.92	52.76	50.58	47.20	51.60	51.64	55.54	56.69	56.94
8	61.64	61.11	57.06	52.69	53.04	50.85	46.97	51.52	51.71	55.55	56.82	56.98
9	60.99	61.33	57.49	53.20	53.42	51.50	47.34	51.38	52.16	55.73	56.99	57.16
10	60.84	60.99	57.55	53.01	53.19	50.67	47.73	51.92	52.38	56.40	57.16	57.21
11	60.87	61.28	57.38	52.89	52.93	49.36	47.70	52.08	52.39	56.89	57.41	57.14
12	61.10	61.16	57.50	52.79	52.92	48.83	47.62	52.20	52.01	56.93	57.47	57.31
13	61.16	60.87	57.54	53.20	52.53	48.20	47.73	52.03	52.14	56.65	57.52	57.34
14	61.04	60.83	57.44	53.20	52.61	47.67	47.71	52.11	52.36	56.77	57.63	57.55
15	60.89	60.57	57.29	53.05	52.54	48.05	47.76	52.38	52.54	56.79	58.39	57.42
16	60.91	60.21	57.98	53.17	52.37	48.20	47.73	52.54	52.66	56.75	58.09	57.46
17	60.72	60.40	58.05	53.19	51.97	48.06	47.86	52.39	52.56	56.63	57.79	57.50
18	60.83	60.47	58.03	53.58	51.63	48.46	48.19	52.17	52.51	56.44	57.75	57.56
19	61.00	60.30	57.99	53.35	51.31	48.59	48.54	52.01	52.65	56.47	57.75	57.94
20	60.87	60.17	57.65	53.40	50.86	48.29	48.72	52.18	52.97	56.53	57.63	58.27
21	60.93	60.03	57.73	53.74	50.76	48.34	48.80	52.20	53.04	56.51	57.53	58.31
22	61.14	60.22	58.14	53.66	51.49	48.54	48.91	51.54	53.22	56.53	57.38	58.09
23	60.69	59.59	57.93	53.52	51.82	48.10	48.95	50.88	53.48	56.59	57.30	58.28
24	60.74	59.03	57.77	53.43	51.41	47.75	49.32	50.32	53.68	56.64	57.22	58.42
25	61.17	58.45	57.58	53.51	51.19	47.72	49.51	50.12	53.60	56.54	57.21	58.40
26	61.47	57.98	57.74	53.57	51.01	47.70	49.67	50.41	53.63	56.42	57.12	58.61
27	61.31	57.33	57.34	53.78	51.06	47.68	49.89	50.93	54.01	56.61	---	58.88
28	61.03	57.28	57.00	53.44	51.10	47.69	49.88	50.89	54.24	56.73	---	58.92
29	61.20	57.27	56.57	53.05	---	47.63	50.14	50.81	54.42	56.67	---	58.89
30	61.21	56.98	55.86	52.51	---	47.48	50.46	51.30	54.55	56.61	---	58.88
31	61.03	---	55.66	52.19	---	47.48	---	51.26	---	56.28	---	---
MEAN	61.00	59.97	57.39	53.44	52.09	48.95	48.20	51.50	52.65	56.20	---	---
MAX	61.64	61.33	58.14	55.15	53.42	51.50	50.46	52.54	54.55	56.93	---	---
MIN	60.45	56.98	55.66	52.19	50.76	47.48	46.65	50.12	51.39	54.51	---	---

COUNTY--Pulaski

WELL IDENTIFICATION NUMBER--374928092075501

LOCATION--T.36N., R.11.W., 27bbc, lat. 37°49'28", long. 92°07'55", Southeast Service Road, St. Robert.

FORMATIONS OPEN TO THE WELL--Upper Gasconade Formation, Lower Gasconade Formation, Gunter Sandstone
 Member of Gasconade Formation, Eminence Dolomite, Potosi Dolomite,
 Derby-Doerun Dolomite.

WELL CHARACTERISTICS--Drilled November 1965, total depth 975 feet, 450 feet of 8-inch casing.
 DGLS Log Number: 23,787

INSTRUMENTATION--Graphic recorder.

DATUM--1,093 feet above NGVD of 1929.

REMARKS--Several months missing when recorder was not operational or float was hung in well.

PERIOD OF PROCESSED RECORD--October 1 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302.28	304.31	---	---	---	---	297.24	---	---	314.54	310.95	306.49
2	302.78	304.86	---	---	---	---	297.22	---	308.54	313.41	310.76	307.55
3	303.31	305.64	---	---	---	---	297.18	---	309.14	313.74	311.29	308.53
4	302.98	305.41	---	---	---	---	297.08	---	310.26	314.39	311.88	308.91
5	303.07	305.27	---	---	---	---	297.83	---	309.89	314.85	312.42	309.33
6	303.03	305.18	---	---	---	---	297.18	---	309.10	315.10	312.00	309.74
7	303.17	305.09	---	---	---	---	296.90	---	308.83	315.95	313.52	310.55
8	303.61	305.18	---	---	---	---	297.06	---	309.14	316.42	313.86	310.88
9	303.76	305.18	---	---	---	---	297.59	---	310.03	316.57	313.31	311.01
10	303.93	305.68	---	---	---	---	297.81	---	311.00	316.79	314.25	311.48
11	304.30	306.42	---	---	---	---	---	---	311.29	316.36	313.98	311.74
12	304.25	306.46	---	---	---	---	---	---	310.46	315.18	313.13	311.48
13	303.99	306.11	---	---	---	---	---	---	309.84	314.27	313.21	311.20
14	303.97	305.81	---	---	---	---	---	---	309.58	313.56	312.76	310.87
15	303.76	306.06	---	---	---	---	---	---	309.65	312.57	312.95	309.49
16	304.10	305.88	---	---	---	---	---	---	309.38	312.31	312.57	308.27
17	304.73	---	---	---	---	---	---	---	310.11	312.76	312.28	308.34
18	304.89	---	---	---	---	---	---	---	310.52	312.40	312.79	308.90
19	304.79	---	---	---	---	---	---	---	310.77	311.52	311.72	308.67
20	304.43	---	---	---	---	---	---	---	311.09	310.81	311.46	309.10
21	304.00	---	---	---	---	---	---	---	311.67	310.28	310.60	310.02
22	303.70	---	---	---	---	---	---	---	312.35	310.19	307.97	310.51
23	303.62	---	---	---	---	---	---	---	312.63	310.61	305.56	310.73
24	303.72	---	---	---	---	---	---	---	312.63	310.39	304.55	310.63
25	303.99	---	---	---	---	---	---	---	---	309.93	304.33	310.46
26	304.50	---	---	---	---	---	---	---	---	309.66	304.37	310.54
27	304.01	---	---	---	---	---	---	---	---	309.82	304.70	311.08
28	303.78	---	---	---	---	---	---	---	313.29	310.81	305.05	---
29	303.63	---	---	---	---	298.06	---	---	313.84	311.64	304.97	---
30	303.65	---	---	---	---	298.01	---	---	314.55	311.69	304.76	---
31	304.02	---	---	---	---	297.86	---	---	---	311.38	305.15	---
MEAN	303.80	---	---	---	---	---	---	---	---	312.90	310.10	---
MAX	304.89	---	---	---	---	---	---	---	---	316.79	314.25	---
MIN	302.28	---	---	---	---	---	---	---	---	309.66	304.33	---

COUNTY--Ripley

WELL IDENTIFICATION NUMBER--362441090364201

LOCATION--T.22N., R.4E., 3ddd, lat. 36°24'41", long. 90°36'42", 0.2 miles north of Naylor, Highway 142, west of State highway maintenance area.

FORMATIONS OPEN TO THE WELL--Clay, silt, sand and gravel to 61', Dolomite 61' to 65'.

WELL CHARACTERISTICS--Drilled August 3, 1959, total depth 65 feet, 44 feet of 8-inch casing, 17 feet of 4-inch casing, 4 feet of 4-inch screen.

INSTRUMENTATION--Graphic recorder.

DATUM--300 feet above NGVD of 1929.

Measuring point: 8.1 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	11.47	10.68	10.94	12.32	13.05	13.66	15.20	16.50
2	---	---	---	---	11.27	10.65	10.87	12.26	13.01	13.79	15.24	16.55
3	---	---	---	---	10.77	10.65	10.81	12.17	12.89	13.87	15.28	16.57
4	---	---	---	---	10.60	10.58	10.74	12.18	12.72	13.95	15.33	16.57
5	---	---	---	---	10.74	9.99	10.51	12.27	12.61	14.03	15.40	16.60
6	---	---	---	---	10.89	9.75	10.56	12.29	12.55	14.10	15.46	16.62
7	---	---	---	---	11.01	9.92	10.61	12.24	12.46	14.18	15.54	16.65
8	---	---	---	---	11.20	9.97	10.58	12.41	12.40	14.22	15.61	16.66
9	---	---	---	12.46	11.19	10.00	10.51	12.59	12.34	14.29	15.70	16.68
10	---	---	---	12.38	11.18	10.02	10.80	12.64	12.27	14.39	15.74	16.70
11	---	---	---	12.32	11.21	10.00	11.00	12.59	12.21	14.48	15.77	16.71
12	---	---	---	12.37	11.16	10.12	11.11	12.65	12.16	14.54	15.82	16.74
13	---	---	---	12.15	10.17	10.22	11.18	12.78	12.04	14.62	15.87	16.75
14	---	---	---	12.09	9.51	10.28	11.26	12.87	11.93	14.71	15.91	16.57
15	---	---	---	12.09	8.96	10.49	11.38	12.86	11.95	14.74	15.95	16.46
16	---	---	---	12.03	8.98	10.84	11.38	12.79	12.45	14.78	16.00	16.48
17	---	---	---	12.01	9.24	10.91	11.44	12.70	12.74	14.80	16.07	16.52
18	---	---	---	12.07	9.48	10.95	11.54	12.66	13.27	14.80	16.12	16.55
19	---	---	---	12.15	9.64	11.17	11.67	12.62	13.40	14.87	16.14	16.58
20	---	---	---	12.27	9.62	11.12	11.78	12.57	13.39	14.94	16.16	16.63
21	---	---	---	12.21	9.75	11.08	11.96	12.56	13.34	15.03	16.18	16.66
22	---	---	---	12.21	10.07	11.22	12.02	12.52	13.31	15.10	16.23	16.65
23	---	---	---	12.22	10.38	11.26	12.06	12.42	13.30	15.12	16.26	16.75
24	---	---	---	12.28	10.50	11.29	12.12	12.35	13.25	15.12	16.28	16.77
25	---	---	---	12.07	10.42	11.37	12.19	12.60	13.33	15.09	16.31	16.76
26	---	---	---	11.86	10.45	11.47	12.32	12.95	13.38	15.03	16.32	16.83
27	---	---	---	11.70	10.48	11.54	12.43	13.06	13.45	15.02	16.34	16.87
28	---	---	---	11.57	10.60	11.59	12.52	13.10	13.56	15.04	16.35	16.89
29	---	---	---	11.42	---	11.56	12.56	12.95	13.62	15.10	16.39	16.91
30	---	---	---	11.35	---	11.41	12.61	12.95	13.63	15.15	16.44	16.90
31	---	---	---	11.31	---	11.10	---	13.00	---	15.15	16.46	---
MEAN	---	---	---	---	10.39	10.75	11.45	12.61	12.87	14.64	15.93	16.67
MAX	---	---	---	---	11.47	11.59	12.61	13.10	13.63	15.15	16.46	16.91
MIN	---	---	---	---	8.96	9.75	10.51	12.17	11.93	13.66	15.20	16.46

COUNTY--St. Charles

WELL IDENTIFICATION NUMBER--384836090420201

LOCATION--T.47N., R.3E., 29aaa, lat. 38°48'36", long. 90°40'02", building in O'Fallon City Hall parking lot.

FORMATIONS OPEN TO THE WELL--Plattin Formation, Joachim Dolomite, and St. Peter Sandstone.

WELL CHARACTERISTICS--Drilled September 20, 1940, total depth 833 feet, 33 feet of 10-inch casing, 375 feet of 8-inch casing, open hole.

DGLS Log Number: 6,414

INSTRUMENTATION--Graphic recorder, installed May 6, 1981.

DATUM--565 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--February 18 to December 12, 1986, October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	234.31	233.82	235.32	236.14	235.34	225.72	224.12	---	---	209.22
2	---	237.61	234.10	233.15	235.22	236.29	236.01	225.88	224.51	---	---	210.09
3	---	238.18	235.21	233.56	235.25	236.55	234.37	226.81	223.84	---	---	210.91
4	---	236.79	234.32	231.94	235.33	236.93	233.54	227.35	222.49	---	---	211.01
5	---	237.88	234.50	---	237.31	237.63	232.87	226.80	221.92	---	---	210.16
6	---	236.16	233.86	232.72	235.89	242.29	232.87	226.06	224.73	---	---	208.60
7	---	236.04	233.26	---	235.38	236.83	232.76	226.94	230.06	---	---	207.65
8	---	237.55	234.55	233.45	234.66	238.00	232.33	226.69	---	---	---	207.16
9	---	237.15	235.29	232.18	236.88	236.99	232.43	227.17	---	---	---	207.09
10	---	237.50	235.77	226.92	236.23	237.43	232.16	223.73	---	---	---	207.09
11	---	237.21	235.39	235.43	234.84	238.52	231.33	224.55	---	---	---	207.00
12	---	236.66	235.28	236.01	236.54	237.61	230.15	224.55	---	---	---	206.78
13	---	235.75	234.59	235.57	236.12	237.64	230.59	225.03	---	---	---	206.95
14	---	234.95	233.75	235.72	235.19	237.13	229.76	226.71	---	---	---	207.08
15	---	236.16	235.42	236.14	235.08	236.30	229.61	228.41	---	---	---	207.32
16	---	235.27	234.70	235.78	235.29	235.80	232.07	224.60	---	---	---	208.40
17	---	235.57	235.70	236.29	235.56	235.53	230.91	223.77	---	---	---	209.59
18	---	235.70	236.07	237.25	235.68	236.07	229.18	223.26	---	---	---	209.43
19	---	236.29	235.54	236.40	237.68	236.78	226.87	222.97	---	---	---	207.96
20	---	234.68	234.74	236.85	237.61	235.51	229.77	222.53	---	---	---	207.60
21	---	234.50	233.28	241.52	237.60	234.55	228.81	222.83	---	---	---	209.55
22	---	235.36	234.63	236.76	237.50	233.81	229.34	223.00	---	---	---	212.14
23	---	235.16	235.40	235.70	234.28	233.88	230.90	221.54	---	---	210.78	212.08
24	---	235.07	235.37	236.19	235.28	234.49	229.24	221.42	---	---	210.80	213.68
25	---	233.00	235.34	235.39	235.25	234.66	228.02	227.24	---	---	210.60	213.72
26	---	232.36	235.90	235.77	237.18	235.97	226.70	220.64	---	---	210.19	213.09
27	---	232.71	235.67	235.89	237.11	235.50	225.85	222.09	---	---	210.34	212.40
28	---	---	234.28	236.24	236.49	235.28	225.55	223.53	---	---	210.15	212.69
29	---	---	233.61	236.81	---	234.81	225.49	225.09	---	---	209.36	212.79
30	---	---	233.86	235.88	---	234.07	225.96	224.82	---	---	209.40	213.43
31	---	---	233.95	236.06	---	234.16	---	224.00	---	---	209.62	---
MEAN	---	---	234.76	---	235.99	236.23	230.36	224.70	---	---	---	209.76
MAX	---	---	236.07	---	237.68	242.29	236.01	228.41	---	---	---	213.72
MIN	---	---	233.26	---	234.28	233.81	225.49	220.64	---	---	---	206.78

PERIOD OF PROCESSED RECORD--August 29, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

COUNTY--St. Clair

WELL IDENTIFICATION NUMBER--380230093464701

LOCATION--T.38N., R.26W., 22cbd, lat. 38°02'30", long. 93°46'47", approximately 5 miles west of Osceola.

FORMATIONS OPEN TO THE WELL--Undifferentiated Pennsylvanian, Sedalia Formation, Chouteau Group, Jefferson City Dolomite, Roubidoux Formation, Gasconade Formation, and Eminence Dolomite.

WELL CHARACTERISTICS--Oil test well, drilled August 1, 1957, total depth 875 feet, 20 feet of 6-inch casing, open hole.

DGLS Log Number: 17,450

INSTRUMENTATION--Graphic recorder, installed November 12, 1958.

DATUM--875 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

REMARKS--Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--June 13, 1984, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	106.80	107.03	106.67	106.17	---	---	---	106.66	106.42	106.51	106.46
2	---	106.60	107.16	106.69	106.37	---	---	---	106.61	106.37	106.46	106.71
3	---	106.33	107.14	106.70	106.78	---	---	---	106.40	106.45	106.34	106.71
4	---	106.20	107.07	106.74	107.24	---	---	---	106.42	106.52	106.26	106.66
5	---	106.29	107.37	106.84	107.17	---	---	---	106.45	106.56	106.31	106.69
6	---	106.57	107.04	106.27	106.95	---	---	---	106.41	106.61	106.42	106.59
7	---	106.63	106.74	106.39	106.97	---	---	---	106.30	106.64	106.60	106.53
8	---	106.86	106.82	106.36	106.96	---	---	---	106.34	106.55	106.59	106.42
9	---	106.89	107.19	107.03	107.26	---	---	---	106.50	106.44	106.60	106.46
10	---	106.78	106.99	106.97	107.41	---	---	---	106.64	106.47	106.63	106.63
11	106.84	107.16	106.84	106.83	---	---	---	106.64	106.52	106.50	106.63	106.72
12	107.01	106.79	106.93	106.64	---	---	---	106.48	106.36	106.48	106.58	106.80
13	107.00	106.70	106.80	107.03	---	---	---	106.35	106.46	106.41	106.50	106.75
14	106.78	106.85	106.56	107.17	---	---	---	106.37	106.54	106.49	106.48	106.68
15	106.61	106.66	106.49	106.71	---	---	---	106.47	106.63	106.49	106.42	106.65
16	106.63	106.36	107.19	106.84	---	---	---	106.43	106.63	106.56	106.42	106.62
17	106.56	106.96	106.97	106.90	---	---	---	106.39	106.54	106.48	106.52	106.63
18	106.93	106.97	106.91	106.69	---	---	---	106.20	106.57	106.40	106.58	106.63
19	106.97	106.80	106.60	106.75	---	---	---	106.26	106.64	106.42	106.38	106.63
20	106.81	106.74	106.25	106.76	---	---	---	106.54	106.55	106.45	106.36	106.63
21	106.78	107.04	106.43	107.07	---	---	---	106.48	106.45	106.46	106.43	106.58
22	106.72	107.14	106.85	106.92	---	---	---	106.36	106.48	106.60	106.46	106.48
23	106.48	106.96	106.51	106.65	---	---	---	106.39	106.62	106.70	106.46	106.87
24	106.71	106.75	106.52	106.51	---	---	---	106.12	106.61	106.73	106.48	106.84
25	106.77	106.44	106.62	106.54	---	---	---	106.16	106.55	106.74	106.50	106.69
26	106.92	106.37	106.96	106.59	---	---	---	106.59	106.44	106.75	106.53	106.79
27	106.65	106.22	106.61	106.86	---	---	---	106.88	106.42	106.66	106.60	106.89
28	107.03	106.75	106.65	106.83	---	---	---	106.64	106.53	106.53	106.59	106.74
29	107.17	106.98	107.02	106.61	---	---	---	106.47	106.65	106.42	106.63	106.64
30	107.15	106.82	106.94	106.60	---	---	---	106.39	106.59	106.38	106.60	106.52
31	106.99	---	106.69	106.49	---	---	---	106.51	---	106.47	106.47	---
MEAN	---	106.71	106.84	106.73	---	---	---	---	106.52	106.52	106.49	106.65
MAX	---	107.16	107.37	107.17	---	---	---	---	106.66	106.75	106.63	106.89
MIN	---	106.20	106.25	106.27	---	---	---	---	106.30	106.37	106.26	106.42

PERIOD OF PROCESSED RECORD--August 29 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

COUNTY--Schuyler

WELL IDENTIFICATION NUMBER--403452092292901

LOCATION--T.66N., R.14W., 29cda; lat. 40°34'52", long. 92°29'29", 0.5 miles west of Highway CC,
1.3 mile north of the junction of Highway C and Highway CC.

FORMATIONS OPEN TO THE WELL--Glacial Till.

WELL CHARACTERISTICS--Hand dug, 1933, total depth 27 feet, rock walled.

INSTRUMENTATION--Digital recorder, installed July 21, 1980.

DATUM--935 feet above NGVD of 1929.

REMARKS--Recorder started November 30, 1988. Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--November 30, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	19.43	19.87	20.41	20.41	---	---	---	21.28	21.37	21.42
2	---	---	19.43	19.87	20.41	20.41	---	---	---	21.29	21.38	21.42
3	---	---	19.43	19.88	20.41	20.41	---	---	---	21.29	21.38	21.43
4	---	---	19.43	19.89	20.41	20.41	---	---	---	21.29	21.38	21.43
5	---	---	19.43	19.91	20.41	20.41	---	---	21.20	21.29	21.39	21.43
6	---	---	19.43	19.91	20.41	20.41	---	---	21.20	21.29	21.39	21.43
7	---	---	19.43	19.91	20.41	20.41	---	---	21.20	21.29	21.39	21.43
8	---	---	19.43	19.92	20.41	20.41	---	---	21.21	21.30	21.40	21.44
9	---	---	19.43	19.92	20.41	20.41	---	---	21.21	21.30	21.40	21.44
10	---	---	19.43	19.95	20.41	20.41	---	---	21.22	21.30	21.40	21.45
11	---	---	19.43	19.95	20.41	20.41	---	---	21.22	21.30	21.41	21.45
12	---	---	19.43	19.96	20.41	20.41	---	---	21.22	21.30	21.41	21.45
13	---	---	19.43	19.97	20.41	20.41	---	---	21.23	21.30	21.41	21.46
14	---	---	19.43	19.99	20.41	20.41	---	---	21.24	21.30	21.42	21.47
15	---	---	19.43	19.99	20.41	20.42	---	---	21.24	21.31	21.42	21.47
16	---	---	19.43	19.99	20.41	20.42	---	---	21.24	21.32	21.43	21.48
17	---	---	19.43	19.99	20.41	20.42	---	---	21.24	21.32	21.44	21.48
18	---	---	19.43	20.00	20.41	20.42	---	---	21.25	21.32	21.44	21.48
19	---	---	19.68	20.02	20.41	20.42	---	---	21.25	21.33	21.44	21.49
20	---	---	19.70	20.05	20.41	20.42	---	---	21.26	21.33	21.44	21.50
21	---	---	19.70	20.11	20.41	20.42	---	---	21.26	21.33	21.45	21.51
22	---	---	19.72	20.40	20.41	20.42	---	---	21.26	21.34	21.45	21.51
23	---	---	19.73	20.41	20.41	20.42	---	---	21.26	21.34	21.46	21.52
24	---	---	19.73	20.41	20.41	20.42	---	---	21.27	21.34	21.46	21.52
25	---	---	19.76	20.41	20.41	20.43	---	---	21.27	21.34	21.46	21.53
26	---	---	19.78	20.41	20.41	---	---	---	21.27	21.35	21.48	21.53
27	---	---	19.79	20.41	20.41	---	---	---	21.28	21.35	21.48	21.54
28	---	---	19.79	20.41	20.41	---	---	---	21.28	21.35	21.48	21.54
29	---	---	19.79	20.41	---	---	---	---	21.28	21.36	21.43	21.54
30	---	19.43	19.83	20.41	---	---	---	---	21.28	21.36	21.42	21.54
31	---	---	19.86	20.41	---	---	---	---	---	21.36	21.42	---
MEAN	---	---	19.57	20.10	20.41	---	---	---	---	21.32	21.42	21.48
MAX	---	---	19.86	20.41	20.41	---	---	---	---	21.36	21.48	21.54
MIN	---	---	19.43	19.87	20.41	---	---	---	---	21.28	21.37	21.42

COUNTY--Scott

WELL IDENTIFICATION NUMBER--365319089330501

LOCATION--T.26N., R.14.E., 21bab, lat. 36°53'19", long. 89°33'05", Highway Department maintenance yard,
Edward Street, approximately 1 mile north of State Highway 62 intersection, Sikeston.

FORMATIONS OPEN TO THE WELL--Alluvium

WELL CHARACTERISTICS--Drilled October 12, 1956, total depth 145 feet, 57 feet of 8-inch casing, 84.5 feet of
4-inch casing, and 4.5 feet of 4-inch well screen.

DGLS Log Number: 15,041

INSTUMENTATION--Graphic recorder, installed November 1, 1956; Digital recorder, after November 6, 1980.

DATUM--310 feet above NGVD of 1929.

Measuring point: Base of recorder, 1.8 feet above land surface.

PERIOD OF PROCESSED RECORD--November 6, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.29	8.99	7.39	7.82	7.81	6.76	7.33	8.33	8.79	8.12	8.92	9.49
2	7.98	9.01	7.48	7.82	7.81	6.83	7.37	8.37	8.75	8.13	8.92	9.52
3	7.95	9.02	7.55	7.84	7.03	6.92	7.31	8.40	8.76	8.16	8.98	9.53
4	8.01	9.00	7.66	7.92	6.86	6.85	7.08	8.42	8.54	8.16	9.04	9.55
5	8.13	8.83	7.71	7.92	6.94	6.18	7.07	8.46	8.52	8.16	9.08	9.57
6	8.21	8.82	7.77	7.61	7.11	6.00	7.09	8.49	8.56	8.21	9.07	9.59
7	8.28	8.84	7.84	7.47	7.24	6.13	7.12	8.52	8.61	8.26	9.04	9.61
8	8.33	8.89	7.91	7.50	7.35	6.29	7.21	8.52	8.66	8.30	9.05	9.64
9	8.39	8.90	7.97	7.57	7.43	6.41	7.33	8.54	8.73	8.34	9.08	9.65
10	8.44	8.91	8.00	7.65	7.49	6.49	7.42	8.57	8.76	8.39	9.12	9.66
11	8.49	8.95	8.07	7.71	7.54	6.58	7.48	8.59	8.35	8.44	9.13	9.66
12	8.55	8.95	8.10	7.57	7.61	6.69	7.55	8.61	8.08	8.48	9.09	9.68
13	8.61	8.94	8.14	7.47	6.78	6.78	7.61	8.63	7.96	8.53	9.16	9.69
14	8.63	8.96	8.17	7.43	5.47	6.88	7.65	8.63	7.91	8.58	9.17	9.64
15	8.66	8.96	8.23	7.36	4.85	7.03	7.69	8.63	7.91	8.61	9.19	9.58
16	8.68	8.88	8.27	7.37	4.81	7.11	7.73	8.65	7.98	8.65	9.23	9.59
17	8.69	8.84	8.29	7.43	5.01	7.17	7.79	8.67	7.92	8.70	9.26	9.62
18	8.72	8.80	8.32	7.52	5.17	7.28	7.84	8.68	7.42	8.72	9.27	9.66
19	8.76	8.07	8.35	7.63	5.38	7.33	7.88	8.71	7.38	8.76	9.28	9.68
20	8.77	7.31	8.38	7.72	5.51	7.34	7.92	8.73	7.50	8.79	9.29	9.70
21	8.79	7.12	8.43	7.78	5.60	7.30	7.97	8.72	7.63	8.81	9.30	9.71
22	8.83	7.12	8.45	7.82	5.87	7.36	8.00	8.57	7.73	8.83	9.33	9.72
23	8.84	7.24	8.47	7.87	6.10	7.43	8.03	8.57	7.82	8.88	9.35	9.74
24	8.84	7.36	8.48	7.92	6.26	7.48	8.08	8.61	7.89	8.90	9.37	9.76
25	8.86	7.46	8.53	7.97	6.38	7.54	8.11	8.68	7.95	8.91	9.39	9.77
26	8.88	7.32	8.54	7.86	6.50	7.59	8.15	8.72	8.01	8.95	9.40	9.78
27	8.90	7.00	8.54	7.78	6.56	7.64	8.20	8.75	8.06	9.00	9.43	9.80
28	8.91	7.00	8.05	7.78	6.67	7.68	8.24	8.76	8.06	9.03	9.45	9.81
29	8.91	7.08	7.88	7.76	---	7.67	8.27	8.78	8.07	9.06	9.47	9.81
30	8.95	7.26	7.84	7.74	---	7.54	8.30	8.81	8.10	9.00	9.48	9.81
31	8.98	---	7.83	7.74	---	7.34	---	8.83	---	8.93	9.48	---
MEAN	8.59	8.26	8.09	7.69	6.47	7.02	7.69	8.61	8.15	8.61	9.22	9.67
MAX	8.98	9.02	8.54	7.97	7.81	7.68	8.30	8.83	8.79	9.06	9.48	9.81
MIN	7.95	7.00	7.39	7.36	4.81	6.00	7.07	8.33	7.38	8.12	8.92	9.49

COUNTY--Shannon

WELL IDENTIFICATION NUMBER--372153091322301

LOCATION--T.31N., R.6W., 24dda, lat. 37°21'53", long. 91°32'23", approximately 1 mile southeast of Akers.

FORMATIONS OPEN TO THE WELL--Eminence Dolomite and Potosi Dolomite.

WELL CHARACTERISTICS--Total depth 425 feet, cased to an unknown depth.

INSTRUMENTATION--Graphic recorder, installed November 15, 1971.

DATUM--865 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 feet above land surface.

PERIOD OF PROCESSED RECORD--December 4, 1980, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66.51	67.36	66.52	65.91	65.20	61.97	61.42	62.02	62.41	63.06	64.26	---
2	66.58	67.38	66.57	65.84	65.38	61.82	61.15	62.09	62.43	63.05	64.29	---
3	66.65	67.34	66.53	65.77	65.40	61.70	61.02	62.12	62.36	63.12	64.29	---
4	66.72	67.32	66.67	65.83	65.23	61.95	61.10	62.00	62.45	63.20	64.30	---
5	66.78	67.41	66.52	65.50	64.99	62.08	61.11	62.10	62.48	63.25	64.35	65.46
6	66.80	67.51	66.45	65.46	64.98	62.14	60.97	62.29	62.50	63.33	64.43	65.48
7	66.81	67.55	66.51	65.40	64.95	62.30	60.88	62.32	62.51	63.37	64.55	65.48
8	66.74	67.67	66.69	65.69	65.07	62.37	60.82	62.25	62.55	63.38	64.60	65.49
9	66.73	67.56	66.62	65.62	65.06	62.35	61.06	62.32	62.68	63.39	64.65	65.52
10	66.78	67.69	66.59	65.53	64.82	62.11	61.16	62.53	62.83	63.47	64.71	65.62
11	66.85	67.73	66.65	---	64.77	61.78	61.10	62.58	62.79	63.52	64.80	65.64
12	66.95	67.57	66.63	65.42	64.83	61.61	61.04	62.53	62.71	63.50	64.86	---
13	67.00	67.71	66.58	65.58	64.38	61.40	61.09	62.53	62.77	63.52	64.85	---
14	66.94	67.67	66.60	65.35	63.19	61.20	61.03	62.61	62.81	63.59	64.87	65.65
15	66.94	67.56	66.86	65.41	62.96	61.56	61.05	62.73	62.86	63.66	64.89	65.66
16	66.94	67.68	66.77	65.53	62.73	61.60	61.03	62.78	62.95	63.67	64.93	---
17	66.95	67.69	66.76	65.52	62.38	61.44	61.12	62.81	62.97	63.71	65.02	---
18	67.10	67.64	66.72	65.53	62.06	61.70	61.21	62.76	62.96	63.69	65.07	---
19	67.11	67.38	66.66	65.55	61.77	61.65	61.36	62.80	63.00	63.70	65.03	---
20	67.09	67.00	66.73	65.68	61.54	61.49	61.35	62.99	63.02	63.74	65.01	---
21	67.09	66.91	66.92	65.69	61.63	61.75	61.32	63.02	63.02	63.78	65.06	---
22	67.12	66.84	66.78	65.58	61.86	61.73	61.32	62.57	63.08	63.93	---	---
23	67.06	66.85	66.70	65.59	61.96	61.68	61.34	62.24	63.16	64.00	65.08	65.96
24	67.23	66.93	66.64	65.62	61.89	61.67	61.45	62.11	63.20	64.03	---	66.19
25	67.26	66.95	66.80	65.67	61.68	61.73	61.54	62.07	63.24	64.09	65.07	66.16
26	67.29	66.56	66.64	65.70	61.66	61.77	61.59	62.27	63.24	64.12	65.08	66.22
27	67.26	66.19	66.53	65.65	61.63	61.84	61.63	62.45	63.18	64.09	65.12	66.27
28	67.45	66.31	66.43	65.51	61.83	61.84	61.64	62.39	63.05	64.08	---	66.24
29	67.46	66.41	66.18	65.42	---	61.81	61.81	62.25	63.12	64.11	---	66.27
30	67.46	66.48	65.93	65.34	---	61.70	62.00	62.25	63.12	64.13	---	66.26
31	67.40	---	65.87	65.20	---	61.65	---	62.33	---	64.19	---	---
MEAN	67.00	67.23	66.58	---	63.42	61.79	61.26	62.42	62.85	63.66	---	---
MAX	67.46	67.73	66.92	---	65.40	62.37	62.00	63.02	63.24	64.19	---	---
MIN	66.51	66.19	65.87	---	61.54	61.20	60.82	62.00	62.36	63.05	---	---

COUNTY--Shannon

WELL IDENTIFICATION NUMBER--371452091134301

LOCATION--T.30N., R.3W., 36cbd, lat. 37°14'52", long. 91°13'43", 8 miles past Midridge.

FORMATIONS OPEN TO THE WELL--Gunter Sandstone Member of the Gasconade Formation, Eminence Dolomite to 40 feet, Potosi Dolomite to 270 feet, Derby-Doerun Dolomite to 734 feet, Davis Dolomite to 827 feet, Bonnetterre Formation to 1,054 feet, Lamotte Sandstone to 1,359 feet, Precambrian to 1,410 feet.

WELL CHARACTERISTICS--Drilled December 5, 1960, mineral test hole, total depth unknown, 190 feet of 6 1/4-inch casing.

DGLS Log Number: RC-113

INSTRUMENTATION--Graphic recorder, installed February 1980.

DATUM--840 feet above NGVD of 1929.

REMARKS--Plugged in Davis Dolomite.

PERIOD OF PROCESSED RECORD--October 19, 1989 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	89.29	89.75	89.70	88.99	88.16	86.67	86.40	85.97	85.17	85.54	85.98
2	---	89.24	89.88	89.68	89.22	87.90	86.55	86.43	85.96	85.06	85.56	86.19
3	---	89.07	89.76	89.57	88.90	87.60	86.44	86.45	85.77	85.13	85.50	86.27
4	---	88.92	89.98	89.70	88.88	87.81	86.17	86.20	85.80	85.21	85.44	86.23
5	---	89.06	89.82	89.28	88.85	87.93	86.29	86.16	85.75	85.26	85.46	86.28
6	---	89.30	89.61	88.92	89.02	87.93	86.30	86.40	85.81	85.34	85.50	86.25
7	---	89.46	89.61	88.87	89.11	88.14	86.30	86.43	85.76	85.39	85.67	86.22
8	---	89.72	89.95	89.54	89.34	88.22	86.18	86.25	85.73	85.36	85.73	86.18
9	---	89.56	89.95	89.69	89.43	88.20	86.57	86.20	85.86	85.33	85.79	86.15
10	---	89.69	89.80	89.63	89.09	87.93	86.73	86.48	86.06	85.37	85.86	86.32
11	---	89.87	89.94	89.51	88.91	87.46	86.62	86.50	85.96	85.41	85.88	86.40
12	---	89.50	89.92	89.62	88.97	87.35	86.45	86.38	85.77	85.38	85.85	86.48
13	---	89.67	89.73	89.94	88.41	87.14	86.46	86.26	85.61	85.31	85.82	86.44
14	---	89.68	89.66	89.59	88.01	86.92	86.30	86.31	85.12	85.36	85.80	86.39
15	---	89.46	90.20	89.64	88.01	87.47	86.21	86.42	85.23	85.42	85.76	86.41
16	---	89.54	90.16	89.79	88.22	87.67	86.13	86.45	85.44	85.44	85.78	86.44
17	---	89.87	90.05	89.68	88.13	87.44	86.15	86.46	85.52	85.44	85.90	86.54
18	---	89.79	89.97	89.66	88.02	87.74	86.21	86.33	85.39	85.34	86.00	86.57
19	89.19	89.50	89.79	89.72	87.85	87.75	86.35	86.27	84.87	85.27	85.89	86.59
20	89.11	89.36	89.84	89.94	87.60	87.41	86.31	86.47	84.85	85.27	85.81	86.61
21	89.04	89.65	90.19	89.99	87.75	87.72	86.20	86.54	84.99	85.32	85.86	86.58
22	89.06	89.65	90.03	89.80	88.15	87.74	86.11	85.60	85.12	85.51	85.88	86.44
23	88.87	89.56	89.94	89.72	88.39	87.60	86.03	85.30	85.22	85.50	85.89	86.79
24	89.07	89.44	89.80	89.73	88.30	87.52	86.09	85.26	85.29	85.49	85.92	86.84
25	89.17	89.37	90.20	89.77	87.95	87.52	86.14	85.38	85.26	85.55	85.95	86.73
26	89.28	89.07	90.08	89.63	87.79	87.51	86.15	85.77	85.20	85.57	85.98	86.85
27	89.18	89.15	89.82	89.41	87.72	87.53	86.13	86.12	85.16	85.50	86.03	86.98
28	89.48	89.46	89.85	89.28	87.93	87.47	86.05	86.08	85.17	85.42	86.00	86.89
29	89.59	89.46	89.82	89.26	---	87.30	86.17	85.91	85.26	85.38	86.01	86.83
30	89.56	89.60	89.62	89.17	---	86.83	86.44	85.84	85.26	85.38	86.05	86.72
31	89.42	---	89.61	88.99	---	86.73	---	85.91	---	85.44	85.99	---
MEAN	---	89.47	89.88	89.56	88.46	87.60	86.30	86.16	85.47	85.37	85.81	86.49
MAX	---	89.87	90.20	89.99	89.43	88.22	86.73	86.54	86.06	85.57	86.05	86.98
MIN	---	88.92	89.61	88.87	87.60	86.73	86.03	85.26	84.85	85.06	85.44	85.98

COUNTY--Shannon

WELL IDENTIFICATION NUMBER--371449091134102

LOCATION--T.30N., R.3W., 36cbd, lat 37°14'46", long 91°13'41", 8 miles past Midridge.

FORMATIONS OPEN TO THE WELL--Gunter Sandstone Member of the Gasconade Formation, Eminence Dolomite to 40 feet, Potosi Dolomite to 235 feet, Derby-Doerun Dolomite to 734 feet, Davis Dolomite, Bonnetterre Formation to 1,095 feet.

WELL CHARACTERISTICS--Drilled September 19, 1961, mineral test hole, total depth unknown, 958 feet of 6 1/4-inch casing.

DGLS Log Number: RC-145

INSTRUMENTATION--Graphic recorder, installed February 1980.

DATUM--863.30 feet above NGVD of 1929.

Measuring point: 1.35 feet above land surface.

REMARKS--Casing set and grouted in Davis Dolomite. Several months missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--May 15, 1989 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	131.85	131.36	131.71	132.15
2	---	---	---	---	---	---	---	---	131.82	131.28	131.73	132.31
3	---	---	---	---	---	---	---	---	131.69	131.31	131.67	132.37
4	---	---	---	---	---	---	---	---	131.71	131.37	131.64	132.37
5	---	---	---	---	---	---	---	---	131.65	131.39	131.65	132.41
6	---	---	---	---	---	---	---	---	131.68	131.46	131.69	132.42
7	---	---	---	---	---	---	---	---	131.65	131.49	131.82	132.40
8	---	---	---	---	---	---	---	---	131.63	131.47	131.86	132.38
9	---	---	---	---	---	---	---	---	131.73	131.46	131.93	132.36
10	---	---	---	---	---	---	---	---	131.87	131.49	131.99	132.49
11	---	---	---	---	---	---	---	---	131.80	131.52	132.00	132.56
12	---	---	---	---	---	---	---	---	131.67	131.49	132.01	132.61
13	---	---	---	---	---	---	---	---	131.64	131.43	131.98	132.60
14	---	---	---	---	---	---	---	---	131.63	131.48	131.98	132.54
15	---	---	---	---	---	---	---	132.02	131.63	131.52	131.94	132.56
16	---	---	---	---	---	---	---	132.03	131.65	131.54	131.94	132.61
17	---	---	---	---	---	---	---	132.06	131.65	131.54	132.03	132.66
18	---	---	---	---	---	---	---	131.95	131.58	131.46	132.09	132.71
19	---	---	---	---	---	---	---	131.92	131.53	131.40	132.01	132.73
20	---	---	---	---	---	---	---	132.07	131.48	131.40	131.95	132.75
21	---	---	---	---	---	---	---	132.12	131.42	131.44	131.99	132.73
22	---	---	---	---	---	---	---	131.93	131.43	131.60	132.02	132.64
23	---	---	---	---	---	---	---	131.85	131.46	131.65	132.02	132.95
24	---	---	---	---	---	---	---	131.69	131.46	131.67	132.02	132.96
25	---	---	---	---	---	---	---	131.58	131.43	131.70	132.06	132.88
26	---	---	---	---	---	---	---	131.79	131.38	131.72	132.09	132.99
27	---	---	---	---	---	---	---	131.98	131.37	131.68	132.13	133.09
28	---	---	---	---	---	---	---	131.91	131.41	131.62	132.13	133.02
29	---	---	---	---	---	---	---	131.78	131.48	131.59	132.17	132.98
30	---	---	---	---	---	---	---	131.73	131.45	131.59	132.19	132.91
31	---	---	---	---	---	---	---	131.78	---	131.65	132.16	---
MEAN	---	---	---	---	---	---	---	---	131.59	131.51	131.95	132.64
MAX	---	---	---	---	---	---	---	---	131.87	131.72	132.19	133.09
MIN	---	---	---	---	---	---	---	---	131.37	131.28	131.64	132.15

COUNTY--Texas

WELL IDENTIFICATION NUMBER--371800092094501

LOCATION--T.30N., R.11W., 17dda, lat. 37°18'00", long. 92°09'45", at Missouri Highway Department buildings, 0.2 miles north of Fairview, State Highway 38.

FORMATIONS OPEN TO THE WELL--Cotter Dolomite, Jefferson City Dolomite, Roubidoux Formation, and Gasconade Formation.

WELL CHARACTERISTICS--Drilled February 25, 1956, total depth 481 feet, 50 feet of 8-inch casing, open hole.
DGLS Log Number: 14,295

INSTRUMENTATION--Graphic recorder, installed February 27, 1956.

DATUM--1,465 feet above NGVD of 1929.

Measuring point: Base of recorder platform, 2.1 feet above land surface.

PERIOD OF PROCESSED RECORD--June 8, 1983, to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277.70	273.69	264.35	261.96	259.49	257.20	255.80	259.54	261.77	266.68	273.00	275.85
2	276.93	273.73	264.26	261.69	259.48	257.44	255.55	259.88	261.52	266.90	272.98	276.06
3	276.28	273.66	264.04	261.41	259.49	257.53	255.47	260.08	261.39	267.26	272.96	276.19
4	275.68	273.61	264.00	261.37	259.48	257.22	255.56	260.25	261.11	267.52	273.05	276.27
5	275.38	273.80	263.70	260.81	259.15	257.17	255.60	260.50	261.10	267.78	273.23	276.45
6	274.81	274.02	263.45	260.40	258.99	257.08	255.41	260.88	261.41	268.11	273.36	276.61
7	274.59	274.22	263.36	260.24	258.89	257.02	255.23	261.17	261.95	268.49	273.60	276.74
8	274.40	274.63	263.50	260.31	258.99	256.67	255.27	261.38	262.44	268.65	273.80	276.84
9	274.39	274.55	263.45	260.31	258.90	256.67	255.52	261.57	262.61	268.95	274.04	276.89
10	274.44	274.80	263.28	260.05	258.62	256.29	255.59	261.93	262.67	269.35	274.34	277.13
11	274.66	274.91	263.35	259.83	258.52	256.14	255.49	262.27	262.88	269.97	274.55	277.31
12	274.89	274.59	263.36	259.69	258.54	255.91	255.50	262.43	263.07	270.25	274.70	277.43
13	275.11	274.61	263.26	259.89	258.23	255.56	255.55	262.33	263.09	270.21	274.84	277.51
14	275.12	274.13	263.19	259.68	258.39	255.39	255.50	262.03	263.00	270.50	275.00	277.51
15	275.14	273.38	263.66	259.60	258.33	255.58	255.62	261.80	262.75	270.93	275.20	277.46
16	275.14	272.91	263.74	259.75	258.28	255.38	255.70	261.47	262.83	271.03	275.35	277.16
17	274.82	272.43	263.81	259.85	257.91	255.17	255.97	261.35	262.97	271.19	275.56	276.71
18	274.50	271.56	263.97	259.84	257.41	255.42	256.13	261.28	263.13	271.15	275.72	276.29
19	274.08	270.61	264.03	259.92	256.97	255.15	256.37	261.03	263.34	271.26	275.73	276.09
20	273.73	269.80	264.18	260.05	256.76	255.11	256.45	260.72	263.60	271.46	275.90	276.01
21	273.51	269.19	264.67	260.28	256.85	255.35	256.60	260.52	263.84	271.60	276.10	276.01
22	273.31	268.35	264.77	260.30	256.79	255.34	256.72	260.60	264.14	271.89	276.23	275.99
23	273.15	267.54	264.79	260.35	256.78	255.42	256.93	260.85	264.50	272.17	276.60	276.34
24	273.23	266.78	264.57	260.46	256.96	255.38	257.22	261.54	264.85	272.31	276.98	276.51
25	273.21	266.07	264.60	260.86	257.31	255.49	257.61	262.08	265.13	272.56	276.79	276.57
26	273.23	265.26	264.14	260.85	257.40	255.58	257.89	262.14	265.41	272.75	276.57	276.79
27	273.15	264.95	263.61	260.96	257.46	255.70	258.15	262.11	265.65	272.78	276.27	277.09
28	273.43	264.80	263.41	260.73	257.20	255.84	258.36	262.28	265.97	272.90	276.01	277.47
29	273.56	264.65	263.21	260.45	---	255.83	258.78	262.34	266.35	272.95	275.89	277.74
30	273.67	264.50	262.64	260.19	---	255.84	259.22	262.28	266.58	273.02	275.90	277.83
31	273.68	---	262.26	259.94	---	255.98	---	262.09	---	273.02	275.85	---
MEAN	274.48	271.06	263.76	260.39	258.13	256.03	256.36	261.38	263.37	270.50	275.04	276.76
MAX	277.70	274.91	264.79	261.96	259.49	257.53	259.22	262.43	266.58	273.02	276.98	277.83
MIN	273.15	264.50	262.26	259.60	256.76	255.11	255.23	259.54	261.10	266.68	272.96	275.85

COUNTY--Vernon

WELL IDENTIFICATION NUMBER--375007094102701

LOCATION--T.35N., R.29W., 6cbd, lat 37°50'07", long. 94°10'27", 0.3 miles from county road, 2.9 miles southwest of Dederick.

FORMATIONS OPEN TO THE WELL--Pennsylvanian-Burlington Formation.

WELL CHARACTERISTICS--Drilled 1975, total depth 525 feet, casing unknown.

INSTRUMENTATION--Graphic recorder, installed August 23, 1978.

DATUM--822 feet above NGVD of 1929.

Measuring point: 1.3 feet above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56.90	57.64	55.61	---	---	51.14	50.03	53.06	52.71	51.23	51.84	50.00
2	56.95	57.47	55.60	---	---	50.89	49.84	53.13	52.71	51.12	51.76	50.04
3	57.01	57.33	55.49	---	---	50.51	49.83	53.15	52.90	51.23	51.63	50.13
4	57.09	57.26	55.66	---	---	50.72	50.08	53.00	52.66	51.41	51.53	50.14
5	57.20	57.35	55.50	---	---	50.88	50.38	53.06	52.31	51.56	51.50	50.12
6	57.26	57.50	55.20	---	---	50.82	50.45	53.39	52.12	51.66	51.55	50.08
7	57.32	57.48	55.14	---	---	50.97	50.52	53.43	51.81	51.69	51.68	50.11
8	57.22	57.75	55.37	---	---	51.09	50.61	53.28	51.67	51.70	51.78	50.09
9	57.12	57.56	55.40	---	---	51.12	51.15	53.41	51.67	51.69	51.79	49.99
10	57.09	57.69	55.06	---	---	50.93	51.26	53.73	51.70	51.72	51.81	49.97
11	57.16	57.86	55.07	---	---	50.65	51.31	53.87	51.58	51.83	51.83	49.87
12	57.26	57.34	54.99	---	---	50.44	51.32	53.83	51.14	51.83	51.81	49.76
13	57.31	57.46	54.79	---	---	50.23	51.47	53.76	50.88	51.84	51.79	49.55
14	57.22	57.43	---	---	---	49.91	51.46	53.84	50.67	51.89	51.76	49.29
15	57.14	57.07	---	---	---	50.24	51.56	53.97	50.59	51.93	51.69	48.98
16	57.14	57.15	---	---	---	50.47	51.44	54.04	50.38	52.04	51.62	48.69
17	57.10	57.33	---	---	---	50.40	51.60	54.07	50.23	52.13	51.58	48.47
18	57.33	57.13	---	---	51.72	50.79	51.84	54.00	50.20	51.99	51.62	48.28
19	57.39	56.98	---	---	51.42	50.89	52.02	53.71	50.36	51.93	51.54	48.17
20	57.26	56.91	---	---	51.09	50.62	52.06	53.77	50.31	51.97	51.22	48.08
21	57.25	57.02	---	---	51.06	50.77	52.06	53.80	50.35	51.97	51.14	47.99
22	57.20	56.85	---	---	51.21	50.63	52.14	53.42	50.35	51.99	51.01	47.88
23	57.06	56.59	---	---	51.31	50.43	52.68	53.24	50.45	52.10	50.95	47.96
24	57.26	56.26	---	---	51.24	50.25	52.42	52.86	51.17	52.16	50.83	48.13
25	57.31	56.01	---	---	51.12	50.22	52.50	52.60	50.96	52.22	50.73	48.09
26	57.44	55.72	---	---	51.03	50.25	52.60	52.66	50.83	52.32	50.53	48.14
27	57.29	55.75	---	---	50.88	50.26	52.60	52.94	50.83	52.31	50.37	48.34
28	57.65	55.78	---	---	50.97	50.25	52.57	52.92	51.01	52.27	50.24	48.44
29	57.75	55.54	---	---	---	50.14	53.01	52.73	51.32	52.20	50.18	48.46
30	57.82	55.60	---	---	---	50.08	52.99	52.62	51.46	52.16	50.16	48.45
31	57.74	---	---	---	---	50.14	---	52.64	---	51.98	50.11	---
MEAN	57.27	56.96	---	---	---	50.55	51.53	53.35	51.24	51.87	51.28	49.06
MAX	57.82	57.86	---	---	---	51.14	53.01	54.07	52.90	52.32	51.84	50.14
MIN	56.90	55.54	---	---	---	49.91	49.83	52.60	50.20	51.12	50.11	47.88

COUNTY--Vernon

WELL IDENTIFICATION NUMBER--375636094295601

LOCATION--T.37N., R.32W., 31cdb, lat 37°56'36", long. 94°29'56", 0.1 mile from County Road, 0.9 mile south of Rinehart.

FORMATIONS OPEN TO THE WELL--Cherokee Formation to 205 feet, Spergen-Warsaw Formation to 300 feet, Short Creek Formation to 310 feet, Burlington-Keokuk Limestone to 500 feet, Northview Formation to 510 feet, Chouteau Group to 580 feet, Kinder Hookian Series to 585 feet, Jefferson City Dolomite to 755 feet, Roubidoux Formation to 895 feet, Upper Gasconade to 950 feet, Lower Gasconade to 1,140 feet, Gunter Sandstone Member of the Gasconade Formation to 1,160 feet, Eminence Dolomite to 1,375 feet, Lamotte Sandstone to 1,405 feet, total depth Precambrian.

WELL CHARACTERISTICS--Drilled July 27, 1944, total depth 2,325 feet, casing unknown.
DGLS Log Number: 8,617

INSTRUMENTATION--Graphic recorder, installed August 23, 1978.

DATUM--804 feet above NGVD of 1929.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91.68	91.63	91.46	91.06	90.62	91.94	91.61	92.12	91.83	91.39	92.38	92.36
2	91.88	91.47	91.56	91.09	90.94	91.63	91.41	92.04	91.71	91.39	92.30	92.39
3	91.96	91.23	91.55	91.01	91.30	91.30	91.39	91.96	91.62	91.48	92.24	92.38
4	92.03	91.12	91.54	91.21	91.32	91.79	91.62	91.71	91.61	91.50	92.26	92.41
5	92.10	91.14	91.77	90.99	91.14	91.90	91.78	91.79	91.61	91.53	92.35	92.34
6	92.08	91.34	91.51	90.65	91.12	91.89	91.65	92.04	91.51	91.59	92.51	92.30
7	92.08	91.36	91.29	90.70	91.12	91.98	91.54	92.39	91.45	91.58	92.51	92.21
8	91.87	91.47	91.37	91.04	91.33	92.02	91.56	92.42	91.51	91.50	92.51	92.13
9	91.77	91.56	91.67	91.31	91.43	92.03	91.82	92.78	91.62	91.50	92.54	92.21
10	91.70	91.40	91.53	91.12	91.33	91.85	91.98	93.12	91.65	91.55	92.57	92.26
11	91.85	91.73	91.42	91.01	91.31	91.73	91.80	92.77	91.48	91.87	92.86	92.32
12	91.87	91.52	91.48	91.04	91.31	91.68	91.72	92.28	91.38	92.37	93.11	92.23
13	91.90	91.35	91.36	91.38	91.28	91.58	91.74	92.08	91.44	92.61	92.90	92.08
14	91.73	91.48	91.16	91.17	91.27	91.33	91.59	92.02	91.51	92.98	92.91	92.04
15	91.58	91.32	91.18	91.03	91.30	91.81	91.59	92.04	91.58	93.26	93.12	92.03
16	91.56	91.07	91.69	91.18	91.50	91.76	91.38	91.96	91.54	93.31	92.99	92.06
17	91.52	91.54	91.46	91.07	91.87	91.59	91.53	91.88	91.48	93.28	92.96	92.09
18	91.68	91.54	91.46	90.99	92.08	92.00	91.61	91.69	91.56	92.94	92.76	92.11
19	91.80	91.39	91.14	91.05	91.82	91.79	91.73	91.71	91.56	92.77	92.66	92.14
20	91.67	91.38	90.87	91.22	91.62	91.67	91.60	91.91	91.46	92.65	92.59	92.14
21	91.61	91.57	91.17	91.27	91.80	91.94	91.50	91.80	91.43	92.65	92.55	92.10
22	91.64	91.65	91.31	91.02	92.14	91.83	91.40	91.69	91.51	92.70	92.55	92.39
23	91.37	91.50	91.03	90.88	92.22	91.71	91.30	91.66	91.57	92.70	92.30	92.43
24	91.53	91.35	91.00	90.84	92.04	91.59	91.35	91.42	91.54	92.68	92.19	92.37
25	91.54	91.11	91.25	90.92	91.80	91.62	91.42	91.50	91.48	92.68	92.19	92.58
26	91.67	91.04	91.29	91.06	91.81	91.55	91.44	91.84	91.41	92.64	92.21	92.69
27	91.47	90.92	90.99	91.14	91.66	91.56	91.77	92.01	91.43	92.54	92.16	92.59
28	91.65	91.29	91.17	90.94	91.87	91.53	92.07	91.78	91.53	92.45	92.20	92.51
29	91.84	91.40	91.37	90.90	---	91.51	92.25	91.66	91.58	92.38	92.17	92.45
30	91.84	91.27	91.16	90.81	---	91.59	92.16	91.62	91.48	92.40	92.08	92.27
31	91.75	---	91.06	90.60	---	91.80	---	91.73	---	92.40	92.13	---
MEAN	91.75	91.37	91.33	91.02	91.51	91.73	91.64	91.98	91.54	92.30	92.51	92.29
MAX	92.10	91.73	91.77	91.38	92.22	92.03	92.25	93.12	91.83	93.31	93.12	92.69
MIN	91.37	90.92	90.87	90.60	90.62	91.30	91.30	91.42	91.38	91.39	92.08	92.03

COUNTY--Washington

WELL IDENTIFICATION NUMBER--385617090465401

LOCATION--T.37N., R.2E., 11 dbd, lat. 38°56'17", long. 90°46'54", Potosi.

FORMATIONS OPEN TO THE WELL--Potosi Dolomite to 300 feet, Derby-Doerun Dolomite to 375 feet,
 Davis Dolomite to 525 feet, Bonneterre Formation to 910 feet,
 Lamotte Sandstone to 1,100 feet.

WELL CHARACTERISTICS--Drilled February 1949, total depth 1,100 feet, 348 feet of 10-inch casing.
 DGLS Log Number: 10,680

INSTRUMENTATION--Graphic recorder.

DATUM--964 feet above NGVD of 1929.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212.48	207.13	208.11	---	205.80	204.14	---	203.59	---	207.28	212.00	206.49
2	210.97	207.25	210.82	205.65	204.23	206.35	---	206.73	---	208.11	210.78	206.20
3	212.80	207.11	208.03	---	203.91	203.81	---	203.62	---	206.94	211.80	206.28
4	211.30	206.87	210.72	205.83	205.37	205.27	---	206.90	---	209.87	210.31	206.16
5	211.05	206.77	207.63	---	204.36	203.41	---	203.81	---	207.08	211.83	205.86
6	210.59	206.67	210.08	205.77	205.80	204.82	---	207.92	---	211.46	210.01	206.06
7	211.25	206.49	208.16	---	204.34	203.39	---	203.16	---	207.82	211.68	205.96
8	211.05	205.91	209.93	205.82	---	205.08	---	206.35	---	212.00	209.52	205.31
9	212.34	205.97	208.48	---	---	203.76	---	203.54	---	208.56	211.29	205.06
10	209.48	207.10	209.58	205.77	207.98	204.64	---	207.18	---	213.69	208.32	204.94
11	210.01	208.11	207.43	---	204.99	204.53	---	203.63	---	209.85	210.55	205.21
12	210.96	209.39	209.34	205.64	205.88	204.51	---	207.13	---	214.75	207.31	204.49
13	212.44	207.24	207.81	205.12	204.27	204.30	---	203.54	---	210.53	209.53	204.43
14	209.86	209.89	209.24	---	204.32	204.18	---	206.19	---	215.50	207.06	204.31
15	210.61	207.82	208.41	205.35	207.78	204.70	---	204.00	---	210.81	208.79	204.44
16	210.86	210.46	209.40	---	205.48	204.54	205.81	206.79	---	213.86	206.88	203.83
17	213.30	208.55	208.09	205.52	207.22	205.23	203.43	207.80	---	210.37	207.54	203.64
18	211.00	210.44	209.08	---	205.77	204.85	206.38	---	---	213.60	205.84	203.59
19	213.18	207.78	208.05	205.56	206.20	204.86	203.70	---	---	210.13	207.05	203.36
20	210.76	210.36	209.03	---	204.19	204.29	206.64	---	---	212.73	204.18	202.97
21	209.99	208.21	208.66	206.05	207.21	205.30	203.46	---	---	210.85	206.03	204.55
22	209.35	210.52	209.01	208.36	204.41	204.37	206.27	---	---	211.78	206.99	205.62
23	208.00	209.43	207.58	205.34	206.21	205.41	203.08	---	206.71	210.91	204.23	209.62
24	207.66	211.14	209.64	208.21	204.65	204.10	206.35	---	209.34	210.72	202.97	205.37
25	207.47	208.06	206.60	204.84	206.38	205.33	203.51	---	206.94	210.87	205.81	204.84
26	207.48	210.33	209.03	204.21	203.66	203.82	207.23	---	209.73	208.74	206.82	---
27	207.57	207.13	206.27	204.70	203.09	201.71	203.77	---	206.84	211.42	207.38	---
28	207.86	210.53	209.27	205.64	205.32	203.80	208.24	203.92	210.57	211.10	207.30	---
29	207.07	207.84	206.16	204.34	---	201.42	203.62	---	207.93	211.08	206.98	---
30	207.49	210.71	209.10	205.39	---	201.31	203.64	203.46	211.21	212.29	207.21	---
31	206.64	---	205.84	204.37	---	201.74	---	---	---	211.17	206.60	---
MEAN	210.09	208.37	208.53	---	---	204.16	---	---	---	210.83	208.08	---
MAX	213.30	211.14	210.82	---	---	206.35	---	---	---	215.50	212.00	---
MIN	206.64	205.91	205.84	---	---	201.31	---	---	---	206.94	202.97	---

DISCHARGE AT PARTIAL-RECORD STATIONS

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations, water year 1989

Station no	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft ³ /s)
Kings Lake basin							
05513600	Camp Creek near Elsberry	Lat 39°06'54", long 90°46'26", in SW portion survey 1724, T.50 N., R.2 E., Hydrologic Unit 07110004, Lincoln County, at downstream end of double 12 ft. box culvert (right side of right barrel) on State Highway 79 about one mi upstream from C.B. & Q. railroad crossing and 3.6 mi south of Elsberry.	1.50	1954-89	+	2.79	179
Platte River basin							
06818900	Platte River at Ravenwood	Lat 40°20'42", long 94°41'09", in SE 1/4 SE 1/4 sec.14, T.64 N., R.34 W., Hydrologic Unit 10240012, Nodaway County, on downstream stream side of left pier of U.S. Highway 136 bridge, 0.8 mi west of Ravenwood.	486	1922-71‡ 1972-89	9-9-89	21.50	16,500
06820300	Big Slough near Wilcox	Lat 40°23'23", long 94°55'32", on south line of SW 1/4 sec.35, T.65 N., R.36 W., Hydrologic Unit 10240010, Nodaway County, at culvert on U.S. Highway 71, 3 mi southeast of Wilcox.	1.30	1949-89	8-28-89	4.23	500
Shoal Creek basin							
06895000	Crooked River near Richmond	Lat 39°20'00", long 93°58'45", in NW 1/4 NW 1/4 sec.7, T.52 N., R.27 W., Hydrologic Unit 10300101, Ray County, on downstream side of third pier from left end of bridge on State Highway 13, 4.0 mi upstream from West Fork Crooked River, and 24.5 mi upstream from mouth.	159	1948-70‡ 1971-89	9-9-89	20.53	2,560
Wakenda Creek basin							
06896000	Wakenda Creek at Carrollton	Lat 39°20'48", long 93°29'44", in NE 1/4 SE 1/4 sec.5, T.52 N., R.23 W., Hydrologic Unit 10300101, Carroll County, on U.S. Highway 65 bridge in Carrollton.	248	1948-70‡ 1972-89	9/10-11/89	21.15	3,820
Grand River basin							
06897000	East Fork Big Creek near Bethany	Lat 40°17'50", long 94°01'36", in SE 1/4 sec.34, T.64 N., R.28 W., Hydrologic Unit 10280101, Harrison County on right bank 50 ft downstream from bridge on old U.S. Highway 69, 2 mi north of Bethany and 4 mi upstream from confluence with West Fork.	95	1934-72‡ 1973-89	8-23-89	12.84	2,570
06901100	Locust Creek near Reger	Lat 40°08'31", long 93°11'07", in NE 1/4 SW 1/4 SE 1/4 sec.30, T.62 N., R.20W., Hydrologic Unit 10280201, Sullivan County, on downstream side of State Highway 6 and 0.3 mi east of Reger.	232	1987-89	5-29-89	8.53	2,320

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations, water year 1989--Continued

Station no	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (feet)	Dis- charge (ft ³ /s)
Chariton River basin							
06904300	Shoal Creek near Hartford	Lat 40°29'00", long 92°46'20", in NE 1/4 NE 1/4 sec.35, T.66 N., R.17 W., Hydrologic Unit 10280201, Putnam County, at bridge on U.S. Highway 136, 3 mi northeast of Hartford.	155	1963-89	8-29-89	16.25	2,700
06905000	Chariton River at Elmer	Lat 39°56'58", long 92°39'43", in E 1/2 sec. 3, T.59 N., R.16 W., Hydrologic Unit 10280202, Macon County, at bridge on County Road J, 0.8 mi southwest of Elmer.	1,660	1921-30† 1961-89	9-10-89	11.78	3,400
06906400	Middle Fork Chariton River at Thomas Hill	Lat 39°30'51", long 92°39'53", in NE 1/4 NE 1/4 sec.2, T.54 N., R.16 W., Hydrologic Unit 10280203, Randolph County, at bridge on State Highway 3, 0.5 mi southwest of Thomas Hill.	150	1962-89	+	+	+
Lamine River basin							
06907000	Lamine River at Clifton City	Lat 38°45'26", long 93°01'20", in NW 1/4 sec. 16, T.46 N., R.19 W., 1972-89 Hydrologic Unit 10300103 Cooper County, on down- stream side of highway bridge, 0.8 mi east of Clifton City.	598	1922-71† 1972-89	+	+	+
06908500	Shiloh Branch near Marshall	Lat 39°06'59", long 93°05'48", in NW 1/4 sec.15, T.50 N., R.20 W., Hydrologic Unit 10300104, Saline County, at culvert on State Highway 41, in front of Shiloh Church, 5.5 mi east of Marshall.	2.87	1952-65† 1966-89	+	+	+
Moniteau Creek basin							
06909500	Moniteau Creek near Fayette	Lat 39°07'15", long 92°33'40", in SE 1/4 SE 1/4 sec.14, T.50 N., R.15 W., Hydrologic Unit 10300102, Howard County, at "Buoy" bridge, 1 mi downstream from Hungry Mother Creek, 7 mi east of Fayette and 15 mi upstream from mouth.	81	1948-60 1962-69† 1979-89	9/10-11/89	14.36	1,110
Moreau River basin							
06910500	Moreau River near Jefferson City	Lat 38°31'44", long 92°11'31", in SE 1/4 NW 1/4 SE 1/4 sec.25, T.44 N., R.12 W., Hydrologic Unit 10300102, Cole County, on downstream side of bridge on Tanner Bridge Road, 3 mi south of Jefferson City.	561	1947-74† 1975-89	+	17.71	6,640
Osage River basin							
06921720	Big Creek at Blairstown	Lat 38°33'17", long 93°57'54", in NE 1/4 SW 1/4 sec.36, T.44 N., R.28 W., Hydrologic Unit 10290108, Henry County, on downstream side of right bridge pier on County Highway N, 0.3 mi west of Blairstown, 0.8 mi downstream from Bear Creek, and 1.5 mi upstream from Brushy Creek.	414	1960-74† 1975-89	5-19-89	22.42	+

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations, water year 1989--Continued

Station no	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		Dis- charge (ft ³ /s)
					Date	Gage height (feet)	
Osage River basin--Continued							
06925200	Starks Creek at Preston	Lat 37°56'30", long 93°11'30", in NW 1/4 SW 1/4 sec.24, T.37 N., R.21 W., Hydrologic Unit 10290107, Hickory County, attached to right downstream wingwall of U.S. Highway 54 bridge, 0.6 mi east of Preston.	4.18	1956-76‡ 1977-89	+	10.22	1,700
06927000	Maries River at Westphalia	Lat 38°25'55", long 91°59'23", in NE 1/4 sec.35, T.43 N., R.10 W., Hydrologic Unit 10290111, Osage County, at bridge on U.S. Highway 63, 0.8 mi southeast of Westphalia, 1.2 mi downstream from Little Maries Creek, and at mi 9.9.	257	1947-70‡ 1971-89	+	12.40	9,360
Meramec River basin							
07011200	Love Creek near Salem	Lat 37°38'10", long 91°33'35", in W 1/2 NE 1/4 sec.23, T.34 N., R.6 W., Hydrologic Unit 07140102, Dent 1964-89 County, at culvert under State Highways 32 and 72, 0.5 mi west of Salem.	0.89	1955-59 1960-63f 1964-89	+	4.47	93
White River basin							
07066800	Sycamore Creek near Winona	Lat 37°02'49", long 91°19'30", in SW 1/4 SW 1/4 sec.31, T.28 N., R.3 W., Hydrologic Unit 11010008, Shannon County, on left bank just upstream from culvert under State Highway 19, about 3 mi north of Winona.	0.86	1954-89	+	4.29	120

+ Not determined.

‡ Operated as continuous-record gaging station.

f Discharge measurements, daily gage-height, and rainfall records available.

THIS IS A BLANK PAGE

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Water-quality partial-record stations are sites where chemical-quality, biological, and or sediment data are collected systematically over a period of years for use in hydrologic analysis. The data are collected usually less than quarterly.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 to SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3) (00419)
07064400 MONTAUK SPRINGS AT MONTAUK, MO (LAT 37 27 36N LONG 091 40 59W)										
OCT 1988										
11...	1030	68	285	7.50	14.0	7.6	74	K2	35	152
MAY 1989										
23...	1030	134	241	7.70	13.5	9.1	101	280	770	126
07064440 CURRENT RIVER BELOW MONTAUK STATE PARK (LAT 37 27 01N LONG 091 29 41W)										
OCT 1988										
11...	1130	82	290	8.00	13.0	9.7	92	K10	37	154
MAY 1989										
23...	1130	221	240	7.80	14.5	10.2	100	420	K1100	130
07064530 WELCH SPRING NEAR AKERS MO (LAT 37 23 38N LONG 091 34 25W)										
OCT 1988										
11...	1330	115	319	8.10	14.0	8.5	82	K10	K10	191
MAY 1989										
23...	1330	240	332	7.50	13.5	9.8	94	23	160	174
07064555 PULLTITE SPRING NEAR ROUND SPRING, MO (LAT 37 20 03N LONG 091 29 24W)										
OCT 1988										
11...	1500	32	298	7.70	14.0	9.7	108	<1	K19	161
MAY 1989										
23...	1630	142	275	7.60	13.5	9.7	93	K10	80	144
07065000 ROUND SPRING AT ROUND SPRING MO (LAT 37 16 57N LONG 091 24 27W)										
OCT 1988										
11...	1615	21	328	7.60	14.0	9.5	91	K1	K2	180
MAY 1989										
23...	1500	179	299	7.60	13.5	10.1	97	K10	K30	172
07065500 ALLEY SPRING AT ALLEY MO (LAT 37 09 14N LONG 091 26 29W)										
OCT 1988										
12...	0745	96	291	7.90	14.0	9.1	87	K5	K9	167
MAY 1989										
25...	0800	202	263	7.60	13.5	9.6	93	35	160	147
07066110 JACKS FORK ABOVE TWO RIVERS (LAT 37 10 53N LONG 091 17 36W)										
OCT 1988										
12...	0900	172	325	7.80	12.5	9.6	88	38	53	181
MAY 1989										
24...	1430	1380	267	8.00	19.0	7.8	84	K150	270	150
07066510 CURRENT RIVER ABOVE POWDER MILL (LAT 37 10 32N LONG 091 12 48W)										
OCT 1988										
12...	1015	639	318	7.90	13.0	9.2	85	K6	K15	178
MAY 1989										
24...	1300	2990	268	8.00	17.5	9.4	98	230	440	152
07066550 BLUE SPRING NEAR EMINENCE, MO. (LAT 37 09 58N LONG 091 09 47W)										
OCT 1988										
12...	1130	96	289	7.50	14.0	8.5	81	160	32	145
MAY 1989										
24...	1230	170	269	7.70	13.0	9.8	93	K11	K8	134
07067500 BIG SPRING NEAR VAN BUREN MO (LAT 36 57 05N LONG 090 59 36W)										
OCT 1988										
12...	1350	364	314	7.90	14.5	8.3	79	26	20	178
MAY 1989										
24...	1000	994	319	7.60	14.0	9.9	95	<1	K4	186

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
07064400	MONTAUK SPRINGS AT MONTAUK, MO (LAT 37 27 36N LONG 091 40 59W)								
OCT 1988 11...	<0.010	0.900	<0.010	0.30	0.020	1	<5	1	<10
MAY 1989 23...	<0.010	0.600	0.010	<0.20	<0.010	<1	<1	<1	<10
07064440	CURRENT RIVER BELOW MONTAUK STATE PARK (LAT 37 27 01N LONG 091 29 41W)								
OCT 1988 11...	<0.010	0.900	0.030	0.20	0.030	1	<5	1	<10
MAY 1989 23...	<0.010	0.500	0.030	0.80	0.020	<1	1	<1	<10
07064530	WELCH SPRING NEAR AKERS MO (LAT 37 23 38N LONG 091 34 25W)								
OCT 1988 11...	<0.010	0.700	<0.010	0.30	0.010	<1	<5	1	<10
MAY 1989 23...	<0.010	0.700	<0.010	<0.20	<0.010	<1	1	<1	<10
07064555	PULLTITE SPRING NEAR ROUND SPRING, MO (LAT 37 20 03N LONG 091 29 24W)								
OCT 1988 11...	<0.010	0.600	<0.010	0.30	0.010	1	<5	<1	<10
MAY 1989 23...	<0.010	0.500	<0.010	<0.20	<0.010	<1	1	<1	<10
07065000	ROUND SPRING AT ROUND SPRING MO (LAT 37 16 57N LONG 091 24 27W)								
OCT 1988 11...	<0.010	0.300	<0.010	0.20	0.010	1	<5	<1	<10
MAY 1989 23...	<0.010	0.300	<0.010	0.50	<0.010	<1	3	<1	<10
07065500	ALLEY SPRING AT ALLEY MO (LAT 37 09 14N LONG 091 26 29W)								
OCT 1988 12...	<0.010	0.700	<0.010	0.40	0.020	1	<5	1	<10
MAY 1989 25...	<0.010	0.300	0.020	0.50	<0.010	<1	2	<1	<10
07066110	JACKS FORK ABOVE TWO RIVERS (LAT 37 10 53N LONG 091 17 36W)								
OCT 1988 12...	<0.010	0.300	<0.010	0.20	0.010	<1	<5	1	<10
MAY 1989 24...	<0.010	0.600	<0.010	0.30	<0.010	<1	2	<1	10
07066510	CURRENT RIVER ABOVE POWDER MILL (LAT 37 10 32N LONG 091 12 48W)								
OCT 1988 12...	<0.010	0.300	<0.010	<0.20	0.010	<1	<5	<1	<10
MAY 1989 24...	<0.010	0.300	0.010	<0.20	<0.010	<1	2	<1	<10
07066550	BLUE SPRING NEAR EMINENCE, MO. (LAT 37 09 58N LONG 091 09 47W)								
OCT 1988 12...	<0.010	0.400	<0.010	<0.20	0.010	<1	<5	<1	<10
MAY 1989 24...	<0.010	0.400	0.010	<0.20	<0.010	<1	3	<1	20
07067500	BIG SPRING NEAR VAN BUREN MO (LAT 36 57 05N LONG 090 59 36W)								
OCT 1988 12...	<0.010	0.400	<0.010	0.20	0.020	<1	<5	<1	<10
MAY 1989 24...	<0.010	0.400	<0.010	<0.20	<0.010	<1	2	<1	<10

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (PER- CENT SOLVED SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SOLVED SATUR- ATION) (MG/L) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)
07067800 CURRENT RIVER BELOW HAWES CAMPGROUND (LAT 36 49 08N LONG 090 56 48W)										
OCT 1988										
12...	1500	1280	310	8.20	15.0	9.3	90	K6	K12	182
MAY 1989										
24...	0830	6230	250	8.00	17.5	8.6	89	840	1600	140

K--Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1988

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
07067800	CURRENT RIVER BELOW HAWES CAMPGROUND (LAT 36 49 08N LONG 090 56 48W)								
OCT 1988									
12...	<0.010	0.200	<0.010	0.30	0.010	<1	<5	<1	<10
MAY 1989									
24...	<0.010	0.300	0.030	1.2	0.010	<1	2	<1	<10

THIS IS A BLANK PAGE

Index

	Page		Page
Access to Watstore data.....	20	Chariton River basin, hydrologic records in.....	115
Accuracy of field data and computed results.....	12	Chemical oxygen demand, definition of.....	21
Acre-foot, definition of.....	21	Chemical quality of streamflow.....	8
Akers well.....	329	Clearwater Lake near Piedmont.....	265
Alley Spring at Alley.....	340	Collection and computation of data.....	10
Analyses of samples collected at water-quality partial-record stations.....	340	Collection and examination of data.....	14
Annual maximum discharge at crest-gage partial- record stations, water year 1989.....	336	Columbia Bottoms well.....	326
Arkansas River basin, hydrologic records in.....	276	Conservation well.....	317
Arrow Rock well.....	297	Contents, definition of.....	21
Atlas Powder well.....	303	Control, definition of.....	21
Aurora well.....	306	Control structure, definition of.....	21
		Conversion tables to metric measure.....	Back
Bacteria, definition of.....	21		Cover
Bear Creek at Hannibal.....	39	Cooperation.....	2
Bear Creek basin, hydrologic records in.....	39	Crooked Creek near Paris.....	47
Bed material, definition of.....	21	Crooked River near Richmond.....	336
Bennett Spring at Bennett Springs.....	160	Crest-stage partial-record stations.....	336
Big Creek at Blainstown.....	337	Cubic feet per second, definition of.....	21
at Chloride.....	236	Cubic feet per second per square mile, definition of.....	21
at Des Arc.....	237	Cuivre River basin, hydrologic records in.....	70
Big Piney River near Big Piney.....	166	Cuivre River near Troy.....	70
Big Piney River at Devil's Elbow.....	168	Current River above Powder Mill.....	340
Big River at Byrnesville.....	200	at Doniphan.....	271
at Irondale.....	196	at Van Buren.....	269
near Richwoods.....	198	below Hawes Campground.....	342
Big Slough near Wilcox.....	336	below Montauk State Park.....	340
Big Spring near Van Buren.....	270		
Big Spring well.....	295	Data presentation.....	13
Black River at Leeper.....	266	Definition of terms.....	21
at Poplar Bluff.....	267	Delta well.....	294
near Annapolis.....	264	Des Moines River at St. Francisville.....	27
Blackwater River at Blue Lick.....	125	Des Moines River basin, hydrologic records in....	27
Blue River basin, hydrologic records in.....	101	DeSoto well.....	304
Blue River near Kansas City.....	101	Discharge at partial-record stations.....	336
Blue Spring near Eminence.....	340	Discharge, definition of.....	21
Blue Springs Reservoir near Blue Springs.....	104	Discontinued streamflow stations.....	16
Bourbeuse River at Union.....	194	Discontinued surface-water-quality stations.....	18
near High Gate.....	192	Dissolved, definition of.....	22
		Downstream order and station number.....	9
Calendar for water year 1989.....	Front	Drainage area, definition of.....	22
	Cover	Drainage basin, definition of.....	22
Camp Creek near Elsberry.....	336	Duck Creek well.....	291
Castor River at Zalma.....	213		
Cedar Creek near Ashland.....	135	East Fork Big Creek near Bethany.....	336
near Columbia.....	130	East Fork Black River at Lesterville.....	263
near Pleasant View.....	148	East Fork Little Blue River near Blue Springs.....	105
Center Creek near Cartersville.....	277	East Fork Little Chariton River near Huntsville.....	121
near Smithfield.....	280	near Macon.....	120
Cfs-day, definition of.....	21	East Prairie well.....	312
Chariton River at Elmer.....	337	Eleven Point River near Bardley.....	275
at Livonia.....	115	Elk Fork Salt River near Madison.....	56
at Novinger.....	116	Elk River near Tiff City.....	283
near Prairie Hill.....	117	Elm Branch near Windsor.....	155

		<u>Index</u>	
	Page		Page
Explanation of ground-water records	13	Lakes:	
Explanation of stage and water-discharge records	10	Blue Springs Reservoir near Blue Springs	104
Explanation of water-quality records	14	Clearwater Lake near Piedmont	265
Fabius River basin, hydrologic records in	33	Harry S. Truman Reservoir at Warsaw	158
Fairview well	332	Lake of the Ozarks near Bagnell	161
Fecal coliform bacteria, definition of	21	Lake Taneycomo at Branson	260
Fecal streptococci bacteria, definition of	21	Lake Taneycomo at School of the Ozarks	256
Fox River at Wayland	31	Long Branch Reservoir near Macon	119
Fox River basin, hydrologic records in	31	Longview Reservoir at Kansas City	102
Fredericktown well	308	Pomme de Terre Lake near Hermitage	152
Gage height, definition of	22	Smithville Reservoir near Smithville	93
Gaging station, definition of	22	Stockton Lake near Stockton	145
Gasconade River above Jerome	170	Table Rock Lake near Branson	250
at Jerome	173	Wappapello Lake near Wappapello	241
near Rich Fountain	174	Lamar well	289
Gasconade River basin, hydrologic records in	166	Lamine River at Clifton City	337
Grand River basin, hydrologic records in	108	near Otterville	124
Grand River near Gallatin	108	Lamine River basin, hydrologic records in	124
near Sumner	111	Lick Creek at Perry	58
Greer Spring at Greer	274	Lindley Creek near Polk	151
Ground-water monitoring stations	xi	Little Blue River basin, hydrologic records in	102
Ground-water monitoring wells	287	Little Blue River below Longview Dam at Kansas City	103
Halfway well	320	near Lake City	106
Hannibal well	309	Little Chariton River basin, hydrologic records in	119
Hardness, definition of	22	Little Piney Creek at Newburg	172
Harry S. Truman Reservoir at Warsaw	158	Little Platte River at Smithville	94
Headwater Diversion Channel basin, hydrologic records in	213	Little River Ditch 1 near Morehouse	245
Hinkson Creek at Columbia	127	Little River Ditch 251 near Lilbourn	244
Hydrologic conditions	4	Little River Ditches near Kennett	246
Hydrologic-data station records	27	Little Sac River near Morrisville	144
Hydrologic-data stations in downstream order	vi	near Walnut Grove	142
Hydrologic unit, definition of	22	Little St. Francis River at Fredericktown	226
Index	345	Locust Creek near Reger	336
Industrial Park well	318	Long Branch Reservoir near Macon	119
Instantaneous discharge, definition of	21	Longview Reservoir at Kansas City	102
Introduction	1	Longview well	310
Jacks Fork above Two Rivers	340	Love Creek near Salem	338
at Eminence	268	Lower Mississippi River basin, hydrologic records in	180
James River at Galena	249	Malden well	298
near Springfield	248	Map showing location of ground-water monitoring wells	286
Jefferson City well	293	Map showing location of hydrologic-data stations	350
Kansas River at DeSoto, KS	98	Maries River at Westphalia	337
Kansas River basin, hydrologic records in	98	Mean concentration, definition of	23
Lake of the Ozarks near Bagnell	161	Mean discharge, definition of	21
Lake Taneycomo at Branson	260	Medicine Creek near Galt	110
Lake Taneycomo at School of the Ozarks	256	Meramec River at Paulina Hills	206
		near Eureka	202
		near Steelville	186
		near Sullivan	188

Index

	Page		Page
Meramec River basin, hydrologic records in.....	186	Osage River basin, hydrologic records in.....	137
Micrograms per gram, definition of.....	22	Osceola well.....	325
Micrograms per liter, definition of	22	Other data available	13
Middle Fabius River near Monticello.....	34	Ozark Lead 1 well.....	330
Middle Fork Chariton River at Thomas Hill	337	Ozark Lead 2 well.....	331
Middle Fork Salt River at Paris	51		
Milligrams per liter, definition of	22	Partial-record station, definition of.....	22
Mississippi River at Alton, IL.....	78	Particle-size, definition of.....	22
at Chester, IL.....	208	Particle-size, classification, definition of.....	22
at Grafton, IL	74	Physiography	4
at Hannibal.....	37	Platte River	
at St. Louis	180	at Ravenwood	336
at Thebes, IL	214	at Sharps Station	95
below Alton, IL.....	80	near Agency	92
below Grafton, IL	76	Platte River basin, hydrologic records in.....	91
Missouri River at Boonville.....	126	Pomme de Terre Lake near Hermitage.....	152
at Hermann.....	175	Pomme de Terre River near Hermitage.....	153
at Kansas City	99	near Polk	150
at Rulo, NB	83	Potosi well	335
at St. Joseph	87	Preface	iii
at Waverly	107	Publications on techniques of water-resources	
Missouri River basin, hydrologic records in.....	82	investigations	25
Missouri water-use fact sheet	3	Pullite Spring near Round Spring.....	340
Moniteau Creek near Fayette	337		
Montauk Springs at Montauk	340	Recurrence interval, definition of	23
Moreau River near Jefferson City.....	337	Report documentation page	iv
Mussel Fork near Musselfork.....	118	Round Spring at Round Spring.....	340
		Rolla well.....	319
National Geodetic Vertical Datum, definition of...	22	Runoff in inches, definition of.....	23
National Lead well.....	315		
National stream-quality accounting network		Sac River at Highway J below Stockton.....	147
stations, definition of	10	near Caplinger Mills	149
Naylor well	322	near Dadeville	140
Nevada East well	333	near Stockton	146
Nevada West well	334	St. Clair well.....	299
New Florence well	313	St. Francis River	
Nodaway River basin, hydrologic records in.....	84	at Wappapello	242
Nodaway River near Graham	84	near Mill Creek.....	228
near Oregon.....	85	near Patterson.....	239
Noel well.....	311	near Roselle	224
North Fabius River at Monticello	33	near Saco.....	230
North Fork River near Tecumseh	262	St. Francis River basin, hydrologic records in.....	224
North Fork Salt River at Hagers Grove	40	St. Joseph well	292
near Shelbina.....	42	St. Robert well	321
North River at Palmyra	36	Salt River basin, hydrologic records in.....	40
North River basin, hydrologic records in.....	36	Salt River near Center.....	60
Numbering system for miscellaneous sites.....	9	near New London	62
		Scotts Corner well.....	287
O'Fallon well	323	Sedalia well.....	316
One Hundred and Two River at Maryville	91	Sediment	15
Osage River above Schell City	137	Sediment, definition of	23
below St. Thomas	164	Shiloh Branch near Marshall	337
below Harry S. Truman Dam at Warsaw.....	159	Shoal Creek above Joplin	282
near Bagnell	162	near Hartford.....	336
near St. Thomas	163	Sikeston well.....	328

Index

	Page		Page
Smithville Reservoir near Smithville.....	93	Vandalia well.....	288
Solute, definition of	23	Vandike well.....	327
South Fabius River near Taylor	35		
South Fork Salt River above Santa Fe	49	Wakenda Creek at Carrollton	336
South Grand River near Clinton	154	Wappapello Lake at Wappapello.....	241
Special networks and programs	10	Warsaw well	290
Specific conductance, definition of	23	Washington well.....	300
Spencer Creek below Plum Creek near		Water analysis.....	14
Frankford	68	Water temperature	15
Spickard well	301	Water use	3
Spring River near Waco.....	276	Water year, definition of.....	24
Springs:		Wayland well.....	296
Alley Spring at Alley	340	WDR, definition of	24
Bennett Spring at Bennett Springs.....	160	Wellington well	305
Big Spring near Van Buren.....	270	Wells:	
Blue Spring near Eminence	340	Akers well.....	329
Greer Spring at Greer.....	274	Arrow Rock well.....	297
Montauk Springs at Montauk	340	Atlas Powder well.....	303
Pullite Spring near Round Spring	340	Aurora well	306
Round Spring at Round Spring.....	340	Big Spring well.....	295
Welch Spring near Akers	340	Columbia Bottoms well	326
Stage-discharge relation, definition of.....	23	Conservation well	317
Starks Creek at Preston.....	337	Delta well.....	294
Steele well.....	314	DeSoto well	304
Stockton Lake near Stockton	145	Duck Creek well	291
Streamflow.....	6	East Prairie well.....	312
Streamflow, definition of.....	23	Fairview well	332
Surface area, definition of.....	23	Fredericktown well.....	308
Surficial bed material, definition of.....	24	Halfway well.....	320
Suspended-sediment, definition of	23	Hannibal well.....	309
Suspended-sediment concentration,		Industrial Park well.....	318
definition of.....	23	Jefferson City well.....	293
Suspended-sediment discharge, definition of	23	Lamar well	289
Suspended-sediment load, definition of.....	23	Longview well	310
Sycamore Creek near Winona	338	Malden well	298
		National Lead well.....	315
Table Rock Lake near Branson.....	250	Naylor well	322
Tariko River at Fairfax	82	Nevada East well	333
Tariko River basin, hydrologic records in	82	Nevada West well	334
Thermograph, definition of.....	24	New Florence well.....	313
Thompson River at Trenton.....	109	Noel well.....	311
Time-weighted average, definition of.....	24	O'Fallon well	323
Tons per acre-foot, definition of.....	24	Osceola well.....	325
Tons per day, definition of.....	24	Ozark Lead 1 well.....	330
Total, definition of	24	Ozark Lead 2 well.....	331
Total in bottom material, definition of.....	24	Potosi well	335
Total load, definition of	24	Rolla well.....	319
Total recoverable, definition of	24	St. Clair well	299
Total sediment discharge, definition of	23	St. Joseph well	292
Troy well.....	307	St. Robert well	321
Turnback Creek above Greenfield.....	141	Scotts Corner well.....	287
		Sedalia well.....	316
Upper Mississippi River basin, hydrologic		Sikeston well.....	328
records in.....	27	Spickard well	301

Index

	Page		Page
Steele well	314	Wentzville well	324
Troy well	307	West Plains 2 well	302
Vandalia well	288	West Fork Tebo Creek near Lewis	156
Vandike well	327	White River basin, hydrologic records in	248
Warsaw well	290	White River below Table Rock Dam	
Washington well	300	near Branson	251
Wayland well	296	White River near Branson	255
Wellington well	305	WRD, definition of	24
Wentzville well	324	WSP, definition of	24
West Plains 2 well	302	Wyaconda River above Canton	32
Weighted average, definition of	24	Wyaconda River basin, hydrologic records in	32
Welch Spring near Akers	340		

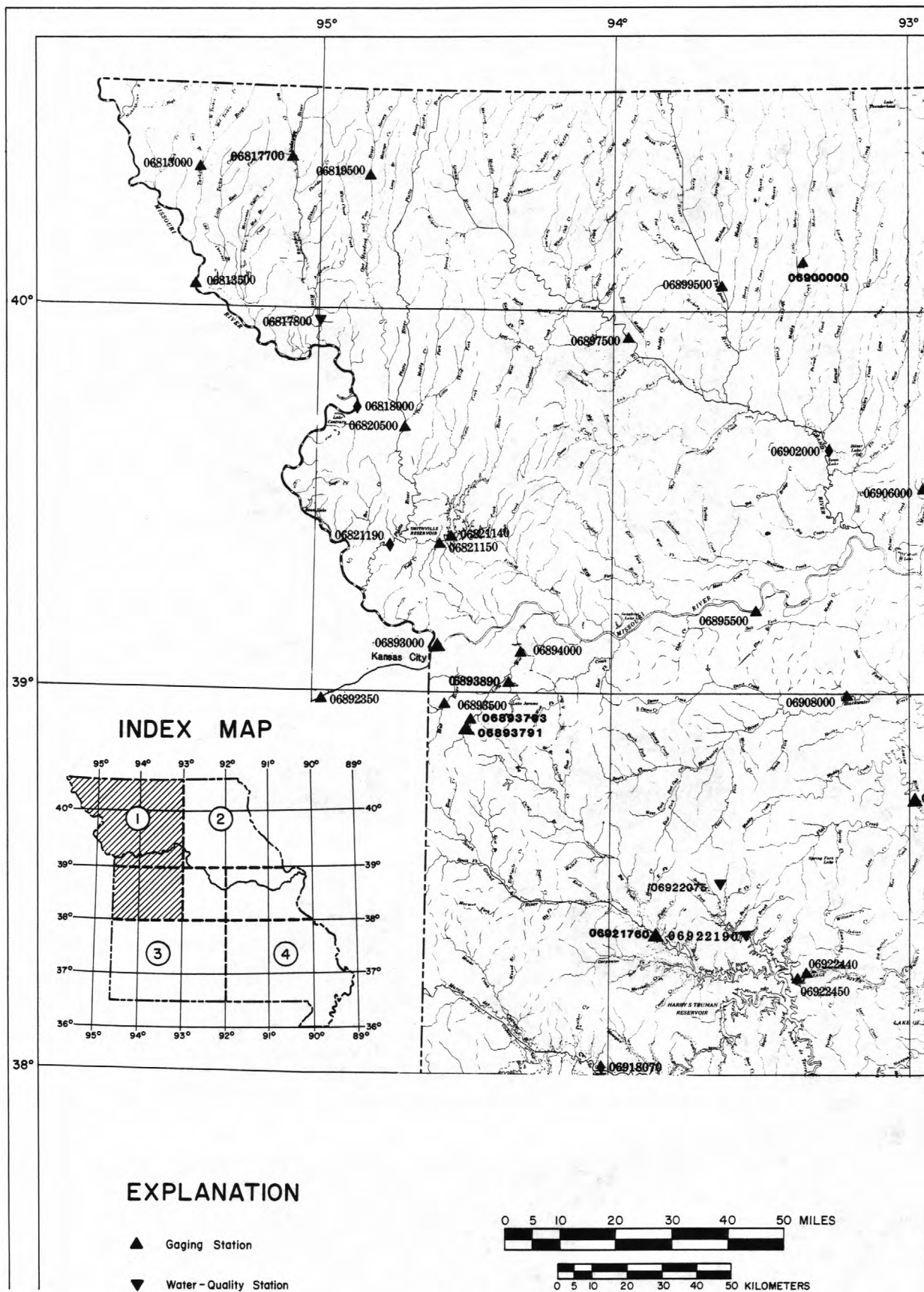


Figure 7.--Location of hydrologic-data stations.

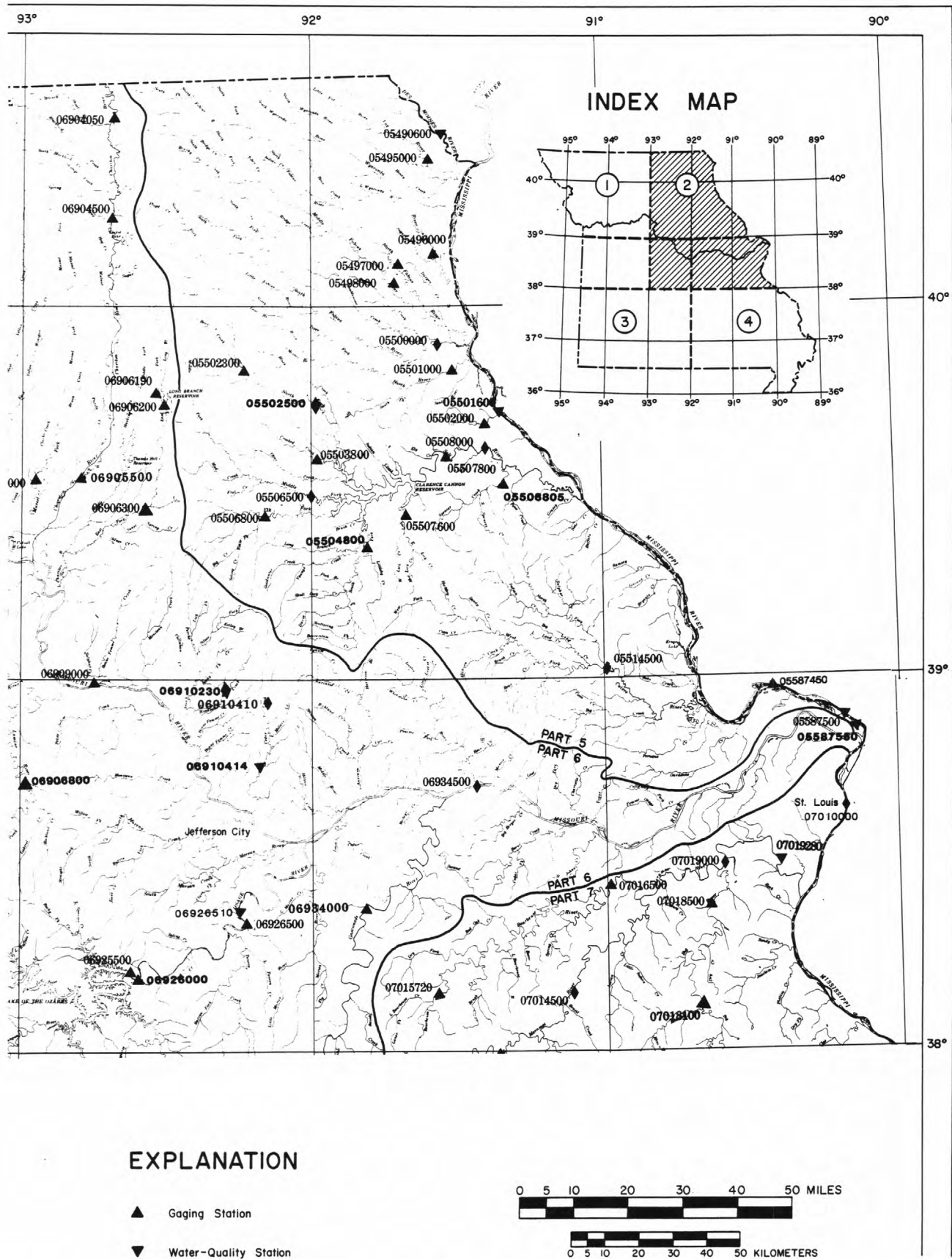


Figure 7.--Location of hydrologic-data stations--Continued.

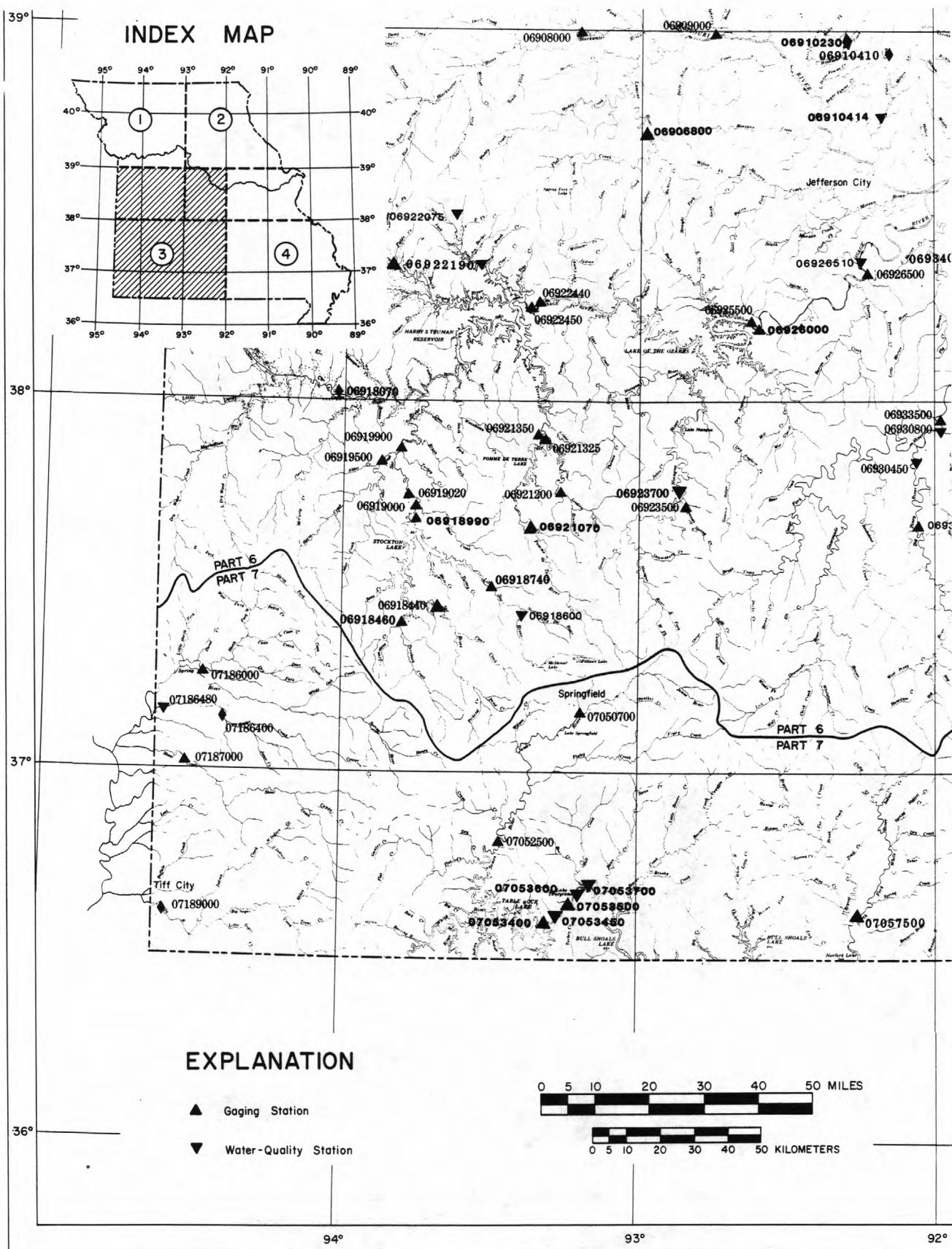


Figure 7.--Location of hydrologic-data stations--Continued.

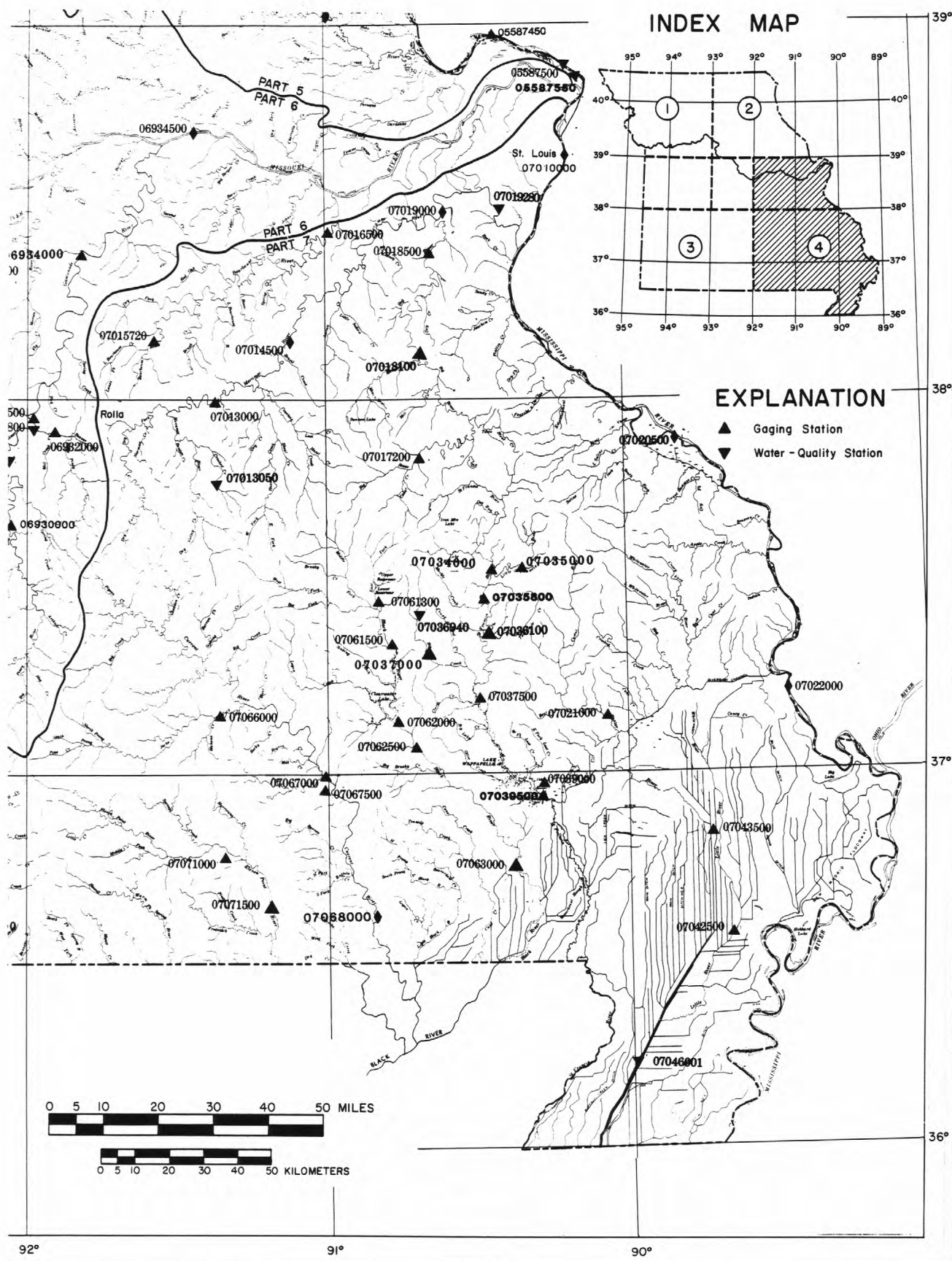


Figure 7.--Location of hydrologic-data stations--Continued.

THIS IS A BLANK PAGE

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT 413



U.S. DEPARTMENT OF THE INTERIOR
Geological Survey
1400 Independence Road, Mail Stop 200
Rolla, MO 65401

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
SPECIAL 4TH CLASS BOOK RATE