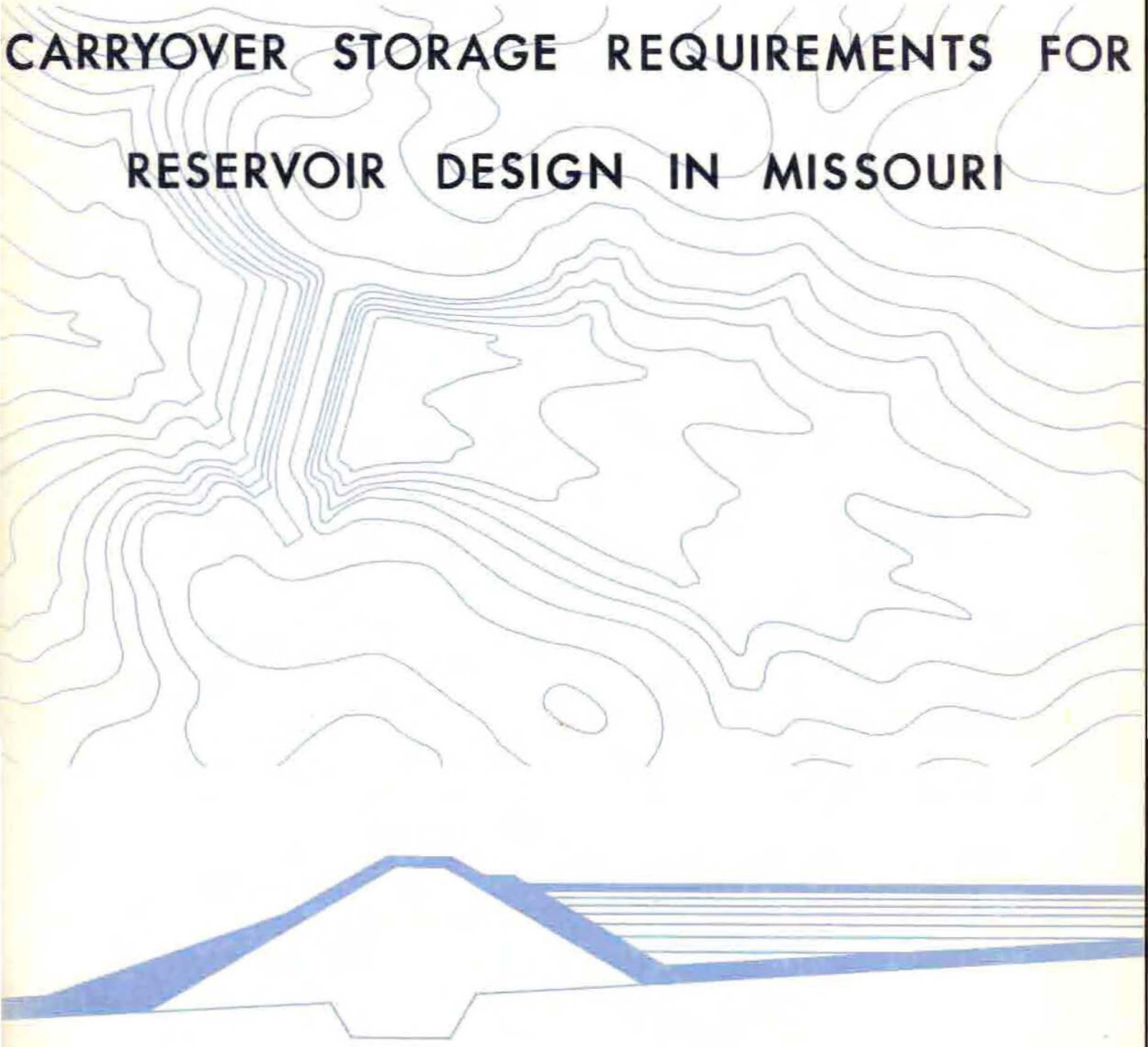
WATER RESOURCES REPORT 27

CARRYOVER STORAGE REQUIREMENTS FOR RESERVOIR DESIGN IN MISSOURI



by john skelton

CARRYOVER STORAGE REQUIREMENTS FOR RESERVOIR DESIGN IN MISSOURI

By John Skelton

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Rolla, Mo., August 1971

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CARRYOVER STORAGE REQUIREMENTS FOR RESERVOIR DESIGN IN MISSOURI

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Skelton, John, Carryover storage requirements for reservoir design in Missouri: Mo. Geol. Survey and Water Resources, W.R. 27, 60 p., 9 figs., 1 tbl., 1 pl., app., 1971.

CARRYOVER STORAGE REQUIREMENTS FOR RESERVOIR DESIGN IN MISSOURI

By John Skelton

ABSTRACT

The carryover storage requirements for draft rates as high as 94 percent of the mean annual flow at 212 continuous and partial-record sites on unregulated Missouri streams are presented in this report. The storage requirements were determined for selected chances of deficiency using the probability routing method and annual stream flows. These data will be useful in preliminary studies of storage structures to be located at or near gaged sites and in comparing development possibilities of different streams.

Regional draft-storage curves for 2-, 5-, and 10-percent chances of deficiency are presented as three-parameter plots of storage against average annual runoff for selected draft rates. These curves can be used to estimate storage requirements at sites where long-time continuous records are not available. Standard errors of estimate for the curves are 20 percent or less.

INTRODUCTION

Missouri possesses an adequate supply of surface water that is chemically suitable for most uses. In much of the state, however, the seasonal and annual variability of streamflow make it necessary to provide storage reservoirs to insure a dependable year-round supply.

Storage may be classified as within-year or carryover, according to the length of time required for replenishment. A previous report (Skelton, 1968) presented design data for Missouri streams based on the required storage that will be replaced each year. These within-year storage data are useful in the preliminary planning and design of small, multipurpose reservoirs. However, the demand for water is increasing rapidly in Missouri, and it is evident that there is a need for design data based on higher draft rates which require carryover storage.

The purpose of this report is to present (1) processed data from analyses of carryover storage requirements for all streamflow stations that are not affected by regulation, and (2) regional relations for use in estimating storage requirements at ungaged sites.

Draft-storage data presented in this report are useful primarily in making preliminary estimates of potential development and in comparing the development possibilities of different streams. Although the probability-routing analysis which is used is based on the assumption of constant draft rates and independent annual discharges, the results provide a base from which adjustments for other conditions, such as variable draft rates, can be made.

ACKNOWLEDGMENTS

The information contained in this report is based on data collected by the Water Resources Division of the U.S. Geological Survey in cooperation with State and Federal agencies. The report was prepared in the Missouri district of the Water Resources Division under the direction of Anthony Homyk, district chief, in cooperation with the Missouri Geological Survey and Water Resources, William C. Hayes, State Geologist and Director.

METHODS OF ANALYSIS

Storage Requirements from Long-term Records

The records at long-term streamflow stations were analyzed using the mathematical technique of Markov-chain analysis called "probability routing" by Langbein (1958). A description of the method is given by Hardison (1966).

The objective of probability routing is the determination of the frequency distribution of annual reservoir contents. For a given solution, three conditions are set: (1) the observed frequency distribution of annual inflows (that is, annual flows at the gaging station) is approximated by one of three types of probability distributions: normal, log normal, or Weibull. An example of an observed annual flow series and the fitted probability distributions is shown in figure 1; (2) a constant annual draft is selected; and (3) a reservoir capacity is selected. Prior to making the calculations, the inflow, storage, and outflow values are divided into intervals and all quantities are transformed into volume units. Once the above conditions are set, the desired frequency curve of annual reservoir contents is obtained using matrix algebra methods.

Frequency characteristics in this report are expressed as percent chance of deficiency. This probability value is the percent of years in which a storage reservoir of indicated capacity will become empty. It might also be interpreted as the average chance of having an empty reservoir in any year over a long period of years. However, this does not imply that the deficiency is equally probable each year, because a series of dry years will decrease the amount of water stored and increase the chance of deficiency for succeeding years.

Hardison (1966) has obtained the probability corresponding to an empty reservoir for many combinations of inflow characteristics, reservoir storage capacity and annual draft. These results have been summarized in tables relating storage capacity, annual draft, and a variability index for values of 2-, 5-, and 10-percent chance of deficiency. The flow variability index used is the coefficient of variation of annual flows in the case of normal and Weibull distributions and the standard deviation of logs for log-normal distributions. Thus, if the frequency distribution of annual flows is approximated by one of the three probability distributions and the appropriate index of variability is determined, Hardison's tables can be used to obtain carryover storage requirements for selected annual draft rate and chance of deficiency.

Carryover storage requirements are based on the assumption that reservoir inflow is uniform throughout the year. As this is not the case, an additional amount of storage is required to regulate the within-year variation.

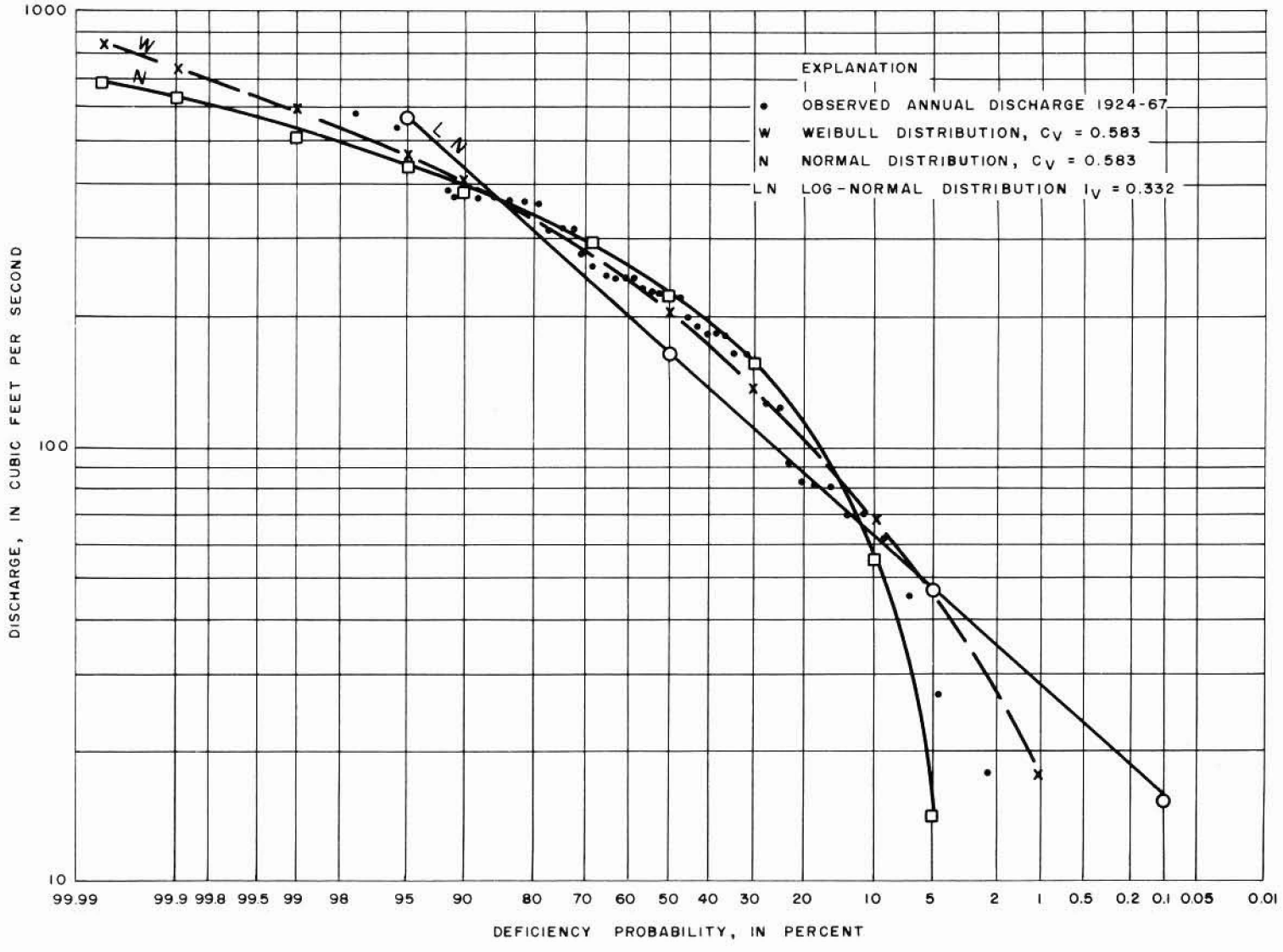

Figure 1. Probability distribution of annual discharge, Fox River at Wayland, Mo., showing comparison between three types of distribution curves.

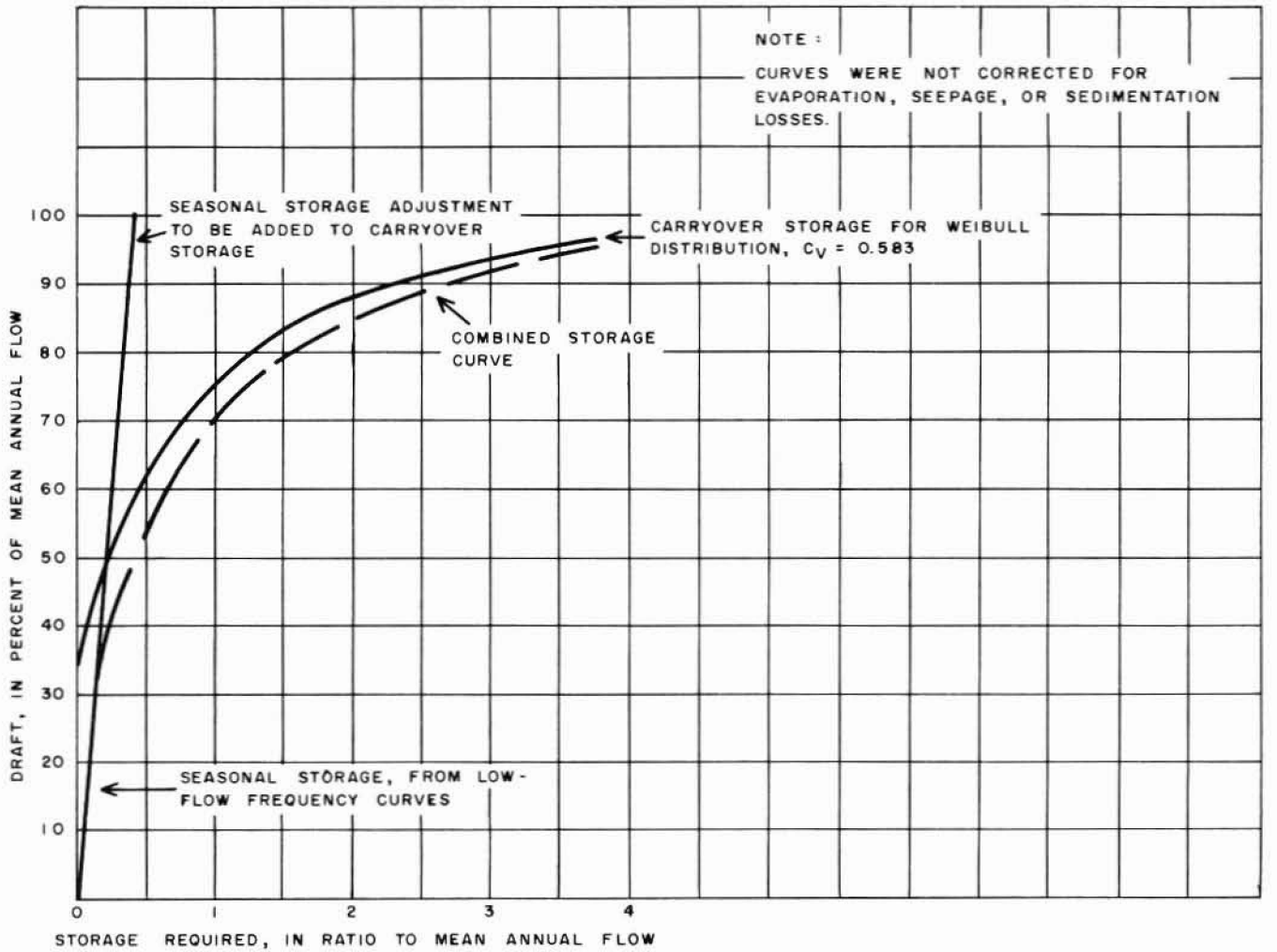

Figure 2. Combination of seasonal and carryover storage requirements for a 5-percent chance of deficiency, Fox River at Wayland, Mo.

For draft rates lower than the lowest annual mean flow, no carryover storage is required and within-year or seasonal storage is all that is required. Hardison (1966) described a procedure for combining seasonal and carryover storage requirements which was used for this report. Figure 2 illustrates Hardison's method as it was applied to data for Fox River at Wayland, Mo.

These procedures were used to approximate storage requirements for selected annual draft rates and chances of deficiency for all long-time continuous-record stations on unregulated streams in Missouri. These data, plus estimates of storage requirements at selected partial-record stations, were tabulated and are shown in the appendix. Plate 1 shows the geographic distribution of the gaging stations.

Regional Draft-Storage Relations

Regional draft-storage-frequency curves were developed from continuous-record station data to provide a method of obtaining estimates of storage requirements at sites where long records of discharge are not available.

The first step in the procedure was the reduction of selected station draft and storage units to rates and volumes per square mile. Secondly, because there is a significant statewide range in average annual runoff, this parameter was chosen as a suitable regional characteristic of stream flow to use in defining the regional curves. Then, draft-storage data were plotted for selected chances of deficiency using three-parameter plots of storage against average annual runoff for selected draft rates.

Data plots indicated that areas of exceptionally high, well-sustained base flows in southern Missouri have quite different draft-storage characteristics from other areas. Accordingly, two sets of regional curves, designated A and B, were defined from gaging-station data and are presented in figures 3 to 8. The areas in which regional curves A and B are to be used are delineated on plate 1.

When storage estimates are made in the Crooked, E.F. Fishing, and James River basins (region A) the values must be multiplied by 1.5 to obtain reliable results. (See note on figs. 3, 4, and 5.) For undetermined reasons, these basins were the only ones in either region for which gaging-station data indicated a significant deviation from regional patterns.

The standard errors of estimate for the regional curves were determined graphically and found to be 20 percent or less. This means that estimates from the regional curves will be within 20 percent of the correct value at about two-thirds of the sites

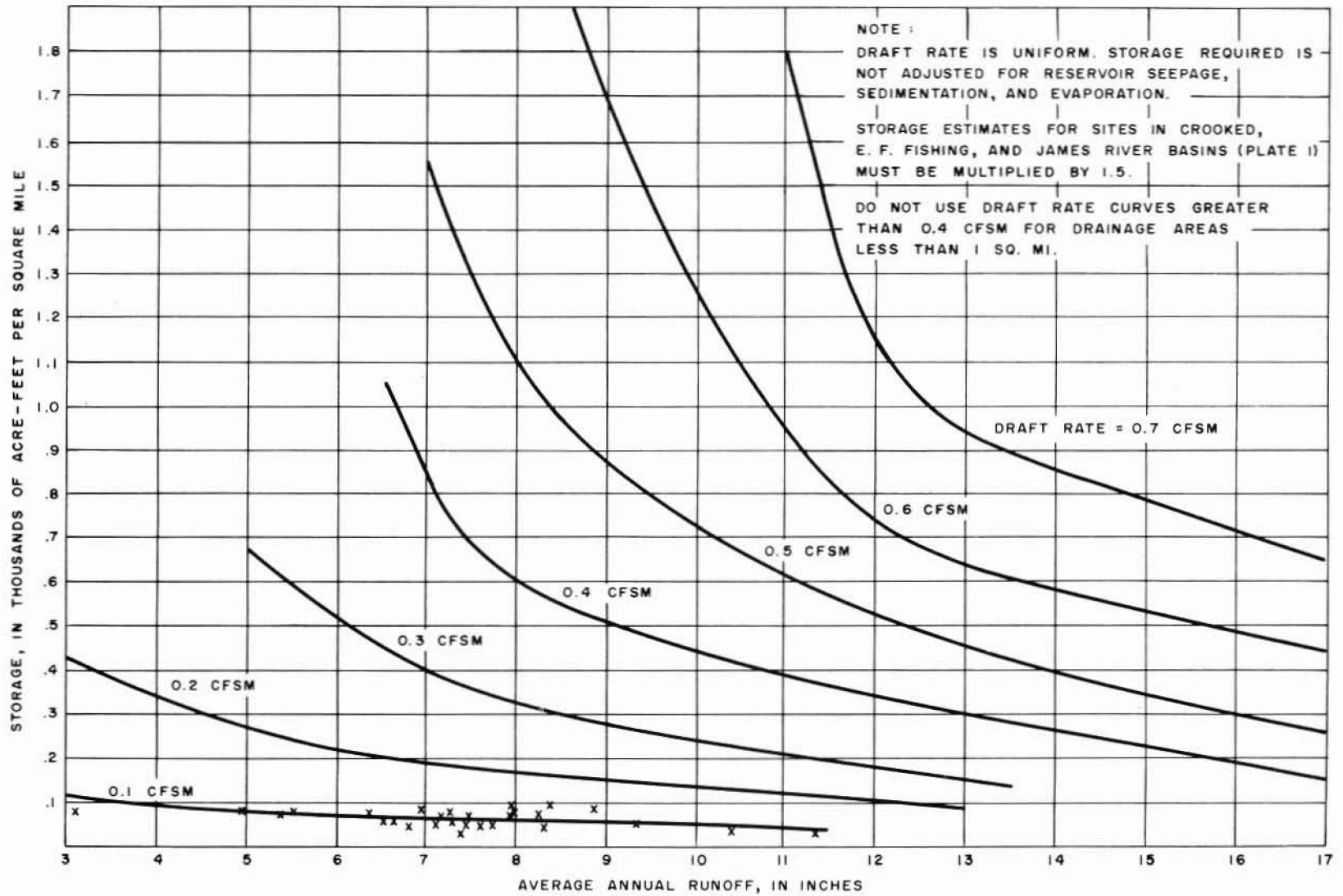

Figure 3. Draft-storage curves for Region A, 2-percent chance of deficiency.

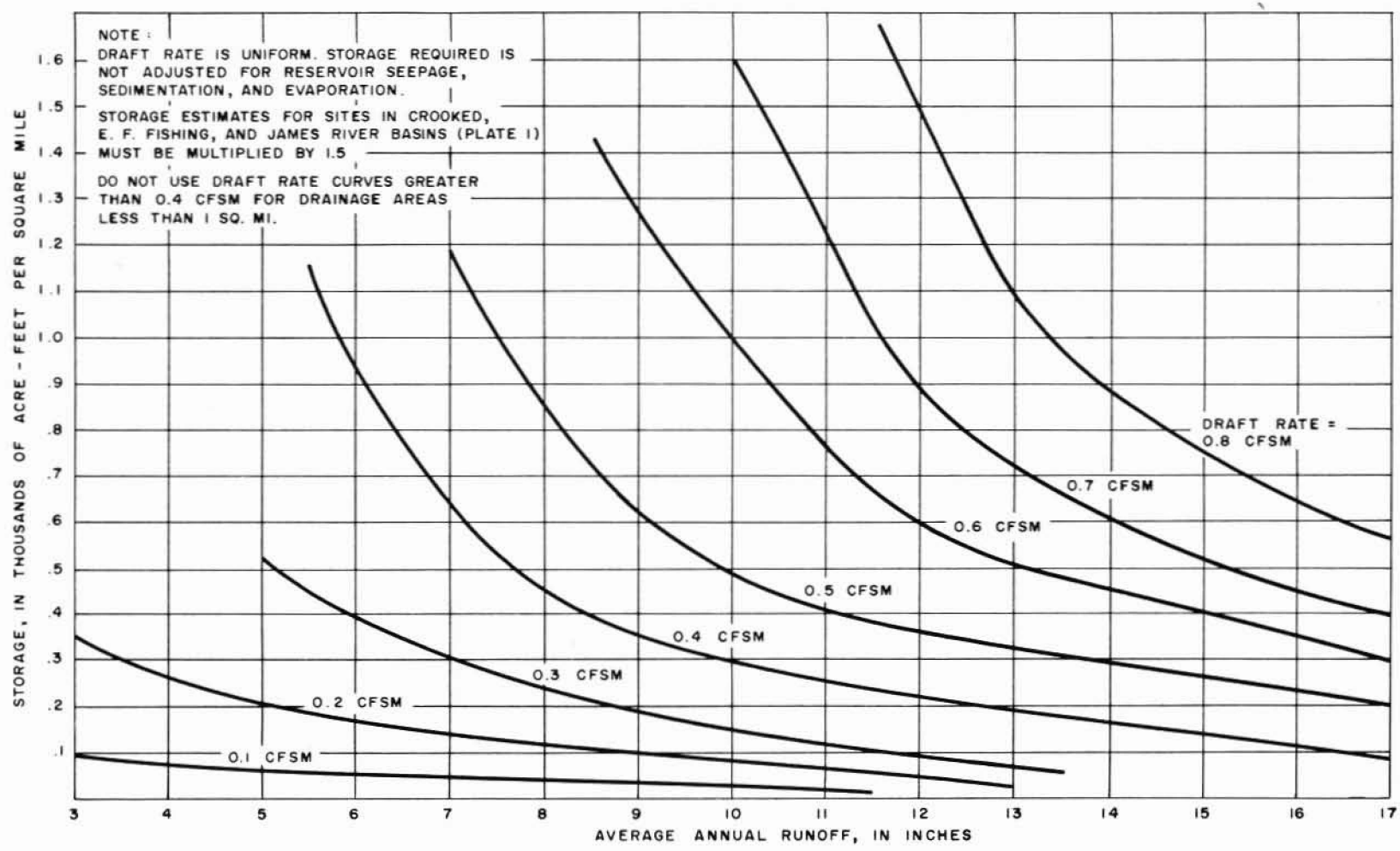

Figure 4. Draft-storage curves for Region A, 5-percent chance of deficiency.

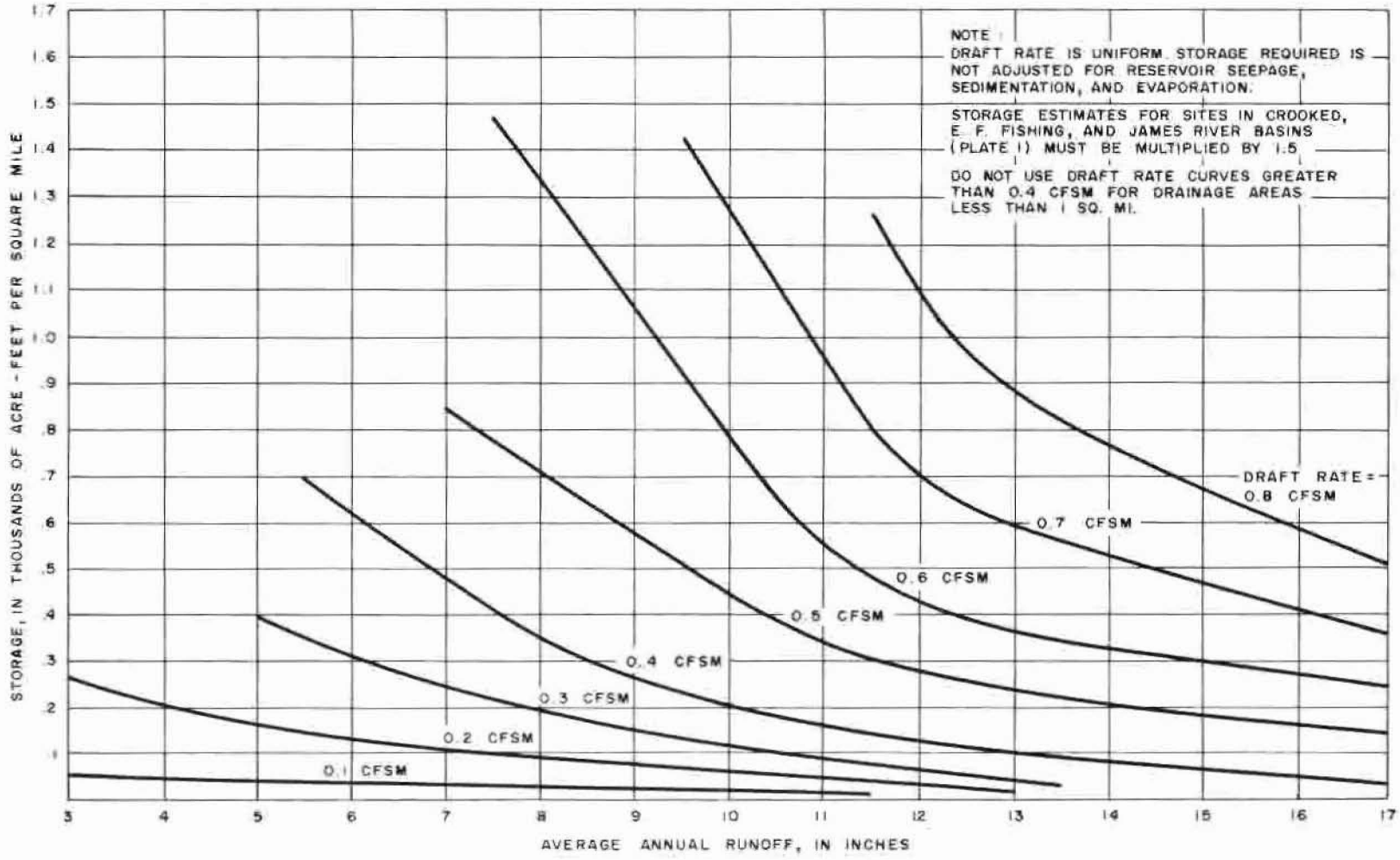

Figure 5. Draft-storage curves for Region A, 10-percent chance of deficiency.

and within 40 percent of the correct value at about 95 percent of the sites.

Definition of the regional curves is illustrated by plotting station data for region A for a draft rate of 0.1 cfs per sq. mi. (cubic feet per second per square mile) and 2-percent chance of deficiency (fig. 3).

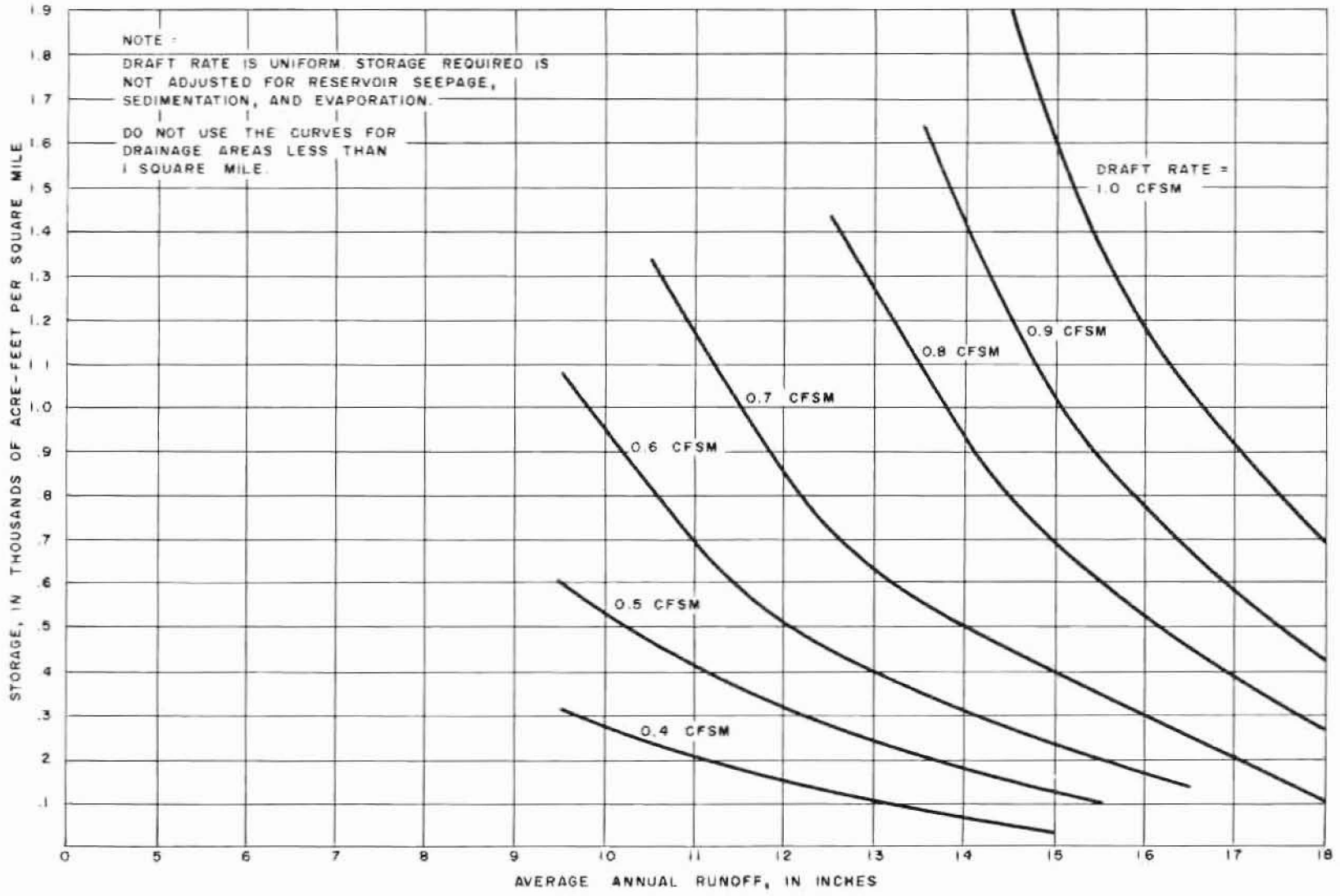

Figure 6. Draft-storage curves for Region B, 2-percent chance of deficiency.

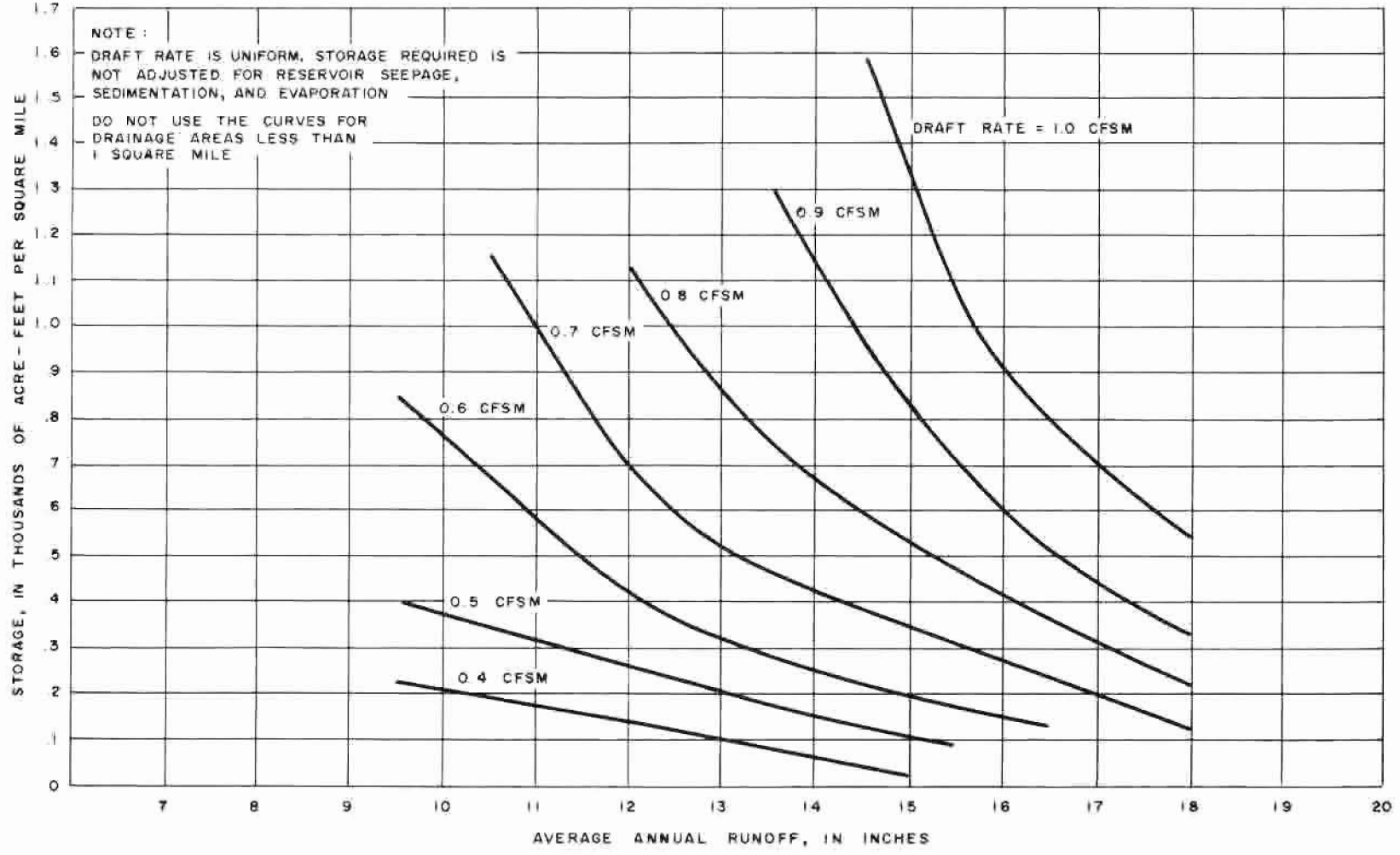

Figure 7. Draft-storage curves for Region B, 5-percent chance of deficiency.

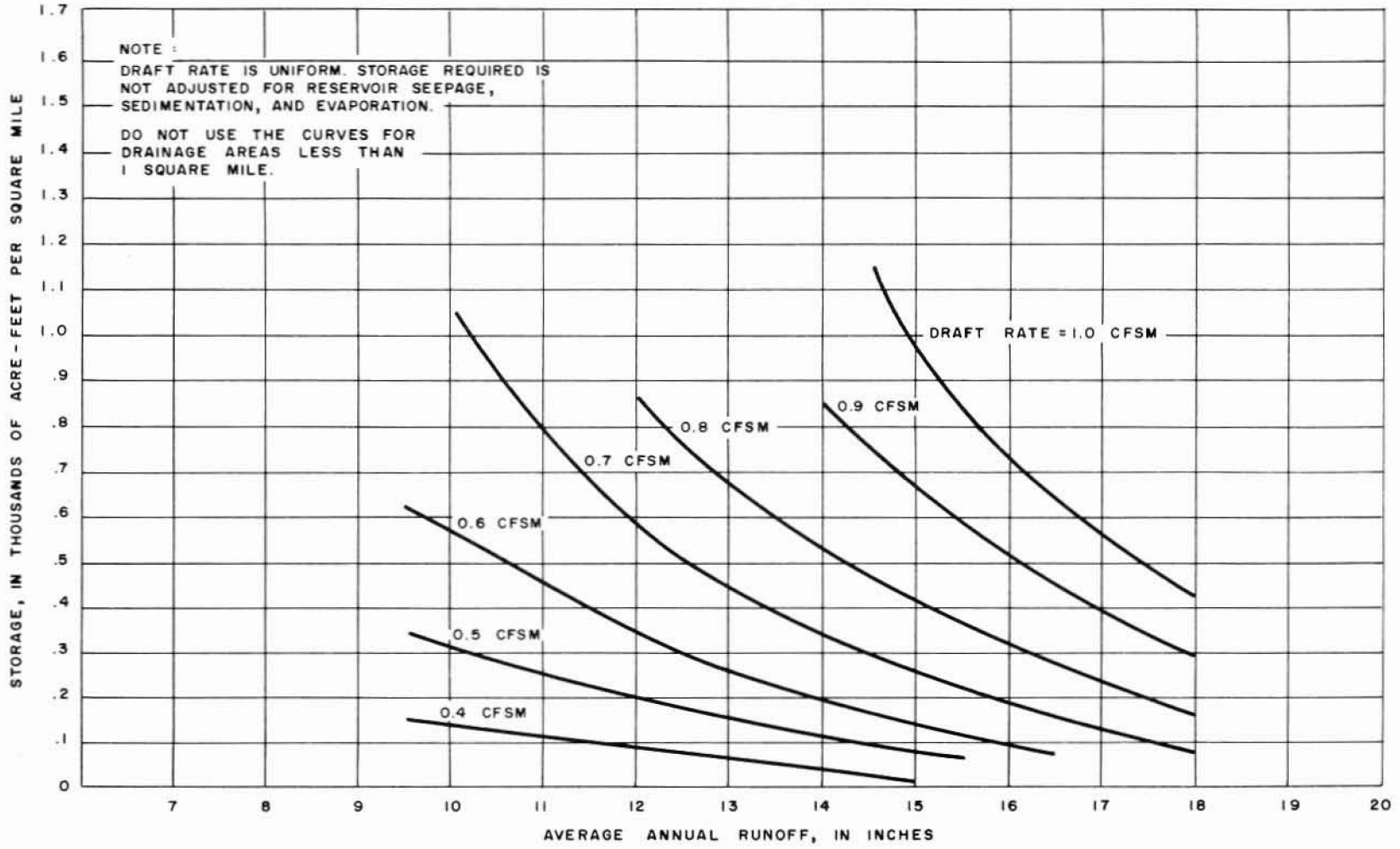

Figure 8. Draft-storage curves for Region B, 10-percent chance of deficiency.

APPLYING STATION DATA AND REGIONAL CURVES TO RESERVOIR DESIGN

When the designer is interested in locating a structure at or very near the sites shown on plate 1, then the data presented in the appendix are applicable, with perhaps a small adjustment for drainage area differential. At other potential sites, the regional curves, figures 3 through 8, must be used as follows:

(1) Determine from plate 1 whether the proposed site is in region A or B.

(2) Measure the drainage area upstream from the site from the best available topographic map.

(3) Determine average annual runoff for the basin by interpolating to the nearest inch between isopleths of average annual runoff shown on plate 1. Use the center of the basin as the point of estimation.

(4) Decide whether the 2-, 5-, or 10-percent chance of deficiency is more appropriate to the economics of the problem.

(5) Use the appropriate regional curves and estimate storage requirements.

As an illustrative example, assume that (1) a proposed site is located in region A, (2) the drainage area above the site is 200 square miles, (3) the average annual runoff is 10 inches and (4) a 10-percent chance of deficiency can be tolerated. Figure 5 defines draft-storage relationships in region A for a 10-percent chance of deficiency, and the following table summarizes the draft-storage estimates obtained from that figure. In 10 percent of the years, on the average, the storage estimates shown will be inadequate to sustain the draft rates listed, and the reservoir may become empty. Estimates of reservoir losses from evaporation, seepage, and sediment deposition will also be necessary so that compensating adjustments can be made to the storage values shown in the table.

TABLE 1
Draft-Storage Estimates

Draft		Storage	
Cubic feet per second per square mile	Cubic feet per second	Thousands of acre-feet per square mile	Thousands of acre-feet
0.1	20	0.02	4
0.2	40	0.06	12
0.3	60	0.11	22
0.4	80	0.20	40
0.5	100	0.44	88
0.6	120	0.78	156
0.7	140	1.27	254

RESERVOIR LOSSES

For this report, no adjustments have been made for losses due to evaporation, seepage or sedimentation. A detailed discussion of regional adjustments to storage requirements for these losses has been presented by Skelton (1968, p. 15-23). This information will be valuable in preliminary studies. However, a more detailed analysis will be necessary at the reservoir site prior to construction of major structures.

LIMITATIONS OF DATA

Before the station data and regional curves are used in project planning and analysis, the following limitations and restrictions should be considered:

(1) The regional curves do not apply to regulated streams.

(2) The regional curves should not be extrapolated beyond the limits shown.

(3) If the drainage area for a proposed site is less than one square mile, use of regional curves should be limited to draft rates of 0.1-0.4 cfs per square mile. Plots of draft-storage data from the two gaging stations with drainage areas less than one square mile indicate a deviation from regional draft-storage relations above draft rates of 0.4 cfs per square mile.

(4) Draft-storage-frequency data are not shown for the Southeastern Lowlands region, where the flat terrain makes large surface storage reservoirs impractical. Moreover, storage facilities are generally unnecessary in this region because ample water supplies for most uses are available from the streams and from shallow wells in the alluvium.

(5) Regional storage values are based on the average of values from many long-time stream-gaging stations. The user should be aware of the possibility of anomalous areas having streamflow characteristics greatly different from other streams. Anomalous runoff patterns may occur within and among basins throughout Missouri, but are much more prevalent in the cavernous limestone and dolomite formations of the Missouri Ozarks (fig. 9). The areas of anomalous runoff which have been observed are delineated on plate 1, but more of these areas are certain to exist. Field reconnaissance of potential reservoir sites, especially on small Ozark tributary streams, is strongly recommended to avoid gross underestimation of storage requirements.

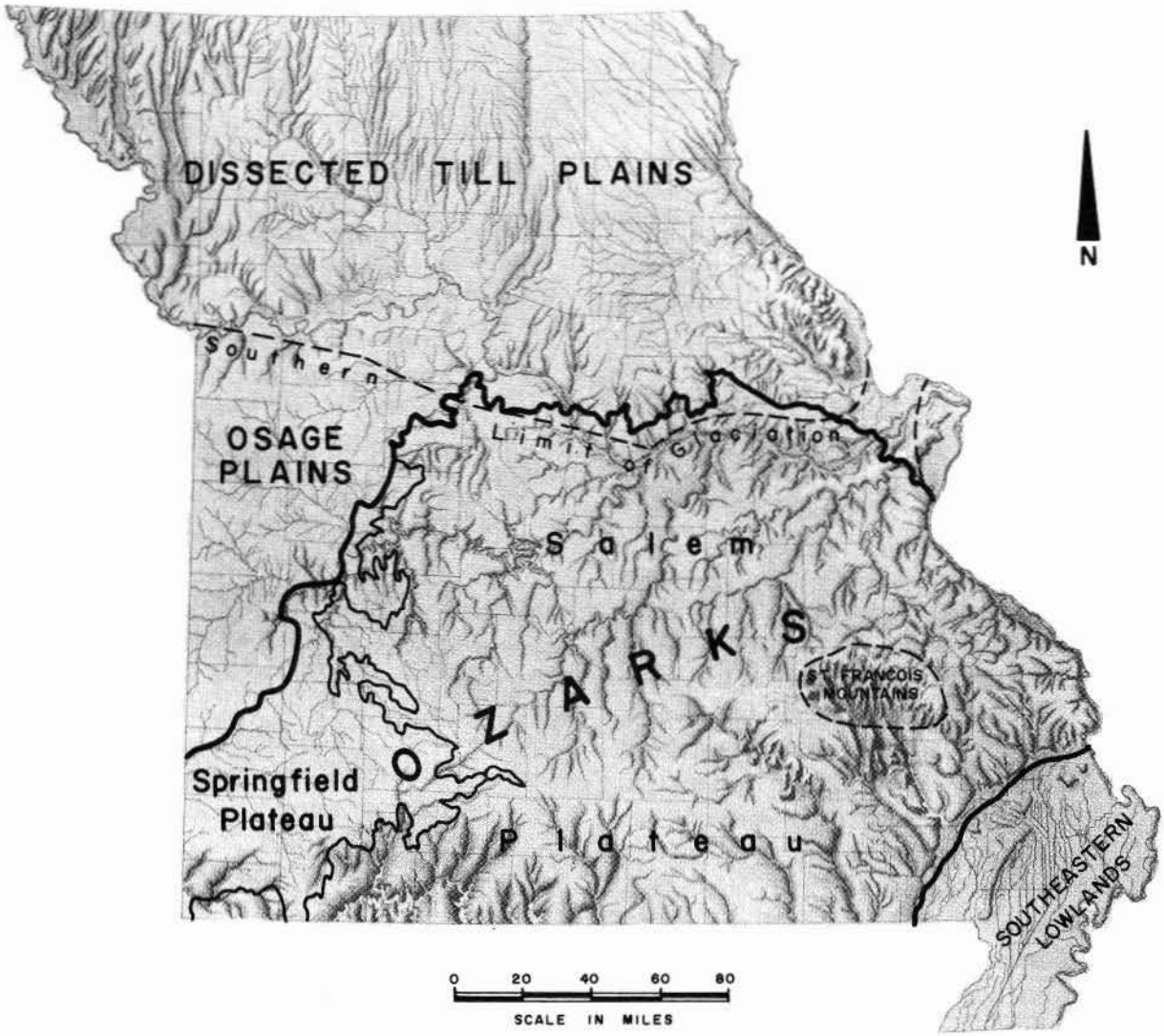

Figure 9. Map showing the physiographic divisions of Missouri.

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INDEX OF STATION NAMES
(*Indicates Continuous-Record Station)

STATION NUMBER (see appendix)	STATION NAME
	(continued).....
7-1864	Center Creek near Carterville*
7-1862	Center Creek near Fidelity
7-1861	Center Creek near Sarcoxie
7-1864.2	Center Creek near Webb City
6-9045	Chariton River at Novinger*
6-9055	Chariton River near Prairie Hill*
6-9183.2	Clear Creek near Eldorado Springs
6-9184.3	Clear Creek near Phenix
7-0142	Courtois Creek at Berryman
7-0211.5	Crooked Creek at Lutesville
6-8950	Crooked River near Richmond*
5-5145	Cuivre River near Troy*
7-0680	Current River at Doniphan*
7-0649.5	Current River at Round Spring
7-0670	Current River at Van Buren *
7-0665	Current River near Eminence*
	D
5-5147.2	Dardenne Creek near Weldon Spring
6-9078	Davis Creek at Sweet Springs
6-9217.8	Deepwater Creek near Montrose
7-0157.6	Dry Fork Creek near Owensville
	E
6-8970	East Fork Big Creek near Bethany*
7-0613	East Fork Black River at Lesterville*
6-8945	East Fork Fishing River at Excelsior Springs
6-8964	East Fork Grand River at Albany
7-0715	Eleven Point River near Bardley*
7-0705	Eleven Point River near Thomasville*
5-5070	Elk Fork Salt River near Paris*
7-1888.5	Elk River at Pineville
7-1890	Elk River near Tiff City*
	F
6-9357.5	Femme Osage Creek near Weldon Spring
7-0523	Finley Creek near Ozark
6-8943	Fishing River at Mosby
6-8946	Fishing River near Orrick
7-0528	Flat Creek at Jenkins
6-9067	Flat Creek near Sedalia*
5-4950	Fox River at Wayland*

STATION NUMBER (see appendix)	STATION NAME
	(continued).....
6-9309	Little Piney Creek at Yancy Mills
6-8211	Little Platte River near Trimble
6-9188	Little Sac River near Aldrich
7-0350	Little St. Francis River at Fredericktown*
6-9015	Locust Creek near Linneus
6-8968	Lost Creek near Weatherby
6-9355	Loutre River at Mineola*
	M
6-9270	Maries River at Westphalia*
6-9000	Medicine Creek near Galt
6-9005	Medicine Creek near Sturges
6-9006	Medicine Creek near Wheeling
7-0170	Meramec River at Robertsville*
7-0190	Meramec River near Eureka*
7-0104	Meramec River near St. James
7-0130	Meramec River near Steelville*
7-0145	Meramec River near Sullivan*
6-9166.7	Miami Creek near Butler
5-4975	Middle Fabius River near Baring*
5-4980	Middle Fabius River near Monticello*
7-0611.7	Middle Fork Black River near Lesterville
6-9064.5	Middle Fork Chariton River near Salisbury
6-8961.85	Middle Fork Grand River at Grant City
6-8961.9	Middle Fork Grand River near Albany
5-5065	Middle Fork Salt River at Paris*
6-9270.5	Middle River near Mokane
7-0178	Mineral Fork near Potosi
6-9095	Moniteau Creek near Fayette*
6-9105	Moreau River near Jefferson City*
6-8995.5	Muddy Creek at Trenton
6-9061	Mussel Fork at Keytesville
	N
6-9232	Niangua River near Buffalo
6-8175	Nodaway River near Burlington Junction*
6-8178	Nodaway River near Oregon
5-4969.5	North Fabius River at Memphis
5-4970	North Fabius River at Monticello*
5-4985	North Fabius River at Taylor*
5-5143	North Fork Cuivre River at Silex
7-0575	North Fork River near Tecumseh*
7-0574	North Fork River at Twin Bridges

STATION NUMBER (see appendix)	STATION NAME
	(continued).....
5-5000	South Fabius River near Taylor*
5-5044	South Fork Salt River at Mexico
5-5050	South Fork Salt River at Santa Fe*
6-9215.9	South Grand River at Archie
6-9216	South Grand River at Urich*
6-9220	South Grand River near Brownington*
6-9215.8	South Grand River near Freeman
5-5088	Spencer Creek near Frankford
6-9301	Spring Creek at Spring Creek
7-0574.5	Spring Creek at Twin Bridges
7-1857	Spring River at Larussell*
7-0691.5	Spring River at Thayer
7-1858	Spring River near Neck City
7-1856.5	Spring River near Stotts City
7-1860	Spring River near Waco*
7-0539.8	Swan Creek at Forsyth
	T–U–V
6-8130	Tarkio River at Fairfax
6-9263	Tavern Creek near St. Elizabeth
6-8995	Thompson River at Trenton
6-8981	Thompson River at Mt. Moriah*
6-9184.7	Turnback Creek near Greenfield
	W–X
6-8960	Wakenda Creek at Carrollton*
6-8990	Weldon River at Mill Grove*
6-8985	Weldon River near Mercer*
6-8991	Weldon River near Trenton
7-0611.5	West Fork Black River at Centerville
5-5144.5	West Fork Cuivre River near Troy
6-8125	West Tarkio Creek near Westboro*
6-9023	West Yellow Creek below Brookfield
6-9022	West Yellow Creek near Brookfield*
6-9254.3	Wet Glaize Creek near Brumley
6-8204	White Cloud Creek near Barnard
7-0214	Whitewater River at Millersville
7-0216	Whitewater River at Whitewater
5-4960	Wyaconda River above Canton*
	Y–Z
6-9030	Yellow Creek near Rothville
5-5060	Youngs Creek near Mexico*

APPENDIX

Draft-Storage-Frequency Data At Continuous-Record and Partial - Record Streamflow Stations In Missouri

This appendix presents draft-storage - frequency data at stream-gaging stations in Missouri. The data were not corrected for evaporation, sedimentation, and seepage losses. Storage estimates are hydrologically feasible, but physical properties at the sites which may make the estimates impossible to attain were not considered.

Station number is a nationwide identification number used by the U.S. Geological Survey to locate the stations in downstream order. Stations are arranged in downstream order in this appendix; however, an alphabetical listing with station numbers is provided in the station index.

Station name gives the name of the continuous-record or partial-record station and a brief reference to a nearby town or city. See plate 1 for exact station locations.

Record used in analysis shows the water years (the water year begins Oct. 1) in which discharge record was obtained at the station.

Under drainage area is the most recently determined drainage area based on the most accurate maps available at the time of the determination.

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance [b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
5-4950	Fox River at Wayland	1924-67	400[a]	7.4		20 cfs	80 cfs	120 cfs	160 cfs	200 cfs
					2	10	50	115	250	570
					5	8	32	81	170	400
					10	5	15	45	125	310
5-4958	North Wyaconda River near Granger	c	d	7.0		10 cfs	20 cfs	30 cfs	40 cfs	50 cfs
					2	7	18	37	74	140
					5	5	13	28	57	104
					10	3	10	23	44	80
5-4960	Wyaconda River above Canton	1933-67	393	7.2		20 cfs	80 cfs	120 cfs	160 cfs	190 cfs
					2	15	75	150	300	680
					5	10	40	110	250	465
					10	8	35	85	180	320
5-4969.5	North Fabius River at Memphis	c	d	7.0		17 cfs	34 cfs	50 cfs	68 cfs	85 cfs
					2	12	29	63	126	238
					5	8	22	48	97	175
					10	5	17	39	75	136
5-4970	North Fabius River at Monticello	1924-67	452	7.5		20 cfs	100 cfs	140 cfs	180 cfs	220 cfs
					2	8	90	160	285	555
					5	5	60	115	215	410
					10	5	40	80	160	300
5-4975	Middle Fabius River near Baring	1936-60	185	7.6		20 cfs	40 cfs	60 cfs	80 cfs	90 cfs
					2	10	30	62	130	195
					5	8	20	45	100	150
					10	5	18	38	75	115
5-4980	Middle Fabius River near Monticello	1946-67	393	7.3		30 cfs	80 cfs	120 cfs	160 cfs	200 cfs
					2	18	60	120	230	590
					5	15	45	90	175	390
					10	10	35	70	140	290

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
5-4985	North Fabius River at Taylor	1931-40	930	8.0		93 cfs	185 cfs	280 cfs	370 cfs	465 cfs
					2	56	160	345	680	1,310
					5	38	120	260	520	958
					10	28	93	214	409	735
5-5000	South Fabius River near Taylor	1937-67	620	7.6		85 cfs	150 cfs	200 cfs	250 cfs	300 cfs
					2	50	120	200	340	660
					5	35	95	165	280	510
					10	30	80	140	240	400
5-5005	North River at Bethel	1937-67	58[a]	8.3		8 cfs	15 cfs	20 cfs	25 cfs	30 cfs
					2	4	12	22	36	60
					5	3	9	18	28	45
					10	3	8	15	24	38
5-5010	North River at Palmyra	1937-67	373	7.6		50 cfs	100 cfs	130 cfs	170 cfs	200 cfs
					2	30	95	155	305	610
					5	25	80	130	250	475
					10	20	65	105	200	340
5-5022	Salt River near Novelty	c	d	8.0		15 cfs	30 cfs	45 cfs	60 cfs	75 cfs
					2	9	27	54	104	196
					5	7	18	40	80	147
					10	4	14	33	63	117
5-5025	Salt River near Shelbina	1934-67	481	7.4		75 cfs	110 cfs	150 cfs	190 cfs	230 cfs
					2	45	95	185	330	710
					5	35	70	140	250	470
					10	30	65	120	190	340
5-5029	Black Creek at Shelbyville	c	d	8.0		6 cfs	13 cfs	20 cfs	26 cfs	32 cfs
					2	4	12	22	42	79
					5	3	8	17	32	60
					10	2	6	14	25	49

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance of Deficiency[b] (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
5-5044	South Fork Salt River at Mexico	c	d	7.0		12 cfs	24 cfs	36 cfs	48 cfs	60 cfs
					2	8	23	47	96	180
					5	5	16	36	73	131
					10	4	12	29	56	100
5-5050	South Fork Salt River at Santa Fe	1940-67	298	7.5		10 cfs	40 cfs	70 cfs	100 cfs	140 cfs
					2	5	32	72	140	325
					5	4	25	55	105	240
					10	3	20	45	82	185
5-5060	Youngs Creek near Mexico	1937-67	67.4	8.2		3 cfs	10 cfs	20 cfs	30 cfs	38 cfs
					2	2	9	22	50	135
					5	1	6	16	38	90
					10	0.9	4	14	31	68
5-5065	Middle Fork Salt River at Paris	1940-67	356	8.0		55 cfs	80 cfs	120 cfs	160 cfs	190 cfs
					2	35	65	135	260	450
					5	30	50	100	190	350
					10	20	40	80	150	260
5-5070	Elk Fork Salt River near Paris	1935-54	262	9.4		25 cfs	60 cfs	90 cfs	125 cfs	165 cfs
					2	15	50	100	200	625
					5	12	35	75	160	380
					10	10	28	65	135	320
5-5075	Salt River near Monroe City	1940-67	2,230[a]	7.8		275 cfs	400 cfs	600 cfs	800 cfs	1,200 cfs
					2	200	350	580	980	3,500
					5	125	200	380	700	2,500
					10	100	180	330	580	1,900
5-5080	Salt River near New London	1923-67	2,480[a]	7.6		300 cfs	550 cfs	800 cfs	1,000 cfs	1,350 cfs
					2	150	500	950	1,450	4,100
					5	110	360	670	1,100	3,000
					10	100	280	550	880	2,250

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
5-5088	Spencer Creek near Frankford	c	d	8.0		22 cfs	45 cfs	68 cfs	90 cfs	112 cfs
					2	14	38	72	133	241
					5	10	23	54	99	185
					10	7	20	43	76	158
5-5143	North Fork Cuivre River at Silex	c	d	9.0		25 cfs	52 cfs	78 cfs	130 cfs	156 cfs
					2	16	39	73	227	432
					5	10	26	49	161	325
					10	5	18	39	151	273
5-5144.5	West Fork Cuivre River near Troy	c	d	9.0		57 cfs	114 cfs	170 cfs	285 cfs	342 cfs
					2	35	86	154	484	923
					5	26	57	108	342	700
					10	11	40	80	319	586
5-5145	Cuivre River near Troy	1924-67	903	8.9		25 cfs	140 cfs	260 cfs	380 cfs	500 cfs
					2	15	140	290	540	1,100
					5	10	75	180	390	870
					10	6	65	170	320	640
5-5146	Big Creek near Moscow Mills	c	d	10.0		12 cfs	24 cfs	48 cfs	60 cfs	72 cfs
					2	7	18	58	95	175
					5	5	11	38	66	134
					10	2	8	28	61	110
5-5147.1	Peruque Creek near Wentzville	c	d	10.0		5 cfs	10 cfs	20 cfs	30 cfs	35 cfs
					2	3	7	22	64	-
					5	2	4	14	50	-
					10	1	3	12	40	64
5-5147.2	Dardenne Creek near Waldon Spring	c	d	10.0		5 cfs	10 cfs	20 cfs	30 cfs	35 cfs
					2	3	7	22	64	-
					5	2	4	14	50	-
					10	1	3	12	40	64

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance of Deficiency[b] (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
6-8125	West Tarkio Creek Near Westboro	1934-39	105	5.0		10 cfs	21 cfs			
					2	8	28			
					5	5	22			
					10	4	17			
6-8130	Tarkio River at Fairfax	1924-67	508	5.0		25 cfs	60 cfs	90 cfs	120 cfs	150 cfs
					2	12	60	105	185	360
					5	6	40	85	145	260
					10	5	30	62	110	195
6-8175	Nodaway River near Burlington Junction	1924-67	1,240[a]	5.5		65 cfs	150 cfs	230 cfs	310 cfs	400 cfs
					2	25	140	260	465	940
					5	15	95	200	370	720
					10	12	75	160	285	550
6-8178	Nodaway River near Oregon	c	d	6.0		175 cfs	350 cfs	525 cfs	700 cfs	
					2	123	385	946	-	
					5	88	298	700	1,610	
					10	70	228	560	1,120	
6-8195	One Hundred and Two River near Maryville	1933-67	500[a]	5.4		20 cfs	50 cfs	80 cfs	120 cfs	165 cfs
					2	12	40	85	175	430
					5	8	32	70	150	340
					10	7	30	60	115	235
6-8204	White Cloud Creek near Barnard	c	d	6.0		6 cfs	12 cfs	18 cfs	24 cfs	
					2	4	14	33	-	
					5	3	10	25	57	
					10	2	8	21	41	
6-8204.8	One Hundred and Two River near St. Joseph	c	d	6.0		80 cfs	152 cfs	228 cfs	304 cfs	
					2	53	160	365	-	
					5	38	114	274	624	
					10	30	91	220	441	

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6-8205	Platte River near Agency	1933-67	1,760[a]	6.4		65 cfs	200 cfs	340 cfs	480 cfs	640 cfs
					2	30	175	390	780	1,680
					5	22	110	280	570	1,340
					10	18	95	250	490	950
6-8209	Castile Creek near Gower	c	d	7.0		16 cfs	32 cfs	48 cfs	64 cfs	
					2	11	30	69	157	
					5	8	22	53	115	
					10	5	18	42	85	
6-8210	Jenkins Branch at Gower	1951-52, 1956-67	2.72	7.4		0.2 cfs	0.6 cfs	1 cfs	1.5 cfs	
					2	0.1	0.5	1.5	4.2	
					5	0.05	0.4	1.1	3.6	
					10	-	0.3	0.8	2.5	
6-8211	Little Platte River near Trimble	c	d	7.0		20 cfs	38 cfs	57 cfs	76 cfs	
					2	13	36	80	177	
					5	10	27	61	131	
					10	6	21	47	97	
6-8935	Blue River near Kansas City	1941-67	188	9.9		25 cfs	50 cfs	75 cfs	100 cfs	125 cfs
					2	12	45	80	180	420
					5	10	35	75	135	290
					10	8	30	60	110	200
6-8940	Little Blue River near Lake City	1950-67	184	8.0		12 cfs	25 cfs	50 cfs	65 cfs	80 cfs
					2	6	16	54	98	175
					5	3	12	42	75	125
					10	1	8	30	55	95
6-8943	Fishing River at Mosby	c	d	7.0		15 cfs	26 cfs	40 cfs	52 cfs	65 cfs
					2	9	23	49	100	195
					5	7	17	38	77	138
					10	4	13	30	60	107

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance [b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
6-8945	East Fork Fishing River at Excelsior Springs	1953-67	20	8.2		1 cfs	3 cfs	5 cfs	8 cfs	9.5 cfs
					2	0.6	3.4	7.6	-	-
					5	0.4	2.2	5.6	16	-
					10	0.3	1.6	4.4	12	21
6-8946	Fishing River near Orrick	c	d	7.0		28 cfs	54 cfs	80 cfs	110 cfs	135 cfs
					2	20	50	97	192	364
					5	11	35	76	146	270
					10	8	24	59	116	214
6-8950	Crooked River near Richmond	1950-67	159	8.0		12 cfs	25 cfs	40 cfs	60 cfs	80 cfs
					2	8	26	54	128	285
					5	4	18	40	92	210
					10	3	16	35	74	165
6-8960	Wakenda Creek at Carrollton	1950-67	248	6.9		12 cfs	30 cfs	60 cfs	80 cfs	100 cfs
					2	6	28	84	152	290
					5	4	14	55	110	210
					10	3	10	45	85	160
6-8961.6	Grand River near Grant City	c	d	6.0		22 cfs	44 cfs	66 cfs	88 cfs	
					2	15	48	119	-	
					5	11	37	88	205	
					10	9	29	70	141	
6-8961.7	Grand River near Stanberry	c	d	6.0		40 cfs	66 cfs	100 cfs	132 cfs	
					2	23	69	162	-	
					5	16	50	122	281	
					10	13	40	99	198	
6-8961.85	Middle Fork Grand River at Grant City	c	d	6.0		8 cfs	15 cfs	22 cfs	30 cfs	
					2	5	16	39	-	
					5	4	12	29	67	
					10	3	10	23	47	
6-8961.9	Middle Fork Grand River near Albany	c	d	6.0		20 cfs	40 cfs	60 cfs	80 cfs	
					2	14	42	96	-	
					5	10	30	72	164	
					10	8	24	58	116	

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6-8964	East Fork Grand River at Albany	c	d	6.0		32 cfs	64 cfs	96 cfs	128 cfs	
					2	22	68	154	-	
					5	16	48	115	263	
					10	13	38	93	186	
6-8965.5	Grand River near Darlington	c	d	6.0		110 cfs	210 cfs	315 cfs	420 cfs	
					2	73	220	504	-	
					5	52	157	378	861	
					10	42	126	304	609	
6-8968	Lost Creek near Weatherby	c	d	7.0		16 cfs	33 cfs	50 cfs	66 cfs	
					2	12	31	71	162	
					5	8	23	55	120	
					10	5	18	43	88	
6-8969	Grand River near Pattonsburg	c	d	7.0		168 cfs	336 cfs	500 cfs	670 cfs	
					2	118	320	706	1,560	
					5	84	235	538	1,160	
					10	50	185	421	858	
6-8970	East Fork Big Creek near Bethany	1935-67	95	6.8		5 cfs	15 cfs	25 cfs	35 cfs	42 cfs
					2	1.5	11	31	73	142
					5	1.2	8.5	24	54	98
					10	0.5	5	16	40	72
6-8971	Big Creek at Bethany	c	d	7.0		30 cfs	62 cfs	93 cfs	125 cfs	
					2	22	59	133	304	
					5	14	43	102	223	
					10	9	34	81	164	
6-8975	Grand River near Gallatin	1921-67	2,250[a]	6.6		130 cfs	300 cfs	475 cfs	650 cfs	900 cfs
					2	60	230	460	900	2,300
					5	45	140	350	670	1,700
					10	40	110	300	550	1,300

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6-8981	Thompson River at Mt. Moriah	1960-67	891	7.0		95 cfs	180 cfs	265 cfs	355 cfs	
					2	62	169	374	829	
					5	45	125	285	615	
					10	27	98	223	454	
6-8985	Weldon River near Mercer	1940-59	246	7.6		17 cfs	40 cfs	60 cfs	80 cfs	110 cfs
					2	12	40	80	135	315
					5	7	25	52	96	235
					10	6	20	42	76	172
6-8990	Weldon River at Mill Grove	1930-67	494	6.8		45 cfs	80 cfs	120 cfs	160 cfs	200 cfs
					2	22	68	160	305	550
					5	20	48	110	215	405
					10	18	45	90	170	310
6-8991	Weldon River near Trenton	c	d	7.0		58 cfs	115 cfs	170 cfs	228 cfs	285 cfs
					2	34	103	205	400	775
					5	23	74	160	308	570
					10	17	51	126	245	450
6-8995	Thompson River at Trenton	1929-67	1,670[a]	7.3		115 cfs	260 cfs	410 cfs	560 cfs	730 cfs
					2	60	250	500	880	1,750
					5	50	200	420	700	1,360
					10	40	140	280	520	1,100
6-8995.5	Muddy Creek at Trenton	c	d	8.0		12 cfs	25 cfs	38 cfs	50 cfs	62 cfs
					2	8	23	44	85	163
					5	6	15	34	66	123
					10	4	11	28	53	96
6-8995.7	Honey Creek near Trenton	c	d	8.0		8 cfs	15 cfs	22 cfs	30 cfs	38 cfs
					2	4	13	25	48	91
					5	3	9	20	37	70
					10	2	7	16	29	56

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6-8996.8	Grand River at Chillicothe	c	d	8.0		485 cfs	970 cfs	1,460 cfs	1,940 cfs	2,420 cfs
					2	290	875	1,700	3,200	6,110
					5	194	582	1,260	2,520	4,610
					10	146	436	1,020	1,940	3,690
6-8996.9	Shoal Creek at Kingston	c	d	7.0		20 cfs	38 cfs	57 cfs	76 cfs	95 cfs
					2	14	36	76	162	294
					5	9	25	57	122	211
					10	6	19	46	91	160
6-8998	Shoal Creek near Chillicothe	c	d	8.0		62 cfs	125 cfs	188 cfs	250 cfs	310 cfs
					2	37	112	220	413	785
					5	26	75	163	319	594
					10	19	56	131	250	475
6-9000	Medicine Creek near Galt	1922-67	225	8.3		10 cfs	30 cfs	80 cfs	100 cfs	120 cfs
					2	4	20	120	215	-
					5	3	12	90	155	325
					10	2	8	68	125	235
6-9005	Medicine Creek near Sturges	c	d	8.0		37 cfs	74 cfs	110 cfs	148 cfs	184 cfs
					2	22	63	120	228	430
					5	15	44	92	177	332
					10	11	33	74	140	270
6-9006	Medicine Creek near Wheeling	c	d	8.0		50 cfs	100 cfs	150 cfs	200 cfs	250 cfs
					2	30	85	165	310	585
					5	20	60	125	240	450
					10	15	45	100	190	365
6-9007	Parson Creek at Meadville	c	d	8.0		20 cfs	38 cfs	57 cfs	95 cfs	114 cfs
					2	11	32	63	217	-
					5	9	23	47	167	-
					10	6	17	36	137	258

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6-9015	Locust Creek near Linneus	1931-67	550[a]	8.0		20 cfs	80 cfs	140 cfs	200 cfs	250 cfs
					2	10	70	155	305	600
					5	8	52	115	225	440
					10	6	40	85	180	340
6-9020	Grand River near Sumner	1925-67	6,880[a]	7.2		360 cfs	1,000 cfs	1,700 cfs	2,400 cfs	3,000 cfs
					2	150	980	2,100	3,800	7,200
					5	100	500	1,400	2,500	4,500
					10	90	400	1,300	2,400	4,200
6-9022	West Yellow Creek Near Brookfield	c	d	8.0		14 cfs	28 cfs	40 cfs	68 cfs	80 cfs
					2	8	23	40	138	-
					5	6	15	31	104	-
					10	4	11	24	90	167
6-9023	West Yellow Creek Below Brookfield	c	d	8.0		20 cfs	38 cfs	57 cfs	95 cfs	114 cfs
					2	11	32	57	194	-
					5	9	21	44	146	-
					10	6	15	34	127	236
6-9030	Yellow Creek near Rothville	1929-32, 1948-52, 1961-66	405	8.0		40 cfs	80 cfs	120 cfs	160 cfs	200 cfs
					2	24	70	130	240	445
					5	16	45	97	180	345
					10	12	36	77	140	285
6-9045	Chariton River at Novinger	1931-52, 1955-67	1,370[a]	7.1		90 cfs	230 cfs	370 cfs	510 cfs	670 cfs
					2	60	180	440	860	2,400
					5	35	140	320	640	1,700
					10	30	120	270	510	1,120
6-9055	Chariton River near Prairie Hill	1930-67	1,870	7.8		165 cfs	340 cfs	500 cfs	680 cfs	930 cfs
					2	80	280	530	1,000	3,000
					5	60	200	410	780	2,260
					10	50	170	320	600	1,420

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6-9061	Mussel Fork at Keytesville	c	d	9.0		35 cfs	66 cfs	100 cfs	165 cfs	198 cfs
					2	20	53	96	314	611
					5	16	36	69	228	448
					10	10	26	53	208	383
6-9064.5	Middle Fork Chariton River near Salisbury	c	d	9.0		15 cfs	30 cfs	45 cfs	75 cfs	90 cfs
					2	9	22	42	133	255
					5	7	15	30	96	192
					10	3	10	22	88	162
6-9067	Flat Creek near Sedalia	c	d	9.0		15 cfs	30 cfs	45 cfs	75 cfs	90 cfs
					2	9	22	40	126	240
					5	7	15	28	89	181
					10	3	10	21	83	151
6-9070	Lamine River at Clifton City	1924-67	598	10.0		60 cfs	130 cfs	200 cfs	270 cfs	375 cfs
					2	25	110	220	390	980
					5	20	60	140	300	700
					10	15	55	125	225	550
6-9075.5	Blackwater River near Warrensburg	c	d	8.0		40 cfs	80 cfs	160 cfs	200 cfs	240 cfs
					2	24	68	232	420	-
					5	18	44	168	320	-
					10	12	32	132	272	508
6-9076	Post Oak Creek at Warrensburg	c	d	8.0		13 cfs	26 cfs	40 cfs	65 cfs	78 cfs
					2	8	22	40	136	-
					5	5	14	30	104	-
					10	4	10	23	88	165
6-9077	Blackwater River at Valley City	c	d	8.0		55 cfs	110 cfs	165 cfs	275 cfs	330 cfs
					2	33	93	164	557	-
					5	24	60	126	422	-
					10	16	44	98	367	678

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
6-9078	Davis Creek at Sweet Springs	c	d	8.0		24 cfs	47 cfs	70 cfs	118 cfs	140 cfs
					2	14	38	70	235	-
					5	10	26	52	176	-
					10	7	19	40	153	282
6-9079	Blackwater River at Sweet Springs	c	d	8.0		96 cfs	192 cfs	288 cfs	480 cfs	576 cfs
					2	58	154	288	960	-
					5	38	106	211	720	-
					10	29	77	163	624	1,160
6-9080	Blackwater River at Blue Lick	1940-67	1,120[a]	8.2		95 cfs	200 cfs	310 cfs	430 cfs	580 cfs
					2	60	190	360	640	1,500
					5	36	110	235	480	1,100
					10	30	90	200	380	840
6-9093.5	Bonne Femme Creek at New Franklin	c	d	10.0		10 cfs	33 cfs	55 cfs	66 cfs	77 cfs
					2	5	29	86	156	-
					5	4	19	59	121	-
					10	2	14	54	98	153
6-9095	Moniteau Creek near Fayette	1950-67	81[a]	5.5		9 cfs	14 cfs	18 cfs	22 cfs	26 cfs
					2	6	16	24	33	48
					5	5	10	16	24	37
					10	4.5	7	10	16	25
6-9100	Petite Saline Creek near Boonville	1950-65	182	7.3		20 cfs	35 cfs	50 cfs	65 cfs	78 cfs
					2	16	32	55	104	178
					5	9	24	48	85	142
					10	7	20	40	70	116
6-9102.2	Perche Creek near Columbia	c	d	10.0		25 cfs	52 cfs	104 cfs	156 cfs	182 cfs
					2	16	36	122	370	-
					5	11	23	81	286	-
					10	5	18	60	232	361

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
6-9104.15	Cedar Creek near Cedar City	c	d	10.0		23 cfs	46 cfs	92 cfs	138 cfs	160 cfs
					2	15	32	106	308	-
					5	11	21	69	241	-
					10	5	14	48	191	304
6-9104.2	North Moreau Creek near California	c	d	10.0		15 cfs	30 cfs	60 cfs	90 cfs	105 cfs
					2	9	19	64	178	-
					5	7	12	42	143	228
					10	3	9	28	110	180
6-9105	Moreau River near Jefferson City	1948-67	531	8.2		50 cfs	90 cfs	150 cfs	200 cfs	255 cfs
					2	25	70	150	240	430
					5	18	40	100	175	320
					10	14	30	60	120	225
6-9166.7	Miami Creek near Butler	c	d	8.0		20 cfs	40 cfs	80 cfs	100 cfs	120 cfs
					2	12	34	116	210	-
					5	9	22	84	160	-
					10	6	16	66	136	254
6-9170.3	Little Osage River at Stotesbury	c	d	8.0		43 cfs	85 cfs	170 cfs	214 cfs	256 cfs
					2	26	73	244	435	-
					5	20	47	175	330	-
					10	13	34	137	286	539
6-9170.6	Little Osage River at Horton	c	d	8.0		142 cfs	284 cfs	568 cfs	710 cfs	852 cfs
					2	85	227	795	1,420	-
					5	67	156	568	1,060	-
					10	43	114	440	923	1,720
6-9180.8	Osage River near Schell City	c	d	9.0		550 cfs	1,110 cfs	2,210 cfs	2,770 cfs	3,320 cfs
					2	332	885	2,940	5,150	9,900
					5	250	553	2,050	3,760	7,350
					10	111	443	1,610	3,380	6,250

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
6-9183.2	Clear Creek near Eldorado Springs	c	d	9.0		16 cfs	33 cfs	66 cfs	82 cfs	99 cfs
					2	10	25	84	147	281
					5	8	16	59	106	211
					10	3	12	45	97	178
6-9184.2	Sac River at Ash Grove	c	d	11.0		13 cfs	26 cfs	52 cfs	65 cfs	90 cfs
					2	6	16	51	78	230
					5	4	9	32	52	159
					10	3	6	21	43	124
6-9184.3	Clear Creek near Phenix	c	d	11.0		5 cfs	10 cfs	20 cfs	30 cfs	35 cfs
					2	3	6	19	47	89
					5	2	4	12	38	61
					10	1	3	8	27	47
6-9184.7	Turnback Creek near Greenfield	c	d	11.0		26 cfs	52 cfs	104 cfs	130 cfs	182 cfs
					2	13	34	107	164	-
					5	8	18	68	109	346
					10	5	13	44	94	273
6-9188	Little Sac River near Aldrich	c	304	11.0		30 cfs	90 cfs	120 cfs	150 cfs	180 cfs
					2	12	65	120	180	290
					5	6	36	76	120	230
					10	5	24	48	100	190
6-9200	Sac River near Collins	1923-25	1,900[a]	10.0		190 cfs	380 cfs	760 cfs	950 cfs	1,140 cfs
					2	114	285	912	1,500	2,780
					5	57	171	589	1,050	2,120
					10	38	114	437	968	1,750
6-9210	Pomme de Terre River near Bolivar	1952-67	225	9.7		28 cfs	60 cfs	75 cfs	90 cfs	120 cfs
					2	15	64	98	134	278
					5	10	50	70	100	225
					10	8	36	58	82	172

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6-9215.8	South Grand River near Freeman	c	d	8.0		12 cfs	24 cfs	36 cfs	48 cfs	60 cfs
					2	7	20	41	78	145
					5	5	14	31	59	113
					10	4	11	25	47	90
6-9215.9	South Grand River at Archie	c	d	8.0		28 cfs	56 cfs	112 cfs	140 cfs	168 cfs
					2	17	48	171	319	-
					5	13	34	129	246	-
					10	8	25	104	201	378
6-9216	South Grand River at Urich	c	d	8.0		67 cfs	134 cfs	268 cfs	335 cfs	402 cfs
					2	40	114	390	700	-
					5	32	74	282	537	-
					10	20	54	222	456	850
6-9217.2	Big Creek at Blairstown	c	d	8.0		42 cfs	83 cfs	165 cfs	210 cfs	250 cfs
					2	25	70	240	435	-
					5	20	45	174	332	-
					10	12	33	137	282	526
6-9217.8	Deepwater Creek near Montrose	c	d	8.0		12 cfs	23 cfs	46 cfs	58 cfs	70 cfs
					2	7	18	64	115	-
					5	5	13	46	86	-
					10	3	9	36	75	139
6-9220	South Grand River near Brownington	1922-67	1,660[a]	8.4		60 cfs	240 cfs	420 cfs	600 cfs	800 cfs
					2	45	250	510	840	1,800
					5	20	155	345	675	1,420
					10	15	120	300	570	1,100
6-9232	Niangua River near Buffalo	c	d	11.0		20 cfs	42 cfs	84 cfs	126 cfs	148 cfs
					2	10	23	78	180	311
					5	6	13	50	143	223
					10	2	8	29	103	175

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6-9252.5	Little Niangua River near Macks Creek	c	d	11.0		28 cfs	56 cfs	112 cfs	168 cfs	195 cfs
					2	17	34	112	274	-
					5	8	20	73	218	350
					10	6	14	45	157	274
6-9254.3	Wet Glaize Creek near Brumley	c	d	11.0		12 cfs	36 cfs	60 cfs	72 cfs	84 cfs
					2	6	24	68	105	188
					5	2	13	46	83	132
					10	1	8	37	60	103
6-9254.4	Grandglaize Creek near Brumley	c	d	11.0		32 cfs	96 cfs	160 cfs	192 cfs	224 cfs
					2	16	67	192	304	569
					5	10	38	128	243	390
					10	6	26	106	176	304
6-9263	Tavern Creek near St. Elizabeth	c	d	10.0		30 cfs	90 cfs	150 cfs	180 cfs	210 cfs
					2	18	69	196	327	-
					5	9	39	132	264	420
					10	6	30	114	195	333
6-9270	Maries River at Westphalia	1950-67	257	10.0		40 cfs	70 cfs	100 cfs	130 cfs	160 cfs
					2	18	60	115	200	435
					5	13	45	84	155	300
					10	9	32	64	118	220
6-9270.5	Middle River near Mokane	c	d	10.0		6 cfs	18 cfs	30 cfs	36 cfs	42 cfs
					2	4	16	46	80	-
					5	2	10	31	64	-
					10	1	7	29	52	80
6-9273	Auxvasse Creek near Steedman	c	d	10.0		28 cfs	90 cfs	120 cfs	150 cfs	180 cfs
					2	18	78	144	237	438
					5	12	51	93	165	336
					10	6	39	69	153	276

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance of Deficiency[b] (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
6-9277	Gasconade River near Nebo	c	d	13.0		130 cfs	250 cfs	320 cfs	380 cfs	450 cfs
					2	50	190	280	410	600
					5	20	120	205	320	450
					10	12	58	155	230	370
6-9277.5	Osage Fork near Orla	c	d	12.0		60 cfs	90 cfs	120 cfs	180 cfs	210 cfs
					2	30	54	102	219	333
					5	15	27	66	177	258
					10	9	18	36	126	204
6-9278	Osage Fork at Drynob	c	d	12.0		80 cfs	162 cfs	202 cfs	240 cfs	283 cfs
					2	40	141	206	299	460
					5	20	89	141	242	355
					10	12	48	109	174	278
6-9280	Gasconade River near Hazelgreen	1929-67	1,250[a]	10.4		120 cfs	300 cfs	480 cfs	660 cfs	850 cfs
					2	40	220	480	900	2,100
					5	25	120	300	630	1,500
					10	20	80	240	540	1,220
6-9284.5	Roubidoux Creek at Waynesville	c	d	12.0		58 cfs	87 cfs	116 cfs	174 cfs	203 cfs
					2	30	55	102	218	342
					5	15	26	64	177	261
					10	9	17	38	128	206
6-9285	Gasconade River near Waynesville	1916-67	1,680[a]	11.1		180 cfs	450 cfs	675 cfs	930 cfs	1,200 cfs
					2	25	300	600	1,160	3,000
					5	20	160	390	900	2,200
					10	15	120	300	700	1,600
6-9289	Big Piney River near Houston	c	d	14.0		75 cfs	95 cfs	114 cfs	133 cfs	152 cfs
					2	53	78	114	167	-
					5	32	57	89	122	179
					10	15	42	63	104	150

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6-9300	Big Piney River near Big Piney	1923-67	560[a]	12.8		150 cfs	230 cfs	310 cfs	400 cfs	500 cfs
					2	35	135	295	580	1,550
					5	15	95	200	390	1,100
					10	10	60	150	310	740
6-9301	Spring Creek at Spring Creek	c	d	12.0		22 cfs	32 cfs	54 cfs	65 cfs	76 cfs
					2	11	19	53	77	116
					5	5	10	38	62	91
					10	3	5	28	44	71
6-9309	Little Piney Creek at Yancy Mills	c	d	12.0		14 cfs	21 cfs	35 cfs	42 cfs	50 cfs
					2	7	13	35	51	78
					5	4	6	25	41	60
					10	2	4	18	29	48
6-9315	Little Beaver Creek near Rolla	1949-67	6.41	10.8		1 cfs	3 cfs	4.5 cfs		
					2	0.5	3.8	13		
					5	0.4	2.8	10		
					10	0.2	2.1	6.8		
6-9320	Little Piney Creek at Newburg	1930-67	200[a]	10.2		47 cfs	75 cfs	100 cfs	120 cfs	132 cfs
					2	8	40	100	185	325
					5	4	25	75	140	230
					10	3	18	55	110	170
6-9335	Gasconade River at Jerome	1925-67	2,840[a]	11.8		540 cfs	900 cfs	1,300 cfs	1,800 cfs	2,200 cfs
					2	80	520	1,120	2,400	5,200
					5	40	320	760	1,880	3,900
					10	22	140	500	1,400	2,800
6-9340	Gasconade River near Rich Fountain	1923-59	3,180[a]	12.5		650 cfs	1,250 cfs	1,800 cfs	2,200 cfs	2,600 cfs
					2	80	900	2,000	3,100	6,000
					5	60	520	1,300	2,400	4,300
					10	42	480	1,150	1,950	3,350

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6-9355	Loutre River at Mineola	1949-65	202	6.5		8 cfs	30 cfs	50 cfs	70 cfs	90 cfs
					2	5	25	50	100	255
					5	3	15	30	78	185
					10	2	10	25	62	145
6-9357.3	St. Johns Creek near Washington	c	d	10.0		8 cfs	16 cfs	32 cfs	48 cfs	56 cfs
					2	5	10	35	98	-
					5	3	6	22	78	126
					10	2	5	16	60	98
6-9357.5	Femme Osage Creek near Weldon Spring	c	d	10.0		6 cfs	18 cfs	24 cfs	36 cfs	42 cfs
					2	4	14	26	71	-
					5	3	8	17	57	91
					10	1	7	11	44	72
7-0104	Meramec River near St. James	c	d	12.0		30 cfs	90 cfs	120 cfs	180 cfs	210 cfs
					2	15	60	111	250	426
					5	6	30	72	198	309
					10	3	21	42	144	273
7-0115	Green Acre Branch near Rolla	1948-67	0.62	8.5		0.1 cfs	0.2 cfs	0.3 cfs		
					2	0.05	0.22	0.75		
					5	0.04	0.18	0.54		
					10	0.02	0.14	0.44		
7-0130	Meramec River near Steelville	1923-67	781	9.7		175 cfs	250 cfs	325 cfs	400 cfs	500 cfs
					2	30	90	200	410	1,350
					5	20	60	150	320	870
					10	16	50	120	240	620
7-0131	Huzzah Creek at Dillard	c	d	13.0		37 cfs	46 cfs	55 cfs	64 cfs	74 cfs
					2	10	22	36	58	116
					5	8	18	29	48	78
					10	6	14	23	40	61

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7-0140	Huzzah Creek near Steelville	c	d	12.0		95 cfs	120 cfs	144 cfs	168 cfs	
					2	41	79	130	218	
					5	34	62	106	178	
					10	22	48	84	144	
7-0142	Courtois Creek at Berryman	c	d	12.0		69 cfs	86 cfs	104 cfs	121 cfs	138 cfs
					2	26	54	86	142	-
					5	22	41	69	116	192
					10	14	33	55	95	144
7-0145	Meramec River near Sullivan	1944-67	1,475	10.5		350 cfs	550 cfs	750 cfs	950 cfs	1,100 cfs
					2	80	410	810	1,400	2,600
					5	40	230	520	1,100	2,100
					10	30	180	440	880	1,480
7-0150	Bourbeuse River near St. James	1948-67	21.3	10.0		3 cfs	6 cfs	9 cfs	12 cfs	14 cfs
					2	1	4	10	23	-
					5	0.9	3	8	18	38
					10	0.8	2	6	14	28
7-0155	Lanes Fork near Rolla	1953-67	0.225	16.7		0.1 cfs	0.15 cfs			
					2	0.065	-			
					5	0.045	0.29			
					10	0.03	0.19			
7-0157.5	Bourbeuse River near Owensville	c	d	11.0		37 cfs	111 cfs	148 cfs	222 cfs	260 cfs
					2	18	81	152	385	-
					5	14	48	96	307	492
					10	7	33	63	222	388
7-0157.6	Dry Fork Creek near Owensville	c	d	10.0		10 cfs	20 cfs	42 cfs	63 cfs	74 cfs
					2	6	14	44	120	-
					5	4	8	30	94	150
					10	2	5	20	70	120

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7-0165	Bourbeuse River at Union	1922-67	808	10.3		105 cfs	250 cfs	350 cfs	450 cfs	550 cfs
					2	30	220	400	710	1,550
					5	22	125	280	540	1,100
					10	20	100	225	440	800
7-0170	Meramec River at Robertsville	1941-51	2,673	13.7		540 cfs	800 cfs	1,200 cfs	1,600 cfs	2,200 cfs
					2	110	350	750	1,350	2,600
					5	90	200	480	900	2,100
					10	50	100	200	500	1,500
7-0176	Big River near Bonne Terre	c	d	13.0		85 cfs	130 cfs	215 cfs	300 cfs	344 cfs
					2	39	73	198	427	-
					5	17	34	142	331	529
					10	9	22	108	267	404
7-0178	Mineral Fork near Potosi	c	d	12.0		32 cfs	64 cfs	80 cfs	96 cfs	128 cfs
					2	18	58	83	123	-
					5	9	35	58	99	248
					10	5	21	45	72	186
7-0180	Big River near DeSoto	1950-67	718	11.9		195 cfs	300 cfs	390 cfs	500 cfs	630 cfs
					2	70	260	480	830	2,000
					5	45	180	320	610	1,400
					10	35	120	260	510	1,040
7-0181	Big River near Richwoods	c	d	12.0		222 cfs	300 cfs	370 cfs	444 cfs	518 cfs
					2	148	275	408	615	1,050
					5	74	190	282	489	763
					10	52	134	222	356	586
7-0185	Big River at Byrnesville	1924-67	917	12.1		225 cfs	350 cfs	500 cfs	600 cfs	730 cfs
					2	75	220	460	750	1,550
					5	50	160	375	575	1,180
					10	35	100	280	460	880

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7-0190	Meramec River near Eureka	1922-67	3,788	10.6		750 cfs	1,200 cfs	1,600 cfs	2,100 cfs	2,600 cfs
					2	160	650	1,300	2,500	5,600
					5	80	500	1,100	2,000	4,200
					10	75	320	700	1,500	3,100
7-0190.5	Joachim Creek at Hematite	c	95.0	12.0		19 cfs	38 cfs	58 cfs	66 cfs	76 cfs
					2	10	33	70	108	-
					5	4	21	57	84	140
					10	3	12	41	66	104
7-0206	Apple Creek at Appleton	c	d	16.0		28 cfs	35 cfs	42 cfs	49 cfs	56 cfs
					2	13	20	34	48	-
					5	8	15	24	30	43
					10	4	11	18	28	39
7-0210	Castor River at Zalma	1922-67	423	16.0		150 cfs	225 cfs	300 cfs	375 cfs	450 cfs
					2	55	155	300	500	980
					5	35	100	205	375	710
					10	32	85	180	310	545
7-0211.5	Crooked Creek at Lutesville	c	d	17.0		28 cfs	35 cfs	42 cfs	49 cfs	56 cfs
					2	11	18	32	46	-
					5	6	14	22	28	39
					10	3	10	17	25	34
7-0214	Whitewater River at Millersville	c	d	17.0		40 cfs	50 cfs	60 cfs	70 cfs	80 cfs
					2	16	27	46	66	-
					5	9	21	32	42	58
					10	4	14	25	36	51
7-0216	Whitewater River at Whitewater	c	d	17.0		110 cfs	135 cfs	160 cfs	190 cfs	215 cfs
					2	40	70	120	172	-
					5	24	54	80	105	148
					10	8	38	65	95	135

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance of Deficiency[b] (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-0340	St. Francis River near Roselle	c	d	14.0		95 cfs	120 cfs	144 cfs	167 cfs	190 cfs
					2	62	93	141	203	-
					5	38	69	108	144	210
					10	19	50	76	127	182
7-0350	Little St. Francis River at Fredericktown	c	d	15.0		36 cfs	45 cfs	54 cfs	63 cfs	72 cfs
					2	20	32	49	71	-
					5	13	24	36	48	67
					10	5	16	26	43	61
7-0370	Big Creek at Des Arc	c	d	16.0		40 cfs	50 cfs	60 cfs	70 cfs	80 cfs
					2	20	32	51	74	-
					5	12	24	37	49	69
					10	5	17	28	44	62
7-0375	St. Francis River near Patterson	1922-67	956	15.3		350 cfs	500 cfs	650 cfs	800 cfs	1,000 cfs
					2	160	410	700	1,100	2,220
					5	120	300	520	820	1,700
					10	110	240	410	700	1,320
7-0507	James River near Springfield	1956-67	246	12.0		50 cfs	75 cfs	125 cfs	170 cfs	195 cfs
					2	38	66	190	424	-
					5	15	33	130	320	540
					10	11	22	100	250	400
7-0515	James River below Battlefield	c	d	12.0		66 cfs	98 cfs	164 cfs	195 cfs	230 cfs
					2	50	87	245	360	540
					5	24	45	172	290	420
					10	15	30	128	210	330
7-0523	Finley Creek near Ozark	c	d	13.0		44 cfs	66 cfs	110 cfs	154 cfs	176 cfs
					2	30	56	150	325	-
					5	14	28	110	250	400
					10	6	16	82	200	310

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-0525	James River at Galena	1923-67	987	13.1		120 cfs	300 cfs	500 cfs	650 cfs	820 cfs
					2	30	250	560	920	2,250
					5	12	100	350	680	1,550
					10	10	80	260	540	1,120
7-0528	Flat Creek at Jenkins	c	d	12.0		66 cfs	84 cfs	105 cfs	126 cfs	147 cfs
					2	40	73	107	158	248
					5	16	46	76	128	189
					10	13	27	59	92	149
7-0538	Bull Creek at Walnut Shade	c	d	13.0		60 cfs	80 cfs	100 cfs	140 cfs	160 cfs
					2	30	60	86	184	-
					5	12	38	64	138	210
					10	8	18	46	116	170
7-0539.8	Swan Creek at Forsyth	c	d	13.0		57 cfs	76 cfs	95 cfs	133 cfs	152 cfs
					2	27	55	80	171	-
					5	11	34	59	127	190
					10	6	17	44	108	158
7-0541.5	Beaver Creek at Kissee Mills	c	d	14.0		117 cfs	156 cfs	234 cfs	273 cfs	312 cfs
					2	55	109	238	343	-
					5	25	70	183	254	374
					10	12	35	133	218	316
7-0574	North Fork River at Twin Bridges	c	d	15.0		95 cfs	115 cfs	133 cfs	170 cfs	190 cfs
					2	25	47	78	200	314
					5	21	38	68	162	260
					10	15	27	49	125	188
7-0574.5	Spring Creek at Twin Bridges	c	d	15.0		48 cfs	60 cfs	72 cfs	84 cfs	96 cfs
					2	28	42	53	94	-
					5	17	31	48	65	91
					10	7	22	36	56	80

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-0575	North Fork River near Tecumseh	1945-67	561	16.5		300 cfs	375 cfs	450 cfs	525 cfs	640 cfs
					2	30	110	230	430	1,500
					5	20	75	180	350	930
					10	15	60	140	275	670
7-0580	Bryant Creek near Tecumseh	1946-67	570	12.1		150 cfs	225 cfs	300 cfs	375 cfs	450 cfs
					2	20	125	250	490	1,250
					5	15	85	200	370	780
					10	10	45	130	275	590
7-0611.5	West Fork Black River at Centerville	c	d	14.0		54 cfs	68 cfs	81 cfs	95 cfs	108 cfs
					2	34	50	77	111	-
					5	20	38	58	77	111
					10	9	27	42	68	97
7-0611.7	Middle Fork Black River near Lesterville	c	d	14.0		64 cfs	80 cfs	96 cfs	112 cfs	128 cfs
					2	40	61	91	133	-
					5	24	45	70	93	133
					10	11	32	50	82	117
7-0613	East Fork Black River at Lesterville	c	d	15.0		38 cfs	47 cfs	57 cfs	66 cfs	76 cfs
					2	22	34	52	76	-
					5	13	26	39	52	74
					10	6	18	28	45	65
7-0615	Black River near Annapolis	1940-67	484	15.2		250 cfs	350 cfs	400 cfs	450 cfs	525 cfs
					2	90	240	380	570	1,300
					5	70	210	310	440	950
					10	50	130	220	340	630
7-0635	Cane Creek at Harviel	c	188	17.0		75 cfs	95 cfs	112 cfs	130 cfs	150 cfs
					2	28	50	82	120	-
					5	17	38	56	72	102
					10	5.5	26	45	65	94

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance [b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-0645	Big Creek near Yukon	1950-67	8.36	11.0		2 cfs	3 cfs	4 cfs	5 cfs	6 cfs
					2	1.1	2.4	4.4	7.6	16
					5	0.5	1.6	3.2	5.8	11
					10	0.3	1.1	2.4	4.5	8.2
7-0648	Sinking Creek near Round Spring	c	d	14.0		56 cfs	70 cfs	84 cfs	98 cfs	112 cfs
					2	34	52	78	113	-
					5	21	39	59	80	113
					10	10	27	43	70	99
7-0649.5	Current River at Round Spring [e]	c	d	14.0		230 cfs	285 cfs	400 cfs	456 cfs	515 cfs
					2	28	85	256	450	680
					5	23	74	217	336	552
					10	11	51	165	268	450
7-0652	Jacks Fork near Mountain View [e]	c	d	15.0		68 cfs	85 cfs	102 cfs	120 cfs	136 cfs
					2	40	60	75	133	-
					5	24	44	68	92	129
					10	10	31	51	80	109
7-0660	Jacks Fork at Eminence [e]	1923-67	398	14.7		150 cfs	250 cfs	300 cfs	350 cfs	390 cfs
					2	20	150	290	510	900
					5	18	120	230	400	720
					10	14	100	185	315	510
7-0665	Current River near Eminence [e]	1923-67	1,272	14.7		570 cfs	900 cfs	1,050 cfs	1,200 cfs	1,320 cfs
					2	75	550	975	1,680	3,500
					5	50	450	800	1,320	2,220
					10	30	325	620	1,100	1,820
7-0670	Current River at Van Buren [e]	1923-67	1,667	14.9		800 cfs	1,100 cfs	1,300 cfs	1,500 cfs	1,700 cfs
					2	120	450	840	1,480	3,100
					5	90	390	750	1,300	2,800
					10	60	320	620	1,100	2,000

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance[b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-0680	Current River at Doniphan[e]	1923-67	2,038	17.8		1,330 cfs	1,750 cfs	2,000 cfs	2,250 cfs	2,500 cfs
					2	140	850	1,500	2,500	5,000
					5	100	600	1,150	2,000	3,900
					10	90	500	1,000	1,650	2,900
7-0685	Little Black River near Fairdealing	c	187	18.0		75 cfs	95 cfs	110 cfs	130 cfs	150 cfs
					2	34	56	90	133	-
					5	22	43	65	86	120
					10	6	30	50	75	105
7-0691.5	Spring River at Thayer	c	d	16.0		76 cfs	95 cfs	114 cfs	133 cfs	152 cfs
					2	32	53	89	129	-
					5	19	42	63	82	114
					10	8	28	49	72	103
7-0705	Eleven Point River near Thomasville[e]	1951-67	361	3.1		25 cfs	40 cfs	50 cfs	60 cfs	75 cfs
					2	12	38	64	98	208
					5	8	30	50	78	162
					10	6	20	38	60	115
7-0715	Eleven Point River near Bardley[e]	1922-67	793	12.5		310 cfs	400 cfs	500 cfs	600 cfs	650 cfs
					2	55	180	390	800	1,320
					5	40	145	320	640	960
					10	35	100	240	480	680
7-1856.5	Spring River near Stotts City	c	d	10.0		70 cfs	88 cfs	110 cfs	132 cfs	154 cfs
					2	48	90	139	230	-
					5	27	57	92	183	293
					10	20	37	79	132	230
7-1857	Spring River at Larussell	1957-67	306	11.0		92 cfs	122 cfs	153 cfs	185 cfs	215 cfs
					2	73	138	223	386	-
					5	46	86	147	310	483
					10	37	61	132	235	385

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance of Deficiency[b] (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-1858	Spring River near Neck City	c	d	10.0		100 cfs	150 cfs	200 cfs	300 cfs	350 cfs
					2	70	125	225	635	-
					5	40	75	145	500	-
					10	30	55	100	390	630
7-1858.5	North Fork Spring River at Lamar	c	d	10.0		10 cfs	25 cfs	48 cfs	60 cfs	72 cfs
					2	7	18	58	95	175
					5	4	11	37	66	134
					10	2	7	28	61	110
7-1860	Spring River near Waco	1926-67	1,164	9.4		60 cfs	200 cfs	350 cfs	500 cfs	650 cfs
					2	15	160	410	810	1,500
					5	8	100	270	585	1,250
					10	5	45	210	490	970
7-1861	Center Creek near Sarcoxie	c	d	10.0		27 cfs	35 cfs	45 cfs	54 cfs	63 cfs
					2	21	38	59	98	-
					5	10	24	40	79	126
					10	9	16	34	58	100
7-1862	Center Creek near Fidelity	c	d	10.0		42 cfs	63 cfs	105 cfs	126 cfs	
					2	27	48	141	237	
					5	15	29	95	189	
					10	11	21	82	141	
7-1864	Center Creek near Carterville	1962-68	232	10.0		46 cfs	70 cfs	93 cfs	115 cfs	
					2	30	56	100	158	
					5	19	32	65	107	
					10	14	23	44	93	
7-1864.2	Center Creek near Webb City	c	d	10.0		75 cfs	100 cfs	125 cfs	150 cfs	175 cfs
					2	60	108	173	297	-
					5	36	70	118	238	380
					10	28	47	105	183	300

Station Number (Plate 1)	Station Name	Record Used In Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance [b] of Deficiency (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
7-1864.6	Center Creek near Carl Junction	c	d	10.0		82 cfs	110 cfs	138 cfs	165 cfs	182 cfs
					2	66	121	193	338	-
					5	40	77	132	270	429
					10	30	55	118	206	338
7-1867	Shoal Creek near Fairview	c	d	11.0		23 cfs	30 cfs	38 cfs	45 cfs	52 cfs
					2	16	30	46	74	-
					5	8	20	31	59	94
					10	7	12	25	42	74
7-1868.8	Shoal Creek at Ritchey	c	d	11.0		76 cfs	95 cfs	114 cfs	133 cfs	
					2	78	120	198	-	
					5	49	80	158	253	
					10	32	68	114	200	
7-1868.9	Shoal Creek at Neosho	c	d	11.0		100 cfs	136 cfs	170 cfs	204 cfs	240 cfs
					2	78	139	218	360	-
					5	44	92	146	289	466
					10	30	58	126	211	367
7-1870	Shoal Creek above Joplin	1942-67	427	11.5		78 cfs	150 cfs	210 cfs	270 cfs	330 cfs
					2	22	135	260	450	1,040
					5	10	68	180	330	690
					10	5	40	130	265	525
7-1888.5	Elk River at Pineville	c	d	11.0		49 cfs	148 cfs	245 cfs	294 cfs	343 cfs
					2	29	108	299	480	-
					5	15	59	201	382	613
					10	10	44	167	275	480
7-1888.7	Indian Creek at Anderson	c	d	11.0		60 cfs	80 cfs	100 cfs	120 cfs	140 cfs
					2	44	80	124	200	-
					5	22	52	84	160	258
					10	18	32	70	116	202

Station Number (Plate 1)	Station Name	Record Used in Analysis	Drainage Area (Sq. Mi.)	Average Annual Run-off (Inches)	Chance of Deficiency[b] (%)	Amount of Storage (in Thousands of Acre-Feet) for Draft Rate (in CFS) Indicated in Column Headings (Not Corrected for Reservoir Evaporation, Sedimentation, and Seepage)				
						135 cfs	300 cfs	400 cfs	550 cfs	680 cfs
7-1890	Elk River near Tiff City	1941-67	872	11.6						
					2	60	250	380	700	1,600
					5	35	110	260	560	1,100
					10	18	65	180	450	850

a Approximately

b Percent of years in which a storage reservoir of indicated capacity would become empty.

c Carryover storage requirements for this partial-record site were computed from regional curves. Within-year storage requirements for the site are shown in Water Resources Report No. 22.

d Rough drainage area (accuracy ± 10%) is available but not shown. A subsequent report will contain planimetered drainage area data for the State.

e Current River and Jacks Fork are included in the Ozark National Scenic Riverways. The Eleven Point River is included in the National Wild Rivers Act. Impoundments will not be permitted on these streams under the present laws.

GAGING STATIONS, AVERAGE ANNUAL RUNOFF, DRAFT-STORAGE REGIONS, AND AREAS OF ANOMALOUS RUNOFF IN MISSOURI

EXPLANATION

- ● PARTIAL - RECORD STATION
- ▲ CONTINUOUS - RECORD STATION
- 6-3472 DOWNSTREAM ORDER NUMBER
- 8.0 — 8.0 ISOPLETHS OF ANNUAL RUNOFF, IN INCHES
- PART OF STREAM BASIN WHERE REGION B CURVES ARE TO BE USED. IN ALL OTHER AREAS WHERE RUNOFF PATTERNS CAN BE ESTIMATED, REGION A CURVES ARE TO BE USED.
- (3.1) AREAS WHERE ANOMALOUS RUNOFF PATTERNS ARE KNOWN TO EXIST. ISOPLETHS SHOULD NOT BE USED TO PREDICT RUNOFF FOR THESE AREAS. NUMBER IN PARENTHESIS INDICATES RUNOFF IN INCHES. (?) INDICATES RUNOFF SIGNIFICANTLY LESS THAN ADJACENT AREAS, BUT EXACT FIGURES NOT AVAILABLE.
- PHYSIOGRAPHIC BOUNDARY
- STORAGE ESTIMATES IN THESE STREAM BASINS MUST BE MULTIPLIED BY 1.5

SCALE 1:2,500,000 — 39 MILES — 39 KILOMETERS

LARGE STORAGE RESERVOIRS IMPRACTICAL IN THE SOUTHEASTERN LOWLANDS

IMPOUNDMENTS ARE NOT PERMITTED ON THE CURRENT, ELEVEN POINT AND JACKS FORK RIVERS UNDER PRESENT (1970) LAW