UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Water Resources Division

A PROPOSED STREAMFLOW-DATA PROGRAM FOR MONTANA

by

F. C. Boner, and G. W. Buswell

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Open-file report

Helena, Montana

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ABSTRACT

An evaluation of the streamflow data available in Montana was made to provide guidelines for planning future programs. The basic steps in the evaluation procedures were (1) definition of the long-term goals of the streamflow data program, (2) examination and analysis of all available data to determine which goals have already been met, and (3) consideration of alternate programs and techniques to meet remaining goals. Only one of the goals was met by generalization of the data for gaged basins by regression analysis. The regression method may be more successful at a future time if a more suitable model can be developed, and if an adequate sample of streamflow records can be obtained In the meantime, other methods of transferring flow characteristics which require some information at the ungaged site may be used. A streamflow data program based on the guidelines developed in this study is proposed.

INTRODUCTION

The present (1970) network of streamflow data collection sites operated by the U.S. Geological Survey in Montana has been designed to meet past and current Federal and State agency needs for surface-water data. These data are needed to help determine availability of surface water; distribute the water among various users such as domestic, agricultural, industrial, and recreational; and distribute the water between Canada and the United States and Wyoming and Montana according to agreements.

The earliest known records of river stage are for the Missouri River at Fort Benton. Gage-height records were collected during the summer for the years 1873-76, 1881-99, and 1901-09 by the Missouri River Commission, the Corps of Engineers, and the Weather Bureau. The Geological Survey began discharge measurements at this station in April 1910.

In 1889 the Geological Survey established gaging stations at sites on the Gallatin River at Gallatin Gateway, Missouri River at Canyon Ferry, Sun River near Augusta, and the Yellowstone River at Corwin Springs. Numerous other stations were established on streams in the Missouri River basin in the next decade. In 1898 gaging stations were established near Missoula on the Blackfoot and Bitterroot Rivers and the Clark Fork in the upper Columbia River basin. The first gaging station in the Hudson Bay drainage was established during the summer of 1901 on the St. Mary River near Babb. Most stations were established as the result of irrigation investigations that were being made.

Further expansion of the stream gaging program resulted from (1) passage of the Reclamation Act in 1902, (2) activities connected with the Carey Land Act Board and the initiation of a Federal-State cooperative program in 1906, (3) the beginning of international coordination and cooperation with the Canadian Irrigation Office in 1913, as the result of a treaty, which directed the International Joint Commission to supervise the division of waters in the St. Mary and Milk River basins, and (4) the establishment of gaging stations within the National Parks starting in 1916. In 1928 the State Department expanded their cooperative programs in connection with studies of international streams along the Canadian boundary. In the same year the Corps of Engineers expanded their comprehensive studies of major rivers with emphasis on flood control.

In 1946 gaging stations were begun to be established in connection with reservoir projects under consideration in the upper Missouri River basin by the Bureau of Reclamation. Other stations were established for the Montana State Engineer and the Montana State Water Conservation Board (presently combined as the Montana Water Resources Board) in connection with project studies and the expansion of a hydrologic network to obtain streamflow data.

On July 1, 1955 a study of the magnitude and frequency of floods from small drainage areas was begun in cooperation with the Montana State Highway Commission. This initial program consisting of 45 crest-stage gaging stations was expanded to 138 gages in 1959 and to 202 gages in 1963. About 200 gages were in operation from 1963 to 1967, and 185 in 1968 and 1969. At present (1970) 183 gages are in operation.

In 1958, in cooperation with the Montana Water Resources Board, 9 sites were designated where base-flow measurements were made to define low-flow characteristics and peak-flow data are collected to aid in defining flood-frequency relations in prairie areas. Ten additional sites were added in 1961. At present (1970) base-flow measurements are obtained at 3 sites and peak-flow data are collected at 14 sites. In addition, numerous base-flow measurements have been made at miscellaneous sites.

The increasing cost of operation, the restraint on funds and manpower, and the need for a greater variety of hydrologic information require a systematic evaluation of the streamflow data program to determine the most efficient use of funds and manpower to best serve State and Federal interests. The purpose of this study is to evaluate the streamflow data program and use the evaluation to design a program that would most efficiently produce the types of information needed. This report summarizes the results of the evaluation.

The concepts and procedures used in this study, as presented in detail by Carter and Benson (1970) are summarized only briefly in this report. The basic steps are (1) definition of the long-term goals of the streamflow data program in quantitative form, (2) examination and analysis of all available data to determine which goals have already been met, (3) consideration of alternate means of meeting the remaining goals, and (4) preparation of a proposed program of data collection and analysis to meet the remaining goals.

This report was prepared under the general supervision of G. M. Pike, District Chief, Water Resources Division, U.S. Geological Survey. Appreciation is expressed to the Montana Water Resources Board for assistance in preparing streamflow records for computer processing; the Soil Conservation Service, Department of Agriculture, for furnishing basin elevation of many streams; and especially H. C. Riggs, Chief, Hydrologic Studies Section, U.S. Geological Survey, for technical guidance.

PHYSICAL AND HYDROLOGIC DESCRIPTION OF MONTANA

Elevations in the State range from about 12,800 feet in the upper Yellowstone River basin to slightly less than 1,900 feet where the Missouri River enters North Dakota, and slightly less than 1,800 feet where the Kootenai River enters Idaho. Most of western Montana is mountainous but contains numerous large intermontane valleys. East of the Rocky Mountains, in a broad belt extending through the central part of the state, plains are interrupted by isolated mountain ranges. East of the isolated mountains the plains are devoid of mountains but deeply incised by the Missouri and Yellowstone Rivers and their tributaries.

Rivers in Montana flow to the Pacific Ocean, the Gulf of Mexico or to Hudson Bay. The Continental Divide crosses the western half of the State in roughly a north-south direction. West of the Divide the Kootenai River, Flathead River and Clark Fork flow into the Columbia River. A relatively small area of mountains between the Hudson Bay Divide and the Continental Divide is drained by the St.Mary, Belly, and Waterton Rivers, which flow to Hudson Bay through the Saskatchewan River in Canada. The remainder of the State east of the Continental Divide is drained by the Missouri River, which is formed by the confluence of the Gallatin, Madison, and Jefferson Rivers, and flows through the plains in the central and northeastern part of the State. The Yellowstone River, which is the principal tributary of the Missouri River in Montana, rises in Wyoming, drains the southeastern part of Montana and joins the Missouri River slightly east of the Montana-North Dakota line. The Milk River, the major northerly tributary to the Missouri in Montana, drains the major portion of the plains along the Canadian boundary.

The Columbia River basin drains 17 percent of the State and has 58 percent of the total streamflow. The Missouri River basin contains 82 percent of the State and has 40 percent of the water supply. The Hudson Bay drainage area contains less than 1 percent of the State and has about 2 percent of the streamflow.

The mean annual runoff ranges from more than 100 inches to less than 0.25 inch and averages about 3.5 inches for the State. Mountainous areas west and east of the Continental Divide have relatively high runoff. About half the State has less than 1 inch of runoff.

The usefulness of streamflow is related to its seasonal and annual dependability. The large proportion of the annual precipitation that accumulates in the high mountains during the winter markedly affects the runoff. The snow-melt runoff begins in April and reaches a peak in late May or early June. The runoff is essentially completed in July after which normal baseflow recession may be modified slightly by summer rains. As transpiration decreases in the fall and precipitation increases, flow usually increases before cold weather causes streamflow to decrease. During some winters, mild weather increases streamflow briefly.

Streams of the foothills and plains areas are usually extremely low or not flowing during the winter. Snow and channel ice accumulated during the winter normally melt in late March and may produce the peak flow of the year. Sometimes brief thaws from warm "chinook winds" have produced flooding in January and February. The recession from the peak in late March is rapid and subsequent increases in flow are dependent upon rain of sufficient intensity and duration to cause surface runoff. Streams in the foothills and plains may cease flowing during the hottest part of the summer, and resume flowing as evaporation and transpiration decrease. It is not uncommon, however, for these streams to reach their annual peak during the summer because of isolated cloudbursts.

STREAMFLOW DATA AVAILABLE

Streamflow records for periods ranging from less than a year to more than 80 years (Missouri River at Fort Benton) have been collected at about 700 sites. A total of about 10,000 station years of record have been collected. Complete indexes of gaging station sites and periods of record have been published (Eisenhuth, 1968, a, b, c, and Montana Water Resources Board, 1968). The majority of the record has been collected on streams draining the mountains, but a considerable number, including some long-term records, have been collected on large streams draining the plains. Many records from the plains have been collected seasonally at sites along streams crossing the international boundary. In addition to the above records and to the crest-stage and low-flow partial-record stations, several thousand streamflow measurements and indirect determinations of peak flow have been made at miscellaneous sites throughout the state.

CONCEPTS AND PROCEDURES USED IN THIS STUDY

The principal concept of this study is that a streamflow-data program must be able to provide streamflow information that may be needed at any point on any stream in Montana. This information can be provided by a combination of data collection and of hydrologic studies that generalize the information obtained at gaging sites.

Other important concepts are: (1) The goals of the program, including accuracy goals, should be identified in quantitative form. Then existing data can be evaluated to determine those goals that have been attained and how the program should be modified. (2) Principal streams should be gaged for 25 years at points where the drainage area is approximately 500, 1000, 2000, 4000, 8000, etc. square miles. Flow characteristics may then be interpolated between these gaged points.

The procedures used in this study are presented in the general framework shown by table 1. Streamflow data are classified into four types: (1) data for current use, (2) data for planning and design, (3) data to define long-term trends, and (4) data on the stream environment. For the second type of data, streams are classified as natural or regulated, and each of these classifications is further subdivided into principal or minor. Minor streams drain less than 500 square miles in the mountains and less than 1,000 square miles in the plains. Principal streams drain more than 500 square miles in the mountains and more than 1,000 square miles in the plains.

The first step in this study was to establish program goals for each of the four types of data. All available data were then examined and analyzed. This information was compared to the goals. The comparison determined the elements that should be included or excluded in a future program.

Criteria for each of the four types of data, and the methods employed in deriving information, are discussed in the following sections.

Table 1.--Framework for design of data-collection program

	Type of data						
	Current use	Planning and Design				Long-term trends	Stream environment
		Natural Flow		Regulated Flow			
		Minor streams	Principal streams	Minor streams	Principal streams		
Goals	To provide current data on streamflow needed for day-by-day decisions on water management as required.	To provide information on statistical characteristics of flow at any site on any stream to the specified accuracy.				To provide a long-term data base of homogeneous records on natural-flow streams.	To describe the hydrologic environment of stream channels and drainage basins.
Drainage area limits	Full range	Less than 500* sq mi.	Greater than 500* sq mi.	Less than 500* sq mi.	Greater than 500* sq mi.	Full range	Full range
Accuracy goal	As required	Equivalent to 10 years of record.	Equivalent to 25 years of record.	Equivalent to 10 years of record.	Equivalent to 25 years of record.	Highest obtainable	As required
Approach	Operate gaging stations as required to provide specific information needed. Less than a complete record may be adequate for some purposes.	Gage at selected points. Transfer data to ungaged points by regression or interpolation.	Operate gaging stations to obtain 25 years of record (or the equivalent by correlation) at a network of points on principal streams; interpolate between points.	Develop generalized relations that account for the effect of storage, diversion, or regulation on natural flow characteristics.	Utilize analytical model of stream system with observed data as input to compute homogeneous records for both natural flow conditions and present conditions of development.	Operate a number of carefully selected gaging stations indefinitely.	Observe and publish information on stream environment.
Evaluate available data	Identify stations where data is used currently and code the specific use of data.	Develop relationship for each flow characteristic and compare standard error with accuracy goal. Evaluate sample.	Lay out network of points on principal streams and compare data available at these points with goal.	Appraise type of regulation, data available, and areas where relationships are needed.	Identify stream systems that should be studied using model approach and determine data requirements.	Compare the number of stations with the goal.	Evaluate information available in relation to goals.
Design future program		Identify goals that have not been attained. Consider alternate means of attaining goals. Identify elements of future program.					

* 1,000 sq mi in plains area (Region B, figure 2).

Data for Current Use

Current information on streamflow is needed at many sites for day-to-day decisions on water management, for assessment of current water availability, for the management of water quality, for the forecast of water hazards, and for the surveillance necessary to comply with legal requirements.

Data for current use are obtained by operating gaging stations. Current-purpose data stations are identified separately in this study because (1) justification can be related to specific needs, (2) the data may have little or no transfer value in a hydrologic sense, and (3) the locations of the stations, the accuracy requirements, and the period of operation are specified by the user of the data, who usually provides the financing.

This part of the program is not subject to design, but changes in response to the needs for data in water management.

Data for Planning and Design

Streamflow records form the principal basis for the planning and design of water-related facilities. Past hydrologic experience, however, is never precisely duplicated in the future; the exact sequence of wet and dry years probably will not occur again. For this reason, designers and planners commonly utilize statistical characteristics of streamflow rather than the records of flow at specific times. Typical statistical characteristics are the mean flow, the flood of 50-year recurrence interval, and the standard deviation of annual mean flow.

A long record of streamflow at the specific site is desirable for defining statistical characteristics of streamflow at that site. Although it is not feasible to collect a long continuous streamflow record at every site where it may be needed, a number of such stations are required to provide information that can be transferred to ungaged sites or to sites where little streamflow information is available.

Natural-flow Streams

The transfer of information on natural-flow streams is done by relating flow characteristics to basin characteristics, such as drainage area, topography, and climate; by relating a short record to a longer one; or by interpolating between gaged points on a stream channel.

Regulated-flow Streams

The definition of flow characteristics of a regulated stream is often complicated because of changes in the rules of operation during the period of record. Frequently, it is not possible to obtain a long record under one condition of development. Likewise, transfer of flow characteristics from one point to another on a regulated stream is difficult because the procedures used for natural streams, such as regression and interpolation, usually do not apply. A systems approach seems to be the most efficient way to define the flow characteristics of regulated streams. This approach requires some sort of analytical model of the stream system using the following as inputs: streamflow records, stage-capacity curves of reservoirs, operating rule curves for the release of water, losses due to evaporation and seepage, stream-channel geometry, and records of diversions and return flows, including ground-water pumpage and aquifer characteristics. The model and associated data can be used to derive homogeneous data for both natural and regulated conditions.

Accuracy of Streamflow Characteristics

When using past hydrologic data to predict the probability of future occurrences, some error must be tolerated. Natural streamflow, like other events related to climate, occurs randomly and varies greatly in time and space. Statistical techniques used in the analysis of random events, therefore, are considered applicable. Measures of the variability with time of annual mean flow and other streamflow characteristics can be determined from the streamflow record, and the probable errors involved in defining streamflow characteristics then can be appraised. The principal measure of accuracy by which a particular streamflow characteristic can be determined is the "Standard error of estimate" which is expressed in this report as a percentage of the average value of the streamflow characteristic. The standard error of estimate is the estimated limit above and below the average within which about two-thirds of future values of the characteristics are expected to fall. There is only one chance in three that future values will differ from the average by more than one standard error.

In general, the longer the record, the more reliable are the estimates of probable future occurrences. However, even with a long record, say 50 years or more, it is not possible to determine precisely the probability associated with certain flow characteristics; for example, floods of a given magnitude. The standard error of various streamflow parameters decreases with the years of available record, but at a decreasing rate, as shown in figure 1. The incremental economic value of the additional years of record beyond a reasonable limit in the planning and design of projects is under continuing study, but no usable guidelines are available now.

At sites on natural-flow streams where streamflow records are not available, a desired streamflow characteristic may be defined by a regression equation relating that streamflow characteristic to the characteristics of the drainage basins. The standard error of the regression equation provides a measure of the accuracy of an estimate made from the regression equation at an ungaged site. The error of the equation may be compared with the error associated with the same characteristic defined from a given number of years of record in order to determine whether the accuracy objective has been met.

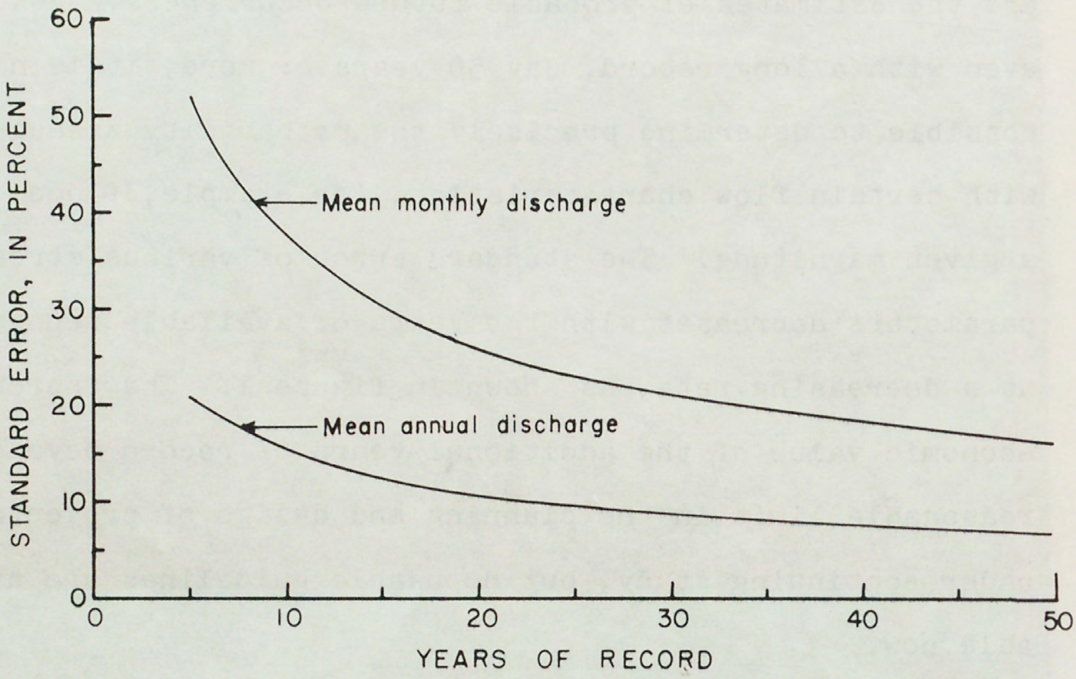

Figure 1.- Curve showing reduction in standard error with increase in length of record.

Data to Define Long-Term Trends

Characteristics of streamflow defined from gaging-station records are used to estimate future-flow characteristics, on the assumption that the observed record is a representative sample of the long-term flows of the stream. To affirm this assumption, or to better define how streamflow characteristics change with time, selected gaging stations on natural streams should be operated indefinitely. The accuracy of gaging at these sites should be the highest that the state of the art permits.

Data on Stream Environment

Environmental data describe the physical environment in which the water exists, especially those features that relate to recreation, waste disposal, conjunctive surface water-ground water supply, preservation of the esthetic character of water features, and use of the flood plain. Specific examples are given under the section on "Goals of the Montana streamflow data program."

GOALS OF THE MONTANA STREAMFLOW DATA PROGRAM

The overall objective of a surface-water data program is to provide information of a specified accuracy at any site on any stream. The specific goals of the Montana surface-water program are described in the following paragraphs.

Data for Current Use

This type of data are collected to provide the particular information needed at specific sites for current use. Accuracy goals at a given site are specified by the data user. Higher than usual accuracy can be obtained by intensive observation or by more sophisticated instrumentation.

Data for Planning and Design

The goals for this type of data are to define streamflow characteristics at ungaged sites to an accuracy equivalent to that which would be obtained from 10 years of record for minor streams and 25 years of record for principal streams. These goals apply both to natural-flow and regulated-flow streams. The accuracy goals, in percent, were calculated from a theoretical relation of standard error to index of variability for 3 regions in Montana and are shown in Table 2. Regions A, B, and C are shown on figure 2.

Table 2.--Accuracy goals

Streamflow characteristic	Standard error, in percent					
	Region A		Region B		Region C	
	10 yrs	25 yrs	10 yrs	25 yrs	10 yrs	25 yrs
Mean annual discharge	9	6	23	14	8	5
Standard deviation of annual discharges	22	14	22	14	22	14
Mean monthly discharge (average)	12	7.5	40	25	14	9
Standard deviation of monthly discharges (average)	22	14	22	14	22	14
10-year flood	25	16	60	37	25	16
50-year flood	33	20	78	47	33	20
7-day 10-year low flow	15	10	50	30	15	10
7-day 50-year high flow	23	14	75	45	21	13

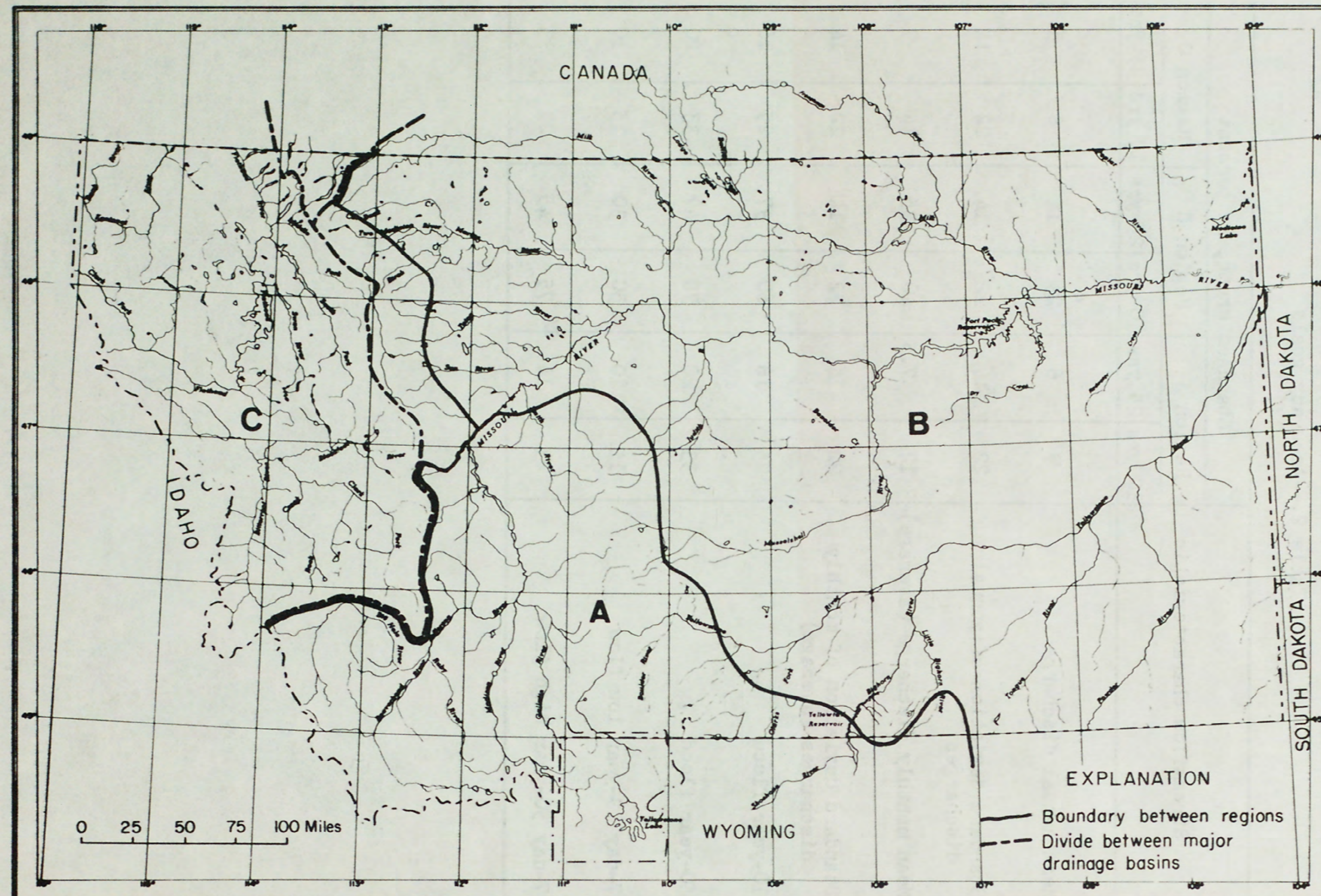

FIGURE 2.-MAP OF MONTANA SHOWING REGIONS A, B, AND C.

Data to Define Long-Term Trends

The goal for this type of data collection is to operate indefinitely a small network of gaging stations on streams that are expected to be relatively free from man-made changes. One or two stations should be located in each of the major drainage areas in the State, and stations should be located on streams that differ in physical characteristics.

Data on Stream Environment

Environmental data describe the flow and the stream channel in terms that will be valuable in planning the use of the stream for purposes such as recreation, waste disposal, conjunctive surface water-ground water supply, and guarding against water hazards. Typical long-range goals for this type of data in Montana are to:

1. Quantitatively define how the stream-aquifer system operates and to suggest alternate management plans to obtain the maximum benefit from the system.
2. Measure the time of travel of solutes in stream channels.
3. Define flood profiles along stream channels.
4. Identify flood plains of streams for floods of various frequencies.
5. Make reconnaissance surveys of streamflow and stream channel parameters related to the use of the stream for recreation, such as velocities, depths, bank vegetation, bed material, water temperature, water quality and accessibility.
6. Define climatic factors that influence the water supply, such as precipitation, depth and extent of snow packs, soil moisture and frost depths, and the occurrence of warm "chinook" winds that cause rapid runoff during the winter period.

EVALUATION OF EXISTING DATA IN MONTANA

In this evaluation all available data are considered and analyzed in relation to program goals. A separate evaluation is made for each of the four types of data.

Data for Current Use

More than 90 percent of the gaging stations in Montana are operated to provide data for current use. It is assumed that the need for this type of data is being met, and that this part of the program will be modified as requirements change. The 160 gaging stations being operated in Montana to satisfy the need for current data are identified in table A-1. The principal uses of the data for each station are also shown in this table. Several of these stations produce data that also is useful for planning and design. Not included in this evaluation, or shown on any list in this report, are 21 seasonal-record stations in the Milk River basin within Canada.

Data for Planning and Design

The statistical characteristics of streamflow can be defined by sample gaging, analytical methods of regionalization, systems studies, interpolation, or any combination of these. The following discussion of the evaluation of this type of data follows the framework shown in table 1.

Evaluation of the Natural-Flow Systems

The purpose of the evaluation is to determine how accurately the statistical characteristics that are listed as goals (page 29) can be defined by regionalization of the data now available.

The most effective way now known for defining statistical streamflow characteristics on a broad scale is to relate the streamflow characteristics to basin characteristics in equations developed by use of multiple-regression techniques. Once the equation and its constants are defined, streamflow characteristics for a specific site in a given basin can be computed by substituting the appropriate values of the basin characteristics in the formulas.

The 118 streamflow records used in this analysis are those having 10 or more years of mostly unregulated flow, or flow that has been adjusted to natural conditions. Both minor and principal streams were included. Because of some regulation, not all flow characteristics were defined from each record. At a few stations records of streamflow were combined with records of diversion to give total natural flow. At some stations, regulation materially affected low flows but insignificantly affected peaks. At a few stations, only mean annual flows, adjusted for storage, were used. No records on very large streams (lower reaches of Missouri, Yellowstone, Clark Fork and Flathead Rivers) were used because these streams are regulated. In addition to the 118 continuous-record gaging stations, flood data from 20 seasonal-record and 108 peak-flow partial-record gaging stations were used.

Table A-2 lists all of the gaging stations used in this evaluation (continuous-record stations, seasonal-record stations, and peak-flow partial-record stations) and their corresponding station numbers. Streamflow and basin characteristics listed in tables A-3 and A-4 are identified only by station number.

Streamflow data available on principal natural-flow streams was compared with the drainage area criteria and found adequate on some streams but inadequate on others. Specific results are reflected in the recommendations given in the section on "The Proposed Program."

Streamflow characteristics.--The following streamflow characteristics defined at gaging stations include the full range of flow and represent those required for planning and design:

a. Low-flow characteristics are the annual minimum 7-day mean flows at 2-year, 10-year and 20-year recurrence intervals ($M_{7,2}$, $M_{7,10}$, and $M_{7,20}$).

b. Flood-peak characteristics are represented by discharges from the frequency curve of annual floods at recurrence intervals of 2, 5, 10, 25, and 50 years. In this report, these peak-flow rates are denoted as Q_2, Q_5, etc.

c. Flood-volume characteristics represent the annual highest average flow for 3-day and 7-day periods at recurrence intervals of 2, 10, and 50 years. These characteristics are noted symbolically in this report as $V_{3,2}$, $V_{3,10}$, $V_{3,50}$, $V_{7,2}$, etc.

d. Mean-flow characteristics are described by the mean of the annual means, Q_a, and by the means of record for each calendar month, q_n, where the subscript refers to the numerical order of the month beginning with January as 1.

e. Flow-variability characteristics are represented by the standard deviations of the annual and monthly means. The symbols used are, respectively, SD_a and SD_n where the subscript n refers to the numerical order of months with January as 1.

Streamflow characteristics listed in table A-3 were used in the regression analyses. The values shown in table A-3 were listed by the computer and indicate a higher degree of accuracy than was used in defining each characteristic. In general, values were defined to three significant figures.

Basin and Climatic Characteristics.--Basin and climatic characteristics defined for this study are:

a. Drainage area, in square miles, as shown in the latest U.S. Geological Survey streamflow reports.

b. Main-channel slope, in feet per mile, determined from elevations at points 10 percent and 85 percent of the distance along the channel from the gaging station to the divide. This index was described and used by Benson (1962, 1964).

c. Main-channel length, in miles, from the gaging station to the basin divide, as measured with a template graduated in 0.1 mile units, or as taken from reports by the Missouri Basin Inter-Agency Committee (1965) or by the Hydrology Subcommittee Columbia Basin Inter-Agency Committee (1965, a, b).

d. Area of lakes and ponds, expressed as a percentage of the drainage area, determined by measurement or from Bodhaine and Thomas (1964). The parameter used in regression was the above value increased by 1 percent.

e. Mean-basin elevation, in feet above mean sea level, measured on 1:250,000 Army Map Service maps by laying a grid over the map, determining the elevation at each grid intersection, and averaging those elevations. The grid spacing was selected to give at least 25 intersections within the basin boundary.

f. Forest cover, expressed as the percentage of the drainage area covered by forests as shown on the topographic map, determined by the grid method. One percent was added to each value before its use in regression.

g. Mean annual precipitation, in inches, determined from an isohyetal map prepared by the U.S. Weather Bureau (1960).

h. The annual maximum 24-hour rainfall having a recurrence interval of 2 years (24-hour 2-year rainfall) expressed in inches. These values were determined from ESSA, Weather Bureau (1969).

i. Percent of drainage basin above 6,000 feet, determined by grid method or from the office files of the Soil Conservation Service. One percent was added to each value before use in regression.

j. Soils storage index, a factor obtained from the Soil Conservation Service, which represents values of potential maximum infiltration of rainfall in inches during an annual flood, under average soil moisture conditions.

Values of the above basin and climatic characteristics used in the analysis are listed in table A-4. The values shown in table A-4 were listed by the computer. As the computer program did not include proper rounding of data values, they indicate a higher degree of refinement than was used in defining each characteristic. Drainage areas below 1,000 square miles were defined to 3 significant figures. Above 1,000 square miles they were defined to the nearest square mile. Main-channel slope, area of lakes and ponds, mean basin elevation, and forest cover were defined to three significant figures. Mean annual precipitation, annual maximum 24-hour 2-year rainfall, percent of basin above 6,000 feet elevation, and soil storage index were defined to two significant figures. Main-channel length was defined, where possible, to the nearest tenth of a mile.

Data on drainage basin characteristics for those portions of drainages in Canada were obtained from Canadian maps and publications through the cooperation of the Department of Energy, Mines and Resources, Canada.

Regression analysis.--The next step was to relate each of the streamflow characteristics to basin and climatic characteristics by regression analysis. The regression model is

$$Y = aA^b S^c P^d$$

where Y is a streamflow characteristic; A, S, and P are basin or climatic characteristics; and the other symbols are coefficients obtained by regression. The method was described by Benson (1962). In this study, drainage area, main-channel length, forest cover, mean-basin elevation, area of lakes and ponds, mean annual precipitation, maximum 24-hour rainfall having a recurrence interval of 2 years, percent of drainage basin above 6,000 feet, and soils storage index were used initially in each regression.

The computer calculated the regression equation, the standard error of estimate, and the significance of each basin parameter. Automatically, then, the computer repeated the calculations, omitting successively the least significant basin parameter in each calculation until only the one most significant parameter remained. After relations for a given streamflow characteristic had all been computed, the entire computation process was repeated using another streamflow characteristic and the same set of basin characteristics. The first series of computer runs were made using data for the entire State. The residuals (ratio of actual to computed characteristics) at each station were then plotted for selected characteristics and found to be nonrandomly distributed over the State. The nonrandom distribution of the residuals indicated that better results could be obtained from separate regressions for each of the regions A, B, and C shown in figure 2. Accordingly, regression analyses were rerun using data for each of these regions.

Table 3 illustrates the output of the regression analysis of mean annual flow in Region A. The equation which includes the largest number of all statistically significant variables is

$$Q_A = 3.44 \times 10^{-4} A^{0.900} \left(\frac{E}{1000}\right)^{4.91} F^{0.430} P^{0.555} E_{6000}^{-1.14}$$

where Q_A is the mean annual discharge, in cubic feet per second; A is drainage area, in square miles; E is mean-basin elevation, in feet above mean sea level; F is forest cover, in percent, with one percent added; P is mean annual precipitation, in inches; and E_{6000} is the percent of drainage basin above 6,000 ft elevation, with 1 percent added. The standard error of this equation is 30.9 percent. No equation should be written using the regression coefficients higher in table 3 than those used in the above equation because the variables are not all statistically significant. Those equations using the regression coefficients lower in the table have the advantage of fewer variables, but the disadvantage of higher standard errors.

Table 3.--Summary of regression analyses of mean annual flow in Region A

Dependent variable	Regression coefficients for independent variables										Regression constant	Standard error of estimate	
	Drainage area	Main channel slope	Main channel length	Lakes and Ponds	Mean basin elevation	Forest cover	Mean annual precipitation	Precipitation intensity 2 yr-24hr	Basin above 6,000 ft elevation	Soil storage index		Percent	Change[a]
Mean annual flow in Region A	0.780[b]	-0.085	0.181	-0.011	4.82[b]	0.450[b]	0.350	0.742	-1.15[b]	0.240	5.09×10^{-4}	31.1	- - - -
	.783[b]	-.085	.173	- - - - -	4.80[b]	.451[b]	.343	.752	-1.15[b]	.241	5.27×10^{-4}	30.4	-0.7
	.863[b]	-.119	- - - - -	- - - - -	4.93[b]	.450[b]	.324	.814	-1.19[b]	.226	6.75×10^{-4}	30.2	-.2
	.899[b]	-.079	- - - - -	- - - - -	4.90[b]	.493[b]	.393	.582	-1.08[b]	- - - - -	3.56×10^{-4}	29.9	-.3
	.936[b]	- - - - -	- - - - -	- - - - -	4.55[b]	.458[b]	.456	.542	-.915[b]	- - - - -	1.95×10^{-4}	29.7	-.2
	.900[b]	- - - - -	- - - - -	- - - - -	4.91[b]	.430[b]	.555[b]	- - - - -	-1.14[b]	- - - - -	3.44×10^{-4}	30.9	+1.2
	.927[b]	- - - - -	- - - - -	- - - - -	5.30[b]	.521[b]	- - - - -	- - - - -	-1.15[b]	- - - - -	4.86×10^{-4}	33.0	+2.1
	.964[b]	- - - - -	- - - - -	- - - - -	3.35[b]	.529[b]	- - - - -	- - - - -	- - - - -	- - - - -	1.20×10^{-4}	39.1	+6.1
	.929[b]	- - - - -	- - - - -	- - - - -	3.49[b]	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	9.82×10^{-4}	44.6	+5.5
	1.000[b]	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	6.71×10^{-1}	64.0	+19.4

a Change in standard error of estimate when least significant variables are dropped, as indicated by dashed line in column.
b Statistically significant.

Table A-5 shows, for each of 40 streamflow characteristics and for each of the three regions, the regression constant, the regression coefficient (exponent) for all statistically significant basin parameters, and the standard error.

Comparison of the standard errors in table A-5 with corresponding values in table 2 indicated that only one of the accuracy goals was met by use of the regression method. The principal reason for the inadequacy of the regression method in Montana appears to be that basin characteristics, particularly geology and basin precipitation, cannot be accurately described from available information. The regression method may be more successful at a future time if a more suitable model can be developed and if an adequate sample of streamflow records can be obtained. Other methods, which require some field information at the site, may be used in the meantime to transfer flow characteristics. These methods are described in a subsequent section.

Evaluation of Date for the Regulated Streams

The goal to define streamflow characteristics at any point on a regulated stream may be sometimes attained by interpolation between stations. More commonly, however, regulation destroys any meaningful relation between flow at two sites. If, in addition, the streamflow characteristics change in time, then a systems approach is needed to meet the goals. See "Concepts and Procedures Used in this Study," page 18. Because the development of models for regulated stream systems would require a much greater effort than permitted for this study, the present study is limited to (1) identifying the principal regulated streams and (2) determining whether adequate data are available on them for use in a systems study.

Most regulated principal streams in Montana have records of 25 years or more at or near sites at which the drainage area is 500, 1000, 2000, 4000, etc. square miles. Results of the evaluation for specific streams are given in the section on "The Proposed Program."

Regulated minor streams in Montana are too numerous to consider individually in this study.

Data to Define Long-Term Trends

At present two stations on unregulated streams, Swiftcurrent Creek at Many Glacier and Beauvais Creek near St. Xavier, are designated as long-term trend stations for indefinite operation. Additional stations should be so designated to meet the goals.

Data on Stream Environment

Many environmental factors were determined for the drainage basins used for the present study, particularly basin characteristics such as drainage area, channel length and slope, area of lakes and ponds, basin elevations, extent of forest cover, and soil storage index. Average annual precipitation and rainfall intensity were also determined.

Flood plains have been outlined on 30 topographic quadrangle maps. Flood profiles were defined for several selected streams following the floods of 1933, 1948, and 1964. Channel surveys were made at many sites in connection with indirect determinations of peak flows for unusual floods or for bridge-site reports.

Most of the goals in this category are yet to be obtained.

ALTERNATE MEANS OF TRANSFERRING STREAMFLOW DATA

The evaluation study indicated that regression analysis may be more successful at a future time if a more suitable model can be developed, and if an adequate sample of streamflow records can be obtained. In the meantime, alternate methods of transferring information to an ungaged site must be considered. Most alternate methods require some information such as discharge measurements at the ungaged site, and streamflow records at a nearby gaging station to define specific relationships. The methods are briefly described in the following paragraphs.

Moore (1968) has shown that mean annual flow can be estimated from the width and depth of the lower section of the stream channel. He developed different relations for perennial and ephemeral streams. These relations at the present time provide a means of roughly estimating the mean annual flow at a site; better definition of the relations may result through further research.

Riggs (1969) showed that estimates of the mean annual flow at a site can be determined by measuring the discharge at the site near the middle of each calendar month for a water year if the discharge measurements can be correlated with a nearby gaging station. This method may have particular application in areas where runoff is seasonal and is due to snowmelt.

Moore (1968) developed relatinns between mean annual flow and altitude for certain parts of Nevada. A combination of channel cross sections, discharge measurements, and precipitation records may define reasonably accurate runoff-altitude relations for Montana.

Riggs (1965) described the use of partial-record stations to define low-flow characteristics. A partial-record station is a site at which enough base-flow measurements are obtained to define an adequate relation with concurrent flows at a nearby gaging station. The frequency characteristics of the low flow at a partial-record station can be determined from the relation of concurrent flows and the record at the gaged site.

Application of these alternate methods of analysis depends on the availability of a network of long-term streamflow records. Suitable long-term records are available in most areas of Montana.

THE PROPOSED PROGRAM

The information developed in this study has indicated that, with the exception of current-use data, the established goals have not been met. The information obtained from the study has been applied to planning a streamflow-information program which should meet most of the goals for the various types of data. For the optimum program, a balance must be maintained between data collection and data analysis. Continuous interaction between the collection and analysis of data is needed to gain a better understanding of the hydrologic system and to modify the program to meet ever-changing needs.

Data Collection

Data for Current Use

Operation of 158 of the 160 gaging stations, identified as presently meeting the needs for current-purpose data (table A-1), should be continued. The two stations that do not appear to be needed are 6-0400, Madison River near Cameron, and 12-3619.5, Hungry Horse Creek near Hungry Horse.

Needs should be assessed periodically, and this part of the data-collection program modified by adding or discontinuing stations. Furthermore, the need for a continuous record of discharge at each site should be examined. For some purposes, a stage record or definition of peak flows may suffice.

Data for Planning and Design

The goals for this type of data collection have not been attained except on some principal streams. The approaches proposed for meeting these goals, and the data needed, are described separately for natural-flow, minor and principal streams, and regulated-flow, minor and principal streams.

Natural-flow, minor streams.--Generalization of streamflow characteristics by regression on basin characteristics did not produce results of acceptable accuracy for Montana streams. An improved regression model and use of parameters which better describe the basin's effect on flow may eventually lead to success.

In the meantime, some alternate means of transferring streamflow characteristics must be used. The known alternate methods require a small amount of information at each site where streamflow characteristics are desired. For instance, monthly discharge measurements for one water year are an adequate basis for estimating the mean flow in mountainous regions, and a few base-flow measurements can be used to estimate the low-flow characteristics. A requirement of these methods is a nearby station at which the streamflow characteristics are defined. The gaging station must be active to use it to transfer mean flows but need not be to transfer low-flow characteristics. Presently, no additional gaging stations are needed for this purpose in Montana. However, the 14 gaging stations now being operated exclusively for planning and design (see table A-6) should be continued in operation.

It is recommended that mean flows and low-flow characteristics be defined at many points in one or more basins each year using discharge measurements. Such data collection and data analysis should be a part of each regional water-resources study as is being done in the current study of the Clark Fork basin.

Mean flow may also be estimated from measurements of the stream channel (Moore, 1968). This method should be more useful in Eastern Montana than the method requiring monthly measurements. The suitability of the Moore method should be determined for Montana.

No proven alternative to regionalization of flood peaks is available. Pending improvement of the regionalization method, or development of a suitable alternative, annual flood peaks should be defined at all gaging stations, active and discontinued, and at the crest-stage partial-record stations shown on figure 3 (in pocket).

Natural-flow, principal streams.--The procedures proposed for defining the flow characteristics of principal streams are (1) gaging of the stream at points at which the drainage area is about 500, 1,000, 2,000, 4,000 etc. square miles for about 25 years, and (2) interpolating along the channel between the gaged points. On this basis, the following gaging stations on principal, natural streams should be continued in operation:

Fisher River near Libby

Yaak River near Troy

Thompson River near Thompson Falls

Boulder River at Big Timber

Little Powder River near Broadus

The following stations on natural-flow, principal streams are no longer needed for this purpose and unless needed for other purposes, need not be continued:

Blackfoot River near Bonner*

Middle Fork Flathead River near West Glacier

Swan River near Bigfork

Stillwater River near Absarokee

* Needed as long-term trend station (page 60)

The following natural-flow, principal streams are not adequately gaged either as regards site location or length of record.

Boulder River (tributary to Jefferson River)
Belt Creek near Belt
Arrow River near Coffee Creek
Little Dry Creek (near mouth) near Jordan
Rock Creek near Hinsdale
Redwater River (near mouth) near Poplar
Big Muddy Creek at Plentywood
O'Fallon Creek near Fallon

Establishment and operation of gages on these streams would be needed if the Montana program were to conform strictly to the national pattern (Carter and Benson, 1969). Boulder River and Belt Creek are currently gaged at about the 400 square mile interval; gaging at the 1,000 square mile interval for a period of 25 years may not be justified economically. The other 6 streams in the above list are in the plains area where definition of a principal stream, based on drainage area, is somewhat unrealistic and a 1,000 square mile basin may produce minor flows except for an occasional flood. Gaging of these 8 streams are not included in the proposed program because they were assigned a very low priority.

Regulated-flow, minor streams.--For this study, minor streams having considerable regulation were not identified due to the large number involved. Where flow characteristics might be desired in the future, each stream will have to be considered individually as to the type, amount, duration, and location of all regulation.

If regulation consists primarily of diversions for irrigation of crop lands, a series of monthly measurements would be adequate to obtain mean flow. Should both storage and diversions be a factor, a systems approach may be required to obtain the desired flow characteristics. Peak flows usually are not materially affected by small diversions. However, low flows are almost always seriously affected. In many instances, the entire streamflow is diverted for irrigation during dry periods.

Regulated-flow, principal streams.--Although it may be possible to estimate the flow characteristics of streams of this type by interpolation in some reaches, generally a systems study will be required. Both the method of interpolation and the system study would require gaging station records at intervals along the channel. In addition, the system study would require records of changes in storage, diversions, return flows, and operating rules.

Gaging of regulated-flow principal streams is proposed at the same intervals along the channel and for the same length of time (25 years) as for natural-flow principal streams. On this basis, the following gaging stations are no longer needed for this purpose:

Beaverhead River near Grant (near Armstead)
Beaverhead River at Barretts
Beaverhead River at Dillon
Beaverhead River near Dillon
Beaverhead River near Twin Bridges (at Blaine)
* Ruby River above reservoir, near Alder
* Big Hole River near Melrose
Jefferson River near Twin Bridges
Madison River near West Yellowstone
Madison River below Hebgen Lake, near Grayling
Madison River near Cameron
Madison River below Ennis Lake, near McAllister
Gallatin River at Logan
Sun River near Vaughn
Cut Bank Creek at Cut Bank
Marias River near Shelby
Musselshell River at Harlowton
Musselshell River near Ryegate
Musselshell River near Roundup
Musselshell River at Musselshell
Musselshell River at Mosby
Milk River at Nashua
Yellowstone River at Yellowstone Lake Outlet, Yellowstone National Park
* Yellowstone River at Corwin Springs
Yellowstone River near Livingston
Clarks Fork Yellowstone River near Belfry (at Chance)
Clarks Fork Yellowstone River near Silesia
Yellowstone River at Billings
Bighorn River near St. Xavier
Bighorn River at Bighorn
Tongue River at Tongue River Dam, near Decker
Tongue River at Miles City
Yellowstone River at Miles City
Powder River at Moorhead
Yellowstone River near Sidney
Clark Fork above Missoula
West Fork Bitterroot River near Conner
Bitterroot River near Darby

Clark Fork below Missoula
Clark Fork at St. Regis
South Fork Flathead River near Columbia Falls
Flathead River at Columbia Falls
Clark Fork near Plains
Clark Fork below Noxon Rapids Dam, near Noxon

* Proposed as long-term trend gaging stations.

However, most of these are current-purpose stations and will be continued.

Existing stations on regulated-flow principal streams at which more record would be desirable are:

Teton River near Dutton
Box Elder Creek near Webster

The following regulated-flow principal streams are inadequately gaged either with respect to number of sites or length of record. However, gaging of these streams is not included in the proposed program at this time because it is considered to have a low priority.

Big Hole River
Smith River
Teton River
Judith River
Flatwillow Creek
Sage Creek (near Kremlin)
Big Sandy Creek (near Assinniboine)
Beaver Creek (near Malta)
Rosebud Creek (near Rosebud)
Clarks Fork (above Rock Creek), tributary to
  Pend Oreille River
Rock Creek (tributary to Clark Fork)
Little Bitterroot River (near Charlo)

Data to Define Long-Term Trends in Streamflow

The two stations in operation for this purpose in the current program (benchmark stations) should be continued in operation indefinitely. As part of this study, 12 additional stations in the present data-collection program have been designated as long-term-trend stations and should be operated indefinitely to meet the needs for this type of data. The additional stations were selected to provide a long-term sample reflecting areal coverage of the State, a range in drainage area size and type of stream, and a variety of climatic and physiographic characteristics. The 14 stations identified in this category and proposed for operation indefinitely are listed below. The drainage area and the period of record are shown for each station.

Station Number	Station Name	Drainage Area (sq mi)	Period of Record
5-0145*	Swiftcurrent Creek at Many Glacier	31.4	1912-
6-0195	Ruby River above reservoir, near Alder	538	1938-
6-0255	Big Hole River near Melrose	2,476	1923-
6-0905	Belt Creek near Monarch	368	1951-
6-0925	Badger Creek near Browning	133	1951-
6-1155	North Fork Musselshell River near Delpine	31.4	1940-
6-1775	Redwater River at Circle	547	1929-
6-1825	Big Muddy Creek at Daleview	279	1947-
6-1915	Yellowstone River at Corwin Springs	2,623	1889-93, 1910-
6-2095	Rock Creek near Red Lodge	124	1932, 1934-
6-2882*	Beauvais Creek near St. Xavier	100	1967-
6-3255	Little Powder River near Broadus	1,974	1947-53, 1957-
12-3400	Blackfoot River near Bonner	2,290	1898-1901 1903-5, 1939-
12-3555	Flathead River near Columbia Falls	1,548	1910-17, 1929-

* Benchmark Station

Data on Stream Environment

Data on stream environment should be collected as demands for this type of information ariae and as time and funds become available. For example, profiles of water-surface elevations of streams at unusually high flood crests should be determined for reaches where flood damage may occur. Flood inundation maps have been prepared for some areas and are needed in numerous other areas to provide a basis for determining the most economical use of flood plains. Factual information of specific floods and inundation from floods of selected recurrence intervals are both needed.

Studies of the time of travel of water along channels, as well as the dispersion of wastes and solutes in the water, should be made on the principal streams. In the event of a reservoir break, pipe line failure, or unusual release of pollutants into a stream, knowledge of the time of travel and/or the dispersion in the channel could aid municipalities and other water users in preparing for an emergency.

To meet the demands of a rapidly expanded tourist industry, data describing the recreational aspects of Montana's waterways should be collected and published. Many of these waterways are scenic, have a historic background, and are ideal for float or canoe trips; the larger streams may be negotiated by small power craft. Data should be collected concerning stream velocities, stages, depths, water quality, length of travel time for stream reaches, and geology of the area adjacent to the streams. These data and existing information concerning access to the streams, campsites, historic points of interest, and fishing prospects could be published in map or atlas form to assist the user.

To properly plan the development of Montana's water resources and to properly manage these resources, the relationships between ground and surface water must be recognized and considered. The quantity of water in streams is often related to the relative elevation of water level in adjacent aquifers. Changes in the quantity of streamflow may be caused by man's action such as pumping or irrigating, or changes may be natural such as areas where a stream loses water to an alluvial fan. Reaches of stream gain or loss should be determined by miscellaneous discharge measurements and by analysis of streamflow records. These data, together with data describing the hydraulic characteristics of the aquifers and data describing man's action, can be used to model the stream-aquifer system. The model will provide a description of the hydrologic consequences of alternate management or development plans.

Gaging Stations for Proposed Program

Recommendations for gaging-station operation for each of the data types are combined in table A-6 where each station recommended for continuance is classified as to purpose. Locations are shown on figure 4 (in pocket).

Data Analysis

Collection and analysis of data should proceed simultaneously if the most information is to be obtained most efficiently. Data now available will permit the following analyses:

1. Regional-flood-frequency analysis emphasizing streams having drainage areas less than 100 square miles.
2. Development of improved regression methods for regionalization of flow characteristics.
3. A systems analysis of a regulated stream system, preferably the Milk River basin.
4. Documenting the changes in mean flow with time.

Additional data could be collected within a year or two and the following analyses should be made:

1. Tests of the suitability of the channel-geometry method (Moore, 1968) of estimating mean flows and flood flows in Montana.
2. Definition of mean flow and low-flow characteristics at many sites in selected basins using discharge measurements at the site.
3. Measurement and interpretation of time of travel and dispersion of solutes in selected stream reaches, giving first priority to the Yellowstone River from Livingston to the North Dakota State line.

4. Determination of flood profiles and areas inundated by floodwaters on principal streams.

5. Determination of gains and/or losses of flow in selected stream reaches.

Analyses requiring data collection over a period of several years are:

1. Determining flood magnitude-frequency relations in urban and suburban areas.

2. Defining the effects of many small reservoirs and ponds on streamflow characteristics.

These are only a few of the data analyses and hydrologic studies that would be desirable for Montana. Changing needs for information and changes in technology in water-related fields must be continuously evaluated in deciding on the data analyses that should be generated under the streamflow data program for Montana.

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APPENDIX

Table A-1.—Current-purpose gaging stations

Station number	Station name	Purpose					
		Assess-ment	Opera-tion	Fore-casting	Water quality	Compact or legal	Research or special studies
5-0107	Mountain View Irrigation District Canal, near Mountain View, Alberta	-----	X	-----	-----	X	-----
5-0110	Belly River near Mountain View, Alberta	X	X	-----	-----	X	-----
5-0130	Waterton River near Waterton Park, Alberta	-----	-----	-----	-----	X	-----
5-0139	Grinnell Creek at Grinnell Glacier, near Many Glacier	-----	-----	-----	-----	-----	X
5-0140	Grinnell Creek near Many Glacier	-----	-----	-----	-----	-----	X
5-0145	Swiftcurrent Creek at Many Glacier	-----	-----	X	-----	-----	-----
5-0160	Swiftcurrent Creek at Sherburne	-----	X	X	-----	X	-----
5-0175	St. Mary River near Babb	-----	-----	-----	-----	X	-----
5-0185	St. Mary Canal at St. Mary Crossing, near Babb	X	X	-----	-----	X	-----
5-0205	St. Mary River at international boundary	-----	X	X	-----	X	-----
6-0154	Beaverhead River near Grant (Armstead)	-----	X	X	-----	-----	-----
6-0160	Beaverhead River at Barretts	-----	X	X	X	-----	-----
6-0170	Beaverhead River at Dillon	-----	X	-----	-----	-----	-----
6-0180	Beaverhead River near Dillon	-----	X	-----	-----	-----	-----
6-0185	Beaverhead River near Twin Bridges (at Blaine)	-----	X	-----	X	-----	-----
6-0195	Ruby River above reservoir, near Alder	-----	X	X	-----	-----	-----
6-0206	Ruby River below reservoir, near Alder	-----	X	-----	-----	-----	-----
6-0255	Big Hole River near Melrose	-----	-----	X	-----	-----	-----
6-0260	Birch Creek near Glen	-----	X	X	-----	-----	-----
6-0265	Jefferson River near Twin Bridges	-----	-----	-----	X	-----	-----
6-0330	Boulder River near Boulder	-----	-----	X	-----	-----	-----
6-0350	Willow Creek near Harrison	-----	X	-----	-----	-----	-----
6-0385	Madison River below Hebgen Lake, near Grayling	-----	X	-----	-----	X	-----
6-0400	Madison River near Cameron	-----	-----	-----	-----	-----	X
6-0410	Madison River below Ennis Lake, near McAllister	-----	X	-----	-----	X	-----
6-0500	Hyalite Creek at Hyalite ranger station, near Bozeman	-----	X	-----	-----	-----	-----
6-0525	Gallatin River at Logan	-----	-----	X	-----	-----	-----
6-0545	Missouri River at Toston	X	-----	X	-----	-----	-----
6-0555	Crow Creek near Radersburg	-----	-----	-----	-----	-----	X
6-0625	Tenmile Creek near Rimini	-----	X	-----	-----	X	-----
6-0665	Missouri River below Holter Dam, near Wolf Creek	-----	X	-----	-----	X	-----
6-0770	Sheep Creek near White Sulphur Springs	-----	X	-----	-----	-----	-----
6-0782	Missouri River near Ulm	-----	X	-----	-----	X	-----
6-0809	Sun River below diversion dam, near Augusta	-----	X	-----	X	-----	-----
6-0822	Sun River below Willow Creek, near Augusta	-----	X	-----	-----	-----	-----
6-0858	Sun River at Simms	-----	X	-----	-----	-----	-----
6-0883	Muddy Creek near Vaughn	-----	X	-----	X	X	-----
6-0890	Sun River near Vaughn	-----	-----	X	X	X	-----
6-0903	Missouri River near Great Falls	-----	X	-----	-----	X	-----
6-0908	Missouri River at Fort Benton	X	-----	X	-----	-----	-----

Table A-1.--Current-purpose gaging stations--Continued

Station number	Station name	Purpose: Assess-ment	Opera-tion	Fore-casting	Water quality	Compact or legal	Research or special studies
6-0920	Two Medicine River near Browning	-----	X	X	-----	-----	-----
6-0925	Badger Creek near Browning	-----	X	X	-----	-----	-----
6-0990	Cut Bank Creek at Cut Bank	-----	X	-----	-----	-----	-----
6-0995	Marias River near Shelby	X	-----	X	-----	-----	-----
6-1015	Marias River near Chester	-----	X	X	X	-----	-----
6-1020.5	Marias River near Loma	X	-----	X	-----	-----	-----
6-1080	Teton River near Dutton	X	-----	X	-----	-----	-----
6-1095	Missouri River at Virgelle	-----	-----	X	X	-----	-----
6-1100	Judith River near Utica	-----	X	-----	-----	-----	-----
6-1152	Missouri River near Landusky	-----	X	X	-----	-----	-----
6-1155	North Fork Musselshell River near Delpine	-----	X	-----	-----	-----	-----
6-1185	South Fork Musselshell River above Martinsdale	-----	X	-----	-----	-----	-----
6-1205	Musselshell River at Harlowton	-----	X	X	-----	-----	-----
6-1235	Musselshell River near Ryegate	-----	X	-----	-----	-----	-----
6-1257	Big Coulee near Lavina	-----	-----	-----	-----	-----	X
6-1265	Musselshell River near Roundup	-----	X	-----	-----	-----	-----
6-1275	Musselshell River at Musselshell	-----	X	-----	-----	-----	-----
6-1305	Musselshell River at Mosby	X	X	X	-----	-----	-----
6-1320	Missouri River below Fort Peck Dam	X	X	X	-----	-----	-----
6-1322	South Fork Milk River near Babb	-----	X	-----	-----	X	-----
6-1330	Milk River at western crossing of international boundary	-----	X	-----	-----	X	-----
6-1335	North Fork Milk River above St. Mary Canal, near Browning	-----	X	-----	-----	X	-----
6-1340	North Milk River near international boundary	-----	X	-----	-----	X	-----
6-1345	Milk River at Milk River, Alberta	-----	X	X	-----	X	-----
6-1350	Milk River at eastern crossing of international boundary	-----	X	X	-----	X	-----
6-1355	Sage Creek at Q Ranch, near Wild Horse, Alberta	-----	-----	-----	-----	X	-----
6-1360	Sage Creek at international boundary	-----	-----	-----	-----	X	-----
6-1405	Milk River at Havre	-----	X	X	X	-----	-----
6-1455	Lodge Creek below McRae Creek, at international boundary	-----	X	-----	-----	X	-----
6-1495	Battle Creek at international boundary	-----	X	-----	-----	X	-----
6-1500	Woodpile Coulee near international boundary	-----	-----	-----	-----	X	-----
6-1505	East Fork Battle Creek near international boundary	-----	-----	-----	-----	X	-----
6-1510	Lyons Creek at international boundary	-----	-----	-----	-----	X	-----
6-1544	Peoples Creek near Hays	-----	-----	-----	-----	-----	X
6-1545	Peoples Creek near Dodson	-----	-----	-----	-----	-----	X
6-1560	Whitewater Creek near international boundary	-----	-----	-----	-----	X	-----
6-1640	Frenchman River at international boundary	-----	X	-----	-----	X	-----
6-1695	Rock Creek below Horse Creek, near international boundary	-----	-----	-----	-----	X	-----
6-1700	McEachern Creek at international boundary	-----	-----	-----	-----	X	-----
6-1702	Willow Creek near Hinsdale	-----	-----	-----	-----	-----	X

Table A-1.--Current-purpose gaging stations--Continued

Station number	Station name	Purpose					
		Assess-ment	Opera-tion	Fore-casting	Water quality	Compact or legal	Research or special studies
6-1720	Milk River at Vandalia		X	X	X		
6-1740	Willow Creek near Glasgow						X
6-1745	Milk River at Nashua	X		X			
6-1770	Missouri River near Wolf Point		X	X			
6-1780	Middle Fork Poplar River at international boundary					X	
6-1785	East Poplar River at international boundary					X	
6-1855	Missouri River near Culbertson	X		X	X		
6-1915	Yellowstone River at Corwin Springs	X		X			
6-1925	Yellowstone River near Livingston			X	X		
6-2000	Boulder River at Big Timber			X			
6-2026	Stillwater River at Nye				X		
6-2040.5	West Rosebud Creek near Roscoe		X			X	
6-2050	Stillwater River near Absarokee			X			
6-2075	Clarks Fork Yellowstone River near Belfry (at Chance)			X	X		
6-2075.4	Silver Tip Creek near Belfry				X		
6-2078	Bluewater Creek near Bridger				X		X
6-2088	Clarks Fork Yellowstone River near Silesia					X	
6-2095	Rock Creek near Red Lodge	X	X				
6-2110	Red Lodge Creek above Cooney Reservoir, near Boyd		X				
6-2115	Willow Creek near Boyd		X				
6-2125	Red Lodge Creek below Cooney Reservoir, near Boyd		X				
6-2145	Yellowstone River at Billings	X		X	X		
6-2150	Pryor Creek above Pryor		X				
6-2155	Pryor Creek at Pryor		X				
6-2177.5	Fly Creek at Pompeys Pillar				X		
6-2870	Bighorn River near St. Xavier		X	X	X		
6-2875	Soap Creek near St. Xavier		X				
6-2880	Rotten Grass Creek near St. Xavier		X				
6-2889.6	Little Bighorn River near Parkman, Wyo.						X
6-2889.9	West Fork Little Bighorn River near Parkman, Wyo.						X
6-2890	Little Bighorn River at State line, near Wyola		X				X
6-2905	Little Bighorn River below Pass Creek, near Wyola		X		X		
6-2915	Lodgegrass Creek above Willow Creek diversion, near Wyola		X				
6-2940	Little Bighorn River near Hardin			X	X	X	
6-2947	Bighorn River at Bighorn	X		X	X	X	
6-3063	Tongue River at State line, near Decker		X		X		
6-3075	Tongue River at Tongue River Dam, near Decker		X				
6-3078	Tongue River near Ashland		X				
6-3085	Tongue River at Miles City			X	X	X	
6-3090	Yellowstone River at Miles City			X	X		

Table A-1.--Current-purpose gaging stations--Continued

Station number	Station name	Purpose					
		Assessment	Operation	Forecasting	Water quality	Compact or legal	Research or special studies
6-3245	Powder River at Moorhead	-----	-----	X	-----	-----	-----
6-3265	Powder River near Locate	X	-----	X	-----	X	-----
6-3295	Yellowstone River near Sidney	X	-----	X	X	-----	-----
12-3000	Kootenay River at Newgate, British Columbia	X	-----	-----	-----	X	X
12-3013	Tobacco River near Eureka	-----	X	-----	-----	-----	X
12-3015	Kootenai River near Rexford	-----	-----	-----	X	-----	X
12-3018.5	Kootenai River at Warland Bridge, near Libby	-----	-----	-----	X	-----	X
12-3019.99	Wolf Creek near Libby	-----	-----	-----	X	-----	X
12-3020.55	Fisher River near Libby	-----	-----	-----	X	-----	X
12-3030	Kootenai River at Libby	X	-----	X	-----	-----	-----
12-3031	Flower Creek near Libby	-----	X	-----	-----	X	-----
12-3045	Yaak River near Troy	-----	-----	X	-----	-----	-----
12-3255	Flint Creek near Southern Cross	-----	X	-----	-----	X	-----
12-3295	Flint Creek at Maxville	-----	X	-----	-----	-----	-----
12-3300	Boulder Creek at Maxville	-----	X	-----	-----	-----	-----
12-3320	Middle Fork Rock Creek near Philipsburg	-----	-----	-----	-----	-----	X
12-3346	Blackfoot River near Lincoln	-----	-----	-----	X	-----	-----
12-3355	Nevada Creek above reservoir, near Finn	-----	X	-----	-----	-----	-----
12-3400	Blackfoot River near Bonner	-----	-----	X	-----	-----	-----
12-3405	Clark Fork above Missoula	-----	-----	X	-----	-----	-----
12-3425	West Fork Bitterroot River near Conner	-----	X	-----	-----	-----	-----
12-3434	East Fork Bitterroot River near Conner	-----	-----	-----	-----	-----	X
12-3440	Bitterroot River near Darby	-----	-----	X	-----	-----	-----
12-3465	Skalkaho Creek near Hamilton	-----	-----	-----	-----	-----	X
12-3530	Clark Fork below Missoula	-----	-----	X	-----	-----	-----
12-3540	St. Regis River near St. Regis	-----	-----	X	-----	-----	-----
12-3545	Clark Fork at St. Regis	X	X	X	-----	-----	-----
12-3550	Flathead River at Flathead, British Columbia	X	-----	-----	-----	X	-----
12-3585	Middle Fork Flathead River near West Glacier	X	X	X	-----	-----	-----
12-3598	South Fork Flathead River above Twin Creek, near Hungry Horse	-----	X	-----	-----	-----	-----
12-3610	Sullivan Creek near Hungry Horse	-----	X	-----	-----	-----	-----
12-3619.5	Hungry Horse Creek near Hungry Horse	-----	-----	-----	-----	-----	X
12-3625	South Fork Flathead River near Columbia Falls	-----	X	X	-----	-----	-----
12-3630	Flathead River at Columbia Falls	-----	X	X	-----	-----	-----
12-3700	Swan River near Bigfork	-----	-----	X	-----	-----	X
12-3720	Flathead River near Polson	-----	X	X	-----	X	-----
12-3890	Clark Fork near Plains	-----	X	X	-----	X	-----
12-3895	Thompson River near Thompson Falls	-----	X	-----	-----	X	-----
12-3907	Prospect Creek at Thompson Falls	-----	X	X	-----	X	-----
12-3914	Clark Fork below Noxon Rapids Dam, near Noxon	-----	X	-----	-----	X	-----

Table A-2.--Gaging stations used in the regression analysis

Continuous-record stations

Station number	Station name
5-0100	Belly River at international boundary
5-0110	Belly River near Mountain View, Alberta
5-0115	Waterton River near international boundary
5-0125	Boundary Creek at international boundary
5-0130	Waterton River near Waterton Park, Alberta
5-0140	Grinnell Creek near Many Glacier
5-0145	Swiftcurrent Creek at Many Glacier
6-0125	Red Rock River below Lima Reservoir, near Monida
6-0175	Blacktail Deer Creek (Blacktail Creek) near Dillon
6-0195	Ruby River above reservoir, near Alder
6-0255	Big Hole River near Melrose
6-0260	Birch Creek near Glen
6-0330	Boulder River near Boulder
6-0375	Madison River near West Yellowstone
6-0430	Taylor Creek near Grayling
6-0435	Gallatin River near Gallatin Gateway
6-0480	East Gallatin River at Bozeman
6-0485	Bridger Creek near Bozeman
6-0500	Hyalite Creek at Hyalite ranger station, near Bozeman
6-0555	Crow Creek near Radersburg
6-0615	Prickly Pear Creek near Clancy
6-0685	Little Prickly Pear Creek near Marysville
6-0730	Dearborn River near Clemons
6-0735	Dearborn River near Craig
6-0745	Smith River near White Sulphur Springs
6-0770	Sheep Creek near White Sulphur Springs
6-0785	North Fork Sun River near Augusta
6-0800	Sun River near Augusta
6-0905	Belt Creek near Monarch
6-0925	Badger Creek near Browning
6-0980	Dupuyer Creek near Valier
6-1060	Deep Creek near Choteau
6-1098	South Fork Judith River near Utica
6-1110	Ross Fork near Hobson
6-1155	North Fork Musselshell River near Delpine
6-1185	South Fork Musselshell River above Martinsdale
6-1290	Box Elder Creek near Winnett
6-1307	Sand Creek near Jordan
6-1310	Dry Creek near Van Norman

Table A-2.--Gaging stations used in the regression analysis--Continued

Continuous-record stations--Continued

Station number	Station name
6-1385	Big Sandy Creek near Box Elder
6-1545	Peoples Creek near Dodson
6-1775	Redwater River (Creek) at Circle
6-1810	Poplar River near Poplar
6-1825	Big Muddy Creek at Daleview
6-1850	Big Muddy Creek near Culbertson
6-1865	Yellowstone River at Yellowstone Lake Outlet, Yellowstone National Park
6-1875	Tower Creek at Tower Falls, Yellowstone National Park
6-1880	Lamar River near Tower Falls ranger station, Yellowstone National Park
6-1905	Gardner River at Mammoth, Yellowstone National Park
6-1910	Gardner River near Mammoth, Yellowstone National Park
6-1915	Yellowstone River at Corwin Springs
6-1930	Shields River near Wilsall
6-1940	Brackett Creek near Clyde Park
6-1970	Big Timber Creek near Big Timber
6-1975	Boulder River near Contact
6-2000	Boulder River at Big Timber
6-2005	Sweet Grass Creek above Melville
6-2050	Stillwater River near Absarokee
6-2075	Clarks Fork Yellowstone River near Belfry (at Chance)
6-2095	Rock Creek near Red Lodge
6-2165	Pryor Creek near Billings
6-2875	Soap Creek near St. Xavier
6-2890	Little Bighorn River at State line, near Wyola
6-2900	Pass Creek near Wyola
6-2905	Little Bighorn River below Pass Creek, near Wyola
6-2915	Lodgegrass Creek above Willow Creek diversion, near Wyola
6-3255	Little Powder River near Broadus
6-3292	Burns Creek near Savage
6-3310	Little Muddy Creek below Cow Creek, near Williston, N. Dak.
6-3315	Little Muddy Creek near Williston, N. Dak.
6-3340	Little Missouri River near Alzada
6-3345	Little Missouri River at Camp Crook, S. Dak.
6-3350	Little Beaver Creek near Marmarth, N. Dak.
6-3355	Little Missouri River at Marmarth, N. Dak.
6-3360	Little Missouri River at Medora, N. Dak.
6-3365	Beaver Creek at Wibaux
6-3370	Little Missouri River near Watford City, N. Dak.

Table A-2.--Gaging stations used in the regression analysis--Continued

Continuous-record stations--Continued

Station number	Station name
12-3013	Tobacco River near Eureka
12-3020	Fisher River near Jennings
12-3025	Granite Creek near Libby
12-3030	Kootenai River at Libby
12-3035	Lake Creek at Troy
12-3045	Yaak River near Troy
12-3235	German Gulch Creek near Ramsay
12-3241	Racetrack Creek below Granite Creek, near Anaconda
12-3300	Boulder Creek at Maxville
12-3320	Middle Fork Rock Creek near Philipsburg
12-3350	Blackfoot River near Helmville
12-3355	Nevada Creek above reservoir, near Finn
12-3385	Blackfoot River near Ovando
12-3400	Blackfoot River near Bonner
12-3405	Clark Fork above Missoula
12-3425	West Fork Bitterroot River near Conner
12-3434	East Fork Bitterroot River near Conner
12-3440	Bitterroot River near Darby
12-3465	Skalkaho Creek near Hamilton
12-3475	Blodgett Creek near Corvallis
12-3500	Bear Creek near Victor
12-3505	Kootenai Creek near Stevensville
12-3530	Clark Fork below Missoula
12-3540	St. Regis River near St. Regis
12-3545	Clark Fork at St. Regis
12-3550	Flathead River at Flathead, British Columbia
12-3555	Flathead River near Columbia Falls
12-3570	Middle Fork Flathead River at Essex
12-3575	Middle Fork Flathead River at West Glacier
12-3585	Middle Fork Flathead River near West Glacier
12-3590	South Fork Flathead River at Spotted Bear ranger station, near Hungry Horse
12-3600	Twin Creek near Hungry Horse
12-3610	Sullivan Creek near Hungry Horse
12-3615	Graves Creek near Hungry Horse
12-3625	South Fork Flathead River near Columbia Falls
12-3630	Flathead River at Columbia Falls
12-3650	Stillwater River near Whitefish
12-3660	Whitefish Creek near Kalispell
12-3700	Swan River near Bigfork
12-3895	Thompson River near Thompson Falls
12-3907	Prospect Creek at Thompson Falls

Table A-2.--Gaging stations used in the regression analysis--Continued

Seasonal-record stations

Station number	Station name
6-1327	Milk River near Del Bonita
6-1330	Milk River at western crossing of international boundary
6-1335	North Fork Milk River above St. Mary Canal, near Browning
6-1355	Sage Creek at Q Ranch, near Wild Horse, Alberta
6-1445	Lodge Creek at international boundary
6-1450	McRae Creek (Coulee) at international boundary
6-1455	Lodge Creek below McRae Creek, at international boundary
6-1480	Battle Creek above Cypress Lake west inflow canal, near West Plains, Saskatchewan
6-1500	Woodpile Coulee near international boundary
6-1505	East Fork Battle Creek near international boundary
6-1510	Lyons Creek at international boundary
6-1560	Whitewater Creek near international boundary
6-1685	Rock Creek at international boundary
6-1690	Horse Creek at international boundary
6-1695	Rock Creek below Horse Creek, near international boundary
6-1700	McEachern Creek at international boundary
6-1780	Middle Fork Poplar River at international boundary
6-1785	East Poplar River at international boundary
6-1795	West Fork Poplar River at international boundary
6-1800	West Fork Poplar River near Richland

Peak-flow partial-record stations

Station number	Station name
6-0134	Muddy Creek near Dell
6-0135	Big Sheep Creek (Sheep Creek) below Muddy Creek, near Dell
6-0155	Grasshopper Creek near Dillon
6-0198	Idaho Creek near Alder
6-0253	Moose Creek near Divide
6-0277	Fish Creek near Silverstar
6-0303	Jefferson River tributary No. 2 near Whitehall
6-0432	Squaw Creek near Gallatin Gateway
6-0433	Logger Creek near Gallatin Gateway
6-0465	Rocky Creek (East Gallatin River) near Bozeman
6-0467	Pitcher Creek near Bozeman
6-0470	Bear Canyon Creek near Bozeman
6-0562	Castle Creek tributary near Ringling
6-0566	Deep Creek below North Fork Deep Creek, near Townsend
6-0587	Mitchell Gulch near East Helena

Table A-2.--Gaging stations used in the regression analysis--Continued

Peak-flow partial-record stations--Continued

Station number	Station name
6-0619	McClellan Creek at city diversion dam, near East Helena
6-0712	Lyons Creek near Wolf Creek
6-0714	Dog Creek near Craig
6-0716	Wegner Creek at Craig
6-0756	Fivemile Creek near White Sulphur Springs
6-0760	Newland Creek near White Sulphur Springs
6-0767	Sheep Creek near Neihart
6-0768	Nuggett Creek near Neihart
6-0778	Goodman Coulee near Eden
6-0796	Beaver Creek at Gibson Dam, near Augusta
6-0893	Sun River tributary near Great Falls
6-0997	Middle Fork (North Fork) Dry Fork Marias River near Dupuyer
6-1021	Dry Fork Coulee tributary near Loma
6-1022	Marias River tributary at Loma
6-1023	Marias River tributary No. 2 at Loma
6-1121	Cottonwood Creek near Moore
6-1206	Antelope Creek tributary near Harlowton
6-1207	Antelope Creek tributary near mouth, near Harlowton
6-1208	Antelope Creek tributary No. 2 near Harlowton
6-1209	Antelope Creek at Harlowton
6-1263	Currant Creek near Roundup
6-1289	Box Elder Creek tributary near Winnett
6-1295	McDonald Creek at Winnett
6-1297	Gorman Coulee near Cat Creek
6-1298	Gorman Coulee tributary near Cat Creek
6-1306	Cat Creek near Cat Creek
6-1308	Second Creek tributary near Jordan
6-1308.5	Second Creek tributary No. 2 near Jordan
6-1309	Second Creek tributary No. 3 near Jordan
6-1309.5	Little Dry Creek near Van Norman
6-1395	Big Sandy Creek near Assinniboine
6-1551	Black Coulee near Malta
6-1553	Disjardin Coulee near Malta
6-1723	Unger Creek near Vandalia
6-1765	Wolf Creek near Wolf Point
6-1770.5	East Fork Duck Creek near Brockway
6-1771	Duck Creek near Brockway
6-1771.5	Redwater River (Creek) at Brockway
6-1772	Tusler Creek near Brockway
6-1773	Redwater River (Creek) tributary near Brockway
6-1773.5	South Fork Dry Ash Creek near Circle
6-1774	McCune Creek near Circle

Table A-2.--Gaging stations used in the regression analysis--Continued

Peak-flow partial-record stations--Continued

Station number	Station name
6-1830	Big Muddy Creek at Plentywood
6-1831	Box Elder Creek near Plentywood
6-1832	Box Elder Creek at damsite, near Plentywood
6-1833	Spring Creek near Plentywood
6-1834	Spring Creek at Highway 16, near Plentywood
6-2162	Wets Creek near Billings
6-2163	West Buckeye Creek near Billings
6-2950.5	Little Porcupine Creek near Forsyth
6-2952	Whitedirt Creek near Lame Deer
6-2960	Rosebud Creek near Forsyth
6-3069	Spring Creek near Decker
6-3069.5	Leaf Rock Creek near Kirby
6-3082	Basin Creek tributary near Volborg
6-3083	Basin Creek near Volborg
6-3247	Sand Creek near Broadus
6-3287	Linden Creek at Intake
6-3329	North Creek near Alzada
6-3341	Wolf Creek near Hammond
6-3342	Willow Creek near Alzada
6-3364.5	Spring Creek near Wibaux
12-3005	Fortine Creek near Trego
12-3008	Deep Creek near Fortine
12-3017	Kootenai River tributary near Rexford
12-3018	Gold Creek near Rexford
12-3024	Shaughnessy Creek near Libby
12-3042.5	Whitetail Creek near Yaak
12-3043	Cyclone Creek near Yaak
12-3044	Fourth of July Creek near Yaak
12-3233	Smith Gulch near Silverbow
12-3247	Clark Fork tributary near Drummond
12-3248	Morris Creek near Drummond
12-3399	West Twin Creek near Bonner
12-3402	Marshall Creek near Missoula
12-3443	Burke Gulch near Darby
12-3458	Camas Creek near Hamilton
12-3485	Willow Creek near Corvallis
12-3502	Gash Creek near Victor
12-3510	Burnt Fork Creek near Stevensville
12-3514	Eightmile Creek near Florence
12-3522	Hayes Creek near Missoula
12-3534	Nigger Gulch near Alberton
12-3538	Thompson Creek near Superior

Table A-2.--Gaging stations used in the regression analysis--Continued

Peak-flow partial-record stations--Continued

Station number	Station name
12-3538.5	East Fork Timber Creek near Haugan
12-3541	North Fork Little Joe Creek near St. Regis
12-3560	Skyland Creek near Essex
12-3574	Middle Fork Flathead River tributary at West Glacier
12-3639	Rock Creek near Olney
12-3705	Dayton Creek near Proctor
12-3709	Teepee Creek near Polson
12-3743	Mill Creek near Niarada
12-3757	Garden Creek (South Fork Garden Creek) near Hot Springs

Table A-3.—Streamflow characteristics

A.—Continuous-record stations

Station number	Streamflow characteristics									
	Q_a	SD_a	q_1	q_2	q_3	q_4	q_5	q_6	q_7	q_8
5-0100	262.00	44.70	55.60	51.70	47.20	120.00	636.00	871.00	560.00	249.00
0110	—	—	—	—	—	—	—	—	—	—
0115	274.00	40.80	36.80	31.90	26.60	129.00	798.00	1097.00	591.00	146.00
0125	77.90	11.00	15.40	13.20	10.70	40.90	212.00	287.00	157.00	51.90
0130	672.00	124.00	144.00	133.00	131.00	383.00	1785.00	2756.00	1241.00	389.00
0140	25.60	2.67	2.55	2.30	2.14	8.93	46.00	86.90	67.00	37.80
0145	147.00	16.80	42.10	32.30	28.60	93.00	357.00	544.00	251.00	117.00
6-0125	139.00	35.40	28.70	22.60	40.00	397.00	463.00	340.00	103.00	39.50
0175	54.00	11.10	29.70	33.20	43.20	55.10	78.70	127.00	69.40	46.40
0195	164.00	28.90	99.10	98.10	105.00	156.00	370.00	417.00	168.00	110.00
0255	1118.00	337.00	347.00	354.00	441.00	1538.00	3332.00	3936.00	1270.00	459.00
0260	29.00	5.39	8.08	7.65	8.48	12.70	52.00	114.00	65.80	28.10
0330	118.00	42.80	25.10	28.20	43.30	167.00	478.00	435.00	91.50	26.80
0375	480.00	75.00	392.00	389.00	394.00	481.00	795.00	780.00	473.00	410.00
0430	97.90	17.10	18.50	17.10	17.20	36.50	257.00	432.00	202.00	71.70
0435	786.00	168.00	298.00	298.00	299.00	466.00	1701.00	2903.00	1257.00	591.00
0480	84.60	24.20	38.70	42.30	60.10	158.00	236.00	178.00	62.90	41.90
0485	36.00	13.80	6.94	8.90	14.40	62.00	153.00	103.00	29.90	13.30
0500	62.30	22.30	21.00	19.90	21.00	48.40	140.00	211.00	114.00	45.90
0555	—	—	—	—	—	—	—	—	—	—
0615	48.20	15.90	21.10	24.00	31.90	52.60	110.00	140.00	55.10	29.00
0685	25.90	10.60	7.69	6.00	9.31	27.30	84.90	76.80	30.90	18.50
0730	160.00	55.40	32.60	31.10	36.40	128.00	366.00	457.00	126.00	48.60
0735	219.00	83.80	56.30	61.00	83.90	230.00	746.00	875.00	225.00	69.80
0745	20.70	10.30	5.52	5.37	9.13	35.20	61.20	61.30	22.90	12.00
0770	31.30	8.33	9.06	8.90	9.22	20.20	90.70	114.00	43.20	23.40
0785	360.00	67.70	66.60	66.30	67.70	225.00	1269.00	1541.00	484.00	167.00
0800	883.00	278.00	205.00	209.00	223.00	693.00	2796.00	3568.00	1273.00	450.00
0905	176.00	86.10	25.00	27.70	33.50	119.00	599.00	814.00	202.00	82.90
0925	228.00	38.00	82.00	90.90	92.40	180.00	647.00	750.00	274.00	154.00
0980	49.30	35.60	22.20	25.50	36.60	66.90	115.00	153.00	49.10	27.00
1060	71.80	40.80	23.40	22.10	39.20	73.10	194.00	229.00	102.00	41.00
1098	21.10	8.81	3.88	3.89	4.55	15.60	92.20	75.80	21.80	10.40
1110	14.00	8.15	2.09	4.90	62.60	41.10	23.00	22.70	3.70	1.06
1155	12.20	3.74	5.49	6.15	9.14	17.40	25.10	30.60	14.50	9.56
1185	83.50	30.80	17.10	19.10	29.50	108.00	307.00	337.00	65.80	20.10
1290	—	—	—	—	—	—	—	—	—	—
1307	5.54	6.05	0.14	6.12	36.30	6.80	2.64	5.67	7.95	0.17
1310	52.30	52.80	1.83	56.20	272.00	133.00	21.40	79.70	26.50	20.20
1385	6.59	7.42	1.59	3.52	13.20	9.92	10.20	21.70	6.74	4.88
1545	29.60	28.10	3.06	21.40	94.40	98.90	54.00	46.90	17.40	3.77
1775	14.80	14.00	0.08	19.60	91.20	24.60	2.78	18.10	16.70	3.50
1810	128.00	102.00	9.77	13.50	273.00	825.00	139.00	93.00	56.70	27.00
1825	15.50	10.90	0.42	3.78	49.40	95.00	11.90	13.40	3.37	2.37
1850	58.50	43.10	2.54	3.69	116.00	369.00	68.00	58.70	43.70	13.00
1865	1289.00	286.00	377.00	362.00	416.00	517.00	1112.60	3499.00	3913.00	2174.00
1875	47.20	16.20	16.60	15.90	16.50	26.10	105.00	185.00	73.90	34.00
1880	827.00	193.00	103.00	98.80	103.00	373.00	2567.00	4217.00	1383.00	350.00
1905	161.00	41.30	71.50	69.00	70.10	115.00	410.00	514.00	211.00	115.00
1910	212.00	39.60	93.30	89.70	88.40	128.00	471.00	731.00	314.00	162.00
1915	3064.00	623.00	839.00	823.00	896.00	1460.00	5749.00	11290.00	6795.00	3215.00
1930	60.30	19.60	10.70	10.50	11.60	61.10	228.00	250.00	64.30	21.30
1940	27.80	10.40	6.56	6.70	10.40	46.00	105.00	79.70	28.70	11.40
1970	76.90	21.60	17.00	16.50	22.80	49.00	149.00	317.00	182.00	56.00
1975	377.00	67.00	59.20	54.90	54.70	93.00	678.00	1933.00	957.00	263.00
2000	584.00	115.00	136.00	130.00	129.00	200.00	1176.00	2955.00	1266.00	237.00
2005	86.70	16.70	13.80	12.00	11.30	16.40	178.00	390.00	207.00	75.40
2050	981.00	217.00	275.00	262.00	285.00	400.00	1450.00	3479.00	2345.00	869.00
2075	933.00	204.00	221.00	215.00	209.00	427.00	2050.00	4045.00	2210.00	625.00
2095	169.00	33.50	35.20	31.40	29.80	40.60	215.00	594.00	502.00	258.00
2165	52.10	23.80	31.60	50.90	99.80	78.90	80.20	86.50	36.70	16.00
2875	28.40	10.40	19.80	24.60	44.40	39.00	41.90	48.40	24.20	18.50
2890	147.00	34.30	61.40	61.10	60.40	83.50	307.00	524.00	216.00	121.00
2900	—	—	—	—	—	—	—	—	—	—
2905	197.00	62.30	99.60	116.00	137.00	175.00	403.00	651.00	222.00	104.00
2915	47.00	15.50	15.30	15.90	19.60	30.60	112.00	205.00	62.10	27.30
3255	30.70	15.50	3.40	19.70	107.00	50.60	36.70	87.30	29.30	16.10
3292	5.91	5.94	0.41	4.31	43.60	7.40	3.10	5.62	3.81	0.22
3310	26.90	17.60	5.09	6.38	149.00	63.70	24.20	19.70	15.50	5.85
3315	45.50	14.90	4.79	39.30	82.70	254.00	32.40	58.40	25.50	13.70
3340	77.90	70.10	1.66	71.60	198.00	188.00	119.00	225.00	42.80	30.30
3345	125.00	87.80	3.15	53.30	236.00	169.00	331.00	396.00	127.00	81.40
3350	38.80	29.20	1.46	26.80	117.00	140.00	32.70	84.30	31.20	10.40
3355	314.00	224.00	3.19	181.00	818.00	996.00	436.00	837.00	237.00	91.70
3360	426.00	280.00	5.95	141.00	990.00	1293.00	651.00	1094.00	454.00	169.00
3365	20.60	17.60	0.65	16.70	107.00	78.80	64.00	20.90	11.10	1.69
3370	547.00	327.00	3.17	200.00	1765.00	1677.00	528.00	1221.00	587.00	260.00
12-3013	278.00	58.80	94.60	105.00	129.00	390.00	807.00	857.00	321.00	133.00
3020	525.00	130.00	227.00	307.00	371.00	1399.00	1861.00	959.00	294.00	137.00
3025	69.10	12.20	19.10	25.90	31.00	115.00	234.00	211.00	68.10	20.90
3030	12070.00	2531.00	3348.00	3392.00	3873.00	10310.00	29870.00	39990.00	21810.00	9745.00
3035	516.00	74.20	254.00	297.00	316.00	698.00	1461.00	1371.00	580.00	245.00
3045	910.00	174.00	266.00	342.00	488.00	1883.00	4074.00	2170.00	453.00	192.00
3235	20.60	5.20	6.23	6.59	7.92	16.50	64.20	78.50	22.60	11.00
3241	58.00	9.04	19.80	19.40	19.40	26.20	95.80	220.00	102.00	69.10
3300	46.40	10.50	17.60	18.10	17.70	29.40	119.00	187.00	61.20	21.20
3320	120.00	28.20	29.50	30.50	33.90	73.60	347.00	492.00	183.00	70.70
3350	352.00	124.00	119.00	121.00	125.00	271.00	970.00	1264.00	500.00	235.00
3355	36.20	11.60	9.45	14.00	31.30	75.60	116.00	98.10	26.10	13.60
3385	855.00	240.00	274.00	287.00	341.00	721.00	2461.00	3002.00	1138.00	526.00
3400	1614.00	423.00	547.00	578.00	717.00	1991.00	5144.00	5037.00	1822.00	843.00
3405	2903.00	827.00	1262.00	1419.00	1769.00	3722.00	7893.00	8422.00	3056.00	1447.00
3425	288.00	67.40	73.60	73.20	88.30	370.00	1071.00	1027.00	282.00	111.00
3434	279.00	63.10	81.70	92.50	105.00	225.00	871.00	1113.00	298.00	130.00
3440	905.00	229.00	252.00	265.00	326.00	1023.00	3103.00	3185.00	990.00	343.00
3465	91.90	15.50	25.60	24.60	24.40	49.00	219.00	392.00	152.00	66.50
3475	70.50	10.20	14.10	15.60	17.20	72.70	247.00	275.00	92.70	21.20

A.--Continuous-record stations--Continued

Station number	Streamflow characteristics									
	Q_a	SD_a	q_1	q_2	q_3	q_4	q_5	q_6	q_7	q_8
12-3500	66.00	14.80	12.70	11.90	15.60	81.10	252.00	241.00	85.80	13.00
3505	78.90	12.40	13.40	19.90	19.10	78.60	230.00	316.00	128.00	24.80
3530	5302.00	1477.00	2173.00	2409.00	2937.00	6417.00	14910.00	16740.00	5606.00	2168.00
3540	550.00	97.00	211.00	317.00	384.00	1155.00	1918.00	1366.00	325.00	153.00
3545	7458.00	2099.00	3138.00	3305.00	4079.00	9533.00	21250.00	22950.00	8122.00	3301.00
3550	986.00	151.00	183.00	180.00	194.00	747.00	3821.00	3851.00	1164.00	405.00
3555	2967.00	637.00	715.00	703.00	749.00	3211.00	10010.00	10030.00	3995.00	1581.00
3570	1067.00	300.00	223.00	238.00	251.00	1322.00	4352.00	3745.00	1037.00	324.00
3575	2294.00	643.00	444.00	477.00	731.00	3306.00	8166.00	7695.00	2640.00	941.00
3585	2918.00	641.00	659.00	668.00	726.00	3129.00	10030.00	10380.00	3983.00	1291.00
3590	1935.00	284.00	349.00	386.00	395.00	1757.00	6797.00	7952.00	2720.00	730.00
3600	121.00	18.00	23.20	26.70	30.60	205.00	545.00	386.00	86.70	23.10
3610	220.00	30.50	51.40	66.90	70.20	288.00	820.00	760.00	191.00	58.70
3615	135.00	20.50	31.10	31.40	28.70	117.00	429.00	532.00	193.00	41.10
3625	3248.00	912.00	807.00	780.00	1055.00	5212.00	12660.00	10460.00	3175.00	994.00
3630	8943.00	2375.00	2229.00	2079.00	2668.00	13010.00	33480.00	28530.00	9895.00	3590.00
3650	340.00	139.00	111.00	97.30	138.00	639.00	1251.00	862.00	352.00	159.00
3660	191.00	57.20	67.70	66.30	100.00	236.00	554.00	610.00	253.00	96.20
3700	1142.00	272.00	477.00	456.00	539.00	1519.00	2918.00	3285.00	1586.00	671.00
3895	466.00	99.20	197.00	245.00	293.00	731.00	1443.00	1178.00	412.00	250.00
3907	253.00	42.50	111.00	173.00	200.00	506.00	891.00	581.00	156.00	87.70
	q_9	q_{10}	q_{11}	q_{12}	SD_1	SD_2	SD_3	SD_4	SD_5	SD_6
5-0100	157.00	189.00	122.00	76.30	20.20	19.90	12.00	48.80	169.00	241.00
0110	--	--	--	--	--	--	--	--	--	--
0115	90.40	172.00	99.50	59.80	15.30	18.70	9.51	79.90	236.00	229.00
0125	34.30	54.00	34.30	22.30	5.94	6.92	3.22	21.10	62.00	60.70
0130	304.00	344.00	259.00	178.00	58.50	45.20	42.70	196.00	472.00	812.00
0140	23.30	17.30	7.75	3.73	1.91	1.52	1.67	4.42	13.70	18.90
0145	101.00	97.00	62.20	40.10	44.60	12.80	12.70	43.70	59.10	111.00
6-0125	50.20	79.50	83.80	41.90	19.20	11.30	27.40	153.00	210.00	153.00
0175	44.70	45.90	42.10	33.10	5.74	10.40	11.50	12.50	26.60	54.90
0195	104.00	112.00	118.00	108.00	16.80	11.60	20.60	53.00	106.00	165.00
0255	361.00	483.00	493.00	393.00	104.00	971.00	1.51	686.00	1449.00	1945.00
0260	12.50	18.20	11.60	8.40	1.80	1.91	2.36	4.76	22.00	35.60
0330	26.10	34.70	33.50	28.00	7.96	9.26	18.40	107.00	179.00	272.00
0375	405.00	419.00	411.00	403.00	56.00	51.40	49.90	76.10	170.00	267.00
0430	41.70	33.50	24.90	20.40	2.35	2.54	2.80	13.30	103.00	86.00
0435	481.00	439.00	371.00	316.00	58.60	54.00	57.00	142.00	534.00	952.00
0480	49.40	52.50	50.50	45.50	8.38	7.81	20.30	77.30	108.00	83.20
0485	10.90	10.30	9.85	8.42	3.10	6.63	10.50	32.50	63.80	57.90
0500	37.40	34.70	28.90	24.30	8.85	9.75	14.00	28.40	45.70	89.60
0555	--	--	--	--	--	--	--	--	--	--
0615	29.00	31.60	29.90	24.10	5.37	8.30	13.40	20.50	37.20	87.00
0685	14.00	13.30	11.30	9.29	1.72	1.82	5.66	15.90	43.20	59.20
0730	34.90	43.70	44.80	39.20	12.00	10.70	18.00	107.00	161.00	319.00
0735	55.70	74.60	76.80	69.30	17.80	18.20	36.20	120.00	280.00	604.00
0745	9.22	10.10	9.27	7.53	1.76	1.86	6.62	24.10	33.10	66.30
0770	18.20	15.30	12.50	10.20	1.96	1.86	2.91	10.30	34.20	55.80
0785	123.00	122.00	102.00	83.00	13.40	13.80	16.60	138.00	332.00	616.00
0800	335.00	300.00	298.00	230.00	94.90	89.60	112.00	398.00	1123.00	1782.00
0905	69.60	63.30	43.70	29.90	12.80	12.50	24.00	99.70	302.00	587.00
0925	127.00	131.00	112.00	95.30	17.60	26.40	20.30	70.00	127.00	366.00
0980	21.50	27.90	27.30	20.30	16.30	19.60	25.90	38.60	99.10	178.00
1060	30.70	38.10	36.10	31.80	16.60	10.80	19.90	35.10	135.00	213.00
1098	7.92	6.44	5.04	4.25	1.20	0.70	1.74	8.90	43.00	55.00
1110	0.46	1.04	2.19	2.71	1.34	3.14	56.50	55.70	32.90	32.20
1155	7.62	6.83	7.27	6.25	1.28	2.42	5.67	8.45	12.10	13.90
1185	19.80	28.80	26.60	22.10	5.70	6.95	16.20	79.30	139.00	184.00
1290	--	--	--	--	--	--	--	--	--	--
1307	0.06	0.11	0.18	0.11	0.22	11.10	75.90	14.90	4.08	10.60
1310	9.86	3.61	2.62	1.98	7.52	108.00	482.00	408.00	46.80	129.00
1385	1.44	2.17	2.53	1.19	2.42	7.24	22.30	15.00	18.30	32.30
1545	5.41	3.60	3.65	2.87	8.72	34.10	117.00	166.00	73.80	82.20
1775	0.38	0.19	0.19	0.37	0.12	40.80	115.00	74.40	3.28	36.30
1810	28.50	29.90	29.80	18.50	8.14	18.10	422.00	1128.00	102.00	79.10
1825	1.98	2.12	1.78	0.88	0.77	0.92	64.70	141.00	14.30	23.50
1850	11.60	8.23	5.86	3.92	2.85	8.04	139.00	373.00	77.00	70.80
1865	1188.00	793.00	600.00	463.00	119.00	119.00	127.00	126.00	417.00	973.00
1875	27.30	25.20	22.20	18.60	3.31	3.29	3.13	7.78	58.40	98.50
1880	230.00	213.00	155.00	117.00	16.10	15.40	16.40	266.00	1080.00	1429.00
1905	97.80	95.30	86.70	78.00	11.30	12.60	11.60	41.10	195.00	248.00
1910	135.00	124.00	109.00	99.80	8.28	6.40	6.24	41.10	144.00	244.00
1915	1973.00	1510.00	1178.00	962.00	182.00	173.00	187.00	532.00	1971.00	3418.00
1930	15.30	19.20	16.30	13.30	3.46	3.75	2.80	42.30	93.30	140.00
1940	10.10	10.40	9.46	7.81	3.17	3.27	4.89	27.50	49.50	41.80
1970	36.00	31.30	24.50	20.50	7.40	5.77	11.00	15.40	45.70	122.00
1975	151.00	119.00	88.90	69.50	10.30	7.08	7.10	43.30	258.00	483.00
2000	197.00	221.00	198.00	161.00	20.60	20.50	16.40	75.30	484.00	721.00
2005	46.30	40.40	28.90	18.40	4.61	3.81	3.19	10.20	67.00	105.00
2050	592.00	486.00	391.00	316.00	61.60	58.60	68.80	180.00	499.00	1012.00
2075	335.00	298.00	295.00	252.00	47.10	47.80	41.40	230.00	903.00	1010.00
2095	136.00	82.90	55.70	42.20	4.99	4.30	2.97	13.90	90.40	179.00
2165	34.90	37.00	39.00	34.70	18.40	39.90	63.10	55.30	77.30	73.60
2875	19.70	21.60	20.30	18.30	10.80	16.90	27.60	14.20	32.00	39.00
2890	93.10	85.60	74.70	66.70	10.20	8.61	8.36	28.90	90.20	235.00
2900	--	--	--	--	--	--	--	--	--	--
2905	108.00	121.00	119.00	105.00	24.00	34.30	40.40	58.00	147.00	372.00
2915	22.00	20.20	18.50	16.40	4.76	5.15	6.74	12.10	43.40	108.00
3255	4.41	3.47	3.54	3.36	1.83	20.60	136.00	67.50	35.60	83.80
3292	0.15	0.52	0.72	0.54	0.47	8.67	61.80	9.74	2.46	4.69
3310	6.19	8.96	9.18	7.07	2.04	3.92	164.00	69.10	26.80	22.40
3315	10.90	10.30	11.00	7.30	2.68	120.00	88.30	218.00	15.20	75.70
3340	30.40	23.50	6.65	2.33	2.56	149.00	240.00	293.00	194.00	350.00
3345	63.80	26.20	7.05	3.74	3.21	108.00	212.00	221.00	539.00	326.00
3350	10.90	6.73	2.39	2.62	2.88	59.70	136.00	294.00	56.10	97.00
3355	85.10	57.20	25.60	12.60	5.70	459.00	852.00	1772.00	713.00	1003.00

Table A-3.--Streamflow characteristics--Continued

A.--Continuous-record stations--Continued

Station number	Streamflow characteristics									
	q_9	q_{10}	q_{11}	q_{12}	SD_1	SD_2	SD_3	SD_4	SD_5	SD_6
6-3360	108.00	139.00	47.30	17.50	10.90	287.00	1074.00	2242.00	913.00	1039.00
3365	0.81	0.85	2.14	0.74	0.95	46.00	120.00	147.00	7.58	35.30
3370	185.00	87.60	38.90	11.10	11.60	564.00	1674.00	2704.00	726.00	1170.00
12-3013	127.00	129.00	123.00	112.00	21.50	24.20	54.40	196.00	179.00	207.00
3020	126.00	161.00	214.00	244.00	105.00	152.00	152.00	709.00	646.00	345.00
3025	18.50	23.90	29.00	31.50	67.30	2.23	15.70	58.10	36.50	73.40
3030	7001.00	6178.00	5089.00	3975.00	1053.00	1045.00	1092.00	4852.00	9017.00	12300.00
3035	169.00	227.00	270.00	301.00	116.00	191.00	126.00	210.00	323.00	413.00
3045	194.00	242.00	289.00	301.00	137.00	153.00	277.00	688.00	722.00	775.00
3235	9.54	8.99	7.80	7.11	1.24	1.99	2.83	5.53	20.20	37.80
3241	45.40	32.70	24.80	21.50	3.11	2.25	2.82	7.00	27.50	58.90
3300	18.10	23.60	23.00	20.60	3.26	3.87	2.25	11.20	43.60	72.80
3320	51.50	51.80	43.40	36.30	6.39	7.79	9.26	37.70	134.00	170.00
3350	173.00	158.00	149.00	132.00	24.70	25.80	31.00	168.00	550.00	703.00
3355	9.85	13.80	14.50	12.00	3.94	13.20	26.10	47.50	54.50	64.40
3385	402.00	395.00	377.00	324.00	54.50	69.60	103.00	397.00	1053.00	1330.00
3400	668.00	682.00	676.00	629.00	126.00	148.00	243.00	1047.00	1903.00	2159.00
3405	1355.00	1520.00	1546.00	1408.00	376.00	447.00	507.00	1956.00	3052.00	4014.00
3425	90.10	82.80	103.00	79.90	19.10	17.90	36.20	194.00	385.00	405.00
3434	116.00	112.00	104.00	94.20	15.10	28.00	30.90	97.60	226.00	428.00
3440	314.00	406.00	349.00	293.00	67.60	83.10	113.00	557.00	1132.00	1211.00
3465	46.40	40.10	33.80	29.20	4.49	3.45	3.95	19.80	85.40	94.70
3475	16.80	26.50	24.70	20.80	8.12	10.10	7.48	34.20	66.10	60.90
3500	11.40	22.60	22.90	19.80	6.63	5.27	6.85	34.70	76.70	88.40
3505	19.80	40.40	33.50	21.90	4.73	10.80	6.31	31.80	67.30	81.10
3530	2192.00	2733.00	2780.00	2528.00	668.00	811.00	915.00	3387.00	5386.00	7207.00
3540	133.00	153.00	230.00	259.00	129.00	176.00	201.00	464.00	406.00	502.00
3545	3022.00	3558.00	3648.00	3528.00	1490.00	1168.00	1565.00	4525.00	7066.00	9569.00
3550	310.00	394.00	319.00	241.00	46.70	48.20	45.60	380.00	851.00	1277.00
3555	1175.00	1297.00	1155.00	897.00	218.00	250.00	211.00	1471.00	2725.00	3673.00
3570	244.00	347.00	355.00	333.00	103.00	133.00	98.00	656.00	1115.00	1957.00
3575	782.00	850.00	860.00	588.00	140.00	161.00	392.00	1341.00	1711.00	4002.00
3585	948.00	1145.00	1042.00	932.00	265.00	331.00	303.00	1464.00	2425.00	3876.00
3590	484.00	623.00	529.00	452.00	115.00	191.00	135.00	843.00	1501.00	2286.00
3600	13.30	29.20	34.90	36.30	11.10	19.70	9.62	79.30	97.60	157.00
3610	63.00	96.60	95.00	81.50	21.60	45.30	36.80	126.00	133.00	230.00
3615	33.90	63.40	60.30	54.10	13.70	22.50	9.99	51.70	103.00	126.00
3625	663.00	911.00	1136.00	1050.00	528.00	450.00	623.00	2647.00	3110.00	5030.00
3630	2443.00	2955.00	3322.00	2869.00	1319.00	960.00	1356.00	6944.00	8070.00	12290.00
3650	112.00	109.00	123.00	112.00	93.50	46.10	93.20	435.00	592.00	442.00
3660	81.00	71.20	76.30	74.60	41.30	33.30	46.10	110.00	191.00	225.00
3700	536.00	558.00	585.00	570.00	174.00	152.00	193.00	618.00	777.00	1036.00
3895	209.00	202.00	213.00	212.00	63.20	72.50	88.70	324.00	409.00	475.00
3907	66.50	65.00	87.70	115.00	77.60	107.00	92.20	198.00	189.00	214.00

Station number	SD_7	SD_8	SD_9	SD_{10}	SD_{11}	SD_{12}	$M_{7,2}$	$M_{7,10}$	$M_{7,20}$	$V_{3,2}$
5-0100	215.00	62.70	72.60	115.00	58.30	34.50	--	--	--	1450.00
0110	--	--	--	--	--	--	--	--	--	--
0115	305.00	46.60	58.40	127.00	58.90	38.40	--	--	--	1850.00
0125	67.80	13.50	22.80	38.20	18.20	11.50	--	--	--	460.00
0130	552.00	124.00	189.00	231.00	123.00	79.50	90.00	64.00	60.00	4000.00
0140	14.70	4.87	8.52	9.54	3.52	1.97	0.50	0.27	0.19	135.00
0145	58.40	20.10	65.00	45.20	19.80	15.50	15.00	10.20	9.60	870.00
6-0125	74.80	30.60	22.70	23.40	28.90	22.20	--	--	--	--
0175	23.70	13.50	10.50	10.70	8.36	7.57	18.00	12.00	11.00	155.00
0195	60.80	27.10	17.90	19.00	14.70	17.00	82.00	58.00	51.00	700.00
0255	722.00	209.00	185.00	205.00	162.00	123.00	220.00	123.00	100.00	6600.00
0260	21.30	8.96	3.51	5.53	3.93	2.31	4.20	2.10	1.70	160.00
0330	77.90	19.10	22.40	21.30	12.30	8.95	12.00	5.00	3.70	880.00
0375	121.00	74.10	70.00	84.40	70.00	58.10	340.00	290.00	270.00	1120.00
0430	65.20	20.60	8.78	9.91	6.01	3.33	--	--	--	680.00
0435	515.00	164.00	123.00	115.00	82.60	69.30	245.00	200.00	185.00	4200.00
0480	24.50	16.60	11.40	11.60	10.50	10.40	26.00	18.00	16.00	390.00
0485	13.40	7.57	6.12	3.75	3.14	3.71	4.40	2.20	1.80	240.00
0500	68.40	19.00	11.80	14.00	12.00	11.30	13.00	10.00	9.40	290.00
0555	--	--	--	--	--	--	--	--	--	--
0615	31.30	15.10	15.50	14.20	11.30	7.24	15.00	8.50	7.30	205.00
0685	15.20	6.20	4.22	3.83	3.22	2.10	5.00	2.70	2.10	140.00
0730	104.00	44.70	23.20	24.50	23.80	19.40	16.00	9.20	7.70	950.00
0735	141.00	40.70	34.00	39.00	31.80	28.90	30.00	17.00	14.00	1580.00
0745	17.30	7.69	5.30	4.04	4.18	3.53	3.70	1.70	1.30	110.00
0770	14.70	6.47	5.18	4.77	3.28	2.36	6.50	4.70	4.20	170.00
0785	233.00	41.40	36.80	50.90	30.00	23.50	47.00	35.00	31.00	2550.00
0800	860.00	199.00	121.00	105.00	135.00	86.90	92.00	20.00	12.00	5600.00
0905	112.00	37.60	47.30	54.90	23.30	15.60	12.00	3.80	2.60	1200.00
0925	84.50	24.20	20.70	30.40	20.80	23.50	51.00	33.00	29.00	1160.00
0980	60.60	30.40	22.50	21.80	16.40	12.80	5.60	--	--	230.00
1060	134.00	29.10	20.20	20.50	12.20	19.00	14.00	6.40	4.40	410.00
1098	9.35	3.29	3.24	2.39	1.82	1.33	--	--	--	170.00
1110	2.77	1.34	0.67	0.98	1.54	2.07	--	--	--	310.00
1155	5.68	3.44	3.19	3.00	1.85	1.47	3.60	2.40	2.10	46.00
1185	41.40	14.30	19.40	21.40	11.60	10.70	7.60	1.20	0.47	680.00
1290	--	--	--	--	--	--	--	--	--	--
1307	11.40	0.40	0.12	0.14	0.24	0.15	--	--	--	205.00
1310	43.20	69.80	22.10	6.49	3.09	3.25	--	--	--	1250.00
1385	13.10	10.60	2.40	3.19	2.86	1.23	--	--	--	90.00
1545	31.20	6.41	11.10	6.30	5.46	3.73	--	--	--	480.00
1775	32.80	8.47	0.84	0.23	0.25	1.48	--	--	--	460.00
1810	52.70	35.00	36.90	21.60	18.00	11.90	2.50	0.08	--	1550.00
1825	5.49	4.15	2.67	1.59	0.73	0.86	--	--	--	530.00
1850	46.70	11.90	16.80	8.95	4.14	3.55	--	--	--	860.00
1865	1246.00	687.00	323.00	197.00	156.00	125.00	290.00	165.00	140.00	4700.00
1875	53.40	9.63	5.59	5.05	6.01	3.36	15.00	10.00	9.00	300.00
1880	746.00	143.00	86.30	90.80	52.60	23.30	86.00	66.00	62.00	6700.00
1905	93.90	34.40	23.20	21.30	23.00	13.80	63.00	52.00	50.00	820.00
1910	132.00	34.60	20.60	16.00	11.80	9.07	80.00	70.00	66.00	1000.00

Table A-3.—Streamflow characteristics—Continued

A.—Continuous-record stations—Continued

Station number	Streamflow characteristics									
	SD_7	SD_8	SD_9	SD_{10}	SD_{11}	SD_{12}	$M_{7,2}$	$M_{7,10}$	$M_{7,20}$	$V_{3,2}$
6-1915	2565.00	971.00	493.00	383.00	268.00	197.00	710.00	490.00	440.00	15000.00
1930	37.50	9.20	7.55	11.50	6.56	4.68	6.40	4.00	3.50	450.00
1940	15.10	6.57	3.62	4.46	4.38	4.12	3.50	1.60	1.20	160.00
1970	88.30	24.90	19.60	14.40	7.47	9.26	12.00	6.20	4.80	530.00
1975	395.00	103.00	47.60	37.10	19.70	12.20	47.00	39.00	37.00	2900.00
2000	664.00	164.00	118.00	87.60	46.40	21.60	84.00	34.00	23.00	4800.00
2005	76.10	26.70	20.40	21.70	10.40	6.28	7.80	4.50	3.20	680.00
2050	1020.00	292.00	199.00	140.00	79.10	59.10	180.00	123.00	107.00	5500.00
2075	1047.00	314.00	156.00	160.00	94.40	56.40	145.00	82.00	63.00	6400.00
2095	175.00	65.50	23.90	18.00	10.00	6.66	25.00	20.00	19.00	1000.00
2165	43.60	16.10	35.60	18.50	18.10	15.30	4.00	--	--	390.00
2875	12.10	7.30	6.95	6.23	5.47	4.45	11.00	4.30	3.00	160.00
2890	77.60	28.90	20.70	16.40	13.70	10.20	47.00	35.00	32.00	740.00
2900	--	--	--	--	--	--	--	--	--	--
2905	121.00	44.10	38.10	24.70	17.90	17.20	63.00	32.00	26.00	900.00
2915	32.70	10.30	8.20	6.09	4.96	4.55	10.00	5.40	4.60	330.00
3255	27.80	22.40	13.30	2.16	1.59	1.66	0.50	--	--	650.00
3292	4.69	0.35	0.37	0.49	0.38	0.38	--	--	--	100.00
3310	24.90	2.47	2.56	2.81	2.95	2.66	2.17	0.77	0.54	609.00
3315	46.70	21.20	7.76	3.58	3.49	2.57	1.80	--	--	1310.00
3340	58.70	67.40	72.80	78.00	19.60	4.57	--	--	--	1400.00
3345	249.00	144.00	72.70	59.90	7.18	2.64	--	--	--	2000.00
3350	47.50	16.70	21.30	17.60	2.08	4.84	--	--	--	1025.00
3355	198.00	79.80	117.00	133.00	42.20	25.20	--	--	--	4741.00
3360	672.00	218.00	115.00	409.00	78.20	30.90	--	--	--	6444.00
3365	21.80	2.64	1.48	1.24	6.80	0.60	--	--	--	630.00
3370	483.00	262.00	221.00	154.00	71.20	23.40	--	--	--	9803.00
12-3013	70.10	27.00	52.50	79.30	54.30	36.30	--	--	--	1400.00
3020	94.80	27.70	42.10	76.80	106.00	119.00	97.00	73.00	66.00	3000.00
3025	29.30	8.62	14.20	16.50	18.50	29.30	7.00	4.90	4.40	410.00
3030	7935.00	2240.00	2225.00	2320.00	1694.00	1547.00	2300.00	1600.00	1400.00	62000.00
3035	229.00	50.70	21.20	99.50	113.00	147.00	123.00	76.00	64.00	2300.00
3045	100.00	38.60	116.00	188.00	169.00	209.00	103.00	87.00	80.00	6400.00
3235	9.64	2.98	2.26	1.86	1.20	1.43	4.80	3.40	2.90	140.00
3241	30.80	16.20	13.50	10.90	6.18	4.49	16.00	14.00	13.00	300.00
3300	30.20	9.70	9.21	9.21	5.47	4.51	9.00	5.40	4.70	290.00
3320	74.80	20.50	14.60	29.80	14.80	9.82	18.00	13.00	12.00	840.00
3350	243.00	73.00	35.10	34.20	28.90	28.40	108.00	70.00	59.00	2100.00
3355	17.30	6.35	5.21	5.63	3.93	4.37	5.00	2.80	2.40	300.00
3385	527.00	148.00	80.50	116.00	109.00	86.30	205.00	145.00	130.00	5000.00
3400	773.00	231.00	162.00	236.00	218.00	203.00	430.00	300.00	270.00	9000.00
3405	1448.00	479.00	433.00	431.00	398.00	401.00	810.00	530.00	460.00	13600.00
3425	104.00	24.80	34.50	34.40	57.30	30.60	--	--	--	--
3434	123.00	39.90	31.50	27.10	20.50	32.40	62.00	37.00	31.00	1750.00
3440	419.00	85.70	107.00	181.00	140.00	135.00	170.00	115.00	102.00	5700.00
3465	57.40	14.40	7.56	8.01	5.78	4.92	19.00	15.00	14.00	540.00
3475	43.80	8.96	14.10	27.00	18.60	14.20	5.10	2.00	1.40	490.00
3500	56.10	7.61	11.20	22.70	16.90	13.70	3.00	1.30	1.10	460.00
3505	61.80	13.60	16.20	35.10	22.00	13.70	--	--	--	540.00
3530	2918.00	829.00	848.00	984.00	813.00	843.00	1350.00	830.00	700.00	27000.00
3540	79.90	25.50	32.40	75.50	137.00	181.00	--	--	--	3300.00
3545	4443.00	1192.00	986.00	1129.00	1132.00	1617.00	2100.00	1400.00	1230.00	36000.00
3550	450.00	91.00	127.00	273.00	122.00	56.70	118.00	95.00	90.00	7500.00
3555	1639.00	455.00	440.00	769.00	563.00	389.00	450.00	350.00	330.00	18000.00
3570	643.00	105.00	72.20	237.00	223.00	224.00	135.00	84.00	72.00	8000.00
3575	1477.00	290.00	401.00	424.00	471.00	268.00	280.00	200.00	175.00	14700.00
3585	1848.00	375.00	439.00	734.00	553.00	545.00	420.00	290.00	250.00	18000.00
3590	1381.00	244.00	230.00	479.00	313.00	223.00	250.00	155.00	135.00	14000.00
3600	37.40	5.95	15.10	19.20	21.90	28.50	--	--	--	1000.00
3610	82.90	21.00	59.00	94.10	58.10	57.70	29.00	17.00	14.00	1450.00
3615	95.70	18.10	26.40	52.70	32.90	37.70	--	--	--	930.00
3625	2134.00	402.00	144.00	657.00	886.00	774.00	460.00	280.00	230.00	22000.00
3630	5257.00	1199.00	501.00	1938.00	2296.00	1994.00	1370.00	960.00	870.00	57000.00
3650	177.00	75.40	39.80	48.20	61.60	55.80	63.00	48.00	45.00	1650.00
3660	129.00	43.00	32.70	37.10	41.30	46.20	21.00	6.30	4.30	800.00
3700	656.00	221.00	192.00	263.00	257.00	290.00	340.00	255.00	235.00	4900.00
3895	101.00	41.40	36.60	49.50	57.80	61.10	140.00	108.00	101.00	2350.00
3907	27.50	8.56	7.62	33.40	64.80	81.50	50.00	36.00	33.00	1450.00
	$V_{3,10}$	$V_{3,50}$	$V_{7,2}$	$V_{7,10}$	$V_{7,50}$	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}
5-0100	2170.00	--	1250.00	1750.00	--	1450.00	1900.00	2100.00	2500.00	--
0110	--	--	--	--	--	1850.00	2600.00	3100.00	3800.00	4300.00
0115	2350.00	--	1700.00	2200.00	--	2100.00	2500.00	2700.00	3000.00	--
0125	590.00	--	410.00	530.00	--	520.00	690.00	800.00	920.00	--
0130	6500.00	11000.00	3800.00	5700.00	7400.00	4400.00	6000.00	7200.00	9200.00	11000.00
0140	200.00	300.00	118.00	165.00	200.00	155.00	225.00	280.00	370.00	--
0145	1400.00	--	770.00	1130.00	--	1020.00	1300.00	1450.00	1700.00	1850.00
6-0125	--	--	--	--	--	--	--	--	--	--
0175	320.00	520.00	150.00	280.00	420.00	185.00	300.00	380.00	500.00	600.00
0195	1020.00	1200.00	620.00	920.00	1180.00	880.00	1120.00	1280.00	1420.00	1550.00
0255	10400.00	13800.00	6000.00	10000.00	13200.00	7000.00	10000.00	11600.00	13800.00	15500.00
0260	240.00	300.00	150.00	225.00	280.00	180.00	260.00	320.00	390.00	460.00
0330	1700.00	250.00	800.00	1500.00	2200.00	1000.00	1700.00	2100.00	2800.00	3400.00
0375	1600.00	1950.00	1070.00	1550.00	1920.00	1300.00	1600.00	1800.00	2000.00	2200.00
0430	910.00	--	640.00	820.00	--	800.00	960.00	1030.00	1150.00	--
0435	6400.00	8300.00	3800.00	5800.00	7400.00	4800.00	6400.00	7300.00	8200.00	9000.00
0480	800.00	1200.00	360.00	670.00	1000.00	530.00	840.00	1030.00	1330.00	1600.00
0485	500.00	780.00	220.00	430.00	660.00	280.00	460.00	600.00	800.00	980.00
0500	510.00	730.00	270.00	470.00	660.00	350.00	560.00	720.00	960.00	1140.00
0555	--	--	--	--	--	520.00	720.00	840.00	1000.00	--
0615	400.00	610.00	190.00	350.00	540.00	240.00	410.00	540.00	760.00	940.00
0685	280.00	420.00	130.00	260.00	400.00	155.00	250.00	320.00	420.00	500.00
0730	2100.00	3100.00	830.00	1650.00	2300.00	1050.00	2000.00	2800.00	4100.00	5300.00
0735	4800.00	9700.00	1370.00	3500.00	6400.00	1850.00	3800.00	5600.00	8500.00	11000.00
0745	290.00	--	100.00	250.00	--	120.00	290.00	460.00	750.00	--
0770	320.00	480.00	160.00	300.00	440.00	190.00	290.00	370.00	500.00	600.00
0785	4200.00	6700.00	2250.00	3600.00	5100.00	3000.00	3900.00	4400.00	5000.00	5500.00

Table A-3.--Streamflow characteristics--Continued

A.--Continuous-record stations--Continued

Station number	Streamflow characteristics									
	$V_{3,10}$	$V_{3,50}$	$V_{7,2}$	$V_{7,10}$	$V_{7,50}$	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}
6-0800	11000.00	17000.00	5000.00	9200.00	13500.00	6100.00	10000.00	16000.00	26000.00	36000.00
0905	3400.00	7400.00	1100.00	2800.00	5400.00	1300.00	2400.00	3200.00	4500.00	---
0925	3000.00	---	1020.00	2200.00	---	1500.00	2500.00	3150.00	4200.00	---
0980	1000.00	2550.00	190.00	750.00	1700.00	340.00	1250.00	2400.00	5000.00	8200.00
1060	1550.00	---	310.00	1170.00	---	530.00	1450.00	2300.00	4000.00	---
1098	540.00	---	155.00	370.00	---	210.00	580.00	1000.00	1750.00	---
1110	1020.00	---	230.00	670.00	---	500.00	1200.00	1800.00	2800.00	---
1155	88.00	132.00	42.00	74.00	108.00	86.00	160.00	220.00	320.00	420.00
1185	1000.00	1280.00	590.00	900.00	1180.00	780.00	1020.00	1180.00	1400.00	1550.00
1290	---	---	---	---	---	1100.00	3000.00	5100.00	9000.00	---
1307	770.00	---	115.00	390.00	---	600.00	1500.00	2100.00	3100.00	---
1310	7600.00	23500.00	700.00	4000.00	12000.00	3100.00	9000.00	14000.00	24000.00	35000.00
1385	310.00	---	68.00	225.00	---	120.00	480.00	970.00	2100.00	---
1545	2150.00	5500.00	340.00	1600.00	4200.00	760.00	1750.00	2700.00	4300.00	---
1775	2000.00	5000.00	270.00	1200.00	3000.00	1200.00	3000.00	4600.00	7200.00	9800.00
1810	10000.00	32000.00	1150.00	7000.00	21500.00	2800.00	10700.00	21000.00	45000.00	75000.00
1825	1900.00	4300.00	320.00	1100.00	2400.00	1000.00	2700.00	4500.00	8000.00	---
1850	1550.00	---	790.00	1550.00	---	960.00	1320.00	1530.00	1880.00	---
1865	6800.00	8000.00	4700.00	6800.00	8000.00	4700.00	6000.00	6700.00	7600.00	8200.00
1875	550.00	800.00	255.00	510.00	780.00	300.00	460.00	570.00	720.00	840.00
1880	9600.00	12000.00	6100.00	9300.00	11800.00	8200.00	10200.00	11500.00	13000.00	19500.00
1905	1500.00	---	720.00	1300.00	---	910.00	1300.00	1580.00	1950.00	---
1910	1520.00	1950.00	940.00	1400.00	1800.00	1130.00	1500.00	1700.00	2100.00	2400.00
1915	22000.00	27500.00	14000.00	21000.00	27000.00	16500.00	21000.00	24000.00	27000.00	29000.00
1930	900.00	1380.00	400.00	780.00	1130.00	560.00	900.00	1160.00	1500.00	1800.00
1940	360.00	660.00	140.00	310.00	550.00	180.00	400.00	500.00	1000.00	1430.00
1970	1000.00	---	470.00	840.00	---	640.00	1200.00	1700.00	2500.00	---
1975	3900.00	4700.00	2750.00	3600.00	4400.00	3500.00	4100.00	4500.00	5000.00	5400.00
2000	6500.00	8000.00	4300.00	5900.00	7200.00	5800.00	7400.00	8300.00	9400.00	10400.00
2005	990.00	1230.00	600.00	840.00	1030.00	930.00	1320.00	1560.00	1900.00	2200.00
2050	7800.00	9700.00	5000.00	7000.00	8400.00	6400.00	8200.00	9200.00	10600.00	11600.00
2075	8600.00	10400.00	6000.00	8400.00	10200.00	7600.00	9200.00	10000.00	10700.00	11200.00
2095	1500.00	1900.00	880.00	1300.00	1600.00	1180.00	1700.00	2000.00	2500.00	2900.00
2165	920.00	---	260.00	640.00	---	600.00	1070.00	1400.00	1900.00	2400.00
2875	370.00	---	115.00	260.00	---	310.00	680.00	1000.00	1550.00	---
2890	1400.00	2100.00	660.00	1230.00	1850.00	920.00	1380.00	1700.00	2300.00	2800.00
2900	---	---	---	---	---	340.00	630.00	880.00	1270.00	1600.00
2905	2000.00	3400.00	860.00	1670.00	2600.00	1100.00	1900.00	2600.00	3800.00	5100.00
2915	590.00	840.00	290.00	530.00	780.00	400.00	640.00	800.00	1030.00	1220.00
3255	1450.00	---	470.00	1000.00	---	1100.00	1600.00	2000.00	2400.00	2700.00
3292	1070.00	---	53.00	660.00	---	250.00	1340.00	3030.00	7000.00	---
3310	2051.00	---	406.30	1374.00	---	1164.00	2674.00	4203.00	6898.00	---
3315	1707.00	---	976.80	1302.00	---	1814.00	2565.00	3054.00	3660.00	---
3340	3310.00	4520.00	921.00	2330.00	3350.00	1900.00	3500.00	4400.00	5200.00	6000.00
3345	5000.00	---	1550.00	4200.00	---	2740.00	4730.00	5870.00	7060.00	---
3350	3102.00	5529.00	608.70	2000.00	3705.00	3323.00	5890.00	7829.00	10490.00	12590.00
3355	15360.00	29020.00	3814.00	12180.00	21680.00	9148.00	18370.00	25960.00	37040.00	46250.00
3360	18160.00	31890.00	4880.00	14000.00	24190.00	9921.00	20200.00	28970.00	42210.00	52590.00
3365	1900.00	3200.00	400.00	1360.00	2450.00	1150.00	2800.00	4100.00	6700.00	9200.00
3370	23720.00	36250.00	7308.00	17990.00	27360.00	13890.00	27290.00	39490.00	59300.00	77650.00
12-3013	2000.00	---	1200.00	1700.00	---	1550.00	2300.00	2850.00	3500.00	---
3020	4900.00	6700.00	2700.00	4600.00	6400.00	3600.00	5000.00	5800.00	7000.00	7800.00
3025	640.00	---	360.00	530.00	---	630.00	1060.00	1400.00	1850.00	2250.00
3030	88000.00	108000.00	58000.00	82000.00	102000.00	63000.00	78000.00	88000.00	100000.00	110000.00
3035	3100.00	---	2100.00	3000.00	---	2550.00	3000.00	3150.00	3500.00	---
3045	9000.00	---	5700.00	7900.00	---	7400.00	9600.00	11000.00	12800.00	---
3235	220.00	---	120.00	195.00	---	175.00	270.00	340.00	430.00	---
3241	430.00	---	290.00	390.00	---	360.00	480.00	550.00	650.00	---
3300	460.00	620.00	270.00	410.00	530.00	370.00	530.00	640.00	780.00	910.00
3320	1200.00	1430.00	760.00	1070.00	1300.00	970.00	1220.00	1400.00	1600.00	1750.00
3350	4100.00	---	1850.00	3500.00	---	2100.00	3400.00	4300.00	5400.00	---
3355	560.00	840.00	240.00	450.00	650.00	480.00	970.00	1350.00	2000.00	2650.00
3385	7800.00	10000.00	4600.00	7200.00	9700.00	5200.00	7200.00	8400.00	10200.00	11800.00
3400	13800.00	17000.00	8400.00	12000.00	14800.00	9400.00	13200.00	15800.00	19000.00	22000.00
3405	22500.00	29000.00	13000.00	21500.00	28000.00	15000.00	21000.00	25000.00	30000.00	34000.00
3425	---	---	---	---	---	---	---	---	---	---
3434	2600.00	---	1650.00	2400.00	---	2050.00	2850.00	3300.00	4000.00	---
3440	8700.00	11200.00	5300.00	7900.00	10000.00	6200.00	8400.00	9700.00	11000.00	12000.00
3465	740.00	---	510.00	680.00	---	620.00	750.00	820.00	900.00	---
3475	650.00	780.00	440.00	600.00	730.00	650.00	760.00	810.00	900.00	960.00
3500	740.00	970.00	420.00	660.00	900.00	670.00	930.00	1080.00	1300.00	1460.00
3505	810.00	---	480.00	730.00	---	820.00	1080.00	1260.00	1420.00	1600.00
3530	41000.00	52000.00	26000.00	39000.00	48000.00	28000.00	38000.00	44000.00	52000.00	58000.00
3540	4900.00	---	2900.00	4200.00	---	4100.00	6400.00	7900.00	10000.00	---
3545	55000.00	70000.00	34000.00	53000.00	66000.00	37000.00	48000.00	54000.00	60000.00	66000.00
3550	11000.00	---	6700.00	9300.00	---	7200.00	10000.00	11800.00	14000.00	16000.00
3555	27000.00	34000.00	16000.00	23500.00	30000.00	20000.00	25000.00	28000.00	32000.00	35000.00
3570	13200.00	18000.00	7000.00	10800.00	14200.00	9200.00	13000.00	15000.00	18000.00	20500.00
3575	24000.00	---	12700.00	21700.00	---	17500.00	26000.00	31500.00	39000.00	46000.00
3585	29000.00	39000.00	16500.00	24000.00	30000.00	20000.00	26000.00	30000.00	34000.00	38000.00
3590	19500.00	24000.00	12200.00	16000.00	19000.00	15000.00	19000.00	21500.00	25000.00	---
3600	1480.00	---	900.00	1250.00	---	1300.00	2000.00	2400.00	3000.00	---
3610	2150.00	2800.00	1280.00	1800.00	2300.00	1750.00	2500.00	3000.00	3650.00	---
3615	1280.00	---	800.00	1000.00	---	1100.00	1850.00	2700.00	4200.00	---
3625	32000.00	41000.00	20000.00	29000.00	37000.00	24000.00	32000.00	37000.00	44000.00	49000.00
3630	81000.00	95000.00	53000.00	75000.00	90000.00	67000.00	82000.00	90000.00	102000.00	108000.00
3650	3200.00	4500.00	1600.00	3100.00	4300.00	1650.00	2700.00	3300.00	4100.00	4800.00
3660	1300.00	1740.00	800.00	1230.00	1640.00	820.00	1100.00	1260.00	1500.00	1660.00
3700	7000.00	8900.00	4500.00	6600.00	8400.00	5100.00	6500.00	7300.00	8400.00	9300.00
3895	3700.00	---	2050.00	3300.00	---	2900.00	4600.00	5800.00	7600.00	---
3907	1900.00	---	1300.00	1700.00	---	1800.00	2300.00	2600.00	2900.00	---

Table A-3.—Streamflow characteristics—Continued

Station number	Streamflow characteristics				
	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}
	B.—Seasonal-record stations				
6-1327	1500.00	3500.00	5400.00	8800.00	12300.00
1330	1020.00	2200.00	3200.00	5000.00	6600.00
1335	450.00	1100.00	1750.00	2900.00	4100.00
1355	660.00	1500.00	2250.00	3500.00	4900.00
1445	1400.00	2700.00	3600.00	5100.00	6400.00
1450	270.00	600.00	860.00	1280.00	1650.00
1455	1230.00	3200.00	5400.00	9200.00	—
1480	540.00	1130.00	1670.00	2500.00	3300.00
1500	390.00	1060.00	1770.00	3100.00	4700.00
1505	330.00	840.00	1330.00	2200.00	3200.00
1510	260.00	800.00	880.00	1280.00	1650.00
1560	280.00	1200.00	2200.00	4100.00	6400.00
1685	640.00	1470.00	2050.00	3000.00	3850.00
1690	300.00	720.00	1070.00	1700.00	2300.00
1695	1020.00	2300.00	3300.00	5100.00	6700.00
1700	670.00	1800.00	2900.00	5000.00	7000.00
1780	550.00	1750.00	3000.00	5800.00	9200.00
1785	670.00	1520.00	2250.00	3500.00	4700.00
1795	200.00	1000.00	2200.00	5400.00	10000.00
1800	620.00	1650.00	2700.00	4800.00	—
	C.—Peak-flow partial-record stations				
6-0134	60.00	140.00	200.00	310.00	—
0135	350.00	520.00	630.00	790.00	910.00
0155	400.00	690.00	900.00	1200.00	1470.00
0198	21.00	52.00	83.00	135.00	—
0253	107.00	157.00	190.00	230.00	—
0277	150.00	190.00	215.00	250.00	—
0303	13.00	50.00	100.00	225.00	—
0432	200.00	340.00	460.00	700.00	—
0433	15.00	22.00	27.00	32.00	—
0465	330.00	470.00	580.00	710.00	—
0467	12.00	19.00	23.00	30.00	—
0470	150.00	220.00	260.00	320.00	—
0562	19.00	31.00	40.00	55.00	—
0566	210.00	300.00	360.00	450.00	—
0587	21.00	70.00	110.00	180.00	—
0619	160.00	300.00	400.00	560.00	—
0712	90.00	225.00	360.00	610.00	—
0714	90.00	230.00	370.00	630.00	—
0716	120.00	340.00	580.00	1020.00	—
0756	11.00	15.00	18.00	21.00	—
0760	13.00	29.00	43.00	68.00	92.00
0767	59.00	105.00	135.00	185.00	—
0768	8.20	14.00	18.00	24.00	—
0778	96.00	230.00	350.00	570.00	—
0796	100.00	250.00	390.00	670.00	—
0893	100.00	240.00	370.00	560.00	—
0997	78.00	180.00	275.00	450.00	—
1021	17.00	80.00	170.00	420.00	—
1022	11.00	33.00	58.00	105.00	—
1023	4.00	15.00	27.00	50.00	—
1121	230.00	540.00	820.00	1320.00	—
1206	1.10	6.00	14.00	36.00	—
1207	62.00	155.00	240.00	400.00	—
1208	85.00	430.00	1000.00	2600.00	—
1209	60.00	380.00	950.00	2600.00	—
1263	90.00	370.00	730.00	157.00	—
1289	140.00	290.00	430.00	660.00	—
1295	330.00	520.00	850.00	1200.00	1520.00
1297	60.00	260.00	550.00	1280.00	—
1298	40.00	127.00	225.00	430.00	—
1306	70.00	210.00	360.00	670.00	—
1308	18.00	72.00	160.00	410.00	—

Station number	Streamflow characteristics				
	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}
	C.—Peak-flow partial-record stations—Continued				
6-1308.5	21.00	62.00	105.00	190.00	—
1309	15.00	31.00	45.00	68.00	—
1309.5	1450.00	3300.00	4900.00	8000.00	—
1395	450.00	1400.00	2500.00	4700.00	7300.00
1551	70.00	155.00	230.00	370.00	—
1553	48.00	140.00	230.00	400.00	—
1723	35.00	135.00	255.00	550.00	—
1765	300.00	1200.00	2300.00	4900.00	8200.00
1770.5	130.00	300.00	470.00	770.00	—
1771	170.00	560.00	1000.00	2000.00	—
1771.5	470.00	1120.00	1750.00	2800.00	—
1772	160.00	270.00	360.00	480.00	—
1773	10.00	45.00	90.00	200.00	—
1773.5	34.00	64.00	85.00	120.00	—
1774	115.00	300.00	480.00	820.00	—
1830	1000.00	2700.00	4500.00	7700.00	—
1831	100.00	210.00	315.00	490.00	—
1832	590.00	1230.00	1770.00	2700.00	—
1833	30.00	70.00	105.00	170.00	—
1834	85.00	400.00	850.00	2000.00	—
2162	110.00	220.00	310.00	480.00	—
2163	88.00	225.00	360.00	630.00	—
2950.5	1650.00	2750.00	3500.00	4800.00	—
2952	8.50	26.00	46.00	90.00	—
2960	370.00	610.00	800.00	1040.00	—
3069	100.00	340.00	630.00	1300.00	—
3069.5	80.00	210.00	350.00	500.00	—
3082	18.00	62.00	115.00	230.00	—
3083	190.00	550.00	930.00	1670.00	—
3247	27.00	90.00	160.00	310.00	—
3287	6.60	13.00	18.00	26.00	—
3329	300.00	670.00	1000.00	1600.00	—
3341	320.00	610.00	840.00	1200.00	—
3342	500.00	1200.00	1900.00	3100.00	—
3364.5	82.00	155.00	210.00	300.00	—
12-3005	720.00	1100.00	1380.00	1740.00	2020.00
3008	150.00	210.00	255.00	310.00	350.00
3017	6.60	11.00	14.00	18.00	21.00
3018	65.00	112.00	148.00	200.00	240.00
3024	16.00	29.00	40.00	58.00	74.00
3042.5	26.00	43.00	55.00	76.00	90.00
3043	130.00	180.00	205.00	245.00	270.00
3044	180.00	230.00	260.00	300.00	320.00
3233	23.00	52.00	100.00	180.00	270.00
3247	38.00	100.00	155.00	270.00	380.00
3248	9.00	14.00	17.00	21.00	25.00
3399	96.00	140.00	170.00	220.00	250.00
3402	13.00	21.00	27.00	35.00	42.00
3443	7.00	11.00	13.00	17.00	20.00
3458	140.00	210.00	260.00	330.00	390.00
3485	100.00	130.00	150.00	170.00	180.00
3502	105.00	170.00	220.00	285.00	340.00
3510	330.00	500.00	620.00	780.00	920.00
3514	46.00	70.00	86.00	108.00	125.00
3522	8.70	26.00	46.00	84.00	130.00
3534	27.00	56.00	70.00	122.00	160.00
3538.5	60.00	115.00	160.00	230.00	300.00
3538	32.00	54.00	68.00	92.00	110.00
3541	145.00	220.00	270.00	340.00	400.00
3560	150.00	240.00	300.00	380.00	460.00
3574	2.90	8.00	13.00	23.00	33.00
3639	15.00	25.00	31.00	41.00	50.00
3705	42.00	76.00	102.00	145.00	180.00
3709	8.40	18.00	26.00	41.00	55.00
3743	90.00	165.00	225.00	320.00	400.00
3757	22.00	52.00	78.00	120.00	170.00

Table A-4.--Basin and climatic characteristics

Continuous-record stations

Station number	Basin and climatic characteristics									
	Drainage area (square miles)	Main channel slope (feet per mile)	Main channel length (miles)	Lakes and ponds (percent)	Mean basin elevation (feet)	Forest cover (percent)	Mean annual precipitation (inches)	Precipitation intensity 2 yr-24 hr (inches)	Basin above 6,000 ft elevation (percent)	Soil storage index (inches)
5-0100	74.80	42.10	14.20	3.23	6180.00	52.30	51.00	2.10	59.00	3.20
0110	121.00	23.70	22.60	2.41	5920.00	60.80	44.00	2.00	47.00	3.30
0115	61.00	74.70	11.70	1.82	6060.00	54.90	49.00	2.00	57.00	3.20
0125	21.00	190.00	7.00	3.38	5610.00	71.60	48.00	2.00	34.00	3.70
0130	238.00	27.60	26.60	3.73	5910.00	59.60	48.00	2.00	49.00	4.70
0140	3.47	1560.00	2.30	6.48	6530.00	48.40	56.00	2.10	73.00	4.30
0145	31.40	283.00	7.10	4.41	6460.00	59.10	55.00	2.10	65.00	4.50
6-0125	570.00	4.60	57.80	3.54	7180.00	21.80	21.00	1.40	100.00	4.10
0175	312.00	36.50	34.70	1.00	7210.00	19.80	12.00	1.40	97.00	5.40
0195	538.00	53.30	39.50	1.07	7280.00	29.80	13.00	1.30	92.00	6.10
0255	2476.00	15.40	112.60	1.18	7140.00	66.30	14.00	1.40	92.00	6.70
0260	36.00	207.00	12.80	1.69	7690.00	87.80	12.00	1.50	98.00	4.90
0330	381.00	66.00	31.30	1.03	6640.00	90.10	12.00	1.50	81.00	5.20
0375	420.00	34.20	38.90	1.48	7920.00	94.80	24.00	1.40	100.00	9.00
0430	98.00	138.00	16.00	1.19	8320.00	61.50	20.00	1.50	100.00	3.90
0435	825.00	16.80	59.50	1.03	7960.00	84.30	18.00	1.60	96.00	4.90
0480	148.00	143.00	18.70	1.06	6210.00	66.00	18.00	1.50	52.00	5.20
0485	62.50	91.40	12.30	1.00	6540.00	74.90	14.00	1.90	63.00	4.10
0500	48.20	70.80	16.00	1.12	7710.00	88.80	20.00	2.00	98.00	4.50
0555	78.00	219.00	14.90	1.00	6980.00	90.50	12.00	1.50	87.00	4.70
0615	192.00	157.00	20.80	1.10	5660.00	84.50	12.00	1.30	35.00	4.30
0685	44.40	255.00	6.20	1.00	5900.00	98.10	12.00	1.40	56.00	4.90
0730	123.00	33.70	21.80	1.00	6280.00	92.30	16.00	2.00	77.00	4.10
0735	325.00	50.30	46.30	1.19	5330.00	56.00	15.00	1.90	37.00	5.20
0745	30.70	115.00	10.50	1.00	6620.00	81.40	22.00	1.60	84.00	4.30
0770	54.40	85.40	10.90	1.00	6910.00	96.50	24.00	1.90	95.00	4.50
0785	258.00	48.50	27.40	1.05	6150.00	88.80	25.00	2.00	62.00	5.60
0800	609.00	42.60	29.80	1.29	6330.00	86.50	22.00	2.00	71.00	6.10
0905	368.00	60.20	35.40	1.00	6190.00	89.30	20.00	2.10	57.00	4.10
0925	133.00	66.00	28.20	1.66	6020.00	60.30	27.00	2.00	52.00	3.70
0980	137.00	67.30	27.80	1.59	5040.00	28.50	15.00	1.80	17.00	4.30
1060	223.00	107.00	32.20	1.20	4910.00	14.60	14.00	1.80	19.00	4.50
1098	58.70	126.00	12.70	1.10	6640.00	94.40	17.00	2.00	95.00	3.30
1110	337.00	40.60	32.80	1.04	4640.00	6.30	15.00	1.60	3.00	3.50
1155	31.40	131.00	13.20	1.00	6120.00	53.40	17.00	1.70	75.00	3.50
1185	287.00	58.70	23.80	1.13	6110.00	47.60	14.00	1.70	61.00	3.20
1290	684.00	12.70	68.40	1.50	3470.00	4.90	15.00	1.50	3.00	1.90
1307	317.00	17.20	46.40	1.09	3050.00	1.00	12.00	1.30	1.00	2.50
1310	2554.00	19.30	96.70	1.10	2870.00	1.00	12.00	1.30	1.00	2.50
1385	1629.00	34.80	46.00	1.19	3230.00	3.20	12.00	1.70	1.00	2.70
1545	670.00	20.50	74.90	1.22	3500.00	3.70	14.00	1.70	1.00	3.70
1775	547.00	43.90	39.50	1.08	2810.00	1.00	12.00	1.40	1.00	2.10
1810	3174.00	6.43	145.10	1.39	2730.00	1.00	12.00	1.70	1.00	2.80
1825	279.00	11.40	35.10	1.00	2510.00	1.00	11.00	1.80	1.00	3.30
1850	2447.00	3.14	148.50	1.76	2370.00	1.00	12.00	1.70	1.00	3.00
1865	1006.00	32.40	68.50	14.82	8680.00	71.60	27.00	1.50	100.00	9.00
1875	50.40	165.00	12.90	1.00	8340.00	96.70	16.00	1.40	100.00	9.00
1880	660.00	17.20	42.60	1.04	7400.00	79.20	24.00	1.40	91.00	9.00
1905	200.00	186.00	14.00	1.25	7950.00	81.30	19.00	1.40	99.00	9.00
1910	202.00	176.00	14.90	1.25	7940.00	80.20	19.00	1.40	99.00	9.00
1915	2623.00	25.30	130.50	6.40	8440.00	79.20	23.00	1.40	97.00	7.90
1930	87.80	87.70	15.20	1.00	7040.00	84.50	13.00	1.90	93.00	4.70
1940	57.90	111.00	15.70	1.00	6140.00	61.80	14.00	1.80	61.00	3.20
1970	74.90	304.00	13.10	1.41	6680.00	43.90	13.00	2.20	60.00	3.90
1975	226.00	104.00	30.80	1.22	8510.00	66.30	23.00	2.30	92.00	3.90
2000	523.00	55.60	55.20	1.13	7570.00	58.90	20.00	2.20	76.00	4.10
2005	63.80	106.00	20.20	1.78	7630.00	49.70	13.00	2.20	76.00	2.80
2050	975.00	73.30	60.00	1.43	7220.00	55.60	24.00	2.10	54.00	3.70
2075	1154.00	76.30	75.60	1.54	7430.00	60.90	17.00	1.70	60.00	5.50
2095	124.00	243.00	20.20	1.81	9540.00	41.00	18.00	2.40	100.00	3.20
2165	435.00	42.90	46.70	1.00	4550.00	14.50	10.00	1.90	13.00	2.70
2875	98.30	282.00	18.90	1.00	4240.00	3.80	15.00	1.80	6.00	1.90
2890	193.00	196.00	24.80	1.00	7830.00	88.00	20.00	2.30	94.00	6.70
2900	111.00	127.00	16.80	1.34	5570.00	27.80	15.00	2.10	16.00	--
2905	428.00	135.00	43.30	1.04	6140.00	46.90	19.00	2.20	48.00	5.40
2915	80.70	238.00	21.50	1.00	6360.00	34.30	15.00	2.20	53.00	3.40
3255	1974.00	8.00	128.80	1.08	3930.00	8.40	15.00	1.70	1.00	3.30
3292	233.00	27.20	34.20	1.08	2600.00	1.00	14.00	1.60	1.00	5.40
3310	775.00	8.30	72.00	1.00	2110.00	1.00	14.00	1.70	1.00	3.20
3315	789.00	7.50	80.00	1.00	2110.00	1.00	14.00	1.70	1.00	3.20
3340	904.00	9.27	86.20	1.11	3910.00	9.00	16.00	1.80	1.00	3.20
3345	1970.00	3.78	215.00	1.10	3700.00	6.60	15.00	1.80	1.00	1.90
3350	587.00	11.40	63.00	1.00	3280.00	1.00	14.00	1.30	1.00	1.50
3355	4640.00	3.28	325.00	1.00	3500.00	2.80	14.00	1.40	1.00	2.20
3360	6190.00	3.32	448.00	1.00	2800.00	2.40	14.00	1.40	1.00	2.30
3365	351.00	5.00	60.00	1.05	3020.00	1.00	14.00	1.60	1.00	2.20
3370	8310.00	3.21	551.00	1.00	2800.00	2.20	14.00	1.50	1.00	2.30
12-3013	440.00	36.40	40.20	1.77	4170.00	98.80	20.00	1.60	6.00	7.50
3020	780.00	22.90	58.10	1.21	4190.00	92.40	19.00	1.70	1.00	7.20
3025	23.60	254.00	9.40	2.06	5260.00	88.80	22.00	1.90	32.00	5.90
3030	10239.99	9.69	234.00	1.29	5350.00	92.10	29.00	1.60	46.00	7.20
3035	210.00	31.60	27.50	2.34	4080.00	96.80	28.00	1.90	10.00	7.50
3045	766.00	32.90	65.00	1.04	5050.00	98.00	21.00	1.70	23.00	7.50
3235	40.60	315.00	8.70	1.00	6930.00	89.30	13.00	1.50	89.00	6.40
3241	39.50	105.00	12.70	2.75	7600.00	95.70	14.00	1.70	94.00	7.00
3300	71.30	89.10	13.50	1.28	6980.00	99.00	14.00	1.60	84.00	7.20
3320	123.00	78.90	20.20	1.46	7180.00	94.30	18.00	1.60	90.00	7.00
3350	481.00	25.20	47.70	1.04	5890.00	95.60	15.00	1.60	48.00	7.00
3355	116.00	111.00	15.70	1.00	5880.00	75.40	13.00	1.40	37.00	5.60
3385	1274.00	13.40	79.70	1.32	5760.00	84.40	15.00	1.60	38.00	7.00
3400	2290.00	14.80	116.90	1.62	5710.00	88.50	16.00	1.60	36.00	7.50
3405	5999.00	14.70	162.90	1.38	5690.00	76.80	14.00	1.50	47.00	6.10
3425	317.00	66.80	25.00	1.16	6610.00	98.10	27.00	1.90	76.00	8.20
3434	381.00	67.90	35.30	1.15	6450.00	96.20	19.00	1.60	62.00	7.90
3440	1049.00	35.30	47.20	1.15	6490.00	96.40	22.00	1.70	62.00	8.20

Table A-4.--Basin and climatic characteristics--Continued

Continuous-record stations--Continued

Station number	Basin and climatic characteristics									
	Drainage area (square miles)	Main channel slope (feet per mile)	Main channel length (miles)	Lakes and ponds (percent)	Mean basin elevation (feet)	Forest cover (percent)	Mean annual precipitation (inches)	Precipitation intensity 2 yr - 24 hr (inches)	Basin above 6,000 ft elevation (percent)	Soil storage index (inches)
12-3465	87.80	186.00	12.90	1.14	6800.00	100.00	14.00	1.60	83.00	7.00
3475	26.40	172.00	12.30	1.33	6730.00	93.30	31.00	2.20	68.00	6.70
3500	26.80	278.00	11.80	1.25	6430.00	100.00	34.00	2.10	69.00	7.00
3505	28.90	275.00	9.20	1.35	6670.00	100.00	29.00	2.10	71.00	7.00
3530	9003.00	14.90	175.00	1.31	5710.00	79.50	17.00	1.50	45.00	6.40
3540	303.00	45.00	37.10	1.01	4520.00	100.00	32.00	2.00	2.00	8.20
3545	10708.98	10.80	264.20	1.31	5460.00	81.10	18.00	1.60	39.00	6.40
3550	450.00	31.70	42.00	1.01	6010.00	98.70	24.00	1.60	48.00	7.00
3555	1548.00	8.09	99.00	2.03	5120.00	88.30	26.00	1.70	30.00	7.00
3570	510.00	36.70	60.00	1.15	5900.00	88.00	43.00	1.90	47.00	5.90
3575	943.00	13.40	99.50	1.27	5850.00	87.30	47.00	1.90	46.00	5.60
3585	1128.00	11.70	102.20	2.20	5800.00	85.70	48.00	1.90	45.00	5.90
3590	958.00	25.30	76.50	1.23	6130.00	89.80	35.00	1.90	58.00	7.20
3600	47.00	121.00	15.40	1.10	5300.00	84.30	56.00	1.80	58.00	4.70
3610	71.30	124.00	13.00	1.01	5510.00	81.00	35.00	1.90	39.00	4.30
3615	27.00	328.00	9.00	3.40	5430.00	95.40	28.00	1.90	43.00	4.90
3625	1663.00	13.10	125.90	1.28	5780.00	86.70	37.00	1.90	54.00	4.70
3630	4464.00	8.12	115.00	1.94	5730.00	87.70	38.00	1.80	40.00	5.60
3650	524.00	19.80	50.50	1.37	4320.00	98.50	20.00	1.70	4.00	7.00
3660	170.00	52.30	36.90	3.94	4170.00	87.80	20.00	1.60	12.00	8.20
3700	671.00	36.30	84.50	2.85	5020.00	90.80	23.00	1.70	27.00	8.90
3895	642.00	21.90	48.70	1.60	4710.00	100.00	14.00	1.80	6.00	6.40
3907	182.00	118.00	21.50	1.10	4410.00	99.20	33.00	2.10	4.00	7.50
					Seasonal-record stations					
6-1327	325.00	29.60	45.10	1.31	5000.00	20.40	18.00	1.60	6.00	
1330	397.00	19.70	67.60	1.32	4870.00	15.80	17.00	1.60	6.00	
1335	61.80	34.60	13.50	1.00	4850.00	1.00	18.00	1.60	1.00	
1355	175.00	19.20	34.90	2.31	3200.00	1.00	12.00	1.60	1.00	
1445	753.00	13.30	70.50	2.15	3480.00	15.00	13.00	1.60	1.00	
1450	59.00	15.40	17.30	1.34	2900.00	1.00	12.00	1.60	1.00	
1455	818.00	14.00	71.60	2.07	3490.00	1.00	13.00	1.60	1.00	
1480	270.00	27.20	44.00	1.19	4070.00	40.00	16.00	1.60	1.00	
1500	60.20	11.90	22.40	2.35	2950.00	1.00	12.00	1.60	1.00	
1505	89.50	14.00	19.00	1.42	3000.00	1.00	12.00	1.60	1.00	
1510	56.70	26.30	20.20	2.41	3000.00	1.00	12.00	1.60	1.00	
1560	458.00	18.30	36.30	1.94	2820.00	1.00	12.00	1.60	1.00	
1685	241.00	13.50	39.50	1.00	2910.00	1.00	12.00	1.70	1.00	
1690	73.50	20.80	22.30	1.00	2810.00	1.00	12.00	1.60	1.00	
1695	328.00	12.30	43.30	1.08	2870.00	1.00	12.00	1.60	1.00	
1700	182.00	20.20	26.30	1.03	2830.00	1.00	12.00	1.60	1.00	
1780	362.00	15.30	39.20	1.05	2950.00	1.00	12.00	1.70	1.00	
1785	534.00	5.90	56.40	2.78	2800.00	1.00	12.00	1.80	1.00	
1795	139.00	11.50	23.20	1.00	3000.00	1.00	12.00	1.70	1.00	
1800	428.00	5.40	49.80	1.07	2900.00	1.00	12.00	1.70	1.00	
					Peak-flow partial-record stations					
6-0134	62.70	143.00	15.40	1.00	7780.00	29.00	12.00	1.70	100.00	
0135	280.00	75.20	23.10	1.01	8010.00	32.00	15.00	1.60	100.00	
0155	348.00	46.00	42.00	1.14	7050.00	31.00	12.00	1.30	95.00	
0198	10.80	279.00	9.80	1.00	7110.00	57.00	13.00	1.30	81.00	
0253	41.40	144.00	13.00	1.00	7050.00	74.00	12.00	1.40	98.00	
0277	39.50	197.00	13.80	1.00	7030.00	78.00	12.00	1.60	81.00	
0303	4.50	317.00	5.60	1.00	5440.00	18.00	12.00	1.20	32.00	
0432	40.40	205.00	11.70	1.00	7440.00	96.00	21.00	1.70	99.00	
0433	2.48	970.00	3.70	1.00	7120.00	100.00	19.00	1.80	88.00	
0465	49.00	96.00	13.20	1.00	6110.00	63.40	15.00	1.60	56.00	
0467	2.33	245.00	3.10	1.00	5680.00	51.00	15.00	1.30	16.00	
0470	17.00	256.00	5.80	1.00	6690.00	89.50	18.00	1.80	93.00	
0562	2.59	238.00	2.80	1.00	6320.00	1.00	13.00	1.40	86.00	
0566	87.70	131.00	14.20	1.00	6170.00	76.00	13.00	1.40	62.00	
0587	8.09	302.00	6.40	1.00	5000.00	46.00	12.00	1.40	13.00	
0619	33.20	212.00	8.80	1.00	5980.00	97.00	12.00	1.50	48.00	
0712	29.40	130.00	9.40	1.00	5220.00	86.70	13.00	1.60	24.00	
0714	15.90	108.00	5.10	1.00	4090.00	9.00	14.00	1.60	1.00	
0716	35.00	133.00	13.50	1.00	4650.00	70.00	13.00	1.70	3.00	
0756	6.00	152.00	6.60	1.00	5990.00	34.00	18.00	1.40	57.00	
0760	6.74	223.00	4.50	1.00	6330.00	98.00	23.00	1.40	80.00	
0767	5.30	150.00	4.90	1.00	7200.00	100.00	25.00	2.00	100.00	
0768	1.48	590.00	2.60	1.00	7190.00	94.00	24.00	1.70	100.00	
0778	21.80	86.70	10.00	1.00	4020.00	1.00	14.00	1.70	1.00	
0796	20.30	153.00	6.50	1.00	6050.00	91.30	18.00	2.10	71.00	
0893	21.10	49.00	6.80	1.00	3510.00	1.00	13.00	1.70	1.00	
0997	20.20	65.10	11.10	1.00	4590.00	6.90	14.00	1.70	1.00	
1021	0.84	140.00	1.90	1.00	2770.00	1.00	13.00	1.60	1.00	
1022	1.62	150.00	2.90	1.00	2830.00	1.00	13.00	1.60	1.00	
1023	0.25	189.00	1.10	1.00	2750.00	1.00	13.00	1.60	1.00	
1121	47.90	127.00	17.90	1.00	6080.00	63.00	16.00	2.20	50.00	
1206	0.47	160.00	1.00	1.00	5400.00	1.00	15.00	1.70	1.00	
1207	1.92	156.00	3.50	1.00	5200.00	1.00	15.00	1.60	1.00	
1208	21.20	59.40	11.70	1.00	4570.00	1.00	14.00	1.30	1.00	
1209	88.70	69.30	27.80	1.00	4930.00	8.00	15.00	1.50	9.00	
1263	220.00	43.30	48.50	1.00	4250.00	9.00	13.00	1.40	6.00	
1269	16.20	25.50	6.20	1.00	2900.00	1.00	13.00	1.30	1.00	
1295	421.00	25.00	50.10	1.02	4140.00	8.00	16.00	1.60	1.00	
1297	2.32	29.20	3.20	1.01	2910.00	1.00	13.00	1.40	1.00	
1298	0.81	29.60	1.80	1.01	2900.00	1.00	13.00	1.40	1.00	
1306	36.50	31.10	11.70	1.01	2870.00	1.00	13.00	1.30	1.00	
1308	0.75	45.50	1.40	1.00	2800.00	1.00	12.00	1.40	1.00	
1308.5	1.90	34.80	1.50	1.00	2800.00	1.00	12.00	1.40	1.00	
1309	0.60	54.10	0.50	1.00	2810.00	1.00	12.00	1.40	1.00	
1309.5	1224.00	9.40	83.70	1.11	2860.00	1.00	12.00	1.30	1.00	
1395	1805.00	17.80	73.70	1.18	3200.00	3.00	12.00	1.80	1.00	
1551	6.64	15.60	4.20	1.00	2500.00	1.00	13.00	1.60	1.00	

Peak-flow partial-record stations--Continued

Station number	Basin and climatic characteristics									
	Drainage area (square miles)	Main channel slope (feet per mile)	Main channel length (miles)	Lakes and ponds (percent)	Mean basin elevation (feet)	Forest cover (percent)	Mean annual precipitation (inches)	Precipitation intensity 2 yr-24 hr (inches)	Basin above 6,000 ft elevation (percent)	Soil storage index (inches)
6-1553	3.42	103.00	2.50	1.00	2480.00	1.00	13.00	1.60	1.00	
1723	11.10	51.70	11.70	1.00	2560.00	1.00	12.00	1.80	1.00	
1765	251.00	26.70	31.50	1.00	2570.00	1.00	13.00	1.60	1.00	
1770.5	12.40	53.70	8.90	1.00	2910.00	1.00	12.00	1.40	1.00	
1771	54.00	38.50	17.30	1.01	2910.00	1.00	12.00	1.40	1.00	
1771.5	216.00	12.20	22.90	1.01	2810.00	1.00	12.00	1.40	1.00	
1772	90.20	37.30	14.70	1.00	2980.00	1.00	12.00	1.40	1.00	
1773	0.29	80.00	1.00	1.00	2620.00	1.00	12.00	1.50	1.00	
1773.5	5.74	74.30	4.70	1.00	2840.00	1.00	12.00	1.50	1.00	
1774	29.90	33.30	13.20	1.00	2810.00	1.00	12.00	1.50	1.00	
1830	850.00	6.40	77.40	1.08	2460.00	1.00	12.00	1.80	1.00	
1831	9.40	38.90	4.80	1.00	2380.00	1.00	12.00	1.90	1.00	
1832	19.90	36.10	8.50	1.00	2330.00	1.00	12.00	1.90	1.00	
1833	7.05	88.20	4.50	1.00	2440.00	1.00	12.00	1.90	1.00	
1834	16.90	51.90	10.30	1.00	2330.00	1.00	12.00	1.90	1.00	
2162	8.14	88.20	2.20	1.00	3750.00	1.00	11.00	1.60	1.00	
2163	1.54	106.00	7.50	1.00	3990.00	1.00	12.00	1.60	1.00	
2950.5	614.00	7.20	67.00	1.27	2910.00	1.10	12.00	1.20	1.00	
2952	1.58	225.00	2.70	1.00	3610.00	100.00	14.00	1.50	1.00	
2960	1260.00	13.70	127.00	1.00	3610.00	42.00	14.00	1.50	1.00	
3069	36.30	15.80	12.70	1.00	4160.00	1.00	15.00	1.50	1.00	
3069.5	6.04	125.00	3.80	1.00	4230.00	1.00	15.00	1.50	1.00	
3082	0.14	71.40	0.90	1.00	2980.00	1.00	14.00	1.50	1.00	
3083	10.90	40.00	6.00	1.00	3060.00	2.70	14.00	1.50	1.00	
3247	10.60	48.00	5.00	1.00	3300.00	5.90	15.00	1.50	1.00	
3287	5.01	78.40	4.90	1.00	2250.00	1.00	13.00	1.60	1.00	
3329	0.68	76.90	1.80	1.00	3550.00	1.00	16.00	1.70	1.00	
3341	9.09	30.80	5.20	1.66	3710.00	1.00	16.00	1.80	1.00	
3342	123.00	12.80	20.80	1.29	3690.00	1.00	16.00	1.80	1.00	
3364.5	3.88	57.70	3.50	1.00	2900.00	1.00	14.00	1.60	1.00	
12-3005	112.00	87.60	18.30	1.01	4550.00	99.00	19.00	1.60	2.00	
3008	17.90	346.00	9.80	1.19	4940.00	98.00	19.00	1.70	31.00	
3017	1.11	1724.00	1.60	1.00	4320.00	100.00	22.00	1.50	1.00	
3018	6.04	788.00	4.20	1.00	4910.00	99.40	22.00	1.50	4.00	
3024	1.11	674.00	2.50	1.00	3760.00	100.00	21.00	1.60	1.00	
3042.5	2.61	578.00	3.10	1.00	4230.00	97.70	19.00	1.60	1.00	
3043	5.66	501.00	5.10	1.00	4730.00	96.50	19.00	1.60	4.00	
3044	7.70	501.00	5.10	1.00	4470.00	94.60	20.00	1.60	3.00	
3233	4.85	136.00	5.90	1.00	6060.00	25.10	12.00	1.20	56.00	
3247	4.61	292.00	4.80	1.00	4820.00	16.00	13.00	1.20	7.00	
3248	12.60	237.00	8.20	1.00	5430.00	61.00	13.00	1.40	20.00	
3399	7.47	598.00	6.30	1.00	5430.00	79.30	16.00	1.50	34.00	
3402	5.47	485.00	5.40	1.00	4860.00	89.70	15.00	1.50	16.00	
3443	6.28	412.00	5.00	1.00	5490.00	78.70	14.00	1.40	26.00	
3458	6.01	793.00	6.10	2.70	6820.00	64.10	21.00	2.10	81.00	
3485	22.40	551.00	7.50	1.00	6370.00	90.00	14.00	1.60	64.00	
3502	3.37	1011.00	3.50	1.00	6770.00	87.10	20.00	1.90	80.00	
3510	74.00	171.00	16.70	1.00	6570.00	83.80	14.00	1.60	71.00	
3514	20.60	302.00	8.30	1.00	5590.00	87.50	14.00	1.40	36.00	
3522	4.16	516.00	4.60	1.00	4540.00	80.00	14.00	1.50	4.00	
3534	8.02	580.00	4.30	1.00	4760.00	82.60	14.00	2.00	9.00	
3538	12.20	416.00	9.10	1.00	4720.00	87.80	23.00	2.30	14.00	
3538.5	2.72	590.00	3.40	1.00	4320.00	90.00	31.00	2.00	1.00	
3541	14.70	227.00	10.80	1.00	4870.00	90.00	34.00	2.00	3.00	
3560	8.09	321.00	5.40	1.00	5860.00	98.00	50.00	1.90	42.00	
3574	0.10	564.00	0.60	1.00	3600.00	80.00	30.00	1.80	1.00	
3639	6.18	958.00	3.70	1.20	4580.00	98.00	19.00	1.60	22.00	
3705	20.90	175.00	6.80	1.00	4370.00	95.00	16.00	1.70	1.00	
3709	2.55	900.00	4.10	1.20	5460.00	90.00	20.00	1.80	46.00	
3743	28.00	258.00	8.80	1.00	4570.00	94.20	12.00	1.80	3.00	
3757	3.29	543.00	3.70	1.00	4180.00	95.00	11.00	2.00	1.00	

Table A-5.—Summary of regression results

$$\left[\text{Model is } Y = a\, A^{b1}\, S^{b2}\, L^{b3}\, S_t^{b4} \left(\frac{E}{1000}\right)^{b5} F^{b6}\, P^{b7}\, I_{2,24}^{b8}\, E_{6000}^{b9}\, S_i^{b10}\right]$$

Region A

Flow characteristic	Regression constant	Exponent of basin characteristic										Standard error of estimate (percent)
		Drainage area	Main channel slope	Main channel length	Lakes and Ponds	Mean basin elevation	Forest cover	Mean annual precipitation	Precipitation intensity 2yr -24hr	Basin above 6,000 ft elevation	Soil storage index	
Y	a	A	S	L	S_t	E	F	P	$I_{2,24}$	E_{6000}	S_i	
Q_a	$3.44\text{x}10^{-4}$	0.900	-----	-----	-----	4.91	0.430	0.555	-----	-1.14	-----	31
SD_a	$2.21\text{x}10^{-4}$	.972	-----	-----	-----	1.56	.755	-----	1.11	-----	-----	34
q_1	$3.56\text{x}10^{-3}$	.821	-----	-----	-----	5.04	-----	-----	-----	-1.50	0.955	44
q_2	$1.09\text{x}10^{-2}$	.817	-----	-----	-----	4.61	-----	-----	-----	-1.58	1.04	45
q_3	$7.89\text{x}10^{-2}$	.823	-----	-----	-----	3.27	-----	-----	-----	-1.38	.978	43
q_4	$3.98\text{x}10^{-1}$	.897	-----	-----	-----	-----	-----	-----	-----	-----	.473	46
q_5	$2.20\text{x}10^{-3}$	.976	-----	-----	-----	1.59	.750	-----	.808	-----	-----	39
q_6	$1.14\text{x}10^{-4}$	1.00	-----	-----	-----	5.04	.703	-----	1.31	-.841	-----	42
q_7	$6.30\text{x}10^{-6}$	.947	-----	-----	-----	8.39	.542	-----	1.13	-1.65	-----	49
q_8	$8.41\text{x}10^{-7}$	.547	0.328	0.755	-----	6.77	-----	1.15	-----	-1.15	-----	44
q_9	$1.60\text{x}10^{-4}$	.766	-----	-----	-----	6.77	-----	1.01	-----	-1.85	.446	36
q_{10}	$1.04\text{x}10^{-3}$	.458	-----	.616	-----	5.33	-----	.645	-----	-1.58	.702	32
q_{11}	$2.16\text{x}10^{-3}$	.462	-----	.658	-----	4.43	-----	.587	-----	-1.41	.815	34
q_{12}	$1.89\text{x}10^{-3}$	.811	-----	-----	-----	4.52	-----	.617	-----	-1.41	.788	41
Average of standard errors of regression equations of monthly mean discharges												41
SD_1	$2.94\text{x}10^{-2}$	-----	-----	1.48	-----	2.70	-----	-----	-----	-1.36	.992	45
SD_2	$2.47\text{x}10^{-1}$	-----	-----	1.67	-----	-----	-----	-----	-----	-.837	1.20	64
SD_3	2.08	-----	-----	.985	-----	-----	-----	1.65	-----	-1.42	-----	94
SD_4	2.70	.804	-.306	-----	-----	-1.47	.655	-----	-----	-----	-----	52
SD_5	$3.22\text{x}10^{-3}$	.900	-----	-----	-----	1.36	.742	-----	-----	-----	-----	50
SD_6	$5.05\text{x}10^{-4}$	.983	-----	-----	-----	1.64	.878	-----	1.36	-----	-----	37
SD_7	$1.21\text{x}10^{-5}$	.973	-----	-----	-----	7.07	.604	-----	1.17	-1.48	-----	54
SD_8	$6.95\text{x}10^{-5}$	.353	-----	.917	-----	6.72	.366	.708	-----	-1.97	-----	39
SD_9	$1.53\text{x}10^{-3}$	.957	-----	-----	0.343	3.16	.534	-----	1.14	-1.06	-----	38
SD_{10}	$9.18\text{x}10^{-4}$	.431	-----	.944	-----	3.64	.591	-----	-----	-1.14	-----	42
SD_{11}	$1.42\text{x}10^{-2}$	-----	-.248	1.26	-----	4.21	.474	-----	-----	-1.69	.650	37
SD_{12}	$6.22\text{x}10^{-3}$	.899	-----	-----	-----	1.38	-----	-----	-----	-----	-----	53
Average of standard errors of regression equations of standard deviations of mean monthly discharges												50
$M_{7,2}$	$1.08\text{x}10^{-4}$	.805	-----	-----	-----	4.75	-----	.894	-----	-1.22	.980	47
$M_{7,10}$	$4.73\text{x}10^{-5}$	-----	-----	1.25	-----	7.10	-----	-----	-----	-1.97	2.00	77
$M_{7,20}$	$1.49\text{x}10^{-5}$	-----	-----	1.19	-----	7.73	-----	-----	-----	-2.06	2.20	89
$V_{3,2}$	$1.83\text{x}10^{-4}$	1.02	-----	-----	-----	3.10	.678	-----	1.62	-----	-----	47
$V_{3,10}$	$1.91\text{x}10^{-3}$	.969	-----	-----	-----	2.08	.780	-----	1.74	-----	-----	41
$V_{3,50}$	$7.60\text{x}10^{-2}$	.928	-----	-----	-----	2.03	-----	-----	1.96	-----	-----	72
$V_{7,2}$	$1.56\text{x}10^{-4}$	1.03	-----	-----	-----	3.11	.681	-----	1.60	-----	-----	46
$V_{7,10}$	$9.82\text{x}10^{-4}$	.986	-----	-----	-----	2.31	.797	-----	1.63	-----	-----	41
$V_{7,50}$	$2.10\text{x}10^{-3}$	1.01	-----	-----	-----	1.68	.943	-----	1.70	-----	-----	39

Table A-5.--Summary of regression results--Continued

Region A--Continued

Flow charac-teristic Y	Regression constant a	Exponent of basin characteristic: Drainage area A	Main channel slope S	Main channel length L	Lakes and ponds S_t	Mean basin elevation E	Forest cover F	Mean annual precipi-tation P	Precipi-tation intensity 2yr - 24hr $I_{2,24}$	Basin above 6,000 ft elevation E_{6000}	Soil storage index S_i	Standard error of estimate (percent)
Q_2 *	2.14	0.927	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1.93	- - - - -	- - - - -	56
Q_5 *	4.70	.889	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1.76	- - - - -	- - - - -	49
Q_{10}*	6.81	.873	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1.70	- - - - -	- - - - -	53
Q_{25}*	10.1	.861	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1.64	- - - - -	- - - - -	62
Q_{50}*	No meaningful equation derived.											
Q_2 **	3.09×10^{-4}	1.07	- - - - -	- - - - -	- - - - -	5.66	0.920	- - - - -	- - - - -	-1.38	- - - - -	59
Q_5 **	3.21×10^{-2}	1.11	- - - - -	- - - - -	- - - - -	- - - - -	.849	- - - - -	2.02	- - - - -	- - - - -	52
Q_{10}**	5.55×10^{-2}	1.07	- - - - -	- - - - -	- - - - -	- - - - -	.814	- - - - -	2.01	- - - - -	- - - - -	48
Q_{25}**	1.05×10^{-1}	1.01	- - - - -	- - - - -	- - - - -	- - - - -	.796	- - - - -	2.03	- - - - -	- - - - -	45
Q_{50}**	No meaningful equation derived.											

Region B

Flow charac-teristic Y	Regression constant a	Drainage area A	Main channel slope S	Main channel length L	Lakes and ponds S_t	Mean basin elevation E	Forest cover F	Mean annual precipi-tation P	Precipi-tation intensity 2yr - 24hr $I_{2,24}$	Basin above 6,000 ft elevation E_{6000}	Soil storage index S_i	Standard error of estimate (percent)
Q_a	5.22×10^{-2}	- - - - -	- - - - -	1.47	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	0.613	- - - - -	53
SD_a	3.60×10^{-2}	- - - - -	- - - - -	1.27	- - - - -	0.964	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	56
q_1	1.38×10^{-3}	0.747	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	4.06	.991	- - - - -	112
q_2	3.74×10^{-3}	- - - - -	0.608	1.68	-3.95	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	77
q_3	7.52×10^{-1}	- - - - -	- - - - -	1.19	-1.76	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	55
q_4	5.86×10^{-1}	- - - - -	- - - - -	1.73	- - - - -	- - - - -	-0.425	- - - - -	- - - - -	.717	- - - - -	99
q_5	3.48×10^{-5}	- - - - -	- - - - -	1.61	- - - - -	- - - - -	- - - - -	2.37	4.22	.590	-1.38	62
q_6	1.15×10^{-4}	- - - - -	- - - - -	1.60	- - - - -	- - - - -	- - - - -	2.68	- - - - -	.861	-1.00	56
q_7	2.86×10^{-4}	- - - - -	.349	1.84	- - - - -	-1.07	- - - - -	1.81	- - - - -	.774	-1.21	37
q_8	7.50×10^{-8}	1.39	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	3.57	5.00	.813	-2.72	85
q_9	6.50×10^{-7}	- - - - -	.869	2.76	- - - - -	- - - - -	- - - - -	- - - - -	9.27	- - - - -	-2.66	123
q_{10}	4.20×10^{-4}	1.34	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1.35	- - - - -	180
q_{11}	3.24×10^{-4}	1.08	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	4.17	.942	- - - - -	119
q_{12}	4.97×10^{-3}	.890	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1.28	- - - - -	115
Average of standard errors of regression equations of monthly mean discharges -												93
SD_1	1.96×10^{-5}	- - - - -	.874	1.78	- - - - -	- - - - -	- - - - -	- - - - -	3.63	- - - - -	- - - - -	112
SD_2	9.48×10^{-2}	- - - - -	- - - - -	1.39	-3.83	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	141
SD_3	8.53×10^{-6}	- - - - -	- - - - -	1.20	- - - - -	- - - - -	-.286	- - - - -	- - - - -	- - - - -	- - - - -	55
SD_4	1.24×10^{-1}	- - - - -	- - - - -	1.60	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	101
SD_5	7.89×10^{-4}	- - - - -	- - - - -	1.70	- - - - -	3.04	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	91
SD_6	2.70×10^{-3}	- - - - -	- - - - -	1.19	- - - - -	- - - - -	.583	- - - - -	- - - - -	- - - - -	-1.38	63
SD_7	6.20×10^{-1}	- - - - -	- - - - -	1.20	- - - - -	- - - - -	.300	- - - - -	- - - - -	- - - - -	-1.47	62
SD_8	8.26×10^{-5}	- - - - -	.703	2.34	- - - - -	- - - - -	- - - - -	- - - - -	4.42	- - - - -	-2.26	102
SD_9	7.43×10^{-6}	- - - - -	.662	2.54	- - - - -	- - - - -	- - - - -	- - - - -	6.65	- - - - -	-2.06	123
SD_{10}	3.31×10^{-4}	- - - - -	- - - - -	2.18	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	.956	- - - - -	158
SD_{11}	2.00×10^{-3}	- - - - -	- - - - -	1.67	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	.888	- - - - -	113
SD_{12}	2.04×10^{-3}	1.03	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	.972	- - - - -	91
Average of standard errors of regression equations of standard deviations of mean monthly discharges - - - - - - - - - -												101

Table A-5.--Summary of regression results--Continued

Region B--Continued

Flow characteristic Y	Regression constant a	Exponent of basin characteristic: Drainage area A	Main channel slope S	Main channel length L	Lakes and Ponds S_t	Mean basin elevation E	Forest cover F	Mean annual precipitation P	Precipitation intensity 2yr - 24hr $I_{2,24}$	Basin above 6,000 ft elevation E_{6000}	Soil storage index S_1	Standard error of estimate (percent)
$M_{7,2}$	No meaningful equation derived.											
$M_{7,10}$	No meaningful equation derived.											
$M_{7,20}$	No meaningful equation derived.											
$V_{3,2}$	4.07	-----	-----	1.22	-1.88	-----	-----	-----	-----	-----	-----	57
$V_{3,10}$	2.52	-----	-----	1.24	-1.69	1.75	-0.575	-----	-----	-----	-----	59
$V_{3,50}$	No meaningful equation derived.											
$V_{7,2}$	1.01	-----	-----	1.40	-----	-----	-----	-----	-----	0.288	-----	59
$V_{7,10}$	5.79×10^{-2}	-----	-----	1.50	-1.85	2.97	-.971	-----	2.60	-----	-----	56
$V_{7,50}$	No meaningful equation derived.											
Q_2 *	5.85×10	0.449	-0.466	-----	-----	-----	-----	-----	2.40	-----	-----	100
Q_5 *	2.16×10^2	-----	-.372	.804	-----	-----	-----	-----	-----	-----	-----	89
Q_{10} *	3.67×10^2	-----	-.365	.767	-----	-----	-----	-----	-----	-----	-----	88
Q_{25} *	6.93×10^2	-----	-.367	.729	-----	-----	-----	-----	-----	-----	-----	91
Q_{50} *	No meaningful equation derived.											
Q_2 **	9.71	-----	-----	1.13	-----	-----	-.197	-----	-----	-----	-----	71
Q_5 **	5.06×10	-----	-----	.961	-----	-----	-.265	-----	-----	-----	-----	63
Q_{10} **	1.11×10^2	-----	-----	.880	-----	-----	-.288	-----	-----	-----	-----	65
Q_{25} **	3.46×10^{-1}	.579	-----	-----	-----	-----	-.477	2.43	-----	-----	-----	84
Q_{50} **	No meaningful equation derived.											
Region C												
Qa	2.00×10^{-3}	0.937	-----	-----	0.406	-----	0.581	0.889	1.61	0.103	-----	27
SDa	2.09×10^{-2}	.971	-----	-----	-----	-----	-----	.671	1.18	-----	-----	31
q_1	1.79×10^{-3}	.995	-----	-----	.558	-----	.609	.447	1.73	-----	-----	31
q_2	6.32×10^{-3}	.971	-----	-----	.387	-0.852	.709	.409	2.02	-----	-----	35
q_3	4.67×10^{-2}	.969	-----	-----	.241	-1.24	.555	.370	1.51	-----	-----	33
q_4	1.75×10^{-2}	.951	-----	-----	-----	-1.58	.767	.990	1.47	-----	-----	34
q_5	3.63×10^{-3}	.924	-----	-----	-----	-----	.649	1.23	1.19	-----	-----	31
q_6	3.82×10^{-3}	.933	-----	-----	.426	-----	.580	.872	1.82	.243	-----	29
q_7	1.88×10^{-3}	.942	-----	-----	.836	-----	.456	.863	1.65	.279	-----	37
q_8	2.80×10^{-3}	.954	-----	-----	.986	1.43	-----	.857	-----	-----	-----	40
q_9	3.45×10^{-3}	.957	-----	-----	.924	1.25	-----	.814	-----	-----	-----	38
q_{10}	1.52×10^{-2}	.911	-----	-----	.668	-----	-----	1.02	-----	.160	-----	36
q_{11}	3.29×10^{-3}	.940	-----	-----	.550	-----	.444	.788	1.23	-----	-----	32
q_{12}	1.70×10^{-3}	.963	-----	-----	.480	-----	.604	.637	1.56	-----	-----	35
Average of standard errors of regression equations of monthly mean discharges												34
SD_1	1.25×10^{-1}	.937	-----	-----	.513	-2.02	-----	.705	2.59	-----	-----	60
SD_2	1.33×10^{-1}	.897	-----	-----	-----	-2.01	-----	1.31	-----	-----	-----	53
SD_3	1.24	.910	-----	-----	-----	-2.36	-----	.817	-----	-----	-----	50

Table A-5.--Summary of regression results--Continued

Region C--Continued

Flow Charac-teristic Y	Regression constant a	Exponent of basin characteristic: Drainage area A	Main channel slope S	Main channel length L	Lakes and Ponds S_t	Mean basin elevation E	Forest cover F	Mean annual precipi-tation P	Precipi-tation intensity 2yr - 24hr $I_{2,24}$	Basin above 6,000 ft elevation E_{6000}	Soil storage index S_i	Standard error or estimate (percent)
SD_4	1.07×10^{-2}	0.978	- - -	- - -	- - -	-1.49	0.669	0.927	1.62	- - -	- - -	38
SD_5	9.98×10^{-2}	.916	- - -	- - -	- - -	- - -	- - -	.935	- - -	- - -	- - -	32
SD_6	3.18×10^{-1}	.951	- - -	- - -	- - -	-1.47	- - -	.570	2.01	0.429	- - -	29
SD_7	4.82×10^{-3}	.979	- - -	- - -	0.631	- - -	- - -	.659	2.19	.410	- - -	49
SD_8	1.08×10^{-1}	.783	-0.302	- - -	.905	- - -	- - -	- - -	2.26	.357	- - -	40
SD_9	5.25×10^{-3}	.838	- - -	- - -	.788	- - -	- - -	1.02	- - -	.245	- - -	50
SD_{10}	3.17×10^{-3}	.848	- - -	- - -	.538	- - -	- - -	1.59	- - -	- - -	- - -	53
SD_{11}	1.22×10^{-4}	.966	- - -	- - -	.445	- - -	.521	1.13	2.77	- - -	- - -	44
SD_{12}	3.13×10^{-2}	.921	- - -	- - -	- - -	-1.65	- - -	1.24	2.05	- - -	- - -	53
Average of standard errors of regression equations of standard deviations of mean monthly discharges - - - - - - - - - -												46
$M_{7,2}$	9.10×10^{-4}	1.05	- - -	- - -	.397	- - -	.698	.591	- - -	- - -	- - -	44
$M_{7,10}$	6.00×10^{-4}	1.05	- - -	- - -	- - -	- - -	.625	.728	- - -	- - -	- - -	63
$M_{7,20}$	2.90×10^{-4}	1.06	- - -	- - -	- - -	- - -	.735	.735	- - -	- - -	- - -	71
$V_{3,2}$	7.05×10^{-3}	.901	- - -	- - -	- - -	- - -	.585	1.13	1.51	.159	- - -	28
$V_{3,10}$	2.73×10^{-1}	.914	- - -	- - -	- - -	- - -	- - -	.820	2.08	.154	- - -	28
$V_{3,50}$	4.02	.907	- - -	- - -	- - -	- - -	-.405	.680	2.86	- - -	- - -	25
$V_{7,2}$	4.38×10^{-3}	.906	- - -	- - -	- - -	- - -	.654	1.15	1.43	.164	- - -	28
$V_{7,10}$	2.43×10^{-1}	.920	- - -	- - -	- - -	- - -	- - -	.870	1.77	.144	- - -	26
$V_{7,50}$	3.54	.904	- - -	- - -	- - -	-1.35	- - -	.629	2.66	.226	- - -	19
Q_2 *	7.52×10^{-2}	.964	- - -	- - -	- - -	- - -	- - -	1.59	- - -	- - -	- - -	78
Q_5 *	2.76×10^{-1}	.881	- - -	- - -	- - -	- - -	- - -	1.40	- - -	- - -	- - -	76
Q_{10} *	5.40×10^{-1}	.841	- - -	- - -	- - -	- - -	- - -	1.30	- - -	- - -	- - -	80
Q_{25} *	1.14	.793	- - -	- - -	- - -	- - -	- - -	1.19	- - -	- - -	- - -	86
Q_{50} * No meaningful equation derived.												
Q_2 **	1.70×10^{-2}	.892	- - -	- - -	- - -	- - -	.502	1.10	1.23	.131	- - -	26
Q_5 **	3.46	.709	-.233	- - -	-.417	- - -	- - -	1.14	- - -	.114	- - -	26
Q_{10} **	8.48×10^{-1}	.832	- - -	- - -	-.298	- - -	- - -	.808	1.76	.128	- - -	29
Q_{25} **	1.90	.817	- - -	- - -	- - -	- - -	- - -	.453	2.59	.142	- - -	37
Q_{50} **	2.08×10	.546	- - -	- - -	- - -	-5.45	- - -	3.41	- - -	.864	- - -	64

* Use for drainage areas less than 100 sq mi.
** Use for drainage areas greater than 100 sq mi.

Table A-6.--Gaging stations in operation and proposed for the network

Column 1: B, benchmark or long-term-trend station.

Column 2: C, current-purpose station.

Columns 3-5: Purposes for which current-purpose station is operated; 1, assessment; 2, operation; 3, forecasting; 4, disposal; 5, water quality; 6, compact or legal; 7, research or special study.

Column 6: P, principal-stream station; H, hydrologic station except when classified as P; R, regulated stream; U, station not recommended.

Column 7: Effect of regulation on low and monthly flow for stations shown as C or R in column 2 or 6, respectively; blank, no appreciable effect; 1, no appreciable effect on daily flow (diurnal fluctuation only); 2, no appreciable effect on weekly low flow; 3, monthly flow not appreciably affected by diversion or affected not over 10 percent by regulation; 4, monthly flow affected but published data available to adjust to natural conditions with an error of less than 10 percent; 5, effect of regulation has not been evaluated; 6, effect on daily flow is more than 10 percent; 7, effect on weekly low flow is more than 10 percent; 8, monthly flow affected by more than 10 percent but data not available to adjust to natural conditions with an error of less than 10 percent; 9, effect varies with month or season.

Column 8: Effect of regulation on peak flow for stations shown as C or R in column 2 or 6, respectively; blank, no appreciable effect; 1, annual peak flow affected by less than 10 percent; 2, annual peak flow affected by more than 10 percent; 3, annual peak flow affected by undetermined amount.

Column 9: Financing of station; 1, U.S. Geological Survey; 2, U.S. Geological Survey in cooperation with State agency; 3, other federal agency; 4, combination of 1 and 2; 5, combination of 1 and 3; 6, combination of 2 and 3; 7, combination of 1, 2, and 3; 8, fully financed by non-federal agency.

Station number	Station name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5-0107	Mountain View Irrigation District Canal near Mountain View, Alberta	-	C	6	2	-	R	4	2	3
5-0110	Belly River near Mountain View, Alberta	-	C	6	2	1	R	2	1	3
5-0130	Waterton River near Waterton Park, Alberta	-	C	6	-	-	H	-	-	3
5-0139	Grinnell Creek at Grinnell Glacier, near Many Glacier	-	C	7	-	-	H	-	-	1
5-0140	Grinnell Creek near Many Glacier	-	C	7	-	-	H	-	-	1
5-0145	Swiftcurrent Creek at Many Glacier	B	C	3	-	-	H	-	-	1
5-0160	Swiftcurrent Creek at Sherburne	-	C	6	2	3	R	4	3	3
5-0175	St. Mary River near Babb	-	C	6	-	-	R	4	2	3
5-0185	St. Mary Canal at St. Mary Crossing, near Babb	-	C	6	2	-	R	6	2	3
5-0205	St. Mary River at international boundary	-	C	6	2	3	R	4	3	3
6-0154	Beaverhead River near Grant (Armstead)	-	C	2	3	-	R	8	3	3
6-0160	Beaverhead River at Barretts	-	C	2	5	3	R	8	3	2
6-0170	Beaverhead River at Dillon	-	C	2	-	-	R	8	3	3
6-0180	Beaverhead River near Dillon	-	C	2	-	-	R	8	3	3
6-0185	Beaverhead River near Twin Bridges (at Blaine)	-	C	2	5	-	R	8	3	2
6-0195	Ruby River above reservoir, near Alder	B	C	2	3	-	P	-	-	2
6-0206	Ruby River below reservoir, near Alder	-	C	2	-	-	R	4	3	2
6-0245	Trail Creek near Wisdom	-	-	-	-	-	H	-	-	2
6-0255	Big Hole River near Melrose	B	C	3	-	-	P	3	1	3
6-0260	Birch Creek near Glen	-	C	2	3	-	H	4	1	3
6-0265	Jefferson River near Twin Bridges	-	C	5	-	-	R	8	3	3
6-0330	Boulder River near Boulder	-	C	3	-	-	H	-	-	2
6-0350	Willow Creek near Harrison	-	C	2	-	-	R	8	3	2
6-0375	Madison River near West Yellowstone	-	-	-	-	-	H	-	-	1
6-0385	Madison River below Hebgen Lake, near Grayling	-	C	6	2	-	R	4	3	8
6-0400	Madison River near Cameron	-	-	-	-	-	U	8	3	-
6-0410	Madison River below Ennis Lake, near McAllister	-	C	8	2	-	R	8	3	8
6-0500	Hyalite Creek at Hyalite ranger station, near Bozeman	-	C	2	-	-	R	4	3	2
6-0525	Gallatin River at Logan	-	C	3	-	-	R	8	3	2
6-0545	Missouri River at Toston	-	C	1	3	-	R	8	3	2
6-0555	Crow Creek near Radersburg	-	C	7	-	-	H	-	-	2
6-0625	Tenmile Creek near Rimini	-	C	6	2	-	R	8	1	2
6-0665	Missouri River below Holter Dam, near Wolf Creek	-	C	6	2	-	R	8	3	8
6-0770	Sheep Creek near White Sulphur Springs	-	C	2	-	-	H	-	-	2
6-0782	Missouri River near Ulm	-	C	6	2	-	R	8	3	8
6-0809	Sun River below diversion dam, near Augusta	-	C	2	5	-	R	4	3	3
6-0822	Sun River below Willow Creek, near Augusta	-	C	2	-	-	R	8	3	3
6-0858	Sun River at Simms	-	C	2	-	-	R	8	3	3
6-0883	Muddy Creek near Vaughn	-	C	2	5	6	R	8	3	3
6-0890	Sun River near Vaughn	-	C	6	5	3	R	8	3	8
6-0903	Missouri River near Great Falls	-	C	6	2	-	R	8	3	8
6-0905	Belt Creek near Monarch	B	-	-	-	-	P	-	-	1
6-0908	Missouri River at Fort Benton	-	C	1	3	-	R	8	3	2
6-0920	Two Medicine River near Browning	-	C	2	3	-	R	4	1	3
6-0925	Badger Creek near Browning	B	C	2	3	-	H	-	-	3
6-0990	Cut Bank Creek at Cut Bank	-	C	2	-	-	R	5	1	3
6-0995	Marias River near Shelby	-	C	1	3	-	R	8	2	3
6-1015	Marias River near Chester	-	C	2	5	3	R	8	3	3
6-1020.5	Marias River near Loma	-	C	1	3	-	R	8	3	1
6-1080	Teton River near Dutton	-	C	1	3	-	R	8	3	1

Table A-6.--Gaging stations in operation and proposed for the network--Continued

Station number	Station name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6-1095	Missouri River at Virgelle	-	C	5	3	-	R	8	3	6
6-1098	South Fork Judith River near Utica	-	-	-	-	-	H	-	-	2
6-1100	Judith River near Utica	-	C	2	-	-	H	-	-	2
6-1152	Missouri River near Landusky	-	C	2	3	-	R	8	3	1
6-1155	North Fork Musselshell River near Delpine	B	C	2	-	-	H	-	-	2
6-1185	South Fork Musselshell River above Martinsdale	-	C	2	-	-	H	3	1	2
6-1205	Musselshell River at Harlowton	-	C	2	3	-	R	8	3	2
6-1235	Musselshell River near Ryegate	-	C	2	-	-	R	8	3	2
6-1257	Big Coulee near Lavina	-	C	7	-	-	H	-	-	2
6-1265	Musselshell River near Roundup	-	C	2	-	-	R	8	3	2
6-1275	Musselshell River at Musselshell	-	C	2	-	-	R	8	3	2
6-1290	Box Elder Creek near Winnett	-	-	-	-	-	P	3	1	2
6-1305	Musselshell River at Mosby	-	C	2	1	3	R	8	3	2
6-1320	Missouri River below Fort Peck Dam	-	C	2	1	3	R	8	3	1
6-1322	South Fork Milk River near Babb	-	C	6	2	-	H	-	-	3
6-1330	Milk River at western crossing of international boundary	-	C	6	2	-	H	-	-	3
6-1335	North Fork Milk River above St. Mary Canal, near Browning	-	C	6	2	-	H	-	-	3
6-1340	North Milk River near international boundary	-	C	6	2	-	R	4	2	3
6-1345	Milk River at Milk River, Alberta	-	C	6	2	3	R	8	3	3
6-1350	Milk River at eastern crossing of international boundary	-	C	6	2	3	R	8	3	3
6-1355	Sage Creek at Q Ranch, near Wild Horse, Alberta	-	C	6	-	-	R	8	3	3
6-1360	Sage Creek at international boundary	-	C	6	-	-	R	8	3	3
6-1405	Milk River at Havre	-	C	2	5	3	R	8	3	3
6-1455	Lodge Creek below McRae Creek, at international boundary	-	C	6	2	-	R	8	2	3
6-1495	Battle Creek at international boundary	-	C	6	2	-	R	8	3	3
6-1500	Woodpile Coulee near international boundary	-	C	6	-	-	H	-	-	3
6-1505	East Fork Battle Creek near international boundary	-	C	6	-	-	H	-	-	3
6-1510	Lyons Creek at international boundary	-	C	6	-	-	R	8	1	3
6-1544	Peoples Creek near Hays	-	C	7	-	-	H	3	1	3
6-1545	Peoples Creek near Dodson	-	C	7	-	-	H	3	1	3
6-1560	Whitewater Creek near international boundary	-	C	6	-	-	R	8	3	3
6-1640	Frenchman River at international boundary	-	C	6	2	-	R	8	3	3
6-1695	Rock Creek below Horse Creek, near international boundary	-	C	6	-	-	H	-	-	3
6-1700	McEachern Creek at international boundary	-	C	6	-	-	R	5	1	3
6-1702	Willow Creek near Hinsdale	-	C	7	-	-	H	-	-	2
6-1720	Milk River at Vandalia	-	C	5	2	3	R	8	3	3
6-1740	Willow Creek near Glasgow	-	C	7	-	-	R	8	3	3
6-1745	Milk River at Nashua	-	C	1	3	-	R	8	3	6
6-1770	Missouri River near Wolf Point	-	C	2	3	-	R	8	3	6
6-1775	Redwater River at Circle	B	-	-	-	-	P	-	-	2
6-1780	Middle Fork Poplar River at international boundary	-	C	6	-	-	H	-	-	3
6-1785	East Poplar River at international boundary	-	C	6	-	-	R	8	1	3
6-1825	Big Muddy Creek at Daleview	B	-	-	-	-	H	-	-	2
6-1855	Missouri River near Culbertson	-	C	1	5	3	R	8	3	3
6-1865	Yellowstone River at Yellowstone Lake Outlet, Yellowstone National Park	-	-	-	-	-	P	-	-	1
6-1910	Gardner River near Mammoth, Yellowstone National Park	-	-	-	-	-	H	-	-	1
6-1915	Yellowstone River at Corwin Springs	B	C	1	3	-	P	-	-	2
6-1925	Yellowstone River near Livingston	-	C	5	3	-	R	8	3	6
6-2000	Boulder River at Big Timber	-	C	3	-	-	R	6	1	3
6-2026	Stillwater River at Nye	-	C	5	-	-	R	3	1	2
6-2040.5	West Rosebud Creek near Roscoe	-	C	6	2	-	R	4	3	8
6-2050	Stillwater River near Absarokee	-	C	3	-	-	R	8	3	2
6-2075	Clarks Fork Yellowstone River near Belfry (at Chance)	-	C	5	3	-	R	8	3	2
6-2075.4	Silver Tip Creek near Belfry	-	C	5	-	-	H	-	-	3
6-2078	Bluewater Creek near Bridger	-	C	7	5	-	R	8	3	2
6-2088	Clarks Fork Yellowstone River near Silesia	-	C	6	-	-	R	8	3	2
6-2095	Rock Creek near Red Lodge	B	C	2	1	-	R	3	1	2
6-2110	Red Lodge Creek above Cooney Reservoir, near Boyd	-	C	2	-	-	R	8	3	2
6-2115	Willow Creek near Boyd	-	C	2	-	-	R	8	3	2
6-2125	Red Lodge Creek below Cooney Reservoir, near Boyd	-	C	2	-	-	R	8	3	2
6-2145	Yellowstone River at Billings	-	C	1	5	3	R	8	3	6
6-2150	Pryor Creek above Pryor	-	C	2	-	-	H	-	-	3
6-2155	Pryor Creek at Pryor	-	C	2	-	-	R	8	3	3
6-2177.5	Fly Creek at Pompeys Pillar	-	C	5	-	-	R	8	3	3
6-2870	Bighorn River near St. Xavier	-	C	2	5	3	R	8	3	3
6-2875	Soap Creek near St. Xavier	-	C	2	-	-	R	6	1	3
6-2880	Rotten Grass Creek near St. Xavier	-	C	2	-	-	R	6	1	3
6-2882	Beauvais Creek near St. Xavier	B	-	-	-	-	H	-	-	1
6-2889.6	Little Bighorn River near Parkman, Wyo.	-	C	7	-	-	H	-	-	3
6-2889.9	West Fork Little Bighorn River near Parkman, Wyo.	-	C	7	-	-	H	-	-	3

Table A-6.--Gaging stations in operation and proposed for the network--Continued

Station number	Station name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6-2890	Little Bighorn River at State line, near Wyola	-	C	7	2	-	H	-	-	3
6-2905	Little Bighorn River below Pass Creek, near Wyola	-	C	2	5	-	R	8	3	3
6-2915	Lodgegrass Creek above Willow Creek diversion, near Wyola	-	C	2	-	-	H	-	-	3
6-2940	Little Bighorn River near Hardin	-	C	6	5	3	R	8	3	2
6-2947	Bighorn River at Bighorn	-	C	6	5	1	R	8	3	2
6-3063	Tongue River at State line, near Decker	-	C	2	5	-	R	8	3	2
6-3075	Tongue River at Tongue River Dam, near Decker	-	C	2	-	-	R	8	3	2
6-3078	Tongue River near Ashland	-	C	2	-	-	R	8	3	2
6-3085	Tongue River at Miles City	-	C	6	5	3	R	8	3	2
6-3090	Yellowstone River at Miles City	-	C	5	3	-	R	8	3	6
6-3245	Powder River at Moorhead	-	C	3	-	-	R	8	3	2
6-3255	Little Powder River near Broadus	B	-	-	-	-	P	-	-	2
6-3265	Powder River near Locate	-	C	6	1	3	R	8	3	6
6-3295	Yellowstone River near Sidney	-	C	1	5	3	R	8	3	6
6-3346.3	Box Elder Creek near Webster	-	-	-	-	-	P	8	1	2
12-3000	Kootenay River at Newgate, British Columbia	-	C	6	7	1	P	-	-	3
12-3013	Tobacco River near Eureka	-	C	7	2	-	R	8	1	3
12-3015	Kootenai River near Rexford	-	C	7	5	-	R	3	1	3
12-3018.5	Kootenai River at Warland Bridge, near Libby	-	C	7	5	-	R	3	1	3
12-3019.99	Wolf Creek near Libby	-	C	7	5	-	H	-	-	3
12-3020.55	Fisher River near Libby	-	C	7	5	-	P	-	-	3
12-3030	Kootenai River at Libby	-	C	1	3	-	R	3	1	3
12-3031	Flower Creek near Libby	-	C	6	2	-	H	-	-	2
12-3045	Yaak River near Troy	-	C	3	-	-	P	-	-	3
12-3241	Racetrack Creek below Granite Creek, near Anaconda	-	-	-	-	-	H	-	-	2
12-3255	Flint Creek near Southern Cross	-	C	6	2	-	R	8	3	8
12-3295	Flint Creek at Maxville	-	C	2	-	-	R	8	3	2
12-3300	Boulder Creek at Maxville	-	C	2	-	-	H	-	-	2
12-3320	Middle Fork Rock Creek near Philipsburg	-	C	7	-	-	H	-	-	2
12-3346	Blackfoot River near Lincoln	-	C	5	-	-	H	-	-	2
12-3355	Nevada Creek above reservoir, near Finn	-	C	2	-	-	H	-	-	2
12-3400	Blackfoot River near Bonner	B	C	3	-	-	P	3	1	2
12-3405	Clark Fork above Missoula	-	C	3	-	-	R	8	3	2
12-3425	West Fork Bitterroot River near Conner	-	C	2	-	-	H	4	3	2
12-3434	East Fork Bitterroot River near Conner	-	C	7	-	-	H	-	-	2
12-3440	Bitterroot River near Darby	-	C	3	-	-	P	4	3	2
12-3465	Skalkaho Creek near Hamilton	-	C	7	-	-	H	-	-	2
12-3530	Clark Fork below Missoula	-	C	3	-	-	R	8	3	2
12-3540	St. Regis River near St. Regis	-	C	3	-	-	H	-	-	2
12-3545	Clark Fork at St. Regis	-	C	2	3	-	R	8	3	1
12-3550	Flathead River at Flathead, British Columbia	-	C	6	1	-	H	-	-	3
12-3555	Flathead River near Columbia Falls	B	-	-	-	-	P	-	-	1
12-3585	Middle Fork Flathead River near West Glacier	-	C	2	1	3	P	-	-	3
12-3598	South Fork Flathead River above Twin Creek, near Hungry Horse	-	C	2	-	-	P	-	-	3
12-3610	Sullivan Creek near Hungry Horse	-	C	2	-	-	H	-	-	3
12-3619.5	Hungry Horse Creek near Hungry Horse	-	-	-	-	-	U	-	-	-
12-3625	South Fork Flathead River near Columbia Falls	-	C	2	3	-	R	4	3	3
12-3630	Flathead River at Columbia Falls	-	C	2	3	-	R	4	3	8
12-3700	Swan River near Bigfork	-	C	7	3	-	P	-	-	3
12-3720	Flathead River near Polson	-	C	6	2	3	R	4	3	8
12-3890	Clark Fork near Plains	-	C	6	2	3	R	8	3	8
12-3895	Thompson River near Thompson Falls	-	C	6	2	-	P	-	-	8
12-3907	Prospect Creek at Thompson Falls	-	C	6	2	3	H	-	-	8
12-3914	Clark Fork below Noxon Rapids Dam, near Noxon	-	C	6	2	-	R	8	3	8