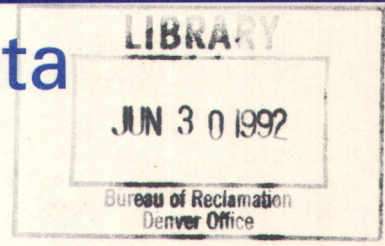




RECLAMATION LIBRARY  
SURPLUS



# Water Resources Data Missouri Water Year 1991



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MO-91-1  
Prepared in cooperation with the Missouri Department of  
Natural Resources, Division of Geology and Land Survey  
and Division of Environmental Quality; Missouri State  
Highway and Transportation Commission; and with  
other State and Federal agencies



# CALENDAR FOR WATER YEAR 1991

1990

## OCTOBER

S	M	T	W	T	F	S
	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			

## NOVEMBER

S	M	T	W	T	F	S
				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	

## DECEMBER

S	M	T	W	T	F	S
						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					

1991

## JANUARY

S	M	T	W	T	F	S
		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		

## FEBRUARY

S	M	T	W	T	F	S
					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		

## MARCH

S	M	T	W	T	F	S
						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					

## APRIL

S	M	T	W	T	F	S
	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				

## MAY

S	M	T	W	T	F	S
			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	

## JUNE

S	M	T	W	T	F	S
						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						

## JULY

S	M	T	W	T	F	S
	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			

## AUGUST

S	M	T	W	T	F	S
				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

## SEPTEMBER

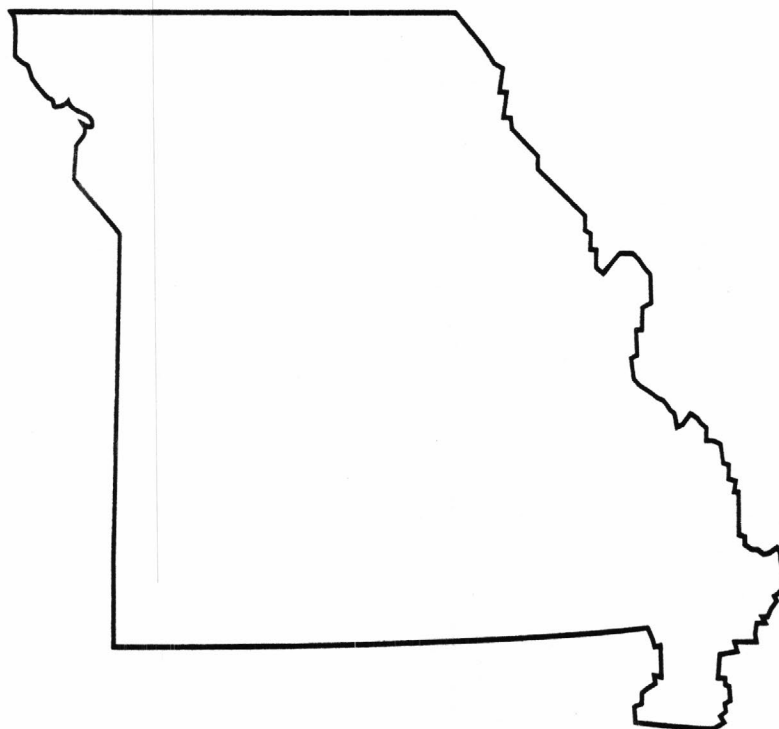
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					





# Water Resources Data Missouri Water Year 1991

by H.L. Reed, T.J. Perkins, and G.L. Gray, Jr.



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MO-91-1  
Prepared in cooperation with the Missouri Department of  
Natural Resources, Division of Geology and Land Survey  
and Division of Environmental Quality; Missouri State  
Highway and Transportation Commission; and with other  
State and Federal agencies



**U.S. DEPARTMENT OF THE INTERIOR**  
**MANUEL LUJAN, JR, Secretary**

**U.S. GEOLOGICAL SURVEY**  
**Dallas L. Peck, Director**

For information on the water program in Missouri write to:  
District Chief, Water Resources Division  
U.S. Geological Survey  
1400 Independence Road - Mail Stop 200  
Rolla, Missouri 65401



## 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 U.S. 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  
Yemen D. Collier  
Willie E. Easterling  
Suzanne R. Femmer  
H. Craig French  
Roy D. Glenn

Kenneth W. Hanks  
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  
Robert E. Whitaker  
Lance D. Yarbrough

Sherry A. Ternes and 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 John Skelton, Hydrologic Surveillance Section Chief and Daniel P. Bauer, District Chief, Missouri, succeeded by Marvin G. Sherrill.



<b>REPORT DOCUMENTATION PAGE</b>	<b>1. REPORT NO.</b> USGS/WRD/HD-92/265	<b>2.</b>	<b>3. Recipient's Accession No.</b>
<b>4. Title and Subtitle</b> Water Resources Data-Missouri, Water Year 1991			<b>5. Report Date</b> March 1992
<b>7. Author(s)</b> H.L. Reed, T.J. Perkins, and G.L. Gray, Jr.			<b>8. Performing Organization Rept. No.</b> USGS-WDR-MO-91-1
<b>9. Performing Organization Name and Address</b> U.S. Geological Survey Water Resources Division 1400 Independence Road Mail Stop 200 Rolla, Missouri 65401			<b>10. Project/Task/Work Unit No.</b>
			<b>11. Contract(G) or Grant(G) No.</b> (C) (G)
<b>12. Sponsoring Organization Name and Address</b> U.S. Geological Survey Water Resources Division 1400 Independence Road Rolla, Missouri 65401			<b>13. Type of Report &amp; Period Covered</b>
			<b>14.</b>
<b>15. Supplementary Notes</b>  Prepared in cooperation with the State of Missouri and other agencies.			
<b>16. Abstract (Limit 200 words)</b>  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 1991 water year for Missouri consist of records of stage, discharge, and water quality of lakes and reservoirs; contains records for water discharge at 106 gaging stations; stage and contents at 11 lakes and reservoirs; water-level records for 56 ground-water monitoring wells; water quality at 42 sampling stations (including 2 lakes); and data for 8 test-stage stations.			
<b>17. Document Analysis. a. Descriptors</b>  *Missouri, *Hydrologic data, *Surface water, *Quality water, Gaging stations, Streamflow, Flow rates, Lakes, Reservoirs, Chemical analysis, Sediment, Water temperature, Water analysis, Water levels, Data collection, Sites  <b>b. Identifiers/Open-Ended Terms</b>          <b>c. COSATI Field/Group</b>			
<b>18. Availability Statement</b> No restriction on distribution  This book may be purchased from: National Technical Information Service Springfield, VA 22161		<b>19. Security Class (This Report)</b> Unclassified	<b>21. No. of Pages</b> 298
		<b>20. Security Class (This Page)</b> Unclassified	<b>22. Price</b>



# CONTENTS

	Page
Preface .....	iii
Hydrologic-data stations, in downstream order, for which records are published in this volume.....	vii
Ground-water wells, for which records are published, in this volume.....	xi
Discontinued surface-water discharge or stage-only stations .....	xiii
Discontinued surface-water-quality stations.....	xvi
Introduction.....	1
Cooperation .....	2
1990 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
Access to WATSTORE data .....	16
Definition of terms .....	17
Publications on Techniques of Water-Resources Investigations .....	21
Hydrologic-data station records .....	25
Discharge at partial-record stations .....	226
Crest-stage partial-record stations .....	226
Maximum discharge at crest-stage partial-record stations.....	226
Analyses of samples collected at water-quality partial-record stations.....	228
Ground-water monitoring wells .....	233
Index .....	289

## ILLUSTRATIONS

		Page
Figure	1. Pie chart showing major water-use categories and percentage of surface water used in Missouri during 1990.....	3
	2. Pie chart showing major water-use categories and percentage of ground water used in Missouri during 1990.....	3
	3. Map showing major drainage basins, physiographic areas, and areas of greater-than-average discharge during 1991.....	5
	4. Graph showing comparison of 1991 water-year streamflow to long-term means.....	7
	5. Diagram showing system for numbering miscellaneous sites (latitude and longitude).....	9
	6. Map showing location of ground-water monitoring wells.....	232
	7. Map showing location of hydrologic-data stations .....	294

## TABLES

		Page
Table	1. Precipitation and departures from normal, in inches.....	4
	2. Comparisons of peak discharge for the 1991 water year with those for period of record for selected stations.....	6
	3. Comparisons of 1991 7-day low flows to 7-day, 2-year low flows and minimum flows for the period of record at selected stations .....	8



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

vii

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

Page

## UPPER MISSISSIPPI RIVER BASIN

### Mississippi River:

#### DES MOINES RIVER BASIN

Des Moines River at St. Francisville (c, m, s).....05490600 25

#### FOX RIVER BASIN

Fox River at Wayland (d).....05495000 29

#### WYACONDA RIVER BASIN

Wyaconda River above Canton (d).....05496000 30

#### FABIUS RIVER BASIN

North Fabius River at Monticello (d).....05497000 31

Middle Fabius River near Monticello (d).....05498000 32

South Fabius River near Taylor (d).....05500000 33

#### NORTH RIVER BASIN

North River at Palmyra (d).....05501000 34

#### BEAR CREEK BASIN

Bear Creek at Hannibal (d).....05502000 35

#### SALT RIVER BASIN

North Fork Salt River at Hagers Grove (d).....05502300 36

North Fork Salt River near Shelbina (d, s).....05502500 37

Crooked Creek near Paris (d).....05503800 41

South Fork Salt River above Santa Fe (d).....05504800 42

Middle Fork Salt River at Paris (d, s).....05506500 43

Elk Fork Salt River near Madison (d).....05506800 47

Lick Creek at Perry (d).....05507600 48

Salt River near Center (d).....05507800 49

Salt River near New London (d, s).....05508000 50

Spencer Creek below Plum Creek near Frankford (d).....05508805 52

#### CUIVRE RIVER BASIN

Cuivre River near Troy (d, c, m).....05514500 53

Mississippi River at Grafton, IL (d).....05587450 56

Mississippi River below Grafton, IL (c, m, s).....05587455 57

## MISSOURI RIVER BASIN

### Missouri River:

#### TARKIO RIVER BASIN

Tarkio River at Fairfax (d).....06813000 61

Missouri River at Rulo, NE (d).....06813500 62

#### NODAWAY RIVER BASIN

Nodaway River near Graham (d).....06817700 63

Missouri River at St. Joseph (d, c, m, s).....06818000 64

#### PLATTE-RIVER BASIN

One Hundred and Two River at Maryville (d).....06819500 69

Platte River near Agency (d).....06820500 70

Smithville Reservoir near Smithville (e).....06821140 71

Little Platte River at Smithville (d).....06821150 72

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

	Page
<b>MISSOURI RIVER BASIN--Continued</b>	
<b>PLATTE-RIVER BASIN--Continued</b>	
Platte River at Sharps Station (d, c, m).....	06821190 73
<b>KANSAS RIVER BASIN</b>	
Kansas River at DeSoto, KS (d) .....	06892350 76
Missouri River at Kansas City (d, s) .....	06893000 77
<b>BLUE RIVER BASIN</b>	
Blue River near Kansas City (d) .....	06893500 80
<b>LITTLE BLUE RIVER BASIN</b>	
Longview Reservoir at Kansas City (e).....	06893791 81
Little Blue River below Longview Dam at Kansas City (d).....	06893793 82
Blue Springs Reservoir near Blue Springs (e) .....	06893885 83
East Fork Little Blue River near Blue Springs (d).....	06893890 84
Little Blue River near Lake City (d).....	06894000 85
Missouri River at Waverly (d) .....	06895500 86
<b>GRAND RIVER BASIN</b>	
Grand River near Gallatin (d).....	06897500 87
Thompson River at Trenton (d).....	06899500 88
Medicine Creek near Galt (d).....	06900000 89
Grand River near Sumner (d, c, m).....	06902000 90
<b>CHARITON RIVER BASIN</b>	
Chariton River at Livonia (d) .....	06904050 93
Chariton River at Novinger (d) .....	06904500 94
Chariton River near Prairie Hill (d) .....	06905500 95
<b>LITTLE CHARITON RIVER BASIN</b>	
Long Branch Reservoir near Macon (e) .....	06906190 96
East Fork Little Chariton River near Macon (d).....	06906200 97
East Fork Little Chariton River near Huntsville (d, c, m) .....	06906300 98
<b>LAMINE RIVER BASIN</b>	
Lamine River near Otterville (d) .....	06906800 101
Blackwater River at Blue Lick (d) .....	06908000 102
Missouri River at Boonville (d).....	06909000 103
Hinkson Creek near Columbia (d, t).....	06910230 104
Cedar Creek near Columbia (d, c).....	06910410 107
<b>OSAGE RIVER BASIN</b>	
Osage River above Schell City (d, c, m, s).....	06918070 112
Sac River near Dadeville (d).....	06918440 117
Turnback Creek above Greenfield (d).....	06918460 118
Little Sac River near Morrisville (d).....	06918740 119
Stockton Lake near Stockton (e) .....	06918990 120
Sac River at Highway J below Stockton (d) .....	06919020 121
Cedar Creek near Pleasant View (d).....	06919500 122
Sac River near Caplinger Mills (d) .....	06919900 123
Pomme de Terre River near Polk (d) .....	06921070 124
Lindley Creek near Polk (d).....	06921200 125



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

ix

	Page
<u>MISSOURI RIVER BASIN--Continued</u>	
OSAGE RIVER BASIN--Continued	
Pomme de Terre Lake near Hermitage (e).....	06921325 126
Pomme de Terre River near Hermitage (d).....	06921350 127
South Grand River near Clinton (d, s).....	06921760 128
Tributary to Middle Fork Tebo Creek near Leeton (c) .....	06922075 130
West Fork Tebo Creek near Lewis (c, m) .....	06922190 131
Harry S. Truman Reservoir at Warsaw (e) .....	06922440 133
Osage River below Harry S. Truman Dam at Warsaw (d).....	06922450 134
Niangua River:	
Niangua River at Windyville (c, m) .....	06923250 135
Spring Branch:	
Bennett Spring at Bennett Springs (d, c, m) .....	06923500 136
Lake of the Ozarks near Bagnell (e) .....	06925500 138
Osage River near Bagnell (d) .....	06926000 139
Osage River near St. Thomas (d) .....	06926500 140
Osage River below St. Thomas (c, m).....	06926510 141
GASCONADE RIVER BASIN	
Big Piney River near Big Piney (d).....	06930000 143
Gasconade River above Jerome (c, m).....	06930800 144
Little Piney Creek at Newburg (d).....	06932000 146
Gasconade River at Jerome (d) .....	06933500 147
Gasconade River near Rich Fountain (d).....	06934000 148
Missouri River at Hermann (d, c, m, t, s) .....	06934500 149
<u>LOWER MISSISSIPPI RIVER BASIN</u>	
Mississippi River at St. Louis (d, t, s).....	07010000 155
MERAMEC RIVER BASIN	
Meramec River near Steelville (d) .....	07013000 159
Meramec River near Sullivan (d).....	07014500 160
Bourbeuse River near High Gate (d) .....	07015720 161
Bourbeuse River at Union (d) .....	07016500 162
Big River at Irondale (d).....	07017200 163
Big River near Richwoods (d).....	07018100 164
Big River at Byrnesville (d).....	07018500 165
Meramec River near Eureka (d, c, m).....	07019000 166
Meramec River at Paulina Hills (c, m) .....	07019280 169
Mississippi River at Chester, IL (d, s) .....	07020500 171
HEADWATER DIVERSION CHANNEL BASIN	
Castor River at Zalma (d).....	07021000 175
Mississippi River at Thebes, IL (d, c, m, s).....	07022000 176
ST. FRANCIS RIVER BASIN	
St. Francis River near Roselle (d) .....	07034000 183
Little St. Francis River at Fredericktown (d).....	07035000 184
St. Francis River near Mill Creek (d) .....	07035800 185
St. Francis River near Saco (d, s).....	07036100 186
Big Creek at Des Arc (d).....	07037000 190

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

	Page
<u>LOWER MISSISSIPPI RIVER BASIN--Continued</u>	
ST. FRANCIS RIVER BASIN--Continued	
St. Francis River near Patterson (d).....	07037500 191
Wappapello Lake at Wappapello (e) .....	07039000 192
St. Francis River at Wappapello (d).....	07039500 193
Right Chute of Little River:	
Little River Ditch 251 near Lilbourn (d) .....	07042500 194
Little River Ditch 1 near Morehouse (d) .....	07043500 195
WHITE RIVER BASIN	
White River:	
James River near Springfield (d).....	07050700 196
James River at Galena (d).....	07052500 197
Table Rock Lake near Branson (e).....	07053400 198
White River below Table Rock Dam near Branson (c, t) .....	07053450 199
White River near Branson (d) .....	07053500 203
Lake Taneycomo at College of the Ozarks (c, t) .....	07053600 204
Lake Taneycomo at Branson (c, m).....	07053700 208
North Fork River near Tecumseh (d) .....	07057500 210
Black River:	
Black River near Annapolis (d).....	07061500 211
Clearwater Lake near Piedmont (e) .....	07062000 212
Black River at Leeper (d) .....	07062500 213
Black River at Poplar Bluff (d).....	07063000 214
Current River:	
Jacks Fork at Eminence (d) .....	07066000 215
Current River at Van Buren (d).....	07067000 216
Big Spring near Van Buren (d).....	07067500 217
Current River at Doniphan (d) .....	07068000 218
Spring River:	
Eleven Point River:	
Greer Spring at Greer (d).....	07071000 219
Eleven Point River near Bardley (d).....	07071500 220
ARKANSAS RIVER BASIN	
Arkansas River:	
Neosho River:	
Spring River near Waco (d) .....	07186000 221
Center Creek near Cartersville (d).....	07186400 222
Shoal Creek above Joplin (d) .....	07187000 223
Elk River near Tiff City (d) .....	07189000 224



# GROUND-WATER WELLS, FOR WHICH RECORDS ARE PUBLISHED, IN THIS VOLUME

xi

	Page
St. Joseph .....	233
Spickard.....	234
Vandike.....	235
Wayland.....	236
Hannibal .....	237
Vandalia.....	238
Scotts Corner.....	239
New Florence.....	240
Troy .....	241
Wentzville.....	242
O'Fallon .....	243
Columbia Bottoms.....	244
Washington.....	245
St. Clair.....	246
Jefferson City .....	247
Arrow Rock .....	248
Sedalia .....	249
Wellington .....	250
Warsaw .....	251
Osceola.....	252
Nevada West.....	253
Nevada East .....	254
Lamar .....	255
Halfway.....	256
Atlas Powder .....	257
Noel .....	258
Longview.....	259
Aurora.....	260
Springfield:	
Belcrest Street.....	261
Bissett School.....	262
Cherokee School.....	263
Fulbright .....	264
Kansas Street.....	265
Main Street .....	266
Southwest Power Plant .....	267
York Street .....	268
Rolla .....	269
Conservation.....	270
Industrial Park.....	271
Fairview .....	272

GROUND-WATER WELLS, FOR WHICH  
RECORDS ARE PUBLISHED, IN THIS VOLUME

	Page
Akers.....	273
Ozark Lead 1 .....	274
Ozark Lead 2 .....	275
Lower Eleven Point.....	276
Big Spring.....	277
Naylor .....	278
Malden .....	279
Steele .....	280
East Prairie .....	281
Sikeston .....	282
Delta.....	283
Duck Creek.....	284
National Lead.....	285
Fredericktown .....	286
Potosi .....	287
DeSoto.....	288



## WATER RESOURCES DATA - MISSOURI, 1991

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Missouri have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Those stations with an asterisk (\*) after the station number are currently operated as crest-stage partial-record stations. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

[Letters after station name designate type of data collected: (d) discharge, (e) elevation (stage only)]

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
Middle Fabius River near Baring (d)	05497500	185	1930-61
North River at Bethel (d)	05500500	58.0	1930-73
Oak Dale Branch near Emden (d)	05503000	2.64	1955-75
North Fork Salt River near Hunnewell (d)	05503500	626	1931-40, 1979-88
Youngs Creek near Mexico (d)	05506000	67.4	1930-82
Middle Fork Salt River at Duncan's Bridge (d)	05506190	200	1980-82
Elk Fork Salt River near Paris (d)	05507000	262	1930-54, 1980-82
Salt River near Monroe City (d)	05507500	2,230	1939-81
Calumet Creek near Clarksville (d)	05509700	15.7	1965-72
Mill Creek at Oregon (d)	06816000	4.90	1950-76
Nodaway River near Burlington Junction (d)	06817500	1,240	1922-83
Platte River at Ravenwood (d)	06818900*	486	1921-23, 1924-25, 1928-32, 1958-71
White Cloud Creek near Maryville (d)	06820000	6.06	1948-70
Jenkins Branch at Gower (d)	06821000	2.72	1950-76
Line Creek at Riverside (d)	06821280	19.2	1975-81
Brush Creek at Main Street in Kansas City (d)	06893560	14.8	1970-79
Rock Creek at Independence (d)	06893600	5.20	1967-74
Shoal Creek at Claycomo (d)	06893670	29.8	1975-81
East Fork Fishing River at Excelsior Spring (d)	06894500	20.0	1950-72
Sni-A-Bar Creek near Tarsney (d)	06894680	29.1	1970-79
Crooked River near Richmond (d)	06895000*	159	1948-70
Wakenda Creek at Carrollton (d)	06896000*	248	1948-70
Thompson Branch near Albany (d)	06896500	5.58	1955-72
East Fork Big Creek near Bethany (d)	06897000*	95.0	1934-72
Thompson River at Mount Moriah (d)	06898100	891	1960-77
Weldon River near Mercer (d)	06898500	246	1939-59
Weldon River at Mill Grove (d)	06899000	494	1929-72
Shoal Creek near Braymer (d)	06899700	391	1957-77
Locust Creek near Linneus (d)	06901500	550	1928-72
West Yellow Creek near Brookfield (d)	06902200	135	1959-77
Hamilton Branch near New Boston (d)	06902500	2.51	1955-72
Mussell Fork near Musselfork (d)	06906000	267	1948-51 1962-90
Thomas Hill Lake near Thomas Hill (e)	06906350	147	1966-74
Middle Fork Chariton River below Salisbury (d)	06906470	201	1964-70
Burge Branch near Arrow Rock (d)	06906600	0.33	1959-73
Flat Creek near Sedalia (d)	06906700	148	1958-67
Lamine River at Clifton City (d)	06907000	598	1922-71
South Fork Blackwater near Elm (d)	06907500	16.6	1954-79
Blackwater River at Valley City (d)	06907700	547	1958-73
Shiloh Branch near Marshall (d)	06908500	2.87	1952-65
Moniteau Creek near Fayette (d)	06909500*	81	1948-69
Petite Saline Creek near Boonville (d)	06910000	182	1948-67
Moreau River near Jefferson City (d)	06910500*	561	1947-74
Chesapeake Spring at Chesapeake (d)	06918444	--	1926, 1932, 1936, 1954, 1963-68
Oak Grove Branch near Brighton (d)	06918700	1.30	1956-75

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
Little Sac River at Aldrich (d)	06918800	304	1967-68
Pomme De Terre River near Bolivar (d)	06921000	225	1950-69
Pomme De Terre River at Hermitage (d)	06921500	655	1921-65
South Grand River at Archie (d)	06921590	356	1969-86
South Grand River at Ulrich (d)	06921600	670	1960-69
Big Creek at Blairstown (d)	06921720	414	1960-74
Brushy Creek near Blairstown (d)	06921740	1.15	1960-75
South Grand River near Brownington (d)	06922000	1,660	1921-71
Big Buffalo Creek near Stover (d)	06922800	24.2	1965-77
Starks Creek at Preston (d)	06925200	4.18	1956-76
Van Cleve Branch near Meta (d)	06926200	0.75	1956-72
Niangua River near Decaturville (d)	06924000	627	1929-69
Maries River at Westphalia (d)	06927000*	257	1947-70
Big Hollow near Fulton (d)	06927200	4.05	1957-72
Osage Fork Gasconade River at Drynob (d)	06927800	404	1962-81
Gasconade River near Hazlegreen (d)	06928000	1,250	1928-71
Laquey Branch near Hazlegreen (d)	06928200	1.58	1958-72
Gasconade River near Waynesville (d)	06928500	1,680	1914-71
Beeler Branch near Cabool (d)	06928700	7.78	1967-76
Little Beaver Creek near Rolla (d)	06931500	6.45	1947-75
Loutre River at Mineola (d)	06935500	202	1947-67
Coldwater Creek near St. Louis (d)	06936500	43.6	1959-65
Meramec River at Cook Station (d)	07010350	199	1965-81
Meramec Spring near St. James (d)	07010500	--	1903-06, 1921-29, 1965-86
Green Acre Branch near Rolla (d)	07011500	0.62	1947-75
Bourbeuse River near St. James (d)	07015000	21.3	1947-81
Lanes Fork near Rolla (d)	07015500	0.225	1952-71
Bourbeuse River near Spring Bluff (d)	07016000	608	1943-81
Dry Branch near Bonne Terre (d)	07017500	3.35	1955-75
Sandy Creek near Pevely (d)	07019690	32.5	1966-68, 1969-72
Plattin Creek at Plattin (d)	07019790	65.8	1965-72
Saline Creek near Minnith (d)	07020270	82.6	1968-81
Brewers Creek near Ironton (d)	07033800	2.19	1964-66
Barnes Creek near Fredericktown (d)	07035500	3.35	1955-75
Clark Creek near Piedmont (d)	07037700	4.39	1956-76
Little River Ditch 81 near Kennett (d)	07041000	111	1926-79
Little River Ditch 1 near Kennett (d)	07042000	235	1926-79
Castor River at Aquilla (d)	07043000	175	1945-81
Little River Ditch 251 near Kennett (d)	07044000	883	1926-79
Little River Ditch 66 near Kennett (d)	07045000	--	1926-79
Little River Ditch 66-A near Kennett (d)	07045500	--	1927-65
Little River Ditch 259 near Kennett (d)	07046000	89.0	1926-79
Roaring River Spring near Cassville (d)	07050150	--	1965-68
James River near Strafford (d)	07050580	165	1973-86
Wilsons Creek near Springfield (d)	07052100	31.4	1972-82
Wilsons Creek below Springfield (d)	07052150	47.2	1967-72
Wilsons Creek near Battlefield (d)	07052160	55.0	1968-70, 1972-82
James River near Boaz (d)	07052250	462	1972-80
White River near Reeds Spring (d)	07053000	3,620	1938-52
White River at Forsyth (d)	07054000	4,540	1929-51
Hodgson Mill Spring at Sycamore (d)	07057800	--	1965-68
Bryant Creek near Tecumseh (d)	07058000	570	1944-85
Fudge Hollow near Licking (d)	07064300	1.72	1956-76
Montauk Springs at Montauk (d)	07064400	--	1964-68
Big Creek near Yukon (d)	07064500	8.36	1949-75

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
Round Spring at Round Spring (d)	07065000	--	1928-39, 1965-79
Alley Spring at Alley (d)	07065500	--	1928-39, 1965-79
Current River near Eminence (d)	07066500	1,272	1921-75
Middle Fork Little Black River at Grandin (d)	07068250	6.85	1980-84
North Prong Little Black River near Grandin (d)	07068300	39.4	1980-84
Little Black River near Grandin (d)	07068380	79.5	1980-84
Little Black River below Fairdealing (d)	07068510	194	1980-86
Logan Creek at Oxly (d)	07068540	37.5	1980-84
Little Black River at Success, AR (d)	07068600	386	1980-86
Fourche River near Poynor (d)	07068863	87.2	1976-83
Eleven Point River near Thomasville (d)	07070500	361	1950-76
Stahl Creek near Miller (d)	07185500	3.86	1950-76
Spring River at La Russell (d)	07185700	306	1947-81
Spring River at Carthage (d)	07185765	425	1966-80
Turkey Creek near Joplin (d)	07186600	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 name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
Fox River at Wayland	05495000	400	C	1967-72
Mississippi River at Canton	05495150	--	C,T	1969-75
Middle Fabius River near Monticello	05498000	393	S	1980-86
South Fabius River near Taylor	05500000	620	C,M	1972-73, 1979-88
North River at Palmyra	05501000	373	C	1972-75
Mississippi River at Hannibal	05501600	--	C,M	1982-89
North Fork Salt River near Hunnewell	05503500	626	S	1980-88
Salt River near New London	05508000	2,480	C,M,T	1967-75, 1977-90
Mississippi River at Alton, IL	05587500	171,500	S	1980-85, 1986-89
Mississippi River below Alton, IL	05587550	171,500	C,M	1975-89
Nodaway River near Oregon	06817800	--	C,M	1968-75, 1977-89
Platte River at Platte City	06821200	--	C	1967-75
Missouri River at Sibley	06894100	--	C,T	1972-75
Thompson River near Chillicothe	06899620	--	C,M	1968-75, 1983-87
Chariton River near Prairie Hill	06905500	1,870	B,C,M,T	1962-63, 1967-75, 1978-86
East Fork Little Chariton River near Macon	06906200	112	C	1971-74
East Fork Chariton River near Huntsville	06906300	220	C,M	1963-69, 1973-75, 1979-91
East Fork Chariton River near Clifton Hill	06906320	--	C	1963-73
Middle Fork Little Chariton River below Salisbury	06906470	201	C,M	1983-86
Burge Branch near Arrow Rock	06906600	0.33	S	1961-64
Lamine River near Blackwater	06908800	2,610	B,C,M,T	1979-86
Missouri River at Boonville	06909000	505,700	T	1953-59, 1960-64
Cedar Creek near Ashland	06910414	--	C,M	1983-89
Marais Des Cygnes River near Worland	06916650	3,230	C,M	1962-63, 1972-75, 1977-81
Sac River near Dadeville	06918440	257	C,M,T	1974-78, 1980-82, 1983-87
Little Sac River near Walnut Grove	06918600	--	C,M	1984-86, 1988-90
Stockton Lake near Stockton	06918990	1,160	T	1974-77
Pomme De Terre River near Polk	06921070	276	C,M,T	1970-74, 1983-86
Pomme De Terre River near Hermitage	06921350	615	T	1974-77
Pomme De Terre River at Hermitage	06921500	615	T	1970-78
South Grand River at Urich	06921600	670	C,M	1983-87
Tebo Creek at Leesville	06922200	--	B,C,M,T	1978-83
Osage River at Warsaw	06922500	11,500	T	1969-78
Big Buffalo Creek near Stover	06922800	24.2	T	1965-77
Gasconade River near Hooker	06928600	--	C,M	1977-86
Big Piney River at Devil's Elbow	06930450	--	C,M	1977-89
Missouri River near St. Louis	06935840	--	C,T	1969-74
Mississippi River at East St. Louis, IL	07001000	--	C	1969-73
Crooked Creek near Dillard	07013050	--	C	1982-88
Meramec River near Sullivan	07014500	1,475	C,M	1963-75, 1977-90
Bourbeuse River above Union	07016400	808	C,M	1963-74, 1983-87
Big River near Richwoods (DeSoto)	07018100	735	C,M	1963-75, 1983-87
Mississippi River at Cape Girardeau	07020850	--	C,T	1969-74
Headwater Diversion Channel near Allenville	07021800	--	C	1969-75
St. Francis River near Saco	07036100	664	C,M	1983-87, 1988-89

## DISCONTINUED SURFACE-WATER-QUALITY STATIONS--Continued

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
Big Creek at Chloride	07036940	--	C	1969-75, 1983-90
St. Francis River at St. Francis, AR	07040100	--	C	1969-75
Little River Ditches near Kennett	07046001	--	C,M	1969-70, 1972-73, 1977-89
James River near Nixa	07050750	273	T	1966-75, 1977-80
James River near Wilsons Creek	07051600	--	C,M	1967-82, 1983-87
Wilsons Creek near Springfield	07052100	31.4	C,T	1972-82
Wilsons Creek below Springfield	07052150	47.2	C,T	1967-70, 1970-72
Wilsons Creek near Battlefield	07052160	55.0	C,T	1972-82
James River west of Nixa	07052200	440	C	1962-63, 1965-67
James River near Boaz	07052250	462	C,M,T	1967-82, 1983-87
Finley Creek at Riverdale	07052340	--	C	1967-75
Lake Taneycomo at Branson	07053700	--	C,M	1977-91
North Fork River near Tecumseh	07057500	561	C,M	1969-72, 1978-79, 1983-87
Black River near Annapolis	07061500	484	C	1969-72
Black River at Poplar Bluff	07063000	1,245	C,M	1983-87
Black River below Poplar Bluff	07063050	--	C	1969-75
Main Ditch near Neelyville	07063300	--	C	1969-75
Current River at Doniphan	07068000	2,038	C,M	1979-80, 1981-82, 1984-89
Current River near Doniphan	07068050	--	C	1969-75
Middle Fork Little Black River at Grandin	07068250	6.85	T	1980-84
North Prong Little Black River near Grandin	07068300	39.4	C,M	1980-84
Little Black River near Grandin	07068380	79.5	C,M,S,T	1980-84
Little Black River below Fairdealing	07068510	194	C,M,S,T	1980-86
Logan Creek at Oxly	07068540	37.5	C,M,S,T	1980-84
Little Black River near Naylor	07068550	--	C	1969-75
Little Black River at Success, AR	07068600	386	C,M,S,T	1980-86
Fourche River near Poynor	07068863	87.2	T	1976-83
Fourche River near Middlebrook, AR	07068867	--	C	1969-75
Spring River near Thayer	07069170	--	C	1969-75
Eleven Point River near Bardley	07071500	793	C,M	1983-87
Eleven Point River below Bardley	07071900	--	C	1969-75
Spring River near Waco	07186000	1,164	C	1965-75, 1977-78, 1980-81
Center Creek near Carterville	07186400	232	C,M	1962-75, 1980-89
Center Creek near Smithville	07186480	--	C,M	1969-75, 1977-89
Turkey Creek near Joplin	07186600	41.8	C,M	1963-77
Shoal Creek above Joplin	07187000	427	C,M	1968-68, 1979-82
Shoal Creek near Galena, KS	07187560	--	C	1968-75
Lost Creek at Seneca	07188500	42	C	1967-75
Little Sugar Creek at Caverna	07188820	--	C	1967-75
Elk River near Tiff City	07189000	872	C,M	1962-63, 1965-75, 1980-81, 1983-90
Buffalo Creek at Tiff City	07189100	--	C	1967-75

THIS IS A BLANK PAGE



# WATER RESOURCES DATA - MISSOURI, 1991

## 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 106 gaging stations; stage and contents at 11 lakes and reservoirs; water level records for 56 ground-water monitoring wells; water quality at 42 sampling stations (including 2 lakes); and data for 8 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." These Water-Supply Papers were in an annual series through September 30, 1960, 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-91-1." 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, 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 - MISSOURI, 1991

## 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 R. 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,  
David A. Shorr, 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,  
J. Ronald Fischer, City Manager.

City of Rolla,  
Merle Strouse, City Administrator.

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.

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

National Park Service, Midwest Region.

Union Electric Company of Missouri.

Missouri Park Board.

## 1990 WATER USE

Listed below are general water-use facts for the state of Missouri. The major water uses and percentage of surface and ground water for 1990 are shown in figures 1 and 2.

## MISSOURI WATER-USE FACT SHEET

1. Total offstream water use was 6,930 million gallons per day (Mgal/d).
2. Ground-water use was 730 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 6,200 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 529 Mgal/d, which was about 8 percent of total use. Irrigation consumptive use was about 50 percent of total consumptive use.
5. The largest use of water in Missouri was for onstream hydroelectric power generation, about 13,900 Mgal/d.
6. Total population was 5.12 million, an increase of 1.8 percent from 1985.
7. Per capita water use for all offstream uses was 1,350 gallons per day.
8. Public water supplied was 677 Mgal/d: 27 percent ground water and 73 percent surface water.
9. Domestic water use was 410 Mgal/d: 15 percent self-supplied and 85 percent public-supplied.
10. Commercial water use was 81.2 Mgal/d: 27 percent self-supplied and 73 percent public-supplied.
11. Industrial water use was 218 Mgal/d: 39 percent self-supplied and 61 percent public-supplied.
12. Mining water use was 25.3 Mgal/d, mostly from dewatering of active and inactive lead mines.
13. The largest offstream use of water was 4,580 Mgal/d (mostly surface water) to produce 57,100 gigawatt hours of electricity. This was 66 percent of the total offstream water use.
14. Non-irrigation agricultural water use was 54.8 Mgal/d for fish culture and livestock use.
15. The largest use of ground water was 335 Mgal/d for irrigation. Total irrigation water use was 371 Mgal/d.
16. About 2,455 municipal and other sewage-treatment facilities released 998 Mgal/d of effluent.

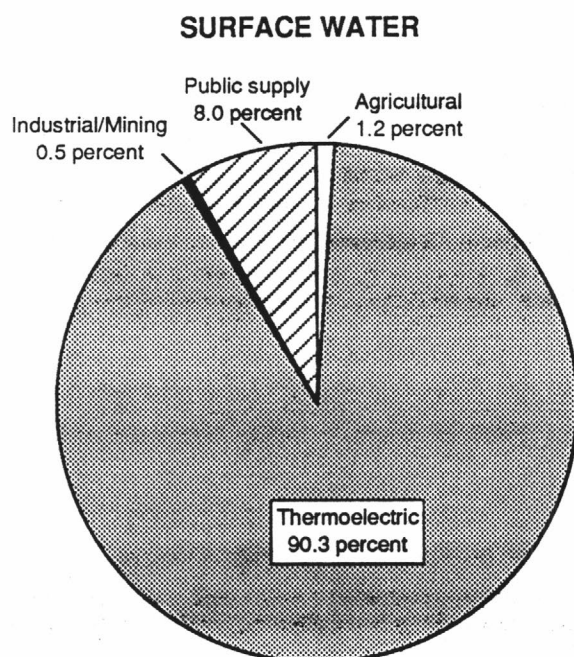


Figure 1.--Major water-use categories and percentage of surface water used in Missouri during 1990.

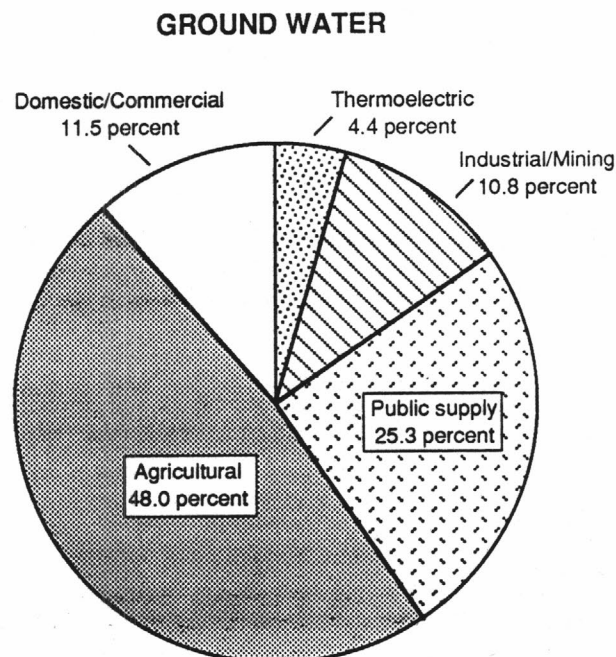


Figure 2.--Major water-use categories and percentage of ground water used in Missouri during 1990.

## WATER RESOURCES DATA - MISSOURI, 1991

## 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 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 Missouri except for the Northwest Prairie and West-Central Plains during the 1991 water year. The normal precipitation for the standard period 1951-80 ranges from about 36 inches annually in the northwest to about 47 inches annually 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)	October-March		April-September		Water Year 1991	
	Departure from normal		Departure from normal		Departure from normal	
	Precipitation	(1951-80)	Precipitation	(1951-80)	Precipitation	(1951-80)
Northwest Prairie	11.76	+0.38	21.57	-3.13	33.33	-2.75
Northeast Prairie	15.48	+1.95	22.72	+0.13	38.20	+2.08
West Central Plains	11.63	-2.38	20.62	-3.85	32.25	-6.23
West Ozarks	18.60	+2.59	22.05	-2.14	40.65	+0.45
East Ozarks	23.04	+4.80	22.81	-0.42	45.85	+4.38
Bootheel	30.36	+7.64	24.14	+0.08	54.50	+7.72



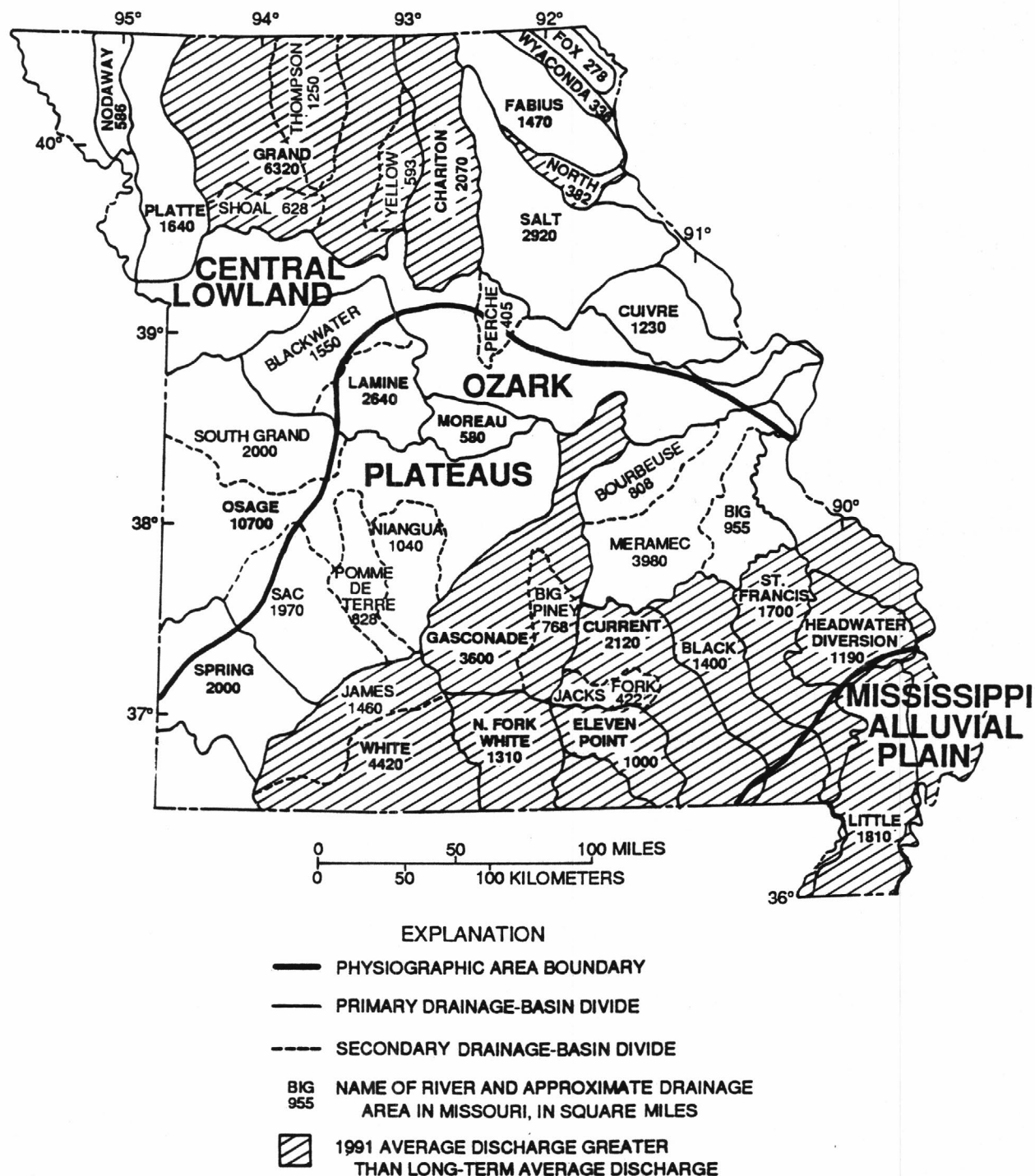


Figure 3.--Major drainage basins, physiographic areas, and areas of greater-than-average discharge during 1991.

## WATER RESOURCES DATA - MISSOURI, 1991

Streamflow

Streamflow varies seasonally in Missouri and generally reflects precipitation patterns unless a stream is regulated. Monthly mean discharges during water year 1991 and long-term mean monthly discharges at representative stations are shown in figure 4. In general, streamflows were less than long-term mean flows in northeastern Missouri, western Missouri, and along the Missouri River main stem and were average to above average elsewhere.

Peak discharges for water year 1991 are compared to the peak discharges for the period of record at 15 selected gaging stations in table 2. The 7-day average low flow for water year 1991 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 1991 water year with those for period of record for selected stations

Station identification	Peak discharge during 1991 water year		Peak discharge for period of record	
	Cubic feet per second	Date	Cubic feet per second	Date
05549500 Fox River at Wayland	4,700	May 5	26,400	Apr. 22, 1973
05587450 Mississippi River at Grafton, Il.	294,000	May 8	535,000	Apr. 29, 1973
06893000 Missouri River at Kansas City	113,000	June 16	573,000	July 14, 1951
06894000 Little Blue River near Lake City	3,680	May 24	42,300	Aug. 13, 1982
06897500 Grand River near Gallatin	33,900	Apr. 19	69,100	June 24, 1947
06905500 Chariton River near Prairie Hill	19,400	May 5	31,900	Apr. 23, 1973
06933500 Gasconade River at Jerome	29,400	Dec. 31	136,000	Dec. 5, 1982
06934500 Missouri River at Hermann	164,000	Apr. 20	676,000	June 6-7, 1903
07010000 Mississippi River at St. Louis	439,000	May 8	1,019,000	June 10-11, 1903
07019000 Meramec River near Eureka	39,100	Jan. 1	145,000	Dec. 6, 1982
07022000 Mississippi River at Thebes, Il.	458,000	Apr. 24	893,000	May 27, 1943
07037500 St. Francis River near Patterson	29,900	Dec. 30	155,000	Dec. 3, 1982
07057500 North Fork River near Tecumseh	7,170	Dec. 30	133,000	Nov. 19, 1985
07068000 Current River at Doniphan	32,700	Apr. 15	122,000	Dec. 3, 1982
07018600 Spring River near Waco	9,640	Jan. 16	103,000	May 19, 1943

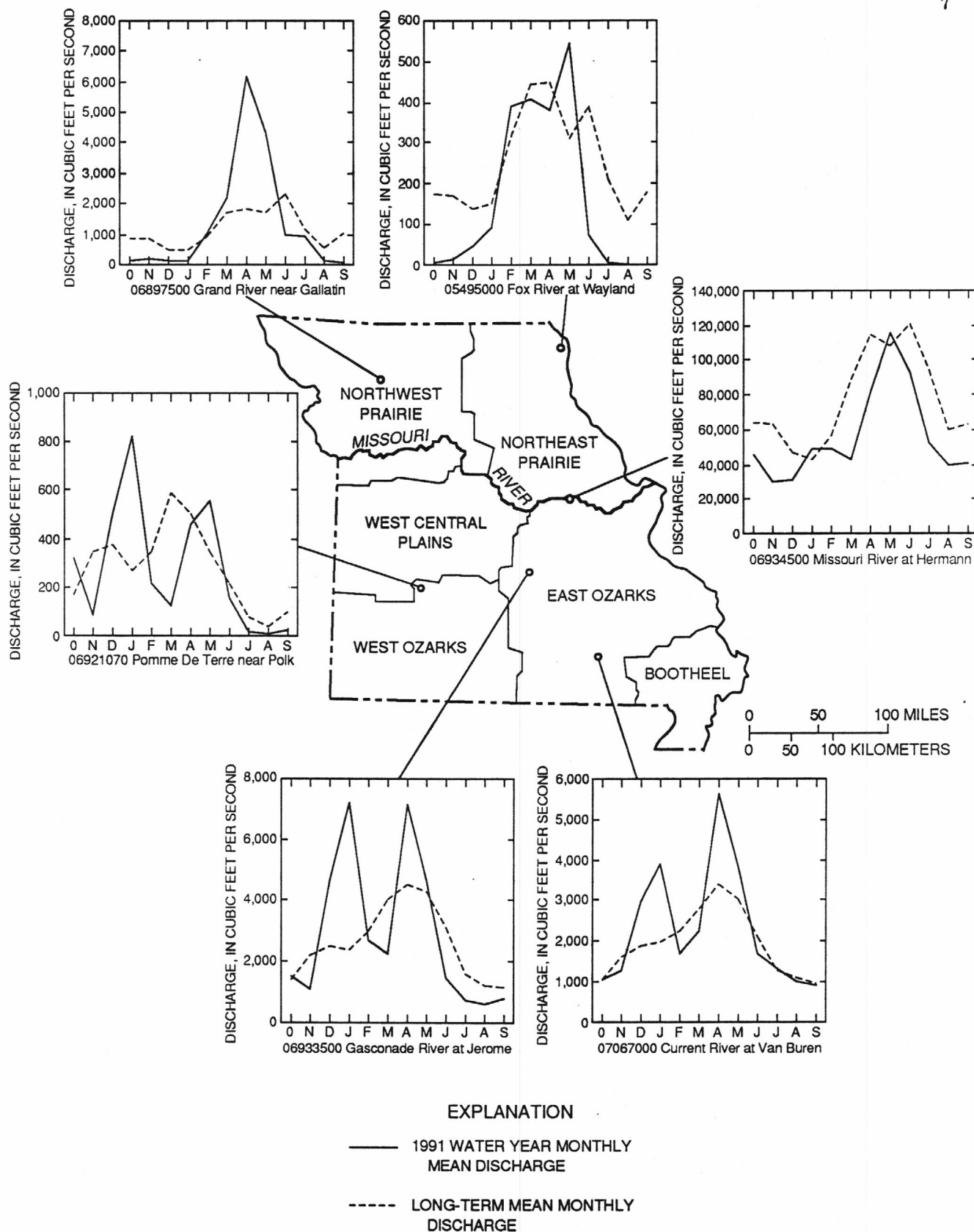


Figure 4.--Comparison of 1991 water-year streamflow to long-term means.

## WATER RESOURCES DATA - MISSOURI, 1991

Table 3.--Comparisons of 1991 7-day low flows to 7-day, 2-year low flows and minimum 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 low flows		Minimum flows for period of record used	
	1991	2-year <sup>1</sup>	Discharge	Years of occurrence
05495000 Fox River at Wayland (1922-91)	0.2	1.3	0	Several years
06820500 Platte River near Agency (1933-91)	18	17	0	Several years
06921070 Pomme de Terre River near Polk (1969-91)	3.6	3.0	0.3	1980
07016500 Bourbeuse River at Union (1921-91)	32	32	11	1956
07067000 Current River at Van Buren (1912-91)	873	700	473	1956
07187000 Shoal Creek above Joplin (1942-91)	85	92	12	1954

<sup>1</sup> Skelton, John, 1976, Missouri stream and springflow characteristics--Low-flow frequency and flow duration: Rolla, Missouri Division of Geology and Land Survey Water Resources Report 32, 76 p.

Chemical Quality of Streamflow

Samples for determining the chemical quality of streamflow were collected at 29 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. The range of dissolved-solids concentrations in selected streams during water year 1991 is given in the following table:

Station identification	Dissolved-solids concentration (milligrams per liter)	
	Minimum	Maximum
Des Moines River at St. Francisville	310	487
Cuivre River near Troy	191	236
Mississippi River below Grafton, IL	225	322
Missouri River at St. Joseph	339	525
Platte River at Sharps Station	123	366
Grand River near Sumner	128	315
Osage River below St. Thomas	154	171
Gasconade River above Jerome	155	179
Missouri River at Hermann	212	463
Meramec River near Eureka	114	307



Daily suspended-sediment samples and data on the particle-size of suspended sediment were collected at 10 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 minimum and maximum daily mean suspended-sediment concentrations during water year 1991:

Station identification	Daily mean suspended-sediment concentration (milligrams per liter)	
	Minimum	Maximum
Middle Fork Salt River at Paris	2	1,400
Salt River near Shelbina	3	2,740
Mississippi River at Thebes	32	1,680

### 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.

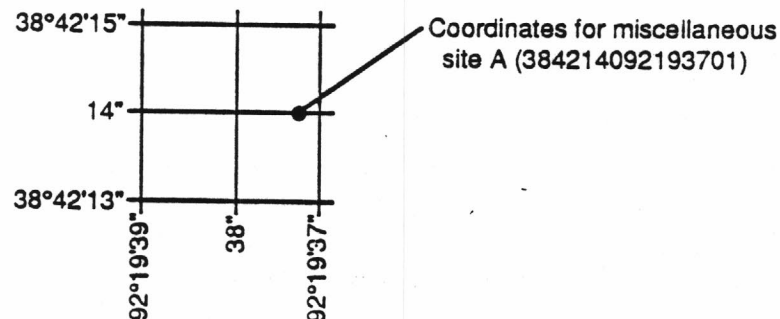


Figure 5.--System for numbering miscellaneous sites (latitude and longitude).

## 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 electronic retrieval of data via satellite from a data-collection platform at the gaging station, direct readings on a nonrecording gage, or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and 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.

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 runoff in inches is published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of runoff in inches resulting from revision of the drainage area only usually are 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.

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 current month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the current month and the line headed "IN." expresses the average discharge in inches. The monthly flow data summaries for the period of record show mean, maximum, and minimum values and the water year in which the maximum and minimum occurred. The annual summary statistics show selected data for the current water year, calendar year, and the period of record.

For some 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 other 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 also are 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 ft<sup>3</sup>/s; to tenths between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures above 1,000 ft<sup>3</sup>/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.



### 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 in numerical order according to map number (fig. 6). 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 following comments 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.

**INSTRUMENTATION.**--This paragraph provides information on the type of recorder (digital or graphic) and the date of recorder installation.

**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 present" 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 daily mean 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. Monthly mean, maximum, and minimum daily 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 readings 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.

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

### 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 Chain of Rocks water-treatment plant and the Chouteau Island water-treatment plant. Approximately once a week, two depth-integrated verticals are taken to adjust the relation between suspended sediment and turbidity.

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

## 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 that 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.

Cubic foot per second-day (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 2,445 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 ( $\text{FT}^3/\text{s}$ ,  $\text{ft}^3/\text{s}$ ) 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.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)



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 ( $\text{CaCO}_3$ ).

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 ( $\text{MG/L}$ ,  $\text{mg/L}$ ) 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  $\text{mg/L}$ , 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

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.

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.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. McCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 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.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS—Continued

- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS—TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS—TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS—TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS—TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS—TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS—TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS—TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathburn, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS—TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels of streamflow gaging stations*, by E. J. Kennedy: USGS—TWRI Book 3, Chapter A19. 1990. 27 pages.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS—TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS—TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS—TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by Richard L. Cooley and Richard L. Naff: USGS—TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS—TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS—TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS—TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS—TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS—TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS—TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS—TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS—TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS—TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS—TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS—TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS—TWRI Book 5, Chapter A1. 1989. 545 pages.



- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS—TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS—TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS—TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS—TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS—TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS—TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS—TWRI Book 6, Chapter A1. 1988. 586 pages.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS—TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS—TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS—TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS—TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS—TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS—TWRI Book 8, Chapter B2. 1968. 15 pages.

**THIS IS A BLANK PAGE**

## 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 8.0 mi upstream from Sugar Creek.

DRAINAGE AREA.--14,300 mi<sup>2</sup>.

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.

SEDIMENT RECORDS: April 1978 to September 1982, April 1983 to current 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, 2 mg/L, Feb. 13, 1990.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 765,000 tons, Mar. 20, 1982; minimum daily, 9.1 tons, Feb. 13, 1990.

## EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,100 mg/L, Apr. 21; minimum daily mean, 3 mg/L, Nov. 25-27.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 624,000 tons, Apr. 20; minimum daily, 11.0 tons, Nov. 25-26.

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

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- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
06...	0850	1960	624	8.5	3.5	3.0	13.1	100	K10	K34	290	70
JAN												
15...	1345	3030	760	7.8	0.5	2.0	10.7	73	46	22	360	92
MAR												
12...	1000	8340	501	8.0	5.0	5.5	12.9	102	K1400	240	240	63
MAY												
15...	1430	23700	526	8.0	18.0	16	10.4	109	58	90	260	72
JUL												
17...	1000	24800	532	8.2	26.0	50	7.6	93	130	K100	270	73
SEP												
04...	1530	2230	549	8.7	25.0	5.5	13.4	160	K8	50	250	55

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

DATE	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 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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
06...	27	23	3.9	218	69	34	0.20	4.1	372	378	0.51
JAN											
15...	32	34	4.6	216	98	51	0.40	10	487	474	0.66
MAR											
12...	19	13	4.6	157	55	25	0.40	11	310	309	0.42
MAY											
15...	20	7.5	2.8	164	41	23	0.40	16	328	330	0.45
JUL											
17...	22	8.1	3.2	143	41	18	0.40	16	360	309	0.49
SEP											
04...	28	17	3.6	158	76	28	0.30	11	320	331	0.44

## DES MOINES RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 06...	1960	0.020	3.60	0.010	<0.010	1.3	0.080	0.050	0.040	22	31
JAN 15...	3980	0.050	4.50	0.340	0.350	0.70	0.320	0.300	0.290	4	38
MAR 12...	6980	0.030	5.20	0.300	0.290	1.8	0.210	0.130	0.120	--	--
MAY 15...	21000	0.020	11.0	0.020	0.030	1.5	0.200	0.120	0.120	110	48
JUL 17...	24100	0.050	9.20	<0.010	<0.010	1.3	0.190	0.110	0.110	22	82
SEP 04...	1930	0.030	3.70	0.010	<0.010	1.5	0.070	<0.010	<0.010	52	68

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 06...	<10	2	92	<0.5	<1.0	<1	<3	2	12	1
JAN 15...	<10	2	100	<0.5	<1.0	<1	<3	2	22	1
MAY 15...	<10	2	88	<0.5	<1.0	<1	<3	2	51	<1
JUL 17...	10	2	97	<0.5	2.0	<1	<3	3	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 06...	17	16	<0.1	<10	1	1	<1.0	290	<6	8
JAN 15...	22	34	0.3	<10	4	1	<1.0	330	<6	4
MAY 15...	14	6	0.4	<10	2	2	<1.0	180	<6	6
JUL 17...	14	7	0.2	<10	2	2	<1.0	190	<6	<3

## PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	TIME	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)
APR 11...	0940	2	5	17	54	86	95	98	100	100

## DES MOINES RIVER BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	1970	14	74	1810	280	1370	2000	12	65
2	1970	17	90	1750	40	189	1890	8	41
3	1980	24	128	1640	10	44	2070	11	61
4	2010	27	147	1730	8	37	2410	12	78
5	2200	50	297	1860	13	65	1980	16	86
6	2230	27	163	2020	7	38	2290	80	495
7	2120	24	137	2280	35	215	2250	25	152
8	2000	17	92	2350	25	159	2010	24	130
9	1950	15	79	2250	35	213	1760	19	90
10	120	34	195	2260	43	262	1510	20	82
11	2200	27	160	2250	44	267	1420	22	84
12	2160	14	82	2210	16	95	1770	13	62
13	2150	12	70	2170	9	53	4430	12	144
14	2150	18	104	2140	12	69	5040	22	299
15	2150	24	139	2120	25	143	4860	60	787
16	1970	45	239	2020	38	207	4250	120	1380
17	1760	42	200	1890	28	143	3660	270	2670
18	1720	22	102	1900	25	128	3580	130	1260
19	1730	23	107	1830	24	119	3610	62	604
20	1700	15	69	1760	17	81	3550	40	383
21	1680	15	68	1650	5	22	9760	48	1260
22	1520	16	66	1670	5	23	---	---	---
23	1510	13	53	1480	5	20	---	---	---
24	2520	33	225	1350	4	15	---	---	---
25	1950	40	211	1370	3	11	---	---	---
26	930	78	196	1360	3	11	---	---	---
27	500	33	45	1440	3	12	---	---	---
28	347	17	16	1520	15	62	---	---	---
29	1340	46	166	1690	14	64	---	---	---
30	1600	130	562	1920	11	57	---	---	---
31	1730	54	252	---	---	---	---	---	---
TOTAL	53867	---	4534	55690	---	4194	---	---	---
JANUARY			FEBRUARY			MARCH			
1	---	---	---	2440	---	1700	4730	120	1530
2	---	---	---	2550	---	2570	7480	540	10900
3	---	---	---	3240	---	3820	12000	810	26200
4	---	---	---	4680	---	5400	13500	1010	36800
5	---	---	---	7930	---	8100	13800	1170	43600
6	---	---	---	12800	---	12000	14000	720	27200
7	2250	---	1500	15100	---	17900	13800	350	13000
8	2570	---	1550	13800	550	20500	14700	230	9130
9	2630	---	1600	12100	400	13100	14400	225	8750
10	2660	---	1640	11800	250	7960	12600	245	8330
11	2680	---	1680	9100	130	3190	11000	210	6240
12	2640	---	1670	5030	60	815	8380	230	5200
13	2650	---	1610	5010	60	812	9280	320	8020
14	2550	---	1530	4570	65	802	8860	400	9570
15	2610	---	1520	3940	70	745	10100	325	8860
16	2660	---	1530	4000	55	594	11300	250	7630
17	2660	---	1560	3260	47	414	9780	190	5020
18	2660	---	1580	3800	40	410	11200	165	4990
19	2680	---	1620	3920	75	794	16000	380	16400
20	2820	---	1690	5210	180	2530	20600	890	49500
21	2830	---	1700	7670	285	5900	21900	820	48500
22	2730	---	1680	3860	330	3440	20600	690	38400
23	2530	---	1590	3280	175	1550	22700	---	17000
24	2420	---	1560	3160	110	939	22300	---	16800
25	2670	---	1690	3470	74	693	21200	---	14500
26	2610	---	1630	3470	70	656	20400	---	12000
27	2520	---	1610	3870	68	711	26300	---	29000
28	2580	---	1620	4470	69	833	29200	---	38000
29	2520	---	1590	---	---	---	29000	---	36500
30	2540	---	1600	---	---	---	27600	480	35800
31	2490	---	1610	---	---	---	27400	300	22200
TOTAL	---	---	---	167530	---	118878	506110	---	615570



## DES MOINES RIVER BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	27300	210	15500	32000	1600	138000	29600	1890	151000
2	28000	390	29500	28100	810	61500	26800	1300	94100
3	31100	610	51200	25100	500	33900	25700	420	29100
4	30700	320	26500	24600	370	24600	26300	380	27000
5	25700	300	20800	32200	2000	174000	26900	450	32700
6	21100	200	11400	38900	3400	357000	24600	450	29900
7	17300	180	8410	24400	1990	131000	24700	425	28300
8	14500	190	7440	20500	910	50400	25000	440	29700
9	13400	210	7600	22700	1230	75400	25200	485	33000
10	13200	220	7840	23900	690	44500	27300	490	36100
11	13000	240	8420	23900	370	23900	28600	490	37800
12	11900	280	9000	24100	345	22400	29700	485	38900
13	13300	265	9520	24000	360	23300	31700	610	52200
14	23400	1020	64400	23900	355	22900	32500	685	60100
15	29500	2000	159000	24000	320	20700	32900	900	79900
16	24700	2060	137000	24900	380	25500	37500	1400	142000
17	25900	2700	189000	24700	540	36000	39600	1750	187000
18	30200	1820	148000	24500	565	37400	38300	410	42400
19	42900	1700	197000	23600	480	30600	38600	420	43800
20	52400	4410	624000	23900	320	20600	39300	820	45000
21	38000	5100	523000	23900	270	17400	39600	930	45000
22	23300	2050	129000	24500	260	17200	---	10	---
23	28700	1460	113000	25000	370	25000	---	780	---
24	31600	1440	123000	25300	500	34200	39900	800	44000
25	35300	1550	148000	25500	365	25100	39900	340	43000
26	35800	1460	141000	25300	380	26000	39800	800	43500
27	35000	1090	103000	25200	375	25500	39800	590	43200
28	32500	1450	127000	25200	350	23800	39600	530	43000
29	31100	1430	120000	25100	365	24700	39600	600	42900
30	31600	1110	94700	25300	320	21900	39400	620	42700
31	---	---	---	25800	280	19500	---	---	---
TOTAL	812400	---	3353230	790000	---	1613900	---	---	---
JULY			AUGUST			SEPTEMBER			
1	39200	470	41000	20000	115	6210	3230	48	419
2	38900	300	31500	19900	83	4460	2610	27	190
3	35200	340	32300	19800	72	3850	2180	24	141
4	33400	400	36100	19700	77	4100	1920	23	119
5	33200	370	33200	19700	73	3880	1980	26	139
6	33200	330	29600	19900	73	3920	1880	24	122
7	33100	380	34000	19900	64	3440	1690	23	105
8	33000	385	34300	20100	74	4020	1530	20	83
9	32400	150	13100	20100	73	3960	1380	18	67
10	29500	310	24700	19600	82	4340	1370	17	63
11	28800	320	24900	19800	72	3850	1360	18	66
12	28000	240	18100	20000	72	3890	1360	21	77
13	24700	315	21000	20100	70	3800	1360	16	59
14	24600	255	16900	20000	68	3670	1360	14	51
15	24400	265	17500	19900	64	3440	1360	19	70
16	24200	220	14400	20100	78	4230	1360	22	81
17	24800	200	13400	20000	63	3400	1360	16	59
18	24600	185	12300	19700	66	3510	---	19	---
19	24500	170	11200	19300	75	3910	---	14	---
20	24400	160	10500	18100	76	3710	---	16	---
21	24300	150	10500	16400	74	3280	---	21	---
22	24200	210	9840	14200	63	2420	---	57	---
23	24600	180	13700	10600	48	1370	---	33	---
24	24400	160	12000	8100	42	919	---	34	---
25	24200	145	99470	6940	38	712	---	37	---
26	23400	135	8530	6300	34	578	---	33	---
27	20500	125	6920	5820	52	817	---	24	---
28	20100	130	7060	5110	71	980	---	21	---
29	20000	135	7290	4400	55	653	---	18	---
30	19800	135	7220	3860	48	500	---	---	---
31	20000	130	7020	3680	47	467	---	---	---
TOTAL	839600	---	569550	481110	---	92286	---	---	---

## FOX RIVER BASIN

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, 5.0 mi downstream from Brush Creek and at mile 15.2.

DRAINAGE AREA.--400 mi<sup>2</sup>, 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 discharge: July 30. 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.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	2.7	37	103	62	71	169	79	92	2.7	1.2	.57
2	3.3	3.1	28	76	105	761	125	68	713	2.2	1.1	.56
3	3.6	3.0	98	137	509	809	106	72	543	2.1	1.2	3.1
4	3.6	4.5	61	110	1330	527	97	124	274	2.1	1.2	7.8
5	3.0	6.6	31	87	1720	262	101	3210	162	1.9	2.9	4.6
6	3.3	10	24	90	1730	173	96	3140	89	1.6	4.7	2.8
7	5.4	9.5	21	93	1040	126	88	2010	56	1.4	3.9	1.9
8	4.1	39	20	77	647	95	82	635	38	1.4	4.6	1.8
9	4.2	24	19	66	456	76	72	405	29	2.6	3.4	1.8
10	4.9	23	18	65	382	64	65	283	24	4.4	3.7	1.7
11	5.2	21	18	65	300	55	59	207	22	10	3.4	1.1
12	5.5	19	20	59	267	74	62	158	18	15	3.7	.75
13	4.9	18	20	51	181	366	110	122	17	11	2.8	.69
14	4.8	17	32	55	149	300	647	98	31	8.3	1.7	.73
15	4.0	17	59	65	133	244	541	102	26	6.3	1.9	.66
16	3.6	18	50	70	131	152	368	387	27	5.8	2.0	.44
17	3.8	16	40	69	101	200	219	481	17	4.4	2.7	.27
18	3.5	13	35	66	128	660	141	1900	13	3.3	4.0	.33
19	3.0	12	32	76	331	469	609	820	11	2.7	1.8	.26
20	2.6	11	30	179	291	317	2900	429	9.8	2.5	1.4	.23
21	2.9	12	31	205	280	193	2070	520	5.7	2.2	1.3	.20
22	2.8	11	41	147	161	165	881	456	4.9	2.0	1.1	.20
23	2.5	11	27	99	110	310	493	200	5.3	1.9	.99	.22
24	2.7	10	22	96	94	264	324	157	5.2	1.6	1.0	.23
25	2.5	11	17	86	77	285	219	191	5.0	1.4	.98	.22
26	2.4	11	16	89	64	159	168	257	4.1	1.3	.74	.20
27	2.4	48	14	86	58	2010	198	127	3.4	1.1	.78	.20
28	3.3	32	14	90	57	1960	154	78	3.0	1.1	.64	.20
29	2.7	21	185	83	---	861	117	56	2.9	1.1	.67	.20
30	1.9	15	201	74	---	410	92	107	2.6	1.1	.65	.19
31	2.3	---	145	66	---	245	---	56	---	1.1	.56	---
MEAN	3.49	15.6	45.4	89.7	389	408	379	546	75.1	3.47	2.02	1.14
MAX	5.5	48	201	205	1730	2010	2900	3210	713	15	4.7	7.8
MIN	1.9	2.7	14	51	57	55	59	56	2.6	1.1	.56	.19
IN.	.01	.04	.13	.26	1.01	1.18	1.06	1.57	.21	.01	.01	.00

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

	175	170	139	152	318	445	449	310	390	210	112	178
MEAN	175	170	139	152	318	445	449	310	390	210	112	178
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	.000	.007	.019	.19	.42	8.56	2.35	1.39	.060	.21	.019	.17
(WY)	1957	1957	1957	1957	1957	1956	1956	1956	1956	1936	1936	1937

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	288	162	254
HIGHEST ANNUAL MEAN			677
LOWEST ANNUAL MEAN			17.6
HIGHEST DAILY MEAN	8440	Jun 21	3210
LOWEST DAILY MEAN	1.4	Jan 1	.19
INSTANTANEOUS PEAK FLOW	9040	Jun 21	4700
INSTANTANEOUS PEAK STAGE	16.61	Jun 21	12.13
INSTANTANEOUS LOW FLOW	1.5**	Oct 30	.15
ANNUAL SEVEN-DAY MINIMUM	1.8	Jan 1	.21
ANNUAL RUNOFF (INCHES)	9.76		5.50
10 PERCENT EXCEEDS	545		394
50 PERCENT EXCEEDS	25		27
90 PERCENT EXCEEDS	3.6		1.1

\*\*Minimum recorded, may have been less during period of no gage-height record Jan. 1-11, 1990.

## 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, 2.5 mi west of Canton and at mile 16.7.

DRAINAGE AREA.--393 mi<sup>2</sup>.

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.--Estimated daily discharges: Feb. 18-22. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	4.6	11	249	53	48	122	69	304	4.9	2.7	.66
2	3.9	5.1	9.6	198	172	671	93	56	331	3.5	3.0	.71
3	4.2	5.2	212	146	757	858	79	138	215	3.9	3.9	6.3
4	4.3	7.3	177	88	1780	336	69	822	115	4.4	3.2	13
5	4.9	11	44	65	2080	180	63	4620	115	3.3	3.7	5.7
6	5.2	9.9	25	49	1570	138	59	5070	92	2.5	9.1	2.8
7	5.2	13	19	38	958	107	56	3580	65	2.2	12	2.4
8	5.3	9.8	15	34	593	81	54	772	46	1.8	13	9.1
9	7.1	9.0	13	31	416	65	48	322	40	4.3	12	6.0
10	7.7	10	11	31	326	58	43	216	31	6.0	12	3.1
11	6.9	9.4	10	37	282	51	39	156	27	45	12	1.8
12	6.9	8.8	9.6	32	221	106	34	117	30	79	11	1.1
13	6.6	8.3	9.1	28	170	437	52	92	28	19	8.5	.67
14	5.9	7.5	9.0	30	105	294	485	75	24	14	6.4	.59
15	5.3	7.1	9.2	49	69	190	449	97	23	11	3.9	1.8
16	5.2	7.2	10	89	54	133	257	1070	28	9.1	2.7	4.5
17	5.1	6.8	11	80	50	210	160	507	22	8.7	2.9	2.8
18	4.9	6.2	11	67	117	607	107	939	19	5.9	3.3	1.1
19	5.5	6.2	11	103	320	397	350	1010	18	3.7	3.3	.48
20	5.6	6.2	11	274	226	216	2330	293	14	2.6	5.2	.37
21	4.9	6.2	10	350	151	153	1290	185	12	2.6	3.8	.25
22	4.9	6.2	9.0	248	112	124	554	1040	37	2.2	3.1	.25
23	4.2	6.5	6.9	193	97	180	303	281	14	2.5	1.5	.25
24	3.6	6.8	6.9	136	70	256	199	359	25	2.2	.86	.36
25	4.1	6.9	6.7	95	56	179	141	794	22	1.7	.73	.30
26	4.2	6.9	6.5	74	45	125	111	1230	16	1.7	.58	.31
27	4.1	22	6.6	66	38	1020	205	278	13	1.8	.49	.40
28	5.0	87	6.9	67	39	2260	253	141	11	2.3	.40	.37
29	5.2	36	205	57	---	702	120	97	8.7	2.3	.85	.25
30	3.9	16	429	50	---	264	85	1290	6.6	2.3	.61	.30
31	5.2	---	290	45	---	171	---	1680	---	2.2	.61	---
MEAN	5.15	12.0	52.3	100	390	342	274	884	58.4	8.34	4.75	2.27
MAX	7.7	87	429	350	2080	2260	2330	5070	331	79	13	13
MIN	3.6	4.6	6.5	28	38	48	34	56	6.6	1.7	.40	.25
IN.	.02	.03	.15	.29	1.03	1.00	.78	2.59	.17	.02	.01	.01

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

	143	154	153	149	339	411	400	348	371	246	121	163
MEAN	143	154	153	149	339	411	400	348	371	246	121	163
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	.000	.000	.47	.10	2.05	7.53	3.38	1.69	.66	.016	.000	.017
(WY)	1954	1954	1954	1954	1989	1957	1956	1934	1956	1934	1934	1953

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	247	177	249
HIGHEST ANNUAL MEAN			751
LOWEST ANNUAL MEAN			14.2
HIGHEST DAILY MEAN	6250	5070	16500
LOWEST DAILY MEAN	2.0	.25	.00
INSTANTANEOUS PEAK FLOW	6780	5580	17700
INSTANTANEOUS PEAK STAGE	22.40	20.61	31.33
INSTANTANEOUS LOW FLOW	1.5	.25**	.00
ANNUAL SEVEN-DAY MINIMUM	2.8	.30	.00
ANNUAL RUNOFF (INCHES)	8.53	6.12	8.61
10 PERCENT EXCEEDS	425	354	500
50 PERCENT EXCEEDS	17	22	28
90 PERCENT EXCEEDS	3.7	2.2	1.8

\*\*Minimum recorded, may have been less during period of doubtful record Sept. 20-30.

## FABIUS RIVER BASIN

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 mi<sup>2</sup>.

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.--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.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	6.3	9.3	203	111	90	172	103	619	12	11	8.5
2	7.1	6.7	8.4	172	193	490	150	87	1330	11	8.3	7.5
3	7.3	6.9	185	205	592	930	126	178	521	11	6.6	7.8
4	9.3	12	84	165	1850	368	116	900	303	8.8	6.2	8.8
5	7.7	20	33	150	1990	219	108	6180	347	8.0	6.5	7.2
6	7.1	21	23	132	1770	174	104	7380	176	7.5	10	7.0
7	9.6	23	17	115	1010	144	96	1880	117	6.7	11	4.8
8	10	21	14	102	592	119	92	784	89	5.8	9.7	3.8
9	11	20	11	95	492	99	85	567	73	10	11	3.4
10	13	17	9.4	90	397	85	80	444	64	17	11	2.8
11	14	15	8.5	88	347	79	79	355	55	150	9.7	2.8
12	12	15	7.7	87	291	88	85	303	50	360	7.7	2.3
13	11	13	7.2	83	235	273	148	265	47	86	6.2	2.5
14	9.3	11	6.8	82	211	270	648	233	43	48	5.3	2.4
15	8.4	9.0	8.5	102	199	197	542	283	46	38	4.5	4.3
16	7.6	8.1	8.9	138	113	150	334	1010	60	29	4.5	5.2
17	7.2	7.4	9.3	130	121	212	208	457	37	23	4.6	2.7
18	7.7	6.9	9.9	126	216	391	159	1480	29	20	5.4	3.1
19	7.1	6.6	9.9	143	512	424	1910	861	25	17	5.6	2.7
20	7.1	6.4	8.8	310	445	236	2650	380	21	14	4.2	2.4
21	6.6	6.8	6.3	264	245	176	1350	252	18	12	3.9	2.1
22	6.1	7.2	2.9	211	185	152	625	277	20	11	3.8	2.5
23	5.9	6.9	2.9	176	170	167	374	189	49	12	3.4	2.3
24	5.9	7.1	2.4	180	129	418	264	197	71	8.8	3.0	2.3
25	6.0	7.1	3.5	177	112	213	203	390	44	8.0	2.7	2.2
26	9.6	6.6	4.0	160	120	153	171	668	35	7.1	2.5	2.5
27	6.8	33	4.5	145	85	1900	306	298	27	7.1	2.3	2.3
28	5.8	112	4.9	135	77	2400	209	190	18	6.7	2.2	1.9
29	5.5	24	147	125	---	664	153	142	15	8.0	2.3	2.0
30	5.3	11	236	118	---	324	123	783	14	7.0	2.8	1.9
31	5.9	---	209	112	---	220	---	1110	---	6.4	12	---
MEAN	8.08	15.8	35.6	146	457	381	389	923	145	31.5	6.13	3.80
MAX	14	112	236	310	1990	2400	2650	7380	1330	360	12	8.8
MIN	5.3	6.3	2.4	82	77	79	79	87	14	5.8	2.2	1.9
IN.	.02	.04	.09	.37	1.05	.97	.96	2.36	.36	.08	.02	.01

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

	193	191	173	190	345	462	510	376	422	268	123	187
MEAN	193	191	173	190	345	462	510	376	422	268	123	187
MAX	1496	1347	1521	1679	1346	2336	3171	2149	3148	3131	2149	1966
(WY)	1987	1929	1983	1974	1937	1979	1973	1973	1947	1982	1970	1970
MIN	.013	1.06	.73	.14	2.42	7.91	7.15	1.71	.070	.000	.000	.51
(WY)	1957	1957	1957	1940	1989	1956	1956	1934	1934	1934	1934	1953

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	253	211	286
HIGHEST ANNUAL MEAN			830
LOWEST ANNUAL MEAN			18.0
HIGHEST DAILY MEAN	7570	Jun 15	17900
LOWEST DAILY MEAN	2.4	Dec 24	.00
INSTANTANEOUS PEAK FLOW	8430	Jun 15	20700
INSTANTANEOUS PEAK STAGE	23.29	Jun 15	33.03
INSTANTANEOUS LOW FLOW	2.3	Dec 22-24	.00
ANNUAL SEVEN-DAY MINIMUM	3.6	Dec 22	.00
ANNUAL RUNOFF (INCHES)	7.59		8.60
10 PERCENT EXCEEDS	474		551
50 PERCENT EXCEEDS	27		43
90 PERCENT EXCEEDS	7.1		3.8

## FABIUS RIVER BASIN

05498000 MIDDLE FABIAN RIVER NEAR MONTICELLO, MO

LOCATION.--Lat 40°05'37", long 91°44'08", in SE ¼ 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, 8.0 mi downstream from Radish Branch and 17 mi upstream from mouth.

DRAINAGE AREA.--393 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	6.6	11	112	43	35	125	76	221	18	3.8	1.5
2	4.7	7.3	8.5	108	97	390	102	63	499	18	4.1	4.3
3	3.7	7.7	167	103	474	874	86	365	316	16	4.0	8.0
4	4.0	13	97	69	1400	385	78	1320	275	15	3.4	7.5
5	3.4	18	32	61	2000	188	71	6210	951	14	3.5	5.3
6	2.9	17	20	51	1360	116	67	5530	426	12	6.2	4.0
7	3.2	19	17	43	764	96	63	5200	159	11	4.3	3.3
8	3.4	15	15	36	450	81	62	2050	94	10	5.5	3.0
9	4.6	18	14	34	309	70	56	447	66	10	5.9	3.0
10	6.1	23	13	34	231	59	48	290	52	14	5.4	2.7
11	5.8	19	11	32	191	50	48	219	42	304	4.8	2.3
12	5.1	16	11	29	169	58	52	175	37	1170	4.1	2.0
13	4.5	14	10	29	102	109	102	145	34	281	3.6	1.7
14	3.7	12	9.7	28	84	128	466	121	32	96	3.1	1.6
15	3.1	13	11	36	62	148	534	665	29	37	2.8	5.7
16	3.2	12	9.7	67	50	109	325	1500	31	24	2.4	9.4
17	3.1	11	10	71	51	179	175	380	30	18	2.6	2.6
18	2.0	10	11	57	120	319	154	175	25	15	2.8	1.4
19	1.0	9.0	9.8	68	170	502	1110	301	22	12	2.7	.97
20	2.5	7.9	9.5	329	226	232	2770	238	21	9.9	2.6	.84
21	3.3	9.5	8.6	278	186	156	1350	134	18	8.2	3.2	.83
22	3.1	8.5	7.6	136	104	128	516	124	19	7.1	3.6	.90
23	3.8	9.0	7.1	194	73	138	296	91	19	10	3.5	.88
24	3.8	9.0	6.4	161	56	141	204	179	20	10	3.1	.90
25	3.6	9.0	6.4	102	43	159	154	455	26	7.9	2.6	.90
26	3.8	9.0	6.1	81	36	105	122	444	28	6.3	2.1	.90
27	3.6	35	5.9	65	31	642	252	332	21	5.2	1.8	.87
28	4.0	103	5.8	57	30	1830	154	174	19	4.1	1.6	1.2
29	4.1	29	118	51	---	862	118	113	19	4.5	1.7	1.5
30	4.8	16	208	46	---	275	91	840	18	4.5	1.6	1.2
31	5.7	---	186	45	---	165	---	616	---	3.8	1.7	---
MEAN	3.92	16.8	34.3	84.3	318	282	325	935	119	70.2	3.36	2.71
MAX	7.9	103	208	329	2000	1830	2770	6210	951	1170	6.2	9.4
MIN	1.0	6.6	5.8	28	30	35	48	63	18	3.8	1.6	.83
IN.	.01	.05	.10	.25	.84	.83	.92	2.74	.34	.21	.01	.03

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

MEAN	174	162	160	200	319	470	477	372	320	272	109	157
MAX	1368	1481	1418	1179	1359	1521	2719	1679	2582	2149	1758	1815
(WY)	1987	1986	1983	1969	1969	1979	1973	1973	1947	1981	1970	1970
MIN	.000	.000	.11	.31	1.23	6.32	3.83	1.48	1.04	.78	.56	.087
(WY)	1954	1954	1957	1957	1957	1957	1956	1989	1956	1988	1988	1953

### SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	190		182		266	
HIGHEST ANNUAL MEAN					749	1973
LOWEST ANNUAL MEAN					18.7	1989
HIGHEST DAILY MEAN	3740	Mar 15	6210	May 5	15100	Apr 23 1973
LOWEST DAILY MEAN	1.0	Oct 19	.83	Sep 21	.00	Several Years
INSTANTANEOUS PEAK FLOW	5010	Mar 15	6680	May 5	17700	Apr 23 1973
INSTANTANEOUS PEAK STAGE	16.94	Mar 15	19.03	May 5	27.14	Apr 23 1973
INSTANTANEOUS LOW FLOW	.40	Nov 10	.70	Sep 26-27	.00	Several Years
ANNUAL SEVEN-DAY MINIMUM	2.2	Sep 11	.88	Sep 20	.00	Several Years
ANNUAL RUNOFF (INCHES)	6.56		6.30		9.18	
10 PERCENT EXCEEDS	359		371		560	
50 PERCENT EXCEEDS	15		28		37	
90 PERCENT EXCEEDS	3.3		2.9		2.3	



## FABIUS RIVER BASIN

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 mi<sup>2</sup>.

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 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 1928 reached a stage of 18.49 ft, from floodmarks, at present site and datum.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	2.9	75	406	103	65	189	174	820	42	16	5.3
2	3.3	3.5	56	456	530	242	150	156	907	39	19	5.4
3	4.2	3.5	1220	467	1550	635	125	1520	857	37	22	8.5
4	5.3	7.7	627	336	2650	507	112	4540	350	35	21	35
5	5.5	39	235	275	2860	328	104	6990	1240	33	21	21
6	4.4	33	134	202	1260	210	96	7660	1980	31	28	11
7	5.6	32	93	139	686	159	90	8270	490	29	30	8.3
8	7.1	26	69	98	424	130	86	4650	242	28	31	6.6
9	7.6	22	55	78	289	110	84	1070	168	28	32	6.0
10	10	17	48	71	246	96	80	507	128	43	30	5.0
11	11	13	42	66	188	84	76	361	105	516	22	4.6
12	9.6	11	38	58	150	124	75	278	89	2000	15	3.9
13	8.9	9.9	35	52	152	828	83	231	79	2310	9.5	3.6
14	7.5	9.1	32	46	137	369	133	198	71	821	7.7	3.3
15	6.5	8.6	34	101	125	256	670	4240	71	288	7.2	3.4
16	5.5	8.2	31	658	114	225	508	2340	88	167	6.4	4.9
17	5.7	8.1	33	937	101	460	301	2740	74	113	7.8	5.5
18	4.9	8.2	35	174	457	1240	213	797	72	83	7.9	5.2
19	5.4	8.2	32	155	340	663	1570	371	61	66	7.3	12
20	4.7	8.2	31	2050	225	505	3050	251	58	52	6.6	9.1
21	3.8	9.0	29	2300	177	306	2080	195	57	45	6.5	6.9
22	3.3	9.7	26	1940	179	221	864	166	73	43	5.8	5.7
23	3.3	9.6	28	1080	146	183	506	187	137	42	4.8	5.0
24	3.1	9.1	21	902	120	170	348	1060	123	51	4.2	4.3
25	3.1	8.7	23	780	99	177	260	4020	77	65	4.0	3.8
26	3.2	8.6	41	575	85	142	210	2920	61	66	3.8	3.2
27	2.9	965	56	389	72	124	236	1220	57	50	3.7	2.9
28	2.4	850	69	239	66	1480	364	471	53	38	3.5	2.8
29	2.4	237	111	152	---	1410	271	389	48	31	3.6	2.7
30	2.5	120	240	125	---	463	196	2260	45	25	3.6	2.4
31	2.6	---	336	109	---	264	---	3090	---	19	3.9	---
MEAN	5.13	83.5	127	497	483	393	438	2043	289	233	12.7	6.91
MAX	11	965	1220	2300	2860	1480	3050	8270	1980	2310	32	35
MIN	2.4	2.9	21	46	66	65	75	156	45	19	3.5	2.4
IN.	.01	.15	.24	.92	.81	.73	.79	3.80	.52	.43	.02	.01

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

	MEAN	274	267	245	285	500	710	729	639	503	348	166	194
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	.000	.000	1.52	2.12	4.78	15.0	13.4	7.56	5.68	.71	.000	.39	
(WY)	1957	1957	1957	1954	1989	1956	1989	1989	1989	1977	1988	1936	1953

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	355	385	396
HIGHEST ANNUAL MEAN			1105
LOWEST ANNUAL MEAN			27.4
HIGHEST DAILY MEAN	8580	Mar 15	18800
LOWEST DAILY MEAN	2.4	Oct 28-29	.00
INSTANTANEOUS PEAK FLOW	9880	Jun 8	19700
INSTANTANEOUS PEAK STAGE	12.85	Jun 8	19.5
INSTANTANEOUS LOW FLOW	2.2	Sep 17-18	.00
ANNUAL SEVEN-DAY MINIMUM	2.7	Oct 26	.00
ANNUAL RUNOFF, (INCHES)	7.77		8.68
10 PERCENT EXCEEDS	752		950
50 PERCENT EXCEEDS	33		57
90 PERCENT EXCEEDS	5.0		4.0

## 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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. 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.--Estimated daily discharges: Jan. 2-7 and 22-27. 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.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	41	95	177	96	70	80	175	457	21	16	5.0
2	6.5	43	86	133	260	222	73	164	348	19	16	5.2
3	6.5	48	1390	112	937	292	70	4110	158	18	15	42
4	7.5	58	421	97	808	188	70	4080	127	15	14	65
5	9.3	86	191	88	666	134	67	7110	114	14	12	34
6	7.5	101	128	79	499	112	63	2270	172	13	27	17
7	6.2	97	104	73	297	96	59	959	112	11	20	11
8	12	83	90	69	202	85	57	364	90	8.3	15	7.9
9	20	78	83	66	166	78	55	249	79	9.8	21	6.8
10	29	74	77	63	162	72	54	193	71	495	22	6.2
11	35	72	72	63	140	70	52	167	65	3350	16	5.4
12	43	69	70	62	118	123	55	150	60	6300	14	4.8
13	39	67	67	60	121	651	87	134	57	498	11	5.6
14	37	66	65	61	108	276	159	123	50	206	11	5.1
15	36	64	68	96	71	195	842	15600	49	136	12	4.3
16	38	63	68	389	90	158	306	1920	77	105	12	5.1
17	40	62	72	371	85	1010	175	1120	76	86	15	62
18	47	62	72	224	578	1040	154	574	55	74	11	38
19	52	62	72	267	343	384	1370	328	44	64	11	28
20	49	60	70	890	170	231	1150	213	39	58	11	19
21	47	61	67	338	133	173	643	172	35	52	10	15
22	50	63	63	230	110	150	329	150	114	43	8.9	24
23	49	63	58	187	96	130	210	171	168	36	7.9	21
24	46	67	54	160	87	113	160	1260	85	33	7.2	20
25	45	65	52	140	80	103	136	7530	61	33	6.2	20
26	44	65	50	125	74	98	122	2130	44	29	5.4	24
27	44	516	49	114	70	93	346	931	38	26	4.8	23
28	44	807	49	104	68	85	270	305	31	22	4.8	21
29	44	194	306	103	---	156	173	418	26	21	5.4	19
30	39	121	307	103	---	112	135	354	24	21	5.8	21
31	40	---	143	99	---	89	---	487	---	21	5.5	---
MEAN	32.9	113	147	166	237	219	251	1739	97.5	382	12.1	19.5
MAX	52	807	1390	890	937	1040	1370	15600	457	6300	27	65
MIN	6.2	41	49	60	68	70	52	123	24	8.3	4.8	4.3
IN.	.10	.34	.45	.51	.66	.68	.75	5.38	.29	1.18	.04	.06

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

MEAN	163	171	171	180	312	458	464	444	329	235	104	121
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	.000	.000	.23	.66	.92	6.54	31.7	15.5	4.77	.52	.000	.17
(WY)	1957	1957	1957	1954	1954	1956	1936	1989	1936	1936	1936	1940

## BEAR CREEK BASIN

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 mi<sup>2</sup>.

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; Mar. 26, 1948 to Sept. 30, 1953, water-stage recorder, at datum 2.00 feet higher; 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: Jan. 21-31 and Feb. 15-16. Records good except for estimated daily discharges and discharges above 80 ft<sup>3</sup>/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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	1.0	2.7	18	3.5	8.2	6.3	16	13	1.9	2.2	4.4
2	.63	.96	16	6.5	40	27	6.3	12	11	2.2	1.8	7.3
3	1.7	.83	115	4.8	47	25	6.1	75	10	1.7	1.6	15
4	3.6	2.8	24	3.8	114	21	6.6	62	9.8	1.8	1.6	51
5	1.2	5.6	9.3	4.5	91	11	6.0	84	8.8	1.7	1.6	14
6	.73	5.5	7.0	4.5	23	9.5	5.9	268	8.2	1.5	10	3.0
7	.85	3.6	5.9	4.0	12	7.5	5.9	420	7.0	1.2	3.4	2.3
8	1.1	2.1	5.3	4.0	11	6.7	5.9	227	6.8	1.1	2.3	2.2
9	2.3	2.0	4.6	4.0	10	6.3	5.9	26	6.3	3.1	18	2.0
10	2.9	1.8	4.1	3.7	12	5.9	5.3	20	6.2	11	4.7	1.8
11	2.0	1.7	4.0	4.2	3.8	5.9	5.1	17	5.9	179	2.5	1.4
12	1.7	1.6	3.8	4.1	4.5	27	5.5	15	5.8	235	2.0	1.5
13	1.7	.91	3.6	3.7	9.3	89	17	14	5.5	59	17	1.3
14	1.4	.58	3.7	7.9	5.9	33	38	51	5.4	57	46	1.2
15	.91	.44	6.6	25	4.5	21	182	239	4.9	304	5.4	2.1
16	.44	3.6	5.3	32	3.9	16	115	169	5.3	49	3.2	2.4
17	2.1	1.2	5.4	14	3.7	43	21	335	4.6	7.8	2.9	1.6
18	.98	1.1	5.9	3.9	12	42	18	256	4.1	6.6	2.4	1.6
19	.88	1.4	5.2	24	12	39	49	244	4.0	5.9	2.2	1.5
20	.92	1.4	4.6	24	5.6	38	58	326	3.9	5.1	1.9	1.3
21	.92	1.7	4.1	8.0	7.5	37	55	375	3.7	4.3	1.8	1.4
22	.92	1.6	3.3	6.8	7.1	36	53	187	4.1	3.9	1.7	1.5
23	1.1	1.5	2.6	6.2	6.3	15	42	253	3.6	3.5	1.5	1.5
24	.96	1.4	2.5	5.4	6.1	10	15	76	3.7	3.3	1.4	1.4
25	.92	1.4	2.4	4.8	5.6	9.3	13	83	3.4	3.3	1.3	1.4
26	.96	1.6	2.4	4.3	5.1	9.1	12	243	2.9	3.0	1.2	1.1
27	.96	8.5	2.4	3.9	5.2	8.6	60	276	2.7	2.8	1.3	1.3
28	.85	21	3.1	3.6	5.3	7.0	29	114	2.6	2.9	1.1	1.1
29	.88	5.4	50	3.3	---	6.8	16	20	2.4	2.6	1.1	1.1
30	.92	3.1	85	3.2	---	6.6	12	21	2.1	2.4	1.3	.93
31	.92	---	88	3.1	---	6.6	---	15	---	2.3	1.9	---
MEAN	1.26	2.91	15.7	8.17	17.0	20.5	29.2	146	5.59	31.3	4.78	4.39
MAX	3.6	21	115	32	114	89	182	420	13	304	46	51
MIN	.44	.44	2.4	3.1	3.5	5.9	5.1	12	2.1	1.1	1.1	.93
IN.	.05	.10	.59	.30	.57	.76	1.05	5.45	.20	1.16	.18	.16

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

	MEAN	12.5	14.2	15.1	13.0	26.3	31.3	33.4	27.6	23.4	24.1	13.7	11.8
MAX	116	225	155	84.0	124	125	193	146	158	193	131	190	
(WY)	1970	1986	1983	1969	1985	1973	1973	1991	1939	1981	1970	1970	
MIN	.000	.000	.11	.27	.85	.88	1.16	1.51	.58	.000	.003	.006	
(WY)	1957	1957	1964	1977	1964	1956	1956	1956	1963	1954	1953	1988	

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	24.8	24.1	20.5
HIGHEST ANNUAL MEAN			57.5
LOWEST ANNUAL MEAN			2.47
HIGHEST DAILY MEAN	526	420	2010
LOWEST DAILY MEAN	.44	.44	.00
INSTANTANEOUS PEAK FLOW	735	1170	6500
INSTANTANEOUS PEAK STAGE	6.74	7.79	14.05
INSTANTANEOUS LOW FLOW	.27	.27	.00
ANNUAL SEVEN-DAY MINIMUM	.68	.91	.00
ANNUAL RUNOFF (INCHES)	10.87	10.57	8.98
10 PERCENT EXCEEDS	56	54	35
50 PERCENT EXCEEDS	4.8	4.8	3.3
90 PERCENT EXCEEDS	.92	1.2	.24

## 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 mi<sup>2</sup>.

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: Dec. 26 to Feb. 1 and Feb. 5-6. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	2.1	13	112	30	27	68	31	1250	16	12	5.0
2	4.8	1.8	9.6	68	375	410	53	21	849	15	11	11
3	5.7	1.9	376	50	1270	426	45	1720	258	14	11	9.4
4	5.2	7.6	91	40	2280	185	40	2030	2030	14	10	21
5	3.9	16	60	30	855	102	35	7940	1430	15	10	22
6	3.1	14	43	25	336	79	30	4980	292	16	11	18
7	5.2	17	25	20	182	60	27	1010	129	16	12	10
8	6.1	12	15	11	119	45	32	341	79	14	22	5.4
9	6.3	12	10	9.0	84	35	23	252	56	65	15	5.3
10	7.7	9.9	10	7.2	78	27	18	195	50	664	12	5.9
11	6.2	7.7	7.8	7.0	57	24	22	160	41	3340	11	4.0
12	7.5	8.9	6.4	6.0	46	32	49	133	39	4030	11	8.4
13	9.2	10	4.8	6.5	50	162	352	252	35	822	9.7	6.5
14	8.7	6.6	4.2	8.0	37	140	551	1100	40	234	9.1	5.0
15	6.7	5.3	7.6	150	51	87	242	960	36	116	7.6	7.4
16	5.6	4.5	5.2	400	50	64	134	833	246	73	5.7	10
17	5.2	3.8	3.0	250	36	212	79	217	67	52	6.8	3.7
18	5.2	3.5	3.8	175	51	547	326	102	48	43	5.3	4.0
19	5.0	3.5	3.3	225	134	274	2740	69	32	35	5.1	3.9
20	4.1	4.0	3.5	600	105	145	1300	63	27	29	4.3	2.2
21	3.6	4.3	2.7	325	74	103	580	66	25	25	4.5	1.9
22	3.2	3.9	2.7	300	51	92	281	283	41	23	8.6	1.9
23	3.0	3.5	2.6	175	39	133	168	77	29	54	6.2	2.3
24	3.1	3.6	3.3	100	32	81	105	787	26	78	5.0	2.0
25	3.0	4.4	3.1	50	24	59	74	2000	24	47	4.2	1.5
26	2.8	4.7	2.8	36	20	55	61	812	23	28	3.7	1.2
27	2.9	85	2.5	34	19	1820	98	338	22	21	3.2	1.0
28	2.9	40	22	30	19	1310	87	137	21	18	3.2	1.0
29	2.8	21	105	25	---	272	70	76	20	16	3.1	.93
30	2.7	22	240	20	---	137	41	369	18	14	3.1	.82
31	2.7	---	230	15	---	89	---	127	---	13	4.7	---
MEAN	4.82	11.5	42.5	107	232	233	258	886	243	321	8.10	6.09
MAX	9.2	85	376	600	2280	1820	2740	7940	2030	4030	22	22
MIN	2.7	1.8	2.5	6.0	19	24	18	21	18	13	3.1	.82
IN.	.02	.04	.13	.34	.66	.74	.79	2.80	.74	1.02	.03	.02

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

	MEAN	207	287	221	87.9	329	460	401	476	282	259	82.6	102
MAX	1201	1426	1319	406	1599	1177	2036	1316	1074	1688	441	589	
(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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	200	197	266
HIGHEST ANNUAL MEAN			553
LOWEST ANNUAL MEAN			35.4
HIGHEST DAILY MEAN	7930	7940	18800
LOWEST DAILY MEAN	1.7	.82	.18
INSTANTANEOUS PEAK FLOW	9480	9870	26900
INSTANTANEOUS PEAK STAGE	17.10	17.24	19.7
INSTANTANEOUS LOW FLOW	1.0	.75	.18
ANNUAL SEVEN-DAY MINIMUM	2.4	1.2	.55
ANNUAL RUNOFF (INCHES)	7.43	7.31	9.91
10 PERCENT EXCEEDS	344	359	467
50 PERCENT EXCEEDS	15	25	27
90 PERCENT EXCEEDS	3.1	3.3	3.4

## 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 07110005, on right bank near downstream end of bridge on State Highway 15, 3.0 mi north of Shelbyna, 15.0 mi upstream from Black Creek and at mile 122.3.

DRAINAGE AREA.--481 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1930 to February 1934, March 1934 to September 1972. 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 and crest-stage gage 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 at 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. 1, 1972 to Sept. 30, 1979, gage-height records collected by St. Louis U.S. Army Corps of Engineers at site 100 ft downstream; Oct. 1, 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 good except those below 50 ft<sup>3</sup>/s, which are 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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	40	22	144	19	32	88	88	1120	13	16	6.5
2	8.8	43	16	103	186	379	64	70	1200	13	15	7.5
3	14	39	634	80	850	773	59	1160	450	11	15	60
4	29	60	254	62	1630	347	57	3720	1140	11	13	64
5	35	107	100	45	1940	187	55	4430	2340	9.7	11	23
6	28	111	62	23	977	131	51	7360	554	9.7	14	18
7	36	85	37	17	443	93	45	5010	206	10	20	17
8	45	104	27	13	267	66	46	730	120	9.7	20	11
9	54	98	21	12	192	51	42	386	81	69	21	8.7
10	59	100	17	11	165	40	35	271	59	2080	14	26
11	67	93	15	11	128	36	32	213	48	4420	11	16
12	64	67	13	9.8	91	42	56	157	42	6490	9.7	8.3
13	64	69	12	9.8	88	159	284	157	36	4940	10	13
14	77	102	10	11	75	246	775	1540	31	863	17	12
15	74	76	13	33	24	152	455	1590	27	369	9.9	32
16	64	51	15	346	36	100	260	1710	208	225	8.9	399
17	64	30	15	283	37	255	166	520	96	142	11	53
18	70	17	14	185	164	808	162	226	50	68	10	22
19	65	8.2	15	153	142	535	2700	129	30	40	8.3	12
20	64	4.2	14	778	197	260	2750	97	21	31	7.1	15
21	64	6.6	11	603	125	184	982	79	18	26	7.0	10
22	58	8.1	5.5	336	81	134	504	293	19	21	7.2	8.8
23	52	8.0	6.1	192	53	172	299	153	25	23	8.6	9.2
24	49	6.9	4.7	121	42	141	207	117	16	64	8.2	8.7
25	48	6.6	5.1	63	34	84	147	3010	15	63	7.5	9.6
26	48	8.7	5.3	41	28	65	114	1270	14	32	7.5	8.0
27	46	284	4.8	41	26	1020	171	633	15	22	7.4	7.7
28	41	255	5.7	32	26	2250	198	267	12	18	6.8	8.5
29	45	34	440	25	---	509	169	151	12	18	5.9	9.0
30	49	27	203	20	---	205	111	352	12	16	6.9	18
31	48	---	93	18	---	125	---	523	---	17	6.4	---
MEAN	49.6	65.0	68.1	123	288	309	369	1175	267	650	11.0	30.7
MAX	77	284	634	778	1940	2250	2750	7360	2340	6490	21	399
MIN	6.8	4.2	4.7	9.8	19	32	32	70	12	9.7	5.9	6.5
IN.	.12	.15	.16	.30	.62	.74	.86	2.82	.62	1.56	.03	.07

## STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	139	135	130	199	344	448	474	404	454	248	114	152
MEAN	139	135	130	199	344	448	474	404	454	248	114	152
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	.000	.000	.000	.013	1.80	6.41	7.24	14.7	2.93	.000	.000	.000
(WY)	1953	1954	1954	1954	1934	1956	1989	1941	1988	1934	1936	1953

## SUMMARY STATISTICS\*\*

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	304	285	272
HIGHEST ANNUAL MEAN			656
LOWEST ANNUAL MEAN			36.2
HIGHEST DAILY MEAN	8570	7360	18600
LOWEST DAILY MEAN	2.2	4.2	.00
INSTANTANEOUS PEAK FLOW	9460	8110	23000
INSTANTANEOUS PEAK STAGE	19.49	18.38	27.4
INSTANTANEOUS LOW FLOW	.97	3.6	.00
ANNUAL SEVEN-DAY MINIMUM	2.7	5.3	.00
ANNUAL RUNOFF (INCHES)	8.58	8.04	7.69
10 PERCENT EXCEEDS	615	574	649
50 PERCENT EXCEEDS	37	49	27
90 PERCENT EXCEEDS	7.0	8.7	1.4

\*\*Statistics based only on years with complete daily discharge record.



## SALT RIVER BASIN

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

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: March 25, 1988 to current year.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,550 mg/L, Mar. 24, 1991; minimum daily mean, 2 mg/L, Nov. 25, 1989.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 23,100 tons, June 8, 1990; minimum daily, 0.00 tons, several days.

## EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,740 mg/L, July 10; minimum daily mean, 3 mg/L, Nov. 20 and Dec. 21.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 16,100 tons, May 5; minimum daily, 0.03 ton, Nov. 20.

## 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										
06...	1530	7900	49	52	57	70	88	89	93	100

## PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	TIME	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)
MAY									
06...	1530	1	2	12	95	98	99	99	100

## SALT RIVER BASIN

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

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	6.8	34	.62	40	20	2.2	22	136	8.0
2	8.8	33	.77	43	18	2.1	16	---	9.2
3	14	33	1.2	39	13	1.4	634	795	1470
4	29	28	2.2	60	---	2.6	254	308	245
5	35	36	3.4	107	18	5.3	100	92	26
6	28	36	2.8	111	7	2.2	62	69	12
7	36	40	3.8	85	5	1.1	37	68	6.7
8	45	48	5.8	104	12	3.4	27	52	3.8
9	54	33	4.7	98	31	8.2	21	38	2.1
10	59	22	3.5	100	23	6.1	17	39	1.8
11	67	16	2.9	93	16	4.0	15	31	1.3
12	64	16	2.7	67	15	2.7	13	28	1.0
13	64	14	2.5	69	12	2.3	12	21	.68
14	77	14	2.9	102	24	6.8	10	32	.89
15	74	18	3.7	76	12	2.6	13	20	.69
16	64	19	3.3	51	12	1.7	15	17	.69
17	64	16	2.8	30	17	1.3	15	14	.59
18	70	23	4.4	17	8	.38	14	8	.30
19	65	21	3.6	8.2	6	.13	15	8	.31
20	64	14	2.4	4.2	3	.03	14	---	.21
21	64	11	2.0	6.6	7	.12	11	3	.10
22	58	14	2.2	8.1	12	.27	5.5	---	.05
23	52	18	2.6	8.0	17	.37	6.1	---	.06
24	49	20	2.6	6.9	24	.44	4.7	---	.05
25	48	21	2.7	6.6	27	.48	5.1	---	.05
26	48	21	2.7	8.7	20	.46	5.3	---	.06
27	46	21	2.6	284	444	532	4.8	---	.05
28	41	20	2.2	255	554	449	5.7	---	.07
29	45	12	1.5	34	279	26	440	---	5.9
30	49	15	2.0	27	193	14	203	---	2.8
31	48	16	2.1	---	---	---	93	---	1.4
TOTAL	1536.6	---	85.19	1949.3	---	1079.68	2110.2	---	1801.85
JANUARY			FEBRUARY			MARCH			
1	144	---	2.3	19	---	2.1	32	25	2.1
2	103	---	1.7	186	---	22	379	800	818
3	80	---	1.4	850	---	106	773	1200	2500
4	62	---	1.2	1630	---	217	347	403	406
5	45	---	.91	1940	---	273	187	147	76
6	23	---	.50	977	---	145	131	84	30
7	17	---	.39	443	---	70	93	55	14
8	13	---	.33	267	---	45	66	44	7.9
9	12	---	.32	192	---	35	51	36	5.0
10	11	---	.31	165	---	32	40	27	2.9
11	11	---	.32	128	---	26	36	24	2.3
12	9.8	---	.31	91	---	20	42	31	3.7
13	9.8	---	.33	88	---	20	159	185	105
14	11	---	.38	75	---	18	246	330	229
15	33	---	1.3	24	---	6.3	152	114	48
16	346	---	14	36	---	10	100	76	21
17	283	---	12	37	---	11	255	444	571
18	185	---	8.4	164	---	52	808	1000	2140
19	153	---	7.5	142	---	48	535	398	585
20	778	---	41	197	136	72	260	324	229
21	603	---	33	125	149	50	184	---	93
22	336	---	20	81	---	29	134	101	37
23	192	---	12	53	111	16	172	92	42
24	121	---	8.0	42	67	7.7	141	2550	986
25	63	---	4.4	34	37	3.4	84	261	62
26	41	---	3.1	28	30	2.2	65	88	16
27	41	---	3.3	26	33	2.3	1020	1200	3300
28	32	---	2.7	26	35	2.5	2250	2200	13400
29	25	---	2.3	---	---	---	509	809	1270
30	20	---	1.9	---	---	---	205	259	149
31	18	---	1.9	---	---	---	125	---	48
TOTAL	3821.6	---	187.50	8066	---	1343.5	9581	---	27198.9

## SALT RIVER BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	88	99	24	88	---	11	1120	2260	10700
2	64	75	13	70	39	7.4	1200	1970	6950
3	59	59	9.4	1160	836	5170	450	515	676
4	57	50	7.7	3720	963	9730	1140	2300	5710
5	55	54	8.0	4430	1350	16100	2340	1320	8430
6	51	50	6.8	7360	603	11700	554	587	1010
7	45	45	5.5	5010	366	4840	206	194	112
8	46	51	6.4	730	200	413	120	114	37
9	42	46	5.2	386	139	146	81	79	18
10	35	30	2.8	271	106	78	59	64	10
11	32	36	3.1	213	84	49	48	64	8.2
12	56	36	5.5	157	67	29	42	58	6.7
13	284	323	504	157	62	31	36	52	5.1
14	775	1070	2250	1540	---	4400	31	---	4.0
15	455	476	629	1590	---	4970	27	305	23
16	260	177	128	1710	1160	5160	208	991	590
17	166	102	46	520	1690	2390	96	478	136
18	162	---	194	226	233	161	50	246	34
19	2700	1660	11700	129	38	14	30	---	10
20	2750	1060	8180	97	23	6.0	21	114	6.5
21	982	413	1110	79	38	8.1	18	94	4.6
22	504	263	362	293	351	322	19	83	4.1
23	299	---	137	153	220	93	25	38	2.7
24	207	---	64	117	144	46	16	18	.76
25	147	---	33	3010	346	2830	15	26	1.0
26	114	---	21	1270	786	2740	14	26	.95
27	171	---	45	633	437	777	15	27	1.1
28	198	---	54	267	180	137	12	38	1.2
29	169	---	34	151	67	28	12	43	1.4
30	111	---	17	352	356	621	12	31	1.0
31	---	---	---	523	626	1070	---	---	---
TOTAL	11084	---	25605.4	36412	---	74077.5	8017	---	34495.31
JULY			AUGUST			SEPTEMBER			
1	13	26	.90	16	49	2.1	6.5	26	.46
2	13	29	1.0	15	41	1.7	7.5	24	.48
3	11	33	1.0	15	30	1.2	60	32	8.7
4	11	25	.74	13	22	.76	64	168	20
5	9.7	44	1.2	11	25	.71	23	133	7.8
6	9.7	39	1.0	14	21	.79	18	57	2.9
7	10	24	.65	20	25	1.5	17	45	2.0
8	9.7	20	.52	20	71	3.7	11	31	.90
9	69	2260	787	21	46	2.6	8.7	29	.67
10	2080	2740	14400	14	93	3.5	26	33	2.3
11	4420	1460	14100	11	30	.86	16	50	1.9
12	6490	474	8300	9.7	---	.48	8.3	116	2.6
13	4940	419	5590	10	---	.54	13	91	3.2
14	863	298	731	17	---	.92	12	125	3.9
15	369	135	139	9.9	---	.56	32	138	22
16	225	77	47	8.9	---	.53	399	326	388
17	142	49	19	11	---	.68	53	137	21
18	68	43	7.8	10	25	.68	22	87	5.3
19	40	51	5.5	8.3	54	1.2	12	63	2.1
20	31	48	4.0	7.1	55	1.1	15	62	2.6
21	26	37	2.6	7.0	34	.61	10	50	1.4
22	21	30	1.8	7.2	30	.58	8.8	48	1.1
23	23	---	1.8	8.6	47	1.1	9.2	44	1.1
24	64	48	8.7	8.2	30	.67	8.7	42	.99
25	63	98	17	7.5	20	.40	9.6	39	1.0
26	32	43	3.9	7.5	---	.49	8.0	43	.94
27	22	30	1.8	7.4	20	.39	7.7	42	.87
28	18	22	1.1	6.8	14	.25	8.5	30	.70
29	18	15	.72	5.9	17	.27	9.0	25	.58
30	16	13	.54	6.9	21	.39	18	---	.50
31	17	34	1.6	6.4	26	.45	---	---	---
TOTAL	20144.1	---	44178.87	341.3	---	31.71	921.5	---	507.99

## SALT RIVER BASIN

05503800 CROOKED CREEK NEAR PARIS, MO

LOCATION.--Lat 39°35'06", long 91°59'36", near NW corner S 1/4 sec.2, T.55 N., R.10 W., Monroe County, Hydrologic Unit 07110005, on right bank downstream from county road bridge, 7.0 mi north of Paris, 1.4 mi north of State Route 15 and at mile 8.9.

DRAINAGE AREA.--80.0 mi<sup>2</sup>.

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: Dec. 8-28. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.03	8.1	31	4.7	6.2	3.0	12	34	.01	.75	.31
2	.05	.03	5.8	15	87	36	2.8	10	10	.07	.66	.27
3	.09	.03	370	8.5	418	76	2.7	583	4.3	.04	.66	.47
4	.20	.49	164	5.7	243	35	2.7	649	3.0	.03	.61	19
5	.19	16	28	4.9	146	17	2.5	1450	2.3	.05	.52	26
6	.18	11	13	4.4	81	12	2.6	670	1.8	.00	.78	8.7
7	.51	4.3	8.3	3.9	45	9.3	2.5	66	1.3	.00	2.3	3.8
8	.55	2.1	5.0	3.5	31	7.3	2.7	33	.92	.00	2.3	2.0
9	.68	1.5	4.5	3.5	25	6.2	2.6	22	.78	2.2	7.1	1.0
10	.80	1.1	4.0	3.2	23	5.2	2.3	15	.38	485	2.4	13
11	1.4	.93	3.5	3.3	18	4.9	2.2	12	.40	2750	1.3	69
12	1.0	.73	3.2	3.5	14	5.3	2.6	9.9	.37	3460	.79	14
13	.98	.39	3.2	3.3	15	22	11	8.5	.34	777	.72	5.4
14	.75	.21	3.0	5.3	14	25	24	7.5	.39	50	1.1	2.5
15	.62	.19	3.2	68	12	14	51	280	.30	24	.90	1.6
16	.45	.19	3.2	205	9.2	10	21	270	.83	15	.61	220
17	.36	.14	3.2	168	7.6	138	10	86	6.6	11	.54	145
18	.31	.13	3.8	62	25	238	26	46	3.0	8.7	.45	15
19	.19	.10	3.8	89	103	63	657	98	1.3	7.4	.36	6.0
20	.17	.08	3.8	344	37	29	197	24	.69	5.8	.36	2.9
21	.17	.09	3.2	165	20	18	65	17	.43	4.9	.29	1.4
22	.15	.13	2.8	53	13	13	39	12	.48	4.1	.17	.74
23	.13	.13	2.2	28	11	10	23	30	.25	3.3	.18	.40
24	.13	.12	1.9	13	9.2	7.8	15	35	.12	2.8	.20	.18
25	.11	.10	1.8	9.3	7.8	6.5	10	243	.09	2.4	.20	.23
26	.09	.10	1.2	8.1	6.9	5.8	8.7	281	.05	1.9	.19	.39
27	.07	283	1.2	7.8	6.1	5.5	41	48	.07	1.6	.17	.59
28	.06	366	1.2	7.1	5.7	4.5	26	17	.00	1.5	.14	.42
29	.03	44	206	6.1	---	4.1	17	17	.00	1.2	.15	.18
30	.03	13	230	5.4	---	3.8	9.8	7.2	.00	.94	.17	.09
31	.03	---	44	4.7	---	3.4	---	5.0	---	.81	.26	---
MEAN	.34	24.9	36.8	43.3	51.4	27.2	42.8	163	2.48	246	.88	18.7
MAX	1.4	366	370	344	418	238	657	1450	34	3460	7.1	220
MIN	.03	.03	1.2	3.2	4.7	3.4	2.2	5.0	.00	.00	.14	.09
IN.	.00	.35	.53	.62	.67	.39	.60	2.35	.03	3.54	.01	.26

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

	MEAN	35.8	70.3	69.8	22.3	76.9	80.0	61.0	107	72.5	68.8	16.1	23.2
MAX	320	550	247	86.4	359	208	319	362	230	398	48.0	192	
(WY)	1987	1986	1983	1982	1985	1984	1983	1990	1990	1981	1982	1986	
MIN	.000	.000	.000	.000	.000	.066	.16	1.53	.031	.000	.000	.000	
(WY)	1980	1981	1989	1989	1989	1989	1989	1988	1988	1988	1988	1988	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	81.4		55.2		58.5	
HIGHEST ANNUAL MEAN					99.7	1986
LOWEST ANNUAL MEAN					7.38	1989
HIGHEST DAILY MEAN	3340	Jun 8	3460	Jul 12	3870	Oct 3 1986
LOWEST DAILY MEAN	.00	Many Days	.00	Jun 28-30, Jul 6-8	.00	Many Years
INSTANTANEOUS PEAK FLOW	4330	Jun 8	4500	Jul 12	12100	Apr 21 1973
INSTANTANEOUS PEAK STAGE	11.14	Jun 8	10.74	Jul 12	15.53	Apr 21 1973
INSTANTANEOUS LOW FLOW	.00	Many Days	.00	Many Days	.00	Many Years
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 4	.02	Jun 28	.00	Many Years
ANNUAL RUNOFF (INCHES)	13.82		9.37		9.94	
10 PERCENT EXCEEDS	162		83		83	
50 PERCENT EXCEEDS	1.5		3.8		2.9	
90 PERCENT EXCEEDS	.00		.13		.00	

## SALT RIVER BASIN

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 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1986 to current year. Published as "near Santa Fe" October 1969 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: July 15 to Aug. 20. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	36	43	215	25	20	23	58	55	3.4	4.2	4.8
2	31	37	39	100	183	28	21	58	36	3.1	4.2	6.2
3	36	44	1550	58	1190	44	20	1590	36	110	4.1	5.5
4	34	84	866	39	815	58	20	3860	34	35	3.9	8.5
5	43	62	154	30	554	47	20	2190	23	16	3.7	8.6
6	43	30	80	28	346	35	19	1450	18	11	3.6	7.6
7	40	14	55	29	218	29	18	343	15	7.3	3.3	4.5
8	47	9.9	42	26	154	26	18	173	13	5.4	3.7	3.5
9	28	8.2	33	23	129	23	17	115	11	65	3.8	3.2
10	48	6.4	27	20	123	20	16	90	10	2940	24	3.6
11	64	4.9	23	20	118	19	14	76	8.8	2890	15	19
12	60	4.2	21	21	86	63	15	66	8.4	258	7.7	4.3
13	38	4.0	18	20	75	444	32	57	7.8	96	6.5	3.3
14	24	3.7	16	26	122	272	117	78	7.5	54	5.0	3.2
15	17	3.2	17	176	127	134	1600	288	6.9	35	4.3	21
16	12	3.0	17	907	69	88	667	108	6.9	26	4.2	40
17	14	2.8	17	574	47	453	171	134	5.8	20	4.1	36
18	31	2.4	16	212	40	1370	104	115	7.0	15	3.7	28
19	12	2.2	19	234	38	345	715	146	5.9	14	5.7	13
20	11	2.5	17	853	38	173	731	63	5.0	11	4.5	9.0
21	28	2.9	17	397	36	117	289	50	5.0	10	3.5	5.7
22	34	2.9	16	210	31	153	157	40	4.5	9.0	3.2	4.5
23	34	2.7	14	125	28	120	100	38	4.5	8.3	3.0	3.8
24	39	2.6	11	70	25	67	73	473	4.7	7.1	2.8	3.4
25	42	3.4	10	60	23	49	56	1190	4.7	6.2	2.7	3.6
26	39	3.8	8.6	62	21	47	45	511	4.3	6.0	2.8	3.6
27	35	30	7.4	45	20	39	139	444	3.8	5.5	2.5	3.2
28	32	409	7.5	35	19	39	490	199	3.8	5.2	2.2	2.8
29	37	204	170	31	---	32	158	152	3.6	4.7	2.2	2.6
30	39	74	853	29	---	28	79	102	3.7	4.5	2.7	2.4
31	37	---	278	26	---	25	---	72	---	4.3	3.1	---
MEAN	33.9	36.7	144	152	168	142	198	462	12.1	216	4.84	8.95
MAX	64	409	1550	907	1190	1370	1600	3860	55	2940	24	40
MIN	11	2.2	7.4	20	19	19	14	38	3.6	3.1	2.2	2.4
IN.	.17	.18	.71	.75	.75	.70	.95	2.29	.06	1.07	.02	.04

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

	136	125	139	133	211	319	314	299	254	213	53.3	116
MEAN	136	125	139	133	211	319	314	299	254	213	53.3	116
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	.006	.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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	221	132	192
HIGHEST ANNUAL MEAN			509
LOWEST ANNUAL MEAN			10.7
HIGHEST DAILY MEAN	8570	May 17	24000
LOWEST DAILY MEAN	1.2	Sep 17	.00
INSTANTANEOUS PEAK FLOW	12500	May 17	28800
INSTANTANEOUS PEAK STAGE	22.45	May 17	28.24
INSTANTANEOUS LOW FLOW	1.2	Sep 17	.00
ANNUAL SEVEN-DAY MINIMUM	1.5	Sep 5	.00
ANNUAL RUNOFF (INCHES)	12.86		11.22
10 PERCENT EXCEEDS	339		315
50 PERCENT EXCEEDS	28		15
90 PERCENT EXCEEDS	3.8		1.4



## SALT RIVER BASIN

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 1.0 mile upstream from Wabash Railroad bridge, 14.0 mi upstream from Elk Fork Salt River and at mile 106 above mouth of Salt River.

DRAINAGE AREA.--356 mi<sup>2</sup>.

## 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, 1961 adjustment. Prior to Jan. 22, 1940, nonrecording gage at present site; Jan. 1940 to Sept. 1958, a water-stage recorder 1.4 mi downstream; Sept. 1958 to July 1968, 1.5 mi downstream; July 1968 to Apr. 1973, 1.5 mi downstream at datum 8.29 ft lower.

REMARKS.--No estimated daily discharges. Water-discharge records good. City of Paris water intakes are in the same pool as gage. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.00	76	175	47	55	61	107	109	14	6.1	.54
2	4.1	.00	47	129	105	136	42	93	116	21	6.3	.10
3	9.7	.67	723	103	506	653	33	1010	288	40	5.7	5.2
4	7.0	6.8	1230	86	762	407	30	1600	116	11	3.8	241
5	4.0	25	354	64	671	202	29	3050	64	8.8	4.1	80
6	1.8	30	153	48	527	149	29	2530	54	6.3	5.0	20
7	4.9	18	92	38	389	125	29	2170	71	5.0	9.8	8.6
8	4.0	26	62	35	241	99	30	861	61	2.0	54	5.9
9	6.8	18	46	32	185	79	30	257	43	13	675	5.4
10	6.2	11	34	31	167	66	28	194	30	797	138	39
11	6.8	9.7	30	32	129	58	28	175	19	4760	44	324
12	9.7	8.2	25	32	109	60	29	157	15	10400	18	124
13	8.1	5.3	21	34	110	84	100	155	13	7610	11	42
14	7.5	3.1	19	56	104	102	306	137	13	4520	8.3	17
15	7.1	4.9	20	200	46	155	412	591	26	798	21	11
16	7.2	7.5	20	547	78	113	200	545	37	131	15	590
17	6.2	7.3	21	569	65	252	127	410	107	78	8.7	459
18	7.3	4.8	22	377	57	1020	181	222	221	56	7.1	109
19	7.6	2.9	27	280	183	606	1110	142	97	37	6.5	42
20	6.0	2.2	24	519	169	283	1450	79	50	26	5.0	20
21	3.6	3.8	24	571	150	197	690	57	46	21	2.9	13
22	1.8	5.8	24	413	107	152	308	46	46	15	2.2	11
23	.01	5.6	19	231	94	120	198	123	40	13	2.8	9.4
24	.00	5.2	17	150	79	102	144	202	28	11	3.5	8.6
25	.00	8.3	12	99	67	86	110	2010	21	8.7	6.4	9.2
26	.00	10	10	85	58	75	89	1850	28	7.1	2.8	8.6
27	.00	38	9.8	82	51	67	157	688	19	7.0	2.2	8.1
28	.00	1180	17	85	48	158	265	246	17	7.2	2.2	5.7
29	.00	449	290	73	---	577	202	176	17	7.6	2.7	5.1
30	.00	124	497	64	---	214	127	106	17	8.0	4.0	5.0
31	.00	---	275	59	---	94	---	76	---	7.1	1.6	---
MEAN	4.11	67.4	137	171	189	211	219	647	61.0	950	35.0	74.2
MAX	9.7	1180	1230	571	762	1020	1450	3050	288	10400	675	590
MIN	.00	.00	9.8	31	46	55	28	46	13	2.0	1.6	.10
IN.	.01	.21	.44	.55	.55	.68	.69	2.10	.19	3.08	.11	.23

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

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
MEAN	176	171	165	166	273	434	456	369	322	255	97.2	127
MAX	1815	2083	1255	829	1634	1837	3164	1396	1747	2100	1195	1427
(WY)	1987	1986	1983	1946	1985	1973	1973	1981	1947	1981	1958	1961
MIN	.000	.000	.37	1.08	2.61	3.26	13.3	12.6	2.31	.37	1.13	.18
(WY)	1957	1954	1954	1954	1989	1956	1989	1941	1988	1954	1953	1953

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

	299	232	250
ANNUAL MEAN			
HIGHEST ANNUAL MEAN			743
LOWEST ANNUAL MEAN			53.1
HIGHEST DAILY MEAN	6150	May 18	24800
LOWEST DAILY MEAN	.00	Many Days	.00
INSTANTANEOUS PEAK FLOW	7450	Jun 10	45000
INSTANTANEOUS PEAK STAGE	12.46	Jun 10	33.5
INSTANTANEOUS LOW FLOW	.00	Many Days	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 9, Oct 24	.00
ANNUAL RUNOFF (INCHES)	11.41		9.56
10 PERCENT EXCEEDS	738		565
50 PERCENT EXCEEDS	37		30
90 PERCENT EXCEEDS	1.1	4.1	1.8

## SALT RIVER BASIN

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, 2 mg/L, Oct. 23, 1989.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 40,200 tons, Mar. 5, 1985; minimum daily, 0.00 tons, many years.

## EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,400 mg/L, May 5 and 26; minimum daily mean, 2 mg/L, Aug. 1.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 18,100 tons, July 11; minimum daily, 0.00 ton, many 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 06...	1230	2480	78	87	89	95	98	100	100	100

## PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	TIME	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)
MAY 06...	1230	2	3	10	35	71	83	90	94	100

## SALT RIVER BASIN

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

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	.10	48	.01	.00	---	.00	76	252	52
2	4.1	50	.52	.00	---	.00	47	---	28
3	9.7	28	.73	.67	---	.05	723	861	1900
4	7.0	25	.47	6.8	---	1.6	1230	690	2360
5	4.0	24	.25	25	---	19	354	---	386
6	1.8	38	.18	30	---	12	153	193	82
7	4.9	39	.52	18	---	2.6	92	157	39
8	4.0	36	.39	26	---	2.2	62	131	22
9	6.8	40	.73	18	24	1.2	46	116	14
10	6.2	32	.55	11	23	.71	34	112	10
11	6.8	28	.52	9.7	---	.59	30	100	8.1
12	9.7	28	.74	8.2	---	.47	25	88	6.0
13	8.1	33	.72	5.3	---	.28	21	84	4.8
14	7.5	27	.55	3.1	---	.16	19	---	3.9
15	7.1	20	.38	4.9	---	.32	20	---	3.4
16	7.2	28	.55	7.5	---	.93	20	---	3.0
17	6.2	29	.48	7.3	45	.89	21	50	2.8
18	7.3	26	.52	4.8	41	.54	22	---	3.0
19	7.6	25	.51	2.9	23	.18	27	---	3.5
20	6.0	---	.40	2.2	26	.15	24	---	3.0
21	3.6	---	.25	3.8	28	.29	24	---	3.0
22	1.8	---	.15	5.8	17	.26	24	---	3.0
23	.01	---	.00	5.6	---	.21	19	---	2.8
24	.00	---	.00	5.2	15	.22	17	---	2.5
25	.00	---	.00	8.3	---	.59	12	---	2.0
26	.00	---	.00	10	45	1.2	10	---	2.0
27	.00	---	.00	38	95	27	9.8	---	1.8
28	.00	---	.00	1180	---	2360	17	---	2.0
29	.00	---	.00	449	427	551	290	---	110
30	.00	---	.00	124	324	110	497	---	280
31	.00	---	.00	---	---	---	275	---	120
TOTAL	127.51	---	10.12	2021.07	---	3094.64	4240.8	---	5463.6
JANUARY			FEBRUARY			MARCH			
1	175	---	46	47	---	3.0	55	---	46
2	129	---	20	105	---	17	136	63	29
3	103	---	17	506	---	169	653	---	657
4	86	---	16	762	---	497	407	387	432
5	64	---	10	671	---	369	202	260	144
6	48	---	8.0	527	117	166	149	---	67
7	38	---	7.0	389	108	113	125	115	39
8	35	---	6.0	241	69	46	99	137	36
9	32	---	4.0	185	47	23	79	---	25
10	31	---	3.0	167	35	16	66	---	16
11	32	---	3.0	129	33	12	58	---	11
12	32	---	3.0	109	29	8.6	60	59	9.7
13	34	---	4.0	110	22	6.5	84	72	16
14	56	---	10	104	14	3.8	102	62	18
15	200	---	56	46	---	1.4	155	---	48
16	547	---	310	78	---	2.2	113	---	25
17	569	---	330	65	10	1.7	252	---	511
18	377	---	300	57	7	1.1	1020	1330	3700
19	280	---	270	183	20	11	606	---	628
20	519	---	300	169	92	40	283	187	144
21	571	---	330	150	172	70	197	157	84
22	413	---	320	107	140	41	152	115	48
23	231	---	240	94	95	24	120	83	27
24	150	---	32	79	58	12	102	61	17
25	99	---	17	67	35	35	86	60	14
26	85	---	15	58	31	31	75	65	13
27	82	---	14	51	41	41	67	69	12
28	85	---	15	48	44	44	158	104	77
29	73	---	12	---	---	---	577	1370	2180
30	64	---	10	---	---	---	214	823	823
31	59	---	8.0	---	---	---	94	378	378
TOTAL	5299	---	2736.0	5304	---	1805.3	6546	---	10274.7

## SALT RIVER BASIN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	61	267	267	107	70	20	109	---	32
2	42	248	248	93	---	25	116	---	32
3	33	---	265	1010	1030	3190	288	---	554
4	30	282	282	1600	643	2770	116	---	143
5	29	159	159	3050	1400	11700	64	301	52
6	29	122	122	2530	763	5270	54	---	33
7	29	172	172	2170	556	3260	71	152	29
8	30	160	13	861	297	796	61	129	21
9	30	---	9.9	257	172	120	43	102	12
10	28	90	6.9	194	81	43	30	75	6.0
11	28	63	4.8	175	57	27	19	---	2.8
12	29	54	4.2	157	---	20	15	---	1.5
13	100	52	14	155	35	15	13	26	.89
14	306	162	169	137	29	11	13	---	.79
15	412	297	342	591	376	813	26	28	2.0
16	200	157	86	545	655	994	37	---	3.0
17	127	113	39	410	---	385	107	39	11
18	181	136	80	222	---	203	221	65	40
19	1110	457	1520	142	308	126	97	20	5.7
20	1450	527	2100	79	---	7.1	50	8	1.1
21	690	233	468	57	8	1.2	46	---	3.4
22	308	223	184	46	6	.70	46	27	3.4
23	198	180	180	123	50	29	40	10	1.1
24	144	123	123	202	---	47	28	3	.23
25	110	115	115	2010	846	5380	21	28	1.5
26	89	73	73	1850	1400	7670	28	---	1.6
27	157	57	57	688	---	394	19	5	.26
28	265	73	73	246	157	99	17	24	1.1
29	202	65	65	176	344	164	17	20	20
30	127	56	56	106	191	56	17	18	18
31	---	---	---	76	95	20	---	---	---
TOTAL	6574	---	7297.8	20065	---	43656.00	1829	---	1033.37
JULY			AUGUST			SEPTEMBER			
1	14	---	17	6.1	2	.04	.54	13	.02
2	21	16	.95	6.3	3	.05	.10	14	.00
3	40	23	2.9	5.7	5	.07	5.2	136	3.0
4	11	18	.51	3.8	6	.06	241	203	134
5	8.8	16	.38	4.1	6	.06	80	157	157
6	6.3	14	.24	5.0	5	5.0	20	92	92
7	5.0	12	.17	9.8	---	5.5	8.6	70	70
8	2.0	14	.07	54	37	4.1	5.9	64	64
9	13	23	2.2	675	466	928	5.4	80	80
10	797	---	757	138	296	123	39	81	12
11	4760	1370	18100	44	148	18	324	259	231
12	10400	518	14600	18	90	4.5	124	170	59
13	7610	300	6160	11	40	1.2	42	160	18
14	4520	200	2440	8.3	22	.49	17	133	6.1
15	798	150	323	21	55	3.2	11	149	4.6
16	131	44	16	15	---	2.0	590	796	1610
17	78	36	7.7	8.7	---	.93	459	398	578
18	56	34	5.1	7.1	---	.61	109	237	71
19	37	31	3.2	6.5	---	.46	42	144	17
20	26	22	1.6	5.0	---	.29	20	121	121
21	21	12	.69	2.9	---	.14	13	113	113
22	15	7	.28	2.2	---	.08	11	102	102
23	13	5	.18	2.8	---	.09	9.4	---	93
24	11	9	.26	3.5	8	.07	8.6	---	86
25	8.7	11	.26	6.4	23	.38	9.2	79	79
26	7.1	11	.21	2.8	10	.08	8.6	70	70
27	7.0	9	.18	2.2	11	.07	8.1	62	62
28	7.2	7	.14	2.2	11	.07	5.7	45	45
29	7.6	5	.09	2.7	9	.06	5.1	38	38
30	8.0	3	.07	4.0	7	.08	5.0	---	30
31	7.1	3	.05	1.6	9	.04	---	---	---
TOTAL	29446.8	---	42440.43	1085.7	---	1098.72	2227.44	---	4045.72

## 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 mi<sup>2</sup>.

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. 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 ft<sup>3</sup>/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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.1	23	73	18	16	14	40	10	1.3	1.5	2.2
2	1.2	1.2	16	39	296	47	13	44	34	1.3	1.5	1.7
3	1.9	1.2	662	26	874	75	12	1350	104	1.2	1.5	78
4	1.9	6.0	102	18	435	52	13	1140	29	1.3	1.4	697
5	1.5	54	49	17	320	38	12	3350	42	1.2	1.5	52
6	2.6	72	33	16	155	32	16	1450	17	1.1	1.7	16
7	3.7	50	25	15	94	26	14	174	9.5	1.0	7.9	6.7
8	3.8	23	21	14	73	21	13	101	6.6	.97	7.3	3.6
9	6.5	13	19	14	67	18	13	68	5.4	6.3	259	2.0
10	5.3	7.3	16	13	67	16	13	52	4.8	311	59	16
11	7.1	5.5	14	14	61	15	14	44	3.6	3000	14	8.5
12	6.8	5.1	14	15	50	16	13	37	3.2	644	6.4	4.4
13	5.4	2.8	13	15	45	27	115	32	2.9	63	3.8	2.2
14	3.8	2.4	12	55	50	33	104	29	3.1	28	2.2	1.3
15	2.7	2.1	13	644	45	30	167	29	2.4	17	1.6	2.0
16	2.3	1.7	13	1250	34	26	112	30	3.5	11	1.8	26
17	2.2	1.3	14	474	26	188	54	25	10	7.7	2.0	26
18	2.3	1.5	16	210	26	567	78	27	8.8	5.8	1.7	9.4
19	1.0	2.0	16	204	29	159	644	23	5.2	4.7	1.8	4.8
20	1.2	2.2	15	463	27	151	315	16	3.7	4.0	1.5	3.3
21	1.3	2.2	14	459	24	91	151	14	2.9	3.2	1.5	2.0
22	1.1	2.5	11	232	21	63	93	12	2.3	2.6	1.3	1.5
23	1.6	2.7	9.6	53	19	50	61	12	2.1	2.1	1.1	1.3
24	1.9	2.4	8.4	34	18	38	44	140	2.1	1.9	1.2	1.2
25	1.3	2.3	8.1	25	17	31	35	297	1.9	1.8	1.2	1.2
26	1.0	2.3	7.6	22	16	27	30	118	1.7	1.7	1.0	1.0
27	1.2	25	7.3	21	15	26	104	45	1.6	1.9	.97	.91
28	1.3	362	18	20	15	20	168	43	1.6	2.2	1.1	.84
29	1.3	92	336	19	---	16	74	27	1.5	3.1	1.4	.70
30	1.2	38	266	18	---	15	43	18	1.4	1.9	1.4	.79
31	1.2	---	140	16	---	14	---	13	---	1.7	2.0	---
MEAN	2.54	26.2	62.3	145	105	62.7	85.1	284	10.9	133	12.7	32.5
MAX	7.1	362	662	1250	874	567	644	3350	104	3000	259	697
MIN	1.0	1.1	7.3	13	15	14	12	12	1.4	.97	.97	.70
IN.	.01	.15	.36	.84	.55	.36	.47	1.64	.06	.77	.07	.18

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

	125	140	157	114	188	275	304	233	189	149	40.9	88.8
MEAN	125	140	157	114	188	275	304	233	189	149	40.9	88.8
MAX	1077	1248	750	533	935	1154	1651	810	1005	1409	256	577
(WY)	1987	1986	1983	1974	1985	1973	1973	1990	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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	192	80.5	167
HIGHEST ANNUAL MEAN			365
LOWEST ANNUAL MEAN			23.6
HIGHEST DAILY MEAN	7550	Mar 15	24100
LOWEST DAILY MEAN	.87	Sep 29	.00
INSTANTANEOUS PEAK FLOW	8760	Mar 15	42300
INSTANTANEOUS PEAK STAGE	21.43	Mar 15	33.4
INSTANTANEOUS LOW FLOW	.87	Aug 30, Sep 28	.00
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 26	.00
ANNUAL RUNOFF (INCHES)	13.05		11.32
10 PERCENT EXCEEDS	296		276
50 PERCENT EXCEEDS	21		14
90 PERCENT EXCEEDS	1.6		1.1



## 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 mi<sup>2</sup>.

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.--Estimated daily discharges: Dec. 29-31 and Mar. 17 to Apr. 3. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.11	4.3	26	3.5	3.8	1.8	8.4	191	.17	.39	.12
2	.06	.11	32	11	65	16	2.1	6.6	24	.18	.27	.11
3	.09	.10	875	4.2	317	23	2.6	2570	11	.17	.24	27
4	.12	.42	98	2.8	556	15	3.8	1140	70	.14	.22	24
5	.09	.88	29	4.2	402	11	3.3	924	19	.12	.34	2.1
6	.08	.70	13	3.8	171	8.6	3.3	175	7.4	.09	.48	.72
7	.20	.48	9.1	2.9	79	6.9	3.0	51	4.1	.07	.40	.33
8	.26	.33	6.3	2.6	56	5.3	2.9	29	3.0	.06	.27	.19
9	.60	.26	4.4	2.5	45	4.5	2.8	20	2.4	.57	3.6	.18
10	.68	.23	3.5	2.3	47	3.5	2.8	15	1.9	3300	2.1	.27
11	.43	.20	2.8	2.6	42	3.1	3.0	12	1.8	4540	2.0	34
12	.28	.19	2.3	2.7	31	148	9.2	9.8	1.5	452	1.3	11
13	.33	.13	2.1	2.6	53	406	149	8.3	1.4	67	.87	2.3
14	.43	.06	2.0	8.2	187	78	443	1220	1.3	30	.62	.89
15	.33	.07	1.9	77	41	36	1870	628	1.4	17	.44	.95
16	.26	.03	1.8	177	25	27	136	665	1.4	9.8	.30	163
17	.29	.02	1.8	93	12	407	43	179	1.1	5.8	.40	33
18	.37	.01	1.9	41	11	386	36	49	.90	3.5	.27	11
19	.26	.01	1.9	146	9.8	76	61	42	.73	2.6	.20	3.9
20	.21	.01	1.7	355	9.0	35	48	23	.62	2.0	.16	2.0
21	.21	.02	1.6	4.1	8.2	22	35	16	.55	1.6	.15	1.2
22	.18	.02	.28	29	7.6	17	25	12	.54	1.2	.12	.92
23	.16	.01	.42	19	6.6	22	17	9.6	.55	1.1	.11	.68
24	.14	.01	.50	18	5.7	12	12	94	.60	.93	.10	.60
25	.14	.01	.80	22	5.0	7.3	9.5	1250	.57	.83	.09	.53
26	.14	.01	.76	6.9	4.4	6.2	8.3	370	.42	.74	.08	.40
27	.14	37	.63	5.4	4.0	5.7	20	59	.33	.66	.07	.28
28	.13	45	.69	3.7	3.6	3.9	15	26	.28	.56	.07	.23
29	.11	16	245	4.8	---	3.3	11	15	.21	.54	.07	.20
30	.08	8.3	132	2.4	---	3.0	7.4	62	.19	.50	.08	.18
31	.11	---	102	2.5	---	2.5	---	13	---	.46	.09	---
MEAN	.22	3.69	51.0	35.0	78.8	58.2	99.6	313	11.7	272	.51	10.7
MAX	.68	45	875	355	556	407	1870	2570	191	4540	3.6	163
MIN	.06	.01	.28	2.3	3.5	2.5	1.8	6.6	.19	.06	.07	.11
IN.	.00	.04	.56	.39	.79	.65	1.07	3.47	.13	3.02	.01	.12

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

	15.9	95.8	104	36.0	97.0	83.0	74.3	107	58.8	89.3	24.8	16.2
MEAN	15.9	95.8	104	36.0	97.0	83.0	74.3	107	58.8	89.3	24.8	16.2
MAX	95.9	652	442	151	389	340	302	313	221	482	143	120
(WY)	1987	1986	1983	1982	1985	1984	1984	1991	1982	1981	1982	1982
MIN	.000	.048	.047	.003	1.67	.41	2.49	1.27	.035	1.14	.003	.011
(WY)	1989	1981	1980	1980	1981	1981	1981	1988	1988	1989	1984	1983

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	57.1	78.4	66.7
HIGHEST ANNUAL MEAN			111
LOWEST ANNUAL MEAN			15.1
HIGHEST DAILY MEAN	3530	May 16	4800
LOWEST DAILY MEAN	.00	Many Days	.00
INSTANTANEOUS PEAK FLOW	8840	May 16	9360
INSTANTANEOUS PEAK STAGE	20.38	May 16	26.24
INSTANTANEOUS LOW FLOW	.00	Many Days	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 4	.00
ANNUAL RUNOFF (INCHES)	7.46		8.71
10 PERCENT EXCEEDS	38		74
50 PERCENT EXCEEDS	1.6		3.1
90 PERCENT EXCEEDS	.03		.01

## SALT RIVER BASIN

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 Dam, 5.0 mi northwest of Center and at mile 53.1.

DRAINAGE AREA.--2,350 mi<sup>2</sup>, 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.--Estimated daily discharges: Dec. 25 to Jan. 3. 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. Flow regulated by Clarence Cannon Dam 0.5 mi upstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	685	44	39	182	209	362	2730	2510	2000	4250	5120	29
2	595	38	40	566	105	33	1150	2000	1790	4050	3090	153
3	34	33	68	3020	114	31	1420	2890	2210	3790	1830	41
4	33	34	59	545	1880	32	888	1850	3340	1750	268	225
5	31	29	58	14	2350	28	1130	2140	3870	2230	1950	66
6	27	26	61	11	4420	26	47	2320	4290	2310	3380	244
7	26	23	555	1260	2730	1740	44	2120	2310	1720	3140	1920
8	25	21	83	520	2440	534	956	2060	937	3010	4040	87
9	546	19	7.1	18	102	870	640	3290	1420	1310	2950	39
10	60	18	321	1150	85	105	348	4670	1460	1240	261	42
11	463	17	43	2140	2120	30	819	4340	1730	1090	31	37
12	52	21	80	30	2350	36	606	3690	1730	3060	118	1090
13	40	40	127	16	928	1130	67	4630	1430	4650	34	205
14	33	34	560	17	1910	1940	88	4540	1460	4250	39	36
15	29	31	8.0	40	4020	43	1350	2290	1420	6320	1250	35
16	26	35	8.5	66	1160	38	2230	963	40	8910	556	35
17	24	32	211	64	13	50	1260	663	653	9050	28	34
18	27	27	271	60	1110	904	2020	587	1570	9130	26	36
19	30	25	23	63	2840	383	1740	1890	1510	9070	26	34
20	28	24	229	85	1920	46	673	2130	1640	9290	28	34
21	25	23	55	2190	917	47	41	1730	1720	9320	196	30
22	24	23	174	1350	1710	44	2100	1550	1570	8590	52	28
23	28	21	543	53	487	40	3150	1910	1680	6850	50	28
24	267	20	77	144	17	38	2370	1820	3190	7650	32	31
25	184	19	197	1070	2480	1720	2010	2160	4430	7340	31	126
26	60	140	89	67	2380	3110	2000	623	1390	7550	30	24
27	52	247	76	83	2000	3980	2110	2110	1650	4550	30	46
28	43	369	888	624	1120	3990	1770	2020	4370	5410	29	55
29	37	61	1980	2820	---	2090	3150	1800	3690	4870	57	52
30	35	47	1530	1370	---	1290	3290	1710	3070	5130	28	46
31	55	---	440	730	---	56	---	1710	---	5070	33	---
MEAN	117	51.4	287	657	1568	799	1407	2281	2119	5252	927	163
MAX	685	369	1980	3020	4420	3990	3290	4670	4430	9320	5120	1920
MIN	24	17	7.1	11	13	26	41	587	40	1090	26	24
IN.	.06	.02	.14	.32	.70	.39	.67	1.12	1.01	2.58	.45	.08

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

	MEAN	729	1591	2204	1021	1745	2767	2415	2088	2498	2481	865	881
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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	1966	1304	1773
HIGHEST ANNUAL MEAN			2703
LOWEST ANNUAL MEAN			283
HIGHEST DAILY MEAN	10200	Mar 26	9320
LOWEST DAILY MEAN	7.1	Dec 9	7.1
INSTANTANEOUS PEAK FLOW	10800	Mar 19	9530
INSTANTANEOUS PEAK STAGE	13.91	Mar 19	13.36
INSTANTANEOUS LOW FLOW	6.4	Dec 9-10	6.4
ANNUAL SEVEN-DAY MINIMUM	21	Nov 6	21
ANNUAL RUNOFF (INCHES)	11.36		7.54
10 PERCENT EXCEEDS	5930		3730
50 PERCENT EXCEEDS	543		487
90 PERCENT EXCEEDS	28		27
			32

## 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 Dam, 2.0 mi north of New London, 8.0 mi upstream from Spencer Creek and at mile 35.5.

DRAINAGE AREA.--2,480 mi<sup>2</sup>, 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.--Estimated daily discharges: Jan 24-26. Water-discharge 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. Flow regulated by Clarence Cannon 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	43	44	421	299	459	1880	2990	1820	4340	5320	66
2	1190	44	77	164	256	243	1790	2200	1820	4220	3250	40
3	85	39	583	558	389	107	1080	5070	1810	4190	2740	195
4	42	39	123	3650	1070	81	910	3450	3040	2270	1030	152
5	35	47	71	670	2090	73	1440	3470	3730	2040	636	232
6	33	40	63	198	4330	66	278	2550	4470	2850	3630	60
7	31	34	90	381	3600	927	71	2370	3710	2010	3300	2030
8	30	30	490	3210	2910	1300	134	1950	1130	2670	4130	208
9	58	29	52	891	628	410	1210	2790	1470	2640	3820	88
10	460	27	57	201	94	630	358	4580	1710	2440	1120	50
11	240	25	213	6350	1310	76	167	5060	1870	5030	97	48
12	208	24	46	633	2680	78	1240	3250	2030	3570	67	163
13	47	24	99	73	1100	393	259	4800	1750	4870	124	1160
14	37	34	61	53	1500	2930	302	5550	1880	4410	63	81
15	33	38	27	95	3920	344	2400	7920	1750	5840	232	50
16	30	35	21	299	2590	106	1730	1810	513	8930	1630	58
17	29	35	20	164	273	314	2130	1560	83	9100	121	42
18	31	35	319	100	970	1130	1760	239	1760	9270	53	42
19	28	34	68	201	1570	547	1900	1770	1750	9220	47	41
20	29	31	33	419	2640	212	1710	1970	1890	9380	43	39
21	29	31	184	1180	1320	104	311	1810	1970	9460	42	37
22	27	33	46	2680	1420	87	1150	1640	1940	9030	181	37
23	26	31	140	220	1630	75	2910	1740	1860	7040	65	34
24	57	28	2150	74	96	68	3170	2370	2560	7720	52	31
25	173	27	502	1840	1580	994	2200	3980	4500	7410	48	34
26	111	26	180	524	2870	2310	1860	1460	2530	7670	45	109
27	49	151	74	91	2300	4130	2500	1940	1860	4720	43	41
28	42	450	63	979	1930	4090	1660	2050	3630	5750	37	45
29	39	95	922	3800	---	2350	2790	1930	3830	5030	37	63
30	36	52	2270	3720	---	2400	3460	1680	3330	5270	67	60
31	34	---	1710	851	---	312	---	1710	---	5210	67	---
MEAN	108	53.7	348	1119	1692	882	1492	2828	2267	5600	1037	178
MAX	1190	450	2270	6350	4330	4130	3460	7920	4500	9460	5320	2030
MIN	26	24	20	53	94	66	71	239	83	2010	37	31
IN.	.05	.02	.16	.52	.71	.41	.67	1.31	1.02	2.60	.48	.08

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

	1047	1104	1117	1230	1880	2829	3082	2361	2434	1582	836	978
MEAN	1047	1104	1117	1230	1880	2829	3082	2361	2434	1582	836	978
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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	2072	1470	1703
HIGHEST ANNUAL MEAN			4692
LOWEST ANNUAL MEAN			307
HIGHEST DAILY MEAN	9940	Mar 26	98200
LOWEST DAILY MEAN	20	Dec 17	.00
INSTANTANEOUS PEAK FLOW	13400	Mar 15	107000
INSTANTANEOUS PEAK STAGE	13.68	Mar 15	31.8
INSTANTANEOUS LOW FLOW	20	Dec 16-18	.00
ANNUAL SEVEN-DAY MINIMUM	28	Nov 7	.00
ANNUAL RUNOFF (INCHES)	11.34		9.33
10 PERCENT EXCEEDS	6190		4440
50 PERCENT EXCEEDS	655		263
90 PERCENT EXCEEDS	35		27

## 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. Oct. 1989 to Sept. 1990, partial water-quality data site. Oct. 1989 to present, partial sediment data site. 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.

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. DIAM. % FINER THAN .008 MM (70339)	SED. SUSP. DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. DIAM. % FINER THAN .500 MM (70345)
MAY 15...	1345	8600	47	54	58	75	97	98	99	100

## PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL

DATE	TIME	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)
NOV 14...	1210	0	0	1	10	23	27	30	36	47	77

DATE	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)
OCT			
08...	47	8.0	19
20...	46	12.0	16
21...	46	12.0	19
22...	42	11.0	16
23...	40	11.0	18
24...	38	10.0	26
25...	164	11.0	20
26...	119	13.0	19
28...	64	12.0	16
29...	59	12.0	17
30...	56	12.0	17
31...	52	13.0	17
NOV			
01...	71	14.0	15
02...	66	13.0	16
03...	59	12.0	17
04...	62	12.0	12
05...	72	9.0	19
06...	59	9.0	59
07...	52	8.0	36
14...	58	10.5	9
APR			
11...	116	10.5	25
MAY			
15...	8600	19.5	--
JUN			
19...	2000	22.0	70
AUG			
28...	38	27.5	14

## SALT RIVER BASIN

05508805 SPENCER CREEK BELOW PLUM CREEK NEAR FRANKFORD, MO

LOCATION.--Lat 39°31'13", long 91°20'32", in NW 1/4 NW 1/4 NW 1/4 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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	2.3	37	149	26	19	31	38	1010	4.4	5.7	18
2	.49	2.5	50	105	162	146	28	35	184	4.1	4.9	7.9
3	1.2	2.3	1580	75	568	154	25	4290	79	3.8	4.4	42
4	2.0	2.3	333	58	847	89	23	2500	64	3.7	3.8	91
5	2.1	3.4	149	52	700	62	23	1590	61	3.2	3.5	22
6	2.0	15	92	45	411	51	21	570	46	3.1	4.2	16
7	2.7	11	64	35	229	36	18	267	37	2.7	5.3	11
8	2.7	5.1	51	31	183	27	17	188	31	2.6	4.3	7.8
9	2.9	2.5	43	28	151	23	15	145	27	4.1	185	6.6
10	2.9	1.6	36	25	154	17	12	123	25	3520	48	7.1
11	3.7	1.3	30	26	137	16	9.8	111	22	6930	20	45
12	7.8	1.0	25	27	108	22	11	95	21	2150	11	50
13	6.2	.56	19	25	125	804	19	83	19	242	8.3	17
14	5.0	.60	15	31	458	332	180	239	17	94	6.5	9.9
15	3.1	.33	14	114	168	222	2960	5890	16	60	4.9	23
16	2.9	.41	14	452	102	157	918	3700	21	44	4.1	1180
17	2.4	.44	16	324	70	415	258	723	19	35	3.7	137
18	1.6	.61	19	187	63	1230	143	430	14	29	3.0	51
19	1.2	.82	19	342	65	352	178	799	12	24	2.7	32
20	.98	.66	16	822	52	209	161	225	10	21	2.3	24
21	1.0	.94	13	284	45	157	132	164	9.4	18	2.1	21
22	.88	1.2	10	212	39	156	101	133	8.9	16	1.8	19
23	1.1	1.3	7.5	119	34	165	82	116	8.1	14	1.6	17
24	1.6	1.2	5.8	124	32	117	65	140	7.9	12	1.4	15
25	1.9	1.0	5.3	108	26	90	55	1010	7.7	11	1.3	13
26	1.9	1.2	4.5	85	21	78	50	460	7.3	9.9	1.2	10
27	2.3	75	4.1	63	18	69	51	182	6.6	9.1	1.2	8.2
28	2.1	286	4.5	49	17	55	54	122	5.8	8.2	1.1	7.2
29	2.2	113	1230	41	---	39	42	99	5.5	7.4	1.0	6.1
30	2.2	63	479	33	---	38	34	89	5.0	6.6	1.1	5.6
31	2.3	---	224	26	---	34	---	78	---	6.0	4.4	---
MEAN	2.37	20.0	149	132	179	174	191	795	60.2	429	11.4	64.0
MAX	7.8	286	1580	822	847	1230	2960	5890	1010	6930	185	1180
MIN	.21	.33	4.1	25	17	16	9.8	35	5.0	2.6	1.0	5.6
IN.	.01	.11	.83	.74	.90	.97	1.03	4.45	.33	2.40	.06	.35

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

	48.8	192	222	81.1	234	285	230	280	104	196	37.3	47.2
MEAN	48.8	192	222	81.1	234	285	230	280	104	196	37.3	47.2
MAX	376	1310	985	274	766	738	777	795	451	1788	114	196
(WY)	1987	1986	1983	1982	1985	1978	1983	1991	1982	1981	1977	1977
MIN	.22	.48	1.67	2.58	3.40	9.23	26.6	15.1	2.23	.84	1.17	.32
(WY)	1989	1990	1990	1980	1980	1981	1986	1988	1988	1988	1984	1988

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	146	185	160
HIGHEST ANNUAL MEAN			239
LOWEST ANNUAL MEAN			36.5
HIGHEST DAILY MEAN	11900	May 16	15600
LOWEST DAILY MEAN	.08	Sep 11	.08
INSTANTANEOUS PEAK FLOW	15000	May 16	16200
INSTANTANEOUS PEAK STAGE	16.42	May 16	16.86
INSTANTANEOUS LOW FLOW	.07	Sep 11	.00
ANNUAL SEVEN-DAY MINIMUM	.10	Sep 7	.10
ANNUAL RUNOFF (INCHES)	9.61		10.58
10 PERCENT EXCEEDS	153		224
50 PERCENT EXCEEDS	17		25
90 PERCENT EXCEEDS	.65		1.0





## 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 1990 TO SEPTEMBER 1991

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, UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
05...	0920	13	406	7.6	7.5	10	7.5	64	280	540	190	59
JAN												
16...	0745	393	379	7.7	1.0	26	14.3	101	530	770	170	55
MAR												
12...	1330	77	381	8.2	9.5	10	14.0	124	48	K38	170	54
MAY												
16...	0900	1410	376	8.0	22.5	44	7.3	84	K11000	K10000	180	57
JUL												
17...	1300	203	299	7.8	26.5	91	8.6	106	620	1100	140	44
SEP												
04...	1200	32	368	7.7	25.5	6.0	9.0	109	280	430	170	55

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
05...	10	9.8	4.5	182	14	14	<0.10	5.7	228	228	0.31
JAN											
16...	8.7	12	4.3	108	28	24	0.10	8.2	236	214	0.32
MAR											
12...	8.8	11	4.5	132	34	18	<0.10	3.1	216	215	0.29
MAY											
16...	8.1	11	4.5	146	28	14	0.20	6.4	221	223	0.30
JUL											
17...	6.3	5.6	5.9	123	11	9.8	0.20	12	196	174	0.27
SEP											
04...	8.6	6.9	5.0	161	14	10	0.10	8.8	191	205	0.26

## CUIVRE RIVER BASIN

05514500 CUIVRE RIVER NEAR TROY, MO--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 05...	8.31	<0.010	<0.100	0.020	0.010	0.90	0.050	0.020	0.020	22	99
JAN 16...	250	0.020	1.90	0.190	0.190	0.40	0.080	0.070	0.060	55	92
MAR 12...	44.7	0.010	0.660	0.010	<0.010	0.90	0.050	<0.010	<0.010	--	--
MAY 16...	841	0.020	1.30	0.070	0.070	1.2	0.170	0.030	0.020	334	89
JUL 17...	107	0.020	1.10	0.020	0.010	0.40	0.160	0.040	0.040	--	--
SEP 04...	16.5	<0.010	0.100	0.050	0.040	1.0	0.090	0.010	<0.010	--	--

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 05...	<10	<1	140	<0.5	<1.0	<1	<3	1	67	<1
JAN 16...	<10	<1	81	<0.5	<1.0	<1	<3	2	33	1
MAY 16...	10	1	100	<0.5	1.0	<1	<3	2	8	<1
JUL 17...	30	2	110	<0.5	<1.0	<1	<3	4	37	<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 05...	<4	1300	<0.1	<10	1	<1	<1.0	120	<6	14
JAN 16...	4	130	<0.1	<10	2	<1	<1.0	97	<6	5
MAY 16...	5	44	0.6	<10	2	<1	<1.0	110	<6	<3
JUL 17...	<4	240	0.1	<10	2	<1	<1.0	97	<6	<3

## 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.6 N., R.12 W., Jersey County, Hydrologic Unit 07110009, on left bank 0.2 mile downstream from the mouth of Illinois River, 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 mi<sup>2</sup>, 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 ft above National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder 15.3 miles downstream.

REMARKS.--Estimated daily discharges: Dec. 25 to Jan. 16, Mar. 4-8, and Sept. 5-6. Records fair except for estimated daily discharges, which are poor. 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 extremely high stages.

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45900	77000	86400	112000	94500	97300	248000	246000	264000	169000	91200	68800
2	53100	81800	90100	109000	86500	93300	248000	242000	263000	165000	89900	65700
3	49600	81500	84400	106000	87100	106000	251000	237000	255000	162000	84800	67200
4	52900	79000	95900	101000	93300	138000	252000	242000	247000	157000	79400	64600
5	49600	77900	91200	97000	102000	158000	252000	255000	239000	145000	86000	61000
6	47500	73100	92400	96500	108000	160000	251000	272000	231000	135000	87000	58000
7	46300	75300	99000	96000	116000	150000	248000	288000	226000	128000	92300	56400
8	60800	76900	105000	94000	122000	140000	243000	293000	223000	128000	95900	57600
9	64000	78400	105000	92000	121000	134000	239000	289000	218000	126000	93700	52600
10	67100	71800	98900	90000	115000	126000	235000	278000	216000	131000	92800	56100
11	64700	67200	100000	91000	115000	112000	230000	261000	218000	165000	88400	65500
12	65100	72500	98600	92000	116000	109000	227000	248000	220000	178000	92300	68300
13	71300	71000	104000	92000	116000	119000	222000	234000	221000	190000	93800	76900
14	68600	71900	108000	94000	113000	138000	217000	225000	223000	168000	91600	76900
15	73100	69500	100000	96000	112000	155000	226000	223000	225000	140000	93000	76300
16	72400	64900	109000	100000	107000	159000	237000	230000	231000	128000	87700	78500
17	68800	69600	110000	108000	104000	152000	238000	236000	233000	126000	87100	83500
18	58400	71900	109000	107000	106000	165000	235000	236000	231000	128000	84400	83300
19	65100	67400	101000	105000	105000	191000	238000	237000	230000	123000	83900	85200
20	73800	72100	98200	96500	108000	204000	244000	237000	229000	117000	78900	83700
21	71300	68600	103000	100000	106000	214000	252000	233000	225000	108000	75300	83600
22	68100	66300	102000	105000	107000	218000	267000	229000	221000	105000	79600	82200
23	69700	66400	98000	97700	111000	221000	278000	228000	218000	102000	76500	82200
24	69600	65900	79800	99300	105000	215000	281000	227000	212000	100000	76800	84200
25	71800	67400	74000	101000	102000	214000	276000	229000	208000	104000	70200	81400
26	81500	67800	71000	98500	104000	216000	269000	241000	207000	105000	73800	80400
27	80700	60000	68500	97900	103000	218000	263000	255000	205000	107000	71400	78900
28	78200	75800	67500	98300	99200	224000	259000	260000	198000	103000	66800	81400
29	85900	81800	81000	94500	---	235000	255000	259000	180000	102000	61600	76800
30	83700	82200	114000	95200	---	244000	250000	258000	171000	99800	59500	68900
31	79500	---	120000	101000	---	248000	---	260000	---	96900	65800	---
MEAN	66390	72430	95640	98820	106600	170100	247700	248000	222900	130400	82300	72870
MAX	85900	82200	120000	112000	122000	248000	281000	293000	264000	190000	95900	85200
MIN	45900	60000	67500	90000	86500	93300	217000	223000	171000	96900	59500	52600
IN.	.45	.47	.64	.67	.65	1.15	1.61	1.67	1.45	.88	.55	.47

## STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

MEAN	105800	75460	77840	69840	79130	123500	142300	132600	131300	94880	74740	68490
MAX	334900	171300	130100	98820	106600	170100	247700	248000	235900	199500	134000	91160
(WY)	1987	1987	1987	1991	1991	1991	1991	1991	1990	1990	1990	1990
MIN	28050	33270	31810	34800	40940	72220	82570	69140	36310	30420	37230	37850
(WY)	1989	1990	1990	1990	1989	1989	1990	1988	1988	1988	1988	1988

## SUMMARY STATISTICS\*\*

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	118100	134500	98080
HIGHEST ANNUAL MEAN			134500
LOWEST ANNUAL MEAN			53860
HIGHEST DAILY MEAN	339000	Jun 26	419000
LOWEST DAILY MEAN	28200	Jan 25	20100
INSTANTANEOUS PEAK FLOW	340000	Jun 26	535000
INSTANTANEOUS PEAK ELEVATION	428.25	Jun 26	436.99
INSTANTANEOUS LOW FLOW	28200	Jan 25	23900
ANNUAL SEVEN-DAY MINIMUM	32000	Jan 12	23600
ANNUAL RUNOFF (INCHES)	9.36		7.78
10 PERCENT EXCEEDS	227000		210000
50 PERCENT EXCEEDS	85900		79400
90 PERCENT EXCEEDS	45700		33800

\*\*Statistics based only on years with complete daily discharge record.

## MISSISSIPPI RIVER MAIN STEM

05587455 MISSISSIPPI RIVER BELOW GRAFTON, IL

## WATER-QUALITY RECORDS

LOCATION.--Lat. 38°57'04", long. 90°22'16", in sec. 24, 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, at mi 214.6 upstream of the mouth of the Ohio River.

DRAINAGE AREA.--171,300 mi<sup>2</sup>, approximately.

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

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT: October 1989 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,910 mg/L, May 23, 1990; minimum daily mean, 1 mg/L, Sept. 10, 1991.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 1,090,000 tons, May 23, 1990; minimum daily, 186 tons, Sept. 10, 1991.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,670 mg/L, Mar. 28; minimum daily mean, 1 mg/L, Sept. 10.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 1,010,000 tons, Mar. 28; minimum daily, 186 tons, Sept. 10.

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

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 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 (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
07...	1000	74900	421	8.2	8.0	20	9.2	78	920	400	210	50
JAN												
16...	1045	140000	531	7.7	0.5	42	13.0	91	210	360	240	58
MAR												
20...	1130	204000	493	8.1	7.0	90	13.2	108	120	--	220	57
MAY												
17...	1030	236000	416	8.0	20.0	130	7.3	80	3900	6200	200	52
JUL												
18...	1000	130000	464	8.2	27.5	--	6.8	85	66	K10	220	57
SEP												
19...	1030	85100	462	7.9	20.5	35	8.0	87	50	110	210	49

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
07...	20	16	2.7	174	40	23	0.20	3.9	276	269	0.38
JAN											
16...	23	20	3.2	137	49	39	0.40	7.7	322	306	0.44
MAR											
20...	20	13	4.3	155	38	27	0.30	7.9	287	282	0.39
MAY											
17...	16	9.2	3.3	128	31	20	0.20	8.3	225	241	0.31
JUL											
18...	20	9.8	3.5	152	41	17	0.30	9.1	270	266	0.37
SEP											
19...	21	16	3.5	171	49	27	0.30	4.0	278	277	0.38



## MISSISSIPPI RIVER MAIN STEM

05587455 MISSISSIPPI RIVER BELOW GRAFTON, IL--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 07...	55800	0.030	1.80	0.130	0.120	1.0	0.140	0.050	0.060	61	84
JAN 16...	122000	0.040	5.20	0.240	0.230	0.5	0.200	0.130	0.130	51	95
MAR 20...	158000	0.040	4.80	0.150	0.160	1.2	0.180	0.110	0.110	--	--
MAY 17...	143000	0.070	5.40	0.040	0.040	1.0	0.090	0.110	0.100	447	94
JUL 18...	94800	0.020	3.90	<0.010	0.020	1.2	0.190	0.110	0.090	56	87
SEP 19...	63900	0.010	0.80	0.030	0.020	1.1	0.250	0.120	0.120	399	41

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	49	<0.5	<1.0	<1	<3	4	13	<1
JAN 16...	10	<1	48	<0.5	<1.0	<1	<3	4	30	1
MAY 17...	130	<1	76	<0.5	1.0	<1	<3	4	160	1
JUL 18...	10	3	73	<0.5	<1.0	<1	<3	6	6	9

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...	8	5	<0.1	<10	2	<1	<1.0	120	<6	14
JAN 16...	5	33	<0.1	<10	3	<1	<1.0	130	<6	4
MAY 17...	7	16	0.3	<10	3	<1	<1.0	110	<6	<3
JUL 18...	9	2	0.5	<10	2	<1	<1.0	140	<6	<3

## MISSISSIPPI RIVER MAIN STEM

05587455 MISSISSIPPI RIVER BELOW GRAFTON, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	45900	---	8000	77000	---	29500	86400	---	76900
2	53100	---	9000	81800	---	31000	90100	410	99900
3	49600	---	8500	81500	---	29000	84400	379	86500
4	52900	---	9000	79000	77	16700	95900	384	99300
5	49600	---	8500	77900	226	47400	91200	473	116000
6	47500	---	8200	73100	102	20400	92400	413	103000
7	46300	---	8000	75300	55	11200	99000	---	93700
8	60800	---	14000	76900	68	14200	105000	---	84800
9	64000	---	16000	78400	---	14600	105000	---	73100
10	67100	---	22000	71800	---	13000	98900	243	64900
11	64700	---	16000	67200	---	11900	100000	306	82900
12	65100	---	17000	72500	67	13000	98600	188	50100
13	71300	---	23000	71000	76	14600	104000	168	47000
14	68600	---	22000	71900	71	13900	108000	138	40000
15	73100	---	27000	69500	---	12000	100000	---	32900
16	72400	---	26000	64900	56	9820	109000	---	32400
17	68800	---	22500	69600	45	8460	110000	---	29800
18	58400	---	13500	71900	43	8260	109000	89	26200
19	65100	---	16000	67400	44	7940	101000	---	18300
20	73800	---	27000	72100	53	10200	98200	51	13500
21	71300	---	23000	68600	---	37600	103000	66	18500
22	68100	---	22000	66300	554	99400	102000	---	19900
23	69700	---	23500	66400	207	37000	98000	---	19500
24	69600	---	23000	65900	43	7790	79800	---	16200
25	71800	---	23000	67400	28	5050	74000	---	17600
26	81500	---	31000	67800	26	4760	71000	---	18300
27	80700	---	30000	60000	---	7130	68500	---	20100
28	78200	---	29000	75800	82	17200	67500	---	23500
29	85900	---	34000	81800	142	31300	81000	---	24000
30	83700	---	33000	82200	245	54600	114000	---	39000
31	79500	---	30000	---	---	---	120000	---	34500
TOTAL	2058100	---	622700	2172900	---	638910	2964900	---	1522300
JANUARY			FEBRUARY			MARCH			
1	112000	---	33900	94500	---	39200	97300	---	19000
2	109000	---	40100	86500	---	36500	93300	---	27700
3	106000	---	44200	87100	---	37600	106000	---	48200
4	101000	---	44500	93300	---	40900	138000	---	108000
5	97000	---	40900	102000	---	45500	158000	366	203000
6	96500	---	44100	108000	---	49300	160000	406	223000
7	96000	---	46000	116000	167	52300	150000	---	20000
8	94000	---	42900	122000	143	47200	140000	325	134000
9	92000	---	44900	121000	---	46400	134000	---	98600
10	90000	---	45000	115000	---	43000	126000	---	74600
11	91000	---	40600	115000	132	40900	112000	178	53700
12	92000	---	44700	116000	105	32800	109000	152	44800
13	92000	---	44600	116000	---	28200	119000	---	54000
14	94000	---	38700	113000	---	24600	138000	---	75800
15	96000	---	34600	112000	---	22000	155000	---	102000
16	100000	---	36200	107000	---	19000	159000	---	126000
17	108000	---	34000	104000	---	16500	152000	---	145000
18	107000	---	34300	106000	55	15600	165000	---	191000
19	105000	---	34300	105000	77	22100	191000	489	252000
20	96500	---	32100	108000	140	41100	204000	292	161000
21	100000	---	34000	106000	138	39700	214000	353	204000
22	105000	---	36400	107000	---	32900	218000	371	218000
23	97700	---	34400	111000	---	28800	221000	433	258000
24	99300	---	35600	105000	---	23000	215000	409	238000
25	101000	---	36800	102000	68	18800	214000	467	270000
26	98500	---	36600	104000	63	17600	216000	349	204000
27	97900	---	37100	103000	57	15800	218000	449	264000
28	98300	---	37900	99200	52	13800	224000	1670	1010000
29	94500	---	37100	---	---	---	235000	---	721000
30	95200	---	38100	---	---	---	244000	598	395000
31	101000	---	41000	---	---	---	248000	419	280000
TOTAL	3063400	---	1205600	2984600	---	891100	5273600	---	6223400

## MISSISSIPPI RIVER MAIN STEM

05587455 MISSISSIPPI RIVER BELOW GRAFTON, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	248000	345	231000	246000	254	169000	264000	794	566000
2	248000	---	229000	242000	402	263000	263000	857	609000
3	251000	341	231000	237000	766	491000	255000	667	459000
4	252000	303	206000	242000	468	305000	247000	685	458000
5	252000	256	175000	255000	---	417000	239000	258	167000
6	251000	225	152000	272000	869	636000	231000	268	167000
7	248000	---	198000	288000	526	409000	226000	293	179000
8	243000	448	294000	293000	440	348000	223000	---	179000
9	239000	845	545000	289000	320	250000	218000	300	177000
10	235000	333	211000	278000	244	183000	216000	363	212000
11	230000	---	487000	261000	---	166000	218000	270	159000
12	227000	1600	982000	248000	---	157000	220000	249	148000
13	222000	375	226000	234000	223	141000	221000	240	144000
14	217000	437	255000	225000	182	111000	223000	210	126000
15	226000	647	395000	223000	196	118000	225000	229	139000
16	237000	445	285000	230000	255	158000	231000	768	480000
17	238000	368	236000	236000	300	191000	233000	339	214000
18	235000	291	185000	236000	258	164000	231000	216	135000
19	238000	323	208000	237000	---	240000	230000	285	177000
20	244000	302	199000	237000	617	395000	229000	944	584000
21	252000	---	203000	233000	488	307000	225000	567	344000
22	267000	335	242000	229000	332	206000	221000	229	137000
23	278000	625	470000	228000	365	224000	218000	---	142000
24	281000	259	197000	227000	399	245000	212000	277	158000
25	276000	---	141000	229000	---	199000	208000	266	150000
26	269000	184	133000	241000	300	196000	207000	226	126000
27	263000	195	138000	255000	470	324000	205000	191	106000
28	259000	371	259000	260000	358	251000	198000	185	99100
29	255000	105	72200	259000	516	361000	180000	153	74200
30	250000	146	98700	258000	932	650000	171000	---	72200
31	---	---	---	260000	365	257000	---	---	---
TOTAL	7431000	---	7883900	7688000	---	8532000	6688000	---	6887500
JULY			AUGUST			SEPTEMBER			
1	169000	164	74700	90800	30	7420	68800	14	2660
2	165000	141	62900	89400	32	7790	65700	---	1810
3	163000	167	73400	84300	40	9290	67200	8	1470
4	157000	152	64200	78800	21	4480	64600	14	2440
5	146000	142	55700	85400	36	8360	61000	15	2720
6	136000	120	43900	86300	31	7240	58000	---	1000
7	129000	230	80100	91500	28	6950	56400	---	440
8	128000	1010	350000	95900	25	6570	57600	---	328
9	127000	143	48700	93700	25	6340	52600	---	217
10	131000	113	40200	92800	---	6420	56100	1	186
11	166000	344	155000	88400	---	6290	65500	11	1980
12	179000	313	151000	92300	30	7460	68300	20	3660
13	191000	435	223000	93800	44	11200	76900	20	4170
14	169000	326	149000	91600	45	11100	76900	45	9270
15	141000	212	80700	93000	53	13200	76300	46	9590
16	129000	215	73800	87700	47	11200	78500	50	10700
17	126000	636	216000	87100	40	9320	83500	50	11400
18	128000	116	40400	84400	42	9590	83300	49	10900
19	123000	155	51100	83900	40	9150	85200	61	14100
20	117000	---	42200	78900	26	5540	83700	---	11000
21	108000	---	25600	75300	19	3810	83600	---	7980
22	105000	59	16700	79600	21	4560	82200	27	6040
23	103000	51	14200	76500	17	3510	82200	52	11500
24	100000	79	21500	76800	15	3110	84200	57	13000
25	104000	151	42400	70200	---	2630	81400	54	11800
26	105000	77	21900	73800	16	3290	80400	71	15300
27	106000	---	13600	71400	29	5510	78900	68	14400
28	103000	47	13100	66800	12	2140	81400	72	15800
29	102000	59	16300	61600	11	1820	76800	---	14000
30	99500	47	12800	59500	12	1970	68900	---	12000
31	96500	40	10600	65800	15	2710	---	---	---
TOTAL	4052000	---	2284700	2547300	---	199970	2186100	---	221861

## 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 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 2.0 mi downstream from Cow Branch and at mile 13.3.

DRAINAGE AREA.--508 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1922 to December 1990 (discontinued).

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. 3 and 20-31. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	36	49	---	---	---	---	---	---	---	---	---
2	53	37	47	---	---	---	---	---	---	---	---	---
3	66	51	45	---	---	---	---	---	---	---	---	---
4	81	127	44	---	---	---	---	---	---	---	---	---
5	67	104	69	---	---	---	---	---	---	---	---	---
6	46	70	69	---	---	---	---	---	---	---	---	---
7	38	56	56	---	---	---	---	---	---	---	---	---
8	38	53	56	---	---	---	---	---	---	---	---	---
9	44	59	55	---	---	---	---	---	---	---	---	---
10	46	56	55	---	---	---	---	---	---	---	---	---
11	47	53	58	---	---	---	---	---	---	---	---	---
12	44	53	59	---	---	---	---	---	---	---	---	---
13	43	50	59	---	---	---	---	---	---	---	---	---
14	42	51	57	---	---	---	---	---	---	---	---	---
15	40	51	57	---	---	---	---	---	---	---	---	---
16	39	49	54	---	---	---	---	---	---	---	---	---
17	38	46	59	---	---	---	---	---	---	---	---	---
18	33	46	60	---	---	---	---	---	---	---	---	---
19	35	47	59	---	---	---	---	---	---	---	---	---
20	36	48	55	---	---	---	---	---	---	---	---	---
21	39	49	50	---	---	---	---	---	---	---	---	---
22	41	46	45	---	---	---	---	---	---	---	---	---
23	41	46	40	---	---	---	---	---	---	---	---	---
24	41	45	41	---	---	---	---	---	---	---	---	---
25	38	45	41	---	---	---	---	---	---	---	---	---
26	38	46	40	---	---	---	---	---	---	---	---	---
27	37	63	40	---	---	---	---	---	---	---	---	---
28	37	65	41	---	---	---	---	---	---	---	---	---
29	36	57	40	---	---	---	---	---	---	---	---	---
30	38	52	35	---	---	---	---	---	---	---	---	---
31	35	---	30	---	---	---	---	---	---	---	---	---
MEAN	43.8	55.2	50.5	---	---	---	---	---	---	---	---	---
MAX	81	127	69	---	---	---	---	---	---	---	---	---
MIN	33	36	30	---	---	---	---	---	---	---	---	---
IN.	.10	.12	.11	---	---	---	---	---	---	---	---	---

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

MEAN	131	117	93.9	98.4	185	292	252	296	420	265	166	186
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 1990 CALENDAR YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	210	209
HIGHEST ANNUAL MEAN		677
LOWEST ANNUAL MEAN		23.6
HIGHEST DAILY MEAN	4320	11100
LOWEST DAILY MEAN	27	.00
INSTANTANEOUS PEAK FLOW	7150	16300
INSTANTANEOUS PEAK STAGE	20.70	25.48
INSTANTANEOUS LOW FLOW	14	.00
ANNUAL SEVEN-DAY MINIMUM	36	.00
ANNUAL RUNOFF (INCHES)	5.60	5.60
10 PERCENT EXCEEDS	373	432
50 PERCENT EXCEEDS	104	62
90 PERCENT EXCEEDS	41	9.0

## MISSOURI RIVER MAIN STEM

06813500 MISSOURI RIVER AT RULO, NE

LOCATION.--Lat 40°03'13", long 95°25'19", in NW1/4 NW1/4 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 mi<sup>2</sup>, approximately. The 3,959 mi<sup>2</sup> in Great Divide basin are not included.

PERIOD OF RECORD.--October 1949 to current year in reports of U.S. 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.

GAGE.--Water-stage encoder. Datum of gage is 837.23 ft above NGVD. 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.--Records good. Flow regulated by upstream main-stem reservoirs. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers satellite data collection platform at station.

AVERAGE DISCHARGE.--42 years, 40,930 ft<sup>3</sup>/s, 29,650,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 358,000 ft<sup>3</sup>/s Apr. 22, 1952, gage height, 25.60 ft; minimum daily discharge, 4,420 ft<sup>3</sup>/s Jan. 13, 1957; minimum gage height, -0.19 ft Dec. 25, 1990, result of freezeup.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99,300 ft<sup>3</sup>/s June 15, gage height, 18.83 ft; minimum daily discharge, 7,450 ft<sup>3</sup>/s Dec. 25, minimum gage height -0.19 Dec. 25.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33500	25000	15100	16100	19600	20900	33800	39400	48700	40600	32400	33300
2	33500	23000	14900	15900	19100	22100	33800	39100	60600	38300	31700	33100
3	33600	21300	15400	17000	19700	22900	33600	39300	71300	37500	32300	33200
4	34400	19900	16000	18300	21700	29500	32800	39800	62500	40400	32600	33300
5	34500	19400	15900	19500	22500	22500	32600	40100	58800	37000	32600	33800
6	34300	18300	15100	19400	22400	20400	32400	42400	80800	35400	32900	33800
7	33800	18300	15700	19000	22300	21100	32500	44700	83800	36500	32700	33500
8	33700	18500	16600	18600	23000	20700	32400	44100	67000	34300	32900	35000
9	33900	19000	16400	18500	24400	19400	33000	42900	55400	37000	33800	34500
10	34400	17300	16500	18300	26000	18700	32800	42800	53100	48500	34800	34200
11	34200	17300	16900	18500	26600	18600	32900	42700	53000	42200	34800	34500
12	34200	17500	16800	18600	25600	18800	33400	43000	50600	37000	33900	34700
13	33400	17300	16600	18700	24100	19000	35900	44400	49200	37100	33400	36000
14	33300	17200	16500	19200	23600	19700	42900	42300	52200	36400	33000	35500
15	32800	17200	16500	19500	22400	21200	51200	41200	94600	35200	32700	35400
16	32800	17000	16300	19600	21200	20700	46700	43200	88000	35800	32500	35000
17	33100	17000	16200	19800	20900	19400	43500	53100	79500	34300	33000	34400
18	33000	16600	16300	19800	20600	20200	42900	50100	66200	33100	33900	34800
19	33300	16700	16300	19500	21900	21000	42900	52300	58800	34400	32600	34800
20	33100	16600	15500	19300	26000	21500	43000	51100	52000	32600	33500	34800
21	32900	16700	15500	19100	28100	20900	42400	48700	50500	32800	32600	34100
22	33200	16500	13600	19100	26700	19700	42000	50900	61300	34900	32200	33900
23	33200	16000	11500	19100	27200	19300	41600	46400	52000	34700	32200	33400
24	32800	16300	8340	18600	27000	19800	41000	46000	50500	32400	32400	33200
25	33100	16100	7450	18900	25400	21300	40500	51300	47300	33500	32300	33500
26	33400	16200	7910	20600	24800	21900	40200	47000	41700	32800	31900	33600
27	33000	16400	9780	21000	22200	22300	40800	45300	41300	32100	31900	33900
28	32400	16200	12400	20300	20500	22700	44300	50000	42300	32500	32500	33700
29	31400	16100	15600	19500	---	25200	43200	47600	39800	32000	32300	33600
30	29700	15900	16700	19800	---	29400	40600	55300	38900	31700	31900	33600
31	27100	---	16300	19900	---	32100	---	54600	---	32900	32300	---

## 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 mi<sup>2</sup>, 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. 4 to Feb. 6, and Feb. 8, 9, 11. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	81	112	95	75	262	415	1650	1790	619	200	86
2	77	78	106	97	94	1020	401	1340	3480	579	191	109
3	101	90	86	95	500	2240	382	1180	3840	538	188	103
4	119	192	81	95	1000	905	368	1380	2150	500	180	98
5	134	216	87	91	2000	667	356	3160	1580	468	203	84
6	130	197	97	86	2420	618	341	5840	4260	441	228	77
7	118	184	98	87	1680	493	330	3130	2490	418	207	78
8	91	143	82	86	1320	419	312	2300	1640	396	207	89
9	79	132	90	80	976	368	307	1830	1330	1900	227	119
10	78	131	100	77	879	347	302	1550	1170	1330	333	137
11	81	123	106	74	717	329	307	1350	1160	1630	345	140
12	82	116	102	67	560	237	332	1220	1550	1260	242	139
13	83	116	110	65	448	383	2310	1120	1260	1270	215	115
14	83	113	116	63	411	396	5540	1010	4520	750	185	98
15	77	105	122	57	186	402	5940	996	13100	574	160	88
16	75	96	121	50	236	365	3000	872	6360	493	151	82
17	72	92	118	51	301	510	2040	1410	3150	438	145	77
18	66	89	127	52	371	878	4570	2690	2200	400	144	74
19	69	93	129	55	353	1210	11200	1630	1740	368	178	69
20	73	99	122	61	407	1010	6220	1170	1440	344	144	68
21	84	107	102	64	383	861	4760	4280	1700	325	125	65
22	84	95	93	64	335	748	3570	5360	5810	324	116	63
23	81	88	100	64	313	915	2760	3460	2510	426	111	63
24	81	82	99	59	280	958	2210	3370	1590	335	111	65
25	81	85	105	58	242	699	1760	4410	1300	276	110	63
26	75	91	97	57	219	601	1470	3360	1130	249	103	65
27	70	118	89	55	194	660	3960	1980	973	234	96	61
28	69	138	92	57	189	601	4570	1460	844	225	89	61
29	74	123	97	57	---	572	2750	1250	742	224	84	63
30	74	105	97	57	---	497	2000	3210	674	214	83	61
31	76	---	95	63	---	445	---	3070	---	208	83	---
MEAN	84.4	117	103	69.0	610	665	2493	2324	2583	573	167	85.3
MAX	134	216	129	97	2420	2240	11200	5840	13100	1900	345	140
MIN	66	78	81	50	75	237	302	872	674	208	83	61
IN.	.07	.09	.09	.06	.46	.56	2.02	1.94	2.09	.48	.14	.07

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

	548	444	549	361	752	956	1592	1691	1625	989	579	687
MEAN	548	444	549	361	752	956	1592	1691	1625	989	579	687
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 1990 CALENDAR YEAR		FOR 1991 WATER YEAR		FOR PERIOD OF RECORD	
ANNUAL MEAN	720		819		850	
HIGHEST ANNUAL MEAN					1516	
LOWEST ANNUAL MEAN					320	
HIGHEST DAILY MEAN	10900	Jun 17	13100	Jun 15	23600	Sep 9 1989
LOWEST DAILY MEAN	66	Oct 18	50	Jan 16	28	Jun 9 1989
INSTANTANEOUS PEAK FLOW	17600	Jun 14	15100	Jun 15	26600	Sep 10 1989
INSTANTANEOUS PEAK STAGE	18.59	Jun 14	17.13	Jun 15	23.34	Sep 10 1989
INSTANTANEOUS LOW FLOW	57	Dec 3-4	50	Jan 16	23	Sep 9 1985
ANNUAL SEVEN-DAY MINIMUM	74	Oct 14	56	Jan 14	33	May 24 1989
ANNUAL RUNOFF (INCHES)	7.08		8.06		8.37	
10 PERCENT EXCEEDS	1580		2300		2220	
50 PERCENT EXCEEDS	337		208		368	
90 PERCENT EXCEEDS	86		71		61	



## MISSOURI RIVER MAIN STEM

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 and at mile 448.2.

DRAINAGE AREA.--420,300 mi<sup>2</sup>, 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 from Oct. 21, 1931 to Dec. 31, 1933, water-stage recorder at same site at datum 5.50 ft higher.

REMARKS.--No estimated daily discharges. Water-discharge records good. 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 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers. Flood of June 1844 reached a stage of 24.5 ft, discharge, about 350,000 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34800	27100	16600	17100	20300	21600	33100	42700	52300	40700	34100	32500
2	35000	25200	15700	17100	20500	22300	33800	41800	52400	40800	32800	33100
3	35800	23200	16000	17100	22800	25100	34000	41300	79100	37300	32600	32900
4	35400	21900	16400	18200	25100	32000	33400	42200	68700	39500	33200	33000
5	36100	20600	16800	19300	25800	26900	33300	46900	60500	39600	33600	33300
6	35900	19400	16700	20000	26200	21900	33200	48100	74700	35400	34000	33600
7	35100	18400	15900	19800	25200	21000	33600	48100	95300	35600	33800	33500
8	34400	18000	16800	19500	25300	21400	33800	47000	79700	35700	33700	34100
9	34200	18100	17500	19400	25100	20700	34400	44200	61600	34100	34400	36300
10	34600	18000	17300	19300	26100	19800	34600	43400	55600	50400	35600	35100
11	34300	16900	17500	19500	27100	19300	34100	43500	55600	50900	36800	34300
12	34200	17200	17800	19600	27000	19300	34500	43800	53400	41000	35800	34700
13	33800	17400	17600	19600	25700	19700	36800	45000	51400	38200	34500	35400
14	33400	17400	17400	19600	24800	20100	46900	45600	48300	38300	34100	35300
15	33200	17300	17500	19900	24000	20700	61200	42200	100000	35900	33800	36200
16	33000	17300	17300	20000	22700	21800	55600	43200	111000	35400	33800	35800
17	33400	17300	17200	20200	22000	21400	47100	54400	103000	35200	33900	35500
18	33600	17300	17200	20200	22000	21000	46400	54900	82100	32800	35400	34800
19	33500	17300	17400	20200	21800	22600	54200	51400	66300	33100	34700	34500
20	33700	17500	17200	20400	23800	23200	50100	51400	56500	33500	33900	34800
21	33600	17400	16400	20100	27100	23200	46700	48400	50600	31500	33300	34500
22	33400	17500	15900	19800	28000	22300	45900	56000	65700	33300	32600	34200
23	33600	17200	14300	19700	26800	21400	45000	50600	60800	34900	32300	34200
24	33400	16900	11300	19400	27600	21400	43900	47600	51200	33600	32300	33900
25	32900	17000	8120	19200	26400	21900	42700	53400	50400	32700	32400	34100
26	33300	16900	7330	19700	25400	22800	42100	53500	46700	33700	32100	34300
27	33400	17800	8120	20800	24300	23400	53700	46900	43200	32900	31800	34400
28	33200	17600	10800	20900	22200	25400	48700	48300	44400	33000	32000	34700
29	32800	17200	14000	20300	---	24200	51900	49800	43300	33500	32100	34400
30	31800	17000	17000	19900	---	26800	44300	51100	39900	32700	31900	34600
31	29700	---	17600	20300	---	30400	---	61000	---	33200	31700	---
MEAN	33820	18510	15510	19550	24680	22740	42300	47990	63460	36400	33520	34400
MAX	36100	27100	17800	20900	28000	32000	61200	61000	111000	50900	36800	36300
MIN	29700	16900	7330	17100	20300	19300	33100	41300	39900	31500	31700	32500
IN.	.09	.05	.04	.05	.06	.06	.11	.13	.17	.10	.09	.09

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

	MEAN	38470	35090	22150	19470	26430	44310	57160	51550	65020	53340	40890	40030
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	32610		32730		41180	
HIGHEST ANNUAL MEAN					72080	1984
LOWEST ANNUAL MEAN					20490	1940
HIGHEST DAILY MEAN	134000	Jun 20	111000	Jun 16	380000	Apr 22 1952
LOWEST DAILY MEAN	7330	Dec 26	7330	Dec 26	2300	Jan 9 1937
INSTANTANEOUS PEAK FLOW	140000	Jun 20	117000	Jun 15	397000	Apr 22 1952
INSTANTANEOUS PEAK STAGE	21.77	Jun 20	20.28	Jun 15	26.82	Apr 22 1952
INSTANTANEOUS LOW FLOW	7000	Dec 26	7000	Dec 26	2300	Jan 9 1937
ANNUAL SEVEN-DAY MINIMUM	10600	Dec 23	10600	Dec 23	3330	Jan 7 1937
ANNUAL RUNOFF (INCHES)	1.05		1.06		1.33	
10 PERCENT EXCEEDS	45700		51000		69500	
50 PERCENT EXCEEDS	33200		33200		37000	
90 PERCENT EXCEEDS	17400		17300		15000	

## 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 December 1984, July 1985 to September 1985, and April 1986 to September 1986.

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

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

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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
OCT												
10...	0745	34500	753	8.5	14.5	26	9.4	92	120	21	240	58
NOV												
06...	0730	19700	748	8.4	10.0	30	10.0	89	K2300	440	270	66
DEC												
04...	0800	16300	743	8.3	3.0	20	14.0	103	K1200	130	260	66
JAN												
08...	0900	19600	816	8.0	0.0	5.5	15.4	105	80	K16	260	64
FEB												
05...	0745	25800	618	8.0	2.5	83	12.2	89	770	6300	210	55
MAR												
05...	0745	28200	578	7.9	4.0	450	11.5	89	1200	4700	200	55
APR												
03...	0745	34000	630	8.1	10.0	74	9.7	86	80	220	230	59
MAY												
16...	0700	42800	674	8.3	21.5	65	7.1	81	120	160	250	64
JUN												
04...	0815	70500	534	7.8	24.0	870	4.2	50	23000	18000	180	49
JUL												
15...	1030	36000	704	8.1	26.5	64	7.0	87	340	130	230	60
AUG												
09...	0700	34100	747	8.5	26.0	37	7.3	90	240	77	230	57
SEP												
09...	0700	36100	735	8.3	25.0	55	7.2	88	K810	K1000	230	57

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED PER AC-FT) (70303)
OCT											
10...	23	73	5.6	161	210	19	0.40	8.1	493	495	0.67
NOV											
06...	25	68	6.0	206	170	26	0.40	13	482	501	0.66
DEC											
04...	23	61	5.7	212	150	26	0.60	16	482	475	0.66
JAN											
08...	23	74	5.8	151	200	26	0.60	15	525	503	0.71
FEB											
05...	18	54	6.4	166	130	23	0.40	14	379	406	0.52
MAR											
05...	16	41	6.7	180	95	24	0.30	14	364	371	0.50
APR											
03...	19	45	5.6	171	130	16	0.40	15	387	400	0.53
MAY											
16...	21	46	5.6	180	140	21	0.50	10	442	431	0.60
JUN											
04...	15	36	6.1	129	92	17	0.50	11	339	318	0.46
JUL											
15...	20	54	5.9	193	160	19	0.60	9.6	445	452	0.61
AUG											
09...	21	67	6.0	155	200	20	0.60	8.1	464	475	0.63
SEP											
09...	21	72	6.0	168	210	21	0.70	8.3	480	497	0.65

## MISSOURI RIVER MAIN STEM

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

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 10...	45900	<0.010	0.200	<0.010	<0.010	0.50	0.090	0.020	0.030	--	--
NOV 06...	25600	<0.010	0.500	0.020	0.020	0.60	0.160	0.050	0.060	412	31
DEC 04...	21200	<0.010	<0.100	0.110	0.020	0.70	0.170	0.080	0.030	--	--
JAN 08...	27800	0.010	0.600	0.160	0.160	0.70	0.100	0.050	0.050	171	12
FEB 05...	26400	0.030	1.10	0.290	0.290	0.60	0.190	0.130	0.110	--	--
MAR 05...	27700	0.030	2.40	0.210	0.220	2.7	0.210	0.090	0.090	2950	--
APR 03...	35500	0.020	1.50	0.040	0.040	0.60	0.230	0.090	0.080	--	--
MAY 16...	51100	0.030	3.20	0.040	0.010	1.5	0.350	0.080	0.080	521	--
JUN 04...	64500	0.020	3.10	<0.010	<0.010	1.8	2.90	0.120	0.090	--	--
JUL 15...	43300	0.010	1.50	0.050	0.020	1.6	0.340	0.070	0.090	--	--
AUG 09...	42700	<0.010	0.490	0.020	0.020	0.70	0.210	0.050	0.050	--	--
SEP 09...	46800	<0.010	0.220	0.020	<0.010	0.80	0.220	0.060	0.040	543	47

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 06...	<10	2	98	<0.5	<1.0	<1	<3	2	9	<1
JAN 08...	10	2	100	<0.5	<1.0	<1	<3	2	<3	<1
MAY 16...	<10	3	110	<0.5	<1.0	<1	<3	2	18	<1
JUL 15...	<10	3	130	<0.5	<1.0	<1	<3	5	<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 06...	47	3	<0.1	<10	1	1	<1.0	600	<6	6
JAN 08...	50	9	<0.1	<10	2	3	<1.0	580	<6	9
MAY 16...	36	2	<0.1	<10	<1	2	<1.0	440	<6	13
JUL 15...	40	1	<0.1	<10	2	2	<1.0	460	<6	7

## MISSOURI RIVER MAIN STEM

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

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	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. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT								
19...	33400	110	--	--	--	--	--	73
19...	33400	284	--	--	--	--	--	29
19...	33400	329	--	--	--	--	--	25
19...	33400	233	--	--	--	--	--	20
19...	33400	193	--	--	--	--	--	45
NOV								
09...	18000	178	--	--	--	--	--	57
09...	18000	233	--	--	--	--	--	43
09...	18000	267	--	--	--	--	--	38
09...	18000	139	--	--	--	--	--	73
09...	18000	259	--	--	--	--	--	36
DEC								
11...	17500	92	--	--	--	--	--	54
11...	17500	304	--	--	--	--	--	20
11...	17500	336	--	--	--	--	--	18
11...	17500	157	--	--	--	--	--	33
11...	17500	78	--	--	--	--	--	67
FEB								
13...	25800	515	--	--	--	--	--	42
13...	25800	276	--	--	--	--	--	72
13...	25800	515	--	--	--	--	--	42
13...	25800	405	--	--	--	--	--	52
13...	25800	285	--	--	--	--	--	68
MAR								
26...	22500	519	96	97	99	100	--	--
26...	22500	642	82	85	99	100	--	--
26...	22500	792	57	59	80	100	--	--
26...	22500	468	86	88	99	100	--	--
26...	22500	411	94	98	100	--	--	--
APR								
16...	58600	3560	94	94	95	99	100	--
16...	58600	3710	90	93	99	100	--	--
16...	58600	3630	89	92	100	--	--	--
16...	58600	3600	87	90	99	100	--	--
16...	58600	3260	93	95	99	100	--	--
MAY								
13...	44400	437	--	--	--	--	--	75
13...	44400	538	--	--	--	--	--	57
13...	44400	428	--	--	--	--	--	66
13...	44400	606	--	--	--	--	--	45
13...	44400	395	--	--	--	--	--	73
JUN								
11...	56000	1100	96	98	100	--	--	--
11...	56000	1440	79	84	96	100	--	--
11...	56000	1370	77	82	98	100	--	--
11...	56000	1410	79	83	96	100	--	--
JUL								
11...	53000	2390	90	93	99	100	--	--
11...	53000	2190	91	94	99	100	--	--
11...	53000	--	91	94	100	--	--	--
11...	53000	2230	96	97	99	100	--	--
SEP								
19...	34600	125	--	--	--	--	--	84
19...	34600	194	--	--	--	--	--	51
19...	34600	337	--	--	--	--	--	28
19...	34600	267	--	--	--	--	--	39
19...	34600	234	--	--	--	--	--	49

## MISSOURI RIVER MAIN STEM

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

## 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	0	3	56	97	100	100	100
19...	0	1	27	91	99	100	100	100
19...	0	1	76	98	100	100	100	100
19...	0	1	43	71	94	99	100	100
NOV								
09...	1	1	5	49	88	97	100	100
09...	0	0	17	84	99	100	100	100
09...	0	1	55	93	99	100	100	100
09...	0	0	59	99	100	100	100	100
09...	0	2	81	99	100	100	100	100
DEC								
11...	0	0	2	64	88	95	99	100
11...	0	0	4	75	98	100	100	100
11...	0	0	19	47	75	98	100	100
11...	0	1	54	96	99	100	100	100
11...	1	1	82	99	100	100	100	100
FEB								
13...	0	0	0	21	76	96	100	100
13...	0	0	12	47	82	97	100	100
13...	0	0	53	87	98	100	100	100
13...	0	1	71	88	97	100	100	100
13...	0	1	66	95	99	100	100	100
MAR								
26...	0	0	2	52	87	98	100	100
26...	0	0	21	66	90	96	100	100
26...	0	0	26	81	97	99	100	100
26...	0	0	21	84	100	100	100	100
26...	0	1	73	96	100	100	100	100
APR								
16...	1	1	4	43	89	99	100	100
16...	0	0	4	37	85	95	98	100
16...	1	1	3	83	100	100	100	100
16...	0	0	38	90	100	100	100	100
16...	0	0	3	88	100	100	100	100
MAY								
13...	0	0	16	88	98	100	100	100
13...	0	0	78	100	100	100	100	100
13...	0	0	23	72	95	99	100	100
13...	1	1	76	99	100	100	100	100
13...	0	1	57	98	100	100	100	100
JUN								
11...	1	1	1	22	99	100	100	100
11...	1	1	10	79	100	100	100	100
11...	1	1	55	100	100	100	100	100
11...	1	1	19	59	98	100	100	100
11...	1	1	15	64	99	100	100	100
JUL								
11...	0	0	19	74	97	99	100	100
11...	0	1	59	91	99	100	100	100
11...	0	0	22	53	72	87	96	100
11...	0	0	2	82	99	100	100	100
SEP								
19...	0	0	1	43	96	100	100	100
19...	0	0	22	83	100	100	100	100
19...	0	0	34	78	99	100	100	100
19...	0	0	29	84	98	99	100	100
19...	0	0	75	99	100	100	100	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, 1.0 mi east of Maryville and at mile 64.0.

DRAINAGE AREA.--515 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1932 to December 1990 (discontinued). 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 3.0 mi upstream at datum 5.68 ft higher.

REMARKS.--Estimated daily discharge: Dec. 7. 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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	5.0	15	---	---	---	---	---	---	---	---	---
2	7.5	5.4	5.2	---	---	---	---	---	---	---	---	---
3	27	11	9.8	---	---	---	---	---	---	---	---	---
4	26	42	15	---	---	---	---	---	---	---	---	---
5	16	53	18	---	---	---	---	---	---	---	---	---
6	14	37	13	---	---	---	---	---	---	---	---	---
7	12	21	10	---	---	---	---	---	---	---	---	---
8	11	17	15	---	---	---	---	---	---	---	---	---
9	15	17	10	---	---	---	---	---	---	---	---	---
10	15	14	15	---	---	---	---	---	---	---	---	---
11	11	11	16	---	---	---	---	---	---	---	---	---
12	9.8	6.3	19	---	---	---	---	---	---	---	---	---
13	7.8	4.2	23	---	---	---	---	---	---	---	---	---
14	7.6	11	29	---	---	---	---	---	---	---	---	---
15	6.7	16	16	---	---	---	---	---	---	---	---	---
16	5.9	16	15	---	---	---	---	---	---	---	---	---
17	6.2	12	21	---	---	---	---	---	---	---	---	---
18	8.6	8.6	23	---	---	---	---	---	---	---	---	---
19	6.8	8.5	26	---	---	---	---	---	---	---	---	---
20	6.6	8.5	22	---	---	---	---	---	---	---	---	---
21	12	13	14	---	---	---	---	---	---	---	---	---
22	11	14	14	---	---	---	---	---	---	---	---	---
23	9.2	8.4	7.5	---	---	---	---	---	---	---	---	---
24	9.3	7.8	9.2	---	---	---	---	---	---	---	---	---
25	8.0	8.2	8.0	---	---	---	---	---	---	---	---	---
26	7.8	13	4.6	---	---	---	---	---	---	---	---	---
27	13	24	7.2	---	---	---	---	---	---	---	---	---
28	7.0	18	3.3	---	---	---	---	---	---	---	---	---
29	4.8	19	.36	---	---	---	---	---	---	---	---	---
30	4.7	18	9.6	---	---	---	---	---	---	---	---	---
31	5.0	---	12	---	---	---	---	---	---	---	---	---
MEAN	10.4	15.6	13.7	---	---	---	---	---	---	---	---	---
MAX	27	53	29	---	---	---	---	---	---	---	---	---
MIN	4.7	4.2	.36	---	---	---	---	---	---	---	---	---
IN.	.02	.03	.03	---	---	---	---	---	---	---	---	---

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

	MEAN	149	118	82.1	102	234	419	336	410	478	219	134	168
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	.046	.59	1.12	.11	2.09	3.42	.74	.11	5.18	.50	.18	.026	
(WY)	1989	1989	1989	1977	1989	1954	1956	1989	1988	1989	1988	1988	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	337	237	
HIGHEST ANNUAL MEAN		658	1982
LOWEST ANNUAL MEAN		18.6	1934
HIGHEST DAILY MEAN	6930	25500	Oct 12 1973
LOWEST DAILY MEAN	.36	.00	Several Years
INSTANTANEOUS PEAK FLOW	12400	28000	Oct 12 1973
INSTANTANEOUS PEAK STAGE	14.73	19.25	Oct 12 1973
INSTANTANEOUS LOW FLOW	.00	.00	Several Years
ANNUAL SEVEN-DAY MINIMUM	5.7	.00	Several Years
ANNUAL RUNOFF (INCHES)	8.88	6.27	
10 PERCENT EXCEEDS	604	472	
50 PERCENT EXCEEDS	53	30	
90 PERCENT EXCEEDS	8.6	2.6	



## PLATTE RIVER BASIN

06820500 PLATTE RIVER NEAR AGENCY, MO

LOCATION.--Lat 39°41'20", 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 mi<sup>2</sup>, 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; Nov. 15, 1965 to Oct. 25, 1989, water-stage recorder at site 150 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 3, Dec. 12 to Jan. 19, Jan. 23 to Feb. 5, Mar. 2, 18, 27, and Apr. 15, 18, 19. 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 gage height and U.S. Army Corps of Engineers satellite telemeters at stations.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	25	85	70	90	188	403	1800	1310	218	82	30
2	44	25	76	68	200	1050	372	1270	934	206	76	31
3	117	25	75	66	1500	2480	338	1050	2350	205	69	30
4	203	86	80	65	5500	1380	315	1170	1690	182	67	32
5	101	90	69	65	5000	713	295	8890	1190	153	66	29
6	72	115	69	65	2060	578	266	11700	736	140	71	23
7	77	122	77	65	1310	497	248	5540	664	128	98	24
8	63	112	75	65	952	409	220	2210	737	118	123	36
9	55	122	76	66	768	348	222	1600	579	112	99	32
10	54	91	67	66	622	296	221	1310	596	1480	92	28
11	50	76	67	68	527	259	224	1130	668	3320	83	29
12	44	64	65	70	472	241	226	997	484	6120	83	30
13	44	60	60	70	451	243	316	904	671	2180	86	29
14	41	56	50	80	354	268	3520	828	612	1030	69	39
15	34	47	30	120	208	380	7060	776	471	640	61	49
16	33	46	22	100	355	395	2700	722	3400	476	61	64
17	32	38	20	90	277	399	1570	671	2250	375	60	50
18	30	36	20	100	275	930	5820	787	1020	307	52	48
19	28	41	25	200	268	1900	13200	823	696	256	47	36
20	27	42	30	555	249	1400	11300	680	544	222	42	32
21	37	44	20	525	254	1050	3620	611	489	191	41	28
22	30	44	20	471	260	819	2070	651	1100	165	40	27
23	31	44	20	400	228	670	1570	959	1300	149	39	25
24	34	43	28	325	211	583	1280	1080	724	375	38	21
25	33	41	20	275	183	541	1110	1480	538	418	36	20
26	31	41	19	225	163	466	989	2170	441	223	39	20
27	31	57	30	180	141	952	9280	4060	375	148	38	20
28	29	179	60	150	135	1100	8060	1600	325	118	34	16
29	25	175	70	125	---	969	4220	992	279	99	31	15
30	25	115	65	110	---	621	3670	845	245	89	30	16
31	25	---	60	100	---	488	---	2150	---	87	33	---
MEAN	49.1	70.1	50.0	161	822	729	2823	1982	914	643	60.8	30.3
MAX	203	179	85	555	5500	2480	13200	11700	3400	6120	123	64
MIN	25	25	19	65	90	188	220	611	245	87	30	15
IN.	.03	.04	.03	.11	.49	.48	1.79	1.30	.58	.42	.04	.02

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

	MEAN	676	521	338	383	808	1368	1386	1458	1955	874	455	877
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	.016	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	840	691	925
HIGHEST ANNUAL MEAN			2671
LOWEST ANNUAL MEAN			67.4
HIGHEST DAILY MEAN	13100	Mar 16	50800
LOWEST DAILY MEAN	19	Dec 26	.00
INSTANTANEOUS PEAK FLOW	13600	Mar 16	53000
INSTANTANEOUS PEAK STAGE	23.20	Mar 16	35.05
INSTANTANEOUS LOW FLOW	24**	Nov 3	.00
ANNUAL SEVEN-DAY MINIMUM	22	Dec 17	.00
ANNUAL RUNOFF (INCHES)	6.48		7.14
10 PERCENT EXCEEDS	2090		1530
50 PERCENT EXCEEDS	210		148
90 PERCENT EXCEEDS	37		30

\*\*Minimum recorded, may have been less during period of ice, Dec. 12-31.

## PLATTE RIVER BASIN

## 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, 1.0 mi northeast of Smithville and 5.0 mi north of Kansas City.

DRAINAGE AREA.--213 mi<sup>2</sup>.

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 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 182,209 acre-ft (elevation 876.2 ft to 891.1 ft); of flood control pool 101,800 acre-ft (elevations 864.2 to 876.2 ft); and of multipurpose pool 144,600 acre-ft (elevations 799.0 ft to 864.2 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, 155,000 acre-ft, May 9, elevation, 866.07 ft; minimum, 134,000 acre-ft, Dec. 28 and April 12, elevation, 863.17 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	864.27	864.05	864.17	863.32	863.81	863.93	863.58	865.67	865.59	864.27	863.65	863.28
2	864.26	864.05	864.17	863.32	863.82	864.00	863.56	865.69	865.61	864.26	863.64	863.26
3	864.35	864.05	864.17	863.32	864.00	863.98	863.52	865.69	865.61	864.25	863.69	863.24
4	864.40	864.25	864.18	863.32	864.45	863.95	863.48	865.63	865.61	864.21	863.67	863.26
5	864.40	864.25	864.18	863.32	864.68	863.92	863.45	865.83	865.61	864.19	863.66	863.23
6	864.38	864.25	864.14	863.32	864.77	863.91	863.39	865.97	865.58	864.16	863.64	863.21
7	864.45	864.24	864.14	863.32	864.79	863.84	863.36	866.02	865.54	864.14	863.62	863.20
8	864.39	864.23	864.14	863.32	864.78	863.79	863.33	866.06	865.47	864.13	863.63	863.22
9	864.37	864.24	864.14	863.32	864.76	863.74	863.27	866.07	865.43	864.09	863.64	863.21
10	864.34	864.24	864.14	863.32	864.76	863.70	863.20	865.99	865.39	864.17	863.50	863.26
11	864.32	864.24	864.16	863.33	864.74	863.64	863.23	865.84	865.35	864.14	863.57	863.27
12	864.31	864.24	864.17	863.34	864.71	863.62	863.17	865.71	865.30	864.13	863.57	863.26
13	864.31	864.24	864.19	863.34	864.67	863.59	863.27	865.58	865.25	864.12	863.54	863.25
14	864.29	864.26	864.16	863.36	864.63	863.55	863.45	865.45	865.18	864.10	863.53	863.22
15	864.29	864.27	864.06	863.37	864.57	863.51	863.68	865.66	865.13	864.09	863.52	863.24
16	864.26	864.30	863.96	863.46	864.49	863.45	863.72	865.65	865.11	864.06	863.50	863.24
17	864.23	864.28	863.85	863.47	864.46	863.42	863.77	865.57	865.05	864.04	863.52	863.20
18	864.22	864.27	863.81	863.49	864.44	863.42	864.06	865.47	864.99	864.02	863.49	863.23
19	864.19	864.26	863.66	863.63	864.40	863.18	864.62	865.32	864.93	863.99	863.48	863.16
20	864.16	864.24	863.58	863.69	864.35	863.22	864.65	865.19	864.85	863.97	863.44	863.13
21	864.16	864.24	863.44	863.72	864.30	863.24	864.66	865.13	864.79	863.95	863.43	863.11
22	864.15	864.27	863.41	863.72	864.28	863.26	864.67	865.16	864.79	863.92	863.41	863.07
23	864.12	864.26	863.34	863.74	864.22	863.25	864.69	865.17	864.75	863.94	863.40	863.06
24	864.12	864.26	863.31	863.75	864.18	863.24	864.76	865.27	864.69	863.90	863.40	863.05
25	864.17	864.25	863.29	863.77	864.11	863.25	864.80	865.40	864.64	863.87	863.39	863.02
26	864.10	864.25	863.26	863.77	864.07	863.24	864.83	865.43	864.59	863.84	863.33	863.01
27	864.08	864.28	863.22	863.79	863.99	863.40	864.85	865.55	864.54	863.82	863.34	863.00
28	864.07	864.25	863.17	863.80	863.97	863.68	864.93	865.57	864.48	863.71	863.32	862.99
29	864.07	864.23	863.31	863.81	---	863.73	865.45	865.59	864.41	863.70	863.30	862.97
30	864.05	864.21	863.32	863.81	---	863.66	865.62	865.60	864.35	863.67	863.30	862.96
31	864.05	---	863.32	863.81	---	863.60	---	865.58	---	863.65	863.29	---
(-)	141000	142000	135000	139000	140000	137000	152000	152000	143000	138000	135000	133000
(=)	-1000	+1000	-7000	+4000	+1000	-3000	+15000	0	-9000	-5000	-3000	-2000
MAX	864.45	864.30	864.19	863.81	864.79	864.00	865.62	866.07	865.61	864.27	863.69	863.28
MIN	864.05	864.05	863.17	863.32	863.81	863.18	863.17	865.13	864.35	863.65	863.29	862.96

CAL YR 1990 . . . -8000

WTR YR 1991 . . . -9000

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

(=) Change in contents, in acre-feet

## 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 mi downstream from Smithville Lake and at mile 11.1.

DRAINAGE AREA.--234 mi<sup>2</sup>.

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 March 23, 1966, nonrecording gage at site 1,500 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 7-17, 20-26, Dec. 28 to Jan. 11, and Jan. 21, 25, 26, 30. Records fair except for estimated daily discharges, which are poor. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.1	11	12	45	226	208	18	26	96	13	8.0
2	11	9.6	11	11	276	246	207	156	48	12	11	8.0
3	31	12	12	11	138	221	206	303	25	11	18	8.4
4	14	174	12	12	72	217	207	303	23	12	9.4	9.3
5	12	29	12	13	36	217	207	334	21	12	10	9.0
6	11	17	12	12	25	217	206	137	20	11	9.8	8.6
7	16	13	11	11	124	214	206	20	139	11	9.8	8.6
8	12	12	11	12	220	214	206	18	224	11	10	9.1
9	12	27	11	14	220	213	203	288	227	11	9.5	9.4
10	11	15	11	14	216	213	92	618	225	12	9.5	9.5
11	11	13	11	14	216	213	13	617	230	11	9.6	12
12	10	12	11	14	215	214	13	617	222	11	9.4	8.9
13	10	11	11	14	216	214	44	618	221	11	9.2	8.5
14	11	11	150	14	216	214	335	615	220	10	9.1	8.4
15	9.0	11	428	69	211	212	45	460	221	11	9.0	8.5
16	8.5	11	428	101	212	212	28	578	223	10	9.2	8.7
17	8.5	11	428	22	213	221	28	574	218	10	9.2	9.7
18	8.5	11	428	18	214	134	372	568	216	10	9.1	14
19	8.7	11	427	128	214	17	72	563	215	9.8	9.1	9.5
20	8.5	11	426	145	213	18	39	416	214	9.8	8.9	8.5
21	8.5	11	267	24	213	17	31	18	253	9.9	8.9	8.0
22	9.1	12	96	19	213	17	27	19	256	9.8	9.2	7.9
23	9.0	11	96	22	213	17	24	25	218	11	8.9	8.2
24	8.8	11	96	19	212	16	23	55	214	10	9.9	8.2
25	8.5	11	96	17	212	17	23	47	213	10	131	7.9
26	8.5	11	96	17	212	17	22	25	212	9.7	8.4	7.9
27	8.5	12	50	17	210	49	22	638	210	8.9	8.2	8.0
28	8.5	12	13	16	210	20	25	63	210	9.7	8.0	8.0
29	8.9	12	12	16	---	107	52	36	209	9.5	8.8	8.3
30	8.6	11	11	16	---	207	21	29	208	9.6	8.7	7.9
31	8.9	---	11	16	---	209	---	27	---	9.9	7.9	---
MEAN	13.9	18.2	120	27.7	186	147	107	284	179	13.2	13.5	8.83
MAX	111	174	428	145	276	246	372	638	256	96	131	14
MIN	8.5	9.1	11	11	25	16	13	18	20	8.9	7.9	7.9
IN.	.07	.09	.59	.14	.83	.72	.51	1.40	.86	.07	.07	.04

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

MEAN	156	117	72.7	78.5	101	172	219	291	251	223	87.0	199
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	.052	.074	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	184	92.6	155
HIGHEST ANNUAL MEAN			403
LOWEST ANNUAL MEAN			35.4
HIGHEST DAILY MEAN	3360	May 15	41000
LOWEST DAILY MEAN	7.4	Jul 23	.00
INSTANTANEOUS PEAK FLOW	7550	May 15	76600
INSTANTANEOUS PEAK STAGE	30.99	May 15	44.8
INSTANTANEOUS LOW FLOW	4.5	Jul 24	.00
ANNUAL SEVEN-DAY MINIMUM	8.6	Oct 15	.00
ANNUAL RUNOFF (INCHES)	10.67		9.02
10 PERCENT EXCEEDS	731		350
50 PERCENT EXCEEDS	18		25
90 PERCENT EXCEEDS	10		4.3

## PLATTE RIVER BASIN

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 mi<sup>2</sup>.

## 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: Dec. 22-24, 30, and 31. Water-discharge records fair. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	54	150	116	150	373	951	4640	2790	431	115	59
2	82	53	122	125	623	621	846	2750	1690	281	114	55
3	123	59	111	122	1420	1970	800	2310	1520	254	108	53
4	169	336	111	109	3810	3110	769	2080	2900	248	110	81
5	215	316	114	103	5630	1680	748	6110	2120	233	100	95
6	144	194	107	97	5020	1020	725	10000	1380	208	98	67
7	147	164	100	95	2710	839	694	11100	919	191	99	57
8	129	157	99	94	1860	743	667	10200	1030	180	113	55
9	112	180	102	95	1410	650	647	4100	1180	172	139	60
10	97	188	103	96	1130	592	608	3010	905	192	130	64
11	90	147	103	99	923	553	444	2610	1060	2160	114	58
12	87	123	99	100	798	530	449	2360	1040	4920	108	58
13	81	108	99	100	738	530	500	2170	766	5630	101	55
14	87	99	124	104	694	550	2030	2010	959	2160	103	51
15	142	93	433	115	511	580	7160	1730	935	1000	98	57
16	69	89	448	280	382	699	7410	1760	1390	590	86	64
17	64	80	452	231	507	764	3580	1660	4170	411	91	68
18	61	75	464	156	508	843	5530	1570	2380	324	86	99
19	58	71	474	183	491	1690	9070	1710	1250	268	81	78
20	54	72	463	876	472	2530	10400	1690	901	229	75	59
21	53	80	406	616	449	1880	11500	1050	831	197	69	51
22	54	83	138	657	449	1440	9350	876	1090	179	70	44
23	68	79	135	447	453	1120	3610	972	1720	174	68	42
24	62	76	140	404	422	912	2420	1500	1560	155	85	42
25	64	74	141	355	401	799	2010	1780	988	285	77	41
26	67	74	138	290	383	742	1810	2370	764	362	142	40
27	62	87	131	252	366	1680	3590	4550	648	223	61	38
28	61	101	73	202	354	2560	9340	4210	591	167	64	38
29	61	145	146	177	---	1810	10500	1970	533	144	64	37
30	59	189	115	163	---	1560	7840	1270	485	130	75	36
31	56	---	110	153	---	1140	---	1250	---	122	65	---
MEAN	88.8	122	192	226	1181	1178	3867	3141	1350	717	93.8	56.7
MAX	215	336	474	876	5630	3110	11500	11100	4170	5630	142	99
MIN	53	53	73	94	150	373	444	876	485	122	61	36
IN.	.04	.06	.09	.11	.52	.57	1.81	1.52	.63	.35	.05	.03

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

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	1409	736	1069	588	1304	2348	2207	2968	2790	2057	1096	1383			
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	56.7			
(WY)	1989	1989	1989	1989	1989	1989	1989	1989	1988	1988	1988	1991			

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	1442	1013	1654
HIGHEST ANNUAL MEAN			3376
LOWEST ANNUAL MEAN			464
HIGHEST DAILY MEAN	11700	May 16	28300
LOWEST DAILY MEAN	53	Oct 21, Nov 2	12
INSTANTANEOUS PEAK FLOW	12300	May 16	29000
INSTANTANEOUS PEAK STAGE	30.06	May 16	34.55
INSTANTANEOUS LOW FLOW	51	Oct 22	12
ANNUAL SEVEN-DAY MINIMUM	58	Oct 28	14
ANNUAL RUNOFF (INCHES)	8.23		9.44
10 PERCENT EXCEEDS	4010		4200
50 PERCENT EXCEEDS	406		579
90 PERCENT EXCEEDS	85		61

## 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 1990 TO SEPTEMBER 1991

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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
06...	1100	192	445	7.8	7.5	67	9.4	79	2500	1400	210	64
JAN												
08...	1130	95	620	7.5	0.0	13	8.6	59	1100	570	260	78
MAY												
16...	1045	1770	380	7.8	20.5	150	7.5	84	1000	1600	170	51
JUL												
15...	1300	949	207	7.6	26.0	400	6.8	83	10000	3700	83	25
DATE		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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV												
06...	12	16	6.2	--	37	15	0.30	9.1	273	256	0.37	
JAN												
08...	15	29	7.8	240	55	31	0.50	11	366	377	0.50	
MAY												
16...	10	11	4.8	150	27	12	0.30	7.8	248	228	0.34	
JUL												
15...	4.8	6.3	4.8	84	12	5.7	0.30	9.5	123	130	0.17	

## PLATTE RIVER BASIN

06821190 PLATTE RIVER AT SHARPS STATION, MO--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 06...	142	0.010	0.700	<0.010	0.010	1.2	0.380	0.080	0.090	190	77
JAN 08...	93.9	0.020	0.700	0.390	0.360	1.3	0.310	0.070	0.070	60	21
MAY 16...	1190	0.040	3.00	0.130	0.060	2.0	0.390	0.080	0.070	1150	--
JUL 15...	315	0.030	2.30	0.010	0.030	3.8	0.630	0.080	0.110	1590	98

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 06...	70	2	150	<0.5	<1.0	<1	<3	2	140	<1
JAN 08...	10	<1	160	<0.5	<1.0	<1	<3	2	130	<1
MAY 16...	10	2	160	<0.5	<1.0	<1	<3	3	14	<1
JUL 15...	50	2	240	<0.5	<1.0	<1	<3	4	85	<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 06...	7	560	<0.1	<10	2	<1	<1.0	300	<6	13
JAN 08...	8	790	<0.1	<10	3	<2	<1.0	350	<6	14
MAY 16...	5	78	<0.1	<10	1	<1	<1.0	240	<6	22
JUL 15...	<4	3	<0.1	<10	3	<1	<1.0	120	<6	23



## 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 mi<sup>2</sup>, 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 sea level. July 9, 1917, to Apr. 23, 1934, non-recording 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.--Records good except those for estimated daily discharges, which are poor. Natural flow of stream affected by lakes 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. Satellite telemeter at station.

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2320	1460	1090	e1090	e1440	1190	1160	4460	11900	2480	1790	1960
2	2570	1370	1170	e1080	e1480	1380	1300	3490	8730	2180	1860	1870
3	3160	1320	1070	e1060	e1480	1460	716	3040	8540	1980	1800	1850
4	3230	1760	1110	e1080	e1480	1470	1000	2770	10300	2120	2040	1730
5	3110	2360	1070	e1100	e1500	1280	965	3210	11500	1810	2350	1290
6	2940	1800	1110	e1120	e1550	1230	975	6580	14100	1550	2400	1350
7	3250	1650	1260	e1150	e1650	1220	968	5390	15700	1710	2190	1070
8	3180	1500	1230	e1170	1790	1240	959	4150	16500	1600	2120	1270
9	2710	1450	1090	e1200	1340	1320	947	3750	15600	1500	2080	1530
10	2510	1420	1220	e1220	1420	1210	963	3360	14500	1010	2080	1010
11	2920	1360	1170	e1240	1410	1180	987	3390	14000	1300	2040	1030
12	3590	1290	1110	e1250	1250	1130	1010	3340	17300	1280	1710	1090
13	3250	1170	1210	e1250	1320	1170	1320	3270	13100	1250	1420	646
14	2890	1190	1110	e1250	1380	1180	2260	3210	10900	1330	1690	e641
15	3090	1190	1180	e1250	1190	1170	3210	5440	8030	1200	1840	e676
16	3380	1120	1070	e1250	1240	1170	3470	9990	11200	1030	1760	823
17	3160	982	1100	e1280	1250	1310	2580	6830	7810	1100	1760	943
18	3130	1010	1090	e1320	1130	1380	3060	5650	5450	1350	1760	946
19	3180	1030	1180	e1400	1100	1310	4900	4360	4640	2250	1720	660
20	3180	1120	1300	e1400	1250	1450	3950	4550	4540	2310	1730	658
21	3010	1160	e1200	e1400	1340	1410	2770	5890	4790	2120	1730	691
22	3060	1130	e1120	e1400	1170	1380	2350	6120	4840	1490	1900	942
23	3180	1010	e1070	e1400	1290	1180	2130	6230	5910	923	1890	1060
24	3330	1070	e1040	e1370	1220	1240	1940	9660	5890	854	1950	966
25	3220	1070	e960	e1340	1250	1250	1400	9150	4940	921	2100	907
26	3100	1160	e910	e1300	1120	1230	1630	e8400	4240	901	2130	860
27	3170	1140	e960	e1270	1120	2410	2300	e7400	3830	1130	2100	e1010
28	2770	1190	e980	e1250	1130	3630	21600	9000	3370	1380	1980	e1020
29	1950	1220	e1020	e1300	---	e2350	10500	10100	3220	1560	1910	e996
30	1790	1220	e1040	e1320	---	1460	6290	9840	2850	1200	1850	e975
31	1470	---	e1070	e1400	---	1300	---	14300	---	1800	1860	---
MEAN	2929	1297	1107	1255	1332	1429	2987	6010	8941	1504	1921	1082
MAX	3590	2360	1300	1400	1790	3630	21600	14300	17300	2480	2400	1960
MIN	1470	982	910	1060	1100	1130	716	2770	2850	854	1420	641
AC-FT	180100	77200	68050	77180	73960	87850	177700	369600	532000	92470	118100	64400

e Estimated

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

MEAN	5735	4197	3169	2763	4287	6933	9288	10420	14700	10910	5967	6457
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	455	525
(WY)	1957	1957	1957	1957	1957	1967	1956	1989	1989	1936	1934	1956

### SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	5218		2650		7078	
HIGHEST ANNUAL MEAN					29350	1951
LOWEST ANNUAL MEAN					1326	1956
HIGHEST DAILY MEAN	48800	May 16	21600	Apr 28	486000	Jul 14 1951
LOWEST DAILY MEAN	910	Dec 26	641	Sep 14	160	Oct 11 1956
INSTANTANEOUS PEAK FLOW	52700	May 16	25900	Apr 28	510000	Jul 13 1951
INSTANTANEOUS PEAK STAGE	15.49	May 16	10.83	Apr 28	37.30	Jul 13 1951
INSTANTANEOUS LOW FLOW			633	Sep 13	160	Oct 11 1956
ANNUAL SEVEN-DAY MINIMUM	987	Dec 24	762	Sep 13	195	Oct 9 1956
10 PERCENT EXCEEDS	12700		5750		16700	
50 PERCENT EXCEEDS	2530		1420		3200	
90 PERCENT EXCEEDS	1180		1010		1070	

## 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 Unit 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 mi<sup>2</sup>, 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 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 706.40 ft above National Geodetic Vertical Datum of 1929. Prior to May 4, 1931, nonrecording gage; 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. Prior to Oct. 1, 1989 at datum 10.00 ft higher.

REMARKS.--Estimated daily discharges: Dec. 26 to Jan. 2 and Feb. 8-12. Water-discharge records good, except for estimated daily discharges, which are fair. 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 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35400	29600	18300	18500	20300	23300	31600	54100	73300	43000	33300	32900
2	35500	27000	17800	19100	21200	23200	34700	49100	62400	43900	34100	33700
3	37700	25500	17400	18600	23400	23900	35800	47000	70100	43100	32700	34600
4	38400	27500	16600	18600	28300	29500	35100	46900	85200	39700	32600	34100
5	37600	25700	17000	19700	35900	37200	34100	54900	75100	42500	33300	33700
6	37900	23700	17300	20700	35900	30600	33300	59800	73100	41700	34300	33800
7	39000	22000	17400	21800	33000	23900	33200	63100	95500	37400	34500	34000
8	37500	21200	16700	22100	30800	22400	33700	61500	98800	38100	34100	34100
9	36200	21200	16700	21800	29900	23000	34000	56900	82500	38000	33800	35000
10	35700	21000	17800	21400	29300	22400	34600	50900	71400	38200	34600	37700
11	36100	21000	17900	21000	29200	21200	34900	49400	69100	56000	35900	36000
12	36700	19700	17800	20800	29400	20600	34300	48800	68400	57200	37000	34500
13	36700	19200	18300	20900	29200	20600	37200	48700	64700	49000	35500	34700
14	35700	19300	18300	20800	27900	21000	41900	49900	59100	45000	34200	35300
15	34900	19000	17900	21300	26300	21300	58100	53000	66700	42500	33900	35900
16	35100	18800	18300	21400	24700	21900	69600	52200	110000	38900	33600	36500
17	34700	18500	18300	21300	23400	24000	58000	52600	106000	37800	33500	36100
18	34800	18300	18100	21500	22500	23800	55600	63900	91200	37200	33900	36400
19	35200	18500	18000	21600	22500	22900	60500	59300	72400	35100	35200	34800
20	35600	18100	18200	22900	22200	25400	66000	57500	62300	36200	34800	34500
21	36000	18300	18400	22900	24100	27000	60000	57100	55800	36200	33900	34700
22	35500	18100	17000	21700	28100	26100	58100	56900	54300	33800	33400	34400
23	35300	18100	15700	21100	29700	24400	53700	63600	68900	35400	32700	34100
24	36200	17900	14000	20700	28900	22600	49800	62100	61600	36800	32800	33900
25	36000	17400	11700	20600	29200	22100	47800	61900	55400	34800	32900	33400
26	35000	17600	9030	19700	28100	22900	45500	65400	53700	33400	33300	33300
27	35500	18400	6690	19500	26600	26200	51200	63800	49200	34100	33300	33200
28	35600	18600	7130	20600	24900	28600	71600	61500	46400	33100	32800	33500
29	34500	19100	11700	21400	---	29800	73200	62900	48100	32900	33100	33400
30	33500	18400	16100	20800	---	27300	62900	60600	46100	33100	33400	33200
31	32300	---	17400	20000	---	27800	---	67300	---	31900	33100	---
MEAN	35860	20560	16100	20800	27320	24740	47670	56860	69890	39230	33850	34510
MAX	39000	29600	18400	22900	35900	37200	73200	67300	110000	57200	37000	37700
MIN	32300	17400	6690	18500	20300	20600	31600	46900	46100	31900	32600	32900
IN.	.09	.05	.04	.05	.06	.06	.11	.14	.16	.09	.08	.08

## STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

MEAN	45950	41310	26710	22940	31940	53290	68860	64730	82910	66970	47570	48250
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	38580	35600	50140
HIGHEST ANNUAL MEAN			90840
LOWEST ANNUAL MEAN			22300
HIGHEST DAILY MEAN	129000	110000	558000
LOWEST DAILY MEAN	6690	6690	1500
INSTANTANEOUS PEAK FLOW	133000	113000	573000
INSTANTANEOUS PEAK STAGE	26.43	24.37	36.2
INSTANTANEOUS LOW FLOW	6100	6100	1500
ANNUAL SEVEN-DAY MINIMUM	10800	10800	2140
ANNUAL RUNOFF (INCHES)	1.08	1.00	1.40
10 PERCENT EXCEEDS	63500	61500	90500
50 PERCENT EXCEEDS	35900	33700	42000
90 PERCENT EXCEEDS	18300	18300	17200

\*\*Statistics based only on years with complete daily discharge record.

## MISSOURI RIVER MAIN STEM

06893000 MISSOURI RIVER AT KANSAS CITY, MO--Continued

## WATER-QUALITY RECORDS

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

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	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. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT							
18...	34500	348	--	--	--	--	26
18...	34500	359	--	--	--	--	26
18...	34500	727	--	--	--	--	14
18...	34500	264	--	--	--	--	34
18...	34500	120	--	--	--	--	66
NOV							
08...	21100	308	--	--	--	--	42
08...	21100	329	--	--	--	--	37
08...	21100	357	--	--	--	--	45
08...	21100	173	--	--	--	--	67
08...	21100	132	--	--	--	--	90
DEC							
10...	17800	278	--	--	--	--	25
10...	17800	225	--	--	--	--	26
10...	17800	168	--	--	--	--	39
10...	17800	194	--	--	--	--	55
10...	17800	95	--	--	--	--	82
FEB							
12...	29200	435	--	--	--	--	42
12...	29200	408	--	--	--	--	44
12...	29200	585	--	--	--	--	33
12...	29200	281	--	--	--	--	58
12...	29200	198	--	--	--	--	74
MAR							
25...	22000	496	59	62	100	--	--
25...	22000	321	88	91	100	--	--
25...	22000	459	55	60	100	--	--
25...	22000	2460	98	98	100	--	--
25...	22000	236	97	98	100	--	--
APR							
15...	51300	1450	67	74	100	--	--
15...	51300	1480	67	72	96	100	--
15...	51300	1930	59	63	98	100	--
15...	51300	1450	73	77	98	100	--
15...	51300	1170	91	94	99	100	--
MAY							
14...	49400	644	--	--	--	--	48
14...	49400	602	--	--	--	--	69
14...	49400	420	--	--	--	--	80
14...	49400	379	--	--	--	--	95
JUN							
10...	72400	3730	94	96	100	--	--
10...	72400	8160	96	97	100	--	--
10...	72400	2810	91	93	99	100	--
10...	72400	2880	95	96	99	100	--
10...	72400	2140	98	99	100	--	--
JUL							
10...	35800	427	62	69	97	100	--
10...	35800	373	59	67	97	100	--
10...	35800	633	66	75	99	100	--
10...	35800	400	84	90	100	--	--
10...	35800	325	95	98	100	--	--
AUG							
28...	33200	221	--	--	--	--	43
28...	33200	217	--	--	--	--	42
28...	33200	397	--	--	--	--	19
28...	33200	134	--	--	--	--	82
SEP							
18...	36300	344	--	--	--	--	49
18...	36300	474	--	--	--	--	37
18...	36300	582	--	--	--	--	33
18...	36300	286	--	--	--	--	60
18...	36300	174	--	--	--	--	87

## MISSOURI RIVER MAIN STEM

06893000 MISSOURI RIVER AT KANSAS CITY, MO--Continued

## 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								
18...	1	2	63	94	99	100	100	100
18...	0	0	0	0	90	99	100	100
18...	1	1	67	99	99	100	100	100
18...	1	2	92	99	100	100	100	100
18...	0	0	7	31	72	88	94	100
NOV								
08...	1	1	52	81	97	99	100	100
08...	0	0	2	41	85	98	100	100
08...	3	3	54	96	100	100	100	100
08...	1	1	59	95	100	100	100	100
08...	2	2	69	97	100	100	100	100
DEC								
10...	0	0	1	10	58	80	96	100
10...	0	0	13	71	95	99	100	100
10...	1	1	37	73	95	98	100	100
10...	1	2	79	95	99	99	100	100
10...	1	1	31	83	98	98	100	100
FEB								
12...	0	0	18	88	98	100	100	100
12...	0	0	0	29	64	92	98	100
12...	0	0	6	46	70	82	91	100
12...	0	21	84	96	98	100	100	100
12...	2	6	36	79	93	98	100	100
MAR								
25...	0	0	43	92	98	100	100	100
25...	0	0	0	9	66	88	95	100
25...	0	0	31	87	97	98	100	100
25...	0	0	38	86	98	99	100	100
25...	1	1	57	89	94	97	100	100
APR								
15...	0	0	18	46	85	90	93	100
15...	0	0	0	2	23	40	52	100
15...	0	0	8	56	92	97	100	100
15...	0	0	62	96	100	100	100	100
15...	0	2	16	75	75	99	100	100
MAY								
14...	1	1	83	99	100	100	100	100
14...	0	0	0	0	35	60	78	100
14...	0	0	9	58	90	97	100	100
14...	0	0	23	88	99	100	100	100
14...	0	0	6	40	89	99	100	100
JUN								
10...	0	0	0	19	88	98	98	100
JUL								
10...	0	0	0	11	74	93	100	100
10...	0	0	9	55	90	96	100	100
10...	0	1	71	99	100	100	100	100
10...	0	1	55	95	100	100	100	100
10...	0	1	44	93	99	99	100	100
AUG								
28...	1	1	2	72	100	100	100	100
28...	0	0	23	80	95	98	100	100
28...	0	2	80	100	100	100	100	100
28...	1	1	63	98	100	100	100	100
28...	0	0	23	80	95	98	100	100
SEP								
18...	0	0	57	100	100	100	100	100
18...	0	0	0	12	54	88	96	100
18...	0	0	21	77	99	100	100	100
18...	0	0	2	65	100	100	100	100
18...	0	0	86	100	100	100	100	100

## BLUE RIVER BASIN

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 mi<sup>2</sup>.

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.--Estimated daily discharges: Jan. 26 and 29-30. Records good except for estimated daily discharges, which are 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	16	24	28	61	220	38	124	128	28	19	18
2	18	12	28	28	74	226	37	84	101	57	19	21
3	115	34	59	25	59	89	38	75	86	33	18	81
4	40	702	31	27	69	63	39	183	76	28	37	51
5	22	140	25	37	56	53	31	298	84	24	29	24
6	15	59	24	38	46	48	30	101	67	23	54	20
7	300	40	24	31	41	44	29	81	57	24	34	23
8	48	78	24	27	37	42	31	72	77	24	25	121
9	51	167	27	29	34	37	34	70	61	19	21	43
10	36	45	24	27	34	36	28	64	82	27	20	401
11	26	33	17	30	33	32	49	59	184	30	18	59
12	15	33	17	28	30	29	32	58	63	34	18	35
13	20	29	23	30	24	30	1230	56	51	19	17	25
14	23	29	23	74	22	36	855	51	45	17	14	47
15	18	27	23	358	30	31	208	909	45	19	15	89
16	12	26	23	313	30	36	120	188	175	26	22	33
17	16	25	36	112	32	206	799	141	54	24	20	28
18	17	24	31	81	32	79	4070	96	43	22	19	104
19	17	20	26	95	31	57	331	73	37	24	18	30
20	17	24	25	100	29	55	212	65	33	22	16	23
21	19	35	24	63	28	52	156	126	46	21	17	21
22	17	29	20	54	26	49	129	111	204	24	18	24
23	18	23	25	48	25	45	107	592	62	47	17	25
24	16	22	26	43	27	42	88	2430	45	107	19	21
25	15	22	25	40	26	42	136	795	39	38	31	18
26	17	23	24	38	23	44	99	1130	35	27	22	15
27	14	179	25	38	22	63	105	585	33	23	17	16
28	13	45	24	40	22	54	100	301	32	22	17	13
29	18	29	75	40	---	44	183	212	32	21	30	14
30	12	26	42	33	---	40	110	295	29	20	27	17
31	16	---	32	33	---	39	---	191	---	18	30	---
MEAN	32.7	66.5	28.3	64.1	35.8	63.3	315	310	70.2	28.8	22.5	48.7
MAX	300	702	75	358	74	226	4070	2430	204	107	54	401
MIN	12	12	17	25	22	29	28	51	29	17	14	13
IN.	.20	.39	.17	.39	.20	.39	1.87	1.90	.42	.18	.14	.29

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

	133	91.9	81.1	94.1	121	193	261	233	280	152	79.8	161
MEAN	133	91.9	81.1	94.1	121	193	261	233	280	152	79.8	161
MAX	790	771	472	445	740	1407	1279	1457	1285	1616	431	1395
(WY)	1987	1962	1974	1941	1985	1973	1944	1990	1967	1951	1982	1986
MIN	.000	.000	.000	.000	2.66	4.36	6.41	17.8	7.44	1.72	.94	.047
(WY)	1940	1940	1940	1940	1940	1957	1954	1956	1953	1946	1947	1939

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	235	90.6	157
HIGHEST ANNUAL MEAN			365
LOWEST ANNUAL MEAN			12.8
HIGHEST DAILY MEAN	16800	May 16	20000
LOWEST DAILY MEAN	12	Oct 16, 30, Nov 2	.00
INSTANTANEOUS PEAK FLOW	31800	May 15	41000
INSTANTANEOUS PEAK STAGE	40.64	May 15	44.46
INSTANTANEOUS LOW FLOW	4.2	Nov 3	.00
ANNUAL SEVEN-DAY MINIMUM	14	Oct 27	.00
ANNUAL RUNOFF (INCHES)	16.96		11.36
10 PERCENT EXCEEDS	294		265
50 PERCENT EXCEEDS	62		41
90 PERCENT EXCEEDS	18		4.8

## 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 County, 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 mi upstream from Cedar Creek.

DRAINAGE AREA.--50.3 mi<sup>2</sup>.

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 35,370 acre-ft (909.0 ft to 922.9 ft); of flood control pool 24,800 acre-ft (elevation 891.0 ft to 909.0 ft); and of multipurpose pool 22,100 acre-ft (elevation 816.0 ft to 891.0 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, 37,100 acre-ft, May 16, 1990, elevation, 903.36 ft; minimum, 2,680 acre-ft, Oct. 1, 1985, elevation, 849.40 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,800 acre-ft, May 25, elevation, 893.69 ft; minimum, 20,000 acre-ft, Jan. 13-14, elevation, 888.57 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889.60	889.10	888.99	888.65	889.31	889.19	889.35	891.47	891.60	890.88	890.15	889.10
2	889.58	889.10	888.97	888.65	889.35	889.44	889.34	891.38	891.52	890.92	890.10	889.08
3	889.54	889.07	889.02	888.64	889.37	889.46	889.32	891.33	891.44	890.87	890.09	889.08
4	889.60	889.30	889.02	888.62	889.39	889.46	889.32	891.28	891.37	890.88	890.05	889.20
5	889.58	889.41	889.10	888.62	889.43	889.45	889.32	891.44	891.28	890.86	890.03	889.20
6	889.57	889.44	888.97	888.62	889.42	889.45	889.29	891.43	891.25	890.83	889.91	889.18
7	889.60	889.41	888.96	888.61	889.43	889.45	889.27	891.37	891.20	890.79	889.91	889.16
8	889.62	889.41	888.94	888.60	889.44	889.43	889.26	891.32	891.16	890.75	889.92	889.20
9	889.60	889.48	888.93	888.60	889.44	889.42	889.25	891.28	891.15	890.69	889.95	889.19
10	889.60	889.48	888.91	888.58	889.43	889.40	889.23	891.23	891.12	890.66	889.83	890.22
11	889.60	889.48	888.90	888.59	889.43	889.39	889.20	891.20	891.18	890.62	889.79	890.49
12	889.57	889.46	888.89	888.59	889.43	889.38	889.20	891.18	891.27	890.64	889.75	890.49
13	889.55	889.45	888.88	888.57	889.42	889.37	889.96	891.16	891.22	890.61	889.72	890.47
14	889.54	889.44	888.85	888.57	889.42	889.37	890.69	891.13	891.18	890.58	889.67	890.45
15	889.51	889.16	888.85	888.67	889.39	889.37	890.88	892.75	891.15	890.51	889.64	890.44
16	889.48	889.15	888.84	889.23	889.36	889.35	890.92	892.37	891.24	890.47	889.61	890.43
17	889.47	889.12	888.83	889.27	889.34	889.39	890.93	892.10	891.23	890.44	889.60	890.40
18	889.42	889.11	888.82	889.29	889.34	889.50	893.42	891.85	891.19	890.41	889.50	890.41
19	889.40	889.09	888.82	889.31	889.34	889.51	893.01	891.67	891.16	890.37	889.43	890.38
20	889.36	889.08	888.80	889.35	889.32	889.52	892.45	891.57	891.12	890.36	889.41	890.34
21	889.34	889.10	888.78	889.38	889.31	889.52	892.10	891.48	891.13	890.33	889.37	890.32
22	889.32	889.10	888.77	889.36	889.30	889.54	891.90	891.47	891.10	890.26	889.35	890.28
23	889.29	889.08	888.75	889.35	889.27	889.53	891.74	891.41	891.14	890.33	889.32	890.24
24	889.26	889.06	888.73	889.35	889.26	889.51	891.59	892.40	891.12	890.33	889.33	890.21
25	889.23	889.05	888.70	889.33	889.25	889.50	891.50	893.69	891.07	890.34	889.32	890.19
26	889.23	889.03	888.68	889.37	889.23	889.49	891.45	893.07	891.08	890.33	889.28	890.17
27	889.21	889.05	888.66	889.36	889.23	889.51	891.47	892.70	891.01	890.33	889.15	890.14
28	889.19	889.08	888.65	889.35	889.19	889.43	891.44	892.37	891.03	890.31	889.12	890.12
29	889.15	889.06	888.70	889.33	---	889.40	891.63	892.06	891.00	890.24	889.08	890.10
30	889.13	889.03	888.69	889.33	---	889.38	891.54	891.89	890.97	890.21	889.11	890.08
31	889.12	---	888.68	889.32	---	889.35	---	891.75	---	890.22	889.09	---
(-)	20500	20400	20100	20600	20500	20700	22600	22800	22100	21400	20400	21300
(=)	-400	-100	-300	+500	-100	+200	+1900	+200	-700	-700	-1000	+900
MAX	889.62	889.48	889.10	889.38	889.44	889.54	893.42	893.69	891.12	890.92	890.15	890.49
MIN	889.12	889.03	888.65	888.57	889.19	889.19	889.20	891.13	890.97	890.21	889.08	889.08

CAL YR 1990 . . . -1600

WTR YR 1991 . . . +400

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

(=) Change in contents, in acre-feet



## LITTLE BLUE RIVER BASIN

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 mi<sup>2</sup>.

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 793.55 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; Oct. 1, 1985 to July 24, 1990, at present site at datum 5.05 ft higher.

REMARKS.--Estimated daily discharges: Dec 23 to Jan. 23 and Jan. 30-31. Records fair. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	5.7	6.2	5.7	5.5	6.2	17	54	65	7.2	6.2	6.0
2	5.5	5.7	6.2	5.7	5.5	7.2	17	45	53	7.4	6.4	5.7
3	5.6	5.8	6.2	5.7	5.5	6.5	17	38	42	7.0	6.3	5.9
4	5.5	6.9	6.2	5.7	5.5	6.2	17	34	34	6.4	6.2	6.0
5	5.5	6.8	6.2	5.7	5.5	6.0	17	52	26	6.0	6.2	6.0
6	5.5	6.2	6.2	5.7	5.5	6.0	18	47	20	6.0	6.2	5.8
7	6.1	6.0	6.2	5.7	5.5	6.0	18	41	16	5.8	6.2	5.8
8	6.0	6.0	6.2	5.7	5.5	6.0	18	35	15	5.7	6.4	6.0
9	5.7	6.0	6.2	5.7	5.5	6.0	18	31	13	5.7	6.5	6.2
10	5.7	6.0	6.2	5.7	5.5	6.0	18	27	12	5.7	6.5	7.5
11	5.5	6.0	6.2	5.7	5.5	6.0	18	24	17	5.9	6.5	6.3
12	5.5	6.0	6.2	5.7	5.5	5.8	18	21	15	6.0	6.5	6.0
13	5.5	6.0	6.2	5.7	5.5	5.7	39	20	12	5.8	6.5	6.0
14	5.5	6.0	6.2	5.7	5.5	5.7	29	18	11	5.7	6.5	5.8
15	5.5	6.0	6.2	5.7	5.5	5.7	24	232	8.6	5.7	6.0	5.7
16	5.5	6.0	6.2	5.7	5.5	5.7	25	202	16	5.7	6.2	5.3
17	5.7	5.8	6.2	5.7	5.5	6.3	63	147	14	5.7	6.2	5.8
18	5.9	5.7	6.2	5.7	5.5	6.6	474	107	12	5.7	6.0	5.3
19	5.7	5.8	6.2	5.7	5.5	6.2	316	77	9.8	5.9	6.0	4.5
20	5.5	6.0	6.2	5.7	5.7	6.1	213	60	8.3	6.2	6.0	4.8
21	5.5	6.0	6.2	5.7	5.7	6.1	156	50	7.1	6.2	6.0	4.8
22	5.5	6.0	6.0	5.7	5.7	6.2	116	47	7.4	6.4	6.0	4.8
23	5.5	6.1	6.0	5.7	5.7	6.2	89	74	7.1	6.5	6.0	4.8
24	5.5	6.2	6.0	5.7	5.7	6.2	69	401	6.7	6.3	6.0	4.8
25	5.6	6.2	6.0	5.5	5.7	6.6	58	530	7.1	6.2	6.0	4.9
26	5.7	6.2	6.0	5.5	5.7	10	52	352	7.1	6.2	6.0	5.0
27	5.7	6.6	6.0	5.5	5.7	17	56	254	6.5	6.2	6.0	5.0
28	5.7	6.7	6.0	5.3	5.7	18	58	192	6.3	6.2	6.0	5.0
29	5.7	6.2	5.9	5.3	---	17	79	140	6.3	6.2	6.2	5.0
30	5.7	6.1	5.8	5.2	---	17	64	107	6.6	6.2	6.2	5.0
31	5.7	---	5.7	5.3	---	17	---	83	---	6.2	6.2	---
MEAN	5.62	6.09	6.12	5.63	5.56	8.04	73.0	114	16.3	6.13	6.20	5.52
MAX	6.1	6.9	6.2	5.7	5.7	18	474	530	65	7.4	6.5	7.5
MIN	5.5	5.7	5.7	5.2	5.5	5.7	17	18	6.3	5.7	6.0	4.5
IN.	.13	.14	.14	.13	.12	.18	1.62	2.62	.36	.14	.14	.12

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

	43.0	25.1	23.3	25.1	31.3	54.6	58.6	71.3	80.6	14.0	15.2	34.5
MEAN	43.0	25.1	23.3	25.1	31.3	54.6	58.6	71.3	80.6	14.0	15.2	34.5
MAX	283	87.2	108	113	245	480	232	378	366	57.3	119	225
(WY)	1987	1985	1974	1974	1985	1973	1973	1990	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	53.3	21.6	39.8
HIGHEST ANNUAL MEAN			108
LOWEST ANNUAL MEAN			11.0
HIGHEST DAILY MEAN	1160	May 16	3940
LOWEST DAILY MEAN	.00	Sep 17	.00
INSTANTANEOUS PEAK FLOW	2870	May 15	18700
INSTANTANEOUS PEAK STAGE	11.54	May 15	21.24
INSTANTANEOUS LOW FLOW	.00	Sep 17	.00
ANNUAL SEVEN-DAY MINIMUM	2.3	Sep 15	.04
ANNUAL RUNOFF (INCHES)	14.38		10.75
10 PERCENT EXCEEDS	83		56
50 PERCENT EXCEEDS	11		9.0
90 PERCENT EXCEEDS	5.7		2.7

## 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 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1988 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 earth filled type dam. An uncontrolled limited service type spillway 300 ft wide is located on left abutment. Capacity of surcharge pool, 3,310 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, 22,800 acre-ft, May 17, 1990, elevation, 816.37 ft; minimum contents, 142 acre-ft, Oct. 22, 29, 30, and Nov. 1-11, 1988, elevation, 773.10 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,200 acre-ft, May 26, elevation, 803.89 ft; minimum contents, 10,400 acre-ft, Sept. 2, elevation, 801.47 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	801.73	801.68	801.86	801.80	802.21	802.19	802.41	802.76	802.94	802.27	801.85	801.48
2	801.73	801.68	801.84	801.80	802.23	802.22	802.42	802.72	802.86	802.24	801.84	801.47
3	801.75	801.65	801.86	801.80	802.24	802.22	802.42	802.70	802.82	802.23	801.82	801.48
4	801.76	801.72	801.86	801.84	802.24	802.22	802.42	802.64	802.75	802.19	801.79	801.56
5	801.76	801.81	801.85	801.86	802.27	802.23	802.36	803.01	802.67	802.18	801.80	801.54
6	801.77	801.83	801.87	801.86	802.26	802.23	802.37	802.99	802.60	802.17	801.79	801.52
7	801.92	801.83	801.86	801.86	802.25	802.23	802.35	802.94	802.57	802.14	801.79	801.52
8	801.86	801.82	801.86	801.86	802.25	802.22	802.33	802.90	802.52	802.11	801.79	801.65
9	801.85	801.86	801.86	801.87	802.25	802.21	802.32	802.83	802.52	802.10	801.77	801.65
10	801.85	801.88	801.86	801.87	802.25	802.20	802.31	802.81	802.47	802.07	801.74	802.09
11	801.85	801.88	801.86	801.93	802.25	802.21	802.28	802.73	802.51	802.08	801.73	802.15
12	801.84	801.88	801.87	801.90	802.25	802.23	802.26	802.73	802.50	802.08	801.71	802.15
13	801.83	801.88	801.86	801.91	802.26	802.22	802.58	802.67	802.48	802.10	801.70	802.15
14	801.84	801.89	801.86	801.90	802.24	802.20	802.59	802.66	802.47	802.07	801.69	802.13
15	801.83	801.89	801.84	801.92	802.20	802.20	802.65	802.64	802.45	802.06	801.67	802.11
16	801.82	801.88	801.84	802.09	802.19	802.20	802.68	802.60	802.49	802.04	801.66	802.12
17	801.84	801.87	801.84	802.10	802.20	802.25	802.71	802.57	802.50	802.02	801.66	802.11
18	801.77	801.86	801.85	802.12	802.21	802.28	803.20	802.55	802.49	802.01	801.65	802.13
19	801.77	801.85	801.86	802.14	802.19	802.29	803.63	802.52	802.47	801.99	801.64	802.11
20	801.76	801.86	801.86	802.16	802.20	802.31	803.78	802.48	802.46	801.97	801.60	802.08
21	801.74	801.86	801.80	802.16	802.20	802.34	803.58	802.43	802.46	801.94	801.59	802.06
22	801.72	801.88	801.80	802.15	802.20	802.39	803.41	802.46	802.47	801.91	801.57	802.04
23	801.71	801.88	801.80	802.18	802.18	802.46	803.25	802.45	802.50	801.92	801.57	802.03
24	801.70	801.87	801.80	802.18	802.16	802.48	803.14	802.63	802.49	801.90	801.56	802.01
25	801.69	801.87	801.80	802.17	802.14	802.52	803.03	803.85	802.45	801.94	801.54	801.99
26	801.69	801.87	801.80	802.19	802.14	802.54	802.96	803.89	802.43	801.93	801.53	801.98
27	801.69	801.90	801.80	802.20	802.12	802.57	802.95	803.64	802.40	801.89	801.52	801.97
28	801.68	801.88	801.80	802.20	802.14	802.52	802.95	803.57	802.37	801.88	801.50	801.97
29	801.67	801.88	801.80	802.21	---	802.50	802.85	803.30	802.34	801.89	801.49	801.96
30	801.67	801.87	801.80	802.19	---	802.44	802.77	803.19	802.31	801.88	801.50	801.95
31	801.67	---	801.80	802.20	---	802.43	---	803.09	---	801.86	801.49	---
(-)	10500	10700	10600	10900	10800	11100	11300	11500	11000	10600	10400	10700
(=)	-100	+200	-100	+300	-100	+300	+200	+200	-500	-400	-200	+300
MAX	801.92	801.90	801.87	802.21	802.27	802.57	803.78	803.89	802.94	802.27	801.85	802.15
MIN	801.67	801.65	801.80	801.80	802.12	802.19	802.26	802.43	802.31	801.86	801.49	801.47

CAL YR 1990 . . . .+3100

WTR YR 1991 . . . .+100

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

(=) Change in contents, in acre-feet

## LITTLE BLUE RIVER BASIN

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 mi upstream from mouth.

DRAINAGE AREA.--34.4 mi<sup>2</sup>.

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: Dec. 21 to Jan. 22 and Jan. 25 to Feb. 12. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.05	.15	.04	5.0	4.2	16	42	57	8.3	.08	.00
2	.11	.08	.13	.04	9.0	7.3	14	39	49	6.8	.08	.00
3	.26	.11	.29	.04	8.5	6.5	13	36	43	5.6	.07	.99
4	.12	.75	.16	.04	8.5	6.3	11	46	37	5.4	.09	.13
5	.09	.26	.20	.05	8.0	6.4	10	88	31	4.3	.12	.06
6	.12	.20	.14	.04	7.8	5.8	9.7	68	28	3.9	.09	.10
7	.68	.13	.09	.04	7.6	5.7	8.9	61	23	2.6	.05	.57
8	.07	.21	.10	.04	7.5	5.5	7.9	55	21	1.5	.01	.39
9	.09	.43	.10	.04	7.5	5.1	6.7	50	19	.82	.01	5.6
10	.06	.19	.10	.05	7.5	4.9	5.5	46	17	.82	.03	5.4
11	.05	.13	.09	.10	7.5	4.7	4.7	41	21	.93	.05	2.3
12	.05	.12	.10	.05	7.2	4.5	4.4	37	20	1.0	.09	1.6
13	.02	.10	.08	1.0	6.8	4.5	31	33	19	1.4	.06	1.1
14	.04	.12	.09	5.0	6.5	4.7	38	29	18	1.3	.04	.88
15	.03	.20	.16	10	5.7	4.7	39	29	17	.96	.04	1.0
16	.01	.13	.11	6.0	5.8	4.5	41	26	24	.93	.04	.84
17	.11	.08	.12	4.0	5.1	7.9	61	23	21	.35	.01	.77
18	.05	.07	.13	4.5	5.0	9.0	127	20	20	.47	.00	1.3
19	.05	.08	.12	5.0	4.4	8.9	172	17	19	.41	.00	.71
20	.14	.11	.12	4.5	4.5	10	168	15	17	.62	.00	.51
21	.08	.30	.10	5.0	4.2	11	134	15	19	.46	.00	.46
22	.03	.12	.05	4.6	3.9	16	107	16	25	.44	.00	.20
23	.04	.10	.05	4.6	3.7	20	88	22	22	.23	.00	.05
24	.04	.10	.05	4.6	2.9	23	73	92	19	.51	.00	.02
25	.03	.09	.06	4.0	2.4	24	65	191	18	.34	.00	.00
26	.03	.22	.05	3.5	2.4	25	59	192	15	.12	.00	.00
27	.04	.31	.06	4.0	2.4	26	58	163	13	.04	.00	.00
28	.05	.12	.08	5.0	2.4	25	53	130	12	.20	.00	.00
29	.04	.09	.10	4.0	---	23	48	102	11	.21	.02	.00
30	.04	.30	.05	2.0	---	20	42	83	9.9	.15	.10	.00
31	.04	---	.04	3.0	---	17	---	68	---	.09	.01	---
MEAN	.088	.18	.11	2.74	5.70	11.3	50.5	60.5	22.8	1.65	.035	.83
MAX	.68	.75	.29	10	9.0	26	172	192	57	8.3	.12	5.6
MIN	.01	.05	.04	.04	2.4	4.2	4.4	15	9.9	.04	.00	.00
IN.	.00	.01	.00	.09	.17	.38	1.64	2.03	.74	.06	.00	.03

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

	MEAN	26.5	14.0	12.0	10.6	14.7	31.2	44.2	50.2	47.2	15.2	23.8	23.2
MAX	276	47.8	43.2	43.7	51.7	107	204	273	174	45.1	230	179	
(WY)	1987	1986	1983	1985	1975	1978	1984	1990	1984	1981	1982	1977	
MIN	.007	.12	.029	.000	.037	.37	.46	.20	.17	.049	.000	.000	
(WY)	1989	1977	1977	1977	1989	1989	1989	1989	1989	1989	1988	1976	

SUMMARY STATISTICS	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	36.9	13.0	26.1
HIGHEST ANNUAL MEAN			58.3
LOWEST ANNUAL MEAN			.31
HIGHEST DAILY MEAN	583	192	4850
LOWEST DAILY MEAN	.01	.00	.00
INSTANTANEOUS PEAK FLOW	755	213	11000
INSTANTANEOUS PEAK STAGE	13.67	8.24	22.14
INSTANTANEOUS LOW FLOW	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.04	.00	.00
ANNUAL RUNOFF (INCHES)	14.58	5.15	10.30
10 PERCENT EXCEEDS	.66	.39	.55
50 PERCENT EXCEEDS	.74	1.3	7.4
90 PERCENT EXCEEDS	.08	.04	.03

## 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, 3.0 mi southwest of Lake City and 10.5 mi upstream from mouth.

DRAINAGE AREA.--184 mi<sup>2</sup>.

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; July 24, 1957 to Apr. 28, 1977, water-stage recorder; Apr. 29, 1977 to May 10, 1979, nonrecording gage; May 11, 1979 to Sept. 12, 1983, water-stage recorder at site 50 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 21 to Jan. 1. 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 gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	10	13	11	49	48	43	233	187	20	9.0	12
2	10	9.3	13	13	75	197	42	188	163	19	8.6	12
3	48	9.6	38	14	60	65	41	163	132	22	8.5	56
4	32	262	27	13	60	42	42	262	110	20	13	102
5	15	112	17	16	57	38	39	1170	93	16	18	22
6	11	57	16	17	45	35	36	337	81	15	17	13
7	171	29	14	16	39	32	34	237	69	13	18	12
8	34	21	14	15	35	30	34	195	64	12	13	107
9	26	91	14	16	34	29	35	173	57	11	12	38
10	23	42	13	16	33	28	32	151	55	11	12	662
11	16	23	13	17	32	28	44	136	196	20	11	72
12	14	18	13	16	31	29	38	124	74	28	11	28
13	12	16	12	15	31	38	817	113	55	14	11	21
14	11	15	12	45	30	43	516	102	46	12	10	18
15	11	13	12	521	24	36	196	865	46	11	10	34
16	10	13	13	489	25	35	133	446	739	11	11	21
17	10	13	12	124	26	100	320	291	110	10	14	20
18	8.2	13	12	66	26	110	2300	214	72	9.3	14	138
19	7.9	13	12	87	25	67	911	163	56	8.9	11	32
20	8.8	13	12	77	22	59	686	133	47	8.6	9.4	17
21	9.7	18	10	85	21	54	517	180	42	8.4	9.6	14
22	9.6	22	9.0	39	22	57	390	146	104	8.7	9.3	13
23	9.6	14	9.0	34	22	55	307	339	80	16	9.8	12
24	11	13	9.5	31	20	53	264	1850	50	45	9.2	12
25	11	13	9.5	25	19	56	237	1680	42	27	9.7	11
26	11	13	9.5	33	19	55	203	1000	36	15	10	11
27	10	34	10	31	19	57	283	790	31	10	11	10
28	9.6	30	12	30	19	53	258	554	28	7.9	10	9.4
29	9.6	18	13	30	---	49	464	382	24	16	11	8.9
30	9.6	14	11	28	---	46	231	307	22	11	41	9.1
31	10	---	10	28	---	44	---	238	---	9.9	19	---
MEAN	19.3	32.7	13.4	64.5	32.9	53.8	316	425	97.0	15.1	12.6	51.6
MAX	171	262	38	521	75	197	2300	1850	739	45	41	662
MIN	7.9	9.3	9.0	11	19	28	32	102	22	7.9	8.5	8.9
IN.	.12	.20	.08	.40	.19	.34	1.92	2.66	.59	.09	.08	.31

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

	140	94.3	78.7	86.9	120	196	219	232	259	124	95.5	151
MEAN	140	94.3	78.7	86.9	120	196	219	232	259	124	95.5	151
MAX	983	854	368	347	576	1153	1069	1299	1216	928	1455	1018
(WY)	1987	1962	1983	1982	1985	1973	1983	1990	1967	1951	1982	1961
MIN	.13	.49	1.36	1.36	3.09	4.15	11.3	27.9	10.3	.26	.016	.20
(WY)	1954	1957	1956	1957	1957	1956	1954	1988	1953	1954	1953	1953

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	212		94.7		150	
HIGHEST ANNUAL MEAN					369	1982
LOWEST ANNUAL MEAN					11.5	1956
HIGHEST DAILY MEAN	8240	May 16	2300	Apr 18	27700	Aug 13 1982
LOWEST DAILY MEAN	6.6	Sep 17	7.9	Oct 19, Jul 28	.00	Several Years
INSTANTANEOUS PEAK FLOW	13100	May 15	3680	May 24	42300	Aug 13 1982
INSTANTANEOUS PEAK STAGE	24.07	May 15	13.90	May 24	27.94	Sep 14 1961
INSTANTANEOUS LOW FLOW	5.7	Sep 18	7.6	Jul 28, Aug 2	.00	Several Years
ANNUAL SEVEN-DAY MINIMUM	9.1	Oct 17	9.1	Oct 17	.00	Several Years
ANNUAL RUNOFF (INCHES)	15.65		6.99		11.09	
10 PERCENT EXCEEDS	451		232		281	
50 PERCENT EXCEEDS	66		25		45	
90 PERCENT EXCEEDS	11		10		6.5	

## MISSOURI RIVER MAIN STEM

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 mi<sup>2</sup>, 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: Dec. 26 to Jan. 4. Records good except for estimated daily discharges, which are fair. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35400	32100	18900	15000	20500	25300	27500	58900	73600	44300	32700	33300
2	35000	29800	18500	17000	20900	24600	30400	51700	71300	42100	33800	33200
3	35300	27500	18400	18000	22900	25400	33200	47500	62100	43100	34300	34000
4	37600	26800	18000	18000	26300	24700	34300	46500	81100	41500	33300	35100
5	38000	29500	17300	18600	31400	28900	33700	54100	82500	39200	33600	34700
6	37200	27400	17400	18700	36900	35300	32500	63800	73800	41800	34200	34200
7	38100	24700	17700	19700	36200	30000	31700	63900	81300	40100	35000	34300
8	39000	22800	17800	21000	33000	24100	31500	64200	106000	36900	35200	34800
9	37400	22100	17500	20900	30000	22100	32000	61200	94400	37700	34900	34900
10	36200	22500	17200	20700	28600	22100	32100	54200	77300	37300	34700	37300
11	35600	22000	17900	20300	27700	21700	32500	50100	71500	40000	35400	40000
12	36000	21600	18400	20100	28300	20700	32900	49100	70400	56500	36600	36800
13	36400	20700	18300	19900	29300	20000	33900	50200	70300	53700	37400	35300
14	36400	19900	18400	19800	29300	19800	40500	48600	63900	46500	35900	35400
15	35400	19800	18600	20700	27900	19900	46000	53100	60200	43300	34800	36300
16	35000	19700	18300	26600	26300	20200	66200	55400	97500	41100	34600	37100
17	35200	19300	18400	25200	25100	20900	68400	53300	122000	38200	34500	37200
18	34900	19000	18600	22100	24100	23200	61700	55500	109000	37400	34300	37400
19	35100	18800	18500	21800	23300	23900	66000	64800	87600	36600	34700	37400
20	35500	18900	18300	22900	23000	22500	65800	58300	72300	34900	35700	35700
21	35900	18800	18400	24400	22900	23900	64400	57900	63800	35800	35200	35300
22	36200	18700	18500	23500	24100	25700	58400	56400	58500	35600	34500	35400
23	36000	18700	17400	22500	27400	25100	55900	60400	62700	34200	33900	35100
24	35900	18600	16100	21700	29300	23700	50000	70000	71500	35500	33400	35000
25	36700	18600	15000	21200	28800	22100	47200	76100	60500	36800	33300	34800
26	36500	18200	13000	21000	28700	21700	45400	70200	56300	34800	33400	34300
27	35600	18400	10000	20400	28000	23300	44000	71100	53700	33700	33600	34200
28	35800	19700	9000	19900	26600	26400	56100	67100	48600	34200	33600	34200
29	36000	19500	10000	20700	---	28100	77700	63700	46900	33400	33100	34400
30	34900	19500	12000	21400	---	28900	74100	65000	47700	33300	33500	34200
31	33600	---	14000	21300	---	27600	---	61600	---	33300	33800	---
MEAN	36060	21790	16640	20810	27390	24250	46870	58840	73280	39120	34420	35380
MAX	39000	32100	18900	26600	36900	35300	77700	76100	122000	56500	37400	40000
MIN	33600	18200	9000	15000	20500	19800	27500	46500	46900	33300	32700	33200
IN.	.09	.05	.04	.05	.06	.06	.11	.14	.17	.09	.08	.08

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

	MEAN	45980	41300	27320	23450	32540	53270	71060	65940	84030	68780	47630	47680
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	41110		36220		50720	
HIGHEST ANNUAL MEAN					94120	1951
LOWEST ANNUAL MEAN					22410	1934
HIGHEST DAILY MEAN	185000	May 16	122000	Jun 17	538000	Jul 16 1951
LOWEST DAILY MEAN	9000	Dec 28	9000	Dec 28	1700	Jan 9 1940
INSTANTANEOUS PEAK FLOW	202000	May 16	125000	Jun 17	549000	Jul 16 1951
INSTANTANEOUS PEAK STAGE	26.10	May 16	20.65	Jun 17	29.22	Jun 23 1984
INSTANTANEOUS LOW FLOW	*****		*****		1700	Jan 9 1940
ANNUAL SEVEN-DAY MINIMUM	11900	Dec 25	11900	Dec 25	2070	Jan 5 1940
ANNUAL RUNOFF (INCHES)	1.15		1.01		1.41	
10 PERCENT EXCEEDS	69100		63800		92100	
50 PERCENT EXCEEDS	36100		34200		42000	
90 PERCENT EXCEEDS	18800		18600		17400	

\*\*\*\*\*Not Determined



## 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., Daviess 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, 1.0 mi northeast of Gallatin, 6.0 mi upstream from Honey Creek and at mile 90.0.

DRAINAGE AREA.--2,250 mi<sup>2</sup>, 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; 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. 22-24, 30, 31, Jan. 21, 23-31, Feb. 4-14, and May 6-7. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	45	235	154	163	261	720	5040	1730	194	153	58
2	81	45	182	159	187	7580	617	2860	2380	181	146	56
3	84	44	163	136	453	9160	550	2270	3280	166	137	58
4	75	130	136	114	5090	3120	505	2410	1830	157	129	62
5	613	263	127	98	4200	1670	470	24900	982	148	127	57
6	364	449	126	80	3190	1240	436	31900	738	139	131	63
7	634	380	156	69	2360	978	406	12600	590	129	156	55
8	216	259	162	64	1820	768	382	5120	498	120	169	55
9	141	245	156	62	1540	630	363	3310	474	116	151	55
10	105	225	154	60	1280	538	352	2450	470	979	145	58
11	92	184	153	60	1110	477	350	1940	411	6700	132	59
12	78	162	163	60	854	463	358	1620	392	9960	118	54
13	70	142	172	60	680	632	1550	1410	380	3110	123	53
14	64	118	160	60	511	1110	13600	1490	476	1300	111	51
15	60	101	158	63	337	1190	16000	4530	416	765	114	49
16	58	88	146	81	329	780	6410	2720	4150	558	118	50
17	56	79	139	115	405	867	3140	1640	3370	461	113	49
18	49	76	143	124	367	5440	11600	1260	1180	399	100	68
19	46	72	148	127	384	5580	32700	1070	654	354	90	58
20	46	71	165	312	411	4270	22700	897	474	321	83	51
21	46	70	92	487	455	2550	7300	782	392	288	81	45
22	48	66	75	391	389	1680	3560	991	484	263	77	43
23	49	64	70	275	377	1210	2250	1320	914	250	74	41
24	53	63	65	200	333	995	1580	1760	463	241	73	40
25	60	63	60	150	297	856	1180	4190	354	264	70	38
26	60	64	53	125	261	719	1030	4490	317	273	69	36
27	57	71	49	140	235	3210	11900	4600	288	220	82	35
28	53	115	52	160	219	4720	17300	2180	259	194	86	34
29	50	508	94	150	---	2910	13400	1280	233	175	71	34
30	47	349	203	140	---	1360	11500	937	211	164	63	33
31	45	---	149	150	---	911	---	1030	---	158	61	---
MEAN	117	154	132	143	1008	2190	6140	4355	960	927	108	49.9
MAX	634	508	235	487	5090	9160	32700	31900	4150	9960	169	68
MIN	45	44	49	60	163	261	350	782	211	116	61	33
IN.	.06	.08	.07	.07	.47	1.12	3.05	2.23	.48	.48	.06	.02

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

	840	852	481	495	923	1708	1829	1718	2318	1170	545	1049
MEAN	840	852	481	495	923	1708	1829	1718	2318	1170	545	1049
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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	1242		1355		1168
HIGHEST ANNUAL MEAN					3045
LOWEST ANNUAL MEAN					129
HIGHEST DAILY MEAN	18200	Mar 15	32700	Apr 19	67000
LOWEST DAILY MEAN	44	Nov 3	33	Sep 30	2.0
INSTANTANEOUS PEAK FLOW	22400	Mar 15	33900	Apr 19	69100
INSTANTANEOUS PEAK STAGE	24.28	Mar 15	28.50	Apr 19	39.55
INSTANTANEOUS LOW FLOW	43	Nov 2-3	32	Sep 30	2.0
ANNUAL SEVEN-DAY MINIMUM	47	Oct 28	36	Sep 24	2.6
ANNUAL RUNOFF (INCHES)	7.50		8.18		7.00
10 PERCENT EXCEEDS	3890		3200		2330
50 PERCENT EXCEEDS	295		211		205
90 PERCENT EXCEEDS	71		55		25



## GRAND RIVER BASIN

06899500 THOMPSON RIVER AT TRENTON, MO

LOCATION.--Lat 40°07'45", 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 mi<sup>2</sup>, 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: Oct. 1, 12, Nov. 12, Dec. 20-23, Jan. 9-18, Jan. 22 to Feb. 4, Feb. 14-18, and May 31. 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 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 ft<sup>3</sup>/s, determined by U.S. Army Corps of Engineers, occurred before new channel was dredged.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	68	207	315	150	300	783	3430	1350	227	124	71
2	63	66	173	285	300	5200	661	2280	1330	215	114	70
3	660	65	170	261	1470	4650	586	2630	1970	199	115	74
4	701	312	159	232	5500	2650	539	4920	1450	186	113	86
5	793	453	142	250	4910	1500	493	41900	986	176	119	95
6	341	513	158	260	3650	1090	449	14300	777	168	133	78
7	904	305	176	234	2230	887	415	6040	1170	162	131	75
8	264	227	162	224	1770	702	391	3360	782	153	126	81
9	198	297	170	220	1260	590	392	2400	587	172	132	79
10	176	250	199	210	981	519	399	1910	486	379	119	72
11	159	208	245	210	749	467	427	1610	450	12800	118	66
12	144	179	290	205	560	439	1450	1400	396	4870	120	63
13	127	145	312	200	457	466	5910	1240	601	1650	135	61
14	115	127	308	200	420	899	11900	1110	474	735	130	62
15	102	117	255	220	386	1040	8410	2200	388	491	106	68
16	98	114	231	250	457	671	4860	2390	4360	387	100	83
17	99	115	233	280	521	1090	2880	1370	4420	313	99	81
18	99	105	251	300	387	5760	9770	1070	1420	266	100	69
19	95	97	299	322	951	4570	36300	888	884	236	97	61
20	90	103	322	757	499	3530	14700	791	679	214	92	58
21	87	103	334	767	369	2050	8620	749	565	194	86	56
22	87	93	334	500	348	1390	3910	829	522	180	82	54
23	89	88	260	300	325	1190	2640	914	439	184	81	54
24	94	88	244	200	285	1170	1980	2330	404	193	85	52
25	93	86	211	166	237	831	1710	3530	379	168	82	51
26	93	84	184	155	222	672	1510	2910	351	150	80	53
27	92	111	168	142	217	4940	10400	1690	321	135	76	52
28	87	388	177	130	200	4700	7830	1340	293	130	73	51
29	83	415	583	130	---	2400	18300	1010	267	131	77	52
30	78	268	490	120	---	1350	6550	855	246	128	74	51
31	71	---	385	120	---	975	---	2660	---	118	75	---
MEAN	202	186	253	263	1065	1893	5505	3744	958	829	103	66.0
MAX	904	513	583	767	5500	5760	36300	41900	4420	12800	135	95
MIN	63	65	142	120	150	300	391	749	246	118	73	51
IN.	.14	.12	.17	.18	.66	1.31	3.68	2.59	.64	.57	.07	.04

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	MEAN	614	663	452	462	892	1608	1644	1569	1800	796	530	613
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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	1194	1253	969
HIGHEST ANNUAL MEAN			2315
LOWEST ANNUAL MEAN			117
HIGHEST DAILY MEAN	13200	May 26	73800
LOWEST DAILY MEAN	50	Feb 15	1.0
INSTANTANEOUS PEAK FLOW	22800	May 25	95000
INSTANTANEOUS PEAK STAGE	15.35	May 25	25.7
INSTANTANEOUS LOW FLOW	5.0	Jan 12	1.0
ANNUAL SEVEN-DAY MINIMUM	74	Oct 28	1.7
ANNUAL RUNOFF (INCHES)	9.71		7.88
10 PERCENT EXCEEDS	3790		2230
50 PERCENT EXCEEDS	307		200
90 PERCENT EXCEEDS	89		27

\*\*Statistics based only on years with complete daily discharge record.

## GRAND RIVER BASIN

06900000 MEDICINE CREEK NEAR GALT, MO

LOCATION.--Lat 40°17'45", 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, 2.0 mi upstream from West Medicine Creek and at mile 32.0.

DRAINAGE AREA.--225 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1921 to September 1975, October 1977 to December 1990 (discontinued). 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; 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: Oct. 18 to Nov. 3, and Dec. 3-9, 22, 29-31. Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Discharge of 8,000 ft<sup>3</sup>/s was determined for flood of July 1909, by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	.55	13	---	---	---	---	---	---	---	---	---
2	10	.50	7.5	---	---	---	---	---	---	---	---	---
3	35	.50	5.0	---	---	---	---	---	---	---	---	---
4	65	71	3.5	---	---	---	---	---	---	---	---	---
5	10	98	2.5	---	---	---	---	---	---	---	---	---
6	3.1	70	3.0	---	---	---	---	---	---	---	---	---
7	17	45	3.5	---	---	---	---	---	---	---	---	---
8	12	23	5.0	---	---	---	---	---	---	---	---	---
9	2.0	25	8.0	---	---	---	---	---	---	---	---	---
10	.55	40	13	---	---	---	---	---	---	---	---	---
11	.20	23	14	---	---	---	---	---	---	---	---	---
12	.23	13	20	---	---	---	---	---	---	---	---	---
13	.07	9.0	23	---	---	---	---	---	---	---	---	---
14	.26	8.7	23	---	---	---	---	---	---	---	---	---
15	.48	7.3	24	---	---	---	---	---	---	---	---	---
16	.94	5.9	21	---	---	---	---	---	---	---	---	---
17	1.5	4.4	18	---	---	---	---	---	---	---	---	---
18	1.0	6.8	22	---	---	---	---	---	---	---	---	---
19	.80	5.6	27	---	---	---	---	---	---	---	---	---
20	.70	6.2	29	---	---	---	---	---	---	---	---	---
21	.50	8.7	4.9	---	---	---	---	---	---	---	---	---
22	.75	11	3.5	---	---	---	---	---	---	---	---	---
23	.85	10	2.4	---	---	---	---	---	---	---	---	---
24	.95	10	.50	---	---	---	---	---	---	---	---	---
25	1.0	7.3	.40	---	---	---	---	---	---	---	---	---
26	.90	6.2	.10	---	---	---	---	---	---	---	---	---
27	.80	26	.00	---	---	---	---	---	---	---	---	---
28	.75	71	1.7	---	---	---	---	---	---	---	---	---
29	.70	39	50	---	---	---	---	---	---	---	---	---
30	.65	24	35	---	---	---	---	---	---	---	---	---
31	.60	---	20	---	---	---	---	---	---	---	---	---
MEAN	5.78	22.6	13.0	---	---	---	---	---	---	---	---	---
MAX	.65	.98	.50	---	---	---	---	---	---	---	---	---
MIN	.07	.50	.00	---	---	---	---	---	---	---	---	---
IN.	.03	.11	.07	---	---	---	---	---	---	---	---	---

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

	102	96.5	70.1	70.6	143	241	252	201	265	135	71.2	97.8
MEAN	102	96.5	70.1	70.6	143	241	252	201	265	135	71.2	97.8
MAX	689	1133	507	372	623	945	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	.026	.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 1990 CALENDAR YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	208	144
HIGHEST ANNUAL MEAN		369
LOWEST ANNUAL MEAN		9.25
HIGHEST DAILY MEAN	5010	17300
LOWEST DAILY MEAN	.00	.00
INSTANTANEOUS PEAK FLOW	7470	24200
INSTANTANEOUS PEAK STAGE	11.52	20.9
INSTANTANEOUS LOW FLOW	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.39	.00
ANNUAL RUNOFF (INCHES)	12.55	8.71
10 PERCENT EXCEEDS	409	257
50 PERCENT EXCEEDS	30	23
90 PERCENT EXCEEDS	2.0	2.3

## GRAND RIVER BASIN

06902000 GRAND RIVER NEAR SUMNER, MO

LOCATION.--Lat 39°38'25", long 93°16'25", in NE 1/4 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, 2.0 mi southwest of Sumner, 2.5 mi downstream from Locust Creek and at mile 41.0.

DRAINAGE AREA.--6,880 mi<sup>2</sup>, 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: Dec. 21, 23-26, Jan. 4-18, Jan. 26 to Feb. 2, and Feb. 4-6. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	127	870	1200	450	860	3090	29200	5240	922	335	187
2	267	121	638	886	650	7200	2650	12200	11500	861	325	186
3	266	113	573	778	1990	24600	2260	8120	12100	916	310	201
4	753	143	809	600	15000	12400	2060	12300	8150	946	286	256
5	1170	654	621	500	25900	6000	1910	36300	5220	797	278	227
6	1160	1460	504	450	20600	4000	1780	58800	3990	716	277	205
7	1640	1290	475	400	13300	3180	1620	73800	3380	660	295	199
8	3180	1040	478	370	8790	2620	1480	55900	2970	622	315	199
9	1190	785	482	350	6300	2100	1380	24900	2530	593	354	204
10	684	981	462	350	4620	1790	1290	11500	2110	634	368	197
11	546	889	454	350	3580	1580	1220	7860	1940	10600	357	217
12	443	623	467	350	2920	1450	1440	6500	1860	34100	333	257
13	370	503	514	350	2480	1460	8300	5540	1810	22200	317	214
14	322	418	549	350	2220	1900	29200	5170	1900	8990	312	174
15	292	374	569	400	1500	2620	42000	15800	2270	3750	391	172
16	258	317	544	600	980	2850	30300	20800	3020	2490	315	157
17	220	279	510	750	1310	2220	13100	13000	11100	1880	290	155
18	188	252	499	1000	1530	7840	10800	7230	8080	1420	286	165
19	173	233	503	1470	1540	16000	46100	5780	3950	1070	275	160
20	167	221	525	2690	2230	12900	60000	4110	2700	862	247	156
21	153	226	511	4370	1910	8770	58600	3460	2090	730	232	148
22	144	221	429	3340	1600	5910	30900	3570	2450	637	227	138
23	134	213	400	2520	1440	4410	13100	3680	2790	599	234	127
24	130	204	370	1990	1300	3840	8180	6070	2570	582	235	120
25	128	198	350	1700	1160	3400	6790	15600	1890	524	235	120
26	132	196	320	1200	1020	2840	5900	18300	1510	492	236	107
27	135	268	310	900	943	7750	8190	13500	1320	490	232	101
28	132	1090	278	700	867	21200	31900	8880	1190	453	230	99
29	130	660	314	550	---	13900	35900	5750	1080	428	212	97
30	126	945	1000	500	---	7140	40600	4350	997	376	215	99
31	121	---	1230	430	---	4260	---	3630	---	355	210	---
MEAN	486	501	534	1045	4576	6419	16730	16180	3790	3248	283	168
MAX	3180	1460	1230	4370	25900	24600	60000	73800	12100	34100	391	257
MIN	121	113	278	350	450	860	1220	3460	997	355	210	97
IN.	.08	.08	.09	.18	.69	1.08	2.71	2.71	.61	.54	.05	.03

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

	MEAN	2749	2900	1897	1986	3616	6046	6660	5583	7326	3442	1719	2938
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 1990 CALENDAR YEAR			FOR 1991 WATER YEAR			FOR PERIOD OF RECORD		
ANNUAL MEAN	4410			4488			3896		
HIGHEST ANNUAL MEAN							10020		
LOWEST ANNUAL MEAN							367		
HIGHEST DAILY MEAN	48500			73800			166000		
LOWEST DAILY MEAN	113			97			10		
INSTANTANEOUS PEAK FLOW	50100			76600			180000		
INSTANTANEOUS PEAK STAGE	34.03			36.81			39.5		
INSTANTANEOUS LOW FLOW	109			91			10		
ANNUAL SEVEN-DAY MINIMUM	124			106			12		
ANNUAL RUNOFF (INCHES)	8.70			8.86			7.69		
10 PERCENT EXCEEDS	14500			12300			9810		
50 PERCENT EXCEEDS	1130			889			925		
90 PERCENT EXCEEDS	251			188			121		

## 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 1990 TO SEPTEMBER 1991

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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
07...	0845	1310	316	7.8	6.5	75	10.4	83	K28000	9500	150	45
JAN												
09...	0930	452	520	7.3	0.0	17	--	--	780	110	210	65
MAY												
17...	0820	14200	215	7.5	22.0	460	5.6	65	29000	5900	97	30
JUL												
16...	0845	2510	204	7.6	26.0	190	6.2	76	3400	2400	84	26

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
07...	8.4	9.1	7.7	113	31	14	0.20	10	189	204	0.26
JAN											
09...	12	17	9.0	186	42	22	0.10	12	315	296	0.43
MAY											
17...	5.2	5.2	3.6	88	16	4.3	0.20	9.4	139	132	0.19
JUL											
16...	4.5	5.0	4.9	84	14	4.4	0.30	9.6	128	125	0.17

## GRAND RIVER BASIN

06902000 GRAND RIVER NEAR SUMNER, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 07...	668	0.030	2.20	<0.010	0.010	1.2	0.300	0.110	0.120	215	90
JAN 09...	384	0.030	0.700	0.300	0.280	1.3	0.240	0.030	0.020	19	94
MAY 17...	5330	0.040	0.840	0.340	0.060	1.8	0.390	0.070	0.050	1700	--
JUL 16...	867	0.020	1.00	0.030	0.040	2.2	0.410	0.040	0.060	568	98

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...	90	1	130	<0.5	<1.0	<1	<3	4	100	<1
JAN 09...	50	<1	150	<0.5	<1.0	<1	<3	5	230	<1
MAY 17...	170	<1	280	<0.5	<1.0	<1	<3	3	180	<1
JUL 16...	130	1	130	<0.5	<1.0	<1	<3	3	130	<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	67	<0.1	<10	5	<1	<1.0	180	<6	10
JAN 09...	9	960	<0.1	<10	5	<2	<1.0	240	<6	14
MAY 17...	<4	15	<0.1	<10	2	<1	<1.0	120	<6	40
JUL 16...	<4	48	<0.1	<10	3	<1	<1.0	100	<6	24

## CHARITON RIVER BASIN

06904050 CHARITON RIVER AT LIVONIA, MO

LOCATION.--Lat 40°29'00", long 92°41'10", in NW ¼ SE ¼ NW ¼ 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, 1.0 mi upstream from Shoal Creek, 0.5 mi east of Livonia and at mile 90.9.

DRAINAGE AREA.--864 mi<sup>2</sup>.

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. 24 to Feb. 2, Feb. 8-13, Apr. 27-29, May 31, and June 12-13. Records poor. Several observations of water temperature and specific conductance were made during the year. Considerable regulation by Rathbun Lake (station 06903880) 51.0 mi upstream. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	783	46	61	740	100	231	818	630	3240	820	1250	115
2	783	45	53	730	200	1250	775	664	2270	1080	1240	83
3	795	43	54	740	718	1140	740	922	674	1300	1240	76
4	575	52	49	750	2170	495	722	1320	533	1300	1230	73
5	166	79	66	750	2790	433	718	4800	891	1300	1010	75
6	580	129	70	750	1740	774	676	3960	844	1300	1240	80
7	785	111	57	750	1100	934	647	3320	908	1300	1260	70
8	777	79	65	750	850	898	619	1850	864	1290	1260	65
9	648	69	70	700	860	890	612	1030	858	1330	703	63
10	174	71	75	626	880	885	576	959	853	1100	788	63
11	519	78	92	414	800	894	360	902	909	1180	1180	59
12	783	67	126	300	750	886	244	871	871	1180	1250	55
13	793	60	150	200	800	799	1030	844	845	828	1250	53
14	790	52	130	190	891	551	1310	818	844	1160	1250	52
15	797	50	110	180	855	757	1360	825	838	1160	1250	52
16	801	56	108	170	921	607	675	828	693	1210	1240	53
17	800	55	101	180	847	467	514	1170	737	1250	1150	51
18	798	52	101	170	996	1020	1430	939	852	1250	1060	49
19	804	51	137	170	1220	838	3790	810	846	1250	1050	47
20	814	53	263	160	1030	774	3530	780	843	1240	946	45
21	815	60	687	150	958	860	3290	787	839	1240	855	44
22	811	54	680	140	911	966	1650	811	836	1240	771	44
23	806	53	609	150	823	1400	793	834	831	1110	675	43
24	794	52	650	140	617	1120	886	868	833	540	566	42
25	791	47	700	130	598	1000	885	943	832	1050	391	42
26	715	49	700	130	590	974	876	877	832	1240	379	39
27	379	53	680	130	589	2990	860	663	830	1240	374	38
28	126	94	700	120	484	2030	860	188	826	1250	372	37
29	64	96	760	100	---	775	973	118	824	1250	327	36
30	51	75	750	90	---	783	918	112	822	1240	190	34
31	49	---	740	85	---	844	---	265	---	1250	174	---
MEAN	618	64.4	309	348	932	944	1105	1120	951	1177	901	55.9
MAX	815	129	760	750	2790	2990	3790	4800	3240	1330	1260	115
MIN	49	43	49	85	100	231	244	112	533	540	174	34
IN.	.83	.08	.41	.46	1.12	1.26	1.43	1.49	1.23	1.57	1.20	.07

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

	MEAN	427	480	645	315	497	879	844	776	813	980	564	495
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	26.2	19.9	13.6	23.0	58.6	31.1	52.1	33.6	23.6	32.3	29.6	
(WY)	1977	1990	1977	1977	1989	1989	1989	1980	1988	1988	1988	1976	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	608		710		643	
HIGHEST ANNUAL MEAN					1253	1982
LOWEST ANNUAL MEAN					69.3	1989
HIGHEST DAILY MEAN	3930	Jun 21	4800	May 5	8960	Jul 18 1982
LOWEST DAILY MEAN	43	Feb 1	34	Sep 30	13	Jan 11 1977
INSTANTANEOUS PEAK FLOW	4650	Jun 14	5580	May 5	9200	Jul 18 1982
INSTANTANEOUS PEAK STAGE	20.80	Jun 14	21.62	May 5	28.33	Jul 18 1982
INSTANTANEOUS LOW FLOW	16	Feb 21	33	Sep 30	13	Jan 11 1977
ANNUAL SEVEN-DAY MINIMUM	50	Oct 29	38	Sep 24	13	Jan 11 1977
ANNUAL RUNOFF (INCHES)	9.56		11.16		10.11	
10 PERCENT EXCEEDS	1230		1250		1450	
50 PERCENT EXCEEDS	519		757		314	
90 PERCENT EXCEEDS	56		54		31	



## 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 of bridge on State Highway 6, 0.6 mi east of Novinger, 1.0 mi downstream from Rye Creek, 2.0 mi upstream from Spring Creek and at mile 73.1.

DRAINAGE AREA.--1,370 mi<sup>2</sup>, 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: Nov. 7-15, Dec. 23 to Jan. 10, Jan. 13 to Feb. 4, and Feb. 13-16. Records poor. Several observations of water temperature and specific conductance were made during the year. Some regulation by Rathbun Lake (Iowa 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	974	71	93	800	130	456	956	747	9310	835	1380	158
2	959	69	75	800	250	3770	890	613	6330	957	1380	102
3	966	67	86	800	1000	2960	831	2100	1900	1360	1370	85
4	885	90	80	800	3000	1090	815	3490	1680	1380	1370	79
5	376	113	73	800	4380	694	800	18300	1560	1390	1190	77
6	394	172	88	800	2600	904	762	12100	1340	1390	1290	78
7	851	160	85	800	1350	1170	725	6160	1290	1390	1420	80
8	852	150	79	800	956	1140	698	3720	1220	1380	1430	77
9	838	145	88	780	961	1100	674	1700	1170	1430	1090	76
10	407	120	90	720	996	1060	631	1380	1130	1420	603	132
11	339	115	116	577	876	1070	426	1200	1300	4250	1200	71
12	863	97	164	462	816	1090	656	1100	1220	5200	1370	66
13	890	89	189	300	900	1290	4130	1040	1070	1230	1380	62
14	899	81	190	260	950	867	4180	994	1060	1460	1380	60
15	901	71	160	230	950	1050	2910	967	1020	1460	1390	62
16	899	64	138	220	1000	948	1360	982	900	1460	1390	65
17	899	62	136	220	986	852	704	1410	761	1510	1330	60
18	903	61	126	210	1280	2220	3190	1610	957	1500	1160	57
19	903	59	146	210	1960	1630	11800	1030	950	1480	1140	53
20	903	58	157	200	1410	1300	8620	946	935	1460	1080	51
21	908	62	567	190	1220	1190	6280	934	929	1440	913	49
22	908	62	718	180	1160	1370	3500	960	1320	1430	865	50
23	906	61	700	190	1070	2470	1300	1060	919	1420	716	50
24	906	60	750	180	809	1930	1140	1180	894	671	670	51
25	906	58	780	170	745	1440	1070	1600	879	967	435	50
26	881	56	760	160	717	1320	1030	1640	872	1390	375	46
27	492	74	750	150	700	9350	994	1180	865	1400	365	44
28	200	100	750	130	686	5330	919	578	848	1390	354	43
29	114	165	800	115	---	1630	1140	288	844	1380	344	42
30	84	125	800	102	---	1060	1270	281	837	1370	232	39
31	74	---	800	100	---	1040	---	213	---	1380	183	---
MEAN	719	91.2	340	402	1209	1767	2147	2307	1544	1554	993	67.2
MAX	974	172	800	800	4380	9350	11800	18300	9310	5200	1430	158
MIN	74	56	73	100	130	456	426	213	761	671	183	39
IN.	.60	.07	.29	.34	.92	1.49	1.75	1.94	1.26	1.31	.84	.05

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

	511	557	526	490	769	1421	1381	1214	1455	794	503	497
MEAN	511	557	526	490	769	1421	1381	1214	1455	794	503	497
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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	1049			1096			842		
HIGHEST ANNUAL MEAN							2191		1973
LOWEST ANNUAL MEAN							81.6		1956
HIGHEST DAILY MEAN	15800	Jun 14		18300	May 5		21700	Apr 2	1960
LOWEST DAILY MEAN	47	Jan 31		39	Sep 30		.10	Aug 31	1936
INSTANTANEOUS PEAK FLOW	20000	Jun 14		20200	May 5		22900	Jun 13	1947
INSTANTANEOUS PEAK STAGE	21.74	Jun 14		22.27	May 5		28.50	Jun 13	1947
INSTANTANEOUS LOW FLOW	21	Jan 26		38	Sep 30		.10	Aug 31	1936
ANNUAL SEVEN-DAY MINIMUM	53	Jan 29		45	Sep 24		.27	Aug 26	1936
ANNUAL RUNOFF (INCHES)	10.40			10.86			8.35		
10 PERCENT EXCEEDS	2040			1600			2150		
50 PERCENT EXCEEDS	652			872			185		
90 PERCENT EXCEEDS	70			74			17		

## CHARITON RIVER BASIN

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 mi<sup>2</sup>, 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: Oct. 1-2, Dec. 22-24, Dec. 26 to Jan. 8, Jan. 11, and Jan. 15 to Feb. 1. Records poor. Several observations of water temperature and specific conductance were made during the year. Some regulation by Rathbun Lake (Iowa 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	199	156	850	150	711	1280	1550	3670	986	1450	239
2	1050	167	136	850	512	1310	1170	1070	10200	991	1440	201
3	1010	145	178	850	1260	3860	1090	1470	4700	1040	1430	180
4	1030	148	202	850	2900	2350	1050	5870	2360	1370	1420	157
5	1040	158	158	850	5290	1170	1030	15300	2280	1420	1410	142
6	714	152	116	850	3590	810	1020	16000	1670	1430	1310	113
7	542	160	102	850	2290	889	983	8440	1370	1440	1310	101
8	935	196	109	850	1420	1090	951	5890	1280	1440	1450	100
9	1030	204	106	850	1070	1060	920	3500	1220	1440	1440	102
10	1040	177	98	775	1040	1010	891	2110	1160	1590	1270	545
11	770	144	105	750	1050	993	878	1800	1140	9410	750	642
12	501	122	106	627	920	996	830	1610	1320	10500	1190	228
13	903	121	128	493	850	1070	1470	2280	1270	4370	1390	128
14	1030	113	168	451	984	1170	6030	3680	1120	1860	1400	102
15	1050	105	195	400	1010	885	4100	2180	1120	1810	1400	213
16	1060	96	187	350	1110	943	2800	1540	1170	1670	1400	246
17	1070	89	161	300	1020	965	1640	1390	1030	1620	1400	103
18	1060	85	152	280	984	1350	1090	1710	872	1640	1360	95
19	1050	81	145	275	1260	2170	8700	1820	1010	1610	1220	79
20	1050	82	134	260	1640	1630	8860	1330	1030	1590	1170	70
21	1060	80	121	255	1270	1320	7280	1230	1020	1560	1100	67
22	1050	80	250	250	1130	1270	5360	1210	1020	1550	935	63
23	1050	83	800	240	1060	1370	2990	1260	1300	1700	865	62
24	1050	80	850	240	985	1990	1560	2030	1060	1570	722	60
25	1050	78	831	230	789	1650	1400	5560	1030	1060	653	59
26	1050	79	830	220	720	1300	1350	4230	1020	990	510	56
27	1040	108	830	210	702	4800	1360	2390	1010	1440	402	55
28	788	106	820	200	693	8610	1340	1560	999	1470	383	53
29	511	110	850	190	---	3910	1240	1000	992	1470	375	52
30	338	127	850	175	---	1820	1650	678	990	1460	373	49
31	250	---	850	160	---	1330	---	596	---	1450	337	---
MEAN	912	122	346	483	1346	1800	2410	3299	1714	2095	1073	145
MAX	1100	204	850	850	5290	8610	8860	16000	10200	10500	1450	642
MIN	250	78	98	160	150	711	830	596	872	986	337	49
IN.	.56	.07	.21	.30	.75	1.11	1.44	2.03	1.02	1.29	.66	.09

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

	MEAN	738	792	722	708	1090	1914	1996	1854	2036	1214	658	690
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1204		1314		1198	
HIGHEST ANNUAL MEAN					3353	1973
LOWEST ANNUAL MEAN					166	1989
HIGHEST DAILY MEAN	17500	Jun 8	16000	May 6	30000	Apr 23 1973
LOWEST DAILY MEAN	62	Jan 13	49	Sep 30	4.6	Aug 7 1934
INSTANTANEOUS PEAK FLOW	18700	Jun 8	19400	May 5	31900	Apr 23 1973
INSTANTANEOUS PEAK STAGE	18.03	Jun 8	18.21	May 5	21.96	Apr 23 1973
INSTANTANEOUS LOW FLOW	39	Jan 13	48	Sep 30	4.6	Aug 7 1934
ANNUAL SEVEN-DAY MINIMUM	80	Nov 20	55	Sep 24	4.8	Aug 4 1934
10 PERCENT EXCEEDS	2790		2220		3080	
50 PERCENT EXCEEDS	830		1010		326	
90 PERCENT EXCEEDS	103		107		36	

## LITTLE CHARITON RIVER BASIN

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, Hydrologic Unit 10280203, in Administration Building at left end of dam on East Fork Little Chariton River, 2.0 mi west of junction U.S. Highway 63 and 36 in Macon and 2.0 mi below confluence with Long Branch.

DRAINAGE AREA.--109 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1978 to current year. Contents published 1982 to current year. Records collected at same site since 1978 are available from U.S. Army Corps of Engineers.

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 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 98,590 acre-ft (elevations 801.1 ft to 820.7 ft); of flood control pool 30,600 acre-ft (elevations 791.1 ft to 801.0 ft); and of multipurpose pool 34,640 acre-ft (elevations 751.1 ft to 791.0 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, 44,300 acre-ft, May 7, elevation, 794.82 ft; minimum, 28,800 acre-ft, Jan. 14-15, elevation, 788.66 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	790.39	790.08	789.89	789.20	789.15	789.35	791.13	792.23	793.44	791.79	792.31	791.26
2	790.38	790.05	789.89	789.17	789.12	789.60	791.12	792.18	793.44	791.71	792.24	791.22
3	790.34	790.05	789.96	789.12	789.17	789.87	791.09	792.16	793.47	791.67	792.18	791.26
4	790.39	790.11	789.97	789.07	789.47	789.92	791.05	792.68	793.39	791.59	792.12	791.24
5	790.34	790.15	789.94	789.05	789.79	789.88	791.05	793.36	793.62	791.52	792.07	791.20
6	790.33	790.13	789.94	789.01	789.93	789.90	791.03	794.62	793.59	791.42	792.01	791.18
7	790.43	790.11	789.92	788.97	789.96	789.85	791.01	794.82	793.44	791.30	791.97	791.18
8	790.40	790.09	789.92	788.92	789.95	789.80	791.01	794.70	793.31	791.26	791.93	791.13
9	790.41	790.11	789.92	788.87	789.94	789.75	791.03	794.53	793.15	791.22	791.92	791.11
10	790.41	790.11	789.91	788.82	789.93	789.71	791.02	794.40	793.07	791.29	791.86	791.39
11	790.36	790.10	789.90	788.78	789.91	789.68	790.99	794.25	792.96	791.97	791.83	791.37
12	790.35	790.09	789.89	788.73	789.88	789.66	791.04	794.10	792.87	794.06	791.79	791.37
13	790.34	790.08	789.87	788.68	789.86	789.74	791.14	793.91	792.80	794.54	791.75	791.35
14	790.34	790.06	789.79	788.66	789.83	789.76	791.33	794.02	792.69	794.42	791.71	791.33
15	790.33	790.03	789.78	788.66	789.77	789.71	791.37	794.16	792.60	794.25	791.68	791.21
16	790.31	790.04	789.73	788.73	789.76	789.66	791.40	794.13	792.82	794.06	791.63	791.30
17	790.26	790.01	789.71	788.78	789.75	789.66	791.42	793.99	792.77	793.89	791.63	791.29
18	790.30	790.01	789.67	788.81	789.74	789.89	791.42	793.85	792.69	793.74	791.59	791.31
19	790.25	790.00	789.63	788.89	789.72	790.01	791.92	793.71	792.60	793.58	791.56	791.26
20	790.22	789.98	789.55	788.97	789.69	790.04	792.45	793.55	792.52	793.42	791.53	791.23
21	790.24	789.98	789.53	789.05	789.67	790.01	792.53	793.44	792.45	793.28	791.49	791.19
22	790.24	789.96	789.49	789.12	789.65	790.02	792.54	793.31	792.40	793.16	791.46	791.14
23	790.22	789.95	789.42	789.13	789.60	790.00	792.50	793.22	792.34	793.09	791.44	791.14
24	790.21	789.93	789.35	789.14	789.56	789.97	792.48	793.15	792.27	793.00	791.41	791.14
25	790.17	789.92	789.29	789.13	789.55	789.94	792.43	793.44	792.22	792.91	791.39	791.12
26	790.15	789.91	789.27	789.18	789.47	789.88	792.34	793.83	792.14	792.81	791.37	791.10
27	790.14	789.96	789.21	789.18	789.43	790.19	792.36	793.83	792.10	792.70	791.34	791.06
28	790.14	789.97	789.14	789.17	789.38	791.13	792.32	793.73	792.04	792.60	791.33	791.04
29	790.12	789.96	789.24	789.17	---	791.25	792.31	793.60	791.95	792.54	791.29	791.03
30	790.08	789.88	789.23	789.16	---	791.23	792.24	793.48	791.84	792.46	791.29	791.01
31	790.08	---	789.22	789.16	---	791.18	---	793.44	---	792.36	791.29	---
(-)	32000	31500	30000	29900	30400	34600	37300	40400	36300	37600	34900	34200
(=)	-700	-500	-1500	-100	+500	+4200	+2700	+3100	-4100	+1300	-2700	-700
MAX	790.43	790.15	789.97	789.20	789.96	791.25	792.54	794.82	793.62	794.54	792.31	791.39
MIN	790.08	789.88	789.14	788.66	789.12	789.35	790.99	792.16	791.84	764.42	791.29	791.01

CAL YR 1990 . . . .+5100  
WTR YR 1991 . . . .+1500

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

## 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 3.0 mi west of Macon.

DRAINAGE AREA.--112 mi<sup>2</sup>.

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.--Estimated daily discharge: Dec. 29. Records fair. Several observations of water temperature and specific conductance were made during the year. Complete regulation by 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	8.7	8.7	47	8.2	51	59	66	205	78	45	9.0
2	8.7	8.7	8.7	46	8.2	52	59	63	224	74	40	8.4
3	8.8	8.7	8.7	46	8.2	51	56	75	222	70	37	8.8
4	8.5	8.7	8.7	46	8.2	51	34	141	215	67	34	8.9
5	8.4	8.7	8.7	46	8.2	51	14	223	215	64	31	7.8
6	8.4	8.7	8.7	46	34	51	15	270	209	61	29	7.3
7	8.3	8.7	8.7	46	50	51	16	275	199	60	27	7.0
8	8.2	8.7	8.7	46	51	51	16	270	189	59	27	6.7
9	8.2	8.7	8.7	46	51	51	16	265	179	57	26	6.8
10	8.2	8.7	8.7	46	51	51	16	259	168	59	26	12
11	8.2	8.7	8.7	46	51	51	17	251	159	143	24	11
12	8.2	8.7	32	46	51	51	16	244	149	236	23	11
13	8.2	8.7	48	46	51	51	19	237	134	248	22	9.8
14	8.2	8.7	48	23	50	51	23	244	114	242	21	9.5
15	8.3	8.7	48	8.5	50	51	24	251	108	234	20	11
16	8.4	8.7	48	8.0	50	51	25	244	143	226	18	14
17	8.4	8.7	48	8.0	51	52	25	237	133	219	18	13
18	8.4	8.7	48	8.0	51	52	28	229	114	210	17	13
19	8.4	8.7	48	8.0	51	53	62	220	96	201	17	12
20	8.4	8.7	48	8.0	51	52	104	210	84	191	16	11
21	8.4	8.7	47	8.0	51	54	112	201	77	179	15	9.8
22	8.4	8.7	47	8.0	50	55	102	191	74	169	14	9.4
23	8.4	8.7	47	8.0	51	55	97	183	67	162	14	9.2
24	8.4	8.7	47	8.0	51	55	89	186	63	153	13	8.7
25	8.4	8.7	47	8.0	50	55	83	210	59	141	12	8.5
26	8.4	8.7	47	8.0	50	55	77	230	57	126	12	8.1
27	8.4	8.8	47	8.0	50	56	79	228	54	104	11	7.6
28	8.4	8.7	47	8.0	50	60	77	221	78	83	11	7.8
29	8.5	8.7	47	8.0	---	64	71	213	92	71	10	7.5
30	8.7	8.7	47	8.1	---	62	69	205	84	58	10	7.6
31	8.7	---	47	8.2	---	61	---	198	---	50	9.8	---
MEAN	8.41	8.70	33.2	24.5	42.4	53.5	50.0	211	132	132	21.0	9.41
MAX	8.8	8.8	48	47	51	64	112	275	224	248	45	14
MIN	8.2	8.7	8.7	8.0	8.2	51	14	63	54	50	9.8	6.7
IN.	.09	.09	.34	.25	.39	.55	.50	2.17	1.32	1.36	.22	.09

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

	MEAN	71.9	69.9	86.6	59.4	59.6	147	188	179	101	73.9	56.2	78.5
MAX	425	354	298	299	205	688	939	511	349	340	401	727	
(WY)	1974	1986	1983	1974	1975	1973	1973	1973	1984	1981	1981	1973	
MIN	.000	.049	.000	.000	.000	7.30	7.27	7.21	.95	.097	.019	.000	
(WY)	1976	1976	1979	1979	1979	1989	1989	1988	1977	1977	1975	1976	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	61.7	60.8	97.8
HIGHEST ANNUAL MEAN			317
LOWEST ANNUAL MEAN			7.13
HIGHEST DAILY MEAN	418	Jun 7	5460
LOWEST DAILY MEAN	6.5	Mar 23, Apr 2	.00
INSTANTANEOUS PEAK FLOW	1200	Jun 7	8700
INSTANTANEOUS PEAK STAGE	14.00	Jun 7	20.60
INSTANTANEOUS LOW FLOW	6.4	Mar 22-23, Apr 2	.00
ANNUAL SEVEN-DAY MINIMUM	6.6	Mar 27	.00
ANNUAL RUNOFF (INCHES)	7.48		11.86
10 PERCENT EXCEEDS	268		281
50 PERCENT EXCEEDS	8.8		22
90 PERCENT EXCEEDS	6.9		.60

\*\* Prior to and during construction of Long Branch Reservoir. Low flow now augmented by reservoir releases.

## LITTLE CHARITON RIVER BASIN

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, 1.0 mi downstream from Sugar Creek and 1.5 mi northwest of Huntsville.

DRAINAGE AREA.--220 mi<sup>2</sup>.

## 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.

REMARKS.--Estimated daily discharges: Dec. 23-25, Dec. 28 to Jan. 31, Feb. 9 and 15-16. Water-discharge records fair except for estimated daily discharges, which are 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	26	53	35	72	75	111	184	84	68	14
2	9.7	11	26	53	125	266	73	100	214	83	64	13
3	11	12	428	53	181	141	73	204	224	78	59	31
4	12	19	80	54	144	93	73	312	215	74	55	27
5	12	33	45	55	123	84	57	1410	209	71	52	14
6	11	21	37	55	77	79	33	569	207	67	52	12
7	19	16	32	55	76	71	32	394	193	64	48	10
8	19	13	30	55	88	68	36	346	175	61	43	10
9	15	15	29	68	91	66	33	326	162	60	55	9.6
10	16	16	27	55	89	63	32	304	149	85	42	82
11	15	14	27	56	82	64	34	289	137	1860	40	31
12	13	13	27	56	78	71	48	275	128	1620	37	17
13	12	13	43	56	78	78	96	265	120	399	35	15
14	12	12	58	55	78	73	123	377	113	307	33	14
15	11	12	63	30	60	69	66	352	107	271	31	33
16	12	12	59	15	65	68	57	315	118	248	28	93
17	14	15	60	13	69	215	56	277	119	231	28	29
18	11	12	62	12	97	230	63	253	110	217	26	22
19	11	11	60	12	91	205	400	236	102	202	24	18
20	12	12	59	12	73	139	215	221	93	184	23	15
21	12	12	57	11	68	107	169	209	87	167	21	13
22	12	13	53	12	65	108	147	196	82	153	20	13
23	12	12	53	15	63	95	136	228	79	140	19	12
24	11	12	53	14	62	85	121	493	74	133	18	12
25	13	11	53	14	59	78	112	552	69	122	17	12
26	14	11	52	14	59	81	107	338	65	112	15	15
27	11	269	53	20	60	77	177	282	60	103	15	16
28	11	104	54	25	61	74	145	250	57	93	14	16
29	10	36	56	22	---	76	119	228	84	87	13	17
30	11	28	55	19	---	77	106	213	88	80	13	17
31	11	---	53	25	---	75	---	197	---	74	15	---
MEAN	12.5	26.7	60.3	34.3	82.0	102	100	327	127	243	33.0	21.8
MAX	19	269	428	68	181	266	400	1410	224	1860	68	93
MIN	9.7	11	26	11	35	63	32	100	57	60	13	9.6
IN.	.07	.14	.32	.18	.39	.53	.51	1.71	.65	1.27	.17	.11

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

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
MEAN	136	127	124	124	151	262	331	258	217	167	69.4	131
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	.045	.46	.037
(WY)	1964	1964	1964	1964	1964	1989	1989	1965	1977	1977	1964	1976

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

	1990	1991	Period
ANNUAL MEAN	148	97.9	175
HIGHEST ANNUAL MEAN			510
LOWEST ANNUAL MEAN			17.3
HIGHEST DAILY MEAN	3080	May 16	17000
LOWEST DAILY MEAN	8.2	Jan 12	.00
INSTANTANEOUS PEAK FLOW	4270	Jul 11	30000
INSTANTANEOUS PEAK STAGE	16.60	Jul 11	20.78
INSTANTANEOUS LOW FLOW	4.9	Jan 12-13	.00
ANNUAL SEVEN-DAY MINIMUM	9.8	Sep 11	.00
ANNUAL RUNOFF (INCHES)	9.13		10.79
10 PERCENT EXCEEDS	359		420
50 PERCENT EXCEEDS	36		39
90 PERCENT EXCEEDS	11		2.7

## 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 June 1991 (discontinued).

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

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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT												
10...	1130	16	1250	7.2	10.5	10.8	97	26	100	520	120	53
NOV												
14...	0730	11	1250	7.6	8.5	11.7	100	24	47	--	--	--
DEC												
10...	1230	27	1090	7.5	3.0	15.0	111	17	200	--	--	--
JAN												
09...	0830	68	517	7.8	0.5	14.7	101	24	37	230	58	20
FEB												
05...	1130	87	721	7.2	1.0	13.8	96	36	380	--	--	--
MAR												
11...	1630	64	566	7.9	9.0	13.9	121	22	K11	--	--	--
APR												
03...	0830	73	534	7.9	12.5	10.1	94	32	52	240	62	20
MAY												
15...	1130	196	433	7.6	20.0	8.6	95	37	490	--	--	--
JUN												
12...	1200	128	278	7.7	24.5	7.6	91	31	120	--	--	--

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

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	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)	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- PHORUS TOTAL (MG/L AS P) (00665)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)
OCT												
10...	67	6.8	88	630	5.3	0.30	982	19	0.200	0.080	<0.010	1200
NOV												
14...	--	--	121	--	--	--	986	29	<0.100	0.050	0.030	970
DEC												
10...	--	--	108	--	--	--	842	10	0.300	0.090	0.010	910
JAN												
09...	24	4.7	91	170	6.8	<0.10	359	8	0.200	0.090	0.020	710
FEB												
05...	--	--	81	--	--	--	522	90	0.580	0.200	0.070	2100
MAR												
11...	--	--	87	--	--	--	403	15	0.140	0.030	<0.010	410
APR												
03...	20	4.5	88	180	7.3	0.40	371	67	0.120	0.020	0.070	1200
MAY												
15...	--	--	74	--	--	--	277	216	0.430	0.060	0.220	--
JUN												
12...	--	--	68	--	--	--	160	39	0.430	<0.010	0.070	2300



WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[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 mi<sup>2</sup>.

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.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	11	69	277	86	50	50	325	100	10	4.8	3.8
2	7.8	11	67	166	161	54	47	403	717	9.2	4.4	6.6
3	9.9	16	1780	107	321	55	45	267	465	10	4.0	20
4	14	20	491	88	285	54	45	324	178	10	4.3	444
5	17	27	237	84	290	50	45	3820	113	10	4.4	111
6	15	37	159	91	285	48	42	1370	76	12	4.4	43
7	144	36	113	80	221	45	42	510	59	9.7	4.1	22
8	137	29	93	69	186	42	42	314	51	8.1	4.7	16
9	80	26	78	63	164	40	42	238	43	7.5	7.7	12
10	78	23	68	61	148	37	39	190	38	8.5	6.3	10
11	74	20	61	69	133	35	38	162	33	11	5.1	8.8
12	54	19	57	72	119	37	38	4900	30	159	4.2	7.9
13	42	18	52	69	112	49	58	19000	27	43	3.6	6.9
14	34	17	48	187	104	79	166	2060	25	17	3.7	6.7
15	28	17	45	2440	87	107	351	550	28	10	3.7	8.1
16	24	16	43	4000	73	102	256	372	217	8.2	3.6	26
17	20	15	44	843	67	221	168	281	267	6.7	3.6	46
18	22	14	48	433	72	789	1090	238	114	5.9	3.1	36
19	18	14	51	386	72	423	1980	186	63	5.4	2.8	20
20	20	15	49	383	68	283	647	160	42	4.8	2.3	13
21	16	16	45	316	62	222	387	163	32	4.3	2.1	11
22	15	17	41	225	57	182	281	179	33	4.4	2.0	10
23	14	16	37	192	55	150	219	153	26	9.1	1.8	9.2
24	14	16	34	162	51	123	173	595	22	15	1.6	9.0
25	13	15	33	139	49	102	149	2690	19	15	1.4	8.3
26	13	15	32	121	47	89	145	561	17	13	1.3	7.1
27	13	428	32	106	47	83	403	528	16	9.1	1.3	6.6
28	12	641	33	100	48	73	702	311	14	7.5	1.4	5.9
29	12	187	681	97	---	62	332	192	13	6.0	1.3	6.0
30	12	100	889	83	---	56	337	142	11	5.2	2.2	5.6
31	13	---	394	80	---	53	---	124	---	5.0	4.1	---
MEAN	32.0	61.7	190	374	124	122	279	1333	96.3	14.8	3.40	31.5
MAX	144	641	1780	4000	321	789	1980	19000	717	159	7.7	444
MIN	7.5	11	32	61	47	35	38	124	11	4.3	1.3	3.8
IN.	.07	.13	.40	.79	.24	.26	.57	2.83	.20	.03	.01	.06

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

MEAN	16.5	49.4	318	179	370	672	650	1539	254	181	165	24.5
MAX	32.0	71.0	916	374	756	1580	1444	4718	597	673	420	49.7
(WY)	1991	1988	1988	1991	1988	1990	1988	1990	1990	1990	1989	1989
MIN	9.64	20.3	11.1	45.4	124	122	279	44.9	10.5	11.0	3.40	6.00
(WY)	1989	1990	1990	1990	1991	1991	1991	1988	1988	1988	1991	1988

SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	764	224	370
HIGHEST ANNUAL MEAN			744
LOWEST ANNUAL MEAN			159
HIGHEST DAILY MEAN	36800	May 16	19000
LOWEST DAILY MEAN	6.2	Sep 28	1.3
INSTANTANEOUS PEAK FLOW	50600	May 16	22400
INSTANTANEOUS PEAK STAGE	26.55	May 16	21.18
INSTANTANEOUS LOW FLOW	5.1	Sep 28	1.2
ANNUAL SEVEN-DAY MINIMUM	7.8	Sep 26	1.4
ANNUAL RUNOFF (INCHES)	19.11		5.60
10 PERCENT EXCEEDS	1030		376
50 PERCENT EXCEEDS	104		45
90 PERCENT EXCEEDS	13		5.5
			7.7

## LAMINE RIVER BASIN

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 mi<sup>2</sup>.

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. 28 to Jan. 7 and Jan. 20-26. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	2.4	46	7.0	33	24	31	218	1220	14	7.4	8.0
2	7.0	6.0	29	6.5	162	42	28	134	3210	14	6.9	10
3	10	6.8	49	6.5	349	76	28	374	3330	13	6.5	11
4	10	7.4	75	7.0	406	85	28	553	1380	12	6.2	22
5	8.4	14	69	8.0	448	69	28	7030	743	11	6.7	14
6	7.4	91	52	7.5	436	59	28	5970	439	11	8.6	11
7	11	68	35	8.0	245	47	28	4100	417	11	8.9	9.6
8	23	40	27	9.3	160	41	29	1540	172	10	9.2	9.8
9	145	29	23	9.4	127	36	37	494	118	9.5	27	8.7
10	88	22	20	9.7	108	32	52	276	92	13	14	7.8
11	53	19	17	10	94	27	59	195	73	10	26	61
12	38	17	17	11	83	26	45	2280	62	20	28	500
13	27	17	22	12	74	26	84	6170	57	21	18	118
14	19	16	20	38	67	37	257	5950	50	16	14	32
15	14	13	18	1430	59	63	238	1770	50	14	11	18
16	11	11	16	4100	48	72	170	418	60	12	9.4	44
17	9.0	11	14	3490	42	71	112	240	68	9.6	8.5	383
18	7.6	9.3	15	1600	47	185	188	193	54	8.1	7.3	122
19	5.5	8.8	16	537	42	327	1230	138	38	6.9	6.9	74
20	2.6	7.2	17	400	43	209	501	106	31	6.2	6.6	30
21	1.4	7.0	18	270	44	144	228	84	33	6.0	6.2	19
22	1.6	7.6	16	200	40	140	150	75	57	4.8	6.4	14
23	2.0	8.7	13	150	34	198	116	109	26	14	6.2	12
24	1.9	9.6	11	110	30	145	94	3980	31	37	19	11
25	2.0	11	9.8	86	27	95	79	6830	39	19	63	9.7
26	2.2	13	8.4	70	25	70	73	6150	43	30	58	9.2
27	2.3	64	7.3	57	24	57	1380	3540	30	28	17	8.6
28	2.4	112	6.5	45	24	50	1150	845	23	17	11	8.0
29	2.3	121	6.3	39	---	46	693	449	18	12	8.6	7.7
30	2.6	86	6.2	37	---	44	412	270	16	9.6	7.9	7.8
31	2.6	---	6.0	32	---	39	---	184	---	8.4	7.7	---
MEAN	17.0	28.5	22.8	413	119	83.3	253	1957	399	13.8	14.5	53.4
MAX	145	121	75	4100	448	327	1380	7030	3330	37	63	500
MIN	1.4	2.4	6.0	6.5	24	24	28	75	16	4.8	6.2	7.7
IN.	.02	.03	.02	.43	.11	.09	.25	2.01	.40	.01	.01	.05

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

	575	565	416	454	679	1046	1362	1093	1233	727	278	551
MEAN	575	565	416	454	679	1046	1362	1093	1233	727	278	551
MAX	9500	6100	3359	2326	5206	4706	8473	7504	4416	8855	1668	5979
(WY)	1987	1929	1983	1974	1985	1973	1973	1990	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1376	284	750
HIGHEST ANNUAL MEAN			1959
LOWEST ANNUAL MEAN			95.8
HIGHEST DAILY MEAN	30400	May 18	48400
LOWEST DAILY MEAN	1.4	Oct 21	.00
INSTANTANEOUS PEAK FLOW	31000	May 18	54000
INSTANTANEOUS PEAK STAGE	36.25	May 18	41.53
INSTANTANEOUS LOW FLOW	1.2	Oct 21	.00
ANNUAL SEVEN-DAY MINIMUM	1.9	Oct 21	.00
ANNUAL RUNOFF (INCHES)	16.68		9.10
10 PERCENT EXCEEDS	4570		2180
50 PERCENT EXCEEDS	157		82
90 PERCENT EXCEEDS	7.6		4.0

## 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 mi<sup>2</sup>, 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.--Estimated daily discharges: Dec. 29 to Jan. 6 and Jan. 8-13. Records good except for estimated daily discharges, which are fair. 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 ft<sup>3</sup>/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 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38100	34200	22400	18100	24500	29900	35800	103000	74200	50600	36300	35400
2	37700	33200	22100	22000	24400	29500	34200	88800	107000	49000	35900	35000
3	37500	31700	22200	18100	25300	38500	35400	73400	108000	46100	36000	35100
4	37400	30100	24000	17000	29300	55200	37900	67200	91100	46100	36800	37200
5	38700	29000	22400	19800	51200	44600	39400	102000	100000	45800	36400	37000
6	40500	29800	21400	22300	60500	38100	39300	130000	92000	43300	36000	36400
7	40100	31000	20300	23100	57900	39700	38600	124000	81200	44300	36600	35800
8	40200	29000	20100	24300	52100	37400	37800	121000	90800	44200	37100	35600
9	42900	26700	20200	25900	46100	32500	37800	121000	105000	40900	37900	36000
10	41100	25300	20100	29400	41000	29400	38200	111000	90100	41100	37400	36300
11	39000	24900	19700	24400	38000	28100	38700	91400	77300	41800	37000	37400
12	37900	25100	19700	25600	35900	27600	39000	72800	73000	43900	36900	40600
13	37700	24400	20200	25400	35000	26400	39900	74500	71700	87500	38100	39200
14	38400	23600	20500	23400	34800	25200	51900	85100	70800	76700	39100	36900
15	38500	22600	20600	25200	34400	25100	75100	79000	65800	63700	38400	36900
16	37800	22000	20900	37200	32800	25500	83100	80200	64900	55200	37300	39700
17	37000	21800	20900	41500	30900	26400	99700	81600	105000	49100	37200	39000
18	36800	21500	20700	37100	29800	27000	88500	72100	120000	44500	37000	38500
19	36500	21100	20800	32400	28800	33400	96300	69300	104000	42300	36700	38100
20	36500	20800	20900	31200	28300	43200	118000	73200	85000	41100	36500	38100
21	37000	20700	20800	33000	28800	39800	121000	66500	73000	39300	37100	37000
22	37200	20700	20700	31900	28600	35300	121000	65100	66000	39100	37300	36200
23	37400	20500	20600	29500	28200	33700	116000	63900	62100	39300	36400	36200
24	37200	20300	20300	27800	29700	33000	99500	73100	66000	38200	35900	36100
25	36900	20300	19600	26300	31700	31800	76500	102000	71200	38200	35700	35900
26	37100	20200	18100	25200	31900	30000	66100	114000	62500	38900	35200	35700
27	37300	20400	17900	24900	31300	28400	62100	104000	58900	37900	35200	35200
28	36500	21300	17000	24300	30800	40500	65600	94600	56500	36700	35200	35100
29	36100	22700	16100	23600	---	53200	92200	82600	52300	37000	35100	35100
30	36200	23100	16900	23500	---	46300	110000	75600	50200	36600	35100	35200
31	35500	---	19300	24100	---	39600	---	73300	---	36100	35000	---
MEAN	37890	24600	20240	26370	35070	34650	67820	88240	79850	46270	36570	36730
MAX	42900	34200	24000	41500	60500	55200	121000	130000	120000	87500	39100	40600
MIN	35500	20200	16100	17000	24400	25100	34200	63900	50200	36100	35000	35000
IN.	.09	.05	.05	.06	.07	.08	.15	.20	.18	.11	.08	.08

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

	MEAN	53120	48680	32840	28520	41030	65460	87050	79730	99480	79330	52820	54920
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	51760	44520	60260
HIGHEST ANNUAL MEAN			107200
LOWEST ANNUAL MEAN			23730
HIGHEST DAILY MEAN	279000	May 17	130000
LOWEST DAILY MEAN	16100	Dec 29	16100
INSTANTANEOUS PEAK FLOW	294000	May 17	133000
INSTANTANEOUS PEAK STAGE	29.98	May 17	19.08
INSTANTANEOUS LOW FLOW	16000	Dec 28-29	14500
ANNUAL SEVEN-DAY MINIMUM	17800	Dec 25	17600
ANNUAL RUNOFF (INCHES)	1.40		1.20
10 PERCENT EXCEEDS	95000		85000
50 PERCENT EXCEEDS	39000		37000
90 PERCENT EXCEEDS	21500		20900
			116000
			46500
			19700
			534000
			1800
			32.82
			1800
			2140
			1.63
			1951
			1940
			1951
			1951
			1940
			1940

## MISSOURI RIVER BASIN

06910230 HINKSON CREEK NEAR 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1966 to January 1982, 1987 to September 30, 1991. 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. 22 to Jan. 13 and Jan. 21 to Feb. 5. Water-discharge records fair above 5 ft<sup>3</sup>/s and poor below. Gage is equipped with a U.S. Geological Survey temperature recorder.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	2.9	11	20	50	8.5	8.8	37	4.8	.87	.34	1.3
2	.22	2.8	38	17	140	14	8.4	24	4.3	12	.51	.99
3	4.4	3.8	532	15	95	14	8.2	746	3.5	3.6	.41	57
4	6.6	23	62	13	70	11	8.2	297	3.2	1.4	.29	45
5	1.5	27	30	12	60	9.2	8.2	1310	24	.89	.97	3.1
6	1.0	11	19	11	56	8.5	8.1	150	6.7	.64	.54	1.4
7	97	6.0	14	10	45	7.8	7.9	61	3.7	.55	.79	.87
8	19	3.7	11	9.5	35	6.8	8.5	41	2.5	.56	1.4	.99
9	34	2.7	9.2	8.9	27	6.0	8.3	30	2.2	.41	.69	.89
10	33	2.5	8.2	8.4	23	5.3	7.4	23	2.0	15	.55	.96
11	14	2.7	7.6	8.0	19	5.1	12	21	2.1	4.1	.57	.93
12	8.6	2.1	6.6	7.8	17	265	11	26	2.1	8.4	.54	.74
13	5.4	2.0	5.8	9.0	45	293	31	394	1.9	2.2	1.1	.76
14	3.4	2.2	5.3	45	43	70	34	201	1.7	1.6	.88	.63
15	2.3	3.0	5.8	180	30	39	166	40	4.5	.95	1.1	16
16	1.8	4.1	5.6	250	23	29	46	28	12	.71	1.3	28
17	2.4	4.9	10	100	17	547	24	22	2.9	.57	7.2	2.2
18	5.5	4.6	11	45	14	275	147	17	1.9	.47	1.7	5.6
19	1.5	4.9	8.2	170	13	89	187	15	1.3	.52	.96	1.3
20	1.2	4.8	6.5	110	11	61	81	12	.97	.46	.64	.63
21	1.3	5.4	5.6	65	8.7	43	51	11	.77	.40	.64	.44
22	1.3	6.1	5.4	35	8.1	60	35	9.2	.57	.55	.74	.41
23	1.3	5.5	5.2	20	7.7	36	26	30	.50	1.7	.79	.35
24	1.4	4.8	4.8	14	7.2	22	19	316	.49	1.2	1.1	.36
25	1.4	4.3	4.7	11	7.0	18	16	71	.41	.82	1.0	.31
26	1.3	3.8	4.5	10	6.7	16	14	44	.40	.57	1.0	.37
27	1.2	362	4.3	9.5	6.5	16	247	47	.46	.52	1.1	.38
28	1.2	151	150	8.7	6.6	13	72	17	.59	.40	1.2	.31
29	1.3	31	250	8.0	---	11	35	11	.74	.41	48	.33
30	1.5	17	60	7.5	---	10	23	8.3	.88	.39	9.6	.41
31	2.5	---	25	7.2	---	9.3	---	6.2	---	.32	4.1	---
MEAN	8.35	23.7	42.8	40.2	31.8	65.1	45.3	131	3.14	2.04	2.96	5.77
MAX	97	362	532	250	140	547	247	1310	24	15	48	57
MIN	.22	2.0	4.3	7.2	6.5	5.1	7.4	6.2	.40	.32	.29	.31
IN.	.14	.38	.70	.66	.47	1.07	.72	2.15	.05	.03	.05	.09

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

	MEAN	36.5	23.8	33.4	38.8	49.4	86.3	78.3	94.2	72.8	50.7	17.4	19.2
MAX	275	73.8	138	166	136	386	223	334	275	301	112	120	
(WY)	1970	1969	1974	1969	1974	1973	1970	1990	1990	1981	1989	1970	
MIN	.50	.58	.34	.30	3.20	1.81	4.77	7.64	.69	.51	.000	.032	
(WY)	1967	1981	1980	1977	1981	1981	1971	1980	1988	1976	1976	1976	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	94.3	33.7	50.3
HIGHEST ANNUAL MEAN			111
LOWEST ANNUAL MEAN			13.3
HIGHEST DAILY MEAN	4040	May 16	4610
LOWEST DAILY MEAN	.21	Sep 15-16	.00
INSTANTANEOUS PEAK FLOW	9720	Jun 7	10000
INSTANTANEOUS PEAK STAGE	19.77	Jun 7	19.77
INSTANTANEOUS LOW FLOW	.17	Sep 16, Oct 3	.00
ANNUAL SEVEN-DAY MINIMUM	.31	Sep 11	.00
ANNUAL RUNOFF (INCHES)	18.23		9.73
10 PERCENT EXCEEDS	147		83
50 PERCENT EXCEEDS	12		6.6
90 PERCENT EXCEEDS	1.3		.30

## MISSOURI RIVER BASIN

06910230 HINKSON CREEK NEAR COLUMBIA, MO--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--September 1986 to September 1991 (discontinued).

INSTRUMENTATION.--Graphic temperature recorder.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily, 29.0°C, July 12; minimum daily, 0.00°C, Feb. 2.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.3	17.2	17.8	13.1	12.2	12.8	8.9	8.0	8.6	1.4	1.1	1.1
2	17.8	17.5	17.8	14.2	13.3	13.9	8.9	8.3	8.6	1.4	1.4	1.4
3	20.0	17.8	19.4	14.4	13.9	13.9	8.3	6.7	7.5	2.0	1.4	1.7
4	19.1	17.5	18.3	14.4	10.8	12.5	6.7	5.3	5.9	1.7	1.7	1.7
5	18.6	17.5	18.0	10.6	9.7	10.0	6.4	4.2	5.0	1.7	1.7	1.7
6	18.9	18.0	18.6	9.7	8.3	9.2	6.4	6.1	6.4	1.7	1.7	1.7
7	20.6	18.6	19.4	9.7	9.3	9.7	6.4	4.4	5.3	1.7	1.7	1.7
8	18.5	16.4	17.2	9.4	8.0	8.9	5.6	4.4	5.0	1.7	1.4	1.7
9	16.4	13.9	15.3	9.3	8.3	8.9	6.1	4.7	5.3	.9	.9	.9
10	13.4	12.6	13.0	9.4	7.8	8.6	6.4	5.3	5.9	.6	.6	.6
11	12.5	10.6	11.4	10.0	8.3	9.3	6.2	5.0	5.8	.6	.6	.6
12	12.8	11.1	12.0	10.0	9.3	9.7	8.9	5.9	7.0	.6	.6	.6
13	13.9	12.2	13.0	10.3	9.3	9.7	7.8	6.7	7.2	.6	.6	.6
14	14.7	13.3	13.9	10.6	9.7	10.2	6.4	5.6	5.9	.6	.6	.6
15	14.7	12.5	13.3	12.0	10.9	11.4	5.9	5.6	5.9	.6	.6	.6
16	14.7	13.6	14.2	12.2	11.7	12.0	5.9	5.3	5.6	.6	.6	.6
17	17.8	14.7	16.1	11.7	9.4	10.3	5.9	5.3	5.6	.6	.6	.6
18	16.4	12.8	15.0	9.4	9.3	9.3	5.9	5.9	5.9	1.4	.6	.9
19	12.8	10.9	11.7	10.3	9.2	9.7	5.9	5.0	5.6	2.0	.9	1.1
20	12.2	11.1	11.4	10.6	10.3	10.6	6.7	5.3	5.9	1.4	.9	1.1
21	13.1	12.2	12.8	13.3	10.9	12.0	6.4	2.8	4.4	1.1	.9	.9
22	12.8	10.3	11.4	13.3	11.1	12.2	2.5	2.5	2.5	1.4	.6	.9
23	10.6	9.4	10.0	11.1	9.2	9.7	3.0	2.5	2.8	.6	.6	.6
24	10.6	10.3	10.6	9.7	8.9	9.4	3.3	2.2	2.5	.6	.6	.6
25	10.6	9.2	9.4	9.7	8.9	9.4	2.2	2.0	2.0	.6	.6	.6
26	9.2	8.6	8.9	11.1	9.7	10.3	2.0	2.0	2.0	1.1	.6	.9
27	10.6	9.1	9.4	15.9	11.1	13.3	1.4	1.4	1.4	1.1	.6	.9
28	10.3	9.7	10.0	15.3	10.3	11.7	1.4	1.4	1.4	1.1	.3	.6
29	9.7	9.3	9.4	10.0	8.1	8.9	2.2	1.4	1.7	.3	.3	.3
30	11.4	9.7	10.6	8.3	7.0	7.5	2.0	1.7	1.7	.6	.3	.3
31	12.2	11.4	11.7	---	---	---	2.2	1.4	1.7	1.4	.3	.6
MONTH	20.6	8.6	13.6	15.9	7.0	10.5	8.9	1.4	4.8	2.0	.3	.9



## MISSOURI RIVER BASIN

06910230 HINKSON CREEK NEAR COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.3	.3	.3	9.7	8.6	9.2	15.8	11.7	13.9	20.3	17.2	18.9
2	.3	.0	.3	9.4	6.7	8.6	15.9	14.2	14.8	21.1	16.1	18.6
3	.3	.3	.3	7.0	5.3	6.1	15.3	14.1	14.7	20.3	15.6	17.8
4	.9	.3	.6	7.0	4.7	5.6	16.4	14.4	15.3	18.6	15.6	17.2
5	2.2	.9	1.4	6.7	5.3	6.1	18.3	13.9	15.6	18.3	15.3	16.9
6	2.1	1.7	1.9	8.9	7.0	7.8	19.4	15.6	17.8	16.7	13.6	15.0
7	2.8	2.2	2.5	8.0	5.9	6.7	19.1	17.2	18.3	19.1	15.6	17.5
8	3.6	2.8	3.3	7.8	5.0	6.4	20.6	17.5	18.6	18.6	17.0	17.5
9	4.2	2.0	3.0	8.0	6.1	7.2	20.0	16.1	18.3	20.0	16.7	18.6
10	5.0	3.3	4.2	7.5	5.6	6.7	16.1	13.3	14.7	19.7	18.9	19.1
11	5.0	2.5	3.3	8.8	7.0	7.6	14.7	11.4	13.3	23.0	18.9	21.1
12	5.6	3.6	4.4	10.9	9.1	10.3	13.3	11.4	12.2	22.8	20.0	21.4
13	6.1	5.6	5.9	10.0	7.2	8.3	14.4	13.3	13.9	23.0	20.0	21.4
14	5.9	2.0	3.3	7.2	6.1	6.4	16.4	14.7	15.6	21.7	20.0	21.1
15	1.7	1.1	1.1	8.0	5.0	6.4	16.4	13.3	14.4	24.1	21.7	22.8
16	1.4	1.1	1.1	10.6	7.2	8.3	18.9	13.9	16.4	24.4	21.4	22.8
17	2.8	1.1	2.0	10.6	10.0	10.3	20.0	15.8	17.8	26.1	22.2	23.4
18	7.0	2.5	4.4	11.1	9.1	10.0	19.7	15.6	17.5	25.6	23.3	24.4
19	7.0	5.3	6.1	12.8	10.3	11.1	15.6	13.3	14.7	25.3	21.4	22.8
20	5.6	3.0	4.4	13.9	11.4	13.0	13.3	12.5	12.8	22.5	20.6	22.0
21	7.2	4.4	5.9	16.7	12.5	14.4	13.9	11.1	13.0	24.7	21.7	22.8
22	7.2	5.9	6.7	16.7	15.3	16.1	14.4	12.2	13.3	24.4	22.8	23.6
23	6.4	4.7	5.6	15.0	13.0	13.9	16.4	13.1	14.4	23.9	21.7	22.8
24	6.1	5.0	5.6	15.6	11.4	13.3	17.5	12.2	14.7	22.5	20.8	22.0
25	5.0	3.6	4.2	16.4	12.2	14.4	17.2	15.0	16.4	23.6	22.0	22.5
26	4.7	3.6	4.2	19.7	16.1	18.0	17.2	13.9	15.6	24.7	22.0	22.8
27	5.6	2.8	3.9	19.7	15.6	17.5	17.8	16.1	17.0	25.0	22.0	23.1
28	8.9	5.3	7.0	15.6	12.2	14.4	19.4	16.4	17.5	27.8	23.1	27.0
29	---	---	---	15.0	11.4	13.3	20.3	18.0	18.9	27.5	25.0	26.4
30	---	---	---	12.5	9.1	10.9	19.7	15.9	17.8	28.6	25.6	27.0
31	---	---	---	13.6	10.3	11.7	---	---	---	28.3	25.8	27.0
MONTH	8.9	.0	3.5	19.7	4.7	10.3	20.6	11.1	15.6	28.6	13.6	21.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	28.3	25.6	27.2	28.0	27.8	27.8	25.6	24.4	25.0	24.7	24.4	24.4
2	27.5	25.6	26.7	28.9	23.6	27.2	26.7	25.6	26.1	24.4	24.4	24.4
3	28.9	25.0	27.0	28.9	26.1	27.0	27.5	26.7	27.0	25.6	23.9	25.0
4	28.0	26.4	27.2	25.8	24.4	25.3	27.5	26.4	27.0	24.4	22.8	23.6
5	27.2	24.4	26.1	26.4	25.6	26.1	26.4	24.4	25.6	23.9	21.4	22.5
6	25.6	22.8	24.4	27.5	26.4	27.0	25.6	25.3	25.6	23.3	22.2	22.8
7	26.1	22.8	24.4	28.0	27.5	27.8	26.1	25.6	25.9	23.1	22.5	22.8
8	25.3	23.1	24.1	28.6	28.3	28.3	27.0	26.1	26.7	23.3	23.1	23.3
9	26.1	23.9	25.0	28.9	27.2	28.0	27.2	24.4	25.9	24.2	23.3	23.9
10	26.1	23.9	25.0	27.8	23.3	25.6	24.4	23.1	23.9	25.9	24.7	25.3
11	25.3	23.7	24.4	26.4	25.6	25.8	24.2	23.1	23.6	26.1	25.9	26.1
12	25.6	25.0	25.3	29.0	25.8	27.2	24.2	23.1	23.6	26.1	25.9	26.1
13	26.4	25.0	25.6	28.9	26.7	27.8	23.9	22.8	23.3	26.1	26.1	26.1
14	26.9	26.1	26.4	27.8	25.3	26.4	23.1	22.2	22.8	26.4	26.1	26.4
15	27.8	25.6	26.4	26.1	25.0	25.6	23.1	22.2	22.8	26.1	25.6	26.1
16	27.8	24.4	25.6	26.0	24.8	25.3	23.6	23.1	23.3	25.6	24.4	25.0
17	27.0	24.4	25.3	26.4	25.3	25.9	26.4	23.3	24.7	24.2	21.4	22.5
18	26.7	24.4	25.6	26.7	25.6	26.1	25.9	23.3	24.4	22.8	19.7	21.4
19	26.4	24.4	25.6	27.5	26.4	27.0	23.6	23.3	23.6	19.7	17.2	18.3
20	26.4	25.0	25.8	27.8	27.0	27.2	23.6	22.0	22.8	17.2	15.9	16.4
21	26.4	25.8	26.1	28.6	27.8	28.1	22.5	22.2	22.5	16.1	15.6	15.9
22	26.4	25.8	26.1	28.9	27.8	28.3	23.1	22.5	22.8	16.7	16.1	16.4
23	26.1	24.2	25.0	28.9	25.6	26.7	24.2	23.3	23.9	16.7	16.1	16.4
24	24.4	23.6	24.2	26.7	23.9	25.3	24.4	24.2	24.4	17.2	16.7	17.0
25	25.3	24.4	24.7	23.9	22.2	23.1	24.4	23.9	24.2	17.2	17.2	17.2
26	26.4	25.3	25.8	24.2	22.8	23.3	24.4	24.2	24.4	17.2	16.9	17.2
27	27.0	26.4	26.7	24.4	23.1	23.9	24.4	24.4	24.4	16.9	15.3	16.1
28	27.0	26.7	26.7	24.7	24.2	24.4	24.7	24.4	24.7	16.7	15.9	16.1
29	27.0	26.7	26.7	25.0	24.4	24.7	25.9	24.2	25.3	17.5	16.7	17.2
30	27.8	26.9	27.2	24.7	22.8	23.6	25.6	24.4	25.0	18.0	17.5	17.8
31	---	---	---	24.4	23.6	24.2	25.6	23.9	24.7	---	---	---
MONTH	28.9	22.8	25.7	29.0	22.2	26.1	27.5	22.0	24.5	26.4	15.3	21.3

## 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1964 to Feb. 1976. April 1986 to September 1991 (discontinued).

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.--Estimated daily discharges: Jan. 22-24. Water-discharge records good.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	.99	4.2	14	10	3.0	3.1	14	4.1	.15	.01	.06
2	.30	1.0	28	8.4	124	8.0	2.7	12	3.1	.93	.00	.11
3	.40	.97	635	5.6	129	8.7	2.8	542	4.4	1.8	.00	.61
4	.44	1.1	55	4.0	75	5.8	3.0	328	8.1	.65	.00	.29
5	.41	2.3	20	5.6	68	4.9	3.0	717	4.7	.28	.00	.04
6	.46	2.9	12	6.6	45	4.9	2.9	96	2.3	.14	.00	.02
7	45	1.7	8.5	4.6	29	4.2	2.7	34	2.4	.11	.00	.02
8	7.4	1.2	6.7	3.9	26	4.0	2.8	19	1.7	.09	.00	.02
9	26	.94	5.5	3.9	24	3.2	3.2	14	1.3	.08	.09	.04
10	36	.85	5.3	3.9	24	2.7	2.4	10	.98	.32	.03	.02
11	12	.73	4.7	4.9	15	2.6	2.4	8.5	.82	.44	.01	.04
12	3.8	.54	4.2	4.5	10	34	2.8	7.7	.94	.89	.01	.04
13	1.8	.45	3.7	4.1	18	168	11	14	.98	.42	.01	.02
14	1.2	.49	3.1	12	25	41	24	58	.86	.21	.01	.01
15	1.3	.57	3.4	153	9.2	22	224	22	.73	.13	.02	.27
16	1.9	.56	3.1	263	4.4	15	38	28	1.4	.09	.02	.67
17	1.9	.61	4.1	56	3.8	336	16	23	1.2	.04	.28	.40
18	1.7	.81	5.8	40	4.3	216	60	29	.83	.01	.04	.23
19	1.5	.98	5.9	159	4.9	62	122	8.2	.54	.00	.03	.11
20	1.5	1.2	5.2	163	4.4	43	56	6.0	.42	.00	.02	.12
21	1.6	1.4	4.0	45	3.8	26	30	4.7	.36	.00	.03	.10
22	1.4	1.4	2.9	10	4.0	17	18	3.9	.29	.00	.03	.09
23	1.3	1.6	2.6	8.0	3.5	12	12	4.0	.22	.06	.04	.08
24	1.2	1.9	2.5	6.5	2.2	8.3	8.7	186	.24	.06	.06	.09
25	1.1	2.0	2.2	6.0	2.5	6.7	7.6	284	.37	.02	.07	.09
26	1.1	2.2	2.1	5.1	2.7	6.2	6.6	73	.42	.01	.06	.06
27	1.2	173	1.9	4.3	2.2	6.1	114	40	.37	.01	.05	.05
28	1.1	158	2.6	3.7	2.3	4.8	47	18	.34	.00	.04	.05
29	1.0	17	321	3.1	---	3.9	17	9.6	.34	.00	.09	.05
30	1.1	7.0	89	2.6	---	3.5	8.7	7.1	.22	.00	.10	.05
31	1.0	---	32	2.1	---	3.4	---	5.4	---	.02	.09	---
MEAN	5.11	12.9	41.5	32.8	24.1	35.1	28.5	84.7	1.50	.22	.040	.13
MAX	45	173	635	263	129	336	224	717	8.1	1.8	.28	.67
MIN	.30	.45	1.9	2.1	2.2	2.6	2.4	3.9	.22	.00	.00	.01
IN.	.13	.32	1.07	.84	.56	.90	.71	2.18	.04	.01	.00	.00

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

	MEAN	32.5	13.2	28.6	36.1	34.3	62.0	57.6	62.5	47.7	28.8	14.8	22.8
MAX	253	44.0	107	140	93.6	319	170	220	238	257	111	128	
(WY)	1970	1974	1974	1974	1990	1973	1970	1990	1969	1969	1968	1970	
MIN	.029	.13	.31	.94	1.45	2.49	2.29	1.20	.22	.022	.040	.012	
(WY)	1965	1967	1965	1967	1967	1968	1971	1988	1988	1975	1991	1988	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	68.8	22.3	37.5
HIGHEST ANNUAL MEAN			86.8
LOWEST ANNUAL MEAN			6.15
HIGHEST DAILY MEAN	3410	May 16	3620
LOWEST DAILY MEAN	.18	Sep 8	.00
INSTANTANEOUS PEAK FLOW	5520	Jun 7	5520
INSTANTANEOUS PEAK STAGE	16.55	Jun 7	16.55
INSTANTANEOUS LOW FLOW	.15	Sep 9-10	.00
ANNUAL SEVEN-DAY MINIMUM	.22	Sep 5	.00
ANNUAL RUNOFF (INCHES)	20.86	6.77	11.37
10 PERCENT EXCEEDS	93	44	45
50 PERCENT EXCEEDS	4.0	2.7	2.4
90 PERCENT EXCEEDS	.50	.03	.10

## MISSOURI RIVER BASIN

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1986 to September 1991 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1986 to September 1991 (discontinued).

pH: April 1986 to September 1991 (discontinued).

INSTRUMENTATION.--Water-quality monitor April 1986 to September 1991 (discontinued).

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,760 microsiemens, Sept. 1-3; minimum daily, 95 microsiemens, May 25.

pH: Maximum daily, 8.1 standard units, March 13; minimum daily, 5.1 standard units, Oct. 12 and 14.

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

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 SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	ACIDITY (MG/L AS H) (71825)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)
OCT									
11...	1000	13	644	7.2	8.0	11.2	94	<0.1	39
NOV									
13...	1630	0.55	1320	6.3	8.5	11.8	101	0.4	30
DEC									
11...	1030	4.8	771	6.8	3.0	14.3	107	0.2	37
JAN									
09...	1300	3.9	760	7.3	0.5	13.4	92	<0.1	44
FEB									
05...	1445	60	268	7.2	2.0	14.6	105	<0.1	40
MAR									
11...	1430	2.6	878	7.6	8.0	13.3	114	0.3	62
APR									
02...	1330	2.7	903	7.0	13.5	11.9	114	0.2	55
MAY									
15...	0900	20	549	7.2	21.0	7.3	82	0.2	59
JUN									
13...	0700	0.94	1000	6.8	22.0	5.5	63	0.4	77
JUL									
16...	1815	0.08	1230	7.1	25.5	9.0	110	0.1	73
AUG									
14...	1300	0.01	1680	7.0	21.5	6.6	75	0.3	82
SEP									
05...	1100	0.06	1410	7.1	21.0	5.4	61	<0.1	--

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (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								
11...	210	29	459	61	3000	220	960	960
NOV								
13...	810	9.9	1120	13	1700	360	4900	5200
DEC								
11...	330	13	558	26	4000	1900	3000	3100
JAN								
09...	340	11	579	32	4300	2400	3300	3100
FEB								
05...	59	7.5	163	73	2900	300	600	600
MAR								
11...	340	13	650	26	3300	3300	2800	150
APR								
02...	400	9.0	667	7	2600	860	2500	2400
MAY								
15...	230	4.1	376	42	2300	90	1200	1300
JUN								
13...	530	12	800	20	2300	20	2300	2300
JUL								
16...	590	13	1010	10	570	10	2500	2500
AUG								
14...	970	29	1520	13	700	40	2500	2500
SEP								
05...	690	26	1110	34	1400	30	2300	2300

## MISSOURI RIVER BASIN

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1280	1220	1260	1250	1220	1240	---	---	---	450	370	413
2	1290	1270	1280	1270	1240	1250	---	---	---	520	450	496
3	1310	1220	1290	1290	1270	1280	---	---	---	600	490	561
4	1320	1300	1310	1300	1220	1270	---	---	---	660	600	635
5	1370	1320	1340	1360	1230	1300	---	---	---	739	660	682
6	1410	1360	1390	1430	1090	1240	---	---	---	750	690	719
7	1540	503	972	1120	1080	1100	---	---	---	730	690	704
8	555	503	530	1160	1120	1130	---	---	---	760	720	739
9	936	555	703	1180	1120	1150	---	---	---	771	750	759
10	806	578	650	1220	1170	1200	---	---	---	773	751	762
11	668	600	634	1280	1210	1250	---	---	---	804	763	786
12	686	597	645	1330	1280	1300	810	770	790	817	795	803
13	753	685	719	1360	1320	1340	820	790	808	850	798	815
14	810	752	776	1370	1330	1360	880	790	849	981	772	857
15	840	800	820	1400	1330	1390	910	880	893	722	164	473
16	886	847	872	1440	1400	1420	920	900	905	186	104	156
17	923	875	901	---	---	---	930	880	917	248	186	215
18	950	891	919	---	---	---	990	880	941	340	210	278
19	997	939	973	---	---	---	1030	980	999	301	112	213
20	1020	973	998	---	---	---	1030	990	1010	175	114	138
21	1040	1020	1030	---	---	---	1020	990	1010	257	185	224
22	1060	1030	1040	---	---	---	1110	990	1050	369	257	316
23	1080	1050	1060	---	---	---	1210	1090	1170	471	359	400
24	1090	1060	1080	---	---	---	1200	1090	1170	481	341	396
25	1110	1060	1100	---	---	---	1120	1080	1100	555	424	485
26	1130	1110	1120	---	---	---	1080	1070	1080	586	525	557
27	1140	1120	1130	---	---	---	1090	1070	1080	589	517	550
28	1160	1130	1150	---	---	---	1330	1080	1120	651	540	604
29	1180	1160	1170	---	---	---	---	170	---	694	633	661
30	1220	1150	1190	---	---	---	290	180	234	745	694	716
31	1220	1190	1220	---	---	---	379	290	334	778	726	751
MONTH	1540	503	1010	---	---	---	---	---	---	981	104	544
FEBRUARY			MARCH			APRIL			MAY			
1	830	490	756	889	829	865	890	800	860	580	520	541
2	521	152	351	888	778	831	900	880	893	651	521	556
3	254	142	224	878	777	835	911	890	902	702	112	361
4	256	225	240	976	777	890	902	891	894	303	112	214
5	280	247	265	806	725	754	922	892	902	303	113	161
6	319	270	298	735	715	730	943	912	925	364	213	297
7	368	298	341	763	724	745	964	903	949	465	364	418
8	397	367	377	783	753	769	974	954	966	546	425	500
9	416	377	394	821	771	788	965	915	956	596	536	565
10	426	376	402	861	781	840	1020	955	985	647	596	628
11	434	405	418	890	860	873	1040	1020	1030	698	627	668
12	474	394	448	980	430	823	1030	987	999	728	688	712
13	503	463	478	640	280	325	1020	808	950	809	708	740
14	492	392	443	380	300	340	898	627	810	729	379	507
15	481	392	445	419	370	392	549	259	312	589	510	558
16	550	461	510	460	400	433	380	279	328	685	514	590
17	599	490	558	540	180	358	481	380	433	622	391	472
18	608	588	596	320	190	258	511	282	427	587	136	370
19	637	587	612	400	310	359	462	272	325	619	424	546
20	707	637	683	410	350	376	363	282	325	676	579	655
21	726	706	714	470	400	444	424	353	392	780	684	737
22	745	685	732	540	460	501	490	414	448	817	766	794
23	744	684	729	586	540	561	545	494	516	843	681	816
24	773	724	747	640	580	612	596	515	570	831	157	338
25	783	762	773	680	600	657	636	596	622	183	95	143
26	771	751	757	710	670	691	677	636	663	318	182	233
27	810	761	789	730	700	716	707	276	450	405	248	340
28	840	780	812	760	730	745	349	268	300	429	362	390
29	---	---	---	800	750	780	449	349	403	484	428	454
30	---	---	---	810	780	798	530	419	488	580	484	536
31	---	---	---	840	800	822	---	---	---	627	580	608
MONTH	840	142	532	980	180	642	1040	259	667	843	95	498

## MISSOURI RIVER BASIN

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	692	625	657	1320	1280	1300	1490	1450	1470	1760	1730	1740
2	737	680	712	1540	1280	1340	1520	1470	1500	1760	1750	1760
3	774	702	739	1460	1040	1220	1550	1510	1520	1760	1680	1750
4	818	567	741	1110	1020	1050	1550	1520	1530	1650	1390	1440
5	507	266	349	1070	1030	1060	1550	1530	1540	1440	1380	1410
6	728	463	574	---	---	---	1570	1540	1560	1500	1420	1470
7	814	698	779	---	---	---	1600	1550	1580	1540	1460	1510
8	850	813	830	---	---	---	1620	1570	1600	1580	1520	1550
9	875	849	860	---	---	---	1610	1570	1590	1610	1550	1590
10	930	865	889	---	---	---	1600	1580	1590	1660	1550	1620
11	939	910	930	---	---	---	1630	1590	1620	1660	1620	1640
12	984	935	970	---	---	---	1640	1610	1630	1670	1640	1660
13	1020	990	1000	---	---	---	1660	1640	1650	1680	1650	1670
14	1030	993	1010	---	---	---	1690	1650	1670	1700	1670	1680
15	1060	1010	1030	---	---	---	1700	1670	1690	1700	1440	1670
16	1090	1010	1050	---	---	---	1720	1690	1700	1600	1190	1390
17	1050	986	1010	1200	1170	1190	1710	1600	1640	1650	1550	1620
18	996	967	977	1210	1190	1200	1610	1570	1590	1580	1360	1460
19	990	965	977	1230	1200	1210	1630	1590	1610	1400	1350	1390
20	1010	967	995	1240	1220	1230	1660	1620	1640	1430	1350	1410
21	1060	997	1030	1260	1230	1250	1680	1640	1660	1430	1410	1430
22	1090	1010	1070	1280	1250	1270	1690	1660	1670	1440	1420	1430
23	1100	1060	1080	1270	1240	1260	1700	1670	1690	1440	1420	1430
24	1110	1080	1100	1260	1210	1250	1710	1680	1690	1430	1410	1420
25	1130	1090	1120	1280	1250	1260	1690	1670	1680	1430	1400	1420
26	1180	1120	1160	1320	1280	1300	1700	1680	1690	1420	1410	1420
27	1220	1170	1190	1350	1310	1330	1710	1690	1710	1420	1410	1420
28	1240	1200	1220	1390	1300	1360	1730	1700	1720	1420	1390	1410
29	1260	1230	1250	1420	1370	1400	1730	1710	1720	1430	1400	1420
30	1290	1230	1280	1500	1410	1430	1730	1720	1720	1430	1410	1420
31	---	---	---	1470	1430	1450	1740	1720	1720	---	---	---
MONTH	1290	266	953	---	---	---	1740	1450	1630	1760	1190	1520

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.0	6.8	6.9	---	---	---	---	---	---	7.3	7.2	7.2
2	7.0	6.9	6.9	---	---	---	---	---	---	7.2	7.2	7.2
3	7.0	6.8	6.9	---	---	---	---	---	---	7.2	7.1	7.2
4	6.9	6.7	6.9	---	---	---	---	---	---	7.1	7.1	7.1
5	6.9	6.8	6.8	---	---	---	---	---	---	7.1	7.1	7.1
6	6.9	6.8	6.9	---	---	---	---	---	---	7.4	7.1	7.2
7	7.0	5.4	6.3	---	---	---	---	---	---	7.4	7.3	7.3
8	6.7	6.2	6.5	---	---	---	---	---	---	7.3	7.3	7.3
9	6.9	6.7	6.8	---	---	---	---	---	---	7.3	6.8	7.1
10	7.3	6.9	7.1	---	---	---	---	---	---	6.8	6.8	6.8
11	7.2	5.2	6.5	---	---	---	---	---	---	6.8	6.8	6.8
12	5.3	5.1	5.1	---	---	---	6.8	6.8	6.8	6.8	6.7	6.7
13	5.4	5.2	5.3	---	---	---	6.8	6.7	6.7	6.7	6.7	6.7
14	5.4	5.1	5.4	6.6	6.5	6.5	6.8	6.7	6.8	6.7	6.7	6.7
15	5.5	5.4	5.5	6.8	6.5	6.6	6.8	6.7	6.8	7.2	6.7	6.9
16	5.7	5.4	5.6	6.8	6.6	6.8	6.7	6.7	6.7	7.2	6.9	7.0
17	5.8	5.6	5.7	---	---	---	6.7	6.7	6.7	6.9	6.8	6.9
18	6.1	5.8	6.0	---	---	---	6.7	6.6	6.7	6.8	6.7	6.7
19	6.1	6.0	6.1	---	---	---	6.6	6.6	6.6	7.1	6.8	6.9
20	6.1	6.1	6.1	---	---	---	6.7	6.6	6.6	7.2	6.8	7.0
21	6.4	6.1	6.2	---	---	---	6.7	6.6	6.7	6.8	6.8	6.8
22	6.6	6.3	6.4	---	---	---	6.7	6.6	6.7	6.8	6.7	6.8
23	6.6	6.4	6.5	---	---	---	6.6	6.6	6.6	6.8	6.7	6.8
24	6.5	6.4	6.5	---	---	---	6.7	6.6	6.6	6.8	6.8	6.8
25	7.0	6.4	6.7	---	---	---	6.7	6.7	6.7	6.8	6.7	6.8
26	7.0	6.6	6.6	---	---	---	6.9	6.7	6.8	6.8	6.7	6.8
27	6.7	6.6	6.6	---	---	---	6.9	6.9	6.9	6.8	6.7	6.7
28	7.1	6.7	6.9	---	---	---	6.9	6.8	6.9	6.7	6.7	6.7
29	7.1	6.7	6.8	---	---	---	7.6	6.9	7.2	6.7	6.7	6.7
30	7.0	6.4	6.8	---	---	---	7.3	7.2	7.3	6.7	6.7	6.7
31	7.1	6.4	6.7	---	---	---	7.3	7.2	7.2	6.7	6.7	6.7
MONTH	7.3	5.1	6.4	---	---	---	---	---	---	7.4	6.7	6.9

## MISSOURI RIVER BASIN

06910410 CEDAR CREEK NEAR COLUMBIA, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH				APRIL		MAY		
1	6.7	6.6	6.7	7.3	7.3	7.3	---	---	---	7.5	7.3	7.4
2	7.2	6.7	6.9	7.6	7.3	7.4	---	---	---	7.5	7.3	7.4
3	7.2	7.1	7.2	7.5	7.5	7.5	---	---	---	7.4	7.2	7.3
4	7.2	7.1	7.1	7.5	7.4	7.5	7.8	7.7	7.8	7.3	7.2	7.2
5	7.1	7.0	7.1	7.6	7.5	7.5	7.8	7.6	7.7	7.4	7.2	7.3
6	7.1	7.1	7.1	7.6	7.6	7.6	7.7	7.6	7.7	7.2	7.2	7.2
7	7.2	7.1	7.1	7.6	7.6	7.6	7.7	7.6	7.7	---	---	---
8	7.3	7.1	7.2	7.6	7.6	7.6	7.7	7.6	7.6	---	---	---
9	7.3	7.2	7.2	7.7	7.5	7.6	7.8	7.7	7.7	---	---	---
10	7.3	7.2	7.3	7.6	7.6	7.6	7.7	7.5	7.6	---	---	---
11	7.3	7.2	7.2	7.7	7.6	7.6	7.6	7.5	7.6	---	---	---
12	7.2	7.1	7.2	7.9	7.6	7.7	7.6	7.5	7.6	---	---	---
13	7.4	7.2	7.3	8.1	7.6	7.9	7.7	7.5	7.6	---	---	---
14	7.5	7.3	7.4	7.9	7.8	7.9	7.9	7.6	7.8	---	---	---
15	7.4	7.1	7.3	7.8	7.8	7.8	7.9	7.6	7.8	---	---	---
16	7.3	7.1	7.2	7.8	7.7	7.7	7.8	7.7	7.7	7.4	7.1	7.3
17	7.2	7.1	7.1	7.8	7.2	7.6	7.7	7.7	7.7	7.4	7.2	7.3
18	7.3	7.2	7.2	7.8	7.6	7.7	7.8	7.6	7.7	7.3	7.0	7.2
19	7.3	7.2	7.2	7.7	7.6	7.7	7.8	7.7	7.8	7.1	6.9	7.0
20	7.3	7.2	7.2	7.7	7.5	7.7	7.7	7.6	7.7	6.9	6.9	6.9
21	7.2	7.2	7.2	7.6	7.5	7.5	7.6	7.5	7.6	7.0	6.8	6.9
22	7.4	7.2	7.3	7.5	7.4	7.5	7.5	7.5	7.5	6.9	6.7	6.8
23	7.4	7.3	7.3	7.6	7.4	7.5	7.5	7.5	7.5	6.9	6.7	6.8
24	7.3	7.2	7.3	7.5	7.3	7.4	7.5	7.3	7.4	7.1	6.7	7.0
25	7.2	7.2	7.2	7.3	7.3	7.3	7.4	7.3	7.3	7.1	6.9	7.0
26	7.3	7.2	7.2	---	---	---	7.3	7.3	7.3	7.2	7.0	7.1
27	7.3	7.2	7.3	---	---	---	7.5	7.2	7.4	7.2	7.1	7.1
28	7.3	7.3	7.3	---	---	---	7.5	7.4	7.4	7.1	7.0	7.1
29	---	---	---	---	---	---	7.4	7.3	7.3	7.1	7.0	7.0
30	---	---	---	---	---	---	7.3	7.3	7.3	7.1	7.1	7.1
31	---	---	---	---	---	---	---	---	---	7.1	7.0	7.1
MONTH	7.5	6.6	7.2	---	---	---	---	---	---	---	---	---
JUNE				JULY				AUGUST		SEPTEMBER		
1	7.1	6.9	7.1	7.1	6.9	7.0	7.0	6.9	6.9	7.1	6.9	7.0
2	7.1	6.9	7.0	7.1	6.7	7.0	7.0	6.9	6.9	7.0	6.9	7.0
3	7.2	6.9	7.0	6.9	6.7	6.8	7.1	6.9	7.0	7.1	6.9	7.0
4	7.1	6.8	7.0	6.9	6.7	6.8	7.1	7.0	7.1	7.1	6.9	7.0
5	7.1	6.8	7.0	6.9	6.7	6.8	7.1	7.0	7.1	7.6	7.0	7.3
6	6.9	6.8	6.8	---	---	---	7.1	7.0	7.1	7.6	7.3	7.5
7	6.9	6.8	6.8	---	---	---	7.0	6.9	7.0	7.6	7.4	7.5
8	6.8	6.8	6.8	---	---	---	7.0	6.9	6.9	7.6	7.4	7.5
9	6.9	6.7	6.8	---	---	---	7.0	6.9	6.9	7.5	7.3	7.4
10	6.9	6.7	6.8	---	---	---	6.9	6.9	6.9	7.5	7.2	7.4
11	6.9	6.7	6.8	---	---	---	6.9	6.9	6.9	7.4	7.2	7.4
12	6.8	6.7	6.8	---	---	---	7.0	6.9	6.9	7.5	7.3	7.4
13	7.1	6.7	6.9	---	---	---	7.0	6.9	6.9	7.4	7.3	7.4
14	7.1	6.8	7.0	---	---	---	7.1	6.9	7.0	7.4	7.3	7.4
15	7.1	6.7	6.9	---	---	---	7.1	7.0	7.0	7.6	7.3	7.4
16	7.0	6.7	6.8	---	---	---	7.1	7.0	7.0	7.4	7.1	7.3
17	6.8	6.7	6.8	7.1	7.0	7.1	7.1	6.9	7.0	7.2	7.0	7.1
18	6.9	6.7	6.8	7.1	7.0	7.1	7.1	7.0	7.0	7.2	7.0	7.1
19	6.9	6.7	6.8	7.1	7.0	7.1	7.0	6.9	7.0	7.2	7.1	7.1
20	6.9	6.6	6.8	7.2	7.0	7.1	7.1	7.0	7.0	7.2	7.1	7.2
21	6.7	6.5	6.7	7.1	6.9	7.0	7.1	7.0	7.0	7.3	7.1	7.2
22	6.8	6.6	6.7	7.2	7.0	7.1	7.3	7.0	7.1	7.3	7.2	7.2
23	6.8	6.7	6.8	7.2	6.9	7.1	7.2	7.0	7.1	7.2	7.1	7.2
24	6.9	6.8	6.8	7.1	6.9	7.0	7.1	7.1	7.1	7.3	7.2	7.2
25	6.8	6.6	6.7	7.0	6.9	7.0	7.1	7.0	7.0	7.4	7.2	7.3
26	6.8	6.6	6.7	7.0	6.9	7.0	7.0	6.9	7.0	7.4	7.2	7.3
27	7.0	6.6	6.8	7.0	6.9	6.9	7.0	6.9	7.0	7.3	7.2	7.2
28	7.0	6.8	6.9	7.0	6.9	6.9	7.0	6.9	7.0	7.2	7.1	7.2
29	7.0	6.8	6.9	7.0	6.8	6.9	7.1	6.9	7.0	7.3	7.1	7.2
30	7.0	6.8	6.9	7.0	6.8	7.0	7.1	6.9	7.0	7.2	7.1	7.2
31	---	---	---	7.0	6.9	7.0	7.0	6.9	7.0	---	---	---
MONTH	7.2	6.5	6.8	---	---	---	7.3	6.9	7.0	7.6	6.9	7.3



## OSAGE RIVER BASIN

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 mi<sup>2</sup>, by U.S. Army Corps of Engineers.

## WATER-DISCHARGE RECORDS

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 above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Water-discharge records poor except for discharges over 2,000 ft<sup>3</sup>/s, which are fair. 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 ft<sup>3</sup>/s, Oct. 5, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 19,000 ft<sup>3</sup>/s, May 28.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	2900	2830	---	---	---
2	---	---	---	---	---	---	---	1890	2410	---	---	---
3	---	---	---	---	---	---	---	1510	1810	---	---	---
4	---	---	---	---	---	---	---	1420	1500	---	---	329
5	---	---	---	---	423	---	---	4260	1240	---	---	458
6	---	---	---	---	453	---	---	8680	1100	---	---	300
7	426	---	---	---	466	---	---	7850	985	---	---	---
8	431	---	---	---	484	---	---	4950	880	---	---	---
9	295	---	---	---	477	---	---	2570	815	---	---	---
10	---	---	---	---	444	---	---	1750	773	---	---	---
11	---	---	---	---	420	---	---	1380	643	---	---	---
12	---	---	---	---	375	---	---	1150	508	580	---	---
13	---	---	---	---	329	---	---	1160	462	669	---	---
14	---	---	---	---	269	---	---	1190	452	671	---	---
15	---	---	---	---	---	---	---	1190	420	607	---	---
16	---	---	---	---	---	---	250	1200	755	577	---	---
17	---	---	---	---	---	---	622	1590	440	564	---	---
18	---	---	---	---	---	---	896	1190	1630	509	---	---
19	---	---	---	---	---	---	3010	986	1210	335	---	---
20	---	---	---	---	---	---	3120	825	---	---	---	---
21	---	---	---	---	---	---	2110	666	---	---	---	---
22	---	---	---	---	---	---	1510	733	---	---	---	---
23	---	---	---	---	---	---	1100	2490	---	---	---	---
24	---	---	---	---	---	---	869	7800	---	---	---	---
25	---	---	---	---	---	---	703	14700	---	---	---	---
26	---	---	---	---	---	---	613	16200	---	---	---	---
27	---	---	---	---	---	---	1800	18000	---	---	---	---
28	---	---	---	---	---	---	4260	19000	---	---	---	---
29	---	---	---	---	---	---	4320	13900	---	---	---	---
30	---	---	---	---	---	---	3700	7440	---	---	---	---
31	---	---	---	---	---	---	---	4030	---	---	---	---
MEAN	---	---	---	---	---	---	---	4987	---	---	---	---
MAX	---	---	---	---	---	---	---	19000	---	---	---	---
MIN	---	---	---	---	---	---	---	666	---	---	---	---

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

MAX	47040	8244	5212	8040	8960	18920	16190	17700	19800	8716	6925	2918
(WY)	1987	1987	1987	1985	1987	1987	1983	1990	1981	1986	1989	1986
MIN	.000	.000	.000	.000	.000	.000	.000	1827	.000	1553	3.35	.000
(WY)	1981	1980	1981	1981	1981	1981	1981	1989	1980	1982	1984	1982

## 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.

SUSPENDED-SEDIMENT: February 1991 to current year.

## 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 and Feb. 11-14, 1981.

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

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 CENT 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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
07...	1140	--	491	7.8	11.0	20	8.4	74	58	48	200	61
JAN												
09...	1300	--	780	8.2	0.5	4.0	14.9	101	21	K13	330	89
MAR												
06...	0750	--	516	8.2	9.0	21	10.5	93	K15	K55	220	63
MAY												
08...	0900	1210	320	7.4	16.5	150	6.0	61	2000	2300	150	47
JUL												
18...	1240	540	416	8.2	30.0	41	8.1	107	48	64	190	60
SEP												
05...	1130	500	292	7.5	24.0	85	3.1	36	1400	1400	100	31

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
07...	12	27	3.9	163	59	26	0.20	4.9	298	294	0.41
JAN											
09...	27	47	5.7	185	180	38	<0.10	3.6	522	503	0.71
MAR											
06...	14	25	4.7	136	99	25	0.20	0.2	326	313	0.44
MAY											
08...	6.9	11	4.4	88	78	8.0	0.20	8.8	220	221	0.30
JUL											
18...	8.6	16	4.9	156	28	15	0.30	6.5	236	234	0.32
SEP											
05...	5.8	18	6.2	84	23	22	0.20	7.6	158	169	0.21

## OSAGE RIVER BASIN

06918070 OSAGE RIVER ABOVE SCHELL CITY, MO--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 07...	--	<0.010	<0.100	0.020	0.010	0.80	0.070	0.020	0.010	32	98
JAN 09...	--	0.020	0.100	0.030	0.020	0.60	0.060	0.020	<0.010	5	50
MAR 06...	--	<0.010	<0.050	<0.010	<0.010	0.40	0.150	0.060	<0.010	47	85
MAY 08...	719	0.030	0.740	0.150	0.080	1.2	0.220	0.060	0.020	400	96
JUL 18...	344	<0.010	0.095	<0.010	0.010	0.30	0.170	0.070	0.030	27	93
SEP 05...	213	0.060	0.830	0.220	0.210	1.5	0.160	0.090	0.050	96	94

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	100	<0.5	<1.0	<1	<3	2	3	<1
JAN 09...	<10	<1	98	<0.5	<1.0	<1	<3	3	7	1
MAY 08...	20	<1	54	<0.5	<1.0	<1	<3	4	16	<1
JUL 18...	20	3	110	<0.5	<1.0	<1	<3	7	<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 07...	10	140	<0.1	<10	2	<1	<1.0	390	<6	<3
JAN 09...	20	130	<0.1	<10	3	<1	<1.0	600	<6	6
MAY 08...	<4	12	<0.1	<10	1	<1	<1.0	230	<6	4
JUL 18...	4	11	<0.1	<10	2	<1	<1.0	330	<6	5



## OSAGE RIVER BASIN

06918070 OSAGE RIVER ABOVE SCHELL CITY, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT
	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCEN- TRATION (MG/L)	DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	---	86	---	2900	435	3420	2830	446	2790
2	---	305	---	1890	301	1540	2410	398	2840
3	---	70	---	1510	190	777	1810	292	1490
4	---	30	---	1420	378	1480	1500	237	988
5	---	55	---	4260	1810	23800	1240	211	713
6	---	42	---	8680	945	21600	1100	204	594
7	---	53	---	7850	339	7110	985	207	596
8	---	75	---	4950	351	4660	880	191	456
9	---	63	---	2570	299	2090	815	175	411
10	---	55	---	1750	182	863	773	144	300
11	---	65	---	1380	144	536	643	136	241
12	---	43	---	1150	118	367	508	126	172
13	---	58	---	1160	139	436	462	126	154
14	---	55	---	1190	156	503	452	123	161
15	---	76	---	1190	150	482	420	273	332
16	250	72	51	1200	205	694	755	526	1150
17	622	69	116	1590	366	1570	440	366	454
18	896	131	376	1190	251	811	1630	491	2150
19	3010	712	6250	986	154	411	1210	297	1050
20	3120	997	8370	825	130	289	---	---	---
21	2110	709	4070	666	123	220	---	---	---
22	1510	394	1610	733	205	435	---	---	---
23	1100	256	765	2490	492	3770	---	---	---
24	869	182	427	7800	1220	28900	---	---	---
25	703	135	256	14700	2310	91700	---	---	---
26	613	365	606	16200	1290	56600	---	---	---
27	1800	2690	14900	18000	1200	58200	---	---	---
28	4260	2510	28500	19000	911	46800	---	---	---
29	4320	1000	11700	13900	496	19100	---	---	---
30	3700	631	6300	7440	449	---	---	---	---
31	---	---	---	4030	532	---	---	---	---
	JULY			AUGUST			SEPTEMBER		
1	---	98	---	---	---	---	---	---	---
2	---	96	---	---	---	---	---	---	---
3	---	82	---	---	---	---	---	267	---
4	---	86	---	---	---	---	329	139	123
5	---	68	---	---	---	---	458	---	140
6	---	57	---	---	---	---	300	---	125
7	---	53	---	---	---	---	---	---	---
8	---	46	---	---	---	---	---	---	---
9	---	60	---	---	---	---	---	---	---
10	---	310	---	---	---	---	---	---	---
11	---	136	---	---	---	---	---	---	---
12	580	345	598	---	---	---	---	---	---
13	669	236	516	---	---	---	---	---	---
14	671	78	221	---	---	---	---	---	---
15	607	21	16	---	---	---	---	---	---
16	577	84	132	---	---	---	---	---	---
17	564	100	156	---	---	---	---	---	---
18	509	97	131	---	---	---	---	---	---
19	335	---	90	---	---	---	---	---	---
20	---	86	---	---	---	---	---	---	---
21	---	68	---	---	---	---	---	---	---
22	---	128	---	---	---	---	---	---	---
23	---	45	---	---	---	---	---	---	---
24	---	25	---	---	---	---	---	---	---
25	---	56	---	---	---	---	---	---	---
26	---	61	---	---	---	---	---	---	---
27	---	61	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---

## OSAGE RIVER BASIN

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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	81	66	629	393	184	118	212	114	46	28	19
2	33	76	72	399	373	192	117	198	109	43	27	21
3	59	74	388	355	358	190	119	192	106	44	25	24
4	285	76	357	321	356	189	123	191	103	136	24	54
5	165	84	281	303	350	190	117	217	103	86	22	33
6	119	78	238	292	337	189	115	222	101	68	22	26
7	268	72	206	284	325	183	114	205	94	60	22	23
8	272	69	183	277	314	177	114	190	91	53	21	24
9	634	67	165	267	304	172	112	181	88	48	22	22
10	486	66	149	343	296	166	109	174	85	45	23	20
11	395	63	136	881	285	162	107	173	82	42	22	19
12	332	61	127	740	276	161	107	168	81	43	21	18
13	288	59	117	606	273	156	112	159	79	43	20	16
14	257	57	109	562	267	153	141	1230	76	46	18	15
15	228	55	103	1870	252	148	216	483	73	43	18	15
16	204	53	96	2870	240	145	291	362	79	41	17	26
17	187	51	143	1560	238	159	266	307	73	37	17	21
18	171	49	323	1280	237	156	290	269	69	35	18	26
19	157	49	347	1300	225	149	437	242	65	33	17	22
20	145	49	317	1320	215	146	407	223	63	32	15	21
21	136	48	288	1010	208	143	364	207	62	31	14	21
22	127	48	259	822	200	144	333	192	63	29	14	23
23	120	46	234	724	192	139	310	180	105	28	14	28
24	115	43	265	634	191	134	288	171	94	37	13	27
25	111	41	253	568	192	132	272	163	78	45	18	25
26	107	41	184	522	183	132	256	153	68	40	16	23
27	100	53	177	489	182	132	263	145	62	35	17	21
28	94	74	171	463	182	126	266	137	57	33	17	20
29	89	75	246	465	---	124	245	131	53	32	18	19
30	86	69	684	458	---	123	225	124	50	31	28	18
31	84	---	722	417	---	120	---	119	---	30	22	---
MEAN	190	60.9	239	743	266	155	212	236	80.9	45.0	19.7	23.0
MAX	634	84	722	2870	393	192	437	1230	114	136	28	54
MIN	33	41	66	267	182	120	107	119	50	28	13	15
IN.	.85	.26	1.07	3.33	1.08	.70	.92	1.06	.35	.20	.09	.10

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

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
MEAN	132	281	313	243	297	462	394	312	195	99.0	61.0	69.6
MAX	780	1139	1007	743	918	1170	1232	1746	714	328	205	186
(WY)	1987	1986	1988	1991	1985	1975	1973	1990	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	403		190		238	
HIGHEST ANNUAL MEAN					520	1973
LOWEST ANNUAL MEAN					50.2	1977
HIGHEST DAILY MEAN	7900	Mar 15	2870	Jan 16	8000	Feb 23 1985
LOWEST DAILY MEAN	15	Jan 13-16	13	Aug 24	4.5	Sep 14 1980
INSTANTANEOUS PEAK FLOW	11200	May 16	3580	Jan 16	13600	Oct 1 1986
INSTANTANEOUS PEAK STAGE	19.73	May 16	13.96	Jan 16	20.83	Oct 1 1986
INSTANTANEOUS LOW FLOW	15	Jan 12-16	13	Aug 23-25	4.0	Sep 16 1980
ANNUAL SEVEN-DAY MINIMUM	16	Jan 10	15	Aug 20	5.3	Sep 11 1980
ANNUAL RUNOFF (INCHES)	21.29		10.02		12.59	
10 PERCENT EXCEEDS	729		363		504	
50 PERCENT EXCEEDS	195		120		110	
90 PERCENT EXCEEDS	33		22		23	



## OSAGE RIVER BASIN

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 left downstream side of bridge pier on State Highway O, 1.5 mi downstream from Limestone Creek, and 2.0 mi southeast of Greenfield.

DRAINAGE AREA.--252 mi<sup>2</sup>.

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.--Estimated daily discharges: Dec. 23-27. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	86	69	378	396	195	117	194	67	49	22	25
2	55	83	75	338	376	216	114	180	63	45	21	27
3	99	82	356	302	358	206	114	176	60	47	20	61
4	228	86	263	274	358	204	119	173	58	132	19	138
5	135	87	215	258	351	205	114	227	59	74	18	47
6	110	83	185	252	333	204	109	246	60	61	17	38
7	417	79	163	256	317	197	106	223	54	60	17	32
8	380	77	146	245	306	190	105	205	51	54	16	45
9	737	77	133	241	296	184	103	190	49	50	17	49
10	521	77	122	451	286	177	101	177	48	45	17	39
11	411	74	113	885	273	174	97	167	47	42	18	35
12	334	72	107	712	265	172	97	160	46	39	20	31
13	278	73	101	602	263	165	101	163	45	59	19	28
14	240	72	96	654	256	161	188	366	43	57	19	26
15	206	68	91	2770	238	156	231	301	39	51	18	24
16	186	66	87	2570	227	153	227	191	45	47	17	36
17	171	64	149	1420	223	172	205	166	42	44	19	34
18	157	63	411	1190	224	171	235	148	39	41	18	34
19	148	64	351	1150	216	159	309	136	36	39	18	42
20	137	64	307	1050	205	154	278	132	36	36	15	41
21	129	63	271	859	198	150	259	125	36	31	15	37
22	121	63	241	745	191	151	245	116	53	26	15	36
23	117	62	215	667	185	145	230	113	386	26	15	37
24	112	60	200	598	185	138	216	109	335	30	17	36
25	106	59	190	545	187	134	206	105	144	33	18	32
26	102	60	180	502	180	132	196	98	104	31	20	30
27	98	66	170	471	185	137	215	91	85	27	20	28
28	94	76	163	440	192	132	222	85	73	26	20	25
29	92	77	289	471	---	128	217	80	63	26	19	24
30	90	72	578	456	---	123	206	75	56	25	24	23
31	87	---	488	418	---	119	---	71	---	24	24	---
MEAN	199	71.8	210	715	260	165	176	161	77.4	44.4	18.5	38.0
MAX	737	87	578	2770	396	216	309	366	386	132	24	138
MIN	55	59	69	241	180	119	97	71	36	24	15	23
IN.	.91	.32	.96	3.27	1.07	.75	.78	.74	.34	.20	.08	.17

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

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
MEAN	146	298	308	252	324	491	430	344	231	129	92.5	93.5															
MAX	921	1385	982	765	1020	1377	1291	1797	833	445	354	338															
(WY)	1987	1986	1988	1973	1985	1973	1973	1990	1974	1976	1982	1986															
MIN	23.4	21.7	20.2	19.9	27.5	39.5	39.3	93.9	44.3	24.2	14.4	11.6															
(WY)	1979	1981	1990	1981	1981	1981	1981	1981	1972	1972	1980	1980															

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

	1990	1991	Period
ANNUAL MEAN	419	178	261
HIGHEST ANNUAL MEAN			564
LOWEST ANNUAL MEAN			84.1
HIGHEST DAILY MEAN	8340	May 16	14200
LOWEST DAILY MEAN	19	Jan 1, 2, 16	9.4
INSTANTANEOUS PEAK FLOW	16000	May 16	44000
INSTANTANEOUS PEAK STAGE	20.21	May 16	23.74
INSTANTANEOUS LOW FLOW	18	Jan 16	9.4
ANNUAL SEVEN-DAY MINIMUM	20	Jan 10	10
ANNUAL RUNOFF (INCHES)	22.56		14.06
10 PERCENT EXCEEDS	756		549
50 PERCENT EXCEEDS	198		126
90 PERCENT EXCEEDS	55		31

## 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 on State Highway 215, 0.7 mi upstream from Slagle Creek and 3 mi west of Morrisville.

DRAINAGE AREA.--237 mi<sup>2</sup>.

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: Dec. 23-27 and Feb. 8 to March 10. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	28	84	474	338	105	52	216	108	21	9.9	19
2	9.1	27	88	365	317	120	52	183	97	21	10	19
3	85	26	1080	297	303	130	55	181	89	32	8.9	24
4	304	30	396	252	320	125	63	202	82	38	9.1	47
5	122	38	257	233	334	120	57	275	74	39	9.2	26
6	75	41	201	229	316	115	53	261	116	30	9.5	16
7	139	37	166	232	299	110	50	193	98	23	9.9	13
8	569	33	139	216	280	105	50	160	90	20	10	12
9	1090	32	123	203	260	100	49	144	76	18	9.1	11
10	469	31	112	738	245	95	49	142	64	18	13	13
11	295	30	99	1330	230	90	46	182	58	15	15	13
12	217	28	90	828	225	91	48	1310	57	15	13	11
13	175	27	80	562	210	85	58	2440	55	16	12	9.8
14	147	26	72	560	195	82	163	4940	51	25	12	8.7
15	123	25	64	3100	180	78	848	1180	48	22	12	7.6
16	105	24	57	2400	170	76	417	810	48	16	12	16
17	98	22	158	1450	160	95	261	551	46	15	11	14
18	88	22	524	1250	150	107	1320	406	42	15	8.5	28
19	85	22	346	1530	140	101	1170	339	35	13	6.5	26
20	75	23	250	1350	135	95	706	303	32	11	5.9	29
21	68	24	200	942	130	92	471	270	31	12	5.7	21
22	58	25	169	725	125	89	357	238	26	11	13	20
23	55	25	145	614	120	87	287	221	302	8.9	14	22
24	52	23	130	524	115	79	243	204	114	12	13	22
25	44	22	120	474	110	73	221	198	68	18	20	20
26	41	24	110	442	105	70	204	286	51	18	21	17
27	36	41	105	409	105	70	831	208	41	15	19	15
28	32	115	100	386	100	67	688	168	35	14	21	13
29	33	131	1160	428	---	62	393	139	30	13	25	13
30	30	101	1650	416	---	64	264	125	26	12	24	12
31	29	---	735	366	---	55	---	113	---	11	19	---
MEAN	153	36.8	291	752	204	91.4	318	535	69.7	18.3	12.9	17.9
MAX	1090	131	1650	3100	338	130	1320	4940	302	39	25	47
MIN	9.1	22	57	203	100	55	46	113	26	8.9	5.7	7.6
IN.	.75	.17	1.41	3.66	.90	.44	1.50	2.60	.33	.09	.06	.08

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

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	135	317	309	237	287	503	401	298	181	68.5	33.4	165		
MAX	809	1256	1045	752	1139	1290	1263	1359	656	342	145	2033		
(WY)	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MIN	13.6	10.8	10.7	9.05	31.1	38.9	32.7	30.9	20.7	11.6	4.90	3.15		
(WY)	1990	1981	1990	1981	1981	1972	1981	1977	1972	1980	1980	1980		

SUMMARY STATISTICS	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	340	209	237
HIGHEST ANNUAL MEAN			516
LOWEST ANNUAL MEAN			58.6
HIGHEST DAILY MEAN	8780	4940	13200
LOWEST DAILY MEAN	9.1	5.7	.60
INSTANTANEOUS PEAK FLOW	13600	11400	22300
INSTANTANEOUS PEAK STAGE	18.28	17.17	21.95
INSTANTANEOUS LOW FLOW	8.0	4.7	0.3
ANNUAL SEVEN-DAY MINIMUM	11	8.8	1.6
ANNUAL RUNOFF (INCHES)	19.47	12.00	13.60
10 PERCENT EXCEEDS	808	472	524
50 PERCENT EXCEEDS	110	82	80
90 PERCENT EXCEEDS	19	13	12

## OSAGE RIVER BASIN

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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Nonrecording gage prior to May 30, 1973. Datum of gage is 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 892.0 ft, of which 779,550 acre-ft between elevations 867.0 ft and 892.0 ft is used for flood control, and 887,109 acre-ft between elevations 760.0 ft and 867.0 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, 905,000 acre-ft, Jan. 28, elevation, 868.20 ft; minimum, 746,000 acre-ft, Dec. 1, elevation, 861.51 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 24:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	862.68	863.00	861.51	862.84	867.96	865.54	864.17	865.61	865.12	865.17	864.58	864.10
2	862.68	862.90	861.68	862.93	867.95	865.46	864.09	865.67	865.06	865.17	864.56	864.10
3	862.83	862.87	861.84	862.95	868.03	865.45	864.05	865.72	865.07	865.20	864.53	864.34
4	862.90	862.88	861.99	863.04	867.97	865.45	864.04	865.89	865.08	865.20	864.52	864.37
5	862.94	862.66	861.93	863.12	867.85	865.51	864.02	865.98	865.09	865.20	864.51	864.37
6	862.96	862.49	861.90	863.19	867.70	865.52	864.04	865.98	865.08	865.14	864.49	864.36
7	863.18	862.28	861.95	863.21	867.65	865.38	864.08	865.99	865.07	865.12	864.48	864.38
8	863.25	862.16	861.99	863.24	867.56	865.37	863.94	865.97	865.06	865.13	864.44	864.42
9	863.53	862.14	862.02	863.15	867.60	865.22	863.99	865.93	865.07	865.13	864.38	864.41
10	863.53	862.14	862.05	863.13	867.67	865.28	863.93	865.93	865.05	865.10	864.38	864.39
11	863.55	862.15	862.09	863.31	867.54	865.28	863.95	865.82	865.05	865.12	864.38	864.39
12	863.62	862.15	862.09	863.50	867.45	865.31	863.95	865.83	865.05	865.11	864.35	864.38
13	863.70	862.11	862.13	863.70	867.33	865.04	864.02	865.79	865.07	865.05	864.32	864.37
14	863.73	862.01	862.17	863.92	867.09	865.04	864.07	866.15	865.06	865.06	864.30	864.36
15	863.77	861.94	862.16	864.95	867.00	865.08	864.09	866.25	865.07	865.10	864.29	864.33
16	863.78	861.81	862.20	865.79	866.97	865.14	864.04	866.22	865.13	865.08	864.28	864.40
17	863.61	861.81	862.18	866.26	866.94	865.18	864.13	866.18	865.14	864.90	864.23	864.50
18	863.61	861.80	862.36	866.67	866.85	865.24	864.35	866.27	865.20	864.90	864.21	864.41
19	863.65	861.81	862.48	867.11	866.73	865.21	864.53	866.30	865.13	864.90	864.19	864.39
20	863.58	861.81	862.51	867.34	866.59	865.27	864.67	866.26	865.13	864.87	864.18	864.40
21	863.55	861.78	862.54	867.55	866.48	865.30	864.77	866.20	865.10	864.85	864.16	864.38
22	863.39	861.80	862.54	867.70	866.26	865.37	864.83	866.19	865.15	864.66	864.14	864.37
23	863.31	861.80	862.57	867.85	866.16	865.38	864.90	866.27	865.20	864.70	864.12	864.36
24	863.14	861.79	862.48	867.92	866.12	865.41	864.96	866.14	865.23	864.72	864.10	864.35
25	863.01	861.80	862.48	867.97	865.93	865.25	865.06	866.18	865.24	864.71	864.08	864.34
26	862.94	861.87	862.32	868.06	865.77	865.06	865.14	866.22	865.24	864.69	864.10	864.33
27	862.92	861.77	862.33	868.18	865.65	864.85	865.14	866.08	865.23	864.67	864.09	864.32
28	862.94	861.62	862.36	868.20	865.61	864.59	865.44	865.85	865.22	864.68	864.08	864.31
29	862.95	861.54	862.43	868.17	---	864.48	865.50	865.68	865.21	864.66	864.11	864.30
30	862.96	861.53	862.60	868.10	---	864.41	865.55	865.50	865.20	864.65	864.09	864.30
31	862.97	---	862.73	868.06	---	864.36	---	865.23	---	864.64	864.10	---
(-)	779000	746000	773000	901000	841000	811000	839000	832000	831000	818000	805000	810000
(=)	+7000	-33000	+27000	+128000	-60000	-30000	+28000	-7000	-1000	-13000	-13000	+5000
MAX	863.78	863.00	862.73	868.20	868.03	865.54	865.55	866.30	865.24	865.20	864.58	864.50
MIN	862.68	861.53	861.51	862.84	865.61	864.36	863.93	865.23	865.05	864.64	864.08	864.10

CAL YR 1990 . . . +32000

WTR YR 1991 . . . +38000

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

(=) Change in contents, in acre-feet

## OSAGE RIVER BASIN

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, 3.0 mi north of Stockton and at mile 44.9.

DRAINAGE AREA.--1,292 mi<sup>2</sup>, 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: July 12-15. Records fair. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	74	86	274	2840	1340	2560	145	2300	68	428	68
2	53	720	87	164	986	1220	1440	137	389	75	206	55
3	63	305	323	844	729	929	818	128	294	82	56	58
4	69	434	214	456	1610	928	641	125	85	93	59	507
5	67	2450	832	138	2780	134	611	315	82	74	62	118
6	57	2010	959	137	3220	129	132	1270	78	445	62	73
7	585	2350	360	843	1910	2060	115	379	75	231	61	63
8	1140	1420	113	604	2090	962	1340	1000	74	64	63	73
9	1760	492	106	1570	690	1530	190	1040	71	62	71	60
10	1930	87	101	2230	171	506	606	620	73	61	60	55
11	1030	82	95	2200	2010	437	488	2240	74	61	55	58
12	152	81	93	764	2230	295	121	1290	71	60	55	59
13	128	473	93	387	2100	2220	125	3400	72	58	53	59
14	116	1250	92	227	2690	1320	133	3210	71	56	52	56
15	106	649	88	1680	2880	132	776	1480	71	56	52	55
16	408	1440	88	1480	1560	127	1490	1450	101	560	51	59
17	1490	175	2350	526	608	129	459	1440	89	626	51	58
18	1160	83	652	443	2020	126	156	612	78	240	50	75
19	100	80	248	490	2190	780	285	138	73	68	50	94
20	843	432	199	504	1970	135	209	1000	70	63	50	77
21	94	213	805	2470	2100	129	183	1590	69	63	49	67
22	2010	78	628	1630	2780	138	507	941	68	1550	50	65
23	882	76	734	536	1690	145	154	487	536	305	51	66
24	1870	74	1320	1510	1130	137	145	1900	149	73	51	66
25	1690	74	288	1430	2890	2180	138	172	99	62	51	66
26	1320	75	2360	754	2360	2120	136	118	85	61	52	63
27	91	926	684	194	1840	3360	163	1330	76	60	52	62
28	81	2160	451	749	1610	3190	188	2930	72	59	52	60
29	79	1060	1550	2750	---	1860	165	2340	70	59	58	59
30	73	213	2270	2490	---	1560	147	2000	68	59	53	59
31	74	---	762	1760	---	679	---	3290	---	57	54	---
MEAN	631	668	614	1040	1917	998	487	1242	186	178	71.6	80.4
MAX	2010	2450	2360	2750	3220	3360	2560	3400	2300	1550	428	507
MIN	52	74	86	137	171	126	115	118	68	56	49	55
IN.	.56	.58	.55	.93	1.55	.89	.42	1.11	.16	.16	.06	.07

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

	MEAN	537	618	1183	1266	1221	1639	2028	1663	1390	1021	780	867
MAX	1360	1933	3983	3051	2763	4230	4613	3263	4863	3226	1762	1567	
(WY)	1990	1986	1986	1974	1988	1975	1974	1983	1990	1990	1982	1982	
MIN	51.1	60.1	61.9	66.7	98.8	64.8	60.5	113	186	121	71.6	80.4	
(WY)	1974	1981	1981	1981	1981	1977	1981	1977	1991	1977	1991	1991	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1760		669		1184	
HIGHEST ANNUAL MEAN					1827	1974
LOWEST ANNUAL MEAN					256	1977
HIGHEST DAILY MEAN	5320	Jun 15	3400	May 13	10100	Feb 23 1985
LOWEST DAILY MEAN	52	Sep 30, Oct 1	49	Aug 21	25	Mar 25 1977
INSTANTANEOUS PEAK FLOW	7190	Mar 15	6230	Mar 27	14800	Oct 1 1986
INSTANTANEOUS PEAK STAGE	18.83	Mar 15	17.76	Mar 27	24.91	Feb 23 1985
INSTANTANEOUS LOW FLOW	49	Sep 30	48	Aug 21	24	Mar 25 1977
ANNUAL SEVEN-DAY MINIMUM	59	Sep 30	50	Aug 16	33	Oct 20 1973
ANNUAL RUNOFF (INCHES)	18.50		7.04		12.45	
10 PERCENT EXCEEDS	4760		2090		3200	
50 PERCENT EXCEEDS	1250		175		564	
90 PERCENT EXCEEDS	85		59		67	

## 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 mi<sup>2</sup>, 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: Dec. 30 to Jan. 9. Records fair except for estimated daily discharges and discharges below 1 ft<sup>3</sup>/s, 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.--Maximum stage, 27.7 ft, July 20, 1909, from floodmark.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	1.2	26	120	116	50	119	74	15	1.0	1.8	.20
2	.50	1.4	28	90	116	51	102	71	13	.75	1.8	.75
3	.89	1.7	41	70	103	50	95	62	10	1.1	1.7	4.1
4	1.4	3.0	36	60	103	51	90	57	8.7	1.5	1.4	138
5	1.6	3.8	51	50	112	49	67	77	7.7	1.1	1.0	76
6	2.1	4.1	74	44	127	48	32	205	7.1	.88	.75	20
7	11	3.4	47	40	131	46	31	226	5.8	.77	.54	8.5
8	36	2.3	34	38	117	43	29	153	5.5	4.9	.42	4.9
9	33	1.9	27	36	105	40	27	111	5.4	10	.37	3.9
10	33	1.7	22	39	96	38	25	90	4.9	6.7	.35	4.0
11	58	1.8	19	100	89	37	23	76	4.4	4.8	.33	3.0
12	60	1.7	17	245	83	36	22	66	4.1	3.7	.33	2.0
13	39	1.6	15	262	82	36	22	58	3.8	2.6	.32	1.4
14	28	1.6	13	288	103	34	26	50	3.3	1.8	.29	1.2
15	20	1.4	12	1690	99	34	31	44	3.0	1.3	.26	.97
16	15	2.1	11	3050	85	34	39	38	4.0	.93	.22	1.1
17	12	4.9	13	1420	79	36	48	42	4.3	.71	.19	.78
18	8.9	2.7	24	639	79	57	379	37	4.3	.54	.15	.61
19	4.8	1.7	123	520	79	112	569	34	3.3	.44	.12	.47
20	3.8	1.2	142	573	77	120	398	29	2.5	.35	.08	.43
21	3.2	1.4	81	504	73	122	240	26	2.1	.27	.05	.41
22	2.4	1.8	58	307	68	123	177	24	1.8	.21	.02	.45
23	2.2	2.3	44	222	65	129	142	24	1.6	.17	.00	.46
24	1.7	2.3	36	187	61	134	118	37	1.4	1.0	.00	.42
25	1.3	2.2	31	159	57	130	102	32	1.3	7.3	.00	.36
26	1.2	2.8	27	142	54	121	95	57	1.3	15	.00	.29
27	1.4	7.6	25	129	52	111	89	43	1.7	8.1	.00	.23
28	1.2	8.5	24	116	50	103	80	36	1.6	4.8	.00	.20
29	1.2	11	34	116	---	129	77	27	1.4	3.1	.00	.17
30	1.2	21	86	115	---	126	74	22	1.2	2.0	.00	.14
31	1.2	---	140	115	---	145	---	19	---	1.8	.03	---
MEAN	12.5	3.54	43.9	371	87.9	76.6	112	62.8	4.52	2.89	.40	9.18
MAX	60	21	142	3050	131	145	569	226	15	15	1.8	138
MIN	.50	1.2	11	36	50	34	22	19	1.2	.17	.00	.14
IN.	.03	.01	.12	1.02	.22	.21	.30	.17	.01	.01	.00	.02

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

	188	311	283	260	399	593	515	453	358	224	85.0	158
MEAN	188	311	283	260	399	593	515	453	358	224	85.0	158
MAX	3055	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	.000	.000	.058	.12	.14	.23	4.09	39.1	4.52	.029	.000	.000
(WY)	1954	1954	1954	1954	1954	1954	1956	1988	1991	1954	1954	1953

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	450	65.8	318
HIGHEST ANNUAL MEAN			731
LOWEST ANNUAL MEAN			16.0
HIGHEST DAILY MEAN	9880	Mar 15	26200
LOWEST DAILY MEAN	.50	Oct 2	.00
INSTANTANEOUS PEAK FLOW	10900	Mar 15	37000
INSTANTANEOUS PEAK STAGE	22.15	Mar 15	27.35
INSTANTANEOUS LOW FLOW	.50	Oct 1-3	.00
ANNUAL SEVEN-DAY MINIMUM	.71	Sep 27	.00
ANNUAL RUNOFF (INCHES)	14.55		10.27
10 PERCENT EXCEEDS	986		653
50 PERCENT EXCEEDS	58		70
90 PERCENT EXCEEDS	1.5		1.0



## OSAGE RIVER BASIN

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 5.0 mi north of Caplinger Mills.

DRAINAGE AREA.--1,810 mi<sup>2</sup>.

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.--Estimated daily discharges: Aug. 24-26 and Sept. 19-23. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	79	120	903	2840	1470	2440	259	3100	66	62	59
2	77	190	112	333	1270	812	2000	246	707	66	641	72
3	80	912	306	270	1690	1460	756	222	652	74	84	89
4	89	95	374	1310	1100	1420	1030	210	123	77	66	602
5	91	1890	229	233	3040	290	625	494	102	78	63	396
6	86	2380	1490	214	3430	209	405	1520	97	72	62	136
7	144	2400	898	682	2680	1140	156	761	91	670	60	96
8	1620	1930	177	824	2480	2110	994	1150	87	87	59	86
9	1670	1020	148	1330	1500	1000	732	1570	86	74	61	83
10	1820	175	132	2190	430	1390	458	917	84	74	64	77
11	1650	92	125	2870	1500	201	806	1630	81	66	62	72
12	387	87	115	1260	2750	720	160	1450	78	65	59	70
13	216	82	102	1230	2170	1530	153	3370	74	63	59	67
14	177	1240	107	600	2860	2210	176	3440	76	61	57	64
15	153	877	101	2770	3220	277	564	2570	74	59	56	61
16	135	1650	100	5920	2480	181	1590	1370	92	92	56	66
17	1020	649	1550	2620	488	189	1000	1250	97	703	55	65
18	2140	101	1620	1360	2290	196	468	1700	88	773	54	65
19	293	87	451	1200	1950	825	832	245	80	78	56	85
20	737	83	410	1310	2420	294	691	219	75	65	54	100
21	358	647	479	2280	2270	198	468	2280	72	61	54	90
22	1450	92	916	2950	2690	202	704	1370	70	595	53	80
23	1120	78	773	700	2190	214	396	587	371	1310	55	75
24	1620	77	1460	2040	1490	221	293	1820	291	139	55	70
25	1970	76	949	1770	2780	1510	271	721	113	88	55	68
26	2040	76	1720	1180	2560	2220	260	216	89	84	55	65
27	274	94	1110	539	2200	3000	267	386	78	80	55	63
28	102	2520	696	952	2310	3320	324	3140	70	73	53	62
29	89	1420	878	2050	---	2110	291	3040	72	68	54	60
30	85	705	2810	3050	---	2430	267	2030	69	65	57	59
31	81	---	1570	2500	---	836	---	2840	---	63	61	---
MEAN	705	727	711	1595	2181	1103	653	1388	241	193	77.3	103
MAX	2140	2520	2810	5920	3430	3320	2440	3440	3100	1310	641	602
MIN	77	76	100	214	430	181	153	210	69	59	53	59
IN.	.45	.45	.45	1.02	1.26	.70	.40	.88	.15	.12	.05	.06

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

MEAN	1269	1149	1688	1506	1821	2479	2606	2223	1804	1131	844	951
MAX	11070	4069	5838	3683	5202	5630	5394	5628	5232	3342	1726	1599
(WY)	1987	1986	1986	1985	1985	1985	1985	1990	1990	1990	1982	1978
MIN	61.1	66.7	56.6	53.5	101	82.7	76.3	278	241	170	77.3	103
(WY)	1981	1981	1981	1981	1981	1981	1981	1981	1991	1988	1991	1991

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	2346	799	1621
HIGHEST ANNUAL MEAN			2691
LOWEST ANNUAL MEAN			399
HIGHEST DAILY MEAN	16200	5920	51200
LOWEST DAILY MEAN	76	53	44
INSTANTANEOUS PEAK FLOW	17400	7390	60000
INSTANTANEOUS PEAK STAGE	24.07	15.65	30.00
INSTANTANEOUS LOW FLOW	74	51	44
ANNUAL SEVEN-DAY MINIMUM	87	54	47
ANNUAL RUNOFF (INCHES)	17.60	6.00	12.17
10 PERCENT EXCEEDS	5180	2300	3940
50 PERCENT EXCEEDS	1620	291	935
90 PERCENT EXCEEDS	114	63	89



## OSAGE RIVER BASIN

06921070 POMME DE TERRE RIVER NEAR POLK, MO

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.

DRAINAGE AREA.--276 mi<sup>2</sup>.

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.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	46	157	621	326	144	73	318	120	25	8.1	7.2
2	17	45	170	480	306	172	71	258	104	22	7.7	7.0
3	25	43	1800	389	295	187	69	230	92	26	7.5	24
4	694	44	674	322	346	169	71	756	84	36	7.5	123
5	175	53	424	294	406	158	72	601	1060	26	6.9	29
6	86	57	312	307	366	151	68	461	1180	31	6.5	18
7	2140	58	244	336	315	136	65	326	288	29	7.8	12
8	1060	57	201	309	283	123	65	253	172	23	7.2	9.2
9	2390	52	171	289	260	115	66	213	127	20	6.3	8.1
10	814	49	149	639	241	105	63	225	102	18	5.9	7.9
11	469	47	133	1530	218	101	67	502	88	16	5.7	7.6
12	320	46	121	904	203	100	67	593	79	16	5.3	7.5
13	240	44	110	663	245	97	70	2300	72	16	5.0	7.5
14	191	42	100	762	231	92	362	2380	68	15	4.7	7.5
15	154	41	94	3800	186	89	1550	713	61	15	4.3	7.4
16	128	40	88	2460	166	87	690	670	96	15	3.8	57
17	112	39	473	1290	164	105	434	583	62	15	3.6	38
18	105	37	1230	1300	169	165	1920	472	55	15	3.6	55
19	97	35	662	1670	168	168	1430	308	51	14	4.0	30
20	87	33	462	1420	152	141	726	248	45	13	3.5	19
21	80	32	352	916	140	135	550	215	40	12	3.2	17
22	72	31	389	693	133	134	446	191	37	11	3.3	16
23	67	31	242	602	125	120	371	182	67	10	4.0	15
24	63	30	207	526	119	123	351	174	179	10	4.7	13
25	60	29	208	458	125	112	301	2230	77	10	6.1	13
26	58	27	188	414	127	105	287	707	55	8.6	5.6	13
27	55	143	166	379	127	103	1520	399	44	8.4	4.6	11
28	52	742	164	359	136	95	903	264	37	8.4	5.0	10
29	50	340	2230	482	---	88	555	202	32	8.5	6.2	9.0
30	48	210	2800	495	---	83	403	167	29	10	7.8	8.4
31	47	---	898	370	---	78	---	142	---	10	8.7	---
MEAN	322	85.7	504	822	217	122	456	558	153	16.5	5.62	20.2
MAX	2390	742	2800	3800	406	187	1920	2380	1180	36	8.7	123
MIN	17	37	88	289	119	78	63	142	29	8.4	3.2	7.0
IN.	1.34	.35	2.11	3.43	.82	.51	1.84	2.33	.62	.07	.02	.08

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

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
MEAN	168	343	372	264	340	586	507	344	216	73.0	39.2	96.4
MAX	1094	1408	1488	822	1496	1673	1491	1341	1043	326	154	604
(WY)	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
MIN	8.88	9.94	8.94	10.8	42.5	61.6	26.8	41.5	15.9	4.16	2.72	1.70
(WY)	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990

SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	415	275	278
HIGHEST ANNUAL MEAN			532
LOWEST ANNUAL MEAN			124
HIGHEST DAILY MEAN	11200	3800	18500
LOWEST DAILY MEAN	6.4	3.2	.30
INSTANTANEOUS PEAK FLOW	15700	6500	23100
INSTANTANEOUS PEAK STAGE	18.90	12.07	23.08
INSTANTANEOUS LOW FLOW	6.0	3.0	.30
ANNUAL SEVEN-DAY MINIMUM	8.8	3.6	.34
ANNUAL RUNOFF (INCHES)	20.39	13.53	13.71
10 PERCENT EXCEEDS	921	691	564
50 PERCENT EXCEEDS	149	103	84
90 PERCENT EXCEEDS	17	7.9	10

## OSAGE RIVER BASIN

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 mi<sup>2</sup>.

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.--Estimated daily discharges: July 14 to Sept. 13. Records fair except for estimated 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 September 1914 reached a stage of about 25.2 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	12	52	196	107	52	25	84	21	3.1	.23	.00
2	.95	13	68	153	100	67	23	69	17	2.7	.20	.00
3	1.5	12	885	133	99	55	23	67	14	2.7	.18	.00
4	58	15	231	117	135	47	27	114	12	6.9	.16	18
5	17	29	179	118	147	46	23	435	166	6.8	.14	9.4
6	7.5	27	150	137	124	45	20	184	91	3.7	.12	3.7
7	1870	18	127	131	111	37	20	130	28	2.5	.10	2.4
8	343	14	112	117	104	33	26	102	15	2.1	.09	1.5
9	515	12	98	116	97	30	27	85	11	2.0	.07	1.0
10	306	11	87	227	91	27	26	93	8.8	1.9	.06	.67
11	204	10	78	363	81	27	20	146	7.6	1.8	.05	.55
12	153	8.9	71	245	77	28	20	98	6.5	1.7	.04	.44
13	118	8.9	63	198	100	29	30	168	5.9	1.6	.03	.34
14	92	8.8	54	292	101	27	125	341	5.7	1.4	.02	.30
15	69	9.1	52	1730	72	25	292	146	5.6	1.3	.01	.26
16	54	8.4	47	697	64	25	136	113	329	1.2	.00	2.0
17	45	7.5	467	404	69	61	100	89	90	1.1	.00	4.3
18	52	7.1	413	486	83	80	592	540	31	1.0	.00	8.5
19	45	7.0	254	633	76	56	301	166	16	.90	.00	3.9
20	34	7.1	208	399	64	50	185	111	10	.82	.00	2.0
21	27	7.3	181	231	60	58	146	86	7.8	.74	.00	1.7
22	22	7.5	153	171	55	123	127	63	156	.68	.00	2.5
23	20	7.0	126	152	50	84	111	83	88	.62	.00	3.0
24	17	6.2	121	134	49	63	93	163	30	.56	.00	2.5
25	16	5.5	112	117	50	53	91	163	17	.50	.00	2.1
26	15	5.6	105	108	52	47	95	147	11	.46	.00	1.9
27	14	25	101	99	52	53	235	92	7.7	.42	.00	1.7
28	13	147	106	93	49	45	152	63	5.9	.37	.00	1.5
29	13	84	813	185	---	40	117	46	4.7	.34	.00	1.4
30	12	63	380	149	---	34	91	35	3.8	.30	.00	1.3
31	12	---	303	114	---	29	---	27	---	.27	.00	---
MEAN	134	20.1	200	272	82.8	47.6	110	137	40.8	1.69	.048	2.63
MAX	1870	147	885	1730	147	123	592	540	329	6.9	.23	18
MIN	.95	5.5	47	93	49	25	20	27	3.8	.27	.00	.00
IN.	1.38	.20	2.06	2.80	.77	.49	1.10	1.41	.41	.02	.00	.03

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

MEAN	85.2	91.7	120	94.3	127	205	170	144	79.3	34.2	14.0	33.4
MAX	812	566	526	358	764	855	650	843	421	534	100	258
(WY)	1987	1986	1983	1973	1985	1973	1983	1961	1985	1958	1958	1958
MIN	.000	.037	.38	.75	1.49	16.9	4.86	8.23	.73	.081	.000	.000
(WY)	1977	1964	1964	1964	1964	1981	1981	1988	1988	1980	1980	1960

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	166	88.0	99.2
HIGHEST ANNUAL MEAN			232
LOWEST ANNUAL MEAN			25.9
HIGHEST DAILY MEAN	5600	Mar 14	1870
LOWEST DAILY MEAN	.85	Sep 7	.00
INSTANTANEOUS PEAK FLOW	11200	Mar 15	4740
INSTANTANEOUS PEAK STAGE	17.92	Mar 15	13.92
INSTANTANEOUS LOW FLOW	.80	Sep 7-10	.00
ANNUAL SEVEN-DAY MINIMUM	.92	Sep 4	.00
ANNUAL RUNOFF (INCHES)	20.15		10.67
10 PERCENT EXCEEDS	308		185
50 PERCENT EXCEEDS	63		33
90 PERCENT EXCEEDS	2.4		.29
			.35

## 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, 3.0 mi southwest of Hermitage.

DRAINAGE AREA.--611 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Nonrecording gage prior to Nov. 9, 1961. Datum of gage is 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 874.0 ft, crest of spillway, of which 407,200 acre-ft between elevations 839.0 ft and 874.0 ft is used for flood control, and 228,700 acre-ft between elevation 783.0 ft and 839.0 ft is used for conservation and 12,840 acre-ft below elevation 783.0 ft is sediment storage. Lake is 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, 277,000 acre-ft, Jan. 22, elevation 843.83 ft; minimum, 256,000 acre-ft, Sept. 30, elevation, 838.87 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	839.61	839.18	839.43	841.22	840.81	839.21	839.84	842.25	841.16	840.97	839.97	839.03
2	839.57	839.17	839.33	841.16	840.46	839.17	839.85	842.11	841.05	840.93	839.93	839.07
3	839.54	839.17	839.92	841.04	840.09	839.16	839.85	841.92	840.95	840.91	839.90	839.07
4	839.65	839.19	840.32	840.91	839.71	839.15	839.88	841.81	840.94	840.94	839.85	839.17
5	839.76	839.22	840.30	840.77	839.41	839.13	839.89	842.06	840.93	840.92	839.81	839.16
6	839.76	839.22	840.15	840.63	839.09	839.12	839.91	842.21	841.40	840.89	839.77	839.18
7	839.95	839.21	840.02	840.49	839.07	839.10	839.91	842.19	841.47	840.88	839.74	839.17
8	841.66	839.21	839.82	840.34	839.07	839.09	839.92	842.07	841.41	840.82	839.70	839.14
9	842.22	839.21	839.67	840.19	839.08	839.08	839.93	841.92	841.34	840.79	839.68	839.14
10	842.52	839.21	839.47	840.04	839.08	839.10	839.93	841.76	841.25	840.78	839.68	839.13
11	842.31	839.21	839.28	840.22	839.07	839.12	839.93	841.74	841.16	840.72	839.64	839.12
12	841.97	839.21	839.07	840.50	839.03	839.12	839.93	841.69	841.06	840.69	839.60	839.10
13	841.58	839.21	839.07	840.56	839.01	839.19	839.96	841.76	841.05	840.65	839.55	839.09
14	841.16	839.21	839.10	840.53	839.08	839.19	840.03	842.43	841.03	840.61	839.52	839.04
15	840.77	839.20	839.14	840.84	839.14	839.19	840.20	842.60	841.02	840.58	839.48	839.02
16	840.29	839.20	839.15	842.91	839.19	839.19	840.65	842.46	841.02	840.53	839.43	839.05
17	839.84	839.18	839.19	843.34	839.24	839.28	840.81	842.46	841.10	840.49	839.39	839.04
18	839.39	839.18	839.94	843.42	839.29	839.32	840.99	842.28	841.10	840.45	839.36	839.07
19	839.17	839.18	840.38	843.52	839.33	839.38	841.88	842.38	841.09	840.41	839.32	839.06
20	839.17	839.18	840.39	843.67	839.39	839.42	842.10	842.19	841.07	840.37	839.28	839.05
21	839.17	839.18	840.29	843.72	839.42	839.48	842.14	841.91	841.05	840.32	839.22	839.03
22	839.17	839.18	840.17	843.83	839.45	839.57	842.14	841.64	841.03	840.28	839.20	839.02
23	839.17	839.18	840.02	843.59	839.50	839.62	842.12	841.34	841.09	840.25	839.18	839.03
24	839.19	839.18	839.83	843.31	839.52	839.64	842.05	841.19	841.10	840.28	839.14	839.01
25	839.19	839.17	839.65	842.99	839.54	839.68	841.96	841.17	841.11	840.25	839.12	838.99
26	839.19	839.17	839.45	842.68	839.47	839.71	841.90	841.74	841.12	840.20	839.11	838.96
27	839.19	839.20	839.24	842.34	839.38	839.82	841.92	841.85	841.08	840.16	839.07	838.94
28	839.17	839.30	839.19	842.01	839.26	839.80	842.28	841.85	841.07	840.12	839.03	838.92
29	839.17	839.47	839.25	841.64	---	839.81	842.37	841.69	841.03	840.08	839.03	838.89
30	839.18	839.49	840.67	841.44	---	839.82	842.34	841.46	841.00	840.05	839.06	838.87
31	839.18	---	841.20	841.15	---	839.84	---	841.28	---	840.01	839.04	---
(-)	239000	241000	255000	255000	239000	244000	264000	256000	253000	245000	238000	236000
(=)	-3000	+2000	+14000	0	-16000	+5000	+20000	-8000	-3000	-8000	-7000	-2000
MAX	842.52	839.49	841.20	843.83	840.81	839.84	842.37	842.60	841.47	840.97	839.97	839.18
MIN	839.17	839.17	839.07	840.04	839.01	839.08	839.84	841.17	840.93	840.01	839.03	838.87

CAL YR 1990 . . . +23000

WTR YR 1991 . . . -6000

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

(=) Change in contents, in acre-feet

## OSAGE RIVER BASIN

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 mi<sup>2</sup>.

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.--No estimated daily discharges. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	47	317	949	1950	479	88	1010	520	84	83	47
2	98	48	318	948	1940	273	87	1010	522	85	83	46
3	100	49	624	946	1940	273	88	1010	271	85	83	46
4	99	50	976	945	1940	273	88	1010	82	85	83	46
5	98	49	972	943	1930	273	88	1020	82	85	83	45
6	98	49	968	942	1120	274	89	1010	258	84	83	45
7	102	49	964	940	427	274	90	1010	429	84	83	45
8	102	49	959	939	431	207	90	1010	430	84	84	46
9	1040	49	955	937	435	81	91	1010	431	85	85	45
10	2270	49	952	937	439	81	91	1000	432	84	84	45
11	2260	49	948	939	443	81	91	1000	432	84	84	45
12	2240	49	413	940	447	83	91	1010	233	85	84	45
13	2230	49	46	939	317	84	91	1010	81	85	84	45
14	2230	49	45	940	98	84	90	1310	82	85	83	45
15	2220	49	45	1340	105	84	90	1580	82	85	83	46
16	2210	49	45	1780	111	84	90	1590	83	84	83	46
17	2200	49	48	2010	111	85	91	1590	83	84	83	45
18	1570	49	46	2000	111	86	236	1590	83	84	83	46
19	296	49	462	2000	101	86	579	1590	83	84	83	46
20	45	49	973	2010	91	87	752	1580	83	84	83	46
21	45	49	972	2010	91	88	749	1580	83	84	63	46
22	45	49	971	2000	91	88	747	1540	84	84	45	46
23	45	49	968	1990	91	89	745	1570	84	85	45	46
24	45	48	966	1990	91	89	742	1100	84	86	45	46
25	45	49	965	1980	332	89	740	306	84	84	46	46
26	45	49	962	1980	576	90	740	301	84	84	46	46
27	45	49	836	1980	574	88	750	303	84	84	46	46
28	45	49	331	1970	574	88	743	696	84	84	46	46
29	46	175	89	1970	---	88	741	1050	84	84	46	46
30	46	319	88	1970	---	87	847	1050	84	84	46	47
31	47	---	584	1960	---	87	---	758	---	84	46	---
MEAN	713	62.1	607	1488	604	139	354	1103	187	84.4	70.5	45.7
MAX	2270	319	976	2010	1950	479	847	1590	522	86	85	47
MIN	45	47	45	937	91	81	87	301	81	84	45	45
IN.	1.34	.11	1.14	2.79	1.02	.26	.64	2.07	.34	.16	.13	.08

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

	MEAN	254	511	680	499	607	892	885	868	517	314	96.7	110
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	773		457		519	
HIGHEST ANNUAL MEAN					1163	1973
LOWEST ANNUAL MEAN					67.8	1963
HIGHEST DAILY MEAN	3400	Jun 11	2270	Oct 10	9000	May 9 1961
LOWEST DAILY MEAN	41	Jan 31	45	Many Days	.00	Several Years
INSTANTANEOUS PEAK FLOW	2310	Oct 9	2310	Oct 9	9000	May 9 1961
INSTANTANEOUS PEAK STAGE	7.74	Oct 9	7.74	Oct 9	15.02	May 9 1961
INSTANTANEOUS LOW FLOW	41	Jan 31	45	Many Days	.00	Several Years
ANNUAL SEVEN-DAY MINIMUM	42	Jan 26	45	Oct 20	.00	At Times
ANNUAL RUNOFF (INCHES)	17.07		10.09		11.47	
10 PERCENT EXCEEDS	2490		1570		1930	
50 PERCENT EXCEEDS	105		88		103	
90 PERCENT EXCEEDS	45		46		43	

## 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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.--No estimated daily discharges. Discharge is calculated using fall computations and could not be computed for Oct. 1-7, Oct. 14 to Jan. 23, Jan. 25-30, Apr. 3-12, June 24 to Sept. 3 and Sept. 27-30 because of backwater from Harry S. Truman Reservoir. Water-discharge records fair. U.S. Army Corps of Engineers satellite telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	92	49	42	872	586	---	---	---
2	---	---	---	---	100	52	40	487	505	---	---	---
3	---	---	---	---	149	51	---	345	385	---	---	---
4	---	---	---	---	242	54	---	325	293	---	---	24
5	---	---	---	---	326	70	---	1610	241	---	---	103
6	---	---	---	---	322	96	---	5200	198	---	---	92
7	---	---	---	---	274	88	---	4300	172	---	---	81
8	65	---	---	---	218	76	---	1540	143	---	---	69
9	129	---	---	---	182	75	---	818	123	---	---	49
10	105	---	---	---	162	72	---	534	109	---	---	36
11	79	---	---	---	147	61	---	397	91	---	---	37
12	62	---	---	---	129	49	---	322	77	---	---	117
13	47	---	---	---	119	39	41	275	68	---	---	123
14	---	---	---	---	98	44	68	277	68	---	---	92
15	---	---	---	---	95	40	277	287	89	---	---	70
16	---	---	---	---	98	36	401	515	205	---	---	153
17	---	---	---	---	84	40	298	675	126	---	---	294
18	---	---	---	---	77	47	428	460	82	---	---	190
19	---	---	---	---	74	60	2690	333	63	---	---	128
20	---	---	---	---	75	81	2530	251	51	---	---	91
21	---	---	---	---	74	101	1060	188	44	---	---	71
22	---	---	---	---	71	109	600	153	36	---	---	57
23	---	---	---	---	67	96	412	171	27	---	---	44
24	---	---	---	188	68	90	319	859	---	---	---	40
25	---	---	---	---	68	84	261	3770	---	---	---	30
26	---	---	---	---	58	77	224	6150	---	---	---	24
27	---	---	---	---	49	62	382	7260	---	---	---	---
28	---	---	---	---	46	62	630	6750	---	---	---	---
29	---	---	---	---	---	60	676	3900	---	---	---	---
30	---	---	---	---	---	51	1270	1450	---	---	---	---
31	---	---	---	95	---	45	---	848	---	---	---	---
MEAN	---	---	---	---	127	65.1	---	1656	---	---	---	---
MAX	---	---	---	---	326	109	---	7260	---	---	---	---
MIN	---	---	---	---	46	36	---	153	---	---	---	---

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

MAX	272	458	1622	422	1249	4613	3798	5959	2998	644	1455	707
(WY)	1990	1990	1987	1990	1990	1990	1988	1990	1990	1987	1989	1989
MIN	46.4	92.0	69.0	112	116	65.1	425	116	33.8	199	45.7	29.0
(WY)	1989	1989	1990	1989	1989	1991	1989	1988	1988	1989	1988	1987





## OSAGE RIVER BASIN

06922075 TRIBUTARY TO MIDDLE FORK TEBO CREEK NEAR LEETON, MO

## WATER-QUALITY RECORDS

LOCATION.--Lat. 38°32'41", long. 93°37'37", in SE 1/4 SW 1/4 SE 1/4 sec.36, T.44N., R.25W., Henry County, Hydrologic Unit 10290108, at bridge on County Highway 2, 5 mi southeast of Leeton.

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

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

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 SATUR- ATION) (00301)	ALKA- LITY WAT WH TOT IT FIELD MG/L AS CACO3 (00419)	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											
16...	1100	1.0	2990	2.7	15.5	8.1	81	--	2100	31000	37000
NOV											
07...	1445	0.80	3180	3.1	9.5	7.6	66	--	--	--	--
DEC											
06...	0830	0.10	2940	3.1	3.5	10.2	77	--	2300	39000	32000
JAN											
09...	1600	0.10	3250	3.2	0.5	9.1	62	--	1700	31000	35000
FEB											
04...	1300	5.8	1170	5.0	1.5	12.8	92	2	630	13000	7300
MAR											
06...	1510	0.10	2800	3.2	11.5	8.7	82	--	2600	--	--
APR											
17...	0815	0.10	3050	3.0	14.5	7.3	72	--	2900	18000	31000
MAY											
07...	1130	1.7	1530	4.1	18.0	7.8	82	--	1100	16000	8700
JUN											
04...	1120	0.10	2040	3.0	25.0	5.7	69	--	1800	26000	19000
JUL											
19...	0740	0.0	3720	2.7	22.0	2.1	24	--	2900	43000	150000
AUG											
12...	1315	0.10	4170	3.0	25.5	6.1	74	--	4100	57000	200000
SEP											
06...	0840	0.10	4380	2.9	18.5	4.0	43	--	3300	64000	250000

## 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 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (000095)	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)	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)
OCT												
16...	1215	1.0	2040	8.0	15.0	9.7	96	230	1200	300	110	58
NOV												
07...	1555	1.0	2080	7.8	8.5	10.4	88	54	1300	330	120	65
DEC												
05...	1540	1.0	1920	8.0	4.0	12.2	93	56	1200	300	110	57
JAN												
09...	1700	1.0	2090	7.8	0.5	10.0	68	K9	1300	320	120	64
FEB												
04...	1400	10.0	956	7.8	3.5	11.8	89	660	490	130	41	26
MAR												
06...	1400	1.0	1860	8.0	10.0	10.6	96	K8	--	--	--	--
APR												
17...	0930	1.0	2010	7.9	16.5	7.8	80	470	1200	300	110	68
MAY												
07...	1320	8.0	1390	7.8	17.5	7.8	81	1800	800	210	66	36
JUN												
04...	1245	1.0	1770	8.0	25.5	6.9	85	240	1100	280	95	63
JUL												
18...	1630	0.1	2040	8.0	28.0	10.1	129	370	1300	320	110	79
AUG												
12...	1420	0.0	2020	8.0	24.0	9.1	107	K44	1300	320	120	81
SEP												
06...	0740	0.0	2040	7.6	19.0	3.6	38	58	1200	300	110	81

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- LITY WAT WH TOT FET FIELD (MG/L AS CACO3) (00410)	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT											
16...	7.1	203	1200	23	0.40	7.5	1960	1830	<0.100	0.30	<0.010
NOV											
07...	7.6	188	1300	8.6	0.30	8.0	2020	1950	<0.100	0.40	0.020
DEC											
05...	6.2	173	1200	10	--	6.9	1820	1790	<0.100	0.30	0.020
JAN											
09...	6.3	218	1300	5.2	<0.10	7.5	2100	1950	<0.100	0.20	0.020
FEB											
04...	5.7	107	410	12	0.30	7.3	754	697	--	--	--
MAR											
06...	7.2	188	1300	8.9	0.30	4.4	1740	--	<0.050	<0.20	0.020
APR											
17...	7.7	198	1400	4.1	0.30	5.3	1850	2020	<0.050	0.30	0.030
MAY											
07...	6.1	147	740	7.5	0.40	9.0	1190	1160	0.700	0.70	0.080
JUN											
04...	11	197	1000	7.2	0.30	8.4	1640	1590	0.150	1.4	0.030
JUL											
18...	10	161	1200	7.0	0.40	8.8	2010	1830	<0.050	0.70	0.070
AUG											
12...	10	162	1300	10	0.60	7.0	1960	1950	<0.050	1.2	0.130
SEP											
06...	12	144	1300	12	0.40	4.2	1900	1910	<0.050	1.0	0.140

## OSAGE RIVER BASIN

06922190 WEST FORK TEBO CREEK NEAR LEWIS, MO--Continued

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

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 16...	70	2600	<1	2	1	10	2	10
JAN 09...	290	4400	<1	2	5	20	3	10
APR 17...	160	2100	<1	1	1	9	2	9
JUL 18...	120	3300	<1	1	3	30	4	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 16...	160	28000	1	40	370	2900	<10	100
JAN 09...	440	35000	<1	50	520	3000	20	110
APR 17...	280	19000	1	30	250	4300	<10	110
JUL 18...	170	47000	<1	40	430	3200	<10	120

## OSAGE RIVER BASIN

06922440 HARRY S. TRUMAN RESERVOIR AT WARSAW, MO

LOCATION.-- Lat 38°15'30", long 93°23'40", in NW 1/4 NE 1/4 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 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1981 to current year. Records collected at same site since 1977 are available from U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 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 2,911,000 acre-ft (elevations 739.6 ft to 751.1 ft); of flood control pool 4,006,000 acre-ft (elevations 706.0 ft to 739.6 ft); and of multipurpose pool 1,203,000 acre-ft (elevations 635.0 ft to 706.0). Lake is used for flood control, hydroelectric power, recreation, and fish and wildlife enhancement.

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, 1,360,000 acre-ft, May 30, elevation, 708.72 ft; minimum, 1,170,000 acre-ft, Aug. 27, elevation, 705.38 ft.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 24:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	705.64	705.89	705.92	706.36	706.23	706.26	705.95	706.73	708.15	706.33	705.93	705.41
2	705.63	705.89	706.08	706.40	706.24	706.30	706.02	706.65	707.85	706.31	705.91	705.43
3	705.75	705.90	706.18	706.11	706.39	706.34	705.99	706.55	707.26	706.32	705.87	705.54
4	705.74	706.01	706.06	706.13	706.35	706.36	705.96	706.54	707.00	706.30	705.86	705.57
5	705.74	705.94	705.92	706.20	706.09	706.41	705.85	706.98	706.67	706.27	705.84	705.60
6	705.75	705.89	706.00	706.12	706.06	706.47	705.90	707.18	706.50	706.24	705.81	705.60
7	705.88	705.87	706.06	705.90	706.07	706.17	705.90	707.45	706.35	706.25	705.79	705.62
8	705.94	705.85	706.10	705.92	705.98	706.28	705.89	707.52	706.36	706.20	705.78	705.63
9	705.90	705.90	706.15	705.98	706.11	706.21	705.88	707.34	706.39	706.19	705.78	705.62
10	706.00	705.92	706.19	706.12	706.19	706.28	705.81	706.95	706.20	706.16	705.74	705.60
11	706.07	705.91	706.23	706.21	705.86	706.31	705.87	706.81	706.20	706.24	705.72	705.60
12	706.15	705.93	706.20	706.35	705.83	706.46	705.91	707.24	706.13	706.20	705.69	705.59
13	706.22	705.90	706.14	706.45	705.85	706.01	706.02	706.92	706.14	706.17	705.67	705.58
14	706.31	705.91	706.16	706.45	705.80	706.11	706.06	706.47	706.05	706.16	705.64	705.56
15	706.22	705.92	706.12	706.81	705.70	706.18	706.01	706.30	706.18	706.15	705.63	705.65
16	706.23	705.95	706.10	707.13	705.83	706.20	705.87	705.92	706.33	706.14	705.60	705.66
17	706.33	705.99	705.92	707.14	705.87	706.31	706.01	706.23	706.36	706.17	705.58	705.68
18	706.13	706.00	706.03	707.10	705.91	706.18	705.95	706.43	706.38	706.18	705.55	705.64
19	706.09	706.00	706.06	707.12	705.84	706.19	706.11	706.54	706.41	706.14	705.52	705.62
20	706.10	706.05	706.11	707.00	705.86	706.27	706.55	706.53	706.42	706.11	705.50	705.61
21	706.13	706.05	706.16	706.88	705.98	706.28	706.80	706.57	706.44	706.08	705.50	705.61
22	706.03	706.04	706.23	706.74	705.96	706.37	706.64	706.66	706.41	706.00	705.46	705.62
23	706.11	706.06	706.26	706.59	706.07	706.37	706.52	706.61	706.42	706.05	705.48	705.59
24	705.87	706.03	706.20	706.44	706.15	706.34	706.39	706.67	706.44	706.12	705.45	705.63
25	705.84	706.04	706.27	706.33	705.97	706.05	706.32	707.14	706.45	706.08	705.42	705.59
26	705.90	706.02	706.19	706.48	706.04	705.79	706.41	707.69	706.45	706.05	705.40	705.59
27	705.94	706.14	706.35	706.63	706.06	705.86	706.50	708.20	706.44	706.04	705.38	705.57
28	705.93	705.95	706.44	706.42	706.14	705.94	706.74	708.44	706.43	706.03	705.39	705.56
29	705.94	705.91	706.34	706.13	---	706.01	706.84	708.71	706.41	705.98	705.42	705.55
30	705.89	705.94	706.21	706.09	---	706.04	706.68	708.72	706.37	705.98	705.42	705.56
31	705.89	---	706.28	706.18	---	706.15	---	708.23	---	705.96	705.40	---
(-)	1197000	1200000	1219000	1213000	1211000	1212000	1242000	1334000	1224000	1201000	1170000	1179000
(=)	+13000	+3000	+19000	-6000	-2000	+1000	+30000	+92000	-110000	-23000	-31000	+9000
MAX	706.33	706.14	706.44	707.14	706.39	706.47	706.84	708.72	708.15	706.33	705.93	705.68
MIN	705.63	705.85	705.92	705.90	705.70	705.79	705.81	705.92	706.05	705.96	705.38	705.41

CAL YR 1990 . . . -1000

WTR YR 1991 . . . -5000

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

(=) Change in contents, in acre-feet

## OSAGE RIVER BASIN

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.--7,856 mi<sup>2</sup> 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 ft<sup>3</sup>/s and poor below 500 ft<sup>3</sup>/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 ft<sup>3</sup>/s and days of no acoustic velocity meter record, data were provided by the U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	263	0	0	3710	0	4390	5810	12700	1190	500	250
2	0	0	0	875	5420	646	1650	7100	12500	475	500	250
3	0	0	0	8800	0	1800	1100	7070	17400	500	500	250
4	0	0	4190	1960	6430	0	2310	4740	14600	500	500	250
5	0	2670	4810	0	13200	0	3090	1780	10100	500	500	250
6	0	2810	0	3980	6510	0	0	8290	5370	500	500	250
7	1050	3160	642	6780	5030	8510	0	9200	7080	500	500	250
8	2820	2610	0	1780	6980	0	1130	10100	198	842	500	250
9	971	0	0	0	0	3140	1830	13700	250	500	500	250
10	2230	0	0	900	304	0	884	12900	7570	500	500	250
11	1280	0	529	2660	9760	0	0	8080	821	500	500	250
12	0	0	2260	0	5510	0	0	0	2770	500	500	250
13	0	130	2140	0	4920	10300	0	17700	250	500	500	250
14	4720	650	1040	3600	5350	791	0	21200	3450	500	500	250
15	1510	891	0	5370	4310	0	1520	8430	250	500	375	250
16	2770	0	1000	10300	0	0	4440	17800	250	500	250	250
17	5050	0	6910	13300	0	0	0	0	250	500	250	250
18	1930	0	0	13500	2450	3150	2480	0	819	500	250	250
19	0	0	0	7900	4740	571	604	283	250	1070	250	250
20	0	0	246	8690	2040	0	388	4320	250	500	250	250
21	0	1160	715	10200	0	0	0	3160	250	500	250	250
22	2380	0	0	10100	3030	0	7090	3040	250	500	250	250
23	0	0	1920	9090	0	0	6560	7340	250	500	250	250
24	7400	0	3040	7950	0	613	5260	9950	250	500	250	94
25	1170	0	0	8170	6910	8320	4330	8370	250	500	250	0
26	0	1020	3540	0	2320	8980	0	4090	250	500	250	0
27	0	3620	0	0	3290	929	6230	8800	250	500	250	0
28	0	4540	0	8430	569	1410	2420	18100	325	500	250	0
29	0	2060	7700	12900	---	1940	6640	17500	350	500	250	0
30	1220	0	6750	6420	---	0	8600	18400	350	500	250	26
31	133	---	854	3180	---	0	---	22500	---	500	250	---
MEAN	1184	853	1558	5382	3671	1648	2432	9024	3330	551	367	196
MAX	7400	4540	7700	13500	13200	10300	8600	22500	17400	1190	500	250
MIN	0	0	0	0	0	0	0	0	198	475	250	0

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

	9362	10800	13330	8472	10080	15990	17440	15170	12170	7007	3515	2835
MEAN	9362	10800	13330	8472	10080	15990	17440	15170	12170	7007	3515	2835
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	853	1558	3933	3671	1648	2432	4855	585	551	367	196
(WY)	1988	1991	1991	1989	1991	1991	1991	1989	1988	1991	1991	1991

## SUMMARY STATISTICS

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	2516	10510
HIGHEST ANNUAL MEAN		17280
LOWEST ANNUAL MEAN		2516
HIGHEST DAILY MEAN	22500	May 31
LOWEST DAILY MEAN	0	Many Days
ANNUAL SEVEN-DAY MINIMUM	17	Sep 24
		71100
		0
		0
		Most Years
		Most Years
		Oct 29 1986
		1991

## OSAGE RIVER BASIN

06923250 NIANGUA RIVER AT WINDYVILLE, MO

## WATER-QUALITY RECORDS

LOCATION.--Lat 37°41'03", long 92°55'27", in NW 1/4 SE 1/4 NE 1/4 sec.8, T.34 N., R.18 W., Dallas County, Hydrologic Unit 10290110, at bridge on State Highway K, 2.0 mi south of Windyville and 0.3 mi above Fourmile Creek.

PERIOD OF RECORD.--July 1991 to current year.

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

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 SATUR- ATION (00301)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
JUL											
01...	1215	52	374	7.4	28.0	6.1	79	54	42	0.010	<0.010
10...	1400	41	362	8.0	28.5	5.1	66	74	350	<0.010	<0.010
16...	0950	36	377	7.6	26.5	5.4	67	94	360	<0.010	0.020
25...	1045	29	380	8.1	25.0	5.6	68	84	84	<0.010	<0.010
30...	1320	30	381	7.9	29.5	5.9	77	68	54	0.020	<0.010
AUG											
08...	1130	25	372	7.6	27.5	5.3	67	48	54	0.020	<0.010
15...	1230	23	391	7.9	24.5	6.7	80	K16	K40	0.020	<0.010
22...	1030	22	405	8.1	23.5	6.6	78	K26	52	<0.010	<0.010
28...	1100	22	408	8.0	24.5	6.0	72	K30	66	<0.010	<0.010
SEP											
03...	1330	28	382	7.9	25.5	5.6	68	44	220	<0.010	<0.010
10...	1405	31	353	8.0	26.5	6.4	79	68	66	<0.010	<0.010
18...	1030	120	313	7.7	21.0	6.3	71	K780	K1800	0.020	<0.010
24...	1200	49	357	8.1	16.0	7.8	78	66	210	<0.010	<0.010

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

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P) (70507)	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P) (00671)
JUL										
01...	0.170	0.170	0.050	0.050	0.70	0.60	0.060	0.050	0.040	0.030
10...	0.220	0.240	0.040	0.040	0.50	0.40	0.080	0.060	0.050	0.050
16...	0.110	0.150	0.050	0.060	0.30	<0.20	0.060	0.040	0.030	0.050
25...	1.20	1.20	<0.010	<0.010	0.40	0.30	0.020	0.040	<0.010	<0.010
30...	0.130	0.220	0.040	0.040	0.30	0.30	0.070	0.070	0.020	0.020
AUG										
08...	0.100	0.120	0.030	<0.010	0.50	0.30	0.070	0.050	0.020	0.020
15...	0.092	0.095	0.020	<0.010	0.40	0.30	0.060	0.040	0.030	0.020
22...	0.071	0.110	0.030	0.030	0.40	0.50	0.050	0.030	<0.010	0.020
28...	0.086	0.095	0.010	0.020	0.30	0.40	0.050	0.040	<0.010	<0.010
SEP										
03...	0.110	0.170	0.040	0.020	0.30	<0.20	0.050	0.060	0.020	0.020
10...	0.097	0.100	0.030	0.030	0.30	0.20	0.060	0.050	0.040	0.050
18...	0.340	0.350	0.040	0.040	0.50	0.30	0.120	0.080	0.080	0.070
24...	0.420	0.450	0.030	0.020	<0.20	0.10	0.060	0.080	0.030	0.050



## 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.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1916 to March 1920, October 1928 to September 1941 and October 1965 to current year. Prior to March 1920 and from October 1939 to September 1941 monthly discharge only published in WSP 1310. Occasional discharge measurements 1923, 1964 and 1965.

GAGE.--Water stage recorder. Prior to May 26, 1987, nonrecording gage. 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.--No estimated daily discharges. Water-discharge records fair. Several observations of water temperature and specific conductance were made during the year. Occasional runoff from drainage area of 42.4 mi<sup>2</sup> included in records.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	141	195	407	260	193	170	309	212	147	139	127
2	146	141	186	363	255	204	168	293	203	147	139	127
3	150	141	288	329	253	201	166	296	199	147	139	128
4	191	141	302	303	250	199	168	321	193	149	139	147
5	172	143	266	285	252	198	168	334	187	153	139	139
6	160	142	244	272	253	199	167	333	182	156	153	132
7	215	139	223	261	247	188	166	311	181	155	145	129
8	270	139	210	252	241	181	165	294	179	155	142	128
9	382	140	199	239	239	174	164	278	177	158	141	132
10	355	140	190	239	233	170	162	264	175	156	140	128
11	311	139	184	298	227	170	161	255	175	154	139	127
12	277	138	180	303	226	172	160	245	174	153	137	127
13	257	137	173	286	228	172	165	243	171	153	136	127
14	238	137	167	282	226	167	250	252	168	153	135	127
15	218	136	163	369	214	162	549	240	167	151	135	125
16	205	135	162	503	210	158	416	264	190	150	135	242
17	196	135	165	451	207	173	357	278	183	149	135	239
18	186	136	213	422	205	197	510	265	171	149	134	212
19	176	137	212	449	202	192	581	253	166	149	132	191
20	169	136	201	484	196	190	481	240	163	148	132	166
21	164	135	196	444	192	187	427	232	162	146	131	156
22	158	135	191	407	187	186	396	225	160	145	130	150
23	155	135	187	378	185	194	364	216	157	145	129	148
24	152	135	181	353	184	188	339	212	157	145	135	144
25	148	135	176	328	182	185	319	500	155	145	133	141
26	146	134	170	313	181	183	312	356	154	145	131	136
27	145	167	167	305	181	185	349	303	151	143	129	134
28	143	247	165	293	184	183	378	273	149	143	128	131
29	142	220	392	281	---	182	352	257	149	142	127	127
30	141	204	599	279	---	177	327	239	148	140	127	125
31	141	---	472	268	---	174	---	226	---	139	127	---
MEAN	195	147	226	337	218	183	295	278	172	149	135	146
MAX	382	247	599	503	260	204	581	500	212	158	153	242
MIN	141	134	162	239	181	158	160	212	148	139	127	125

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

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	134	153	167	163	185	232	255	242	189	144	126	119
MAX	578	508	436	337	447	712	504	488	704	262	193	224
(WY)	1987	1973	1983	1991	1985	1973	1973	1929	1935	1935	1940	1970
MIN	81.3	76.0	78.9	78.6	81.3	85.2	84.8	92.3	85.0	79.7	77.5	73.6
(WY)	1938	1938	1938	1940	1934	1936	1936	1934	1936	1934	1936	1937

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	235	207	176
HIGHEST ANNUAL MEAN			296
LOWEST ANNUAL MEAN			93.4
HIGHEST DAILY MEAN	2150	May 26	599
LOWEST DAILY MEAN	102	Jan 12-13, 16	125
INSTANTANEOUS PEAK FLOW	12600	May 26	939
INSTANTANEOUS PEAK STAGE	10.42	May 26	3.53
INSTANTANEOUS LOW FLOW	102	Jan 11-16	122
ANNUAL SEVEN-DAY MINIMUM	103	Jan 10	127
10 PERCENT EXCEEDS	375		327
50 PERCENT EXCEEDS	190		176
90 PERCENT EXCEEDS	139		135
			89

## OSAGE RIVER BASIN

06923500 BENNETT SPRING AT BENNETT SPRINGS, MO --Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1991 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
JUL											
01...	1440	146	372	7.2	13.5	8.5	82	35	35	<0.010	<0.010
10...	1100	157	374	7.2	14.0	8.1	79	80	32	<0.010	<0.010
16...	0845	150	374	7.3	14.5	8.4	82	42	47	<0.010	0.010
25...	0920	145	377	7.5	14.5	7.6	74	K15	K4	0.010	<0.010
30...	1210	140	378	7.1	14.5	7.1	69	96	28	<0.010	<0.010
AUG											
08...	1000	143	379	7.2	14.5	8.3	81	K12	K10	0.010	0.020
15...	1102	135	394	7.4	14.5	9.1	88	K4	K3	0.010	<0.010
22...	0910	133	402	7.7	14.5	7.9	78	43	62	<0.010	<0.010
28...	1000	127	407	7.4	14.0	7.8	76	120	54	<0.010	<0.010
SEP											
03...	1130	128	391	7.5	14.0	7.8	75	K11	140	<0.010	<0.010
09...	1230	129	390	7.6	14.5	8.0	78	K6	34	<0.010	<0.010
18...	0930	214	390	7.4	14.0	7.5	73	250	K600	<0.010	<0.010
24...	1000	145	384	7.4	14.0	6.2	59	200	850	<0.010	<0.010

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

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	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)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
JUL										
01...	1.30	1.30	0.010	0.020	0.40	<0.20	0.020	0.020	<0.010	0.010
10...	1.30	1.20	<0.010	0.020	<0.20	0.20	0.050	0.040	0.030	0.040
16...	1.20	1.30	0.010	0.020	<0.20	<0.20	0.020	0.020	<0.010	0.020
25...	0.110	0.14	<0.010	0.030	1.5	0.30	0.070	0.070	0.030	0.010
30...	1.20	1.20	0.010	0.020	0.30	0.20	0.020	0.040	<0.010	0.010
AUG										
08...	1.20	1.20	<0.010	<0.010	<0.20	<0.20	0.020	0.020	0.010	<0.010
15...	1.20	1.20	<0.010	<0.010	<0.20	0.20	0.020	0.030	0.010	0.020
22...	1.20	1.20	<0.010	<0.010	<0.20	0.20	0.020	0.020	<0.010	<0.010
28...	1.20	1.20	<0.010	<0.010	<0.20	<0.20	0.020	0.020	<0.010	<0.010
SEP										
03...	1.10	1.10	<0.010	<0.010	<0.20	<0.20	0.020	0.050	<0.010	0.020
09...	1.20	1.20	0.020	<0.010	0.20	<0.20	0.020	0.020	0.010	0.020
18...	1.20	1.20	<0.010	<0.010	<0.20	<0.20	0.020	0.010	0.020	<0.010
24...	1.30	1.30	0.030	<0.010	<0.20	0.20	0.010	0.040	<0.010	0.030

## 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 mi<sup>2</sup>.

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, 1,195,100 acre-ft, May 12, elevation, 659.60 ft; minimum, 839,000 acre-ft, March 7-8, elevation, 652.82 ft.

## MONTH END ELEVATION AND CONTENTS, AT 2400, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

	Date	Elevation (feet)	Contents (acre-ft)	Change in contents (acre-feet)
Sept.	30 . . . . .	657.90	1,098,900	-----
Oct.	31 . . . . .	658.37	1,125,000	+ 26,100
Nov.	30 . . . . .	658.53	1,133,900	+ 8,900
Dec.	31 . . . . .	659.24	1,174,400	+ 40,500
CAL YR 1990 . . . . .		-----	-----	+213,200
Jan.	31 . . . . .	655.76	985,000	-189,400
Feb.	28 . . . . .	652.91	843,300	-141,700
Mar.	31 . . . . .	654.17	904,400	+ 61,100
Apr.	30 . . . . .	657.11	1,056,000	+151,600
May	31 . . . . .	658.45	1,129,400	+ 73,400
June	30 . . . . .	659.52	1,190,500	+ 61,100
July	31 . . . . .	659.08	1,165,200	- 25,300
Aug.	31 . . . . .	658.54	1,134,400	- 30,800
Sept.	30 . . . . .	657.99	1,103,900	- 30,500
WTR YR 1991 . . . . .		-----	-----	+ 5,000

## 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 mi<sup>2</sup>, 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.--Estimated daily discharges: Dec. 24, 25, and 27. Records fair. Several observations of water temperature and specific conductance were made during the year. Flow regulated by Lake of the Ozarks (station 06925500), 1.3 mi upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximim stage prior to 1943, 43.1 ft in June 1844 (former site and datum), discharge, 164,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	796	598	521	7280	7180	1380	492	13200	12400	4800	805	809
2	1410	562	708	829	1530	534	479	12200	2200	1270	1690	803
3	601	561	8640	7140	2130	513	527	13400	18500	770	1030	1240
4	689	853	4550	10300	6240	3000	1580	15700	9760	760	882	938
5	2030	1340	1470	4280	11400	2250	1100	2000	8220	760	871	768
6	2090	2640	531	2390	11700	966	2580	10000	10100	2100	865	769
7	2850	1030	1080	5540	15500	8460	909	11800	2860	1200	1040	783
8	5390	730	521	3000	14700	2650	648	12200	2130	757	978	866
9	6410	728	500	2810	3190	1100	1370	12100	1470	914	1310	911
10	2890	574	497	12100	2120	502	663	9820	3890	1160	856	1750
11	1460	567	537	11900	7820	488	506	1350	876	622	828	4840
12	609	561	501	2220	9900	843	2780	11900	1980	956	828	5120
13	618	845	1490	728	3720	499	1160	32500	1320	552	815	2860
14	570	623	1670	6820	7880	1560	868	32200	805	500	813	885
15	2780	1800	905	12900	10900	1210	2900	32100	886	484	817	1360
16	5750	2600	600	17700	5100	495	832	29400	629	563	2400	943
17	3820	1340	5160	19300	2130	507	1140	17200	781	749	1030	738
18	3200	2250	5760	25600	2110	4130	13500	3760	540	1090	805	839
19	4060	602	6880	20600	11100	785	21000	673	1400	815	815	743
20	1090	1480	1350	3110	12300	2250	14200	2710	815	890	794	743
21	576	509	3220	16800	10100	1350	6720	6400	712	771	1100	742
22	564	518	972	23400	7560	528	6320	10100	1450	2180	784	814
23	552	602	1100	22600	3440	517	2390	10400	808	1050	883	1770
24	1300	1720	600	21400	2100	712	720	7820	989	767	798	2270
25	3010	1300	500	19500	6080	2000	9080	1620	794	772	796	2250
26	9600	2960	8000	10000	7580	6020	2940	1310	747	764	790	2210
27	1320	1380	1500	1360	8260	5580	764	1500	729	773	808	2210
28	568	8320	9600	11100	3480	2700	609	10800	736	781	812	2090
29	1100	2480	9640	17500	---	850	6470	25400	735	769	812	852
30	751	544	9640	18400	---	470	9380	24700	710	782	815	854
31	1220	---	10900	14000	---	471	---	22100	---	779	807	---
MEAN	2248	1421	3211	11370	7045	1785	3821	12850	2999	1029	951	1492
MAX	9600	8320	10900	25600	15500	8460	21000	32500	18500	4800	2400	5120
MIN	552	509	497	728	1530	470	479	673	540	484	784	738
IN.	.19	.11	.26	.94	.52	.15	.30	1.06	.24	.08	.08	.12

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

	MEAN	6554	8073	7196	7931	9694	13730	16970	15820	14820	8731	5099	5641
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	14800		4181		9962		
HIGHEST ANNUAL MEAN					24640		1927
LOWEST ANNUAL MEAN					1046		1954
HIGHEST DAILY MEAN	80500	May 27	32500	May 13	212000	May 19	1943
LOWEST DAILY MEAN	497	Dec 10	470	Mar 30	235	Apr 23	1971
INSTANTANEOUS PEAK FLOW	94900	May 26	33400	May 26	220000	May 19	1943
INSTANTANEOUS PEAK STAGE	30.38	May 26	16.80	May 26	48.8	May 19	1943
INSTANTANEOUS LOW FLOW	457	Aug 19, Dec 11	445	Mar 30, Apr 1, 3	183	Sep 9	1969
ANNUAL SEVEN-DAY MINIMUM	534	Jan 11	595	Dec 6	320	Mar 3	1931
ANNUAL RUNOFF (INCHES)	14.35		4.06		9.67		
10 PERCENT EXCEEDS	34200		12000		28600		
50 PERCENT EXCEEDS	6360		1350		3950		
90 PERCENT EXCEEDS	562		566		512		

## OSAGE RIVER BASIN

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 mi<sup>2</sup>, 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: Dec. 31 and Jan 1. Records good. 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 ft in June 1844.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	674	1120	829	10000	10800	3280	745	10900	17300	885	778	835
2	881	733	732	4780	5110	1500	730	12000	10200	5200	797	855
3	1350	673	4620	2090	2030	840	725	14000	7230	1330	1610	859
4	798	757	9370	8890	3120	1280	759	17400	14200	876	1070	1310
5	980	870	4100	9050	8120	2880	1720	13500	8260	820	912	1150
6	1920	1570	1820	3470	10700	2310	1240	5730	9740	807	885	907
7	2860	2320	984	4000	13600	2060	2950	11200	7120	2340	867	852
8	4240	1100	1210	4780	14700	8500	1110	12100	3120	1200	1000	861
9	6850	842	821	3310	11500	2190	861	12200	2420	841	1080	930
10	7360	798	744	6310	2910	1200	1400	10800	1720	1020	1340	982
11	3040	714	716	10800	3780	752	893	7860	4220	1150	942	1860
12	1640	671	717	11200	7840	700	951	6750	1070	855	858	5790
13	942	667	697	2150	7670	998	3620	32200	2270	985	846	5510
14	843	849	1840	1690	4100	786	2430	33000	1330	728	837	2540
15	817	754	1660	11400	8950	2310	8210	32300	924	619	836	1100
16	4410	2050	1020	18400	10700	1190	4480	33800	1120	602	837	2060
17	4910	2650	1130	19600	3060	806	2060	20900	920	635	2480	1750
18	4030	1580	6900	25100	2300	1560	9970	14900	902	767	1130	1050
19	4300	1980	5840	22700	4370	4250	30000	3180	713	993	855	1100
20	3720	1210	6160	17200	11100	1260	18900	1410	1290	873	828	948
21	1210	1160	1960	7640	10900	3380	11200	3930	942	877	823	864
22	777	676	3440	21900	8540	1540	7850	7270	798	805	1050	1990
23	728	643	1260	22700	6280	1130	5390	11200	1470	2430	824	1910
24	701	675	1220	21300	2870	985	2910	8390	961	1150	860	2150
25	1700	1880	907	19900	3300	1030	2580	7280	999	830	819	2360
26	4950	1400	829	16300	5340	3340	9490	1930	876	795	783	2270
27	7350	2870	6320	5750	8450	6500	2990	1750	815	779	780	2170
28	1410	2650	2240	3720	5770	5130	2020	3350	794	783	787	2150
29	750	7800	9890	15000	---	2680	1880	20600	795	796	840	1790
30	1070	2100	12000	16700	---	1140	8090	23900	784	789	848	930
31	891	---	13000	16700	---	808	---	19900	---	781	820	---
MEAN	2519	1525	3386	11760	7068	2204	4938	13410	3510	1108	968	1728
MAX	7360	7800	13000	25100	14700	8500	30000	33800	17300	5200	2480	5790
MIN	674	643	697	1690	2030	700	725	1410	713	602	778	835
IN.	.20	.12	.27	.94	.51	.18	.38	1.07	.27	.09	.08	.13

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

	7191	8422	7875	8236	10310	14620	16870	16110	15280	9805	4777	5878
MEAN	7191	8422	7875	8236	10310	14620	16870	16110	15280	9805	4777	5878
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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	16080		4507		10440
HIGHEST ANNUAL MEAN					24520
LOWEST ANNUAL MEAN					1237
HIGHEST DAILY MEAN	93800	May 27	33800	May 16	215000
LOWEST DAILY MEAN	643	Nov 23	602	Jul 16	373
INSTANTANEOUS PEAK FLOW	100000	May 27	34700	Apr 19, May 16	216000
INSTANTANEOUS PEAK STAGE	29.01	May 27	15.18	Apr 19, May 16	43.8
INSTANTANEOUS LOW FLOW	633	Nov 23	596	Jul 16-17	346
ANNUAL SEVEN-DAY MINIMUM	756	Nov 9	742	Jul 12	426
ANNUAL RUNOFF (INCHES)	15.05		4.22		9.78
10 PERCENT EXCEEDS	38500		11700		29100
50 PERCENT EXCEEDS	6880		1820		4330
90 PERCENT EXCEEDS	818		782		706

## 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 mi<sup>2</sup> approximately.

PERIOD OF RECORD.--Water year 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, and Aug. 11, 1980; minimum daily, 0.0°C, Jan. 21, 1978.

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

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, (PER- CENT 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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
14...	1300	663	248	8.0	12.0	1.7	12.7	116	K2	K6	140	37
JAN												
09...	1600	4000	269	7.8	4.5	2.0	13.5	102	K13	77	140	37
MAR												
07...	1000	1450	285	8.0	6.0	6.0	12.7	102	K1	K3	150	38
MAY												
06...	1315	4500	281	7.9	16.0	19	8.9	89	570	660	150	35
JUL												
15...	1320	625	280	8.4	30.0	27	--	--	K16	160	140	36
SEP												
06...	1130	960	268	7.8	27.0	4.2	9.8	120	210	300	140	33

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
14...	11	5.6	2.8	124	31	3.9	0.10	2.8	171	169	0.23
JAN											
09...	11	5.0	3.0	117	21	6.0	<0.10	4.9	154	160	0.21
MAR											
07...	13	4.7	3.2	122	28	6.1	<0.10	2.6	156	170	0.21
MAY											
06...	14	4.4	2.3	126	22	4.3	<0.10	4.1	156	163	0.21
JUL											
15...	13	4.8	2.7	124	16	7.7	0.10	4.0	168	159	0.23
SEP											
06...	13	4.9	2.4	121	30	7.7	0.10	4.4	156	168	0.21



## OSAGE RIVER BASIN

06926510 OSAGE RIVER BELOW ST. THOMAS, MO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 14...	306	<0.010	<0.100	0.020	<0.010	0.30	0.020	0.010	0.010	4	83
JAN 09...	1660	<0.010	0.300	0.020	0.010	0.30	0.020	0.020	<0.010	5	31
MAR 07...	611	<0.010	0.170	<0.010	<0.010	0.50	0.030	0.020	<0.010	7	95
MAY 06...	1900	<0.010	0.210	0.080	0.060	0.60	0.070	0.040	0.010	48	96
JUL 15...	284	<0.010	<0.050	<0.010	<0.010	0.50	0.050	0.030	<0.010	7	84
SEP 06...	404	<0.010	<0.050	0.010	<0.010	0.40	0.050	0.030	<0.010	11	24

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 14...	10	<1	64	<0.5	<1.0	<1	<3	2	5	<1
JAN 09...	<10	<1	70	<0.5	<1.0	<1	<3	<1	6	<1
MAY 06...	20	<1	71	<0.5	<1.0	<1	<3	1	15	<1
JUL 15...	20	1	68	<0.5	<1.0	<1	<3	4	18	<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 14...	5	54	<0.1	<10	<1	<1	<1.0	110	<6	<3
JAN 09...	<4	26	<0.1	<10	2	<1	<1.0	110	<6	<3
MAY 06...	<4	190	<0.1	<10	1	<1	<1.0	83	<6	<3
JUL 15...	<4	38	0.1	<10	<1	<1	<1.0	86	<6	3

## 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, Hydrologic Unit 10290202, on downstream side of left pier of Ross bridge, 3.0 mi east of Big Piney, 14.8 mi upstream from Spring Creek, and at mile 22.

DRAINAGE AREA.--560 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1921 to September 30, 1982 and 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.--No estimated daily discharge. Records good. Several observations of water-temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 24.54 ft, Dec. 4, 1982, from floodmark, present datum; discharge, 81,200 ft<sup>3</sup>/s, from indirect measurement.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	185	179	645	1830	724	343	473	1110	439	194	152	160
2	183	175	557	1400	689	351	441	882	529	194	153	201
3	183	171	641	1160	674	351	421	792	1130	188	155	212
4	192	176	1790	1000	691	338	415	788	582	189	153	248
5	189	184	1000	896	746	333	432	799	459	197	151	201
6	187	185	710	839	781	329	423	744	395	191	156	183
7	231	185	548	855	761	320	400	673	353	182	157	180
8	358	176	461	890	708	308	390	609	327	176	159	171
9	713	173	407	821	666	293	498	560	304	211	184	166
10	674	170	367	857	634	285	559	529	287	202	181	160
11	702	167	335	2750	593	282	505	503	275	191	171	154
12	567	164	313	4500	560	283	546	819	269	189	165	151
13	466	161	293	2080	555	300	827	967	263	181	159	146
14	399	158	276	1630	549	302	2630	947	256	170	153	143
15	347	155	261	1670	528	285	3630	801	254	167	149	139
16	310	152	247	2390	496	274	2580	1110	255	166	148	149
17	294	149	279	2170	473	341	1740	1640	245	165	146	139
18	292	148	1320	1870	471	683	1550	1210	238	165	150	193
19	312	149	1440	1840	459	900	3890	1470	227	162	178	172
20	343	149	1140	1970	435	756	2310	1350	223	160	163	175
21	301	152	993	1780	415	668	1680	1030	240	157	149	169
22	273	163	1780	1460	399	670	1390	858	224	153	142	172
23	252	173	1420	1270	381	2250	1200	753	222	149	141	185
24	236	182	1040	1130	375	1570	1010	673	229	154	137	187
25	222	175	772	1010	367	1120	894	664	229	154	135	186
26	211	176	536	931	352	906	890	695	218	153	147	173
27	205	248	522	870	343	794	877	651	210	153	141	162
28	196	1440	484	834	337	707	873	556	204	153	135	155
29	191	1570	1920	811	---	626	1120	496	199	152	135	149
30	186	906	10100	807	---	568	1600	456	197	153	158	144
31	182	---	3310	778	---	513	---	471	---	153	142	---
MEAN	309	284	1158	1455	541	582	1206	826	316	172	153	171
MAX	713	1570	10100	4500	781	2250	3890	1640	1130	211	184	248
MIN	182	148	247	778	337	274	390	456	197	149	135	139
IN.	.64	.57	2.39	3.00	1.01	1.20	2.40	1.70	.63	.35	.32	.34

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

	MEAN	271	452	448	545	644	844	968	908	562	295	245	230
MAX	1261	2127	1940	2554	2237	2565	3637	3324	2892	1969	1947	1056	
(WY)	1950	1952	1943	1950	1982	1945	1927	1990	1928	1951	1927	1965	
MIN	82.3	106	98.5	98.5	127	154	188	142	111	89.3	93.5	72.9	
(WY)	1957	1965	1956	1956	1934	1981	1954	1932	1934	1934	1954	1954	

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	850	599	535
HIGHEST ANNUAL MEAN			1179
LOWEST ANNUAL MEAN			149
HIGHEST DAILY MEAN	13100	May 4	10100
LOWEST DAILY MEAN	121	Jan 14	135
INSTANTANEOUS PEAK FLOW	20400	May 4	12000
INSTANTANEOUS PEAK STAGE	17.22	May 4	13.74
INSTANTANEOUS LOW FLOW	121	Jan 12-16	133
ANNUAL SEVEN-DAY MINIMUM	125	Jan 10	139
ANNUAL RUNOFF (INCHES)	20.62		14.53
10 PERCENT EXCEEDS	1720		1390
50 PERCENT EXCEEDS	366		335
90 PERCENT EXCEEDS	168		153
			122

## 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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991

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, UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
14...	1530	755	358	8.0	10.0	1.5	12.4	109	K5	K2	190	38
JAN												
10...	0900	2860	274	7.6	5.5	2.3	12.6	98	33	45	150	31
MAR												
07...	1200	1670	302	8.2	11.0	1.5	11.1	101	K1	K2	170	34
MAY												
10...	0800	2570	293	8.1	17.5	35	8.8	91	37	22	160	34
JUL												
19...	1255	731	319	8.2	30.0	51	--	--	180	36	170	34
SEP												
03...	0900	663	329	8.0	23.5	1.0	8.7	101	K15	100	190	37

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
14...	23	3.1	1.4	185	4.4	4.6	<0.10	4.3	179	164	0.24
JAN											
10...	17	2.7	1.6	135	8.1	7.1	<0.10	8.3	155	162	0.21
MAR											
07...	20	2.7	1.5	139	7.9	6.6	<0.10	1.8	163	159	0.22
MAY											
10...	18	2.8	1.5	142	6.8	3.8	0.70	4.6	159	158	0.22
JUL											
19...	21	2.8	2.8	152	9.9	7.1	0.20	12	175	181	0.24
SEP											
03...	23	3.0	1.4	171	5.6	6.2	<0.10	8.5	179	188	0.24

## GASCONADE RIVER BASIN

06930800 GASCONADE RIVER ABOVE JEROME, MO--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 14...	365	0.010	<0.100	<0.010	<0.010	0.30	<0.010	0.020	<0.010	11	66
JAN 10...	1200	0.020	1.00	0.020	0.020	<0.20	0.020	0.020	<0.010	5	79
MAR 07...	735	<0.010	0.190	<0.010	0.010	<0.20	<0.010	0.020	<0.010	8	93
MAY 10...	1100	<0.010	0.130	0.030	0.020	0.20	0.030	0.020	<0.010	57	71
JUL 19...	345	<0.010	<0.050	0.020	<0.010	0.40	0.050	0.030	<0.010	14	73
SEP 03...	320	<0.010	0.140	0.030	0.020	0.20	0.030	0.030	<0.010	12	32

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 14...	<10	<1	51	<0.5	<1.0	<1	<3	1	6	<1
JAN 10...	20	<1	41	<0.5	<1.0	<1	<3	1	16	<1
MAY 10...	20	<1	47	<0.5	<1.0	<1	<3	1	8	1
JUL 19...	90	<1	54	<0.5	<1.0	<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)
NOV 14...	<4	12	<0.1	<10	<1	<1	<1.0	41	<6	<3
JAN 10...	<4	8	<0.1	<10	1	<1	<1.0	32	<6	<3
MAY 10...	<4	27	<0.1	<10	<1	<1	<1.0	38	<6	4
JUL 19...	<4	110	<0.1	<10	1	<1	<1.0	41	<6	11

## 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 mi<sup>2</sup>, 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.--Estimated daily discharges: Dec. 22, 23, 30, Jan. 26-28, and July 14-30. 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 ft<sup>3</sup>/s, from rating curve based on discharge measurements made in 1935 and extended above 25,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	79	128	404	189	112	132	168	148	84	76	68
2	72	79	130	346	187	120	127	157	146	85	76	74
3	81	79	494	301	186	116	124	197	142	85	76	73
4	93	84	287	242	200	112	123	197	136	83	76	91
5	78	88	224	229	212	112	118	233	131	82	94	74
6	76	82	184	210	209	113	115	212	125	80	83	71
7	186	80	146	192	195	106	114	187	123	79	80	70
8	174	79	136	181	186	102	113	169	118	77	86	69
9	284	79	125	173	180	99	115	157	115	77	112	70
10	216	79	118	209	173	97	106	149	115	85	86	69
11	153	79	112	405	164	97	104	143	113	80	80	68
12	126	77	109	409	157	98	105	398	109	83	75	67
13	110	76	103	349	163	102	118	6160	108	82	74	67
14	103	76	98	336	157	103	1260	2330	104	82	75	66
15	95	76	97	445	149	98	3320	781	100	81	74	66
16	90	76	92	535	134	95	691	954	102	80	73	87
17	106	76	124	466	136	235	505	704	101	80	72	74
18	126	76	232	462	137	279	796	529	97	80	70	99
19	103	78	205	520	131	237	703	420	94	80	69	90
20	97	76	177	550	123	211	533	352	109	79	68	81
21	93	78	296	418	119	196	453	317	103	79	67	78
22	89	83	250	368	116	279	385	284	95	79	66	82
23	88	80	230	354	111	265	337	257	91	78	66	82
24	87	79	207	301	111	229	295	232	93	78	69	80
25	85	79	173	277	110	208	265	229	93	78	66	79
26	84	78	148	260	109	195	245	207	91	78	66	78
27	84	400	143	250	107	186	222	193	89	77	66	76
28	82	336	136	240	105	170	205	178	88	77	66	75
29	82	182	2140	231	---	157	195	170	86	77	66	75
30	82	143	1000	223	---	147	180	165	83	77	66	74
31	81	---	487	202	---	138	---	155	---	76	67	---
MEAN	109	104	275	325	152	155	403	548	108	79.9	74.4	75.8
MAX	284	400	2140	550	212	279	3320	6160	148	85	112	99
MIN	72	76	92	173	105	95	104	143	83	76	66	66
IN.	.63	.58	1.59	1.88	.79	.90	2.25	3.16	.60	.46	.43	.42

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

	MEAN	99.1	123	151	145	177	226	250	259	208	99.6	81.5	78.2
MAX	913	676	1300	770	678	822	1335	871	1545	525	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	225		202		157	
HIGHEST ANNUAL MEAN					391	1985
LOWEST ANNUAL MEAN					47.0	1954
HIGHEST DAILY MEAN	4650	May 3	6160	May 13	19600	Dec 3 1982
LOWEST DAILY MEAN	56	Jan 14-16	66	Many Days	24	1936, 1954, 1956
INSTANTANEOUS PEAK FLOW	5480	May 3	21300	May 13	32500	Aug 14 1946
INSTANTANEOUS PEAK STAGE	9.37	May 3	15.52	May 13	16.6	Jun 17 1985
INSTANTANEOUS LOW FLOW	56	Jan 14-16	64	Aug 23, Sep 15	24	Several Years
ANNUAL SEVEN-DAY MINIMUM	57	Jan 10	66	Aug 25	24	Aug 22 1936
ANNUAL RUNOFF (INCHES)	15.25		13.68		10.69	
10 PERCENT EXCEEDS	428		347		278	
50 PERCENT EXCEEDS	128		111		82	
90 PERCENT EXCEEDS	75		75		42	





## GASCONADE RIVER BASIN

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 mi east of Rich Fountain.

DRAINAGE AREA.--3,180 mi<sup>2</sup> (by U.S. Army Corps of Engineers).

PERIOD OF RECORD.--October 1921 to September 1959 and 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	746	890	5330	29200	4250	2160	2460	5070	2880	976	640	587
2	721	866	3990	24900	4150	2230	2280	4380	3100	938	636	635
3	766	849	6360	10200	3830	2280	2140	4870	5040	910	621	682
4	883	871	5980	6810	3720	2300	2040	4710	3490	912	632	721
5	907	917	6480	5580	3850	2310	1940	4520	2910	866	693	817
6	875	909	6210	4810	4050	2270	1870	4720	2430	834	655	845
7	923	859	4870	4250	4290	2230	1850	4430	2150	809	679	866
8	1890	848	3850	3870	4380	2160	1800	3960	1940	786	690	830
9	2480	844	3260	3670	4140	2080	1730	3530	1790	759	1100	762
10	4430	828	2820	3560	3800	2020	1680	3200	1670	2480	871	722
11	4880	813	2520	4180	3520	1950	1790	3380	1570	1250	784	687
12	4160	800	2290	7010	3300	1910	1740	3320	1500	991	713	674
13	3390	794	2090	13400	3150	1900	1920	9910	1420	1040	681	662
14	2860	778	1930	12000	3030	1890	2430	18100	1350	959	668	647
15	2460	769	1800	9530	2910	1860	21200	11500	1290	881	645	641
16	2150	753	1690	9790	2840	1810	27200	9820	1250	822	637	920
17	1940	738	1690	12400	2840	2090	26200	8710	1240	786	632	795
18	1810	731	2210	14400	2820	3210	23300	8480	1270	776	615	1950
19	1700	735	2880	13200	2740	2980	21800	7690	1290	771	595	1590
20	1550	745	5730	12800	2660	3760	25900	6340	1190	750	596	1270
21	1440	738	7040	13500	2570	3960	26800	6320	1180	731	598	1300
22	1370	737	6130	13100	2490	3870	15800	5150	1120	712	600	1640
23	1290	763	5830	10700	2410	3810	9420	4560	1060	748	597	1040
24	1220	741	6010	8260	2330	4440	7480	4000	1030	709	616	938
25	1160	733	5150	6770	2290	4880	6240	4510	1000	684	655	891
26	1100	772	4170	5860	2250	4430	5440	4120	978	671	593	838
27	1050	944	3550	5180	2210	4100	4930	3940	962	662	587	814
28	1010	2820	3160	4680	2160	3650	4670	5830	1040	657	617	785
29	968	3100	6190	4320	---	3220	4570	4610	1040	648	615	755
30	936	5640	15600	4200	---	2920	4840	3850	1020	647	594	727
31	911	---	23900	4050	---	2670	---	3270	---	643	582	---
MEAN	1741	1111	5184	9232	3178	2818	8782	5832	1707	865	659	901
MAX	4880	5640	23900	29200	4380	4880	27200	18100	5040	2480	1100	1950
MIN	721	731	1690	3560	2160	1810	1680	3200	962	643	582	587
IN.	.63	.39	1.88	3.35	1.04	1.02	3.08	2.12	.60	.31	.24	.32

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

	MEAN	1757	2162	2457	2763	3216	4464	5502	5154	3946	1818	1430	1187
MAX	12060	9226	12750	12700	7637	14640	22720	18300	19810	12630	9365	3850	
(WY)	1950	1952	1988	1950	1949	1945	1945	1990	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	4634		3508		2983		
HIGHEST ANNUAL MEAN					6560		1927
LOWEST ANNUAL MEAN					629		1954
HIGHEST DAILY MEAN	44300	May 29	29200	Jan 1	91100	Apr 16	1945
LOWEST DAILY MEAN	556	Jan 15	582	Aug 31	275	Sep 19	1954
INSTANTANEOUS PEAK FLOW	48600	May 29	30300	Jan 1	134000	Dec 6	1982
INSTANTANEOUS PEAK STAGE	20.90	May 29	15.59	Jan 1	33.27	Dec 6	1982
INSTANTANEOUS LOW FLOW	542	Jan 14-16	569	Aug 31, Sep 1	275	Sep 19	1954
ANNUAL SEVEN-DAY MINIMUM	565	Jan 10	596	Aug 26	279	Oct 6	1956
ANNUAL RUNOFF (INCHES)	19.79		14.98		12.74		
10 PERCENT EXCEEDS	9230		6890		6400		
50 PERCENT EXCEEDS	2290		1950		1450		
90 PERCENT EXCEEDS	739		680		553		

## MISSOURI RIVER MAIN STEM

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 and at mile 97.9.

DRAINAGE AREA.--524,200 mi<sup>2</sup>, 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 biweekly 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 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43200	42200	33600	51200	46000	43000	48100	122000	104000	55800	39700	37200
2	42600	40600	31000	53400	40900	38900	42300	120000	101000	55700	39300	37500
3	42400	38900	33000	47500	36900	36600	39100	110000	124000	57900	39200	37800
4	42800	37100	42500	33300	34600	38300	38400	117000	126000	53600	39000	37900
5	42300	35600	45000	32000	36900	55800	40300	115000	113000	50900	40000	39600
6	42300	34100	38000	32500	64300	53000	42700	149000	116000	50600	39900	40600
7	44900	33400	33100	28000	82500	44300	43400	156000	109000	48500	39100	39800
8	46700	35100	29400	26800	81400	43800	43200	147000	97400	48300	39600	38800
9	49100	34400	27100	28900	75400	47700	41500	143000	103000	49600	40200	38200
10	54200	31500	26100	27600	64400	39800	39800	139000	113000	59600	41000	38100
11	57100	29000	25300	30400	52700	34500	39800	126000	100000	57700	41100	38500
12	51600	27500	24600	38700	48800	32400	40400	104000	91000	50300	40500	39300
13	47700	27000	23800	43000	50800	32900	41100	103000	85100	66300	39800	44700
14	45300	26600	23600	40300	49100	33300	45900	123000	83700	93600	40200	47000
15	44600	25900	24000	37700	45300	31900	89100	136000	82000	84500	41600	42900
16	44600	25200	25000	52800	49000	30900	115000	128000	78400	71200	41800	41900
17	45600	24500	24900	74300	49800	32100	113000	127000	76800	62000	41400	43700
18	47200	25400	25100	80100	42200	38000	125000	113000	113000	55300	40600	44100
19	45700	25300	29700	82000	38800	40000	145000	97900	124000	50300	40600	43100
20	44900	24900	32200	79300	39500	41800	158000	87000	107000	47300	39600	42100
21	44600	24200	34700	67500	45700	50600	157000	86800	92800	46000	39200	41600
22	43100	23700	32400	60800	45800	53100	151000	83300	82400	44300	39300	42000
23	42300	23400	30900	70200	43700	47700	139000	84100	74500	43200	39900	44500
24	42500	23000	29700	66500	40600	43000	122000	86600	70300	44100	39400	41900
25	42700	22800	28600	60800	37700	42300	102000	96100	73200	43600	38400	40700
26	43000	23000	27200	55800	38800	41000	86900	122000	78800	42000	38200	40300
27	46200	24100	24700	49000	42800	40000	81300	125000	71200	42400	37600	40100
28	50300	26900	25300	39300	45300	41200	77300	114000	66000	42200	37300	39600
29	46100	31700	30000	35700	---	44700	77300	110000	63400	40800	37300	39100
30	43900	35000	47900	44300	---	61700	99400	113000	59100	40200	37400	38900
31	42900	---	51700	47000	---	57200	---	108000	---	40300	37500	---
MEAN	45560	29400	30970	48930	48920	42310	80810	115900	92640	52840	39540	40720
MAX	57100	42200	51700	82000	82500	61700	158000	156000	126000	93600	41800	47000
MIN	42300	22800	23600	26800	34600	30900	38400	83300	59100	40200	37300	37200
IN.	.10	.06	.07	.11	.10	.09	.17	.25	.20	.12	.09	.09

## STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	MEAN	64080	63330	47370	42430	57080	89160	113900	107800	120400	94380	60180	63110
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	79160	55710	76940
HIGHEST ANNUAL MEAN			140500
LOWEST ANNUAL MEAN			29750
HIGHEST DAILY MEAN	367000	May 18	615000
LOWEST DAILY MEAN	22800	Nov 25	4200
INSTANTANEOUS PEAK FLOW	381000	May 17	676000
INSTANTANEOUS PEAK STAGE	32.77	May 17	35.79
INSTANTANEOUS LOW FLOW	22800	Nov 25-26	4200
ANNUAL SEVEN-DAY MINIMUM	23500	Nov 21	4310
ANNUAL RUNOFF (INCHES)	2.05	1.44	1.99
10 PERCENT EXCEEDS	166000	110000	152000
50 PERCENT EXCEEDS	58400	43000	57700
90 PERCENT EXCEEDS	26800	29200	25400

\*\* Statistics based only on years with complete daily discharge record.

## 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 September 1984, April 1985 to September 1985 and April 1986 to September 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, April 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, 782 microsiemens, Nov. 21; minimum daily, 350 microsiemens, Dec. 31.

WATER TEMPERATURE: Maximum daily, 29.0°C, July 1; minimum daily, 1.0°C, Jan. 5.

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

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 (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV												
13...	1200	26800	737	8.0	10.5	25	12.5	111	420	K20	260	64
JAN												
08...	1100	26400	620	8.0	1.0	10	15.5	108	100	280	240	62
MAY												
06...	1100	149000	361	7.6	16.5	750	6.4	65	K11000	K16000	140	40
JUL												
16...	1130	76200	450	8.0	27.0	33	5.9	73	2900	550	160	43
SEP												
03...	1200	37800	700	8.3	27.0	17	6.9	86	150	96	220	55

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

DATE	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV											
13...	23	57	5.8	208	140	28	0.30	11	463	458	0.63
JAN											
08...	21	48	5.4	184	120	23	0.30	12	400	407	0.54
MAY											
06...	10	17	4.6	107	51	12	0.30	8.2	212	215	0.29
JUL											
16...	13	30	5.2	115	82	11	0.40	9.3	291	271	0.40
SEP											
03...	20	64	6.0	166	180	21	0.40	6.5	427	454	0.58

## MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 13...	33500	<0.010	0.70	0.010	0.010	0.50	0.100	0.060	0.080	125	54
JAN 08...	28500	0.010	0.80	0.250	0.220	0.70	0.110	0.060	0.050	173	11
MAY 06...	85500	0.070	1.70	0.330	0.080	2.7	0.430	0.160	0.130	3400	89
JUL 16...	59900	<0.010	1.70	<0.010	0.020	0.50	0.360	0.120	0.090	1220	93
SEP 03...	43600	<0.010	0.26	0.020	0.010	0.80	0.200	0.110	0.080	68	52

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 13...	<10	3	110	<0.5	<1.0	<1	<3	6	5	<1
JAN 08...	<10	1	100	<0.5	<1.0	<1	<3	1	13	<1
MAY 06...	50	2	87	<0.5	3.0	<1	<3	4	55	<1
JUL 16...	10	3	110	<0.5	<1.0	<1	<3	12	9	<1
SEP 03...	<10	3	110	<0.5	<1.0	<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)
NOV 13...	38	10	0.1	<10	2	<1	<1.0	520	<6	<3
JAN 08...	32	26	<0.1	<10	4	1	<1.0	400	<6	<3
MAY 06...	14	2	0.2	<10	4	<1	<1.0	190	<6	<3
JUL 16...	20	<1	0.4	<10	2	<1	<1.0	260	<6	<3
SEP 03...	41	2	0.6	<10	2	2	<1.0	440	<6	3

## MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	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 .062 MM (70331)
NOV							
12...	21100	65	--	--	--	--	77
12...	21100	135	--	--	--	--	39
12...	21100	98	--	--	--	--	46
12...	21100	129	--	--	--	--	42
12...	21100	85	--	--	--	--	51
FEB							
06...	63000	157	--	--	--	--	61
06...	63000	389	--	--	--	--	36
06...	63000	623	--	--	--	--	30
06...	63000	586	--	--	--	--	19
06...	63000	281	--	--	--	--	72
08...	79000	649	89	91	97	100	--
08...	79000	983	82	85	100	100	--
APR							
10...	36500	179	--	--	--	--	78
10...	36500	191	--	--	--	--	80
10...	36500	214	--	--	--	--	79
10...	36500	221	--	--	--	--	68
10...	36500	258	--	--	--	--	70
19...	145000	1200	92	94	99	100	--
19...	145000	1660	80	84	100	--	--
19...	145000	1880	86	89	100	--	--
19...	145000	1940	87	89	100	--	--
19...	145000	1920	96	98	100	--	--
MAY							
08...	147000	2350	--	--	--	--	87
08...	147000	2480	--	--	--	--	87
08...	147000	2590	--	--	--	--	84
08...	147000	2770	--	--	--	--	90
08...	147000	2760	--	--	--	--	94
15...	138000	707	--	--	--	--	85
15...	138000	947	--	--	--	--	65
15...	138000	1150	--	--	--	--	59
15...	138000	1120	--	--	--	--	70
15...	138000	986	--	--	--	--	87
AUG							
15...	41300	73	--	--	--	--	77
15...	41300	88	--	--	--	--	48
15...	41300	106	--	--	--	--	72
15...	41300	85	--	--	--	--	69
15...	41300	155	--	--	--	--	67
SEP							
06...	40600	122	--	--	--	--	73
06...	40600	153	--	--	--	--	63
06...	40600	172	--	--	--	--	67
06...	40600	127	--	--	--	--	72
26...	40200	85	--	--	--	--	90
26...	40200	131	--	--	--	--	64
26...	40200	144	--	--	--	--	70
26...	40200	200	--	--	--	--	50
26...	40200	103	--	--	--	--	75

## MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued

## 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)
NOV								
12...	0	0	21	66	85	94	97	100
12...	0	0	1	32	65	85	96	100
12...	0	0	25	70	93	98	100	100
12...	0	0	82	95	96	97	100	100
12...	0	0	8	33	61	83	98	100
FEB								
06...	0	0	55	85	96	97	100	100
06...	0	0	10	29	71	91	100	100
06...	0	0	34	51	71	83	100	100
06...	0	0	2	7	35	61	81	100
06...	1	1	57	76	93	95	100	100
08...	0	0	4	10	60	95	100	100
08...	0	11	50	94	100	100	100	100
08...	0	0	14	38	80	96	100	100
08...	0	0	65	95	100	100	100	100
08...	2	4	93	97	100	100	100	100
APR								
10...	0	0	69	94	98	99	100	100
10...	0	0	74	95	99	99	100	100
10...	0	0	33	55	66	79	94	100
10...	1	31	65	80	80	84	99	100
10...	0	3	37	64	64	92	100	100
19...	0	0	34	61	73	80	87	100
19...	0	0	48	83	96	100	100	100
19...	0	0	21	71	95	100	100	100
19...	0	0	3	8	29	59	87	100
19...	0	0	21	42	79	96	100	100
MAY								
08...	0	1	6	19	39	55	70	100
08...	0	0	7	19	37	55	78	100
08...	0	0	38	63	79	91	100	100
08...	1	4	66	97	100	100	100	100
08...	0	0	10	45	63	81	97	100
15...	0	0	27	70	90	96	99	100
15...	1	1	66	98	100	100	100	100
15...	0	0	4	36	66	79	90	100
AUG								
15...	0	1	13	54	94	98	100	100
SEP								
06...	0	0	25	52	78	90	100	100
06...	0	0	10	44	75	86	98	100
06...	0	0	19	53	83	92	98	100
06...	0	0	2	36	66	80	93	100
06...	0	0	65	97	99	100	100	100
26...	0	1	43	84	97	99	100	100
26...	0	0	18	72	91	97	99	100
26...	0	0	28	67	88	94	96	100
26...	0	0	2	33	68	88	97	100
26...	0	0	52	90	99	100	100	100



## MISSOURI RIVER MAIN STEM

06934500 MISSOURI RIVER AT HERMANN, MO--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	752	734	631	438	611	595	526	425	430	678	722	---
2	752	738	626	400	613	600	524	421	430	676	718	---
3	754	742	635	392	607	602	525	430	430	673	716	---
4	753	739	665	429	607	602	525	425	429	673	714	---
5	752	744	574	656	611	570	572	425	427	675	714	---
6	742	746	564	652	615	558	588	420	428	674	713	720
7	755	745	638	664	616	557	588	420	427	675	713	721
8	746	744	611	666	616	557	587	420	422	705	714	722
9	708	745	603	555	570	558	515	422	422	707	740	721
10	692	743	602	564	540	553	509	423	424	710	707	719
11	689	751	644	561	534	553	505	423	425	704	712	720
12	690	740	645	560	532	572	501	423	416	713	712	722
13	688	739	657	524	535	598	475	423	425	711	715	720
14	720	737	659	533	551	607	468	428	418	711	712	719
15	736	739	642	519	551	613	459	433	416	714	715	---
16	741	745	641	530	551	617	459	431	437	713	710	---
17	740	740	624	648	550	575	458	434	439	713	723	---
18	740	759	616	647	546	565	459	455	440	712	727	---
19	739	775	616	645	547	560	459	460	439	705	726	---
20	739	778	619	650	548	560	457	456	440	709	728	---
21	739	782	615	623	547	560	498	456	440	710	714	---
22	741	776	618	626	547	560	513	450	440	705	725	---
23	742	774	617	615	545	560	516	450	439	703	727	717
24	743	776	619	612	540	560	515	419	507	702	725	715
25	744	774	619	644	535	560	519	438	508	704	728	716
26	743	745	613	639	530	565	517	474	507	704	726	---
27	740	739	615	644	525	565	519	482	508	702	728	---
28	741	732	618	644	520	563	519	485	507	703	725	---
29	739	734	616	640	---	562	561	485	507	700	710	---
30	740	734	500	642	---	558	560	459	507	679	712	---
31	740	---	350	639	---	557	---	460	---	677	712	---
MEAN	735	750	610	587	562	572	513	440	448	698	719	---
MAX	755	782	665	666	616	617	588	485	508	714	740	---
MIN	688	732	350	392	520	553	457	419	416	673	707	---

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	14.0	9.0	1.5	2.0	5.0	12.5	17.0	26.0	29.0	29.0	---
2	20.0	15.0	8.0	1.5	2.5	5.0	13.5	17.5	26.5	29.0	29.0	---
3	21.0	16.0	7.5	1.5	2.5	5.0	14.5	18.0	27.0	29.0	28.5	---
4	22.0	16.0	6.0	1.5	3.0	5.0	15.5	18.0	27.0	29.0	28.0	---
5	21.5	15.0	6.0	1.0	3.0	6.0	17.0	18.5	27.0	29.0	28.0	---
6	22.5	13.0	6.5	1.0	3.0	7.0	18.0	19.0	27.0	28.5	28.0	27.0
7	23.0	13.0	6.5	1.0	4.0	8.0	17.0	19.0	26.5	28.0	27.5	27.0
8	22.5	12.5	6.0	1.0	4.0	8.5	17.5	19.5	27.5	28.0	27.5	27.0
9	21.5	12.0	6.0	1.5	4.5	9.0	16.5	20.5	27.5	28.0	26.5	27.0
10	21.0	12.0	5.0	1.5	4.5	9.0	16.5	21.5	27.0	28.0	26.0	27.5
11	19.5	11.0	4.5	1.5	5.0	9.0	16.0	22.0	27.0	28.0	26.0	27.0
12	18.0	10.5	4.0	1.5	5.0	8.5	16.5	22.5	27.5	27.5	26.0	27.0
13	17.5	12.0	4.0	2.0	5.0	9.0	16.0	23.0	26.5	27.5	26.0	26.5
14	17.0	12.5	3.0	2.0	4.5	9.5	16.5	24.0	26.5	27.5	26.5	26.0
15	16.0	13.0	3.0	2.5	4.5	10.0	16.5	24.0	26.5	27.0	26.5	---
16	15.0	12.5	2.5	2.5	4.5	11.0	17.0	24.5	27.0	27.0	26.5	---
17	15.5	12.5	2.5	3.0	5.0	10.5	17.5	24.5	27.0	27.0	26.5	---
18	14.5	13.5	2.0	2.5	4.5	10.0	18.0	24.0	27.0	27.0	26.5	---
19	14.5	13.0	1.5	2.0	4.5	10.5	18.0	24.5	27.0	27.0	26.5	---
20	14.0	13.0	1.5	2.0	5.0	12.0	18.0	24.5	27.5	27.0	26.5	---
21	14.5	13.5	2.0	1.5	5.0	14.0	18.5	25.0	27.0	27.0	26.0	---
22	14.0	13.0	2.0	2.0	5.0	15.0	18.0	24.5	27.0	27.0	26.0	---
23	13.5	13.5	2.5	2.0	5.0	16.0	17.5	24.5	27.0	27.0	26.0	17.0
24	13.5	13.5	2.5	1.5	5.0	16.5	17.0	24.5	27.0	26.5	26.0	17.5
25	14.0	13.5	2.5	1.5	5.5	17.5	17.0	24.5	27.0	26.0	26.5	17.0
26	14.0	13.0	2.0	2.0	6.0	16.5	17.0	24.5	27.0	26.0	27.0	---
27	13.5	13.0	2.5	2.0	6.0	15.5	17.0	24.5	27.5	26.0	27.0	---
28	13.5	12.5	3.0	2.0	6.5	16.5	17.0	24.5	27.5	25.5	27.0	---
29	13.5	12.5	3.0	2.0	---	15.0	16.5	24.5	27.5	25.5	27.0	---
30	13.5	12.5	3.0	2.0	---	14.0	16.5	24.5	27.5	26.0	27.0	---
31	13.5	---	3.0	2.0	---	14.0	---	24.5	---	26.0	27.0	---
MEAN	17.0	13.1	4.0	1.8	4.4	10.9	16.7	22.5	27.0	27.3	26.9	---
MAX	23.0	16.0	9.0	3.0	6.5	17.5	18.5	25.0	27.5	29.0	29.0	---
MIN	13.5	10.5	1.5	1.0	2.0	5.0	12.5	17.0	26.0	25.5	26.0	---

## 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, 15.0 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 mi<sup>2</sup>, 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; 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 ft<sup>3</sup>/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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91100	116000	129000	163000	119000	143000	290000	361000	386000	226000	137000	93100
2	91800	119000	133000	154000	120000	143000	282000	378000	385000	220000	134000	88200
3	89700	121000	145000	154000	117000	145000	277000	372000	380000	218000	131000	84800
4	100000	116000	154000	143000	122000	176000	275000	368000	386000	214000	120000	86300
5	95600	123000	142000	129000	134000	214000	273000	380000	382000	205000	118000	82800
6	89200	112000	146000	127000	148000	213000	273000	392000	368000	193000	122000	77100
7	88700	109000	147000	126000	173000	207000	272000	425000	364000	186000	130000	69800
8	99500	110000	146000	123000	207000	172000	270000	437000	357000	184000	137000	71800
9	116000	113000	141000	125000	211000	158000	268000	433000	344000	176000	136000	73900
10	124000	112000	135000	124000	198000	161000	264000	426000	344000	188000	135000	80400
11	121000	106000	128000	127000	184000	151000	258000	413000	353000	225000	131000	87800
12	122000	106000	125000	125000	173000	146000	255000	392000	346000	242000	133000	91800
13	129000	99800	128000	128000	173000	151000	254000	365000	338000	237000	138000	104000
14	124000	101000	126000	134000	179000	167000	256000	349000	333000	211000	138000	109000
15	123000	102000	128000	134000	175000	176000	264000	356000	333000	218000	143000	111000
16	121000	99600	128000	140000	147000	172000	324000	370000	336000	210000	134000	115000
17	123000	97000	130000	140000	141000	174000	355000	373000	336000	196000	134000	118000
18	127000	94500	133000	161000	155000	199000	354000	372000	332000	192000	131000	122000
19	113000	92200	124000	173000	156000	209000	362000	363000	356000	184000	131000	131000
20	113000	93300	119000	175000	154000	209000	378000	351000	370000	175000	121000	132000
21	123000	91400	135000	176000	152000	221000	398000	335000	354000	165000	111000	131000
22	117000	89800	144000	158000	154000	236000	409000	327000	335000	161000	116000	127000
23	116000	88500	134000	148000	159000	254000	416000	322000	319000	155000	112000	131000
24	112000	87000	107000	152000	156000	254000	415000	321000	303000	151000	111000	132000
25	117000	80300	102000	145000	149000	242000	406000	324000	287000	156000	107000	132000
26	127000	73600	97800	139000	146000	242000	392000	341000	277000	157000	102000	129000
27	125000	76300	92900	134000	147000	245000	375000	375000	274000	161000	101000	124000
28	130000	109000	92800	129000	142000	245000	364000	388000	258000	156000	94400	126000
29	133000	127000	111000	121000	---	250000	357000	387000	239000	156000	86300	122000
30	132000	120000	162000	111000	---	264000	351000	385000	232000	151000	88300	114000
31	125000	---	172000	114000	---	282000	---	386000	---	146000	91500	---
MEAN	114800	102800	130200	139700	156800	200700	322900	373100	333600	187600	121100	106600
MAX	133000	127000	172000	176000	211000	282000	416000	437000	386000	242000	143000	132000
MIN	88700	73600	92800	111000	117000	143000	254000	321000	232000	146000	86300	69800
IN.	.19	.16	.22	.23	.23	.33	.52	.62	.53	.31	.20	.17

## STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	136400	137600	116800	111000	139900	228000	301500	277100	259100	207800	131900	131000
MAX	575300	359200	452400	307800	301400	521800	692500	584500	600600	653300	242000	306200
(WY)	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	200300	190800	181900
HIGHEST ANNUAL MEAN			331900
LOWEST ANNUAL MEAN			67700
HIGHEST DAILY MEAN	599000	May 19	851000
LOWEST DAILY MEAN	51200	Jan 1	27800
INSTANTANEOUS PEAK FLOW	605000	May 18	1019000
INSTANTANEOUS PEAK STAGE	33.18	May 19	43.23
INSTANTANEOUS LOW FLOW	50500	Jan 1	18000
ANNUAL SEVEN-DAY MINIMUM	61800	Jan 11	28200
ANNUAL RUNOFF (INCHES)	3.90		3.55
10 PERCENT EXCEEDS	405000		353000
50 PERCENT EXCEEDS	155000		146000
90 PERCENT EXCEEDS	83600		67200

\*\*Statistics based only on years with complete daily discharge record.

## 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, 1,070 mg/L, May 8; minimum daily mean, 29 mg/L, Aug. 6.

SEDIMENT LOADS: Maximum daily, 1,270,000 tons, May 8; minimum daily, 9,650 tons, Aug. 6.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY OBSERVATION AT 12:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	27.5	---
3	---	---	8.0	---	---	---	---	---	---	---	---	---
4	---	12.0	---	---	---	---	---	---	25.5	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	15.0	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	14.0	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	31.0
10	16.0	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	6.0	---	---	---	---	---	---
12	---	---	---	---	2.0	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	26.0	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	26.0	---	---	---
18	---	---	4.5	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	30.5	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	22.0	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	19.5
24	13.0	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	12.0	---	---	---	---	---	---
26	---	12.0	---	---	3.0	---	13.5	---	---	---	27.0	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	.5	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

## 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)
APR 26...	1300	380000	42	46	47	59	79	81	94	100	100

## MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	91100	40	9840	116000	71	22400	129000	618	215000
2	91800	43	10800	119000	79	25500	133000	904	325000
3	89700	48	11500	121000	93	30200	145000	996	390000
4	100000	46	12300	116000	82	25600	154000	1050	437000
5	95600	45	11600	123000	101	33400	142000	718	275000
6	89200	51	12400	112000	99	29900	146000	798	314000
7	88700	76	18200	109000	100	29400	147000	732	290000
8	99500	63	16900	110000	145	43000	146000	657	259000
9	116000	74	23100	113000	167	51000	141000	523	199000
10	124000	65	21800	112000	197	59600	135000	543	198000
11	121000	60	19600	106000	177	50500	128000	529	183000
12	122000	58	19200	106000	149	42600	125000	501	169000
13	129000	62	21700	99800	160	43100	128000	484	167000
14	124000	66	22000	101000	139	38000	126000	490	167000
15	123000	64	21300	102000	113	31100	128000	341	118000
16	121000	65	21100	99600	123	33200	128000	280	96900
17	123000	63	21000	97000	138	36200	130000	212	74400
18	127000	68	23300	94500	131	33300	133000	204	73300
19	113000	68	20600	92200	136	33900	124000	182	60800
20	113000	65	20000	93300	148	37400	119000	165	53100
21	123000	69	22900	91400	161	39800	135000	373	136000
22	117000	63	19800	89800	152	36900	144000	400	156000
23	116000	70	21900	88500	146	34800	134000	333	121000
24	112000	69	20900	87000	147	34500	107000	311	90000
25	117000	71	22500	80300	160	34600	102000	211	58000
26	127000	72	24600	73600	160	31800	97800	177	46600
27	125000	76	25700	76300	193	39800	92900	182	45600
28	130000	73	25700	109000	628	185000	92800	161	40300
29	133000	78	27900	127000	417	143000	111000	278	83300
30	132000	65	23100	120000	349	113000	162000	592	259000
31	125000	69	23300	---	---	---	172000	692	322000
TOTAL	3558600	---	616540	3085300	---	1422500	4037500	---	5422300
JANUARY			FEBRUARY			MARCH			
1	163000	590	260000	119000	71	22900	143000	113	43800
2	154000	536	223000	120000	85	27500	143000	114	44100
3	154000	429	178000	117000	94	29600	145000	105	41100
4	143000	419	162000	122000	104	34200	176000	122	58100
5	129000	370	129000	134000	119	42900	214000	323	186000
6	127000	390	134000	148000	222	88600	213000	333	191000
7	126000	301	102000	173000	214	99900	207000	479	267000
8	123000	295	98000	207000	438	245000	172000	431	200000
9	125000	308	104000	211000	462	263000	158000	324	138000
10	124000	335	112000	198000	357	191000	161000	281	122000
11	127000	300	103000	184000	330	164000	151000	213	86800
12	125000	316	107000	173000	268	125000	146000	190	74800
13	128000	313	108000	173000	234	109000	151000	202	82300
14	134000	257	93100	179000	293	142000	167000	195	87800
15	134000	277	100000	175000	245	116000	176000	253	120000
16	140000	306	116000	147000	230	91100	172000	278	129000
17	140000	301	114000	141000	179	68000	174000	262	123000
18	161000	319	139000	155000	175	73400	199000	245	132000
19	173000	328	153000	156000	182	76500	209000	270	152000
20	175000	312	147000	154000	169	70300	209000	222	125000
21	176000	317	150000	152000	197	80700	221000	199	119000
22	158000	304	130000	154000	206	85600	236000	185	118000
23	148000	286	114000	159000	237	102000	254000	179	123000
24	152000	226	92600	156000	248	105000	254000	190	131000
25	145000	243	95300	149000	214	86100	242000	154	101000
26	139000	201	75600	146000	154	60700	242000	159	104000
27	134000	210	75800	147000	195	77400	245000	179	119000
28	129000	115	40100	142000	119	45800	245000	219	145000
29	121000	101	33100	---	---	---	250000	228	154000
30	111000	83	24800	---	---	---	264000	239	170000
31	114000	72	22300	---	---	---	282000	328	250000
TOTAL	4332000	---	3535700	4391000	---	2723200	6221000	---	3937800

## MISSISSIPPI RIVER MAIN STEM

07010000 MISSISSIPPI RIVER AT ST. LOUIS, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	290000	413	324000	361000	251	245000	386000	470	490000
2	282000	398	303000	378000	628	641000	385000	499	518000
3	277000	334	249000	372000	889	893000	380000	321	329000
4	275000	313	232000	368000	719	715000	386000	362	377000
5	273000	313	231000	380000	649	666000	382000	603	622000
6	273000	312	230000	392000	703	744000	368000	617	613000
7	272000	300	221000	425000	1010	1160000	364000	568	558000
8	270000	266	194000	437000	1070	1270000	357000	563	543000
9	268000	256	186000	433000	901	1050000	344000	576	535000
10	264000	241	172000	426000	649	747000	344000	674	626000
11	258000	236	165000	413000	724	808000	353000	844	804000
12	255000	242	167000	392000	517	547000	346000	529	494000
13	254000	227	156000	365000	448	442000	338000	409	373000
14	256000	262	181000	349000	369	347000	333000	455	409000
15	264000	344	245000	356000	374	360000	333000	528	475000
16	324000	525	459000	370000	358	358000	336000	358	325000
17	355000	520	498000	373000	416	419000	336000	285	259000
18	354000	662	632000	372000	444	446000	332000	226	203000
19	362000	718	701000	363000	381	374000	356000	283	272000
20	378000	772	788000	351000	393	373000	370000	427	427000
21	398000	753	810000	335000	484	438000	354000	564	539000
22	409000	788	870000	327000	337	297000	335000	537	486000
23	416000	888	998000	322000	312	271000	319000	506	436000
24	415000	871	976000	321000	403	349000	303000	669	547000
25	406000	678	743000	324000	481	421000	287000	426	330000
26	392000	678	718000	341000	432	398000	277000	465	347000
27	375000	465	471000	375000	612	620000	274000	348	258000
28	364000	422	415000	388000	475	498000	258000	243	169000
29	357000	435	419000	387000	636	664000	239000	233	150000
30	351000	310	293000	385000	480	499000	232000	255	160000
31	---	---	---	386000	400	417000	---	---	---
TOTAL	9687000	---	13047000	11567000	---	17477000	10007000	---	12674000
JULY			AUGUST			SEPTEMBER			
1	226000	227	139000	137000	48	17700	93100	53	13200
2	220000	173	103000	134000	47	17200	88200	58	13800
3	218000	153	90000	131000	41	14600	84800	57	13000
4	214000	147	84700	120000	38	12200	86300	75	17400
5	205000	142	78300	118000	34	10900	82800	74	16600
6	193000	131	68300	122000	29	9650	77100	74	15500
7	186000	110	55200	130000	33	11400	69800	78	14600
8	184000	99	49000	137000	35	12900	71800	80	15500
9	176000	88	41700	136000	38	13800	73900	79	15800
10	188000	116	58800	135000	34	12500	80400	74	16100
11	225000	266	162000	131000	33	11600	87800	75	17800
12	242000	333	217000	133000	35	12400	91800	74	18400
13	237000	329	210000	138000	33	12400	104000	82	23000
14	211000	286	163000	138000	34	12700	109000	80	23600
15	218000	374	220000	143000	38	14600	111000	84	25300
16	210000	524	297000	134000	36	13200	115000	77	24000
17	196000	269	142000	134000	41	15000	118000	88	28000
18	192000	310	161000	131000	43	15100	122000	93	30700
19	184000	254	126000	131000	50	17600	131000	105	37200
20	175000	269	127000	121000	49	15900	132000	96	34200
21	165000	255	114000	111000	45	13400	131000	83	29200
22	161000	116	50200	116000	49	15400	127000	86	29600
23	155000	95	39700	112000	58	17500	131000	76	26900
24	151000	73	29800	111000	56	16700	132000	86	30600
25	156000	65	27400	107000	62	17900	132000	105	37300
26	157000	62	26200	102000	50	13800	129000	135	47100
27	161000	64	27700	101000	45	12200	124000	125	41900
28	156000	56	23800	94400	44	11200	126000	139	47400
29	156000	192	80900	86300	45	10500	122000	135	44500
30	151000	44	17900	88300	56	13400	114000	140	43100
31	146000	46	18200	91500	50	12400	---	---	---
TOTAL	5815000	---	3048800	3754500	---	427750	3197800	---	791300



## MERAMEC RIVER BASIN

07013000 MERAMEC RIVER NEAR STEELVILLE, MO

LOCATION.--Lat 37°59'58", long 91°21'39", in NE ¼ 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 mi<sup>2</sup>.

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 1.0 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 from July 20, 1966 to July 20, 1967, nonrecording gage; 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 discharge: Jan. 1. 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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196	206	620	3600	743	365	495	836	486	216	174	164
2	192	204	512	1440	715	380	472	728	451	246	172	166
3	196	204	763	1180	742	386	450	673	441	251	172	167
4	207	214	961	999	811	369	443	683	393	224	175	174
5	234	237	771	884	944	359	434	679	379	217	175	177
6	217	240	645	834	1040	355	418	808	350	213	177	175
7	270	244	540	800	1010	339	401	756	327	206	178	171
8	475	231	462	774	920	326	392	667	306	198	183	166
9	558	219	402	741	836	309	413	610	296	195	197	165
10	663	217	362	726	768	296	395	566	281	241	198	163
11	630	214	326	1090	705	292	379	548	274	284	193	161
12	518	209	303	2270	659	291	389	681	270	253	183	161
13	433	209	280	1710	642	294	430	1570	262	221	177	161
14	376	206	265	1330	630	295	876	7190	258	211	173	160
15	332	204	255	1360	587	287	5140	4890	253	199	172	160
16	301	205	248	1890	533	278	2400	3500	250	193	170	165
17	286	206	255	1920	508	399	1610	2570	245	191	168	164
18	285	206	527	1660	499	1190	1400	1680	240	187	167	206
19	312	208	1530	1800	486	1070	2840	1740	233	187	167	191
20	281	209	1110	2110	494	912	2460	1370	229	184	167	188
21	262	214	927	1980	471	811	1600	1150	227	185	167	185
22	249	216	2400	1530	450	864	1310	1030	241	183	165	180
23	240	216	1820	1260	421	1300	1130	925	246	177	164	191
24	236	221	1100	1110	401	1230	992	831	256	177	164	196
25	239	225	851	998	390	999	892	783	251	177	163	193
26	229	222	718	916	377	864	821	736	249	175	160	188
27	223	260	626	850	366	775	767	721	240	176	160	178
28	219	1360	565	790	360	694	729	639	228	176	162	171
29	212	1160	1300	758	---	631	749	580	223	176	162	167
30	209	797	10500	844	---	576	869	539	219	176	162	162
31	209	---	12100	800	---	530	---	505	---	176	165	---
MEAN	306	306	1421	1321	625	583	1070	1329	287	202	172	174
MAX	663	1360	12100	3600	1040	1300	5140	7190	486	284	198	206
MIN	192	204	248	726	360	278	379	505	219	175	160	160
IN.	.45	.44	2.10	1.95	.83	.86	1.53	1.96	.41	.30	.25	.25

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

	MEAN	288	464	586	556	659	874	1035	960	743	345	257	254
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 1990 CALENDAR YEAR		FOR 1991 WATER YEAR		FOR PERIOD OF RECORD	
ANNUAL MEAN	860		652		584	
HIGHEST ANNUAL MEAN					1473	
LOWEST ANNUAL MEAN					177	
HIGHEST DAILY MEAN	13700		May 4		44500	
LOWEST DAILY MEAN	167		Jan 16		76	
INSTANTANEOUS PEAK FLOW	15900		Dec 31		51200	
INSTANTANEOUS PEAK STAGE	14.69		Dec 31		26.15	
INSTANTANEOUS LOW FLOW	167		Jan 13-16		74	
ANNUAL SEVEN-DAY MINIMUM	171		Jan 10		78	
ANNUAL RUNOFF (INCHES)	14.94		11.33		10.16	
10 PERCENT EXCEEDS	1750		1300		1080	
50 PERCENT EXCEEDS	402		332		259	
90 PERCENT EXCEEDS	204		173		129	



## 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 mi<sup>2</sup>.

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: Dec. 24, Dec. 31 to Jan. 2, July 21 to Aug. 8, and Aug. 14 to Sept. 30. Records fair except for estimated daily discharges, Dec. 31 to Jan. 2, which are poor. Several observations of water temperature and specific conductance were made during the year. Water diverted from river 0.5 mi above gage by mining company. 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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	498	434	1380	7000	1590	968	1140	1540	841	418	325	265
2	498	430	1110	3800	1520	989	1070	1390	812	463	320	275
3	505	425	1400	2710	1520	998	1020	1280	774	534	320	300
4	515	428	1850	2330	1620	977	994	1270	757	477	325	300
5	455	475	1570	2080	1880	953	973	1350	725	434	330	295
6	469	553	1290	1930	2100	942	949	1370	681	409	345	290
7	634	585	1080	1880	2070	921	922	1410	640	394	356	285
8	676	548	947	1830	1910	886	934	1260	613	380	365	280
9	873	520	845	1740	1760	859	940	1160	593	372	413	275
10	1130	495	776	1680	1640	830	920	1090	571	861	429	270
11	1200	477	721	2110	1530	812	904	1040	556	792	422	270
12	1020	464	672	3680	1430	807	928	1140	548	1000	392	265
13	843	454	638	3750	1440	822	1020	1480	542	730	373	260
14	737	447	607	2880	1530	836	2370	4450	537	579	360	260
15	665	442	583	2720	1460	821	6160	6930	521	496	345	258
16	610	436	563	3410	1350	802	5800	3940	521	450	335	258
17	575	430	602	3810	1270	1340	3430	3770	502	414	325	256
18	561	427	1390	3410	1260	2290	2720	2700	492	396	315	280
19	548	431	2710	3450	1260	2440	3570	2380	476	383	305	305
20	554	430	2330	3860	1230	2080	4460	2220	469	374	295	300
21	523	436	2830	3930	1190	1890	3120	1830	465	365	285	290
22	501	464	4940	3260	1150	2260	2550	1650	473	360	280	280
23	485	472	3940	2720	1090	2710	2240	1500	504	355	275	310
24	475	500	3080	2400	1050	2790	2000	1350	521	350	270	320
25	466	503	2700	2170	1030	2310	1790	1250	526	345	265	310
26	457	496	1570	1990	1000	1980	1650	1210	505	340	260	295
27	450	668	1360	1840	984	1760	1550	1140	486	340	260	285
28	445	2310	1210	1740	968	1580	1460	1070	462	335	260	280
29	438	2880	5410	1660	---	1430	1470	972	447	330	260	275
30	436	1920	19600	1690	---	1320	1530	914	436	330	260	270
31	433	---	17000	1700	---	1220	---	872	---	325	260	---
MEAN	602	666	2797	2747	1423	1407	2019	1836	567	456	320	282
MAX	1200	2880	19600	7000	2100	2790	6160	6930	841	1000	429	320
MIN	433	425	563	1660	968	802	904	872	436	325	260	256
IN.	.47	.50	2.19	2.15	1.00	1.10	1.53	1.44	.43	.36	.25	.21

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

	MEAN	596	980	1256	1183	1442	1916	2285	1942	1316	716	515	478
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	232	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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1703	1263	1217
HIGHEST ANNUAL MEAN			3014
LOWEST ANNUAL MEAN			341
HIGHEST DAILY MEAN	19600	Dec 30	19600
LOWEST DAILY MEAN	350	Jan 14, 16	256
INSTANTANEOUS PEAK FLOW	23100	Dec 30	23100
INSTANTANEOUS PEAK STAGE	18.98	Dec 30	18.98
INSTANTANEOUS LOW FLOW	347	Jan 14, 16	256
ANNUAL SEVEN-DAY MINIMUM	359	Jan 10	261
ANNUAL RUNOFF (INCHES)	15.68		11.63
10 PERCENT EXCEEDS	3410		2710
50 PERCENT EXCEEDS	806		812
90 PERCENT EXCEEDS	435		300
			268

## 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, 5.0 mi east of High Gate and 11.0 mi north of St. James.

DRAINAGE AREA.--135 mi<sup>2</sup>.

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. 22-28, Dec. 30 to Jan. 4, Jan. 21-22, 24-25, Jan. 29 to Feb. 1, and Feb. 15-17. Records fair. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.96	4.5	58	400	84	27	28	31	12	1.9	.57	.51
2	.96	4.5	50	150	103	39	26	28	11	2.0	.63	.55
3	1.4	4.7	1690	80	142	38	24	77	10	2.0	.58	.71
4	3.6	5.1	264	65	199	33	25	172	8.5	1.8	.85	.84
5	8.5	8.7	139	59	238	30	23	175	7.4	1.5	103	.75
6	3.7	10	90	70	193	29	21	127	6.3	1.4	63	.84
7	128	9.7	66	71	142	27	19	76	5.5	1.3	11	.90
8	72	7.6	55	65	113	23	18	51	5.2	1.2	7.4	.90
9	187	7.1	45	63	88	22	16	40	5.0	1.4	25	.89
10	142	6.5	39	91	75	20	14	34	4.7	10	15	.83
11	57	5.9	34	462	62	20	13	39	4.5	34	7.6	.75
12	30	5.5	31	374	56	19	15	822	4.0	15	4.9	.70
13	19	5.1	27	202	55	19	23	423	3.6	10	3.8	.70
14	13	4.8	23	280	68	22	1520	184	3.3	6.0	3.2	.70
15	9.4	4.7	22	704	50	22	7520	615	3.2	3.8	2.6	.70
16	7.4	4.5	20	740	40	20	444	1650	3.3	3.0	2.2	2.7
17	8.3	4.3	182	434	38	686	208	360	3.1	2.4	2.6	1.7
18	59	4.3	356	609	60	403	1170	273	2.6	1.9	2.3	3.8
19	28	4.6	177	785	76	197	769	160	2.3	1.6	1.8	16
20	16	4.6	107	811	59	131	307	106	2.2	1.3	1.4	8.7
21	11	5.1	453	450	51	99	202	77	2.3	1.1	1.2	4.5
22	9.0	6.8	74	533	45	181	143	57	2.5	.94	.95	6.6
23	7.7	8.2	35	125	41	184	106	46	2.8	2.5	.83	13
24	6.9	7.7	30	118	37	112	80	38	3.1	2.6	.72	10
25	6.6	6.5	30	81	35	79	65	33	2.8	1.9	.70	6.7
26	6.0	9.5	28	60	31	63	60	37	2.4	1.4	.66	5.1
27	5.6	1340	25	55	29	55	54	27	2.4	1.1	.57	4.0
28	5.3	599	25	55	27	45	45	24	2.4	.97	.55	3.5
29	4.9	166	3960	105	---	40	39	20	2.3	.85	.51	3.0
30	4.8	87	2000	180	---	36	33	16	2.1	.73	.45	2.4
31	4.6	---	1000	110	---	32	---	14	---	.63	.45	---
MEAN	28.0	78.4	359	271	79.9	88.8	434	188	4.43	3.81	8.61	3.43
MAX	187	1340	3960	811	238	686	7520	1650	12	34	103	16
MIN	.96	4.3	20	55	27	19	13	14	2.1	.63	.45	.51
IN.	.24	.65	3.07	2.31	.62	.76	3.59	1.61	.04	.03	.07	.03

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

	MEAN	53.4	153	216	128	184	233	228	163	104	24.6	27.3	29.3
MAX	552	799	1213	549	634	747	568	734	963	93.8	373	369	
(WY)	1987	1986	1983	1969	1985	1984	1979	1990	1985	1977	1982	1965	
MIN	.34	.94	1.68	.65	12.4	1.32	1.57	3.88	.95	.25	.19	.14	
(WY)	1967	1981	1990	1977	1981	1981	1981	1977	1972	1972	1971	1971	

SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	142	129	127
HIGHEST ANNUAL MEAN			315
LOWEST ANNUAL MEAN			21.7
HIGHEST DAILY MEAN	5810	May 26	7520
LOWEST DAILY MEAN	.89	Sep 17	.45
INSTANTANEOUS PEAK FLOW	11500	May 26	21600
INSTANTANEOUS PEAK STAGE	16.42	May 26	20.91
INSTANTANEOUS LOW FLOW	.80	Sep 17-18	.45
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 26	.51
ANNUAL RUNOFF (INCHES)	14.28		13.01
10 PERCENT EXCEEDS	251		220
50 PERCENT EXCEEDS	29		21
90 PERCENT EXCEEDS	2.0		1.0
			.60
			12.78
			211
			18
			.60
			21000
			.00
			49300
			23.65
			.00
			.00
			12.78
			211
			18
			.60
			21000
			.00
			49300
			23.65
			.00
			.00
			12.78
			211
			18
			.60
			21000
			.00
			49300
			23.65
			.00
			.00
			12.78
			211
			18
			.60

## 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 at 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 mi<sup>2</sup>.

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.--No estimated daily discharges. 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 Aug. 22, 1915, reached a stage of 28.5 ft, present datum, from floodmarks, discharge, about 50,000 ft<sup>3</sup>/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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	68	651	9640	466	201	285	298	192	64	41	28
2	41	67	447	1500	451	199	255	276	179	61	39	28
3	45	65	690	1060	421	193	234	261	156	59	38	33
4	59	64	3180	752	429	192	222	268	193	57	36	35
5	53	80	2510	631	500	194	210	771	351	54	87	33
6	48	75	970	570	633	195	201	930	195	54	79	34
7	106	69	628	526	714	191	196	880	137	51	51	33
8	94	66	474	502	656	183	191	655	116	49	53	31
9	132	66	380	477	546	174	181	475	106	47	60	31
10	237	66	316	457	468	168	169	377	99	319	48	32
11	287	66	275	564	414	163	162	318	94	446	47	32
12	345	70	245	987	379	158	158	287	90	976	90	34
13	334	73	222	1830	363	158	162	265	88	620	80	38
14	250	70	205	1350	354	156	236	1150	86	695	71	37
15	194	67	192	1290	564	152	4060	1010	83	375	64	33
16	161	66	178	2640	516	152	10400	1180	91	253	60	54
17	139	63	192	3650	396	375	16100	4990	94	183	65	47
18	129	60	221	2540	343	1210	3520	2650	88	144	63	50
19	116	61	306	2310	317	2620	1540	1060	76	115	58	42
20	192	61	868	3350	321	1340	3910	714	71	96	55	36
21	157	62	1000	3550	342	891	1900	582	68	83	57	34
22	130	93	1740	2120	329	855	1230	444	65	73	52	50
23	130	104	2560	1270	292	1370	924	376	128	65	49	54
24	128	103	1070	934	264	1500	721	315	73	59	45	50
25	112	103	790	765	242	1030	588	273	65	55	41	53
26	97	102	643	642	226	707	505	244	63	51	38	53
27	88	140	722	553	215	552	441	228	66	48	36	54
28	81	331	615	487	208	453	397	281	75	45	34	59
29	76	2830	4070	444	---	397	362	233	77	43	37	57
30	72	1320	9960	412	---	399	326	201	68	42	38	52
31	70	---	13200	411	---	327	---	182	---	41	31	---
MEAN	134	218	1597	1555	406	544	1660	715	111	172	53.0	41.2
MAX	345	2830	13200	9640	714	2620	16100	4990	351	976	90	59
MIN	41	60	178	411	208	152	158	182	63	41	31	28
IN.	.19	.30	2.28	2.22	.52	.78	2.29	1.02	.15	.25	.08	.06

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

	MEAN	325	500	668	610	776	1127	1220	1114	845	304	169	207
MAX	4575	3320	6107	3518	3214	4207	4425	4126	4583	2554	1037	2069	
(WY)	1950	1986	1983	1950	1985	1984	1927	1990	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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	774	603	654
HIGHEST ANNUAL MEAN			1590
LOWEST ANNUAL MEAN			106
HIGHEST DAILY MEAN	15200	May 18	16100
LOWEST DAILY MEAN	40	Sep 17	28
INSTANTANEOUS PEAK FLOW	16200	May 19	17700
INSTANTANEOUS PEAK STAGE	17.84	May 19	18.59
INSTANTANEOUS LOW FLOW	40	Sep 16-18, Oct 2	26
ANNUAL SEVEN-DAY MINIMUM	42	Sep 12	32
ANNUAL RUNOFF (INCHES)	13.01		10.13
10 PERCENT EXCEEDS	1420		1220
50 PERCENT EXCEEDS	175		192
90 PERCENT EXCEEDS	53		45
			40

## 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 mi<sup>2</sup>.

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: Sept. 20-30. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	20	296	562	129	98	98	122	52	12	8.1	15
2	12	20	234	409	126	121	92	105	46	13	7.9	10
3	13	20	544	326	133	114	88	97	53	19	8.4	8.4
4	21	21	332	265	155	108	95	97	86	20	11	8.0
5	17	365	248	240	189	105	96	103	46	15	12	7.5
6	15	147	205	345	194	103	89	98	36	13	31	7.0
7	29	88	170	372	179	96	86	87	31	12	32	6.6
8	66	66	150	291	163	91	85	81	29	10	16	6.0
9	193	56	132	278	152	87	83	77	27	11	23	5.7
10	263	50	116	367	143	82	78	77	25	50	21	5.3
11	116	44	104	1170	132	79	80	79	24	53	15	5.1
12	72	40	96	750	124	79	90	87	26	25	13	5.0
13	53	38	88	457	211	80	133	134	23	21	11	4.7
14	43	35	80	462	379	84	3050	197	22	16	10	4.4
15	35	34	77	679	208	81	875	719	21	14	9.9	4.1
16	32	31	73	885	160	77	519	584	21	13	9.4	4.1
17	29	28	708	673	156	321	383	288	21	12	12	4.7
18	30	26	1610	639	157	437	327	200	19	12	11	18
19	28	28	733	651	150	270	347	158	18	11	11	16
20	26	26	418	650	137	209	295	137	17	11	9.8	13
21	27	26	3570	478	128	179	255	118	18	11	9.0	17
22	25	63	1530	360	118	385	227	102	20	9.8	8.3	25
23	23	76	688	303	112	503	202	91	21	9.4	7.9	20
24	22	58	457	253	106	295	177	82	19	9.6	7.7	17
25	22	51	335	216	104	226	161	78	18	10	7.2	14
26	22	48	249	195	103	192	152	71	17	9.4	6.8	12
27	22	2170	217	179	99	172	154	65	16	8.8	6.9	11
28	21	2490	197	163	95	145	154	57	15	8.6	6.9	9.5
29	21	633	4800	157	---	129	157	72	14	9.4	7.6	8.5
30	20	406	2860	162	---	120	139	87	13	10	7.6	8.0
31	20	---	880	136	---	108	---	59	---	9.2	8.6	---
MEAN	43.6	240	716	422	151	167	292	142	27.1	15.1	11.8	10.0
MAX	263	2490	4800	1170	379	503	3050	719	86	53	32	25
MIN	12	20	73	136	95	77	78	57	13	8.6	6.8	4.1
IN.	.29	1.53	4.72	2.78	.90	1.10	1.86	.94	.17	.10	.08	.06

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

	MEAN	67.6	226	307	201	266	331	340	215	102	52.1	58.8	51.4
MAX	339	1086	1027	734	695	867	921	843	872	262	393	238	
(WY)	1971	1986	1983	1969	1985	1978	1972	1990	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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	266		187		184	
HIGHEST ANNUAL MEAN					449	1985
LOWEST ANNUAL MEAN					56.6	1980
HIGHEST DAILY MEAN	5100	May 26	4800	Dec 29	16500	Nov 19 1985
LOWEST DAILY MEAN	10	Aug 10-12	4.1	Sep 15-16	2.5	Sep 15 1971
INSTANTANEOUS PEAK FLOW	17900	May 16	9530	Apr 14	43200	Nov 1 1972
INSTANTANEOUS PEAK STAGE	16.96	May 16	12.14	Apr 14	27.92	Nov 1 1972
INSTANTANEOUS LOW FLOW	10	Aug 9-13	3.7	Sep 16	2.2	Sep 16 1971
ANNUAL SEVEN-DAY MINIMUM	11	Aug 6	4.6	Sep 11	2.7	Sep 12 1971
ANNUAL RUNOFF (INCHES)	20.62		14.53		14.31	
10 PERCENT EXCEEDS	595		393		363	
50 PERCENT EXCEEDS	88		78		58	
90 PERCENT EXCEEDS	15		9.4		10	

## 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 at 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 mi<sup>2</sup>.

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.--No estimated daily discharges. 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 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 ft<sup>3</sup>/s, from rating curve extended above 37,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	151	934	2130	633	485	493	484	282	120	86	125
2	124	151	747	1540	631	506	467	438	254	144	84	120
3	126	152	1060	1210	674	519	444	410	235	147	84	137
4	145	159	1220	1010	799	500	445	407	239	155	85	128
5	160	380	867	903	998	477	443	450	709	169	128	120
6	151	642	695	927	1040	470	437	466	384	149	153	112
7	169	508	589	1220	999	455	420	425	285	133	134	101
8	233	364	512	1100	868	432	405	379	233	119	135	93
9	434	299	459	947	781	411	401	356	212	111	203	89
10	737	264	419	937	716	390	384	343	198	737	174	93
11	679	243	385	1760	661	379	378	352	187	912	143	92
12	465	227	361	3400	614	376	407	361	181	722	128	90
13	343	216	338	1870	795	383	463	420	187	408	123	90
14	283	205	318	1410	2720	413	5630	778	206	272	118	87
15	243	199	304	1700	1510	420	5180	611	177	215	114	83
16	221	194	289	2370	1010	406	2090	1140	166	177	112	82
17	206	188	321	2420	865	675	1400	1360	164	158	123	83
18	213	183	3060	2010	817	1680	1090	1380	160	143	122	108
19	209	180	3430	2240	787	1280	969	919	152	134	136	130
20	192	178	1570	2330	741	953	915	693	146	126	128	134
21	183	179	4540	1990	672	816	819	591	145	119	136	119
22	175	197	10300	1410	620	1110	741	509	165	111	121	125
23	168	216	2850	1180	581	1820	681	448	151	104	115	144
24	166	234	1620	1060	551	1380	622	399	150	102	110	153
25	164	246	1210	924	535	1020	568	366	152	101	107	138
26	158	233	984	840	520	857	537	361	149	99	103	129
27	154	858	841	776	504	769	527	330	142	93	103	116
28	155	8610	779	729	490	684	532	299	134	90	103	108
29	153	3530	6040	703	---	614	537	277	128	90	106	101
30	151	1310	16900	744	---	563	520	274	124	89	151	96
31	151	---	6560	688	---	527	---	266	---	88	173	---
MEAN	233	690	2274	1435	826	702	965	526	207	204	124	111
MAX	737	8610	16900	3400	2720	1820	5630	1380	709	912	203	153
MIN	124	151	289	688	490	376	378	266	124	88	84	82
IN.	.37	1.05	3.57	2.25	1.17	1.10	1.46	.82	.31	.32	.19	.17

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	MEAN	284	628	877	701	943	1242	1223	1005	517	399	255	256
MAX	1641	4223	4332	3845	2935	2838	4383	3880	3150	2492	1357	1492	
(WY)	1950	1986	1983	1950	1985	1985	1957	1990	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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	1050	692	693
HIGHEST ANNUAL MEAN			1766
LOWEST ANNUAL MEAN			198
HIGHEST DAILY MEAN	22000	May 26	38300
LOWEST DAILY MEAN	124	Oct 2	22
INSTANTANEOUS PEAK FLOW	30500	May 26	55800
INSTANTANEOUS PEAK STAGE	23.97	May 26	27.15
INSTANTANEOUS LOW FLOW	124	Oct 2-3	20
ANNUAL SEVEN-DAY MINIMUM	131	Sep 2	26
ANNUAL RUNOFF (INCHES)	19.39		12.81
10 PERCENT EXCEEDS	1950		1310
50 PERCENT EXCEEDS	390		275
90 PERCENT EXCEEDS	152		98

\*\* Statistics based only on years with complete daily discharge record.



## MERAMEC RIVER BASIN

## 07018500 BIG RIVER AT BYRNESVILLE, MO

LOCATION.--Lat 38°23'30", long 90°38'16", 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 and at mile 14.1.

DRAINAGE AREA.--917 mi<sup>2</sup>.

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.--Estimated daily discharges: Dec. 31 to Jan. 17. Records good except for estimated daily discharges, Jan. 1-3 and 5-16, which are poor. 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 ft<sup>3</sup>/s, by slope-area measurement of peak flow.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	178	1430	6000	858	588	621	590	295	151	124	170
2	140	178	1060	2500	838	601	583	550	301	151	122	148
3	149	176	1700	2000	912	605	554	519	285	167	122	145
4	188	181	1580	1550	1090	602	545	491	267	174	226	150
5	181	353	1380	1450	1390	581	540	562	272	169	438	146
6	167	450	988	1400	1530	560	521	624	580	173	436	137
7	332	622	797	1350	1450	544	506	560	416	174	250	133
8	461	536	682	1800	1290	524	490	505	323	162	221	127
9	457	404	596	1700	1120	496	469	458	273	154	229	121
10	655	338	534	1600	1000	476	454	433	248	571	296	116
11	788	301	488	1600	903	454	445	419	232	1180	257	113
12	692	277	451	3700	826	442	464	419	220	975	219	115
13	507	261	421	2800	785	450	523	443	214	912	198	114
14	386	248	396	2000	1900	458	2420	568	246	466	185	113
15	322	237	375	2500	2710	480	8260	817	232	320	179	111
16	282	231	356	3400	1620	479	3970	945	215	256	171	115
17	260	224	396	3550	1210	1230	2280	1490	200	219	169	115
18	250	217	1020	3060	1080	2000	1650	1400	193	197	166	117
19	243	214	4110	3060	1060	2010	1330	1460	189	182	169	129
20	239	210	2800	3410	987	1470	1190	949	183	170	168	138
21	224	207	3240	3140	909	1160	1100	742	178	160	168	143
22	215	212	8190	2320	821	2000	971	628	187	153	166	162
23	207	218	8550	1760	754	2100	876	546	178	146	165	174
24	201	230	2650	1530	705	2190	799	483	181	142	158	171
25	196	242	1770	1340	665	1560	732	433	174	138	152	169
26	193	258	1410	1170	636	1220	673	399	172	135	147	164
27	188	510	1150	1060	614	1040	636	383	170	133	144	152
28	185	4170	994	969	594	917	625	364	164	130	141	145
29	182	7550	5710	933	---	814	622	339	160	128	142	137
30	181	2380	14100	975	---	732	610	316	155	127	144	130
31	179	---	22000	936	---	671	---	302	---	124	148	---
MEAN	290	727	2946	2147	1081	950	1182	617	237	272	194	137
MAX	788	7550	22000	6000	2710	2190	8260	1490	580	1180	438	174
MIN	140	176	356	933	594	442	445	302	155	124	122	111
IN.	.36	.88	3.70	2.70	1.23	1.19	1.44	.78	.29	.34	.24	.17

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

	MEAN	340	667	903	900	1117	1446	1616	1397	805	492	288	284
MAX	2290	4709	5594	5064	3696	4539	6190	5196	4530	3895	1490	1696	
(WY)	1950	1986	1983	1950	1982	1945	1927	1990	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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	1290	900	854
HIGHEST ANNUAL MEAN			1934
LOWEST ANNUAL MEAN			227
HIGHEST DAILY MEAN	26800	May 27	40100
LOWEST DAILY MEAN	140	Oct 2	25
INSTANTANEOUS PEAK FLOW	32600	May 27	43000
INSTANTANEOUS PEAK STAGE	24.37	May 27	26.47
INSTANTANEOUS LOW FLOW	135	Oct 3	25
ANNUAL SEVEN-DAY MINIMUM	148	Sep 27	34
ANNUAL RUNOFF (INCHES)	19.09		12.66
10 PERCENT EXCEEDS	2440		1710
50 PERCENT EXCEEDS	463		333
90 PERCENT EXCEEDS	182		116



## 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 mi<sup>2</sup>.

## 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; Sept. 23, 1937 to Sept. 30, 1971, water-stage recorder at present site at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Dec. 23-27, Jan. 7-9, 31, Feb. 15, 24, and Mar. 2-5. 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 August 22, 1915, reached a stage of 42.2 ft, from floodmarks, present datum, discharge, 175,000 ft<sup>3</sup>/s, by slope-area measurement of peak flow.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	661	785	5100	38000	3270	2170	2720	2840	1550	691	598	588
2	642	774	3520	31200	3330	2140	2520	2810	1700	678	587	606
3	650	770	4750	10600	3290	2120	2360	2700	1520	670	570	619
4	745	787	4800	6660	3430	2100	2270	2580	1430	736	578	1420
5	768	1130	7440	5390	3930	2080	2210	2490	2130	772	785	815
6	780	1330	4990	4700	4540	2050	2130	3250	1820	719	1280	687
7	965	1390	3440	4300	4810	2010	2070	3500	1520	686	894	628
8	1790	1420	2790	4100	4720	1960	2030	3280	1310	638	790	608
9	1720	1300	2400	3900	4280	1900	1990	2980	1190	610	977	588
10	2010	1180	2110	3770	3840	1830	1950	2590	1100	1150	940	560
11	2300	1100	1900	4310	3480	1790	1920	2370	1050	3240	943	536
12	2390	1030	1750	6950	3200	1760	1920	2230	1000	2970	862	533
13	2190	981	1620	9160	3030	1770	2040	2140	981	3140	837	520
14	1900	957	1510	8940	3660	1780	3530	2280	1440	2600	791	509
15	1620	929	1450	7820	3820	1810	10800	4890	1040	2030	732	498
16	1420	899	1370	9690	4250	1810	16400	9230	1040	1520	684	608
17	1290	872	1380	11700	3560	3590	19100	9100	944	1280	689	634
18	1230	853	1860	11700	3320	6530	20000	10700	886	1110	702	684
19	1130	846	5110	10600	3320	7400	11200	7220	855	992	679	729
20	1090	833	6300	11400	3190	7250	7370	4940	813	904	654	694
21	1110	841	8670	12300	3080	5500	10300	4310	786	839	631	736
22	1080	862	9500	11400	2890	6330	7900	3550	785	786	610	859
23	1000	888	7500	8720	2610	7220	6060	3030	759	747	605	1170
24	965	948	5500	6720	2350	7580	5080	2700	830	715	582	981
25	934	969	5000	5800	2170	6990	4400	2440	807	685	563	882
26	903	1020	4500	5040	2170	5630	3900	2240	801	674	546	838
27	866	1250	3700	4480	2270	4690	3520	2090	791	654	536	805
28	839	5180	3250	3930	2170	4020	3250	1980	758	636	529	765
29	821	10600	11000	3600	---	3550	3060	2060	736	626	539	732
30	810	9260	26200	3450	---	3200	2910	1870	719	618	531	701
31	793	---	23300	3390	---	2970	---	1650	---	604	558	---
MEAN	1207	1733	5604	8830	3356	3662	5564	3614	1103	1120	703	718
MAX	2390	10600	26200	38000	4810	7580	20000	10700	2130	3240	1280	1420
MIN	642	770	1370	3390	2170	1760	1920	1650	719	604	529	498
IN.	.37	.51	1.71	2.69	.92	1.11	1.64	1.10	.32	.34	.21	.21

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

	1454	2358	3049	3086	3874	5182	6086	5123	3577	1868	1128	1263
MEAN	1454	2358	3049	3086	3874	5182	6086	5123	3577	1868	1128	1263
MAX	12120	15450	23620	17320	14730	13960	22580	17840	18070	12600	4286	9445
(WY)	1950	1986	1983	1950	1982	1978	1927	1990	1945	1951	1950	1905
MIN	236	464	426	374	538	514	945	708	503	318	255	244
(WY)	1957	1957	1956	1956	1954	1954	1954	1932	1936	1936	1936	1956

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	4083		3108		3155	
HIGHEST ANNUAL MEAN					7407	1985
LOWEST ANNUAL MEAN					751	1954
HIGHEST DAILY MEAN	46600	May 28	38000	Jan 1	139000	Dec 6 1982
LOWEST DAILY MEAN	642	Oct 2	498	Sep 15	196	Aug 27 1936
INSTANTANEOUS PEAK FLOW	48000	May 28	39100	Jan 1	145000	Dec 6 1982
INSTANTANEOUS PEAK STAGE	25.65	May 28	22.94	Jan 1	42.89	Dec 6 1982
INSTANTANEOUS LOW FLOW	610	Oct 3	495	Sep 15-16	196	Aug 27 1936
ANNUAL SEVEN-DAY MINIMUM	699	Sep 28	535	Sep 9	209	Aug 26 1936
ANNUAL RUNOFF (INCHES)	14.64		11.14		11.32	
10 PERCENT EXCEEDS	8670		7300		6680	
50 PERCENT EXCEEDS	1780		1830		1390	
90 PERCENT EXCEEDS	785		647		519	

## 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 and 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, and 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 1990 TO SEPTEMBER 1991

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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
NOV 08...	1000	1440	423	8.2	6.0	4.6	10.9	88	110	45	210	43
JAN 16...	1545	9690	271	7.9	4.0	20	13.0	99	550	730	140	31
MAR 12...	1630	1760	367	8.4	10.5	2.0	12.7	115	K16	K17	190	41
MAY 16...	1230	9460	187	7.7	20.5	120	7.7	85	K700	K1400	91	20
JUL 17...	1500	1250	309	8.0	28.0	25	7.5	94	72	42	150	32
SEP 03...	1430	601	398	8.1	27.0	5.0	7.2	89	K26	140	200	39

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

DATE	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 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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV 08...	26	6.1	2.0	192	24	9.0	0.10	4.8	230	230	0.31
JAN 16...	14	6.3	1.5	112	21	12	0.30	8.2	161	163	0.22
MAR 12...	22	4.6	1.3	166	24	8.4	<0.10	1.4	307	203	0.42
MAY 16...	10	2.7	2.1	81	12	4.5	<0.10	6.0	114	108	0.16
JUL 17...	18	4.5	2.5	139	17	7.7	0.20	9.1	187	176	0.25
SEP 03...	26	5.5	1.6	184	23	10	<0.10	8.3	215	224	0.29

## MERAMEC RIVER BASIN

07019000 MERAMEC RIVER NEAR EUREKA, MO--Continued

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

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- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 08...	894	<0.010	<0.100	<0.010	<0.010	<0.20	0.040	0.030	0.030	11	76
JAN 16...	4210	<0.010	0.400	0.090	0.050	<0.20	0.040	0.030	0.030	84	39
MAR 12...	1460	<0.010	0.070	<0.010	<0.010	0.30	0.020	<0.010	<0.010	--	--
MAY 16...	2910	0.010	0.270	0.120	0.080	1.1	0.130	0.030	0.020	295	97
JUL 17...	631	0.010	0.310	0.010	0.020	0.50	0.090	0.040	0.030	--	--
SEP 03...	349	<0.010	0.052	0.010	<0.010	0.30	0.040	0.020	<0.010	22	83

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 08...	<10	<1	190	<0.5	<1.0	<1	<3	1	17	2
JAN 16...	40	<1	98	<0.5	<1.0	<1	<3	2	72	1
MAY 16...	100	<1	76	<0.5	<1.0	<1	<3	4	110	1
JUL 17...	30	1	150	<0.5	<1.0	<1	<3	4	20	<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 08...	<4	11	<0.1	<10	<1	<1	<1.0	59	<6	8
JAN 16...	<4	15	<0.1	<10	1	<1	<1.0	43	<6	9
MAY 16...	<4	4	0.8	<10	2	<1	<1.0	31	<6	11
JUL 17...	<4	14	0.1	<10	2	<1	<1.0	51	<6	3

## 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 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--August 1963 to July 1975, 1982 to current year.

REMARKS.--Records of discharge are given for gaging station near Eureka, Mo.

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

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)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT												
17...	1030	1420	388	8.3	13.5	9.3	91	13	300	190	40	22
NOV												
08...	1200	1600	420	8.3	7.5	8.8	74	14	K3600	--	--	--
DEC												
10...	0830	2350	322	8.1	2.0	13.2	96	17	1800	--	--	--
JAN												
16...	1240	10700	301	7.8	4.0	12.5	96	15	540	130	30	14
FEB												
07...	1000	5270	326	8.1	6.0	12.2	96	16	170	--	--	--
MAR												
13...	0730	1950	385	8.4	10.0	12.4	111	14	320	--	--	--
APR												
01...	1030	3020	335	7.9	12.0	11.0	100	18	37	160	36	18
MAY												
16...	1530	10700	307	7.9	22.0	7.1	81	20	K800	--	--	--
JUN												
11...	1030	1160	353	7.9	25.5	6.5	78	12	38	--	--	--
JUL												
17...	1630	1370	316	7.9	29.0	7.7	99	21	210	140	30	17
AUG												
12...	1100	959	359	8.0	26.0	6.5	79	16	90	--	--	--
SEP												
03...	1600	661	381	7.8	27.5	6.2	77	57	160	--	--	--

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

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	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)	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- PHORUS TOTAL (MG/L AS P) (00665)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)
OCT												
17...	8.7	2.4	169	26	11	0.20	216	18	0.400	0.090	0.120	480
NOV												
08...	--	--	181	--	--	--	228	9	0.100	0.100	0.100	510
DEC												
10...	--	--	148	--	--	--	172	30	0.400	0.150	0.100	560
JAN												
16...	13	1.6	101	20	24	0.30	169	33	0.460	0.080	0.050	820
FEB												
07...	--	--	142	--	--	--	182	13	0.390	0.070	0.040	380
MAR												
13...	--	--	164	--	--	--	209	23	0.067	0.130	0.070	240
APR												
01...	5.7	1.4	147	19	9.4	0.20	183	12	0.180	0.090	0.070	330
MAY												
16...	--	--	140	--	--	--	164	52	0.200	0.050	0.150	--
JUN												
11...	--	--	161	--	--	--	188	11	0.280	<0.010	0.070	480
JUL												
17...	7.7	2.7	127	21	11	0.20	175	44	--	--	--	1200
AUG												
12...	--	--	148	--	--	--	210	<1	0.290	0.060	0.150	650
SEP												
03...	--	--	154	--	--	--	205	26	0.380	0.100	0.160	810

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[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 mi<sup>2</sup>, 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.--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 30, 1844, reached a gage height of 39.8 ft, discharge, 1,350,000 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100000	124000	135000	222000	131000	146000	305000	354000	393000	232000	146000	97000
2	94800	117000	137000	212000	136000	147000	305000	370000	394000	226000	137000	96900
3	93300	120000	140000	203000	137000	147000	298000	381000	391000	222000	136000	92200
4	94600	120000	154000	186000	138000	156000	295000	377000	390000	217000	131000	91000
5	99800	120000	159000	168000	145000	204000	293000	379000	394000	211000	122000	91500
6	96400	122000	152000	158000	160000	228000	290000	388000	386000	201000	121000	88500
7	92500	114000	154000	153000	178000	229000	288000	412000	374000	188000	125000	82300
8	92700	112000	153000	146000	213000	211000	287000	438000	368000	184000	133000	77200
9	106000	112000	150000	142000	237000	180000	282000	446000	358000	178000	140000	76900
10	120000	115000	145000	141000	234000	172000	276000	442000	347000	182000	138000	78700
11	125000	113000	137000	147000	218000	173000	271000	433000	351000	202000	136000	83700
12	124000	108000	132000	154000	202000	161000	266000	417000	354000	236000	134000	89700
13	125000	107000	131000	152000	193000	157000	264000	392000	346000	244000	136000	93900
14	130000	103000	132000	155000	198000	167000	281000	366000	339000	229000	140000	103000
15	126000	104000	132000	162000	200000	184000	284000	359000	335000	212000	141000	107000
16	125000	103000	133000	168000	186000	190000	311000	374000	336000	215000	141000	110000
17	123000	102000	134000	175000	162000	188000	363000	381000	339000	201000	137000	114000
18	125000	99200	144000	182000	160000	208000	375000	382000	338000	191000	137000	118000
19	124000	97200	147000	203000	170000	228000	380000	377000	342000	185000	135000	124000
20	115000	95800	137000	212000	170000	232000	387000	367000	365000	178000	133000	130000
21	116000	95700	151000	215000	167000	236000	403000	352000	367000	169000	123000	130000
22	121000	95100	191000	208000	163000	257000	419000	339000	351000	161000	117000	130000
23	118000	92900	180000	189000	167000	279000	425000	332000	332000	157000	119000	130000
24	115000	91500	160000	180000	167000	285000	428000	326000	317000	153000	116000	131000
25	114000	90000	133000	177000	161000	275000	422000	328000	300000	151000	115000	132000
26	120000	84400	125000	167000	152000	266000	409000	333000	286000	155000	110000	131000
27	125000	83900	118000	158000	151000	266000	392000	355000	279000	159000	106000	129000
28	126000	108000	112000	151000	148000	265000	376000	383000	272000	161000	104000	125000
29	130000	132000	118000	144000	---	264000	365000	392000	254000	158000	98700	127000
30	132000	138000	188000	136000	---	272000	356000	393000	239000	157000	93000	122000
31	131000	---	222000	129000	---	289000	---	391000	---	152000	93700	---
MEAN	115500	107300	146300	170800	173000	214900	336500	379300	341200	189300	125600	107700
MAX	132000	138000	222000	222000	237000	289000	428000	446000	394000	244000	146000	132000
MIN	92500	83900	112000	129000	131000	146000	264000	326000	239000	151000	93000	76900
IN.	.19	.17	.24	.28	.25	.35	.53	.62	.54	.31	.20	.17

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

	146700	149800	133100	127400	154800	248100	333100	305700	272400	228800	145400	140700
MEAN	146700	149800	133100	127400	154800	248100	333100	305700	272400	228800	145400	140700
MAX	588300	380400	500100	323200	331000	528400	719100	625000	597200	676800	254400	316000
(WY)	1987	1986	1983	1973	1974	1973	1973	1973	1971	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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	210000		200600		198700
HIGHEST ANNUAL MEAN					347500
LOWEST ANNUAL MEAN					96770
HIGHEST DAILY MEAN	654000	May 20	446000	May 9	885000
LOWEST DAILY MEAN	53700	Jan 2	76900	Sep 9	37600
INSTANTANEOUS PEAK FLOW	661000	May 20	448000	May 9	886000
INSTANTANEOUS PEAK STAGE	35.53	May 20	27.78	May 9	43.32
INSTANTANEOUS LOW FLOW	53500	Jan 2	75700	Sep 9	30000
ANNUAL SEVEN-DAY MINIMUM	62300	Jan 1	82400	Sep 6	38500
ANNUAL RUNOFF (INCHES)	4.02		3.84		3.81
10 PERCENT EXCEEDS	424000		374000		382000
50 PERCENT EXCEEDS	160000		159000		160000
90 PERCENT EXCEEDS	91300		103000		75100



## 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 fair.

## 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.

## EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,480 mg/L, Apr. 23-24; minimum daily mean, 36 mg/L, Oct. 3.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 1,710,000 tons, Apr. 24; minimum daily, 9,100 tons, Oct. 3.

## 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)
APR 24...	1645	428000	45	48	50	61	86	88	97	100	100

## MISSISSIPPI RIVER MAIN STEM

07020500 MISSISSIPPI RIVER AT CHESTER, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	100000	---	22000	124000	75	25200	135000	112	40900
2	94800	82	21200	117000	---	22100	137000	132	49100
3	93300	36	9100	120000	68	22100	140000	154	58700
4	94600	58	15100	120000	75	24300	154000	266	111000
5	99800	116	31500	120000	92	29700	159000	216	92700
6	96400	175	46000	122000	72	23800	152000	194	79500
7	92500	122	30700	114000	75	22900	154000	162	67700
8	92700	92	23200	112000	---	29800	153000	132	54500
9	106000	---	29500	112000	---	40500	150000	113	45800
10	120000	119	38600	115000	---	56400	145000	135	52800
11	125000	113	38400	113000	228	69400	137000	137	50800
12	124000	91	30300	108000	---	38800	132000	150	53600
13	125000	---	26300	107000	63	18100	131000	152	53700
14	130000	---	24600	103000	61	17000	132000	165	59100
15	126000	---	21600	104000	81	22600	132000	---	54900
16	125000	62	20900	103000	65	18000	133000	135	48300
17	123000	66	21800	102000	200	55100	134000	106	38400
18	125000	53	17900	99200	166	44500	144000	98	38300
19	124000	61	20400	97200	110	28900	147000	78	31000
20	115000	59	18200	95800	87	22400	137000	72	26400
21	116000	74	23400	95700	---	24400	151000	110	45100
22	121000	108	35300	95100	---	28500	191000	---	55800
23	118000	97	30800	92900	126	31700	180000	---	47800
24	115000	89	27800	91500	---	23800	160000	---	38800
25	114000	80	24600	90000	69	16800	133000	---	29500
26	120000	81	26300	84400	---	24000	125000	76	25600
27	125000	89	29900	83900	---	44900	118000	---	25900
28	126000	92	30900	108000	339	100000	112000	---	27200
29	130000	99	34700	132000	278	98700	118000	---	32300
30	132000	127	45500	138000	---	64900	188000	---	57000
31	131000	96	33900	---	---	---	222000	---	74100
TOTAL	3580100	---	850400	3219700	---	1089300	4536000	---	1566300
JANUARY			FEBRUARY			MARCH			
1	222000	---	82300	131000	188	66500	146000	---	125000
2	212000	---	87400	136000	---	63800	147000	---	122000
3	203000	---	93000	137000	171	63600	147000	300	119000
4	186000	---	94600	138000	271	101000	156000	311	131000
5	168000	---	94500	145000	259	102000	204000	357	198000
6	158000	---	99200	160000	193	83100	228000	---	265000
7	153000	---	107000	178000	227	110000	229000	514	318000
8	146000	---	113000	213000	---	192000	211000	---	305000
9	142000	294	113000	237000	461	295000	180000	522	253000
10	141000	141	53700	234000	---	259000	172000	438	204000
11	147000	456	182000	218000	334	197000	173000	434	202000
12	154000	---	216000	202000	312	170000	161000	429	187000
13	152000	---	189000	193000	---	179000	157000	320	136000
14	155000	391	163000	198000	---	210000	167000	320	144000
15	162000	188	81900	200000	---	242000	184000	273	136000
16	168000	136	61800	186000	478	239000	190000	174	89000
17	175000	225	106000	162000	---	117000	188000	---	133000
18	182000	250	123000	160000	138	59300	208000	426	241000
19	203000	326	179000	170000	171	78800	228000	507	313000
20	212000	419	240000	170000	253	116000	232000	578	361000
21	215000	---	190000	167000	402	181000	236000	---	348000
22	208000	242	136000	163000	543	239000	257000	---	336000
23	189000	---	134000	167000	240	108000	279000	471	356000
24	180000	313	152000	167000	---	95700	285000	761	585000
25	177000	---	149000	161000	---	102000	275000	445	331000
26	167000	280	126000	152000	---	107000	266000	---	295000
27	158000	155	66500	151000	---	118000	266000	485	349000
28	151000	153	62600	148000	319	127000	265000	536	384000
29	144000	249	96800	---	---	---	264000	486	347000
30	136000	---	90900	---	---	---	272000	557	410000
31	129000	214	74200	---	---	---	289000	633	495000
TOTAL	5295000	---	3757400	4844000	---	4021800	6662000	---	8218000

## MISSISSIPPI RIVER MAIN STEM

07020500 MISSISSIPPI RIVER AT CHESTER, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	305000	666	548000	354000	473	453000	393000	533	565000
2	305000	630	519000	370000	767	769000	394000	655	697000
3	298000	646	520000	381000	---	1100000	391000	645	680000
4	295000	674	538000	377000	1400	1420000	390000	568	598000
5	293000	---	516000	379000	---	1350000	394000	755	803000
6	290000	---	480000	388000	1160	1220000	386000	778	811000
7	288000	582	452000	412000	---	1260000	374000	719	726000
8	287000	540	418000	438000	---	1360000	368000	794	789000
9	282000	393	300000	446000	---	1420000	358000	861	831000
10	276000	348	259000	442000	1190	1430000	347000	815	764000
11	271000	320	234000	433000	---	1340000	351000	1010	958000
12	266000	362	259000	417000	1060	1200000	354000	1030	987000
13	264000	---	272000	392000	713	794000	346000	892	834000
14	281000	---	297000	366000	507	526000	339000	904	826000
15	284000	413	316000	359000	683	663000	335000	853	771000
16	311000	576	490000	374000	676	683000	336000	795	722000
17	363000	873	857000	381000	787	810000	339000	770	704000
18	375000	768	778000	382000	---	946000	338000	696	635000
19	380000	808	828000	377000	1010	1020000	342000	643	595000
20	387000	702	734000	367000	710	703000	365000	938	925000
21	403000	---	856000	352000	629	597000	367000	1160	1150000
22	419000	942	1070000	339000	---	556000	351000	---	1210000
23	425000	1480	1700000	332000	582	522000	332000	1370	1230000
24	428000	1480	1710000	326000	---	477000	317000	1200	1030000
25	422000	908	1040000	328000	---	442000	300000	1170	945000
26	409000	736	813000	333000	464	418000	286000	1440	1110000
27	392000	338	357000	355000	---	504000	279000	854	643000
28	376000	368	373000	383000	---	666000	272000	580	425000
29	365000	419	413000	392000	781	827000	254000	479	328000
30	356000	319	307000	393000	846	897000	239000	479	309000
31	---	---	---	391000	619	653000	---	---	---
TOTAL	10096000	---	18254000	11759000	---	27026000	10237000	---	23601000
JULY			AUGUST			SEPTEMBER			
1	232000	568	355000	146000	149	58500	97000	---	154000
2	226000	636	388000	137000	293	108000	96900	---	202000
3	222000	384	231000	136000	---	117000	92200	861	214000
4	217000	---	177000	131000	---	102000	91000	194	47600
5	211000	---	157000	122000	---	86000	91500	233	57500
6	201000	249	135000	121000	---	77600	88500	149	35600
7	188000	212	108000	125000	---	72300	82300	---	29900
8	184000	215	107000	133000	---	69500	77200	---	29000
9	178000	457	219000	140000	---	66200	76900	---	29900
10	182000	325	159000	138000	---	59400	78700	143	30300
11	202000	249	137000	136000	143	52400	83700	100	22700
12	236000	592	379000	134000	---	44200	89700	123	29900
13	244000	---	357000	136000	109	40100	93900	215	54700
14	229000	431	266000	140000	160	60300	103000	---	61200
15	212000	---	314000	141000	194	73700	107000	---	60500
16	215000	753	438000	141000	---	63100	110000	192	57200
17	201000	686	372000	137000	---	48600	114000	124	38000
18	191000	620	319000	137000	105	39100	118000	185	58900
19	185000	435	217000	135000	93	34100	124000	148	49500
20	178000	336	161000	133000	---	35900	130000	123	43300
21	169000	268	122000	123000	---	37500	130000	136	48000
22	161000	223	97300	117000	---	40000	130000	---	82100
23	157000	195	82300	119000	144	46200	130000	411	144000
24	153000	---	84000	116000	163	50900	131000	400	141000
25	151000	---	91100	115000	193	59800	132000	---	110000
26	155000	240	101000	110000	362	107000	131000	---	95000
27	159000	215	92100	106000	166	47500	129000	---	80000
28	161000	217	94400	104000	256	72000	125000	---	65000
29	158000	276	118000	98700	267	71400	127000	---	55000
30	157000	392	166000	93000	240	60200	122000	---	50000
31	152000	238	97700	93700	---	112000	---	---	---
TOTAL	5867000	---	6141900	3894400	---	2012500	3232500	---	2175800

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 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1920 to current year. Prior to October 1921 monthly discharge only published in WSP 1311.

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: July 8 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 1915 reached a stage of 28.0 ft, present datum, from floodmarks by local residents.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	99	723	4290	338	324	479	690	467	110	53	56
2	72	98	552	1900	323	363	436	535	435	104	53	56
3	72	98	486	1390	311	349	402	468	346	100	53	58
4	81	99	434	1050	300	335	445	442	317	96	53	70
5	79	121	386	810	311	330	477	498	370	93	53	100
6	78	162	348	1040	411	328	453	520	341	90	90	85
7	89	179	315	2030	510	319	430	433	288	86	85	80
8	120	167	287	1630	518	305	425	390	260	83	82	75
9	175	158	263	1240	510	291	447	362	239	82	80	70
10	183	152	242	1330	498	279	681	377	220	84	91	69
11	185	146	224	3020	476	268	654	623	218	83	108	68
12	168	140	209	4700	451	263	680	682	220	81	106	66
13	148	134	197	2880	467	260	2150	1340	203	79	80	64
14	133	129	185	1780	526	260	9250	1730	210	76	70	62
15	123	126	189	1350	703	261	10400	1060	187	73	65	60
16	115	123	180	1170	600	254	5290	2450	177	70	60	58
17	109	121	190	1030	537	259	2080	3010	169	67	60	58
18	111	118	680	918	515	297	1350	1720	161	67	60	56
19	118	118	2570	818	500	351	1230	1330	152	66	60	56
20	131	117	1710	765	476	366	1040	1480	142	65	58	56
21	124	116	3370	697	451	358	794	1190	137	64	58	56
22	118	143	9130	628	430	2390	632	854	151	62	58	56
23	113	169	9290	569	407	7270	544	700	167	62	58	56
24	109	172	4050	523	390	6110	482	646	170	60	56	56
25	105	166	1770	481	370	2420	431	910	153	60	56	56
26	103	161	1270	450	350	1530	397	787	141	58	56	56
27	102	207	960	433	335	1170	394	648	132	57	55	56
28	101	1640	736	429	319	876	436	558	125	56	55	56
29	101	2710	862	402	---	687	1140	493	119	55	55	56
30	99	1140	5670	380	---	591	1080	447	114	53	55	56
31	99	---	8200	358	---	531	---	407	---	53	56	---
MEAN	114	308	1796	1306	440	968	1504	896	218	74.0	65.7	62.8
MAX	185	2710	9290	4700	703	7270	10400	3010	467	110	108	100
MIN	72	98	180	358	300	254	394	362	114	53	53	56
IN.	.31	.81	4.90	3.56	1.08	2.64	3.97	2.44	.57	.20	.18	.17

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
MEAN	161	397	588	725	708	1034	1028	787	432	167	106	118
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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	699	649	519
HIGHEST ANNUAL MEAN			1088
LOWEST ANNUAL MEAN			149
HIGHEST DAILY MEAN	9290	10400	42700
LOWEST DAILY MEAN	61	53	16
INSTANTANEOUS PEAK FLOW	11900	14800	97100
INSTANTANEOUS PEAK STAGE	23.61	24.21	29.92
INSTANTANEOUS LOW FLOW	60	53	16
ANNUAL SEVEN-DAY MINIMUM	63	53	19
ANNUAL RUNOFF (INCHES)	22.43	20.84	16.66
10 PERCENT EXCEEDS	1950	1350	1060
50 PERCENT EXCEEDS	189	260	181
90 PERCENT EXCEEDS	75	58	59

\*\* Statistics based only on years with complete daily discharge record.

## 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 mi<sup>2</sup>, 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"; 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; 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; 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.--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 July 4, 1844, reached an elevation of 345.14 ft, present datum, at Grays Point, from floodmarks, discharge, 1,375,000 ft<sup>3</sup>/s, computed by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111000	132000	147000	256000	135000	155000	312000	359000	417000	245000	151000	93500
2	101000	125000	144000	254000	137000	155000	319000	367000	417000	239000	144000	96800
3	96000	120000	144000	247000	141000	156000	314000	381000	409000	235000	138000	96500
4	97600	122000	148000	240000	141000	158000	310000	382000	402000	231000	136000	93000
5	97600	123000	158000	217000	143000	179000	308000	377000	403000	226000	129000	92600
6	101000	124000	157000	196000	157000	223000	304000	380000	397000	218000	122000	92200
7	97700	124000	154000	194000	174000	235000	302000	392000	382000	206000	121000	88900
8	95200	117000	155000	184000	198000	229000	300000	416000	372000	197000	125000	83200
9	97000	116000	154000	173000	236000	198000	297000	434000	362000	194000	133000	79300
10	114000	117000	150000	165000	250000	175000	291000	439000	350000	189000	137000	79200
11	126000	119000	144000	171000	239000	173000	285000	436000	344000	202000	135000	81300
12	130000	117000	138000	188000	221000	171000	279000	424000	345000	232000	133000	86800
13	128000	113000	134000	184000	207000	163000	280000	411000	339000	259000	132000	92100
14	131000	111000	133000	180000	211000	164000	296000	390000	331000	258000	134000	97700
15	132000	108000	135000	183000	213000	177000	308000	372000	326000	237000	137000	107000
16	129000	109000	135000	190000	206000	190000	313000	380000	323000	231000	139000	111000
17	127000	108000	136000	198000	184000	192000	357000	389000	324000	228000	138000	115000
18	126000	106000	141000	203000	168000	200000	386000	390000	322000	211000	136000	118000
19	127000	103000	159000	219000	171000	225000	395000	386000	320000	202000	136000	122000
20	123000	101000	155000	235000	178000	240000	404000	380000	332000	194000	134000	128000
21	115000	99200	162000	241000	178000	242000	418000	370000	340000	185000	130000	133000
22	117000	100000	217000	239000	177000	265000	438000	354000	335000	175000	121000	133000
23	119000	99300	234000	222000	177000	295000	451000	345000	327000	168000	118000	133000
24	117000	97000	210000	202000	180000	301000	456000	343000	315000	163000	118000	133000
25	114000	95800	178000	194000	178000	295000	451000	342000	304000	158000	116000	133000
26	115000	93100	150000	186000	169000	283000	433000	343000	294000	158000	114000	134000
27	121000	88700	147000	175000	161000	282000	408000	352000	286000	160000	109000	133000
28	126000	103000	139000	165000	159000	283000	386000	380000	282000	162000	106000	131000
29	128000	131000	134000	158000	---	282000	373000	404000	272000	161000	103000	129000
30	133000	146000	187000	149000	---	285000	364000	415000	256000	158000	96800	129000
31	135000	---	236000	139000	---	296000	---	418000	---	156000	92400	---
MEAN	117000	112300	158500	198300	181700	221500	351300	385500	340900	201200	126300	109200
MAX	135000	146000	236000	256000	250000	301000	456000	439000	417000	259000	151000	134000
MIN	95200	88700	133000	139000	135000	155000	279000	342000	256000	156000	92400	79200
IN.	.19	.18	.26	.32	.27	.36	.55	.62	.53	.33	.20	.17

## MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

MEAN	145500	149800	135500	130500	157000	247400	325900	304800	274600	225400	141500	136700
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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	215700		208700		198100	
HIGHEST ANNUAL MEAN					359800	1973
LOWEST ANNUAL MEAN					71730	1934
HIGHEST DAILY MEAN	651000	May 21	456000	Apr 24	886000	May 27 1943
LOWEST DAILY MEAN	54500	Jan 1	79200	Sep 10	24700	Jan 21 1940
INSTANTANEOUS PEAK FLOW	669000	May 21	458000	Apr 24	893000	May 27 1943
INSTANTANEOUS PEAK STAGE	39.69	May 22	31.79	Apr 23	43.43	Apr 30 1973
INSTANTANEOUS LOW FLOW	54300	Jan 1	78400	Sep 9	23400	Dec 13 1937
ANNUAL SEVEN-DAY MINIMUM	60000	Jan 1	84400	Sep 7	26700	Jan 20 1940
ANNUAL RUNOFF (INCHES)	4.11		3.97		3.77	
10 PERCENT EXCEEDS	430000		380000		385000	
50 PERCENT EXCEEDS	171000		174000		160000	
90 PERCENT EXCEEDS	92400		106000		72400	

\*\*Statistics based only on years with complete daily discharge record.



## MISSISSIPPI RIVER MAIN STEM

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, 1,680 mg/L, May 12; minimum daily mean, 32 mg/L, Sept. 28.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 1,930,000 tons, May 12; minimum daily, 11,300 tons, Sept. 28.

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

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- DITY (NTU) (00076)	OXYGEN, DIS- SOLVED CENT SATUR- ATION) (MG/L) (00300)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)
NOV										
14...	1440	1028	17002	111000	568	8.2	8.0	1.5	11.5	18
JAN										
23...	1240	1028	17002	221000	424	8.0	2.0	38	13.2	19
MAR										
27...	1300	1028	17002	282000	503	7.8	13.0	100	10.6	39
MAY										
13...	1330	1028	17002	411000	393	7.9	17.5	160	7.2	45
JUL										
23...	1300	1028	17002	169000	480	8.2	30.5	45	6.0	30
SEP										
17...	1400	1028	17002	116000	577	8.1	27.5	18	7.3	16

DATE	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
NOV											
14...	120	1000	200	49	47	19	19	27	26	5.9	4.6
JAN											
23...	2000	1400	220	62	61	17	16	21	21	4.1	3.8
MAR											
27...	580	950	200	53	50	19	18	17	17	4.2	4.1
MAY											
13...	2700	1300	170	57	45	20	15	13	10	7.4	4.4
JUL											
23...	2800	64	240	64	61	21	21	20	20	4.2	3.8
SEP											
17...	2100	280	250	66	62	25	24	44	45	4.2	3.7

## MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

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

DATE	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	AMMONIA UN- IONIZED (MG/L AS N) (00619)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 14...	178	79	27	0.3	117	15	1.70	--	0.120	0.003	0.9
JAN 23...	116	53	24	0.2	61	7	2.10	--	0.230	0.002	1.1
MAR 27...	134	63	25	0.2	350	34	7.10	--	0.250	0.004	2.2
MAY 13...	140	49	16	0.2	434	40	3.90	3.80	0.120	0.003	2.1
JUL 23...	142	65	20	0.4	310	36	3.30	2.50	0.080	0.010	1.4
SEP 17...	--	110	25	0.4	109	13	0.82	0.88	0.070	0.018	0.3
DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS 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)	BORON, DIS- SOLVED (UG/L AS B) (01020)
NOV 14...	0.200	0.100	1000	70	2	70	61	<1.0	<1	70	70
JAN 23...	0.200	0.100	1600	90	2	90	65	<0.5	<0.5	<50	<50
MAR 27...	0.510	0.100	6500	90	3	100	63	<0.5	<0.5	<50	<50
MAY 13...	0.600	0.090	19000	<150	7	300	60	<1.0	<1	8	9
JUL 23...	0.300	0.150	3000	130	2	100	81	<0.5	<0.5	60	--
SEP 17...	0.245	0.150	1500	200	4	200	120	<0.5	<0.5	120	110
DATE	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)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)
NOV 14...	5	8.0	8	10	6	8	9	9	1300	<50	5
JAN 23...	<3	<3.0	<5	<5	<5	<5	<5	<5	2200	<50	5
MAR 27...	<3	<3.0	<5	<5	<5	<5	<5	<5	8000	<50	<5
MAY 13...	<5	<5.0	25	<5	20	6	15	<5	22000	<50	110
JUL 23...	<3	<3.0	<5	<5	<5	<5	14	<5	4000	<50	6
SEP 17...	<3	<3.0	<5	<5	<5	<5	15	<5	1800	73	<5

## MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	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)
NOV 14...	<5	130	5	0.15	27	--	<3	5.0	200	180
JAN 23...	<5	110	12	<0.05	8	<5	<3	<3.0	160	150
MAR 27...	<5	410	10	0.08	<5	<5	<3	<3.0	130	150
MAY 13...	5	790	<15	<0.05	17	<15	<5	<5.0	200	140
JUL 23...	<5	230	16	<0.05	9	<5	<3	<3.0	220	200
SEP 17...	--	180	14	<0.05	<5	<5	<3	<3.0	400	380

DATE	VANA- DIUM, TOTAL (UG/L AS V) (01087)	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)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 14...	5	6	<50	<50	8.6	<0.005	<5	40	90
JAN 23...	<5	<5	<50	<50	8.3	<0.005	<5	105	96
MAR 27...	<5	<5	<50	<50	17	<5.00	10	423	73
MAY 13...	43	<5	140	95	15	<0.005	<5	557	98
JUL 23...	6	<5	<50	<50	12	0.005	<5	--	--
SEP 17...	8	<5	<50	<50	8.8	<0.005	<5	--	--

## MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	DISCHARGE	MEAN	MEAN	SEDIMENT
	DISCHARGE	CONCEN-		DISCHARGE	CONCEN-			DISCHARGE	CONCEN-	
	(CFS)	TRATION	(TONS/DAY)	(CFS)	TRATION	(TONS/DAY)	(CFS)	(MG/L)	TRATION	(TONS/DAY)
		(MG/L)			(MG/L)					
OCTOBER			NOVEMBER				DECEMBER			
1	111000	87	25600	132000	225	80500	147000		270	107000
2	101000	94	25700	125000	133	45000	144000		202	78400
3	96000	123	31900	120000	152	49300	144000		201	78300
4	97600	189	49800	122000	142	47000	148000		244	97900
5	97600	119	31300	123000	94	31200	158000		331	142000
6	101000	153	41700	124000	97	32600	157000		314	133000
7	97700	120	31600	124000	108	36000	154000		239	99700
8	95200	100	25800	117000	129	40500	155000		236	98700
9	97000	117	30800	116000	---	42800	154000		222	92100
10	114000	146	45200	117000	129	40700	150000		226	91100
11	126000	133	45200	119000	111	35500	144000		217	84300
12	130000	100	34900	117000	116	36500	138000		198	73600
13	128000	88	30400	113000	112	34300	134000		209	75600
14	131000	84	29600	111000	86	25900	133000		166	59600
15	132000	84	29900	108000	90	26300	135000		138	50000
16	129000	72	24900	109000	88	25900	135000		134	48800
17	127000	75	25500	108000	86	24900	136000		143	52300
18	126000	82	27900	106000	79	22600	141000		189	72100
19	127000	92	31500	103000	82	22800	159000		240	103000
20	123000	98	32700	101000	80	21700	155000		178	74700
21	115000	116	36100	99200	75	20000	162000		139	61300
22	117000	154	48700	100000	111	30000	217000		---	90700
23	119000	166	53500	99300	268	72000	234000		---	110000
24	117000	147	46400	97000	104	27400	210000		---	111000
25	114000	123	37800	95800	132	34000	178000		216	113000
26	115000	109	33700	93100	---	55300	150000		---	110000
27	121000	111	36500	88700	---	89500	147000		157	80000
28	126000	116	39500	103000	616	175000	139000		---	60000
29	128000	132	45900	131000	694	244000	134000		126	55000
30	133000	156	55900	146000	350	138000	187000		254	90000
31	135000	171	62200	---	---	---	236000		---	152000
TOTAL	3627100	---	1148100	3368100	---	1607200	4915000	---		2745200
JANUARY			FEBRUARY				MARCH			
1	256000	---	155000	135000	118	43100	155000		82	34200
2	254000	---	145000	137000	115	42700	155000		78	32600
3	247000	---	133000	141000	112	42500	156000		91	38300
4	240000	---	122000	141000	137	52000	158000		113	48000
5	217000	---	104000	143000	133	51700	179000		189	92800
6	196000	---	88700	157000	148	62700	223000		318	192000
7	194000	---	82500	174000	199	93900	235000		482	306000
8	184000	150	74200	198000	249	134000	229000		487	301000
9	173000	---	69400	236000	340	218000	198000		480	255000
10	165000	150	67100	250000	427	288000	175000		516	244000
11	171000	---	70600	239000	364	236000	173000		395	185000
12	188000	152	77100	221000	245	146000	171000		278	128000
13	184000	---	60100	207000	276	154000	163000		296	130000
14	180000	94	45800	211000	301	171000	164000		272	120000
15	183000	101	50000	213000	214	123000	177000		290	139000
16	190000	112	57800	206000	273	152000	190000		302	155000
17	198000	146	78200	184000	240	119000	192000		305	158000
18	203000	178	97600	168000	176	79700	200000		389	211000
19	219000	171	101000	171000	105	48800	225000		398	242000
20	235000	202	128000	178000	104	50200	240000		342	222000
21	241000	---	110000	178000	141	67900	242000		437	286000
22	239000	140	90600	177000	163	78000	265000		446	321000
23	222000	135	80800	177000	133	63600	295000		564	448000
24	202000	152	83000	180000	153	74300	301000		393	319000
25	194000	104	54700	178000	128	61500	295000		476	378000
26	186000	95	47800	169000	124	56600	283000		468	358000
27	175000	150	70600	161000	135	58400	282000		355	270000
28	165000	145	64800	159000	93	39900	283000		148	252000
29	158000	110	46700	---	---	---	282000		346	264000
30	149000	66	26400	---	---	---	285000		393	303000
31	139000	120	25000	---	---	---	296000		443	355000
TOTAL	6147000	---	2507500	5089000	---	2808500	6867000	---		6787900

## MISSISSIPPI RIVER MAIN STEM

07022000 MISSISSIPPI RIVER AT THEBES, IL--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	DISCHARGE	MEAN	MEAN	SEDIMENT		
	DISCHARGE	CONCEN- TRATION		DISCHARGE	CONCEN- TRATION			DISCHARGE	CONCEN- TRATION		DISCHARGE	CONCEN- TRATION
	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)
APRIL			MAY			JUNE						
1	312000	480	405000	359000	422	409000	417000		735	828000		
2	319000	630	544000	367000	346	343000	417000		628	707000		
3	314000	601	510000	381000	565	582000	409000		618	683000		
4	310000	549	460000	382000	954	983000	402000		577	627000		
5	308000	479	399000	377000	1220	1250000	403000		468	509000		
6	304000	501	411000	380000	1150	1180000	397000		545	584000		
7	302000	385	314000	392000	962	1020000	382000		794	818000		
8	300000	322	261000	416000	1110	1240000	372000	1020		1020000		
9	297000	325	261000	434000	1490	1740000	362000		807	789000		
10	291000	306	241000	439000	1490	1770000	350000		647	611000		
11	285000	322	247000	436000	1470	1730000	344000		757	703000		
12	279000	328	247000	424000	1680	1930000	345000		978	911000		
13	280000	334	252000	411000	1170	1300000	339000		837	767000		
14	296000	427	342000	390000	949	1000000	331000		816	728000		
15	308000	430	358000	372000	701	705000	326000		844	742000		
16	313000	412	350000	380000	634	652000	323000		818	714000		
17	357000	518	503000	389000	644	677000	324000		773	676000		
18	386000	676	705000	390000	827	869000	322000		605	526000		
19	395000	607	647000	386000	1120	1170000	320000		522	451000		
20	404000	688	751000	380000	---	893000	332000		482	432000		
21	418000	862	974000	370000	675	674000	340000		777	715000		
22	438000	916	1090000	354000	610	583000	335000	1280		1160000		
23	451000	1180	1430000	345000	578	539000	327000	1340		1190000		
24	456000	1250	1540000	343000	541	501000	315000	1190		1010000		
25	451000	1520	1850000	342000	502	463000	304000	1020		836000		
26	433000	989	1160000	343000	635	588000	294000		891	707000		
27	408000	706	778000	352000	684	652000	286000		653	505000		
28	386000	640	666000	380000	714	734000	282000		632	481000		
29	373000	544	548000	404000	822	897000	272000		502	369000		
30	364000	513	504000	415000	851	954000	256000		320	221000		
31	---	---	---	418000	695	784000	---		---	---		
TOTAL	10538000	---	18748000	11951000	---	28812000	10228000	---		21020000		
JULY			AUGUST			SEPTEMBER						
1	245000	378	250000	151000	124	50600	93500		---	18400		
2	239000	409	263000	144000	134	52100	96800		---	18700		
3	235000	316	200000	138000	152	56300	96500		74	19200		
4	231000	249	155000	136000	128	46900	93000		107	27000		
5	226000	204	125000	129000	124	43000	92600		104	25900		
6	218000	210	124000	122000	131	42900	92200		127	31700		
7	207000	218	121000	121000	126	41300	88900		108	25800		
8	198000	197	105000	125000	130	43900	83200		113	25300		
9	195000	168	88200	133000	127	45600	79300		100	21500		
10	190000	156	80000	137000	118	43700	79200		91	19500		
11	202000	163	89500	135000	115	42100	81300		92	20300		
12	233000	298	189000	133000	---	38900	86800		89	20900		
13	260000	426	297000	132000	103	36600	92100		83	20700		
14	259000	390	271000	134000	---	36500	97700		86	22700		
15	238000	349	223000	137000	---	36700	107000		96	27700		
16	232000	361	225000	139000	---	36400	111000		94	28300		
17	230000	457	281000	138000	---	35700	115000		100	31100		
18	213000	460	262000	136000	---	34400	118000		99	31600		
19	204000	424	231000	136000	---	33700	122000		101	33300		
20	195000	377	197000	134000	---	32700	128000		110	38300		
21	186000	340	170000	130000	---	31100	133000		111	40100		
22	176000	296	140000	121000	---	28500	133000		105	37800		
23	169000	240	109000	118000	---	27200	133000		106	38100		
24	163000	186	81600	118000	---	26800	133000		108	38800		
25	159000	167	71400	116000	---	25800	133000		115	41500		
26	158000	162	68800	114000	---	24900	134000		132	47700		
27	160000	155	66800	109000	---	23300	133000		87	31400		
28	162000	148	64600	106000	---	22400	131000		32	11300		
29	161000	124	53900	103000	---	21400	129000		64	22300		
30	158000	112	47900	96800	---	19700	129000		---	20000		
31	156000	107	45100	92400	---	18500	---		---	---		
TOTAL	6258000	---	4695800	3914200	---	1099600	3275100	---		836900		

## 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 mi<sup>2</sup>.

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: Dec. 22-29, Mar. 23-25, and Apr. 14-15. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	19	362	542	193	136	125	135	47	10	3.1	7.2
2	2.8	19	278	375	191	175	113	110	57	11	2.8	12
3	2.9	19	743	298	197	172	104	97	78	24	2.6	9.9
4	8.2	17	542	233	205	156	108	291	52	43	2.4	7.0
5	35	196	341	208	225	150	112	339	95	26	35	5.8
6	25	179	272	444	307	147	105	225	58	19	76	5.6
7	20	92	220	617	337	138	104	150	42	14	24	10
8	98	66	190	401	278	117	101	109	34	11	39	8.6
9	149	58	169	370	247	111	110	87	31	10	25	6.4
10	379	55	151	561	228	108	101	81	27	15	14	5.2
11	204	48	136	1760	203	101	93	97	26	216	15	9.8
12	132	45	122	1250	186	97	118	130	24	68	11	50
13	90	39	111	647	273	97	552	883	23	36	7.3	20
14	63	34	97	495	1480	103	11000	563	23	25	5.4	10
15	48	31	92	810	447	112	2000	466	21	20	4.5	6.9
16	40	28	86	963	283	109	684	807	20	15	3.7	5.0
17	35	26	241	892	243	252	454	456	18	13	3.9	3.6
18	54	24	3340	820	229	696	337	1750	16	11	3.8	4.7
19	58	24	2000	880	244	410	289	525	15	10	12	4.2
20	49	23	800	816	267	301	248	344	14	8.7	12	18
21	41	23	7760	596	236	244	208	275	40	7.8	17	12
22	35	66	4000	371	208	1550	181	202	27	6.9	11	9.2
23	32	135	1260	314	185	1700	159	166	35	6.3	7.6	8.5
24	28	97	490	278	170	790	145	139	42	6.1	5.4	14
25	26	77	265	244	158	407	124	136	23	5.6	4.3	17
26	26	82	200	228	152	292	119	136	17	4.8	3.6	12
27	23	4860	170	221	143	253	122	108	15	4.0	3.3	9.3
28	22	8230	155	215	137	249	133	84	13	3.6	2.6	7.2
29	22	1090	5410	211	---	183	156	72	12	3.5	2.4	6.0
30	21	529	7150	231	---	161	164	56	11	3.4	2.4	4.8
31	19	---	1070	206	---	142	---	51	---	3.3	2.4	---
MEAN	57.8	541	1233	532	273	312	612	293	31.9	21.3	11.8	10.3
MAX	379	8230	7760	1760	1480	1700	11000	1750	95	216	76	50
MIN	2.8	17	86	206	137	97	93	51	11	3.3	2.4	3.6
IN.	.28	2.58	6.08	2.62	1.22	1.54	2.92	1.44	.15	.11	.06	.05

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

	106	671	551	251	490	560	381	419	287	33.0	57.2	26.5
MEAN	106	671	551	251	490	560	381	419	287	33.0	57.2	26.5
MAX	550	2017	1233	532	1165	1130	722	1423	1617	73.0	341	118
(WY)	1985	1986	1991	1991	1985	1985	1984	1990	1985	1986	1985	1984
MIN	8.28	11.5	11.9	57.0	242	294	186	28.8	7.70	7.78	1.65	1.54
(WY)	1988	1990	1990	1986	1987	1986	1986	1987	1988	1983	1983	1983

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	414		328		319
HIGHEST ANNUAL MEAN					710
LOWEST ANNUAL MEAN					124
HIGHEST DAILY MEAN	10800	May 26	11000	Apr 14	28000
LOWEST DAILY MEAN	2.8	Oct 2	2.4	Aug 4, 29-31	.83
INSTANTANEOUS PEAK FLOW	16000	May 26	19400	Apr 14	43000
INSTANTANEOUS PEAK STAGE	13.83	May 26	14.98	Apr 14	20.40
INSTANTANEOUS LOW FLOW	2.4	Oct 3	2.0	Aug 5	.76
ANNUAL SEVEN-DAY MINIMUM	4.9	Sep 27	3.0	Aug 25	1.1
ANNUAL RUNOFF (INCHES)	24.03		19.04		18.53
10 PERCENT EXCEEDS	770		562		583
50 PERCENT EXCEEDS	108		97		73
90 PERCENT EXCEEDS	10		6.1		5.7



## 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 mi<sup>2</sup>.

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: Nov. 7 and 8. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	4.1	142	265	81	58	60	46	66	7.4	1.6	2.7
2	3.3	5.1	118	207	79	70	55	38	71	85	1.6	2.9
3	7.2	83	243	172	77	60	51	38	70	69	1.5	3.0
4	5.6	97	165	145	78	55	61	127	53	20	2.1	3.9
5	3.5	145	129	145	83	52	54	169	41	12	3.2	3.5
6	2.7	115	112	256	125	53	48	113	28	8.6	78	3.1
7	23	100	94	269	108	46	45	80	23	7.0	18	2.7
8	16	88	84	201	88	42	49	66	21	5.6	9.0	3.1
9	33	85	77	201	79	38	77	59	19	11	22	3.1
10	42	76	72	371	73	34	59	46	17	45	9.5	14
11	23	74	65	1060	65	34	60	47	16	20	5.3	19
12	15	64	41	563	61	37	79	72	17	11	4.3	5.3
13	11	14	34	309	138	52	309	531	15	7.7	3.6	3.3
14	9.2	9.1	29	270	364	50	1950	296	13	5.3	3.2	2.6
15	8.1	8.7	29	345	169	48	444	930	12	4.0	3.3	2.6
16	6.8	8.4	26	393	121	45	249	1310	12	3.6	2.7	2.5
17	8.6	7.5	47	349	110	114	174	356	11	3.2	6.9	2.6
18	11	7.5	877	315	108	206	139	493	9.3	2.9	6.3	12
19	7.6	8.6	507	303	105	135	123	295	8.2	2.7	3.9	6.9
20	7.1	8.0	244	277	98	102	99	215	6.7	2.5	3.0	3.8
21	6.5	9.6	3370	208	85	117	84	161	30	2.2	2.6	3.2
22	6.9	26	1100	149	76	1260	74	127	71	2.1	2.5	16
23	6.1	23	377	148	68	692	66	107	68	2.0	2.3	16
24	5.5	17	239	132	63	324	57	89	21	2.0	2.2	9.1
25	5.4	15	180	118	58	234	51	82	15	2.4	2.0	6.9
26	5.2	39	153	112	54	194	50	73	12	2.0	2.2	5.0
27	4.5	750	148	106	51	173	56	63	9.8	1.8	2.6	3.8
28	4.8	1610	137	102	48	150	55	56	8.4	1.7	2.3	3.3
29	4.5	274	1960	96	---	124	66	54	7.3	1.9	4.2	3.2
30	4.4	180	1870	95	---	74	56	47	10	1.8	4.7	3.2
31	5.0	---	439	83	---	65	---	39	---	1.7	3.0	---
MEAN	9.85	132	423	250	96.9	153	160	201	26.1	11.5	7.08	5.74
MAX	42	1610	3370	1060	364	1260	1950	1310	71	85	78	19
MIN	2.7	4.1	26	83	48	34	45	38	6.7	1.7	1.5	2.5
IN.	.13	1.62	5.39	3.19	1.12	1.95	1.97	2.56	.32	.15	.09	.07

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

	MEAN	45.0	197	192	106	175	229	166	183	98.7	19.5	39.3	15.1
MAX	273	591	423	250	336	352	278	542	521	67.7	282	65.0	
(WY)	1985	1985	1991	1991	1989	1985	1939	1990	1985	1939	1985	1984	
MIN	1.97	11.9	6.62	19.3	81.3	132	78.5	11.7	3.33	9.11	1.10	.69	
(WY)	1988	1988	1990	1961	1987	1987	1988	1987	1988	1989	1988	1961	

SUMMARY STATISTICS	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	161	124	122
HIGHEST ANNUAL MEAN			265
LOWEST ANNUAL MEAN			42.4
HIGHEST DAILY MEAN	3940	May 26	5290
LOWEST DAILY MEAN	2.1	Sep 25	.76
INSTANTANEOUS PEAK FLOW	6620	May 26	11000
INSTANTANEOUS PEAK STAGE	16.47	May 26	22.22
INSTANTANEOUS LOW FLOW	1.7	Sep 25	.66
ANNUAL SEVEN-DAY MINIMUM	2.8	Sep 22	.94
ANNUAL RUNOFF (INCHES)	24.13		18.25
10 PERCENT EXCEEDS	349		255
50 PERCENT EXCEEDS	49		34
90 PERCENT EXCEEDS	4.4		2.4

## 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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	35	799	1510	381	320	364	316	162	33	6.8	12
2	11	33	618	1060	371	410	332	252	216	35	6.3	11
3	12	32	1500	826	370	404	304	220	217	112	5.7	19
4	16	95	1210	662	375	370	329	533	217	104	5.7	22
5	23	456	766	605	397	353	328	962	212	79	5.5	18
6	56	443	611	1050	523	346	299	675	202	53	188	16
7	51	278	520	1620	604	320	285	449	136	38	273	14
8	107	213	454	1130	512	281	289	348	109	29	92	14
9	184	192	410	997	465	262	377	289	94	25	169	17
10	621	181	372	1520	433	244	386	261	82	38	100	15
11	400	167	340	4980	396	231	369	262	75	213	64	14
12	225	156	299	3900	365	229	443	288	70	177	50	31
13	159	136	257	1780	423	248	1250	1760	69	91	36	67
14	124	97	231	1360	2460	265	15700	1980	64	60	26	39
15	100	82	217	1830	1040	268	3960	1550	57	44	21	24
16	83	75	204	2260	651	257	1800	3890	54	34	17	17
17	74	70	237	2110	565	441	1140	1440	50	27	16	14
18	76	66	5190	1850	547	1560	833	2840	45	23	17	14
19	92	66	3930	1860	553	993	725	1400	39	20	16	17
20	85	65	1570	1730	588	716	625	1030	35	18	20	22
21	74	64	13700	1370	536	623	528	783	98	16	28	29
22	68	90	9850	905	481	4280	455	621	228	15	29	31
23	62	188	2430	739	435	4670	400	516	291	13	25	33
24	56	167	1330	631	400	1760	344	445	154	11	18	43
25	51	144	929	554	377	1120	292	416	98	10	15	40
26	47	135	728	508	353	857	271	399	71	9.6	12	43
27	44	5900	632	482	334	722	275	344	56	9.0	11	32
28	40	13500	606	466	315	652	300	273	48	8.4	10	25
29	38	2450	8270	439	---	542	358	226	42	7.8	9.8	21
30	38	1180	14200	447	---	455	383	207	38	7.2	10	17
31	37	---	2870	412	---	400	---	178	---	6.8	11	---
MEAN	98.9	892	2428	1342	545	794	1125	811	111	44.1	42.4	24.4
MAX	621	13500	14200	4980	2460	4670	15700	3890	291	213	273	67
MIN	11	32	204	412	315	229	271	178	35	6.8	5.5	11
IN.	.23	1.97	5.55	3.06	1.12	1.81	2.49	1.85	.25	.10	.10	.05

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

	MEAN	65.6	418	1233	841	1124	980	789	798	212	70.8	54.7	29.4
MAX	98.9	892	2428	1342	1745	1296	1196	2911	595	109	139	54.2	
(WY)	1991	1991	1991	1991	1989	1988	1990	1990	1989	1989	1990	1988	
MIN	16.5	45.9	32.7	486	545	794	444	64.5	16.4	37.7	4.18	11.5	
(WY)	1988	1990	1990	1990	1991	1991	1987	1987	1988	1988	1988	1987	

## SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	908	691	580
HIGHEST ANNUAL MEAN			691
LOWEST ANNUAL MEAN			476
HIGHEST DAILY MEAN	16700	May 26	15700
LOWEST DAILY MEAN	11	Oct 2	5.5
INSTANTANEOUS PEAK FLOW	25900	May 26	25000
INSTANTANEOUS PEAK STAGE	17.13	May 26	16.87
INSTANTANEOUS LOW FLOW	11	Oct 1-3	5.2
ANNUAL SEVEN-DAY MINIMUM	13	Sep 28	6.3
ANNUAL RUNOFF (INCHES)	24.40		18.58
10 PERCENT EXCEEDS	1820		1510
50 PERCENT EXCEEDS	257		244
90 PERCENT EXCEEDS	25		16

## 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 mi<sup>2</sup>.

## 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.--Estimated daily discharges: Apr. 14 and 15. Water-discharge records good except for estimated daily discharges, which are fair. U.S. Army Corps of Engineers gage-height and satellite telemeters at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	54	1290	2530	470	425	535	566	250	64	13	23
2	24	54	980	1780	447	535	475	478	254	59	11	24
3	23	52	1760	1410	434	585	432	423	278	58	10	27
4	29	54	1950	1150	434	535	448	506	266	127	9.7	29
5	27	373	1230	1010	454	496	460	1290	299	120	11	36
6	32	572	954	1480	626	482	432	987	271	95	21	34
7	86	366	795	2530	889	460	406	619	217	72	205	28
8	95	281	675	1900	783	413	413	457	177	103	193	25
9	156	243	596	1580	700	379	863	382	155	92	155	28
10	448	220	532	2240	645	353	893	346	139	80	186	26
11	486	200	481	6920	588	328	764	335	127	82	126	23
12	304	183	438	6450	529	314	900	366	117	228	92	22
13	221	172	384	2950	565	323	2610	1860	109	160	75	22
14	177	142	344	2090	2570	345	26000	3550	104	112	61	55
15	149	113	315	2410	1640	357	6300	1850	95	84	51	43
16	127	97	291	3040	1050	351	2970	6000	87	68	44	31
17	113	87	306	2980	861	467	1940	2430	81	58	39	24
18	116	80	5460	2580	816	2080	1450	3600	72	52	37	34
19	112	78	6560	2480	799	1630	1260	2600	64	46	33	34
20	123	75	2510	2330	848	1180	1070	2040	60	41	33	27
21	112	75	15700	1990	797	1010	909	1370	55	38	31	25
22	102	96	16400	1410	717	5520	783	1000	165	34	35	31
23	93	167	4120	1120	640	7930	685	787	230	31	38	44
24	85	231	2170	947	575	2990	596	662	226	27	37	45
25	78	195	1530	816	533	1890	523	581	166	24	32	49
26	72	176	1190	717	489	1440	481	541	124	22	28	50
27	66	5030	1010	657	456	1190	467	469	101	19	25	49
28	64	18600	928	626	428	1040	488	398	86	17	23	44
29	60	4450	7370	571	---	883	598	357	77	15	27	37
30	56	1910	23600	556	---	731	647	318	70	13	39	32
31	55	---	5120	531	---	608	---	282	---	13	26	---
MEAN	120	1148	3451	1993	742	1202	1893	1208	151	66.3	56.3	33.4
MAX	486	18600	23600	6920	2570	7930	26000	6000	299	228	205	55
MIN	23	52	291	531	428	314	406	282	55	13	9.7	22
IN.	.21	1.93	5.99	3.46	1.16	2.09	3.18	2.10	.25	.12	.10	.06

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

	413	1763	1674	967	1523	1712	1283	1310	809	101	190	87.7
MEAN	413	1763	1674	967	1523	1712	1283	1310	809	101	190	87.7
MAX	2404	4900	3451	1993	2846	2858	1951	4125	4250	170	1215	304
(WY)	1985	1986	1991	1991	1985	1985	1984	1990	1985	1985	1985	1984
MIN	27.1	65.2	44.1	179	656	1202	606	94.7	29.1	39.7	10.7	6.53
(WY)	1988	1990	1990	1986	1987	1991	1987	1987	1988	1983	1988	1983

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

	1302	1010	985
ANNUAL MEAN	1302	1010	985
HIGHEST ANNUAL MEAN			2084
LOWEST ANNUAL MEAN			356
HIGHEST DAILY MEAN	23600	26000	38200
LOWEST DAILY MEAN	23	9.7	4.7
INSTANTANEOUS PEAK FLOW	30400	31200**	65800
INSTANTANEOUS PEAK STAGE	18.62	18.83**	25.80
INSTANTANEOUS LOW FLOW	22	9.7	4.0
ANNUAL SEVEN-DAY MINIMUM	27	12	5.1
ANNUAL RUNOFF (INCHES)	26.63	20.65	20.16
10 PERCENT EXCEEDS	2800	2280	2150
50 PERCENT EXCEEDS	331	335	246
90 PERCENT EXCEEDS	42	29	27

\*\* Maximum recorded

## ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SEDIMENT RECORDS: November 1988 to current year.

## EXTREMES FOR CURRENT RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum daily mean, 750 mg/L, Mar. 23; minimum daily mean, 1 mg/L Feb. 26, 28, Mar. 1, 3, and Sept. 4.

SUSPENDED-SEDIMENT LOADS: Maximum daily, 28,100 tons, Apr. 14; minimum daily, 0.01 tons, Sept. 5.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	26	---	.20	54	---	.80	1290	---	220
2	24	---	.20	54	---	.80	980	---	120
3	23	---	.20	52	---	.80	1760	---	800
4	29	---	.25	54	---	.80	1950	---	850
5	27	---	.25	373	---	.90	1230	---	210
6	32	---	.30	572	---	29	954	---	120
7	86	---	1.8	366	---	9.0	795	---	85
8	95	---	2.0	281	---	5.0	675	---	62
9	156	---	3.6	243	---	4.0	596	---	40
10	448	---	25	220	---	4.0	532	---	29
11	486	---	28	200	---	4.0	481	---	26
12	304	---	9.0	183	---	3.5	438	---	20
13	221	---	5.0	172	---	3.5	384	---	9.0
14	177	---	4.0	142	---	2.8	344	---	8.0
15	149	---	3.5	113	---	2.2	315	---	8.0
16	127	---	2.0	97	---	2.0	291	---	7.0
17	113	---	1.9	87	---	1.9	306	---	8.0
18	116	---	1.9	80	---	1.9	5460	---	1720
19	112	---	1.8	78	---	1.8	6560	---	1640
20	123	---	1.9	75	---	1.8	2510	---	681
21	112	---	1.8	75	---	1.7	15700	---	15000
22	102	---	1.8	96	---	2.0	16400	---	15600
23	93	---	1.7	167	---	3.8	4120	---	825
24	85	---	1.7	231	---	4.0	2170	---	392
25	78	---	1.6	195	---	3.9	1530	---	250
26	72	---	1.6	176	---	3.8	1190	---	176
27	66	---	1.5	5030	---	2200	1010	---	135
28	64	---	1.3	18600	---	26000	928	---	112
29	60	---	1.3	4450	---	1800	7370	---	3500
30	56	---	1.2	1910	---	850	23600	---	27100
31	55	---	1.2	---	---	---	5120	---	475
TOTAL	3717	---	109.50	34426	---	30949.70	106989	---	70228.0

## ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	2530	---	203	470	11	14	425	1	1.0
2	1780	---	129	447	8	9.6	535	2	2.1
3	1410	---	93	434	7	8.2	585	1	1.9
4	1150	---	68	434	10	11	535	9	12
5	1010	---	54	454	8	9.4	496	11	13
6	1480	---	71	626	6	10	482	5	5.3
7	2530	---	111	889	---	14	460	2	2.4
8	1900	---	75	783	---	12	413	2	1.8
9	1580	---	57	700	6	11	379	2	2.0
10	2240	---	75	645	8	13	353	3	2.3
11	6920	---	201	588	5	7.7	328	---	4.6
12	6450	---	171	529	5	5.9	314	15	11
13	2950	---	70	565	5	6.9	323	4	3.2
14	2090	---	45	2570	6	40	345	10	8.2
15	2410	7	48	1640	7	29	357	---	9.3
16	3040	10	82	1050	7	20	351	---	9.1
17	2980	7	56	861	5	13	467	131	148
18	2580	9	60	816	4	8.9	2080	19	87
19	2480	8	52	799	3	6.8	1630	3	13
20	2330	6	40	848	3	6.7	1180	3	11
21	1990	5	29	797	2	4.8	1010	6	16
22	1410	8	32	717	3	4.9	5520	560	12700
23	1120	8	25	640	2	3.7	7930	750	16100
24	947	6	16	575	2	2.8	2990	342	2760
25	816	9	20	533	---	2.0	1890	---	576
26	717	13	27	489	1	1.3	1440	16	64
27	657	10	18	456	2	1.7	1190	6	18
28	626	10	16	428	1	1.2	1040	4	12
29	571	7	11	---	---	---	883	---	13
30	556	7	11	---	---	---	731	---	14
31	531	7	10	---	---	---	608	---	15
TOTAL	61781	---	1976	20783	---	279.5	37270	---	32636.2
APRIL			MAY			JUNE			
1	535	13	17	566	---	30	250	3	1.4
2	475	15	16	478	15	17	254	6	3.7
3	432	13	13	423	11	11	278	6	3.8
4	448	11	12	506	22	27	266	6	3.5
5	460	---	11	1290	---	51	299	8	5.1
6	432	---	9.0	987	7	20	271	7	4.0
7	406	---	7.5	619	5	8.1	217	7	3.2
8	413	7	7.1	457	---	4.5	177	5	2.0
9	863	13	32	382	3	3.1	155	7	2.5
10	893	17	40	346	3	2.7	139	5	1.6
11	764	11	22	335	---	2.5	127	4	1.1
12	900	8	20	366	---	2.8	117	12	3.3
13	2610	56	662	1860	10	77	109	8	2.1
14	26000	365	28100	3550	21	224	104	6	1.4
15	6300	80	4290	1850	10	55	95	6	1.4
16	2970	67	527	6000	35	559	87	4	.86
17	1940	20	108	2430	26	181	81	---	.67
18	1450	---	51	3600	9	82	72	3	.58
19	1260	16	55	2600	6	42	64	4	.72
20	1070	---	54	2040	5	29	60	4	.62
21	909	---	48	1370	5	18	55	4	.56
22	783	---	42	1000	4	12	165	5	1.8
23	685	---	37	787	3	6.8	230	6	3.3
24	596	---	33	662	---	5.4	226	7	3.5
25	523	---	29	581	4	5.4	166	6	2.1
26	481	---	27	541	3	4.2	124	6	1.6
27	467	---	28	469	3	3.4	101	5	1.0
28	488	---	31	398	5	4.1	86	5	.81
29	598	---	42	357	9	7.7	77	4	.65
30	647	29	48	318	8	5.8	70	4	.57
31	---	---	---	282	3	1.9	---	---	---
TOTAL	56789	---	34418.6	37450	---	1503.4	4522	---	59.44

## ST. FRANCIS RIVER BASIN

07036100 ST. FRANCIS RIVER NEAR SACO, MO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	64	8	1.0	13	6	.21	23	---	.19
2	59	9	.97	11	6	.18	24	4	.24
3	58	7	.83	10	---	.12	27	3	.25
4	127	16	4.5	9.7	2	.06	29	1	.08
5	120	12	3.0	11	3	.10	36	---	.01
6	95	8	1.5	21	4	.23	34	3	.25
7	72	10	1.3	205	3	1.3	28	6	.43
8	103	53	16	193	23	12	25	6	.38
9	92	18	3.2	155	11	4.5	28	7	.50
10	80	12	1.7	186	6	2.8	26	7	.50
11	82	115	19	126	6	1.9	23	10	.62
12	228	11	4.6	92	6	1.5	22	4	.22
13	160	8	2.8	75	6	1.2	22	5	.31
14	112	10	2.3	61	5	.90	55	7	.99
15	84	11	1.8	51	5	.63	43	6	.75
16	68	8	1.0	44	3	.40	31	---	.25
17	58	7	.76	39	5	.52	24	---	.19
18	52	8	.73	37	4	.38	34	---	.25
19	46	6	.54	33	4	.39	34	---	.25
20	41	6	.44	33	5	.43	27	---	.22
21	38	6	.38	31	3	.22	25	---	.20
22	34	5	.30	35	2	.19	31	---	.25
23	31	5	.27	38	2	.25	44	---	.75
24	27	5	.23	37	4	.42	45	---	.76
25	24	8	.35	32	---	.45	49	---	.80
26	22	9	.39	28	---	.48	50	---	.90
27	19	7	.26	25	7	.50	49	---	.80
28	17	5	.19	23	5	.31	44	---	.75
29	15	5	.17	27	4	.25	37	---	.25
30	13	7	.27	39	2	.25	32	---	.22
31	13	4	.15	26	---	.17	---	---	---
TOTAL	2054	---	70.93	1746.7	---	33.24	1001	---	12.56



## ST. FRANCIS RIVER BASIN

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 6.0 mi above Pond Creek.

DRAINAGE AREA.--99.6 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	22	307	667	52	50	161	173	76	14	7.7	11
2	15	22	232	497	50	90	141	143	77	14	7.7	12
3	15	22	341	402	46	117	125	125	68	14	7.6	12
4	22	30	343	335	41	107	128	114	61	13	7.8	12
5	24	155	261	305	41	101	114	136	57	14	7.7	15
6	21	126	207	369	54	100	104	154	51	14	7.6	13
7	47	123	167	497	58	92	101	127	47	13	7.8	12
8	58	99	139	447	56	85	99	105	42	12	8.1	11
9	62	84	115	390	55	83	206	90	38	11	10	10
10	109	73	94	478	53	77	242	82	37	15	11	30
11	92	61	78	1300	46	70	232	98	34	16	11	38
12	71	52	67	1100	43	65	265	129	33	18	11	22
13	58	44	56	660	54	66	841	1380	33	16	10	16
14	52	37	44	491	69	62	4820	1250	31	13	9.7	14
15	44	33	40	428	83	56	1160	594	29	13	9.1	11
16	38	30	35	437	62	53	624	474	28	12	8.7	11
17	37	26	44	421	70	86	403	369	28	11	8.9	9.8
18	37	25	693	379	68	335	330	305	27	11	9.2	29
19	33	25	938	349	71	296	341	263	24	11	9.6	44
20	30	23	510	332	85	248	275	268	22	12	9.3	32
21	29	23	2360	291	89	242	220	235	21	11	9.1	25
22	27	34	1930	239	80	1100	178	204	20	12	9.3	23
23	27	46	851	204	75	1460	149	182	24	11	9.2	27
24	25	53	456	173	70	731	121	164	24	9.4	9.3	30
25	24	51	310	144	61	494	103	152	22	9.2	9.8	30
26	24	48	282	121	53	387	91	137	20	8.8	11	27
27	24	1060	242	103	49	329	87	121	19	8.8	10	23
28	23	2850	199	89	44	276	84	107	18	8.6	11	21
29	23	793	983	78	---	240	177	100	17	8.2	11	19
30	22	443	3210	69	---	209	211	92	15	8.1	11	19
31	22	---	800	59	---	184	---	83	---	8.0	11	---
MEAN	37.1	217	527	382	59.9	255	404	257	34.8	11.9	9.39	20.3
MAX	109	2850	3210	1300	89	1460	4820	1380	77	18	11	44
MIN	15	22	35	59	41	50	84	82	15	8.0	7.6	9.8
IN.	.43	2.43	6.10	4.43	.63	2.95	4.53	2.97	.39	.14	.11	.23

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

	MEAN	86.0	245	265	165	197	248	226	178	145	35.5	31.3	24.8
MAX	396	610	632	382	400	357	404	494	587	95.7	102	43.5	
(WY)	1985	1986	1988	1991	1989	1985	1991	1990	1985	1987	1985	1988	
MIN	21.7	32.5	25.5	37.0	59.9	154	106	28.9	15.0	11.9	7.67	6.50	
(WY)	1988	1990	1990	1984	1991	1987	1987	1987	1988	1991	1983	1983	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	202	186	154
HIGHEST ANNUAL MEAN			267
LOWEST ANNUAL MEAN			71.8
HIGHEST DAILY MEAN	3210	Dec 30	4820
LOWEST DAILY MEAN	14	Sep 1-3	7.6
INSTANTANEOUS PEAK FLOW	6420	May 17	9610
INSTANTANEOUS PEAK STAGE	9.32	May 17	10.73
INSTANTANEOUS LOW FLOW	13	Sep 2-3, Oct 3	7.3
ANNUAL SEVEN-DAY MINIMUM	15	Aug 30	7.7
ANNUAL RUNOFF (INCHES)	27.60		25.33
10 PERCENT EXCEEDS	462		432
50 PERCENT EXCEEDS	70		56
90 PERCENT EXCEEDS	19		11
			15

## ST. FRANCIS RIVER BASIN

07037500 ST. FRANCIS RIVER NEAR PATTERSON, MO

LOCATION.--Lat 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 bridge pier on State Highway 34, 1 mi upstream from Clark Creek, and 3 mi east of Patterson.

DRAINAGE AREA.--956 mi<sup>2</sup>.

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.--Estimated daily discharges: Dec. 22, 23, 30, and 31. 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 ft<sup>3</sup>/s, from rating curve extended above 55,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	107	2050	5750	684	659	872	1120	517	115	38	72
2	69	105	1510	4170	631	696	784	994	490	106	37	67
3	67	102	1490	3390	600	784	713	908	452	102	37	64
4	71	102	2590	2800	589	789	723	840	465	98	37	67
5	76	266	1830	2380	599	745	709	1090	559	113	36	68
6	76	635	1380	2410	730	725	683	1420	490	139	40	69
7	105	713	1180	3520	952	697	643	1130	432	130	45	70
8	177	535	1030	3360	1060	669	632	912	377	110	80	71
9	207	455	915	2670	976	630	941	794	324	115	229	70
10	324	401	808	2850	931	596	1330	798	284	141	181	66
11	576	365	712	7040	877	573	1180	893	266	124	195	113
12	524	334	638	10100	826	550	1280	969	255	114	158	89
13	403	304	578	5560	827	538	2850	3040	230	189	125	77
14	325	281	519	3560	1300	536	21800	5940	212	197	106	70
15	277	243	485	3050	2490	542	14900	3520	197	144	94	67
16	240	201	445	3570	1370	545	5310	5720	187	116	84	83
17	214	177	449	3780	1130	571	3320	4570	175	98	77	80
18	222	161	2090	3340	1050	1270	2550	3240	164	86	73	83
19	195	155	9730	3030	1010	2140	2320	3930	153	78	68	112
20	189	148	4260	2910	1010	1540	1960	3510	141	71	64	110
21	189	142	9880	2700	1030	1370	1670	2450	134	66	61	98
22	185	177	25300	2190	969	4730	1450	1710	128	62	60	91
23	170	199	7880	1690	912	11400	1300	1350	205	57	58	95
24	148	270	3690	1460	852	5380	1170	1200	284	54	58	98
25	140	339	2540	1310	810	3040	1050	1090	300	52	60	105
26	131	316	1910	1180	767	2210	963	966	237	49	61	105
27	129	1450	1610	1060	721	1760	913	884	188	46	62	104
28	124	17300	1430	985	676	1460	904	776	155	44	59	101
29	119	11400	2610	866	---	1290	1140	692	136	42	59	98
30	114	3280	23600	761	---	1130	1200	651	123	41	60	93
31	110	---	11000	735	---	982	---	578	---	39	73	---
MEAN	192	1355	4069	3038	942	1631	2575	1861	275	94.8	79.8	85.2
MAX	576	17300	25300	10100	2490	11400	21800	5940	559	197	229	113
MIN	67	102	445	735	589	536	632	578	123	39	36	64
IN.	.23	1.58	4.91	3.66	1.03	1.97	3.01	2.24	.32	.11	.10	.10

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

	MEAN	371	923	1319	1431	1573	2183	2302	1721	942	334	221	238
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	1955	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1675		1356		1127	
HIGHEST ANNUAL MEAN					2731	1985
LOWEST ANNUAL MEAN					343	1941
HIGHEST DAILY MEAN	25300	Dec 22	25300	Dec 22	107000	Dec 4 1982
LOWEST DAILY MEAN	67	Oct 3	36	Aug 5	8.0	Aug 28 1936
INSTANTANEOUS PEAK FLOW	29900	Dec 30	29900	Dec 30	155000	Dec 3 1982
INSTANTANEOUS PEAK STAGE	21.33	Dec 30	21.33	Dec 30	35.77	Dec 3 1982
INSTANTANEOUS LOW FLOW	66	Oct 3	35	Aug 5-6	8.0	Aug 28 1936
ANNUAL SEVEN-DAY MINIMUM	70	Sep 28	38	Jul 31	8.4	Aug 26 1936
ANNUAL RUNOFF (INCHES)	23.79		19.26		16.02	
10 PERCENT EXCEEDS	3690		3260		2310	
50 PERCENT EXCEEDS	535		545		329	
90 PERCENT EXCEEDS	93		68		51	

## ST. FRANCIS RIVER BASIN

## 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 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--April 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 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.--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. 1-3, 1970; minimum gage height, 4.20 ft, Sept. 26-27, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 292,000 acre-ft, Jan. 2, elevation, 378.57 ft; minimum, 26,100 acre-ft, Mar. 12, elevation, 353.70 ft.

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
OBSERVATION AT 08:00

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63300	63800	129000	291000	98300	28000	52700	148000	125000	63300	63100	64300
2	63100	63800	128000	292000	89700	27600	50200	145000	121000	63300	63100	64200
3	62600	63800	127000	289000	81600	27200	48600	141000	116000	63200	63100	63800
4	64100	63700	125000	283000	73800	26700	47500	138000	111000	63100	63100	64800
5	64000	64900	123000	275000	67200	27500	47100	134000	106000	63100	63100	65600
6	63800	64300	120000	267000	62000	28700	46200	131000	101000	62900	63100	65100
7	64500	64400	117000	263000	57000	29100	45500	128000	96200	62800	64300	64700
8	64800	64600	112000	258000	52800	28400	45000	124000	91200	62700	64400	64100
9	65600	64400	108000	253000	49200	27400	44300	120000	86000	63100	65000	64200
10	66800	63800	103000	245000	46000	26800	44300	116000	81400	63100	65200	63800
11	66200	63100	97900	240000	43200	26400	43800	115000	77200	63000	64900	63400
12	65900	62700	92200	249000	40700	26100	43200	112000	74800	63000	64600	63300
13	65500	62900	87900	256000	38500	27000	43400	113000	71800	63100	64400	63100
14	64900	63100	82900	254000	37300	27900	79600	123000	69900	63100	63900	63000
15	64300	63100	78500	249000	36000	28100	139000	131000	68000	63100	63500	62800
16	63700	63100	73700	241000	35900	27700	166000	137000	66600	63100	63400	62500
17	63300	63300	69900	235000	35200	27000	172000	145000	65000	63000	63100	62600
18	63900	63100	67700	229000	34500	26800	174000	150000	63700	62800	63500	62800
19	63600	63100	74700	222000	33300	27300	177000	154000	62700	62600	63400	63200
20	63500	63000	90400	214000	32200	29600	177000	156000	62000	62400	63200	63300
21	63600	62700	96000	207000	31800	31000	176000	160000	61800	62400	63000	63400
22	63900	64000	137000	198000	31700	33400	174000	160000	62500	62200	62800	63400
23	63900	64000	191000	189000	31500	50100	171000	159000	62600	62200	62900	63900
24	63800	64000	202000	179000	31000	72800	168000	156000	62600	62700	63100	64200
25	63600	64200	205000	168000	30600	78600	164000	154000	62900	62900	63100	64300
26	63400	64400	205000	158000	30100	76400	160000	151000	63100	63000	63100	64200
27	63200	64800	203000	148000	29500	72100	156000	148000	63400	63000	63300	64000
28	63400	74900	201000	138000	28800	68000	152000	144000	63600	63000	63400	63800
29	63300	110000	198000	127000	---	63300	150000	140000	63800	63000	63800	63800
30	63600	128000	212000	118000	---	59700	150000	135000	63700	63100	64100	63700
31	63800	---	276000	108000	---	55600	---	130000	---	63100	64200	---
(-)	360.12	366.70	377.58	364.81	354.44	359.04	368.68	366.93	360.10	360.03	360.16	360.10
(=)	+400	+64200	+148000	-168000	-79200	+26800	+94400	-20000	-66300	-600	+1100	-500
MAX	66800	128000	276000	292000	98300	78600	177000	160000	125000	63300	65200	65600
MIN	62600	62700	67700	108000	28800	26100	43300	113000	61800	62200	62800	62500

CAL YR 1990 . . . +211100

WTR YR 1991 . . . +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 mi<sup>2</sup>.

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 07039000) 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 ft<sup>3</sup>/s, determined by U.S. Army Corps of Engineers. Maximum discharge, 85,000 ft<sup>3</sup>/s, determined by U.S. Army Corps of Engineers, Aug. 1915 (stage unknown).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	199	203	2610	4030	5780	1240	2690	3280	3200	288	70	122
2	198	210	2720	4500	5400	1240	2320	3250	3170	212	72	192
3	160	212	2470	5070	5020	1230	2000	3220	3130	207	72	196
4	105	213	3090	5870	4600	856	1730	3200	3090	206	72	205
5	194	329	3340	6320	4170	182	1640	3190	3080	205	72	245
6	202	727	3460	6520	3910	502	1420	3170	3100	204	74	315
7	211	606	3550	6540	3720	1090	1310	3140	3050	203	74	318
8	208	672	3540	6620	3390	1300	1290	3110	2990	205	75	320
9	214	808	3500	6890	3080	1240	1280	3090	2850	205	109	320
10	300	819	3460	7040	2840	1050	1480	3060	2590	206	287	319
11	720	746	3470	7120	2580	899	1870	3050	2300	205	310	276
12	755	507	3380	7130	2320	407	1940	3030	1950	205	312	197
13	678	359	3090	7140	2110	158	2300	3050	1670	204	309	192
14	669	348	2990	7120	2010	344	2750	3110	1420	200	310	192
15	624	348	2950	7070	2310	752	2770	3190	1210	200	255	193
16	516	348	2840	7030	2280	979	2800	3310	1070	199	183	155
17	404	349	2580	7020	2050	1000	2800	3290	956	199	180	75
18	342	350	2310	7040	2010	933	2810	3300	824	200	179	68
19	312	351	2280	7040	1940	829	2980	3310	646	200	178	64
20	217	349	2400	7060	1670	831	3230	3320	520	199	167	63
21	207	348	2630	6990	1340	858	3260	3340	393	199	156	63
22	208	356	2530	6970	1300	1060	3280	3330	321	153	79	62
23	254	353	2460	7010	1290	1510	3370	3330	311	85	73	62
24	331	352	2450	6980	1290	2140	3380	3350	310	78	71	120
25	319	351	2570	6910	1280	3260	3340	3260	300	78	71	196
26	224	350	3100	6870	1270	4390	3320	2870	224	76	71	199
27	210	363	3210	6750	1260	4580	3320	3210	212	75	70	201
28	209	419	3220	6590	1250	4450	3300	3260	210	74	70	201
29	160	770	3250	6430	---	4040	3420	3250	257	74	71	202
30	78	1680	3520	6270	---	3570	3350	3260	335	72	70	202
31	124	---	3640	6100	---	3260	---	3230	---	70	70	---
MEAN	308	473	2987	6582	2624	1619	2558	3205	1523	167	137	184
MAX	755	1680	3640	7140	5780	4580	3420	3350	3200	288	312	320
MIN	78	203	2280	4030	1250	158	1280	2870	210	70	70	62
IN.	.27	.40	2.63	5.79	2.08	1.42	2.18	2.82	1.30	.15	.12	.16

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

	402	865	1860	2339	2324	2746	2940	2467	1392	748	401	409
MEAN	402	865	1860	2339	2324	2746	2940	2467	1392	748	401	409
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	167	188	286	308	63.5	62.3	6.00	87.1	40.0	34.0
(WY)	1949	1954	1990	1981	1963	1941	1981	1987	1978	1980	1965	1955

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1960	1865	1571
HIGHEST ANNUAL MEAN			3534
LOWEST ANNUAL MEAN			406
HIGHEST DAILY MEAN	10400	7140	21800
LOWEST DAILY MEAN	67	62	.00
INSTANTANEOUS PEAK FLOW	10400	7150	22300
INSTANTANEOUS PEAK STAGE	31.34	28.57	31.34
INSTANTANEOUS LOW FLOW	67	61	.00
ANNUAL SEVEN-DAY MINIMUM	78	65	.00
ANNUAL RUNOFF (INCHES)	20.30	19.32	16.28
10 PERCENT EXCEEDS	4060	4410	4100
50 PERCENT EXCEEDS	1330	1070	643
90 PERCENT EXCEEDS	187	107	40

## 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 mi<sup>2</sup>

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: Dec. 29 to Mar. 12. 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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	79	107	1500	290	300	304	475	326	183	71	54
2	55	78	100	1200	290	450	286	373	491	181	69	52
3	58	78	132	1000	285	400	278	342	404	185	66	75
4	121	78	112	800	280	350	295	332	364	169	65	97
5	80	81	101	1500	330	300	281	327	307	158	61	180
6	65	81	102	3500	1300	270	266	323	288	159	74	250
7	126	78	100	3000	900	250	260	298	280	155	113	121
8	210	76	99	2300	700	240	268	279	275	152	70	83
9	1160	79	98	2300	550	230	262	278	269	143	71	89
10	1240	80	98	3000	450	225	243	271	252	147	69	80
11	482	78	97	2500	420	220	235	299	262	143	61	71
12	183	77	97	2000	400	220	346	661	1550	139	58	66
13	122	75	95	1700	1000	225	1070	1210	784	136	57	64
14	107	74	93	1400	900	208	2410	697	395	131	58	62
15	99	75	107	1700	600	199	2040	386	276	116	58	61
16	96	76	110	1200	450	190	1090	558	241	115	59	59
17	95	74	362	800	400	190	636	724	229	117	61	66
18	98	74	2350	650	370	198	492	1040	222	118	60	68
19	96	78	1790	500	350	187	443	451	218	123	54	81
20	91	78	639	450	340	182	403	361	217	118	55	69
21	92	78	2380	380	330	188	378	348	294	107	57	64
22	122	95	4490	360	310	1690	363	350	1380	100	57	64
23	109	97	3310	350	290	2740	357	330	666	97	56	65
24	94	91	1550	340	280	1330	333	359	305	92	49	66
25	88	92	688	330	275	634	315	548	239	87	48	68
26	86	90	435	320	270	455	312	793	208	86	48	67
27	84	91	362	315	270	410	311	509	195	86	49	66
28	84	225	437	310	270	434	304	405	188	82	53	66
29	84	143	1000	305	---	367	1580	369	195	77	59	66
30	82	122	3500	300	---	340	969	351	193	75	65	66
31	82	---	2000	295	---	314	---	333	---	71	62	---
MEAN	182	89.0	869	1181	461	450	571	464	384	124	61.7	80.2
MAX	1240	225	4490	3500	1300	2740	2410	1210	1550	185	113	250
MIN	55	74	93	295	270	182	235	271	188	71	48	52
IN.	.90	.42	4.26	5.79	2.04	2.21	2.71	2.28	1.82	.61	.30	.38

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

	MEAN	138	257	386	461	542	537	467	461	292	207	138	122
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 1990 CALENDAR YEAR		FOR 1991 WATER YEAR		FOR PERIOD OF RECORD	
ANNUAL MEAN	402		411		333	
HIGHEST ANNUAL MEAN					774	
LOWEST ANNUAL MEAN					94.7	
HIGHEST DAILY MEAN	4490	Dec 22	4490	Dec 22	6490	Mar 29 1975
LOWEST DAILY MEAN	53	Sep 28	48	Aug 25-26	29	Sep 20 1954,
						Oct 11-14 1980
INSTANTANEOUS PEAK FLOW	4610	Dec 22	4610	Dec 22	6580	Mar 29 1975
INSTANTANEOUS PEAK STAGE	13.23	Dec 22	13.23	Dec 22	15.16	Feb 15 1950
INSTANTANEOUS LOW FLOW	53	Sep 28-30	47	Aug 25-26	29	Sep 20 1954,
						Oct 11-14 1980
ANNUAL SEVEN-DAY MINIMUM	56	Sep 23	51	Aug 22	29	Oct 8 1980
ANNUAL RUNOFF (INCHES)	23.21		23.73		19.26	
10 PERCENT EXCEEDS	901		1050		635	
50 PERCENT EXCEEDS	170		225		193	
90 PERCENT EXCEEDS	68		66		74	



## ST. FRANCIS RIVER BASIN

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 mi<sup>2</sup>.

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 and from 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.--No estimated daily discharges. Records good. 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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	91	438	2970	344	307	303	1620	380	172	63	66
2	74	91	308	2220	328	507	287	942	533	162	58	65
3	76	92	287	1450	317	454	277	536	445	162	56	74
4	120	93	269	890	309	373	337	408	376	146	56	195
5	311	105	241	2240	353	328	399	379	371	132	57	334
6	237	111	209	6630	2220	311	354	376	363	119	92	198
7	188	106	184	3830	1980	278	310	312	319	114	128	158
8	306	103	173	2740	1090	260	297	289	300	114	113	125
9	470	108	163	2930	727	245	288	282	283	114	261	101
10	955	109	158	5990	561	230	272	283	268	177	154	85
11	763	104	155	6280	460	231	264	329	271	130	100	76
12	444	101	154	3370	416	241	279	332	308	105	79	71
13	274	100	147	2220	580	241	1860	787	331	95	69	68
14	191	101	150	1540	1190	232	9230	1700	292	95	67	72
15	148	100	151	2120	815	218	7690	1200	264	103	66	68
16	127	100	192	1560	520	203	4330	1760	240	99	66	68
17	120	99	513	1020	428	208	2870	1740	225	95	70	66
18	125	99	2910	772	423	216	2250	1110	218	93	74	67
19	123	100	2240	621	428	208	1640	652	222	87	73	68
20	119	100	1580	560	438	205	1000	481	216	79	71	66
21	113	102	7920	504	392	212	667	785	216	78	68	67
22	109	199	8770	464	363	3260	484	586	1070	76	66	69
23	103	398	5850	422	340	4930	395	437	689	73	63	72
24	100	292	3160	395	317	2030	354	488	439	72	64	74
25	101	202	2240	380	300	1140	323	2930	450	76	63	77
26	98	170	1390	375	291	740	305	3070	288	72	63	75
27	97	187	840	374	282	609	319	2230	232	71	66	73
28	93	1410	756	371	279	513	349	1380	201	70	66	74
29	91	1220	5130	388	---	439	1720	717	196	67	74	78
30	91	713	8150	389	---	367	2340	491	184	63	72	72
31	90	---	4690	370	---	327	---	413	---	59	68	---
MEAN	204	230	1920	1819	589	647	1393	937	340	102	80.8	94.1
MAX	955	1410	8770	6630	2220	4930	9230	3070	1070	177	261	334
MIN	74	91	147	370	279	203	264	282	184	59	56	65
IN.	.52	.57	4.92	4.66	1.36	1.66	3.45	2.40	.84	.26	.21	.23

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

	MEAN	177	427	657	772	898	961	878	741	383	267	180	178
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

	732	699	541
ANNUAL MEAN			
HIGHEST ANNUAL MEAN			1261
LOWEST ANNUAL MEAN			134
HIGHEST DAILY MEAN	8770	Dec 22	11700
LOWEST DAILY MEAN	61	Sep 15-17	21
INSTANTANEOUS PEAK FLOW	9070	Feb 16	11200
INSTANTANEOUS PEAK STAGE	16.53	Feb 16	18.42
INSTANTANEOUS LOW FLOW	59	Sep 15-17	21
ANNUAL SEVEN-DAY MINIMUM	64	Sep 13	24
ANNUAL RUNOFF (INCHES)	22.10		16.35
10 PERCENT EXCEEDS	2070		1290
50 PERCENT EXCEEDS	269		203
90 PERCENT EXCEEDS	88		79



## 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 mi<sup>2</sup>.

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 the pumping of 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	38	317	803	347	104	128	391	198	29	12	7.9
2	23	37	257	593	347	131	117	339	170	29	13	8.4
3	67	35	1070	478	359	149	112	802	137	31	11	12
4	152	38	679	412	375	151	114	887	114	42	9.6	15
5	91	42	443	366	446	147	110	631	104	41	9.6	11
6	61	38	348	345	425	143	103	483	185	35	13	9.1
7	508	38	280	343	364	132	100	382	98	31	11	8.6
8	566	37	222	325	324	122	97	320	79	28	10	10
9	928	40	184	303	290	112	104	269	77	26	12	11
10	639	37	155	596	268	105	111	244	71	24	11	5.2
11	415	37	130	1430	237	99	107	259	73	24	10	5.4
12	309	36	113	959	211	97	109	1700	74	25	11	5.3
13	235	35	99	681	209	93	294	2650	73	32	9.6	8.5
14	185	34	91	588	222	90	2210	764	68	29	8.2	8.8
15	137	33	88	1970	205	86	4370	508	61	27	8.6	7.6
16	101	31	79	2310	188	82	1280	741	65	25	8.5	10
17	87	31	633	1340	180	137	824	576	62	23	12	12
18	77	30	2240	1210	170	345	5560	415	59	21	12	20
19	65	30	879	1540	153	307	2030	335	52	20	12	22
20	58	29	581	1680	139	247	1110	285	49	19	9.4	19
21	51	30	483	1180	127	205	824	248	45	17	8.2	20
22	47	35	500	836	118	201	659	221	43	16	8.0	25
23	50	36	388	658	110	375	541	195	45	15	7.7	24
24	47	38	322	548	107	331	461	170	49	15	7.2	22
25	44	39	273	480	99	266	403	2240	47	17	7.4	20
26	41	58	232	431	93	234	370	1010	42	15	6.9	18
27	39	947	212	390	89	206	958	609	39	15	7.6	15
28	38	1410	185	362	84	181	907	436	36	14	7.2	14
29	39	618	4090	364	---	160	654	337	33	14	6.4	17
30	43	412	4350	452	---	112	503	276	31	14	6.6	14
31	39	---	1250	391	---	126	---	234	---	14	8.1	---
MEAN	168	144	683	786	224	170	842	612	76.0	23.5	9.51	13.5
MAX	928	1410	4350	2310	446	375	5560	2650	198	42	13	25
MIN	23	29	79	303	84	82	97	170	31	14	6.4	5.2
IN.	.79	.65	3.20	3.68	.95	.80	3.82	2.87	.34	.11	.04	.06

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

	111	232	312	208	267	430	411	392	189	117	41.0	89.5
MEAN	111	232	312	208	267	430	411	392	189	117	41.0	89.5
MAX	587	1327	1370	786	972	1041	1193	1672	873	1148	262	881
(WY)	1971	1973	1983	1991	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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	408	314	233
HIGHEST ANNUAL MEAN			465
LOWEST ANNUAL MEAN			52.8
HIGHEST DAILY MEAN	8490	5560	13900
LOWEST DAILY MEAN	8.6	5.2	.30
INSTANTANEOUS PEAK FLOW	14600	9400	24800
INSTANTANEOUS PEAK STAGE	16.24	14.61	18.20
INSTANTANEOUS LOW FLOW	5.9	4.2	0.1
ANNUAL SEVEN-DAY MINIMUM	9.4	7.0	.53
ANNUAL RUNOFF (INCHES)	22.54	17.33	12.87
10 PERCENT EXCEEDS	873	779	506
50 PERCENT EXCEEDS	155	104	76
90 PERCENT EXCEEDS	18	11	12

## WHITE RIVER BASIN

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 old State Highways 13 and 248 in Galena, 0.7 mi upstream from Railey Creek and 42.3 mi above mouth.

DRAINAGE AREA.--987 mi<sup>2</sup>.

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.--No estimated daily discharges. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	258	225	1350	1570	1780	575	779	1930	1020	268	162	152
2	270	221	1100	976	1650	640	733	1690	929	276	144	155
3	262	218	1540	713	1600	687	725	1730	849	569	133	144
4	546	228	3060	547	1610	724	730	2680	780	949	127	163
5	702	253	2130	488	1680	739	712	2420	711	675	126	183
6	522	286	1640	488	1810	738	689	2090	772	477	121	167
7	430	249	1320	496	1720	712	671	1790	823	389	135	143
8	1760	235	1100	503	1570	672	659	1540	691	326	143	151
9	2250	232	935	500	1440	628	658	1360	607	305	151	157
10	2490	226	800	1000	1340	586	721	1210	560	264	152	166
11	1890	220	695	3390	1240	559	725	1150	542	247	159	156
12	1440	213	613	2810	1160	549	769	1080	522	237	139	155
13	1130	207	554	1770	1140	531	1150	2690	508	251	124	142
14	936	205	505	1380	1140	507	4980	2420	488	395	123	137
15	765	201	464	2820	1090	497	9650	1680	497	301	115	117
16	636	194	423	7230	1050	481	8050	1500	483	268	112	117
17	553	192	632	4520	1000	540	4460	1760	482	248	117	133
18	496	189	4610	3250	969	798	8750	1450	456	197	121	185
19	461	185	4000	3280	940	1080	13500	1210	425	198	126	338
20	406	184	2650	3910	870	1100	5700	1170	395	191	114	312
21	371	190	2120	3400	816	1060	4010	1090	379	177	128	238
22	336	195	2000	2500	770	1230	3230	1040	356	171	112	212
23	312	207	1830	2030	724	1610	2740	965	359	168	105	231
24	294	203	1470	1820	679	1760	2390	886	374	172	114	299
25	290	195	1200	1740	663	1550	2130	2010	366	185	112	248
26	283	210	1030	1730	630	1360	1920	5900	350	187	107	206
27	253	616	854	1730	597	1220	2140	2620	332	175	106	178
28	248	3170	822	1760	571	1090	2910	1950	311	173	108	169
29	238	2720	2830	1810	---	1000	2580	1570	310	165	110	158
30	230	1800	11600	1910	---	904	2230	1310	279	157	119	145
31	221	---	4170	1940	---	838	---	1140	---	153	130	---
MEAN	686	462	1990	2065	1152	870	3036	1775	532	288	126	182
MAX	2490	3170	11600	7230	1810	1760	13500	5900	1020	949	162	338
MIN	221	184	423	488	571	481	658	886	279	153	105	117
IN.	.80	.52	2.33	2.41	1.22	1.02	3.43	2.07	.60	.34	.15	.21

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

	MEAN	506	801	953	882	1102	1503	1750	1600	1157	591	407	360
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1658	1097	966
HIGHEST ANNUAL MEAN			2499
LOWEST ANNUAL MEAN			119
HIGHEST DAILY MEAN	26200	13500	46900
LOWEST DAILY MEAN	87	105	11
INSTANTANEOUS PEAK FLOW	30900	17600	52700
INSTANTANEOUS PEAK STAGE	19.44	13.57	29.82
INSTANTANEOUS LOW FLOW	85	102	10
ANNUAL SEVEN-DAY MINIMUM	99	109	12
ANNUAL RUNOFF (INCHES)	22.80	15.09	13.30
10 PERCENT EXCEEDS	3500	2450	2100
50 PERCENT EXCEEDS	880	628	421
90 PERCENT EXCEEDS	191	151	117

## 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, 3.0 mi upstream from Fall Creek, and 6.1 mi southwest of Branson.

DRAINAGE AREA.--4,020 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1956 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). Prior to July 18, 1958, nonrecording 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 881.0 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 933.0 ft. Capacity is 3,462,000 acre-ft at top of flood control pool, elevation 931.0 ft. Capacity between elevations 915.0 ft and 931.0 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, 2,870,000 acre-ft, May 27-29, maximum elevation, 918.78 ft, May 27; minimum, 2,510,000 acre-ft, Oct. 20-29, minimum elevation, 910.31 ft, Oct. 23.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2550000	2520000	2550000	2640000	2670000	2560000	2570000	2810000	2860000	2760000	2680000	2570000
2	2540000	2520000	2560000	2650000	2660000	2560000	2560000	2810000	2850000	2750000	2670000	2570000
3	2540000	2520000	2570000	2660000	2650000	2560000	2560000	2820000	2840000	2760000	2660000	2570000
4	2540000	2520000	2570000	2650000	2650000	2560000	2540000	2830000	2830000	2760000	2660000	2570000
5	2530000	2520000	2570000	2660000	2650000	2560000	2540000	2830000	2830000	2760000	2660000	2570000
6	2530000	2520000	2570000	2680000	2650000	2570000	2550000	2830000	2830000	2760000	2660000	2570000
7	2530000	2530000	2580000	2690000	2650000	2570000	2560000	2830000	2840000	2760000	2660000	2570000
8	2540000	2520000	2580000	2690000	2660000	2570000	2570000	2830000	2840000	2770000	2660000	2570000
9	2540000	2520000	2580000	2690000	2660000	2570000	2560000	2830000	2840000	2760000	2660000	2560000
10	2540000	2520000	2580000	2710000	2670000	2570000	2560000	2820000	2830000	2760000	2660000	2550000
11	2540000	2520000	2580000	2730000	2660000	2570000	2550000	2820000	2830000	2760000	2650000	2550000
12	2540000	2520000	2590000	2740000	2650000	2580000	2560000	2820000	2820000	2760000	2650000	2540000
13	2540000	2520000	2580000	2740000	2640000	2560000	2600000	2830000	2810000	2760000	2650000	2530000
14	2550000	2520000	2580000	2740000	2630000	2550000	2660000	2820000	2800000	2760000	2650000	2530000
15	2540000	2520000	2580000	2760000	2610000	2550000	2700000	2820000	2800000	2750000	2640000	2520000
16	2540000	2520000	2580000	2790000	2610000	2550000	2720000	2820000	2810000	2750000	2630000	2520000
17	2530000	2520000	2570000	2800000	2610000	2560000	2730000	2820000	2800000	2730000	2630000	2520000
18	2520000	2520000	2580000	2790000	2600000	2560000	2790000	2820000	2790000	2730000	2630000	2520000
19	2520000	2520000	2590000	2780000	2590000	2560000	2830000	2830000	2780000	2720000	2620000	2520000
20	2510000	2520000	2600000	2780000	2580000	2560000	2840000	2830000	2780000	2710000	2620000	2520000
21	2510000	2520000	2590000	2770000	2580000	2570000	2840000	2830000	2780000	2700000	2610000	2520000
22	2510000	2520000	2590000	2750000	2570000	2580000	2830000	2830000	2780000	2690000	2600000	2520000
23	2510000	2520000	2590000	2740000	2570000	2580000	2820000	2830000	2780000	2690000	2590000	2520000
24	2510000	2520000	2580000	2730000	2580000	2590000	2820000	2830000	2780000	2690000	2590000	2520000
25	2510000	2520000	2590000	2730000	2570000	2600000	2810000	2840000	2770000	2690000	2590000	2520000
26	2510000	2520000	2580000	2720000	2560000	2600000	2790000	2860000	2770000	2690000	2590000	2520000
27	2510000	2530000	2570000	2720000	2560000	2590000	2800000	2870000	2770000	2690000	2580000	2520000
28	2510000	2530000	2550000	2710000	2550000	2590000	2810000	2870000	2760000	2690000	2580000	2520000
29	2510000	2540000	2570000	2700000	---	2590000	2810000	2870000	2760000	2690000	2570000	2520000
30	2520000	2540000	2600000	2700000	---	2580000	2810000	2860000	2760000	2690000	2570000	2520000
31	2520000	---	2620000	2690000	---	2580000	---	2860000	---	2690000	2570000	---
(-)	910.57	911.24	912.97	914.63	911.49	912.15	917.56	918.59	916.45	914.78	911.91	910.54
(=)	-40000	+20000	+80000	+70000	-140000	+30000	+230000	+50000	-100000	-70000	-120000	-50000
MAX	2550000	2540000	2620000	2800000	2670000	2600000	2840000	2870000	2860000	2770000	2680000	2570000
MIN	2510000	2520000	2550000	2640000	2550000	2550000	2540000	2810000	2760000	2690000	2570000	2520000

CAL YR 1990 . . . . +350000

WTR YR 1991 . . . . -40000

(-) Elevation, in feet NGVD, at end of month

(=) Change in contents, in acre-feet

## WHITE RIVER BASIN

07053450 WHITE RIVER BELOW TABLE ROCK DAM NEAR BRANSON, MO

## WATER-QUALITY RECORDS

LOCATION.--Lat 36°35'42", long 93°18'32", sec.22, T.22 N., R.22 W., Taney County, Hydrologic Unit 11010003, on left bank in SW corner of U.S. Army Corps of Engineers' carpentry building, 600 ft below Table Rock Dam.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1987 to current year.

DISSOLVED OXYGEN: June 1987 to current year.

INSTRUMENTATION.--Water quality monitor since June 1987.

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 Dec. 31 to June 19.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.0	13.5	13.9	14.5	13.5	13.9	14.2	13.7	14.0	---	---	---
2	14.5	13.5	13.9	14.4	13.5	13.8	14.2	13.7	14.0	---	---	---
3	14.2	13.7	13.9	14.2	13.6	13.8	14.3	13.7	14.0	---	---	---
4	14.7	13.5	14.0	13.8	13.4	13.6	13.8	13.5	13.7	---	---	---
5	14.1	13.5	13.9	14.4	13.3	13.7	13.9	13.3	13.7	---	---	---
6	14.3	13.5	13.9	14.4	13.4	13.8	14.2	13.1	13.6	---	---	---
7	14.1	13.7	13.9	14.0	13.4	13.7	13.9	13.1	13.4	---	---	---
8	14.1	13.7	14.0	14.3	13.4	14.0	13.9	12.9	13.2	---	---	---
9	15.4	13.7	14.1	14.3	13.4	13.9	13.7	12.8	13.2	---	---	---
10	14.3	13.7	14.2	14.5	13.3	13.8	13.7	12.9	13.2	---	---	---
11	14.9	13.6	14.1	14.5	13.5	13.9	13.7	12.9	13.2	---	---	---
12	14.6	13.4	14.0	14.5	13.6	14.0	13.1	12.9	13.0	---	---	---
13	14.7	13.5	13.9	14.5	13.5	14.1	13.1	12.9	13.0	---	---	---
14	14.7	13.5	14.0	14.3	13.5	14.1	13.2	12.7	13.0	---	---	---
15	14.3	13.5	14.0	14.5	13.5	13.9	13.0	12.6	12.8	---	---	---
16	14.6	13.6	14.1	14.4	13.3	13.8	12.7	12.5	12.6	---	---	---
17	14.4	13.7	14.1	14.4	13.2	13.8	12.6	12.4	12.5	---	---	---
18	14.5	13.4	14.3	14.2	13.5	13.8	12.6	12.2	12.4	---	---	---
19	14.4	13.5	14.1	14.2	13.7	13.9	12.7	12.2	12.3	---	---	---
20	14.3	13.5	14.1	14.3	13.6	13.9	12.9	11.9	12.3	---	---	---
21	14.4	13.8	14.2	14.3	13.7	14.1	12.0	11.0	11.7	---	---	---
22	14.7	13.6	14.3	14.2	13.7	14.0	11.5	10.3	11.1	---	---	---
23	14.6	13.7	14.1	14.4	13.6	13.9	10.9	10.3	10.6	---	---	---
24	14.5	13.5	14.1	14.5	13.5	13.9	10.4	9.7	10.1	---	---	---
25	14.4	13.5	13.8	14.5	13.7	14.1	10.4	9.3	9.8	---	---	---
26	14.6	13.3	13.8	14.4	13.8	14.1	9.5	8.8	9.3	---	---	---
27	14.5	13.4	13.9	14.6	13.9	14.3	9.1	8.7	9.0	---	---	---
28	14.6	13.4	13.8	14.5	13.7	14.2	8.7	8.5	8.7	---	---	---
29	14.5	13.3	13.8	14.5	13.7	14.2	8.5	8.1	8.4	---	---	---
30	14.5	13.4	13.8	14.3	13.6	14.1	8.1	7.3	7.8	---	---	---
31	14.4	13.5	13.8	---	---	---	---	---	---	---	---	---
MONTH	15.4	13.3	14.0	14.6	13.2	13.9	---	---	---	---	---	---

## WHITE RIVER BASIN

07053450 WHITE RIVER BELOW TABLE ROCK DAM NEAR BRANSON, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	12.6	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	12.4	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	11.6	9.6	10.2	11.3	9.9	10.4	11.9	10.8	11.1
2	---	---	---	---	---	---	11.4	9.9	10.5	13.0	10.7	11.0
3	---	---	---	---	---	---	11.2	10.1	10.5	11.3	10.6	11.0
4	---	---	---	---	---	---	12.6	10.1	10.5	11.3	10.7	11.0
5	---	---	---	---	---	---	11.7	10.1	10.5	12.2	10.7	11.1
6	---	---	---	---	---	---	11.6	10.1	10.5	11.9	10.7	11.0
7	---	---	---	---	---	---	11.5	10.1	10.5	11.6	10.7	11.0
8	---	---	---	---	---	---	11.3	10.1	10.6	11.6	10.7	11.1
9	---	---	---	---	---	---	12.4	10.3	11.0	11.5	10.8	11.2
10	---	---	---	---	---	---	12.3	10.2	10.7	11.4	10.9	11.2
11	---	---	---	---	---	---	12.2	10.1	10.6	11.9	10.9	11.2
12	---	---	---	12.0	9.4	10.0	12.5	10.1	10.7	11.3	10.8	11.1
13	---	---	---	11.7	9.4	10.0	11.9	10.1	10.6	11.3	10.7	11.0
14	---	---	---	12.4	9.4	9.8	11.9	10.3	10.7	11.3	10.7	11.0
15	---	---	---	10.5	9.3	9.8	11.3	10.3	10.7	11.4	10.8	11.1
16	---	---	---	11.8	9.5	10.1	11.3	10.2	10.7	11.5	10.7	11.0
17	---	---	---	10.9	9.5	10.1	11.7	10.4	10.9	11.5	10.7	10.9
18	---	---	---	10.6	9.7	10.1	12.5	10.3	10.9	11.6	10.4	10.9
19	10.7	9.5	10.0	10.8	9.6	10.1	10.9	10.3	10.7	11.4	10.3	10.9
20	11.2	9.6	10.0	10.7	9.7	10.1	12.1	10.2	10.9	11.3	10.4	10.7
21	11.3	9.5	9.9	11.0	9.8	10.2	11.6	10.3	10.7	11.6	10.6	10.8
22	14.0	9.5	10.3	10.4	9.8	10.2	11.0	10.4	10.8	11.7	10.6	11.0
23	12.4	9.6	10.0	---	---	---	12.0	10.6	11.1	11.8	10.7	10.9
24	11.9	9.5	9.9	---	---	---	12.6	10.7	11.0	12.0	10.6	11.1
25	10.6	9.4	10.0	---	---	---	12.1	10.5	11.0	11.9	10.6	11.1
26	11.3	9.7	10.1	---	---	---	11.5	10.5	10.8	11.9	10.5	11.1
27	11.6	9.6	10.1	---	---	---	11.8	10.5	10.9	11.9	10.5	11.0
28	11.6	9.6	10.0	---	---	---	11.6	10.6	10.9	11.7	10.5	11.0
29	12.4	9.6	10.1	---	---	---	11.6	10.7	11.0	12.1	10.4	11.0
30	13.5	9.6	10.3	---	---	---	11.6	10.7	11.1	11.8	10.7	11.2
31	---	---	---	11.9	9.8	10.4	11.7	10.7	11.0	---	---	---
MONTH	---	---	---	---	---	---	12.6	9.9	10.8	13.0	10.3	11.0





## WHITE RIVER BASIN

07053450 WHITE RIVER BELOW TABLE ROCK DAM NEAR BRANSON, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	8.7	5.1	6.4	8.3	4.6	5.7	9.7	5.7	7.5
2	---	---	---	8.4	5.4	6.7	8.8	4.6	6.3	9.7	5.7	7.4
3	---	---	---	9.9	6.2	7.6	8.9	4.4	6.4	9.6	5.0	7.0
4	---	---	---	9.6	6.2	7.7	9.7	6.3	7.7	10.3	6.4	8.1
5	---	---	---	9.6	6.1	7.5	10.5	5.2	6.9	11.1	4.7	8.0
6	---	---	---	9.6	6.0	7.6	9.5	4.4	7.3	10.2	5.4	7.4
7	---	---	---	9.6	6.3	8.0	9.2	6.3	7.3	9.9	4.8	7.1
8	---	---	---	10.2	6.4	8.0	8.9	4.4	6.6	10.2	4.0	7.1
9	---	---	---	9.6	6.2	7.3	8.9	4.6	6.7	8.5	4.6	6.3
10	---	---	---	9.0	6.3	7.3	8.7	5.0	6.4	8.8	3.5	6.4
11	---	---	---	9.5	6.1	7.6	8.8	4.7	6.2	8.5	4.3	5.9
12	---	---	---	8.9	5.9	7.2	8.7	5.0	6.7	---	---	---
13	---	---	---	9.4	5.6	7.2	8.0	4.7	6.4	---	---	---
14	---	---	---	---	---	---	8.1	4.4	6.4	8.6	4.2	6.2
15	---	---	---	---	---	---	8.1	3.6	5.4	9.6	4.3	6.4
16	---	---	---	---	---	---	8.7	4.1	5.2	9.3	4.6	6.9
17	---	---	---	8.5	5.5	6.5	10.9	4.6	7.8	8.7	5.8	7.1
18	---	---	---	10.3	5.4	7.2	10.7	5.4	7.7	11.4	4.8	7.8
19	8.3	4.3	6.2	9.7	5.3	6.7	10.1	4.1	6.8	10.4	5.1	7.2
20	9.4	6.1	7.4	10.4	5.6	7.6	11.2	4.3	8.5	9.8	6.0	7.4
21	9.6	6.5	7.8	10.1	5.1	7.2	9.1	3.9	6.0	9.0	5.9	6.8
22	10.4	6.4	8.2	8.7	4.9	6.3	9.0	3.8	5.2	10.4	4.7	6.8
23	10.3	6.4	8.1	9.7	6.1	7.6	9.3	4.3	6.4	9.9	5.4	6.5
24	9.9	6.3	7.8	10.3	5.1	7.7	10.2	5.3	7.5	10.9	5.4	7.5
25	10.3	5.8	7.1	9.6	6.9	8.0	10.9	6.3	7.8	10.8	4.9	7.6
26	9.3	6.0	7.4	10.1	6.7	8.3	8.3	3.7	5.7	10.8	4.8	7.6
27	8.3	5.6	7.0	9.3	6.5	7.8	9.1	3.7	6.0	10.2	5.1	7.3
28	8.8	5.8	7.1	10.0	6.4	7.8	8.9	4.9	6.7	9.9	5.0	7.5
29	9.1	6.2	7.6	10.2	6.4	8.0	9.4	4.9	7.1	8.5	4.1	5.8
30	9.5	6.0	7.5	10.3	6.1	7.8	9.6	4.8	7.4	11.4	4.2	7.3
31	---	---	---	10.8	5.2	7.3	9.3	5.4	7.3	---	---	---
MONTH	---	---	---	---	---	---	11.2	3.6	6.7	---	---	---

## WHITE RIVER BASIN

07053500 WHITE RIVER NEAR BRANSON, MO

LOCATION.--Lat 36°35'51", long 93°17'42", in SE ¼ NE ¼ 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, 5.0 mi southwest of Branson, 7.4 mi upstream from Missouri Pacific bridge, and at mile 527.8.

DRAINAGE AREA.--4,022 mi<sup>2</sup>.

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 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3520	40	980	40	10400	40	10100	8030	4190	3780	6600	140
2	3370	40	1950	5470	11000	1170	7270	9060	4360	2330	5840	140
3	3520	40	6560	8210	870	40	7910	9450	4830	140	4510	2350
4	1290	40	5150	9080	6930	3000	9870	9330	4990	190	210	520
5	3190	40	6820	4920	10200	2260	6910	8640	1300	840	940	820
6	2950	40	4030	1740	9240	260	390	9290	130	480	2920	1420
7	140	40	1660	9180	10200	5640	40	8680	140	190	2150	2050
8	3300	2110	40	9540	8480	1180	4850	9310	170	470	2810	1440
9	3180	1410	40	9160	5160	2660	6830	9540	220	2280	450	3670
10	3220	40	2480	10700	4010	40	3610	6000	2110	1960	190	3550
11	3180	40	2540	9390	9230	40	8980	6090	5720	1120	220	4460
12	620	580	2410	9940	8800	2090	2970	5830	4400	1810	250	4560
13	1660	1340	4830	2790	6170	8500	40	6920	5490	410	700	4330
14	140	2320	3030	9200	9650	5880	40	9170	5230	300	1860	3270
15	3840	40	660	10400	10900	2150	6310	3190	190	3000	4840	3240
16	3600	40	2000	8400	4590	1210	8490	4010	550	4590	6220	2310
17	3870	660	9970	10800	40	40	8520	3990	4180	7220	500	210
18	3990	160	5080	15000	6580	4540	11100	3690	7060	4570	340	130
19	2800	160	6200	15000	10800	2380	15000	140	2960	6140	3530	375
20	3090	480	3640	15000	6450	1430	15000	4230	3140	2610	310	360
21	2950	2030	11000	15000	2800	3180	15000	7100	1110	4020	4650	150
22	2410	770	9310	15100	6270	5070	15000	5680	150	6630	7090	140
23	1200	170	5330	12000	40	4790	15000	1380	150	2210	3090	240
24	550	140	7680	8970	920	630	13300	1710	390	1740	560	170
25	40	710	40	7690	5380	7700	15000	140	3120	180	440	140
26	40	1230	10700	7570	5710	8430	14300	160	2040	200	4750	160
27	40	1230	8770	9370	5180	8580	8020	1480	1250	170	4120	160
28	40	5370	8750	7600	2840	9200	7060	6250	1130	160	3190	140
29	40	2840	10600	7580	---	7230	8120	7230	480	170	2480	150
30	40	2480	12100	7120	---	9090	7980	6680	180	200	1620	5270
31	40	---	9000	9470	---	4400	---	7630	---	1540	440	---
MEAN	1995	888	5269	9078	6387	3640	8434	5807	2379	1989	2510	1535
MAX	3990	5370	12100	15100	11000	9200	15000	9540	7060	7220	7090	5270
MIN	40	40	40	40	40	40	40	140	130	140	190	130
IN.	.57	.25	1.51	2.60	1.65	1.04	2.34	1.67	.66	.57	.72	.43

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

	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
MEAN	1604	2764	3792	3511	3940	5380	6099	6032	3919	3268	2707	1966
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	201	420	419	341	415	519	140	51.3	136
(WY)	1957	1954	1956	1990	1964	1964	1981	1981	1954	1954	1954	1953

SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	6789	4150	3748
HIGHEST ANNUAL MEAN			7797
LOWEST ANNUAL MEAN			729
HIGHEST DAILY MEAN	24400	May 18	15100
LOWEST DAILY MEAN	40	Many Days	40
INSTANTANEOUS PEAK FLOW	*****	*****	89100
INSTANTANEOUS PEAK STAGE	*****	*****	36.9
INSTANTANEOUS LOW FLOW	*****	*****	.00
ANNUAL SEVEN-DAY MINIMUM	40	Jan 6	40
ANNUAL RUNOFF (INCHES)	22.92		14.01
10 PERCENT EXCEEDS	17200		9460
50 PERCENT EXCEEDS	4640		3140
90 PERCENT EXCEEDS	40		140

\*\*\*\*\* Indicates not enough data, therefore statistic is not computed.

## WHITE RIVER BASIN

07053600 LAKE TANEYCOMO AT COLLEGE 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 College 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. 8 to June 19.

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.0	11.8	12.5	15.9	13.9	14.7	13.9	12.8	13.4	10.9	10.0	10.5
2	12.9	11.6	11.9	16.6	14.2	15.1	14.1	13.1	13.8	11.0	9.5	10.4
3	13.8	11.9	12.8	15.7	14.6	15.2	14.0	12.6	13.6	10.9	10.2	10.7
4	14.9	11.7	13.2	15.4	14.0	14.8	14.1	12.8	13.5	10.8	9.9	10.6
5	14.3	12.0	13.5	15.1	13.5	14.1	13.9	12.7	13.4	10.7	10.2	10.6
6	14.0	11.7	12.4	14.2	12.3	13.3	13.7	12.8	13.4	10.6	9.9	10.3
7	14.1	11.7	12.6	12.3	10.4	11.8	13.9	11.9	13.0	10.6	9.6	10.3
8	13.7	11.8	12.6	12.3	9.8	11.0	13.2	12.0	12.4	---	---	---
9	13.1	11.5	11.9	12.6	11.5	12.0	12.5	11.1	11.7	---	---	---
10	14.9	11.3	12.6	14.6	11.7	13.4	13.2	10.2	11.9	---	---	---
11	15.3	13.3	14.0	14.5	12.8	13.5	13.3	11.5	12.3	---	---	---
12	15.2	13.0	14.0	15.0	12.5	13.7	13.6	11.9	12.7	---	---	---
13	15.0	13.6	14.3	15.2	13.7	14.4	13.1	12.5	12.8	---	---	---
14	16.3	13.9	14.7	15.2	13.2	14.2	12.9	12.2	12.6	---	---	---
15	15.1	14.1	14.6	14.7	13.4	13.9	13.1	12.1	12.6	---	---	---
16	15.1	14.0	14.4	14.1	12.9	13.6	12.6	11.5	12.2	---	---	---
17	14.4	13.6	14.2	14.4	12.2	13.0	12.8	12.3	12.6	---	---	---
18	14.9	13.3	14.2	13.8	12.7	13.4	12.9	12.0	12.4	---	---	---
19	14.5	13.1	14.1	14.9	13.0	13.5	12.8	11.7	12.4	---	---	---
20	15.2	13.1	14.1	14.9	12.9	13.9	13.4	11.8	12.6	---	---	---
21	14.6	14.1	14.3	14.8	13.9	14.4	12.8	12.2	12.7	---	---	---
22	15.1	13.3	14.0	14.5	13.3	14.0	12.6	11.5	12.3	---	---	---
23	15.4	13.3	14.1	14.1	13.1	13.6	12.3	10.7	11.8	---	---	---
24	14.6	12.7	13.7	14.1	12.8	13.5	12.2	11.4	11.9	---	---	---
25	14.5	13.0	13.5	15.0	12.3	13.6	11.6	10.5	11.1	---	---	---
26	15.4	12.8	13.7	15.1	13.5	14.3	11.8	9.6	11.3	---	---	---
27	14.4	12.6	13.5	14.7	13.4	14.0	11.6	10.7	11.4	---	---	---
28	15.1	12.8	13.6	13.4	11.9	13.0	11.7	11.1	11.5	---	---	---
29	15.2	12.8	13.8	13.5	12.1	12.8	11.6	11.3	11.5	---	---	---
30	15.1	13.1	14.0	14.0	11.6	12.8	11.4	11.0	11.2	---	---	---
31	15.8	13.3	14.4	---	---	---	11.1	10.0	10.9	---	---	---
MONTH	16.3	11.3	13.6	16.6	9.8	13.6	14.1	9.6	12.4	---	---	---

## WHITE RIVER BASIN

07053600 LAKE TANEYCOMO AT COLLEGE OF THE OZARKS, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	15.3	10.8	12.9	10.9	10.2	10.5	13.9	12.2	12.9
2	---	---	---	11.8	10.7	11.1	10.9	10.0	10.4	15.6	12.8	14.1
3	---	---	---	12.8	11.0	11.7	11.3	10.0	10.5	16.0	11.6	14.1
4	---	---	---	16.0	12.2	13.8	13.0	10.5	11.6	13.6	11.6	12.3
5	---	---	---	17.1	11.3	14.7	14.6	12.2	13.2	13.6	11.5	12.4
6	---	---	---	14.7	11.3	12.5	13.5	10.6	12.0	13.5	10.6	11.8
7	---	---	---	15.8	13.4	14.4	13.1	10.6	11.4	13.2	10.9	11.8
8	---	---	---	17.8	13.6	15.1	13.4	10.9	11.5	13.5	11.0	11.7
9	---	---	---	15.4	10.6	13.3	15.4	11.6	12.8	12.6	10.9	11.5
10	---	---	---	12.7	10.5	11.2	15.5	13.5	14.9	12.8	11.3	11.7
11	---	---	---	13.9	10.5	11.5	15.6	13.6	14.4	12.5	11.3	11.7
12	---	---	---	13.9	11.3	12.1	16.5	14.4	15.3	12.0	11.2	11.5
13	---	---	---	14.9	10.9	12.5	16.0	12.5	14.9	12.0	10.7	11.4
14	---	---	---	16.9	13.7	14.6	12.7	10.0	11.5	12.8	10.8	11.7
15	---	---	---	16.6	10.2	14.2	11.8	9.9	10.6	12.4	10.8	11.5
16	---	---	---	12.0	9.9	10.4	11.2	10.3	10.8	12.8	11.6	12.0
17	---	---	---	10.6	10.0	10.3	14.2	10.9	12.2	12.8	11.5	12.0
18	---	---	---	12.6	10.3	10.8	15.6	13.5	14.1	13.9	12.5	13.2
19	---	---	---	11.4	10.1	10.7	14.4	10.2	12.8	13.6	12.1	12.9
20	11.7	9.4	10.2	13.7	10.4	11.4	14.2	10.2	11.7	12.9	12.1	12.5
21	11.8	9.4	10.1	13.2	10.7	11.4	14.3	10.6	12.5	12.7	10.8	11.9
22	14.1	10.1	11.7	12.1	11.0	11.4	12.0	10.4	11.1	13.2	12.2	12.8
23	15.8	12.4	14.1	12.8	10.2	11.5	12.5	10.4	11.1	14.8	12.3	13.3
24	17.2	13.8	15.0	11.6	9.5	10.5	13.7	10.7	11.8	14.2	13.2	13.8
25	15.6	9.5	13.1	10.3	9.5	9.9	15.5	12.1	13.3	17.3	12.7	13.8
26	12.8	9.5	10.4	14.2	9.7	11.7	14.2	10.8	12.7	14.8	13.0	13.9
27	12.5	9.9	11.0	14.0	12.4	13.2	12.4	10.7	11.3	16.1	13.4	14.4
28	12.4	10.4	11.2	16.9	12.5	13.3	12.9	10.7	11.3	16.0	13.7	14.6
29	13.7	10.4	11.7	15.2	12.4	13.6	12.7	10.7	11.3	16.8	14.1	14.8
30	15.1	13.0	13.7	17.8	13.8	15.1	13.2	10.9	11.6	14.1	11.5	12.6
31	---	---	---	15.5	10.5	13.5	12.9	11.3	11.7	---	---	---
MONTH	---	---	---	17.8	9.5	12.4	16.5	9.9	12.2	17.3	10.6	12.7

## 07053600 LAKE TANEYCOMO AT COLLEGE OF THE OZARKS, MO--Continued

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

[illegible]

## WHITE RIVER BASIN

07053600 LAKE TANEYCOMO AT COLLEGE OF THE OZARKS, MO--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	8.6	5.1	6.1	9.8	6.6	8.3
2	---	---	---	9.7	7.2	8.0	7.6	4.6	5.3	9.5	6.1	7.8
3	---	---	---	9.6	7.1	8.2	7.7	3.7	5.2	9.6	6.1	7.9
4	---	---	---	11.5	8.0	9.2	7.2	3.6	5.6	9.4	6.0	7.6
5	---	---	---	12.1	8.5	9.8	10.6	6.1	8.8	11.9	5.8	8.3
6	---	---	---	12.2	8.3	9.9	8.9	6.0	7.3	9.2	5.4	6.5
7	---	---	---	13.2	8.8	11.0	9.3	6.4	7.5	9.0	5.6	7.0
8	---	---	---	13.7	8.3	11.0	9.5	5.0	6.8	9.3	5.1	6.2
9	---	---	---	11.7	7.5	10.1	9.9	4.6	6.3	7.7	4.9	6.1
10	---	---	---	11.4	6.8	8.4	11.4	6.4	9.1	8.9	5.2	6.7
11	---	---	---	11.0	6.5	7.9	10.0	5.7	7.9	7.6	4.7	5.6
12	---	---	---	11.0	6.7	8.2	11.6	8.0	9.7	7.7	4.2	5.6
13	---	---	---	11.2	7.3	9.0	11.5	8.3	9.9	7.0	5.7	6.4
14	---	---	---	12.7	8.8	10.7	8.2	5.3	6.2	7.8	5.4	6.4
15	---	---	---	13.6	6.3	9.9	7.1	4.1	5.4	8.6	4.7	5.8
16	---	---	---	10.6	5.2	6.9	6.8	4.3	5.0	8.0	4.8	6.1
17	---	---	---	8.2	5.6	6.6	8.6	3.9	5.5	6.7	4.5	5.6
18	---	---	---	9.5	5.0	6.3	10.3	6.9	8.1	9.4	5.3	7.7
19	---	---	---	8.4	5.1	6.2	9.2	5.1	7.3	9.3	7.4	8.1
20	12.4	7.2	8.5	10.5	4.9	6.5	9.0	5.8	6.9	10.5	8.1	8.8
21	12.7	7.9	9.6	9.8	5.3	6.6	11.0	4.3	7.7	9.7	7.2	8.5
22	12.3	9.2	10.5	8.6	4.9	5.8	7.0	3.7	4.5	10.5	8.9	9.8
23	15.1	9.8	12.4	9.2	5.7	7.3	7.1	4.1	4.8	10.6	6.9	8.4
24	14.6	9.9	12.1	9.9	6.9	8.2	8.4	3.9	5.6	9.5	7.1	8.2
25	---	---	---	7.6	5.2	6.5	9.6	6.3	7.9	8.4	6.8	7.4
26	11.8	6.9	8.2	10.9	6.1	8.5	9.2	4.6	7.0	10.5	7.6	8.9
27	12.2	6.9	8.7	13.2	8.3	11.2	6.9	3.8	4.8	10.2	8.0	8.7
28	11.9	7.5	9.2	12.3	8.3	10.1	7.2	3.7	5.2	9.3	7.5	8.1
29	12.6	6.6	8.8	12.3	7.9	10.1	8.5	5.7	6.8	9.7	7.3	8.2
30	---	---	---	12.7	8.6	10.5	8.5	4.8	6.4	8.1	4.8	6.3
31	---	---	---	13.1	6.1	9.6	8.6	4.3	5.8	---	---	---
MONTH	---	---	---	---	---	---	11.6	3.6	6.7	11.9	4.2	7.4



## 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, 1,000 ft downstream from Turkey Creek, at bridge on Business Route 65 in Branson.

PERIOD OF RECORD.--July 1977 to June 1991 (discontinued).

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

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)	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)
OCT												
11...	0800	202	7.7	13.5	5.9	56	14	K18	100	33	5.1	2.9
NOV												
05...	1445	214	7.8	13.0	8.2	77	10	100	--	--	--	--
DEC												
04...	0715	214	8.0	13.0	7.2	66	12	K10	--	--	--	--
JAN												
08...	0730	224	7.8	8.5	9.8	82	10	K8	110	36	5.6	3.3
FEB												
06...	0800	234	7.9	6.5	11.5	94	14	K6	--	--	--	--
MAR												
05...	0700	227	8.2	7.5	11.6	98	<10	K4	--	--	--	--
APR												
17...	1500	229	8.2	9.5	10.8	94	11	88	110	35	6.6	3.9
MAY												
09...	1230	224	7.9	9.5	10.2	88	<10	K61	--	--	--	--
JUN												
05...	1520	223	7.8	11.5	10.2	93	<10	K15	--	--	--	--

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

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	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)	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- PHORUS 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)
OCT												
11...	1.8	85	36	4.5	0.20	157	7	0.500	0.040	0.010	30	30
NOV												
05...	--	88	--	--	--	127	<1	0.400	0.010	0.020	40	<10
DEC												
04...	--	95	--	--	--	122	27	0.200	0.070	0.020	40	<10
JAN												
08...	1.7	98	23	6.2	<0.10	140	81	0.250	0.030	0.010	80	20
FEB												
06...	--	101	--	--	--	185	<1	0.390	<0.010	0.010	40	<10
MAR												
05...	--	98	--	--	--	127	7	0.390	<0.010	0.050	70	10
APR												
17...	1.6	103	6.8	6.8	<0.10	127	10	0.450	0.020	<0.010	80	<10
MAY												
09...	--	85	--	--	--	141	5	0.740	0.020	0.020	40	10
JUN												
05...	--	94	--	--	--	135	1	0.700	0.030	<0.010	40	<10

## WHITE RIVER BASIN

07053700 LAKE TANEYCOMO AT BRANSON, MO--Continued

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

DATE	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	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)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 11...	<1	<1.0	1	79	2	<1	220	290	<0.10	<10	16
JAN 08...	<1	<1.0	<1	26	1	<1	70	63	<0.10	<10	9
APR 17...	<1	<1.0	1	3	3	1	40	9	<0.10	<10	<3

## 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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	379	370	665	1560	685	564	814	2080	940	568	376	343
2	371	367	611	1290	669	576	786	1760	1570	568	372	351
3	381	365	889	1090	658	569	792	1610	1520	590	367	353
4	400	370	1170	950	653	555	917	1540	1180	580	364	403
5	385	375	870	887	649	552	980	1450	1030	551	368	394
6	374	372	744	922	646	552	947	1350	942	531	374	368
7	612	366	670	1230	632	545	922	1260	880	518	362	352
8	1100	361	615	1200	618	530	918	1190	840	507	369	359
9	807	366	577	1110	613	518	900	1150	810	492	365	347
10	751	363	548	1300	606	507	859	1140	776	480	362	338
11	689	359	527	3350	596	506	918	1110	781	476	355	332
12	600	355	511	3250	589	512	1510	1090	784	474	349	327
13	545	350	496	2110	628	516	1910	1140	748	480	345	324
14	511	350	481	1750	666	510	4500	1160	718	471	343	323
15	482	347	471	1580	662	498	3290	1120	715	458	340	320
16	459	345	468	1660	642	490	2480	2140	771	447	337	321
17	454	343	476	1520	640	524	2010	2050	722	439	724	322
18	454	343	587	1350	647	682	2290	1610	681	436	795	369
19	442	345	742	1250	639	784	3450	2160	654	433	516	353
20	440	344	759	1200	613	743	2470	1630	637	426	429	339
21	429	349	1020	1110	596	735	2020	1420	689	419	394	328
22	417	371	1360	1010	586	1120	1790	1300	664	413	375	333
23	410	381	1200	967	578	2490	1630	1200	652	411	365	340
24	401	376	993	912	570	1670	1480	1120	759	409	357	339
25	392	367	856	852	564	1360	1380	1150	894	436	351	332
26	386	378	757	817	558	1200	1360	1270	744	416	346	327
27	385	499	712	797	552	1130	1440	1160	670	404	344	319
28	378	1120	682	784	551	1040	1950	1060	633	405	342	316
29	375	1030	961	760	---	972	3450	1020	607	397	338	313
30	375	773	3540	739	---	907	2650	1040	587	390	352	309
31	370	---	2130	712	---	852	---	988	---	381	344	---
MEAN	482	427	874	1291	618	797	1760	1370	820	465	391	340
MAX	1100	1120	3540	3350	685	2490	4500	2160	1570	590	795	403
MIN	370	343	468	712	551	490	786	988	587	381	337	309
IN.	.99	.85	1.80	2.65	1.15	1.64	3.50	2.82	1.63	.96	.80	.68

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

MEAN	404	611	703	714	859	1051	1246	1130	770	552	414	393
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	935	804	736
HIGHEST ANNUAL MEAN			1555
LOWEST ANNUAL MEAN			299
HIGHEST DAILY MEAN	9310	May 3	45100
LOWEST DAILY MEAN	279	Jan 13	187
INSTANTANEOUS PEAK FLOW	19400	May 3	133000
INSTANTANEOUS PEAK STAGE	14.35	May 3	28.10
INSTANTANEOUS LOW FLOW	278	Jan 13-14	187
ANNUAL SEVEN-DAY MINIMUM	285	Jan 9	188
ANNUAL RUNOFF (INCHES)	22.63		17.83
10 PERCENT EXCEEDS	1890		1320
50 PERCENT EXCEEDS	651		495
90 PERCENT EXCEEDS	350		287



## WHITE RIVER BASIN

## 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 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1948 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 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 567.0 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 494.0 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, 96,200 acre-ft, Apr. 20, elevation, 521.15 ft; minimum contents, 21,800 acre-ft, Feb. 8, elevation, 493.92 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22900	22000	50100	78300	22300	22200	22700	71100	29000	27800	26800	25900
2	22600	22000	49000	77000	22200	22400	22300	66800	29000	27800	26800	25800
3	22400	22000	48300	74200	22100	22700	22300	62300	29000	27600	26900	25900
4	22200	22600	47600	70500	22100	22500	22400	57700	28800	27200	26900	26100
5	22200	23400	46400	66900	22400	22300	22700	53200	28400	27000	27000	26200
6	22300	24200	44900	65800	23200	22500	22900	48800	27900	27200	26900	26300
7	22600	24700	43000	66000	22400	22500	23200	44300	27800	27400	26900	26100
8	23000	24700	40900	63700	21800	22300	23000	39600	27900	27500	26800	25800
9	23600	24400	38700	60400	22300	22300	22700	35400	27900	27700	26600	25700
10	23900	24100	36400	58800	22400	22200	22400	32800	28100	27700	26500	25700
11	24100	23700	33800	59700	22400	22100	22500	31200	28500	27400	26500	25800
12	24000	23300	31300	61200	22300	22100	22700	33600	28400	27100	26700	25800
13	23800	22800	28600	61200	22300	22300	25200	39900	28100	27100	26800	25900
14	23600	22500	26200	59600	22300	22300	60400	48600	27800	27200	26900	25900
15	23200	22500	24100	57200	22200	22300	78600	50400	27700	27400	26900	26000
16	22500	22400	22900	54200	22200	22300	85200	50600	27700	27500	26500	25900
17	22100	22300	22300	51300	22200	22500	86900	48800	27700	27600	26200	25700
18	22000	22300	23200	48000	22200	23100	89800	53700	27700	27300	26000	25600
19	22000	22200	26400	44500	22200	23700	94900	53300	27900	27000	25900	25500
20	21900	22100	26300	41200	22200	23500	96200	51700	28200	26800	25900	25400
21	21900	22200	31600	37800	22200	23400	95600	49700	28300	26900	26000	25300
22	21900	22500	48800	33900	22100	26600	93400	46300	28100	27000	26100	25200
23	22000	22600	56400	29200	22100	31800	90400	42400	28200	27100	26200	25100
24	22000	22500	57100	26300	22000	34800	87200	38400	28100	27100	26200	24900
25	22000	22400	54800	25000	22000	34300	83300	34400	27600	26900	26300	24700
26	22100	22400	51200	24100	22000	31800	79000	31400	27400	26400	26400	24300
27	22100	23800	47300	22900	22000	29600	78100	30300	27300	26400	26400	23800
28	22100	41400	43100	22500	22000	25900	76500	30000	27400	26500	26500	23700
29	22100	48800	40000	22700	---	23500	76700	29600	27600	26600	26600	23500
30	22000	50700	64100	22400	---	23400	74800	29200	27700	26700	26400	23400
31	22000	---	76300	22300	---	23100	---	29100	---	26700	26100	---
(-)	494.07	507.67	515.91	494.25	494.04	494.73	515.49	498.10	497.38	496.84	496.50	494.91
(=)	-1200	+28700	+25600	-54000	-300	+1100	+51700	-45700	-1400	-1000	-600	-2700
MAX	24100	50700	76300	78300	23200	34800	96200	71100	29000	27800	27000	26300
MIN	21900	22000	22300	22300	21800	22100	22300	29100	27300	26400	25900	23400

CAL YR 1990 . . . .+53900

WTR YR 1991 . . . .+200

(-) Elevation, in feet NGVD, at end of month

(=) Change in contents, in acre-feet

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.

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

REVISED RECORDS.--WSP 762: 1933(M). WSP 1007: 1943. WSP 1281: 1922-23, 1927-29(M).

REMARKS.--Estimated daily discharges: July 10-25, 29-31, Aug. 1-12, and Sept. 1-30. Records 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.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	453	356	1680	1810	781	597	1240	3120	731	346	310	410
2	446	355	1680	3110	767	592	1180	3550	674	356	300	300
3	422	355	1690	3280	760	585	995	3590	646	421	295	240
4	420	358	1660	3740	730	660	912	3800	620	427	295	235
5	401	383	1770	3720	646	820	868	3730	714	418	315	225
6	335	356	1760	2870	646	614	815	3610	707	313	340	410
7	342	391	1780	1410	1010	626	810	3600	643	288	350	420
8	336	435	1840	2750	1430	701	901	3650	496	283	380	310
9	334	602	1810	3490	538	642	1120	3360	473	278	400	250
10	344	587	1770	3090	696	634	1120	2560	458	299	400	250
11	473	518	1820	2240	705	634	1110	1820	422	370	390	240
12	487	515	1820	3570	720	619	933	1710	453	381	320	240
13	518	510	1850	3220	733	568	1490	1720	617	366	276	240
14	525	486	1700	3230	725	567	3550	2380	607	276	255	240
15	532	393	1480	3590	716	584	936	2700	494	264	245	240
16	637	382	1230	3700	715	582	1150	2770	460	260	283	300
17	644	357	827	3970	707	604	2320	3120	444	278	297	400
18	464	347	869	3940	693	673	2060	3200	396	349	301	400
19	426	347	1180	4040	689	931	1200	3090	378	352	298	405
20	403	345	2110	3940	685	1130	2420	3070	347	348	257	410
21	400	342	2820	3820	684	1230	2700	2520	359	302	221	410
22	391	321	1100	3810	683	1140	3290	3270	444	281	209	415
23	361	305	704	3930	680	1360	3540	3530	471	270	204	425
24	358	394	1600	3240	672	1220	3490	3460	468	269	204	440
25	356	404	3060	1860	643	1710	3540	3340	512	322	204	500
26	355	408	3210	1430	610	3060	3670	2900	506	403	203	580
27	355	446	3760	1390	602	2760	2490	1820	465	366	204	470
28	354	693	3390	1190	584	3350	1830	1020	385	355	204	380
29	360	1150	3860	844	---	2830	1680	993	360	340	211	380
30	361	1530	2690	893	---	1320	2290	972	352	330	356	380
31	361	---	806	945	---	1260	---	819	---	325	395	---
MEAN	418	479	1914	2841	723	1116	1855	2735	503	330	288	351
MAX	644	1530	3860	4040	1430	3350	3670	3800	731	427	400	580
MIN	334	305	704	844	538	567	810	819	347	260	203	225
IN.	.49	.54	2.24	3.32	.76	1.30	2.10	3.20	.57	.39	.34	.45

MEAN	473	666	998	1140	1227	1501	1692	1465	1109	561	465	446
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

ANNUAL MEAN	1222		1136		977	
HIGHEST ANNUAL MEAN					2219	1985
LOWEST ANNUAL MEAN					431	1954
HIGHEST DAILY MEAN	3860	Dec 29	4040	Jan 19	52900	Mar 11 1935
LOWEST DAILY MEAN	246	Jul 19	203	Aug 26	62	Sep 23 1966
INSTANTANEOUS PEAK FLOW	4280	Dec 30	7790	Apr 14	78400	May 14 1933
INSTANTANEOUS PEAK STAGE	7.05	Dec 30	9.27	Apr 14	20.01	May 14 1933
INSTANTANEOUS LOW FLOW	243	Jul 20	201	Aug 26	62	Sep 22-23 1966
ANNUAL SEVEN-DAY MINIMUM	290	Jul 17	205	Aug 22	83	Sep 20 1966
ANNUAL RUNOFF (INCHES)	16.81		15.63		13.45	
10 PERCENT EXCEEDS	2570		3250		2400	
50 PERCENT EXCEEDS	825		614		512	
90 PERCENT EXCEEDS	345		296		243	



## WHITE RIVER BASIN

## 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 60, 4.8 mi downstream from Indian Creek, and at mile 211.2.

DRAINAGE AREA.--1,245 mi<sup>2</sup>.

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 0.10 ft lower.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature and specific conductance were made during the year. 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 ft<sup>3</sup>/s, and flood of March 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	662	516	1930	3640	1400	951	1670	3320	1400	587	376	455
2	652	509	1990	3140	1250	1060	1600	3580	1490	571	371	457
3	648	507	2030	3560	1210	983	1510	3790	1370	585	369	436
4	660	508	2030	3630	1180	950	1710	3830	1220	694	367	400
5	617	564	2010	3790	1150	1030	1570	3930	1160	720	363	376
6	582	588	2070	4400	1230	1160	1370	3900	1200	697	363	334
7	530	516	2060	4380	1180	975	1280	3780	1180	548	396	333
8	546	596	2070	3170	1550	967	1300	3740	1100	492	404	437
9	568	663	2110	3450	1640	1020	1380	3750	919	478	419	487
10	608	831	2090	3960	1070	963	1500	3560	855	461	481	454
11	535	867	2070	4460	1140	945	1540	2990	827	479	490	355
12	671	875	2090	4610	1140	944	1770	2450	806	602	466	334
13	711	876	2100	4470	1230	924	3110	2400	819	633	371	329
14	745	874	2110	4010	1300	863	8350	2690	1010	594	352	327
15	758	847	2010	3850	1200	849	9230	2980	1000	462	346	324
16	769	721	1870	3950	1150	858	5230	3460	872	424	355	323
17	868	687	1830	3970	1150	872	3130	3580	809	414	476	325
18	898	657	2120	4050	1160	917	3430	3990	765	431	520	399
19	726	644	2720	4030	1130	981	4290	3880	683	550	513	439
20	651	634	2360	4070	1100	1240	3300	3600	639	583	478	436
21	612	627	4050	4000	1090	1460	3310	3440	585	561	359	435
22	598	688	7080	3900	1070	2260	3400	3180	622	439	336	440
23	581	638	4890	3880	1060	3740	3670	3480	756	404	332	453
24	540	613	2560	3910	1050	2900	3790	3760	786	407	328	461
25	524	716	2620	3400	1030	2140	3750	4230	822	409	325	488
26	516	743	3290	2450	995	2450	3760	3830	855	512	324	503
27	512	847	3510	2030	951	3150	3850	3310	850	639	323	561
28	510	1910	3760	1950	930	3070	3040	2380	784	478	322	579
29	507	1820	3860	1700	---	3330	3520	1760	672	405	325	476
30	513	1780	6130	1420	---	2880	3590	1640	607	387	329	454
31	517	---	6510	1420	---	1850	---	1560	---	381	426	---
MEAN	624	795	2901	3505	1169	1570	3132	3283	915	517	387	420
MAX	898	1910	7080	4610	1640	3740	9230	4230	1490	720	520	579
MIN	507	507	1830	1420	930	849	1280	1560	585	381	322	323
IN.	.58	.71	2.69	3.25	.98	1.45	2.81	3.04	.82	.48	.36	.38

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

	635	936	1384	1619	1710	2076	2269	1983	1312	794	643	601
MEAN	635	936	1384	1619	1710	2076	2269	1983	1312	794	643	601
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	710	556	415	293	270	268
(WY)	1957	1954	1954	1956	1963	1941	1956	1987	1941	1944	1944	1954

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1726	1608	1328
HIGHEST ANNUAL MEAN			2858
LOWEST ANNUAL MEAN			564
HIGHEST DAILY MEAN	7080	9230	43400
LOWEST DAILY MEAN	387	322	186
INSTANTANEOUS PEAK FLOW	7340	10400	65600
INSTANTANEOUS PEAK STAGE	16.50	18.31	21.68
INSTANTANEOUS LOW FLOW	384	318	180
ANNUAL SEVEN-DAY MINIMUM	420	325	243
ANNUAL RUNOFF (INCHES)	18.83	17.54	14.49
10 PERCENT EXCEEDS	3220	3790	3220
50 PERCENT EXCEEDS	1820	963	771
90 PERCENT EXCEEDS	501	404	366

## 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 mi<sup>2</sup>.

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.--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.--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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	161	358	1020	349	268	423	1120	357	224	165	157
2	169	160	308	793	337	281	397	899	435	224	161	161
3	173	159	360	668	327	279	417	791	566	224	162	155
4	181	167	672	589	320	272	766	742	429	222	160	208
5	176	183	486	544	320	268	909	772	366	216	155	204
6	178	172	387	554	325	269	754	831	330	212	155	195
7	225	167	330	710	316	266	664	741	313	208	156	177
8	292	163	293	746	308	257	604	667	299	202	175	167
9	377	163	268	675	303	248	600	619	291	202	187	161
10	358	163	249	698	301	242	566	588	286	197	166	163
11	386	162	235	1750	296	240	564	562	285	193	163	162
12	317	160	225	2250	289	241	989	548	286	193	160	157
13	272	158	213	1310	301	245	1650	532	283	199	158	154
14	242	157	207	976	310	244	5950	518	275	276	153	152
15	224	155	201	880	311	236	2990	514	270	242	151	149
16	208	153	195	1000	305	232	2010	536	271	214	147	147
17	201	154	208	969	296	277	1450	551	260	201	150	146
18	196	155	321	839	298	591	1790	562	255	194	150	170
19	190	154	553	763	297	659	4160	811	248	187	157	171
20	186	155	546	713	292	557	2090	753	246	179	155	163
21	182	158	856	659	282	517	1480	614	247	179	148	161
22	179	169	1830	599	280	891	1180	546	258	176	147	163
23	176	173	974	557	272	2050	1000	499	263	174	147	171
24	173	184	694	521	268	1180	860	463	280	178	150	173
25	169	183	562	482	264	856	773	441	277	190	146	172
26	167	185	475	451	261	732	748	436	263	199	144	170
27	165	349	428	435	259	668	746	417	250	192	144	165
28	163	689	389	426	260	604	982	390	239	184	144	158
29	163	645	619	407	---	544	1580	402	232	178	142	153
30	163	453	3630	388	---	498	1610	391	228	176	146	151
31	160	---	1720	368	---	454	---	376	---	170	147	---
MEAN	212	214	606	766	298	489	1357	601	296	200	154	165
MAX	386	689	3630	2250	349	2050	5950	1120	566	276	187	208
MIN	160	153	195	368	259	232	397	376	228	170	142	146
IN.	.62	.60	1.76	2.22	.78	1.42	3.80	1.74	.83	.58	.45	.46

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

	MEAN	221	386	450	468	555	705	835	734	470	256	205	187
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	623		447		454	
HIGHEST ANNUAL MEAN					1072	1985
LOWEST ANNUAL MEAN					154	1954
HIGHEST DAILY MEAN	5790	May 3	5950	Apr 14	24100	Feb 23 1985
LOWEST DAILY MEAN	127	Jan 16	142	Aug 22, 29	67	Sep 16 1956
INSTANTANEOUS PEAK FLOW	20900	May 3	7010	Apr 14	55800	Nov 19 1985
INSTANTANEOUS PEAK STAGE	12.59	May 3	7.67	Apr 14	17.58	Nov 19 1985
INSTANTANEOUS LOW FLOW	122	Jan 14-16	133	Aug 21	64	Aug 28 1936
ANNUAL SEVEN-DAY MINIMUM	133	Jan 10	145	Aug 25	70	Sep 16 1956
ANNUAL RUNOFF (INCHES)	21.25		15.25		15.51	
10 PERCENT EXCEEDS	1530		846		887	
50 PERCENT EXCEEDS	312		271		238	
90 PERCENT EXCEEDS	163		157		122	

## WHITE RIVER BASIN

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 bridge pier 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 mi<sup>2</sup>.

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.--Estimated daily discharges: Sept. 2-4, and 8-10. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	919	879	2310	6230	2070	1390	2340	5240	2110	1460	1100	952
2	901	880	2010	4860	1990	1500	2220	4450	2070	1450	1080	938
3	905	876	2040	4090	1920	1500	2150	3960	2210	1480	1070	947
4	976	918	2430	3560	1880	1460	2910	3680	2150	1460	1060	1010
5	974	1230	2460	3250	1870	1430	3450	3680	1990	1440	1070	1020
6	930	1090	2130	3160	1910	1430	3180	3740	1890	1420	1060	988
7	1030	1000	1890	3540	1910	1400	2900	3500	1830	1400	1060	960
8	1310	957	1700	3570	1870	1350	2730	3220	1780	1380	1050	947
9	1470	942	1540	3340	1810	1290	2750	3010	1750	1400	1180	927
10	1670	931	1420	3330	1780	1260	2760	2860	1700	1470	1130	914
11	1610	915	1340	4730	1740	1230	2710	2730	1710	1410	1080	907
12	1450	900	1280	7870	1700	1240	3180	2690	1700	1390	1040	899
13	1270	893	1220	6530	1710	1270	4920	4510	1670	1410	1020	889
14	1160	884	1170	5170	1780	1260	21200	7340	1630	1380	996	880
15	1090	878	1140	4510	1750	1220	13900	5570	1600	1420	985	877
16	1040	869	1110	4420	1660	1180	9070	5140	1600	1350	973	868
17	1020	861	1150	4760	1630	1310	6950	4570	1570	1310	977	874
18	1020	861	1850	4410	1630	1990	7150	6420	1540	1290	988	925
19	1010	876	3240	4080	1640	2650	11700	5820	1510	1270	964	995
20	980	880	3120	3920	1580	2480	9840	5010	1490	1260	939	941
21	964	883	4090	3780	1530	2320	7140	4080	1510	1230	931	909
22	955	958	7270	3530	1490	3450	5950	3540	1590	1220	925	911
23	937	999	5700	3290	1460	6020	5190	3190	1730	1200	926	966
24	922	987	4150	3070	1430	5650	4560	2950	1730	1230	940	966
25	913	963	3310	2830	1410	4400	4090	2780	1660	1240	917	949
26	903	954	2820	2640	1380	3770	3830	2630	1600	1210	907	921
27	900	1650	2550	2500	1340	3430	3710	2490	1540	1190	907	893
28	897	5150	2340	2420	1330	3160	3810	2340	1510	1170	916	881
29	888	4070	2680	2320	---	2880	6660	2260	1490	1150	918	872
30	884	2890	11100	2240	---	2670	6300	2260	1470	1140	914	864
31	881	---	10400	2160	---	2480	---	2170	---	1120	963	---
MEAN	1057	1267	2999	3875	1686	2260	5642	3801	1711	1321	1000	926
MAX	1670	5150	11100	7870	2070	6020	21200	7340	2210	1480	1180	1020
MIN	881	861	1110	2160	1330	1180	2150	2170	1470	1120	907	864
IN.	.73	.85	2.07	2.68	1.05	1.56	3.78	2.63	1.15	.91	.69	.62

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)\*\*

	1068	1615	1895	1978	2228	2781	3373	3037	2121	1304	1081	981
MEAN	1068	1615	1895	1978	2228	2781	3373	3037	2121	1304	1081	981
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	778	805	679	628	575	532	495
(WY)	1957	1955	1956	1956	1934	1941	1956	1936	1936	1936	1954	1956

SUMMARY STATISTICS\*\*

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	2738	2299	1951
HIGHEST ANNUAL MEAN			4811
LOWEST ANNUAL MEAN			799
HIGHEST DAILY MEAN	22500	May 4	21200
LOWEST DAILY MEAN	743	Jan 13-14	861
INSTANTANEOUS PEAK FLOW	29900	May 4	27000
INSTANTANEOUS PEAK STAGE	15.14	May 4	14.32
INSTANTANEOUS LOW FLOW	732	Jan 13-15	854
ANNUAL SEVEN-DAY MINIMUM	753	Jan 10	873
ANNUAL RUNOFF (INCHES)	22.30		18.73
10 PERCENT EXCEEDS	5910		4530
50 PERCENT EXCEEDS	1680		1510
90 PERCENT EXCEEDS	898		912
			686

\*\*Statistics based only on years with complete daily discharge record.

## 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. 27 to Dec. 1, Dec. 20-25, Dec. 29 to Jan. 24, Mar. 20 to Apr. 2, and Apr. 5 to May 27 due to backwater from Current River. Records poor. Several observations of water temperature and specific conductance were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	357	338	445	720	478	427	565	800	577	491	441	401
2	351	340	427	700	476	426	550	790	571	489	441	398
3	346	341	423	680	471	424	595	750	569	485	439	395
4	342	343	420	667	466	423	619	721	554	483	438	394
5	339	346	419	650	464	421	680	700	535	476	436	392
6	338	347	414	630	464	419	670	690	530	474	435	389
7	346	345	403	615	459	412	620	680	526	471	437	388
8	366	342	393	620	457	410	610	670	523	470	433	386
9	386	339	384	650	452	408	600	655	521	468	434	381
10	403	336	382	700	446	407	595	640	519	467	430	381
11	402	335	380	710	445	405	650	630	520	460	431	380
12	394	335	375	730	450	404	750	620	519	458	427	377
13	384	333	371	710	456	402	860	750	517	458	428	372
14	379	330	365	682	458	406	920	840	514	458	426	370
15	377	329	362	665	458	405	900	800	510	458	425	370
16	376	329	361	640	457	404	800	740	507	458	426	370
17	371	329	359	630	453	402	760	720	506	458	425	368
18	363	329	358	620	451	401	800	700	503	457	426	365
19	361	329	358	610	446	414	830	700	498	453	425	360
20	357	331	450	605	445	500	850	690	497	451	423	356
21	353	332	500	600	445	550	800	684	506	451	418	355
22	353	332	660	590	444	630	770	675	509	451	416	353
23	349	334	640	575	435	810	750	660	507	451	414	353
24	347	335	620	560	432	800	740	650	506	451	413	350
25	345	335	600	550	432	750	710	640	504	452	408	350
26	342	349	594	535	432	700	700	630	503	454	402	346
27	341	400	556	524	430	660	690	620	498	454	403	344
28	341	520	544	517	429	630	840	604	496	449	402	340
29	339	500	517	508	---	610	840	592	494	445	401	340
30	338	470	640	495	---	595	800	583	493	445	401	340
31	336	---	740	485	---	575	---	580	---	440	401	---
MEAN	359	354	466	618	451	504	729	684	518	461	423	369
MAX	403	520	740	730	478	810	920	840	577	491	441	401
MIN	336	329	358	485	429	401	550	580	493	440	401	340

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

	344	382	410	437	463	521	579	561	484	412	374	348
MEAN	344	382	410	437	463	521	579	561	484	412	374	348
MAX	599	769	1070	828	823	836	902	944	950	772	702	525
(WY)	1950	1986	1983	1937	1949	1945	1973	1957	1927	1928	1927	1927
MIN	243	248	252	247	279	279	279	261	253	249	252	250
(WY)	1957	1957	1956	1956	1977	1936	1936	1936	1936	1936	1936	1956

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	481	495	443
HIGHEST ANNUAL MEAN			648
LOWEST ANNUAL MEAN			289
HIGHEST DAILY MEAN	800**	May 27	2000**
LOWEST DAILY MEAN	287	Jan 7-13	236
ANNUAL SEVEN-DAY MINIMUM	287	Jan 7	238
10 PERCENT EXCEEDS	680	700	691
50 PERCENT EXCEEDS	445	452	388
90 PERCENT EXCEEDS	336	345	290

\*\*Estimated due to backwater from Current River.

## WHITE RIVER BASIN

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, 1.0 mi west of Doniphan, 2.5 mi upstream from Briar Creek, and at mile 51.3.

DRAINAGE AREA.--2,038 mi<sup>2</sup>.

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: Nov. 25 to Dec. 3. 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.

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 ft<sup>3</sup>/s, from rating curve extended above 60,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1510	1540	3300	8850	2540	2010	2740	7420	3150	2100	1670	1530
2	1500	1530	3000	6350	2460	2070	2620	6320	3090	2080	1650	1510
3	1490	1530	2800	5230	2400	2100	2540	5650	3010	2060	1640	1500
4	1540	1550	2570	4580	2360	2080	2950	5240	3120	2070	1640	1640
5	1560	1810	2840	4140	2360	2060	3660	5020	2960	2030	1640	1630
6	1560	1910	2670	4290	2380	2050	3690	4990	2840	2000	1730	1580
7	1600	1810	2460	4640	2370	2030	3370	4840	2750	1970	1660	1540
8	1710	1740	2310	4630	2350	2010	3160	4560	2680	1950	1630	1510
9	1940	1710	2200	4360	2320	1960	2990	4310	2640	1930	1660	1480
10	2070	1680	2120	4290	2300	1930	3000	4120	2600	1940	1740	1460
11	2090	1660	2060	5370	2270	1910	3180	3960	2610	1960	1690	1450
12	2040	1640	2020	7580	2240	1890	4290	3920	2610	1920	1650	1440
13	1930	1620	1970	8350	2280	1900	6480	4530	2560	1900	1620	1430
14	1820	1620	1930	6520	2300	1900	21700	6450	2510	1890	1610	1410
15	1740	1610	1910	5490	2290	1880	28500	7970	2480	1880	1590	1400
16	1690	1600	1880	5040	2250	1850	14300	6530	2470	1890	1580	1390
17	1660	1590	1930	5140	2230	1880	9770	5990	2430	1850	1600	1390
18	1680	1580	2420	4990	2220	2030	9940	5750	2380	1820	1590	1410
19	1660	1590	3470	4630	2210	2470	12600	7440	2340	1810	1590	1460
20	1640	1590	3900	4390	2190	2700	13700	6260	2310	1790	1560	1470
21	1620	1590	5450	4210	2140	2590	9870	5620	2270	1770	1540	1430
22	1610	1660	7960	4010	2110	4050	8140	4990	2300	1750	1540	1410
23	1600	1690	7710	3770	2080	6940	7220	4570	2330	1730	1530	1430
24	1590	1730	5610	3540	2040	7260	6450	4290	2400	1770	1510	1470
25	1570	1580	4430	3320	2020	5720	5820	4110	2380	1790	1510	1460
26	1570	1580	3760	3120	2000	4720	5410	3920	2310	1770	1510	1430
27	1550	1800	3380	2960	1980	4170	5240	3750	2260	1740	1500	1400
28	1550	6000	3080	2860	1960	3790	5200	3560	2210	1730	1530	1370
29	1540	5000	3030	2780	---	3440	7650	3390	2160	1710	1520	1360
30	1540	3800	7770	2700	---	3140	8560	3330	2130	1700	1500	1350
31	1540	---	14000	2630	---	2900	---	3250	---	1690	1500	---
MEAN	1668	1978	3740	4670	2237	2885	7491	5034	2543	1871	1595	1458
MAX	2090	6000	14000	8850	2540	7260	28500	7970	3150	2100	1740	1640
MIN	1490	1530	1880	2630	1960	1850	2540	3250	2130	1690	1500	1350
IN.	.94	1.08	2.12	2.64	1.14	1.63	4.10	2.85	1.39	1.06	.90	.80

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY) \*\*

	MEAN	1624	2276	2693	2845	3105	3822	4580	4123	2994	1968	1677	1535
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 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	3336	3102	2766
HIGHEST ANNUAL MEAN			5856
LOWEST ANNUAL MEAN			1326
HIGHEST DAILY MEAN	24900	May 5	90000
LOWEST DAILY MEAN	1070	Jan 14-16	852
INSTANTANEOUS PEAK FLOW	30500	May 5	122000
INSTANTANEOUS PEAK STAGE	12.22	May 5	25.49
INSTANTANEOUS LOW FLOW	1070	Jan 13-16	852
ANNUAL SEVEN-DAY MINIMUM	1080	Jan 10	852
ANNUAL RUNOFF (INCHES)	22.22		18.44
10 PERCENT EXCEEDS	6220		4960
50 PERCENT EXCEEDS	2390		1900
90 PERCENT EXCEEDS	1520		1160

\*\* Statistics based only on years with complete daily discharge record.



## 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. Several observations of water temperature and specific conductance were made during the year. Occasional runoff from drainage area of 2.97 mi<sup>2</sup> included in records.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	329	304	358	541	423	366	355	654	450	370	325	295
2	328	302	345	519	420	371	349	637	461	364	327	296
3	326	300	359	498	415	366	360	628	477	360	331	297
4	326	304	366	484	413	364	411	622	474	360	331	300
5	323	302	358	474	417	364	435	610	475	356	328	304
6	322	300	347	473	417	369	437	606	471	358	317	304
7	331	297	344	506	412	365	445	601	460	353	310	300
8	353	297	334	509	404	361	440	589	455	347	310	297
9	353	297	326	507	401	355	441	582	451	347	315	296
10	360	293	323	507	398	358	436	573	444	341	313	293
11	354	292	317	568	393	354	437	564	441	345	311	292
12	347	291	316	590	393	353	489	551	437	342	315	292
13	341	288	314	579	393	356	599	554	436	342	314	289
14	337	286	308	571	397	348	751	550	434	340	314	288
15	335	288	309	558	396	344	687	540	429	337	316	288
16	333	289	302	546	385	343	656	542	425	338	319	285
17	332	288	305	540	388	345	647	543	420	339	317	285
18	330	288	346	527	385	370	668	566	416	337	312	285
19	327	286	387	514	382	372	705	577	411	336	304	284
20	324	285	377	507	376	372	679	572	408	334	305	281
21	324	287	409	496	372	374	669	571	405	332	300	284
22	321	287	471	484	370	448	665	559	402	333	299	285
23	317	291	468	480	371	498	655	535	400	333	297	285
24	316	288	458	470	369	456	642	509	390	329	296	285
25	314	288	442	463	366	446	630	498	389	329	296	284
26	308	288	423	461	371	429	621	486	381	325	296	281
27	307	308	413	450	364	416	619	478	380	330	296	280
28	305	399	408	445	364	407	618	471	375	325	296	277
29	305	393	430	439	---	394	721	467	378	326	296	277
30	301	373	537	437	---	383	675	465	376	325	296	277
31	304	---	547	433	---	369	---	458	---	322	293	---
MEAN	327	303	379	502	391	381	565	553	425	340	310	289
MAX	360	399	547	590	423	498	751	654	477	370	331	304
MIN	301	285	302	433	364	343	349	458	375	322	293	277

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

	MEAN	255	278	300	325	344	391	444	444	402	334	293	265
MAX	448	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	143	140	127	122	120	
(WY)	1957	1955	1956	1956	1981	1981	1936	1936	1936	1936	1936	1955	

SUMMARY STATISTICS	FOR 1990 CALENDAR YEAR		FOR 1991 WATER YEAR		FOR PERIOD OF RECORD	
ANNUAL MEAN	411		397		340	
HIGHEST ANNUAL MEAN					566	
LOWEST ANNUAL MEAN					174	
HIGHEST DAILY MEAN	708	May 4	751	Apr 14	1010	Dec 3 1982
LOWEST DAILY MEAN	208	Jan 15-16	277	Sep 28-30	104	Nov 16 1956
INSTANTANEOUS PEAK FLOW	719	May 3	1080	Apr 13	1770	Dec 3 1982
INSTANTANEOUS PEAK STAGE	1.60	May 3	2.10	Apr 13	2.97	Dec 3 1982
INSTANTANEOUS LOW FLOW	205	Jan 15-16	277	Sep 28-30	104	Nov 16 1956
ANNUAL SEVEN-DAY MINIMUM	212	Jan 10	280	Sep 24	105	Nov 13 1956
10 PERCENT EXCEEDS	595		565		549	
50 PERCENT EXCEEDS	368		364		318	
90 PERCENT EXCEEDS	290		293		166	



## WHITE RIVER BASIN

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, 7.0 mi southwest of Bardley, 7.5 mi upstream from Fredericks Fork, and at mile 53.7.

DRAINAGE AREA.--793 mi<sup>2</sup>.

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 ft<sup>3</sup>/s, from rating curve extended above 25,000 ft<sup>3</sup>/s.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	474	417	673	1630	846	696	974	2710	1140	786	592	507
2	462	415	627	1450	828	722	936	2290	1140	777	586	520
3	464	414	666	1320	814	716	935	2100	1230	772	584	527
4	464	436	727	1210	804	701	1450	1960	1190	765	585	591
5	454	537	667	1160	807	695	1600	1860	1130	755	595	596
6	449	489	639	1210	817	704	1440	1750	1100	744	590	559
7	502	457	610	1730	813	684	1340	1660	1070	736	594	529
8	551	440	580	1600	799	660	1270	1590	1050	727	579	516
9	611	438	558	1450	790	645	1200	1540	1030	722	579	507
10	647	429	540	1440	784	630	1120	1510	1020	717	573	499
11	599	420	528	1990	769	627	1150	1460	1050	711	564	491
12	557	414	517	2170	758	635	1570	1500	1040	702	556	486
13	533	407	505	1860	798	639	2310	1690	1030	700	552	483
14	519	407	492	1680	874	626	14400	1580	1000	689	551	478
15	504	401	490	1550	851	611	5650	1490	983	679	547	473
16	493	397	486	1460	813	599	3410	1520	1010	670	542	469
17	489	393	544	1360	812	624	2720	1470	994	664	575	463
18	486	391	841	1270	815	671	3330	1450	957	660	622	483
19	471	394	1230	1230	797	690	5370	1490	933	656	596	473
20	464	391	993	1200	764	686	3430	1470	914	648	560	458
21	462	393	1150	1140	745	689	2740	1450	909	641	551	453
22	457	450	1860	1100	733	1930	2430	1400	895	634	544	457
23	449	461	1450	1080	720	2580	2220	1350	880	635	537	456
24	444	440	1220	1040	712	1800	2010	1320	866	645	531	458
25	440	426	1090	1010	698	1520	1890	1350	853	634	524	451
26	435	416	1000	978	686	1370	1810	1350	838	627	527	445
27	434	453	953	963	678	1290	1830	1290	826	617	523	438
28	429	988	897	946	673	1210	2120	1240	814	613	522	434
29	424	910	968	923	---	1140	6220	1200	804	613	521	430
30	422	743	2220	900	---	1070	3800	1200	794	606	518	427
31	419	---	1990	869	---	1020	---	1170	---	598	510	---
MEAN	484	472	894	1320	778	932	2756	1562	983	682	559	485
MAX	647	988	2220	2170	874	2580	14400	2710	1230	786	622	596
MIN	419	391	486	869	673	599	935	1170	794	598	510	427
IN.	.70	.66	1.30	1.92	1.02	1.35	3.88	2.27	1.38	.99	.81	.68

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

	MEAN	417	556	705	785	839	1060	1317	1160	900	611	486	425
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	340	266	245	213	199	181	
(WY)	1957	1957	1956	1956	1963	1981	1981	1936	1936	1936	1936	1956	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	904	992	771
HIGHEST ANNUAL MEAN			1782
LOWEST ANNUAL MEAN			310
HIGHEST DAILY MEAN	5110	May 4	26800
LOWEST DAILY MEAN	253	Jan 14	155
INSTANTANEOUS PEAK FLOW	6360	May 4	49800
INSTANTANEOUS PEAK STAGE	8.40	May 4	21.64
INSTANTANEOUS LOW FLOW	253	Jan 13-17	152
ANNUAL SEVEN-DAY MINIMUM	258	Jan 10	157
ANNUAL RUNOFF (INCHES)	15.48		13.21
10 PERCENT EXCEEDS	1640		1420
50 PERCENT EXCEEDS	726		544
90 PERCENT EXCEEDS	420		261

## 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 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 mi<sup>2</sup>.

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: July 18-24, July 30 to Aug. 5, Aug. 7, 8, and 10-20. 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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	154	134	843	1050	429	303	531	197	75	56	41
2	170	152	141	630	938	435	290	460	190	74	55	46
3	236	150	253	535	872	447	283	425	184	81	54	77
4	1260	158	673	460	841	442	280	408	178	85	53	217
5	653	164	568	419	845	435	275	546	180	90	51	152
6	513	160	420	402	849	426	266	964	189	107	61	181
7	405	154	320	397	817	416	259	846	184	95	54	138
8	556	149	265	398	761	399	253	637	182	81	52	108
9	1050	148	233	392	718	384	248	526	173	65	67	87
10	1190	145	209	503	685	371	243	467	167	59	56	73
11	872	142	194	2000	656	360	237	425	158	57	52	65
12	635	139	182	2180	627	356	233	393	155	59	50	60
13	500	136	172	1650	610	342	246	366	147	58	47	56
14	423	133	166	1850	598	334	257	343	140	58	46	52
15	371	132	158	5090	569	327	279	331	132	57	44	49
16	326	127	150	9260	537	322	345	342	133	57	42	60
17	292	123	198	7350	518	334	346	305	129	56	42	66
18	263	118	734	3720	526	337	697	284	145	54	41	64
19	240	116	965	2630	527	341	686	268	134	53	40	58
20	220	117	782	2810	508	332	755	259	124	52	40	69
21	210	114	553	2290	483	335	580	259	117	50	39	128
22	202	111	445	1640	466	343	487	254	112	49	40	105
23	195	107	378	1400	451	353	441	247	106	47	61	90
24	190	106	370	1270	433	339	415	262	128	46	107	82
25	184	103	357	1170	439	317	464	305	140	60	57	75
26	180	105	283	1110	430	308	427	353	116	64	47	69
27	178	111	267	1050	421	343	432	296	103	65	54	63
28	171	118	259	1010	424	392	655	249	90	62	55	59
29	164	117	302	1050	---	361	639	226	83	61	51	56
30	162	133	1020	1380	---	336	624	212	77	58	49	52
31	159	---	1060	1150	---	326	---	203	---	57	42	---
MEAN	398	131	394	1872	629	365	398	387	143	64.3	51.8	83.3
MAX	1260	164	1060	9260	1050	447	755	964	197	107	107	217
MIN	159	103	134	392	421	308	233	203	77	46	39	41
IN.	.39	.13	.39	1.85	.56	.36	.38	.38	.14	.06	.05	.08

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

	667	839	671	688	907	1221	1423	1467	1364	644	457	443
MEAN	667	839	671	688	907	1221	1423	1467	1364	644	457	443
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 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## FOR PERIOD OF RECORD

ANNUAL MEAN	1686		410		891
HIGHEST ANNUAL MEAN					2705
LOWEST ANNUAL MEAN					61.4
HIGHEST DAILY MEAN	24800	Mar 15	9260	Jan 16	81800
LOWEST DAILY MEAN	58	Jan 15	39	Aug 21	4.5
INSTANTANEOUS PEAK FLOW	28700	Mar 15	9640	Jan 16	103000
INSTANTANEOUS PEAK STAGE	22.93	Mar 15	14.20	Jan 16	30.94
INSTANTANEOUS LOW FLOW	57	Jan 14-15	38	Aug 21	4.2
ANNUAL SEVEN-DAY MINIMUM	61	Jan 10	41	Aug 16	5.0
ANNUAL RUNOFF (INCHES)	19.66		4.79		10.41
10 PERCENT EXCEEDS	3570		842		1760
50 PERCENT EXCEEDS	357		237		287
90 PERCENT EXCEEDS	113		56		63

## ARKANSAS RIVER BASIN

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, 3.0 mi east of Carterville and 17.0 mi above mouth.

DRAINAGE AREA.--232 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1962 to September 30, 1991 (discontinued).

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: Dec. 22-28 and Jan. 24 to Mar. 12. 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 October 2, 1959 reached a stage of 18.57 ft, from floodmark.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	53	43	220	250	148	88	222	92	47	26	21
2	58	51	51	205	240	140	87	205	89	46	25	28
3	213	51	130	183	230	130	89	203	87	50	24	27
4	151	61	159	165	220	135	87	191	83	55	24	41
5	88	60	129	136	215	138	84	437	83	58	23	39
6	69	54	113	132	210	132	82	395	85	52	23	40
7	71	52	99	128	205	130	81	324	78	48	22	33
8	92	51	88	127	200	128	81	292	76	45	22	30
9	142	51	80	128	190	125	80	267	73	45	22	29
10	128	50	75	328	195	122	76	244	70	43	23	25
11	114	48	70	754	190	120	75	226	68	42	23	23
12	101	47	67	444	180	120	75	212	67	40	22	23
13	93	47	64	349	175	118	84	198	66	42	21	22
14	85	46	61	447	170	118	83	186	64	42	20	21
15	77	47	58	2110	175	114	79	175	63	37	21	21
16	72	46	56	1870	178	112	80	165	76	35	20	29
17	70	44	86	845	180	119	83	157	89	33	21	30
18	69	44	160	658	175	112	186	147	77	33	20	30
19	68	44	173	583	170	110	232	139	72	32	19	34
20	66	44	155	537	160	109	206	136	67	34	19	28
21	64	45	141	464	150	108	190	134	63	32	20	26
22	61	44	132	413	148	108	179	126	60	30	20	28
23	61	42	132	380	150	103	167	126	59	30	20	30
24	59	41	132	360	152	101	157	127	82	38	21	27
25	57	41	132	335	140	99	151	131	66	37	23	26
26	57	42	131	325	138	98	143	122	59	33	21	24
27	57	51	125	310	140	102	388	114	55	31	21	23
28	55	53	114	290	145	96	310	108	53	32	20	23
29	54	45	127	280	---	94	272	103	52	32	22	22
30	53	43	218	270	---	91	242	99	50	30	21	22
31	53	---	223	255	---	89	---	95	---	28	20	---
MEAN	81.2	47.9	114	453	181	115	141	187	70.8	39.1	21.6	27.5
MAX	213	61	223	2110	250	148	388	437	92	58	26	41
MIN	53	41	43	127	138	89	75	95	50	28	19	21
IN.	.40	.23	.57	2.25	.81	.57	.68	.93	.34	.19	.11	.13

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

	113	258	223	181	218	354	333	272	230	122	63.3	104
MEAN	113	258	223	181	218	354	333	272	230	122	63.3	104
MAX	507	1318	992	579	782	1189	1154	1504	849	861	132	388
(WY)	1987	1986	1974	1973	1985	1975	1973	1990	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 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	321	123	205
HIGHEST ANNUAL MEAN			491
LOWEST ANNUAL MEAN			51.4
HIGHEST DAILY MEAN	6350	May 27	10000
LOWEST DAILY MEAN	24	Jan 12-14	9.7
INSTANTANEOUS PEAK FLOW	8540	May 26	3160
INSTANTANEOUS PEAK STAGE	11.90	May 26	8.21
INSTANTANEOUS LOW FLOW	24	Jan 11-16	18
ANNUAL SEVEN-DAY MINIMUM	25	Jan 10	20
ANNUAL RUNOFF (INCHES)	18.80		7.22
10 PERCENT EXCEEDS	639		228
50 PERCENT EXCEEDS	127		81
90 PERCENT EXCEEDS	48		23

## 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 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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	138	142	469	515	295	206	599	273	148	102	95
2	159	136	150	433	496	303	202	556	262	147	98	96
3	247	136	272	397	477	299	203	552	256	148	97	99
4	264	150	358	366	463	293	212	543	250	160	97	217
5	236	157	288	349	454	293	205	1170	245	153	96	142
6	202	148	258	346	437	294	199	1080	600	142	95	111
7	196	139	237	355	421	285	197	873	375	135	94	100
8	210	136	218	376	407	274	195	775	317	131	96	99
9	256	137	202	385	397	269	201	703	281	128	96	97
10	260	138	190	525	387	261	194	642	259	125	99	94
11	237	133	178	1100	376	256	188	595	245	119	99	90
12	222	132	172	1050	369	257	195	556	235	117	97	88
13	208	128	166	914	377	253	213	520	228	133	93	87
14	198	127	160	874	365	248	276	483	218	136	90	86
15	188	129	155	1450	346	242	378	454	208	127	90	84
16	180	127	150	3010	335	241	358	433	258	124	89	95
17	174	125	195	1830	334	257	341	411	384	123	88	97
18	172	125	475	1460	346	256	804	394	260	121	86	106
19	166	122	533	1290	335	243	1480	373	230	120	85	109
20	162	122	429	1180	318	240	984	365	214	119	82	115
21	159	123	380	1050	312	237	830	380	204	117	83	101
22	156	125	345	956	307	235	751	349	195	117	87	101
23	154	122	316	893	300	232	689	341	189	116	87	104
24	152	119	293	807	298	227	633	347	185	118	94	104
25	148	117	273	743	302	224	589	355	181	124	91	98
26	147	119	259	698	294	222	553	402	174	114	88	95
27	144	142	246	657	289	225	1090	345	168	107	84	90
28	144	151	243	631	292	221	807	324	162	107	86	89
29	141	177	299	604	---	215	727	301	159	106	87	88
30	141	152	460	576	---	210	652	293	153	105	99	86
31	138	---	521	544	---	207	---	284	---	103	91	---
MEAN	185	134	276	849	370	252	485	510	246	125	91.8	102
MAX	264	177	533	3010	515	303	1480	1170	600	160	102	217
MIN	138	117	142	346	289	207	188	284	153	103	82	84
IN.	.50	.35	.75	2.29	.90	.68	1.27	1.38	.64	.34	.25	.27

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

	MEAN	293	379	328	310	374	550	651	703	530	318	217	225
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	121	81.4	47.0	37.1	47.0	
(WY)	1957	1964	1964	1964	1964	1954	1954	1963	1954	1954	1954	1953	

SUMMARY STATISTICS

	FOR 1990 CALENDAR YEAR	FOR 1991 WATER YEAR	FOR PERIOD OF RECORD
ANNUAL MEAN	597	302	406
HIGHEST ANNUAL MEAN			1008
LOWEST ANNUAL MEAN			77.8
HIGHEST DAILY MEAN	7440	Mar 15	36700
LOWEST DAILY MEAN	51	Jan 13	15
INSTANTANEOUS PEAK FLOW	8340	Mar 15	62100
INSTANTANEOUS PEAK STAGE	11.77	Mar 15	16.8
INSTANTANEOUS LOW FLOW	49	Jan 13	12
ANNUAL SEVEN-DAY MINIMUM	55	Jan 10	16
ANNUAL RUNOFF (INCHES)	18.99		12.93
10 PERCENT EXCEEDS	1140		810
50 PERCENT EXCEEDS	307		226
90 PERCENT EXCEEDS	137		84

## ARKANSAS RIVER BASIN

07189000 ELK RIVER NEAR TIFF CITY, MO

LOCATION.--Lat 36°37'53", long 94°35'12", in NE 1/4 NE 1/4 sec.22, T.22 N., R.34 W., McDonald County, Hydrologic Unit 11070208, near right abutment of bridge on State Highway 43, 0.8 mi downstream from Blackfoot Branch, 2.8 mi upstream from Buffalo Creek, 3.0 mi southeast of Tiff City, and at mile 15.8.

DRAINAGE AREA.--872 mi<sup>2</sup>.

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

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

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

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	151	485	1880	738	337	386	646	439	109	88	102
2	172	147	441	1390	712	358	397	566	418	105	84	88
3	180	143	564	1130	681	349	390	521	390	105	76	87
4	203	145	784	969	675	347	426	572	365	110	71	169
5	220	154	738	868	654	347	488	1020	346	106	68	147
6	215	161	625	912	625	336	497	1350	405	102	71	134
7	201	165	545	1320	608	310	497	1150	391	95	70	124
8	195	165	490	1600	588	297	480	969	381	91	72	117
9	215	165	441	1500	571	293	457	829	358	86	70	108
10	246	162	409	3480	581	287	425	729	324	81	69	98
11	246	161	384	7520	551	285	406	671	301	77	70	91
12	229	161	367	4850	508	282	404	635	291	72	67	82
13	217	157	348	3270	503	277	1560	600	271	85	68	79
14	211	154	336	2620	493	271	11800	559	249	117	70	73
15	200	154	322	4640	463	263	6490	521	236	165	65	71
16	196	154	312	9550	439	256	3970	488	228	147	61	93
17	187	154	720	5670	434	274	2530	464	217	132	62	101
18	184	154	3450	3880	422	303	2180	446	205	120	67	128
19	180	151	2400	3020	417	333	3880	423	196	112	60	197
20	176	150	1540	2490	400	357	2730	408	178	103	53	260
21	173	151	1100	2070	384	366	2010	409	167	99	55	171
22	169	154	860	1610	367	379	1610	396	187	94	60	151
23	169	156	723	1560	358	404	1320	388	165	88	57	153
24	165	159	577	1410	339	435	1170	383	158	84	83	157
25	162	158	582	1290	343	451	1040	558	151	99	127	159
26	161	159	540	1200	337	461	919	986	138	107	117	140
27	157	179	499	1120	336	468	848	756	132	113	99	128
28	160	672	473	1000	325	462	812	625	127	114	86	118
29	168	794	596	928	---	434	776	543	122	109	80	110
30	160	583	2060	914	---	411	724	488	118	103	78	102
31	154	---	2750	789	---	397	---	464	---	96	93	---
MEAN	188	209	854	2466	495	349	1721	631	255	104	74.7	125
MAX	246	794	3450	9550	738	468	11800	1350	439	165	127	260
MIN	154	143	312	789	325	256	386	383	118	72	53	71
IN.	.25	.27	1.13	3.26	.59	.46	2.20	.83	.33	.14	.10	.16

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

	MEAN	448	690	710	626	859	1328	1636	1571	902	460	275	270
MAX	2938	4094	3430	2509	2971	5020	6119	8964	4160	2565	2418	1851	
(WY)	1942	1975	1988	1985	1951	1945	1945	1943	1974	1976	1950	1950	
MIN	25.7	49.8	58.5	55.9	70.7	75.7	145	227	78.6	14.3	12.0	30.9	
(WY)	1957	1964	1964	1964	1954	1956	1956	1964	1954	1954	1954	1953	

SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

FOR PERIOD OF RECORD

ANNUAL MEAN	1468		624		814	
HIGHEST ANNUAL MEAN					1783	1945
LOWEST ANNUAL MEAN					135	1954
HIGHEST DAILY MEAN	23900	Mar 15	11800	Apr 14	68600	Apr 19 1941
LOWEST DAILY MEAN	96	Jan 13	53	Aug 20	5.1	Sep 5-6 1954
INSTANTANEOUS PEAK FLOW	36800	May 3	15900	Apr 14	137000	Apr 19 1941
INSTANTANEOUS PEAK STAGE	21.19	May 3	14.95	Apr 14	28.4	Apr 19 1941
INSTANTANEOUS LOW FLOW	96	Jan 13	53	Aug 20	5.1	Sep 5-6 1954
ANNUAL SEVEN-DAY MINIMUM	107	Jan 10	59	Aug 17	5.6	Sep 2 1954
ANNUAL RUNOFF (INCHES)	22.86		9.72		12.68	
10 PERCENT EXCEEDS	3660		1320		1700	
50 PERCENT EXCEEDS	515		312		328	
90 PERCENT EXCEEDS	148		87		83	

**THIS IS A BLANK PAGE**



## WATER RESOURCES DATA - MISSOURI, 1991

## 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.

## Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1991 maximum			Period of record maximum		
			Date	Gage height (feet)	Dis-charge (ft <sup>3</sup> /s)	Date	Gage height (feet)	Dis-charge (ft <sup>3</sup> /s)
Platte River basin								
Platte River at Ravenwood (06818900)	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 side of left pier of U.S. Highway 136 bridge, 0.8 mi west of Ravenwood. Drainage area is 486 mi <sup>2</sup> .	1922-71‡	a7-26-90	14.37	7,610	9-9-89	21.5	16,500
		1972-91	7-11-91	13.98	7,260			
Shoal Creek basin								
Crooked River near Richmond (06895000)	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. Drainage area is 159 mi <sup>2</sup> .	1948-70‡	a6-7,8-90	27.11	9,700	7-20-65	30.7	29,000
		1971-91	5-4,5-91	21.19	2,840			
Wakenda Creek basin								
Wakenda Creek at Carrollton (06896000)	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. Drainage area is 248 mi <sup>2</sup> .	1948-70‡	a6-7,8-90	24.25	8,460	10-3-86	26.60	13,100
		1972-91	5-4,5-91	19.81	3,020			
Grand River basin								
East Fork Big Creek near Bethany (06897000)	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. Drainage area is 95 mi <sup>2</sup> .	1934-72‡	a6-22-90	12.84	2,570	6-6-47	17.65	8,120
		1973-91	5-28-91	14.59	3,270			
Locust Creek at Reger (06901100)	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. Drainage area is 232 mi <sup>2</sup> .	1987-91	a6-8-90	12.73	5,180	5-5-91	17.38	10,800
			5-5-91	17.38	10,800			
Moniteau Creek basin								
Moniteau Creek near Fayette (06909500)	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. Drainage area is 81 mi <sup>2</sup> .	1948-60	a5-20-90	16.93	2,000	7-10-69	21.59	11,300
		1962-69‡	5-15-91	16.65	1,870			
		1979-91						

## WATER RESOURCES DATA - MISSOURI, 1991

227

## Maximum discharge at crest-stage partial-record stations--Continued

Station name and number	Location and drainage area	Period of record	Water year 1991 maximum		Period of record maximum			
			Date	Gage height (feet)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (feet)	Dis- charge (ft <sup>3</sup> /s)
Moreau River basin								
Moreau River near Jefferson City (06910500)	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. Drainage area is 561 mi <sup>2</sup> .	1947-74‡ 1975-91	5-13-91	24.07	13,300	10-3-86	39.05	+
Osage River basin								
Maries River at Westphalia (06927000)	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. Drainage area is 257 mi <sup>2</sup> .	1947-70‡ 1971-91	5-13-91	11.88	8,630	12-3-82	21.31	27,300

‡ Operated as continuous-record gaging station.

a Revised from 1990.

+ Not determined.

## 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 1990 TO SEPTEMBER 1991

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 CAC03 (00419)
07064400 MONTAUK SPRINGS AT MONTAUK, MO (LAT 37 27 36N LONG 091 40 59W)										
NOV 1990										
19...	0930	74	305	7.7	13.5	8.5	81	K6	K5	144
MAY 1991										
30...	1440	132	215	7.1	13.0	9.7	92	K8	100	104
07064440 CURRENT RIVER BELOW MONTAUK STATE PARK (LAT 37 27 01N LONG 091 29 41W)										
NOV 1990										
19...	1030	90	294	8.0	12.5	11.8	110	22	K16	147
MAY 1991										
30...	1400	167	218	7.7	17.5	10.2	107	22	100	101
07064530 WELCH SPRING NEAR AKERS MO (LAT 37 23 38N LONG 091 34 25W)										
NOV 1990										
19...	1140	171	327	7.8	13.5	9.1	86	K5	K1	172
MAY 1991										
30...	1240	300	216	7.2	13.5	10.4	100	20	200	103
07064555 PULLTITE SPRING NEAR ROUND SPRING, MO (LAT 37 20 03N LONG 091 29 24W)										
NOV 1990										
19...	1300	42	305	7.8	14.0	10.3	99	K4	K3	157
MAY 1991										
30...	1115	115	226	7.3	13.5	10.8	103	20	36	106
07065000 ROUND SPRING AT ROUND SPRING MO (LAT 37 16 57N LONG 091 24 27W)										
NOV 1990										
19...	1430	30	337	7.7	14.0	9.5	91	K10	K5	185
MAY 1991										
30...	0950	44	267	7.3	13.5	10.0	96	K8	150	134
07065500 ALLEY SPRING AT ALLEY MO (LAT 37 09 14N LONG 091 26 29W)										
NOV 1990										
19...	1530	93	306	7.6	14.0	9.2	88	K7	K3	162
MAY 1991										
30...	0830	163	221	7.3	13.5	9.7	93	29	150	110
07066110 JACKS FORK ABOVE TWO RIVERS (LAT 37 10 53N LONG 091 17 36W)										
NOV 1990										
20...	1420	126	339	8.4	14.0	12.5	119	K3	K6	186
MAY 1991										
30...	0700	437	319	8.1	21.0	7.5	84	130	200	146
07066510 CURRENT RIVER ABOVE POWDER MILL (LAT 37 10 32N LONG 091 12 48W)										
NOV 1990										
20...	1315	673	332	8.2	12.5	11.8	109	K1	K2	180
MAY 1991										
29...	1600	1750	260	8.2	22.0	9.2	104	K19	110	132
07066550 BLUE SPRING NEAR EMINENCE, MO. (LAT 37 09 58N LONG 091 09 47W)										
NOV 1990										
20...	1205	99	301	7.8	14.0	8.6	82	62	22	143
MAY 1991										
29...	1520	214	150	7.4	14.0	9.6	92	100	140	61
07067500 BIG SPRING NEAR VAN BUREN MO (LAT 36 57 05N LONG 090 59 36W)										
NOV 1990										
20...	0950	391	342	7.6	14.0	8.2	78	K2	K5	185
MAY 1991										
29...	0810	543	273	7.4	13.5	9.0	85	K4	39	145

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

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS--Continued

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

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- PHORUS 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)								
NOV 1990 19...	0.010	0.900	0.030	<0.20	<0.010	<1	1	<1	<10
MAY 1991 30...	<0.010	0.570	<0.010	<0.20	0.010	<1	3	<1	<10
07064440	CURRENT RIVER BELOW MONTAUK STATE PARK (LAT 37 27 01N LONG 091 29 41W)								
NOV 1990 19...	0.020	0.900	0.060	<0.20	0.010	<1	<1	<1	<10
MAY 1991 30...	<0.010	0.480	0.020	<0.20	0.010	<1	1	<1	<10
07064530	WELCH SPRING NEAR AKERS MO (LAT 37 23 38N LONG 091 34 25W)								
NOV 1990 19...	<0.010	0.700	0.050	<0.20	0.010	<1	1	<1	<10
MAY 1991 30...	0.010	0.630	<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)								
NOV 1990 19...	0.010	0.600	0.030	<0.20	<0.010	<1	1	<1	<10
MAY 1991 30...	<0.010	0.430	<0.010	0.20	<0.010	<1	4	<1	<10
07065000	ROUND SPRING AT ROUND SPRING MO (LAT 37 16 57N LONG 091 24 27W)								
NOV 1990 19...	<0.010	0.300	0.030	<0.20	<0.010	<1	<1	<1	<10
MAY 1991 30...	<0.010	0.300	<0.010	<0.20	<0.010	<1	5	<1	<10
07065500	ALLEY SPRING AT ALLEY MO (LAT 37 09 14N LONG 091 26 29W)								
NOV 1990 19...	<0.010	0.700	0.040	<0.20	<0.010	<1	2	<1	30
MAY 1991 30...	0.010	0.610	<0.010	<0.20	0.010	<1	4	<1	<10
07066110	JACKS FORK ABOVE TWO RIVERS (LAT 37 10 53N LONG 091 17 36W)								
NOV 1990 20...	0.010	0.300	0.050	0.30	0.030	<1	1	<1	<10
MAY 1991 30...	<0.010	0.290	<0.010	<0.20	<0.010	<1	2	<1	<10
07066510	CURRENT RIVER ABOVE POWDER MILL (LAT 37 10 32N LONG 091 12 48W)								
NOV 1990 20...	0.010	0.300	0.040	<0.20	<0.010	<1	<1	<1	<10
MAY 1991 29...	<0.010	0.260	<0.010	0.40	<0.010	<1	2	<1	<10
07066550	BLUE SPRING NEAR EMINENCE, MO. (LAT 37 09 58N LONG 091 09 47W)								
NOV 1990 20...	<0.010	0.400	0.030	<0.20	<0.010	<1	2	<1	<10
MAY 1991 29...	<0.010	0.450	<0.010	1.5	<0.010	<1	1	<1	<10
07067500	BIG SPRING NEAR VAN BUREN MO (LAT 36 57 05N LONG 090 59 36W)								
NOV 1990 20...	0.020	0.300	0.040	<0.20	<0.010	<1	1	<1	<10
MAY 1991 29...	<0.010	0.450	<0.010	0.30	0.010	<1	1	<1	<10

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS--Continued

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

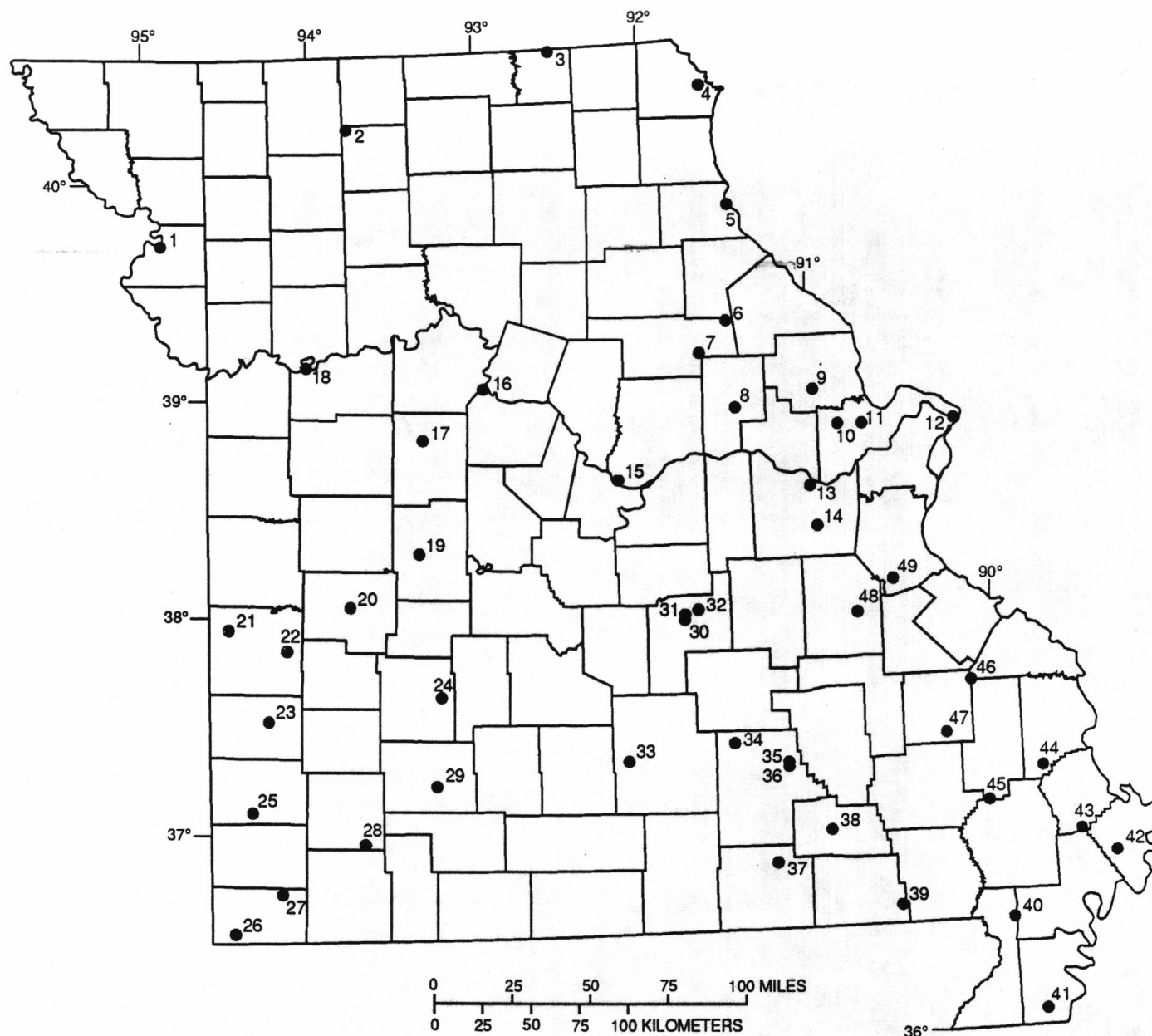
DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LITY WAT WH TOT IT FIELD CACO3 (00419)
07067800 CURRENT RIVER BELOW HAWES CAMPGROUND (LAT 36 49 08N LONG 090 56 48W)										
NOV 1990										
20...	0845	1570	326	8.2	11.5	10.7	96	K6	K11	170
MAY 1991										
29...	1200	2990	262	7.8	21.0	9.9	109	K13	23	134

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

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

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- PHORUS 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)								
NOV 1990									
20...	0.010	0.300	0.040	0.20	0.010	<1	<1	<1	<10
MAY 1991									
29...	<0.010	0.230	<0.010	<0.20	<0.010	<1	2	<1	<10





- |                     |                     |                       |
|---------------------|---------------------|-----------------------|
| 1 St. Joseph        | 20 Osceola          | 31 Conservation       |
| 2 Spickard          | 21 Nevada West      | 32 Industrial Park    |
| 3 Vandike           | 22 Nevada East      | 33 Fairview           |
| 4 Wayland           | 23 Lamar            | 34 Akers              |
| 5 Hannibal          | 24 Halfway          | 35 Ozark Lead 1       |
| 6 Vandalia          | 25 Atlas Powder     | 36 Ozark Lead 2       |
| 7 Scotts Corner     | 26 Noel             | 37 Lower Eleven Point |
| 8 New Florence      | 27 Longview         | 38 Big Spring         |
| 9 Troy              | 28 Aurora           | 39 Naylor             |
| 10 Wentzville       | 29 Springfield      | 40 Malden             |
| 11 O'Fallon         | (a) Belcrest Street | 41 Steele             |
| 12 Columbia Bottoms | (b) Bissett School  | 42 East Prairie       |
| 13 Washington       | (c) Cherokee School | 43 Sikeston           |
| 14 St. Clair        | (d) Fulbright       | 44 Delta              |
| 15 Jefferson City   | (e) Kansas Street   | 45 Duck Creek         |
| 16 Arrow Rock       | (f) Main Street     | 46 National Lead      |
| 17 Sedalia          | (g) SW Power Plant  | 47 Fredericktown      |
| 18 Wellington       | (h) York Street     | 48 Potosi             |
| 19 Warsaw           | 30 Rolla            | 49 DeSoto             |

Figure 6.--Ground-water monitoring wells.

## 1-St. Joseph

COUNTY--Buchanan

WELL IDENTIFICATION NUMBER--394254094523901

LOCATION--Lat 37°42'54", long 94°52'39", T.57 N., R.35 W., 31bcb, 0.2 mi north of Highway U, Eric Street.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled May 2, 1957, total depth 83.5 ft, 58 ft of 8-in casing, 13 ft of 4-in casing,  
4 ft of 4-in screen.

DGLS Log Number: 16,116

INSTRUMENTATION--Digital recorder installed March 28, 1984.

DATUM--820 ft above NGVD of 1929.

Measuring point: Recorder platform, 0.75 ft above land surface.

PERIOD OF PROCESSED RECORD--March 23, 1989 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.90	24.22	25.86	27.02	26.63	25.96	26.33	23.82	22.76	22.03	23.33	24.21
2	23.90	24.25	25.90	26.98	26.63	26.01	26.21	23.75	22.73	22.16	23.38	24.20
3	23.86	24.34	25.89	27.00	26.59	26.14	26.09	23.67	22.64	22.27	23.46	24.18
4	23.84	24.42	26.01	26.99	26.53	26.11	26.04	23.67	22.56	22.33	23.55	24.19
5	23.84	24.44	26.04	26.90	26.50	25.96	26.01	23.59	22.53	22.36	23.58	24.19
6	23.80	24.48	26.06	26.90	26.45	25.90	25.96	23.49	22.53	22.38	23.59	24.20
7	23.83	24.49	26.14	26.89	26.42	26.02	25.89	23.36	22.46	22.43	23.63	24.22
8	23.90	24.48	26.19	26.83	26.37	26.06	25.83	23.26	22.23	22.55	23.65	24.20
9	23.93	24.43	26.23	26.81	26.29	26.11	25.81	23.15	22.05	22.64	23.68	24.18
10	23.92	24.50	26.27	26.78	26.26	26.13	25.81	23.11	21.99	22.67	23.73	24.21
11	23.86	24.64	26.28	26.71	26.23	26.08	25.75	23.03	21.95	22.62	23.74	24.22
12	23.88	24.78	26.28	26.72	26.20	26.01	25.68	23.03	21.89	22.54	23.75	24.23
13	23.89	24.87	26.38	26.70	26.10	26.11	25.61	22.95	21.87	22.51	23.73	24.24
14	23.87	24.94	26.45	26.65	26.13	26.27	25.54	22.96	21.88	22.47	23.71	24.24
15	23.95	25.02	26.44	26.66	26.24	26.38	25.45	22.97	21.92	22.37	23.71	24.24
16	23.99	25.12	26.50	26.67	26.24	26.42	25.33	23.01	21.83	22.20	23.72	24.25
17	23.99	25.23	26.51	26.71	26.18	26.36	25.25	22.92	21.52	22.04	23.73	24.24
18	24.12	25.22	26.50	26.72	26.19	26.36	25.15	22.96	21.22	21.95	23.75	24.22
19	24.18	25.23	26.55	26.67	26.27	26.37	25.03	22.92	21.08	21.98	23.77	24.28
20	24.12	25.26	26.60	26.65	26.31	26.32	24.93	22.84	21.08	22.08	23.78	24.33
21	24.16	25.27	26.66	26.69	26.28	26.28	24.79	22.74	21.15	22.25	23.78	24.32
22	24.21	25.37	26.72	26.63	26.26	26.28	24.62	22.72	21.30	22.46	23.81	24.27
23	24.19	25.44	26.80	26.59	26.19	26.33	24.48	22.71	21.37	22.65	23.88	24.28
24	24.22	25.47	26.87	26.63	26.14	26.43	24.41	22.72	21.36	22.76	23.94	24.28
25	24.23	25.50	26.92	26.66	26.13	26.42	24.33	22.72	21.38	22.85	23.97	24.29
26	24.20	25.54	27.03	26.67	26.08	26.37	24.21	22.69	21.45	22.99	23.98	24.32
27	24.16	25.57	27.08	26.59	26.04	26.35	24.10	22.66	21.58	23.10	24.02	24.37
28	24.21	25.70	27.05	26.54	26.00	26.43	23.97	22.67	21.75	23.15	24.07	24.48
29	24.21	25.84	27.07	26.55	---	26.46	23.87	22.72	21.89	23.15	24.14	24.55
30	24.19	25.86	27.11	26.59	---	26.49	23.84	22.75	21.97	23.18	24.20	24.59
31	24.20	---	27.10	26.62	---	26.42	---	22.76	---	23.25	24.21	---
MEAN	24.02	25.00	26.50	26.73	26.28	26.24	25.21	23.04	21.86	22.53	23.77	24.27
MAX	24.23	25.86	27.11	27.02	26.63	26.49	26.33	23.82	22.76	23.25	24.21	24.59
MIN	23.80	24.22	25.86	26.54	26.00	25.90	23.84	22.66	21.08	21.95	23.33	24.18

COUNTY--Grundy

WELL IDENTIFICATION NUMBER--401444093442001

LOCATION--Lat 40°14'44", long 93°44'20", T.63 N., R.25 W., 20bdb, approximately 8 mi 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 ft, 136 ft of casing and 4 ft of screen.

INSTRUMENTATION--Graphic recorder from November 5, 1958 to December 22, 1980. Digital recorder installed  
December 22, 1980.

DATUM--788 ft above NGVD of 1929.

Measuring point: Base of recorder, 2.5 ft above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--December 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.90	10.70	10.50	10.32	10.18	10.09	---	9.48	10.94	---	---	14.71
2	10.87	10.70	10.50	10.34	10.18	10.07	---	9.49	10.27	---	---	14.66
3	10.78	10.72	10.42	10.37	10.17	10.11	---	9.40	---	---	---	14.59
4	10.79	10.62	10.49	10.35	10.18	10.07	---	9.38	---	---	---	14.54
5	10.79	10.56	10.43	10.29	10.21	10.00	---	9.35	---	---	---	14.48
6	10.77	10.58	10.44	10.32	10.24	10.03	---	9.37	---	---	---	14.46
7	10.76	10.64	10.44	10.32	10.26	10.08	---	9.37	---	---	---	14.41
8	10.78	10.60	10.44	10.29	10.26	10.08	---	9.37	---	---	---	14.31
9	10.78	10.55	10.44	10.31	10.23	10.10	---	9.37	---	---	---	14.26
10	10.76	10.55	10.44	10.29	10.25	10.09	---	9.37	---	---	---	14.25
11	10.74	10.57	10.40	10.23	10.25	10.03	---	9.37	---	---	---	14.20
12	10.75	10.59	10.39	10.25	10.21	9.98	---	9.35	---	---	---	14.16
13	10.72	10.57	10.44	10.21	10.14	9.98	---	9.34	---	---	---	14.12
14	10.70	10.56	10.42	10.19	10.18	10.02	9.67	9.35	---	---	---	14.06
15	10.74	10.55	10.38	10.18	10.26	10.06	9.68	9.29	---	---	---	14.01
16	10.72	10.58	10.42	10.17	10.21	10.06	9.69	9.27	---	---	---	13.97
17	10.70	10.59	10.36	10.19	10.17	9.98	9.69	9.25	---	---	---	13.94
18	10.75	10.54	10.32	10.21	10.16	9.96	9.60	9.27	---	---	---	13.92
19	10.74	10.54	10.35	10.15	10.22	9.96	9.59	9.29	---	---	---	13.92
20	10.71	10.52	10.35	10.17	10.23	9.90	9.62	9.46	---	---	---	13.89
21	10.74	10.49	10.37	10.22	10.22	9.88	9.60	9.57	---	---	---	13.82
22	10.74	10.51	10.38	10.16	10.26	9.85	9.55	9.52	---	---	15.24	13.78
23	10.73	10.50	10.38	10.16	10.24	9.88	9.54	9.40	---	---	15.18	13.78
24	10.76	10.48	10.38	10.20	10.26	9.92	9.57	9.32	---	---	15.13	13.73
25	10.76	10.48	10.38	10.22	10.28	9.91	9.55	9.24	---	---	15.07	13.66
26	10.74	10.45	10.41	10.18	10.25	9.86	9.50	9.18	---	---	15.02	13.66
27	10.74	10.42	10.38	10.13	10.22	9.74	9.46	9.17	---	---	14.96	13.69
28	10.77	10.49	10.33	10.13	10.17	---	9.46	---	---	---	14.90	13.78
29	10.74	10.54	10.31	10.16	---	---	9.39	8.99	---	---	14.86	13.83
30	10.73	10.49	10.33	10.17	---	---	9.45	9.01	---	---	14.80	13.85
31	10.73	---	10.35	10.19	---	---	---	10.68	---	---	14.75	---
MEAN	10.76	10.56	10.40	10.23	10.22	---	---	---	---	---	---	14.08
MAX	10.90	10.72	10.50	10.37	10.28	---	---	---	---	---	---	14.71
MIN	10.70	10.42	10.31	10.13	10.14	---	---	---	---	---	---	13.66

## 3-Vandike

COUNTY--Schuyler

WELL IDENTIFICATION NUMBER--403452092292901

LOCATION--Lat 40°34'52", long 92°29'29", T.66 N., R.14 W., 29cda, 0.5 mi west of Highway CC, 1.3 mi north, Highway C and Highway CC.

FORMATIONS OPEN TO THE WELL--Glacial Till.

WELL CHARACTERISTICS--Hand dug, 1933, total depth 27 ft, rock walled.

INSTRUMENTATION--Digital recorder installed July 21, 1980.

DATUM--935 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.0 ft above land surface.

PERIOD OF RECORD--November 30, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.57	18.40	19.05	19.60	20.03	20.40	19.61	17.72	13.93	14.88	15.86	16.84
2	17.60	18.42	19.07	19.63	20.02	20.40	19.60	17.69	13.95	14.91	15.89	16.88
3	17.63	18.45	19.08	19.64	19.98	20.40	19.57	17.65	13.99	14.94	15.91	16.91
4	17.65	18.47	19.10	19.66	19.98	20.40	19.54	17.60	14.02	14.98	15.95	16.94
5	17.68	18.49	19.13	19.68	19.99	20.41	19.51	15.66	14.05	15.02	15.98	16.97
6	17.70	18.51	19.14	19.70	20.00	20.42	19.48	14.60	14.09	15.05	16.02	17.00
7	17.73	18.54	19.17	19.72	20.01	20.43	19.45	14.49	14.12	15.08	16.05	17.03
8	17.76	18.56	19.19	19.73	20.03	20.45	19.41	14.51	14.16	15.11	16.08	17.06
9	17.79	18.59	19.21	19.75	20.05	20.45	19.37	14.53	14.19	15.14	16.11	17.08
10	17.81	18.61	19.23	19.76	20.08	20.46	19.35	14.57	14.22	15.16	16.14	17.11
11	17.84	18.63	19.25	19.77	20.09	20.47	19.32	14.61	14.25	15.19	16.18	17.14
12	17.88	18.66	19.26	19.78	20.13	20.47	19.30	14.65	14.28	15.22	16.22	17.17
13	17.90	18.68	19.28	19.79	20.15	20.47	19.27	14.68	14.31	15.25	16.25	17.20
14	17.92	18.71	19.30	19.80	20.16	20.47	19.23	14.71	14.33	15.29	16.29	17.23
15	17.94	18.73	19.32	19.81	20.18	20.47	19.19	14.73	14.35	15.32	16.32	17.26
16	17.96	18.74	19.33	19.83	20.20	20.48	19.16	14.76	14.39	15.35	16.34	17.28
17	17.99	18.77	19.35	19.84	20.22	20.48	19.13	14.59	14.42	15.39	16.36	17.32
18	18.01	18.79	19.36	19.85	20.22	20.47	19.09	13.65	14.45	15.43	16.40	17.35
19	18.04	18.81	19.37	19.85	20.24	20.46	18.94	13.57	14.48	15.45	16.43	17.38
20	18.06	18.83	19.39	19.84	20.25	20.45	18.57	13.58	14.51	15.47	16.46	17.42
21	18.09	18.86	19.41	19.84	20.27	20.44	18.28	13.62	14.54	15.50	16.49	17.45
22	18.12	18.87	19.42	19.85	20.29	20.42	18.15	13.67	14.56	15.53	16.52	17.48
23	18.14	18.88	19.42	19.87	20.31	20.39	18.08	13.72	14.61	15.56	16.55	17.51
24	18.17	18.90	19.44	19.89	20.33	20.37	18.03	13.76	14.65	15.60	16.58	17.53
25	18.21	18.92	19.48	19.90	20.35	20.35	17.98	13.77	14.68	15.63	16.62	17.56
26	18.24	18.94	19.49	19.92	20.37	20.32	17.94	13.79	14.71	15.66	16.66	17.58
27	18.27	18.95	19.51	19.94	20.39	19.92	17.89	13.81	14.74	15.70	16.69	17.61
28	18.30	18.97	19.55	19.95	20.40	19.71	17.84	13.85	14.78	15.74	16.72	17.64
29	18.33	19.00	19.55	19.97	---	19.68	17.79	13.88	14.82	15.76	16.75	17.67
30	18.35	19.03	19.55	19.99	---	19.65	17.75	13.90	14.85	15.79	16.78	17.70
31	18.38	---	19.57	20.00	---	19.63	---	13.91	---	15.82	16.81	---
MEAN	17.97	18.72	19.32	19.81	20.17	20.32	18.86	14.65	14.38	15.35	16.34	17.28
MAX	18.38	19.03	19.57	20.00	20.40	20.48	19.61	17.72	14.85	15.82	16.81	17.70
MIN	17.57	18.40	19.05	19.60	19.98	19.63	17.75	13.57	13.93	14.88	15.86	16.84

COUNTY--Clark

WELL IDENTIFICATION NUMBER--402356091344001

LOCATION--Lat 40°23'56", long 91°34'40", T.65 N., R.6 W., 29cad, north edge of Wayland, County Highway B.

FORMATIONS OPEN TO THE WELL--Alluvium and undifferentiated Pleistocene.

WELL CHARACTERISTICS--Drilled on October 1, 1974, total depth 160 ft, casing details unknown.

INSTRUMENTATION--Graphic recorder from October 8, 1974 to July 10, 1990. Digital recorder installed July 10, 1990.

DATUM--540 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.5 ft above land surface.

REMARKS--Several weeks 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 September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.43	47.77	---	47.57	47.83	47.15	46.25	46.15	45.50	48.33	50.16	---
2	48.59	47.98	---	47.87	47.70	46.85	46.61	45.99	45.34	47.75	50.94	---
3	48.51	48.21	---	47.70	48.57	46.89	46.29	45.97	46.10	49.22	50.35	---
4	48.28	49.24	---	47.29	47.57	46.98	46.22	45.92	45.84	49.46	---	---
5	49.03	47.67	---	47.93	47.58	46.76	46.50	45.19	45.59	48.98	---	---
6	47.89	47.89	---	47.45	47.29	46.79	46.67	45.03	45.93	48.85	---	---
7	47.72	47.85	---	48.23	47.09	46.77	46.25	44.94	46.17	48.29	---	---
8	47.69	48.59	---	47.70	47.01	46.80	46.55	44.74	46.15	48.63	---	---
9	47.61	49.41	---	47.64	47.09	46.90	46.51	44.99	45.98	49.88	---	---
10	47.95	49.89	---	47.60	47.25	46.87	46.39	45.09	46.58	49.80	---	---
11	48.58	50.01	---	47.52	47.22	47.04	46.34	45.33	46.13	49.80	---	---
12	47.69	---	---	47.57	47.27	46.87	46.11	45.50	46.40	49.80	---	---
13	48.76	---	---	47.78	46.90	46.89	46.15	46.09	46.76	49.80	---	---
14	48.78	---	---	47.85	47.07	46.76	46.20	45.98	46.56	49.80	---	---
15	48.53	---	---	47.63	47.29	47.01	46.40	45.62	46.67	49.80	---	---
16	48.08	---	---	47.70	47.19	46.93	46.46	45.59	46.16	49.80	---	---
17	48.25	---	---	47.71	47.31	46.74	46.51	45.36	46.53	49.80	---	---
18	47.93	---	---	47.68	47.46	46.66	46.36	45.67	46.64	49.80	49.86	---
19	47.94	---	---	47.72	47.53	46.90	45.98	45.17	47.04	49.94	49.85	---
20	47.72	---	---	47.64	47.28	46.58	45.91	45.65	47.23	50.31	49.86	---
21	47.63	---	---	47.86	47.13	46.56	46.19	45.38	48.00	50.34	49.87	---
22	47.88	---	---	47.97	47.28	46.30	45.88	45.59	47.43	---	49.95	---
23	47.68	---	---	47.65	47.08	46.23	46.04	45.65	47.87	---	50.21	---
24	47.87	---	---	47.85	47.24	46.44	46.03	46.38	48.71	---	51.10	---
25	47.62	---	---	47.64	47.23	46.55	45.95	45.44	47.75	---	51.19	---
26	47.74	---	---	47.52	47.12	46.62	46.08	45.72	47.67	---	51.24	---
27	48.01	---	---	47.99	47.26	46.34	46.06	45.85	47.85	---	52.01	---
28	47.94	---	47.91	47.76	46.96	46.31	45.80	46.25	48.29	---	---	---
29	47.73	---	47.87	47.89	---	46.28	45.99	46.30	48.77	50.06	---	---
30	48.18	---	48.28	47.74	---	46.39	46.24	---	48.35	49.97	---	---
31	47.77	---	48.45	48.40	---	46.50	---	45.55	---	50.01	---	---
MEAN	48.00	---	---	47.74	47.31	46.70	46.23	---	46.87	---	---	---
MAX	49.03	---	---	48.40	48.57	47.15	46.67	---	48.77	---	---	---
MIN	46.43	---	---	47.29	46.90	46.23	45.80	---	45.34	---	---	---

PERIOD OF PROCESSED RECORD--June 14, 1984 to September 30, 1991.

[illegible]



COUNTY--Audrain

WELL IDENTIFICATION NUMBER--391825091285001

LOCATION--Lat 39°18'25", long 91°28'50", T.52 N., R.5 W., 5ddd, west of intersection of Highland Street and Walsh Boulevard in Vandalia, well number 3.

FORMATIONS OPEN TO THE WELL--Kimmswick Formation, Decorah Formation, Plattin Formation, Joachim Formation, and St. Peter Sandstone.

WELL CHARACTERISTICS--Drilled January 1, 1939, total depth 700 ft, 425 ft of 10-in casing, open hole.  
DGLS Log Number: 5,230

INSTRUMENTATION--Digital recorder.

DATUM--765 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.6 ft above land surface.

PERIOD OF PROCESSED RECORD--June 17, 1970 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	201.86	190.56	189.33	188.89	187.77	186.89	185.67	184.71	186.29	187.10	186.30	188.00
2	201.65	190.23	189.10	188.95	187.82	187.03	185.60	184.79	186.71	187.27	186.36	187.99
3	201.44	190.38	188.67	189.09	187.72	187.49	185.86	184.53	186.34	187.17	186.47	188.27
4	201.51	190.22	189.05	188.98	187.57	187.56	185.23	184.66	186.34	186.50	186.47	188.22
5	201.28	190.00	188.89	188.66	187.45	187.38	184.97	184.73	186.39	186.46	186.62	188.67
6	200.83	190.05	188.85	188.80	187.36	187.94	184.88	184.77	186.44	186.42	186.74	188.44
7	200.73	190.00	188.82	188.90	187.41	189.15	184.66	184.89	186.41	186.88	186.83	188.39
8	200.38	189.84	188.83	188.47	187.26	191.04	184.81	184.98	186.46	187.96	186.73	188.44
9	200.10	189.57	188.70	188.41	187.01	193.54	185.06	184.70	186.46	188.29	187.15	188.27
10	199.71	189.54	188.59	188.15	187.09	194.75	184.84	184.90	186.48	188.19	187.19	191.47
11	199.31	189.53	188.44	187.91	187.09	193.96	184.79	184.89	186.55	187.75	187.20	195.31
12	198.69	189.62	188.30	188.12	186.89	193.02	184.61	185.00	186.42	187.97	187.07	195.65
13	197.92	189.53	188.46	187.85	186.53	192.26	184.52	185.14	186.62	187.33	186.87	195.80
14	197.39	189.45	188.33	187.78	186.73	191.70	184.49	185.22	186.59	187.31	187.07	194.21
15	197.11	189.53	188.18	187.76	187.11	190.96	184.60	185.25	186.42	187.41	186.99	193.81
16	196.46	189.38	188.44	187.74	186.99	190.43	184.39	185.40	186.45	187.60	187.03	192.70
17	195.69	189.34	188.16	187.93	186.85	189.69	184.64	185.45	186.49	188.13	187.23	191.94
18	195.30	188.99	188.09	187.95	186.76	188.67	184.47	185.52	186.57	187.14	187.15	191.40
19	194.77	188.83	188.36	187.71	187.10	188.44	184.66	185.83	187.06	186.86	187.05	191.09
20	194.12	188.75	188.43	187.78	187.07	188.10	184.71	185.65	187.06	186.57	187.15	190.72
21	193.87	188.63	188.49	188.00	186.93	187.78	184.72	185.66	188.06	186.44	187.15	190.04
22	193.49	188.86	188.61	187.71	187.19	187.04	184.61	185.83	189.32	186.52	187.37	189.54
23	193.06	188.82	188.56	187.61	187.03	186.76	184.67	185.87	188.59	186.75	187.43	189.42
24	192.79	188.56	188.49	187.98	187.08	186.46	184.82	186.00	188.04	186.67	187.41	188.97
25	192.56	188.57	188.44	187.88	187.22	185.96	184.62	186.16	187.99	186.34	187.92	188.87
26	192.23	188.47	188.96	187.79	187.15	185.66	184.65	186.15	188.55	186.36	187.92	189.17
27	191.85	188.43	188.79	187.48	187.09	185.67	184.61	186.30	189.18	186.34	187.76	188.99
28	191.80	188.98	188.50	187.66	186.95	185.79	184.50	186.32	188.71	186.29	187.87	188.81
29	191.31	189.49	188.44	187.72	---	185.67	184.71	186.30	187.50	186.39	187.85	188.70
30	190.97	189.10	188.74	187.80	---	185.92	184.60	186.44	187.35	186.40	187.89	188.77
31	190.89	---	188.94	187.93	---	185.90	---	186.27	---	186.47	187.98	---
MEAN	196.49	189.37	188.61	188.11	187.15	188.66	184.80	185.43	187.13	187.01	187.17	190.34
MAX	201.86	190.56	189.33	189.09	187.82	194.75	185.86	186.44	189.32	188.29	187.98	195.80
MIN	190.89	188.43	188.09	187.48	186.53	185.66	184.39	184.53	186.29	186.29	186.30	187.99

## 7-Scotts Corner

COUNTY--Audrain

WELL IDENTIFICATION NUMBER--390950091384801

LOCATION--Lat 39°09'50", long 91°38'48", T.51 N., R.7 W., 25ccc, in basement of 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 ft, cased to unknown depth.

INSTRUMENTATION--Graphic recorder from April 1, 1981 to January 22, 1990. Digital recorder installed January 22, 1990.

DATUM--795 ft 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--April 18, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222.65	---	225.47	224.60	223.98	222.65	222.47	221.75	220.76	223.54	225.51	229.13
2	222.48	---	225.36	224.56	223.95	222.53	222.47	221.80	220.77	223.73	225.55	229.25
3	222.34	---	224.95	224.81	223.84	222.73	222.47	221.70	220.77	223.74	225.86	229.31
4	222.48	---	225.41	224.84	223.67	222.72	222.43	221.64	220.77	---	225.98	229.31
5	222.46	---	225.30	224.46	223.66	222.53	222.43	221.50	220.83	223.75	226.29	229.31
6	---	---	225.17	224.45	223.66	222.35	222.38	221.54	220.99	223.75	226.33	229.42
7	---	---	225.20	224.51	223.70	222.71	222.19	221.62	221.03	223.86	226.44	229.49
8	---	---	225.24	224.37	223.75	222.73	222.06	221.72	221.03	224.08	226.50	229.43
9	---	---	225.24	224.38	223.52	222.83	222.07	220.88	221.02	224.22	226.72	229.42
10	---	---	225.19	224.39	223.44	222.89	222.25	221.51	221.04	224.25	227.01	229.42
11	---	---	225.04	224.00	223.45	222.67	222.32	221.49	220.92	224.25	227.22	229.42
12	---	---	224.88	223.96	223.43	222.36	222.30	221.38	220.83	224.25	227.32	229.42
13	---	---	225.22	223.95	223.31	222.24	222.10	221.25	220.83	224.25	227.34	229.42
14	---	---	225.21	223.84	223.31	222.49	221.96	221.24	220.83	224.27	227.34	229.34
15	---	---	224.85	223.82	223.41	222.73	221.95	221.24	220.88	224.30	227.34	229.22
16	---	---	224.91	223.83	223.41	222.71	222.00	221.17	221.11	224.30	227.34	229.23
17	---	---	224.71	224.01	223.07	222.41	222.02	221.15	221.19	224.30	227.32	229.24
18	---	---	224.51	224.04	222.92	222.36	221.94	221.26	221.19	224.28	227.45	229.28
19	---	---	224.63	223.88	223.28	222.48	221.88	221.30	221.30	224.24	227.63	229.48
20	---	---	224.71	223.74	223.39	222.38	221.95	221.30	221.47	224.27	227.71	229.52
21	---	---	224.71	223.91	223.31	222.25	221.97	221.30	221.69	224.31	227.70	229.36
22	---	225.59	224.74	223.88	223.30	222.23	221.85	221.27	221.88	224.32	227.71	229.22
23	---	225.49	224.77	223.75	223.26	222.26	221.73	221.23	222.09	224.53	227.83	229.26
24	---	225.31	224.79	223.93	223.15	222.37	221.81	221.20	222.24	224.68	228.08	229.26
25	---	225.24	224.78	224.05	223.18	222.41	221.84	221.02	222.30	224.83	228.26	229.09
26	---	225.20	224.92	224.00	223.19	222.27	221.76	220.94	222.37	225.22	228.45	229.04
27	---	225.14	224.87	223.59	223.10	222.01	221.62	220.94	222.58	225.52	228.60	229.05
28	---	225.52	224.53	223.51	222.87	222.24	221.59	220.99	222.81	225.52	228.72	229.05
29	---	225.84	224.28	223.59	---	222.24	221.44	220.94	222.97	225.51	228.91	229.06
30	---	225.65	224.52	223.62	---	222.44	221.63	220.80	223.29	225.51	228.92	229.05
31	---	---	224.78	223.92	---	222.48	---	220.76	---	225.51	228.94	---
MEAN	---	---	224.93	224.07	223.41	222.47	222.03	221.28	221.46	---	227.37	229.28
MAX	---	---	225.47	224.84	223.98	222.89	222.47	221.80	223.29	---	228.94	229.52
MIN	---	---	224.28	223.51	222.87	222.01	221.44	220.76	220.76	---	225.51	229.04

COUNTY--Montgomery

WELL IDENTIFICATION NUMBER--385432091264701

LOCATION--Lat 38°54'32", long 91°26'47", T.48 N., R.5 W., 23cca, New Florence Water Tower, well number 1-A.

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 ft, 323 ft of 8-in casing, open.  
DGLS Log Number: 14,429

INSTRUMENTATION--Graphic recorder from May 29, 1981 to May 22, 1990. Digital recorder installed May 22, 1990.

DATUM--877 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.5 ft above land surface.

PERIOD OF PROCESSED PERIOD--June 15, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	334.71	334.32	334.51	334.31	334.11	333.17	333.71	333.34	333.08	334.29	335.51	336.30
2	334.62	334.30	334.42	334.40	334.09	333.24	333.60	333.30	333.08	334.55	335.55	336.29
3	334.40	334.35	334.19	334.57	334.00	333.54	333.55	333.14	333.06	334.55	335.61	336.22
4	334.61	334.27	334.61	334.46	333.96	333.47	333.54	333.09	333.11	334.48	335.65	336.17
5	334.59	334.12	334.39	334.19	333.93	333.17	333.58	333.13	333.27	334.40	335.56	336.10
6	334.48	334.34	334.41	334.38	333.94	333.20	333.47	333.29	333.39	334.34	335.53	336.13
7	334.54	334.54	334.44	334.36	334.07	333.59	333.31	333.37	333.41	334.42	335.54	336.17
8	334.59	334.41	334.44	334.20	333.99	333.61	333.21	333.36	333.35	334.58	335.39	336.10
9	334.57	334.25	334.43	334.35	333.82	333.75	333.35	333.32	333.35	334.68	335.39	336.06
10	334.51	334.31	334.39	334.19	333.90	333.76	333.62	333.33	333.31	334.64	335.57	336.11
11	334.53	334.41	334.21	333.96	333.89	333.44	333.60	333.33	333.23	334.56	335.72	336.13
12	334.47	334.54	334.14	334.09	333.70	333.13	333.47	333.22	333.28	334.51	335.87	336.08
13	334.33	334.45	334.45	333.96	333.29	333.22	333.31	333.15	333.60	334.51	335.81	336.03
14	334.27	334.42	334.32	333.89	333.45	333.51	333.22	333.14	333.78	334.53	335.77	335.91
15	334.49	334.40	334.20	333.79	333.84	333.70	333.29	333.14	333.80	334.53	335.77	335.99
16	334.35	334.45	334.39	333.87	333.74	333.69	333.31	333.09	333.84	334.52	335.72	336.12
17	334.21	334.50	334.05	334.05	333.54	333.40	333.33	333.09	333.82	334.37	335.60	336.10
18	334.45	334.28	333.96	334.08	333.44	333.52	333.16	333.28	333.81	334.27	335.66	336.17
19	334.44	334.27	334.20	333.83	333.74	333.53	333.24	333.39	333.84	334.23	335.65	336.40
20	334.28	334.24	334.18	333.89	333.82	333.28	333.43	333.34	333.76	334.29	335.68	336.35
21	334.42	334.22	334.18	334.13	333.75	333.23	333.32	333.28	333.64	334.35	335.67	336.28
22	334.44	334.39	334.32	333.89	333.86	333.14	333.16	333.28	333.63	334.33	335.68	336.10
23	334.40	334.29	334.35	333.88	333.76	333.30	333.18	333.24	333.73	334.34	335.76	336.23
24	334.47	334.18	334.43	334.11	333.80	333.53	333.45	333.18	333.79	334.34	336.16	336.06
25	334.52	334.24	334.43	334.15	333.87	333.41	333.36	333.07	334.09	334.34	336.40	335.92
26	334.44	334.12	334.61	334.02	333.76	333.22	333.10	333.06	334.40	334.64	336.38	336.04
27	334.43	334.08	334.39	333.71	333.64	333.07	333.09	333.16	334.58	334.88	336.31	336.08
28	334.65	334.51	334.13	333.80	333.45	333.32	333.07	333.22	334.57	334.72	336.32	336.13
29	334.51	334.78	334.05	333.80	---	333.35	332.98	333.10	334.40	334.90	336.30	336.21
30	334.44	334.51	334.29	333.91	---	333.64	333.24	332.99	334.31	335.30	336.22	336.15
31	334.41	---	334.49	334.14	---	333.68	---	333.02	---	335.49	336.22	---
MEAN	334.47	334.35	334.32	334.08	333.79	333.41	333.34	333.21	333.68	334.54	335.81	336.14
MAX	334.71	334.78	334.61	334.57	334.11	333.76	333.71	333.39	334.58	335.49	336.40	336.40
MIN	334.21	334.08	333.96	333.71	333.29	333.07	332.98	332.99	333.06	334.23	335.39	335.91

9-Troy

COUNTY--Lincoln

WELL IDENTIFICATION NUMBER--385836090584201

LOCATION--Lat 38°58'36", long 90°58'42", T.49 N., R.1 W., 26dac, corner of Cap and Geis Streets in Troy, well number 4.

FORMATIONS OPEN TO THE WELL--Kimmswick Formation, Decorah Formation, Plattin Formation, Joachim Dolomite, and St. Peter Sandstone.

WELL CHARACTERISTICS--Drilled April 12, 1946, total depth 813 ft, 400 ft of 8-in casing, open hole.  
DGLS Log Number: 9,108

INSTRUMENTATION--Graphic recorder from April 15, 1980 to June 8, 1989. Digital recorder installed June 8, 1989.

DATUM--535 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 4.0 ft above land surface.

PERIOD OF PROCESSED RECORD--December 18, 1980 to September 30, 1991

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94.37	86.94	85.58	76.06	79.42	77.51	72.80	73.05	76.88	94.16	93.83	89.69
2	93.24	86.85	84.00	75.69	79.65	76.10	73.67	73.61	76.34	94.11	93.91	88.18
3	92.29	87.45	82.57	76.32	78.12	74.95	73.24	72.28	76.10	94.28	93.82	87.16
4	92.91	86.33	83.69	76.98	76.84	73.96	72.86	71.14	76.91	94.53	92.93	87.99
5	94.40	85.20	84.37	77.21	77.56	73.74	72.85	70.21	77.75	94.72	92.37	88.84
6	94.92	86.28	85.01	77.07	78.46	74.30	72.51	69.82	78.39	94.91	92.74	89.48
7	93.69	87.39	85.12	76.57	79.16	75.23	71.36	71.11	78.57	95.25	92.95	89.70
8	92.48	88.00	84.38	76.81	79.53	75.92	70.61	72.22	78.20	95.59	92.91	88.07
9	91.66	88.36	82.80	77.34	79.55	75.65	71.77	73.00	77.96	95.95	92.88	86.80
10	92.70	88.59	81.65	77.55	78.14	74.30	72.97	73.71	78.09	96.26	92.61	87.50
11	93.74	87.15	81.54	77.50	77.01	73.09	73.78	74.11	79.06	96.58	91.50	88.26
12	94.38	85.92	82.23	77.53	78.12	73.75	74.31	72.75	79.99	96.58	90.84	88.51
13	93.87	86.49	83.23	76.54	79.03	74.73	74.40	71.77	80.71	96.40	91.16	88.69
14	92.29	87.27	83.74	75.85	79.43	75.67	73.06	72.82	81.45	96.13	91.32	88.83
15	91.20	88.36	83.84	76.06	80.00	76.42	72.17	74.18	82.01	95.73	91.55	87.66
16	90.27	89.16	82.50	76.30	79.96	76.47	72.03	75.08	81.98	95.51	91.61	86.42
17	89.94	89.12	80.96	76.59	78.23	74.69	71.75	75.77	82.10	95.91	91.28	87.07
18	89.96	87.29	81.55	76.69	76.65	73.61	72.34	76.34	83.03	96.05	90.04	87.78
19	90.02	85.83	82.51	77.39	75.91	74.35	73.17	75.12	83.57	96.48	89.26	88.48
20	89.54	85.61	83.04	77.31	76.77	74.95	73.44	74.08	85.52	96.48	89.58	88.87
21	88.54	86.19	83.41	76.53	77.51	75.44	72.04	75.07	87.68	95.43	89.77	88.90
22	87.84	86.63	82.86	77.17	78.24	75.86	71.04	76.18	89.27	94.75	89.85	87.54
23	87.89	85.12	81.67	78.11	78.49	76.17	72.02	77.04	88.79	95.24	89.90	86.24
24	88.02	83.63	80.69	79.04	77.06	74.85	73.23	77.71	88.47	95.49	89.66	86.68
25	88.36	82.56	79.79	79.68	75.88	73.57	73.50	77.38	90.11	95.59	88.38	87.20
26	88.49	81.75	79.31	79.83	76.44	74.12	73.47	76.12	91.93	95.71	87.57	87.80
27	88.39	82.74	79.24	78.13	77.12	74.81	73.18	75.26	93.68	95.48	88.67	88.24
28	87.58	83.83	78.97	77.00	77.51	75.66	71.81	74.93	95.07	94.15	89.74	87.75
29	86.76	84.92	77.98	77.60	---	75.99	70.82	75.72	95.20	93.34	90.51	86.07
30	86.89	85.39	77.37	78.47	---	74.80	72.00	76.13	94.62	93.58	91.03	84.84
31	87.01	---	76.85	79.04	---	73.51	---	76.58	---	93.74	91.21	---
MEAN	90.76	86.21	82.01	77.29	78.06	74.97	72.61	74.20	83.65	95.29	91.14	87.84
MAX	94.92	89.16	85.58	79.83	80.00	77.51	74.40	77.71	95.20	96.58	93.91	89.70
MIN	86.76	81.75	76.85	75.69	75.88	73.09	70.61	69.82	76.10	93.34	87.57	84.84

COUNTY--St. Charles

WELL IDENTIFICATION NUMBER--384848090504001

LOCATION--Lat 38°48'48", long 90°50'40", T.47 N., R.2 E., 19cca, west side of Wall Street, north of Pearce Boulevard, Wentzville, well number 2.

FORMATIONS OPEN TO THE WELL--Kimmiswick Formation, Decorah Formation, Plattin Formation, Joachim Dolomite, St. Peter Sandstone, Powell Dolomite, Cotter Dolomite, Jefferson City Dolomite, and Roubidoux Formation.

WELL CHARACTERISTICS--Drilled February 1, 1943, total depth 1,337 ft, 380 ft of 10-in casing, open hole.  
DGLS Log Number: 8,083 and 11,827

INSTRUMENTATION--Graphic recorder from May 13, 1980 to May 25, 1990. Digital recorder installed March 25, 1990.

DATUM--608 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.0 ft above land surface.

PERIOD OF PROCESSED RECORD--August 29, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174.66	174.50	173.57	173.05	171.77	171.13	170.42	169.60	169.02	170.30	172.77	174.83
2	174.62	174.45	173.45	172.99	171.49	171.13	170.35	169.61	169.04	170.39	172.79	174.83
3	174.45	174.45	173.35	172.80	171.52	171.18	170.28	169.43	169.03	170.46	172.88	174.83
4	174.61	174.33	173.66	172.62	171.52	171.08	170.21	169.40	169.06	170.54	173.03	174.82
5	174.62	174.15	173.89	172.78	171.69	170.95	170.22	169.36	169.21	170.60	173.09	174.87
6	174.54	174.34	173.67	172.94	171.99	170.78	170.10	169.48	169.32	170.70	173.18	174.97
7	174.58	174.47	173.61	172.75	171.86	170.53	169.98	169.54	169.34	170.81	173.29	175.02
8	174.64	174.37	173.51	172.77	171.80	170.55	169.86	169.51	169.31	170.94	173.23	174.97
9	174.64	174.18	173.24	172.90	171.69	170.78	169.92	169.45	169.32	171.00	173.29	174.99
10	174.62	174.20	173.60	172.78	171.59	170.72	170.11	169.45	169.30	170.98	173.45	175.04
11	174.67	174.28	173.40	172.52	171.55	170.46	170.11	169.42	169.24	171.05	173.59	175.07
12	174.62	174.36	173.36	172.64	171.53	170.46	170.00	169.30	169.24	171.14	173.65	175.07
13	174.52	174.28	173.37	172.62	171.60	170.78	169.84	169.22	169.27	171.28	173.64	175.09
14	174.46	174.23	173.34	172.46	171.54	170.90	169.73	169.18	169.25	171.47	173.64	175.08
15	174.66	174.18	173.32	172.53	171.38	171.08	169.78	169.18	169.24	171.60	173.69	175.14
16	174.57	174.18	173.25	172.37	171.42	171.02	169.80	169.12	169.36	171.69	173.71	175.22
17	174.41	174.22	173.08	172.12	171.41	170.71	169.78	169.11	169.41	171.89	173.70	175.27
18	174.60	174.01	172.97	172.19	171.23	170.39	169.63	169.23	169.46	171.91	173.81	175.32
19	174.62	173.96	173.18	172.08	170.82	170.39	169.67	169.29	169.55	171.92	173.90	175.57
20	174.46	173.80	173.08	171.99	170.95	170.42	169.83	169.25	169.55	172.01	173.99	175.71
21	174.53	173.82	172.92	171.88	171.30	170.21	169.73	169.20	169.75	172.11	174.03	175.64
22	174.56	173.84	173.07	171.90	170.90	170.12	169.56	169.20	169.84	172.15	174.07	175.58
23	174.51	173.86	172.74	172.05	171.00	170.20	169.51	169.15	169.93	172.22	174.18	175.71
24	174.54	173.88	172.62	172.05	170.90	170.38	169.72	169.09	170.11	172.29	174.31	175.61
25	175.01	173.90	172.83	171.80	171.12	170.31	169.68	168.99	170.16	172.37	174.36	175.49
26	175.25	173.91	172.79	171.80	171.18	170.09	169.51	169.00	170.15	172.53	174.35	175.60
27	174.94	173.80	172.75	171.99	171.11	170.03	169.43	169.07	170.21	172.60	174.38	175.66
28	174.97	173.81	172.87	171.79	171.19	170.29	169.42	169.11	170.26	172.56	174.46	175.70
29	174.80	173.70	172.89	171.71	---	170.27	169.32	169.02	170.27	172.60	174.71	175.78
30	174.68	173.56	172.92	171.89	---	170.46	169.53	168.92	170.28	172.70	174.90	176.02
31	174.62	---	172.88	171.91	---	170.40	---	168.96	---	172.75	174.83	---
MEAN	174.64	174.10	173.20	172.34	171.39	170.59	169.83	169.25	169.55	171.60	173.77	175.28
MAX	175.25	174.50	173.89	173.05	171.99	171.18	170.42	169.61	170.28	172.75	174.90	176.02
MIN	174.41	173.56	172.62	171.71	170.82	170.03	169.32	168.92	169.02	170.30	172.77	174.82

## 11-O'Fallon

COUNTY--St. Charles

WELL IDENTIFICATION NUMBER--384836090420201

LOCATION--Lat 38°48'36", long 90°40'02", T.47 N., R.3 E., 29aaa, 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 ft, 33 ft of 10-in casing, 375 ft of 8-in casing, open hole.

DGLS Log Number: 6,414

INSTRUMENTATION--Digital recorder.

DATUM--564 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

REMARKS--A few days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--February 18 to December 12, 1986, October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	276.30	271.88	263.95	251.94	262.13	261.67	259.58	260.37	261.45	273.03	274.27	277.45
2	277.36	271.80	262.29	252.11	262.70	261.95	260.87	261.16	260.72	274.08	273.89	276.26
3	277.57	271.39	261.26	252.10	263.00	261.91	261.52	261.72	260.99	273.48	273.47	277.03
4	278.17	269.99	262.00	251.49	263.38	262.31	261.61	261.85	262.14	272.71	272.98	277.74
5	278.45	270.23	261.66	251.16	263.25	262.60	261.93	261.52	262.78	272.60	273.38	277.82
6	278.01	270.52	261.94	251.53	262.81	262.54	261.20	260.84	263.25	273.03	274.56	279.00
7	277.54	270.56	261.58	252.05	261.79	261.56	260.09	260.76	263.30	273.28	275.69	278.11
8	277.89	---	260.72	252.93	262.95	261.07	259.73	265.75	263.16	274.07	276.44	276.24
9	278.68	---	259.27	254.11	263.31	260.56	260.38	265.05	262.99	277.07	275.88	276.95
10	279.45	---	259.08	254.91	263.53	259.80	261.21	264.64	263.28	278.42	275.11	278.15
11	279.54	---	259.46	255.30	263.93	259.65	262.00	264.35	264.29	278.85	274.40	278.64
12	278.37	---	258.62	254.77	264.36	259.70	262.70	263.34	265.31	277.94	274.67	280.21
13	276.64	---	258.62	256.71	264.01	259.80	262.44	263.55	266.05	277.07	274.65	282.82
14	274.68	---	256.29	257.49	263.26	259.97	261.16	264.72	265.90	276.13	274.29	282.85
15	275.23	---	255.21	258.28	262.77	259.72	258.88	265.08	265.49	276.36	274.00	282.72
16	276.16	---	258.36	258.69	263.62	260.15	262.83	265.12	265.24	277.70	273.66	282.72
17	275.53	---	256.41	258.61	264.71	259.09	262.75	264.77	265.95	276.70	273.53	282.72
18	275.81	---	256.38	258.57	264.44	258.92	261.91	263.74	267.34	275.73	273.38	282.72
19	274.92	---	255.87	258.48	264.28	259.03	261.52	262.44	267.73	274.89	274.11	282.72
20	273.97	267.64	255.42	259.28	263.85	258.68	261.61	261.98	268.38	274.19	274.54	282.72
21	273.52	266.96	255.43	259.95	262.28	258.74	259.84	262.86	269.64	273.12	275.01	282.72
22	274.54	266.14	254.87	260.49	262.96	258.28	259.78	263.49	271.13	273.04	276.07	282.72
23	274.50	264.56	254.66	261.57	264.15	257.86	260.11	263.66	271.31	273.12	277.50	282.72
24	274.38	264.22	254.92	260.88	263.36	256.92	259.82	263.29	272.02	276.39	277.73	282.72
25	274.22	263.38	254.23	259.60	262.68	256.99	259.41	262.53	273.86	275.90	276.96	282.72
26	273.52	263.40	253.68	261.24	262.24	257.89	258.59	261.52	274.20	275.76	277.52	282.72
27	273.16	264.05	253.39	261.79	261.84	257.99	258.05	260.81	274.71	274.57	279.43	282.72
28	272.60	264.63	253.11	262.21	260.96	257.91	257.20	261.54	275.52	273.29	280.16	282.72
29	273.56	264.81	253.60	262.64	---	258.99	258.33	262.21	274.60	272.92	280.17	282.72
30	273.45	264.90	253.16	262.07	---	259.39	260.17	261.84	273.28	273.85	279.68	282.72
31	272.69	---	252.67	261.16	---	259.26	---	261.94	---	274.07	278.89	---
MEAN	275.82	---	257.36	257.23	263.16	259.71	260.57	262.85	267.20	274.95	275.68	280.76
MAX	279.54	---	263.95	262.64	264.71	262.60	262.83	265.75	275.52	278.85	280.17	282.85
MIN	272.60	---	252.67	251.16	260.96	256.92	257.20	260.37	260.72	272.60	272.98	276.24



COUNTY--St Louis

WELL IDENTIFICATION NUMBER--384849090092001

LOCATION--Lat 38°48'49", long 90°09'20", T.47 N., R.8 E., 18dba, 2 mi east on Madison Ferry Road,  
0.5 mi north.

FORMATIONS OPEN TO THE WELL--Mississippi River Alluvium.

WELL CHARACTERISTICS--Drilled June 24, 1957, total depth 125 ft, 59 ft of 8-in casing, 41 ft of 4-in casing, 4 ft of 4-in screen.

DGLS Log Number: 16,274

INSTRUMENTATION--Digital recorder installed July 1980.

DATUM--422 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 10.5 ft above land surface.

PERIOD OF PROCESSED RECORD--August 29, 1989 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.98	29.52	30.79	29.97	29.06	28.30	27.61	24.59	22.14	23.47	26.55	29.09
2	28.06	29.57	30.76	29.94	29.00	28.45	27.52	24.46	22.08	23.67	26.65	29.16
3	28.11	29.61	30.77	29.93	28.84	28.57	27.44	24.28	22.03	23.82	26.77	29.19
4	28.26	29.62	30.85	29.85	28.73	28.58	27.36	24.20	22.04	23.98	26.90	29.18
5	28.32	29.67	30.74	29.79	28.64	28.50	27.30	24.11	22.06	24.12	27.00	29.26
6	28.39	29.75	30.78	29.82	28.58	28.57	27.19	24.06	22.05	24.29	27.11	29.35
7	28.50	29.80	30.77	29.79	28.55	28.66	27.11	23.93	22.01	24.45	27.20	29.41
8	28.57	29.80	30.78	29.76	28.48	28.61	27.03	23.74	21.99	24.63	27.26	29.46
9	28.60	29.83	30.77	29.81	28.43	28.64	27.02	23.54	22.01	24.77	27.38	29.54
10	28.61	29.89	30.76	29.75	28.42	28.63	27.00	23.38	22.03	24.91	27.50	29.61
11	28.64	29.94	30.72	29.73	28.36	28.53	26.93	23.21	22.02	24.84	27.59	29.67
12	28.65	30.00	30.74	29.76	28.27	28.47	26.84	23.04	22.06	24.28	27.66	29.73
13	28.66	30.01	30.86	29.69	28.20	28.60	26.78	22.95	22.11	24.09	27.72	29.79
14	28.72	30.05	30.80	29.70	28.26	28.76	26.70	22.92	22.15	24.19	27.79	29.85
15	28.82	30.09	30.84	29.66	28.32	28.83	26.70	22.90	22.20	24.34	27.87	29.91
16	28.82	30.15	30.88	29.66	28.18	28.82	26.60	22.81	22.34	24.47	27.94	29.97
17	28.85	30.18	30.79	29.53	28.16	28.69	26.48	22.77	22.40	24.60	28.01	30.02
18	28.98	30.20	30.87	29.41	28.15	28.71	26.32	22.77	22.45	24.77	28.10	30.08
19	28.98	30.25	30.94	29.28	28.26	28.62	26.25	22.72	22.51	24.97	28.18	30.14
20	29.01	30.32	30.93	29.26	28.25	28.45	26.15	22.64	22.47	25.12	28.25	30.16
21	29.09	30.39	30.90	29.21	28.22	28.38	25.96	22.62	22.41	25.25	28.31	30.18
22	29.12	30.44	30.85	29.09	28.29	28.25	25.77	22.63	22.44	25.37	28.38	30.22
23	29.16	30.48	30.77	29.07	28.25	28.20	25.62	22.61	22.57	25.52	28.47	30.27
24	29.23	30.51	30.73	29.06	28.30	28.13	25.50	22.62	22.64	25.66	28.54	30.28
25	29.28	30.57	30.70	29.00	28.33	28.01	25.27	22.61	22.72	25.79	28.60	30.30
26	29.30	30.60	30.76	28.94	28.32	27.90	25.06	22.66	22.82	25.95	28.66	30.37
27	29.36	30.64	30.68	28.88	28.33	27.84	24.92	22.67	22.97	26.03	28.73	30.39
28	29.42	30.74	30.66	28.91	28.34	27.84	24.79	22.60	23.07	26.10	28.82	30.43
29	29.43	30.77	30.62	28.90	---	27.77	24.67	22.42	23.19	26.23	28.87	30.47
30	29.46	30.73	30.38	28.96	---	27.75	24.67	22.22	23.32	26.36	28.93	30.48
31	29.50	---	30.14	29.06	---	27.66	---	22.18	---	26.46	29.01	---
TOTAL	893.88	904.12	953.33	913.17	795.52	879.72	790.56	716.86	671.30	772.50	864.75	895.96
MEAN	28.83	30.14	30.75	29.46	28.41	28.38	26.35	23.12	22.38	24.92	27.90	29.87
MAX	29.50	30.77	30.94	29.97	29.06	28.83	27.61	24.59	23.32	26.46	29.01	30.48

## 13-Washington

COUNTY--Franklin

WELL IDENTIFICATION NUMBER--383212091012301

LOCATION--Lat 38°32'12", long 91°01'23", T.44 N., R.1 W., -27cbb, east of Washington, 0.5 mi south of junction of State Highway 100 and County Road A, and 0.25 mi west of County Road A.

FORMATIONS OPEN TO THE WELL--Jefferson City Dolomite, Roubidoux Foramtion, Gasconade Formation, Eminence Dolomite, Potosi Dolomite, Derby-Doerun Dolomite, Davis Dolomite, and Bonnetterre Formation.

WELL CHARACTERISTICS--Drilled January 1, 1931, total depth 1,360 ft, 76 ft of 10-in casing, open hole.  
DGLS Log Number: 2,402

INSTRUMENTATION--Graphic recorder, installed April 30, 1956.

DATUM--575 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 3.0 ft above land surface.

REMARKS--A few days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--July 27, 1964 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83.93	83.23	---	81.57	79.85	77.53	79.23	77.30	79.55	89.09	86.81	86.28
2	84.00	83.40	---	81.48	79.89	77.56	79.10	77.31	79.63	89.22	87.34	86.02
3	84.20	83.22	---	81.56	79.95	77.82	79.05	77.17	80.18	89.37	87.31	85.69
4	84.80	83.08	---	81.49	79.96	77.64	78.99	77.14	80.79	89.24	87.33	85.45
5	84.75	83.04	---	81.07	79.97	77.28	78.99	76.89	81.39	89.02	87.16	85.32
6	84.87	83.33	---	81.00	79.92	77.15	78.81	76.73	82.39	88.65	86.93	85.35
7	84.90	83.48	---	80.96	80.06	77.44	78.81	76.45	82.34	88.38	86.76	85.25
8	84.93	83.43	---	80.78	79.95	77.48	78.69	76.35	81.81	88.30	86.49	84.77
9	84.70	83.18	---	80.92	79.65	77.80	78.82	76.25	81.42	88.52	85.79	84.88
10	84.63	83.22	---	80.71	79.50	77.95	78.83	76.16	81.00	88.59	85.93	84.57
11	84.84	83.40	82.80	80.23	79.39	77.62	78.79	76.17	80.68	88.42	85.83	84.14
12	84.82	83.35	82.46	80.12	79.05	77.12	78.61	75.99	81.23	88.06	85.56	83.90
13	84.61	82.91	82.64	80.10	78.71	77.23	78.59	75.88	82.03	87.83	85.30	83.72
14	84.55	82.65	82.77	79.92	78.91	77.79	78.50	75.78	82.81	87.21	85.23	83.55
15	84.75	82.75	82.30	80.17	79.29	78.13	78.52	75.91	83.37	86.48	85.50	83.39
16	84.53	82.80	82.52	79.86	79.19	78.39	78.56	76.08	83.90	86.06	85.69	83.37
17	84.50	82.75	82.33	79.81	78.93	78.43	79.13	76.18	83.86	86.02	85.80	83.58
18	84.65	82.55	81.86	79.59	78.85	78.47	79.61	76.47	83.30	86.00	85.69	83.56
19	84.29	82.76	82.37	79.19	78.89	78.36	80.08	76.56	83.31	86.17	85.45	83.45
20	83.80	82.94	82.72	78.90	78.83	78.15	80.37	76.49	84.39	86.42	85.42	83.58
21	83.54	82.78	82.64	79.00	78.90	78.17	80.24	76.44	84.87	86.62	85.46	83.87
22	83.25	82.92	82.67	78.76	79.23	77.58	80.15	76.63	85.29	86.92	85.57	84.08
23	83.30	82.78	82.81	78.37	79.23	78.26	79.98	76.75	85.68	87.26	85.80	84.35
24	83.60	82.55	82.42	78.11	78.84	78.87	79.60	76.53	85.75	87.47	85.96	84.50
25	83.37	82.53	82.06	78.44	78.54	78.90	79.27	77.10	86.25	87.26	85.98	84.54
26	83.15	82.57	81.99	78.58	78.33	78.72	78.55	78.00	87.11	87.39	85.95	84.55
27	83.10	82.75	82.13	78.52	78.12	78.43	77.97	78.46	88.03	87.16	86.11	84.76
28	83.10	---	81.69	78.72	77.82	78.13	77.50	78.53	88.72	86.92	86.34	84.87
29	83.00	---	81.32	78.99	---	78.57	76.89	79.13	88.86	86.54	86.42	85.00
30	83.05	---	81.37	79.06	---	79.27	77.12	80.13	89.04	86.27	86.32	84.90
31	83.09	---	81.56	79.51	---	79.30	---	79.91	---	86.37	86.36	---
MEAN	84.08	---	---	79.85	79.21	78.05	78.91	77.00	83.63	87.52	86.12	84.51
MAX	84.93	---	---	81.57	80.06	79.30	80.37	80.13	89.04	89.37	87.34	86.28
MIN	83.00	---	---	78.11	77.82	77.12	76.89	75.78	79.55	86.00	85.23	83.37

COUNTY--Franklin

WELL IDENTIFICATION NUMBER--382100090592801

LOCATION--Lat 38°21'00", long 90°59'28", T.42 N., R.01 W., 26ddb, 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 ft, 80 ft of 8-in casing, open hole.  
DGLS Log Number: 14,462

INSTRUMENTATION--Digital recorder, installed April 1, 1980.

DATUM--739 ft above NGVD of 1929.  
Measuring point: Base of recorder, 3.0 ft above land surface.

PERIOD OF PROCESSED RECORD--April 2, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69.38	69.01	68.72	67.66	67.62	67.25	67.10	67.05	67.89	68.67	69.28	69.15
2	69.32	69.06	68.67	67.77	67.59	67.31	67.07	67.08	67.84	68.74	69.29	69.13
3	69.19	69.12	68.46	67.94	67.51	67.60	67.07	66.95	67.82	68.78	69.35	69.06
4	69.30	69.06	68.70	67.82	67.45	67.56	67.07	67.03	67.88	68.82	69.47	68.96
5	69.26	68.94	68.45	67.64	67.43	67.33	67.14	67.05	68.00	68.86	69.37	68.92
6	69.16	69.07	68.48	67.84	67.42	67.39	67.07	67.20	68.09	68.92	69.24	68.99
7	69.12	69.16	68.57	67.82	67.53	67.78	67.03	67.28	68.09	68.98	69.24	68.99
8	69.01	69.04	68.61	67.68	67.47	67.78	67.00	67.30	68.05	69.05	69.13	68.94
9	68.81	68.93	68.67	67.80	67.33	67.85	67.17	67.30	68.08	69.06	69.06	68.97
10	68.58	69.03	68.68	67.63	67.41	67.86	67.41	67.37	68.08	68.93	69.08	69.00
11	68.52	69.15	68.61	67.40	67.44	67.60	67.41	67.42	68.04	68.74	69.12	69.01
12	68.46	69.25	68.62	67.38	67.30	67.39	67.30	67.38	68.11	68.60	69.11	69.01
13	68.40	69.19	68.90	67.24	66.95	67.48	67.15	67.37	68.17	68.57	69.07	69.03
14	68.42	69.21	68.83	67.15	67.22	67.73	66.99	67.40	68.19	68.64	69.07	69.04
15	68.68	69.23	68.78	66.98	67.62	67.85	66.87	67.48	68.21	68.69	69.10	69.13
16	68.62	69.28	68.98	66.95	67.53	67.78	66.70	67.49	68.26	68.72	69.12	69.10
17	68.53	69.34	68.72	67.07	67.33	67.39	66.59	67.52	68.23	68.69	69.06	68.95
18	68.72	69.19	68.56	67.03	67.30	67.10	66.46	67.66	68.28	68.67	69.06	68.86
19	68.65	69.21	68.67	66.70	67.59	66.97	66.55	67.73	68.38	68.73	69.05	68.90
20	68.52	69.26	68.55	66.67	67.64	66.75	66.75	67.72	68.38	68.82	69.06	68.83
21	68.67	69.20	68.39	66.95	67.55	66.70	66.63	67.70	68.37	68.90	69.04	68.72
22	68.72	69.25	68.27	66.80	67.63	66.64	66.50	67.73	68.41	68.92	69.05	68.68
23	68.73	69.18	68.26	66.82	67.58	66.69	66.53	67.72	68.48	68.97	69.09	68.62
24	68.82	69.12	68.35	67.12	67.59	66.85	66.82	67.70	68.49	69.02	69.16	68.42
25	68.89	69.22	68.33	67.20	67.69	66.73	66.78	67.65	68.50	69.06	69.15	68.32
26	68.87	69.19	68.50	67.14	67.60	66.54	66.65	67.72	68.53	69.16	69.09	68.47
27	68.90	69.10	68.31	66.95	67.53	66.44	66.64	67.78	68.60	69.18	69.09	68.55
28	69.08	69.16	68.17	67.14	67.43	66.78	66.70	67.83	68.62	69.12	69.12	68.63
29	69.01	69.09	67.85	67.23	---	66.82	66.64	67.76	68.63	69.16	69.11	68.73
30	69.00	68.75	67.67	67.40	---	67.11	66.95	67.72	68.65	69.24	69.06	68.75
31	69.03	---	67.84	67.65	---	67.06	---	67.80	---	69.28	69.07	---
MEAN	68.85	69.13	68.49	67.31	67.47	67.23	66.89	67.48	68.24	68.89	69.14	68.86
MAX	69.38	69.34	68.98	67.94	67.69	67.86	67.41	67.83	68.65	69.28	69.47	69.15
MIN	68.40	68.75	67.67	66.67	66.95	66.44	66.46	66.95	67.82	68.57	69.04	68.32

## 15-Jefferson City

COUNTY--Callaway

WELL IDENTIFICATION NUMBER--383549092094201

LOCATION--Lat 37°31'15", long 94°16'15", T.44 N., R.11 W., 10ccd, Jefferson City Airport.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled April 20, 1956, total depth 95 ft, 60 ft of 8-in casing, 31 ft of 4-in casing, and 4 ft of 4-in well screen.

INSTRUMENTATION--Digital recorder installed May 1, 1980.

DATUM--550.7 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 10.0 ft above land surface.

PERIOD OF PROCESSED RECORD--May 15, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.36	25.55	26.93	28.17	28.96	29.22	29.56	28.62	26.82	26.16	26.66	27.51
2	24.40	25.59	26.96	28.22	28.98	29.25	29.55	28.57	26.80	26.18	26.69	27.52
3	24.43	25.63	26.98	28.26	29.00	29.27	29.55	28.50	26.76	26.19	26.71	27.54
4	24.50	25.66	27.04	28.30	29.02	29.28	29.56	28.44	26.72	26.21	26.76	27.55
5	24.53	25.69	27.05	28.33	29.04	29.28	29.57	28.37	26.69	26.22	26.81	27.56
6	24.56	25.75	27.10	28.38	29.06	29.30	29.57	28.30	26.66	26.24	26.85	27.59
7	24.62	25.82	27.13	28.42	29.07	29.31	29.57	28.22	26.62	26.27	26.88	27.60
8	24.65	25.84	27.18	28.45	29.06	29.31	29.57	28.14	26.58	26.30	26.89	27.62
9	24.65	25.87	27.22	28.51	29.05	29.32	29.58	28.06	26.55	26.32	26.92	27.64
10	24.63	25.93	27.27	28.53	29.05	29.32	29.59	27.98	26.51	26.31	26.96	27.66
11	24.67	25.98	27.30	28.58	29.04	29.32	29.60	27.89	26.47	26.28	26.99	27.68
12	24.70	26.04	27.35	28.62	29.02	29.33	29.60	27.81	26.44	26.28	27.02	27.70
13	24.72	26.08	27.40	28.65	29.00	29.36	29.59	27.72	26.41	26.29	27.04	27.72
14	24.77	26.13	27.43	28.69	29.03	29.38	29.56	27.63	26.39	26.30	27.07	27.74
15	24.84	26.17	27.48	28.71	29.06	29.40	29.51	27.56	26.37	26.28	27.09	27.76
16	24.86	26.22	27.53	28.75	29.04	29.41	29.45	27.49	26.36	26.26	27.12	27.75
17	24.91	26.26	27.55	28.78	29.04	29.42	29.40	27.42	26.34	26.24	27.14	27.75
18	24.99	26.29	27.59	28.80	29.05	29.44	29.35	27.38	26.31	26.23	27.17	27.77
19	25.00	26.35	27.65	28.79	29.09	29.45	29.30	27.34	26.27	26.26	27.20	27.80
20	25.04	26.40	27.68	28.80	29.10	29.45	29.24	27.29	26.23	26.30	27.23	27.80
21	25.10	26.45	27.72	28.81	29.11	29.47	29.18	27.25	26.20	26.35	27.25	27.81
22	25.13	26.50	27.77	28.78	29.13	29.47	29.11	27.22	26.18	26.38	27.28	27.83
23	25.18	26.54	27.81	28.80	29.15	29.49	29.04	27.19	26.17	26.40	27.31	27.84
24	25.24	26.58	27.86	28.81	29.17	29.49	28.99	27.16	26.17	26.40	27.35	27.84
25	25.28	26.64	27.90	28.82	29.19	29.49	28.92	27.12	26.16	26.43	27.37	27.85
26	25.30	26.68	27.95	28.82	29.20	29.49	28.86	27.08	26.15	26.47	27.39	27.88
27	25.36	26.74	27.98	28.82	29.21	29.50	28.80	27.06	26.15	26.49	27.41	27.89
28	25.41	26.82	28.01	28.85	29.22	29.52	28.75	27.04	26.15	26.52	27.43	27.92
29	25.43	26.86	28.06	28.88	---	29.54	28.70	26.98	26.14	26.55	27.46	27.94
30	25.47	26.88	28.10	28.91	---	29.56	28.67	26.89	26.15	26.60	27.47	27.96
31	25.51	---	28.15	28.94	---	29.56	---	26.85	---	26.63	27.48	---
MEAN	24.91	26.20	27.52	28.64	29.08	29.40	29.31	27.63	26.40	26.33	27.11	27.73
MAX	25.51	26.88	28.15	28.94	29.22	29.56	29.60	28.62	26.82	26.63	27.48	27.96
MIN	24.36	25.55	26.93	28.17	28.96	29.22	28.67	26.85	26.14	26.16	26.66	27.51

COUNTY--Cooper

WELL IDENTIFICATION NUMBER--390207092570801

LOCATION--Lat 39°02'07", long 92°57'08", T.49 N., R.19 W., 12bac, 2.5 mi south of Arrow Rock, State Highway 41.

FORMATIONS OPEN TO THE WELL--Burlington Limestone, Sedalia Formation, and Chouteau Group.

WELL CHARACTERISTICS--Total depth 230 ft.

INSTRUMENTATION--Graphic recorder from March 29, 1962 to March 13, 1990. Digital recorder installed March 13, 1990.

DATUM--700 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.3 ft above land surface.

PERIOD OF PROCESSED RECORD--January 15, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58.97	59.09	59.25	59.38	58.73	58.14	59.15	58.91	58.17	58.56	59.11	59.38
2	58.94	59.10	59.26	59.41	58.61	58.27	59.13	58.89	58.16	58.61	59.11	59.39
3	58.88	59.15	59.13	59.52	58.40	58.45	59.11	58.83	58.16	58.63	59.13	59.22
4	58.99	59.14	59.35	59.47	58.19	58.44	59.12	58.82	58.17	58.64	59.19	59.03
5	58.98	59.07	59.25	59.32	57.95	58.33	59.16	58.25	58.18	58.65	59.20	59.23
6	58.94	59.14	59.25	59.43	57.85	58.39	59.13	57.67	58.20	58.68	59.21	59.31
7	59.01	59.25	59.28	59.47	57.85	58.63	59.08	57.69	58.20	58.71	59.23	59.35
8	59.05	59.20	59.28	59.40	57.83	58.66	59.04	57.79	58.19	58.80	59.21	59.32
9	59.06	59.12	59.29	59.44	57.83	58.75	59.11	57.88	58.20	58.79	59.22	59.31
10	59.04	59.14	59.29	59.40	57.84	58.78	59.23	57.95	58.19	58.75	59.26	59.35
11	59.03	59.21	59.23	59.29	57.84	58.65	59.22	58.01	58.19	58.75	59.29	59.36
12	59.04	59.27	59.17	59.34	57.82	58.48	59.20	58.04	58.19	58.78	59.29	59.35
13	59.00	59.24	59.32	59.29	57.78	58.54	59.15	58.08	58.20	58.85	59.28	59.34
14	58.97	59.22	59.29	59.23	57.82	58.74	59.12	58.11	58.19	58.90	59.27	59.31
15	59.08	59.21	59.21	59.22	57.85	58.87	59.16	58.12	58.21	58.95	59.27	59.33
16	59.00	59.26	59.29	59.24	57.82	58.89	59.19	58.12	58.27	58.96	59.27	59.35
17	58.91	59.30	59.16	59.34	57.82	58.78	59.21	58.14	58.28	58.94	59.25	59.37
18	59.03	59.20	59.09	59.35	57.84	58.84	59.14	58.17	58.30	58.91	59.29	59.38
19	58.99	59.19	59.17	59.23	57.90	58.87	59.15	58.18	58.36	58.90	59.33	59.50
20	58.90	59.18	59.20	59.21	57.89	58.77	59.25	58.18	58.36	58.95	59.34	59.51
21	59.01	59.12	59.25	59.29	57.88	58.73	59.22	58.17	58.34	59.00	59.33	59.43
22	59.04	59.18	59.30	59.14	57.98	58.73	59.13	58.17	58.37	59.02	59.34	59.37
23	59.02	59.16	59.35	59.09	57.97	58.83	59.09	58.17	58.44	59.05	59.36	59.45
24	59.08	59.10	59.37	59.14	58.06	58.99	59.19	58.17	58.47	59.05	59.39	59.40
25	59.09	59.11	59.37	59.12	58.18	58.95	59.15	58.16	58.48	59.06	59.38	59.34
26	59.08	59.06	59.46	59.06	58.20	58.86	59.01	58.15	58.49	59.09	59.36	59.38
27	59.10	59.04	59.38	58.90	58.22	58.79	58.93	58.16	58.54	59.10	59.35	59.41
28	59.18	59.24	59.26	58.88	58.20	58.95	58.89	58.16	58.58	59.09	59.38	59.43
29	59.11	59.41	59.22	58.86	---	59.00	58.82	58.16	58.57	59.10	59.40	59.49
30	59.09	59.28	59.35	58.84	---	59.12	58.89	58.15	58.57	59.11	59.38	59.50
31	59.12	---	59.46	58.82	---	59.12	---	58.16	---	59.12	59.34	---
MEAN	59.02	59.18	59.28	59.23	58.01	58.72	59.11	58.18	58.31	58.89	59.28	59.36
MAX	59.18	59.41	59.46	59.52	58.73	59.12	59.25	58.91	58.58	59.12	59.40	59.51
MIN	58.88	59.04	59.09	58.82	57.78	58.14	58.82	57.67	58.16	58.56	59.11	59.03

## 17-Sedalia

COUNTY--Pettis

WELL IDENTIFICATION NUMBER--384830093192501

LOCATION--Lat 38°48'30", long 93°19'25", T.47 N., R.22 W., 34cad, 5 mi 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 ft, 432 ft of 13-in casing, open hole.  
DGLS Log Number: 26,814

INSTRUMENTATION--Graphic recorder from January 12, 1973 to March 13, 1990. Digital recorder installed March 13, 1990.

DATUM--825 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.9 ft above land surface.

PERIOD OF PROCESSED RECORD--January 12, 1973 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151.45	151.33	151.47	151.37	151.20	150.15	150.61	150.43	150.41	150.48	151.04	151.82
2	151.34	151.34	151.32	151.50	151.20	150.38	150.52	150.39	150.42	150.53	151.00	151.83
3	151.16	151.39	151.27	151.65	151.07	150.61	150.49	150.21	150.38	150.54	151.08	151.84
4	151.39	151.37	151.61	151.48	151.05	150.48	150.54	150.24	150.39	150.53	151.19	151.89
5	151.37	151.23	151.34	151.24	151.04	150.14	150.55	150.28	150.52	150.50	151.15	151.87
6	151.24	151.37	151.44	151.47	151.08	150.33	150.42	150.41	150.65	150.53	151.20	151.95
7	151.36	151.61	151.43	151.46	151.16	150.64	150.28	150.44	150.68	150.58	151.27	151.96
8	151.43	151.46	151.42	151.30	151.07	150.63	150.20	150.42	150.65	150.68	151.17	151.88
9	151.48	151.34	151.42	151.44	150.92	150.82	150.38	150.39	150.65	150.61	151.20	151.94
10	151.42	151.39	151.37	151.23	151.01	150.71	150.52	150.43	150.59	150.59	151.32	152.06
11	151.39	151.49	151.18	151.09	150.94	150.37	150.43	150.44	150.50	150.61	151.41	152.07
12	151.38	151.60	151.14	151.20	150.72	150.04	150.37	150.33	150.47	150.69	151.45	152.08
13	151.23	151.51	151.44	151.02	150.37	150.26	150.27	150.26	150.44	150.77	151.40	152.09
14	151.18	151.47	151.27	150.97	150.64	150.53	150.25	150.24	150.37	150.86	151.36	152.06
15	151.41	151.44	151.27	150.88	150.99	150.67	150.35	150.24	150.38	150.89	151.36	152.15
16	151.27	151.56	151.40	151.05	150.75	150.64	150.35	150.22	150.52	150.91	151.33	152.29
17	151.16	151.59	151.09	151.18	150.54	150.38	150.34	150.25	150.52	150.86	151.32	152.29
18	151.51	151.34	151.01	151.19	150.50	150.51	150.17	150.42	150.54	150.78	151.40	152.44
19	151.40	151.35	151.18	150.92	150.85	150.49	150.33	150.53	150.60	150.79	151.49	152.65
20	151.22	151.30	151.21	151.07	150.85	150.20	150.50	150.48	150.53	150.86	151.53	152.62
21	151.46	151.21	151.30	151.28	150.79	150.17	150.36	150.41	150.46	150.97	151.51	152.42
22	151.48	151.34	151.42	150.99	150.93	150.07	150.19	150.42	150.48	150.98	151.55	152.37
23	151.44	151.28	151.44	151.03	150.78	150.33	150.19	150.39	150.59	151.03	151.60	152.50
24	151.57	151.13	151.44	151.23	150.89	150.51	150.38	150.33	150.60	151.01	151.70	152.39
25	151.61	151.17	151.47	151.23	150.94	150.36	150.31	150.22	150.58	151.00	151.73	152.29
26	151.47	151.01	151.60	151.15	150.80	150.17	150.08	150.23	150.54	151.09	151.68	152.40
27	151.50	151.03	151.39	150.84	150.64	150.08	150.08	150.32	150.57	151.09	151.68	152.40
28	151.67	151.50	151.11	150.89	150.45	150.32	150.08	150.40	150.58	151.02	151.72	152.46
29	151.51	151.75	151.16	150.96	---	150.41	150.03	150.34	150.56	151.09	151.75	152.55
30	151.46	151.45	151.43	151.07	---	150.65	150.31	150.25	150.51	151.11	151.71	152.56
31	151.45	---	151.54	151.24	---	150.61	---	150.31	---	151.07	151.73	---
MEAN	151.40	151.38	151.34	151.18	150.86	150.41	150.33	150.34	150.52	150.81	151.42	152.20
MAX	151.67	151.75	151.61	151.65	151.20	150.82	150.61	150.53	150.68	151.11	151.75	152.65
MIN	151.16	151.01	151.01	150.84	150.37	150.04	150.03	150.21	150.37	150.48	151.00	151.82



COUNTY--Lafayette

WELL IDENTIFICATION NUMBER--390852094003301

LOCATION--Lat 39°08'52", long 94°00'33", T.50 N., R.28 W., 11ccc, 2.0 mi northwest of Wellington, 1.8 mi northeast of Waterloo.

FORMATIONS OPEN TO THE WELL--Missouri River Alluvium.

WELL CHARACTERISTICS--Total depth unknown, casing unknown.

INSTRUMENTATION--Digital recorder

DATUM--690 ft above NGVD of 1929.

Measuring point: 6.0 ft above land surface.

REMARKS--A few days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--July 27, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.81	19.46	22.07	23.29	22.73	21.79	21.80	17.76	15.69	16.49	18.91	19.54
2	18.83	19.60	22.11	23.22	22.72	21.87	21.68	17.91	15.73	16.71	18.92	19.55
3	18.84	19.75	22.16	23.18	22.64	21.89	21.53	18.07	15.83	16.80	18.97	19.54
4	18.81	19.85	22.22	23.16	22.56	21.80	21.40	18.16	15.27	16.95	19.03	19.49
5	18.74	19.87	22.27	23.16	22.42	21.56	21.30	17.94	15.17	17.12	19.04	19.50
6	18.76	20.00	22.32	23.15	22.21	21.50	21.23	17.63	15.22	17.16	19.06	19.54
7	18.80	20.17	22.35	23.10	22.03	21.63	21.17	17.44	14.81	17.32	19.05	19.53
8	18.75	20.30	22.38	23.04	21.92	21.81	21.13	17.31	14.18	17.52	19.03	19.49
9	18.83	20.43	22.43	23.00	21.87	21.91	21.10	17.31	14.24	17.58	19.09	19.51
10	18.88	20.55	22.46	22.96	21.87	21.95	21.05	17.54	14.53	17.69	19.11	19.40
11	18.93	20.67	22.47	22.95	21.85	22.02	20.99	17.68	14.71	17.60	19.11	19.27
12	18.95	20.77	22.50	22.95	21.80	22.12	20.93	17.73	14.84	17.12	19.05	19.32
13	18.91	20.87	22.52	22.94	21.74	22.22	20.85	17.76	14.86	17.04	18.99	19.39
14	18.98	20.98	22.51	22.94	21.73	22.28	20.69	17.79	15.06	17.23	19.06	19.40
15	19.04	21.08	22.55	22.93	21.75	22.32	20.45	17.56	15.30	17.40	19.13	19.40
16	19.04	21.18	22.56	22.87	21.75	22.33	19.94	17.49	14.32	17.57	19.16	19.39
17	19.10	21.26	22.57	22.80	21.82	22.28	19.52	17.50	13.33	17.73	19.20	19.34
18	19.17	21.33	22.59	22.78	21.92	22.23	19.27	17.36	13.26	17.85	19.23	19.36
19	19.12	21.42	22.60	22.74	22.01	22.22	19.02	17.12	13.73	17.99	19.24	19.37
20	19.15	21.49	22.63	22.73	22.04	22.17	18.74	17.12	14.22	18.14	19.20	19.40
21	19.21	21.57	22.65	22.68	22.08	22.08	18.53	17.09	14.64	18.21	19.24	19.40
22	19.17	21.64	22.67	22.63	22.02	22.09	18.46	17.12	15.02	18.29	19.29	19.46
23	19.21	21.71	22.71	22.63	21.82	22.14	18.49	16.92	15.05	18.40	19.33	19.50
24	19.24	21.76	22.78	22.65	21.73	22.19	18.59	16.62	14.84	18.40	19.38	19.51
25	19.22	21.82	22.87	22.67	21.69	22.20	18.64	16.30	15.15	18.42	19.41	19.52
26	19.20	21.87	22.97	22.67	21.66	22.24	18.66	16.25	15.39	18.53	19.42	19.59
27	19.30	21.93	23.09	22.70	21.66	22.22	18.75	16.14	15.63	18.61	19.44	19.60
28	19.29	21.98	23.21	22.75	21.69	22.11	18.26	16.19	15.93	18.65	19.47	19.62
29	19.27	22.01	23.32	22.74	---	21.98	17.76	16.14	16.15	18.74	19.50	19.64
30	19.34	22.02	23.38	22.70	---	21.90	17.59	15.95	16.27	18.80	19.50	19.64
31	19.40	---	23.37	22.71	---	21.85	---	16.02	---	18.85	19.52	---
MEAN	19.04	20.98	22.62	22.88	21.99	22.03	19.92	17.19	14.95	17.77	19.20	19.47
MAX	19.40	22.02	23.38	23.29	22.73	22.33	21.80	18.16	16.27	18.85	19.52	19.64
MIN	18.74	19.46	22.07	22.63	21.66	21.50	17.59	15.95	13.26	16.49	18.91	19.27

## 19-Warsaw

COUNTY--Benton

WELL IDENTIFICATION NUMBER--381650093215001

LOCATION--Lat 38°16'50", long 93°21'50", T.40 N., R.22 W., 4bad, approximately 2 mi north of the intersection of State Highways 65 and 7, on State Highway 65.

FORMATIONS OPEN TO THE WELL--Gasconade Formation, Gunter Member, Eminence Dolomite, Potosi Dolomite, Derby-Doerun Dolomite, Davis Dolomite, Bonnetterre Formation, and Lamotte Sandstone.

WELL CHARACTERISTICS--Drilled September 20, 1955, total depth 1,406 ft, 210 ft of 12-in casing, open.  
DGLS Log Number: 14,232

INSTRUMENTATION--Graphic recorder from July 20, 1979 to August 25, 1990. Digital recorder installed August 25, 1990.

DATUM--740 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.0 ft above land surface.

PERIOD OF PROCESSED RECORD--July 20, 1979 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.49	34.62	34.72	34.33	33.87	33.02	33.72	33.72	33.12	34.19	35.74	37.31
2	34.40	34.64	34.56	34.41	33.86	33.22	33.64	33.68	33.14	34.27	35.75	37.42
3	34.28	34.68	34.52	34.55	33.74	33.44	33.60	33.49	33.13	34.33	35.83	37.51
4	34.50	34.65	34.81	34.42	33.70	33.34	33.66	33.53	33.18	34.35	35.95	37.60
5	34.48	34.56	34.55	34.20	33.67	33.03	33.69	33.59	33.33	34.37	35.93	37.66
6	34.39	34.68	34.60	34.39	33.72	33.18	33.59	33.69	33.50	34.44	36.00	37.82
7	34.49	34.91	34.61	34.37	33.80	33.50	33.49	33.67	33.55	34.54	36.09	37.90
8	34.57	34.75	34.57	34.24	33.72	33.51	33.42	33.63	33.54	34.67	36.02	37.89
9	34.62	34.67	34.57	34.37	33.57	33.68	33.62	33.57	33.60	34.66	36.04	37.99
10	34.58	34.72	34.49	34.16	33.63	33.61	33.76	33.59	33.60	34.69	36.16	38.12
11	34.55	34.81	34.32	34.05	33.58	33.30	33.68	33.61	33.57	34.74	36.25	38.19
12	34.53	34.90	34.25	34.15	33.41	33.00	33.65	33.49	33.60	34.86	36.29	38.25
13	34.40	34.82	34.52	33.99	33.09	33.22	33.58	33.40	33.62	34.95	36.25	38.30
14	34.37	34.80	34.35	33.91	33.36	33.49	33.55	33.38	33.61	35.07	36.21	38.32
15	34.56	34.77	34.33	33.78	33.70	33.63	33.66	33.39	33.66	35.14	36.22	38.42
16	34.44	34.89	34.40	33.87	33.50	33.61	33.68	33.38	33.77	35.18	36.20	38.53
17	34.36	34.87	34.11	33.96	33.29	33.38	33.67	33.38	33.80	35.14	36.19	38.55
18	34.66	34.65	34.05	33.91	33.26	33.50	33.52	33.51	33.85	35.09	36.28	38.67
19	34.55	34.65	34.21	33.64	33.61	33.48	33.67	33.58	33.94	35.10	36.36	38.88
20	34.41	34.60	34.23	33.73	33.64	33.23	33.82	33.53	33.91	35.21	36.39	38.85
21	34.65	34.55	34.31	33.92	33.58	33.19	33.69	33.46	33.86	35.33	36.40	38.69
22	34.68	34.65	34.42	33.64	33.68	33.12	33.53	33.46	33.90	35.38	36.45	38.64
23	34.64	34.61	34.45	33.65	33.57	33.37	33.51	33.42	34.03	35.46	36.52	38.76
24	34.75	34.47	34.46	33.83	33.65	33.53	33.70	33.37	34.08	35.51	36.68	38.62
25	34.79	34.51	34.46	33.83	33.70	33.41	33.64	33.27	34.09	35.53	36.74	38.53
26	34.68	34.38	34.57	33.78	33.59	33.25	33.46	33.26	34.09	35.65	36.76	38.62
27	34.73	34.39	34.39	33.48	33.46	33.18	33.45	33.30	34.15	35.69	36.81	38.61
28	34.89	34.80	34.16	33.52	33.29	33.41	33.44	33.30	34.19	35.63	36.93	38.64
29	34.76	35.01	34.17	33.58	---	33.48	33.40	33.17	34.20	35.69	37.03	38.70
30	34.73	34.74	34.41	33.72	---	33.74	33.63	33.02	34.19	35.75	37.07	38.67
31	34.72	---	34.51	33.90	---	33.71	---	33.03	---	35.75	37.15	---
MEAN	34.57	34.69	34.42	33.98	33.58	33.38	33.60	33.45	33.73	35.04	36.34	38.29
MAX	34.89	35.01	34.81	34.55	33.87	33.74	33.82	33.72	34.20	35.75	37.15	38.88
MIN	34.28	34.38	34.05	33.48	33.09	33.00	33.40	33.02	33.12	34.19	35.74	37.31

COUNTY--St. Clair

WELL IDENTIFICATION NUMBER--380230093464701

LOCATION--Lat 38°02'30", long 93°46'47", T.38 N., R.26 W., 22cbd, approximately 5 mi 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 ft, 20 ft of 6-in casing, open hole.

DGLS Log Number: 17,450

INSTRUMENTATION--Graphic recorder from November 12, 1958 to November 15, 1989. Digital recorder installed November 15, 1989.

DATUM--875 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

PERIOD OF PROCESSED RECORD--June 13, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106.26	105.92	106.27	106.34	106.42	105.31	106.38	106.25	106.00	105.98	105.96	106.05
2	106.09	105.94	106.00	106.46	106.40	105.64	106.23	106.20	106.02	106.03	105.92	106.06
3	105.88	105.98	106.09	106.65	106.20	105.96	106.12	105.92	105.99	106.05	105.98	106.08
4	106.22	105.98	106.49	106.43	106.16	105.84	106.21	105.99	106.01	106.02	106.08	106.11
5	106.18	105.89	106.12	106.11	106.12	105.42	106.23	106.12	106.18	105.98	106.00	106.06
6	105.99	106.04	106.20	106.39	106.19	105.67	106.07	106.29	106.35	106.01	106.05	106.13
7	106.14	106.42	106.23	106.37	106.33	106.12	105.91	106.29	106.35	106.05	106.12	106.11
8	106.25	106.18	106.20	106.18	106.22	106.17	105.79	106.26	106.27	106.12	105.98	105.97
9	106.33	106.07	106.21	106.34	106.01	106.44	106.03	106.20	106.27	106.02	105.99	105.99
10	106.28	106.15	106.12	106.04	106.10	106.31	106.20	106.22	106.20	105.99	106.10	106.05
11	106.19	106.28	105.87	105.93	106.04	105.86	106.05	106.23	106.06	106.01	106.20	106.02
12	106.16	106.38	105.81	106.08	105.78	105.42	105.99	106.06	106.01	106.11	106.21	105.98
13	105.95	106.26	106.22	105.88	105.35	105.76	105.90	105.99	105.96	106.20	106.09	105.94
14	105.89	106.23	105.99	105.80	105.75	106.12	105.90	105.95	105.91	106.28	106.00	105.86
15	106.18	106.17	106.01	105.69	106.21	106.32	106.08	105.93	105.91	106.28	105.97	105.93
16	106.01	106.34	106.09	105.94	105.93	106.29	106.07	105.90	106.06	106.27	105.92	106.11
17	105.92	106.28	105.71	106.15	105.62	105.99	106.04	105.93	106.07	106.15	105.88	106.09
18	106.36	105.94	105.66	106.18	105.61	106.17	105.86	106.12	106.09	105.99	105.98	106.22
19	106.17	105.95	105.89	105.85	106.10	106.12	106.07	106.26	106.18	105.96	106.10	106.48
20	105.94	105.88	105.96	106.04	106.17	105.76	106.31	106.20	106.07	106.03	106.10	106.40
21	106.27	105.84	106.12	106.34	106.08	105.72	106.16	106.11	105.94	106.12	106.06	106.14
22	106.26	105.99	106.30	105.99	106.26	105.62	105.94	106.17	105.95	106.10	106.07	106.05
23	106.19	105.95	106.36	106.02	106.12	105.98	105.90	106.13	106.07	106.13	106.09	106.21
24	106.34	105.76	106.38	106.27	106.24	106.21	106.15	106.07	106.10	106.15	106.23	106.00
25	106.37	105.83	106.35	106.27	106.33	106.02	106.04	105.95	106.08	106.13	106.21	105.90
26	106.18	105.64	106.47	106.23	106.15	105.79	105.78	105.96	106.06	106.23	106.10	106.02
27	106.24	105.76	106.18	105.82	105.97	105.67	105.78	106.08	106.14	106.20	106.04	106.02
28	106.45	106.43	105.85	105.86	105.72	105.96	105.76	106.14	106.16	106.04	106.07	106.07
29	106.23	106.74	105.93	105.95	---	106.04	105.74	106.01	106.11	106.06	106.08	106.18
30	106.15	106.33	106.33	106.16	---	106.42	106.06	105.84	106.05	106.08	106.01	106.15
31	106.08	---	106.51	106.44	---	106.39	---	105.87	---	106.02	105.98	---
MEAN	106.17	106.08	106.13	106.14	106.06	105.95	106.02	106.09	106.09	106.09	106.05	106.08
MAX	106.45	106.74	106.51	106.65	106.42	106.44	106.38	106.29	106.35	106.28	106.23	106.48
MIN	105.88	105.64	105.66	105.69	105.35	105.31	105.74	105.84	105.91	105.96	105.88	105.86

## 21-Nevada West

COUNTY--Vernon

WELL IDENTIFICATION NUMBER--375636094295601

LOCATION--Lat 37°56'36", long 94°29'56", T.37 N., R.32 W., 31cdb, 0.1 mi from County Road, 0.9 mi south of Rinehart.

FORMATIONS OPEN TO THE WELL--Cherokee Formation to 205 ft, Spergen-Warsaw Formation to 300 ft, Short Creek Formation to 310 ft, Burlington-Keokuk Limestone to 500 ft, Northview Formation to 510 ft, Chouteau Group to 580 ft, Kinderhookian Series to 585 ft, Jefferson City Dolomite to 755 ft, Roubidoux Formation to 895 ft, Upper Gasconade to 950 ft, Lower Gasconade to 1,140 ft, Gunter Sandstone Member of the Gasconade Formation to 1,160 ft, Eminence Dolomite to 1,375 ft, Lamotte Sandstone to 1,405 ft, and total depth Precambrian.

WELL CHARACTERISTICS--Drilled July 27, 1944, total depth 2,325 ft, casing unknown.  
DGLS Log Number: 8,617

INSTRUMENTATION--Digital recorder.

DATUM--804 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.0 ft above land surface.

PERIOD OF PROCESSED RECORD--October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91.20	90.74	90.46	90.33	90.32	89.10	89.77	90.07	89.79	90.14	93.15	94.37
2	91.08	90.73	90.39	90.64	90.31	89.28	89.69	90.07	89.80	90.23	93.10	94.40
3	90.88	90.72	90.31	90.60	90.18	89.47	89.81	89.84	89.76	90.43	93.38	94.29
4	91.14	90.80	90.73	90.36	90.16	89.41	89.93	89.89	89.78	90.74	93.74	94.22
5	91.14	90.68	90.43	90.36	89.88	89.08	89.97	89.98	89.88	90.73	93.84	94.37
6	91.02	90.75	90.43	90.47	89.72	89.13	89.81	90.03	90.05	91.32	93.80	94.39
7	91.09	91.00	90.46	90.32	89.80	89.40	89.72	89.84	90.05	91.88	94.07	94.40
8	91.18	90.88	90.40	90.34	89.77	89.43	89.73	90.10	90.01	92.39	94.16	94.38
9	91.28	90.74	90.41	90.44	89.63	89.66	89.87	90.07	90.02	92.24	94.07	94.38
10	91.21	90.75	90.36	90.24	89.68	89.60	89.98	90.09	89.96	92.07	94.10	94.42
11	91.16	90.61	90.18	90.15	89.65	89.32	89.84	90.09	89.87	92.03	94.36	94.43
12	90.98	90.75	90.15	90.27	89.47	88.99	89.81	89.97	89.84	92.11	94.51	94.43
13	90.66	90.70	90.42	90.10	89.16	89.24	89.76	89.93	89.81	92.16	94.37	94.42
14	90.58	90.78	90.24	90.02	89.42	89.48	89.75	89.90	89.78	92.23	94.20	94.40
15	90.79	90.71	90.32	89.90	89.78	89.63	89.83	89.87	89.79	92.29	94.11	94.41
16	90.70	90.45	90.34	90.06	89.59	89.62	89.84	89.85	89.90	92.59	94.06	94.53
17	90.62	90.82	90.06	90.19	89.34	89.42	89.84	89.86	89.91	92.65	94.00	94.55
18	91.00	90.57	90.04	90.19	89.33	89.53	89.72	89.99	89.94	92.75	94.03	94.65
19	90.87	90.56	90.14	89.96	89.66	89.49	89.85	90.09	90.05	92.97	94.08	94.86
20	90.71	90.37	90.22	90.10	89.72	89.25	90.01	90.07	89.99	93.25	94.06	94.85
21	90.93	90.34	90.32	90.33	89.65	89.22	89.98	90.00	89.90	93.29	93.70	94.78
22	90.96	90.52	90.39	90.08	89.70	89.16	89.84	89.99	89.93	93.24	94.01	94.47
23	90.87	90.45	90.43	90.10	89.64	89.42	89.80	89.94	90.06	93.50	94.03	94.69
24	90.98	90.31	90.40	90.25	89.69	89.59	89.97	89.87	90.08	93.52	94.35	94.60
25	91.03	90.28	90.46	90.24	89.80	89.46	89.92	89.76	90.07	93.36	94.45	94.55
26	90.93	90.08	90.46	90.24	89.66	89.28	89.64	89.75	90.08	93.40	94.27	94.53
27	90.92	90.13	90.29	89.93	89.56	89.18	89.70	89.85	90.10	93.37	94.26	94.54
28	91.08	90.57	90.04	89.80	89.37	89.41	89.68	89.91	90.16	93.27	94.21	94.48
29	90.96	90.87	90.32	90.02	---	89.47	89.68	89.82	90.17	93.24	94.14	94.65
30	90.88	90.59	90.31	90.17	---	89.77	89.93	89.71	90.14	92.82	94.23	94.68
31	90.85	---	90.44	90.33	---	89.78	---	89.71	---	92.78	94.18	---
MEAN	90.96	90.61	90.33	90.21	89.70	89.40	89.82	89.93	89.96	92.35	94.03	94.50
MAX	91.28	91.00	90.73	90.64	90.32	89.78	90.01	90.10	90.17	93.52	94.51	94.86
MIN	90.58	90.08	90.04	89.80	89.16	88.99	89.64	89.71	89.76	90.14	93.10	94.22

COUNTY--Vernon

WELL IDENTIFICATION NUMBER--375007094102701

LOCATION--Lat 37°50'07", long 94°10'27", T.35 N., R.29 W., 6cbd, 0.3 mi from county road, 2.9 mi southwest of Dederick.

FORMATIONS OPEN TO THE WELL--Pennsylvanian-Burlington Formation.

WELL CHARACTERISTICS--Drilled in 1975, total depth 525 ft, casing unknown.

INSTRUMENTATION--Digital recorder.

DATUM--822 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.3 ft above land surface.

REMARKS--Several days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.27	48.93	50.22	51.25	50.66	49.66	50.59	51.08	48.82	50.72	53.43	54.89
2	46.28	48.96	50.15	51.37	50.66	49.49	50.54	51.12	48.95	51.11	53.43	54.80
3	46.14	49.03	50.00	51.61	50.58	49.80	50.55	50.89	48.99	51.07	53.66	54.73
4	46.40	49.01	50.40	51.60	50.45	49.75	50.70	50.84	49.03	51.08	53.90	54.78
5	46.56	48.94	50.31	51.39	50.42	49.42	50.87	50.82	49.18	51.07	53.79	54.76
6	46.57	49.01	50.27	51.58	50.54	49.31	50.89	50.87	49.37	51.17	53.97	54.74
7	46.63	49.27	50.40	51.69	50.76	49.70	50.85	50.86	49.51	51.31	54.34	54.72
8	46.76	49.32	50.48	51.64	50.59	49.79	50.78	50.85	49.54	51.49	54.32	54.53
9	46.95	49.27	50.64	51.71	50.41	49.95	50.91	50.81	49.60	51.61	54.22	54.46
10	46.99	49.32	50.60	51.64	50.39	50.05	51.18	---	49.65	51.54	54.12	54.51
11	47.03	49.47	50.49	51.47	50.41	49.75	51.13	---	49.65	51.60	54.37	54.49
12	47.13	49.62	50.30	51.50	50.20	49.37	51.11	---	49.86	51.77	54.45	54.43
13	47.12	49.64	50.52	51.40	49.82	49.46	51.04	---	49.94	51.93	54.51	54.33
14	47.13	49.64	50.57	51.31	49.89	49.75	50.99	---	49.91	52.13	54.53	54.22
15	47.42	49.86	50.50	51.13	50.16	49.91	51.04	---	49.92	52.27	54.32	54.19
16	47.45	50.14	50.69	51.03	50.16	49.94	51.20	---	50.07	52.41	54.29	54.11
17	47.37	50.03	50.39	51.16	49.82	49.72	51.31	---	50.11	52.43	54.21	54.07
18	47.74	49.77	50.24	51.24	49.83	49.78	51.10	---	50.10	52.39	54.28	54.04
19	47.79	49.75	50.34	50.95	51.12	49.83	51.11	---	50.16	52.41	54.53	54.16
20	47.72	49.77	50.45	50.70	50.58	49.66	51.28	---	50.21	52.50	54.70	54.07
21	48.07	49.69	50.55	50.84	50.27	49.54	51.31	---	50.22	52.71	54.76	53.84
22	48.25	49.85	50.72	50.64	50.28	49.48	51.09	---	50.15	53.19	55.00	53.65
23	48.28	49.87	50.86	50.44	50.22	49.63	51.04	---	50.38	53.09	55.41	53.66
24	48.46	49.76	50.93	50.53	50.09	49.89	51.10	---	50.95	52.93	55.19	53.49
25	48.62	49.77	50.96	50.56	50.23	49.85	51.13	---	50.74	52.85	55.06	53.35
26	48.61	49.66	51.10	50.54	50.16	49.72	51.01	---	50.64	53.09	54.99	53.31
27	48.71	49.53	51.08	50.27	50.05	49.56	50.85	---	50.64	53.35	55.00	53.37
28	48.97	49.91	50.92	50.17	49.86	49.81	50.87	---	50.65	53.15	55.08	53.41
29	48.92	50.32	50.77	50.17	---	49.83	50.68	---	50.72	53.21	54.91	53.47
30	48.92	50.31	51.05	50.43	---	50.23	50.82	48.89	50.73	53.28	54.79	53.51
31	48.99	---	51.30	50.65	---	50.35	---	48.63	---	53.61	54.76	---
MEAN	47.56	49.58	50.59	51.05	50.31	49.74	50.97	---	49.95	52.21	54.46	54.14
MAX	48.99	50.32	51.30	51.71	51.12	50.35	51.31	---	50.95	53.61	55.41	54.89
MIN	46.14	48.93	50.00	50.17	49.82	49.31	50.54	---	48.82	50.72	53.43	53.31

23-Lamar

COUNTY--Barton

WELL IDENTIFICATION NUMBER--373115094161501

LOCATION--Lat 37°31'15", long 94°16'15", T.32 N., R.30 W., 30abb, 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 ft, 575 ft of 8-in casing, open.

INSTRUMENTATION--Graphic recorder installed June 17, 1968.

DATUM--975 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.3 ft above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--June 17, 1968 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	288.54	278.26	285.57	289.15	---	---	274.71	276.53	276.50	312.58	309.72	317.37
2	287.79	278.20	285.57	289.28	---	---	274.89	276.58	276.48	313.61	309.74	316.67
3	287.02	278.00	285.93	289.48	278.00	---	274.94	276.82	276.51	314.17	309.99	314.94
4	286.72	277.82	286.43	289.39	277.85	---	275.07	276.76	277.85	313.79	309.92	312.93
5	286.32	277.63	286.58	289.18	277.62	---	275.14	276.60	279.34	312.94	309.73	311.38
6	285.65	277.61	286.97	289.42	---	---	275.33	276.49	280.18	312.24	309.86	309.87
7	285.27	277.09	287.18	289.47	---	---	275.63	276.46	279.23	311.64	311.16	308.73
8	284.92	276.42	287.30	289.36	---	---	275.88	276.53	278.60	311.54	311.93	307.57
9	284.56	276.24	287.46	289.53	---	---	275.85	276.58	278.33	311.90	312.68	306.46
10	283.70	276.20	287.55	289.37	---	276.97	275.76	276.36	278.17	312.57	313.51	305.48
11	283.05	276.18	287.47	289.27	---	276.28	275.27	274.64	278.58	313.41	314.19	304.60
12	282.58	276.14	287.51	289.44	---	275.62	275.38	275.19	279.68	313.73	314.99	303.74
13	282.29	275.97	287.89	289.31	---	275.26	275.48	275.63	281.17	312.34	315.25	302.97
14	281.90	276.29	287.86	289.25	---	275.40	275.70	275.86	282.87	311.37	315.52	302.23
15	281.50	277.98	287.91	289.16	---	275.43	275.82	275.98	284.86	310.72	315.93	302.05
16	281.50	279.24	287.89	289.07	---	275.40	276.02	276.11	286.97	310.94	316.70	302.98
17	281.30	280.02	288.10	287.59	---	275.09	276.13	276.14	288.91	311.68	317.49	303.53
18	280.80	280.46	288.11	286.32	---	275.00	276.36	276.07	290.46	311.68	318.07	303.71
19	280.59	281.08	288.07	285.11	---	274.95	276.25	276.04	291.58	311.73	318.74	303.17
20	280.58	281.59	288.21	284.33	---	274.67	276.13	276.13	293.67	312.08	319.45	301.81
21	280.28	282.03	288.36	283.87	---	274.46	276.27	276.22	296.87	312.72	319.50	300.60
22	280.06	282.57	---	282.97	---	274.33	276.51	276.23	299.07	312.74	319.45	299.67
23	279.98	282.96	---	282.37	---	274.41	276.55	276.29	300.85	313.28	319.54	299.08
24	279.81	283.19	---	282.01	---	274.65	276.39	276.35	301.39	314.97	319.82	298.27
25	279.49	283.59	---	281.51	---	274.49	276.53	276.46	302.38	315.28	319.62	297.58
26	279.34	283.75	---	281.06	---	274.31	276.71	276.51	303.56	314.94	319.02	297.20
27	279.36	284.13	---	280.23	---	274.18	276.76	276.45	304.42	314.30	318.56	296.85
28	279.08	284.91	---	---	---	274.35	276.80	276.41	306.73	313.49	318.28	296.70
29	278.86	285.40	---	---	---	274.50	276.86	276.49	309.08	312.83	317.92	296.49
30	278.70	285.36	---	---	---	274.56	276.65	276.64	311.01	312.03	317.60	296.10
31	278.46	---	289.11	---	---	274.53	---	276.61	---	310.33	317.57	---
MEAN	282.26	279.88	---	---	---	---	275.93	276.26	289.18	312.70	315.53	304.02
MAX	288.54	285.40	---	---	---	---	276.86	276.82	311.01	315.28	319.82	317.37
MIN	278.46	275.97	---	---	---	---	274.71	274.64	276.48	310.33	309.72	296.10



COUNTY--Polk

WELL IDENTIFICATION NUMBER--373701093151601

LOCATION--Lat 37°37'01", long 93°15'16", T.33 N., R.21 W., 5adc, 0.2 mi 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 ft, 43 ft of 8-in casing, open hole.

DGLS Log Number: 14,308

INSTRUMENTATION--Graphic recorder installed March 5, 1956.

DATUM--1,114 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.2 ft above land surface.

PERIOD OF PROCESSED RECORD--June 14, 1983 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.47	51.17	52.26	49.45	46.52	45.99	49.24	48.24	51.18	54.95	58.39	59.56
2	52.48	51.27	52.15	49.53	46.18	46.01	49.28	48.39	51.58	55.08	58.90	59.44
3	52.69	51.41	51.53	49.65	45.87	46.40	49.28	48.32	52.00	55.16	58.97	59.64
4	52.55	51.46	51.31	49.42	45.69	46.51	49.31	48.26	52.11	54.83	58.92	59.51
5	53.06	51.29	50.75	49.11	45.33	46.40	49.45	48.35	51.99	54.45	58.99	59.28
6	53.41	51.55	50.44	49.23	45.14	46.50	49.52	48.77	50.65	54.50	59.10	59.21
7	53.59	51.76	50.68	49.17	45.21	47.17	49.64	49.03	51.66	54.86	59.05	59.16
8	54.31	51.83	50.81	49.06	45.18	47.39	50.27	49.04	51.42	55.42	58.51	59.06
9	55.04	51.65	51.01	49.10	45.10	47.53	50.38	49.13	51.61	55.41	58.23	59.06
10	52.77	51.78	51.09	48.87	45.14	47.56	50.86	49.38	51.91	55.70	58.23	59.27
11	50.02	52.00	50.93	48.25	45.24	47.32	50.52	49.39	51.92	55.91	58.22	59.29
12	49.71	52.13	50.74	47.90	45.08	46.97	50.30	49.18	52.30	55.74	58.37	59.37
13	49.33	52.11	51.07	47.73	44.72	47.04	50.15	49.19	52.81	55.70	58.34	59.40
14	49.16	52.11	51.22	47.44	44.92	47.47	49.92	49.10	52.73	56.06	58.34	59.30
15	49.49	52.07	50.97	47.18	45.31	47.75	49.91	49.05	52.38	56.33	58.83	59.26
16	49.56	52.14	51.29	46.50	45.33	47.86	49.77	49.01	52.28	56.60	58.77	59.22
17	49.49	52.24	51.13	46.32	45.11	47.66	49.64	49.16	52.10	56.86	58.90	59.08
18	50.23	52.04	50.31	46.19	45.05	47.84	49.25	49.21	52.44	56.71	59.45	59.00
19	50.58	52.13	49.74	45.54	45.57	47.97	48.80	49.32	52.79	56.79	59.47	58.99
20	50.07	52.32	49.52	45.19	45.76	47.83	48.59	49.68	52.56	56.90	59.78	58.84
21	50.17	52.24	49.44	45.26	45.78	47.75	48.37	49.68	52.49	57.25	59.55	58.59
22	50.86	52.41	49.65	45.03	46.35	48.50	47.99	49.74	52.46	57.98	59.71	58.44
23	50.86	52.40	49.76	45.48	46.14	48.09	47.90	49.70	52.45	58.07	59.99	59.01
24	50.81	52.26	50.09	45.59	46.20	48.14	48.11	49.69	52.70	57.85	59.70	59.21
25	50.91	52.27	50.27	45.50	46.57	48.21	48.03	49.65	53.65	57.37	59.66	58.84
26	50.87	52.26	50.55	45.53	46.67	48.16	48.13	49.66	53.64	57.40	59.71	58.63
27	50.84	52.18	50.49	45.27	46.55	48.02	48.32	49.85	54.36	57.31	59.55	58.65
28	51.14	52.43	51.35	45.43	46.36	48.28	48.41	50.48	54.49	57.45	59.76	58.66
29	51.26	52.74	50.61	45.42	---	48.49	48.34	50.74	54.75	57.80	59.83	58.88
30	51.30	52.46	49.99	45.57	---	48.81	48.05	51.09	54.75	58.16	59.63	59.02
31	51.23	---	49.78	46.59	---	49.02	---	51.14	---	58.29	59.72	---
MEAN	51.30	52.00	50.68	47.15	45.65	47.57	49.19	49.37	52.54	56.42	59.12	59.10
MAX	55.04	52.74	52.26	49.65	46.67	49.02	50.86	51.14	54.75	58.29	59.99	59.64
MIN	49.16	51.17	49.44	45.03	44.72	45.99	47.90	48.24	50.65	54.45	58.22	58.44

## 25-Atlas Powder

COUNTY--Jasper

WELL IDENTIFICATION NUMBER--370600094223501

LOCATION--Lat 37°06'00", long 94°22'35", T.28 N., R.32 W., 36dcb, 0.8 mi 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 ft, 375 ft of 10-in casing, open hole.  
DGLS Log Number: 6,507

INSTRUMENTATION--Graphic recorder installed February 8, 1956.

DATUM--970 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 3.5 ft above land surface.

PERIOD OF PROCESSED RECORD--August 9, 1978 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.31	17.09	19.78	15.48	14.02	14.64	15.58	13.59	15.52	17.67	19.46	21.53
2	19.41	17.17	19.71	15.57	14.05	14.75	15.50	13.65	15.67	17.72	19.46	22.45
3	19.23	17.24	19.38	15.60	14.02	14.80	15.49	13.63	15.99	17.73	19.43	23.38
4	18.47	17.20	18.95	15.53	14.07	14.73	15.56	13.68	16.37	17.72	19.44	23.70
5	17.81	17.08	18.64	15.67	14.13	14.58	15.59	13.34	16.52	17.69	19.53	23.92
6	17.47	17.13	18.59	15.69	14.23	14.68	15.54	12.72	16.59	17.70	19.64	24.14
7	17.44	17.25	18.52	15.65	14.32	14.87	15.44	12.49	16.64	17.72	19.68	24.32
8	17.36	17.24	18.43	15.59	14.34	14.86	15.43	12.51	16.64	17.72	19.70	24.34
9	16.78	17.32	18.41	15.51	14.31	14.95	15.72	12.67	16.68	17.73	19.75	24.26
10	16.25	17.49	18.31	14.81	14.39	14.91	15.95	12.91	16.72	17.73	19.79	24.26
11	16.05	17.62	18.18	14.35	14.44	14.76	15.88	13.10	16.76	17.73	19.76	24.42
12	16.03	17.74	18.09	14.07	14.38	14.70	15.87	13.21	16.77	17.79	19.78	24.76
13	16.01	17.80	18.18	13.75	14.33	14.88	15.78	13.37	16.76	17.82	19.85	24.83
14	16.12	17.88	18.06	13.42	14.57	15.01	15.65	13.53	16.78	17.87	19.87	24.70
15	16.35	17.96	17.95	12.44	14.74	15.07	15.55	13.70	16.81	17.90	19.96	24.42
16	16.32	18.16	17.97	11.99	14.61	15.03	15.51	13.91	16.85	17.94	20.11	24.41
17	16.34	18.25	17.72	12.10	14.51	14.91	15.45	14.15	16.90	17.92	20.25	24.49
18	16.53	18.21	17.06	12.22	14.61	14.95	14.46	14.36	16.96	18.01	20.32	24.68
19	16.41	18.30	16.55	12.30	14.83	14.90	13.25	14.52	17.02	18.30	20.39	25.05
20	16.40	18.44	16.32	12.57	14.85	14.81	13.29	14.66	16.97	18.56	20.43	25.60
21	16.56	18.68	16.28	12.69	14.84	14.83	13.32	14.87	16.95	18.69	20.46	25.92
22	16.52	19.02	16.24	12.76	14.92	14.84	13.41	15.01	17.01	18.73	20.53	26.34
23	16.53	19.15	16.27	12.99	14.90	15.05	13.59	15.12	17.06	18.79	20.60	26.32
24	16.62	19.20	16.31	13.23	14.96	15.09	13.81	15.21	17.22	18.90	20.69	26.17
25	16.67	19.32	16.48	13.44	14.99	15.01	13.88	15.16	17.38	19.07	20.79	26.23
26	16.59	19.56	16.53	13.52	14.89	15.03	13.92	15.15	17.47	19.23	20.90	26.30
27	16.75	19.66	16.53	13.54	14.85	15.12	13.80	15.21	17.56	19.26	20.97	26.27
28	16.87	19.93	16.43	13.68	14.77	15.38	13.47	15.22	17.68	19.25	21.04	25.94
29	16.89	19.93	16.31	13.75	---	15.57	13.18	15.22	17.68	19.24	21.11	25.58
30	16.98	19.73	16.03	13.87	---	15.71	13.19	15.29	17.67	19.29	21.26	25.51
31	17.05	---	15.48	14.02	---	15.60	---	15.36	---	19.36	21.36	---
MEAN	16.97	18.22	17.54	13.93	14.53	14.97	14.74	14.08	16.85	18.28	20.20	24.81
MAX	19.41	19.93	19.78	15.69	14.99	15.71	15.95	15.36	17.68	19.36	21.36	26.34
MIN	16.01	17.08	15.48	11.99	14.02	14.58	13.18	12.49	15.52	17.67	19.43	21.53

COUNTY--McDonald

WELL IDENTIFICATION NUMBER--363237094290901

LOCATION--Lat 36°32'37", long 94°29'09", T.21 N., R.33 W., 22aab, at Noel Water Company, Noel.

FORMATIONS OPEN TO THE WELL--Swan Creek Member of the Colter Dolomite, Roubidoux Formation, and Gasconade Formation.

WELL CHARACTERISTICS--Drilled December 19, 1931, total depth 850 ft, 99 ft of 6-in casing, open hole.

DGLS Log Number: 3,451

INSTRUMENTATION--Digital recorder.

DATUM--830 ft above NGVD of 1929

Measuring point: Base of recorder platform, 1.7 ft above land surface.

REMARKS--Several days missing when recorder was not operational. Some days questionable when float was hanging.

PERIOD OF PROCESSED RECORD--December 11, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231.15	228.39	215.71	214.03	236.30	---	207.20	220.42	229.90	230.27	240.79	235.66
2	230.10	229.35	213.56	213.15	233.90	---	212.00	222.38	225.96	230.33	242.82	229.56
3	224.41	228.53	215.21	216.04	223.30	214.18	214.60	223.62	222.03	230.34	242.60	228.23
4	220.60	221.92	219.26	221.77	223.25	211.99	216.13	223.39	226.14	230.34	236.14	231.91
5	221.76	219.60	221.18	223.96	222.46	215.08	216.98	218.40	229.19	230.31	233.04	234.83
6	223.54	222.77	223.38	215.67	221.24	218.08	216.98	216.58	230.30	230.34	236.54	237.18
7	225.87	225.32	224.82	213.19	223.14	220.13	210.84	220.49	230.32	229.29	239.06	237.06
8	227.39	226.85	223.31	217.70	224.28	221.05	208.85	222.93	230.32	226.74	239.72	230.92
9	228.91	227.80	217.20	224.98	223.17	220.66	213.10	224.99	230.27	229.76	240.68	228.97
10	229.30	225.91	215.39	223.49	216.31	214.34	216.27	226.59	230.27	229.53	241.27	230.48
11	229.94	219.78	219.06	224.92	215.39	211.69	218.43	225.74	230.27	229.54	234.70	---
12	227.01	219.48	221.43	226.32	217.93	214.76	219.82	219.52	230.27	229.55	232.32	---
13	221.76	222.79	223.39	224.37	220.13	214.71	219.16	217.94	230.18	229.54	235.03	---
14	219.32	221.29	224.48	224.49	222.12	---	212.18	221.61	230.06	229.55	237.15	---
15	222.00	220.72	223.24	223.44	224.14	---	209.27	225.19	230.12	229.54	239.56	230.41
16	224.63	223.65	216.85	223.70	224.03	214.40	214.83	227.48	226.18	229.55	244.15	230.40
17	226.35	220.08	215.00	225.19	219.62	211.51	218.19	228.71	223.77	232.07	250.23	232.07
18	227.61	214.09	218.65	---	214.33	209.91	220.37	229.63	227.52	236.59	249.81	234.28
19	228.48	215.47	221.62	---	---	213.49	222.19	228.57	230.30	238.16	249.81	236.00
20	227.35	219.57	223.20	---	---	216.58	221.06	224.07	230.33	238.38	249.81	237.23
21	221.08	221.86	225.21	---	---	218.63	214.67	226.01	230.33	232.45	249.81	235.99
22	219.09	217.41	225.86	---	---	220.41	212.70	227.87	230.33	229.86	249.81	230.21
23	221.99	215.11	221.56	223.54	---	220.61	216.76	228.89	230.33	233.68	249.81	230.30
24	224.14	211.30	218.36	222.55	214.38	214.19	219.66	229.53	230.29	236.44	249.81	231.07
25	225.08	207.64	214.99	224.04	212.66	211.57	221.14	229.31	230.32	238.42	249.81	231.98
26	226.24	208.62	214.80	220.56	214.33	214.03	222.36	223.57	230.34	240.64	249.43	229.95
27	225.86	212.08	215.21	225.32	---	---	222.60	219.69	230.34	241.05	237.38	234.55
28	219.19	216.71	216.63	223.93	---	---	215.83	218.64	230.34	234.19	239.40	235.15
29	217.00	221.10	226.06	223.26	---	---	213.64	222.71	230.34	232.52	241.47	229.82
30	222.06	221.81	214.17	224.82	---	212.69	217.51	225.96	230.33	235.98	242.41	228.27
31	226.68	---	213.11	230.59	---	208.34	---	228.63	---	239.64	242.10	---
MEAN	224.71	220.23	219.42	---	---	---	216.18	224.16	229.23	232.73	242.47	---
MAX	231.15	229.35	226.06	---	---	---	222.60	229.63	230.34	241.05	250.23	---
MIN	217.00	207.64	213.11	---	---	---	207.20	216.58	222.03	226.74	232.32	---

## 27-Longview

COUNTY--McDonald

WELL IDENTIFICATION NUMBER--364317094124201

LOCATION--Lat 36°43'17", long 94°12'42", T.23 N., R.30 W., 18aad, 0.2 mi 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 ft, 44 ft of 8-in casing, open.  
DGLS Log Number: 14,147

INSTRUMENTATION--Graphic recorder installed January 3, 1956.

DATUM--1,290 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.2 ft above land surface.

PERIOD OF PROCESSED RECORD--June 6, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163.12	163.62	163.65	164.28	163.04	162.27	163.58	165.94	165.50	168.50	168.55	171.04
2	163.01	163.54	163.50	164.29	162.95	162.47	163.50	165.90	165.62	168.62	168.58	170.95
3	162.82	163.56	163.59	164.49	162.74	162.83	163.38	165.56	165.73	168.66	168.77	170.72
4	163.07	163.39	163.83	164.28	162.65	162.77	163.56	165.58	165.78	168.54	168.91	171.03
5	163.17	163.35	163.30	163.87	162.49	162.33	163.69	165.65	165.84	168.39	168.92	170.86
6	163.03	163.48	163.26	163.90	162.34	162.42	163.65	165.82	166.02	168.22	169.08	170.91
7	163.06	163.71	163.42	163.86	162.48	162.78	163.57	165.87	166.28	168.21	169.38	170.84
8	163.17	163.58	163.42	163.72	162.38	162.79	163.58	165.85	166.26	168.19	169.44	170.70
9	163.27	163.57	163.46	163.74	162.20	162.93	163.89	165.71	166.29	168.33	169.77	170.62
10	163.28	164.01	163.41	163.47	162.24	162.83	164.09	165.70	166.28	168.20	170.21	170.60
11	163.21	163.79	163.24	163.31	162.27	162.45	164.00	165.64	166.23	168.13	170.36	170.53
12	163.22	163.84	163.17	163.39	162.09	162.09	163.99	165.43	166.48	168.14	170.27	170.47
13	163.11	163.77	163.51	163.24	161.79	162.37	164.01	165.31	166.49	168.13	170.26	170.41
14	163.04	163.68	163.50	163.05	162.17	162.65	163.95	165.36	166.50	168.16	170.32	170.40
15	163.33	163.63	163.53	162.88	162.58	162.78	164.18	165.26	166.55	168.19	170.37	170.56
16	163.30	163.75	163.62	163.04	162.48	162.74	164.28	165.21	166.73	168.20	170.47	170.54
17	163.28	163.79	163.27	163.24	162.14	162.50	164.28	165.24	166.86	168.18	170.57	170.48
18	163.64	163.45	163.25	163.19	162.14	162.64	164.13	165.31	166.95	168.07	171.19	170.48
19	163.53	163.40	163.45	162.82	162.53	162.64	164.27	165.36	167.12	168.02	171.15	170.74
20	163.36	163.44	163.51	162.83	162.65	162.45	164.63	165.27	167.19	168.11	171.02	170.71
21	163.57	163.38	163.68	163.07	162.64	162.47	164.67	165.20	167.20	168.27	170.84	170.50
22	163.62	163.44	163.86	162.82	162.81	162.51	164.57	165.17	167.23	168.29	170.81	170.44
23	163.59	163.45	163.97	162.75	162.76	162.93	164.69	165.14	167.39	168.32	170.83	170.55
24	163.71	163.32	164.16	162.91	162.75	163.13	165.00	165.12	167.58	168.29	170.82	170.41
25	163.86	163.32	164.14	162.91	162.85	163.02	165.05	165.05	167.71	168.30	170.84	170.38
26	163.73	163.25	164.23	162.82	162.77	162.88	165.00	165.11	167.84	168.42	170.97	170.47
27	163.78	163.26	164.07	162.45	162.69	162.80	165.10	165.28	168.01	168.47	171.03	170.55
28	164.04	163.79	163.86	162.46	162.54	163.05	165.24	165.56	168.22	168.40	170.99	170.61
29	163.91	164.10	163.85	162.55	---	163.10	165.34	165.46	168.32	168.46	170.94	170.76
30	163.87	163.84	164.16	162.80	---	163.54	165.69	165.39	168.44	168.52	171.06	170.93
31	163.77	---	164.39	163.01	---	163.62	---	165.35	---	168.54	171.03	---
MEAN	163.40	163.58	163.65	163.27	162.51	162.73	164.29	165.45	166.82	168.31	170.25	170.64
MAX	164.04	164.10	164.39	164.49	163.04	163.62	165.69	165.94	168.44	168.66	171.19	171.04
MIN	162.82	163.25	163.17	162.45	161.79	162.09	163.38	165.05	165.50	168.02	168.55	170.38

COUNTY--Lawrence

WELL IDENTIFICATION NUMBER--365645093431601

LOCATION--Lat 36°56'45", long 93°43'16", T.26 N., R.26 W., 24dac, 0.8 mi south of Aurora, Highway 39 at Watch Tower.

FORMATIONS OPEN TO THE WELL--Mississippian Residium, 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, and Eminence Dolomite.

WELL CHARACTERISTICS--Total depth 1,425 ft, 195 ft of 16-in casing, 572 ft of 12-in casing.

INSTRUMENTATION--Graphic recorder.

DATUM--1,460 ft above NGVD of 1929.

Measuring point: Recorder shelf, 3.5 ft above land surface.

REMARKS--Reflects earthquake effects, near the Ritchey Fault. Several days missing when float was hung.

PERIOD OF PROCESSED RECORD--October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91.61	94.29	---	96.39	88.79	89.31	91.73	91.34	---	95.80	98.75	102.06
2	91.58	94.39	---	96.32	88.71	89.62	91.72	91.27	93.11	95.93	98.83	102.14
3	91.56	94.46	---	96.33	88.62	89.82	91.76	91.05	93.10	96.02	98.97	102.21
4	91.82	94.47	96.63	96.10	88.57	89.78	91.91	91.17	93.20	96.11	99.10	102.24
5	91.80	94.52	96.40	95.91	88.52	89.65	91.99	91.21	93.36	96.16	99.17	102.33
6	91.77	94.61	96.48	95.97	88.60	89.82	91.99	91.31	93.55	96.25	99.29	102.42
7	91.93	94.80	96.55	95.84	88.73	90.09	91.98	91.25	93.62	96.35	99.46	102.46
8	92.04	94.78	96.61	95.63	88.65	90.16	92.03	91.20	93.63	96.44	99.47	102.43
9	92.12	94.83	96.68	95.61	88.59	90.28	92.26	91.27	93.76	96.49	99.56	102.50
10	92.13	94.99	96.67	95.24	88.71	90.32	92.38	91.70	93.80	96.58	99.69	102.60
11	92.36	95.14	96.58	94.93	88.71	90.15	92.41	91.77	93.86	96.70	99.82	102.67
12	92.69	95.29	96.64	94.75	88.59	90.04	92.44	91.69	93.97	96.84	99.88	102.72
13	92.62	95.32	96.90	94.36	88.39	90.30	92.51	91.68	94.11	96.97	100.05	102.79
14	92.70	95.40	96.82	94.02	88.71	90.49	92.43	91.74	94.22	97.12	100.08	102.84
15	92.94	95.48	96.93	93.52	89.04	90.65	92.46	91.80	94.20	97.27	100.22	102.98
16	92.94	95.63	96.97	93.14	88.87	90.66	92.37	91.85	---	97.38	100.35	103.18
17	92.92	95.67	96.78	92.72	88.75	90.57	92.24	91.95	---	97.45	100.47	103.21
18	93.23	95.62	96.72	92.13	88.87	90.82	92.04	91.99	---	97.49	100.59	103.30
19	93.18	95.76	96.77	91.40	89.17	90.84	91.98	92.17	---	97.60	100.68	103.44
20	93.17	95.84	96.74	91.05	89.27	90.76	91.92	92.18	---	97.79	100.80	103.44
21	93.40	95.93	96.73	90.77	89.27	90.80	91.75	92.20	---	97.91	100.87	103.38
22	93.48	96.06	96.82	90.31	89.40	90.83	91.47	92.26	94.97	98.00	100.99	103.44
23	93.55	96.18	96.90	89.98	89.38	91.08	91.37	92.31	95.16	98.10	101.15	103.54
24	93.70	96.17	96.95	89.74	89.46	91.19	91.43	92.33	95.27	98.15	101.28	103.48
25	93.82	96.25	96.94	89.51	89.54	91.14	91.28	92.35	95.34	98.23	101.40	103.51
26	93.79	96.29	97.01	89.36	89.57	91.06	91.14	92.43	95.43	98.35	101.48	103.63
27	93.93	96.23	96.89	88.96	89.56	91.12	91.05	92.61	95.49	98.41	101.52	103.70
28	94.12	---	96.79	88.83	89.48	91.26	91.03	92.66	95.61	98.42	101.64	103.83
29	94.13	---	96.75	88.68	---	91.39	90.98	92.60	95.66	98.50	101.74	103.94
30	94.20	---	96.73	88.69	---	91.64	91.15	92.61	95.73	98.62	101.81	104.02
31	94.30	---	96.65	88.75	---	91.66	---	92.81	---	98.69	101.91	---
MEAN	92.89	---	---	92.74	88.95	90.56	91.84	91.90	---	97.29	100.36	103.01
MAX	94.30	---	---	96.39	89.57	91.66	92.51	92.81	---	98.69	101.91	104.02
MIN	91.56	---	---	88.68	88.39	89.31	90.98	91.05	---	95.80	98.75	102.06

## 29a-Belcrest Street

COUNTY--Greene

WELL IDENTIFICATION NUMBER--371241093140001

LOCATION--Lat 37°12'41", long 93°14'00", T.29 N., R.21 W., 16dcc, from 65 Bypass and Chestnut Expressway in Springfield, go west approximately 0.25 mi to Belcrest Street, go north 0.10 mi, well is on east side of Belcrest Street in City Utilities fenced property.

FORMATIONS OPEN TO THE WELL--Keokuk Limestone, Burlington Limestone, and Reeds Spring Formation.

WELL CHARACTERISTICS--Total depth 209 ft, 50 ft of casing.

INSTRUMENTATION--Digital recorder.

DATUM--1,360 ft above NGVD of 1929.

Measuring point: Recorder shelf, 3.5 ft above land surface.

PERIOD OF RECORD--October 20, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84.49	84.44	84.47	84.19	84.07	84.15	84.24	83.72	83.97	84.19	84.30	84.47
2	84.50	84.44	84.47	84.19	84.14	84.05	84.27	83.79	83.97	84.19	84.30	84.47
3	84.49	84.43	84.38	84.24	84.15	84.04	84.26	83.81	83.97	84.19	84.30	84.47
4	84.44	84.42	84.38	84.28	84.15	84.04	84.25	83.81	83.97	84.19	84.30	84.47
5	84.45	84.39	84.40	84.29	84.15	84.03	84.25	83.81	83.98	84.17	84.30	84.47
6	84.46	84.38	84.40	84.29	84.15	83.97	84.26	83.82	84.00	84.17	84.30	84.47
7	84.36	84.39	84.40	84.29	84.15	83.99	84.25	83.88	84.06	84.17	84.30	84.48
8	84.20	84.44	84.41	84.29	84.17	84.05	84.20	83.92	84.11	84.17	84.30	84.48
9	84.04	84.44	84.43	84.29	84.17	84.13	84.18	83.94	84.13	84.17	84.30	84.48
10	84.02	84.44	84.46	84.31	84.17	84.22	84.17	83.95	84.15	84.18	84.30	84.48
11	84.02	84.45	84.46	84.23	84.17	84.24	84.17	83.97	84.16	84.18	84.30	84.48
12	84.02	84.51	84.42	84.19	84.16	84.17	84.17	83.98	84.16	84.17	84.34	84.48
13	84.02	84.54	84.40	84.18	84.07	84.12	84.16	83.98	84.15	84.17	84.36	84.48
14	84.00	84.56	84.43	84.12	84.00	84.11	84.10	83.97	84.14	84.19	84.36	84.48
15	83.99	84.58	84.43	84.00	84.01	84.16	84.02	83.95	84.13	84.22	84.36	84.48
16	84.02	84.59	84.44	83.89	84.08	84.23	84.01	83.93	84.12	84.26	84.36	84.48
17	84.02	84.63	84.41	83.89	84.07	84.24	84.00	83.91	84.12	84.27	84.36	84.48
18	84.05	84.63	84.27	83.92	84.02	84.23	83.78	83.91	84.12	84.27	84.34	84.48
19	84.13	84.60	84.23	83.93	84.01	84.22	83.82	83.93	84.13	84.27	84.34	84.48
20	84.14	84.58	84.23	83.90	84.07	84.21	83.81	83.96	84.15	84.26	84.34	84.55
21	84.15	84.56	84.23	83.91	84.14	84.17	83.82	83.98	84.15	84.26	84.34	84.60
22	84.20	84.55	84.26	83.94	84.16	84.11	83.82	83.99	84.15	84.26	84.37	84.60
23	84.22	84.54	84.33	83.93	84.20	84.09	83.81	84.00	84.15	84.26	84.39	84.60
24	84.24	84.51	84.40	83.92	84.20	84.12	83.79	84.00	84.15	84.27	84.40	84.59
25	84.28	84.49	84.44	83.95	84.23	84.14	83.80	84.00	84.15	84.27	84.44	84.57
26	84.32	84.45	84.49	83.99	84.25	84.14	83.80	83.99	84.16	84.27	84.45	84.54
27	84.33	84.34	84.53	83.99	84.25	84.10	83.77	83.98	84.17	84.28	84.46	84.54
28	84.39	84.28	84.52	83.97	84.23	84.07	83.73	83.98	84.18	84.30	84.46	84.54
29	84.42	84.40	84.32	83.94	---	84.06	83.68	83.98	84.19	84.30	84.47	84.57
30	84.43	84.47	84.12	83.93	---	84.11	83.68	83.99	84.19	84.30	84.47	84.60
31	84.44	---	84.15	84.01	---	84.18	---	83.98	---	84.30	84.47	---
MEAN	84.23	84.48	84.38	84.08	84.14	84.13	84.00	83.93	84.11	84.23	84.36	84.51
MAX	84.50	84.63	84.53	84.31	84.25	84.24	84.27	84.00	84.19	84.30	84.47	84.60
MIN	83.99	84.28	84.12	83.89	84.00	83.97	83.68	83.72	83.97	84.17	84.30	84.47



COUNTY--Greene

WELL IDENTIFICATION NUMBER--371321093201401

LOCATION--Lat 37°13'21", long 93°20'14", T.29 N., R.22 W., 16acb, from Highway 13 in Springfield, take Calhoun Street west for 1.4 mi, Bissett School is on south side of road, 3014 West Calhoun.

FORMATIONS OPEN TO THE WELL--Cotter Dolomite, Jefferson City Dolomite, and Roubidoux Formation.

WELL CHARACTERISTICS--Drilled January 1950, total depth 825 ft, 21 ft of 12-in casing and 400 ft of 6-in casing.

INSTRUMENTATION--Digital recorder.

DATUM--1,286 ft above NGVD of 1929.

Measuring point: Top of casing, 4.0 ft above land surface.

PERIOD OF RECORD--June 28, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	320.68	321.76	324.63	320.97	308.11	304.85	311.84	313.44	308.28	321.49	336.83	348.47
2	320.76	321.86	324.45	320.60	307.82	305.02	312.11	313.28	308.41	322.16	337.34	348.71
3	320.79	321.97	324.48	320.33	307.47	305.26	312.39	312.90	308.57	322.76	337.83	348.94
4	321.19	321.97	324.77	319.84	307.21	305.25	312.80	312.73	308.84	323.30	338.35	349.14
5	321.34	322.04	324.49	319.23	306.94	304.99	313.17	312.60	309.18	323.75	338.83	349.33
6	321.36	322.24	324.37	319.01	306.78	305.09	313.40	312.52	309.50	324.24	339.30	349.62
7	321.46	322.54	324.33	318.68	306.72	305.44	313.59	312.34	309.77	324.77	339.65	349.77
8	321.69	322.52	324.23	318.23	306.47	305.47	313.82	312.12	310.16	325.35	339.89	349.73
9	321.79	322.53	324.19	318.00	306.19	305.78	314.28	311.91	310.58	325.87	340.17	349.74
10	321.70	322.66	324.07	317.46	306.09	305.79	314.65	311.81	310.92	326.39	340.57	349.77
11	321.54	322.88	323.87	317.03	305.96	305.52	314.86	311.69	311.25	326.95	340.92	349.77
12	321.37	323.10	323.74	316.74	305.65	305.25	315.09	311.43	311.61	327.43	341.32	349.80
13	321.07	323.16	323.96	316.22	305.22	305.46	315.31	311.18	312.04	327.83	341.62	349.83
14	320.86	323.26	323.83	315.72	305.36	305.79	315.54	310.94	312.50	328.35	342.00	349.89
15	320.91	323.36	323.82	315.18	305.61	306.23	315.91	310.70	312.98	328.74	342.39	350.09
16	320.69	323.56	323.89	314.89	305.42	306.54	316.11	310.44	313.55	329.15	342.78	350.31
17	320.50	323.67	323.61	314.53	305.12	306.70	316.10	310.23	314.02	329.51	343.13	350.35
18	320.71	323.56	323.56	314.01	305.07	307.15	315.84	310.11	314.57	329.89	343.59	350.40
19	320.58	323.67	323.63	313.23	305.36	307.43	315.81	309.93	315.17	330.42	344.04	350.61
20	320.41	323.77	323.44	312.75	305.43	307.51	315.78	309.66	315.59	331.04	344.54	350.62
21	320.61	323.84	323.28	312.44	305.33	307.78	315.44	309.39	316.17	331.68	345.00	350.53
22	320.65	323.98	323.20	311.73	305.32	308.02	315.03	309.18	316.67	332.22	345.39	350.57
23	320.68	324.05	323.07	311.26	305.23	308.60	314.74	308.98	317.33	332.79	345.83	350.73
24	320.83	324.02	322.97	310.95	305.27	309.07	314.67	308.76	317.83	333.25	346.30	350.68
25	321.01	324.14	322.78	310.50	305.36	309.27	314.37	308.50	318.35	333.68	346.57	350.73
26	321.07	324.11	322.68	310.06	305.28	309.42	314.01	308.38	318.90	334.12	346.77	350.94
27	321.25	324.19	322.30	309.39	305.26	309.64	313.77	308.35	319.43	334.48	347.01	351.08
28	321.46	324.67	321.91	309.08	305.14	310.09	313.53	308.34	319.97	334.80	347.32	351.24
29	321.47	324.94	321.67	308.76	---	310.44	313.35	308.21	320.53	335.21	347.66	351.39
30	321.62	324.71	321.64	308.61	---	311.07	313.43	308.10	321.09	335.74	347.91	351.42
31	321.76	---	321.49	308.45	---	311.45	---	308.14	---	336.29	348.17	---
MEAN	321.09	323.29	323.50	314.64	305.94	307.14	314.36	310.53	313.79	329.15	342.87	350.14
MAX	321.79	324.94	324.77	320.97	308.11	311.45	316.11	313.44	321.09	336.29	348.17	351.42
MIN	320.41	321.76	321.49	308.45	305.07	304.85	311.84	308.10	308.28	321.49	336.83	348.47

## 29c-Cherokee School

COUNTY--Greene

WELL IDENTIFICATION NUMBER--370702093173001

LOCATION--Lat 37°07'02", long 93°17'30", T.28 N., R.22 W., 13bdc, at Cherokee Junior High School, 0.25 mi east of Campbell Avenue (Route 160) in Springfield, north side of Plainview Road.

FORMATIONS OPEN TO THE WELL--Unknown.

WELL CHARACTERISTICS--Drilled June 1960, 21 ft of 10-in casing, smaller casing unknown.

INSTRUMENTATION--Digital recorder installed June 21, 1989.

DATUM--1,290 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 4.0 ft above land surface.

REMARKS--Several days missing when float sunk.

PERIOD OF RECORD--June 21, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	264.20	252.66	244.17	239.03	233.60	229.64	233.10	231.49	230.79	270.66	287.99	---
2	263.70	251.83	243.73	238.72	233.45	229.64	235.43	231.23	232.39	272.21	288.69	---
3	263.41	251.26	243.49	238.63	233.19	229.78	235.32	230.75	233.10	271.67	289.41	---
4	263.12	250.32	243.52	238.35	232.97	229.64	234.59	230.26	233.55	271.64	290.01	---
5	262.69	249.51	243.07	238.01	232.79	229.29	234.41	229.98	234.31	271.88	290.37	---
6	262.49	248.93	242.81	238.01	232.70	229.33	234.44	229.58	235.05	272.35	292.04	---
7	262.28	248.53	242.75	237.93	232.73	229.62	234.54	229.28	235.87	272.72	291.21	---
8	261.92	247.88	242.66	237.77	232.59	229.62	235.23	228.91	236.81	273.74	291.63	---
9	261.45	247.37	242.63	237.80	232.38	229.73	235.68	228.55	237.57	275.74	291.18	---
10	260.89	247.17	242.54	237.49	232.32	229.62	235.92	228.29	238.30	276.00	290.85	---
11	260.45	247.08	242.45	237.17	232.23	229.21	236.06	227.92	238.83	276.69	291.60	---
12	260.15	247.42	242.45	237.02	231.95	228.82	236.12	227.60	239.54	277.35	292.72	---
13	259.98	248.24	242.77	236.65	231.46	228.94	236.21	227.55	240.33	277.68	293.38	---
14	259.91	247.16	242.73	236.35	231.54	229.25	236.16	227.88	242.03	278.11	293.61	---
15	259.97	246.76	242.77	236.00	231.74	229.33	236.02	227.00	244.41	279.69	294.63	---
16	259.91	246.53	242.85	235.83	231.48	229.47	235.72	226.26	246.27	280.78	295.80	---
17	259.86	246.48	242.46	235.60	231.05	229.36	235.79	225.82	248.16	280.20	296.66	---
18	260.04	246.13	241.89	235.32	230.87	229.55	235.28	225.61	251.10	280.36	297.53	---
19	259.52	246.03	241.55	234.81	231.07	229.67	235.02	225.28	252.42	280.77	298.91	---
20	258.75	246.03	241.17	234.64	231.07	229.73	234.89	225.17	255.98	281.38	---	---
21	258.18	246.14	240.92	234.64	230.91	229.86	234.53	225.10	257.82	282.05	---	---
22	257.45	246.13	240.86	234.24	230.83	229.97	234.10	225.17	259.53	283.44	---	---
23	256.83	246.34	240.90	234.09	230.68	230.40	233.84	225.31	261.10	285.30	---	---
24	256.19	247.39	240.83	234.13	230.63	230.87	233.72	225.45	262.21	285.65	---	---
25	255.56	248.00	240.67	234.08	230.64	231.08	233.52	226.38	262.84	285.10	---	---
26	255.07	247.03	240.69	233.99	230.49	231.10	233.07	226.26	263.75	285.40	---	---
27	255.32	246.14	240.55	233.64	230.33	231.28	232.75	226.58	264.97	285.76	---	---
28	255.37	245.68	240.39	233.61	230.07	231.72	232.19	227.24	266.11	285.98	---	---
29	255.04	245.29	240.24	233.54	---	231.93	231.79	228.36	267.14	286.51	---	---
30	255.30	244.59	239.91	233.65	---	232.50	231.66	229.35	268.88	286.50	---	---
31	253.89	---	239.57	233.75	---	232.68	---	230.20	---	287.24	---	---
MEAN	259.32	247.53	241.94	235.95	231.71	230.08	234.57	227.74	248.04	279.37	---	---
MAX	264.20	252.66	244.17	239.03	233.60	232.68	236.21	231.49	268.88	287.24	---	---
MIN	253.89	244.59	239.57	233.54	230.07	228.82	231.66	225.10	230.79	270.66	---	---

COUNTY--Greene

WELL IDENTIFICATION NUMBER--371606093183701

LOCATION--Lat 37°16'06", long 93°18'37", T.29 N., R.22 W., 3add, take Old Highway 13 (FR 141) in Springfield, north 0.8 mi from I-44 to Pump Station Road, go north on Pump Station Road for 1,500 ft to Cinder Drive, go northeast on Cinder Drive to Fulbright Pumping Station.

FORMATIONS OPEN TO THE WELL--Burlington Formation, Reeds Spring Formation, and Pierson Formation.

WELL CHARACTERISTICS--Total depth 183 ft, 50 ft of casing.

INSTRUMENTATION--Digital recorder.

DATUM--1,190 ft above NGVD of 1929.

Measuring point: Recorder shelf, 3.1 ft above land surface.

PERIOD OF RECORD--October 18, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66.28	63.00	60.79	53.85	55.25	60.94	62.71	54.01	59.45	65.06	65.43	66.09
2	66.29	63.22	60.97	53.91	55.49	60.97	62.78	54.34	59.88	65.13	65.44	66.18
3	66.32	63.40	59.28	54.15	55.94	61.07	62.89	54.60	60.27	65.19	65.23	66.33
4	65.89	63.58	57.63	54.47	56.40	61.09	62.97	54.86	60.62	65.24	65.45	66.40
5	65.24	63.74	56.87	54.74	56.93	61.07	63.06	54.93	60.91	65.31	65.71	66.45
6	64.86	63.87	56.81	55.01	57.38	60.85	63.20	54.88	61.11	65.36	65.89	66.48
7	64.51	64.01	57.01	55.25	57.64	60.86	63.35	54.82	61.27	65.38	65.92	66.46
8	62.92	64.13	57.34	55.37	57.45	60.89	63.55	54.89	61.44	65.37	65.59	66.43
9	58.39	64.25	57.74	55.50	57.33	60.97	63.78	55.02	61.60	65.37	65.62	66.42
10	55.44	64.32	58.21	55.35	57.37	61.11	63.91	55.17	61.76	65.43	65.76	66.41
11	55.35	64.36	58.65	54.03	57.51	61.05	63.98	55.27	61.95	65.50	65.44	66.43
12	55.49	64.45	59.12	53.89	57.71	60.44	64.07	55.39	62.20	65.54	65.18	66.52
13	55.73	64.53	59.52	53.83	57.81	60.53	64.05	55.67	62.45	65.54	65.11	66.52
14	56.52	64.60	59.85	53.87	58.02	60.72	62.79	54.87	62.64	65.52	65.06	66.55
15	57.19	64.68	60.16	53.45	58.30	60.84	57.78	54.01	62.83	65.50	65.06	66.60
16	57.93	64.84	60.45	53.10	58.49	60.94	55.23	53.74	62.97	65.51	65.14	66.62
17	58.78	65.01	60.19	52.92	58.77	61.10	55.20	53.73	63.12	65.55	65.24	66.59
18	59.16	65.15	56.33	52.76	59.00	61.25	54.71	53.82	63.35	65.57	65.32	66.59
19	59.46	65.29	55.26	52.64	59.21	61.33	54.08	53.96	63.64	65.65	65.37	66.63
20	59.86	65.41	55.23	52.68	59.41	61.41	53.82	54.33	64.00	65.71	65.43	66.65
21	60.23	65.52	55.32	52.84	59.58	61.61	53.81	54.66	64.30	65.71	65.50	66.67
22	60.54	65.60	55.42	53.16	59.77	61.65	53.86	54.96	64.52	65.67	65.57	66.66
23	60.83	65.65	55.51	53.36	59.94	61.60	54.03	55.23	64.66	65.65	65.64	66.63
24	61.13	65.74	55.80	53.51	60.14	61.68	54.41	55.38	64.73	65.66	65.73	66.66
25	61.44	65.84	56.40	53.67	60.29	61.80	54.71	55.54	64.78	65.66	65.80	66.67
26	61.69	66.02	57.04	54.00	60.46	62.01	54.99	56.09	64.83	65.69	65.82	66.69
27	61.92	66.06	57.63	54.26	60.62	62.31	54.90	56.79	64.86	65.73	65.85	66.70
28	62.19	63.61	58.11	54.54	60.82	62.46	54.23	57.41	64.87	65.77	65.91	66.68
29	62.37	61.43	56.72	54.77	---	62.56	53.96	57.95	64.91	65.82	65.94	66.73
30	62.55	60.81	54.22	54.95	---	62.65	53.88	58.46	64.98	65.86	65.99	66.78
31	62.78	---	53.95	55.16	---	62.68	---	58.97	---	65.79	66.05	---
MEAN	60.94	64.40	57.53	54.03	58.32	61.37	58.69	55.28	62.83	65.53	65.55	66.54
MAX	66.32	66.06	60.97	55.50	60.82	62.68	64.07	58.97	64.98	65.86	66.05	66.78
MIN	55.35	60.81	53.95	52.64	55.25	60.44	53.81	53.73	59.45	65.06	65.06	66.09

## 29e-Kansas Street

COUNTY--Greene

WELL IDENTIFICATION NUMBER--370832093185101

LOCATION--Lat 37°08'32", long 93°18'51", T.28 N., R.22 W., 11cbc, from Kansas Expressway and Battlefield in Springfield, go south on Kansas Expressway to Erie Street, east on Erie Street to Kansas Street, south on Kansas Street to water tower on east side of street. Well is next to water tower.

FORMATIONS OPEN TO THE WELL--Keokuk Limestone, Burlington Limestone, and Reeds Spring Formation.

WELL CHARACTERISTICS--Total depth 305 ft, 20 ft of casing.

INSTRUMENTATION--Digital recorder.

DATUM--1,281 ft above NGVD of 1929.

Measuring point: Recorder shelf, 3.0 ft above land surface.

REMARKS--Several weeks missing when recorder was not operational.

PERIOD OF RECORD--October 23, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.20	32.02	22.22	---	---	32.02	35.28	14.55	28.31	---	36.83	36.96
2	33.46	32.50	22.39	---	---	31.94	35.37	15.72	29.25	---	36.90	36.69
3	33.54	32.96	18.11	---	---	32.06	35.45	16.13	30.15	---	36.99	36.63
4	30.45	33.28	16.84	---	---	32.33	35.52	16.25	30.88	---	37.08	36.37
5	29.77	32.92	17.28	---	---	32.63	35.60	17.49	31.59	30.92	37.17	36.06
6	30.34	32.99	18.03	---	---	32.94	35.67	18.18	31.77	31.74	37.18	36.11
7	25.72	33.40	18.69	---	---	33.38	35.75	18.93	---	31.89	37.18	36.27
8	17.13	33.76	19.28	---	---	33.68	35.83	19.52	---	31.89	37.21	36.35
9	9.25	34.09	19.80	---	---	33.94	35.95	20.06	---	31.89	37.11	36.06
10	9.14	34.39	20.32	---	19.96	34.15	36.07	20.74	---	32.69	37.06	36.05
11	11.35	34.67	20.90	---	20.32	34.27	36.14	21.51	---	34.24	37.09	36.19
12	12.73	34.93	21.67	---	20.70	34.40	36.18	22.20	---	34.63	37.17	36.39
13	13.63	35.15	22.60	---	21.02	34.62	35.97	22.89	---	34.58	37.25	36.60
14	14.25	35.34	23.37	---	21.24	34.83	32.50	19.39	30.65	34.55	37.32	36.80
15	14.91	35.55	23.87	---	21.99	35.01	26.78	19.27	30.60	34.75	37.40	36.99
16	16.38	35.75	24.73	---	22.65	35.14	24.70	18.94	31.01	34.98	37.47	37.03
17	17.46	35.93	22.81	---	23.52	34.85	24.60	18.95	31.27	35.19	37.52	36.85
18	18.24	36.03	14.01	---	24.57	34.03	15.98	19.42	31.83	35.38	37.61	35.06
19	19.08	36.18	14.27	---	25.55	33.94	10.86	19.79	---	35.55	37.68	32.00
20	19.73	36.32	14.52	---	26.46	34.05	12.16	20.14	---	35.72	37.75	32.59
21	20.35	36.42	14.76	---	27.23	34.22	12.94	20.68	---	35.88	37.80	33.49
22	21.19	36.39	15.69	---	27.96	34.38	13.53	21.41	---	36.01	37.86	33.94
23	22.18	36.37	17.05	---	28.70	34.42	14.04	22.17	---	36.11	37.91	32.47
24	23.15	36.44	17.95	---	29.42	34.45	14.56	22.99	---	36.20	37.97	32.55
25	24.50	36.58	18.64	---	30.13	34.48	15.69	23.13	---	36.29	38.02	33.29
26	26.04	36.63	19.33	---	30.69	34.53	16.86	22.97	---	36.38	38.06	34.02
27	27.52	32.16	19.86	---	31.19	34.60	13.89	23.87	---	36.47	38.09	34.62
28	28.75	22.73	20.26	---	31.68	34.76	13.25	25.02	---	36.55	38.10	35.08
29	29.76	21.96	19.81	---	---	34.85	13.65	26.22	---	36.64	38.02	35.47
30	30.67	21.97	19.81	---	---	35.04	14.17	27.23	---	36.72	37.80	35.80
31	31.43	---	19.83	---	---	35.15	---	27.59	---	36.78	37.63	---
MEAN	22.43	33.53	19.31	---	---	34.04	25.16	20.75	---	---	37.49	35.36
MAX	33.54	36.63	24.73	---	---	35.15	36.18	27.59	---	---	38.10	37.03
MIN	9.14	21.96	14.01	---	---	31.94	10.86	14.55	---	---	36.83	32.00

COUNTY--Greene

WELL IDENTIFICATION NUMBER--371240093174501

LOCATION--Lat 37°12'40", long 93°17'45", T.29 N., R.22 W., 14ddd, from Chestnut Expressway and Main Street in Springfield, go south on Main Street to the intersection of Wall Street, well is on east side of Main Street, behind City Utilities meter center.

FORMATIONS OPEN TO THE WELL--Burlington Limestone.

WELL CHARACTERISTICS--Total depth 100 ft, 20 ft of casing.

INSTRUMENTATION--Digital recorder.

DATUM--1,268 ft above NGVD of 1929.

Measuring point: Recorder shelf, 3.3 ft above land surface.

PERIOD OF RECORD--October 17, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.28	8.76	8.15	6.48	7.22	8.13	8.70	7.43	8.31	8.89	8.77	8.29
2	8.32	8.82	8.16	6.85	7.31	8.10	8.69	7.50	8.38	8.72	8.75	8.15
3	8.04	8.89	7.46	7.14	7.39	8.20	8.63	7.28	8.39	8.49	8.79	8.09
4	7.70	8.73	7.71	7.33	7.38	8.22	8.64	7.28	8.45	7.97	8.87	7.81
5	7.88	8.42	7.80	7.46	7.35	8.20	8.69	7.19	8.16	8.14	8.86	7.82
6	7.97	8.52	7.92	7.32	7.41	8.29	8.72	7.25	7.68	8.24	8.73	7.90
7	6.34	8.63	8.03	7.14	7.52	8.37	8.75	7.40	7.90	8.38	8.80	7.94
8	5.84	8.66	8.11	7.19	7.59	8.41	8.74	7.53	8.04	8.50	8.79	7.73
9	4.65	8.59	8.22	7.21	7.66	8.49	8.52	7.64	8.16	8.57	8.62	7.60
10	5.04	8.68	8.26	6.16	7.76	8.54	8.61	7.64	8.22	8.63	8.71	7.73
11	5.60	8.76	8.29	5.09	7.81	8.52	8.63	7.55	8.26	8.67	8.82	7.78
12	6.08	8.79	8.37	5.29	7.85	8.51	8.65	7.67	8.31	8.62	8.85	7.85
13	6.45	8.80	8.46	5.61	7.78	8.60	8.17	7.60	8.38	8.12	8.88	7.92
14	6.80	8.83	8.47	5.62	7.88	8.67	7.47	6.87	8.40	8.21	8.91	8.04
15	7.11	8.86	8.56	3.87	8.00	8.72	6.79	7.04	8.42	8.27	8.91	8.13
16	7.31	8.92	8.59	3.32	8.01	8.77	7.06	7.02	8.37	8.38	8.92	7.72
17	7.46	8.96	7.59	3.89	8.06	8.25	7.32	7.14	8.38	8.45	8.77	7.62
18	7.66	8.98	6.94	4.26	8.05	8.28	6.39	7.30	8.45	8.48	8.71	7.20
19	7.81	8.98	7.23	4.30	8.12	8.38	6.20	7.43	8.54	8.56	8.79	7.31
20	7.93	8.99	7.47	4.42	8.18	8.40	6.60	7.52	8.56	8.65	8.83	7.56
21	8.10	8.93	7.64	4.85	8.22	8.47	6.87	7.61	8.58	8.69	8.84	7.75
22	8.17	8.75	7.81	5.20	8.26	8.42	7.05	7.70	8.66	8.72	8.87	7.65
23	8.24	8.84	7.94	5.60	8.30	8.49	7.25	7.72	8.74	8.76	8.89	7.44
24	8.34	8.87	8.04	5.96	8.37	8.58	7.45	7.75	8.75	8.53	8.95	7.56
25	8.41	8.96	8.06	6.24	8.29	8.57	7.52	7.62	8.71	8.41	8.97	7.67
26	8.46	8.79	8.06	6.49	8.24	8.57	7.60	7.83	8.74	8.53	8.93	7.79
27	8.57	7.71	8.03	6.64	8.27	8.56	6.91	8.00	8.78	8.63	8.89	7.92
28	8.68	7.60	7.95	6.78	8.31	8.57	6.94	8.09	8.76	8.70	8.79	8.00
29	8.68	7.92	6.00	6.82	---	8.60	7.08	8.13	8.81	8.73	8.63	8.14
30	8.70	8.03	5.43	6.90	---	8.69	7.27	8.18	8.87	8.78	8.52	8.28
31	8.73	---	6.04	7.09	---	8.72	---	8.24	---	8.78	8.30	---
MEAN	7.53	8.67	7.77	5.95	7.88	8.46	7.73	7.55	8.44	8.52	8.80	7.81
MAX	8.73	8.99	8.59	7.46	8.37	8.77	8.75	8.24	8.87	8.89	8.97	8.29
MIN	4.65	7.60	5.43	3.32	7.22	8.10	6.20	6.87	7.68	7.97	8.30	7.20

## 29g-Southwest Power Plant

COUNTY--Greene

WELL IDENTIFICATION NUMBER--370912093231101

LOCATION--Lat 37°09'12", long 93°23'11", T.28 N., R.22 W., 7bbb, from State Highway 13, U.S. 60-166 Highway and Haseltine Road in Springfield, go south on Haseltine Road to Walnut Lawn Road, go east on Walnut Lawn Road for 500 ft to City Utilities Substation, on south side of road.

FORMATIONS OPEN TO THE WELL--Keokuk Limestone, Burlington Limestone, and Elsey Formation.

WELL CHARACTERISTICS--Total depth 190 ft, 30 ft of casing.

INSTRUMENTATION--Digital recorder installed March 8, 1990.

DATUM--1,250 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 3.0 ft above land surface.

REMARKS--Water levels for period Jan. 17 to Mar. 14 are doubtful when float tape came off wheel.

PERIOD OF RECORD--March 8, 1990 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119.53	120.30	116.28	111.52	---	---	116.17	111.77	112.68	123.34	123.88	124.20
2	121.44	120.97	117.84	111.72	---	---	116.60	111.85	112.80	122.42	128.76	123.05
3	119.68	121.35	112.57	111.80	---	---	116.23	111.86	113.01	119.82	127.21	122.54
4	112.27	120.25	111.94	111.82	---	---	114.24	111.87	113.81	112.50	124.66	120.20
5	112.75	115.55	112.06	111.82	---	---	116.49	111.80	114.48	112.70	124.55	121.65
6	114.51	118.82	112.23	111.76	---	---	117.78	111.77	112.43	114.45	119.69	124.17
7	112.78	120.24	112.68	111.83	---	---	118.00	111.81	112.80	115.02	122.65	124.59
8	111.18	120.75	112.76	111.84	---	---	118.08	111.87	113.05	115.12	127.16	121.17
9	110.60	120.62	112.89	111.84	---	---	115.66	111.92	113.77	115.12	120.70	118.69
10	111.24	120.79	113.00	111.56	---	---	116.01	111.97	115.31	117.78	121.63	122.25
11	111.52	121.26	113.39	111.06	---	---	118.33	112.02	116.26	122.76	125.96	123.97
12	111.68	121.49	114.41	111.12	---	---	118.18	112.15	117.54	120.94	124.60	127.16
13	111.79	121.77	115.61	111.30	---	---	116.60	112.13	118.27	112.95	125.95	124.88
14	111.90	121.96	116.53	111.36	---	---	111.97	111.34	118.83	117.02	124.88	126.12
15	112.09	122.11	117.57	110.84	---	112.54	111.48	111.56	119.29	120.24	124.94	130.30
16	112.22	122.22	117.89	109.48	---	113.21	111.65	111.66	114.60	121.75	129.50	120.09
17	112.35	122.29	115.20	---	---	112.13	111.88	111.74	117.34	121.87	126.85	118.90
18	112.43	122.38	111.83	---	---	111.76	111.18	111.80	120.20	122.59	120.89	118.93
19	112.57	122.56	111.83	---	---	112.03	110.95	111.87	120.98	120.17	124.34	115.90
20	112.71	122.71	111.81	---	---	112.33	111.24	111.90	121.01	121.30	124.91	121.08
21	112.85	122.55	111.84	---	---	112.77	111.41	111.93	121.83	123.51	131.51	122.23
22	113.06	119.21	111.83	---	---	112.68	111.52	111.96	121.17	123.54	133.03	119.04
23	113.75	121.45	111.82	---	---	112.18	111.61	112.03	121.52	123.64	133.05	117.26
24	114.75	122.50	111.82	---	---	113.08	111.68	112.11	121.68	121.09	133.06	120.78
25	115.61	122.78	111.98	---	---	113.86	111.71	112.06	122.16	118.99	133.05	121.89
26	116.21	122.59	112.17	---	---	114.33	111.76	112.14	122.36	120.14	133.05	117.75
27	117.19	114.33	112.24	---	---	114.06	111.65	112.29	122.39	123.34	128.58	123.56
28	118.13	112.39	112.38	---	---	113.60	111.66	112.41	122.39	123.46	125.31	123.64
29	118.57	113.09	112.30	---	---	114.74	111.70	112.49	122.72	123.18	120.46	124.39
30	119.02	115.03	112.22	---	---	115.42	111.74	112.53	123.04	121.93	121.83	125.12
31	119.75	---	111.77	---	---	115.86	---	112.59	---	123.73	120.35	---
MEAN	114.39	120.21	113.31	---	---	---	113.84	111.97	117.99	119.88	126.03	122.18
MAX	121.44	122.78	117.89	---	---	---	118.33	112.59	123.04	123.73	133.06	130.30
MIN	110.60	112.39	111.77	---	---	---	110.95	111.34	112.43	112.50	119.69	115.90



COUNTY--Greene

WELL IDENTIFICATION NUMBER--371233093212901

LOCATION--Lat 37°12'33", long 93°21'29", T.29 N., R.22 W., 20abc, from west Chestnut Expressway and west 160 Bypass in Springfield, go west on Chestnut Expressway to Eldon Avenue, south on Eldon Avenue to Dover Street, east on Dover Street to Troy Avenue, south on Troy Avenue to White Pine Street, west on White Pine Street to York Avenue, north on York Avenue, well on east side of York Avenue, south of brick well house between gray and red brick houses.

FORMATIONS OPEN TO THE WELL--Keokuk Limestone, Burlington Limestone, Reeds Spring Formation, and Pierson Formation.

WELL CHARACTERISTICS--Total depth 260 ft, 20 ft of casing.

INSTRUMENTATION--Digital recorder.

DATUM--1,244 ft above NGVD of 1929.

Measuring point: Recorder shelf, 3.0 ft above land surface.

PERIOD OF RECORD--October 18, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43.81	51.01	31.15	20.77	21.96	25.06	34.78	21.92	26.06	62.27	67.76	70.92
2	46.04	52.10	32.50	21.35	22.03	22.49	35.45	22.10	28.44	62.44	67.92	70.96
3	45.98	53.21	21.48	21.84	22.03	23.81	34.97	21.95	30.38	61.06	68.11	70.97
4	35.58	52.64	22.04	22.10	21.68	23.60	33.42	22.07	32.03	51.43	68.28	70.97
5	34.63	48.38	22.37	22.31	21.70	22.81	34.49	21.18	33.41	49.80	68.44	70.91
6	36.96	48.82	22.64	22.34	21.88	23.29	35.32	21.36	34.07	51.51	68.57	70.83
7	28.32	49.76	23.03	22.36	22.01	26.19	36.01	21.72	35.33	53.94	68.75	70.82
8	20.52	50.60	25.24	22.48	22.05	27.53	36.79	21.95	36.72	56.43	68.84	70.78
9	19.58	51.24	28.47	22.54	22.08	28.56	36.31	22.10	38.28	58.48	68.89	70.56
10	20.23	52.22	31.22	20.99	22.17	29.37	36.07	22.24	39.85	59.86	69.02	70.44
11	20.99	53.51	33.18	19.88	22.24	29.42	36.31	22.35	41.21	60.99	69.18	70.37
12	21.77	54.80	34.91	20.43	22.25	29.16	35.95	22.45	42.18	62.39	69.32	70.31
13	22.17	55.85	37.39	20.87	22.16	30.06	30.22	22.28	43.14	59.78	69.40	70.26
14	22.48	56.94	39.08	21.07	22.26	30.84	20.31	20.63	44.45	59.06	69.48	70.26
15	22.68	57.83	40.30	18.86	22.29	31.55	19.20	21.26	45.95	59.47	69.55	70.26
16	23.35	58.60	41.71	18.05	22.30	32.31	20.31	21.33	46.36	60.76	69.65	70.25
17	26.19	59.33	31.27	18.27	22.30	26.01	20.84	21.63	46.38	61.29	69.70	70.08
18	29.81	59.82	20.62	18.66	22.32	23.35	19.41	21.92	47.52	62.42	69.80	68.69
19	32.11	60.58	21.40	18.69	22.44	25.25	19.20	22.13	48.78	63.88	69.92	67.02
20	33.85	61.32	21.88	18.35	23.03	26.05	19.84	22.31	49.87	64.82	70.04	67.43
21	36.22	61.85	22.26	18.51	24.10	26.19	20.26	22.44	51.47	65.46	70.15	67.48
22	38.14	61.60	22.54	18.92	25.31	25.97	20.70	22.55	52.84	65.91	70.28	66.48
23	39.75	61.49	22.67	19.54	26.34	26.11	21.10	22.66	53.62	66.25	70.33	62.81
24	41.48	61.49	22.87	20.07	27.20	27.08	21.44	22.72	54.50	66.41	70.45	62.88
25	43.12	61.53	23.69	20.45	27.90	27.34	21.70	22.38	55.68	66.42	70.55	63.50
26	44.32	61.17	26.07	20.86	25.91	27.57	21.90	22.48	56.89	66.43	70.60	64.66
27	45.13	46.58	28.07	21.15	25.55	28.26	20.92	22.66	58.12	66.66	70.65	65.77
28	46.26	29.15	28.77	21.46	26.31	29.65	21.00	22.76	59.25	66.92	70.73	66.41
29	47.27	26.77	20.75	21.61	---	31.08	21.34	22.85	60.44	67.09	70.80	66.89
30	48.65	28.46	19.29	21.65	---	33.02	21.68	23.04	61.46	67.33	70.86	67.39
31	49.98	---	20.14	21.84	---	33.94	---	23.85	---	67.55	70.88	---
MEAN	34.43	52.95	27.06	20.59	23.28	27.51	26.91	22.17	45.16	61.76	69.58	68.58
MAX	49.98	61.85	41.71	22.54	27.90	33.94	36.79	23.85	61.46	67.55	70.88	70.97
MIN	19.58	26.77	19.29	18.05	21.68	22.49	19.20	20.63	26.06	49.80	67.76	62.81

COUNTY--Phelps

WELL IDENTIFICATION NUMBER--375625091480401

LOCATION--Lat 37°56'25", long 91°48'4", T.37 N., R.8 W., 10cca, 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 ft, 420 ft of 6-in casing, open hole.

INSTRUMENTATION--Graphic recorder installed January 2, 1968.

DATUM--975 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

REMARKS--Several months missing when float was hanging.

PERIOD OF PROCESSED RECORD--November 7, 1983 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176.95	174.50	168.94	---	---	161.17	---	173.93	170.92	170.45	178.95	179.49
2	177.30	173.24	168.62	---	---	161.33	---	174.05	171.01	171.06	178.25	178.77
3	176.58	172.64	168.07	---	---	161.43	---	174.05	171.33	170.86	181.48	180.54
4	175.98	173.07	168.26	---	---	161.33	---	174.35	171.62	167.76	182.33	182.15
5	175.34	172.69	168.96	---	---	161.14	---	175.30	171.68	166.99	180.87	180.05
6	174.50	172.17	167.57	---	---	161.28	---	175.05	172.88	167.36	183.25	180.51
7	175.56	172.24	165.24	---	161.56	161.33	---	175.26	176.48	164.13	183.77	181.46
8	175.44	171.66	165.19	---	161.57	161.20	---	174.09	177.83	---	182.45	181.46
9	175.16	171.04	164.84	---	161.60	161.19	---	173.13	177.21	---	182.73	180.40
10	174.57	170.65	164.50	---	161.53	161.22	---	172.76	175.69	---	181.79	178.78
11	174.07	170.85	165.14	---	161.52	160.90	---	172.57	173.80	---	180.52	181.72
12	173.43	170.36	165.10	---	161.59	160.75	---	173.90	173.82	---	178.28	182.83
13	172.85	169.62	---	---	161.58	160.97	---	175.17	175.84	---	176.71	181.21
14	172.80	169.45	---	---	161.52	161.23	---	174.23	177.53	---	176.57	184.79
15	174.26	169.26	---	---	161.56	161.40	---	172.99	180.67	---	180.56	184.23
16	174.60	169.12	---	---	161.58	161.82	---	172.53	181.31	---	182.59	182.09
17	174.25	170.45	---	---	161.50	161.87	---	171.80	178.65	---	183.59	183.64
18	174.04	170.57	---	---	161.51	161.66	---	172.31	177.37	---	180.96	182.75
19	173.53	169.74	---	---	161.42	161.47	---	173.40	179.79	---	181.36	181.99
20	173.50	169.42	---	---	161.33	161.42	---	175.04	181.41	---	183.25	184.65
21	175.13	169.14	---	---	161.08	162.89	---	175.27	181.78	---	184.43	184.50
22	175.12	168.95	---	---	160.85	164.11	---	175.69	181.77	---	185.23	182.50
23	174.48	168.93	---	---	160.99	165.19	---	176.37	182.97	---	184.04	179.88
24	174.07	168.45	---	---	160.99	164.59	---	176.36	177.58	---	187.29	177.72
25	173.60	168.09	---	---	161.04	163.88	---	174.86	171.52	---	187.75	176.27
26	173.46	167.68	---	---	161.29	---	---	174.76	171.13	---	183.62	178.92
27	172.71	167.50	---	---	161.36	---	---	174.89	173.77	---	181.35	179.30
28	172.29	167.86	---	---	161.34	---	---	176.28	173.84	---	181.46	177.46
29	173.09	169.32	---	---	---	---	175.20	173.18	173.04	174.75	180.12	175.63
30	173.64	169.47	---	---	---	---	174.97	170.59	171.91	174.37	178.25	173.99
31	174.05	---	---	---	---	---	---	171.02	---	178.15	178.59	---
MEAN	174.40	170.27	---	---	---	---	---	174.04	175.87	---	181.69	180.66
MAX	177.30	174.50	---	---	---	---	---	176.37	182.97	---	187.75	184.79
MIN	172.29	167.50	---	---	---	---	---	170.59	170.92	---	176.57	173.99

COUNTY--Phelps

WELL IDENTIFICATION NUMBER--375749091475001

LOCATION--Lat 37°57'49", long 91°47'50", T.37 N., R.8 W., 3bab, Missouri Conservation Commission, Rolla.

FORMATIONS OPEN TO THE WELL--Cotter Formation, Jefferson City Formation, Roubidoux Formation, and Upper Gasconade Formation.

WELL CHARACTERISTICS--Drilled November 5, 1951, total depth 450 ft, 212 ft of 6-in casing.

DGLS Log Number: 11,789

INSTRUMENTATION--Digital recorder installed September 8, 1980.

DATUM--1,192 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 3.0 ft above land surface.

PERIOD OF PROCESSED RECORD--October 1, 1988 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350.29	347.00	346.38	345.14	344.72	342.82	345.28	346.97	348.90	349.84	352.11	353.33
2	348.82	346.92	345.97	344.98	344.76	342.73	345.24	347.19	348.91	349.84	352.06	353.49
3	347.93	347.20	345.32	345.29	344.55	343.56	345.24	346.69	348.91	349.85	352.30	353.52
4	348.31	346.65	346.48	345.23	344.44	343.60	345.30	346.70	348.88	349.87	352.43	353.58
5	348.42	346.13	346.11	344.65	344.36	343.27	345.44	346.91	349.10	349.89	352.34	353.76
6	348.20	346.63	345.88	344.86	344.61	342.91	345.31	347.41	349.60	349.94	352.37	353.94
7	348.34	347.40	346.40	345.10	344.62	343.85	345.27	347.58	349.75	350.14	352.62	354.03
8	348.69	347.37	346.44	344.70	344.36	344.00	345.39	347.65	349.66	350.44	352.23	354.00
9	348.31	346.48	346.42	344.93	344.15	344.32	345.23	347.64	349.68	350.41	351.92	354.00
10	348.39	346.36	346.20	344.71	344.47	344.53	345.67	347.75	349.73	350.24	352.26	354.00
11	348.43	346.67	345.81	343.96	344.19	343.97	345.75	347.85	349.62	350.19	352.63	353.81
12	347.90	347.10	345.39	344.17	343.18	342.87	345.80	347.80	349.36	350.24	352.73	353.34
13	347.42	347.07	345.86	344.20	342.81	342.78	345.57	347.75	349.31	350.44	352.64	353.28
14	347.27	346.82	345.80	344.02	343.62	343.54	345.31	347.77	349.20	350.73	352.42	353.05
15	347.65	346.67	345.34	343.81	344.33	344.23	345.39	347.77	349.15	351.06	352.34	353.09
16	347.41	346.66	345.76	343.80	343.99	344.35	345.79	348.07	349.30	351.37	352.36	353.32
17	346.83	347.00	344.95	344.27	343.58	343.61	345.76	348.07	349.43	351.33	352.09	353.46
18	347.37	346.31	344.59	344.37	343.51	344.11	345.41	348.20	349.50	351.24	352.24	353.46
19	347.51	346.13	345.09	343.86	344.29	344.14	345.52	348.52	349.82	351.24	352.54	354.11
20	347.29	346.01	345.09	343.82	344.73	343.61	346.24	348.73	349.82	351.24	352.70	354.22
21	347.60	345.73	345.01	344.52	344.34	343.38	346.24	348.92	349.55	351.26	352.70	353.91
22	347.71	345.75	345.35	344.21	344.43	343.34	345.92	349.02	349.39	351.38	352.69	353.46
23	347.39	345.68	345.62	343.90	344.32	343.76	345.88	348.88	349.75	351.40	352.90	353.79
24	347.33	345.53	346.09	344.35	344.35	344.49	346.44	348.72	349.87	351.27	353.22	353.48
25	347.57	345.55	346.15	344.48	344.49	344.45	346.56	348.52	349.87	351.26	353.50	352.99
26	347.56	345.32	346.18	344.44	344.59	344.05	346.26	348.55	349.95	351.50	353.25	353.10
27	347.32	345.07	345.16	343.71	344.31	343.53	346.16	348.78	350.01	351.55	353.19	353.42
28	347.90	346.02	344.55	343.80	343.68	344.03	346.16	349.11	350.05	351.38	353.41	353.52
29	347.83	347.23	343.75	343.80	---	344.02	345.94	349.07	350.05	351.70	353.44	353.78
30	347.49	346.70	344.46	344.65	---	344.90	346.67	349.00	350.03	352.03	353.31	353.81
31	347.30	---	345.46	344.81	---	345.12	---	348.88	---	352.10	353.18	---
TOTAL	10783.78	10393.16	10713.06	10676.54	9637.78	10657.87	10372.14	10790.47	10486.15	10876.37	10932.12	10608.05
MEAN	347.86	346.44	345.58	344.40	344.21	343.80	345.74	348.08	349.54	350.85	352.65	353.60
MAX	350.29	347.40	346.48	345.29	344.76	345.12	346.67	349.11	350.05	352.10	353.50	354.22

## 32-Industrial Park

COUNTY--Phelps

WELL IDENTIFICATION NUMBER--375850091432201

LOCATION--Lat 37°58'50", long 91°43'22", T.38 N., R.7 W., 29cbc, 5 mi east of Rolla, County Highway V, Phelps County Industrial Park, east 0.3 mi at Water Tower.

FORMATIONS OPEN TO THE WELL--Gasconade Formation and Eminence Dolomite.

WELL CHARACTERISTICS--Drilled April 1954, total depth 800 ft, 400 ft of 8-in casing, open hole.  
DGLS Log Number: 25,796

INSTRUMENTATION--Digital recorder installed January 20, 1980.

DATUM--1,189 ft above NGVD of 1929.

Measuring point: Base of recorder, 2.4 ft above land surface.

PERIOD OF PROCESSED RECORD--January 20, 1980 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	304.32	302.84	298.91	290.02	295.54	292.04	297.60	306.46	306.50	312.13	302.36	304.37
2	303.82	302.28	298.31	290.62	295.59	292.19	299.33	306.22	308.74	308.39	303.06	303.79
3	303.01	301.57	297.55	293.37	294.90	292.15	299.27	304.33	303.96	307.04	302.24	304.47
4	303.10	301.29	300.16	294.71	296.53	293.42	299.00	302.67	301.05	304.95	301.90	306.20
5	302.83	301.43	300.73	294.42	297.72	294.54	299.67	301.21	303.70	303.81	303.30	306.20
6	302.02	302.07	301.36	294.57	297.20	295.42	299.65	300.83	307.47	303.58	304.78	306.59
7	302.16	303.06	302.50	294.22	296.76	296.44	298.96	301.28	304.53	302.80	304.57	305.99
8	302.60	303.02	302.92	293.18	296.55	295.95	298.19	303.35	302.52	303.61	304.85	304.84
9	303.13	302.48	300.98	293.64	295.70	294.77	297.22	306.52	300.64	305.24	305.60	304.45
10	302.45	301.65	301.06	293.84	294.85	294.17	299.12	305.78	301.83	305.37	303.98	303.85
11	303.45	300.92	300.33	294.14	294.60	292.81	298.59	303.57	307.84	305.97	303.00	303.87
12	303.48	301.03	300.21	293.31	292.67	292.74	298.94	301.96	314.48	306.74	302.14	303.79
13	302.19	300.73	300.70	292.41	292.49	293.73	299.30	303.12	309.10	305.02	300.65	303.86
14	301.13	300.22	300.36	293.26	292.90	293.51	299.63	304.13	306.81	303.95	301.43	303.81
15	300.75	300.01	300.27	296.66	293.66	294.06	302.02	304.62	305.08	303.54	301.51	305.24
16	300.71	299.98	299.90	297.20	293.98	293.89	304.98	304.17	303.82	302.37	301.94	309.90
17	300.22	299.06	301.66	296.75	293.01	292.68	305.19	304.36	306.53	301.70	301.27	308.91
18	300.56	297.63	303.35	296.76	292.93	294.64	305.27	303.66	311.52	301.91	300.35	308.97
19	300.50	301.55	302.76	296.07	295.40	296.24	305.41	303.00	308.62	301.56	301.18	308.54
20	300.78	302.95	302.15	295.26	296.81	297.09	305.41	301.23	309.12	300.98	303.67	307.85
21	300.30	301.33	301.14	295.72	296.05	296.92	304.87	300.13	309.82	300.31	305.54	307.23
22	300.20	300.81	300.30	296.07	296.87	297.20	305.35	302.54	307.21	301.40	305.13	306.00
23	300.73	300.94	299.90	296.13	295.54	298.74	303.37	301.06	305.15	303.36	305.05	304.48
24	300.96	300.58	298.58	295.74	294.97	298.10	300.28	299.55	305.59	302.70	304.26	302.90
25	301.42	300.91	296.47	292.78	292.87	296.82	301.19	298.12	307.36	302.50	304.04	303.05
26	301.40	301.16	294.52	292.68	292.97	295.06	301.49	297.26	311.85	302.37	303.99	303.48
27	300.47	300.38	291.74	292.36	292.76	295.66	301.27	296.54	313.45	301.84	303.10	303.35
28	300.73	300.32	291.08	293.35	292.30	295.46	300.31	301.26	310.89	300.93	303.56	302.87
29	301.28	300.36	290.38	294.12	---	295.18	302.73	313.61	310.58	300.52	304.71	301.73
30	302.03	299.64	289.82	294.14	---	295.18	305.14	307.60	318.06	300.30	306.97	301.51
31	302.53	---	290.56	294.99	---	295.09	---	304.88	---	301.02	304.76	---
MEAN	301.78	301.07	298.73	294.27	294.79	294.90	301.29	303.07	307.46	303.48	303.38	305.07
MAX	304.32	303.06	303.35	297.20	297.72	298.74	305.41	313.61	318.06	312.13	306.97	309.90
MIN	300.20	297.63	289.82	290.02	292.30	292.04	297.22	296.54	300.64	300.30	300.35	301.51

COUNTY--Texas

WELL IDENTIFICATION NUMBER--371800092094501

LOCATION--Lat 37°18'00", long 92°09'45", T.30 N., R.11 W., 17dda, at Missouri Highway Department buildings, 0.2 mi 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 ft, 50 ft of 8-in casing, open hole.  
DGLS Log Number: 14,295

INSTRUMENTATION--Graphic recorder from February 27, 1956 to November 14, 1989. Digital recorder installed November 14, 1989.

DATUM--1,465 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.1 ft above land surface.

REMARKS--Several weeks missing when recorder was removed.

PERIOD OF PROCESSED RECORD--June 8, 1983 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	274.52	272.36	270.54	260.82	---	256.22	256.64	253.88	253.57	262.41	270.83	276.86
2	274.53	272.41	269.67	260.43	---	256.32	256.62	253.98	253.64	262.73	271.00	276.96
3	274.46	272.56	268.89	260.20	---	256.65	256.57	253.75	253.73	263.00	271.27	277.07
4	274.67	272.55	268.63	259.84	---	256.77	256.73	253.73	253.95	263.22	271.54	277.13
5	274.54	272.60	267.90	259.38	---	256.74	256.88	253.79	254.27	263.50	271.75	277.20
6	274.11	272.86	267.26	259.35	---	256.91	256.96	253.93	254.57	263.78	272.08	277.41
7	273.96	273.12	266.81	259.19	---	257.34	256.96	253.96	254.92	264.15	272.38	277.55
8	273.71	273.21	266.42	258.95	---	257.60	257.02	253.99	255.16	264.49	272.47	277.57
9	273.14	273.13	266.19	258.84	---	257.92	257.25	253.95	255.50	264.76	272.58	277.72
10	272.41	273.32	265.96	258.48	---	258.19	257.43	254.04	256.36	264.92	272.81	277.87
11	271.69	273.58	265.74	258.21	---	258.17	257.41	254.21	256.55	265.16	273.13	277.98
12	270.98	273.74	265.60	258.14	---	258.10	257.33	254.30	256.71	265.49	273.36	278.14
13	270.44	273.86	265.81	257.95	---	258.40	257.17	254.34	257.00	265.73	273.45	278.28
14	270.20	273.97	265.87	257.71	---	258.86	256.94	254.39	257.39	266.02	273.61	278.29
15	270.32	274.07	265.91	257.27	---	259.25	256.78	254.49	257.62	266.37	273.86	278.50
16	270.31	274.16	266.21	---	---	259.54	256.55	254.49	257.99	266.68	274.17	278.69
17	270.31	274.37	266.05	---	---	259.49	256.19	254.48	258.28	266.94	274.34	278.91
18	270.84	274.32	265.77	---	---	259.49	255.69	254.48	258.59	267.19	274.64	279.05
19	270.57	274.36	265.59	---	---	259.29	255.40	254.48	259.21	267.45	275.11	279.34
20	270.30	274.48	265.05	---	---	258.84	255.33	254.39	259.53	267.82	275.41	279.38
21	270.33	274.48	264.43	---	---	258.44	255.00	254.22	259.68	268.19	275.64	279.34
22	270.52	274.59	264.03	---	---	257.99	254.63	254.09	259.89	268.43	275.89	279.32
23	270.57	274.54	263.70	---	---	257.80	254.34	253.98	260.27	268.69	276.11	279.43
24	270.68	274.42	263.40	---	---	257.64	254.31	253.83	260.60	268.90	276.42	279.31
25	271.10	274.35	262.99	---	---	257.26	254.11	253.63	260.85	269.11	276.31	279.23
26	271.20	274.25	262.70	---	---	256.85	253.87	253.59	261.10	269.38	276.18	279.27
27	271.26	273.93	262.31	---	---	256.43	253.73	253.56	261.37	269.62	276.27	279.35
28	271.57	273.57	261.96	---	---	256.42	253.65	253.57	261.62	269.74	276.44	279.44
29	271.94	272.74	261.56	---	---	256.25	253.56	253.51	261.91	270.00	276.55	279.59
30	272.19	271.54	261.40	---	---	256.49	253.75	253.42	262.16	270.34	276.63	279.61
31	272.49	---	261.33	---	---	256.54	---	253.46	---	270.59	276.69	---
MEAN	271.93	273.58	265.34	---	---	257.68	255.83	254.00	257.80	266.61	274.16	278.46
MAX	274.67	274.59	270.54	---	---	259.54	257.43	254.49	262.16	270.59	276.69	279.61
MIN	270.20	271.54	261.33	---	---	256.22	253.56	253.42	253.57	262.41	270.83	276.86

## 34-Akers

COUNTY--Shannon

WELL IDENTIFICATION NUMBER--372153091322301

LOCATION--Lat 37°21'53', long 91°32'23", T.31 N., R.6 W., 24dda, approximately 1 mi southeast of Akers.

FORMATIONS OPEN TO THE WELL--Eminence Dolomite and Potosi Dolomite.

WELL CHARACTERISTICS--Total depth 425 ft, cased to an unknown depth.

INSTRUMENTATION--Graphic recorder from November 15, 1971 to March 5, 1990. Digital recorder installed March 5, 1990.

DATUM--865 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

PERIOD OF PROCESSED RECORD--December 4, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64.58	64.71	64.88	61.74	60.28	61.79	62.45	58.49	57.40	60.18	62.37	64.28
2	64.57	64.77	64.76	61.66	60.33	61.94	62.42	58.45	57.50	60.28	62.44	64.32
3	64.50	64.82	64.62	61.73	60.34	62.19	62.40	58.28	57.57	60.35	62.52	64.34
4	64.65	64.75	64.78	61.65	60.36	62.23	62.42	58.31	57.71	60.43	62.62	64.37
5	64.66	64.78	64.59	61.47	60.38	62.12	62.47	58.35	57.87	60.51	62.67	64.41
6	64.63	64.98	64.53	61.57	60.48	62.18	62.44	58.49	58.04	60.61	62.76	64.54
7	64.55	65.11	64.60	61.58	60.67	62.50	62.38	58.55	58.16	60.71	62.83	64.57
8	64.44	65.04	64.59	61.54	60.73	62.56	62.35	58.56	58.23	60.79	62.81	64.56
9	64.41	64.98	64.63	61.61	60.72	62.70	62.44	58.55	58.36	60.80	62.83	64.62
10	64.27	65.12	64.61	61.44	60.82	62.75	62.55	58.63	58.43	60.87	62.98	64.68
11	64.20	65.21	64.55	60.90	60.94	62.58	62.55	58.71	58.48	60.96	63.09	64.71
12	64.15	65.29	64.52	60.49	60.88	62.41	62.47	58.57	58.56	61.07	63.14	64.74
13	64.09	65.27	64.72	60.28	60.67	62.57	62.33	57.88	58.67	61.16	63.14	64.78
14	64.08	65.31	64.69	60.13	60.94	62.84	61.45	56.91	58.77	61.28	63.16	64.81
15	64.27	65.33	64.65	59.92	61.32	63.02	61.07	56.85	58.85	61.36	63.24	64.89
16	64.23	65.38	64.80	59.84	61.33	63.03	60.84	56.65	59.00	61.43	63.29	64.96
17	64.17	65.42	64.58	59.80	61.20	62.86	60.65	56.55	59.11	61.44	63.29	65.00
18	64.35	65.34	64.36	59.70	61.23	62.87	60.30	56.40	59.22	61.45	63.40	65.06
19	64.34	65.37	64.36	59.39	61.51	62.85	59.65	56.40	59.33	61.53	63.47	65.19
20	64.27	65.44	64.30	59.30	61.67	62.75	59.55	56.41	59.38	61.64	63.55	65.20
21	64.36	65.43	64.10	59.47	61.66	62.73	59.35	56.43	59.42	61.74	63.61	65.15
22	64.40	65.46	63.76	59.35	61.75	62.60	59.15	56.50	59.50	61.79	63.65	65.15
23	64.42	65.45	63.60	59.29	61.78	62.42	59.12	56.54	59.65	61.84	63.74	65.23
24	64.51	65.43	63.61	59.47	61.84	62.41	59.26	56.60	59.75	61.88	63.91	65.16
25	64.56	65.51	63.55	59.57	61.95	62.29	59.22	56.60	59.83	61.97	63.94	65.14
26	64.54	65.48	63.57	59.60	61.96	62.14	59.13	56.74	59.91	62.10	63.95	65.25
27	64.58	65.29	63.45	59.48	61.98	62.02	59.10	56.90	60.01	62.16	63.99	65.34
28	64.73	65.15	63.33	59.63	61.94	62.20	59.12	57.07	60.08	62.15	64.08	65.41
29	64.71	65.16	63.02	59.70	---	62.19	58.70	57.08	60.12	62.20	64.12	65.49
30	64.71	64.94	62.03	59.92	---	62.42	58.55	57.11	60.14	62.31	64.12	65.48
31	64.73	---	62.00	60.20	---	62.43	---	57.25	---	62.36	64.16	---
MEAN	64.44	65.19	64.13	60.37	61.13	62.47	60.86	57.45	58.90	61.33	63.32	64.89
MAX	64.73	65.51	64.88	61.74	61.98	63.03	62.55	58.71	60.14	62.36	64.16	65.49
MIN	64.08	64.71	62.00	59.29	60.28	61.79	58.55	56.40	57.40	60.18	62.37	64.28



COUNTY--Shannon

WELL IDENTIFICATION NUMBER--371452091134301

LOCATION--Lat 37°14'52", long 91°13'43", T.30 N., R.3 W., 36cbd, 8 mi past Midridge.

FORMATIONS OPEN TO THE WELL--Gunter Sandstone Member of the Gasconade Formation, Eminence Dolomite to 40 ft, Potosi Dolomite to 270 ft, Derby-Doerun Dolomite to 734 ft, Davis Dolomite to 827 ft, Bonnetterre Formation to 1,054 ft, Lamotte Sandstone to 1,359 ft, and Precambrian to 1,410 ft.

WELL CHARACTERISTICS--Drilled December 5, 1960, mineral test hole, total depth unknown, 190 ft of 6 1/4-in casing.

DGLS Log Number: RC-113

INSTRUMENTATION--Graphic recorder installed February 1980.

DATUM--840 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.8 ft above land surface.

REMARKS--Plugged in Davis Dolomite.

PERIOD OF PROCESSED RECORD--October 19, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83.57	83.91	84.41	83.49	83.26	83.18	82.96	80.55	79.10	79.76	80.92	82.06
2	83.51	83.95	84.28	83.63	83.22	83.17	82.92	80.62	79.11	79.81	80.91	82.13
3	83.39	83.97	84.10	83.90	83.11	82.96	82.85	80.40	79.11	79.84	80.95	82.17
4	83.61	83.80	84.55	83.87	83.01	82.95	82.51	80.41	79.11	79.86	81.04	82.14
5	83.72	83.77	84.45	83.61	82.94	83.18	82.32	80.38	79.29	79.90	81.07	82.15
6	83.65	84.01	84.37	83.72	82.95	83.19	82.25	80.55	79.47	79.96	81.15	82.31
7	83.67	84.21	84.49	83.56	83.13	82.70	82.18	80.60	79.51	80.03	81.24	82.35
8	83.75	84.15	84.54	83.32	83.09	82.57	82.10	80.57	79.47	80.08	81.15	82.30
9	83.78	83.99	84.60	83.45	82.94	82.44	82.19	80.48	79.50	80.05	81.11	82.33
10	83.83	84.13	84.58	83.20	82.97	82.42	82.37	80.28	79.48	80.07	81.25	82.39
11	83.89	84.29	84.45	82.57	83.03	82.76	82.33	80.16	79.39	80.11	81.39	82.40
12	83.87	84.40	84.36	82.54	82.83	83.13	82.04	80.04	79.34	80.19	81.43	82.42
13	83.85	84.38	84.64	82.53	82.38	83.03	81.60	79.97	79.37	80.24	81.37	82.44
14	83.81	84.39	84.65	82.57	82.62	82.67	80.73	79.89	79.36	80.37	81.34	82.44
15	84.10	84.39	84.56	82.56	82.82	82.39	80.98	79.85	79.35	80.46	81.39	82.52
16	84.10	84.42	84.76	82.51	82.85	82.36	80.99	79.46	79.42	80.49	81.42	82.63
17	84.02	84.49	84.43	82.62	83.15	82.74	80.98	79.38	79.47	80.45	81.36	82.69
18	84.23	84.32	84.06	82.72	83.23	82.97	80.64	78.73	79.53	80.38	81.45	82.73
19	84.26	84.28	84.06	82.51	82.87	82.97	80.40	78.90	79.59	80.42	81.52	82.96
20	84.25	84.35	84.18	82.54	82.67	82.89	80.55	78.99	79.59	80.53	81.61	82.99
21	84.27	84.32	83.79	82.88	82.73	82.84	80.53	79.08	79.51	80.62	81.65	82.87
22	84.27	84.34	83.55	82.77	82.71	82.55	80.43	78.92	79.52	80.63	81.68	82.84
23	84.29	84.33	83.74	82.69	82.72	82.34	80.45	78.96	79.65	80.63	81.74	82.93
24	84.29	84.26	84.12	82.90	82.72	82.55	80.74	79.03	79.73	80.64	81.88	82.81
25	84.14	84.35	84.21	83.00	82.61	82.63	80.67	79.17	79.74	80.67	81.89	82.75
26	84.16	84.29	84.40	82.91	82.69	82.48	80.52	79.13	79.78	80.81	81.86	82.89
27	84.13	84.15	84.24	82.60	82.74	82.34	80.44	79.06	79.85	80.86	81.87	83.03
28	83.97	84.21	84.08	82.68	82.87	82.60	80.42	79.06	79.84	80.81	81.95	83.13
29	84.01	84.62	83.69	82.69	---	82.59	80.32	79.04	79.84	80.77	81.96	83.15
30	84.06	84.51	83.22	82.88	---	82.94	80.49	78.94	79.79	80.87	81.91	83.13
31	83.98	---	83.48	83.23	---	82.97	---	79.04	---	80.91	81.93	---
MEAN	83.95	84.23	84.23	82.99	82.89	82.76	81.36	79.67	79.49	80.36	81.46	82.60
MAX	84.29	84.62	84.76	83.90	83.26	83.19	82.96	80.62	79.85	80.91	81.96	83.15
MIN	83.39	83.77	83.22	82.51	82.38	82.34	80.32	78.73	79.10	79.76	80.91	82.06

## 36-Ozark Lead 2

COUNTY--Shannon

WELL IDENTIFICATION NUMBER--371449091134102

LOCATION--Lat 37°14'49", long 91°13'41", T.30 N., R.3 W., 36cbd, 8 mi past Midridge.

FORMATIONS OPEN TO THE WELL--Gunter Sandstone Member of the Gasconade Formation, Eminence Dolomite to 40 ft, Potosi Dolomite to 235 ft, Derby-Doerun Dolomite to 734 ft, Davis Dolomite, and Bonnetterre Formation to 1,095 ft.

WELL CHARACTERISTICS--Drilled September 19, 1961, mineral test hole, total depth unknown, 958 ft of 6 1/4-in casing.

DGLS Log Number: RC-145

INSTRUMENTATION--Graphic recorder installed February 1980.

DATUM--863.30 ft above NGVD of 1929.

Measuring point: Recorder platform, 1.3 ft above land surface.

REMARKS--Casing set and grouted in Davis Dolomite.

PERIOD OF PROCESSED RECORD--May 15, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129.58	131.37	131.92	131.71	130.94	130.78	131.46	129.99	128.72	128.99	129.87	130.89
2	129.57	131.37	131.94	131.55	130.91	131.01	131.40	130.00	128.72	129.00	129.85	130.95
3	129.46	131.37	131.65	131.63	130.83	131.13	131.37	129.79	128.69	129.01	129.89	130.98
4	129.62	131.24	131.75	131.68	130.78	131.11	131.36	129.80	128.71	129.04	129.93	130.97
5	129.67	131.20	132.00	131.48	130.72	130.86	131.34	129.78	128.81	129.08	130.04	130.99
6	129.62	131.42	131.80	131.43	130.76	131.08	131.24	129.89	128.93	129.13	130.10	131.12
7	129.62	131.58	131.83	131.49	130.87	131.32	131.11	129.93	128.93	129.18	130.15	131.14
8	129.66	131.55	131.89	131.42	130.82	131.38	131.02	129.87	128.91	129.22	130.08	131.09
9	129.68	131.41	131.94	131.36	130.71	131.53	131.11	129.80	128.92	129.21	130.08	131.13
10	129.69	131.51	131.99	131.42	130.74	131.49	131.24	129.77	128.89	129.21	130.16	131.18
11	129.73	131.64	131.95	131.11	130.93	131.24	131.21	129.75	128.81	129.25	130.25	131.17
12	129.70	131.73	131.85	131.03	130.87	131.01	131.09	129.63	128.78	129.29	130.29	131.19
13	129.66	131.76	131.79	131.09	130.55	131.19	130.94	129.55	128.79	129.33	130.24	131.21
14	129.65	131.76	132.00	130.94	130.76	131.45	130.77	129.47	128.77	129.44	130.24	131.21
15	129.76	131.79	131.98	130.86	131.11	131.61	130.77	129.45	128.75	129.51	130.29	131.28
16	129.75	131.77	131.89	130.67	131.04	131.57	130.72	129.38	128.81	129.54	130.31	131.38
17	129.73	131.91	132.08	130.83	130.85	131.37	130.58	129.38	128.83	129.50	130.27	131.41
18	129.71	131.78	131.83	130.90	130.88	131.47	130.36	129.35	128.87	129.46	130.36	131.47
19	129.73	131.73	131.70	130.89	131.15	131.43	130.36	129.30	128.91	129.49	130.42	131.66
20	129.70	131.79	131.90	130.64	131.22	131.29	130.44	129.21	128.89	129.58	130.49	131.67
21	129.64	131.76	131.89	130.68	131.18	131.26	130.26	129.14	128.84	129.64	130.53	131.57
22	129.70	131.76	131.78	130.87	131.26	131.16	130.08	129.10	128.83	129.66	130.56	131.54
23	130.00	131.77	131.80	130.74	131.19	131.32	130.06	129.02	128.94	129.65	130.61	131.62
24	130.17	131.73	131.78	130.84	131.28	131.39	130.20	128.95	128.98	129.66	130.72	131.51
25	130.26	131.73	131.88	130.82	131.31	131.28	130.10	128.82	128.99	129.69	130.73	131.46
26	130.27	131.78	131.88	130.72	131.25	131.10	129.96	128.83	129.01	129.79	130.72	131.58
27	130.25	131.70	131.98	130.54	131.20	131.05	129.89	128.88	129.04	129.83	130.73	131.69
28	130.42	131.68	131.81	130.60	131.09	131.16	129.85	128.91	129.05	129.80	130.78	131.77
29	130.39	132.02	131.66	130.58	---	131.22	129.79	128.78	129.05	129.79	130.80	131.87
30	130.36	132.12	131.54	130.76	---	131.47	129.94	128.69	129.01	129.86	130.77	131.84
31	130.96	---	131.60	130.96	---	131.44	---	128.70	---	129.89	130.78	---
MEAN	129.86	131.66	131.85	131.04	130.97	131.26	130.67	129.38	128.87	129.44	130.36	131.35
MAX	130.96	132.12	132.08	131.71	131.31	131.61	131.46	130.00	129.05	129.89	130.80	131.87
MIN	129.46	131.20	131.54	130.54	130.55	130.78	129.79	128.69	128.69	128.99	129.85	130.89

## 37-Lower Eleven Point

COUNTY--Oregon

WELL IDENTIFICATION NUMBER--364810091191401

LOCATION--Lat 36°48'10", long 91°19'14", T.25 N., R.3 W., 30dac, from Eleven Point River, go north on Highway 19 for 1.0 mi, turn east on Loggin Road for 0.4 mi, well on left.

FORMATION OPEN TO THE WELL--Roubidoux Formation, Gasconade Dolomite, Eminence Dolomite, Potosi Dolomite, and Derby-Doerun Dolomites.

WELL CHARACTERISTICS--Well plugged at 1,650 ft, approximately 210 ft of 6 1/4-in casing.

INSTRUMENTATION--Digital recorder installed October 19, 1989.

DATUM--883 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 3.0 ft above land surface.

REMARKS--Several days missing when float tape was off wheel.

PERIOD OF RECORD--October 19, 1989 to present.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	325.14	327.25	324.99	312.26	312.36	317.65	301.85	---	296.72	305.31	314.12	320.13
2	325.08	327.36	324.20	311.06	312.85	317.70	301.86	---	297.07	305.66	314.26	320.27
3	324.99	327.45	323.82	310.30	313.25	317.83	302.15	---	297.39	306.01	314.47	320.37
4	325.33	327.33	323.93	309.65	313.69	317.70	302.31	---	297.72	306.34	314.71	320.39
5	325.44	327.37	323.50	309.16	314.09	317.27	302.32	---	298.15	306.69	314.92	320.42
6	325.45	327.58	323.30	309.22	314.56	317.12	301.95	---	298.61	307.05	315.19	320.63
7	325.55	327.71	323.41	309.09	315.10	317.42	301.49	---	298.95	307.39	315.42	320.73
8	325.60	327.60	323.58	308.57	315.38	317.38	301.11	---	299.20	307.65	315.47	320.75
9	325.50	327.46	323.87	308.24	315.54	317.41	301.06	---	299.55	307.87	315.60	320.89
10	325.27	327.67	324.11	307.68	315.83	317.35	301.21	---	299.75	308.12	315.94	321.04
11	324.94	327.87	324.29	307.23	316.11	316.95	301.23	---	300.00	308.40	316.26	321.15
12	324.65	328.02	324.53	306.86	316.12	316.54	301.06	---	300.25	308.73	316.47	321.26
13	324.51	328.06	325.12	306.13	315.90	316.62	---	---	300.57	309.06	316.59	321.37
14	324.54	328.14	325.36	305.48	316.28	316.88	---	---	300.83	309.49	316.73	321.45
15	324.93	328.22	325.61	304.92	316.70	317.04	---	---	301.07	309.89	316.94	321.62
16	325.03	328.31	326.01	304.90	316.59	316.98	295.55	---	301.40	310.18	317.14	321.82
17	325.10	328.43	325.86	305.09	316.27	316.64	293.69	---	301.67	310.37	317.23	321.96
18	325.53	328.31	325.70	305.27	316.26	316.65	291.99	289.68	301.94	310.59	317.48	322.09
19	325.67	328.38	325.14	305.27	316.62	316.40	290.75	290.10	302.23	310.91	317.70	322.41
20	325.70	328.51	323.82	305.71	316.86	315.94	289.78	290.26	302.43	311.30	317.97	322.50
21	325.93	328.53	322.47	306.40	316.89	315.52	---	290.35	302.60	311.63	318.18	322.46
22	326.10	328.54	321.12	306.73	317.05	314.80	---	290.45	302.84	311.89	318.48	322.52
23	326.23	328.44	319.50	307.20	317.21	313.30	---	292.31	303.20	312.11	318.83	322.72
24	326.42	328.21	317.99	307.91	317.41	310.88	---	295.16	303.51	312.31	319.07	322.64
25	326.53	328.22	316.68	308.48	317.69	308.19	---	295.25	303.77	312.62	319.20	322.66
26	326.59	328.16	315.88	308.92	317.83	305.82	---	295.36	304.04	312.97	319.27	322.90
27	326.82	328.16	315.16	309.16	317.99	304.00	---	295.49	304.32	313.24	319.39	323.11
28	327.08	328.22	314.82	309.79	318.02	303.04	---	295.66	304.57	313.38	319.58	323.28
29	327.11	327.43	314.75	310.28	---	302.21	---	295.77	304.81	313.57	319.70	323.47
30	327.15	326.03	314.61	310.99	---	302.12	---	295.96	305.05	313.83	319.75	323.52
31	327.22	---	313.77	311.83	---	301.90	---	296.32	---	314.01	319.88	---
MEAN	325.71	327.90	321.84	308.06	315.94	313.65	---	---	301.14	309.95	317.16	321.75
MAX	327.22	328.54	326.01	312.26	318.02	317.83	---	---	305.05	314.01	319.88	323.52
MIN	324.51	326.03	313.77	304.90	312.36	301.90	---	---	296.72	305.31	314.12	320.13

## 38-Big Spring

COUNTY--Carter

WELL IDENTIFICATION NUMBER--365652090594201

LOCATION--Lat 36°56'52", long 90°59'42", T.26 N., R.1 E., 6ccc, Big Spring National Scenic Riverways Park, next to west entrance sign.

FORMATIONS OPEN TO THE WELL--Eminence Dolomite.

WELL CHARACTERISTICS--Total depth 56 ft.

INSTRUMENTATION--Digital recorder installed February 1980.

DATUM--470 ft above NGVD of 1929.

Measuring point: 0.5 ft above land surface.

REMARKS--Several days missing when recorder was not operational and several weeks missing when recorder was removed.

PERIOD OF PROCESSED RECORD--October 27, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.06	18.84	---	5.07	---	8.23	---	2.21	5.04	9.01	14.33	17.15
2	18.07	18.91	---	5.14	---	8.15	6.19	2.49	5.25	9.22	14.43	17.22
3	18.05	19.01	---	5.38	---	8.10	6.35	2.64	5.44	9.44	14.53	17.26
4	18.27	18.98	11.72	5.43	---	8.05	5.65	2.89	5.63	9.56	14.63	17.26
5	18.30	17.47	11.67	5.50	---	7.91	5.14	3.11	5.82	9.77	14.84	17.29
6	18.28	16.11	11.93	5.06	---	7.95	5.09	3.37	6.13	9.96	14.96	17.38
7	18.20	15.84	12.33	4.65	---	8.28	5.20	3.63	6.26	10.20	15.09	17.45
8	18.01	15.86	12.64	4.46	---	8.37	5.41	3.84	6.39	10.41	15.10	17.45
9	17.84	15.99	12.98	4.50	---	8.57	5.69	4.08	6.54	10.60	15.17	17.51
10	17.15	16.32	13.19	3.73	---	8.74	6.03	4.31	6.67	10.77	15.35	17.53
11	16.94	16.65	13.30	2.71	---	8.68	6.09	4.53	6.69	11.04	15.49	17.61
12	17.05	16.92	13.49	3.21	---	8.57	5.01	4.65	6.68	11.29	15.59	17.66
13	17.20	17.10	13.99	3.33	---	8.72	3.03	4.20	6.81	11.47	15.62	17.71
14	17.37	17.48	14.23	---	---	8.99	1.37	3.82	6.99	11.76	15.67	17.75
15	17.76	17.86	14.31	---	---	9.33	1.55	3.83	7.12	11.91	15.77	17.85
16	17.88	17.83	14.57	---	---	9.46	1.66	3.18	7.24	12.10	15.83	17.95
17	17.93	16.03	13.65	---	---	9.28	1.75	3.35	7.37	12.20	15.87	18.02
18	17.92	15.98	11.06	---	---	8.96	1.16	---	7.49	12.35	16.01	18.05
19	17.92	---	9.64	---	---	8.81	1.22	---	7.63	12.48	16.14	18.12
20	17.93	---	9.16	---	---	8.75	1.47	---	7.72	12.74	16.26	18.13
21	18.10	---	7.82	---	---	8.73	1.56	---	7.80	12.92	16.36	18.12
22	18.25	---	7.20	---	---	5.81	1.70	2.84	7.95	13.07	16.40	18.13
23	18.35	---	7.17	---	---	4.70	1.91	3.02	8.13	13.20	16.47	18.16
24	18.44	---	7.18	---	---	4.46	2.41	3.23	8.22	13.31	16.63	18.15
25	18.55	---	7.32	---	---	4.40	2.63	3.02	8.29	13.46	16.71	18.14
26	18.62	---	7.63	---	---	4.45	2.79	3.19	8.40	13.62	16.75	18.33
27	18.66	---	7.82	---	8.30	4.69	2.72	3.54	8.61	13.64	16.81	18.46
28	18.80	---	8.06	---	8.33	5.01	2.44	3.94	8.76	13.86	16.89	18.50
29	18.81	---	7.94	---	---	5.19	1.45	4.27	8.82	13.98	16.94	18.58
30	18.82	---	4.75	---	---	5.65	1.88	4.53	8.90	14.16	16.97	18.58
31	18.84	---	4.80	---	---	5.83	---	4.83	---	14.26	17.04	---
MEAN	18.08	---	---	---	---	7.45	---	---	7.16	11.86	15.83	17.85
MAX	18.84	---	---	---	---	9.46	---	---	8.90	14.26	17.04	18.58
MIN	16.94	---	---	---	---	4.40	---	---	5.04	9.01	14.33	17.15

COUNTY--Ripley

WELL IDENTIFICATION NUMBER--362441090364201

LOCATION--Lat 36°24'41", long 90°36'42", T.22 N., R.4 E., 3ddd, 0.2 mi 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 ft, 44 ft of 8-in casing, 17 ft of 4-in casing, 4 ft of 4-in screen.

INSTRUMENTATION--Digital recorder installed March 3, 1990.

DATUM--300 ft above NGVD of 1929.

Measuring point: Recorder platform, 8.1 ft above land surface.

REMARKS--Several weeks missing when recorder was removed.

PERIOD OF PROCESSED RECORD--October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.08	15.96	14.89	11.67	---	12.23	12.68	10.96	12.15	14.88	16.56	17.60
2	17.09	15.99	14.83	11.79	---	12.08	12.73	11.11	12.36	14.98	16.61	17.63
3	17.09	16.02	14.73	11.92	---	12.19	12.74	11.15	12.56	15.07	16.66	17.60
4	16.78	15.97	14.81	11.95	---	12.24	12.40	11.29	12.74	15.14	16.69	17.49
5	16.68	15.79	14.74	11.88	---	12.15	12.25	11.42	12.90	15.20	16.75	17.53
6	16.69	15.77	14.73	11.64	---	12.14	12.17	11.66	13.05	15.26	16.83	17.56
7	16.57	15.80	14.76	11.36	---	12.46	12.12	11.83	13.16	15.31	16.86	17.55
8	16.26	15.78	14.77	11.28	---	12.55	12.10	11.90	13.28	15.36	16.89	17.33
9	15.97	15.73	14.80	11.35	---	12.65	12.22	11.99	13.39	15.42	16.95	17.34
10	15.72	15.78	14.80	11.11	---	12.73	12.40	12.09	13.47	15.49	17.01	17.37
11	15.64	15.82	14.78	10.81	---	12.65	12.41	12.14	13.49	15.56	17.06	17.42
12	15.60	15.85	14.78	10.80	---	12.55	12.17	11.95	13.51	15.60	17.09	17.48
13	15.60	15.85	14.88	10.83	---	12.69	11.41	11.79	13.56	15.66	17.13	17.53
14	15.63	15.86	14.88	10.85	---	12.91	10.34	11.71	13.61	15.72	17.17	17.58
15	15.71	15.88	14.76	---	---	13.05	10.15	11.50	13.67	15.79	17.22	17.62
16	15.72	15.89	14.75	---	---	13.07	10.30	11.20	13.76	15.85	17.23	17.66
17	15.72	15.93	14.43	---	---	12.90	10.43	11.24	13.85	15.90	17.24	17.67
18	15.62	15.90	14.20	---	---	12.87	10.26	11.37	13.93	15.96	17.27	17.72
19	15.59	15.92	14.07	---	---	12.89	10.19	11.49	13.99	16.02	17.32	17.74
20	15.57	15.96	13.93	---	---	12.86	10.32	11.59	14.04	16.08	17.35	17.74
21	15.62	15.96	13.50	---	---	12.88	10.41	11.66	14.11	16.14	17.38	17.76
22	15.64	15.82	12.68	---	---	12.50	10.53	11.70	14.22	16.18	17.43	17.79
23	15.67	15.71	12.53	---	---	12.20	10.74	11.74	14.32	16.14	17.48	17.77
24	15.72	15.68	12.71	---	---	12.14	11.03	11.50	14.40	16.17	17.52	17.76
25	15.78	15.71	12.75	---	---	12.11	11.12	11.16	14.51	16.20	17.55	17.80
26	15.80	15.70	12.84	---	---	12.06	11.23	11.15	14.59	16.25	17.57	17.84
27	15.83	15.60	12.76	---	12.45	12.07	11.08	11.24	14.66	16.27	17.58	17.87
28	15.90	15.22	12.69	---	12.41	12.26	10.97	11.36	14.72	16.30	17.51	17.89
29	15.91	15.07	12.53	---	---	12.32	10.74	11.48	14.78	16.39	17.52	17.90
30	15.93	14.94	12.09	---	---	12.59	10.80	11.65	14.80	16.45	17.54	17.91
31	15.95	---	11.70	---	---	12.63	---	11.92	---	16.51	17.56	---
MEAN	16.00	15.76	13.94	---	---	12.50	11.35	11.55	13.72	15.78	17.18	17.65
MAX	17.09	16.02	14.89	---	---	13.07	12.74	12.14	14.80	16.51	17.58	17.91
MIN	15.57	14.94	11.70	---	---	12.06	10.15	10.96	12.15	14.88	16.56	17.33

## 40-Malden

COUNTY--Dunklin

WELL IDENTIFICATION NUMBER--362957089581901

LOCATION--Lat 36°29'57", long 89°58'19", T.22 N., R.10 E., 34ccc, 0.1 mi north of junction of State Highways 62 and 25, at McGuire, 4 mi south of Malden.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled August 8, 1956, total depth 108 ft, 62 ft of 8-in casing, 42 ft of 4-in casing, and 4 ft of 4-in screen.

DGLS Log Number: 14,673

INSTRUMENTATION--Graphic recorder from August 8, 1956 to December 17, 1980. Digital recorder installed December 17, 1980.

DATUM--287 ft above NGVD of 1929.

Measuring point: Base of recorder, 1.8 ft above land surface.

PERIOD OF PROCESSED RECORD--December 17, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.33	16.69	17.10	15.02	13.28	13.35	13.26	12.92	13.15	13.22	14.28	15.44
2	16.35	16.71	17.10	14.84	13.30	13.39	13.27	12.91	13.18	13.25	14.32	15.47
3	16.37	16.72	17.11	14.68	13.31	13.44	13.28	12.88	13.20	13.28	14.36	15.50
4	16.40	16.73	17.13	14.54	13.33	13.45	13.30	12.88	13.23	13.31	14.40	15.53
5	16.43	16.74	17.13	14.42	13.34	13.43	13.33	12.89	13.27	13.35	14.45	15.55
6	16.45	16.76	17.14	14.33	13.36	13.44	13.34	12.92	13.30	13.39	14.49	15.58
7	16.47	16.79	17.15	14.24	13.39	13.51	13.35	12.94	13.32	13.43	14.53	15.61
8	16.49	16.79	17.16	14.14	13.39	13.53	13.36	12.95	13.34	13.45	14.56	15.63
9	16.50	16.80	17.17	14.06	13.36	13.55	13.41	12.96	13.37	13.47	14.60	15.66
10	16.49	16.83	17.18	13.95	13.37	13.56	13.46	13.00	13.39	13.50	14.64	15.69
11	16.49	16.84	17.18	13.84	13.39	13.53	13.49	13.04	13.41	13.53	14.69	15.71
12	16.48	16.86	17.19	13.74	13.34	13.51	13.50	13.05	13.39	13.56	14.72	15.73
13	16.48	16.87	17.20	13.63	13.28	13.56	13.49	13.07	13.33	13.59	14.76	15.76
14	16.49	16.89	17.21	13.52	13.33	13.61	13.44	13.07	13.27	13.62	14.79	15.78
15	16.51	16.90	17.21	13.40	13.41	13.64	13.36	13.07	13.22	13.66	14.83	15.81
16	16.51	16.92	17.23	13.33	13.39	13.64	13.26	13.03	13.20	13.69	14.87	15.84
17	16.51	16.93	17.21	13.27	13.33	13.63	13.17	12.99	13.18	13.72	14.90	15.86
18	16.54	16.94	17.20	13.23	13.33	13.67	13.10	12.96	13.17	13.75	14.93	15.89
19	16.54	16.96	17.16	13.16	13.38	13.69	13.05	12.93	13.17	13.78	14.97	15.92
20	16.55	16.97	17.08	13.14	13.41	13.68	13.01	12.91	13.17	13.82	15.02	15.95
21	16.56	16.98	16.97	13.13	13.38	13.70	12.97	12.90	13.18	13.86	15.05	15.96
22	16.57	17.00	16.75	13.10	13.38	13.67	12.93	12.90	13.20	13.89	15.09	15.99
23	16.58	17.01	16.47	13.08	13.39	13.56	12.92	12.90	13.24	13.93	15.13	16.02
24	16.59	17.02	16.19	13.10	13.39	13.48	12.94	12.91	13.26	13.96	15.17	16.04
25	16.60	17.03	15.95	13.10	13.41	13.40	12.91	12.92	13.25	14.01	15.21	16.06
26	16.61	17.04	15.76	13.09	13.41	13.33	12.91	12.94	13.22	14.05	15.24	16.09
27	16.62	17.05	15.61	13.07	13.41	13.28	12.92	12.98	13.21	14.09	15.27	16.12
28	16.65	17.08	15.49	13.11	13.41	13.27	12.94	13.02	13.20	14.12	15.31	16.14
29	16.65	17.09	15.39	13.12	---	13.25	12.94	13.04	13.20	14.16	15.34	16.17
30	16.67	17.09	15.31	13.18	---	13.28	12.94	13.07	13.20	14.20	15.37	16.19
31	16.68	---	15.19	13.26	---	13.26	---	13.11	---	14.24	15.40	---
MEAN	16.52	16.90	16.72	13.64	13.36	13.49	13.18	12.97	13.25	13.71	14.86	15.82
MAX	16.68	17.09	17.23	15.02	13.41	13.70	13.50	13.11	13.41	14.24	15.40	16.19
MIN	16.33	16.69	15.19	13.07	13.28	13.25	12.91	12.88	13.15	13.22	14.28	15.44



COUNTY--Pemiscot

WELL IDENTIFICATION NUMBER--360422089484801

LOCATION--Lat 36°04'22", long 89°48'48", T.17 N., R.11 E., 36abb, Missouri Highway Department maintenance buildings, approximately 2 mi 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 ft, 62 ft of 8-in casing, 66 ft of 4-in casing, and 4 ft of 4-in screen.

DGLS Log Number: 14,804

INSTRUMENTATION--Digital recorder installed November 6, 1980.

DATUM--260 ft above NGVD of 1929.

Measuring point: Base of recorder, 1.6 ft above land surface.

PERIOD OF PROCESSED RECORD--November 6, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.84	14.90	15.03	10.34	11.01	10.09	11.32	9.04	9.93	11.51	12.94	14.37
2	15.85	14.92	15.00	10.49	11.06	9.85	11.32	9.19	10.03	11.58	13.00	14.41
3	15.85	14.94	14.98	10.66	11.10	9.91	11.36	9.30	10.11	11.63	13.06	14.42
4	15.83	14.92	15.05	10.76	11.15	10.01	11.39	9.45	10.02	11.67	13.12	14.40
5	15.84	14.93	15.01	10.82	11.07	10.05	11.42	9.56	10.14	11.73	13.18	14.36
6	15.86	14.98	14.99	10.37	10.05	10.14	11.43	9.73	10.29	11.79	13.26	14.35
7	15.80	15.02	15.01	9.49	9.69	10.36	11.44	9.87	10.38	11.86	13.32	14.38
8	15.55	15.02	15.02	9.35	9.62	10.45	11.47	9.96	10.47	11.91	13.36	14.37
9	15.18	14.99	15.03	9.42	9.66	10.55	11.53	10.05	10.57	11.98	13.36	14.12
10	14.73	15.03	15.02	9.33	9.79	10.63	11.61	10.16	10.70	12.03	13.43	14.10
11	14.61	15.05	15.01	9.08	9.95	10.63	11.63	10.07	10.72	12.10	13.49	14.16
12	14.59	15.07	15.01	9.02	10.01	10.64	11.58	9.65	10.66	12.13	13.54	14.23
13	14.60	15.08	15.05	9.12	9.78	10.75	11.29	9.05	10.60	11.84	13.57	14.30
14	14.63	15.09	15.05	9.25	9.43	10.89	10.46	8.76	10.61	11.83	13.61	14.37
15	14.69	15.10	15.03	9.32	9.55	10.99	9.82	8.72	10.68	11.92	13.66	14.43
16	14.71	15.11	15.06	9.42	9.67	11.04	9.60	8.72	10.77	12.01	13.71	14.47
17	14.72	15.12	14.96	9.54	9.63	11.04	9.59	8.79	10.86	12.07	13.75	14.51
18	14.73	15.11	14.22	9.65	9.50	11.13	9.53	8.87	10.94	12.14	13.80	14.54
19	14.73	15.12	13.75	9.68	9.47	11.18	9.27	8.98	11.03	12.23	13.85	14.59
20	14.72	15.14	13.59	9.82	9.44	11.22	9.28	9.16	11.09	12.31	13.90	14.62
21	14.75	15.15	12.99	10.01	9.44	11.26	9.35	9.32	11.15	12.37	13.94	14.63
22	14.75	15.13	11.77	10.08	9.53	11.23	9.45	9.47	11.16	12.43	13.98	14.66
23	14.75	15.13	11.58	10.17	9.66	11.23	9.61	9.61	11.20	12.48	14.03	14.69
24	14.76	15.13	11.60	10.31	9.78	11.29	9.81	9.71	11.24	12.52	14.09	14.68
25	14.79	15.15	11.63	10.42	9.92	11.33	9.90	9.60	11.19	12.58	14.13	14.71
26	14.80	15.15	11.70	10.48	10.02	11.34	10.02	9.27	11.23	12.64	14.15	14.75
27	14.81	15.14	11.65	10.51	10.12	11.37	10.07	9.30	11.29	12.69	14.19	14.79
28	14.85	15.13	11.37	10.64	10.20	11.46	10.00	9.44	11.36	12.73	14.22	14.81
29	14.86	15.12	11.00	10.70	---	11.47	9.41	9.57	11.41	12.77	14.25	14.84
30	14.87	15.06	10.60	10.82	---	11.55	9.04	9.69	11.45	12.83	14.28	14.86
31	14.88	---	10.34	10.96	---	11.37	---	9.83	---	12.89	14.32	---
MEAN	15.03	15.06	13.65	10.00	9.97	10.85	10.43	9.42	10.78	12.17	13.69	14.50
MAX	15.86	15.15	15.06	10.96	11.15	11.55	11.63	10.16	11.45	12.89	14.32	14.86
MIN	14.59	14.90	10.34	9.02	9.43	9.85	9.04	8.72	9.93	11.51	12.94	14.10

## 42-East Prairie

COUNTY--Mississippi

WELL IDENTIFICATION NUMBER--364646089212201

LOCATION--Lat 36°46'46", long 89°21'22", T.25 N., R.16 E., 29ccb, on State Highway 102, 0.2 mi north of junction of State Highways 80 and 102, 1 mi 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 ft, 64 ft of 8-in casing, 49 ft of 4-in casing, and 4 ft of 4-in well screen.

INSTRUMENTATION--Graphic recorder from November 1, 1956 to November 8, 1980. Digital recorder installed November 8, 1980.

DATUM--305 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

PERIOD OF PROCESSED RECORD--November 8, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.76	10.80	10.57	7.12	7.44	7.49	8.33	7.66	8.11	9.33	11.40	11.63
2	11.77	10.82	10.57	7.26	7.48	7.26	8.38	7.81	7.39	9.62	10.99	11.67
3	11.77	10.84	10.39	7.39	7.54	7.34	8.43	7.86	7.33	9.28	10.93	11.53
4	11.74	10.82	10.40	7.46	7.61	7.45	8.45	7.98	7.51	9.22	10.93	11.33
5	11.75	10.80	10.38	7.48	7.58	7.48	8.49	8.08	7.70	9.38	10.95	11.24
6	11.76	10.85	10.38	7.14	6.69	7.57	8.50	8.24	7.88	9.51	10.98	11.05
7	11.67	10.88	10.43	6.45	6.33	7.81	8.51	8.34	8.01	9.76	11.30	11.10
8	11.45	10.87	10.45	6.28	6.41	7.89	8.52	8.38	8.12	9.92	11.40	11.15
9	10.96	10.84	10.49	6.38	6.56	7.97	8.58	8.41	8.24	10.34	11.10	11.17
10	10.37	10.89	10.49	6.26	6.75	8.05	8.68	8.49	8.35	10.22	11.10	11.22
11	10.38	10.92	10.50	5.88	6.97	8.02	8.70	8.54	8.68	10.07	11.14	11.26
12	10.46	10.94	10.50	5.87	7.06	8.00	8.64	8.55	8.59	10.04	11.17	11.31
13	10.53	10.95	10.57	6.02	6.81	8.10	8.24	8.49	8.37	10.41	11.18	11.35
14	10.60	10.96	10.58	6.13	6.54	8.27	7.16	8.43	8.38	10.46	11.20	11.39
15	10.68	10.97	10.52	6.17	6.83	8.38	6.76	8.47	8.44	10.29	11.40	11.43
16	10.70	10.97	10.54	6.12	7.02	8.40	6.85	8.37	8.54	10.63	11.75	11.47
17	10.71	11.00	10.23	6.23	6.97	8.36	7.04	8.38	8.67	11.04	11.36	11.50
18	10.73	10.98	9.30	6.33	6.74	8.44	7.18	8.43	9.07	11.40	11.34	11.47
19	10.74	10.99	8.78	6.34	6.69	8.49	7.39	8.44	9.74	11.19	11.37	11.47
20	10.74	11.01	8.75	6.45	6.70	8.50	7.61	8.44	9.31	10.63	11.39	11.50
21	10.77	11.01	8.42	6.69	6.75	8.53	7.71	8.46	8.94	10.50	11.42	11.50
22	10.65	10.91	7.53	6.79	6.89	8.11	7.79	8.50	8.34	10.46	11.68	11.53
23	10.58	10.78	7.59	6.91	7.06	7.48	7.91	8.55	8.28	10.50	11.83	11.56
24	10.61	10.78	7.89	7.11	7.21	7.54	8.09	8.52	8.34	10.89	11.59	11.54
25	10.66	10.83	8.07	7.23	7.36	7.63	8.13	8.12	8.42	11.56	11.59	11.55
26	10.68	10.85	8.26	7.29	7.46	7.68	8.21	7.60	8.50	11.21	11.59	11.59
27	10.70	10.85	8.30	7.30	7.54	7.75	8.25	7.58	8.60	10.83	11.62	11.63
28	10.75	10.67	8.19	7.36	7.61	7.92	8.30	7.73	8.68	10.75	11.61	11.65
29	10.76	10.60	7.72	7.35	---	7.99	7.82	7.85	8.90	10.72	11.55	11.67
30	10.77	10.58	7.01	7.30	---	8.21	7.57	7.93	9.22	10.74	11.56	11.68
31	10.79	---	6.99	7.42	---	8.27	---	8.07	---	10.96	11.59	---
MEAN	10.94	10.87	9.38	6.76	7.02	7.95	8.01	8.22	8.42	10.38	11.36	11.44
MAX	11.77	11.01	10.58	7.48	7.61	8.53	8.70	8.55	9.74	11.56	11.83	11.68
MIN	10.37	10.58	6.99	5.87	6.33	7.26	6.76	7.58	7.33	9.22	10.93	11.05

COUNTY--Scott

WELL IDENTIFICATION NUMBER--365319089330501

LOCATION--Lat 36°53'19", long 89°33'05", T.26 N., R.14 E., 21bab, Highway Department maintenance yard,  
Edward Street, approximately 1 mi north of State Highway 62 intersection, Sikeston.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled October 12, 1956, total depth 145 ft, 57 ft of 8-in casing, 84.5 ft of  
4-in casing, and 4.5 ft of 4-in well screen.

DGLS Log Number: 15,041

INSTUMENTATION--Graphic recorder installed November 1, 1956. Digital recorder installed November 6, 1980.

DATUM--310 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

REMARKS.--Several days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--November 6, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	9.48	7.02	8.15	8.26	8.24	8.16	7.98	8.90	9.77	9.93
2	---	---	9.48	7.20	8.19	8.28	8.29	8.25	7.74	8.92	9.80	9.97
3	---	---	9.46	7.34	8.21	8.33	8.33	8.31	7.80	8.94	9.83	9.98
4	---	---	9.47	7.45	8.24	8.37	8.34	8.37	7.94	8.95	9.85	9.74
5	---	---	9.47	7.51	8.12	8.37	8.37	8.36	8.05	8.99	9.87	9.49
6	---	---	9.50	7.16	7.69	8.42	8.40	8.41	8.12	9.03	9.89	9.47
7	---	---	9.53	6.82	7.63	8.48	8.43	8.46	8.19	9.06	9.91	9.51
8	---	9.85	9.57	6.83	7.66	8.52	8.46	8.49	8.25	9.09	9.92	9.50
9	---	9.84	9.60	6.98	7.74	8.56	8.51	8.52	8.31	9.12	9.87	9.34
10	---	9.86	9.63	6.94	7.84	8.59	8.56	8.54	8.36	9.15	9.86	9.35
11	---	9.87	9.65	6.75	7.93	8.61	8.59	8.57	8.40	9.18	9.90	9.40
12	---	9.89	9.67	6.82	7.97	8.62	8.59	8.58	8.41	9.21	9.93	9.45
13	---	9.88	9.71	6.98	7.80	8.66	8.30	8.55	8.38	9.24	9.95	9.51
14	---	9.89	9.73	7.13	7.77	8.71	7.83	8.53	8.37	9.27	9.97	9.56
15	---	9.90	9.63	7.20	7.89	8.75	7.67	8.57	8.44	9.30	9.99	9.61
16	---	9.90	9.60	7.24	7.95	8.78	7.65	8.46	8.48	9.34	10.01	9.65
17	---	9.92	9.44	7.34	7.93	8.77	7.72	8.40	8.53	9.37	10.01	9.67
18	---	9.93	9.07	7.41	7.89	8.80	7.82	8.42	8.57	9.40	10.02	9.68
19	---	9.93	8.74	7.47	7.95	8.83	7.93	8.46	8.62	9.44	10.04	9.70
20	---	9.94	8.62	7.56	7.99	8.84	8.02	8.50	8.66	9.47	10.06	9.73
21	---	9.94	8.17	7.65	8.02	8.85	8.07	8.52	8.68	9.50	10.08	9.76
22	---	9.81	7.26	7.71	8.07	8.15	8.13	8.55	8.69	9.53	10.10	9.78
23	---	9.72	7.20	7.78	8.13	7.75	8.20	8.58	8.72	9.56	10.12	9.81
24	---	9.72	7.37	7.85	8.18	7.70	8.28	8.26	8.73	9.59	10.14	9.79
25	---	9.74	7.52	7.91	8.22	7.75	8.32	7.79	8.62	9.60	10.15	9.79
26	---	9.75	7.67	7.95	8.26	7.85	8.37	7.54	8.67	9.62	10.16	9.83
27	---	9.76	7.74	7.98	8.29	7.88	8.39	7.56	8.74	9.65	10.18	9.85
28	---	9.57	7.76	8.02	8.32	7.92	8.42	7.69	8.79	9.67	10.13	9.88
29	---	9.50	7.42	8.05	---	8.01	8.10	7.80	8.82	9.69	9.88	9.90
30	---	9.48	6.97	8.07	---	8.12	8.09	7.89	8.86	9.72	9.83	9.92
31	---	---	6.89	8.12	---	8.18	---	7.98	---	9.75	9.87	---
MEAN	---	---	8.74	7.43	8.00	8.38	8.21	8.29	8.43	9.33	9.97	9.68
MAX	---	---	9.73	8.12	8.32	8.85	8.59	8.58	8.86	9.75	10.18	9.98
MIN	---	---	6.89	6.75	7.63	7.70	7.65	7.54	7.74	8.90	9.77	9.34

## 44-Delta

COUNTY--Cape Girardeau

WELL IDENTIFICATION NUMBER--371125089445301

LOCATION--Lat 37°11'25", long 89°44'53", T.29 N., R.12 E., 8dbd, 0.2 mi 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 ft, 60 ft of 8-in casing, 10.5 ft of 4-in casing, and 4.5 ft of 4-in screen.

INSTRUMENTATION--Graphic recorder from November 1, 1956, to November 6, 1980. Digital recorder installed November 6, 1980.

DATUM--335 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

PERIOD OF PROCESSED RECORD--November 6, 1980 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.89	21.26	19.00	16.43	18.41	18.05	17.70	16.37	16.72	20.04	22.66	22.12
2	21.87	21.28	19.13	16.70	18.47	17.90	17.71	16.58	16.79	20.26	22.85	22.14
3	21.83	21.33	19.10	16.98	18.51	17.97	17.70	16.66	16.85	20.20	23.28	22.18
4	21.65	21.29	19.34	17.14	18.54	18.05	17.64	16.76	16.92	20.34	23.37	22.08
5	21.49	21.18	19.41	17.19	18.53	18.10	17.66	16.82	16.89	20.58	23.21	21.96
6	21.47	21.20	19.40	17.02	17.97	18.05	17.64	16.87	16.93	20.92	22.57	21.96
7	21.46	21.20	19.53	16.45	17.40	18.22	17.62	16.99	17.05	21.21	22.02	21.99
8	21.29	21.19	19.64	16.37	17.33	18.28	17.60	17.06	17.13	21.31	21.77	21.99
9	21.05	21.09	19.75	16.49	17.34	18.33	17.65	17.04	17.22	21.16	21.62	21.99
10	20.54	21.13	19.82	16.41	17.35	18.47	17.82	17.05	17.30	20.73	21.59	22.02
11	20.33	21.22	19.87	15.92	17.47	18.52	17.90	17.00	17.35	20.49	21.61	22.03
12	20.35	21.27	19.91	15.72	17.52	18.49	17.89	16.94	17.38	20.48	21.60	22.01
13	20.46	21.28	20.05	15.98	17.36	18.52	17.62	16.76	17.45	20.44	21.59	22.05
14	20.57	21.29	20.18	16.23	17.08	18.75	16.44	16.54	17.50	20.52	21.60	22.09
15	20.78	21.31	20.13	16.35	17.19	18.96	15.74	16.55	17.55	20.67	21.69	22.15
16	20.87	21.31	20.26	16.32	17.46	19.01	15.77	16.31	17.65	21.36	21.84	22.19
17	20.88	21.37	20.04	16.47	17.52	18.89	15.96	16.10	17.73	21.79	21.86	22.24
18	20.93	21.32	19.27	16.64	17.57	18.85	16.09	16.21	17.87	21.97	21.82	22.25
19	20.95	21.30	18.34	16.71	17.63	18.86	16.25	16.38	17.93	22.08	21.90	22.32
20	20.91	21.36	18.01	16.76	17.69	18.76	16.50	16.52	18.05	22.05	21.97	22.32
21	20.94	21.37	17.68	16.98	17.67	18.65	16.62	16.63	18.30	21.85	21.97	22.26
22	21.00	21.14	16.69	17.12	17.68	18.15	16.65	16.75	18.45	21.80	21.92	22.22
23	21.02	20.61	16.16	17.23	17.77	17.01	16.70	16.86	18.51	22.07	21.98	22.25
24	21.06	20.44	16.51	17.47	17.81	16.71	16.87	16.83	18.48	22.04	22.14	22.20
25	21.13	20.48	16.98	17.70	17.93	16.77	16.93	16.25	18.73	22.12	22.28	22.15
26	21.17	20.54	17.41	17.82	17.99	16.85	16.94	16.02	19.08	22.12	22.41	22.20
27	21.18	20.57	17.66	17.86	18.05	16.92	16.96	16.13	19.44	22.24	22.47	22.27
28	21.26	19.98	17.84	17.94	18.10	17.17	16.93	16.31	19.85	21.85	22.53	22.31
29	21.28	19.19	17.90	18.00	---	17.26	16.59	16.42	20.09	21.67	22.33	22.35
30	21.27	18.97	17.06	18.06	---	17.53	16.32	16.48	20.06	21.95	22.16	22.33
31	21.27	---	16.45	18.27	---	17.65	---	16.59	---	22.44	22.11	---
MEAN	21.10	20.95	18.66	16.93	17.76	18.05	17.01	16.61	17.91	21.31	22.15	22.15
MAX	21.89	21.37	20.26	18.27	18.54	19.01	17.90	17.06	20.09	22.44	23.37	22.35
MIN	20.33	18.97	16.16	15.72	17.08	16.71	15.74	16.02	16.72	20.04	21.59	21.96

COUNTY--Bollinger

WELL IDENTIFICATION NUMBER--370245090042901

LOCATION--Lat 37°02'45", long 90°04'29", T.28 N., R.9 E., 32dad, Missouri Conservation Commission,  
2.0 mi north of Kinder.

FORMATIONS OPEN TO THE WELL--Alluvium.

WELL CHARACTERISTICS--Drilled October 8, 1956, total depth 115 ft, 60 ft of 8-in casing, 10.5 ft of  
4-in casing, 4.5 ft of 4-in screen.

DGLS Log Number: 15,040

INSTRUMENTATION--Digital recorder installed December 17, 1980.

DATUM--344 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 2.7 ft above land surface.

PERIOD OF PROCESSED RECORD--October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.96	10.62	8.07	5.63	6.24	5.84	6.28	4.90	5.56	8.73	12.74	12.26
2	11.93	10.67	7.99	5.61	6.20	5.82	6.29	5.07	5.59	8.87	12.60	12.22
3	11.87	10.70	7.87	5.81	6.14	5.98	6.31	5.06	5.63	8.92	12.62	12.16
4	11.68	10.58	8.16	5.91	6.11	6.01	6.29	5.25	5.76	8.94	12.54	12.06
5	11.58	10.44	8.02	5.86	6.05	5.88	6.28	5.38	5.92	9.23	12.53	11.96
6	11.52	10.45	7.94	5.87	5.82	5.84	6.21	5.67	6.08	10.35	12.61	11.92
7	11.35	10.44	8.04	5.60	5.73	6.22	6.14	5.88	6.20	10.66	12.59	11.87
8	11.11	10.36	8.09	5.38	5.64	6.31	6.09	5.91	6.27	10.67	12.39	11.81
9	10.86	10.25	8.16	5.42	5.54	6.39	6.16	5.89	6.41	10.39	12.24	11.76
10	10.52	10.29	8.14	5.22	5.58	6.47	6.37	5.96	6.50	10.23	12.17	11.73
11	10.49	10.28	8.09	4.91	5.68	6.29	6.41	5.98	6.45	10.51	12.13	11.71
12	10.48	10.28	8.05	4.91	5.61	6.08	6.32	5.89	6.29	10.77	12.10	11.74
13	10.49	10.20	8.24	4.89	5.33	6.15	5.99	5.65	6.29	11.07	12.08	11.75
14	10.54	10.15	8.28	4.89	5.43	6.43	5.05	5.30	6.30	11.02	12.08	11.78
15	10.70	10.14	8.22	4.89	5.75	6.64	4.51	5.18	6.37	11.11	12.16	11.83
16	10.65	10.10	8.33	5.05	5.81	6.67	4.25	4.92	6.49	11.67	12.40	11.88
17	10.58	10.11	7.90	5.25	5.65	6.50	4.07	4.90	6.60	11.40	12.42	11.92
18	10.62	10.00	7.43	5.33	5.64	6.55	3.97	5.05	6.75	11.30	12.32	11.92
19	10.56	9.98	7.19	5.21	5.83	6.57	4.15	5.16	6.91	11.51	12.33	11.97
20	10.47	10.06	6.93	5.27	5.95	6.49	4.51	5.22	7.01	11.63	12.47	12.01
21	10.50	10.00	6.56	5.55	5.86	6.45	4.66	5.19	7.19	11.52	12.66	11.98
22	10.47	9.73	6.18	5.56	5.85	6.24	4.76	5.21	7.39	11.52	12.71	11.97
23	10.47	9.38	5.99	5.58	5.87	5.88	4.95	5.21	7.82	11.62	12.69	12.01
24	10.49	9.22	6.03	5.81	5.90	5.80	5.29	5.20	7.85	11.65	12.77	11.92
25	10.54	9.25	5.99	5.93	6.01	5.74	5.37	4.77	8.01	11.97	12.77	11.86
26	10.52	9.19	6.15	5.89	6.02	5.62	5.43	4.49	8.28	12.51	12.70	11.91
27	10.53	9.07	6.15	5.76	6.04	5.56	5.46	4.52	8.39	12.53	12.65	11.95
28	10.67	8.74	6.20	5.88	6.01	5.80	5.40	4.77	8.32	12.21	12.62	11.99
29	10.66	8.47	6.19	5.87	---	5.82	5.04	4.95	8.33	12.01	12.50	12.04
30	10.59	8.19	6.00	5.99	---	6.17	4.90	5.12	8.66	12.43	12.38	12.04
31	10.59	---	5.92	6.24	---	6.22	---	5.35	---	12.80	12.31	---
MEAN	10.84	9.91	7.31	5.52	5.83	6.14	5.43	5.26	6.85	11.02	12.46	11.93
MAX	11.96	10.70	8.33	6.24	6.24	6.67	6.41	5.98	8.66	12.80	12.77	12.26
MIN	10.47	8.19	5.92	4.89	5.33	5.56	3.97	4.49	5.56	8.73	12.08	11.71

## 46-National Lead

COUNTY--Perry

WELL IDENTIFICATION NUMBER--373559090082901

LOCATION--Lat 37°35'59", long 90°08'29", T.34 N., R.8 E., 34cdb, 1.5 mi east of Higdon on County Road J.

FORMATIONS OPEN TO THE WELL--700 ft of unknown bedrock, Derby-Doerun Dolomite, Davis Dolomite, Bonnetterre Formation, and Lamotte Sandstone.

WELL CHARACTERISTICS--Mineral test hole, total depth 1,526 ft, cased to an unknown depth.

DGLS Log Number: P.H. 17

INSTRUMENTATION--Graphic recorder installed July 18, 1960.

DATUM--1,010 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.4 ft above land surface.

REMARKS--Several days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--May 18, 1983 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179.33	179.48	179.36	178.95	179.01	177.30	---	178.05	178.65	178.37	178.83	179.27
2	179.27	179.54	179.03	178.91	178.89	177.11	---	178.16	178.65	178.44	178.75	179.28
3	179.13	179.55	178.53	179.30	178.67	177.72	---	177.79	178.62	178.47	178.75	179.19
4	179.33	179.37	179.50	179.20	178.42	177.78	---	177.65	178.62	178.53	178.84	179.08
5	179.38	179.38	179.27	178.63	178.25	177.43	---	177.58	178.36	178.56	178.83	179.07
6	179.29	179.70	178.94	178.76	178.11	177.15	---	177.86	178.05	178.63	178.82	179.29
7	179.28	179.93	179.09	178.88	178.38	178.00	---	178.07	178.01	178.68	178.95	179.29
8	179.34	179.67	179.08	178.68	178.34	178.28	---	178.01	178.15	178.66	178.75	179.14
9	179.31	179.27	179.15	178.84	177.98	178.47	---	177.86	178.12	178.60	178.69	179.17
10	179.31	179.53	178.98	178.63	177.92	178.65	---	177.94	178.15	178.59	178.93	179.23
11	179.39	179.80	178.73	177.99	178.08	---	---	177.94	178.24	178.64	179.11	179.22
12	179.32	179.90	178.53	178.18	177.78	---	---	178.17	178.29	178.68	179.12	179.21
13	179.26	179.80	178.97	178.27	176.82	---	---	178.30	178.15	178.74	178.96	179.25
14	179.25	179.71	178.97	178.06	177.03	---	---	178.35	178.18	178.95	178.92	179.20
15	179.48	179.66	178.61	177.75	177.98	---	---	178.31	178.10	179.09	179.09	179.33
16	179.41	179.65	179.03	177.83	178.20	---	---	178.40	178.26	179.09	179.14	179.41
17	179.28	179.79	178.37	178.46	177.66	---	177.84	178.38	178.35	178.92	178.96	179.44
18	179.63	179.47	178.05	178.64	177.46	---	177.46	178.26	178.39	178.79	179.10	179.43
19	179.87	179.48	178.57	178.18	177.96	---	177.48	178.15	178.46	178.84	179.11	179.85
20	179.79	179.62	178.71	177.95	178.37	---	177.91	178.17	178.38	178.95	179.20	179.84
21	179.60	179.50	178.39	178.49	178.29	---	177.83	178.28	178.23	179.00	179.23	179.48
22	179.46	179.49	178.62	178.38	178.27	---	177.46	178.31	178.20	178.93	179.16	179.39
23	179.59	179.47	178.77	178.14	178.26	---	177.39	178.43	178.48	178.84	179.25	179.56
24	179.47	179.37	179.06	178.45	178.14	---	177.91	178.60	178.54	178.83	179.39	179.35
25	179.54	179.63	179.07	178.67	178.36	---	177.87	178.85	178.53	178.88	179.35	179.23
26	179.51	179.62	179.33	178.42	178.21	---	177.61	178.82	178.52	179.04	179.17	179.49
27	179.51	179.33	179.00	177.82	178.11	---	177.50	178.64	178.57	179.01	179.17	179.74
28	179.64	179.70	178.58	177.95	177.90	---	177.56	178.47	178.55	178.78	179.29	179.82
29	179.55	180.08	178.29	177.98	---	---	177.44	178.64	178.45	178.76	179.22	179.97
30	179.48	179.75	178.52	178.22	---	---	177.92	178.84	178.39	178.90	179.07	179.83
31	179.48	---	179.22	178.92	---	---	---	178.79	---	178.90	179.09	---
MEAN	179.43	179.61	178.85	178.44	178.10	---	---	178.26	178.35	178.78	179.04	179.40
MAX	179.87	180.08	179.50	179.30	179.01	---	---	178.85	178.65	179.09	179.39	179.97
MIN	179.13	179.27	178.05	177.75	176.82	---	---	177.58	178.01	178.37	178.69	179.07



COUNTY--Madison

WELL IDENTIFICATION NUMBER--372202090180501

LOCATION--Lat 37°22'02", long 90°18'05", T.33 N., R.7 E., 20bcd, approximately 2 mi 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 ft, 187 ft of 8-inch casing, open hole.  
DGLS Log Number: 5,330

INSTRUMENTATION--Graphic recorder from November 18, 1958 to March 13, 1990. Digital recorder installed March 13, 1990.

DATUM--857 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.8 ft above land surface.

PERIOD OF PROCESSED RECORD--November 27, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101.56	101.46	101.33	102.95	103.10	102.79	101.74	101.75	102.19	101.00	99.65	98.78
2	101.61	101.43	101.58	102.99	103.08	102.73	101.79	101.67	102.18	100.94	99.66	98.72
3	101.75	101.40	101.88	102.90	103.12	102.43	101.80	101.83	102.16	100.90	99.62	98.72
4	101.55	101.57	101.55	103.05	103.14	102.37	101.81	101.84	102.11	100.85	99.52	98.75
5	101.51	101.60	101.78	103.31	103.15	102.51	101.72	101.86	101.93	100.78	99.47	98.74
6	101.58	101.33	101.95	103.22	103.09	102.51	101.77	101.64	101.79	100.70	99.40	98.61
7	101.56	101.16	101.96	103.22	102.89	102.03	101.82	101.53	101.75	100.62	99.34	98.58
8	101.53	101.25	102.02	103.33	102.90	101.90	101.87	101.54	101.76	100.57	99.45	98.63
9	101.55	101.44	102.04	103.20	103.00	101.76	101.75	101.62	101.71	100.55	99.49	98.61
10	101.53	101.36	102.14	103.40	102.92	101.66	101.46	101.60	101.72	100.54	99.35	98.58
11	101.50	101.24	102.29	103.60	102.84	101.93	101.37	101.59	101.75	100.51	99.26	98.60
12	101.58	101.15	102.40	103.47	102.97	102.22	101.40	101.69	101.73	100.45	99.25	98.61
13	101.68	101.21	102.18	103.51	103.34	102.14	101.46	101.75	101.65	100.38	99.29	98.61
14	101.74	101.23	102.22	103.62	103.11	101.79	101.52	101.77	101.61	100.24	99.31	98.62
15	101.54	101.24	102.32	103.83	102.65	101.51	101.40	101.73	101.60	100.15	99.28	98.55
16	101.62	101.25	102.12	103.72	102.62	101.45	101.34	101.77	101.48	100.13	99.27	98.49
17	101.77	101.18	102.45	103.55	102.84	101.66	101.47	101.71	101.41	100.20	99.32	98.43
18	101.58	101.36	102.51	103.54	102.90	101.54	101.72	101.62	101.33	100.25	99.27	98.42
19	101.56	101.39	102.18	103.83	102.62	101.48	101.75	101.59	101.25	100.20	99.22	98.21
20	101.69	101.32	102.17	103.84	102.44	101.58	101.62	101.66	101.24	100.08	99.12	98.20
21	101.63	101.39	102.28	103.64	102.51	101.63	101.77	101.73	101.27	100.01	99.08	98.34
22	101.61	101.38	102.21	103.81	102.46	101.70	101.97	101.78	101.27	100.00	99.08	98.40
23	101.60	101.40	102.22	103.88	102.47	101.58	102.04	101.88	101.12	99.99	99.01	98.32
24	101.55	101.47	102.21	103.69	102.47	101.43	101.82	102.00	101.05	99.97	98.89	98.48
25	101.47	101.36	102.38	103.63	102.37	101.54	101.88	102.16	101.01	99.91	98.88	98.58
26	101.48	101.39	102.36	103.72	102.41	101.82	102.00	102.17	100.98	99.78	98.92	98.47
27	101.48	101.45	102.67	103.94	102.45	102.10	102.07	102.13	100.94	99.73	98.92	98.35
28	101.30	101.10	102.92	103.79	102.54	101.94	102.07	102.10	100.94	99.80	98.86	98.28
29	101.34	100.85	103.10	103.75	---	102.04	102.11	102.20	100.96	99.80	98.87	98.21
30	101.40	101.12	102.92	103.55	---	101.74	101.85	102.30	100.99	99.70	98.92	98.24
31	101.41	---	102.71	103.18	---	101.76	---	102.26	---	99.66	98.90	---
MEAN	101.56	101.32	102.23	103.51	102.80	101.91	101.74	101.82	101.50	100.27	99.22	98.50
MAX	101.77	101.60	103.10	103.94	103.34	102.79	102.11	102.30	102.19	101.00	99.66	98.78
MIN	101.30	100.85	101.33	102.90	102.37	101.43	101.34	101.53	100.94	99.66	98.86	98.20

48-Potosi

COUNTY--Washington

WELL IDENTIFICATION NUMBER--375617090465401

LOCATION--Lat 37°56'17", long 90°46'54", T.37 N., R.2 E., 11dbd, Potosi.

FORMATIONS OPEN TO THE WELL--Potosi Dolomite to 300 ft, Derby-Doerun Dolomite to 375 ft, Davis  
Dolomite to 525 ft, Bonnetterre Formation to 910 ft, and Lamotte  
Lamotte Sandstone to 1,100 ft.

WELL CHARACTERISTICS--Drilled February 1949, total depth 1,100 ft, 348 ft of 10-in casing.  
DGLS Log Number: 10,680

INSTRUMENTATION--Digital recorder.

DATUM--964 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 1.0 ft above land surface.

PERIOD OF PROCESSED RECORD--October 1, 1988 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	216.82	211.61	209.12	208.08	209.17	206.11	206.83	206.18	206.92	210.53	217.09	214.11
2	214.66	214.20	212.11	211.79	212.53	205.85	206.64	206.26	209.75	212.69	212.76	217.52
3	212.38	210.50	207.87	208.93	208.96	205.85	206.65	206.25	207.05	210.14	217.20	215.28
4	216.57	211.77	208.53	210.76	209.55	206.07	207.13	206.26	212.19	213.90	212.90	213.61
5	212.56	212.19	211.92	211.65	212.59	206.20	207.18	206.26	208.08	209.74	216.50	218.00
6	215.79	210.67	208.16	208.47	208.36	206.23	208.03	206.19	212.29	210.52	214.82	214.21
7	212.49	214.05	211.92	211.61	211.79	206.23	210.54	206.24	208.74	213.84	213.36	218.36
8	211.53	210.06	208.87	208.98	208.64	206.23	207.31	206.24	208.91	210.05	217.69	214.31
9	215.56	211.38	207.89	208.43	208.24	206.23	207.25	206.24	212.07	214.51	213.45	218.62
10	211.51	212.76	211.34	212.50	212.15	206.23	207.24	206.46	207.97	210.37	217.89	215.22
11	215.06	209.61	208.22	208.09	207.93	206.23	207.52	207.58	212.07	214.20	213.66	216.13
12	212.12	212.89	210.97	211.36	210.04	206.23	207.52	207.38	208.22	210.48	218.08	219.66
13	211.13	212.47	208.99	209.48	207.69	206.24	206.46	206.87	212.39	210.41	214.99	215.18
14	215.17	209.86	207.99	207.49	206.80	206.24	210.11	210.54	208.59	214.12	218.37	219.31
15	211.21	213.92	212.01	208.24	207.32	208.40	206.56	206.68	212.80	209.84	214.25	215.22
16	212.69	210.14	208.23	208.12	207.56	211.36	206.08	209.55	209.17	213.03	214.49	218.85
17	215.26	210.38	207.07	210.19	211.54	207.28	206.58	206.96	210.37	210.02	217.78	215.90
18	211.26	212.99	207.13	208.84	207.50	206.59	206.51	206.16	213.28	214.22	213.18	214.79
19	214.26	209.15	207.87	211.53	206.85	206.72	206.28	206.26	209.52	210.34	217.07	218.75
20	211.20	210.61	211.39	210.03	207.09	206.79	206.28	206.26	214.41	214.87	213.51	214.50
21	214.27	213.00	208.24	208.15	207.24	208.04	205.86	207.50	210.23	211.49	214.38	217.71
22	212.38	209.43	207.42	211.76	208.25	207.05	205.68	207.28	214.30	211.44	216.92	214.55
23	213.50	211.25	209.19	208.74	207.91	206.61	205.68	207.34	209.92	215.87	213.20	217.74
24	212.20	212.16	208.23	211.89	207.05	206.74	205.90	207.20	214.12	211.84	217.63	219.02
25	213.15	208.79	209.42	209.18	207.29	206.48	206.22	207.21	214.56	216.29	213.52	216.87
26	212.77	210.87	209.74	212.35	207.09	206.32	206.05	206.90	215.47	212.49	218.05	220.15
27	210.59	210.94	207.82	208.79	208.21	206.59	206.27	206.03	210.93	216.78	214.58	215.62
28	215.66	208.47	211.81	207.86	207.04	206.66	206.08	206.14	214.98	212.32	214.56	216.06
29	211.50	212.42	208.16	207.97	---	206.66	206.08	206.24	210.78	216.80	214.25	223.00
30	212.54	209.01	210.36	208.18	---	206.62	206.26	206.25	214.77	213.14	213.90	218.43
31	213.07	---	210.59	212.55	---	206.80	---	206.72	---	213.15	218.28	---
MEAN	213.25	211.25	209.31	209.74	208.66	206.71	206.83	206.83	211.16	212.56	215.43	216.89
MAX	216.82	214.20	212.11	212.55	212.59	211.36	210.54	210.54	215.47	216.80	218.37	223.00
MIN	210.59	208.47	207.07	207.49	206.80	205.85	205.68	206.03	206.92	209.74	212.76	213.61

COUNTY--Jefferson

WELL IDENTIFICATION NUMBER--380501090335501

LOCATION--Lat 38°05'01", long 90°33'55", T.39 N., R.4 E., 22dab, 2.5 mi 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 Bonneterre Formation.

WELL CHARACTERISTICS--Mineral test hole, total depth 1,500 ft, cased to an unknown depth.

INSTRUMENTATION--Graphic recorder from November 18, 1960 to October 25, 1989. Digital recorder installed October 25, 1989.

DATUM--790 ft above NGVD of 1929.

Measuring point: Base of recorder platform, 0.9 ft above land surface.

REMARKS--Several days missing when recorder was not operational.

PERIOD OF PROCESSED RECORD--June 6, 1984 to September 30, 1991.

WATER LEVEL DEPTH BELOW LAND SURFACE (FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116.14	117.35	120.21	120.42	121.40	116.35	121.19	119.95	118.61	118.30	118.92	119.31
2	---	117.09	119.86	120.42	120.99	115.94	120.87	120.56	118.66	118.38	118.51	119.68
3	---	117.45	117.21	121.83	120.37	118.12	120.42	119.23	118.54	118.49	118.41	119.53
4	---	116.68	120.56	121.70	119.56	118.29	119.99	118.99	118.61	118.52	119.05	119.24
5	---	---	120.33	119.72	119.22	116.87	120.32	118.86	119.70	118.50	119.20	119.08
6	---	117.49	119.35	120.36	119.02	116.09	119.65	120.18	120.69	118.67	119.30	119.74
7	---	118.73	120.11	120.73	120.09	119.09	118.79	120.84	120.96	118.94	119.85	120.05
8	---	118.76	120.09	119.85	120.06	119.94	117.99	120.96	120.48	119.12	118.98	119.35
9	---	117.35	120.41	120.29	118.92	120.44	118.29	120.36	120.31	119.08	118.40	119.08
10	---	117.55	120.06	119.81	118.86	121.12	120.11	120.33	120.00	118.79	119.16	119.10
11	---	118.48	119.18	117.63	119.36	119.15	120.62	120.41	119.30	118.77	119.95	119.07
12	---	119.21	118.23	118.47	118.40	116.70	120.07	119.61	118.85	118.87	120.12	118.79
13	---	119.07	119.76	118.77	115.43	116.25	118.92	118.95	118.90	119.17	119.52	118.61
14	---	118.81	120.17	117.90	116.10	118.53	118.17	118.67	118.65	119.95	118.91	118.31
15	---	118.75	118.64	117.26	119.03	120.50	118.71	118.85	118.21	120.55	118.83	118.53
16	---	118.57	120.18	117.36	119.76	120.88	119.46	118.71	118.76	120.56	118.77	119.00
17	---	119.34	118.22	119.37	117.89	119.14	119.23	118.85	119.08	119.86	118.07	119.47
18	---	118.11	116.59	119.95	117.13	119.08	118.14	119.69	119.22	119.00	118.53	119.29
19	117.98	117.52	118.70	118.44	118.86	119.50	118.08	120.35	119.52	118.75	118.75	120.92
20	116.91	117.85	119.28	117.87	120.21	118.53	119.87	120.32	119.34	119.18	119.26	121.34
21	117.03	117.21	118.77	120.12	119.73	117.62	119.65	119.97	---	119.56	119.34	120.19
22	117.57	117.33	119.85	119.48	119.94	117.37	118.30	119.95	118.37	119.47	119.16	119.10
23	117.31	117.06	120.47	118.45	120.03	117.88	117.77	---	119.24	119.24	119.40	119.79
24	117.57	116.46	120.97	120.06	119.49	119.80	119.53	---	119.75	---	120.17	119.03
25	118.10	116.76	120.64	120.82	120.34	119.84	119.66	118.41	119.71	119.22	120.25	117.81
26	118.06	117.30	121.90	120.10	119.78	118.38	118.62	118.44	119.60	119.91	119.68	118.12
27	117.57	117.69	121.04	118.05	119.09	116.79	117.72	119.11	119.68	120.18	119.37	119.12
28	118.78	119.51	119.39	118.25	118.02	118.61	117.95	119.69	119.69	119.33	119.55	119.51
29	118.60	122.24	117.96	118.40	---	118.68	117.31	119.06	119.24	118.74	---	120.18
30	117.93	121.42	119.44	119.17	---	120.80	119.18	118.11	118.77	119.20	118.88	120.15
31	117.75	---	121.54	121.08	---	121.10	---	118.14	---	119.26	118.60	---
MEAN	---	---	119.65	119.42	119.18	118.63	119.15	---	---	---	---	119.35
MAX	---	---	121.90	121.83	121.40	121.12	121.19	---	---	---	---	121.34
MIN	---	---	116.59	117.26	115.43	115.94	117.31	---	---	---	---	117.81

# INDEX

	Page		Page		
<b>A</b>					
Access to Watstore data.....	16	Clearwater Lake near Piedmont.....	212		
Accuracy of field data and computed results.....	12	Collection and computation of data.....	10		
Acre-foot, definition of.....	17	Collection and examination of data.....	14		
Akers well.....	273	Columbia Bottoms well.....	244		
Alley Spring at Alley.....	228	Conservation well.....	270		
Analyses of samples collected at water-quality partial-record stations.....	228	Contents, definition of.....	17		
Annual 7-day minimum, definition of.....	17	Control, definition of.....	17		
Arkansas River basin, hydrologic records in.....	221	Control structure, definition of.....	17		
Arrow Rock well.....	248	Cooperation.....	2		
Atlas Powder well.....	257	Crooked Creek near Paris.....	41		
Aurora well.....	260	Crooked River near Richmond.....	226		
<b>B</b>					
Bacteria, definition of.....	17	Crest-stage partial-record stations.....	226		
Bear Creek at Hannibal.....	35	Cubic foot per second, definition of.....	17		
Bear Creek basin, hydrologic records in.....	35	Cubic feet per second per square mile, definition of.....	17		
Bed material, definition of.....	17	Cuivre River basin, hydrologic records in.....	53		
Belcrest Street well.....	261	Cuivre River near Troy.....	53		
Bennett Spring at Bennett Springs.....	136	Current River above Powder Mill.....	228		
Big Creek at Des Arc.....	190	at Doniphan.....	218		
Big Piney River near Big Piney.....	143	at Van Buren.....	216		
Big River at Byrnesville.....	165	below Hawes Campground.....	230		
at Irondale.....	163	below Montauk State Park.....	228		
near Richwoods.....	164	<b>D</b>			
Big Spring near Van Buren.....	217, 228	Data presentation.....	13		
Big Spring well.....	277	Definition of terms.....	17		
Bissett School well.....	262	Delta well.....	283		
Black River at Leeper.....	213	Des Moines River at St. Francisville.....	25		
at Poplar Bluff.....	214	Des Moines River basin, hydrologic records in.....	25		
near Annapolis.....	211	DeSoto well.....	288		
Blackwater River at Blue Lick.....	102	Discharge at partial-record stations.....	226		
Blue River basin, hydrologic records in.....	80	Discharge, definition of.....	17		
Blue River near Kansas City.....	80	Discontinued surface-water discharge or stage- only stations.....	xiii		
Blue Spring near Eminence.....	228	Discontinued surface-water-quality stations.....	xvi		
Blue Springs Reservoir near Blue Springs.....	83	Dissolved, definition of.....	18		
Bourbeuse River at Union.....	162	Downstream order and station number.....	9		
near High Gate.....	161	Drainage area, definition of.....	18		
<b>C</b>				Drainage basin, definition of.....	18
Calendar for water year 1991.....	Front	Duck Creek well.....	284	<b>E</b>	
Castor River at Zalma.....	175	East Fork Big Creek near Bethany..... 226			
Cedar Creek near Columbia.....	107	East Fork Little Blue River near Blue Springs..... 84			
near Pleasant View.....	122	East Fork Little Chariton River			
Center Creek near Cartersville.....	222	near Huntsville..... 98			
Cfs-day, definition of.....	17	near Macon..... 97			
Chariton River at Livonia.....	93	East Prairie well..... 281			
at Novinger.....	94	Eleven Point River near Bardley..... 220			
near Prairie Hill.....	95	Elk Fork Salt River near Madison..... 47			
Chariton River basin, hydrologic records in.....	93	Elk River near Tiff City..... 224			
Chemical oxygen demand, definition of.....	17	Explanation of ground-water records..... 13			
Chemical quality of streamflow.....	8	Explanation of stage and water-discharge records..... 10			
Cherokee School well.....	263	Explanation of water-quality records..... 14			

# INDEX

	Page		Page
<b>F</b>		<b>L</b>	
Fabius River basin, hydrologic records in .....	31	Kansas River basin, hydrologic records in .....	76
Factors for converting inch-pound units to International System Units (SI) .....	Back	Kansas Street well.....	265
Fairview well .....	272	<b>L</b>	
Fecal coliform bacteria, definition of .....	17	Lake of the Ozarks near Bagnell .....	138
Fecal streptococci bacteria, definition of .....	17	Lake Taneycomo at Branson .....	208
Fox River at Wayland .....	29	Lake Taneycomo at College of the Ozarks.....	204
Fox River basin, hydrologic records in.....	29	Lakes:	
Fredericktown well .....	286	Blue Springs Reservoir near Blue Springs .....	83
Fulbright well.....	264	Clearwater Lake near Piedmont.....	212
<b>G</b>		Harry S. Truman Reservoir at Warsaw.....	133
Gage height, definition of .....	18	Lake of the Ozarks near Bagnell .....	138
Gaging station, definition of .....	18	Lake Taneycomo at Branson .....	208
Gasconade River above Jerome.....	144	Lake Taneycomo at College of the Ozarks.....	204
at Jerome .....	147	Long Branch Reservoir near Macon.....	96
near Rich Fountain.....	148	Longview Reservoir at Kansas City .....	81
Gasconade River basin, hydrologic records in .....	143	Pomme de Terre Lake near Hermitage.....	126
Grand River basin, hydrologic records in.....	87	Smithville Reservoir near Smithville.....	71
Grand River near Gallatin.....	87	Stockton Lake near Stockton .....	120
near Sumner .....	90	Table Rock Lake near Branson.....	198
Greer Spring at Greer .....	219	Wappapello Lake at Wappapello.....	192
Ground-water wells.....	xi	Lamar well .....	255
Ground-water monitoring wells.....	233	Lamine River near Otterville.....	101
<b>H</b>		Lamine River basin, hydrologic records in.....	101
Halfway well.....	256	Lick Creek at Perry .....	48
Hannibal well.....	237	Lindley Creek near Polk .....	125
Hardness, definition of.....	18	Little Blue River basin, hydrologic records in.....	81
Harry S. Truman Reservoir at Warsaw.....	133	Little Blue River below Longview Dam at Kansas City .....	82
Headwater Diversion Channel basin, hydrologic records in.....	175	near Lake City.....	85
Hinkson Creek near Columbia.....	104	Little Chariton River basin, hydrologic records in .....	96
Hydrologic conditions.....	4	Little Piney Creek at Newburg .....	146
Hydrologic-data station records.....	25	Little Platte River at Smithville .....	72
Hydrologic-data stations in downstream order.....	vii	Little River Ditch 1 near Morehouse.....	195
Hydrologic unit, definition of .....	18	Little River Ditch 251 near Lilbourn.....	194
<b>I</b>		Little Sac River near Morrisville .....	119
Index .....	289	Little St. Francis River at Fredericktown .....	184
Industrial Park well.....	271	Locust Creek at Reger .....	226
Instantaneous discharge, definition of .....	17	Long Branch Reservoir near Macon.....	96
Introduction.....	1	Longview Reservoir at Kansas City .....	81
<b>J</b>		Longview well .....	259
Jacks Fork above Two Rivers.....	228	Lower Eleven Point well .....	276
at Eminence.....	215	Lower Mississippi River basin, hydrologic records in .....	155
James River at Galena.....	197	<b>M</b>	
near Springfield.....	196	Main Street well.....	266
Jefferson City well.....	247	Malden well .....	279
<b>K</b>		Map showing location of ground-water monitoring wells .....	232
Kansas River at DeSoto, KS.....	76	Map showing location of hydrologic-data stations .....	294
		Maries River at Westphalia .....	227
		Maximum discharge at crest-stage partial-	





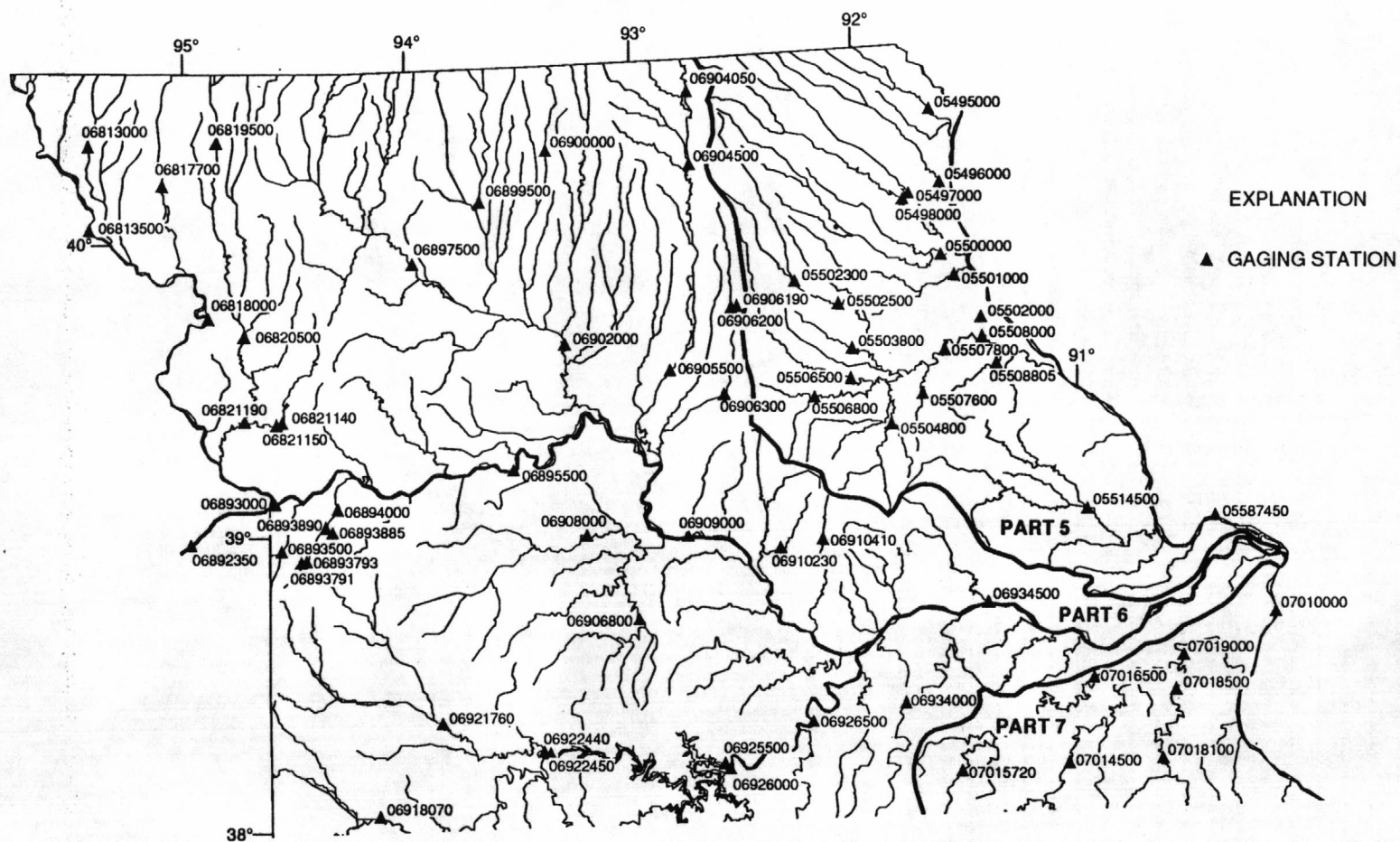


# INDEX

	Page		Page
Salt River basin, hydrologic records in.....	36	Total load, definition of.....	20
Salt River near Center.....	49	Total recoverable, definition of.....	20
near New London.....	50	Total sediment discharge, definition of.....	19
Scotts Corner well.....	239	Tributary to Middle Fork Tebo Creek	
Sedalia well.....	249	near Leeton.....	130
Sediment.....	15	Troy well.....	241
Sediment, definition of.....	19	Turnback Creek above Greenfield.....	118
Shoal Creek above Joplin.....	223		
Sikeston well.....	282	U	
Smithville Reservoir near Smithville.....	71	Upper Mississippi River basin, hydrologic	
Solute, definition of.....	19	records in.....	25
South Fabius River near Taylor.....	33		
South Fork Salt River above Santa Fe.....	42	V	
South Grand River near Clinton.....	128	Vandalia well.....	238
Southwest Power Plant well.....	267	Vandike well.....	235
Special networks and programs.....	10		
Specific conductance, definition of.....	19	W	
Spencer Creek below Plum Creek near		Wakenda Creek at Carrollton.....	226
Frankford.....	52	Wappapello Lake at Wappapello.....	192
Spickard well.....	234	Warsaw well.....	251
Spring River near Waco.....	221	Washington well.....	245
Springs:		Water analysis.....	14
Alley Spring at Alley.....	228	Water temperature.....	15
Bennett Spring at Bennett Springs.....	136	Water use.....	3
Big Spring near Van Buren.....	217, 228	Water year, definition of.....	20
Blue Spring near Eminence.....	228	Wayland well.....	236
Greer Spring at Greer.....	219	WDR, definition of.....	20
Montauk Springs at Montauk.....	228	Welch Spring near Akers.....	228
Pulltite Spring near Round Spring.....	228	Wellington well.....	250
Round Spring at Round Spring.....	228	Wells:	
Welch Spring near Akers.....	228	Akers well.....	273
Stage-discharge relation, definition of.....	19	Arrow Rock well.....	248
Steele well.....	280	Atlas Powder well.....	257
Stockton Lake near Stockton.....	120	Aurora well.....	260
Streamflow.....	6	Belcrest Street well.....	261
Streamflow, definition of.....	19	Big Spring well.....	277
Surface area, definition of.....	19	Bissett School well.....	262
Surficial bed material, definition of.....	19	Cherokee School well.....	263
Suspended sediment, definition of.....	19	Columbia Bottoms well.....	244
Suspended-sediment concentration,		Conservation well.....	270
definition of.....	19	Delta well.....	283
Suspended-sediment discharge, definition of.....	19	DeSoto well.....	288
Suspended-sediment load, definition of.....	19	Duck Creek well.....	284
		East Prairie well.....	281
T		Fairview well.....	272
Table Rock Lake near Branson.....	198	Fredericktown well.....	286
Tariko River at Fairfax.....	61	Fulbright well.....	264
Tariko River basin, hydrologic records in.....	61	Halfway well.....	256
Thermograph, definition of.....	19	Hannibal well.....	237
Thompson River at Trenton.....	88	Industrial Park well.....	271
Time-weighted average, definition of.....	19	Jefferson City well.....	247
Tons per acre-foot, definition of.....	20	Kansas Street well.....	265
Tons per day, definition of.....	20	Lamar well.....	255
Total, definition of.....	20	Longview well.....	259
Total in bottom material, definition of.....	20	Lower Eleven Point well.....	276

**INDEX**

	Page		Page
Main Street well.....	266	Troy well.....	241
Malden well .....	279	Vandalia well .....	238
National Lead well.....	285	Vandike well .....	235
Naylor well .....	278	Warsaw well .....	251
Nevada East well .....	254	Washington well .....	245
Nevada West well .....	253	Wayland well .....	236
New Florence well .....	240	Wellington well .....	250
Noel well.....	258	Wentzville well.....	242
O'Fallon well .....	243	York Street well.....	268
Osceola well.....	252	Weighted average, definition of .....	20
Ozark Lead 1 well.....	274	Wentzville well .....	242
Ozark Lead 2 well.....	275	West Fork Tebo Creek near Lewis .....	131
Potosi well.....	287	White River basin, hydrologic records in.....	196
Rolla well.....	269	White River below Table Rock Dam	
St. Clair well .....	246	near Branson .....	199
St. Joseph well .....	233	White River near Branson .....	203
Scotts Corner well.....	239	WRD, definition of .....	20
Sedalia well.....	249	WSP, definition of .....	20
Sikeston well.....	282	Wyaconda River above Canton .....	30
Southwest Power Plant well .....	267	Wyaconda River basin, hydrologic records in.....	30
Spickard well .....	234		
Steele well.....	280		
		<b>Y</b>	
		York Street well.....	268



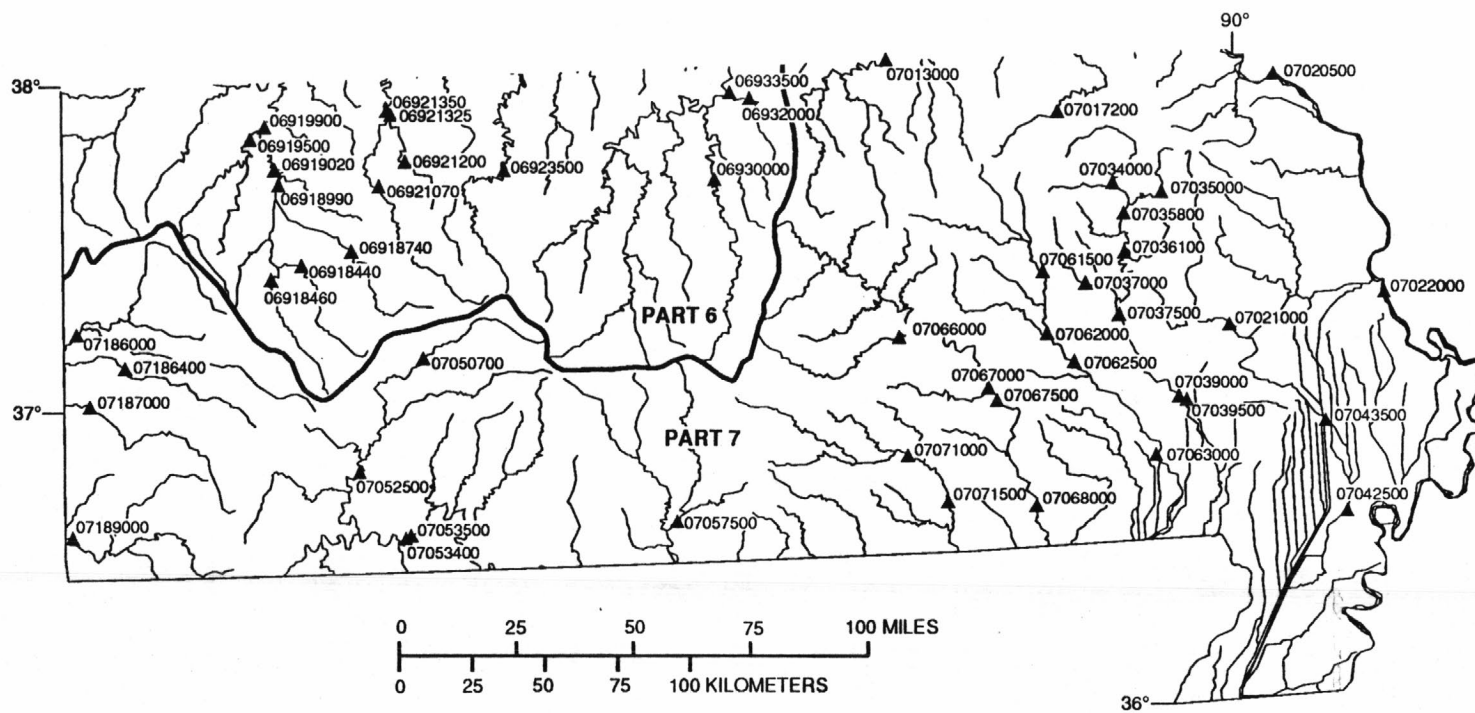


Figure 7.--Location of hydrologic-data stations.

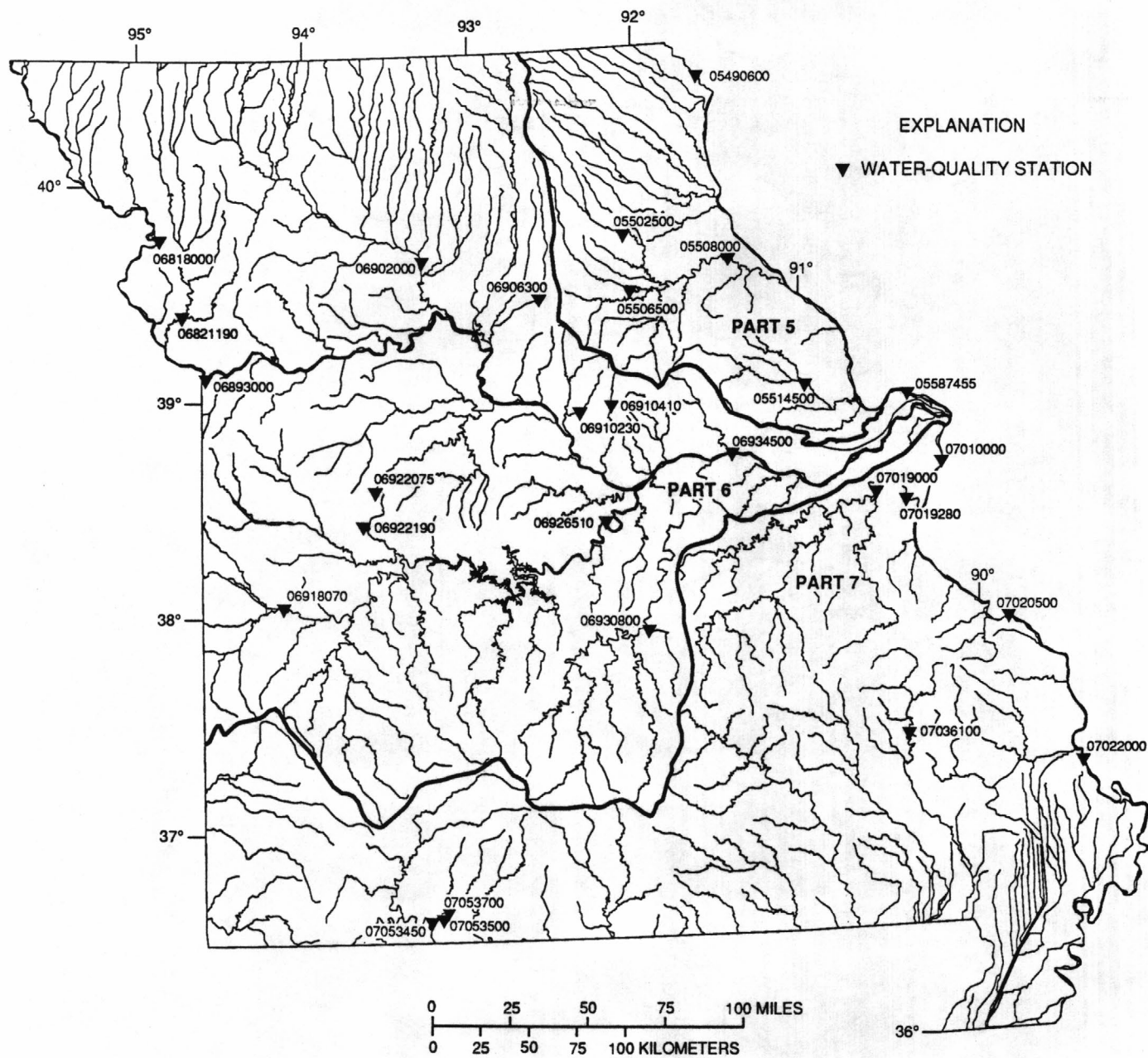


Figure 7.--Location of hydrologic-data stations--Continued.

THIS IS A BLANK PAGE



THIS IS A BLANK PAGE

## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	liters (L)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
cfs-days	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (L/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (L/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons



U.S. DEPARTMENT OF THE INTERIOR  
U.S. Geological Survey  
1400 Independence Road, Mail Stop 200  
Rolla, MO 65401



OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300

SPECIAL 4th CLASS BOOK RATE