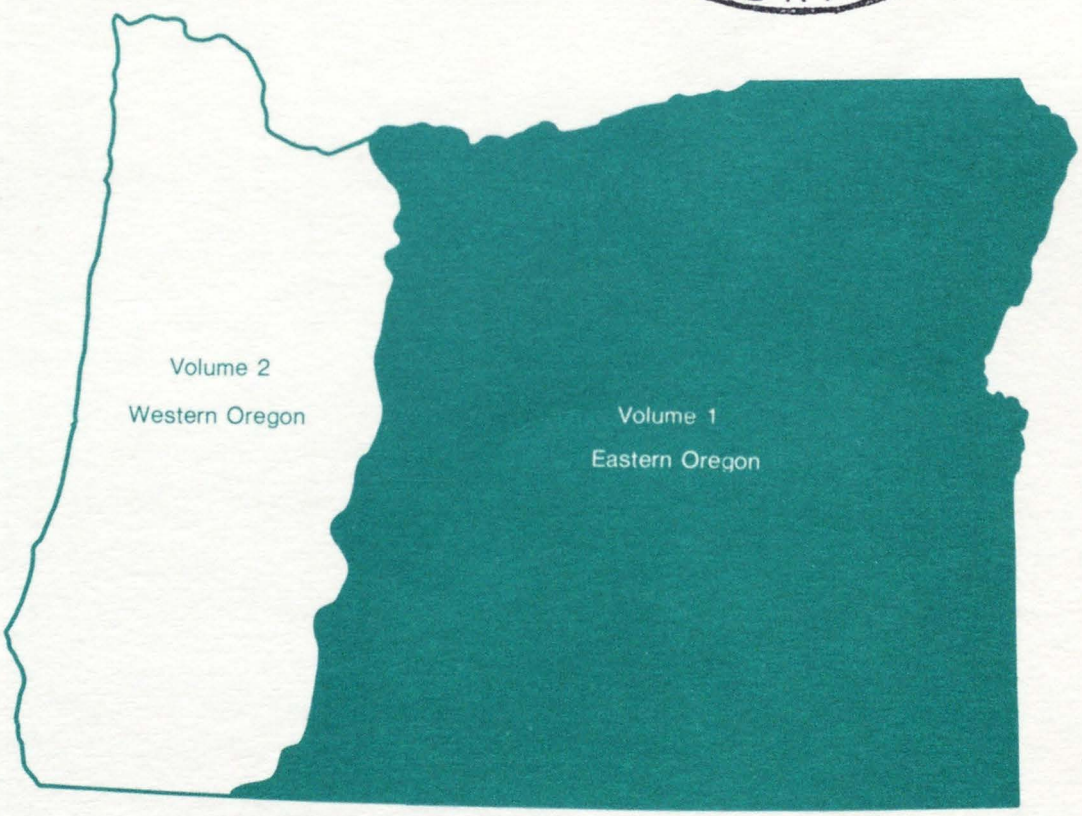
Water Resources Data Oregon Water Year 1985

Volume 1. Eastern Oregon



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-85-1
Prepared in cooperation with the Oregon Water Resources Department and with other agencies

CALENDAR FOR WATER YEAR 1985

1984

OCTOBER

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1985

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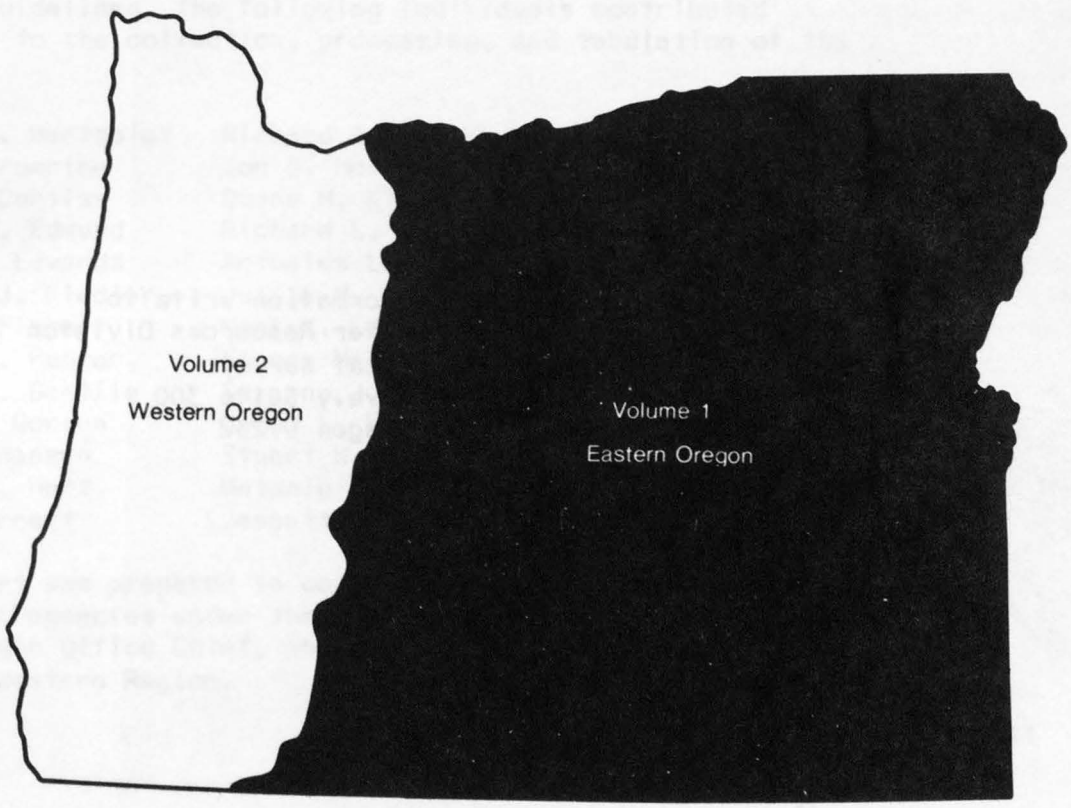
Water Resources Data Oregon Water Year 1985

Volume 1. Eastern Oregon

by C.W. Alexander, R.L. Moffatt, P.R. Boucher, and M.L. Smith



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-85-1
Prepared in cooperation with the Oregon Water Resources Department and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to
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1987

PREFACE

This volume of the annual Oregon hydrologic data report is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Oregon are contained in two volumes as follows:

Volume 1: Eastern Oregon
Volume 2: Western Oregon

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who edited and assembled the reports. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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This report was prepared in cooperation with the State of Oregon and with other agencies under the general supervision of Marvin O. Fretwell, Oregon Office Chief, and T. John Conomos, Regional Hydrologist, Western Region.

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15. Supplementary Notes

Prepared in cooperation with the State of Oregon and with other agencies.

16. Abstract (Limit: 200 words)

Water Resources Data for the 1985 water year for Oregon consist of records of stage, discharge, and water quality of streams; and stage, contents, and water quality of lakes and reservoirs. This report, in two volumes, contains discharge records for 259 gaging stations; stage only records for 10 gaging stations; stage and contents for 37 lakes and reservoirs; water quality for 82 stations, and water quality for 3 precipitation stations. Also included are 5 crest-stage, partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Oregon.

17. Document Analysis a. Descriptors

*Oregon, *Hydrologic Data, *Surface water, *Water quality, *Gaging stations, Flow rate Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Sampling sites, Water levels, Water analyses.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statemen: No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 218
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(See ANSI-Z39.18) See Instructions on Reverse OPTIONAL FORM 272 (Formerly NTIS-35) Department of Comm

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TABLES

Letter after station name designates type of data: (d) discharge; (e) elevation; (g) gage height; (v) contents; (c) chemical, including periodic biological, microbiological, sediment, pesticide, and radiochemical where applicable; (s) daily suspended sediment; (t) water temperature; and (k) specific conductance.

WATER RESOURCES DATA FOR OREGON 1985

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with state agencies, obtains a large amount of data pertaining to the water resources of Oregon each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Oregon."

This report includes records on surface water in the State. Specifically, it contains: (1) Discharge records for 259 stream-gaging stations, stage only records for 10 gaging stations, 98 partial-record or miscellaneous streamflow stations, and 5 crest-stage, partial-record streamflow stations; (2) stage and content records for 37 lakes and reservoirs; and (3) water-quality records for 70 streamflow-gaging stations and 12 ungaged streamsites.

This series of annual reports for Oregon began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one or two volumes, data on quantities of surface water, quality of surface and ground water, and ground-water levels. In 1981, the annual report was divided into two volumes: Volume 1 described the activities for Western Oregon, while Volume 2 described the activities for Eastern Oregon. Beginning with the 1985 water year, presentation of ground-water levels in this report was discontinued.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Oregon were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 10, 11, 13, and 14." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Distribution Branch, Text Products Section, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

Publications similar to this report are published annually by the Geological Survey for all states. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report OR-85-1" and "U.S. Geological Survey Water-Data Report OR-85-2." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on back of title page or by telephone (503) 231-2009.

COOPERATION

The U.S. Geological Survey and organizations of the State of Oregon have had cooperative agreements for the systematic collection of surface-water records since 1905. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Oregon Water Resources Department, William F. Young, Director.
Oregon Department of Fish and Wildlife, Jerry Bauer, Director.
Coos Bay-North Bend Water Board, P. Matson, General Manager.
Eugene Water and Electric Board, Jean Reader, General Manager.
Douglas County, John Youngquist, Coordinator.
City of McMinnville, A. H. Jones, General Manager.
City of Portland, Bureau of Water Works, Edward Tenny, Administrator.
The Confederated Tribes of the Umatilla Indian Reservation,
E. H. Patawa, Chairman of the General Council.
The Confederated Tribes of the Warm Springs Indian Reservation,
D. McClelland, Control Manager.

Assistance in the form of funds or services was provided by the Forest Service, U.S. Department of Agriculture; Corps of Engineers, U.S. Army; Bonneville Power Administration, U.S. Department of Energy; Bureau of Land Management, Bureau of Reclamation, Fish and Wildlife Service, National Park Service, U.S. Department of the Interior in collection of records for stage and discharge stations and water-quality stations published in this report.

The following organizations aided in collecting records for stations under Federal Energy Regulatory Commission licenses: Eugene Water & Electric Board; Pacific Power & Light Co.; Portland General Electric Co.; Idaho Power Co., Idaho.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

The hydrology of Oregon is influenced by five mountain ranges with the Cascade Range providing a natural division between western and eastern Oregon. These ranges divide the state into drainage basins and greatly affect the distribution of precipitation. Hydrologic patterns are generally uniform from drainage basin to drainage basin throughout western Oregon; whereas in eastern Oregon, hydrologic patterns vary widely between drainage basins.

Western Oregon, which composes about one-third of the total area of the state, has a climate characterized by moderate temperatures, wet winters, and dry summers. About 80 percent of the precipitation occurs between October and March. Annual precipitation ranges from about 20 inches per year in the lower elevations in the southern part of the area to about 200 inches per year in the Coast and Cascade Ranges. In general, streamflow characteristics are similar, with most of the runoff and flooding on both large and small streams being caused by winter rains. Major floods have occurred when winter rains combine with melting snow.

Eastern Oregon has more complex hydrologic patterns than western Oregon. Precipitation is less than 10 inches per year in the semiarid regions, such as parts of the north-central area, the closed basin in south-central Oregon, and southeastern Oregon. The northeastern part of the state receives as much as 80 inches of precipitation per year, much of it occurring as snowfall. On large streams, flooding can result from winter rains and (or) seasonal snowmelt; in smaller drainage basins, flooding can result from winter rains, seasonal snowmelt, and convection storms.

Surface-water Conditions

Precipitation for water year 1985 was subnormal with accumulations ranging from 78 percent across the Umatilla-Lower John Day Basins and up to 95 percent across the Willamette, Klamath, and Hood-Lower Deschutes Basins. Very heavy precipitation fell during October and November and was followed by mostly subnormal months except for a very wet finish in September. Early snowpack accumulation across Oregon accelerated through January 1, but then the less-than-normal accumulation rates persisted through April 1 and lowered snow water content percentages.

The cooler-than-normal temperatures for the year greatly helped to conserve the high snow water content during the very dry period of January 1 through April 1. Very warm April temperatures removed most of the lower valley snowcover by mid-month. The remaining warm melt season was slowed by alternate cold periods. (Precipitation and temperature summary furnished by the National Weather Service.)

Runoff during the 1985 water year was near normal at most of the gaging stations in Oregon (Table 1).

Table 1.--Comparison of mean discharge for the 1985 water year with mean discharge for the period of record at long-term stations

Station number	Station name	Drainage area (mi^2)	Length of record (yrs)	Mean discharge 1985 water year (ft^3/s)	Long-term mean discharge (ft^3/s)	Percent of average	Maximum annual mean discharge period of record year	Maximum annual mean discharge period of record ft^3/s
10396000	Donner und Blitzen River near Frenchglenn	a200	55	131	128	102	1984	273
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	68	1,161	1,059	110	1956	2,187
13181000	Owyhee River near Rome	a8,000	36	899	1,016	88	1984	3,400
13214000	Malheur River near Drewsey	a910	59	182	194	94	1984	474
13331500	Minam River at Minam	a240	21	412	479	86	1974	713
14048000	John Day River at McDonald Ferry	a7,580	80	2,429	2,102	116	1984	4,724
14137000	Sandy River near Marmot	262	74	1,250	1,368	91	1974	1,933
14178000	North Santiam River below Boulder Creek, near Detroit	216	59	1,015	1,010	100	1974	1,506
14301000	Nehalem River near Foss	667	46	2,062	2,721	76	1974	4,235
14321000	Umpqua River near Elkton	3,683	80	6,964	7,541	92	1984	10,030
14325000	South Fork Coquille River at Powers	169	66	669	795	84	1974	1,374

a Approximately.

There were no extreme flood events during the 1985 water year. The snowmelt peaks at a few stations during April reached an exceedance probability of .20 but there was no flooding.

Peak discharges for representative gages are shown in Table 2.

Table 2.--Comparison of peak discharge for the 1985 water year with peak discharge for the period of record at long-term stations

Station number	Station name	Drainage area (mi^2)	Peak discharge 1985 water year Date	Peak discharge 1985 water year ft^3/s	Exceedance probability	Peak discharge period of record Date	Peak discharge period of record ft^3/s
10396000	Donner und Blitzen River near Frenchglenn	a200	4-01	1,210	.50	4-26-78	4,270
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	4-10	4,000	.20	12-26-64	16,100
13181000	Owyhee River near Rome	a8,000	4-04	11,800	---	12-24-64	33,500
13214000	Malheur River near Drewsey	a910	4-06	1,450	.50	12-23-64	12,000
13331500	Minam River at Minam	a240	5-24	2,750	.50	6-16-74	6,260
14048000	John Day River at McDonald Ferry	a7,580	4-12	14,600	.20	12-24-64	42,800
14137000	Sandy River near Marmot	262	11-03	11,700	.50	12-22-64	61,400
14178000	North Santiam River below Boulder Creek, near Detroit	216	11-03	6,920	.50	12-22-64	26,700
14301000	Nehalem River near Foss	667	11-29	17,700	.80	1-20-72	46,900
14321000	Umpqua River near Elkton	3,683	11-28	79,400	.50	12-23-64	265,000
14325000	South Fork Coquille River at Powers	169	11-27	10,500	.80	12-22-64	48,900

a Approximately.

NOTE.--Exceedance probability refers to the probability that an event will exceed a specific magnitude in a given time period. A flow of 200 ft^3/s with an exceedance probability of 0.5 means that there is a 50 percent chance that the flow will exceed 200 ft^3/s in any one year.

No periods of record low flows were observed during the 1985 water year. The minimum streamflows for representative gages are shown in Table 3.

Table 3.--Comparison of minimum daily discharge for the 1985 water year with minimum discharge for the period of record at long-term stations

Station number	Station name	Drainage area (sq.mi.)	Minimum daily discharge		Non-exceedance probability	Instantaneous discharge			
			Date	ft^3/s		Minimum 1985 Date	Minimum 1985 ft^3/s	Period of record Date	Period of record ft^3/s
10396000	Donner und Blitzen River near Frenchglenn	a200	2-04	45	.50	1-01	39	12-09-72	4.2
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	7-19	509	.50	7-19	502	10-14-20	320
13181000	Owyhee River near Rome	a8,000	8-22	139	.50	9-01	135	several days	42
13214000	Malheur River near Drewsey	a910	7-25	3.8	---	7-25	3.6	many days	0
13331500	Minam River at Minam	a240	1-02	35	.20	1-02	35	12-06-72	10
14048000	John Day River at McDonald Ferry	a7,580	8-30	202	.50	9-29	193	many days	0
14137000	Sandy River near Marmot	262	8-31	314	.50	8-31	306	10-27-52	195
14178000	North Santiam River below Boulder Creek, near Detroit	216	9-30	427	.50	9-29	423	9-13-09	250
14301000	Nehalem River near Foss	667	8-29	93	.50	8-29	91	8-29-67	34
14321000	Umpqua River near Elkton	3,683	8-28	1,030	.50	8-18	1,020	7-18-26	640
14325000	South Fork Coquille River at Powers	169	10-07	24	.50	10-07	23	several days	12

a Approximately.

NOTE.--Non-exceedance probability refers to the probability that an event will not exceed a specific magnitude in a given time period. A flow of 12 ft^3/s with a non-exceedance probability of 0.50 means there is a 50 percent chance that the flow will be less than 12 ft^3/s in any one year.

SPECIAL NETWORKS AND PROGRAMS

HYDROLOGIC BENCH-MARK NETWORK is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

NATIONAL STREAM QUALITY ACCOUNTING NETWORK (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

THE NATIONAL TRENDS NETWORK (NTN) is a 150 station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gasses. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

RADIOCHEMICAL PROGRAM is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

TRITIUM NETWORK is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1985 water year that began October 1, 1984, and ended September 30, 1985. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The locations of the stations where the data were collected are shown in figures 1 and 2. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The two systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for surface-water stations where only miscellaneous measurements are made.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 14105700, which appears just to the left of the station name, includes the two-digit Part number "14" plus the six-digit downstream-order number "105700." The Part number designates the major river basin; for example, part "14" refers to the Pacific slope basins in Oregon and lower Columbia River basin.

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relations between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey that are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurments, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations an acoustic velocity meter (AVM) is used instead of the slope method. The AVM measures both water-surface elevation and velocity from which discharge can be computed directly.

In computing records of lake or reservoir contents, it is necessary to have information available from surveys, curves, or tables that define the relation of stage to content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Discharges over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the validity of the recorded gage height is so questionable that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages are based on information developed by the Hydraulics and Hydrology Committee of the Pacific Northwest River Basins Commission.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means the instantaneous maximum discharge was revised; "(m)" the instantaneous minimum was revised; and "(P)" the peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see "DEFINITION OF TERMS"), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, special methods of computation, conditions that affect natural flow at the station and, possibly, other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the Oregon office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual state data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

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

The accuracy attributed to the records is indicated under the "REMARKS" paragraph. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft^3/s; the nearest tenth between 1.0 and 10 ft^3/s; whole numbers between 10 and 1,000 ft^3/s; and 3 significant figures for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff because of the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation, or other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, changes in contents of reservoirs, or other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Monthly records for several ungaged sites are given in a separate section following the gaged sites. The accuracy of records for ungaged sites is generally lower than that for gaged sites, depending on the precision of the computation method and the accuracy of data used in the computations.

For most gaging stations, unpublished, detailed information, on file in the Oregon office, includes discharge measurements, gage-height records, and rating tables. Many gaging-station records in Oregon through 1967 have been analyzed to determine several statistical summaries: (1) The number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year.

Other Federal and State agencies have collected discharge data at other sites in Oregon during the current water year. Although these records have not been published by the U.S. Geological Survey, the National Water Data Exchange, NAWDEX, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of these sites and will furnish information about them.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A CONTINUING-RECORD STATION is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A PARTIAL-RECORD STATION is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A MISCELLANEOUS sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 2.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, it is important that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, treating the samples to prevent changes in quality pending analysis, and shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," (TWRI), Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" in this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey Oregon office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see "DEFINITION OF TERMS") are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean valueq for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey office whose address is given on the back of the title page of this report.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Oregon office.

Sediment

Suspended-sediment concentrations are determined from samples collected by one of the standard sampling techniques discussed in TWRI, Book 3, Chapter C2, "Field methods for measurement of fluvial sediment." Samples are obtained using standard depth- or point-integrating samplers, or by means of an approved pumping sampler. Mean concentrations for the sampled cross section are in turn determined from these samples.

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

At other stations, suspended-sediment samples were collected periodically. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, periodic measurements of particle-size distributions for the suspended-sediment, bed-load, and bed-material samples are included for stations where samples were obtained to measure this parameter.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for identification of biological populations, samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological. Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
E	Estimated value
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's District offices (see address given on the back of the title page).

General Inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

DEFINITION OF TERMS

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

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

ADENOSINE TRIPHOSPHATE (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

ALGAE are mostly aquatic single-celled, colonial, or multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

ALGAL GROWTH POTENTIAL (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

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

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

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

TOTAL COLIFORM BACTERIA are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters (mL) of sample.

FECAL COLIFORM BACTERIA are bacteria that are present in the intestine or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

FECAL STREPTOCOCCAL BACTERIA are bacteria found also in the intestine of warmblooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

BED MATERIAL is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

BIOCHEMICAL OXYGEN DEMAND (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

BIOMASS is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

ASH MASS is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnance at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

DRY MASS refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

ORGANIC MASS or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash and dry mass.

WET MASS is the mass of living matter plus contained water.

BOTTOM MATERIAL: See Bed material.

CELLS/VOLUME refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

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

CHLOROPHYLL refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

COLOR UNIT is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

CONTENTS is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

CONTROL designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

CONTROL STRUCTURE as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

CUBIC FOOT PER SECOND (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

CUBIC FOOT PER SECOND-DAY [$(ft^3/s)/d$] is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

CUBIC FEET PER SECOND PER SQUARE MILE [$(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

DISCHARGE is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

MEAN DISCHARGE (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

INSTANTANEOUS DISCHARGE is the discharge at a particular instant of time.

DISSOLVED refers to that material in a representative water sample which passes through a 0.45-um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

DISSOLVED-SOLIDS CONCENTRATION of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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

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

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

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

HARDNESS of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO3).

HYDROLOGIC BENCH-MARK NETWORK is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

HYDROLOGIC UNIT is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Offoce of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

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

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

METAMORPHIC STAGE refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

METHYLENE BLUE ACTIVE SUBSTANCES (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

MICROGRAMS PER GRAM (ug/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

MICROGRAMS PER LITER (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

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

NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

NATIONAL STREAM QUALITY ACCOUNTING NETWORK (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

NATIONAL TRENDS NETWORK (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

ORGANISM is any living entity.

ORGANISM COUNT/AREA refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

ORGANISM COUNT/VOLUME refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

TOTAL ORGANISM COUNT is the total number of organisms collected and enumerated in any particular sample.

PARAMETER CODE is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

PARTIAL-RECORD STATION is a particular site where limited streamflow and (or) water-quality data are collected systematically over a period of years for use in hydrologic analyses.

PARTICLE SIZE is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

PARTICLE-SIZE CLASSIFICATION used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

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

PERCENT COMPOSITION is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population in terms of types, numbers, mass, or volume.

PERIPHYTON is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

PESTICIDES are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

PICOCURIE (PC, pCi) is one trillionth (1 x 10E-12) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7 x 10E+10 radioactive disintegrations per second. A picocurie yields 2.22 disintegrations per minute (dpm).

PLANKTON is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

PHYTOPLANKTON is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

BLUE-GREEN ALGAE are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

DIATOMS are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

GREEN ALGAE have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

ZOOPLANKTON is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

PRIMARY PRODUCTIVITY is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

MILLIGRAMS OF CARBON PER AREA OR VOLUME PER UNIT TIME [(mg C/m^2)/time] FOR PERIPHYTON AND MACROPHYTES AND [(mg C/m^3)/time] FOR PHYTOPLANKTON are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

MILLIGRAMS OF OXYGEN PER AREA OR VOLUME PER UNIT TIME [(mg $O2/m^2$)/time] PERIPHYTON AND MACROPHYTES AND [(mg $O2/m^3$)/time] FOR PHYTOPLANKTON are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

RADIOCHEMICAL PROGRAM is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

RECOVERABLE FROM BOTTOM MATERIAL is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

RETURN PERIOD is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

RUNOFF IN INCHES (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

SEDIMENT is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

BED LOAD is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed very close to the bed surface. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

BED LOAD DISCHARGE (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

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

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

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

SUSPENDED-SEDIMENT DISCHARGE (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

SUSPENDED-SEDIMENT LOAD is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

TOTAL-SEDIMENT DISCHARGE (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

TOTAL-SEDIMENT LOAD or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

SEVEN-DAY 10-YEAR LOW FLOW (7 Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

SODIUM-ADSORPTION-RATIO (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

SOLUTE is any substance that is dissolved in water.

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

STAGE-DISCHARGE RELATION is the relation between gage height (stage) and the volume of water, per unit of time, flowing in a channel.

STREAMFLOW is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

SUBSTRATE is the physical surface upon which an organism lives.

NATURAL SUBSTRATE refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

ARTIFICIAL SUBSTRATE is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

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

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

SUSPENDED (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-um filter.

SUSPENDED, RECOVERABLE is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45-um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

SUSPENDED, TOTAL is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45-um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

TAXONOMY is the division of biology concerned with the classification and naming of organisms. The classificiation of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

THERMOGRAPH is an instrument that continuously records variations of temperature on a chart. The more general term "termperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

TIME-WEIGHTED AVERAGE is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

TONS PER ACRE-FOOT indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

TONS PER DAY (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

TOTAL is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

TOTAL DISCHARGE is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

TOTAL, RECOVERABLE is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To ahieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

TRITIUM NETWORK is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

WATER YEAR in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

WEIGHTED AVERAGE is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Forty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. WATER TEMPERATURE-INFLUENTIAL FACTORS, FIELD MEASUREMENT, AND DATA PRESENTATION, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI, Book 1, Chapter D1. 1975. 65 pages.

1-D2. GUIDELINES FOR COLLECTION AND FIELD ANALYSIS OF GROUND-WATER SAMPLES FOR SELECTED UNSTABLE CONSTITUENTS, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. APPLICATION OF SURFACE GEOPHYSICS TO GROUND-WATER INVESTIGATIONS, by A. A. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. APPLICATION OF BOREHOLE GEOPHYSICS TO WATER-RESOURCES INVESTIGATIONS, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. GENERAL FIELD AND OFFICE PROCEDURES FOR INDIRECT DISCHARGE MEASUREMENTS, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. MEASUREMENT OF PEAK DISCHARGE BY THE SLOPE-AREA METHOD, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. MEASUREMENT OF PEAK DISCHARGE AT CULVERTS BY INDIRECT METHODS, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. MEASUREMENT OF PEAK DISCHARGE AT WIDTH CONTRACTIONS BY INDIRECT METHODS, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. MEASUREMENT OF PEAK DISCHARGE AT DAMS BY INDIRECT METHODS, by Harry Hulsing: USGS-TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. GENERAL PROCEDURE FOR GAGING STREAMS, by R. W. Carter and Jacob Davidian: USGS.--TWRI Book 3, Chapter A6, 1968. 13 pages.

3-A7. STAGE MEASUREMENTS AT GAGING STATIONS, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

3-A8. DISCHARGE MEASUREMENTS AT GAGING STATIONS, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. MEASUREMENT OF TIME OF TRAVEL AND DISPERSION IN STREAMS BY DYE TRACING, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A10. DISCHARGE RATINGS AT GAGING STATIONS, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. MEASUREMENT OF DISCHARGE BY MOVING-BOAT METHOD, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A13. COMPUTATION OF CONTINUOUS RECORDS OF STREAMFLOW, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. USE OF FLUMES IN MEASURING DISCHARGE, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. COMPUTATION OF WATER-SURFACE PROFILES IN OPEN CHANNELS, by Jacob Davidian. 1984. 48 pages.

3-B1. AQUIFER-TEST DESIGN, OBSERVATION, AND DATA ANALYSIS, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. INTRODUCTION TO GROUND-WATER HYDRAULICS, A PROGRAMED TEXT FOR SELF-INSTRUCTION, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. TYPE CURVES FOR SELECTED PROBLEMS OF FLOW TO WELLS IN CONFINED AQUIFERS, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-C1. FLUVIAL SEDIMENT CONCEPTS, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. FIELD METHODS FOR MEASUREMENT OF FLUVIAL SEDIMENT, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. COMPUTATION OF FLUVIAL-SEDIMENT DISCHARGE, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. SOME STATISTICAL TOOLS IN HYDROLOGY, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. FREQUENCY CURVES, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. LOW-FLOW INVESTIGATIONS, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. STORAGE ANALYSES FOR WATER SUPPLY, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. REGIONAL ANALYSES OF STREAMFLOW CHARACTERISTICS, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. COMPUTATION OF RATE AND VOLUME OF STREAM DEPLETION BY WELLS, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. METHODS FOR DETERMINATION OF INORGANIC SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by M. J. Fishman, and L. C. Friedman, editors: USGS--TWRI Book 5, Chapter A1. 1985. 709 pages.

5-A2. DETERMINATION OF MINOR ELEMENTS IN WATER BY EMISSION SPECTROSCOPY, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

5-A3. METHODS FOR ANALYSIS OF ORGANIC SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. L. Lowe, editors: USGS--TWRI Book 5, Chapter A3. 1983. 173 pages.

5-A4. METHODS FOR COLLECTION AND ANALYSIS OF AQUATIC BIOLOGICAL AND MICROBIOLOGICAL SAMPLES, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. METHODS FOR DETERMINATION OF RADIOACTIVE SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. QUALITY ASSURANCE PRACTICES FOR THE CHEMICAL AND BIOLOGICAL ANALYSES OF WATER AND FLUVIAL SEDIMENTS, by L. C. Friedman and D. E. Erdmann. 1982. 181 pages.

5-C1. LABORATORY THEORY AND METHODS FOR SEDIMENT ANALYSIS, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. FINITE-DIFFERENCE MODEL FOR AQUIFER SIMULATION IN TWO DIMENSIONS WITH RESULTS OF NUMERICAL EXPERIMENTS, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. COMPUTER MODEL OF TWO-DIMENSIONAL SOLUTE TRANSPORT AND DISPERSION IN GROUND WATER, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. A MODEL FOR SIMULATION OF FLOW IN SINGULAR AND INTERCONNECTED CHANNELS, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. METHODS OF MEASURING WATER LEVELS IN DEEP WELLS, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. INSTALLATION AND SERVICE MANUAL FOR U.S. GEOLOGICAL SURVEY MANOMETERS, by J. D. Craig. 1983. 57 pages.

8-B2. CALIBRATION AND MAINTENANCE OF VERTICAL-AXIS TYPE CURRENT METERS, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

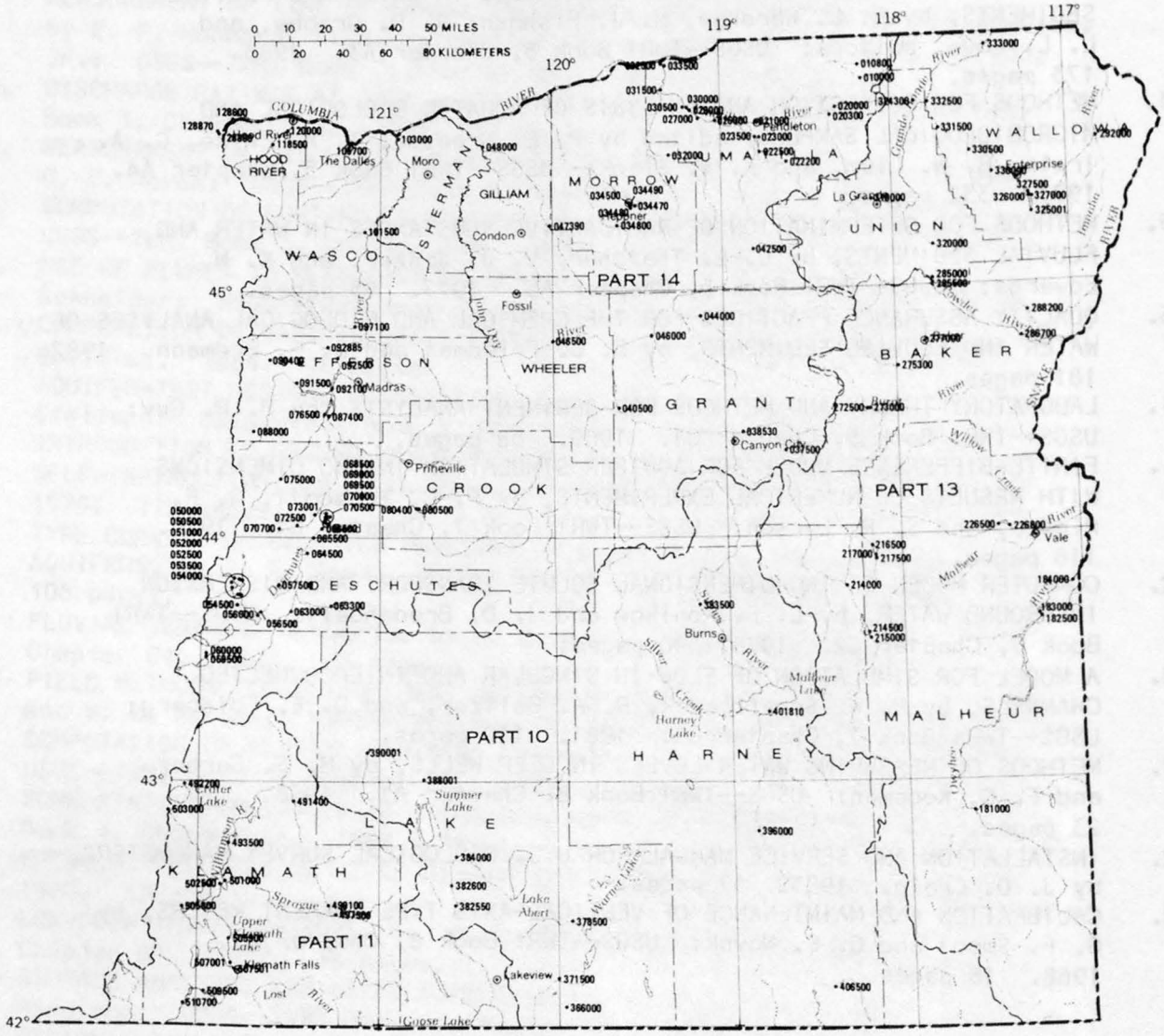

Figure 1. Map of Eastern Oregon showing location of active gaging stations

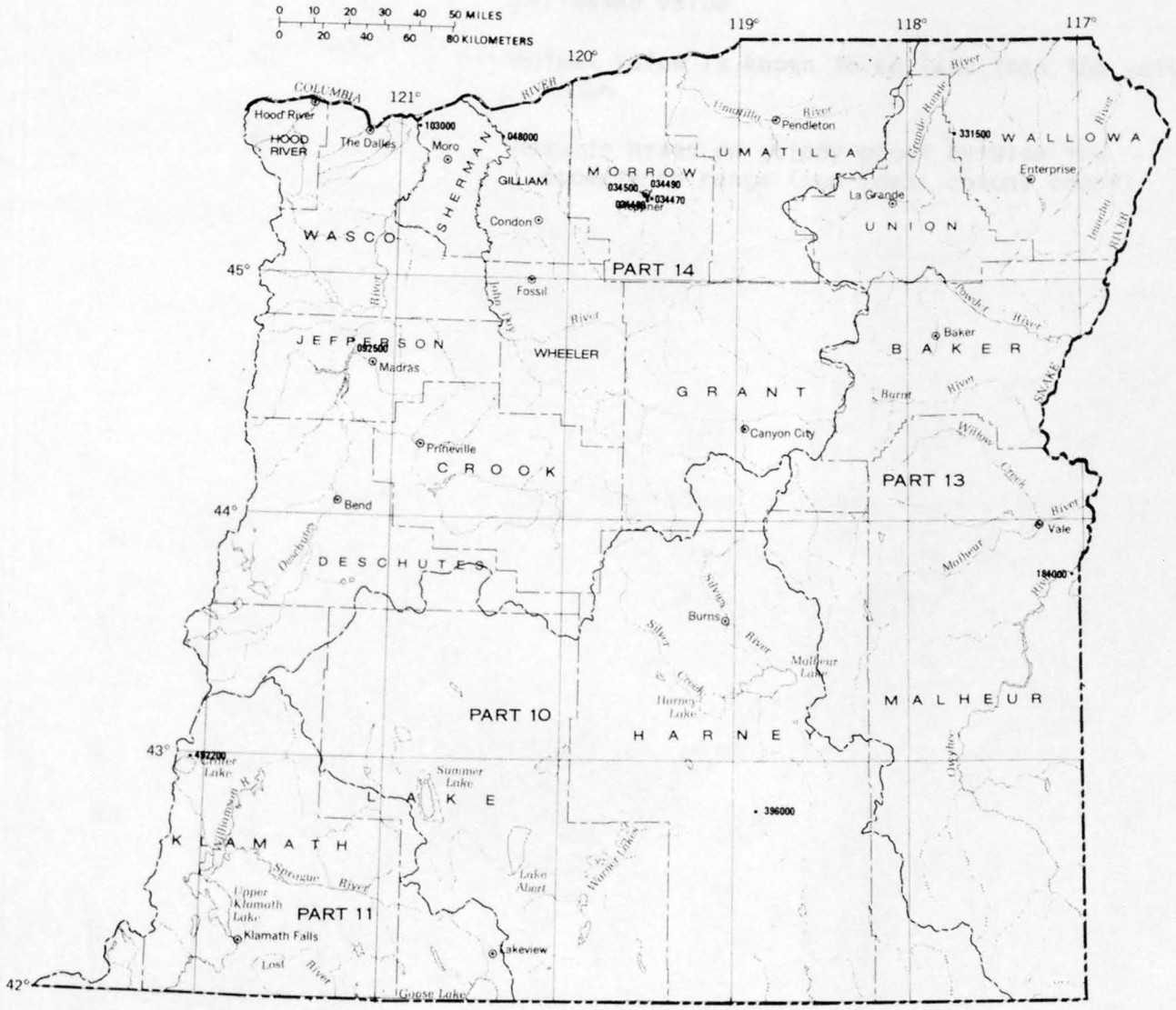

Figure 2. Map of Eastern Oregon showing sites where water-quality data are obtained

REMARK CODES.--The following remark codes may appear with the water-quality data in this section:

PRINTED OUTPUT	REMARK
E	Estimated value
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

THE GREAT BASIN

WARNER LAKES BASIN

10366000 TWENTYMILE CREEK NEAR ADEL, OR

LOCATION.--Lat 42°04'20", long 119°57'42", in SW¼NW¼ sec.25, T.40 S., R.23 E., Lake County, Hydrologic Unit 17120007, on left bank 1.5 mi downstream from Twelvemile Creek and 8 mi southwest of Adel.

DRAINAGE AREA.--194 mi^2, including 46 mi^2 in Cowhead Lake area.

PERIOD OF RECORD.-- March 1910 to July 1916, December 1917 to September 1919, and March 1921 to June 1922 (published as "near Warner Lake"), September 1940 to November 1944, March 1945 to current year.

REVISED RECORDS.--WSP 1090: 1945. WSP 1514: 1951-53, 1954(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,560.83 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1940, nonrecording gage or water-stage recorder at sites within 1 mi downstream at various datums. Sept. 21, 1940, to Nov. 30, 1944, water-stage recorder at site 1.8 mi upstream at different datums. Mar. 12, 1945, to June 28, 1952, water-stage recorder at site 70 ft upstream at datum 0.88 ft higher.

REMARKS.--Estimated daily discharges: Nov. 27-30, Dec. 1-4, 6, 7, 9-25, Jan. 1-4, 11-17, 26, 27, 31, Feb. 1-6, 10, Sept. 17-30. Records good except for December and Feb. 14 to Apr. 11, which are fair. Some regulation by pumpage from Cowhead Lake. Diversions in Oregon for irrigation upstream from station; considerable diversions for irrigation in Cowhead Lake area in California.

AVERAGE DISCHARGE.--50 years (water years 1911-15, 1919, 1941-44, 1946-85), 53.6 ft^3/s, 38,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,670 ft^3/s Dec. 23, 1964, gage height, 16.1 ft, from rating curve extended above 920 ft^3/s on basis of contracted-opening measurement of 3,260 ft^3/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 510 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 18	2200	809	5.75	Apr. 2	2100	*982	*6.32
Mar. 23	2400	622	5.07				

Minimum, 0.35 ft^3/s Jan. 26, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	6.6	9.0	6.0	5.2	97	467	69	51	8.3	4.3	2.8
2	6.2	8.2	8.2	6.0	6.0	97	589	82	45	8.0	4.6	4.9
3	5.8	12	8.5	6.5	6.2	86	486	83	41	7.7	4.2	5.2
4	5.9	8.9	8.2	6.5	4.6	27	402	70	39	7.2	3.7	4.5
5	5.9	7.8	7.6	7.1	4.7	17	330	70	43	7.0	3.4	4.2
6	6.0	8.0	8.0	7.3	6.0	14	277	73	45	6.7	3.3	4.0
7	6.0	9.1	8.3	7.7	8.2	13	210	72	51	6.5	2.9	4.8
8	5.7	11	8.5	7.7	8.5	12	139	68	53	6.5	3.0	8.4
9	5.7	9.6	8.2	7.7	7.4	14	103	67	46	6.4	3.4	8.2
10	5.5	9.7	8.2	6.9	6.5	40	85	60	40	6.1	3.4	6.5
11	7.1	18	8.4	5.8	7.2	98	71	59	36	6.2	3.3	6.0
12	7.1	19	7.7	5.8	14	101	61	55	32	6.1	3.3	5.3
13	6.8	26	7.3	5.8	14	99	56	60	31	5.8	3.4	5.2
14	6.5	25	7.0	6.3	13	135	59	62	31	5.6	3.3	5.1
15	6.4	18	7.0	6.7	23	199	71	56	30	4.4	3.2	5.1
16	6.8	13	6.0	7.0	32	255	98	55	28	4.2	3.0	5.1
17	7.4	12	6.5	7.0	29	297	89	57	27	4.0	3.0	5.0
18	6.7	13	6.5	7.0	30	395	89	64	23	3.7	3.3	4.9
19	6.9	12	5.5	7.1	21	509	89	68	20	2.8	3.3	4.9
20	7.3	12	5.3	7.2	26	474	84	69	20	2.9	3.6	4.8
21	7.0	11	6.0	7.3	18	344	84	61	19	3.2	3.3	4.8
22	6.6	10	6.0	6.9	26	110	89	64	17	4.1	3.2	4.7
23	6.9	9.7	6.2	6.8	53	214	108	68	16	4.5	3.4	4.7
24	7.1	13	6.5	7.1	105	353	68	71	16	3.9	3.0	4.6
25	7.2	12	6.8	6.2	116	149	51	73	14	3.4	2.9	4.6
26	7.8	9.3	7.7	6.4	71	51	45	69	13	3.2	2.8	4.6
27	9.8	8.8	7.7	6.0	51	39	45	62	12	3.5	2.7	4.6
28	7.8	8.5	7.5	6.2	67	35	50	64	10	3.9	2.6	4.6
29	7.7	8.5	7.7	6.7	---	30	51	63	9.3	4.1	2.4	4.7
30	7.6	10	7.2	6.5	---	51	63	54	8.5	4.6	2.5	4.8
31	7.2	---	7.4	5.5	---	295	---	55	---	4.2	2.7	---
TOTAL	211.1	359.7	226.6	206.7	779.5	4650	4509	2023	866.8	158.7	100.4	151.6
MEAN	6.81	12.0	7.31	6.67	27.8	150	150	65.3	28.9	5.12	3.24	5.05
MAX	9.8	26	9.0	7.7	116	509	589	83	53	8.3	4.6	8.4
MIN	5.5	6.6	5.3	5.5	4.6	12	45	54	8.5	2.8	2.4	2.8
AC-FT	419	713	449	410	1550	9220	8940	4010	1720	315	199	301

CAL YR 1984	TOTAL	30983.5	MEAN	84.7	MAX	717	MIN	1.0	AC-FT	61460
WTR YR 1985	TOTAL	14243.1	MEAN	39.0	MAX	589	MIN	2.4	AC-FT	28250

10371500 DEEP CREEK ABOVE ADEL, OR

LOCATION.-- Lat 42°11'21", long 120°00'02", in SW¼NW¼ sec.15, T.39 S., R.23 E., Lake County, Hydrologic Unit 17120007, on left bank 700 ft downstream from Drake Creek and 5 mi west of Adel.

DRAINAGE AREA.--249 mi^2.

PERIOD OF RECORD.--September 1922 to September 1923, October 1929 to current year. Monthly discharge only October 1929 to September 1932, published in WSP 1314.

REVISED RECORDS.--WDR OR-83-1: 1979(M), 1980(M,P), 1982(M,P).

GAGE.--Water-stage recorder. Datum of gage is 4,980.34 ft above National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). Sept. 8 to Dec. 20, 1922, nonrecording gage. Dec. 21, 1922, to Sept. 30, 1923, and Oct. 11, 1929, to Dec. 23, 1964, water-stage recorder at site 700 ft downstream at different datums. Jan. 20 to Sept. 30, 1965, nonrecording gage at site 2,000 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 26, 27; Dec. 1-3, 5-8, 14-27, 31; Jan. 1-5, 10-17, 23, 25-27, 29-31; Feb. 1-7, 9, 10; Mar. 2-4, 8, 9. Records good except those for December to February, which are fair. No regulation. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--57 years, 134 ft^3/s, 97,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft^3/s Dec. 23, 1964, gage height, 10.64 ft, from floodmark, from rating curve extended above 1,100 ft^3/s on basis of slope-area measurement of peak flow at gage height 7.3 ft; minimum, 1.7 ft^3/s July 20, 27-29, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 20	1830	692	3.12	Apr. 2	2100	*1,660	*4.40

Minimum, 11 ft^3/s Aug. 14-17, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	41	39	35	29	53	555	430	269	29	16	13
2	35	57	40	35	31	45	899	460	239	28	16	18
3	35	99	44	38	33	44	936	472	200	26	16	20
4	34	66	44	38	30	50	959	391	188	23	15	17
5	33	52	44	40	26	48	971	377	193	20	15	16
6	32	51	37	42	27	47	981	378	207	19	14	16
7	31	52	33	41	36	47	1030	370	210	19	13	27
8	31	59	35	41	36	45	959	353	205	18	13	60
9	29	49	44	41	36	45	870	333	184	17	13	56
10	28	47	46	40	33	53	827	297	161	17	13	40
11	45	81	43	35	31	59	813	255	148	17	13	35
12	49	118	35	33	33	60	744	243	137	17	13	43
13	61	146	41	33	33	62	703	247	127	17	13	35
14	50	102	38	34	34	77	738	267	118	17	12	35
15	42	89	36	36	37	98	774	245	113	17	11	35
16	38	76	32	37	38	131	703	232	105	17	11	31
17	38	64	36	37	39	179	602	238	95	17	11	30
18	42	67	37	37	46	257	583	249	86	17	12	37
19	43	59	33	37	40	322	563	262	77	16	13	30
20	40	59	30	37	40	400	451	271	71	16	13	28
21	38	53	35	37	48	347	406	257	65	16	13	27
22	37	52	44	37	42	221	412	259	58	17	13	26
23	36	49	40	36	45	265	431	265	53	17	13	25
24	36	55	35	35	53	298	341	271	48	17	13	25
25	36	54	35	35	53	191	297	262	46	16	12	24
26	53	45	43	35	50	130	267	250	44	15	12	23
27	53	47	50	33	49	98	274	231	41	15	12	23
28	43	47	50	32	53	108	307	277	35	15	12	24
29	42	43	51	32	---	105	352	368	33	16	12	23
30	44	43	46	32	---	105	391	274	30	17	13	24
31	42	---	40	30	---	239	---	250	---	17	13	---
TOTAL	1234	1922	1236	1121	1081	4229	19139	9334	3586	562	404	866
MEAN	39.8	64.1	39.9	36.2	38.6	136	638	301	120	18.1	13.0	28.9
MAX	61	146	51	42	53	400	1030	472	269	29	16	60
MIN	28	41	30	30	26	44	267	231	30	15	11	13
AC-FT	2450	3810	2450	2220	2140	8390	37960	18510	7110	1110	801	1720

CAL YR 1984	TOTAL	81726	MEAN	223	MAX	1510	MIN	19	AC-FT	162100
WTR YR 1985	TOTAL	44714	MEAN	123	MAX	1030	MIN	11	AC-FT	88690

10378500 HONEY CREEK NEAR PLUSH, OR

LOCATION.--Lat 42°25'33", long 119°55'23", in SW¼SW¼ sec.20, T.36 S., R.24 E., Lake County, Hydrologic Unit 17120007, on right bank 700 ft upstream from mouth of canyon, 1.4 mi northwest of Plush, and 4 mi downstream from Twelvemile Creek.

DRAINAGE AREA.--170 mi^2, approximately.

PERIOD OF RECORD.--May 1909 to September 1914 (prior to January 1910, gage heights only), March to May 1915, March to September 1921, March to June 1922, May 1930 to current year. Monthly discharge only May 1930 to September 1949, published in WSP 1314.

REVISED RECORDS.--WSP 1564: 1911-12. WSP 1714: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,552.60 ft above National Geodetic Vertical Datum of 1929. Dec. 24, 1964, to Sept. 30, 1965, nonrecording gage at site 100 ft downstream at different datums. See WSP 1927 for history of changes prior to Dec. 24, 1964.

REMARKS.--Estimated daily discharges: Dec. 1, 5-9, 14, 15, 19-22, Jan. 7-9, 18-21, Feb. 1 to Mar. 15, Sept. 10-30. Records good. Slight regulation by five small reservoirs, combined capacity, 870 acre-ft. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--59 years (water years 1911-14, 1931-85), 31.0 ft^3/s, 22,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maxiumum discharge, 11,000 ft^3/s Dec. 23, 1964, gage height, 13.4 ft, from floodmark, from rating curve extended above 250 ft^3/s on basis of slope-area measurements at gage height 10.46 ft and of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 3	0100	296	4.22	Apr. 8	0100	*374	*4.50

Minimum, 0.18 ft^3/s Aug. 26-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	7.8	10	7.3	4.7	8.3	83	103	54	1.5	.48	.37
2	1.8	10	12	6.4	5.8	7.5	133	101	42	.96	.66	.47
3	1.1	16	14	5.8	5.2	6.6	208	101	34	.79	.68	.47
4	.98	14	12	6.6	4.5	7.8	174	88	19	.76	.60	.37
5	1.1	12	8.5	7.8	5.0	7.2	173	85	23	.71	.57	.32
6	1.7	11	7.5	8.1	6.0	7.0	190	81	30	2.4	.53	.31
7	1.3	11	8.0	9.9	7.2	7.0	254	76	28	3.1	.44	.48
8	1.1	11	9.0	10	7.5	8.0	310	74	29	3.3	.35	.55
9	1.3	11	10	10	6.5	8.5	246	71	29	3.0	.36	.56
10	1.8	11	14	8.2	6.2	9.0	242	68	26	1.4	.31	.45
11	2.9	14	9.0	7.8	6.4	10	269	64	24	.91	.28	.35
12	4.2	20	12	7.0	6.6	11	261	59	23	.81	.37	.40
13	4.6	18	11	7.0	6.6	13	224	54	20	.77	.38	.35
14	5.5	17	7.0	7.3	6.9	16	238	50	16	.76	.42	.35
15	6.2	13	8.5	7.7	7.2	20	265	55	14	.71	.41	.35
16	5.9	14	8.8	7.9	8.5	38	244	56	13	.64	.32	.33
17	5.8	12	11	7.5	8.5	51	177	55	12	.58	.30	.33
18	5.6	13	8.2	7.2	7.5	56	155	50	11	.54	.28	.37
19	6.2	11	5.0	7.2	7.0	67	146	48	13	.47	.29	.36
20	8.1	12	4.0	7.0	7.0	83	124	47	14	.47	.31	.32
21	8.1	12	5.0	7.5	7.0	79	106	48	12	.47	.29	.31
22	7.9	12	6.0	8.5	7.2	44	102	40	11	.47	.29	.30
23	7.1	10	7.8	8.5	8.0	38	103	36	8.4	.45	.27	.29
24	6.8	14	5.7	6.8	8.5	50	85	32	5.8	.38	.23	.29
25	7.7	12	4.8	6.8	7.5	35	79	33	5.7	.32	.21	.28
26	15	15	6.8	5.9	6.7	23	75	34	5.9	.30	.20	.28
27	18	14	8.4	5.6	7.0	20	74	37	4.8	.30	.20	.28
28	11	14	9.8	6.3	8.3	20	81	39	3.3	.30	.18	.28
29	9.9	13	9.1	6.3	---	22	92	59	2.9	.33	.21	.28
30	9.2	12	9.6	6.2	---	25	98	59	2.8	.41	.55	.28
31	8.4	---	9.3	6.0	---	35	---	52	---	.43	.49	---
TOTAL	178.78	386.8	271.8	228.1	191.0	832.9	5011	1855	536.6	28.74	11.46	10.73
MEAN	5.77	12.9	8.77	7.36	6.82	26.9	167	59.8	17.9	.93	.37	.36
MAX	18	20	14	10	8.5	83	310	103	54	3.3	.68	.56
MIN	.98	7.8	4.0	5.6	4.5	6.6	74	32	2.8	.30	.18	.28
AC-FT	355	767	539	452	379	1650	9940	3680	1060	57	23	21

CAL YR 1984	TOTAL	18427.99	MEAN	50.3	MAX	430	MIN	.40	AC-FT	36550
WTR YR 1985	TOTAL	9542.91	MEAN	26.1	MAX	310	MIN	.18	AC-FT	18930

10382550 CHEWAUCAN RIVER NEAR BUCK MOUNTAIN, NEAR PAISLEY, OR

LOCATION.--Lat 42°29'10", long 120°34'22", in SE¼ sec.34, T.35 S., R.18 E., Lake County, Hydrologic Unit 17120006, on left bank at road crossing, 1.0 mi upstream from Ben Young Creek, 1.5 mi northeast of Buck Mountain, and 14.5 mi south of Paisley.

DRAINAGE AREA.--157 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 5,030 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 1 to Mar. 17. Records good except for estimated daily discharges, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft^3/s May 31, 1983, gage height, 5.60 ft, from floodmark; minimum, 18 ft^3/s Aug. 28-30, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 15	1630	ice jam	*5.09	May 2	2330	487	4.59
Apr. 14	2300	*788	4.92				

Minimum, 18 ft^3/s Aug. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	45	58	44	36	54	190	368	210	50	30	23
2	44	69	62	44	38	50	244	402	198	47	31	29
3	43	80	62	48	42	52	275	429	175	47	29	33
4	43	66	60	48	32	50	294	384	169	45	25	28
5	43	58	54	54	32	48	314	367	170	43	26	26
6	43	62	50	56	36	46	349	362	169	42	24	28
7	42	61	64	60	46	44	414	341	165	40	23	53
8	41	62	66	56	40	48	455	328	160	39	23	88
9	41	55	68	54	36	54	474	306	151	38	24	58
10	42	56	68	50	34	60	507	290	139	37	24	53
11	73	78	56	44	38	72	539	265	123	36	24	48
12	57	96	58	42	44	70	526	251	114	33	24	46
13	72	112	54	40	40	66	541	246	111	33	23	43
14	56	83	50	40	40	66	606	252	105	33	23	48
15	51	70	52	40	44	70	674	241	101	31	23	46
16	51	70	44	44	44	100	647	244	96	29	23	42
17	52	60	48	50	40	125	560	237	89	30	23	41
18	49	69	46	52	38	130	505	245	85	26	26	41
19	52	59	44	54	36	157	464	257	94	26	28	39
20	53	62	42	54	42	161	373	275	105	29	26	38
21	51	59	56	58	42	148	372	265	84	29	24	37
22	46	57	72	52	48	113	340	261	78	30	25	36
23	46	54	66	48	56	119	313	263	73	32	26	36
24	53	70	60	50	52	169	267	271	70	29	25	36
25	52	59	56	44	48	117	240	268	69	24	25	36
26	72	64	58	44	46	84	224	258	67	24	24	36
27	60	65	62	42	46	92	233	254	63	26	24	36
28	54	58	58	44	54	94	260	276	58	26	22	35
29	53	61	66	46	---	90	292	264	55	29	19	36
30	49	62	56	46	---	87	326	226	53	31	19	36
31	47	---	48	40	---	140	---	213	---	33	22	---
TOTAL	1581	1982	1764	1488	1170	2776	11818	8909	3399	1047	757	1211
MEAN	51.0	66.1	56.9	48.0	41.8	89.5	394	287	113	33.8	24.4	40.4
MAX	73	112	72	60	56	169	674	429	210	50	31	88
MIN	41	45	42	40	32	44	190	213	53	24	19	23
AC-FT	3140	3930	3500	2950	2320	5510	23440	17670	6740	2080	1500	2400

CAL YR 1984	TOTAL	70634	MEAN	193	MAX	1270	MIN	38	AC-FT	140100
WTR YR 1985	TOTAL	37902	MEAN	104	MAX	674	MIN	19	AC-FT	75180

10382600 CHEWAUCAN RIVER BELOW COFFEEPOT CREEK, NEAR PAISLEY, OR

LOCATION.--Lat 42°34'07", long 120°35'40", in NW¼NE¼ sec.4, T.35 S., R.18 E., Lake County, Hydrologic Unit 17120006, on left bank 1.4 mi downstream from Coffeepot Creek, and 9 mi south of Paisley.

DRAINAGE AREA.--216 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,880 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 1 to Mar. 19. Records good except for estimated daily discharges, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,230 ft^3/s May 31, 1983, gage height, 5.28 ft, from floodmark; minimum, 15 ft^3/s Nov. 24, Dec. 3, 1982, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 16	0100	*778	*3.62	May 3	0200	490	3.07

Minimum, 19 ft^3/s Aug. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	51	66	48	40	74	246	402	227	51	31	22
2	44	77	72	48	42	68	297	425	214	47	32	28
3	43	96	72	52	48	68	329	450	186	46	31	34
4	41	77	70	52	38	66	339	409	178	45	25	28
5	41	66	68	58	38	64	359	390	180	42	26	26
6	41	70	64	60	44	60	391	387	178	41	25	26
7	41	70	72	66	60	56	448	366	172	39	24	50
8	40	70	76	62	56	60	490	356	169	39	23	91
9	39	64	76	60	52	64	509	336	157	38	24	61
10	40	67	74	54	48	70	539	321	144	37	24	56
11	71	90	72	50	64	82	564	297	129	37	24	47
12	59	116	70	46	64	76	563	281	119	34	24	47
13	70	130	66	42	60	70	573	273	114	32	23	43
14	58	102	56	42	56	70	626	279	108	33	23	46
15	52	82	60	46	64	80	679	266	104	32	22	46
16	52	83	50	50	62	120	665	269	98	30	22	41
17	53	72	54	54	58	140	581	260	91	30	23	40
18	50	82	54	56	50	160	536	266	87	28	26	41
19	58	70	52	58	50	190	507	277	90	26	28	38
20	59	73	50	60	56	206	434	292	112	28	26	38
21	56	70	66	62	56	193	424	285	86	29	24	37
22	53	67	78	54	64	153	401	278	79	30	23	36
23	51	61	72	52	74	154	375	278	73	32	26	36
24	59	86	68	54	70	226	325	283	70	30	25	35
25	60	66	62	52	64	159	293	278	68	25	24	36
26	75	69	66	46	58	117	270	271	66	24	24	36
27	73	76	70	46	58	123	278	267	63	26	23	35
28	61	70	66	48	76	121	307	288	59	26	22	35
29	62	70	72	50	---	112	337	283	55	29	19	35
30	56	68	64	50	---	115	368	243	52	31	20	35
31	53	---	56	48	---	184	---	228	---	33	21	---
TOTAL	1662	2311	2034	1626	1570	3501	13053	9584	3528	1050	757	1205
MEAN	53.6	77.0	65.6	52.5	56.1	113	435	309	118	33.9	24.4	40.2
MAX	75	130	78	66	76	226	679	450	227	51	32	91
MIN	39	51	50	42	38	56	246	228	52	24	19	22
AC-FT	3300	4580	4030	3230	3110	6940	25890	19010	7000	2080	1500	2390

CAL YR 1984	TOTAL	81714	MEAN	223	MAX	1340	MIN	37	AC-FT	162100
WTR YR 1985	TOTAL	41881	MEAN	115	MAX	679	MIN	19	AC-FT	83070

10384000 CHEWAUCAN RIVER NEAR PAISLEY, OR

LOCATION.--Lat 42°41'05", long 120°34'08", in SW¼NW¼ sec.26, T.33 S., R.18 E., Lake County, Hydrologic Unit 17120006, on left bank 1.2 mi downstream from Mill Creek and 1.4 mi southwest of Paisley.

DRAINAGE AREA.--275 mi^2.

PERIOD OF RECORD.--April 1912 to September 1921, May 1924 to current year. Published as "above Conn ditch, near Paisley" April to September 1912 and May 1924 to September 1955, as "above Mill Creek, near Paisley" October 1912 to December 1913, and as "at Chewaucan Land & Cattle Co.'s gage, near Paisley" January to September 1914.

REVISED RECORDS.--WSP 860: Drainage area. WSP 1927: 1957-59.

GAGE.--Water-stage recorder. Datum of gage is 4,430 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). See WSP 1734 for history of changes prior to Oct. 6, 1956.

REMARKS.--Estimated daily discharges: Dec. 1-5, 9-11, 15, 18-21, 25, 31; Jan. 1-6, Jan. 8 to Feb. 21; Feb. 25-27, Mar. 12-16. Records good except those for January and February, which are fair. No regulation. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--70 years, 148 ft^3/s, 107,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,490 ft^3/s Dec. 22, 1964, gage height, 8.35 ft, from rating curve extended above 900 ft^3/s on basis of slope-area measurement of peak flow; no flow for part of each day Dec. 7, 1927, Dec. 12, 1932, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 16	0300	*964	*3.48	May 3	0400	565	2.86

Minimum, 22 ft^3/s Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	57	70	60	55	93	272	458	259	57	35	26
2	52	86	80	65	60	83	325	485	244	52	35	31
3	49	118	80	65	70	84	371	525	209	50	34	40
4	48	91	75	70	50	79	386	472	196	50	32	34
5	48	76	65	80	50	75	421	446	200	48	31	31
6	48	78	59	80	60	75	458	441	196	47	31	31
7	48	81	81	97	85	69	533	416	190	44	29	54
8	47	80	89	90	80	73	594	406	185	43	28	102
9	46	74	89	80	70	77	625	384	172	43	29	74
10	47	77	85	75	65	88	666	367	159	42	30	65
11	74	99	78	70	90	101	697	342	140	42	30	53
12	70	138	84	63	90	95	701	322	128	40	30	55
13	76	143	78	60	80	87	706	314	124	38	29	51
14	69	126	67	60	80	87	771	318	120	37	29	52
15	60	94	70	70	90	100	844	305	114	37	28	56
16	60	97	56	75	85	130	839	307	109	34	27	51
17	62	85	61	80	80	156	720	299	102	34	28	49
18	56	93	60	83	75	169	659	302	97	34	31	50
19	65	79	58	83	75	193	618	311	91	34	33	47
20	67	84	55	85	78	208	520	325	120	34	33	46
21	63	80	70	90	78	198	500	323	95	34	30	45
22	60	78	127	75	88	151	474	314	85	34	29	44
23	58	67	105	72	101	154	437	313	80	37	31	43
24	65	102	95	78	96	236	378	318	76	34	30	43
25	68	76	80	75	80	171	340	312	76	33	29	43
26	75	83	88	67	80	117	314	307	73	30	29	43
27	91	85	93	67	80	127	319	302	69	31	27	43
28	69	83	88	70	96	123	345	320	64	31	26	42
29	69	84	102	73	---	117	379	326	62	32	24	42
30	64	79	80	73	---	122	415	279	58	34	23	43
31	59	---	65	65	---	188	---	258	---	36	24	---
TOTAL	1892	2673	2433	2296	2167	3826	15627	10917	3893	1206	914	1429
MEAN	61.0	89.1	78.5	74.1	77.4	123	521	352	130	38.9	29.5	47.6
MAX	91	143	127	97	101	236	844	525	259	57	35	102
MIN	46	57	55	60	50	69	272	258	58	30	23	26
AC-FT	3750	5300	4830	4550	4300	7590	31000	21650	7720	2390	1810	2830

CAL YR 1984	TOTAL	93099	MEAN	254	MAX	1570	MIN	43	AC-FT	184700
WTR YR 1985	TOTAL	49273	MEAN	135	MAX	844	MIN	23	AC-FT	97730

10388001 ANA RIVER NEAR SUMMER LAKE, OR

LOCATION.--Lat 43°00'00", long 120°45'00", in SE¼ sec.6, T.30 S., R.17 E., Lake County, Hydrologic Unit 17120005, on left bank 300 ft downstream from diversion dam and 2.0 mi northeast of town of Summer Lake.

DRAINAGE AREA.--Indeterminate, source of stream is Ana River Springs, three-quarters of a mile above station, which are flooded over by pondage behind diversion dam.

PERIOD OF RECORD.--October 1929 to September 1939 (river only); June to September 1928, April 1931 to July 1938, and April 1940 to September 1942 (irrigation season records for Summer Lake Canal only); June 1951 to current year. Prior to June 1951 monthly discharge only, published in WSP 1314.

GAGE.--Water-stage recorder. Elevation of gage is 4,160 ft from plans of Ana River diversion dam. Oct. 1, 1929, to Sept. 30, 1939, at site 80 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 5-10, Feb. 23 to May 13. Records excellent. All records presented herein include flow in Summer Lake Canal which diverts 300 ft upstream from station for irrigation of lands along west side of Summer Lake. Flow regulated by gates at diversion dam.

AVERAGE DISCHARGE.--37 years (water years 1931-32, 1936, 1952-85), 90.9 ft^3/s, 65,860 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 188 ft^3/s Dec. 22, 1964, gage height, 2.81 ft, no flow in canal; minimum, 1.0 ft^3/s Jan. 21, 22, 1970; minimum daily, 3.0 ft^3/s Oct. 31, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 122 ft^3/s Aug. 30; minimum recorded, 68 ft^3/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	86	91	91	92	90	90	70	88	84	87	86
2	83	87	92	91	91	90	90	70	88	84	88	84
3	84	86	93	91	91	90	90	70	88	83	87	85
4	86	85	94	91	91	90	90	70	89	83	87	85
5	86	87	94	91	91	90	90	70	91	83	88	85
6	86	89	94	91	90	90	90	71	85	83	88	86
7	86	88	94	91	90	90	90	80	88	83	88	86
8	86	88	94	91	90	90	90	86	86	83	93	85
9	86	88	94	91	90	90	90	86	86	83	93	86
10	86	88	94	92	89	90	90	87	86	83	91	84
11	86	87	94	92	89	90	90	86	87	83	89	88
12	86	89	92	92	89	90	90	86	87	83	88	91
13	86	90	91	92	89	90	90	87	87	83	88	91
14	86	89	91	92	89	90	90	89	87	83	83	86
15	86	99	91	92	89	90	90	87	87	83	83	88
16	86	101	91	91	89	90	90	87	87	83	84	88
17	86	99	91	91	89	90	90	87	87	81	84	86
18	86	99	91	91	89	90	90	86	87	81	85	86
19	87	98	91	91	89	90	90	86	87	85	84	86
20	87	97	92	91	89	90	90	86	89	83	84	85
21	87	96	92	91	89	90	90	86	88	83	85	85
22	87	95	92	91	90	90	90	86	87	83	85	85
23	87	94	92	91	90	90	90	86	84	84	85	84
24	87	94	92	91	90	90	90	80	81	82	86	84
25	87	94	92	91	90	90	90	82	81	90	86	85
26	87	94	92	91	90	90	90	88	84	88	86	85
27	87	94	92	92	90	90	85	89	84	88	85	85
28	86	93	92	92	90	90	80	88	84	86	76	85
29	86	91	92	92	---	90	70	88	84	86	70	85
30	86	91	92	92	---	90	70	88	84	87	101	85
31	86	---	92	92	---	90	---	88	---	88	97	---
TOTAL	2667	2756	2861	2832	2514	2790	2645	2576	2588	2605	2684	2575
MEAN	86.0	91.9	92.3	91.4	89.8	90.0	88.2	83.1	86.3	84.0	86.6	85.8
MAX	87	101	94	92	92	90	90	89	91	90	101	91
MIN	83	85	91	91	89	90	70	70	81	81	70	84
AC-FT	5290	5470	5670	5620	4990	5530	5250	5110	5130	5170	5320	5110

CAL YR 1984	TOTAL	32124	MEAN	87.8	MAX	104	MIN	64	AC-FT	63720
WTR YR 1985	TOTAL	32093	MEAN	87.9	MAX	101	MIN	70	AC-FT	63660

10390001 SILVER CREEK NEAR SILVER LAKE, OR

LOCATION.--Lat 43°06'50", long 121°03'59" in NE¼SW¼ sec.28, T.28 S., R.14 E., Lake County, Hydrologic Unit 17120005, on right bank 1.5 mi downstream from diversion dam of Silver Lake Irrigation District, 1.5 mi southwest of town of Silver Lake, and 3 mi upstream from Bridge Creek.

DRAINAGE AREA.--180 mi^2, approximately.

PERIOD OF RECORD.--January 1905 to March 1907, January 1909 to September 1927, February to December 1928, February 1929 to current year.

REVISED RECORDS.--WSP 1564: 1906, 1910, 1921(M). WSP 1734: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Sept. 15, 1932. Datum of gage is 4,361.22 ft above National Geodetic Vertical Datum of 1929. Prior to May 24, 1932, nonrecording gage or water-stage recorder at practically same location at datum 1.00 ft higher, or nonrecording gage at diversion dam outlet 1.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 10 to Jan. 20, Jan. 22-31, Feb. 1-14, 16-21, 27, Mar. 2, 3, 6-9, Apr. 2, 3, 19, Apr. 27 to May 14. Records good except those for December to February, which are fair. Flow regulated by reservoir, capacity, 800 acre-ft, upstream from diversion dam 1.5 mi upstream from station and by Thompson Valley Reservoir, capacity, 17,400 acre-ft, 11 mi upstream from station. Records given herein include flow in Silver Lake Irrigation District Canal which diverts 1.5 mi upstream from station. No record of diversion October 1943 to September 1965.

AVERAGE DISCHARGE.--73 years (water years 1906, 1910-27, 1930-41, 1944-85), 31.4 ft^3/s, 22,750 acre-ft/yr, including diversion by Silver Lake Irrigation District Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft^3/s Mar. 20, 1907, gage height, 10.08 ft, present datum, from rating curve extended above 700 ft^3/s; maximum gage height, 10.3 ft Dec. 22, 1964; no flow at times in 1931-32, 1934, 1937.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 323 ft^3/s Apr. 16; minimum, 3.6 ft^3/s Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	11	14	12	8.8	17	50	84	53	49	45	31
2	11	18	14	13	8.8	16	66	91	53	51	45	32
3	11	18	19	13	8.8	16	61	98	55	49	43	32
4	11	14	19	14	8.8	16	57	84	54	51	43	32
5	11	13	17	16	8.8	15	54	79	56	50	43	31
6	11	13	15	18	8.8	15	51	75	56	50	42	31
7	10	13	15	18	15	14	51	72	57	50	43	32
8	9.6	12	15	18	15	14	52	71	58	50	44	38
9	9.3	12	16	17	14	14	50	69	58	48	48	34
10	9.3	13	16	15	14	17	49	67	56	48	49	34
11	10	16	17	13	17	17	49	65	56	50	51	31
12	9.3	29	17	11	17	19	49	61	55	50	46	29
13	9.0	22	17	11	14	18	89	63	59	50	45	28
14	9.0	18	14	8.6	14	19	156	68	63	51	46	29
15	9.0	13	14	8.6	16	20	213	68	63	49	46	19
16	9.4	14	12	6.6	16	22	312	64	63	45	46	14
17	11	13	14	5.1	16	24	286	65	62	41	46	14
18	11	15	14	4.3	15	27	261	64	62	41	44	12
19	10	14	13	6.3	15	32	231	61	62	40	46	12
20	10	17	12	11	15	36	206	58	63	40	46	11
21	10	19	13	13	15	36	181	60	63	40	39	10
22	10	15	13	12	16	26	170	59	62	41	39	11
23	10	13	13	12	17	24	155	59	62	42	39	10
24	11	17	14	12	17	44	119	58	62	43	33	10
25	11	13	14	12	19	29	106	58	61	43	31	11
26	11	11	16	12	17	23	80	57	60	43	31	11
27	12	16	16	12	16	21	72	58	60	43	29	11
28	11	19	16	12	16	21	73	54	57	43	29	12
29	11	19	16	12	---	19	75	55	53	47	29	12
30	11	19	16	12	---	21	77	55	50	48	28	12
31	9.8	---	14	8.8	---	35	---	53	---	48	30	---
TOTAL	321.7	469	465	369.3	398.8	687	3501	2053	1754	1434	1264	636
MEAN	10.4	15.6	15.0	11.9	14.2	22.2	117	66.2	58.5	46.3	40.8	21.2
MAX	13	29	19	18	19	44	312	98	63	51	51	38
MIN	9.0	11	12	4.3	8.8	14	49	53	50	40	28	10
AC-FT	638	930	922	733	791	1360	6940	4070	3480	2840	2510	1260

CAL YR 1984	TOTAL	25889.7	MEAN	70.7	MAX	450	MIN	7.6	AC-FT	51350
WTR YR 1985	TOTAL	13352.8	MEAN	36.6	MAX	312	MIN	4.3	AC-FT	26490

10393500 SILVIES RIVER NEAR BURNS, OR

LOCATION.-- Lat 43°42'55", long 119°10'35", in NW¼NW¼ sec.31, T.21 S., R.30 E., Harney County, Hydrologic Unit 17120002, on left bank 5 mi downstream from Emigrant Creek and 11 mi northwest of Burns.

DRAINAGE AREA.--934 mi^2.

PERIOD OF RECORD.--May 1903 to July 1906, December 1908 to December 1912, March 1913 to September 1917 (irrigation seasons only), March 1918 to October 1920, March 1921 to July 1922 (irrigation seasons only), October 1922 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,195 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). See WSP 1734 for history of changes prior to Oct. 4, 1951.

REMARKS.--Estimated daily discharges: Nov. 27, Dec. 2 to Apr. 3, July 4 to Aug. 15. Records good except those for December to March, July 4 to Aug. 15, which are fair. No regulation. Diversions for irrigation upstream from station during periods of high flow only.

AVERAGE DISCHARGE.--72 years (water years 1904-5, 1910-12, 1918-21, 1923-85), 181 ft^3/s, 131,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,960 ft^3/s Apr. 6, 1952, gage height, 15.2 ft; no flow July 19 to Sept. 22, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,950 ft^3/s Apr. 7, gage height, 10.72 ft; minimum daily, 17 ft^3/s July 24, 25, Aug. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	91	135	84	68	135	1350	444	188	32	29	18
2	59	103	120	94	68	125	1350	423	183	31	31	18
3	58	120	100	96	60	115	1260	408	173	30	31	19
4	58	116	105	92	60	100	1290	398	168	28	31	19
5	57	114	105	90	75	100	1330	382	164	27	30	19
6	56	111	105	90	86	100	1660	369	155	27	28	19
7	56	109	110	94	100	100	1930	353	146	26	28	22
8	55	108	110	92	90	96	1930	336	141	25	28	30
9	54	108	120	92	86	105	1820	323	133	25	28	45
10	53	112	127	78	82	115	1680	312	124	24	28	41
11	62	188	120	74	94	125	1520	296	111	24	26	34
12	74	194	120	74	105	130	1360	264	102	23	23	31
13	78	228	110	84	98	140	1220	245	86	22	22	33
14	81	213	105	90	100	190	1150	239	76	21	22	33
15	81	192	105	95	130	270	1090	236	72	21	22	31
16	81	171	94	100	110	350	1040	233	67	20	22	31
17	79	156	92	100	98	430	976	228	61	20	20	35
18	78	153	92	100	90	580	914	224	57	19	20	30
19	81	147	74	100	94	820	890	227	51	19	20	31
20	85	149	84	96	88	900	852	228	46	19	23	30
21	86	146	98	92	84	840	819	227	45	18	25	34
22	85	144	110	90	98	720	821	222	43	18	25	34
23	83	155	125	90	110	580	757	212	41	18	23	34
24	83	155	120	98	120	490	700	195	40	17	21	34
25	83	128	120	88	120	440	650	180	39	17	21	34
26	85	130	120	80	105	390	595	170	38	18	20	34
27	88	125	120	88	115	380	559	165	36	18	19	32
28	90	125	115	96	135	380	530	164	34	18	19	32
29	94	146	115	88	---	380	497	177	34	19	18	32
30	93	136	115	80	---	400	468	191	34	21	17	32
31	93	---	105	80	---	820	---	195	---	25	17	---
TOTAL	2308	4273	3396	2785	2669	10846	33008	8266	2688	690	737	901
MEAN	74.5	142	110	89.8	95.3	350	1100	267	89.6	22.3	23.8	30.0
MAX	94	228	135	100	135	900	1930	444	188	32	31	45
MIN	53	91	74	74	60	96	468	164	34	17	17	18
AC-FT	4580	8480	6740	5520	5290	21510	65470	16400	5330	1370	1460	1790

CAL YR 1984	TOTAL	207895	MEAN	568	MAX	4100	MIN	42	AC-FT	412400
WTR YR 1985	TOTAL	72567	MEAN	199	MAX	1930	MIN	17	AC-FT	143900

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR
(National stream-quality accounting network station)

LOCATION.--Lat 42°47'28", long 118°52'00", in NW¼NW¼ sec.20, T.32 S., R.32-1/2 E., Harney County, Hydrologic Unit 17120003, Bureau of Land Management land, on left bank 1.5 mi upstream from upper diversions for Malheur National Wildlife Refuge, 2.0 mi downstream from Fish Creek, and 3.5 mi southeast of Frenchglen.

DRAINAGE AREA.--200 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1911 to September 1913, March 1914 to September 1916, April 1917 to September 1921, August to November 1929, April to September 1930, December 1937 to current year. Monthly discharge only for some periods, published in WSP 1314. Published as "near Diamond" 1911-21. Records of discharge for January 1909 to September 1910 (published in WSP 270, 290, and 370, for a nonequivalent site as "near Diamond") have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 330: Drainage area (former site). WSP 860: Drainage area (present site). WSP 1564: 1938-39(M), 1942-43(M), 1948(M), 1951(P), 1952-53. WSP 1714: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,254 ft above National Geodetic Vertical Datum of 1929 (levels by Fish and Wildlife Service). Prior to December 1937, nonrecording gage at several sites within 2 mi downstream at different datums. Dec. 6, 1937, to Feb. 14, 1938, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Oct. 15 to Dec. 4; Dec. 6-9, 15-23; Jan. 5-7, 11-16, 26-28; Feb. 2-6, 9, 10. Water-discharge records excellent except for the period Oct. 15 to Feb. 15, which is fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--55 years (water years 1912-13, 1915-16, 1918-21, 1939-85), 128 ft^3/s, 92,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,270 ft^3/s Apr. 26, 1978, gage height, 7.15 ft, from floodmarks, from rating curve extended above 1,900 ft^3/s on basis of slope-area measurement of peak flow; minimum, 4.2 ft^3/s Dec. 9, 1972, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 18	2030	759	3.91	Apr. 1	2000	*1,210	*4.62

Minimum, 39 ft^3/s Jan. 1, but may have been less during periods of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	86	88	56	55	94	542	309	214	91	65	51
2	79	90	84	77	58	78	504	346	194	90	67	56
3	79	96	80	73	50	74	407	361	181	89	61	56
4	79	90	77	71	45	75	324	309	190	88	60	54
5	79	87	73	70	58	72	316	304	218	84	58	54
6	78	91	76	70	70	71	333	314	292	82	57	55
7	78	92	81	74	84	70	367	319	334	81	55	59
8	77	92	82	74	67	69	402	301	317	83	55	62
9	76	92	84	74	62	75	416	292	262	82	56	64
10	76	92	89	68	60	111	421	277	233	78	56	59
11	90	100	87	56	72	115	395	264	211	75	56	60
12	84	110	87	54	91	107	393	244	212	73	55	60
13	104	120	81	56	85	106	393	239	221	70	54	57
14	88	105	73	62	87	133	419	263	206	69	54	57
15	92	100	85	70	124	159	424	239	203	68	54	56
16	91	94	75	74	93	189	389	232	199	67	53	55
17	90	92	64	77	78	263	345	242	181	66	53	57
18	94	94	60	81	70	373	324	278	172	64	54	59
19	92	92	47	79	75	413	316	292	179	62	57	57
20	90	94	50	76	70	404	276	304	172	59	55	55
21	88	96	60	73	67	302	271	302	155	60	54	55
22	88	90	70	69	76	149	258	334	137	61	54	54
23	88	94	80	67	85	221	247	383	133	64	53	54
24	86	98	85	76	102	281	213	418	128	59	52	54
25	87	93	79	69	100	155	205	419	112	58	51	53
26	88	88	86	64	78	106	195	388	106	57	51	53
27	92	90	81	62	72	104	199	352	103	57	51	52
28	95	90	79	72	80	99	223	319	100	57	51	52
29	92	90	76	74	---	95	240	282	99	61	51	52
30	88	91	81	67	---	151	258	256	96	75	51	52
31	90	---	77	67	---	464	---	240	---	71	52	---
TOTAL	2679	2829	2377	2152	2114	5178	10015	9422	5560	2201	1706	1674
MEAN	86.4	94.3	76.7	69.4	75.5	167	334	304	185	71.0	55.0	55.8
MAX	104	120	89	81	124	464	542	419	334	91	67	64
MIN	76	86	47	54	45	69	195	232	96	57	51	51
AC-FT	5310	5610	4710	4270	4190	10270	19860	18690	11030	4370	3380	3320

CAL YR 1984	TOTAL	99282	MEAN	271	MAX	1340	MIN	47	AC-FT	196900
WTR YR 1985	TOTAL	47907	MEAN	131	MAX	542	MIN	45	AC-FT	95020

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1981.
WATER TEMPERATURES: October 1975 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT											
11...	1200	88	100	8.40	9.5	10.5	--	--	40	0	9.7
FEB											
05...	1100	58	103	8.20	1.0	14.0	K14	49	38	0	9.1
JUN											
12...	1020	218	57	7.20	17.0	8.8	K14	31	23	0	5.8
AUG											
14...	1025	54	104	8.00	15.0	11.0	--	47	42	0	10

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT											
11...	3.8	5.7	1.6	59	2.5	1.1	.10	.030	.13	.30	.010
FEB											
05...	3.7	6.4	1.3	46	1.7	.80	.10	.030	.36	.30	.030
12...	2.1	3.4	.80	27	1.1	.40	<.10	.050	<.10	.50	.010
AUG											
14...	4.0	6.2	1.6	51	1.6	.80	.10	.050	<.10	.30	<.010

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
11...	.010	.030	29	91	89	22	29	--	--	--
FEB										
05...	.030	.030	32	86	83	13	1.5	--	--	--
JUN										
12...	.010	.040	20	48	50	28	3.7	18	11	69
AUG										
14...	.020	.020	31	89	86	13	5.0	3	.44	--

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
OCT										
11...	20	<1	16	<.5	<1	<1	<6	1	42	<1
FEB										
05...	10	<1	12	<.5	<1	2	<3	<1	21	<1
JUN										
12...	40	1	10	<.5	<1	<1	<3	2	36	7
AUG										
14...	30	<1	12	<.5	<1	<1	<3	1	22	<1

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
OCT										
11...	<4	5	<.1	<10	<1	<1	<1	58	<6	21
FEB										
05...	<4	6	<.1	<10	<1	<1	<1	52	<6	<3
JUN										
12...	<4	4	<.1	<10	<1	<1	<1	32	<6	11
AUG										
14...	<4	5	<.1	<10	7	<1	<1	60	<6	<3

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

10401800 MALHEUR LAKE NEAR VOLTAGE, OR

LOCATION.--Lat 43°16'04", long 118°50'31", in NE¼SE¼ sec.35, T.26 S., R.31 E., Harney County, Hydrologic Unit 17120001, at Malheur National Wildlife Refuge Headquarters, near Voltage.

DRAINAGE AREA.--2,150 mi², approximately.

PERIOD OF RECORD.--March 1972 to September 1980, March 1983 to current year. Published as "at break in Cole Island Dike" (sta 10401830) 1972-78.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum (NGVD) of 1929. Prior to Aug. 21, 1984, at various sites within 6 mi of present site, at different datums.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily elevation, 4,102.48 ft Apr. 24, 25, 1985; minimum recorded, 4,090.60 ft Oct. 2, 3, 16, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation observed since 1938, 4,095.39 ft, occurred in 1952, from records of Malheur National Wildlife Refuge for staff gage in channel of Donner und Blitzen River; entire bed of lake dry September 1934.

EXTREMES FOR CURRENT YEAR.--Maximum daily elevation, 4,102.48 ft Apr. 24, 25; minimum daily, 4,100.76 ft Sept. 30.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4101.34	4101.34	4101.61	4101.48	---	---	---	4102.45	---	4101.87	---	---
2	4101.32	4101.03	4101.63	4101.54	---	---	4102.26	---	---	---	4101.40	4100.82
3	4101.32	4101.34	4101.59	4101.55	---	---	---	4102.46	4102.26	4101.83	---	---
4	4101.32	4101.42	4101.57	4101.54	---	4102.04	---	---	---	---	---	4100.80
5	4101.32	4101.41	4101.57	4101.58	4101.88	4102.06	4102.27	---	4102.25	4101.79	4101.35	---
6	4101.31	4101.34	4101.58	4101.69	---	4102.07	---	4102.45	---	---	---	---
7	4101.31	4101.37	4101.60	4101.72	---	---	---	---	4102.21	---	4101.30	---
8	4101.30	4101.33	4101.60	4101.67	4101.90	4102.09	4102.28	4102.42	---	4101.75	---	---
9	4101.31	4101.34	4101.60	4101.67	---	---	4102.34	---	---	---	4101.26	4100.89
10	4101.29	4101.37	4101.61	---	---	4102.09	4102.29	4102.42	4102.22	4101.71	---	4100.86
11	4101.33	4101.43	4101.63	---	4101.93	4102.10	4102.29	---	---	---	---	4100.86
12	4101.28	4101.43	4101.66	---	---	---	4102.30	---	4102.18	4101.69	4101.19	4100.87
13	4101.39	4101.38	4101.66	---	4101.93	4102.12	4102.30	4102.38	4102.17	---	---	4100.87
14	4101.37	4101.45	4101.63	---	---	4102.13	4102.32	---	4102.15	---	4101.16	4100.87
15	4101.42	4101.47	4101.64	---	4101.94	4102.13	4102.28	4102.35	4102.15	4101.69	---	4100.88
16	4101.34	4101.43	4101.65	4101.78	---	---	4102.35	---	4102.13	---	4101.11	4100.87
17	4101.36	4101.44	4101.65	---	---	4102.13	4102.35	4102.35	4102.11	4101.65	---	4100.88
18	4101.32	4101.45	4101.65	---	4101.95	4102.13	4102.37	---	4102.09	---	---	4100.89
19	4101.33	4101.45	4101.66	4101.78	---	4102.16	4102.41	---	4102.09	4101.61	4101.07	4100.85
20	4101.36	4101.46	4101.68	---	4101.95	---	4102.42	4102.38	---	---	---	4100.83
21	4101.36	4101.50	4101.68	4101.80	---	4102.18	4102.39	---	4102.09	---	4101.05	4100.84
22	4101.34	4101.49	4101.67	---	4101.95	---	4102.41	4102.35	---	4101.57	---	4100.84
23	4101.34	4101.46	4101.67	---	---	---	4102.45	---	---	---	4101.02	4100.82
24	4101.37	4101.50	4101.69	4101.80	---	---	4102.48	4102.32	---	4101.41	---	4100.81
25	4101.34	4101.52	4101.69	---	4102.00	---	4102.48	---	---	---	---	4100.82
26	4101.32	4101.52	4101.69	---	4102.00	4102.18	4102.45	---	4102.13	4101.35	4100.98	4100.79
27	4101.34	4101.51	4101.69	---	4102.00	---	---	4102.25	---	---	---	4100.84
28	4101.30	4101.47	4101.71	---	---	4102.23	---	---	4101.97	---	4100.95	4100.79
29	4101.39	4101.54	4101.57	---	---	---	4102.45	4102.30	---	4101.30	---	4100.78
30	4101.36	4101.55	4101.70	4101.82	---	---	---	---	---	---	4100.91	4100.76
31	4101.35	---	4101.57	---	---	---	---	4102.30	---	4101.41	---	---
MEAN	4101.34	4101.42	4101.64	---	---	---	---	---	---	---	---	---
MAX	4101.42	4101.55	4101.71	---	---	---	---	---	---	---	---	---
MIN	4101.28	4101.03	4101.57	---	---	---	---	---	---	---	---	---

10406500 TROUT CREEK NEAR DENIO, NV

LOCATION.--Lat 42°09'20", long 118°27'14", in NW¼SE¼ sec.26, T.39 S., R.36 E., Harney County, Hydrologic Unit 17120009, on right bank 0.4 mi upstream from bridge at mouth of canyon, 5 mi east of Trout Creek Ranch, and 14 mi northeast of Denio.

DRAINAGE AREA.--88 mi^2, approximately.

PERIOD OF RECORD.--March 1911 to March 1912, April 1922 to November 1923, March 1925 to September 1931 (irrigation seasons only), April 1932 to current year. Prior to Oct. 1, 1961, published as "near Denio, Oreg."

REVISED RECORDS.--WSP 1564: 1932, 1933-34(M), 1938(M). WSP 1714: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,351.52 ft above National Geodetic Vertical Datum of 1929. Mar. 25, 1911, to Mar. 31, 1912, nonrecording gage at bridge 0.4 mi downstream at different datum. Apr. 28, 1922, to June 14, 1932, water-stage recorder at site 10 ft upstream at datum 0.50 ft higher.

REMARKS.--Estimated daily discharges: Nov. 7-25; Dec. 1-9, 14-23, 31; Jan. 1 to Mar. 9; Mar. 11, 27-29; May 24 to June 25. Records good except those for December to February, which are poor. No regulation. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--54 years (water years 1923, 1933-85), 16.8 ft^3/s, 12,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 470 ft^3/s Aug. 1, 1933, gage height, 5.26 ft, from rating curve extended above 230 ft^3/s; minimum observed, 0.10 ft^3/s Aug. 4, 1930, Aug. 1, Sept. 12, 28, 1934. Probably no flow at times Sept. 1-19, 1931.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 6.0 ft, caused by cloudburst, probably occurred in 1924 or 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 15	2000	a	*3.38	Apr. 15	0030	*102	2.87
May 3	0530	88	2.75				

Minimum, 4.4 ft^3/s Aug. 28, 29.

a Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	12	7.0	8.0	12	26	60	29	9.9	9.3	5.0
2	11	12	12	8.0	8.0	12	33	78	27	10	9.3	6.1
3	10	14	12	8.0	7.0	11	43	84	27	10	8.6	6.5
4	10	13	13	8.0	5.0	9.5	50	85	27	9.5	8.2	6.2
5	10	13	11	9.0	7.0	9.5	56	84	27	9.1	7.1	6.1
6	10	13	10	10	9.5	9.5	63	80	28	8.7	7.0	6.1
7	10	13	10	11	12	9.5	72	68	32	8.5	6.3	6.1
8	10	13	10	10	11	10	79	61	34	9.2	6.2	6.5
9	11	14	11	8.0	9.5	11	84	62	34	8.5	6.5	8.0
10	11	14	13	8.0	8.5	13	87	61	30	8.9	6.4	11
11	13	15	13	8.0	11	13	85	58	26	9.3	6.5	11
12	13	16	12	8.0	12	13	85	54	25	9.1	6.5	9.8
13	13	17	14	7.5	11	14	85	51	25	8.7	6.1	8.7
14	12	16	12	7.5	11	15	90	52	25	8.3	6.3	8.1
15	13	15	10	7.5	12	16	95	52	25	8.6	6.2	8.0
16	13	14	9.5	8.5	12	17	91	51	24	8.0	5.8	8.0
17	14	13	9.0	9.5	11	19	83	51	23	7.6	5.8	9.4
18	13	13	8.5	11	10	22	80	55	22	7.9	5.8	10
19	14	13	6.5	11	9.5	24	75	57	20	7.9	5.8	8.7
20	15	13	7.0	12	10	26	62	57	20	8.3	5.7	8.2
21	14	13	9.0	9.5	11	26	60	55	20	8.8	5.4	8.0
22	12	13	11	10	12	24	56	51	18	8.8	5.7	8.4
23	12	14	12	10	12	24	49	46	17	7.2	5.7	9.3
24	13	14	12	10	12	26	46	47	15	7.7	5.5	8.6
25	13	15	9.9	9.5	12	26	46	48	14	8.0	5.2	8.3
26	15	14	12	8.0	12	21	44	50	13	7.8	5.0	8.3
27	14	13	12	8.5	12	18	44	46	11	7.4	4.8	8.1
28	13	16	11	11	12	18	47	43	11	7.2	4.8	8.2
29	14	14	12	10	---	20	51	40	9.8	7.6	4.7	8.5
30	13	13	12	8.0	---	22	54	35	9.2	9.7	4.7	8.5
31	12	---	10	8.0	---	25	---	32	---	9.8	5.0	---
TOTAL	382	415	338.4	280.0	290.0	536.0	1921	1754	668.0	266.0	191.9	241.7
MEAN	12.3	13.8	10.9	9.03	10.4	17.3	64.0	56.6	22.3	8.58	6.19	8.06
MAX	15	17	14	12	12	26	95	85	34	10	9.3	11
MIN	10	12	6.5	7.0	5.0	9.5	26	32	9.2	7.2	4.7	5.0
AC-FT	758	823	671	555	575	1060	3810	3480	1320	528	381	479

CAL YR 1984	TOTAL	18161.3	MEAN	49.6	MAX	314	MIN	6.5	AC-FT	36020
WTR YR 1985	TOTAL	7284.0	MEAN	20.0	MAX	95	MIN	4.7	AC-FT	14450

11491400 WILLIAMSON RIVER BELOW SHEEP CREEK, NEAR LENZ, OR

LOCATION.--Lat 42°54'42", long 121°28'32", in NE¼SW¼ sec.1, T.31 S., R.10 E., Klamath County, Hydrologic Unit 18010201, on left bank at Forest Service bridge, 0.1 mi downstream from Sheep Creek and 17 mi east of Lenz.

DRAINAGE AREA.--205 mi^2.

PERIOD OF RECORD.--October 1973 to current year. Prior to October 1979, in reports of Oregon Water Resources Department.

GAGE.--Water-stage recorder. Elevation of gage is 4,550 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 13-17, 19-22, 25; Jan. 1-5, 13, 14; Feb. 2; Aug. 5 to Sept. 30. Records good. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--12 years, 73.6 ft^3/s, 53,320 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246 ft^3/s May 9, 10, 1974, gage height, 3.51 ft; minimum, 16 ft^3/s Dec. 13, 1980, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 115 ft^3/s Apr. 16; maximum gage height, 2.17 ft July 2, affected by ice; minimum daily, 52 ft^3/s July 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	71	74	66	80	81	96	91	93	55	62	60
2	74	77	73	66	80	80	99	91	88	55	62	60
3	73	83	75	68	80	80	100	91	88	54	62	60
4	73	77	74	72	79	81	98	91	87	52	60	60
5	73	75	72	76	80	80	98	86	81	54	60	60
6	72	75	73	83	80	80	98	83	77	54	60	60
7	72	75	73	83	80	80	97	82	75	54	60	62
8	72	74	72	83	81	80	99	82	75	54	60	68
9	71	74	73	83	80	80	101	81	74	54	60	72
10	71	77	73	82	80	80	102	77	73	56	60	75
11	76	81	73	82	80	80	104	72	69	60	60	75
12	73	84	74	82	80	80	105	69	70	60	60	72
13	73	80	73	81	80	81	107	68	69	59	60	70
14	73	78	73	81	80	81	108	67	69	59	60	68
15	76	77	72	81	80	82	111	66	68	59	60	66
16	76	78	72	81	80	84	114	66	65	58	60	65
17	75	77	78	81	80	85	112	67	66	57	60	64
18	74	79	72	81	80	86	109	68	66	58	60	63
19	74	79	70	81	80	87	110	73	65	58	60	62
20	74	88	68	81	80	89	107	74	65	57	60	62
21	74	88	68	80	80	91	107	75	63	58	60	62
22	73	82	76	80	80	90	108	75	63	58	60	62
23	72	79	71	80	80	92	102	75	62	58	60	62
24	73	82	71	80	80	93	98	80	61	58	60	62
25	72	79	71	80	80	94	95	80	60	58	60	62
26	73	77	71	80	80	93	93	80	60	58	60	62
27	73	77	68	80	80	92	92	82	58	58	60	62
28	73	78	69	80	80	90	92	80	54	58	60	62
29	73	76	68	80	---	89	92	87	55	59	60	62
30	72	76	69	80	---	89	91	83	53	60	60	62
31	71	---	67	80	---	91	---	86	---	63	60	---
TOTAL	2269	2353	2226	2454	2240	2641	3045	2428	2072	1773	1866	1924
MEAN	73.2	78.4	71.8	79.2	80.0	85.2	102	78.3	69.1	57.2	60.2	64.1
MAX	76	88	78	83	81	94	114	91	93	63	62	75
MIN	71	71	67	66	79	80	91	66	53	52	60	60
AC-FT	4500	4670	4420	4870	4440	5240	6040	4820	4110	3520	3700	3820

CAL YR 1984	TOTAL	34528	MEAN	94.3	MAX	191	MIN	62	AC-FT	68490
WTR YR 1985	TOTAL	27291	MEAN	74.8	MAX	114	MIN	52	AC-FT	54130

11492200 CRATER LAKE NEAR CRATER LAKE, OR
(Hydrologic bench-mark station)

LOCATION.--Lat 42°58'45", long 122°04'45", (unsurveyed) Crater Lake National Park and Vicinity Quadrangle, Klamath County, Hydrologic Unit 18010201, at boat harbor at end of trail in Cleetwood Cove and 6 mi northeast of Crater Lake post office.

DRAINAGE AREA.--26.2 mi^2, of which 20.5 mi^2 is lake area at elevation 6,176 ft.

WATER-ELEVATION RECORDS

PERIOD OF RECORD.--October 1961 to current year. 1878 to September 1961 (fragmentary records) available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to September 1961, nonrecording gage and various reference points used near old boat landing at abandoned trail (Eagle Cove) directly across Lake.

REMARKS.--Crater Lake occupies the caldera of prehistoric Mount Mazama. It has no visible inlet or outlet. Over a period of years precipitation and runoff from snowmelt on the walls of the crater are offset by seepage and evaporation. Records of accumulated annual precipitation, collected at the north rim of Crater Lake as part of the operation of this station, are published annually in reports of the National Weather Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 6,179.34 ft Mar. 25, 1975; minimum observed, 6,163.2 ft Sept. 10, 1942.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 6,180.5 ft, average of several observations of line of crustose lichens made between 1916 and 1960; that stage may have occurred near the close of the 19th century. The occurrence of living pine trees slightly higher suggests that the lake has not been materially higher for several centuries.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 6,178.49 ft Dec. 12; minimum, 6,176.41 ft Sept. 30.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6177.46	6177.40	6178.45	6178.34	6178.08	6178.18	6178.22	6178.13	6177.99	6177.82	6177.40	6176.77
2	6177.45	6177.66	6178.45	6178.32	6178.11	6178.16	6178.22	6178.13	6177.98	6177.81	6177.38	6176.77
3	6177.43	6177.74	6178.42	6178.31	6178.11	6178.13	6178.21	6178.15	6177.98	6177.80	6177.36	6176.74
4	6177.41	6177.71	6178.40	6178.30	6178.11	6178.18	6178.20	6178.13	6177.98	6177.79	6177.36	6176.73
5	6177.38	6177.68	6178.38	6178.29	6178.08	6178.20	6178.20	6178.13	6177.99	6177.79	6177.34	6176.70
6	6177.38	6177.75	6178.36	6178.27	6178.09	6178.20	6178.17	6178.11	6178.04	6177.77	6177.31	6176.72
7	6177.36	6177.77	6178.34	6178.27	6178.18	6178.18	6178.16	6178.13	6178.08	6177.77	6177.29	6176.68
8	6177.36	6177.81	6178.32	6178.25	6178.24	6178.16	6178.16	6178.11	6178.08	6177.74	6177.25	6176.66
9	6177.32	6177.86	6178.36	6178.24	6178.27	6178.13	6178.15	6178.08	6178.07	6177.73	6177.23	6176.68
10	6177.36	6177.90	6178.38	6178.22	6178.25	6178.13	6178.13	6178.09	6178.07	6177.72	6177.20	6176.66
11	6177.38	6178.00	6178.40	6178.21	6178.32	6178.13	6178.13	6178.07	6178.06	6177.70	6177.16	6176.65
12	6177.45	6178.09	6178.49	6178.20	6178.32	6178.11	6178.13	6178.05	6178.06	6177.70	6177.15	6176.63
13	6177.42	6178.18	6178.47	6178.18	6178.30	6178.11	6178.11	6178.06	6178.04	6177.67	6177.13	6176.64
14	6177.41	6178.15	6178.47	6178.16	6178.29	6178.08	6178.11	6178.04	6178.04	6177.65	6177.11	6176.65
15	6177.38	6178.13	6178.46	6178.16	6178.29	6178.07	6178.11	6178.00	6178.04	6177.63	6177.13	6176.63
16	6177.38	6178.13	6178.45	6178.15	6178.27	6178.04	6178.09	6178.02	6178.04	6177.63	6177.09	6176.63
17	6177.36	6178.13	6178.45	6178.13	6178.25	6178.04	6178.08	6178.00	6178.04	6177.61	6177.11	6176.64
18	6177.38	6178.15	6178.45	6178.13	6178.24	6178.04	6178.13	6178.00	6178.00	6177.59	6177.11	6176.63
19	6177.45	6178.13	6178.42	6178.13	6178.29	6178.00	6178.13	6178.00	6178.00	6177.56	6177.09	6176.61
20	6177.43	6178.17	6178.43	6178.11	6178.27	6178.02	6178.13	6177.99	6177.99	6177.54	6177.06	6176.59
21	6177.41	6178.13	6178.41	6178.13	6178.25	6178.02	6178.20	6177.98	6177.98	6177.52	6177.04	6176.58
22	6177.40	6178.13	6178.40	6178.13	6178.24	6178.06	6178.20	6177.97	6177.97	6177.50	6177.02	6176.56
23	6177.40	6178.18	6178.38	6178.11	6178.22	6178.11	6178.22	6177.99	6177.95	6177.47	6177.00	6176.55
24	6177.38	6178.16	6178.36	6178.11	6178.22	6178.15	6178.22	6177.98	6177.95	6177.45	6176.99	6176.52
25	6177.38	6178.16	6178.36	6178.09	6178.20	6178.13	6178.20	6177.98	6177.92	6177.43	6176.97	6176.50
26	6177.45	6178.13	6178.34	6178.08	6178.20	6178.24	6178.20	6177.97	6177.91	6177.42	6176.95	6176.49
27	6177.46	6178.30	6178.36	6178.08	6178.17	6178.27	6178.16	6177.97	6177.88	6177.41	6176.92	6176.47
28	6177.52	6178.38	6178.36	6178.06	6178.16	6178.29	6178.16	6177.99	6177.88	6177.38	6176.88	6176.45
29	6177.46	6178.42	6178.36	6178.07	---	6178.29	6178.15	6177.98	6177.88	6177.42	6176.86	6176.43
30	6177.45	6178.46	6178.38	6178.07	---	6178.25	6178.15	6177.97	6177.84	6177.42	6176.81	6176.41
31	6177.41	---	6178.36	6178.06	---	6178.24	---	6178.00	---	6177.43	6176.79	---
MEAN	6177.41	6178.03	6178.40	6178.17	6178.22	6178.14	6178.16	6178.04	6177.99	6177.61	6177.11	6176.61
MAX	6177.52	6178.46	6178.49	6178.34	6178.32	6178.29	6178.22	6178.15	6178.08	6177.82	6177.40	6176.77
MIN	6177.32	6177.40	6178.32	6178.06	6178.08	6178.00	6178.08	6177.97	6177.84	6177.38	6176.79	6176.41

CAL YR 1984 MEAN 6178.17 MAX 6178.86 MIN 6177.32
WTR YR 1985 MEAN 6177.82 MAX 6178.49 MIN 6176.41

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1963 to current year.

INSTRUMENTATION.--Temperature recorder since October 1963. Elevation of probe is 6,157 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Samples were collected at boat harbor at end of trail in Cleetwood Cove and 6 mi northeast of Crater Lake post office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.5°C Aug. 9, 10, 1978; minimum, 0.5°C on several days in 1969.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 16.5°C July 28, 29; minimum not determined, occurred during period of missing record between Oct. 16 and June 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)
OCT 10...	1200	110	7.00	10.5	29	0	7.2	2.7	10	1.6	30	11
JUN 18...	1045	114	7.70	9.0	30	0	7.3	2.8	10	1.8	30	9.7
AUG 15...	1300	117	8.00	14.5	31	0	8.0	2.7	10	1.9	31	10

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	SOLIDS, SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SUM OF CONSTITUENTS, DISSOLVED (MG/L)	TURBIDITY (NTU)
OCT 10...	9.8	.10	<.10	.010	<.20	.010	.010	.010	17	83	78	1.0
JUN 18...	9.8	.10	<.10	.030	<.20	.020	.010	.020	18	77	78	.50
AUG 15...	9.6	.10	<.10	.030	.20	.020	.040	<.010	17	76	78	.40

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
OCT 10...	20	2	11	<.5	<1	<1	<3	1	5	4
JUN 18...	10	3	15	<.5	<1	<1	<3	2	6	1
AUG 15...	30	2	16	<.5	1	<1	<3	2	11	3

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 10...	45	<1	.1	<10	3	<1	<1	57	<6	10
JUN 18...	45	1	<.1	<10	1	<1	<1	60	<6	14
AUG 15...	44	5	<.1	<10	4	<1	<1	61	<6	61

DATE	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
OCT 10...	<2.0	<.4	2.2	1.9	<.4	<.4	.12	.04
JUN 18...	<1.3	<.4	2.2	1.9	<.4	<.4	.07	<.01
AUG 15...	.4	.6	1.6	1.4	<.4	<.4	.03	.03

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	11.5	11.0										
2	11.5	11.0										
3	11.5	11.0										
4	11.0	11.0										
5	11.0	11.0										
6	11.0	11.0										
7	11.0	11.0										
8	11.0	11.0										
9	11.0	10.5										
10	10.5	10.5										
11	10.5	10.0										
12	10.0	9.5										
13	9.5	9.0										
14	9.0	8.5										
15	8.5	8.5										
16	8.5	---										
17	---	---										
18	---	---										
19	---	---										
20	---	---										
21	---	---										
22	---	---										
23	---	---										
24	---	---										
25	---	---										
26	---	---										
27	---	---										
28	---	---										
29	---	---										
30	---	---										
31	---	---										
MONTH	---	---										

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1					---	---	10.0	9.5	15.0	15.0	14.5	14.0
2					---	---	11.0	9.5	15.0	14.5	14.0	13.5
3					---	---	10.5	9.0	15.0	14.5	14.0	13.5
4					---	---	11.5	10.5	15.0	14.5	14.0	13.5
5					---	---	12.0	11.0	15.5	14.5	13.5	13.5
6					---	---	12.0	11.0	15.0	14.5	13.5	13.0
7					---	---	12.0	11.0	15.5	15.0	13.0	12.5
8					---	---	12.0	11.0	15.0	14.5	12.5	12.0
9					---	---	12.0	11.0	15.0	14.5	12.0	12.0
10					---	---	12.5	11.5	14.5	14.0	12.0	12.0
11					---	---	13.0	11.5	14.5	14.0	12.0	11.5
12					---	---	13.0	11.5	14.0	13.5	11.5	11.0
13					---	---	13.5	11.5	14.5	14.0	11.0	11.0
14					---	---	13.5	12.0	14.5	14.5	11.0	10.5
15					---	---	14.0	12.0	14.5	14.5	10.5	10.5
16					---	---	14.0	12.0	14.5	14.5	10.5	10.0
17					---	---	14.5	12.5	15.0	14.5	10.5	10.0
18					---	---	14.5	13.0	15.0	14.5	10.5	10.0
19					9.0	7.0	14.0	13.0	14.5	14.5	10.5	10.0
20					7.0	6.5	15.0	13.0	14.5	14.5	10.5	10.0
21					9.0	6.0	14.5	13.5	14.5	14.5	10.5	10.0
22					9.5	8.0	15.5	12.5	14.5	14.5	10.5	10.0
23					12.5	8.0	15.5	13.5	14.5	14.5	10.5	10.5
24					10.0	6.5	14.5	13.0	14.5	14.5	10.5	10.0
25					8.0	5.5	15.0	14.0	14.5	14.5	10.5	10.0
26					9.5	8.0	15.5	15.0	14.5	14.5	10.5	10.5
27					10.0	9.5	15.5	14.5	15.0	14.5	11.0	10.5
28					11.0	10.0	16.5	15.0	15.5	15.0	10.5	10.0
29					10.5	10.0	16.5	14.0	15.5	15.0	10.5	10.5
30					10.0	10.0	16.0	15.5	15.0	14.5	10.5	10.0
31					---	---	15.5	15.0	14.5	14.5	---	---
MONTH					---	---	16.5	9.0	15.5	13.5	14.5	10.0

11493500 WILLIAMSON RIVER NEAR KLAMATH AGENCY, OR

LOCATION.--Lat 42°44'25", long 121°50'00", in NW¼SW¼ sec.1, T.33 S., R.7 E., Klamath County, Hydrologic Unit 18010201, on right bank 250 ft downstream from highway bridge, 0.6 mi southwest of railroad station at Kirk, 10 mi upstream from Spring Creek, and 10 mi northeast of Klamath Agency.

DRAINAGE AREA.--1,290 mi^2, approximately.

PERIOD OF RECORD.--March 1908 to January 1909, April 1909 to June 1910, October 1954 to current year. Monthly discharge only June 1910, published in WSP 1315-B.

REVISED RECORDS.--WSP 1565: 1908-9.

GAGE.--Water-stage recorder. Datum of gage is 4,483.16 ft above National Geodetic Vertical Datum of 1929. Mar. 25, 1908, to June 30, 1910, nonrecording gage or water-stage recorder at two sites about 0.5 mi upstream at different datums. Oct. 1, 1954, to Sept. 30, 1955, water-stage recorder at present site at datum 2.05 ft higher.

REMARKS.--Estimated daily discharges: Dec. 16, 19, 20, 31, Jan. 1-4, 12-14, 30, Feb. 7-11. Records good. Flow affected by natural storage in Klamath Marsh. Small diversions upstream from station for irrigation in vicinity of marsh.

AVERAGE DISCHARGE.--31 years (water years 1955-85), 210 ft^3/s, 152,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 1,590 ft^3/s Mar. 13, 1910, gage height, 3.7 ft, site and datum then in use, from rating curve extended above 800 ft^3/s; maximum gage height, 5.57 ft Mar. 3, 1958; no flow at times during 1960-74, 1977-81.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 804 ft^3/s Apr. 5, gage height, 5.16 ft; minimum, 2.8 ft^3/s Aug. 29-31, Sept. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	190	461	320	252	245	632	539	278	128	40	2.8
2	64	192	464	316	252	252	668	508	276	123	40	3.0
3	65	229	468	312	252	252	684	471	269	120	38	3.4
4	67	256	468	304	252	254	744	476	261	113	35	3.1
5	68	272	453	302	252	255	785	473	255	108	33	2.8
6	71	280	441	300	252	256	702	460	244	103	28	2.9
7	74	292	432	300	245	259	713	452	243	99	22	4.0
8	73	299	429	299	238	259	742	440	250	95	22	7.8
9	78	304	429	300	231	259	766	431	244	91	19	12
10	80	311	436	299	228	259	764	421	243	89	18	17
11	88	339	435	296	231	259	750	410	236	85	16	20
12	93	371	431	292	236	261	754	407	228	81	13	23
13	98	378	421	288	233	263	754	398	223	80	13	29
14	106	394	412	285	231	263	740	396	220	77	11	35
15	114	409	410	287	229	271	713	396	217	70	9.6	42
16	120	418	401	284	228	286	700	385	214	66	9.5	46
17	123	420	392	281	228	302	696	376	206	64	8.7	49
18	127	423	384	277	228	322	686	365	199	60	9.7	56
19	134	430	373	276	228	339	672	353	194	56	9.6	59
20	141	449	364	273	228	371	667	346	191	53	8.6	63
21	147	465	359	270	228	394	661	336	185	48	7.8	67
22	153	466	356	271	229	415	645	325	178	47	7.5	70
23	157	463	351	274	228	459	619	315	173	45	7.1	72
24	164	470	346	270	233	500	626	310	170	42	6.6	74
25	163	468	343	266	235	550	639	306	163	39	6.4	77
26	160	463	334	264	235	561	628	298	156	36	6.7	77
27	167	457	331	262	235	488	611	290	149	34	5.7	80
28	173	438	327	258	235	494	585	286	143	31	4.6	81
29	182	445	324	255	---	508	567	277	136	31	4.2	81
30	186	457	325	255	---	536	557	278	132	33	3.2	84
31	190	---	320	256	---	581	---	279	---	38	3.1	---
TOTAL	3689	11248	12220	8792	6612	10973	20470	11803	6276	2185	466.6	1243.8
MEAN	119	375	394	284	236	354	682	381	209	70.5	15.1	41.5
MAX	190	470	468	320	252	581	785	539	278	128	40	84
MIN	63	190	320	255	228	245	557	277	132	31	3.1	2.8
AC-FT	7320	22310	24240	17440	13110	21760	40600	23410	12450	4330	926	2470

CAL YR 1984	TOTAL	125398	MEAN	343	MAX	791	MIN	23	AC-FT	248700
WTR YR 1985	TOTAL	95978.4	MEAN	263	MAX	785	MIN	2.8	AC-FT	190400

11497500 SPRAGUE RIVER NEAR BEATTY, OR

LOCATION.--Lat 42°26'50", long 121°14'15", in NW¼SE¼ sec.13, T.36 S., R.12 E., Klamath County, Hydrologic Unit 18010202, on right bank 1.6 mi east of Beatty, and 4.6 mi upstream from Sycan River.

DRAINAGE AREA.--513 mi^2.

PERIOD OF RECORD.--April to September 1912 and November 1912 to September 1913 (fragmentary), October 1913 to September 1915, February to November 1916, March 1917 to June 1918, May 1919 to October 1920, February 1921 to September 1926 (irrigation seasons only), October 1953 to current year. Monthly discharge only October 1913, published in WSP 1315-B. Prior to October 1917, published as "near Yainax."

REVISED RECORDS.--WSP 1315-B: 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 4,305.35 ft above National Geodetic Vertical Datum of 1929. Apr. 19, 1912, to Feb. 19, 1914, nonrecording gage, Feb. 20, 1914, to Sept. 11, 1917, water-stage recorder, and Sept. 12, 1917, to Sept. 30, 1926, nonrecording gage, at site 2 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 3-18. Records good. No regulation. Diversions for irrigation upstream from station in the vicinity of Bly.

AVERAGE DISCHARGE.--35 years (water years 1914-15, 1920, 1954-85), 316 ft^3/s, 228,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft^3/s Dec. 23, 1964, gage height, 12.19 ft; minimum, 50 ft^3/s Aug. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft^3/s Apr. 16, gage height, 5.78 ft; minimum, 100 ft^3/s Jan. 1, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	190	219	134	134	320	936	531	379	174	122	121
2	196	214	208	151	142	264	809	556	408	171	114	135
3	183	328	221	162	158	218	799	572	384	162	114	147
4	173	300	250	160	126	229	810	558	349	161	111	158
5	172	248	200	163	144	216	840	533	341	166	117	151
6	169	227	180	166	156	215	888	518	325	166	115	149
7	166	220	185	168	158	209	906	497	312	162	114	185
8	161	229	185	168	159	205	936	488	297	162	113	323
9	159	229	195	167	147	214	947	469	281	160	112	322
10	160	234	200	164	141	274	959	451	267	148	111	282
11	205	266	200	151	153	364	977	434	256	153	110	249
12	222	555	200	137	154	387	981	411	238	180	115	227
13	231	395	190	141	156	352	957	394	216	148	112	215
14	213	371	160	154	156	354	962	377	211	143	117	209
15	195	292	180	160	159	399	1010	363	209	140	117	205
16	195	273	150	156	175	436	1050	352	207	141	117	196
17	199	260	160	154	192	474	961	358	204	141	116	199
18	194	263	170	154	187	440	855	353	196	136	131	190
19	199	268	131	154	181	488	797	349	195	139	144	179
20	209	253	135	155	175	505	736	368	210	143	125	174
21	203	308	196	153	174	499	680	382	198	138	124	171
22	196	260	193	151	190	402	681	344	193	138	141	166
23	191	231	181	144	244	366	645	325	193	131	130	164
24	195	263	176	150	296	526	604	325	194	126	134	161
25	200	298	162	149	365	633	542	314	191	128	130	151
26	199	241	178	142	329	416	498	311	188	116	130	151
27	217	224	176	140	268	312	489	347	187	113	124	151
28	205	224	175	156	262	317	506	351	175	109	121	151
29	207	222	168	151	---	312	521	442	172	118	119	149
30	201	229	172	142	---	353	539	433	174	118	117	150
31	198	---	169	148	---	683	---	381	---	132	121	---
TOTAL	6004	8115	5665	4745	5281	11382	23821	12887	7350	4463	3738	5581
MEAN	194	271	183	153	189	367	794	416	245	144	121	186
MAX	231	555	250	168	365	683	1050	572	408	180	144	323
MIN	159	190	131	134	126	205	489	311	172	109	110	121
AC-FT	11910	16100	11240	9410	10470	22580	47250	25560	14580	8850	7410	11070

CAL YR 1984	TOTAL	168352	MEAN	460	MAX	1960	MIN	130	AC-FT	333900
WTR YR 1985	TOTAL	99032	MEAN	271	MAX	1050	MIN	109	AC-FT	196400

11499100 SYCAN RIVER BELOW SNAKE CREEK, NEAR BEATTY, OR

LOCATION.--Lat 42°29'10", long 121°16'40", in SW¼SE¼ sec.34, T.35 S., R.12 E., Klamath County, Hydrologic Unit 18010202, on left bank 200 ft downstream from Snake Creek and 3.1 mi north of Beatty.

DRAINAGE AREA.--568 mi^2.

PERIOD OF RECORD.--October 1973 to current year. Prior to October 1979, in reports of Oregon Water Resources Department.

GAGE.--Water-stage recorder. Elevation of gage is 4,310 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-8; Nov. 1-27; Dec. 19, 31; Jan. 1, 2, 13-15; Feb. 4; July 27 to Sept. 30. Records good except those for November, August, and September, which are poor. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--12 years, 185 ft^3/s, 134,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,550 ft^3/s Feb. 21 or 22, 1982, gage height, 12.22 ft, from floodmarks; minimum, 3.0 ft^3/s Nov. 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,030 ft^3/s Apr. 6, gage height, 8.88 ft; minimum recorded, 21 ft^3/s Feb. 4, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	54	62	40	37	46	332	397	176	42	33	25
2	43	70	60	42	39	43	528	399	178	40	32	30
3	41	90	87	48	40	41	849	383	168	37	32	35
4	40	80	71	48	33	45	1390	390	160	36	31	35
5	40	70	62	48	37	44	1870	401	151	37	30	33
6	40	65	60	49	41	44	1930	371	144	35	29	40
7	40	65	61	51	42	43	1780	311	136	35	28	55
8	40	65	60	52	40	41	1650	305	128	35	27	90
9	40	65	67	52	39	43	1380	275	120	34	27	80
10	41	70	67	48	40	47	1140	237	114	37	28	70
11	52	100	65	44	39	54	977	249	107	36	28	57
12	47	220	69	42	40	59	889	251	102	34	28	52
13	47	150	59	38	40	62	840	242	96	34	28	47
14	45	110	52	40	39	71	807	227	89	33	27	46
15	47	90	66	42	39	84	796	214	85	32	27	45
16	50	75	50	43	40	99	784	198	80	29	26	44
17	53	75	56	43	39	107	834	189	76	27	27	43
18	51	73	56	43	38	117	807	181	74	27	29	42
19	54	73	46	43	39	142	747	175	70	27	31	40
20	55	85	50	43	39	161	697	170	68	27	31	38
21	54	95	58	43	39	165	656	164	62	29	29	37
22	53	80	57	42	40	151	642	160	59	29	28	36
23	53	70	52	41	42	161	593	154	55	27	28	35
24	54	90	51	42	45	203	544	146	50	27	28	34
25	53	105	49	41	46	216	510	139	49	27	28	34
26	52	90	50	40	44	191	465	136	48	28	27	33
27	53	80	52	39	42	174	419	137	46	28	26	33
28	54	77	52	40	45	162	395	144	46	29	25	32
29	59	70	52	42	---	144	387	155	44	30	23	32
30	57	76	52	39	---	145	393	163	42	31	23	32
31	53	---	45	38	---	190	---	171	---	32	23	---
TOTAL	1502	2578	1796	1346	1123	3295	26031	7234	2823	991	867	1285
MEAN	48.5	85.9	57.9	43.4	40.1	106	868	233	94.1	32.0	28.0	42.8
MAX	59	220	87	52	46	216	1930	401	178	42	33	90
MIN	40	54	45	38	33	41	332	136	42	27	23	25
AC-FT	2980	5110	3560	2670	2230	6540	51630	14350	5600	1970	1720	2550

CAL YR 1984	TOTAL	93822	MEAN	256	MAX	1410	MIN	30	AC-FT	186100
WTR YR 1985	TOTAL	50871	MEAN	139	MAX	1930	MIN	23	AC-FT	100900

11501000 SPRAGUE RIVER NEAR CHILOQUIN, OR

LOCATION.--Lat 42°35'05", long 121°50'55", in NE¼NW¼ sec.35, T.34 S., R.7 E., Klamath County, Hydrologic Unit 18010202, on right bank 1.0 mi northeast of Chiloquin, 4.6 mi upstream from Modoc Point Canal intake, and at mile 5.4.

DRAINAGE AREA.--1,580 mi^2, approximately.

PERIOD OF RECORD.--July to October 1920, March 1921 to current year. Monthly discharge only July 1920, published in WSP 1315-B. Prior to October 1931, published as "at McCready Ranch, near Chiloquin."

REVISED RECORDS.--WSP 591: 1922(M). WSP 1011: 1943 (M). WSP 1565: 1921-22.

GAGE.--Water-stage recorder. Datum of gage is 4,202.43 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 12 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 7-9, 16-26, 31, Jan. 1-4, 12-15, 27, 28, 30, 31, Feb. 1, 2, 4, 5. Records good. Minor regulation from irrigation diversions upstream from station.

AVERAGE DISCHARGE.--64 years (water years 1922-85), 589 ft^3/s, 426,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft^3/s Dec. 26, 1964, gage height, 10.37 ft; minimum daily, 50 ft^3/s May 26, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,690 ft^3/s Apr. 10, gage height, 4.76 ft; minimum, 179 ft^3/s July 21, Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	422	494	360	350	518	954	1030	714	312	255	227
2	360	440	497	350	320	541	1240	1030	701	301	252	231
3	370	471	474	355	347	561	1440	1020	710	327	246	238
4	380	514	455	395	360	497	1580	1020	719	333	230	258
5	370	576	485	406	350	466	1690	1030	684	308	224	271
6	370	581	457	401	371	475	1830	1030	644	293	221	272
7	370	528	400	402	415	464	2050	1010	625	300	201	275
8	370	502	370	407	413	455	2330	976	605	284	188	289
9	370	490	400	421	416	446	2580	922	587	266	191	367
10	370	501	440	418	395	447	2680	881	561	254	193	450
11	380	517	457	406	391	483	2640	835	545	252	202	487
12	390	566	480	395	391	593	2520	794	532	247	212	457
13	400	649	544	380	401	694	2330	780	510	237	216	419
14	410	822	541	370	404	726	2170	754	487	236	201	407
15	420	894	496	385	395	744	2050	733	459	235	208	396
16	433	826	410	394	399	834	1950	708	454	220	212	392
17	425	716	350	397	405	979	1890	684	456	214	220	383
18	423	645	375	395	421	1080	1880	654	437	201	240	368
19	427	610	350	386	433	1130	1900	650	429	187	266	363
20	423	619	310	386	425	1150	1880	642	391	192	278	357
21	423	620	325	388	420	1150	1820	643	403	181	277	343
22	425	630	420	386	421	1140	1740	648	408	196	259	336
23	423	645	500	381	424	1060	1610	649	400	193	254	335
24	414	607	450	376	454	945	1520	606	380	195	271	337
25	409	561	410	367	518	913	1450	570	369	206	264	331
26	413	574	375	377	581	1030	1360	557	363	215	256	330
27	413	589	387	350	608	1110	1260	548	375	216	246	325
28	420	549	424	340	553	885	1170	556	358	218	224	315
29	430	531	411	374	---	742	1080	584	348	214	225	322
30	428	510	411	360	---	724	1040	621	323	230	225	333
31	427	---	395	391	---	779	---	692	---	245	230	---
TOTAL	12436	17705	13293	11899	11781	23761	53634	23857	14977	7508	7187	10214
MEAN	401	590	429	384	421	766	1788	770	499	242	232	340
MAX	433	894	544	421	608	1150	2680	1030	719	333	278	487
MIN	350	422	310	340	320	446	954	548	323	181	188	227
AC-FT	24670	35120	26370	23600	23370	47130	106400	47320	29710	14890	14260	20260

CAL YR 1984	TOTAL	327232	MEAN	894	MAX	2870	MIN	253	AC-FT	649100
WTR YR 1985	TOTAL	208252	MEAN	571	MAX	2680	MIN	181	AC-FT	413100

11502500 WILLIAMSON RIVER BELOW SPRAGUE RIVER, NEAR CHILOQUIN, OR

LOCATION.--Lat 42°34'15", long 121°52'35", in NE¼NE¼ sec.4, T.35 S., R.7 E., Klamath County, Hydrologic Unit 18010202, on right bank 0.2 mi downstream from Sprague River and 0.8 mi southwest of Chiloquin.

DRAINAGE AREA.--3,000 mi^2, approximately.

PERIOD OF RECORD.--June 1917 to current year.

REVISED RECORDS.--WSP 981: 1938(M). WSP 1565: 1920(M), 1927(M), 1938.

GAGE.--Water-stage recorder. Datum of gage is 4,155.55 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1923, at different datum.

REMARKS.--Estimated daily discharges: Dec. 16, 17, 19-21, 31, Jan. 1-3, 12-14, Jan. 30 to Feb. 5. Records excellent. Some regulation by diversion dams and logpond operations of Sprague River. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--68 years, 1,059 ft^3/s, 767,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,100 ft^3/s Dec. 26, 1964, gage height, 10.56 ft; minimum, 320 ft^3/s Oct. 14, 1920.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,000 ft^3/s Apr. 10, gage height, 5.34 ft; minimum, 502 ft^3/s July 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	721	982	1290	980	921	1130	1910	1900	1280	645	584	529
2	732	1020	1290	1010	890	1140	2220	1860	1260	631	593	535
3	756	1070	1280	950	883	1170	2480	1800	1260	645	593	535
4	762	1120	1250	1010	885	1130	2680	1770	1270	654	582	550
5	755	1200	1280	1050	900	1090	2830	1780	1240	636	569	564
6	743	1230	1250	1040	878	1100	3020	1780	1200	617	563	569
7	739	1190	1190	1040	957	1090	3290	1760	1160	610	549	582
8	742	1160	1180	1030	999	1090	3610	1720	1140	604	538	598
9	741	1150	1210	1040	985	1090	3880	1660	1130	586	537	700
10	739	1180	1210	1040	960	1090	3990	1600	1090	567	544	796
11	767	1220	1220	1030	952	1120	3960	1550	1070	565	540	872
12	770	1280	1250	970	951	1220	3840	1490	1040	560	544	864
13	804	1370	1300	930	953	1330	3660	1460	1010	553	547	835
14	827	1540	1300	930	970	1380	3500	1430	975	551	539	834
15	837	1640	1240	971	969	1400	3330	1400	943	549	538	820
16	841	1600	1100	1000	970	1500	3200	1380	923	538	534	819
17	837	1490	1080	984	979	1660	3110	1350	909	535	542	810
18	841	1420	1110	977	994	1790	3070	1310	883	525	560	792
19	861	1380	930	970	1010	1870	3070	1290	856	509	574	785
20	877	1410	885	965	1000	1910	3040	1260	818	509	583	784
21	881	1420	990	965	996	1930	2990	1260	805	510	587	772
22	909	1430	1120	959	997	1930	2870	1260	796	516	586	765
23	928	1450	1160	953	1000	1910	2700	1260	774	515	581	765
24	930	1420	1140	945	1030	1820	2580	1220	757	512	591	770
25	927	1370	1090	935	1090	1790	2500	1180	742	523	589	770
26	935	1370	1080	938	1150	1920	2390	1160	726	535	578	770
27	935	1400	1060	926	1190	1980	2270	1130	718	539	555	763
28	960	1350	1090	924	1150	1780	2130	1130	704	544	527	750
29	973	1320	1080	922	---	1620	2010	1150	687	536	523	756
30	979	1310	1080	890	---	1630	1940	1180	658	540	523	768
31	980	---	1020	933	---	1710	---	1260	---	575	528	---
TOTAL	26029	39492	35755	30207	27609	46320	88070	44740	28824	17434	17321	21822
MEAN	840	1316	1153	974	986	1494	2936	1443	961	562	559	727
MAX	980	1640	1300	1050	1190	1980	3990	1900	1280	654	593	872
MIN	721	982	885	890	878	1090	1910	1130	658	509	523	529
AC-FT	51630	78330	70920	59920	54760	91880	174700	88740	57170	34580	34360	43280

CAL YR 1984	TOTAL	575105	MEAN	1571	MAX	4040	MIN	574	AC-FT	1141000
WTR YR 1985	TOTAL	423623	MEAN	1161	MAX	3990	MIN	509	AC-FT	840300

11503000 ANNIE SPRING NEAR CRATER LAKE, OR

LOCATION.--Lat 42°52'20", long 122°10'00", unsurveyed, Klamath County, Hydrologic Unit 18010203, in Crater Lake National Park, at highway bridge 0.1 mi downstream from source.

DRAINAGE AREA.--Indeterminate, normal flow is entirely from Annie Spring.

PERIOD OF RECORD.--June 1977 to current year. Discharge measurement and fragmentary gage-height record August to October 1913. Discharge measurements only Oct. 11, 1967, June 26, Sept. 13, 1968.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 5,982.65 ft above National Geodetic Vertical Datum of 1929 (National Park Service bench mark).

REMARKS.--Estimated daily discharges: Oct. 18-21. Records good. Slight regulation by pumps 0.1 mi upstream. Diversion for domestic use by National Park Service 0.1 mi upstream.

COOPERATION.--Records of diversion by pumping furnished by National Park Service.

AVERAGE DISCHARGE.--8 years, 3.27 ft^3/s, 2,370 acre-ft/yr, adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18 ft^3/s July 6, 1984, gage height, 1.56 ft; minimum, 0.33 ft^3/s Nov. 20, 22, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.5 ft^3/s June 21 to July 1, gage height, 1.41 ft; minimum, 1.3 ft^3/s Feb. 14, 15, 25, Mar. 2, 3, 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	2.6	2.3	2.1	1.7	1.5	1.6	2.6	6.7	9.2	3.9	2.9
2	3.3	2.6	2.3	2.1	1.7	1.5	1.6	2.6	6.5	8.6	3.9	2.9
3	3.4	2.6	2.3	2.0	1.6	1.5	1.6	2.7	6.3	8.0	3.9	2.9
4	3.3	2.6	2.3	2.0	1.6	1.5	1.6	2.7	6.1	8.2	3.9	2.9
5	3.3	2.6	2.3	2.0	1.6	1.5	1.6	2.8	6.0	7.9	3.9	2.9
6	3.3	2.6	2.3	2.0	1.6	1.5	1.7	2.8	5.9	7.7	3.9	2.8
7	3.2	2.6	2.3	1.9	1.6	1.5	1.7	2.9	5.7	7.5	3.9	2.8
8	3.2	2.6	2.3	1.9	1.7	1.5	1.8	2.9	6.1	6.8	3.8	2.8
9	3.2	2.6	2.2	1.9	1.6	1.5	1.9	2.9	6.8	6.3	3.9	2.8
10	3.2	2.6	2.2	1.9	1.5	1.6	2.0	3.0	7.3	6.3	3.8	2.8
11	3.2	2.6	2.2	1.9	1.6	1.5	2.1	3.0	7.7	6.2	3.9	2.7
12	3.1	2.6	2.2	1.8	1.6	1.5	2.2	3.0	8.1	5.8	3.8	2.7
13	3.1	2.6	2.2	1.8	1.5	1.6	2.2	3.1	8.7	5.3	3.7	2.7
14	3.1	2.6	2.2	1.8	1.5	1.5	2.4	3.0	8.9	5.1	3.7	2.7
15	3.1	2.6	2.2	1.8	1.5	1.5	2.6	3.0	9.1	5.0	3.6	2.7
16	3.1	2.6	2.2	1.8	1.5	1.5	2.6	3.0	9.1	4.9	3.5	2.7
17	3.1	2.5	2.2	1.8	1.5	1.6	2.7	3.0	9.1	4.8	3.3	2.7
18	3.0	2.5	2.1	1.7	1.5	1.5	2.9	3.1	9.1	4.7	3.2	2.6
19	2.8	2.5	2.1	1.7	1.5	1.6	2.8	3.6	9.1	4.7	3.3	2.6
20	2.7	2.5	2.2	1.7	1.5	1.6	2.8	3.9	9.1	4.6	3.2	2.7
21	2.7	2.5	2.2	1.7	1.5	1.5	2.8	4.0	9.5	4.5	3.1	2.6
22	2.7	2.5	2.2	1.7	1.6	1.5	2.8	4.2	9.5	4.5	3.1	2.6
23	2.7	2.5	2.2	1.7	1.5	1.5	2.8	4.3	9.5	4.4	3.1	2.6
24	2.7	2.4	2.1	1.7	1.5	1.5	2.8	4.6	9.5	4.4	3.1	2.6
25	2.7	2.4	2.1	1.7	1.5	1.5	2.8	4.9	9.5	4.3	3.1	2.6
26	2.7	2.4	2.2	1.7	1.5	1.5	2.8	5.4	9.5	4.3	3.0	2.6
27	2.7	2.4	2.1	1.7	1.5	1.5	2.7	5.9	9.5	4.2	3.0	2.6
28	2.6	2.4	2.0	1.7	1.5	1.5	2.6	6.3	9.5	4.2	3.0	2.6
29	2.6	2.3	2.0	1.7	---	1.5	2.6	6.7	9.5	4.1	3.0	2.5
30	2.6	2.3	2.0	1.7	---	1.6	2.6	6.7	9.4	4.1	2.9	2.5
31	2.6	---	2.1	1.7	---	1.6	---	6.7	---	4.0	2.9	---
TOTAL	92.4	75.7	67.8	56.3	43.5	47.2	69.7	119.3	246.3	174.6	107.3	81.1
MEAN	2.98	2.52	2.19	1.82	1.55	1.52	2.32	3.85	8.21	5.63	3.46	2.70
MAX	3.4	2.6	2.3	2.1	1.7	1.6	2.9	6.7	9.5	9.2	3.9	2.9
MIN	2.6	2.3	2.0	1.7	1.5	1.5	1.6	2.6	5.7	4.0	2.9	2.5
AC-FT	183	150	134	112	86	94	138	237	489	346	213	161
MEAN†	3.01	2.55	2.21	1.84	1.59	1.54	2.35	3.89	8.30	5.76	3.59	2.79
AC-FT†	185	152	136	113	88	95	140	239	494	354	221	166

CAL YR 1984 TOTAL 1644.5 MEAN 4.49 MAX 17 MIN 2.0 AC-FT 3260 MEAN† 4.56 AC-FT† 3298
WTR YR 1985 TOTAL 1181.2 MEAN 3.24 MAX 9.5 MIN 1.5 AC-FT 2340 MEAN† 3.29 AC-FT† 2382

† Adjusted for diversion by pumping.

11507001 UPPER KLAMATH LAKE NEAR KLAMATH FALLS, OR

LOCATION.--Lat 42°15'00", long 121°48'55", in NW¼SW¼ sec.19, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010203, at southeast end of lake, 1.4 mi upstream from outlet and 2.5 mi northwest of Main Street Bridge at Klamath Falls.

DRAINAGE AREA.--3,810 mi², approximately, including 26.2 mi² in closed basin of Crater Lake.

PERIOD OF RECORD.--May 1904 to September 1923 (gage heights only), October 1923 to current year. Monthend contents only October 1923 to September 1927, published in WSP 1315-B.

GAGE.--Water-stage recorder. Datum of gage is 4,098.22 ft above National Geodetic Vertical Datum of 1929, or 4,100.00 ft above Bureau of Reclamation datum. Gage readings have been reduced to elevations above Bureau of Reclamation datum. See WSP 1735 for history of changes prior to Nov. 10, 1923. Since Oct. 1, 1974, supplementary water-stage recorders at sites 7 mi north and 21 mi northwest at same datum (water-surface transfer by Pacific Power and Light Co.).

REMARKS.--Reservoir is formed by concrete dam at outlet of natural lake, completed in 1921, replacing a temporary dam built in 1919; controlled storage began Apr. 15, 1919. Capacity, 523,700 acre-ft between elevations 4,136.0 ft and 4,143.3 ft. Dead storage below elevation 4,136.0 ft is 211,300 acre-ft. Stored water may be diverted through "A" Canal for irrigation on land under Klamath project of Bureau of Reclamation, or released to Link River through dam or powerplants at Klamath Falls. Contents given herein represent those above elevation 4,136.0 ft. Prior to Oct. 1,1973, contents given represented those above elevation 4,135.0 ft. Prior to Sept. 30, 1974, contents at end of month obtained by averaging elevations for last 3 days of month and first 3 days of following month to compensate for wind effect. Since Oct. 1, 1974, daily elevations are weighted mean of elevations at base and supplementary gages; contents at end of month are obtained from weighted midnight elevations of base and supplementary gages.

COOPERATION.--Capacity table furnished by Bureau of Reclamation, Klamath Project.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 4,144.98 ft about Apr. 20, 1904, from high-water marks; minimum recorded, 4,135.55 ft Oct. 30, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum daily elevation, 4,143.11 ft June 5, 7, 10; minimum daily, 4,140.35 ft Jan. 3-9.

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

4,136	0	4,139	193,700	4,142	414,400
4,137	61,300	4,140	262,600	4,143	498,300
4,138	127,000	4,141	335,400	4,143.3	523,700

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4141.82	4141.34	4140.88	4140.36	4140.77	4141.63	4142.65	4142.95	4143.03	4142.39	4141.24	4140.50
2	4141.80	4141.22	4140.85	4140.36	4140.80	4141.65	4142.68	4142.94	4143.08	4142.35	4141.22	4140.49
3	4141.79	4141.43	4140.83	4140.35	4140.82	4141.68	4142.71	4142.96	4143.09	4142.32	4141.22	4140.47
4	4141.78	4141.46	4140.79	4140.35	4140.85	4141.72	4142.74	4142.95	4143.10	4142.27	4141.22	4140.42
5	4141.78	4141.44	4140.76	4140.35	4140.86	4141.76	4142.78	4142.95	4143.11	4142.22	4141.21	4140.40
6	4141.76	4141.37	4140.72	4140.35	4140.88	4141.80	4142.82	4142.92	4143.09	4142.16	4141.20	4140.37
7	4141.76	4141.36	4140.68	4140.35	4140.91	4141.84	4142.87	4142.92	4143.11	4142.12	4141.18	4140.39
8	4141.74	4141.32	4140.64	4140.35	4140.99	4141.86	4142.92	4142.94	4143.10	4142.09	4141.14	4140.39
9	4141.75	4141.28	4140.60	4140.35	4141.02	4141.88	4142.95	4142.94	4143.08	4142.05	4141.10	4140.48
10	4141.68	4141.24	4140.58	4140.36	4141.04	4141.87	4142.96	4142.95	4143.11	4142.02	4141.08	4140.52
11	4141.74	4141.29	4140.55	4140.37	4141.05	4141.89	4142.95	4142.95	4143.09	4141.98	4141.04	4140.54
12	4141.70	4141.27	4140.53	4140.38	4141.11	4141.92	4142.93	4142.94	4143.06	4141.95	4141.00	4140.53
13	4141.75	4141.29	4140.51	4140.38	4141.13	4141.94	4142.92	4142.97	4143.02	4141.92	4140.99	4140.57
14	4141.74	4141.32	4140.49	4140.39	4141.16	4141.99	4142.90	4142.97	4143.00	4141.87	4140.96	4140.62
15	4141.72	4141.29	4140.48	4140.40	4141.19	4142.01	4142.83	4142.96	4142.98	4141.83	4140.92	4140.65
16	4141.70	4141.26	4140.46	4140.40	4141.21	4142.05	4142.83	4142.96	4142.96	4141.79	4140.91	4140.67
17	4141.67	4141.22	4140.45	4140.42	4141.24	4142.10	4142.85	4142.96	4142.92	4141.74	4140.88	4140.67
18	4141.64	4141.18	4140.46	4140.44	4141.28	4142.15	4142.85	4142.98	4142.90	4141.69	4140.82	4140.69
19	4141.66	4141.17	4140.45	4140.46	4141.31	4142.21	4142.90	4142.99	4142.86	4141.64	4140.80	4140.67
20	4141.67	4141.16	4140.44	4140.49	4141.34	4142.26	4142.92	4142.99	4142.86	4141.60	4140.80	4140.68
21	4141.65	4141.18	4140.42	4140.51	4141.36	4142.27	4142.96	4142.98	4142.81	4141.55	4140.78	4140.68
22	4141.63	4141.10	4140.42	4140.54	4141.40	4142.31	4142.97	4142.99	4142.77	4141.51	4140.76	4140.69
23	4141.60	4141.04	4140.41	4140.56	4141.44	4142.34	4143.01	4142.99	4142.74	4141.48	4140.76	4140.68
24	4141.56	4141.04	4140.40	4140.58	4141.46	4142.41	4143.04	4143.00	4142.70	4141.43	4140.73	4140.67
25	4141.52	4140.98	4140.40	4140.60	4141.48	4142.44	4143.04	4143.02	4142.63	4141.39	4140.72	4140.70
26	4141.50	4140.94	4140.39	4140.63	4141.52	4142.42	4143.00	4142.99	4142.59	4141.35	4140.70	4140.67
27	4141.44	4140.82	4140.39	4140.65	4141.56	4142.54	4142.99	4142.97	4142.56	4141.32	4140.67	4140.68
28	4141.42	4140.92	4140.38	4140.68	4141.60	4142.59	4142.98	4142.96	4142.53	4141.26	4140.65	4140.69
29	4141.44	4140.90	4140.37	4140.70	---	4142.60	4142.97	4142.98	4142.47	4141.25	4140.61	4140.66
30	4141.42	4140.89	4140.38	4140.72	---	4142.60	4142.97	4142.96	4142.44	4141.20	4140.58	4140.65
31	4141.37	---	4140.38	4140.74	---	4142.63	---	4143.00	---	4141.26	4140.55	---
MEAN	4141.65	4141.19	4140.53	4140.47	4141.17	4142.11	4142.90	4142.97	4142.89	4141.77	4140.92	4140.58
MAX	4141.82	4141.46	4140.88	4140.74	4141.60	4142.63	4143.04	4143.02	4143.11	4142.39	4141.24	4140.70
MIN	4141.37	4140.82	4140.37	4140.35	4140.77	4141.63	4142.65	4142.92	4142.44	4141.20	4140.55	4140.37
(†)	362300	326400	289000	316800	383600	467800	494900	498300	448500	351500	299900	307900
(‡)	-38200	-35900	-37400	+27800	+66800	+84200	+27100	+3400	-49800	-97000	-51600	+8000

CAL YR 1984 MEAN 4141.92 MAX 4143.13 MIN 4140.37 AC-FT‡ -34500
WTR YR 1985 MEAN 4141.60 MAX 4143.11 MIN 4140.35 AC-FT‡ -92600

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

11507500 LINK RIVER AT KLAMATH FALLS, OR

LOCATION.--Lat 42°13'25", long 121°47'35", in SW¼NW¼ sec.32, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010204, on right bank 600 ft upstream from outlet of Keno Canal and 0.4 mi upstream from Main Street Bridge at Klamath Falls.

DRAINAGE AREA.--3,810 mi^2, approximately, including 26.2 mi^2 in closed basin of Crater Lake.

PERIOD OF RECORD.--May 1904 to current year. Records since October 1983 equivalent to earlier records if flow in Keno Canal is added to flow past station.

GAGE.--Water-stage recorder. Datum of gage is 4,083.71 ft above National Geodetic Vertical Datum of 1929, or 4,085.50 ft above mean sea level, datum of Bureau of Reclamation. Prior to Sept. 14, 1912, water-stage recorder or nonrecording gages at several sites within 0.5 mi of present site at various datums. Sept. 14, 1912, to Nov. 23, 1923, at site 600 ft downstream at datum 5.42 ft lower. Nov. 24, 1923, to Nov. 15, 1961, at site on left bank at present datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since 1919 by Upper Klamath Lake (see station 11507001). Large diurnal fluctuation caused by powerplant upstream from station. Water diverted upstream from station by main or "A" Canal of Klamath project (see station 11507200). Many other diversions upstream from lake. All records presented herein do not include flow in Keno Canal which, since September 1908, has diverted from Upper Klamath Lake at Link River Dam for power generation, and returns flow to Link River downstream from station.

AVERAGE DISCHARGE.--79 years (water years 1905-83), 1,593 ft^3/s, 1,154,000 acre-ft/yr, not adjusted for "A" Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,400 ft^3/s May 12, 1904, gage height at Main Street Bridge, 7.30 ft, datum then in use, from floodmarks; minimum daily, 17 ft^3/s Dec. 13, 1937.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 6,220 ft^3/s Apr. 11; minimum, 41 ft^3/s Aug. 23, result of regulation from Upper Klamath Lake, minimum daily, 187 ft^3/s Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	945	3010	3550	2090	998	610	2490	2000	244	809	385	1270
2	943	3080	3630	2030	1000	608	2480	1730	236	789	207	1350
3	881	3080	3580	1920	973	610	2440	1590	239	893	207	1230
4	985	3150	3640	1960	992	588	2550	1550	432	974	206	1050
5	1330	3580	3710	1970	1030	552	2750	1620	765	846	418	613
6	1290	3920	3660	1960	1030	471	2780	1260	1010	983	626	478
7	1170	3780	3650	2080	908	729	2700	1050	1390	908	588	543
8	1350	3730	3510	1830	911	962	3320	1150	1830	738	1000	257
9	1730	3700	3590	1560	913	988	3700	1110	1630	696	946	187
10	1940	3730	3570	1560	1050	988	4870	626	1610	769	768	194
11	1900	3480	3550	1560	1010	989	5990	625	1370	757	909	315
12	1820	3660	3360	1590	854	828	5700	732	1300	741	757	552
13	1940	3640	3180	1660	855	612	5200	857	926	756	931	852
14	2100	4010	2900	1660	716	619	5110	568	873	638	946	751
15	2090	3920	2660	1660	492	664	4570	531	1080	747	803	623
16	1940	4060	2770	1660	644	673	3550	516	1150	873	1020	774
17	1550	4040	2540	1130	601	534	2770	442	959	920	952	968
18	1600	4050	2330	933	546	639	2240	494	773	854	1040	967
19	2520	4050	2250	1040	545	793	1630	483	905	876	726	1020
20	2780	4060	2180	1020	662	913	1370	401	954	1020	714	1060
21	2770	4090	2170	1020	577	1150	2500	471	750	913	668	1060
22	2860	4040	2140	1010	447	1670	2790	650	836	831	561	1160
23	3040	3970	2160	1050	704	1720	2210	528	790	839	470	1090
24	2960	3890	2040	940	865	1820	2210	425	947	940	855	1090
25	3060	3910	2150	925	760	2020	2230	478	843	759	661	1150
26	3130	3730	2150	927	637	2120	2660	606	827	710	475	1020
27	2980	3520	2080	1000	536	2350	2710	652	689	703	531	1110
28	3060	3890	2010	993	603	2750	2720	617	820	738	618	1160
29	3080	3830	2060	995	---	2630	2510	392	844	830	767	1160
30	3070	3560	2090	996	---	2570	2270	418	763	583	1000	1120
31	3060	---	2090	994	---	2490	---	344	---	492	1390	---
TOTAL	65874	112160	86950	43723	21859	37660	93020	24916	27785	24925	22145	26174
MEAN	2125	3739	2805	1410	781	1215	3101	804	926	804	714	872
MAX	3130	4090	3710	2090	1050	2750	5990	2000	1830	1020	1390	1350
MIN	881	3010	2010	925	447	471	1370	344	236	492	206	187
AC-FT	130700	222500	172500	86720	43360	74700	184500	49420	55110	49440	43920	51920

CAL YR 1984	TOTAL	792099	MEAN	2164	MAX	5980	MIN	213	AC-FT	1571000
WTR YR 1985	TOTAL	587191	MEAN	1609	MAX	5990	MIN	187	AC-FT	1165000

11509500 KLAMATH RIVER AT KENO, OR

LOCATION.--Lat 42°08'00", long 121°57'40", in NW¼SE¼ sec.35, T.39 S., R.7 E., Klamath County, Hydrologic Unit 18010206, on left bank 1.7 mi northwest of Keno and 4.5 mi upstream from Spencer Creek.

DRAINAGE AREA.--3,920 mi^2, approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OR RECORD.--June 1904 to December 1913, October 1929 to current year. Monthly discharge only October to December 1929, published in WSP 1315-B.

GAGE.--Water-stage recorder. Datum of gage is 3,961 ft above National Geodetic Vertical Datum of 1929 (from river-profile survey). See WSP 1735 for history of changes prior to Nov. 6, 1954.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since 1919 by Upper Klamath Lake (see sta 11507001). Fluctuation by Keno powerplant 0.9 mi upstream. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--65 years, 1,706 ft^3/s, 1,236,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft^3/s Feb. 24, 1982, gage height, 12.74 ft, caused by regulation from Keno powerplant 0.9 mi upstream; minimum, 26 ft^3/s Sept. 23, 1956; minimum daily, 60 ft^3/s May 19, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 15.3 ft, from floodmark (original datum), about May 10, 1904, discharge, 9,250 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,740 ft^3/s Apr. 10, gage height, 10.83 ft, caused by regulation from Keno powerplant 0.9 mi upstream; minimum, 260 ft^3/s July 15, 16; minimum daily, 263 ft^3/s July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1460	4180	4450	2530	1270	1170	3150	2100	630	412	711	959
2	1470	4170	4460	2390	1270	1170	3150	1830	629	428	710	961
3	1570	4200	4460	2250	1270	1160	3150	1720	628	453	711	962
4	1780	4170	4450	2250	1270	1170	3150	1630	874	453	711	963
5	1930	4210	4450	2250	1270	1170	3140	1640	1170	453	708	964
6	1930	4680	4460	2250	1270	1160	3150	1400	1210	452	709	989
7	1930	4720	4480	2250	1280	1380	3140	1170	1440	453	709	1010
8	2030	4680	4490	2100	1270	1630	3620	1170	1870	276	707	1090
9	2390	4630	4520	1910	1270	1630	4380	981	1860	268	710	1480
10	2660	4640	4510	1910	1270	1630	5670	671	1640	268	709	1400
11	2620	4630	4520	1840	1280	1630	6520	672	1150	267	708	1260
12	2570	4610	4320	1930	1270	1640	6090	671	734	266	709	1200
13	2570	4890	4100	1930	1270	1640	5620	619	546	265	703	1200
14	2560	5130	3830	1930	1200	1640	5620	549	543	263	694	1200
15	2570	5130	3580	1930	1070	1630	4920	549	543	263	719	948
16	2580	5120	3580	1930	1070	1630	3610	549	544	263	775	1110
17	2580	5080	3300	1570	1070	1630	2730	550	481	271	775	1320
18	2870	4940	2920	1260	1070	1630	2500	550	412	271	777	1320
19	3630	4830	2820	1270	1070	1630	3110	553	414	343	781	1380
20	4100	4840	2640	1270	1070	1720	3300	553	413	421	839	1440
21	4100	4850	2530	1270	1070	2020	2010	553	414	422	721	1440
22	4140	4870	2540	1270	1130	2280	2000	598	413	466	783	1440
23	4210	4870	2540	1270	1160	2480	2510	629	412	509	672	1440
24	4210	4860	2460	1270	1160	2490	2520	628	412	508	649	1440
25	4200	4850	2530	1270	1170	2480	2860	628	412	549	651	1440
26	4190	4610	2540	1270	1180	2480	3120	628	412	577	644	1440
27	4200	4420	2540	1270	1170	2700	3130	628	412	548	662	1450
28	4200	4430	2530	1270	1170	3140	3130	631	412	548	712	1450
29	4200	4480	2530	1270	---	3150	2860	630	412	549	653	1450
30	4190	4470	2530	1270	---	3150	2410	632	412	547	656	1450
31	4190	---	2530	1270	---	3150	---	632	---	617	953	---
TOTAL	93830	140190	108140	52920	33360	59210	106270	26944	21854	12649	22331	37596
MEAN	3027	4673	3488	1707	1191	1910	3542	869	728	408	720	1253
MAX	4210	5130	4520	2530	1280	3150	6520	2100	1870	617	953	1480
MIN	1460	4170	2460	1260	1070	1160	2000	549	412	263	644	948
AC-FT	186100	278100	214500	105000	66170	117400	210800	53440	43350	25090	44290	74570

CAL YR 1984	TOTAL	1016950	MEAN	2779	MAX	6880	MIN	265	AC-FT	2017000
WTR YR 1985	TOTAL	715294	MEAN	1960	MAX	6520	MIN	263	AC-FT	1419000

11510700 KLAMATH RIVER BELOW JOHN C. BOYLE POWERPLANT, NEAR KENO, OR

LOCATION.--Lat 42°05'05", long 122°04'20", in SE¼SE¼ sec.14, T.40 S., R.6 E., Klamath County, Hydrologic Unit 18010206, on right bank 0.7 mi downstream from John C. Boyle powerplant, 8 mi downstream from Spencer Creek, and 8.5 mi southwest of Keno.

DRAINAGE AREA.--4,080 mi^2, approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OF RECORD.-- January 1959 to current year. Prior to Oct. 1, 1961, published as "below Big Bend powerplant."

GAGE.--Water-stage recorder. Datum of gage is 3,274.82 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Upper Klamath Lake (see station 11507001). Large diurnal fluctuation caused by Keno and John C. Boyle powerplants. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--26 years, 1,929 ft^3/s, 1,398,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft^3/s Mar. 5, 1972, gage height, 9.33 ft; minimum, 283 ft^3/s Feb. 17, 1968; minimum daily, 317 ft^3/s July 25, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,320 ft^3/s Apr. 10, gage height, 8.03 ft; minimum, 354 ft^3/s Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1510	4160	4370	2800	1500	1430	3380	2520	912	690	830	1230
2	1940	4170	4370	2800	1500	1450	3340	2120	909	684	1220	1270
3	1570	4210	4370	2780	1500	1400	3360	1920	912	691	961	1130
4	2010	4270	4370	2780	1500	1410	3370	1930	1210	733	1010	1230
5	2260	4110	4370	2780	1470	1420	3360	1930	1510	690	1010	1230
6	2220	4580	4370	2700	1470	1370	3370	1920	1390	823	853	1230
7	2220	4610	4370	2570	1490	1390	3370	1480	1700	775	910	1230
8	2270	4590	4400	2420	1500	1550	3710	1480	1930	754	961	1300
9	2540	4540	4440	2140	1500	1630	4440	1270	2130	399	1060	1610
10	2880	4550	4430	2130	1500	1850	5600	1040	1970	406	961	1640
11	2880	4570	4460	2160	1500	1850	6680	937	1440	401	961	1610
12	2880	4590	4300	2110	1500	1850	6350	938	866	404	1010	1540
13	2880	4620	4100	2120	1500	1860	5730	805	816	543	917	1500
14	2870	4620	3920	2130	1460	1860	5680	847	820	503	967	1480
15	2870	4620	3690	2190	1340	1860	5100	844	816	510	927	1240
16	2870	4620	3660	2170	1300	1860	3990	842	817	526	1010	1280
17	2870	4630	3460	1880	1290	1900	3190	1020	773	501	1000	1620
18	3010	4640	3190	1500	1290	1860	2930	805	679	544	1010	1600
19	3630	4640	3010	1500	1310	1860	3260	805	640	623	1140	1550
20	4090	4640	2950	1500	1310	2180	3640	851	678	734	1010	1620
21	4080	4640	2840	1500	1310	2130	2470	802	684	730	1100	1630
22	4050	4640	2820	1500	1320	2500	2240	805	679	732	959	1520
23	4140	4640	2810	1500	1350	2810	2950	816	682	731	955	2030
24	4160	4640	2810	1500	1400	2780	2870	1140	679	732	1000	1630
25	4170	4640	2810	1500	1400	2810	3130	915	632	819	956	1590
26	4170	4510	2810	1490	1410	2800	3370	913	681	869	821	1590
27	4170	4390	2810	1490	1400	2910	3350	911	683	733	912	1600
28	4170	4360	2810	1500	1400	3400	3360	914	684	824	954	1590
29	4170	4320	2810	1500	---	3340	3200	911	687	822	952	1580
30	4160	4430	2810	1500	---	3340	2800	775	684	823	819	2080
31	4160	---	2800	1500	---	3350	---	909	---	828	1260	---
TOTAL	97870	135190	111540	61640	39720	66010	113590	36115	29693	20577	30416	44980
MEAN	3157	4506	3598	1988	1419	2129	3786	1165	990	664	981	1499
MAX	4170	4640	4460	2800	1500	3400	6680	2520	2130	869	1260	2080
MIN	1510	4110	2800	1490	1290	1370	2240	775	632	399	819	1130
AC-FT	194100	268100	221200	122300	78780	130900	225300	71630	58900	40810	60330	89220

CAL YR 1984	TOTAL	1078188	MEAN	2946	MAX	7020	MIN	381	AC-FT	2139000
WTR YR 1985	TOTAL	787341	MEAN	2157	MAX	6680	MIN	399	AC-FT	1562000

11516530 KLAMATH RIVER BELOW IRON GATE DAM, CA

LOCATION.--Lat 41°55'41", long 122°26'35", in SE¼NE¼ sec.17, T.47 N., R.5 W., Siskiyou County, Hydrologic Unit 18010206, on left bank 0.1 mi downstream from Bogus Creek, 0.6 mi downstream from Iron Gate Dam, and 5.9 mi northeast of Hornbrook.

DRAINAGE AREA.--4,630 mi², approximately (not including Lost River and Lower Klamath Lake basins).

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

GAGE.--Water-stage recorder. Datum of gage is 2,162.44 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Power and Light Co.).

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Upper Klamath Lake (see station 11507001), capacity, 523,700 acre-ft, Iron Gate Reservoir, other smaller reservoirs, and diversions upstream from station.

AVERAGE DISCHARGE.--25 years, 2,297 ft³/s, 1,664,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s Dec. 22, 1964, gage height, 13.63 ft, from rating curve extended above 15,000 ft³/s, on basis of slope-area measurement of peak flow; minimum daily, 647 ft³/s Oct. 30, Nov. 6, 1960, Sept. 24, Oct. 1, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,970 ft³/s Apr. 11, gage height, 8.07 ft; minimum daily, 714 ft³/s July 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1780	4790	5000	2980	1670	1790	4210	2880	1030	730	1010	1320
2	1800	4800	4880	2890	1670	1790	4250	2430	1020	720	1010	1320
3	1800	4860	4940	2670	1680	1790	4170	2250	1020	720	1010	1320
4	1980	4680	4980	2660	1680	1790	4210	2170	1260	717	1010	1330
5	2260	4730	4870	2670	1680	1790	4220	2150	1690	714	1010	1330
6	2290	5190	4950	2670	1680	1790	4240	2060	1790	716	1000	1340
7	2380	5160	4830	2670	1720	1820	4290	1770	1780	717	1000	1360
8	2470	5090	4800	2770	1850	2170	4490	1770	2090	717	1010	1350
9	2960	4840	4900	2530	1750	2290	5390	1730	2300	715	1000	1460
10	3080	5210	5000	2380	1710	2290	6260	1240	2190	715	1000	1760
11	3050	5470	5060	2250	1750	2300	7830	1170	1410	716	1000	1750
12	2940	5720	5120	2240	1860	2330	7290	1170	1240	734	1020	1700
13	3030	5510	4720	2250	1810	2330	6480	1120	900	733	1010	1710
14	2960	5710	4470	2290	1800	2340	6450	1020	898	731	1010	1710
15	2930	5520	4170	2290	1800	2360	6070	1020	898	723	1010	1640
16	3050	5510	4110	2340	1800	2370	4690	1020	900	720	1010	1640
17	3010	5490	3680	2110	1790	2400	3700	1020	904	734	1010	1810
18	3220	5440	3290	1780	1790	2410	3550	1020	757	717	1010	1810
19	3690	5250	3250	1700	1790	2380	3500	1020	731	715	1010	1810
20	4510	5830	3210	1700	1790	2440	3470	1020	732	715	1010	1810
21	4330	5470	3030	1700	1790	2770	3450	1030	728	717	1010	1810
22	4500	5270	3020	1700	1790	2870	2880	1020	730	723	1010	1810
23	4370	5290	3010	1700	1790	3340	3330	1020	728	724	1010	1800
24	4510	5490	3000	1700	1790	3390	3380	1040	724	723	1010	1810
25	4450	5340	3000	1700	1790	3310	3450	1030	725	720	1020	1810
26	4440	5220	3000	1680	1790	3230	3830	1030	730	720	1010	1810
27	4450	5030	3000	1680	1790	3260	3690	1040	730	721	1010	1810
28	4550	5370	3000	1670	1790	3670	3570	1040	736	724	1020	1810
29	4510	5220	2990	1670	---	3880	3710	1020	733	727	1020	1810
30	4460	5130	3000	1680	---	3980	3300	1020	740	732	1020	1780
31	4170	---	2990	1670	---	4210	---	1030	---	741	1040	---
TOTAL	103930	157630	123270	66390	49390	80880	133350	42370	32844	22391	31340	49340
MEAN	3353	5254	3976	2142	1764	2609	4445	1367	1095	722	1011	1645
MAX	4550	5830	5120	2980	1860	4210	7830	2880	2300	741	1040	1810
MIN	1780	4680	2990	1670	1670	1790	2880	1020	724	714	1000	1320
AC-FT	206100	312700	244500	131700	97970	160400	264500	84040	65150	44410	62160	97870

CAL YR 1984 TOTAL 1238441 MEAN 3384 MAX 8120 MIN 722 AC-FT 2456000
WTR YR 1985 TOTAL 893125 MEAN 2447 MAX 7830 MIN 714 AC-FT 1772000

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi downstream from Priest Rapids Dam, 14.7 mi south of Beverly, and at mile 394.5.

DRAINAGE AREA.--96,000 mi², approximately.

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-82-2: 1965(m), 1971(m).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi downstream at datum 388.7 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi upstream at datum 499.3 ft above National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Diversions for irrigation of about 500,000 acres upstream from station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--68 years, 119,900 ft³/s, 86,870,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s June 12, 1948, gage height, 59.35 ft, site and datum then in use; minimum, 4,120 ft³/s Feb. 10, 1932, gage height, 11.40 ft, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s, based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 219,000 ft³/s Jan. 19, elevation, 412.72 ft; minimum, 37,100 ft³/s Aug. 5, elevation, 396.51 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80400	96600	80900	89600	154000	135000	68500	127000	121000	105000	59600	51200
2	98600	62800	62700	125000	149000	126000	81300	135000	84900	122000	58300	60000
3	89000	53300	101000	157000	153000	124000	95400	134000	123000	110000	41500	88400
4	82600	47600	134000	152000	154000	125000	78300	127000	115000	76900	39000	75500
5	90600	72100	130000	135000	179000	132000	65300	130000	112000	71900	60600	63800
6	80700	69100	115000	138000	179000	127000	63800	154000	122000	87600	74600	65400
7	60000	67000	121000	136000	158000	129000	62500	159000	98900	87000	88400	46800
8	70100	81100	87200	137000	154000	127000	62500	163000	68700	78800	81900	40700
9	80200	92300	94400	153000	150000	114000	63200	159000	76800	84700	73900	60300
10	72700	60900	107000	146000	143000	121000	62600	159000	98600	80600	65600	54500
11	88400	57200	106000	156000	130000	117000	62500	157000	87700	77600	52300	56200
12	78900	61100	94000	159000	129000	80900	62700	155000	104000	72800	64800	63700
13	78800	84000	108000	140000	131000	116000	62500	146000	105000	56300	82900	59300
14	68600	94600	107000	135000	148000	111000	63700	156000	111000	57200	91100	42500
15	93500	99400	98300	130000	155000	120000	82200	160000	117000	86800	89400	39200
16	94300	87800	80800	133000	149000	104000	126000	147000	98400	108000	68500	63300
17	90300	101000	111000	154000	146000	75500	129000	98100	104000	109000	71000	68200
18	86600	71400	134000	163000	151000	99000	123000	128000	143000	78200	65800	72400
19	73100	88800	138000	163000	153000	110000	120000	110000	142000	67300	76700	51000
20	65500	110000	138000	155000	152000	98600	132000	136000	135000	60200	58100	65000
21	81300	96200	134000	157000	134000	114000	89200	134000	130000	64100	68000	52400
22	92400	84600	112000	157000	138000	119000	119000	126000	97300	92100	59900	60400
23	96000	68300	76300	161000	132000	120000	139000	127000	84300	98400	56900	86300
24	88800	58200	86700	174000	128000	100000	135000	137000	105000	89600	54200	88900
25	92800	51500	69800	165000	132000	114000	131000	113000	106000	79100	57500	95100
26	89400	64500	81100	159000	132000	120000	122000	94800	119000	66000	80800	94000
27	67500	109000	98700	133000	128000	120000	120000	110000	112000	55800	89500	89900
28	49200	112000	103000	145000	134000	118000	119000	131000	118000	51800	63800	81000
29	80200	95800	98000	151000	---	122000	126000	143000	111000	69900	63800	76700
30	91700	85500	74900	167000	---	103000	140000	150000	103000	60000	66400	103000
31	77100	---	90000	167000	---	67600	---	122000	---	66100	44200	---
TOTAL	2529300	2383700	3172800	4592600	4075000	3509600	2907200	4227900	3253600	2470800	2069000	2015100
MEAN	81590	79460	102300	148100	145500	113200	96910	136400	108500	79700	66740	67170
MAX	98600	112000	138000	174000	179000	135000	140000	163000	143000	122000	91100	103000
MIN	49200	47600	62700	89600	128000	67600	62500	94800	68700	51800	39000	39200
AC-FT	5017000	4728000	6293000	9109000	8083000	6961000	5766000	8386000	6454000	4901000	4104000	3997000

CAL YR 1984	TOTAL 41528100	MEAN 113500	MAX 207000	MIN 47600	AC-FT 82371000					
WTR YR 1985	TOTAL 37206600	MEAN 101900	MAX 179000	MIN 39000	AC-FT 73799000					

13181000 OWYHEE RIVER NEAR ROME, OR

LOCATION.--Lat 42°52'02", long 117°38'52", in SE¼NE¼ sec.14, T.31 S., R.41 E., Malheur County, Hydrologic Unit 17050107, on right bank 0.5 mi downstream from Jordan Creek, 2.6 mi north of Rome, and at mile 122.4.

DRAINAGE AREA.--About 8,000 mi^2.

PERIOD OF RECORD.--October 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,344.20 ft above National Geodetic Vertical Datum of 1929. Prior to Feb 10, 1960, at datum 0.24 ft lower.

REMARKS.--Estimated daily discharges: Jan. 26, 31, Feb. 1, 3-5. Records good. Flow regulated by Antelope Reservoir, capacity, 70,000 acre-ft, increased in 1970, and Wild Horse Reservoir, capacity, 32,690 acre-ft, and numerous small reservoirs. Diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--36 years, 1,016 ft^3/s, 736,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft^3/s Dec. 24, 1964, gage height, 16.7 ft, from floodmark; minimum, 42 ft^3/s Aug. 12, 1954, July 28, Aug. 5, 1961, July 31, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 24	2115	5,500	6.88	Apr. 4	1745	*11,800	*10.41

Minimum, 135 ft^3/s Sept. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	354	482	521	377	310	748	2930	1720	649	236	295	140
2	354	453	484	359	345	785	6300	1660	631	232	288	148
3	354	450	413	349	330	728	8570	1620	575	223	297	153
4	350	444	395	370	300	712	9810	1560	547	211	297	152
5	358	438	351	358	340	610	9220	1510	571	217	282	156
6	362	437	301	378	397	537	9330	1500	567	248	258	162
7	362	442	324	357	406	505	8790	1530	548	239	233	178
8	362	458	339	369	421	509	8010	1500	483	236	215	181
9	347	471	369	374	397	575	7680	1450	432	222	197	181
10	308	478	427	373	362	596	7040	1390	395	211	187	184
11	308	493	471	370	337	706	6260	1350	348	210	185	183
12	312	543	471	371	447	848	5620	1410	326	213	177	179
13	336	613	443	390	429	960	4910	1610	326	218	173	188
14	358	656	418	384	389	973	4330	1490	326	220	167	223
15	399	838	334	343	387	1100	4140	1350	331	216	158	223
16	399	864	356	345	442	1230	3980	1240	325	213	152	212
17	404	666	368	362	466	1520	3700	1260	298	211	153	209
18	408	578	295	360	447	1920	3410	1220	288	203	159	211
19	413	531	265	343	432	2550	3280	1200	289	195	160	210
20	408	523	247	342	453	3320	3240	1070	289	193	153	207
21	431	519	305	352	478	3560	3080	997	256	191	146	202
22	431	501	426	361	501	3410	2960	981	248	188	139	199
23	436	486	490	364	610	2470	2980	934	252	195	144	198
24	440	483	464	369	742	3110	2940	913	257	196	150	198
25	437	498	441	366	934	4140	2630	876	235	193	153	199
26	430	506	423	330	862	3380	2310	812	220	194	156	192
27	431	592	404	331	837	2580	2120	737	216	205	168	181
28	442	565	400	331	754	2070	1970	717	204	233	156	176
29	454	535	393	330	---	1800	1880	709	223	312	142	173
30	458	503	379	353	---	1620	1790	696	214	431	143	171
31	480	---	377	360	---	1580	---	672	---	328	142	---
TOTAL	12126	16046	12094	11121	13555	51152	145210	37684	10869	7033	5825	5569
MEAN	391	535	390	359	484	1650	4840	1216	362	227	188	186
MAX	480	864	521	390	934	4140	9810	1720	649	431	297	223
MIN	308	437	247	330	300	505	1790	672	204	188	139	140
AC-FT	24050	31830	23990	22060	26890	101500	288000	74750	21560	13950	11550	11050

CAL YR 1984	TOTAL	1218555	MEAN	3329	MAX	22800	MIN	247	AC-FT	2417000
WTR YR 1985	TOTAL	328284	MEAN	899	MAX	9810	MIN	139	AC-FT	651200

13182500 LAKE OWYHEE NEAR NYSSA, OR

LOCATION.--Lat 43°38'30", long 117°14'30", in NW¼SE¼ sec.20, T.22 S., R.45 E., Malheur County, Hydrologic Unit 17050110, near left abutment on Owyhee Dam on Owyhee River, 21 mi southwest of Nyssa, and at mile 28.5.

DRAINAGE AREA.--11,160 mi², approximately.

PERIOD OF RECORD.--October 1932 to current year (month-end contents and change in contents only prior to October 1979). Prior to October 1958, published as Owyhee Reservoir at Owyhee Dam, near Nyssa.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Oct. 1, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch-gravity dam, completed in September 1932; storage began Oct. 16, 1932. Capacity, 1,122,000 acre-ft between elevations 2,367.50 ft bottom of sluice gates and 2,670.00 ft top of spillway gate, 715,000 acre-ft between elevations 2,590.20 ft diversion tunnel and 2,670.00 ft. Dead storage below elevation 2,367.50 ft negligible. Figures given herein are contents above elevation 2,367.50 ft. Reservoir generally will not be drawn below elevation 2,590.2 ft, contents, 406,800 acre-ft, which project considers dead storage. Water is released through diversion tunnel to South Canal for irrigation of lands west of Snake River in vicinity of Homedale, Idaho, and to North Canal for irrigation of lands north and west of Owyhee River and through sluice gates to river for Owyhee Canal, which diverts about 18 mi downstream.

COOPERATION.--Capacity tables furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 1,140,000 acre-ft Apr. 15, 1952, elevation, 2,671.50 ft; minimum observed since full capacity was attained on May 7, 1936, 437,000 acre-ft Oct. 1, 1961, elevation, 2,595.35 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,127,000 acre-ft Apr. 12, 13, elevation, 2,670.37 ft; minimum, 804,100 acre-ft Sept. 30, elevation, 2,641.73 ft.

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

2,590	405,700	2,640	787,300
2,600	466,300	2,650	888,300
2,610	535,400	2,660	999,700
2,620	611,900	2,670	1,122,000
2,630	695,800	2,671	1,135,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2657.05	2657.24	2660.47	2659.16	2658.84	2659.36	2662.39	2669.63	2667.65	2661.63	2653.86	2645.86
2	2656.97	2657.37	2660.58	2659.10	2658.84	2659.34	2662.90	2669.67	2667.57	2661.41	2653.66	2645.64
3	2656.92	2657.45	2660.61	2659.09	2658.84	2659.35	2663.96	2669.60	2667.48	2661.19	2653.45	2645.40
4	2656.84	2657.49	2660.62	2659.05	2658.86	2659.33	2665.11	2669.56	2667.37	2660.94	2653.25	2645.18
5	2656.76	2657.61	2660.62	2659.02	2658.82	2659.32	2666.32	2669.54	2667.24	2660.67	2653.06	2644.94
6	2656.69	2657.69	2660.62	2659.01	2658.81	2659.30	2667.42	2669.52	2667.12	2660.40	2652.84	2644.72
7	2656.62	2657.76	2660.58	2659.00	2658.89	2659.27	2668.50	2669.48	2666.96	2660.16	2652.61	2644.50
8	2656.56	2657.91	2660.57	2659.01	2658.95	2659.24	2669.32	2669.42	2666.83	2659.88	2652.34	2644.30
9	2656.51	2657.97	2660.55	2658.98	2658.93	2659.21	2669.82	2669.36	2666.63	2659.68	2652.10	2644.14
10	2656.43	2658.11	2660.65	2658.95	2658.89	2659.19	2670.14	2669.32	2666.50	2659.41	2651.83	2644.00
11	2656.39	2658.20	2660.70	2658.95	2658.88	2659.21	2670.30	2669.24	2666.31	2659.17	2651.59	2643.87
12	2656.29	2658.32	2660.84	2658.95	2658.87	2659.25	2670.37	2669.17	2666.06	2658.89	2651.27	2643.72
13	2656.25	2658.47	2660.89	2658.95	2658.91	2659.27	2670.34	2669.12	2665.88	2658.63	2651.05	2643.58
14	2656.19	2658.54	2660.87	2658.92	2658.96	2659.30	2670.19	2669.11	2665.67	2658.39	2650.77	2643.46
15	2656.14	2658.68	2660.82	2658.92	2658.96	2659.36	2670.02	2669.06	2665.43	2658.12	2650.49	2643.33
16	2656.09	2658.83	2660.75	2658.88	2658.99	2659.40	2669.97	2669.07	2665.23	2657.85	2650.26	2643.24
17	2656.08	2658.98	2660.63	2658.87	2658.99	2659.49	2670.11	2669.05	2665.03	2657.61	2649.98	2643.08
18	2656.06	2659.09	2660.52	2658.87	2658.99	2659.66	2670.24	2669.03	2664.80	2657.36	2649.71	2643.01
19	2656.05	2659.19	2660.40	2658.86	2659.01	2659.84	2670.20	2669.03	2664.58	2657.10	2649.49	2642.89
20	2656.15	2659.34	2660.23	2658.85	2659.00	2660.19	2670.16	2668.98	2664.29	2656.83	2649.18	2642.79
21	2656.23	2659.45	2660.06	2658.85	2659.00	2660.47	2670.11	2668.93	2664.12	2656.57	2648.90	2642.69
22	2656.32	2659.56	2660.00	2658.85	2659.02	2660.79	2670.02	2668.86	2663.86	2656.30	2648.62	2642.60
23	2656.44	2659.69	2659.86	2658.86	2659.05	2661.01	2670.00	2668.75	---	2656.06	2648.36	2642.52
24	2656.53	2659.79	2659.79	2658.86	2659.13	2661.16	2670.04	2668.59	2663.30	2655.80	2648.05	2642.39
25	2656.64	2659.87	2659.67	2658.86	2659.23	2661.56	2670.03	2668.49	2663.07	2655.53	2647.84	2642.30
26	2656.77	2659.99	2659.53	2658.86	2659.26	2661.97	2669.97	2668.36	2662.83	2655.26	2647.56	2642.20
27	2656.81	2660.10	2659.50	2658.84	2659.29	2662.17	2669.80	2668.24	2662.60	2654.99	2647.27	2642.06
28	2656.90	2660.27	2659.37	2658.85	2659.30	2662.27	2669.56	2668.13	2662.35	2654.69	2646.98	2641.96
29	2656.94	2660.35	2659.29	2658.86	---	2662.32	2669.56	2668.02	2662.14	2654.56	2646.72	2641.84
30	2657.03	2660.45	2659.26	2658.87	---	2662.36	2669.58	2667.86	2661.88	2654.26	2646.45	2641.73
31	2657.11	---	2659.21	2658.85	---	2662.36	---	2667.75	---	2654.06	2646.15	---
MEAN	2656.54	2658.79	2660.26	2658.93	2658.98	2660.20	2668.88	2668.97	---	2657.85	2650.18	2643.46
MAX	2657.11	2660.45	2660.89	2659.16	2659.30	2662.36	2670.37	2669.67	---	2661.63	2653.86	2645.86
MIN	2656.05	2657.24	2659.21	2658.84	2658.81	2659.19	2662.39	2667.75	---	2654.06	2646.15	2641.73
(†)	966500	1005000	990600	986400	991600	1028000	1116000	1093000	1022000	932300	848300	804100
(‡)	-100	+38500	-14400	-4200	+5200	+36400	+88000	-23000	-71000	-89700	-84000	-44200

CAL YR 1984 AC-FT‡ -32400
WTR YR 1985 AC-FT‡ -162500

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents in acre-feet.

13183000 OWYHEE RIVER BELOW OWYHEE DAM, OR

LOCATION.--Lat 43°39'17", long 117°15'16", in SE¼ sec.18, T.22 S., R.45 E.,Malheur County, Hydrologic Unit 17050110, on left bank 0.8 mi downstream from Owyhee Dam, 20 mi southwest of Nyssa, and at mile 27.3.

DRAINAGE AREA.--11,160 mi^2, approximately.

PERIOD OF RECORD.--February 1929 to current year.

REVISED RECORDS.--WSP 983: 1941-42. WSP 1397: 1930, 1933, 1946.

GAGE.--Water-stage recorder. Datum of gage is 2,343.67 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Estimated daily discharge: Jan. 23. Records excellent. Flow regulated since October 1932 by Lake Owyhee (see sta 13182500), and by many smaller reservoirs. Diversion of 457,000 acre-ft from Lake Owyhee during the year for irrigation of lands downstream from station and outside the basin. Many smaller diversions upstream from Lake Owyhee for irrigation upstream from station.

COOPERATION.--Water-stage recorder inspected by irrigation district employees.

AVERAGE DISCHARGE.--53 years (water years 1933-85), 433 ft^3/s, 313,700 acre-ft/yr, not adjusted for storage or diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,900 ft^3/s Apr. 15, 1952, gage height, 15.70 ft; no flow for part of Aug. 8, 9, 1932, when temporary diversion tunnel at Owyhee Dam was closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,810 ft^3/s Apr. 10, gage height, 8.49 ft; minimum, 3.8 ft^3/s Oct. 25, Nov. 6, gage height, 0.22 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	5.9	7.9	730	438	997	1660	230	200	176	174	236
2	105	5.9	7.8	667	422	1010	1460	217	200	175	171	235
3	99	5.4	298	646	432	998	1830	214	200	176	170	235
4	87	5.1	496	622	454	978	2070	212	200	178	170	235
5	101	4.9	485	599	414	949	1830	202	204	179	170	235
6	95	4.9	597	593	417	941	2010	193	198	179	167	238
7	85	5.2	608	584	442	1670	2010	223	200	179	168	237
8	86	5.3	515	563	492	1480	2910	225	201	183	182	237
9	88	5.4	338	539	506	801	4430	211	200	178	194	237
10	89	5.9	8.6	524	497	788	5220	207	200	177	208	237
11	90	5.7	6.7	511	476	796	5220	198	176	178	215	240
12	90	6.3	6.5	510	478	832	5340	198	155	178	205	240
13	80	5.9	88	505	495	869	5280	198	155	178	203	240
14	74	6.4	663	486	520	918	4980	199	155	178	226	240
15	71	6.4	908	479	527	929	4620	200	155	177	222	240
16	66	6.7	892	472	551	1050	3680	232	154	178	217	241
17	65	7.0	1020	463	564	1140	1730	199	155	178	226	219
18	65	7.3	1130	457	572	974	1600	212	189	177	210	222
19	30	7.0	1100	456	578	1190	2320	214	183	177	193	244
20	4.3	7.0	1080	453	592	1480	2390	200	192	176	229	243
21	4.2	6.9	1170	469	588	1740	2420	213	182	173	227	243
22	4.1	6.8	1180	464	583	1820	2310	205	175	181	231	243
23	4.0	6.9	1150	458	632	1830	1900	213	174	178	231	243
24	4.0	7.5	1070	451	701	1620	1580	215	176	175	230	243
25	4.0	7.5	1190	454	814	1780	1560	218	178	175	231	243
26	5.8	6.7	1170	460	890	1870	1970	220	178	184	232	243
27	6.3	6.9	1100	454	862	1880	2230	221	176	180	234	243
28	6.6	7.0	1010	466	956	1800	2010	214	178	175	234	243
29	6.2	8.1	896	472	---	1850	662	200	178	173	233	243
30	5.9	9.5	833	444	---	1790	328	200	177	174	234	243
31	5.9	---	769	475	---	1790	---	200	---	173	233	---
TOTAL	1632.3	193.4	21793.5	15926	15893	40560	79560	6503	5444	5496	6470	7161
MEAN	52.7	6.45	703	514	568	1308	2652	210	181	177	209	239
MAX	105	9.5	1190	730	956	1880	5340	232	204	184	234	244
MIN	4.0	4.9	6.5	444	414	788	328	193	154	173	167	219
AC-FT	3240	384	43230	31590	31520	80450	157800	12900	10800	10900	12830	14200
MEAN†	454	653	469	445	661	1900	4853	1224	369	223	197	270
AC-FT†	27940	38880	28830	27390	36720	116850	288800	75280	21970	13700	12090	16060

CAL YR 1984	TOTAL	1103006.2	MEAN	3014	MAX	18000	MIN	4.0	AC-FT	2188000	MEAN† 3603	AC-FT† 2609000
WTR YR 1985	TOTAL	206632.2	MEAN	566	MAX	5340	MIN	4.0	AC-FT	409900	MEAN† 973	AC-FT† 704500

† Adjusted for diversions from Lake Owyhee and change in lake contents.

13184000 OWYHEE RIVER AT OWYHEE, OR
(National stream quality accounting network station)

LOCATION.--Lat 43°46'57", long 117°03'30", in SE¼SE¼ sec.35, T.20 S., R.46 E., Malheur County, Hydrologic Unit 17050110, on left bank 0.3 mi upstream from State Highway 201 bridge, 0.9 mi southwest of Owyhee, and at mile 3.1.

DRAINAGE AREA.--11,300 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1890 to June 1891, February to June 1892, February to July, October to December 1893, January 1895 to May 1897, August 1903 to September 1916, May 1920 to July 1929, July 1979 to current year. Monthly discharge only for some periods published in WSP 1317. Published as "at Rigsby", 1890-93, "at Nyssa", 1895-96 and as "at Owyhee" in WSP 370. Records for September, October 1903, May to October 1904, March, April 1905, published in WSP 135 in conjunction with records for Owyhee River near Owyhee and in WSP 370, have been found in error and should not be used.

REVISED RECORDS.--WSP 1317: 1890-91, 1904, 1909-11, 1929, drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,190 ft, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 17-30. Water-discharge records good. Flow regulated since October 1932 by Lake Owyhee (see station 13182500) and smaller reservoirs. Diversions from Lake Owyhee for irrigation of lands upstream from station and outside the basin. Many smaller diversions upstream from Lake Owyhee for irrigation.

AVERAGE DISCHARGE.--20 years (water years 1896, 1904-16, 1922-27), 1,048 ft^3/s, 759,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft^3/s Mar. 2, 1910, gage height, 12.9 ft, site and datum then in use, from rating curve extended above 14,000 ft^3/s; no flow July 7, 19, Aug. 14-16, 1924, July 5, 6, 1926. Maximum discharge since construction of Owyhee Dam in 1932, 19,100 ft^3/s Apr. 17, 1984, gage height, 15.85 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,190 ft^3/s Apr. 10, gage height, 9.58 ft; minimum, 29 ft^3/s Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	59	51	832	559	1020	1690	216	89	81	97	144
2	50	60	51	782	551	1050	1530	121	85	80	86	142
3	47	58	52	740	545	1040	1610	119	76	75	80	145
4	46	56	438	718	555	1030	1950	114	75	73	78	147
5	44	55	537	688	557	1010	1930	99	82	72	76	153
6	51	55	569	664	528	991	1990	88	89	75	76	154
7	55	55	688	653	518	904	1870	79	82	79	74	158
8	53	56	656	648	641	910	2200	110	83	82	77	162
9	50	55	535	637	618	893	3750	108	85	80	92	169
10	50	60	272	619	598	865	4740	97	83	80	112	168
11	51	59	90	613	566	861	4760	97	81	79	124	157
12	55	58	72	608	570	887	4840	90	88	83	134	163
13	55	56	63	608	588	928	4860	91	72	81	121	166
14	54	54	286	591	596	966	4670	96	69	83	123	163
15	56	53	854	590	620	985	4370	100	65	78	143	163
16	53	53	949	583	632	1070	3850	96	66	77	138	159
17	48	53	937	568	647	1140	2240	110	70	79	134	158
18	50	55	1180	557	653	1140	1340	86	72	85	148	150
19	49	55	1130	558	663	1070	2050	85	84	85	143	140
20	42	55	1160	549	676	1370	2220	92	90	84	122	150
21	40	55	1140	563	676	1660	2260	83	89	80	148	150
22	38	52	1200	567	689	1780	2240	85	89	77	145	150
23	49	51	1220	555	747	1790	1910	80	81	81	140	150
24	64	54	1080	553	766	1700	1560	87	76	85	139	150
25	61	53	1230	553	850	1690	1480	100	73	83	143	150
26	62	53	1220	559	927	1830	1630	99	76	82	145	150
27	60	54	1190	555	952	1890	2010	107	77	81	141	150
28	60	53	1120	551	958	1770	2010	102	75	84	138	145
29	61	55	1020	560	---	1840	1060	102	78	80	142	145
30	61	54	940	538	---	1770	395	86	77	91	142	145
31	59	---	882	556	---	1790	---	81	---	96	141	---
TOTAL	1629	1654	22812	18916	18446	39640	75015	3106	2377	2511	3742	4596
MEAN	52.5	55.1	736	610	659	1279	2501	100	79.2	81.0	121	153
MAX	64	60	1230	832	958	1890	4860	216	90	96	148	169
MIN	38	51	51	538	518	861	395	79	65	72	74	140
AC-FT	3230	3280	45250	37520	36590	78630	148800	6160	4710	4980	7420	9120

CAL YR 1984	TOTAL	1068755	MEAN	2920	MAX	18600	MIN	38	AC-FT	2120000
WTR YR 1985	TOTAL	194444	MEAN	533	MAX	4860	MIN	38	AC-FT	385700

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1980 to September 1982.
WATER TEMPERATURES: July 1979 to September 1982.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT											
09...	1400	53	833	8.60	16.5	11.6	--	--	250	0	68
DEC											
03...	1230	53	1180	8.40	4.0	14.4	K160	640	290	0	78
FEB											
04...	1300	557	289	7.80	1.0	12.3	--	--	90	0	25
APR											
04...	1110	1990	227	8.00	6.5	11.4	K22	K49	81	0	23
JUN											
10...	1230	85	638	8.10	19.5	9.2	K160	760	180	0	50
AUG											
12...	1250	142	512	7.60	19.0	7.4	600	K4200	160	0	44

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT											
09...	19	100	10	249	180	33	.90	.030	2.6	1.2	.060
DEC											
03...	23	140	9.8	294	250	47	1.2	.030	3.5	.90	.030
FEB											
04...	6.6	29	3.6	98	39	10	.60	.060	.59	1.4	.060
APR											
04...	5.7	21	3.3	90	22	6.9	.50	.030	.39	.60	.050
JUN											
10...	13	74	6.9	189	120	22	.80	.080	1.4	1.1	.060
AUG											
12...	11	58	5.7	155	87	16	.80	.090	1.1	.60	.040

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
09...	.060	.140	47	635	610	91	28	--	--	--
DEC										
03...	.030	.090	44	735	770	105	12	--	--	--
FEB										
04...	.060	.080	26	196	200	295	20	--	--	--
APR										
04...	.060	.130	25	154	160	827	26	58	312	68
JUN										
10...	.060	.240	33	420	430	96	45	45	10	93
AUG										
12...	.050	.170	31	374	350	143	50	105	40	--

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT										
09...	1500	34	73	<.5	<1	<1	<3	6	1000	4
FEB										
04...	500	7	40	<.5	2	<1	<3	2	160	<1
JUN										
10...	100	22	45	<.5	<1	<1	<3	4	54	<1
AUG										
12...	110	19	41	<.5	<1	<1	<3	2	62	<1

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT										
09...	93	81	<.1	10	3	<1	<1	300	22	46
FEB										
04...	15	5	<.1	<10	<1	<1	<1	120	9	<3
JUN										
10...	50	24	<.1	<10	1	2	3	200	16	13
AUG										
12...	40	34	<.1	<10	2	2	<1	180	12	17

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

13214000 MALHEUR RIVER NEAR DREWSEY, OR

LOCATION.--Lat 43°47'05", long 118°19'50", in NE¼SE¼ sec.31, T.20 S., R.36 E., Harney County, Hydrologic Unit 17050116, on left bank 300 ft downstream from bridge on U.S. Highway 20, 0.5 mi downstream from Cottonwood Creek, 3.0 mi southeast of Drewsey, and at mile 129.0.

DRAINAGE AREA.--910 mi^2, approximately.

PERIOD OF RECORD.--June 1920 to September 1921, November, December 1921, March, April 1922, April to September 1923, June 1926 to current year. Monthly discharge only for some periods, published in WSP 1317. March to September 1914 at site 13 mi upstream; records not equivalent owing to inflow from several creeks.

REVISED RECORDS.--WSP 1093: 1927. WSP 1287: Drainage area. WSP 1397: 1921, 1927-31, 1937, drainage area (former site). WSP 1517: 1952. WDR OR-78-1: 1976(P).

GAGE.--Water-stage recorder. Datum of gage is 3,479.13 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 27, 1923, water-stage recorder or nonrecording gage at site 0.5 mi downstream at different datum. Apr. 27, 1923, to June 6, 1939, water-stage recorder at site 7 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 6-9, 12, 13, 16-29, 31; Jan. 1-7, 9-21, 23, 25-27, 29-31; Feb. 1-10, 13-15, 17-20; July 29-31; Aug. 1-4, 11, 28-31; Sept. 1-23, 29, 30. Records good except those for December to February, August, and September, which are fair. Slight regulation by small reservoirs upstream from station. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--59 years (water years 1927-85), 194 ft^3/s, 140,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s Dec. 23, 1964, gage height, 13.50 ft, from rating curve extended above 4,500 ft^3/s on basis of contracted-opening measurement at gage height 13.20 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 21	0430	1,200	5.98	Apr. 6	1230	*1,450	*6.21
Mar. 24	0530	816	5.16				

Minimum, 3.6 ft^3/s July 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	108	139	85	80	245	908	252	130	33	40	10
2	93	109	114	85	80	169	1090	254	136	31	35	18
3	89	138	103	90	70	137	1230	219	133	24	30	18
4	88	130	97	90	65	137	1240	229	124	23	26	17
5	91	115	97	90	80	121	1220	210	120	22	23	15
6	93	112	89	100	100	127	1300	187	114	24	25	20
7	89	114	85	115	100	113	1300	179	124	23	23	35
8	89	117	92	130	115	117	1250	171	113	22	21	60
9	89	120	94	110	95	133	1270	183	110	23	29	65
10	88	126	139	90	95	225	1240	172	101	21	30	55
11	88	134	152	100	118	304	1170	157	97	17	25	52
12	100	225	120	106	119	317	1070	160	95	17	21	54
13	108	200	120	100	110	332	989	150	86	12	18	57
14	118	257	138	90	110	378	939	143	79	20	9.0	60
15	114	160	124	80	120	464	921	156	84	21	9.5	64
16	111	133	100	85	130	552	910	168	70	23	11	66
17	108	130	100	90	110	627	854	170	55	17	12	67
18	108	128	85	95	95	708	766	154	47	12	13	67
19	105	153	80	98	100	787	753	156	41	11	18	68
20	109	134	75	100	105	856	679	177	39	11	11	68
21	112	201	75	110	119	894	629	212	33	11	34	68
22	110	174	90	123	168	527	599	201	37	6.2	11	66
23	104	139	130	100	295	431	531	195	32	6.2	10	66
24	105	255	135	118	288	740	483	173	31	5.3	15	68
25	122	192	105	105	314	539	434	189	30	3.8	17	63
26	109	130	105	90	214	395	391	192	28	3.9	16	67
27	113	125	105	85	162	333	350	202	29	5.1	8.5	64
28	112	133	105	111	199	355	307	237	26	5.8	5.5	64
29	116	155	115	100	---	349	300	270	23	6.7	5.0	64
30	115	153	128	90	---	385	270	235	27	10	5.5	66
31	106	---	110	80	---	661	---	183	---	20	6.0	---
TOTAL	3197	4500	3346	3041	3756	12458	25393	5936	2194	491.0	563.0	1592
MEAN	103	150	108	98.1	134	402	846	191	73.1	15.8	18.2	53.1
MAX	122	257	152	130	314	894	1300	270	136	33	40	68
MIN	88	108	75	80	65	113	270	143	23	3.8	5.0	10
AC-FT	6340	8930	6640	6030	7450	24710	50370	11770	4350	974	1120	3160

CAL YR 1984	TOTAL	170655	MEAN	466	MAX	2870	MIN	18	AC-FT	338500
WTR YR 1985	TOTAL	66467	MEAN	182	MAX	1300	MIN	3.8	AC-FT	131800

13214500 WARMSPRINGS RESERVOIR NEAR RIVERSIDE, OR

LOCATION.--Lat 43°35'07", long 118°12'30", on line between NW¼SW¼ and SW¼SW¼ sec.8, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on Bureau of Reclamation lands, near right end of dam on Malheur River, 3 mi northwest of Riverside, 4 mi upstream from South Fork, and at mile 114.0.

DRAINAGE AREA.--1,100 mi^2, approximately.

PERIOD OF RECORD.--January 1920 to October 1929, December 1929 to current year. Prior to Sept. 3, 1980, monthend contents and change in contents only.

GAGE.--Water-stage recorder. Datum of gage is 3,327.0 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation); gage readings have been reduced to elevations NVGD. Prior to May 29, 1964, nonrecording gage read daily or weekly.

REMARKS.--Reservoir is formed by concrete-arch dam. Storage began in 1919. Capacity, 191,000 acre-ft between elevations 3,327.00 ft, bottom of outlet tunnel, and 3,406.00 ft, top of flashboards. Dead storage, 1,400 acre-ft below elevation 3,327.00 ft not included in records. Water used to irrigate lands on both sides of river between Namorf and Ontario.

COOPERATION.--Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 196,100 acre-ft Apr. 16, May 13, 1958, elevation, 3,407.10 ft; no contents Sept. 18 to Nov. 1, 1929, Aug. 26 to sometime in November 1935, Sept. 18 to Oct. 11, 1950, sometime in August to Oct. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 181,500 acre-ft Apr. 29, 30, elevation, 3,403.90 ft; minimum, 43,380 acre-ft Sept. 30, elevation, 3,363.51 ft.

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

3,327	0	3,345	10,150	3,380	90,520
3,330	295	3,350	16,930	3,390	124,600
3,335	1,960	3,360	35,400	3,400	164,400
3,340	5,090	3,370	60,140	3,406	191,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3386.70	3386.66	3389.62	3391.71	3393.28	3394.60	3401.01	3403.75	3398.66	3390.54	3378.81	---
2	3386.63	3386.74	3389.68	3391.77	3393.28	3394.58	3401.50	3403.62	3398.50	3390.21	3378.49	---
3	3386.55	3386.81	3389.74	3391.82	3393.29	3394.57	3402.02	3403.47	3398.35	3389.85	3378.19	---
4	3386.50	3386.89	3389.79	3391.87	3393.29	3394.56	3402.53	3403.30	3398.20	3389.42	3377.88	---
5	3386.45	3386.95	3389.83	3391.92	3393.65	3394.54	3402.89	3403.12	3398.05	3389.00	3377.59	---
6	3386.41	3387.04	3389.86	3391.98	3393.69	3394.63	3403.14	3402.93	3397.88	3388.60	3377.31	---
7	3386.35	3387.09	3389.90	3392.04	3393.85	3394.70	3403.34	3402.72	3397.71	3388.17	3377.02	---
8	3386.29	3387.18	3389.94	3392.11	3393.86	3394.78	3403.38	3402.51	3397.54	3387.78	3376.77	---
9	3386.24	3387.25	3390.01	3392.18	3393.89	3394.86	3403.25	3402.31	3397.38	3387.40	3376.51	---
10	3386.15	3387.37	3390.12	3392.24	3393.90	3394.99	3403.16	3402.13	3397.17	3387.02	3376.23	---
11	3386.08	3387.49	3390.20	3392.30	3393.93	3395.18	3403.06	3401.92	3396.96	3386.65	3375.98	---
12	3386.02	3387.63	3390.31	3392.36	3393.98	3395.38	3403.06	3401.71	3396.70	3386.28	3375.68	---
13	3385.99	3387.74	3390.38	3392.40	3394.00	3395.59	3403.11	3401.50	3396.42	3385.90	3375.34	---
14	3385.95	3387.89	3390.48	3392.45	3394.04	3395.82	3403.11	3401.32	3396.14	3385.52	3375.01	---
15	3385.94	3388.02	3390.54	3392.49	3394.05	3396.09	3403.09	3401.14	3395.86	3385.15	3374.68	---
16	3385.93	3388.09	3390.60	3392.56	3394.05	3396.40	3403.10	3401.02	3395.56	3384.77	3374.34	---
17	3385.93	3388.19	3390.67	3392.62	3394.06	3396.78	3403.16	3400.89	3395.26	3384.38	3374.00	---
18	3385.92	3388.26	3390.74	3392.70	3394.06	3397.18	3403.27	3400.76	3394.96	3384.00	3373.64	---
19	3385.94	3388.35	3390.79	3392.75	3394.06	3397.62	3403.36	3400.63	3394.65	3383.61	3373.28	---
20	3385.96	3388.45	3390.85	3392.81	3394.05	3398.12	3403.48	3400.50	3394.31	3383.23	3372.92	---
21	3385.97	3388.56	3390.91	3392.88	3394.05	3398.63	3403.60	3400.39	3393.96	3382.85	3372.54	---
22	3386.02	3388.68	3390.98	3392.95	3394.11	3398.87	3403.61	3400.25	3393.61	3382.45	3372.19	---
23	3386.09	3388.80	3391.06	3393.01	3394.23	3399.09	3403.67	3400.07	3393.28	3382.06	---	---
24	3386.15	3388.93	3391.13	3393.06	3394.38	3399.44	3403.74	3399.90	3392.91	3381.67	---	---
25	3386.22	3389.07	3391.22	3393.12	3394.49	3399.71	3403.79	3399.70	3392.55	3381.30	---	---
26	3386.30	3389.16	3391.30	3393.13	3394.55	3399.96	3403.83	3399.52	3392.20	3380.93	---	---
27	3386.34	3389.27	3391.37	3393.13	3394.53	3400.06	3403.87	3399.36	3391.89	3380.55	---	---
28	3386.41	3389.35	3391.43	3393.19	3394.53	3400.17	3403.89	3399.21	3391.56	3380.14	---	3363.74
29	3386.47	3389.43	3391.52	3393.28	---	3400.26	3403.90	3399.08	3391.21	3379.82	---	3363.62
30	3386.54	3389.54	3391.58	3393.28	---	3400.39	3403.83	3398.95	3390.88	3379.51	---	3363.51
31	3386.59	---	3391.65	3393.28	---	3400.61	---	3398.82	---	3379.15	3369.38	---
MEAN	3386.23	3388.03	3390.59	3392.56	3393.97	3397.04	3403.19	3401.18	3395.34	3384.77	---	---
MAX	3386.70	3389.54	3391.65	3393.28	3394.55	3400.61	3403.90	3403.75	3398.66	3390.54	---	---
MIN	3385.92	3386.66	3389.62	3391.71	3393.28	3394.54	3401.01	3398.82	3390.88	3379.15	---	---
(†)	112400	122900	130700	137000	141900	167100	181200	159400	127800	87820	58440	43380
(‡)	-700	+10500	+7800	+6300	+4900	+25200	+14100	-21800	-31600	-39980	-29380	-15060

CAL YR 1984 AC-FT‡ -1000
WTR YR 1985 AC-FT‡ -69720

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

13215000 MALHEUR RIVER BELOW WARMSPRINGS RESERVOIR, NEAR RIVERSIDE, OR

LOCATION.--Lat 43°34'29", long 118°12'31", on line between NW¼SW¼ and SW¼NW¼ sec.17, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 0.9 mi downstream from Warmsprings Dam, 3.0 mi upstream from South Fork, 4.0 mi northwest of Riverside, and at mile 113.0.

DRAINAGE AREA.--1,100 mi^2, approximately.

PERIOD OF RECORD.--January 1906 to March 1907 and December 1908 (gage heights only), January 1909 to September 1910, December 1914 to July 1917, March 1919 to current year. Monthly discharge only for some periods, published in WSP 1317. Figures of discharge for January 1906 to March 1907, published in WSP 272 and 370, have been found to be unreliable and should not be used. Published as Middle Fork of Malheur River at Riverside 1906-7, as Middle Fork of Malheur River above South Fork, at Riverside 1909-10, as Malheur River above South Fork, at Riverside in WSP 370, 1906-10, and as Malheur River at Warmsprings reservoir site, near Riverside 1914-17.

REVISED RECORDS.--WSP 833: 1936. WSP 1063: 1942-45. WSP 1397: 1909-10, 1917. WSP 1447: 1955. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,305 ft, by barometer. See WSP 1317 or 1737 for history of changes prior to Sept. 29, 1949.

REMARKS.--Estimated daily discharges: Nov. 11 to Feb. 6, Mar. 12-26. Records good except those below 1.0 ft^3/s, which are poor. Flow completely regulated since November 1919 by Warmsprings Reservoir (see station 13214500). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--66 years (water years 1920-85), 193 ft^3/s, 139,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 7,200 ft^3/s Mar. 1, 1910, gage height, 10.7 ft, site and datum then in use, from rating curve extended above 820 ft^3/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,660 ft^3/s Apr. 8, gage height, 7.31 ft; mininum, 0.08 ft^3/s Mar. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	235	.19	.22	.22	.22	244	95	422	452	584	505	434
2	231	.20	.22	.22	.22	244	61	470	452	581	476	429
3	231	.21	.22	.22	.22	244	136	515	434	614	458	428
4	179	.19	.22	.22	.22	244	211	528	425	719	461	414
5	187	.20	.22	.22	.22	167	491	525	425	693	438	378
6	189	.20	.22	.22	.22	.11	766	574	441	673	418	365
7	189	.20	.22	.22	98	.10	888	570	449	668	397	362
8	208	.21	.22	.22	128	.10	1190	574	450	663	380	362
9	219	.21	.22	.22	113	.16	1550	546	448	636	379	349
10	219	.22	.22	.22	110	.19	1460	532	473	614	380	324
11	218	.22	.22	.22	109	.21	1400	534	508	595	380	288
12	193	.22	.22	.22	106	.22	1050	534	599	579	435	242
13	177	.22	.22	.22	106	.22	874	534	611	586	472	209
14	177	.22	.22	.22	106	.22	885	511	595	585	464	202
15	150	.22	.22	.22	142	.22	884	497	591	583	461	202
16	119	.22	.22	.22	157	.22	866	472	590	580	461	196
17	90	.22	.22	.22	151	.22	687	440	586	581	463	193
18	85	.22	.22	.22	144	.22	522	430	612	579	486	193
19	59	.22	.22	.22	137	.22	475	430	690	576	502	193
20	46	.22	.22	.22	140	.22	403	430	654	575	512	193
21	46	.22	.22	.22	147	.22	311	430	609	571	514	194
22	18	.22	.22	.22	159	.22	533	475	605	570	515	193
23	.13	.22	.22	.22	185	.22	368	535	602	566	515	194
24	.15	.22	.22	.22	185	.22	269	524	610	560	509	195
25	.17	.22	.22	.22	198	.22	270	524	613	547	498	196
26	.19	.22	.22	.22	233	.22	269	527	590	551	512	196
27	.19	.22	.22	.22	246	111	269	529	570	560	529	193
28	.19	.22	.22	.22	244	172	271	509	582	558	505	193
29	.19	.22	.22	.22	---	172	282	497	587	557	477	193
30	.19	.22	.22	.22	---	172	385	477	585	538	451	193
31	.19	---	.22	.22	---	169	---	456	---	523	435	---
TOTAL	3466.59	6.43	6.82	6.82	3345.32	1943.17	18121	15551	16438	18365	14388	7896
MEAN	112	.21	.22	.22	119	62.7	604	502	548	592	464	263
MAX	235	.22	.22	.22	246	244	1550	574	690	719	529	434
MIN	.13	.19	.22	.22	.22	.10	61	422	425	523	379	193
AC-FT	6880	13	14	14	6640	3850	35940	30850	32600	36430	28540	15660

CAL YR 1984	TOTAL 194572.64	MEAN 532	MAX 3030	MIN .13	AC-FT 385900					
WTR YR 1985	TOTAL 99534.15	MEAN 273	MAX 1550	MIN .10	AC-FT 197400					

13216500 NORTH FORK MALHEUR RIVER ABOVE BEULAH RESERVOIR, NEAR BEULAH, OR

LOCATION.--Lat 43°56'54", long 118°10'24", in NW¼NE¼ sec.4, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 1,000 ft upstream from Beulah Reservoir, 3.5 mi northwest of Beulah, and at mile 16.8. Prior to Sept. 24, 1985, at site 800 ft upstream.

DRAINAGE AREA.--355 mi^2.

PERIOD OF RECORD.--January to September 1914 (published as "at Scott's Ranch, near Beulah"), June 1936 to current year. Published as "above Agency Valley Reservoir, near Beulah", June 1936 to September 1968.

REVISED RECORDS.--WSP 1934: 1960(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Jan. 1 to Sept. 30, 1914, nonrecording gage and June 10, 1936, to Oct. 14, 1958, water-stage recorder at site 0.5 mi upstream at different datums. Oct. 15, 1958, to Oct. 8, 1975, water-stage recorder at site 800 ft upstream, datum of gage 3,351.0 ft. Oct. 9, 1975, to Sept. 24, 1985, at site 800 ft upstream, datum of gage 3,349.4 ft.

REMARKS.--Estimated daily discharges: Dec. 16 to Feb. 7, Mar. 4-6, June 7-17, and Sept. 25-27. Records good except those for periods of ice effect, Dec. 16 to Feb. 7, which are fair. No regulation. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--49 years (water years 1937-85), 138 ft^3/s, 100,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,970 ft^3/s Dec. 23, 1964, gage height, 9.90 ft, present datum, from floodmark, from rating curve extended above 1,300 ft^3/s, on basis of slope-area measurement of peak flow; maximum gage height, 11.0 ft, present datum, sometime during period Dec. 17-23, 1964 (icejam); minimum discharge, 8.5 ft^3/s Dec. 13, 1967, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 8	1930	565	4.50	Mar. 20	1830	705	4.99
Dec. 21	1800	ice jam	*7.02	Apr. 1	2200	*832	5.18

Minimum, 2.0 ft^3/s Dec. 5, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	64	58	49	20	105	483	216	173	72	76	49
2	81	88	21	20	16	90	540	234	178	69	94	55
3	78	125	32	16	15	77	515	252	160	55	69	54
4	76	88	15	15	12	64	462	256	153	53	64	52
5	80	79	7.5	17	15	66	484	246	152	56	64	45
6	82	78	15	19	44	67	522	234	150	54	60	50
7	80	80	33	24	62	69	531	218	150	60	57	66
8	77	80	106	68	103	87	557	217	143	60	55	82
9	75	79	144	34	93	92	570	213	139	59	55	86
10	75	83	121	17	82	110	591	209	128	56	53	68
11	82	98	67	20	87	113	590	208	120	55	52	61
12	87	104	43	40	90	113	535	198	117	56	51	65
13	99	107	49	70	80	122	515	187	108	55	50	64
14	89	106	67	75	87	146	518	215	101	53	42	63
15	86	70	55	25	89	175	533	191	105	55	37	66
16	80	83	38	17	81	214	525	199	102	51	40	69
17	85	67	22	17	74	267	478	194	98	51	42	69
18	79	84	16	17	72	336	436	187	96	45	40	65
19	77	69	15	26	81	387	406	197	86	41	49	63
20	80	82	15	58	89	438	357	206	81	47	56	62
21	80	82	15	47	83	367	321	204	77	47	60	63
22	74	53	27	43	95	258	304	196	74	49	55	62
23	75	79	40	69	94	291	283	197	73	49	53	61
24	78	77	68	52	94	352	254	193	70	46	35	61
25	77	51	63	43	98	252	238	204	65	42	44	61
26	82	31	60	38	85	177	223	214	68	41	50	61
27	86	48	84	37	79	206	213	210	64	48	49	61
28	86	54	110	48	95	190	205	230	51	52	48	61
29	87	77	100	48	---	178	207	211	57	53	47	61
30	65	82	100	43	---	195	212	193	61	68	40	61
31	78	---	104	29	---	341	---	176	---	70	41	---
TOTAL	2496	2348	1710.5	1141	2015	5945	12608	6505	3200	1668	1628	1867
MEAN	80.5	78.3	55.2	36.8	72.0	192	420	210	107	53.8	52.5	62.2
MAX	99	125	144	75	103	438	591	256	178	72	94	86
MIN	65	31	7.5	15	12	64	205	176	51	41	35	45
AC-FT	4950	4660	3390	2260	4000	11790	25010	12900	6350	3310	3230	3700

CAL YR 1984	TOTAL	107624.5	MEAN	294	MAX	1380	MIN	7.5	AC-FT	213500
WTR YR 1985	TOTAL	43131.5	MEAN	118	MAX	591	MIN	7.5	AC-FT	85550

13217000 BEULAH RESERVOIR AT BEULAH, OR

LOCATION.--Lat 43°54'41", long 118°09'25", in SW¼SE¼ sec.15, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on top of dam near right end of dam on North Fork Malheur River, 0.2 mi northwest of Beulah, and at mile 15.0.

DRAINAGE AREA.--440 mi², approximately.

PERIOD OF RECORD.--December 1935 to current year. Prior to October 1968, published as Agency Valley Reservoir at Beulah. Prior to March 1979, monthend contents only.

REVISED RECORDS.--WSP 1397: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7.49 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, published as "National Geodetic Vertical Datum of 1929, Bureau of Reclamation construction datum." Prior to Mar. 28, 1979, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill, rock-faced dam. Storage began December 1935. Capacity, 59,920 acre-ft between gage heights 3,263.21 ft, bottom of outlet tunnel, and 3,340.0 ft, top of spillway gates; with gates open the capacity is 32,220 acre-ft. No dead storage. Water is used for irrigation of lands below Juntura, on Vale project, Bureau of Reclamation.

COOPERATION.--Prior to Mar. 28, 1979, daily gage heights furnished by Vale-Oregon Irrigation District. Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 62,770 acre-ft May 3, 1941, gage height, 3,341.50 ft; no contents Sept.17 to Oct. 13, 1950, Aug. 28 to Oct. 4, 1955, Aug. 13 to Oct. 1, 1961, Sept. 21 to Oct. 5, 1968, sometime Aug. 1-31 to Oct. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 60,130 acre-ft Apr. 22, gage height, 3,340.11 ft; minimum, 18,360 acre-ft Sept. 11, 12, gage height, 3,311.40 ft.

Capacity table (gage height, in feet, and total contents, in acre-feet)

3,285	2,020	3,300	8,980	3,320	28,250
3,290	3,750	3,305	12,520	3,330	42,530
3,295	6,090	3,310	16,950	3,341	61,840

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3316.46	3316.38	3321.21	3325.05	3328.29	3330.34	3338.25	3339.39	3337.20	3332.07	3322.98	3312.92
2	3316.32	3316.59	3321.29	3325.13	3328.40	3330.45	3338.93	3339.28	3337.21	3331.82	3322.71	3312.63
3	3316.19	3316.77	3321.38	3325.23	3328.46	3330.54	3339.35	3339.12	3337.22	3331.54	3322.40	3312.38
4	3316.05	3316.93	3321.45	3325.32	3328.56	3330.66	3339.51	3339.05	3337.19	3331.26	3322.06	3312.11
5	3315.92	3317.09	3321.52	3325.44	3328.68	3330.76	3339.65	3338.96	3337.18	3331.00	3321.74	3311.90
6	3315.79	3317.24	3321.59	3325.60	3328.77	3330.89	3339.73	3338.90	3337.13	3330.72	3321.40	3311.74
7	3315.67	3317.39	3321.69	3325.74	3328.95	3330.97	3339.75	3338.79	3337.04	3330.45	3321.01	3311.65
8	3315.53	3317.53	3321.83	3325.85	3329.03	3331.10	3339.79	3338.69	3337.00	3330.17	3320.69	3311.54
9	3315.40	3317.70	3322.01	3325.95	3329.10	3331.20	3339.85	3338.58	3336.93	3329.93	3320.40	3311.47
10	3315.23	3317.90	3322.21	3326.05	3329.17	3331.35	3339.89	3338.46	3336.86	3329.65	3320.07	3311.43
11	3315.04	3318.11	3322.36	3326.13	3329.22	3331.48	3339.94	3338.37	3336.74	3329.34	3319.78	3311.41
12	3314.89	3318.30	3322.53	3326.22	3329.22	3331.64	3339.91	3338.26	3336.55	3329.05	3319.48	3311.46
13	3314.73	3318.50	3322.66	3326.31	3329.22	3331.79	3339.84	3338.18	3336.32	3328.74	3319.17	3311.51
14	3314.57	3318.66	3322.81	3326.40	3329.21	3331.96	3339.78	3338.06	3336.11	3328.47	3318.86	3311.58
15	3314.44	3318.80	3322.93	3326.51	3329.21	3332.17	3339.74	3337.98	3335.87	3328.16	3318.52	3311.64
16	3314.37	3318.96	3323.05	3326.64	3329.19	3332.41	3339.70	3337.96	3335.66	3327.86	3318.21	3311.71
17	3314.35	3319.10	3323.18	3326.75	3329.17	3332.72	3339.67	3337.89	3335.45	3327.56	3317.89	3311.76
18	3314.33	3319.26	3323.28	3326.88	3329.17	3333.10	3339.72	3337.83	3335.22	3327.23	3317.54	3311.82
19	3314.43	3319.41	3323.37	3327.02	3329.24	3333.55	3339.83	3337.76	3334.93	3326.93	3317.21	3311.87
20	3314.58	3319.59	3323.47	3327.14	3329.34	3334.10	3339.94	3337.71	3334.66	3326.67	3316.90	3311.93
21	3314.73	3319.74	3323.64	3327.24	3329.45	3334.50	3340.00	3337.69	3334.44	3326.38	3316.60	3311.98
22	3314.88	3319.86	3323.80	3327.37	3329.55	3334.82	3340.02	3337.66	3334.21	3326.06	3316.29	3312.03
23	3315.03	3320.04	3323.96	3327.48	3329.66	3335.22	3339.89	3337.60	3333.91	3325.80	3315.96	3312.09
24	3315.19	3320.19	3324.07	3327.57	3329.79	3335.66	3339.88	3337.54	3333.65	3325.54	3315.59	3312.16
25	3315.35	3320.31	3324.19	3327.66	3329.88	3335.95	3339.87	3337.48	3333.42	3325.25	3315.24	3312.21
26	3315.49	3320.41	3324.31	3327.73	3329.97	3336.21	3339.83	3337.44	3333.20	3324.95	3314.89	3312.27
27	3315.64	3320.60	3324.48	3327.83	3330.09	3336.46	3339.77	3337.39	3332.99	3324.60	3314.53	3312.32
28	3315.81	3320.74	3324.59	3327.94	3330.21	3336.67	3339.69	3337.37	3332.76	3324.27	3314.22	3312.38
29	3315.97	3320.92	3324.74	3328.04	---	3336.91	3339.60	3337.29	3332.50	3323.88	3313.91	3312.44
30	3316.10	3321.09	3324.88	3328.12	---	3337.15	3339.52	3337.29	3332.29	3323.59	3313.57	3312.44
31	3316.24	---	3324.97	3328.19	---	3337.61	---	3337.26	---	3323.26	3313.25	---
MEAN	3315.31	3318.80	3323.01	3326.66	3329.22	3333.24	3339.69	3338.10	3335.39	3327.81	3318.16	3311.96
MAX	3316.46	3321.09	3324.97	3328.19	3330.21	3337.61	3340.02	3339.39	3337.22	3332.07	3322.98	3312.92
MIN	3314.33	3316.38	3321.21	3325.05	3328.29	3330.34	3338.25	3337.26	3332.29	3323.26	3313.25	3311.41
(†)	23670	29660	34980	39740	42870	55480	59020	54840	46220	32580	20300	19440
(‡)	-480	+5990	+5320	+4760	+3130	+12610	+3540	-4180	-8620	-13640	-12280	-860

CAL YR 1984 MEAN 3328.90 MAX 3340.24 MIN 3314.33 AC-FT‡ +910
WTR YR 1985 MEAN 3326.43 MAX 3340.02 MIN 3311.41 AC-FT‡ -4710

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

13217500 NORTH FORK MALHEUR RIVER AT BEULAH, OR

LOCATION.--Lat 43°54'28", long 118°09'08", in NW¼NE¼ sec.22, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank at Beulah, 0.3 mi downstream from Agency Valley Dam, 12 mi northwest of Juntura, and at mile 14.5.

DRAINAGE AREA.--440 mi^2, approximately.

PERIOD OF RECORD.--June 1926 to current year. Published as "near Beulah" June 1926 to September 1935.

REVISED RECORDS.--WSP 1397: 1927-32, 1934, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,261.20 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 25, 1926, water-stage recorder at site 1 mi downstream at different datum. Apr. 25, 1936, to Sept. 30, 1949, nonrecording gage at site 20 ft downstream at datum 1.0 ft higher. Oct. 1, 1949, to June 30, 1964, at present site at datum 1.0 ft higher.

REMARKS.--Estimated daily discharges: Oct. 19 to Mar. 17. Records good except for Apr. 1 to May 10, which are fair, and Oct. 20 to Feb. 10, Feb. 19 to Mar. 31, which are poor. Flow regulated since 1935 by Beulah Reservoir (see sta 13217000). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--50 years (water years 1936-85), 149 ft^3/s, 108,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft^3/s May 7, 1942, gage height, 9.4 ft, present datum, from floodmark, caused by failure of gates at Agency Valley Dam, from rating curve extended above 1,100 ft^3/s on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 706 ft^3/s Apr. 6, gage height, 3.86 ft; minimum daily discharge, 0.13 ft^3/s Oct. 25 to Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	.13	.35	.80	2.0	3.4	11	244	205	254	297	213
2	161	.13	.38	.82	2.1	3.5	77	281	203	279	294	213
3	162	.13	.40	.83	2.1	3.6	303	342	180	291	294	193
4	163	.13	.41	.84	2.2	3.8	481	348	169	290	294	186
5	163	.13	.42	.85	2.3	3.9	541	357	168	285	294	152
6	163	.13	.43	.87	2.3	4.0	669	332	185	279	292	133
7	163	.13	.44	.88	2.4	4.0	663	321	195	273	291	133
8	163	.13	.46	.89	2.5	4.0	651	321	195	278	264	135
9	163	.13	.47	.90	10	4.0	630	321	195	281	252	109
10	175	.13	.48	.91	50	4.1	629	319	197	278	252	89
11	182	.13	.50	.92	80	4.1	622	318	252	286	252	70
12	182	.13	.51	.93	90	4.1	655	318	287	291	252	37
13	182	.13	.52	.95	92	4.1	673	317	291	291	252	27
14	182	.13	.54	.96	93	4.6	672	315	289	285	252	27
15	165	.14	.55	1.0	94	5.1	632	285	286	291	252	27
16	134	.15	.56	1.1	93	5.6	576	275	284	284	252	28
17	112	.17	.58	1.1	92	6.1	489	274	292	282	252	28
18	111	.18	.59	1.2	90	6.5	347	273	296	301	252	27
19	34	.20	.60	1.2	40	6.8	227	272	306	276	251	27
20	.21	.21	.62	1.3	5.0	7.5	222	270	292	253	249	27
21	.18	.23	.64	1.4	4.0	8.4	220	269	280	272	246	27
22	.17	.24	.65	1.4	3.8	9.3	256	267	278	273	246	27
23	.16	.25	.67	1.5	3.6	9.6	285	267	277	255	249	27
24	.14	.27	.69	1.6	3.5	9.9	221	267	274	243	261	26
25	.13	.28	.70	1.6	3.4	11	175	267	271	274	261	26
26	.13	.30	.71	1.7	3.2	11	207	267	267	269	261	26
27	.13	.31	.72	1.8	3.1	11	223	267	265	301	238	27
28	.13	.32	.74	1.8	3.2	12	223	261	262	300	223	27
29	.13	.32	.76	1.9	---	12	221	261	258	299	223	27
30	.13	.33	.78	1.9	---	10	220	242	256	299	220	61
31	.13	---	.80	2.0	---	9.9	---	216	---	297	218	---
TOTAL	2922.77	5.72	17.67	37.85	874.7	206.9	12021	8954	7455	8710	7986	2182
MEAN	94.3	.19	.57	1.22	31.2	6.67	401	289	249	281	258	72.7
MAX	182	.33	.80	2.0	94	12	673	357	306	301	297	213
MIN	.13	.13	.35	.80	2.0	3.4	11	216	168	243	218	26
AC-FT	5800	11	35	75	1730	410	23840	17760	14790	17280	15840	4330

CAL YR 1984	TOTAL 105330.84	MEAN 288	MAX 1330	MIN .13	AC-FT 208900
WTR YR 1985	TOTAL 51373.61	MEAN 141	MAX 673	MIN .13	AC-FT 101900

13226500 BULLY CREEK AT WARMSPRINGS, NEAR VALE, OR

LOCATION.--Lat 44°01'10", long 117°27'35", in SE¼NW¼ sec.9, T.18 S., R.43 E., Malheur County, Hydrologic Unit 17050118, on left bank 400 ft downstream from Cottonwood Creek, 4.7 mi upstream from Bully Creek Dam, 11.4 mi northwest of Vale, and at mile 17.2.

DRAINAGE AREA.--539 mi^2.

PERIOD OF RECORD.--September 1903 to February 1904, February 1905 to March 1907, February 1910, January 1911 to May 1917, March 1922 to June 1923, October 1963 to current year. Monthly discharge only for some periods, published in WSP 1317. Published as "near Vale" 1903, 1907, and as "above Vale" 1904-6, 1910.

REVISED RECORDS.--WSP 1317: Drainage area (former site). WSP 1397: 1904-6, 1911, 1914, 1915.

GAGE.--Water-stage recorder. Datum of gage is 2,527.21 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to July 1, 1923, nonrecording gages within 0.5 mi downstream at different datums.

REMARKS.--Estimated daily discharges: Dec. 15-19, 21-29, Jan. 3-6, 13-19, Jan. 22 to Feb. 8, Sept. 16-18. Records fair. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--28 years (water years 1906, 1912-16, 1964-85), 53.6 ft^3/s, 38,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft^3/s Dec. 22, 1964, gage height, 8.68 ft, from rating curve extended above 200 ft^3/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 21	0245	a	*3.33	Apr. 2	0245	*712	3.15

Minimum daily, 1.5 ft^3/s Sept. 13-16.

a Large shifting control; correction used.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	19	26	20	20	47	449	6.9	7.5	5.7	3.3	2.2
2	10	20	23	16	15	47	549	6.5	7.5	5.7	3.1	2.1
3	12	21	14	16	12	41	501	6.5	7.5	5.6	3.0	2.0
4	8.9	22	8.0	15	12	51	408	6.5	7.5	4.9	3.0	1.9
5	9.4	22	8.3	16	15	48	376	6.2	8.0	4.9	3.3	2.1
6	9.2	22	10	19	18	48	351	6.1	8.0	4.8	3.1	2.1
7	9.6	20	12	30	20	44	329	6.1	7.6	4.5	3.0	1.9
8	11	19	17	29	20	44	309	6.1	7.5	4.3	3.0	1.9
9	12	19	24	25	21	48	292	6.1	7.9	4.2	2.7	1.8
10	13	23	25	22	25	64	283	6.2	8.0	3.9	2.8	1.9
11	12	22	26	27	27	115	272	6.5	8.0	3.9	2.8	1.7
12	6.5	23	27	29	30	158	245	6.1	7.9	3.9	2.7	1.7
13	5.5	23	27	25	29	176	216	6.1	7.5	3.7	2.7	1.5
14	5.3	23	23	20	30	183	196	6.2	7.0	3.9	2.7	1.5
15	8.0	24	21	20	30	186	173	6.5	6.9	3.9	2.6	1.5
16	9.7	23	21	20	31	193	154	6.5	6.5	3.7	2.7	1.5
17	14	22	19	20	30	201	134	6.5	6.5	3.6	2.7	1.6
18	17	22	17	21	28	225	98	6.5	6.4	3.6	2.7	1.9
19	23	22	15	25	29	261	64	7.0	6.1	3.7	2.6	3.8
20	23	24	15	31	31	262	55	6.5	8.5	3.7	2.7	4.4
21	23	26	15	34	32	304	43	6.5	8.4	3.6	2.7	2.8
22	23	26	21	29	40	184	43	6.5	8.0	3.6	2.7	2.3
23	25	25	27	25	55	175	44	6.8	8.0	3.6	2.5	1.7
24	23	27	26	25	60	183	39	7.0	7.9	3.3	2.7	1.7
25	22	26	25	20	54	196	36	7.0	7.1	3.6	2.5	1.9
26	22	24	24	18	38	193	32	7.0	7.0	3.4	2.4	2.3
27	21	20	25	21	29	185	28	7.2	6.9	3.3	2.4	2.6
28	21	26	26	23	34	196	20	7.5	6.5	3.3	2.7	2.9
29	21	24	28	24	---	220	15	7.4	6.3	3.3	2.4	5.4
30	20	26	31	23	---	263	11	7.0	6.0	3.3	2.4	5.7
31	19	---	29	21	---	340	---	7.1	---	3.3	2.2	---
TOTAL	477.1	685	655.3	709	815	4881	5765	204.6	220.4	123.7	84.8	70.3
MEAN	15.4	22.8	21.1	22.9	29.1	157	192	6.60	7.35	3.99	2.74	2.34
MAX	25	27	31	34	60	340	549	7.5	8.5	5.7	3.3	5.7
MIN	5.3	19	8.0	15	12	41	11	6.1	6.0	3.3	2.2	1.5
AC-FT	946	1360	1300	1410	1620	9680	11430	406	437	245	168	139

CAL YR 1984	TOTAL	49040.8	MEAN	134	MAX	3260	MIN	1.3	AC-FT	97270
WTR YR 1985	TOTAL	14691.2	MEAN	40.2	MAX	549	MIN	1.5	AC-FT	29140

13226800 BULLY CREEK RESERVOIR NEAR VALE, OR

LOCATION.--Lat 44°00'55", long 117°23'45", in SE¼SW¼ sec.12, T.18 S., R.43 E., Malheur County, Hydrologic Unit 17050118, U.S. Bureau of Reclamation land, on top of dam over outlet works near right end of dam on Bully Creek, 8.0 mi northwest of Vale, and at mile 12.5.

DRAINAGE AREA.--547 mi².

PERIOD OF RECORD.--February 1963 to current year. Prior to March 1979, monthend contents only.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Mar. 22, 1979, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill, rock-faced dam. Storage began Feb. 1, 1963. Capacity, 29,980 acre-ft between elevations 2,456.58 ft, outlet works, and 2,516.00 ft, spillway crest. Dead storage, 1,650 acre-ft below elevation 2,456.58 ft. Figures given herein do not include dead storage. Water used for irrigation lands of Vale-Oregon Irrigation District. Bully Creek Reservoir feed canal diverts from Malheur River by way of Vale Oregon canal.

COOPERATION.--Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents not determined, occurred during period Apr. 4 to May 2, 1969, elevation above 2,516.00 ft, spillway crest; no usable contents at times in 1973, 1977, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 30,260 acre-ft Apr. 17, elevation, 2,516.28 ft; minimum, 6,970 acre-ft Sept. 30, elevation, 2,483.94 ft.

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

2,483	6,580	2,505	20,130
2,490	9,930	2,510	24,370
2,495	12,900	2,520	34,040
2,500	16,290		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2494.08	2494.51	2497.21	2499.47	2501.68	2503.81	2513.20	2515.75	2511.71	2506.29	2496.84	2487.24
2	2494.00	2494.58	2497.28	2499.52	2501.73	2503.94	2514.14	2515.62	2511.71	2506.05	2496.62	2486.94
3	2493.95	2494.65	2497.32	2499.58	2501.77	2504.05	2514.46	2515.40	2511.65	2505.77	2496.42	2486.63
4	2493.90	2494.72	2497.35	2499.63	2501.82	2504.24	2514.53	2515.26	2511.56	2505.48	2496.21	2486.32
5	2493.83	2494.80	2497.39	2499.69	2501.88	2504.38	2514.59	2515.14	2511.47	2505.20	2496.01	2486.03
6	2493.77	2494.87	2497.43	2499.77	2501.95	2504.53	2514.67	2515.02	2511.39	2504.89	2495.79	2485.71
7	2493.71	2494.93	2497.48	2499.85	2502.00	2504.68	2514.76	2514.89	2511.30	2504.61	2495.51	2485.42
8	2493.65	2495.03	2497.54	2499.94	2501.99	2504.82	2514.93	2514.76	2511.20	2504.28	2495.19	2485.15
9	2493.63	2495.10	2497.63	2500.02	2501.95	2504.95	2515.10	2514.65	2511.13	2504.00	2494.89	2484.91
10	2493.62	2495.26	2497.74	2500.09	2501.92	2505.13	2515.22	2514.52	2511.06	2503.66	2494.54	2484.75
11	2493.55	2495.39	2497.81	2500.17	2501.90	2505.39	2515.35	2514.37	2510.98	2503.32	2494.25	2484.69
12	2493.54	2495.48	2497.92	2500.26	2501.89	2505.77	2515.60	2514.26	2510.83	2502.98	2493.95	2484.69
13	2493.51	2495.57	2497.99	2500.35	2501.95	2506.24	2515.85	2514.18	2510.66	2502.65	2493.69	2484.70
14	2493.45	2495.64	2498.07	2500.42	2502.04	2506.81	2516.05	2514.01	2510.53	2502.31	2493.39	2484.67
15	2493.41	2495.73	2498.17	2500.48	2502.12	2507.45	2516.13	2513.90	2510.33	2501.99	2493.08	2484.61
16	2493.41	2495.82	2498.23	2500.55	2502.21	2508.29	2516.13	2513.84	2510.11	2501.65	2492.77	2484.54
17	2493.38	2495.91	2498.30	2500.62	2502.27	2509.24	2516.20	2513.73	2509.93	2501.33	2492.47	2484.50
18	2493.39	2496.02	2498.37	2500.69	2502.36	2510.26	2516.15	2513.63	2509.71	2501.03	2492.15	2484.38
19	2493.44	2496.10	2498.41	2500.76	2502.47	2511.01	2515.84	2513.51	2509.46	2500.75	2491.83	2484.32
20	2493.48	2496.21	2498.45	2500.86	2502.55	2511.45	2515.77	2513.37	2509.18	2500.48	2491.48	2484.23
21	2493.52	2496.29	2498.52	2500.94	2502.65	2511.80	2515.93	2513.26	2508.91	2500.22	2491.10	2484.04
22	2493.60	2496.38	2498.59	2501.02	2502.75	2511.74	2516.10	2513.12	2508.67	2499.90	2490.73	---
23	2493.81	2496.50	2498.71	2501.10	2502.89	2511.67	2516.14	2512.94	2508.37	2499.62	2490.35	---
24	2493.93	2496.59	2498.78	2501.19	2503.06	2512.08	2516.18	2512.76	2508.08	2499.30	2489.98	---
25	2494.01	2496.66	2498.86	2501.25	2503.20	2512.33	2516.16	2512.59	2507.80	2498.97	2489.70	---
26	2494.08	2496.74	2498.95	2501.31	2503.34	2512.25	2516.14	2512.42	2507.56	2498.65	2489.34	---
27	2494.16	2496.87	2499.05	2501.36	2503.47	2512.09	2516.11	2512.27	2507.32	2498.35	2488.96	---
28	2494.24	2496.96	2499.13	2501.43	2503.60	2511.77	2516.04	2512.12	2507.06	2498.03	2488.58	---
29	2494.29	2497.03	2499.25	2501.50	---	2511.39	2515.97	2511.95	2506.79	2497.76	2488.23	---
30	2494.26	2497.13	2499.35	2501.56	---	2511.52	2515.88	2511.85	2506.54	2497.39	2487.86	2483.94
31	2494.42	---	2499.41	2501.60	---	2512.13	---	2511.77	---	2497.11	2487.55	---
MEAN	2493.77	2495.78	2498.22	2500.55	2502.34	2508.30	2515.51	2513.77	2509.77	2501.74	2492.56	---
MAX	2494.42	2497.13	2499.41	2501.60	2503.60	2512.33	2516.20	2515.75	2511.71	2506.29	2496.84	---
MIN	2493.38	2494.51	2497.21	2499.47	2501.68	2503.81	2513.20	2511.77	2506.54	2497.11	2487.55	---
(†)	12540	14290	15870	17470	19010	26290	29860	25960	21400	14280	8640	6970
(‡)	+180	+1750	+1580	+1600	+1540	+7280	+3570	-3900	-4560	-7120	-5640	-1670

CAL YR 1984 MEAN 2504.05 MAX 2516.33 MIN 2493.38 AC-FT‡ +610
WTR YR 1985 MEAN ------- MAX 2516.20 MIN ------- AC-FT‡ -5390

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

13272500 UNITY RESERVOIR NEAR UNITY, OR

LOCATION.--Lat 44°30'13", long 118°10'45", in SE¼SW¼ sec.21, T.12 S., R.37 E., Baker County, Hydrologic Unit 17050202, at spillway near right end of dam on Burnt River, 4.4 mi north of Unity, and at mile 63.6.

DRAINAGE AREA.--309 mi².

PERIOD OF RECORD.--March 1938 to current year. Prior to September 1978, monthend contents only.

GAGE.-- Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Mar. 13, 1938, to Nov. 4, 1941, reference mark or mercury pressure gage and Nov. 5, 1941, to Dec. 10, 1978, nonrecording gage at same site and datum.

REMARKS.--Estimated midnight elevations: Oct. 22-26. Reservoir is formed by earthfill dam with concrete spillway and outlet works, completed by Bureau of Reclamation in 1937; storage began Feb. 19, 1938. Capacity, 25,200 acre-ft between elevations 3,776.5 ft, bottom of outlet gates, and 3,820.0 ft, top of radial gates on spillway when closed. Dead storage, 600 acre-ft below elevation 3,776.5 ft. Records given herein represent usable contents. Water used for irrigation in the Burnt River Irrigation District near Hereford and Bridgeport.

COOPERATION.--Data for computing capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 26,770 acre-ft Apr. 8, 1971, elevation, 3,821.62 ft; no contents Sept. 5 to Oct. 4, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 25,280 acre-ft May 17, elevation, 3,820.07 ft; minimum, 6,000 acre-ft Sept. 24, elevation, 3,793.89 ft.

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

3,790	4,020	3,810	16,680
3,795	6,610	3,815	20,770
3,800	9,600	3,820	25,220
3,805	12,960	3,821	26,150

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3802.17	3802.49	3805.33	3807.47	3808.55	3809.66	3812.81	3819.32	3818.43	3813.24	3805.31	3798.21
2	3802.02	3802.66	3805.29	3807.49	3808.58	3809.70	3813.89	3819.43	3818.39	3813.07	3805.12	3797.93
3	3801.89	3802.80	3805.28	3807.51	3808.58	3809.76	3814.83	3819.52	3818.34	3812.88	3804.93	3797.67
4	3801.74	3802.96	3805.34	3807.54	3808.59	3809.81	3815.42	3819.67	3818.22	3812.67	3804.72	3797.43
5	3801.59	3803.09	3805.38	3807.59	3808.64	3809.86	3815.98	3819.75	3818.11	3812.47	3804.53	3797.16
6	3801.46	3803.22	3805.42	3807.66	3808.69	3809.87	3816.68	3819.80	3818.00	3812.30	3804.30	3796.89
7	3801.32	3803.35	3805.48	3807.75	3808.77	3809.87	3817.41	3819.79	3817.87	3812.07	3804.03	3796.63
8	3801.19	3803.51	3805.57	3807.83	3808.79	3809.92	3818.13	3819.80	3817.76	3811.86	3803.79	3796.43
9	3801.12	3803.64	3805.69	3807.86	3808.82	3809.92	3818.65	3819.84	3817.62	3811.64	3803.60	3796.20
10	3801.12	3803.82	3805.81	3807.94	3808.93	3809.95	3819.11	3819.87	3817.48	3811.34	3803.37	3795.98
11	3801.06	3803.99	3805.92	3807.94	3808.98	3809.98	3819.45	3819.90	3817.35	3811.04	3803.17	3795.76
12	3801.09	3804.16	3806.05	3808.00	3808.94	3810.03	3819.57	3819.93	3817.19	3810.75	3802.98	3795.58
13	3801.12	3804.35	3806.11	3808.04	3809.03	3810.06	3819.53	3819.95	3817.00	3810.44	3802.78	3795.40
14	3801.15	3804.51	3806.21	3808.08	3809.04	3810.10	3819.48	3819.97	3816.82	3810.17	3802.57	3795.21
15	3801.15	3804.65	3806.31	3808.13	3809.06	3810.19	3819.55	3820.00	3816.60	3809.86	3802.35	3795.03
16	3801.15	3804.77	3806.36	3808.19	3809.06	3810.32	3819.50	3820.04	3816.40	3809.55	3802.14	3794.87
17	3801.04	3804.84	3806.44	3808.21	3809.09	3810.53	3819.45	3820.02	3816.20	3809.22	3801.92	3794.72
18	3800.97	3804.92	3806.47	3808.28	3809.15	3810.84	3819.38	3819.99	3816.01	3808.91	3801.69	3794.57
19	3800.88	3804.98	3806.49	3808.33	3809.21	3811.27	3819.40	3819.93	3815.78	3808.63	3801.47	3794.42
20	3800.91	3805.05	3806.56	3808.39	3809.23	3811.80	3819.47	3819.87	3815.54	3808.34	3801.22	3794.33
21	3801.04	3805.08	3806.64	3808.41	3809.28	3812.14	3819.49	3819.79	3815.35	3808.04	3801.00	3794.19
22	---	3805.09	3806.74	3808.44	3809.32	3812.26	3819.52	3819.65	3815.14	3807.73	3800.76	3794.07
23	---	3805.15	3806.86	3808.41	3809.35	3812.34	3819.55	3819.51	3814.86	3807.45	3800.52	3793.94
24	---	3805.17	3806.94	3808.40	3809.40	3812.39	3819.53	3819.38	3814.64	3807.18	3800.30	3793.91
25	---	3805.16	3807.02	3808.39	3809.43	3812.33	3819.45	3819.22	3814.49	3806.93	3800.05	3793.96
26	3801.71	3805.18	3807.11	3808.40	3809.48	3812.20	3819.37	3819.04	3814.26	3806.68	3799.81	3794.05
27	3801.85	3805.23	3807.20	3808.43	3809.53	3812.14	3819.29	3818.89	3814.07	3806.44	3799.55	3794.07
28	3802.00	3805.27	3807.27	3808.49	3809.60	3812.01	3819.19	3818.77	3813.86	3806.20	3799.27	3794.11
29	3802.13	3805.29	3807.34	3808.52	---	3811.89	3819.18	3818.62	3813.63	3805.95	3799.05	3794.14
30	3802.25	3805.34	3807.41	3808.55	---	3811.78	3819.23	3818.56	3813.46	3805.74	3798.74	3794.19
31	3802.37	---	3807.43	3808.54	---	3812.01	---	3818.44	---	3805.52	3798.48	---
MAX	---	3805.34	3807.43	3808.55	3809.60	3812.39	3819.57	3820.04	3818.43	3813.24	3805.31	3798.21
MIN	---	3802.49	3805.28	3807.47	3808.55	3809.66	3812.81	3818.44	3813.46	3805.52	3798.48	3793.91
(†)	11150	13200	14720	15550	16370	18270	24520	23810	19460	13330	8650	6160
(‡)	+40	+2050	+1520	+830	+820	+1900	+6250	-710	-4350	-6130	-4680	-2490

CAL YR 1984 MAX 3820.50 MIN 3800.88 AC-FT‡ +560
WTR YR 1985 MAX 3820.04 MIN 3793.91 AC-FT‡ -4950

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

13273000 BURNT RIVER NEAR HEREFORD, OR

LOCATION.--Lat 44°30'14", long 118°10'35", in SE¼ sec.21, T.12 S., R.37 E., Baker County, Hydrologic Unit 17050202, on left bank 800 ft downstream from Unity Dam, 0.4 mi upstream from Van Cleve ditch, 7 mi west of Hereford, and at mile 63.5.

DRAINAGE AREA.--309 mi^2.

PERIOD OF RECORD.--March to September 1915, April to September 1916, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 903: 1939. WSP 1397: 1916, 1930, 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 3,758.19 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1943, to Oct. 31, 1966, water-stage recorder at site 450 ft downstream at datum 1.44 ft lower. See WSP 1317 or 1737 for history of changes prior to Oct. 1, 1943.

REMARKS.--Estimated daily discharges: Oct. 6-9, Jan. 26 to Feb. 13. Records excellent except for periods of estimated daily discharges, which are fair. Flow regulated since 1938 by Unity Reservoir (see station 13272500). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--57 years (water years 1929-85), 87.8 ft^3/s, 63,610 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,220 ft^3/s Apr. 17, 1943, gage height, 5.91 ft, present datum, from rating curve extended above 1,300 ft^3/s; maximum gage height, 9.07 ft Apr. 8, 1971; no flow at times; minimum discharge before construction of Unity Dam, 1.6 ft^3/s Aug. 31, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 685 ft^3/s Apr. 12, gage height, 6.95 ft; minimum, 3.4 ft^3/s Sept. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	18	70	40	45	44	221	139	96	100	97	89
2	94	21	73	40	45	44	306	139	96	99	95	88
3	94	21	50	40	45	44	396	138	95	99	93	88
4	94	20	26	40	45	46	445	137	95	98	91	87
5	94	20	26	40	45	55	469	137	94	97	89	85
6	94	20	26	41	45	59	477	137	93	96	91	85
7	94	20	26	41	45	58	486	137	91	98	98	84
8	94	20	27	43	45	58	589	123	98	100	92	80
9	94	20	28	43	45	58	641	114	101	111	85	78
10	93	21	29	43	45	58	663	108	101	126	85	77
11	93	21	31	43	45	57	676	102	100	125	84	77
12	94	21	32	43	45	57	679	101	100	124	84	73
13	94	21	33	43	45	68	679	99	105	122	84	68
14	94	21	33	43	45	74	677	95	114	120	83	67
15	94	21	34	43	46	75	605	98	114	123	87	66
16	94	37	35	43	45	81	585	107	113	131	89	64
17	94	47	35	44	44	83	519	107	111	129	88	59
18	94	47	35	44	44	95	457	107	111	128	88	59
19	93	50	35	43	44	129	362	107	110	127	88	58
20	45	60	35	43	44	166	316	107	108	125	93	58
21	17	63	35	44	44	186	313	117	106	124	95	58
22	17	62	35	57	44	183	274	121	108	120	94	54
23	17	63	36	68	44	181	246	117	108	113	93	52
24	18	62	36	61	44	191	240	124	107	111	93	35
25	18	61	37	45	44	200	235	133	107	108	92	3.8
26	18	60	38	45	44	199	229	131	106	107	92	4.1
27	18	61	38	45	44	196	225	130	105	106	91	9.1
28	18	61	38	45	44	195	216	129	103	103	91	12
29	18	62	40	45	---	195	175	126	102	102	91	12
30	18	63	40	45	---	195	146	109	101	100	90	12
31	18	---	40	45	---	194	---	106	---	99	89	---
TOTAL	2024	1165	1132	1388	1249	3524	12547	3682	3099	3471	2795	1742.0
MEAN	65.3	38.8	36.5	44.8	44.6	114	418	119	103	112	90.2	58.1
MAX	95	63	73	68	46	200	679	139	114	131	98	89
MIN	17	18	26	40	44	44	146	95	91	96	83	3.8
AC-FT	4010	2310	2250	2750	2480	6990	24890	7300	6150	6880	5540	3460

CAL YR 1984	TOTAL	61684	MEAN	169	MAX	974	MIN	17	AC-FT	122400
WTR YR 1985	TOTAL	37818	MEAN	104	MAX	679	MIN	3.8	AC-FT	75010

13275300 POWDER RIVER NEAR SUMPTER, OR

LOCATION.--Lat 44°40'20", long 117°59'40", in NE¼NE¼ sec.25, T.10 S., R.38 E., Baker County, Hydrologic Unit 17050203, Wallowa Whitman National Forest, on left bank 1,200 ft downstream from Mason Dam, 1.4 mi upstream from California Gulch, 11.4 mi southeast of Sumpter, and at mile 123.2.

DRAINAGE AREA.--168 mi^2, approximately. Prior to Oct. 1, 1970, 170 mi^2 at cableway, 0.5 mi downstream.

PERIOD OF RECORD.--April 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,898.47 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to July 29, 1965, nonrecording gage at datum 1.03 ft higher.

REMARKS.--Estimated daily discharges: Nov. 9-14, Nov. 20 to Dec. 19. Records excellent except those below 20 ft^3/s, which are good. Flow completely regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--20 years, 116 ft^3/s, 84,040 acre-ft/yr, not adjusted for storage in Phillips Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 971 ft^3/s Apr. 30, 1965, gage height, 4.43 ft; no flow Nov. 12, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 1,600 ft^3/s, approximately, Mar. 20, 1910, based on comparison with records for station downstream, near Baker.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 490 ft^3/s July 29, gage height, 3.52 ft; minimum, 1.2 ft^3/s Apr. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	13	12	87	40	98	289	114	281	304	191
2	15	16	13	12	86	43	98	289	98	281	213	203
3	15	16	13	12	85	44	98	319	81	281	193	209
4	15	16	13	12	84	44	98	350	71	282	178	182
5	15	16	13	12	72	44	98	350	94	282	177	162
6	15	16	13	12	17	44	98	350	110	282	188	150
7	16	16	13	12	16	52	98	350	110	282	192	148
8	16	16	13	12	16	60	165	327	112	307	185	133
9	16	16	13	12	16	60	200	311	121	308	181	125
10	16	16	13	92	16	65	265	278	157	280	169	118
11	16	16	13	137	16	76	353	259	157	268	167	101
12	16	16	13	150	16	87	421	260	157	268	160	53
13	16	16	13	165	15	102	440	320	157	268	155	12
14	16	16	13	164	13	108	440	346	157	268	155	12
15	16	16	13	162	13	108	440	346	160	268	239	13
16	15	16	13	151	14	108	440	346	238	270	311	16
17	15	16	13	64	14	108	440	346	239	279	310	17
18	15	16	13	28	14	48	441	346	239	280	310	17
19	15	16	12	50	14	7.8	442	346	244	280	267	15
20	15	16	12	57	14	7.8	443	369	316	281	207	15
21	15	16	12	75	14	7.8	444	399	370	282	192	15
22	15	16	12	90	14	7.8	444	375	426	276	182	14
23	16	16	12	90	14	8.0	444	354	423	241	182	14
24	16	16	12	90	14	8.3	444	355	333	239	181	14
25	16	16	12	90	19	8.3	444	358	258	300	179	13
26	16	16	12	90	28	8.9	444	358	206	354	179	13
27	16	16	12	90	45	8.9	444	358	235	378	179	12
28	16	16	12	90	47	9.2	355	328	311	403	179	12
29	16	16	12	90	---	9.5	173	217	308	468	186	12
30	16	15	12	88	---	10	288	173	289	477	191	11
31	16	---	12	87	---	38	---	137	---	424	191	---
TOTAL	483	479	390	2298	833	1381.3	9540	9909	6291	9438	6282	2022
MEAN	15.6	16.0	12.6	74.1	29.8	44.6	318	320	210	304	203	67.4
MAX	16	16	13	165	87	108	444	399	426	477	311	209
MIN	15	15	12	12	13	7.8	98	137	71	239	155	11
AC-FT	958	950	774	4560	1650	2740	18920	19650	12480	18720	12460	4010

CAL YR 1984	TOTAL	68177.8	MEAN	186	MAX	540	MIN	7.8	AC-FT	135200
WTR YR 1985	TOTAL	49346.3	MEAN	135	MAX	477	MIN	7.8	AC-FT	97880

13277000 POWDER RIVER AT BAKER, OR

LOCATION.--Lat 44°46'06", long 117°49'50", in SE¼NE¼ sec.20, T.9 S., R.40 E., Baker County, Hydrologic Unit 17050203, on right bank 600 ft upstream from Myrtle Street Bridge in Baker, 0.5 mi downstream from Sutton Creek, and at mile 107.6.

DRAINAGE AREA.--351 mi^2.

PERIOD OF RECORD.--May to September 1913, April to July 1914, November 1971 to current year. Monthly discharge only May 1913, April 1914 published in WSP 1317. November 1971 to September 1978 in reports of Oregon Water Resources Department.

REVISED RECORDS.--WSP 1317: 1913.

GAGE.--Water-stage recorder. Datum of gage is 3,441.71 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1971, nonrecording gage at site 0.7 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 2 to Feb. 28. Records good except those for period of ice effect Dec. 2 to Feb. 28, which are fair. Flow regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft. Old Settlers Slough diverts from left bank 0.2 mi upstream for irrigation downstream from station.

AVERAGE DISCHARGE.--13 years, 123 ft^3/s, 89,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft^3/s Jan. 15, 1974, gage height, 5.55 ft; maximum gage height, 5.57 ft Jan. 5, 1984 (ice jam); minimum discharge, 0.7 ft^3/s Oct. 28, 29, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 570 ft^3/s Apr. 19, gage height, 4.00 ft; maximum gage height, 4.62 ft Feb. 4 (ice jam); minimum daily discharge, 14 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	25	27	26	22	55	270	258	97	199	272	124
2	21	26	25	21	26	58	286	264	73	197	161	130
3	21	30	23	19	19	64	254	270	60	196	146	144
4	21	28	21	24	14	61	214	302	48	197	125	157
5	20	27	24	28	23	60	201	303	53	195	123	142
6	20	27	28	30	21	60	205	303	80	196	126	137
7	20	27	28	35	35	62	205	298	81	197	135	134
8	20	27	32	28	39	79	261	280	79	210	129	135
9	20	28	35	25	35	72	314	251	78	224	129	122
10	20	29	30	23	30	74	346	224	106	202	116	122
11	24	30	25	27	41	89	435	196	106	182	116	111
12	22	32	33	29	38	98	494	194	102	184	114	73
13	23	32	28	22	34	116	525	228	101	184	101	50
14	22	30	23	27	42	132	533	287	96	184	90	33
15	22	27	25	27	48	139	537	279	94	187	117	26
16	23	29	23	26	45	151	544	280	144	189	218	25
17	26	27	20	23	40	167	550	277	176	196	221	27
18	25	30	18	25	45	169	552	277	180	196	223	26
19	24	29	16	35	50	113	562	279	178	197	206	24
20	24	30	15	40	54	118	544	292	224	193	148	22
21	23	32	20	38	50	115	529	329	274	195	128	21
22	23	28	28	40	56	75	520	316	337	194	114	20
23	23	29	37	38	56	70	514	278	347	159	111	20
24	23	32	30	35	56	115	494	279	296	139	112	20
25	23	28	32	30	52	83	491	278	225	179	112	20
26	25	27	33	25	52	63	489	277	149	226	110	19
27	24	28	36	22	52	58	486	287	139	263	113	19
28	25	27	31	28	58	55	475	284	213	271	113	19
29	25	27	33	26	---	50	163	211	227	329	115	19
30	25	28	35	24	---	60	277	143	209	367	124	19
31	26	---	30	23	---	134	---	95	---	331	124	---
TOTAL	704	856	844	869	1133	2815	12270	8119	4572	6558	4292	1960
MEAN	22.7	28.5	27.2	28.0	40.5	90.8	409	262	152	212	138	65.3
MAX	26	32	37	40	58	169	562	329	347	367	272	157
MIN	20	25	15	19	14	50	163	95	48	139	90	19
AC-FT	1400	1700	1670	1720	2250	5580	24340	16100	9070	13010	8510	3890

CAL YR 1984	TOTAL	73666	MEAN	201	MAX	627	MIN	12	AC-FT	146100
WTR YR 1985	TOTAL	44992	MEAN	123	MAX	562	MIN	14	AC-FT	89240

13285000 THIEF VALLEY RESERVOIR NEAR NORTH POWDER, OR

LOCATION.--Lat 45°00'45", long 117°46'50", in NE¼SW¼ sec.26, T.6 S., R.40 E., Baker County, Hydrologic Unit 17050203, Bureau of Reclamation land, on top of right end of dam on Powder River, 7.0 mi east of North Powder, and at mile 70.0.

DRAINAGE AREA.--910 mi^2, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Reservoir is formed by concrete dam. Storage began in February 1932. Capacity, 17,400 acre-ft between elevations 3,094.00 ft, minimum pool, and 3,133.00 ft, spillway crest. No dead storage. Water used for irrigation of lands of Lower Powder River Irrigation District.

COOPERATION.--Capacity table furnished by Oregon Water Resources Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 18,900 acre-ft July 2, 1982, elevation, 3,134.99 ft; minimum recorded, 2,250 acre-ft Oct. 1, 1981, elevation, 3,104.66 ft; minimum (estimated), 2,190 acre-ft Sept. 30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 18,440 acre-ft Apr. 18, elevation, 3,134.38 ft; minimum, 5,400 acre-ft Sept. 9, 10, elevation, 3,112.90 ft.

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

3,110	4,170
3,125	11,880
3,130	15,210
3,135	18,910

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3129.06	3131.13	3133.45	---	---	3133.42	3134.04	3133.73	3133.99	3131.32	3121.62	3114.77
2	3129.03	3131.54	3133.32	---	---	3133.41	3134.14	3133.70	3134.07	3131.07	3121.77	3114.54
3	3128.82	3132.00	3133.29	---	---	3133.39	3134.11	3133.65	3133.99	3130.81	3121.84	3114.00
4	3128.60	3132.45	3133.28	---	---	3133.41	3134.03	3133.62	3133.88	3130.50	3121.75	3113.67
5	3128.45	3132.96	3133.26	---	---	3133.42	3133.97	3133.65	3133.86	3130.17	3121.60	3113.35
6	3128.30	3133.30	3133.28	---	---	---	3133.92	3133.61	3133.87	3129.92	3121.46	3113.18
7	3128.23	3133.38	3133.30	3133.35	3133.37	---	3133.92	3133.59	3133.91	3129.60	3121.26	3113.00
8	3128.08	3133.40	3133.31	3133.35	3133.37	---	3133.93	3133.57	3133.86	3129.26	3121.05	3112.92
9	3127.97	3133.38	3133.37	---	3133.31	---	3133.99	3133.55	3133.81	3128.95	3120.85	3112.90
10	3127.80	3133.39	3133.36	---	3133.30	---	3134.06	3133.54	3133.74	3128.68	3120.66	3113.01
11	3127.57	3133.43	3133.34	3133.29	3133.30	---	3134.05	3133.46	3133.68	3128.38	3120.57	3113.19
12	3127.52	3133.47	3133.36	3133.32	3133.27	---	3134.12	3133.42	3133.60	3128.08	3120.32	3113.39
13	3127.45	3133.48	3133.34	3133.37	3133.29	---	3134.19	3133.43	3133.52	3127.71	3120.26	3113.60
14	3127.39	3133.41	3133.28	3133.39	3133.33	---	3134.23	3133.36	3133.50	3127.37	3120.02	3113.76
15	3127.31	3133.39	3133.27	3133.42	3133.33	---	3134.27	3133.39	3133.45	3126.98	3119.76	3113.76
16	3127.23	3133.40	3133.28	3133.43	3133.33	---	3134.24	3133.43	3133.38	3126.59	3119.44	3113.64
17	3127.28	3133.38	---	3133.43	---	---	3134.34	3133.45	3133.39	3126.17	3119.23	3113.67
18	3127.20	3133.41	---	---	---	---	3134.36	3133.48	3133.39	3125.80	3118.89	3113.74
19	3127.14	3133.40	---	---	3133.31	3133.98	3134.30	3133.55	3133.35	3125.45	3118.71	3113.73
20	3127.06	3133.42	---	3133.36	3133.33	3134.04	3134.29	3133.58	3133.26	3125.07	3118.71	3113.84
21	3126.97	3133.46	3133.29	3133.36	3133.33	3134.00	3134.23	3133.61	3133.19	3124.69	3118.44	3114.09
22	3126.92	3133.42	3133.33	3133.38	3133.35	3134.00	3134.17	3133.61	3133.05	3124.28	3118.14	3114.23
23	3126.98	3133.42	3133.35	3133.39	3133.36	3133.93	3134.11	3133.64	3132.72	3123.90	3117.91	3114.28
24	3127.43	3133.43	3133.35	3133.41	3133.39	3133.96	3134.09	3133.76	3132.47	3123.61	3117.60	3114.37
25	3127.87	3133.43	3133.35	3133.42	3133.39	3133.96	3134.04	3133.82	3132.30	3123.34	3117.31	3114.37
26	3128.34	3133.39	3133.34	---	3133.39	3133.82	3134.06	3133.81	3132.27	3123.00	3117.04	3114.40
27	3128.85	3133.36	3133.36	---	3133.37	3133.73	3134.06	3133.79	3132.22	3122.69	3116.72	3114.49
28	3129.33	3133.34	3133.37	3133.40	3133.38	3133.73	3134.02	3133.78	3131.82	3122.36	3116.37	3114.48
29	3129.77	3133.43	3133.36	---	---	3133.72	3133.96	3133.88	3131.62	3122.02	3116.02	3114.48
30	3130.23	3133.46	3133.35	---	---	3133.74	3133.74	3133.92	3131.47	3121.82	3115.59	3114.45
31	3130.65	---	3133.34	3133.39	---	3133.87	---	3133.81	---	3121.66	3115.18	---
MEAN	3128.09	3133.18	---	---	---	---	3134.10	3133.62	3133.22	3126.49	3119.23	3113.84
MAX	3130.65	3133.48	---	---	---	---	3134.36	3133.92	3134.07	3131.32	3121.84	3114.77
MIN	3126.92	3131.13	---	---	---	---	3133.74	3133.36	3131.47	3121.66	3115.18	3112.90
(†)	15680	17740	17650	17690	17680	18050	17960	18010	16270	9880	6460	6110
(‡)	+1040	+2060	-90	+40	-10	+370	-90	+50	-1740	-6390	-3420	-350

CAL YR 1984 MEAN ------- MAX 3134.81 MIN 3126.92 AC-FT‡ +50
WTR YR 1985 MEAN ------- MAX 3134.36 MIN 3112.90 AC-FT‡ -8530

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

13285500 POWDER RIVER BELOW THIEF VALLEY RESERVOIR, NEAR NORTH POWDER, OR

LOCATION.--Lat 45°00'20", long 117°46'50", in NE¼NW¼ sec.35, T.6 S., R.40 E., Baker County, Hydrologic Unit 17050203, on right bank 0.6 mi downstream from Thief Valley Reservoir, 7.0 mi east of North Powder, and at mile 69.4.

DRAINAGE AREA.--910 mi^2, approximately.

PERIOD OF RECORD.--March 1909 to June 1912, July to September 1932, August 1978 to current year. Prior to July 1932, published as Powder River near North Powder.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,080.166 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Aug. 18, 1978, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Phillips Lake since October 1967, usable capacity, 90,540 acre-ft, by Wolf Creek Reservoir since April 1975, usable capacity, 10,400 acre-ft, and by Thief Valley Reservoir since February 1932, usable capacity, 17,400 acre-ft and by Pilcher Creek Reservoir since April 1984, usable capacity 5,560 acre-ft. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--7 years (water years 1979-85), 297 ft^3/s, 215,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,920 ft^3/s Mar. 21, 1910, gage height, 10.0 ft, site and datum then in use, from rating curve extended above 1,000 ft^3/s; maximum gage height, 10.05 ft July 2, 1982; no flow Aug. 9 to Sept. 10, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft^3/s Apr. 18, gage height, 8.56 ft; minimum, 1.2 ft^3/s Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	12	211	153	187	191	608	392	534	141	104	113
2	168	11	173	129	181	210	787	373	764	140	104	113
3	168	11	141	133	188	192	858	382	694	139	104	111
4	168	11	145	141	187	202	788	344	578	139	104	110
5	166	11	139	147	169	215	675	337	523	139	104	109
6	166	48	143	151	187	209	614	326	518	139	103	108
7	166	142	141	153	177	211	588	306	553	139	103	108
8	166	186	147	160	129	208	592	293	564	139	103	108
9	166	190	173	153	130	214	635	283	502	138	103	108
10	166	202	177	143	134	229	708	284	430	137	101	107
11	166	202	170	137	136	244	752	236	339	137	101	108
12	166	221	179	149	88	261	800	187	297	137	101	108
13	164	229	173	182	109	283	877	167	226	136	101	108
14	164	219	170	207	123	323	934	170	191	135	100	108
15	164	202	121	225	120	366	998	133	183	135	100	108
16	164	192	121	239	128	408	1060	142	148	134	99	108
17	164	197	145	245	125	468	1130	156	123	133	98	108
18	164	197	143	239	125	544	1230	176	108	132	98	109
19	164	204	143	207	119	629	1220	204	98	131	97	106
20	164	211	135	166	122	682	1160	264	86	130	102	54
21	164	247	156	154	124	753	1120	288	94	129	111	29
22	164	231	158	176	130	727	1030	281	111	129	110	46
23	156	221	166	182	139	647	926	291	147	120	109	63
24	19	226	170	196	150	650	869	387	144	108	109	63
25	12	234	170	210	153	701	843	470	143	108	108	63
26	12	219	162	204	160	599	795	484	143	107	108	63
27	12	211	168	185	160	457	781	463	142	106	107	63
28	12	153	166	189	168	424	755	455	141	106	112	63
29	12	202	177	205	---	406	695	500	141	105	116	63
30	12	226	162	177	---	402	487	599	141	104	114	64
31	12	---	168	189	---	460	---	530	---	104	114	---
TOTAL	3899	5068	4913	5526	4048	12515	25315	9903	8806	3956	3248	2700
MEAN	126	169	158	178	145	404	844	319	294	128	105	90.0
MAX	168	247	211	245	188	753	1230	599	764	141	116	113
MIN	12	11	121	129	88	191	487	133	86	104	97	29
AC-FT	7730	10050	9740	10960	8030	24820	50210	19640	17470	7850	6440	5360

CAL YR 1984	TOTAL	173469	MEAN	474	MAX	2050	MIN	11	AC-FT	344100
WTR YR 1985	TOTAL	89897	MEAN	246	MAX	1230	MIN	11	AC-FT	178300

13286700 POWDER RIVER NEAR RICHLAND, OR

LOCATION.--Lat 44°46'40", long 117°17'30", in SE¼ sec.14, T.9 S., R.44 E., Baker County, Hydrologic Unit 17050203, on left bank 0.4 mi upstream from Upper Timber Canyon, 6.0 mi west of Richland, and at mile 20.3.

DRAINAGE AREA.--1,310 mi^2, approximately.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,277.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 3 to Mar. 4. Records good except for period of estimated daily discharges Dec. 3 to Mar. 4; no gage-height record Jan. 4-9; and periods of ice effect Dec. 3 to Jan. 3 and Jan. 10 to Mar. 5, which are fair. Flow regulated by Phillips Lake since October 1967, usable capacity, 90,540 acre-ft, Wolf Creek Reservoir since April 1975, usable capacity, 10, 400 acre-ft, Thief Valley Reservoir since February 1932, usable capacity, 17,400 acre-ft, and Pilcher Creek Reservoir since April 1984, usable capacity, 5,560 acre-ft. Diversions for irrigation upstream and downstream from station.

AVERAGE DISCHARGE.--28 years, 283 ft^3/s, 205,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,090 ft^3/s Feb. 21, 1982, gage height, 7.50 ft, from floodmark; maximum gage height, 9.29 ft Jan. 15, 1974 (ice jam); minimum discharge, 0.80 ft^3/s Aug. 11, 12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,570 ft^3/s Apr. 19, gage height, 4.40 ft; maximum gage height, 4.59 ft Jan. 17 (ice jam); minimum, 16 ft^3/s July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	243	60	300	220	200	300	945	590	627	67	25	66
2	239	60	268	190	210	330	1180	545	791	70	59	74
3	241	59	220	210	150	300	1320	518	869	72	91	75
4	239	57	210	230	120	300	1320	483	752	67	72	72
5	257	56	200	240	170	316	1200	410	656	66	79	69
6	252	57	210	250	250	323	1130	389	613	63	111	77
7	250	70	210	250	300	292	1060	340	613	66	115	73
8	246	202	210	240	250	285	1090	304	653	73	73	82
9	241	238	230	200	210	299	1150	259	631	81	67	117
10	240	246	260	180	240	348	1200	251	557	84	65	125
11	248	260	250	220	220	370	1280	240	483	86	65	125
12	254	272	260	240	190	406	1280	193	386	123	73	141
13	247	290	250	220	160	452	1300	154	289	76	86	132
14	241	295	240	250	190	514	1350	134	213	64	80	131
15	241	270	200	270	220	604	1420	134	184	84	68	136
16	239	256	180	250	180	683	1480	108	197	76	62	134
17	238	249	210	260	170	818	1500	100	168	55	87	141
18	235	254	210	250	200	1010	1510	114	111	48	76	149
19	235	253	210	330	190	1100	1570	116	78	50	66	146
20	235	261	190	270	200	1190	1500	157	62	47	66	142
21	231	302	230	250	190	1290	1420	214	56	46	65	127
22	229	325	220	280	200	1140	1360	239	48	45	66	78
23	225	297	240	260	220	1040	1250	232	54	50	72	67
24	195	328	250	250	240	1040	1140	247	64	48	74	87
25	91	325	245	220	250	1010	1070	350	63	44	69	95
26	80	308	240	180	260	951	1010	437	60	35	70	94
27	78	287	250	200	250	802	972	453	66	24	66	95
28	69	276	240	230	270	687	937	459	65	18	58	92
29	66	227	270	220	---	663	914	488	66	20	57	96
30	64	291	240	200	---	635	831	633	63	22	60	95
31	62	---	250	190	---	704	---	662	---	18	65	---
TOTAL	6251	6731	7193	7250	5900	20202	36689	9953	9538	1788	2208	3133
MEAN	202	224	232	234	211	652	1223	321	318	57.7	71.2	104
MAX	257	328	300	330	300	1290	1570	662	869	123	115	149
MIN	62	56	180	180	120	285	831	100	48	18	25	66
AC-FT	12400	13350	14270	14380	11700	40070	72770	19740	18920	3550	4380	6210

CAL YR 1984	TOTAL	252338	MEAN	689	MAX	3190	MIN	56	AC-FT	500500
WTR YR 1985	TOTAL	116836	MEAN	320	MAX	1570	MIN	18	AC-FT	231700

13288200 EAGLE CREEK ABOVE SKULL CREEK, NEAR NEW BRIDGE, OR

LOCATION.--Lat 44°52'50", long 117°15'10", in SE¼ sec.7, T.8 S., R.45 E., Baker County, Hydrologic Unit 17050203, Wallowa-Whitman National Forest, on left bank 0.5 mi upstream from Skull Creek, 6.5 mi northwest of New Bridge, and at mile 10.5.

DRAINAGE AREA.--156 mi^2.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,800 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 2 to Feb. 22. Records fair except those for period of ice effect Dec. 2 to Feb. 22, which are poor. No regulation. Some diversions upstream from station for irrigation and one small interbasin diversion for irrigation supply. All diversions are small compared to flow at station during irrigation season.

AVERAGE DISCHARGE.--28 years, 328 ft^3/s, 237,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,310 ft^3/s July 12, 1975, gage height, 5.06 ft, from rating curve extended above 2,500 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 6.88 ft Jan. 25, 1962 (ice jam); minimum daily discharge, 30 ft^3/s Nov. 28, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 24	2230	*2,150	*3.59	June 7	0200	1,900	3.49

Minimum daily, 45 ft^3/s Dec. 20, but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	111	115	85	58	90	172	624	702	353	199	91
2	105	119	100	70	56	89	242	713	663	339	172	99
3	104	127	82	62	54	88	281	738	651	332	162	95
4	103	119	70	63	54	90	270	665	700	326	154	91
5	103	117	70	64	65	88	281	609	826	313	148	89
6	102	123	80	75	90	89	317	604	1130	298	143	108
7	101	122	87	100	110	88	350	632	1540	284	140	110
8	102	122	96	110	110	87	445	619	1170	272	138	127
9	105	121	115	100	95	88	520	584	961	263	132	137
10	104	123	135	80	85	91	588	572	843	248	130	128
11	127	134	120	65	90	93	632	555	827	237	130	128
12	123	144	115	56	95	96	603	520	880	225	125	126
13	127	152	105	54	93	98	634	524	897	204	118	116
14	117	142	96	54	95	103	743	561	791	194	114	117
15	113	125	88	58	95	108	897	529	781	187	110	109
16	114	128	80	65	88	116	930	639	761	179	108	103
17	112	122	72	80	82	126	821	765	726	173	106	111
18	111	126	60	95	80	139	770	911	743	167	106	106
19	110	121	48	105	90	151	648	1050	762	161	111	102
20	108	128	45	100	100	163	550	1160	734	178	111	102
21	108	128	55	95	108	171	488	1160	645	177	109	110
22	107	119	75	85	115	153	435	1220	583	174	105	107
23	107	121	90	80	122	146	402	1410	532	170	103	104
24	107	129	110	75	106	144	370	1640	475	165	101	103
25	106	117	105	70	95	136	346	1910	419	161	99	101
26	119	116	100	63	90	131	330	1500	382	157	97	100
27	123	119	110	65	89	133	321	1100	373	155	96	100
28	123	118	110	70	88	128	352	966	380	156	94	99
29	119	120	105	70	---	122	410	876	382	160	93	99
30	115	122	100	65	---	125	500	751	373	166	94	98
31	116	---	95	62	---	134	---	673	---	162	93	---
TOTAL	3448	3735	2834	2341	2498	3604	14648	26780	21632	6736	3741	3216
MEAN	111	125	91.4	75.5	89.2	116	488	864	721	217	121	107
MAX	127	152	135	110	122	171	930	1910	1540	353	199	137
MIN	101	111	45	54	54	87	172	520	373	155	93	89
AC-FT	6840	7410	5620	4640	4950	7150	29050	53120	42910	13360	7420	6380

CAL YR 1984	TOTAL	165628	MEAN	453	MAX	2720	MIN	45	AC-FT	328500
WTR YR 1985	TOTAL	95213	MEAN	261	MAX	1910	MIN	45	AC-FT	188900

13290190 PINE CREEK NEAR OXBOW, OR

LOCATION.--Lat 44°57'13", long 116°52'21", in NE¼SW¼ sec.17, T.7 S., R.48 E., Baker County, Hydrologic Unit 17050201, 1.8 mi south of Oxbow, and at mile 1.9.

DRAINAGE AREA.--230 mi², approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 1,850.48 ft above National Geodetic Vertical Datum of 1929 (levels by Idaho Power Co.). Prior to Aug. 24, 1967, nonrecording gage at site 1.7 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 4-6, Jan. 2, 9-23. Records good. Diversions upstream from station for irrigation of about 19,000 acres (1966 determination).

AVERAGE DISCHARGE.--18 years, 387 ft³/s, 280,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,110 ft³/s Feb. 21, 1968, gage height, 9.82 ft; minimum, 10 ft³/s Aug. 17-24, 1977, gage height, 2.12 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,000 ft³/s Apr. 2, gage height, 6.28 ft; minimum, 28 ft³/s July 28, gage height, 2.37 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	97	184	121	144	161	965	688	778	111	67	33
2	86	110	172	110	144	162	1260	815	733	104	63	41
3	86	128	132	129	122	166	1410	845	689	96	54	49
4	85	114	105	138	104	174	1220	789	703	89	51	46
5	79	110	110	166	136	173	974	643	892	80	53	45
6	77	117	115	171	156	170	947	580	995	75	49	42
7	79	124	135	190	168	169	973	576	1140	68	46	49
8	79	119	161	177	163	165	1050	569	996	65	43	115
9	79	131	190	166	143	174	1140	533	846	62	44	104
10	77	138	198	159	136	194	1260	522	765	56	41	111
11	96	157	198	164	128	220	1330	511	703	50	53	116
12	123	217	191	170	127	247	1140	473	664	50	52	112
13	138	210	181	167	126	275	1070	455	643	48	46	95
14	118	242	178	164	122	308	1160	485	546	47	45	106
15	110	178	180	151	121	350	1330	475	497	47	43	110
16	109	168	169	142	120	396	1350	548	486	41	42	102
17	112	153	164	146	116	464	1170	668	442	40	42	104
18	110	162	164	138	119	559	1070	771	410	40	41	101
19	111	155	155	140	117	664	966	846	386	39	48	93
20	111	163	125	142	131	768	765	943	354	37	51	88
21	109	221	172	142	120	976	634	900	288	37	50	83
22	106	177	186	140	126	794	555	946	254	36	45	78
23	101	166	174	135	127	645	491	1080	227	37	42	74
24	98	259	164	132	133	739	458	1220	212	35	39	71
25	96	219	158	131	139	747	427	1280	171	35	35	68
26	106	189	159	109	145	645	393	1070	160	32	36	69
27	109	185	160	113	143	555	359	904	152	29	35	68
28	109	184	159	150	151	514	385	860	144	29	32	65
29	110	187	158	143	---	492	467	1060	132	32	29	65
30	102	197	162	99	---	531	554	931	122	47	30	65
31	105	---	157	141	---	740	---	769	---	45	32	---
TOTAL	3107	4977	5016	4486	3727	13337	27273	23755	15530	1639	1379	2368
MEAN	100	166	162	145	133	430	909	766	518	52.9	44.5	78.9
MAX	138	259	198	190	168	976	1410	1280	1140	111	67	116
MIN	77	97	105	99	104	161	359	455	122	29	29	33
AC-FT	6160	9870	9950	8900	7390	26450	54100	47120	30800	3250	2740	4700

CAL YR 1984	TOTAL	161599	MEAN	442	MAX	2550	MIN	45	AC-FT	320500
WTR YR 1985	TOTAL	106594	MEAN	292	MAX	1410	MIN	29	AC-FT	211400

13292000 IMNAHA RIVER AT IMNAHA, OR

LOCATION.--Lat 45°33'45", long 116°50'00", in SW¼ sec.16, T.1 N., R.48 E., Wallowa County, Hydrologic Unit 17060102, on left bank at Imnaha, 0.3 mi downstream from Big Sheep Creek, and at mile 19.3.

DRAINAGE AREA.--622 mi^2.

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 833: 1938. WSP 1397: 1929, 1932(M), 1949. WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,941,14 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1934, nonrecording gage at site 0.25 mi upstream at different datum. Aug. 6-31, 1934, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 4-10, 15-24; Jan. 1-15; Jan. 24 to Feb. 6. Records excellent except for periods with ice effect Dec. 4-10, 15-24; Jan. 1-15; Jan. 21 to Feb. 6, which are poor. No regulation. Diversions for irrigation upstream from station. Water is diverted from Big Sheep Creek and tributaries upstream from station for irrigation in Wallowa River basin.

AVERAGE DISCHARGE.--57 years, 522 ft^3/s, 378,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft^3/s Jan. 17, 1974, gage height, 7.86 ft, from rating curve extended above 3,500 ft^3/s; minimum observed, 16 ft^3/s Nov. 22, 1931, result of freezeup; minimum daily, 25 ft^3/s Nov. 22, 23, 1931.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 16	0300	1,990	4.41	May 25	0330	1,990	4.41
May 3	2200	1,610	4.07	June 7	0830	*2,290	*4.67

Minimum observed, 51 ft^3/s Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	163	215	120	95	175	338	1290	1460	498	292	129
2	184	196	167	100	90	176	512	1510	1480	478	250	162
3	172	239	119	100	88	167	806	1570	1410	463	227	164
4	169	213	80	110	90	165	797	1450	1390	454	213	144
5	172	200	75	140	110	175	757	1260	1570	425	208	139
6	169	199	90	160	160	165	796	1140	1720	410	192	146
7	167	194	120	160	212	173	871	1130	2150	398	187	157
8	164	197	150	155	197	166	1050	1120	1900	383	184	201
9	161	190	190	150	165	174	1230	1080	1630	373	179	219
10	160	185	205	120	168	179	1370	1050	1450	353	194	207
11	197	202	207	100	162	190	1550	987	1350	337	213	229
12	234	265	197	85	182	209	1390	906	1310	320	193	217
13	217	278	208	85	159	226	1360	859	1320	302	179	189
14	207	336	178	95	171	247	1510	904	1210	289	171	200
15	196	280	170	140	171	271	1800	861	1150	283	165	229
16	190	282	160	175	157	301	1910	912	1160	268	159	204
17	186	258	150	192	143	341	1730	1010	1080	260	158	204
18	184	248	120	176	143	383	1600	1130	1040	253	154	205
19	176	238	75	175	143	414	1440	1280	1050	243	154	194
20	170	239	55	181	162	430	1200	1450	1040	232	168	189
21	176	247	85	177	154	452	1040	1460	945	226	172	183
22	174	227	150	164	161	410	929	1440	860	220	162	177
23	173	204	180	144	165	370	849	1530	804	220	151	172
24	182	253	190	125	167	408	778	1680	741	214	146	169
25	180	225	190	110	164	388	735	1860	675	208	141	167
26	204	210	184	100	154	370	683	1700	624	202	140	164
27	204	207	190	105	153	361	648	1470	572	198	140	161
28	197	220	183	120	164	339	711	1400	552	193	136	160
29	195	230	182	120	---	313	881	1460	536	188	132	159
30	186	227	183	105	---	298	1080	1500	527	227	126	158
31	192	---	181	100	---	292	---	1450	---	259	127	---
TOTAL	5727	6852	4829	4089	4250	8728	32351	39849	34706	9377	5413	5398
MEAN	185	228	156	132	152	282	1078	1285	1157	302	175	180
MAX	234	336	215	192	212	452	1910	1860	2150	498	292	229
MIN	160	163	55	85	88	165	338	859	527	188	126	129
AC-FT	11360	13590	9580	8110	8430	17310	64170	79040	68840	18600	10740	10710

CAL YR 1984	TOTAL	241185	MEAN	659	MAX	3210	MIN	55	AC-FT	478400
WTR YR 1985	TOTAL	161569	MEAN	443	MAX	2150	MIN	55	AC-FT	320500

13319000 GRANDE RONDE RIVER AT LA GRANDE, OR

LOCATION.--Lat 45°20'47", long 118°07'26", in NW¼SE¼ sec.36, T.2 S., R.37 E., Union County, Hydrologic Unit 17060104, on right bank 1.8 mi northwest of La Grande, 5.7 mi downstream from Fivepoint Creek, and at mile 164.0.

DRAINAGE AREA.--678 mi^2.

PERIOD OF RECORD.--October 1903 to September 1915, February 1918 to September 1923, October 1925 to current year. Monthly discharge only for some periods, published in WSP 1317. Published as "at Hilgard" 1903-15.

REVISED RECORDS.--WSP 768: 1933. WSP 1397: 1904-11, 1913, 1915, 1919-20, 1922-23, 1926, 1929-31, 1936-37, 1939, 1942. WSP 1737: Drainage area. WRD Oreg. 1974: 1973(M).

GAGE.--Water-stage recorder. Datum of gage is 2,826.25 ft above National Geodetic Vertical Datum of 1929. Nov. 6, 1903, to Sept. 30, 1915, nonrecording gage at site 5.5 mi upstream at various datums. Feb. 16, 1918, to June 28, 1923, and Oct. 1, 1925, to Nov. 23, 1931, nonrecording gage at site 0.7 mi downstream at various datums. Nov. 24, 1931, to Oct. 8, 1965, water-stage recorder at site 0.3 mi upstream at datum 4.61 ft higher.

REMARKS.--Estimated daily discharges: Dec. 3 to Mar. 17. Records good except for period of ice effect Dec. 3 to Mar. 17, which are poor. Since 1915, slight regulation by city of La Grande reservoir on Beaver Creek, capacity, about 900 acre-ft. Diversions for irrigation upstream from station. Since 1909, city of La Grande has diverted about 3 ft^3/s from Beaver Creek upstream from station for domestic water supply.

AVERAGE DISCHARGE.--77 years, 391 ft^3/s, 283,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft^3/s Jan. 30, 1965, gage height, 11.44 ft, site and datum then in use, from rating curve extended above 7,200 ft^3/s; minimum, 3.9 ft^3/s Aug. 26, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 2	2200	*4,310	*8.60	No other peak greater than base discharge.			

Minimum, 28 ft^3/s Aug. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	94	169	90	82	205	2240	1270	904	109	106	30
2	65	124	110	80	80	210	3200	1450	1110	103	122	29
3	63	244	60	76	76	200	3340	1540	1000	96	94	32
4	61	212	60	86	68	190	2800	1400	916	91	71	33
5	59	181	58	98	64	180	2640	1200	867	87	64	31
6	58	175	84	105	68	170	2860	1080	826	83	58	34
7	58	171	120	110	78	160	2840	1020	766	80	52	40
8	56	164	140	105	84	150	2970	976	725	76	50	49
9	54	177	145	98	90	145	3050	953	619	81	50	65
10	53	168	140	94	90	170	3230	958	550	80	48	60
11	69	171	130	88	88	200	3620	910	494	71	49	54
12	94	200	120	84	84	230	3120	816	446	67	50	60
13	101	228	115	80	86	260	2840	754	407	64	45	56
14	110	244	110	82	90	320	2790	846	376	60	42	49
15	98	207	105	90	94	440	2800	763	345	57	40	47
16	91	216	100	98	92	600	2660	807	313	55	38	49
17	85	189	96	96	90	820	2290	875	287	53	37	52
18	82	192	84	94	90	1170	1990	930	263	51	36	72
19	80	175	78	96	94	1370	1790	955	243	50	36	61
20	78	174	76	98	100	1550	1510	953	222	47	36	53
21	73	178	82	94	110	1530	1350	891	204	43	37	49
22	63	150	110	92	120	1090	1230	833	190	42	37	46
23	68	123	120	90	140	914	1230	834	176	43	35	44
24	78	216	125	90	160	1060	1160	860	165	42	33	42
25	82	178	120	88	180	904	1100	759	159	41	32	41
26	105	173	125	90	200	719	1010	667	152	39	30	40
27	130	156	110	92	190	699	955	609	141	37	29	39
28	118	162	110	92	200	588	988	640	130	36	29	38
29	114	196	105	88	---	513	1090	654	122	36	29	38
30	101	190	100	84	---	524	1150	664	115	42	29	38
31	104	---	96	82	---	1030	---	640	---	85	29	---
TOTAL	2517	5428	3303	2830	2988	18311	65843	28507	13233	1947	1473	1371
MEAN	81.2	181	107	91.3	107	591	2195	920	441	62.8	47.5	45.7
MAX	130	244	169	110	200	1550	3620	1540	1110	109	122	72
MIN	53	94	58	76	64	145	955	609	115	36	29	29
AC-FT	4990	10770	6550	5610	5930	36320	130600	56540	26250	3860	2920	2720

CAL YR 1984	TOTAL	267405	MEAN	731	MAX	4220	MIN	43	AC-FT	530400
WTR YR 1985	TOTAL	147751	MEAN	405	MAX	3620	MIN	29	AC-FT	293100

13320000 CATHERINE CREEK NEAR UNION, OR

LOCATION.--Lat 45°09'20", long 117°46'26", in NW¼SE¼ sec.2, T.5 S., R.40 E., Union County, Hydrologic Unit 17060104, on right bank 3.0 mi downstream from Little Catherine Creek, 5.5 mi southeast of Union, and at mile 25.4.

DRAINAGE AREA.--105 mi^2.

PERIOD OF RECORD.--May 1906 to May 1907 (gage heights only), August 1911 to December 1912, March to September 1915, February 1918 to September 1919, October 1925 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1912-13, 1919, 1926, 1928-33, 1937, 1939, 1940(M), 1941-43, 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,081.76 ft above National Geodetic Vertical Datum of 1929 (Oregon State Highway Department bench mark). Prior to Nov. 28, 1938, nonrecording gage at several sites within 1.8 mi of present site at various datums. Nov. 28, 1938, to May 16, 1939, water-stage recorder at site 400 ft downstream at datum 4.29 ft lower.

REMARKS.--Estimated daily discharges: Dec. 2 to Mar. 12. Records good except for period Dec. 2 to Mar. 12, which is poor. No regulation. Several small diversions for irrigation upstream from station. Since 1937, diversion to Big Creek in Powder River basin provides a small part of the water used for irrigation in that basin.

AVERAGE DISCHARGE.--62 years (water years 1912, 1919, 1926-85), 120 ft^3/s, 86,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft^3/s May 27, 1948, gage height, 4.57 ft; minimum, 6.5 ft^3/s Feb. 4, 1955, result of freezeup; minimum daily, 8 ft^3/s Nov. 7, 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 15	2030	*607	*2.85	May 24	1930	562	2.75

Minimum daily, 18 ft^3/s Dec. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	36	42	27	19	23	105	359	369	93	51	23
2	34	42	37	22	20	23	178	426	359	88	52	26
3	33	45	31	24	21	23	212	448	338	84	43	26
4	33	42	27	28	20	23	195	397	333	79	39	25
5	33	40	25	30	20	23	194	350	359	76	39	26
6	33	43	24	31	21	22	219	334	352	74	36	31
7	32	44	33	32	21	22	245	332	374	70	34	31
8	31	43	35	33	22	24	305	318	366	68	34	42
9	31	44	37	29	23	26	354	313	331	67	34	42
10	32	45	39	25	24	28	400	308	300	62	34	36
11	57	50	35	24	24	32	435	295	284	60	36	43
12	47	58	33	23	25	38	404	270	281	57	33	40
13	49	62	30	23	25	46	404	260	280	55	32	32
14	46	61	28	24	25	53	463	273	263	53	31	33
15	43	52	29	25	25	62	540	254	251	51	29	36
16	40	51	30	25	25	73	562	278	239	50	28	32
17	39	47	27	26	25	88	502	309	225	49	28	43
18	38	48	23	27	25	104	460	354	218	47	27	40
19	37	45	20	28	25	117	402	396	214	45	30	35
20	36	53	18	29	24	120	338	465	203	44	32	33
21	35	50	21	29	23	118	297	468	184	43	31	32
22	36	43	24	28	23	101	264	466	168	42	28	31
23	37	46	29	28	23	89	241	494	155	42	27	29
24	38	52	36	27	23	83	216	521	142	40	26	29
25	37	46	35	25	23	73	201	512	131	39	25	27
26	47	45	35	24	23	69	187	468	123	38	25	27
27	43	42	34	23	22	65	184	408	114	37	25	27
28	43	47	36	24	23	61	206	368	109	36	24	27
29	42	44	38	25	---	55	234	360	104	37	23	27
30	38	44	35	22	---	57	279	334	99	39	23	27
31	38	---	30	20	---	67	---	312	---	41	23	---
TOTAL	1192	1410	956	810	642	1808	9226	11450	7268	1706	982	958
MEAN	38.5	47.0	30.8	26.1	22.9	58.3	308	369	242	55.0	31.7	31.9
MAX	57	62	42	33	25	120	562	521	374	93	52	43
MIN	31	36	18	20	19	22	105	254	99	36	23	23
AC-FT	2360	2800	1900	1610	1270	3590	18300	22710	14420	3380	1950	1900

CAL YR 1984	TOTAL	66064	MEAN	181	MAX	1270	MIN	18	AC-FT	131000
WTR YR 1985	TOTAL	38408	MEAN	105	MAX	562	MIN	18	AC-FT	76180

13324300 LOOKINGGLASS CREEK NEAR LOOKING GLASS, OR

LOCATION.--Lat 45°43'55", long 117°51'50", in NW¼NW¼ sec.19, T.3 N., R.40 E., Union County, Hydrologic Unit 17060104, on left bank at Oregon State Fish and Wildlife Service fish hatchery, 310 ft upstream from Jarboe Creek, 2.3 mi northwest of Looking Glass, and at mile 2.3.

DRAINAGE AREA.--78.3 mi^2.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,530 ft, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 21, Jan. 1-5, Feb. 1-6. Records good except for periods of partial daily Apr. 8-21, Apr. 30 to June 2, which are fair, and period of no gage-height record Nov. 30 to Dec. 21, and periods of ice effect Jan. 1-5, Feb. 1-6, which are poor. Records include a diversion by the fish hatchery 0.3 mi upstream from station of up to 50 ft^3/s that is returned through the fish ladder to the gage pool.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,100 ft^3/s May 30, 1984, gage height, 6.52 ft; minimum discharge, 25 ft^3/s Oct. 11, 1983, result of regulation at fish hatchery upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 380 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 15	unknown	620	b5.8	May 20	0200	*764	a*6.01
May 2	unknown	560	b5.7				

Minimum, 37 ft^3/s Oct. 23.

a From crest-stage gage.
b From reconstructed analog record.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	61	74	60	57	70	135	422	338	94	74	60
2	53	89	70	56	56	70	187	518	334	93	82	60
3	53	103	65	54	55	67	226	388	302	91	76	61
4	53	85	60	56	55	66	228	321	292	89	74	61
5	53	77	55	57	56	66	216	378	277	86	72	59
6	53	81	54	59	57	64	231	388	311	84	71	63
7	53	83	59	60	59	63	249	412	308	83	69	63
8	53	79	62	60	59	62	282	412	300	82	66	63
9	52	78	64	60	58	62	321	402	279	82	65	64
10	52	81	65	60	57	65	388	378	255	80	66	61
11	58	90	64	59	58	69	479	360	234	78	66	63
12	58	114	64	59	58	73	479	326	221	76	66	62
13	63	114	63	59	56	75	468	330	210	75	65	60
14	57	112	62	59	56	79	518	343	198	73	64	61
15	55	91	60	59	56	82	553	356	189	72	63	62
16	55	80	58	59	57	87	553	437	176	71	62	61
17	53	74	56	58	57	92	530	507	168	72	63	69
18	53	74	56	59	56	99	378	559	160	71	63	66
19	53	66	56	59	57	106	378	621	150	70	64	63
20	53	72	60	60	58	110	374	687	142	69	63	62
21	53	68	64	60	57	113	309	627	133	68	63	62
22	52	65	62	59	61	105	266	602	129	68	62	61
23	48	69	66	59	62	99	258	602	123	67	61	61
24	44	69	65	59	64	104	242	596	118	67	61	60
25	50	65	65	59	67	99	228	577	114	67	61	60
26	67	63	64	59	67	95	212	490	108	66	61	60
27	60	62	65	61	66	92	215	447	104	66	61	60
28	60	70	65	59	66	88	243	402	102	66	60	59
29	57	75	66	59	---	82	277	383	100	66	60	59
30	56	76	65	59	---	82	330	412	97	68	59	60
31	55	---	64	59	---	96	---	347	---	75	60	---
TOTAL	1688	2386	1938	1824	1648	2582	9753	14030	5972	2335	2023	1846
MEAN	54.5	79.5	62.5	58.8	58.9	83.3	325	453	199	75.3	65.3	61.5
MAX	67	114	74	61	67	113	553	687	338	94	82	69
MIN	44	61	54	54	55	62	135	321	97	66	59	59
AC-FT	3350	4730	3840	3620	3270	5120	19350	27830	11850	4630	4010	3660

CAL YR 1984	TOTAL	64247	MEAN	176	MAX	895	MIN	44	AC-FT	127400
WTR YR 1985	TOTAL	48025	MEAN	132	MAX	687	MIN	44	AC-FT	95260

13326000 WALLOWA LAKE NEAR JOSEPH, OR

LOCATION.--Lat 45°20'10", long 117°13'15", in NW¼ sec.5, T.3 S., R.45 E., Wallowa County, Hydrologic Unit 17060105, at spillway near right end of Wallowa Lake dam on Wallowa River, 1.3 mi southeast of Joseph, and at mile 50.2.

DRAINAGE AREA.--50.8 mi^2.

PERIOD OF RECORD.--November 1903 to July 1906 (gage height only), January 1912 to March 1914, May to September 1915 (gage heights and change in contents only), October 1925 to June 1926, December 1926 to current year. Monthend contents only for some periods, published in WSP 1317. November 1903 to March 1905 published as Wallowa River at Joseph. Change in contents for January 1912 to March 1914 and May to September 1915 published with records for Wallowa River at Joseph.

REVISED RECORDS.--WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,355.66 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1925, nonrecording gage at several sites within 0.5 mi of present site at different datums. Oct. 1, 1925, to June 30, 1926, Dec. 1, 1926, to May 18, 1961, nonrecording gage near left end of dam at same datum.

REMARKS.--Reservoir is formed by concrete dam. Capacity, 42,750 acre-ft between gage heights 0.0 (sill of outlet gates) and 26.8 ft, spillway crest. About 5,300 acre-ft dead storage above outlet gates, because channel is about 3.4 ft above outlet gates. Dead storage below outlet gates not known. Records are based on capacities above from outlet gates.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 47,830 acre-ft June 5-7, 1957, gage height, 29.85 ft; minimum observed, 4,790 acre-ft Oct. 10, 1929, gage height, 3.10 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 39,960 acre-ft June 12, gage height, 25.12 ft; minimum, 17,520 acre-ft Sept. 6, 7, gage height, 11.25 ft.

MONTHEND GAGE-HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Gage Height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	17.04	26,750	-
Oct. 31	16.48	25,860	-890
Nov. 30	14.70	23,000	-2,860
Dec. 31	14.63	22,890	-110
CAL YR 1984	-	-	-6,030
Jan. 31	14.29	22,340	-550
Feb. 28	14.05	21,960	-380
Mar. 31	13.94	21,780	-180
Apr. 30	16.13	25,290	+3,510
May 31	23.13	36,680	+11,390
June 30	22.32	35,340	-1,340
July 31	14.88	23,290	-12,050
Aug. 31	11.50	17,910	-5,380
Sept.30	12.10	18,860	+950
WTR YR 1985	-	-	-7,890

13327500 WALLOWA RIVER AT JOSEPH, OR

LOCATION.--Lat 45°20'15", long 117°13'35", in NW¼ sec.5, T.3 S., R.45 E., Wallowa County, Hydrologic Unit 17060105, on left bank 0.2 mi downstream from Wallowa Lake dam, 1.1 mi south of Joseph, and at mile 50.0.

DRAINAGE AREA.--50.9 mi^2.

PERIOD OF RECORD.--November 1903 to August 1907, June 1908 to March 1914, May to September 1915, December 1926 to current year. Monthly discharge only for some periods, published in WSP 1317. Published as "near Joseph" 1911.

REVISED RECORDS.--WSP 1397: 1906. WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,326.86 ft above National Geodetic Vertical Datum of 1929. Nov. 12, 1903, to Sept. 25, 1915, nonrecording gage at several sites at lake outlet or near present site at different datums.

REMARKS.--No estimated daily discharges. Records excellent. Monthly discharge adjusted for storage in Wallowa Lake (see station 13326000) and diversion from Wallowa Lake by Silver Lake ditch. Silver Lake ditch diverts at Wallowa Lake dam for irrigation northeast of Joseph. City of Joseph diverts less than 1.0 ft^3/s from Wallowa Lake for municipal use.

AVERAGE DISCHARGE.--58 years (water years 1928-84), 135 ft^3/s, 36.02 in/yr, 97,810 acre-ft/yr, adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft^3/s June 10, 1969, gage height, 5.15 ft; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 461 ft^3/s June 15, gage height, 3.66 ft; minimum, 23 ft^3/s Sept. 26-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	133	51	52	50	46	46	49	273	318	255	76
2	30	132	52	52	49	46	46	49	273	318	254	76
3	34	131	52	51	49	46	46	49	272	295	245	76
4	34	131	52	51	49	46	46	49	272	300	235	75
5	41	130	52	51	49	46	46	51	273	308	226	74
6	45	128	52	51	49	46	46	51	274	307	199	74
7	45	128	52	51	49	46	46	51	279	307	190	73
8	45	128	52	51	49	46	46	51	282	321	162	73
9	45	128	52	51	49	46	46	51	285	336	135	73
10	45	127	51	51	49	46	46	51	288	338	129	67
11	44	127	52	51	48	46	47	52	288	337	128	57
12	44	127	52	51	46	46	47	52	410	334	127	51
13	44	126	52	51	46	46	47	52	452	342	126	49
14	44	126	52	51	47	46	47	53	452	344	123	52
15	43	125	52	51	47	46	48	53	454	341	122	47
16	44	124	52	51	46	45	49	53	452	359	122	44
17	44	124	52	51	46	46	49	62	451	363	115	44
18	44	123	52	51	46	46	50	72	450	377	112	43
19	44	123	52	51	46	46	50	85	450	379	122	43
20	73	123	52	51	46	46	50	88	451	375	122	43
21	91	122	52	51	47	46	51	93	451	371	119	42
22	91	122	52	51	46	46	51	115	450	385	118	42
23	123	121	51	51	46	46	51	130	448	400	113	42
24	136	121	51	51	46	46	51	142	447	391	104	40
25	135	80	51	51	46	46	51	169	443	383	102	34
26	135	52	51	51	46	46	50	177	370	369	102	29
27	136	52	51	51	46	46	49	219	336	361	102	24
28	135	52	51	51	46	46	48	251	325	342	95	23
29	134	52	51	51	---	46	48	270	321	312	91	23
30	134	51	51	51	---	46	49	273	319	277	81	24
31	134	---	51	50	---	46	---	272	---	259	76	---
TOTAL	2245	3369	1601	1582	1324	1425	1443	3235	10991	10549	4352	1533
MEAN	72.4	112	51.6	51.0	47.3	46.0	48.1	104	366	340	140	51.1
MAX	136	133	52	52	50	46	51	273	454	400	255	76
MIN	29	51	51	50	46	45	46	49	272	259	76	23
AC-FT	4450	6680	3180	3140	2630	2830	2860	6420	21800	20920	8630	3040
MEAN†	69.1	72.8	54.6	46.7	43.9	43.6	116	294	384	208	74.8	72.8
CFSM†	1.36	1.43	1.07	0.92	0.86	0.86	2.28	5.78	7.54	4.09	1.47	1.43
IN.†	1.56	1.60	1.24	1.06	0.90	0.99	2.54	6.66	8.42	4.70	1.69	1.60
AC-FT†	4250	4330	3360	2870	2440	2680	6930	18080	22870	12760	4600	4330

CAL YR 1984 TOTAL 56311 MEAN 154 MAX 705 MIN 29 AC-FT 111700 MEAN† 163 CFSM† 3.20 IN.† 43.48 AC-FT† 118000
WTR YR 1985 TOTAL 43649 MEAN 120 MAX 454 MIN 23 AC-FT 86580 MEAN† 124 CFSM† 2.44 IN.† 33.08 AC-FT† 89500

† Adjusted for change in contents of Wallowa Lake and diversion by Silver Lake ditch.

13330000 LOSTINE RIVER NEAR LOSTINE, OR

LOCATION.--Lat 45°26'20", long 117°25'35", in NW¼ sec.34, T.1 S., R.43 E., Wallowa County, Hydrologic Unit 17060105, on left bank 3.5 mi south of Lostine and at mile 10.0.

DRAINAGE AREA.--70.9 mi².

PERIOD OF RECORD.--August 1912 to March 1914, April to September 1915, July 1925 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1913, 1942. WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,650 ft, by barometer. See WSP 1317 or 1737 for history of changes prior to Dec. 16, 1953. Dec. 16, 1953, to Aug. 23, 1977, at datum 1.04 ft higher.

REMARKS.--Estimated daily discharges: Dec. 3-7; Jan. 2-5, 7, 10, 11, 18, 26, 27; Jan. 30 to Feb. 21. Records excellent except for period when float held by ice Jan. 30 to Feb. 21, and periods of ice effect Dec. 3-7, Jan. 2-5, 7, 10, 11, 18, 26, 27, which are poor. Minam Lake Reservoir, capacity 440 acre-ft, has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--61 years (water years 1913, 1926-85), 196 ft³/s, 142,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,550 ft³/s June 16, 1974, gage height, 8.59 ft, present datum; minimum, 7.5 ft³/s Mar. 2, 1966, result of freezeup; minimum daily, 10 ft³/s Nov. 28-30, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 24	2130	1,370	6.65	June 7	2400	*1,750	*7.38

Minimum, 19 ft³/s Mar. 6, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	50	48	35	24	26	50	320	520	393	111	36
2	57	61	43	30	25	25	63	436	480	382	96	38
3	54	67	29	27	26	25	70	498	470	382	82	38
4	51	58	24	26	23	25	66	417	564	380	75	43
5	50	55	25	30	25	25	68	353	753	361	77	45
6	48	57	24	37	28	24	78	328	908	334	69	58
7	46	57	25	32	31	25	95	346	1390	316	64	56
8	44	55	28	38	34	26	141	343	1370	294	63	66
9	43	54	34	36	31	25	182	314	999	279	61	76
10	42	54	39	32	33	24	231	305	825	255	59	63
11	53	54	35	27	34	24	273	287	804	230	66	73
12	54	61	37	32	36	25	245	263	868	202	58	68
13	62	62	38	32	33	25	266	257	895	176	54	59
14	55	58	37	32	34	26	336	282	794	159	51	70
15	55	50	39	37	37	27	422	264	824	147	50	76
16	51	53	39	36	34	28	456	343	829	140	49	69
17	51	51	38	36	32	30	411	464	780	132	47	89
18	50	51	38	35	30	32	386	587	812	123	45	80
19	49	51	34	36	26	35	328	690	882	114	46	75
20	46	51	37	36	27	37	279	825	867	105	50	71
21	46	51	41	34	25	39	246	877	735	100	56	69
22	45	47	43	32	26	38	219	949	651	96	48	66
23	46	51	44	31	26	38	203	1080	580	91	44	61
24	49	52	44	31	26	42	181	1190	493	87	43	58
25	48	47	43	31	26	38	166	1190	418	83	41	55
26	64	49	43	29	26	36	154	1010	376	79	40	52
27	56	47	44	28	25	37	152	809	384	75	40	48
28	55	51	44	34	26	36	174	704	421	73	39	47
29	52	50	43	35	---	35	198	631	441	71	38	46
30	52	50	43	30	---	36	232	536	423	79	37	46
31	51	---	42	25	---	41	---	473	---	98	36	---
TOTAL	1585	1605	1165	1002	809	955	6371	17371	21556	5836	1735	1797
MEAN	51.1	53.5	37.6	32.3	28.9	30.8	212	560	719	188	56.0	59.9
MAX	64	67	48	38	37	42	456	1190	1390	393	111	89
MIN	42	47	24	25	23	24	50	257	376	71	36	36
AC-FT	3140	3180	2310	1990	1600	1890	12640	34460	42760	11580	3440	3560

CAL YR 1984	TOTAL	84639	MEAN	231	MAX	1860	MIN	24	AC-FT	167900
WTR YR 1985	TOTAL	61787	MEAN	169	MAX	1390	MIN	23	AC-FT	122600

13330500 BEAR CREEK NEAR WALLOWA, OR

LOCATION.--Lat 45°31'37", long 117°33'05", in NW¼NE¼ sec.34, T.1 N., R.42 E., Wallowa County, Hydrologic Unit 17060105, on right bank 30 ft downstream from road bridge, 3.0 mi southwest of Wallowa, and at mile 4.4.

DRAINAGE AREA.--68 mi^2, approximately.

PERIOD OF RECORD.--April to September 1915, April 1924 to September 1985 (discontinued). Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1915, 1927, 1929-30, 1932, 1936-40, 1945, 1949.

GAGE.--Water-stage recorder. Elevation of gage is 3,250 ft, by barometer. Apr. 13 to Sept. 16, 1915, nonrecording gage at site 1.0 mi upstream at different datum. Apr. 22, 1924, to Nov. 2, 1931, water-stage recorder at site 1.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 3 to Mar. 24. Records good except for estimated daily discharges, which are poor. No regulation. Diversions for irrigation upstream from station. Water for irrigation in Lostine River basin diverted from Little Bear Creek, a tributary upstream from station, in sec.32, T.1 S., R.43 E.

AVERAGE DISCHARGE.--61 years (water years 1925-85), 114 ft^3/s, 82,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,730 ft^3/s June 15, 1974; maximum gage height, 5.38 ft Jan. 24, 1984 (from floodmark); minimum daily discharge, 3 ft^3/s Jan. 20, Feb. 1, 1937.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 24	2100	783	3.26	June 7	2300	*893	*3.36

Minimum, 12 ft^3/s Sept. 1, 4, 5, but probably was less during period of ice effect or no gage-height record Dec. 3 to Mar. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	33	38	15	15	24	60	321	371	145	40	13
2	20	41	28	13	17	24	103	421	369	135	39	14
3	20	49	23	13	15	23	148	454	355	127	32	13
4	19	45	15	15	14	23	147	385	387	119	28	13
5	19	43	16	20	15	23	139	314	485	108	26	12
6	18	44	19	24	17	24	148	280	522	96	23	19
7	18	43	22	25	20	24	169	280	688	86	22	18
8	18	42	26	26	25	24	221	278	748	78	21	20
9	18	41	28	23	26	24	272	259	568	72	21	21
10	17	40	30	20	22	25	319	248	479	63	20	20
11	24	41	30	20	25	26	356	229	455	56	22	24
12	22	50	30	21	28	27	317	207	474	50	21	26
13	40	59	29	22	25	28	318	195	476	44	19	22
14	32	63	27	25	24	29	381	209	426	40	18	24
15	31	58	25	27	32	30	436	198	430	37	18	30
16	29	57	24	30	25	32	451	255	412	35	17	29
17	28	52	22	32	22	34	413	328	385	33	17	48
18	28	51	20	32	22	37	373	404	394	30	17	44
19	27	46	18	31	22	41	310	451	414	29	17	41
20	25	45	17	30	25	45	260	547	395	27	19	37
21	24	42	20	28	24	47	226	576	335	25	19	36
22	24	38	23	27	25	47	195	604	295	25	17	35
23	24	41	25	25	26	48	176	661	262	24	17	31
24	25	46	25	24	25	58	155	705	223	23	16	29
25	26	42	22	23	24	62	142	680	191	22	16	28
26	44	42	20	21	24	61	130	587	170	21	15	26
27	38	42	20	19	23	60	131	491	168	20	15	25
28	38	45	20	21	23	55	167	436	174	20	14	24
29	37	43	21	22	---	48	206	407	174	20	14	22
30	35	43	22	15	---	46	243	358	162	22	13	22
31	34	---	22	17	---	49	---	330	---	51	13	---
TOTAL	823	1367	727	706	630	1148	7112	12098	11387	1683	626	766
MEAN	26.5	45.6	23.5	22.8	22.5	37.0	237	390	380	54.3	20.2	25.5
MAX	44	63	38	32	32	62	451	705	748	145	40	48
MIN	17	33	15	13	14	23	60	195	162	20	13	12
AC-FT	1630	2710	1440	1400	1250	2280	14110	24000	22590	3340	1240	1520

CAL YR 1984	TOTAL	51199	MEAN	140	MAX	1210	MIN	15	AC-FT	101600
WTR YR 1985	TOTAL	39073	MEAN	107	MAX	748	MIN	12	AC-FT	77500

13331500 MINAM RIVER AT MINAM, OR
(Hydrologic bench-mark station)

LOCATION.--Lat 45°37'12", long 117°43'32", in SW¼SW¼ sec.29, T.2 N., R.41 E., Wallowa County, Hydrologic Unit 17060105, on left bank 2.3 mi downstream from Squaw Creek, 0.3 mi west of Minam, and at mile 0.3.

DRAINAGE AREA.--240 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1912 to March 1914, September 1965 to current year. Monthly discharge only for some periods, published in WSP 1317.

GAGE.--Water-stage recorder. Datum of gage is 2,540.48 ft above National Geodetic Vertical Datum of 1929. June 1912 to March 1914, nonrecording gage at approximately same site at different datum.

REMARKS.--Estimated daily discharges: Dec. 3-10, 13-22, 26, 27, Dec. 31 to Feb. 21. Water-discharge records good except for period Dec. 3 to Feb. 21, which is poor. No regulation. Minam Lake, capacity 440 acre-ft, has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin.

AVERAGE DISCHARGE.--21 years, 479 ft^3/s, 27.10 in/yr, 347,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,260 ft^3/s June 16, 1974, gage height, 6.89 ft; maximum gage height, 7.3 ft May 28, 1913, datum then in use; minimum discharge, 10 ft^3/s Dec. 6, 1972, Jan. 10, 1973, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,450 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 16	0200	1,550	3.19	June 8	0200	2,500	3.97
May 24	2400	*2,750	*4.19				

Minimum daily, 35 ft^3/s Jan. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	111	173	55	60	216	239	1000	1440	653	180	67
2	97	138	138	35	65	225	488	1230	1430	611	195	71
3	94	164	60	40	60	163	627	1350	1360	587	163	76
4	92	165	50	45	50	133	527	1190	1390	573	142	70
5	90	155	50	50	60	117	444	1040	1610	548	138	67
6	90	156	60	70	55	107	470	970	1710	513	125	86
7	88	167	70	80	70	108	539	1000	2200	471	117	100
8	86	160	90	90	100	117	714	990	2240	441	113	102
9	84	164	130	80	150	112	886	933	1920	418	114	136
10	82	161	160	80	200	115	1020	913	1670	389	110	111
11	111	163	149	90	270	125	1130	874	1590	360	122	115
12	146	181	150	100	270	131	966	806	1620	337	114	130
13	154	212	140	100	250	134	963	781	1680	305	105	102
14	149	258	130	100	240	139	1150	847	1550	278	100	99
15	134	209	130	120	220	158	1390	783	1510	256	96	125
16	123	212	120	110	210	179	1450	916	1500	239	93	115
17	116	186	120	110	200	208	1270	1140	1420	225	91	142
18	114	181	110	120	190	244	1190	1370	1430	215	87	154
19	109	172	90	135	200	279	1040	1610	1480	202	88	128
20	103	171	80	170	230	290	900	1830	1460	192	100	115
21	99	173	110	200	270	282	799	1890	1300	181	104	108
22	95	160	125	190	350	235	719	1980	1160	175	97	103
23	97	162	130	170	455	209	671	2240	1060	172	87	97
24	106	205	121	150	550	215	604	2430	942	169	83	94
25	107	192	119	140	398	197	562	2510	834	163	79	90
26	156	185	115	120	208	178	516	2260	743	159	77	86
27	153	171	115	100	165	177	493	1900	703	152	75	84
28	147	178	109	90	166	159	625	1700	708	144	73	81
29	141	188	111	90	---	144	735	1610	720	141	70	79
30	132	191	108	60	---	147	808	1460	707	138	68	78
31	132	---	90	65	---	182	---	1350	---	155	67	---
TOTAL	3526	5291	3453	3155	5712	5425	23935	42903	41087	9562	3273	3011
MEAN	114	176	111	102	204	175	798	1384	1370	308	106	100
MAX	156	258	173	200	550	290	1450	2510	2240	653	195	154
MIN	82	111	50	35	50	107	239	781	703	138	67	67
CFSM	.47	.73	.46	.42	.85	.73	3.32	5.77	5.71	1.28	.44	.42
IN.	.55	.82	.54	.49	.89	.84	3.71	6.65	6.37	1.48	.51	.47
AC-FT	6990	10490	6850	6260	11330	10760	47480	85100	81500	18970	6490	5970

CAL YR 1984	TOTAL	212057	MEAN	579	MAX	3850	MIN	50	CFSM	2.41	IN.	32.87	AC-FT	420600
WTR YR 1985	TOTAL	150333	MEAN	412	MAX	2510	MIN	35	CFSM	1.72	IN.	23.30	AC-FT	298200

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1965 to September 1985 (discontinued).

INSTRUMENTATION.--Temperature recorder since October 1965.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 27.0°C July 23, 27, 1977; minimum, 0.0°C on many days during winter periods each year.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 24.5°C July 21, 25, Aug. 27; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV										
14...	1050	259	51	--	3.5	12.4	K1	K5	23	0
FEB										
28...	1100	165	59	7.20	.0	13.7	K4	K2	26	4
APR										
24...	0905	604	48	--	4.0	12.4	K1	K1	18	0
AUG										
30...	0930	69	55	--	14.0	9.8	K15	K180	23	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
NOV										
14...	6.2	1.7	2.3	1.2	30	3.5	1.4	<.10	.030	<.10
FEB										
28...	6.9	2.1	2.6	1.1	22	4.7	.60	<.10	.060	<.10
APR										
24...	5.1	1.3	2.1	1.0	23	2.8	.40	<.10	.050	<.10
AUG										
30...	6.6	1.5	2.5	1.2	28	--	--	<.10	.050	<.10

DATE	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	TUR-BID-ITY (NTU)
NOV									
14...	.40	.020	.020	.030	22	48	57	34	4.4
FEB									
28...	.20	.020	.030	.040	27	47	59	21	13
APR									
24...	.20	.010	<.010	.020	19	42	46	68	2.8
AUG									
30...	<.20	.020	<.010	<.010	17	--	--	--	.40

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
NOV										
14...	130	<1	16	<.5	<1	<1	<3	<1	150	<1
FEB										
28...	350	<1	17	1.1	2	<1	<3	2	290	<1
APR										
24...	180	<1	13	1.3	<1	<1	<3	3	71	5
AUG										
30...	20	<1	14	<.5	<1	<1	<3	1	4	<1

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
NOV										
14...	<4	3	<.1	<10	<1	<1	<1	24	<6	<3
FEB										
28...	<4	1	<.1	<10	3	<1	<1	26	<6	<3
APR										
24...	<4	5	<.1	<10	2	<1	<1	19	<6	5
AUG										
30...	<4	2	--	<10	<1	<1	<1	24	<6	3

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

13331500 MINAM RIVER AT MINAM, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.0	6.0	2.0	.0	2.0	.0	1.0	.0	---	---	.0	.0
2	13.0	6.0	5.5	2.0	.0	.0	2.5	.5	---	---	.0	.0
3	13.5	6.5	5.5	3.5	.5	.0	.0	.0	---	---	.0	.0
4	13.0	7.0	5.0	2.0	1.0	.0	.0	.0	---	---	.0	.0
5	13.0	8.0	3.0	.5	.0	.0	.0	.0	---	---	.0	.0
6	13.5	8.0	4.0	2.0	.0	.0	.0	.0	---	---	.0	.0
7	14.5	8.0	6.0	3.0	.0	.0	.0	.0	---	---	.0	.0
8	14.0	8.0	3.0	2.0	.0	.0	.0	.0	---	---	.0	.0
9	15.0	9.0	4.5	2.0	.0	.0	.0	.0	---	---	.0	.0
10	12.5	8.0	4.5	2.5	.0	.0	.0	.0	---	---	.5	.0
11	9.5	7.5	4.0	3.0	.0	.0	.0	.0	---	---	1.0	.0
12	7.5	6.0	5.5	4.0	.0	.0	.0	.0	---	---	1.5	.0
13	8.5	5.5	5.0	4.0	.0	.0	.0	.0	---	---	2.0	.0
14	7.0	4.0	4.5	2.0	.0	.0	.0	.0	---	---	4.0	.0
15	6.0	3.0	2.5	.5	.0	.0	.5	.0	---	---	5.5	.0
16	6.0	3.5	3.0	1.5	.0	.0	.0	.0	---	---	5.5	.0
17	5.5	2.5	3.0	1.0	.0	.0	.0	.0	---	---	6.0	.5
18	5.5	2.0	4.5	1.5	.0	.0	.0	.0	---	---	6.0	1.0
19	6.0	2.5	3.5	2.5	.0	.0	.0	.0	---	---	6.0	1.0
20	5.5	1.0	3.5	2.5	.0	.0	---	---	---	---	7.0	2.0
21	5.0	.0	4.0	3.0	.0	.0	---	---	---	---	3.5	2.0
22	4.0	.0	2.5	1.0	.0	.0	---	---	.0	.0	3.5	1.0
23	1.5	.0	2.5	1.0	.5	.0	---	---	.0	.0	5.0	1.5
24	5.5	1.5	3.5	2.0	1.0	.0	---	---	.0	.0	5.0	2.0
25	6.5	3.0	2.5	1.5	.0	.0	---	---	.0	.0	6.0	.5
26	6.0	3.5	2.5	1.0	.0	.0	---	---	.0	.0	2.0	.0
27	4.5	2.5	1.0	.0	.0	.0	---	---	.0	.0	5.5	.5
28	4.0	2.0	3.0	1.5	.0	.0	---	---	.0	.0	5.5	1.0
29	4.0	2.0	3.0	2.0	.0	.0	---	---	---	---	6.5	1.0
30	3.5	2.0	2.0	.0	.0	.0	---	---	---	---	6.0	2.5
31	2.5	.5	---	---	.0	.0	---	---	---	---	8.5	3.5
MONTH	15.0	.0	6.0	.0	2.0	.0	---	---	---	---	8.5	.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	10.0	4.0	9.5	6.5	8.5	6.0	17.5	11.0	18.0	14.5	20.0	10.5
2	8.5	3.0	8.0	6.0	10.5	6.0	19.0	12.5	18.0	13.5	16.0	13.5
3	7.0	3.5	6.5	4.5	10.5	6.0	20.0	13.0	22.0	12.0	20.0	10.5
4	7.5	3.5	6.0	3.5	11.0	8.0	19.5	14.5	19.5	14.0	20.0	11.5
5	9.0	3.5	8.5	3.5	9.0	7.5	20.5	14.0	22.5	13.5	15.5	14.0
6	9.0	3.0	9.5	4.5	8.5	6.5	21.0	14.0	23.5	13.0	15.5	13.0
7	8.5	3.5	8.0	5.5	7.5	6.5	21.5	15.5	23.0	15.0	13.0	11.0
8	9.0	4.0	7.5	5.5	9.0	6.0	21.5	15.5	18.5	14.0	12.5	11.5
9	8.5	3.5	8.0	5.5	9.0	5.5	22.0	15.0	20.5	11.5	13.0	10.0
10	8.5	4.0	7.5	5.5	10.0	5.5	23.0	16.0	16.5	13.5	17.0	9.5
11	6.5	4.5	7.5	4.5	11.0	6.5	22.0	16.0	20.0	11.5	13.0	11.0
12	9.0	3.5	8.5	3.0	12.0	7.5	22.0	15.0	21.0	13.0	15.5	9.5
13	9.0	4.5	10.0	4.0	10.5	8.0	22.0	14.5	22.0	12.0	13.0	9.5
14	9.5	4.5	8.0	5.5	11.5	7.0	22.0	13.5	22.0	12.5	16.0	10.5
15	8.0	4.5	11.5	5.0	12.5	8.5	23.0	14.5	22.0	13.0	14.5	10.5
16	7.0	4.5	11.5	7.0	11.5	7.5	22.5	15.0	22.0	12.0	11.5	8.5
17	8.5	4.0	11.0	6.5	12.5	8.0	23.5	15.0	23.0	12.5	13.0	9.0
18	6.0	4.5	10.5	6.0	13.5	9.0	23.5	14.5	20.5	14.0	12.5	7.0
19	5.0	2.5	9.5	5.5	13.5	9.5	23.5	14.5	21.5	15.0	12.5	6.5
20	5.5	2.0	8.0	5.5	13.0	10.0	24.0	14.5	19.5	15.0	14.0	6.0
21	5.5	2.0	9.0	5.5	13.0	8.5	24.5	15.0	18.0	12.5	13.5	9.5
22	5.5	3.5	10.5	5.5	13.5	9.5	21.0	16.0	20.5	10.5	14.5	8.0
23	6.5	4.0	9.5	5.5	13.0	9.0	24.0	15.0	21.5	11.0	12.5	5.5
24	5.5	3.0	9.0	5.5	12.0	7.5	24.0	16.0	22.5	13.0	14.5	6.5
25	5.0	3.0	9.5	5.5	11.0	7.5	24.5	14.0	24.0	14.5	14.5	6.5
26	5.5	2.5	8.0	5.0	14.0	7.0	23.5	14.5	24.0	15.0	14.0	7.0
27	11.0	3.5	7.5	5.0	16.0	9.5	23.0	14.0	24.5	16.0	12.0	7.0
28	10.5	6.0	7.5	6.0	16.5	11.0	23.5	15.5	23.5	14.5	12.0	4.5
29	11.0	6.5	6.5	4.5	17.0	11.5	23.0	15.0	23.0	13.5	11.0	3.0
30	11.0	6.0	8.0	4.0	16.5	11.0	22.5	16.5	21.0	13.5	11.0	3.0
31	---	---	9.5	5.0	---	---	20.0	16.0	20.5	11.5	---	---
MONTH	11.0	2.0	11.5	3.0	17.0	5.5	24.5	11.0	24.5	10.5	20.0	3.0

13332500 GRANDE RONDE RIVER AT RONDOWA, OR

LOCATION.--Lat 45°43'36", long 117°46'59", in SW¼NW¼ sec.23, T.3 N., R.40 E., Wallowa County, Hydrologic Unit 17060106, on right bank at Rondowa, 500 ft downstream from Wallowa River, 13 mi northeast of Elgin, and at mile 81.4.

DRAINAGE AREA.--2,555 mi².

PERIOD OF RECORD.--October 1926 to current year.

REVISED RECORDS.--WSP 1093: 1928-29, 1932-33, 1936, 1938, 1939(M), 1943. WSP 1397: 1927. WSP 1447: 1927.

GAGE.--Water-stage recorder. Datum of gage is 2,281.87 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 19-21, Jan. 27 to Feb. 6. Records excellent except for estimated daily discharges, which are fair. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation upstream from station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Sheep Creek in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--59 years, 2,182 ft³/s, 1,581,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft³/s Jan. 30, 1965, gage height, 10.93 ft; minimum, 179 ft³/s Aug. 24, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 16	0330	*9,750	*6.36	May 25	0200	8,330	5.79
May 3	0700	6,680	5.10	June 8	0430	8,400	5.82

Minimum, 398 ft³/s July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	748	910	1240	776	600	1640	3950	5030	4840	1610	882	412
2	731	1000	1090	734	590	1590	5440	6000	5210	1510	937	429
3	719	1120	806	718	570	1470	6470	6570	5020	1450	862	448
4	705	1180	760	740	570	1420	6610	6160	5010	1410	793	433
5	696	1120	755	786	580	1290	6370	5540	5530	1370	780	428
6	694	1100	753	811	600	1200	6420	5110	5880	1280	706	442
7	687	1110	834	922	619	1150	6570	4960	7220	1210	659	480
8	676	1080	853	860	611	1120	7000	4800	7680	1160	621	510
9	664	1110	1080	801	659	1180	7520	4560	6510	1130	617	659
10	661	1140	1030	734	677	1370	7950	4450	5630	1060	596	667
11	749	1150	1000	735	665	1550	8990	4250	5190	1010	635	703
12	839	1260	988	733	643	1680	8770	3910	5120	935	608	758
13	879	1320	950	709	655	1850	8620	3660	5270	851	566	714
14	900	1480	926	705	657	2040	8760	3710	4770	777	550	696
15	881	1370	911	765	672	2270	9250	3570	4530	736	513	768
16	852	1320	902	739	686	2500	9400	3800	4460	661	486	737
17	822	1240	849	724	679	2840	8800	4390	4040	625	493	793
18	807	1210	838	713	689	3230	8210	5010	3840	593	472	826
19	789	1190	680	721	704	3600	7450	5660	3880	544	468	772
20	769	1200	670	753	705	3890	6530	6330	3830	507	500	751
21	769	1230	800	750	686	4010	5810	6630	3360	480	529	728
22	755	1170	886	712	743	3540	5240	6630	2970	476	526	703
23	762	1140	995	710	868	3200	4980	7140	2710	430	501	675
24	817	1320	1040	701	1130	3450	4570	7680	2430	410	493	661
25	838	1290	980	693	1500	3120	4250	7710	2200	425	475	647
26	1010	1200	954	664	1510	2730	3910	6980	1990	430	463	628
27	1050	1130	945	620	1470	2440	3660	5950	1830	420	452	611
28	1050	1120	920	660	1510	2230	3760	5390	1800	440	425	594
29	1010	1260	902	680	---	2040	4070	5190	1810	468	412	589
30	971	1290	892	630	---	2040	4390	5070	1760	487	404	590
31	955	---	877	610	---	2690	---	4550	---	841	405	---
TOTAL	25255	35760	28106	22609	22248	70370	193720	166390	126320	25736	17829	18852
MEAN	815	1192	907	729	795	2270	6457	5367	4211	830	575	628
MAX	1050	1480	1240	922	1510	4010	9400	7710	7680	1610	937	826
MIN	661	910	670	610	570	1120	3660	3570	1760	410	404	412
AC-FT	50090	70930	55750	44840	44130	139600	384200	330000	250600	51050	35360	37390

CAL YR 1984	TOTAL	1198727	MEAN	3275	MAX	13300	MIN	560	AC-FT	2378000
WTR YR 1985	TOTAL	753195	MEAN	2064	MAX	9400	MIN	404	AC-FT	1494000

13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56'47", long 117°26'54", in NE¼NW¼ sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank 500 ft downstream from bridge at Troy, 600 ft downstream from Wenaha River, and at mile 45.2.

DRAINAGE AREA.--3,275 mi^2.

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft upstream at datum 10.85 ft lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft upstream at datum 1.15 ft higher.

REMARKS.--Estimated daily discharges: Dec. 2-8, 18-22, Dec. 30 to Jan. 8, 11-20, Jan. 28 to Feb. 14. Records excellent except for estimated daily discharges, which are fair. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation upstream from station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep Creek and tributaries in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--41 years, 3,146 ft^3/s, 2,279,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft^3/s Dec. 23, 1964, gage height, 11.25 ft; minimum, 344 ft^3/s Aug. 19-21, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 11	0530	*14,100	*7.29	June 8	0800	9,630	6.35
May 25	0630	9,760	6.38				

Minimum, 570 ft^3/s Aug. 29 to Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	975	1190	1960	1050	840	2460	5780	6990	5880	2050	1250	574
2	959	1450	1600	1000	820	2470	8590	8170	6350	1900	1300	596
3	936	1780	1200	1000	820	2260	10500	8790	6150	1800	1220	621
4	924	1850	1150	1100	820	2160	10400	8270	6030	1740	1100	612
5	911	1680	1200	1200	840	1960	9690	7390	6390	1690	1050	596
6	906	1570	1250	1300	840	1810	9870	6780	6900	1580	990	635
7	900	1600	1350	1350	860	1710	10100	6540	8390	1510	914	657
8	885	1550	1450	1400	880	1630	10900	6380	9110	1440	864	678
9	870	1570	1540	1240	940	1670	11800	6120	7970	1400	846	794
10	860	1590	1640	1170	1000	1930	12400	5980	6940	1330	823	872
11	946	1640	1530	1100	980	2250	13900	5770	6320	1270	837	864
12	1090	2050	1610	1050	940	2450	13100	5390	6110	1200	850	949
13	1120	2180	1490	1000	940	2660	12500	5070	6160	1110	789	923
14	1190	2540	1480	1000	940	2880	12700	5100	5780	1020	760	879
15	1130	2300	1430	980	975	3270	13200	4930	5540	953	725	944
16	1100	2060	1350	980	965	3600	13100	5200	5480	895	691	946
17	1070	1900	1300	980	992	4040	12100	5790	5090	836	692	992
18	1050	1790	1100	1000	1000	4610	11100	6410	4750	801	674	1070
19	1030	1760	1050	1020	1030	5190	10100	7160	4740	765	653	991
20	1000	1760	1000	1050	1070	5570	8820	7870	4720	722	666	952
21	993	1840	1100	1130	1010	5930	7840	8360	4260	692	710	920
22	991	1780	1250	1030	1050	5340	7090	8250	3780	673	725	891
23	987	1710	1410	1030	1210	4700	6840	8650	3430	665	692	858
24	1020	1890	1530	1010	1490	4970	6380	9220	3100	628	676	832
25	1070	1900	1480	1010	2230	4840	5960	9350	2800	622	658	814
26	1280	1790	1450	973	2310	4290	5560	8620	2580	634	635	799
27	1400	1700	1440	962	2180	3810	5250	7510	2340	623	630	784
28	1380	1660	1410	900	2230	3450	5480	6830	2260	611	608	760
29	1330	1910	1350	870	---	3120	5900	6460	2250	641	581	751
30	1270	2010	1250	850	---	2960	6260	6500	2200	675	574	751
31	1240	---	1150	840	---	3590	---	5940	---	1010	572	---
TOTAL	32813	54000	42500	32575	32202	103580	283210	215790	153800	33486	24755	24305
MEAN	1058	1800	1371	1051	1150	3341	9440	6961	5127	1080	799	810
MAX	1400	2540	1960	1400	2310	5930	13900	9350	9110	2050	1300	1070
MIN	860	1190	1000	840	820	1630	5250	4930	2200	611	572	574
AC-FT	65080	107100	84300	64610	63870	205500	561700	428000	305100	66420	49100	48210

CAL YR 1984	TOTAL	1505411	MEAN	4113	MAX	15100	MIN	860	AC-FT	2986000
WTR YR 1985	TOTAL	1033016	MEAN	2830	MAX	13900	MIN	572	AC-FT	2049000

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SE¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 17060110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 8.0 mi northeast of Burbank, and at mile 9.7.

DRAINAGE AREA.--108,500 mi², approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are National Geodetic Vertical Datum of 1929. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi downstream at datum 300 ft higher. Mar. 23, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi downstream at National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records computed from power output, flow over spillway, flow through fish ladder, and lockage records at Ice Harbor Dam. Diversions upstream from station for irrigation of over 4,090,000 acres. Flow regulated by Lake Sacajawea and many upstream storage reservoirs and powerplants. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi downstream see station 13353200.

COOPERATION.--Records furnished by U.S. Corps of Engineers. Records not reviewed.

AVERAGE DISCHARGE.--30 years (water years 1910-16, 1963-85), 56,380 ft³/s, 40,847,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft³/s June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft at a site 0.7 mi downstream, from information by U.S. Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum hourly discharge, 154,000 ft³/s Apr. 18; maximum forebay elevation, 440.40 ft June 3; minimum hourly discharge, 300 ft³/s Dec. 7; minimum forebay elevation, 437.10 ft Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35200	47100	51500	42000	50100	42200	60800	73600	99600	34200	25800	24300
2	29000	43700	53100	51300	43100	34800	75300	75200	89500	38300	32000	24200
3	31400	43500	44200	24700	41600	31500	73300	92100	86700	43000	24900	23300
4	33200	34200	49200	49600	62400	59000	84400	76000	99700	36300	34000	29200
5	33100	52200	44900	44000	40900	33400	81400	98800	90400	37700	36500	25200
6	20400	44500	32500	23900	23000	46300	72900	108000	94300	25600	27700	23600
7	25300	46900	43400	42700	30200	35900	64300	78000	103000	33100	19500	23000
8	35700	41100	60500	45900	37400	41700	68300	69000	120000	39900	23500	33500
9	28600	38400	28500	54400	40200	28000	85600	80900	132000	25400	23000	32000
10	30800	50200	38500	55300	40600	36600	87100	89000	111000	25000	13400	40600
11	33600	41300	57400	48500	58000	49000	102000	84000	97100	35400	14100	39600
12	29600	54500	49100	37600	35100	39100	104000	73500	92300	35500	19700	37000
13	35700	41300	51400	42000	49700	44500	105000	91100	87300	26300	22200	41400
14	35000	44700	38100	46900	57400	42800	101000	62200	82000	14800	26300	32100
15	39800	24400	46900	43400	42300	32500	102000	69200	70700	18400	23900	36700
16	29500	40600	30900	47900	43200	28900	102000	59100	62300	14100	22100	32000
17	38900	46700	45700	47500	36600	42300	116000	70700	65700	15300	22100	35700
18	27900	57400	33200	65300	42000	47400	116000	84000	63200	26800	15000	31200
19	24300	36000	40400	35800	51100	46800	118000	90900	64000	30100	29200	45300
20	43200	48400	41100	28900	44200	60300	108000	92400	56500	30400	19400	41200
21	45700	32900	33000	49900	49200	63200	102000	94200	58200	14700	25400	32500
22	41300	43100	34700	45600	57000	51400	80800	106000	52700	25700	21400	30300
23	35200	50300	19600	44400	35000	56600	74300	113000	47800	11800	28700	35100
24	37100	56400	31700	39200	22700	46000	74400	114000	54600	16100	18700	28100
25	37000	59900	27300	31800	44100	63900	84500	118000	52400	16200	19400	30900
26	42400	56200	39200	32700	62300	62300	72000	112000	44100	20600	29200	32000
27	44800	45500	44000	43900	47000	46200	58900	107000	38800	14200	22100	29100
28	50800	43200	53900	49100	55300	34100	53000	105000	35100	19500	24200	30200
29	45500	43600	36800	39300	---	48700	81100	104000	24900	24400	19100	25200
30	40500	43900	45200	49200	---	46100	80500	100000	32400	22200	18600	29000
31	34200	---	53800	39600	---	50800	---	99300	---	21300	20500	---
TOTAL	1094700	1352100	1299700	1342300	1241700	1392300	2588900	2790200	2208300	792300	721600	953500
MEAN	35310	45070	41930	43300	44350	44910	86300	90010	73610	25560	23280	31780
MAX	50800	59900	60500	65300	62400	63900	118000	118000	132000	43000	36500	45300
MIN	20400	24400	19600	23900	22700	28000	53000	59100	24900	11800	13400	23000
AC-FT	2171000	2682000	2578000	2662000	2463000	2762000	5135000	5534000	4380000	1572000	1431000	1891000

CAL YR 1984	TOTAL	27323500	MEAN	74650	MAX	248000	MIN	15200	AC-FT	54196000
WTR YR 1985	TOTAL	17777600	MEAN	48710	MAX	132000	MIN	11800	AC-FT	35262000

WALLA WALLA RIVER BASIN

14010000 SOUTH FORK WALLA WALLA RIVER NEAR MILTON, OR

LOCATION.--Lat 45°49'48", long 118°10'08", in NE¼NE¼ sec.15, T.4 N., R.37 E., Umatilla County, Hydrologic Unit 17070102, on right bank 1.0 mi downstream from Elbow Creek, 13 mi southeast of Milton, and at mile 59.1.

DRAINAGE AREA.--63 mi^2, approximately.

PERIOD OF RECORD.--February to October 1903, August 1906 to November 1917, May 1931 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "12 mi above Milton" 1903 and as "above Pacific Power & Light Co.'s intake near Milton" 1907-10.

REVISED RECORDS.--WSP 964: Drainage area. WSP 1398: 1912, 1940, drainage area at former site.

GAGE.--Water-stage recorder. Elevation of gage is 2,050 ft from river-profile map. Prior to Mar. 23, 1934, water-stage recorder or nonrecording gage at several sites within 1.5 mi of present site at various datums.

REMARKS.--Estimated daily discharges: Oct. 1-7, Dec. 18-21, Jan. 31 to Feb. 6, July 15 to Sept. 3. Records good except those for July and August, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--64 years (water years 1908-17, 1932-85), 179 ft^3/s, 38.58 in/yr, 129,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft^3/s Jan. 29, 1965, gage height, 5.60 ft; minimum, 72 ft^3/s Feb 14, 1932.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage about 6 ft Mar. 31, 1931, present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 10	2330	*685	*2.49	No other peak greater than base discharge.			

Minimum daily, 82 ft^3/s July 17-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	123	150	151	130	199	304	474	263	131	145	92
2	110	131	143	150	130	197	435	562	236	128	161	98
3	110	138	137	147	120	184	483	534	226	126	141	108
4	110	143	130	145	120	179	395	428	221	118	140	95
5	110	141	127	145	128	172	308	365	217	105	136	98
6	110	140	125	145	130	168	312	348	285	103	135	111
7	110	140	124	144	143	164	350	351	345	101	132	102
8	117	140	124	142	143	162	409	345	330	95	135	108
9	117	140	133	140	143	164	489	320	280	94	131	110
10	117	140	165	140	143	170	581	323	241	92	134	106
11	117	140	162	136	145	176	602	289	224	88	132	111
12	118	174	158	135	145	178	536	267	211	88	124	108
13	119	199	149	135	145	178	525	281	204	86	124	105
14	119	206	147	135	144	179	584	320	188	84	120	111
15	119	169	147	133	148	186	592	307	179	84	120	113
16	119	152	147	132	150	195	552	378	178	84	115	109
17	119	143	146	132	150	209	470	437	170	82	112	125
18	118	142	135	134	153	229	430	457	164	82	110	121
19	117	139	133	134	154	240	376	468	162	82	110	117
20	117	142	133	138	158	237	318	472	158	82	110	113
21	117	145	158	138	157	236	279	429	158	82	108	113
22	117	143	161	138	165	213	247	423	151	84	108	111
23	115	146	172	138	175	202	243	420	147	90	105	109
24	115	154	175	140	193	211	226	405	142	86	100	108
25	115	151	172	139	204	203	219	367	136	84	100	110
26	119	146	170	138	189	195	209	320	139	84	100	111
27	122	142	168	138	182	189	223	285	135	84	97	110
28	125	153	163	139	181	182	299	260	132	86	95	107
29	125	157	160	140	---	178	358	261	129	96	93	111
30	125	158	158	138	---	185	382	304	126	110	93	111
31	124	---	154	130	---	213	---	238	---	140	92	---
TOTAL	3622	4477	4626	4309	4268	5973	11736	11438	5877	2961	3658	3262
MEAN	117	149	149	139	152	193	391	369	196	95.5	118	109
MAX	125	206	175	151	204	240	602	562	345	140	161	125
MIN	110	123	124	130	120	162	209	238	126	82	92	92
CFSM	1.86	2.37	2.37	2.21	2.41	3.06	6.21	5.86	3.11	1.52	1.87	1.73
IN.	2.14	2.64	2.73	2.54	2.52	3.53	6.93	6.75	3.47	1.75	2.16	1.93
AC-FT	7180	8880	9180	8550	8470	11850	23280	22690	11660	5870	7260	6470

CAL YR 1984	TOTAL	75518	MEAN	206	MAX	846	MIN	105	CFSM	3.27	IN.	44.59	AC-FT	149800
WTR YR 1985	TOTAL	66207	MEAN	181	MAX	602	MIN	82	CFSM	2.87	IN.	39.09	AC-FT	131300

14010800 NORTH FORK WALLA WALLA RIVER NEAR MILTON-FREEWATER, OR

LOCATION.--Lat 45°53'06", long 118°11'06", in SE¼NW¼ sec.28, T.5 N., R.37 E., Umatilla County, Hydrologic Unit 17070102, on right bank 2.8 mi downstream from Little Meadow Canyon, 8.9 mi southeast of Milton-Freewater, and at mile 5.6.

DRAINAGE AREA.--34.4 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,940 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 19, 20, Feb. 3-5. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--16 years, 54.5 ft^3/s, 21.51 in/yr, 39,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,040 ft^3/s Jan. 25, 1975, gage height, 6.58 ft, from rating curve extended above 400 ft^3/s on basis of discharge measurement at gage height 5.67 ft and slope-area measurement at gage height 6.30 ft; minimum, 3.9 ft^3/s July 19-21, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 10	2200	*377	*5.21	No other peak greater than base discharge.			

Minimum, 7.4 ft^3/s July 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	12	49	27	16	73	159	204	49	12	10	11
2	8.4	24	41	24	16	68	221	233	46	12	12	11
3	8.4	29	36	23	12	53	253	221	43	11	10	11
4	8.3	23	32	22	12	45	218	169	41	11	9.8	9.9
5	8.4	20	29	21	13	39	187	133	41	11	9.8	9.9
6	8.3	19	27	21	15	35	192	119	58	11	9.8	11
7	8.0	20	26	20	15	31	220	115	72	11	10	11
8	7.9	19	25	19	15	30	247	113	70	10	10	11
9	8.0	23	41	18	14	31	278	101	62	8.7	10	12
10	7.9	24	98	18	14	37	327	95	54	8.8	11	11
11	13	26	81	16	15	41	339	82	48	8.7	11	11
12	12	33	62	16	19	44	300	71	44	8.6	11	11
13	11	38	51	15	19	43	299	66	40	8.5	10	10
14	11	48	44	15	24	45	306	91	37	8.3	10	10
15	9.9	39	40	15	37	50	299	76	35	8.0	11	13
16	9.7	34	38	14	36	58	271	82	31	7.9	11	14
17	9.5	30	35	14	33	70	219	95	28	7.8	11	17
18	9.5	29	30	15	32	86	186	99	27	7.8	10	16
19	9.4	29	25	16	33	94	157	92	25	7.7	10	13
20	9.4	31	25	20	33	93	124	97	24	7.6	11	13
21	9.4	35	30	23	31	94	96	78	22	7.5	11	12
22	9.4	35	31	23	45	76	78	69	21	7.6	11	12
23	9.0	37	53	23	56	67	81	65	20	7.8	11	11
24	9.4	48	57	22	74	82	75	60	19	7.8	10	11
25	9.6	47	47	21	89	78	74	53	17	7.7	10	11
26	17	40	41	20	65	69	73	48	16	7.6	10	11
27	16	37	37	20	52	59	86	46	15	7.8	10	11
28	16	46	34	19	51	50	122	43	14	7.8	11	11
29	15	54	32	19	---	43	148	51	13	8.0	11	11
30	13	55	31	17	---	57	170	62	13	8.4	11	11
31	13	---	29	17	---	105	---	44	---	9.9	11	---
TOTAL	323.2	984	1257	593	886	1846	5805	2973	1045	275.3	325.4	348.8
MEAN	10.4	32.8	40.5	19.1	31.6	59.5	194	95.9	34.8	8.88	10.5	11.6
MAX	17	55	98	27	89	105	339	233	72	12	12	17
MIN	7.9	12	25	14	12	30	73	43	13	7.5	9.8	9.9
CFSM	.30	.95	1.18	.56	.92	1.73	5.64	2.79	1.01	.26	.31	.34
IN.	.35	1.06	1.36	.64	.96	2.00	6.28	3.21	1.13	.30	.35	.38
AC-FT	641	1950	2490	1180	1760	3660	11510	5900	2070	546	645	692

CAL YR 1984	TOTAL	24136.4	MEAN	65.9	MAX	406	MIN	7.9	CFSM	1.92	IN.	26.10	AC-FT	47870
WTR YR 1985	TOTAL	16661.7	MEAN	45.6	MAX	339	MIN	7.5	CFSM	1.33	IN.	18.02	AC-FT	33050

14020000 UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OR

LOCATION.--Lat 45°43'11", long 118°19'20", in SE¼SW¼ sec.21, T.3 N., R.36 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on right bank 0.8 mi downstream from Ryan Creek, 2.2 mi upstream from Meacham Creek, 2.5 mi northeast of Gibbon, and at mile 83.1.

DRAINAGE AREA.--131 mi^2.

PERIOD OF RECORD.--April 1933 to current year.

REVISED RECORDS.--WSP 1935: 1946-48(M), 1950(M), 1953(M), 1956-59(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,854.81 ft above National Geodetic Vertical Datum of 1929. Prior to June 27, 1939, at site 1 mi downstream at datum 43.94 ft lower.

REMARKS.--Estimated daily discharges: Dec. 18-20, Jan. 2-18, Feb. 3-6, Sept. 3, 4. Records good except those for January, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--52 years, 228 ft^3/s, 23.64 in/yr, 165,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft^3/s Jan. 25, 1975, gage height, 9.18 ft, from rating curve extended above 3,500 ft^3/s; maximum gage height, 9.50 ft Jan. 29, 1965; minimum discharge, 16 ft^3/s Nov. 9, 1965, momentary regulation from unknown source.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 10	2300	*1,590	*5.64	No other peak greater than peak discharge.			

Minimum, 42 ft^3/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	74	229	119	90	329	721	758	304	69	62	46
2	48	122	190	115	87	298	1020	840	293	67	72	47
3	48	228	166	105	60	240	1060	791	260	65	61	52
4	48	178	147	100	60	213	877	618	244	65	56	49
5	48	138	132	97	80	189	697	522	234	65	54	46
6	48	120	123	93	82	175	756	497	245	64	52	54
7	47	122	118	88	82	164	838	487	260	63	52	53
8	45	116	113	86	80	163	922	471	253	62	52	55
9	46	133	150	83	77	176	1010	449	227	61	51	59
10	47	161	278	80	75	206	1290	440	206	61	55	55
11	63	190	266	78	75	230	1400	407	191	59	55	57
12	61	279	243	76	80	242	1130	362	179	59	52	59
13	64	315	201	74	76	235	1070	350	166	58	51	57
14	62	393	181	72	94	254	1170	403	155	57	50	58
15	58	292	172	72	114	286	1160	379	143	56	49	61
16	56	226	161	70	111	321	1030	433	132	56	49	59
17	54	182	148	70	115	359	873	475	124	55	49	64
18	54	162	135	70	118	406	756	495	116	55	49	60
19	53	147	125	87	122	428	648	494	109	53	49	54
20	53	152	110	103	117	417	541	486	102	53	48	52
21	51	175	110	106	114	428	472	445	97	53	49	51
22	51	180	132	106	201	357	419	432	93	53	47	50
23	51	180	217	106	254	326	419	422	89	52	47	49
24	52	216	238	106	317	364	404	413	86	51	47	50
25	54	213	206	107	361	348	385	367	84	50	46	50
26	84	188	183	108	300	313	370	318	81	50	46	49
27	93	174	166	107	261	279	378	288	77	50	46	49
28	105	192	154	106	267	244	466	271	75	50	45	49
29	98	254	141	103	---	217	567	273	74	49	45	49
30	84	262	140	103	---	246	625	334	72	52	46	49
31	79	---	130	93	---	392	---	270	---	63	45	---
TOTAL	1853	5764	5205	2889	3870	8845	23474	13990	4771	1776	1577	1592
MEAN	59.8	192	168	93.2	138	285	782	451	159	57.3	50.9	53.1
MAX	105	393	278	119	361	428	1400	840	304	69	72	64
MIN	45	74	110	70	60	163	370	270	72	49	45	46
CFSM	.46	1.47	1.28	.71	1.05	2.18	5.97	3.44	1.21	.44	.39	.41
IN.	.53	1.64	1.48	.82	1.10	2.51	6.67	3.97	1.35	.50	.45	.45
AC-FT	3680	11430	10320	5730	7680	17540	46560	27750	9460	3520	3130	3160

CAL YR 1984	TOTAL	103655	MEAN	283	MAX	2180	MIN	45	CFSM	2.16	IN.	29.43	AC-FT	205600
WTR YR 1985	TOTAL	75606	MEAN	207	MAX	1400	MIN	45	CFSM	1.58	IN.	21.47	AC-FT	150000

14020300 MEACHAM CREEK AT GIBBON, OR

LOCATION.--Lat 45°41'20", long 118°21'20", in SE¼SE¼ sec.31, T.3. N., R.36 E., Umatilla County, Hydrologic Unit 17070103, on left bank 250 ft downstream from Union Pacific railroad bridge, 0.9 mi southeast of Gibbon, and at mile 1.4.

DRAINAGE AREA.--176 mi^2.

PERIOD OF RECORD.--August 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,803.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 20, 21, Jan. 31 to Feb. 3, June 24 to July 24, Aug. 6-8. Records good except those for periods of no gage-height record, June 24 to July 24, Aug. 6-8, and periods of ice effect, Dec. 20, 21, Jan. 31 to Feb. 3, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--10 years, 211 ft^3/s, 16.28 in/yr, 152,900 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,750 ft^3/s Feb. 20, 1982, gage height, 6.60 ft, from floodmark, from rating curve extended above 2,600 ft^3/s; minimum, 6.6 ft^3/s Aug. 29, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 25, 1975, reached a stage of 7.21 ft, from floodmark, discharge, about 8,200 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 10	2330	*2,190	*5.15	No other peak greater than base discharge.			

Minimum, 9.0 ft^3/s Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	74	190	106	58	371	686	551	154	24	20	9.0
2	13	82	165	97	50	354	1460	595	170	23	26	9.6
3	12	101	146	93	38	288	1620	549	156	21	20	11
4	12	115	129	90	41	260	1390	441	146	20	18	9.6
5	12	116	114	90	52	240	1150	351	140	19	19	9.6
6	12	114	102	87	56	218	1280	307	137	18	17	10
7	11	119	94	85	57	205	1400	288	138	17	17	11
8	10	124	90	83	52	193	1540	274	135	17	17	11
9	10	140	110	79	50	194	1640	264	123	16	16	13
10	10	161	208	73	48	220	1870	258	114	15	14	13
11	20	182	239	73	48	262	1850	246	104	15	14	12
12	19	213	230	67	54	285	1430	225	95	14	14	13
13	19	231	198	64	53	286	1240	212	88	14	14	13
14	22	269	179	64	63	324	1250	227	82	13	14	13
15	22	226	168	66	84	373	1180	212	75	13	13	14
16	24	183	157	63	90	421	1040	222	69	13	13	14
17	25	153	144	60	90	485	812	232	62	13	13	15
18	25	134	133	60	96	571	656	234	56	13	13	17
19	24	122	107	62	107	617	559	231	50	13	12	15
20	24	121	100	76	117	590	459	227	47	13	12	14
21	23	136	105	83	118	600	403	212	44	13	12	15
22	22	144	117	85	150	480	360	201	41	12	12	15
23	21	149	147	87	198	407	391	193	39	12	11	14
24	20	184	159	86	242	402	422	184	36	13	11	14
25	20	182	155	83	292	397	414	171	33	13	10	14
26	37	169	148	83	296	372	396	153	31	13	10	14
27	48	156	140	80	280	329	383	141	30	13	10	13
28	66	157	133	81	289	270	423	135	28	14	9.6	12
29	76	184	125	77	---	239	484	134	27	14	9.6	13
30	78	206	129	62	---	233	500	141	25	15	9.6	12
31	77	---	122	60	---	285	---	131	---	19	9.6	---
TOTAL	828	4647	4483	2405	3169	10771	28688	7942	2475	475	430.4	382.8
MEAN	26.7	155	145	77.6	113	347	956	256	82.5	15.3	13.9	12.8
MAX	78	269	239	106	296	617	1870	595	170	24	26	17
MIN	10	74	90	60	38	193	360	131	25	12	9.6	9.0
CFSM	.15	.88	.82	.44	.64	1.97	5.43	1.45	.47	.09	.08	.07
IN.	.18	.98	.95	.51	.67	2.28	6.06	1.68	.52	.10	.09	.08
AC-FT	1640	9220	8890	4770	6290	21360	56900	15750	4910	942	854	759

CAL YR 1984	TOTAL	114315.8	MEAN	312	MAX	2370	MIN	7.8	CFSM	1.77	IN.	24.16	AC-FT	226700
WTR YR 1985	TOTAL	66696.2	MEAN	183	MAX	1870	MIN	9.0	CFSM	1.04	IN.	14.10	AC-FT	132300

14021000 UMATILLA RIVER AT PENDLETON, OR

LOCATION.--Lat 45°40'20", long 118°47'30", in NW¼NE¼ sec.10, T.2 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on wingwall 0.3 mi downstream from Main Street bridge at Pendleton, 1.5 mi downstream from Wildhorse Creek, 2.8 mi upstream from McKay Creek, and at mile 55.2.

DRAINAGE AREA.--637 mi^2.

PERIOD OF RECORD.--February 1891 to July 1892, May 1903 to June 1905 (gage heights and discharge measurements only June to December 1904), October 1934 to current year. Monthly discharge only February 1891 to July 1892, published in WSP 1318.

REVISED RECORDS.--WSP 1398: 1904, 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,054.3 ft above National Geodetic Vertical Datum of 1929 (levels by Oregon Department of Transportation). Apr. 24 to Aug. 26, 1959, nonrecording gage and Aug. 27, 1959, to Feb. 4, 1965, water-stage recorder at 8th Street Bridge 0.7 mi upstream at datum of 1,067.01 ft above National Geodetic Vertical Datum of 1929. Feb. 5 to Nov. 18, 1965, nonrecording gage at Main Street Bridge 1,600 ft upstream at different datum. Nov. 19, 1965, to Sept. 30, 1969, water-stage recorder at 8th Street Bridge 0.7 mi upstream at datum of 1,067.60 ft above National Geodetic Vertical Datum of 1929 Nov. 19, 1965, to Mar. 28, 1967, and at datum of 1,064.02 ft above National Geodetic Vertical Datum of 1929 Mar. 29, 1967, to Sept. 30, 1969. See WSP 1738 for history of changes prior to Apr. 24, 1959.

REMARKS.--Estimated daily discharges: Dec. 19-21, Feb. 1-6. Records good except those for discharges between 630 and 4,600 ft^3/s, which are fair. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--51 years (water years 1935-85), 508 ft^3/s, 368,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft^3/s Jan. 30, 1965, gage height, 9.40 ft, datum then in use; minimum, 10 ft^3/s July 13-16, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 17,000 ft^3/s Dec. 14, 1882 (date and discharge from data furnished by Corps of Engineers). Flood of May 30, 31, 1906, reached a stage of 11.0 ft, 1934-58 site and datum, but before channel was improved, discharge, 15,500 ft^3/s, estimated by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 3	0700	3,880	6.59	Apr. 11	0500	*4,820	*7.01

Minimum, 34 ft^3/s Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	117	647	384	190	880	1340	1180	432	78	74	43
2	62	120	555	335	170	860	3230	1340	510	74	88	47
3	62	215	456	292	140	766	3520	1310	456	69	94	48
4	61	245	396	275	140	715	2960	1080	420	64	78	48
5	59	210	352	269	200	664	1880	880	384	61	74	44
6	59	188	292	251	200	600	2100	840	372	59	64	50
7	61	182	257	251	215	540	2440	820	420	59	59	56
8	58	177	245	239	221	495	2800	783	420	59	54	58
9	58	193	257	215	215	510	3100	732	360	59	53	66
10	59	221	749	210	199	555	3640	732	318	56	56	66
11	69	326	749	210	540	647	4460	715	275	54	62	61
12	86	444	715	193	2250	681	3480	664	251	51	58	64
13	83	555	630	188	681	681	2900	615	233	51	54	62
14	83	749	585	182	456	698	3050	664	221	48	50	64
15	81	630	540	177	1380	766	2990	630	199	48	48	74
16	81	495	480	177	664	820	2490	630	182	47	48	69
17	78	396	444	177	525	960	1660	715	166	51	48	71
18	78	343	408	171	480	1060	1340	715	148	51	48	76
19	78	292	330	177	698	1140	1180	732	136	50	43	74
20	78	284	330	269	664	1140	980	715	128	45	43	69
21	78	360	350	275	525	1180	860	681	120	43	47	64
22	78	396	444	269	715	1060	840	647	110	43	48	64
23	76	384	840	269	820	940	840	630	104	42	48	61
24	76	570	698	257	880	960	840	630	98	42	43	61
25	76	570	630	245	1040	960	840	555	98	40	43	58
26	98	510	570	239	880	880	820	495	91	40	43	58
27	120	456	525	233	820	820	820	444	83	38	39	59
28	132	432	495	227	783	749	840	420	78	42	36	59
29	144	585	420	221	---	698	980	396	78	42	36	59
30	140	664	510	204	---	681	1040	468	78	42	35	59
31	124	---	444	190	---	840	---	420	---	51	39	---
TOTAL	2538	11309	15343	7271	16691	24946	60260	22278	6969	1599	1653	1812
MEAN	81.9	377	495	235	596	805	2009	719	232	51.6	53.3	60.4
MAX	144	749	840	384	2250	1180	4460	1340	510	78	94	76
MIN	58	117	245	171	140	495	820	396	78	38	35	43
AC-FT	5030	22430	30430	14420	33110	49480	119500	44190	13820	3170	3280	3590

CAL YR 1984	TOTAL	271206	MEAN	741	MAX	5260	MIN	45	AC-FT	537900
WTR YR 1985	TOTAL	172669	MEAN	473	MAX	4460	MIN	35	AC-FT	342500

14022200 NORTH FORK MCKAY CREEK NEAR PILOT ROCK, OR

LOCATION.--Lat 45°30'24", long 118°36'57", in NE¼SE¼ sec.1, T.1 S., R.33 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on left bank 10 mi northeast of Pilot Rock and at mile 0.5.

DRAINAGE AREA.--48.6 mi^2.

PERIOD OF RECORD.--May 1973 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,870 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 18-21, Jan. 9-15, 30, 31, Feb. 1-9. Records good except those for periods of ice effect, Dec. 18-21, Jan. 9-15, 30, 31, Feb. 1-9, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--12 years, 46.3 ft^3/s, 33,540 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,980 ft^3/s Jan. 25, 1975, gage height, 8.48 ft, from floodmark, from rating curve extended above 150 ft^3/s on basis of slope-area measurement of peak flow; minimum, 0.22 ft^3/s June 26, 1985 (result of temporary construction upstream).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 290 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 24	0330	*349	*3.29	Apr. 1	2030	291	3.05

Minimum, 0.22 ft^3/s June 26, result of temporary construction upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	6.1	69	38	14	129	222	43	13	1.3	1.4	1.0
2	1.8	6.2	53	34	14	105	252	39	12	1.2	1.6	1.4
3	1.7	6.5	42	29	12	86	247	37	9.2	1.1	1.2	1.4
4	1.7	6.1	34	26	12	75	205	33	8.3	1.1	1.2	1.2
5	1.7	5.6	28	23	14	63	187	28	8.7	1.0	.98	1.1
6	1.7	5.6	23	21	17	56	183	25	8.8	.96	.83	1.6
7	1.7	5.7	21	21	19	51	172	22	9.2	.85	.77	1.7
8	1.6	6.0	20	18	18	51	161	19	9.5	.82	.84	1.9
9	1.6	8.6	34	16	15	52	156	18	8.1	.81	.83	2.4
10	1.7	15	84	15	11	58	163	17	7.1	.69	.98	2.1
11	3.1	24	75	14	12	63	156	16	6.3	.66	1.2	2.0
12	3.1	33	69	14	25	65	127	14	5.7	.67	1.0	1.9
13	3.5	32	61	13	28	67	105	13	5.4	.63	.92	1.5
14	3.5	37	54	12	42	77	94	18	5.0	.63	.94	1.7
15	3.4	27	51	11	64	92	83	14	4.7	.58	.90	1.7
16	3.3	22	47	11	63	108	71	13	4.5	.61	.89	1.5
17	3.1	18	43	11	56	130	59	12	4.3	.62	.93	2.0
18	2.9	17	36	13	51	143	53	10	4.0	.58	.90	1.8
19	2.9	16	31	15	53	142	52	9.6	3.8	.55	.94	1.6
20	2.9	20	32	36	57	150	45	9.5	3.3	.56	.96	1.5
21	2.8	37	35	41	56	155	43	8.5	3.1	.54	1.1	1.9
22	2.7	38	50	37	107	116	41	7.5	2.8	.54	1.1	1.5
23	2.7	42	97	34	125	104	46	7.6	2.4	.54	.91	1.3
24	2.8	80	96	31	171	115	44	7.2	2.3	.59	.83	1.3
25	2.9	66	78	28	179	103	51	6.2	2.2	.62	.80	1.3
26	6.6	50	64	25	126	94	56	5.6	1.8	.55	.76	1.3
27	8.1	44	56	24	99	83	57	5.5	1.4	.54	.76	1.2
28	8.9	46	49	22	98	72	55	5.7	1.4	.60	.79	1.2
29	8.5	67	43	20	---	64	51	6.1	1.4	.61	.80	1.3
30	7.6	80	43	17	---	79	47	6.8	1.4	.67	.81	1.3
31	6.7	---	43	15	---	139	---	5.4	---	.96	.91	---
TOTAL	109.0	867.4	1561	685	1558	2887	3284	482.2	161.1	22.68	29.78	46.6
MEAN	3.52	28.9	50.4	22.1	55.6	93.1	109	15.6	5.37	.73	.96	1.55
MAX	8.9	80	97	41	179	155	252	43	13	1.3	1.6	2.4
MIN	1.6	5.6	20	11	11	51	41	5.4	1.4	.54	.76	1.0
AC-FT	216	1720	3100	1360	3090	5730	6510	956	320	45	59	92

CAL YR 1984	TOTAL	22953.20	MEAN	62.7	MAX	445	MIN	.75	AC-FT	45530
WTR YR 1985	TOTAL	11693.76	MEAN	32.0	MAX	252	MIN	.54	AC-FT	23190

14022500 MCKAY CREEK NEAR PILOT ROCK, OR

LOCATION.--Lat 45°32'57", long 118°46'24", in NW¼SE¼ sec.23, T.1 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on left bank 500 ft upstream from county road bridge, 5.5 mi northeast of Pilot Rock, and at mile 8.2.

DRAINAGE AREA.--180 mi^2.

PERIOD OF RECORD.--May to August 1921, October 1926 to June 1928, December 1928 to July 1929, October 1929 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1398: 1928-29, 1933, 1940.

GAGE.--Water-stage recorder. Datum of gage is 1,343.60 ft above National Geodetic Vertical Datum of 1929. See WSP 1318 or 1738 for history of changes prior to Apr. 9, 1941. Apr. 9, 1941, to July 24, 1963, at site 1,000 ft downstream at datum 7.92 ft lower.

REMARKS.--Estimated daily discharges: Dec. 18-21, Jan. 31 to Feb. 11, Mar. 29 to Apr 4, May 23 to June 19. Records good except those for periods of estimated daily discharges, which are fair. No regulation. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--57 years (water years 1927, 1930-85), 103 ft^3/s, 74,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,400 ft^3/s Jan. 30, 1965, gage height, 8.40 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 620 ft^3/s Apr. 10, gage height, 4.90, but may have been higher during period of missing record Mar. 30 to Apr. 3; minimum, no flow July 27, 28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	18	140	93	54	331	165	117	27	3.0	.74	.01
2	3.5	18	113	85	50	299	165	113	31	2.8	1.1	.15
3	3.5	19	91	72	36	227	280	96	31	2.5	1.6	.38
4	2.9	19	75	63	32	202	585	85	27	2.4	1.6	.86
5	2.7	19	63	59	48	175	526	77	27	2.4	1.6	.70
6	2.9	19	53	56	50	157	540	68	27	2.5	1.1	1.5
7	2.5	19	47	52	55	144	524	64	27	2.3	.70	2.8
8	2.5	19	44	48	55	137	515	60	26	1.8	.96	3.8
9	2.5	26	51	43	55	135	520	58	24	1.3	1.0	5.9
10	2.5	35	124	40	55	144	549	53	22	.97	1.2	6.5
11	4.0	55	142	37	98	155	578	48	21	.94	1.8	7.4
12	5.9	70	144	30	100	161	493	53	20	.94	1.7	9.5
13	5.8	65	135	32	105	158	419	51	22	.85	1.5	8.6
14	6.1	76	125	32	116	168	386	45	25	.28	1.3	9.7
15	6.1	63	124	31	172	194	353	42	28	.47	1.3	5.4
16	6.1	56	118	28	173	228	309	39	28	.81	1.3	4.7
17	6.1	47	106	26	152	280	242	38	25	1.0	1.1	4.9
18	5.7	44	90	30	138	329	201	37	23	1.4	1.1	4.6
19	6.1	41	80	38	131	341	186	35	21	1.4	1.1	4.6
20	6.1	45	80	78	143	343	153	32	9.1	1.3	1.2	4.4
21	5.4	69	100	113	129	372	138	30	6.8	1.6	1.2	3.9
22	5.3	77	141	107	263	293	130	31	4.6	1.1	1.4	5.8
23	5.3	75	270	101	347	249	144	31	4.9	.50	1.2	7.6
24	5.3	129	280	92	395	283	138	31	5.2	.02	.88	7.3
25	5.2	126	216	82	455	267	146	31	4.0	.03	.77	6.8
26	8.2	100	167	74	326	241	163	29	4.0	.04	.71	6.8
27	10	90	146	66	248	213	164	27	3.8	.00	.30	6.7
28	16	85	126	62	227	189	168	25	3.7	.00	.20	6.8
29	22	120	106	59	---	172	161	23	3.8	.09	.19	7.3
30	20	142	99	50	---	140	137	22	3.0	.00	.17	7.2
31	19	---	101	54	---	140	---	24	---	.22	.20	---
TOTAL	208.7	1786	3697	1833	4208	6867	9178	1515	534.9	34.96	32.22	152.60
MEAN	6.73	59.5	119	59.1	150	222	306	48.9	17.8	1.13	1.04	5.09
MAX	22	142	280	113	455	372	585	117	31	3.0	1.8	9.7
MIN	2.5	18	44	26	32	135	130	22	3.0	.00	.17	.01
AC-FT	414	3540	7330	3640	8350	13620	18200	3010	1060	69	64	303

CAL YR 1984	TOTAL	67978.9	MEAN	186	MAX	1200	MIN	1.0	AC-FT	134800
WTR YR 1985	TOTAL	30047.38	MEAN	82.3	MAX	585	MIN	.00	AC-FT	59600

14023000 MCKAY RESERVOIR NEAR PENDLETON, OR

LOCATION.--Lat 45°36'28", long 118°47'30", in SE¼ sec.34, T.2 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on Bureau of Reclamation land, near right end of McKay Dam on McKay Creek, 4.0 mi south of Pendleton, and at mile 4.9.

DRAINAGE AREA.--186 mi².

PERIOD OF RECORD.--December 1927 to current year. Prior to Oct. 1, 1982, monthend contents and change in contents only.

REVISED RECORDS.--WSP 1154: Drainage area. WDR OR-79-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 0.16 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 6, 1973, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by gravel-fill dam with concrete facing, completed in 1926; storage began in 1927. Usable capacity, 73,830 acre-ft, beteween gage heights 1,182.0 ft, floor of trashrack structure, and 1,322.0 ft top of spillway gates. Dead storage, about 6 acre-ft included in records. Water is used for irrigation of land along McKay Creek and Umatilla River.

COOPERATION.--Capacity tables furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 73,840 acre-ft June 9, 1950, gage height, 1,322.0 ft; no usable contents Sept. 7, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 68,910 acre-ft Apr. 30, May 1, gage height, 1,318.01 ft; minimum, 11,630 acre-ft Sept. 15, 16, gage height, 1,241.37 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)

1,182	6	1,210	1,610	1,260	20,880
1,185	24	1,220	3,720	1,280	33,540
1,190	117	1,230	7,120	1,300	49,840
1,200	565	1,240	11,060	1,322	73,840

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1257.04	1258.17	1264.66	1276.30	1281.78	1293.37	1308.62	1317.87	1315.56	1304.53	1276.30	1247.26
2	1257.06	1258.25	1265.07	1276.56	1281.92	1293.95	1309.71	1317.72	1315.48	1303.81	1275.53	1245.97
3	1257.09	1258.31	1265.38	1276.79	1282.00	1294.51	1310.86	1317.44	1315.32	1303.08	1274.75	1244.85
4	1257.11	1258.38	1265.64	1276.99	1282.06	1295.06	1311.82	1317.13	1315.21	1302.39	1274.07	1243.92
5	1257.12	1258.45	1265.86	1277.17	1282.19	1295.61	1312.63	1317.06	1315.08	1301.66	1273.46	1243.66
6	1257.14	1258.52	1266.07	1277.35	1282.30	1295.96	1313.48	1317.05	1314.96	1300.91	1272.82	1243.43
7	1257.19	1258.62	1266.23	1277.50	1282.50	1296.21	1314.30	1317.06	1314.84	1300.09	1272.16	1243.19
8	1257.19	1258.72	1266.38	1277.66	1282.62	1296.49	1315.09	1317.15	1314.74	1299.23	1271.46	1242.93
9	1257.23	1258.80	1266.58	1277.79	1282.73	1296.72	1315.74	1317.12	1314.60	1298.40	1270.69	1242.71
10	1257.24	1258.90	1267.01	1277.92	1282.85	1297.39	1316.04	1317.01	1314.45	1297.57	1269.94	1242.43
11	1257.28	1259.06	1267.43	1278.04	1282.23	1297.84	1316.36	1316.94	1314.30	1296.80	1269.15	1242.23
12	1257.31	1259.24	1267.92	1278.15	1283.57	1298.19	1316.50	1316.85	1314.04	1296.05	1268.38	1241.99
13	1257.33	1259.43	1268.35	1278.25	1283.91	1298.53	1316.57	1316.83	1313.73	1295.58	1267.57	1241.78
14	1257.34	1259.64	1268.79	1278.36	1284.27	1298.91	1316.64	1316.83	1313.42	1294.42	1266.72	1241.56
15	1257.38	1259.83	1269.19	1278.47	1284.76	1299.35	1316.74	1316.88	1313.09	1293.56	1265.79	1241.37
16	1257.39	1259.98	1269.55	1278.56	1285.22	1299.84	1316.76	1316.92	1312.74	1292.77	1264.84	1241.53
17	1257.40	1260.17	1269.93	1278.66	1285.64	1300.34	1316.93	1316.93	1312.37	1291.92	1263.87	1241.53
18	1257.41	1260.30	1270.21	1278.73	1286.04	1301.01	1317.08	1316.93	1311.92	1291.04	1262.89	1241.53
19	1257.46	1260.42	1270.39	1278.84	1286.45	1301.69	1317.09	1316.92	1311.69	1290.13	1261.92	1241.55
20	1257.49	1260.60	1270.62	1279.13	1286.85	1301.89	1317.18	1316.92	1311.38	1289.09	1260.94	1241.55
21	1257.52	1260.80	1270.96	1279.42	1287.22	1301.91	1317.25	1316.96	1310.88	1288.16	1259.91	1241.55
22	1257.54	1261.03	1271.31	1279.77	1287.88	1303.80	1317.33	1316.92	1310.32	1287.11	1258.94	1241.56
23	1257.57	1261.33	1272.10	1280.07	1288.72	1304.33	1317.42	1316.78	1309.75	1286.05	1257.94	1241.43
24	1257.60	1261.77	1272.93	1280.33	1289.65	1304.90	1317.49	1316.65	1309.27	1284.92	1256.91	1241.44
25	1257.64	1262.23	1273.61	1280.57	1290.72	1305.40	1317.57	1316.50	1308.68	1283.74	1255.88	1241.44
26	1257.71	1262.62	1274.16	1280.79	1291.50	1305.86	1317.67	1316.36	1308.10	1282.60	1254.75	1241.46
27	1257.79	1262.97	1274.61	1280.99	1292.12	1306.27	1317.82	1316.20	1307.43	1281.45	1253.59	1241.48
28	1257.82	1263.28	1275.01	1281.17	1292.73	1306.63	1317.91	1316.10	1306.75	1280.31	1252.37	1241.48
29	1257.93	1263.70	1275.36	1281.35	---	1306.96	1317.99	1315.88	1306.07	1279.10	1251.07	1241.47
30	1258.01	1264.22	1275.69	1281.47	---	1307.29	1318.01	1315.80	1305.28	1278.01	1249.82	1241.47
31	1258.06	---	1276.00	1281.62	---	1307.80	---	1315.64	---	1277.08	1248.51	---
MEAN	1257.43	1260.26	1269.77	1278.86	1285.44	1300.45	1315.75	1316.82	1312.05	1291.99	1263.97	1242.39
MAX	1258.06	1264.22	1276.00	1281.62	1292.73	1307.80	1318.01	1317.87	1315.56	1304.53	1276.30	1247.26
MIN	1257.04	1258.17	1264.66	1276.30	1281.78	1293.37	1308.62	1315.64	1305.28	1277.08	1248.51	1241.37
(†)	19800	23300	30790	34680	43380	57520	68910	66120	54940	31510	14880	11670
(‡)	+570	+3500	+7490	+3890	+8700	+14140	+11390	-2790	-11180	-23430	-16630	-3210

CAL YR 1984 MEAN ------ MAX 1317.77 MIN 1256.93 AC-FT‡ +3090
WTR YR 1985 MEAN 1282.92 MAX 1318.01 MIN 1241.37 AC-FT‡ -7560

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

14023500 MCKAY CREEK NEAR PENDLETON, OR

LOCATION.--Lat 45°36'34", long 118°47'55", in SE¼NW¼ sec.34, T.2 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on right bank 35 ft upstream from diversion dam, 0.2 mi downstream from McKay Dam, 4.5 mi south of Pendleton, and at mile 4.7.

DRAINAGE AREA.--186 mi^2.

PERIOD OF RECORD.--November 1918 to May 1919, October 1919 to September 1923, October 1924 to September 1927, November 1927 to September 1943, April 1944 to October 1947 (irrigation seasons only), March 1948 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1154: Drainage area. WSP 1398: 1923.

GAGE.--Water-stage recorder. Concrete control since Mar. 23, 1928. Datum of gage is above 1,163.71 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). See WSP 1318 or 1738 for history of changes prior to Nov. 16, 1948.

REMARKS.--Estimated daily discharges: Apr. 19-23, 29-31; May 1-7. Records excellent except those for April and May 1-7, which are fair. Flow completely regulated since 1927 by McKay Reservoir (see sta 14023000). Many diversions for irrigation upstream from station. From 1932 to 1970, records excluded flow in Elder ditch, which diverts water between the gage and the control. Since 1971, records include flow in Elder ditch. During the irrigation season, from 1953 to 1982, Elder ditch diverted a maximum of 1.5 ft^3/s; since 1982, diversion has been less than 1.0 ft^3/s.

AVERAGE DISCHARGE.--48 years (water years 1933-43, 1949-85), 98.4 ft^3/s, 71,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 3,250 ft^3/s Feb. 10, 1921, gage height, 4.4 ft, site and datum then in use, from rating curve extended above 1,200 ft^3/s; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 451 ft^3/s July 24, gage height, 1.68 ft; no flow Oct. 1 to Apr. 3, Sept. 16-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	187	97	377	276	306
2	.00	.00	.00	.00	.00	.00	.00	222	96	357	266	287
3	.00	.00	.00	.00	.00	.00	.00	305	96	347	265	254
4	.00	.00	.00	.00	.00	.00	1.7	309	96	347	227	187
5	.00	.00	.00	.00	.00	.00	2.3	134	96	346	218	51
6	.00	.00	.00	.00	.00	.00	2.5	89	96	345	208	52
7	.00	.00	.00	.00	.00	.00	2.5	45	96	383	200	52
8	.00	.00	.00	.00	.00	.00	2.9	22	96	404	226	52
9	.00	.00	.00	.00	.00	.00	76	86	96	386	244	59
10	.00	.00	.00	.00	.00	.00	290	99	96	363	245	54
11	.00	.00	.00	.00	.00	.00	364	99	96	347	254	49
12	.00	.00	.00	.00	.00	.00	365	100	150	345	247	49
13	.00	.00	.00	.00	.00	.00	366	51	187	344	248	49
14	.00	.00	.00	.00	.00	.00	323	26	187	343	262	50
15	.00	.00	.00	.00	.00	.00	283	26	187	343	281	40
16	.00	.00	.00	.00	.00	.00	271	26	187	341	285	.00
17	.00	.00	.00	.00	.00	.00	138	25	213	354	284	.00
18	.00	.00	.00	.00	.00	.00	130	25	249	367	283	.00
19	.00	.00	.00	.00	.00	.00	174	25	124	366	281	.00
20	.00	.00	.00	.00	.00	.00	96	25	172	378	279	.00
21	.00	.00	.00	.00	.00	.00	96	24	280	388	279	.00
22	.00	.00	.00	.00	.00	.00	96	68	289	402	280	.00
23	.00	.00	.00	.00	.00	.00	96	91	288	410	278	.00
24	.00	.00	.00	.00	.00	.00	98	91	287	429	277	.00
25	.00	.00	.00	.00	.00	.00	98	91	288	445	284	.00
26	.00	.00	.00	.00	.00	.00	98	91	305	430	292	.00
27	.00	.00	.00	.00	.00	.00	98	91	337	417	298	.00
28	.00	.00	.00	.00	.00	.00	118	89	356	412	311	.00
29	.00	.00	.00	.00	---	.00	131	95	378	397	322	.00
30	.00	.00	.00	.00	---	.00	131	97	378	377	320	.00
31	.00	---	.00	.00	---	.00	---	97	---	332	317	---
TOTAL	.00	.00	.00	.00	.00	.00	3947.90	2851	5899	11622	8337	1591.00
MEAN	.00	.00	.00	.00	.00	.00	132	92.0	197	375	269	53.0
MAX	.00	.00	.00	.00	.00	.00	366	309	378	445	322	306
MIN	.00	.00	.00	.00	.00	.00	.00	22	96	332	200	.00
AC-FT	.00	.00	.00	.00	.00	.00	7830	5650	11700	23050	16540	3160

CAL YR 1984	TOTAL	65052.31	MEAN	178	MAX	831	MIN	.00	AC-FT	129000
WTR YR 1985	TOTAL	34247.90	MEAN	93.8	MAX	445	MIN	.00	AC-FT	67930

14026000 UMATILLA RIVER AT YOAKUM, OR

LOCATION.--Lat 45°40'38", long 119°02'09", in SW¼SW¼ sec.2, T.2 N., R.30 E., Umatilla County, Hydrologic Unit 17070103, at left bank on downstream side of highway bridge, 0.5 mi northeast of Yoakum, 2.5 mi downstream from abandoned Furnish Reservoir, 12.0 mi downstream from Birch Creek, and at mile 37.7.

DRAINAGE AREA.--1,280 mi^2, approximately.

PERIOD OF RECORD.--May 1903 to current year. Records published as "above Furnish Reservoir, near Yoakum" October 1916 to September 1934 are equivalent.

REVISED RECORDS.--WSP 794: 1906(M). WSP 1398: 1904-6, 1908-9, 1922-23, 1926, 1936.

GAGE.--Water-stage recorder. Datum of gage is 768.21 ft above National Geodetic Vertical Datum of 1929. See WSP 1318 or 1738 for history of changes prior to Oct. 21, 1948.

REMARKS.--Estimated daily discharges: Nov. 5-20; Dec. 19-21; Jan. 3-19; Jan. 31 to Feb. 9; Feb. 14, 15, 18, 19; June 22 to July 4. Records good except those for Feb. 12-21, which are fair. Slight regulation by Furnish Reservoir 1910-34, capacity, 3,900 acre-ft prior to filling with silt. Flow regulated to some extent since 1927 by McKay Reservoir (see sta 14023000). Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--82 years, 682 ft^3/s, 494,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft^3/s May 30, 1906, gage height, about 15.0 ft, site and datum then in use, from floodmarks, from rating curve extended about 6,600 ft^3/s; minimum, 12 ft^3/s Aug. 10-12, 1908, Aug. 4, 1910.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 12	2000	3,790	5.99	Apr. 11	0930	*5,110	*6.86
Apr. 3	1030	3,720	5.94				

Minimum, 71 ft^3/s Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	154	848	481	280	964	1400	1760	557	440	359	336
2	92	155	712	430	230	1020	2780	1930	670	420	352	323
3	90	236	596	370	190	829	3440	1970	592	400	357	304
4	92	322	501	350	190	730	3200	1780	550	400	313	273
5	98	388	432	330	270	639	2520	1340	528	386	283	133
6	98	300	374	320	270	549	2600	1140	530	386	273	122
7	94	240	336	310	300	493	2850	1020	564	413	255	126
8	87	230	315	300	300	457	3080	918	564	443	258	127
9	81	230	319	290	300	448	3330	935	520	436	277	139
10	82	280	849	280	290	489	3960	929	478	418	283	170
11	95	360	976	270	740	572	4770	888	434	391	295	130
12	116	520	887	260	2860	643	4100	810	429	389	292	131
13	114	650	778	250	1120	659	3610	726	461	389	277	131
14	113	850	680	240	480	677	3620	722	442	385	286	134
15	113	960	663	230	1600	768	3580	710	419	382	298	147
16	110	720	593	220	848	907	3250	715	396	379	309	109
17	108	560	538	220	580	1060	2570	776	387	389	310	97
18	107	470	511	220	500	1230	2120	805	416	407	308	99
19	107	400	450	220	656	1360	1970	816	333	403	301	95
20	106	390	410	240	918	1380	1590	796	283	403	301	87
21	106	460	410	376	546	1430	1380	765	392	417	305	84
22	105	506	511	364	724	1300	1260	729	400	432	304	81
23	104	507	905	377	904	1090	1190	736	400	445	308	80
24	104	733	880	357	1010	1130	1240	726	400	460	304	78
25	103	754	742	336	1270	1120	1250	692	400	487	304	76
26	128	663	686	321	1060	1020	1260	625	400	475	311	76
27	152	597	655	310	889	927	1230	549	440	456	318	75
28	166	562	596	303	810	803	1230	520	440	451	315	73
29	182	705	519	296	---	697	1460	516	440	440	330	75
30	177	835	604	278	---	654	1610	583	440	421	329	76
31	164	---	539	280	---	831	---	549	---	406	328	---
TOTAL	3490	14737	18815	9429	20135	26876	73450	28476	13705	12949	9443	3987
MEAN	113	491	607	304	719	867	2448	919	457	418	305	133
MAX	182	960	976	481	2860	1430	4770	1970	670	487	359	336
MIN	81	154	315	220	190	448	1190	516	283	379	255	73
AC-FT	6920	29230	37320	18700	39940	53310	145700	56480	27180	25680	18730	7910

CAL YR 1984	TOTAL	387930	MEAN	1060	MAX	5820	MIN	81	AC-FT	769500
WTR YR 1985	TOTAL	235492	MEAN	645	MAX	4770	MIN	73	AC-FT	467100

14032000 BUTTER CREEK NEAR PINE CITY, OR

LOCATION.--Lat 45°32'48", long 119°18'14", in SE¼SW¼ sec.22, T.1 N., R.28 E., Morrow County, Hydrologic Unit 17070103, on right bank 0.3 mi downstream from Mattlock Canyon, 6.0 mi southeast of Pine City, 15 mi southwest of Echo, and at mile 28.4.

DRAINAGE AREA.--291 mi^2.

PERIOD OF RECORD.--April to June 1928, November 1928 to June 1929, October 1929 to September 1930, January 1931 to September 1932, February to June 1933, October 1933 to September 1941, January to June 1942, October 1942 to current year. Prior to October 1945, monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1218: 1950(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft, by barometer. Prior to Oct. 1, 1944, at datum 1.1 ft higher and Oct. 1, 1944, to Sept. 6, 1949, at datum 1.0 ft higher.

REMARKS.--Estimated daily discharges: Dec. 4-8, 18-21, Jan. 2-8, 10, 18, 31, Feb. 1-6. Records excellent except those for December and January, which are good. No regulation. Several small diversions for irrigation upstream from station. Water is diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River basin, for irrigation downstream from station.

AVERAGE DISCHARGE.--53 years (water years 1930, 1932, 1934-41, 1943-85), 28.2 ft^3/s, 20,430 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,800 ft^3/s Feb. 21, 1949, gage height, 12.4 ft, present datum, from floodmark, from rating curve extended above 440 ft^3/s on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 2	0200	*218	*3.53	No other peak greater than base discharge.			

Minimum, 2.5 ft^3/s July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	17	26	22	18	80	144	61	30	9.2	7.9	5.4
2	13	18	22	21	17	80	185	63	33	9.2	12	6.8
3	13	23	21	19	17	67	187	64	28	8.4	7.6	6.4
4	13	22	20	19	18	70	156	64	25	8.2	8.2	5.7
5	13	20	19	20	30	60	143	58	24	7.5	8.3	6.1
6	13	19	19	20	35	55	151	53	25	7.4	7.8	6.8
7	13	19	20	20	40	50	144	50	26	6.5	7.1	6.8
8	13	19	21	20	41	50	138	47	25	5.7	6.7	8.0
9	12	19	21	19	32	48	138	45	24	6.3	7.3	9.3
10	12	19	31	19	26	48	142	43	21	5.2	7.2	11
11	13	20	40	19	37	53	149	42	19	6.0	7.4	11
12	14	22	39	20	91	59	137	40	18	6.5	7.4	11
13	14	26	36	20	56	57	127	38	18	5.6	6.8	12
14	14	35	33	20	56	62	120	37	18	5.3	6.8	13
15	14	28	32	20	100	73	114	36	17	5.4	6.4	11
16	14	25	31	20	64	87	107	34	17	5.3	6.1	11
17	15	23	28	19	49	102	97	34	17	5.3	6.1	11
18	15	22	25	19	45	124	88	33	16	4.3	6.1	11
19	15	21	22	19	48	128	86	31	15	3.2	6.1	11
20	17	22	21	23	55	126	83	30	13	3.0	6.4	10
21	16	23	20	27	53	137	76	29	11	2.8	8.4	8.8
22	16	23	52	26	74	109	72	28	9.9	2.9	8.0	8.8
23	16	22	34	26	87	95	70	27	9.4	3.1	7.6	8.4
24	17	25	28	26	88	128	71	29	9.3	3.2	7.2	8.8
25	17	26	26	24	93	112	68	28	9.6	3.2	7.2	8.8
26	19	25	26	24	81	96	65	26	8.9	3.0	6.8	9.3
27	19	24	26	23	69	89	62	25	11	3.1	6.4	9.7
28	19	24	26	24	66	84	60	26	11	3.3	6.4	9.7
29	19	25	24	23	---	77	60	27	9.2	3.5	5.7	10
30	18	26	24	20	---	75	61	27	9.1	3.9	6.1	11
31	17	---	24	19	---	93	---	27	---	5.8	5.4	---
TOTAL	466	682	837	660	1486	2574	3301	1202	527.4	161.3	220.9	277.6
MEAN	15.0	22.7	27.0	21.3	53.1	83.0	110	38.8	17.6	5.20	7.13	9.25
MAX	19	35	52	27	100	137	187	64	33	9.2	12	13
MIN	12	17	19	19	17	48	60	25	8.9	2.8	5.4	5.4
AC-FT	924	1350	1660	1310	2950	5110	6550	2380	1050	320	438	551

CAL YR 1984	TOTAL	24409.9	MEAN	66.7	MAX	940	MIN	3.6	AC-FT	48420
WTR YR 1985	TOTAL	12395.2	MEAN	34.0	MAX	187	MIN	2.8	AC-FT	24590

PRINCIPAL DIVERSIONS FROM UMATILLA RIVER BETWEEN YOAKUM AND UMATILLA GAGING STATIONS, OR

The following canals divert water from Umatilla River between Yoakum and Umatilla, in Umatilla County, Hydrologic Unit 17070103:

14027000 FURNISH CANAL NEAR ECHO diverts from right bank of Umatilla River in SW¼SW¼ sec. 31, T.3 N., R.30 E., for irrigation in vicinity of Stanfield. Records available March 1921 to current year (prior to October 1929 and March 1935 to September 1937 irrigation seasons only). Monthly figures only for irrigation seasons 1921-25, published in WSP 1318.

14029000 UMATILLA PROJECT FEED CANAL NEAR ECHO diverts from right bank of Umatilla River in SW¼ sec.22, T.3 N., R.29 E., and delivers water to Cold Springs Reservoir (Bureau of Reclamation), capacity, 52,380 acre-ft. Records available October 1920 to current year (incomplete 1928, 1943-44).

14030000 ALLEN CANAL AT ECHO diverts from right bank of Western Land Canal, 0.5 mi downstream from headgate of that canal in SW¼ sec.16, T.3 N., R.29 E., for irrigation west of Echo. Records available May 1921 to current year (irrigation seasons only in most years). Monthly figures only October to December 1923, published in WSP 1318. Published as Western Land & Irrigation Co.'s canal at Echo 1921-39.

14030500 WESTERN LAND CANAL NEAR ECHO diverts from left bank of Umatilla River in NE¼ sec.21, T.3 N., R.29 E., for irrigation west of Echo and Stanfield and during non-irrigation seasons since 1978, ground-water recharge near Ordnance. Gage is 1 mi downstream from intake. Records available May 1921 to current year (irrigation seasons only in many years). Published as Western Land & Irrigation Co.'s canal at Echo 1921-39.

14031500 MAXWELL CANAL NEAR HERMISTON diverts from right bank of Umatilla River in SW¼ sec.28, T.4 N., R.28 E., for irrigation near Hermiston; at times it receives water from Cold Springs Reservoir. Records available March 1921 to current year (irrigation seasons only in most years). REVISIONS (WATER YEARS).--WSP 1398: 1921.

14032500 WEST DIVISION MAIN CANAL NEAR UMATILLA diverts from left bank of Umatilla River in SW¼ sec.28, T.5 N., R.28 E., for irrigation near Irrigon and Boardman. Records of monthly figures April 1921 to current year (incomplete October 1925 to March 1927). Published as "Main canal, west division Umatilla project" 1921, 1923. REVISIONS (WATER YEARS).--WSP 1398: 1923.

Water diverted by all of these canals is used for irrigation of lands on both sides of Umatilla River near and below Echo, except that diverted by West Division main canal which is applied to land along Columbia River in vicinity of Irrigon.

Several small canals also divert water between Yoakum and Umatilla, but no records for these were obtained.

DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

MONTH	FURNISH CANAL	UMATILLA PROJECT FEED CANAL	ALLEN CANAL	WESTERN LAND CANAL	MAXWELL CANAL	WEST DIVISION MAIN CANAL
OCTOBER	672	0	1.5	3,170	617	2,170
NOVEMBER	0	0	0	2,820	7.3	0
DECEMBER	0	1,830	0	599	0	0
JANUARY	0	2,150	0	0	0	0
FEBRUARY	0	2,610	0	0	0	0
MARCH	0	7,120	0	2,550	0	0
APRIL	4,420	9,790	843	11,160	1,460	5,240
MAY	7,000	12,270	351	13,940	3,070	6,310
JUNE	7,250	3,190	588	12,490	2,440	5,170
JULY	8,160	0	748	13,800	2,650	6,970
AUGUST	5,640	0	535	10,880	2,250	6,910
SEPTEMBER	2,670	0	651	3,200	2,090	5,000
WTR YR 1985	35,820	38,950	3,720	74,600	14,590	37,760

NOTE.--No gage-height record for months of little or no flow and short periods at other times.

14033500 UMATILLA RIVER NEAR UMATILLA, OR

LOCATION.--Lat 45°54'11", long 119°19'33", in SW¼NW¼ sec.21, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070103, on left bank 1.6 mi downstream from West Division main canal of Umatilla project, 1.2 mi southeast of Umatilla, and at mile 2.1.

DRAINAGE AREA.--2,290 mi^2, approximately.

PERIOD OF RECORD.--October 1903 to current year.

REVISED RECORDS.--WSP 794: Drainage area. WSP 1398: 1909, 1911, 1914, 1928, 1935.

GAGE.--Water-stage recorder. Datum of gage is 330.47 ft above National Geodetic Vertical Datum of 1929. Oct. 21, 1903 to Jan. 25, 1931, nonrecording gage.

REMARKS.--Estimated daily discharges: Dec. 20, 21, Feb. 3-5. Records good above 100 ft^3/s and poor below. Some regulation since 1927 by McKay Reservoir (see sta 14023000). Many diversions upstream from station for irrigation of lands upstream and downstream from station; Brownell Canal diverts downstream from station. Diversions since 1908 to Cold Springs Reservoir, an off-channel reservoir, capacity, 52,380 acre-ft.

AVERAGE DISCHARGE.--58 years (water years 1928-85), 464 ft^3/s, 336,200 acre-ft/yr. Water years prior to 1928 not included in computation of average discharge owing to increased regulation and diversion since 1927.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,800 ft^3/s Jan. 30, 1965, gage height, 10.75 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 12	0330	*5,010	*5.92	Apr. 11	1600	4,460	5.72
Feb. 16	0200	3,720	5.42				

Minimum, 0.45 ft^3/s June 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	239	935	588	333	909	1240	903	64	1.0	1.6	1.1
2	44	244	838	536	326	1110	2360	1130	126	1.2	1.9	5.8
3	37	244	713	479	310	969	2890	1230	118	1.6	1.1	6.3
4	37	368	617	461	290	815	3030	1200	74	.90	.97	1.8
5	32	388	537	443	265	705	2960	856	42	.83	1.1	1.4
6	34	358	488	446	284	580	2590	553	46	.85	.72	1.5
7	29	305	489	414	343	506	2810	435	80	.90	1.4	1.3
8	31	330	465	423	350	448	2950	323	74	.87	.61	1.2
9	26	322	464	405	332	411	2930	271	54	.81	.69	1.3
10	21	358	612	369	340	426	3190	285	27	1.2	.66	1.8
11	22	401	1180	350	376	494	3940	295	11	.69	.73	14
12	26	496	1020	346	3880	609	3590	264	6.7	.80	.75	18
13	34	655	866	326	1970	878	3190	201	3.2	.69	.79	17
14	43	832	739	304	1080	879	3030	114	1.7	.71	1.4	28
15	74	979	673	298	1120	960	3040	143	2.1	.66	.81	42
16	143	782	616	287	1820	1090	2740	134	1.3	.59	.77	60
17	173	631	558	280	980	1210	2130	162	.62	.75	1.1	68
18	183	546	544	275	815	1400	1640	155	.63	.58	.99	63
19	216	486	491	281	754	1610	1520	197	.64	.65	.89	71
20	198	452	460	303	1180	1710	1070	196	.72	.60	1.1	47
21	197	472	420	485	828	1760	848	179	.72	.62	1.2	35
22	197	539	610	478	927	1710	657	122	.82	.59	1.0	19
23	184	557	849	454	1200	1390	546	141	.73	.57	1.1	22
24	178	655	1200	437	1150	1360	581	175	.76	.63	1.1	37
25	166	814	925	423	1440	1360	527	138	.83	.66	1.2	39
26	182	748	825	407	1280	1200	481	96	1.1	.71	1.1	34
27	215	675	802	395	1050	1090	440	54	.80	.66	1.1	37
28	234	635	706	366	913	943	426	35	.93	.80	1.0	37
29	248	668	653	363	---	783	592	37	.81	.88	.89	31
30	256	845	668	356	---	665	726	32	.91	.86	.91	34
31	246	---	650	312	---	764	---	65	---	1.4	1.5	---
TOTAL	3768	16024	21613	12090	25936	30744	58664	10121	742.02	25.26	32.18	776.5
MEAN	122	534	697	390	926	992	1955	326	24.7	.81	1.04	25.9
MAX	256	979	1200	588	3880	1760	3940	1230	126	1.6	1.9	71
MIN	21	239	420	275	265	411	426	32	.62	.57	.61	1.1
AC-FT	7470	31780	42870	23980	51440	60980	116400	20080	1470	50	64	1540

CAL YR 1984	TOTAL	345940.3	MEAN	945	MAX	6340	MIN	1.1	AC-FT	686200
WTR YR 1985	TOTAL	180535.96	MEAN	495	MAX	3940	MIN	.57	AC-FT	358100

14034470 WILLOW CREEK ABOVE WILLOW CREEK LAKE, NEAR HEPPNER, OR

LOCATION.--Lat 45°20'27", long 119°30'53", in NE¼NE¼ sec.1, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank 1.5 mi southeast of Heppner, 1.7 mi upstream from Willow Creek dam, and at mile 54.1.

DRAINAGE AREA--67.6 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,085.41 ft above National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Estimated daily discharges: Jan. 31 to Feb. 5, ice effect. Records good. Many diversions for irrigation upstream from station. Part of flow of Ditch Creek (John Day River basin) is diverted to Willow Creek upstream from station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 11	1030	*137	*5.24				

Minimum, 0.23 ft³/s July 27-29, Aug. 28 to Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	6.7	14	9.9	8.5	39	70	34	18	2.3	.37	.32
2	6.7	8.9	11	11	8.0	38	96	38	19	2.5	.51	.39
3	6.7	10	12	9.4	8.0	35	102	44	18	2.1	.56	.42
4	6.4	8.5	10	9.0	8.5	36	91	39	15	1.7	.38	.41
5	6.4	7.7	9.6	11	9.5	32	88	36	15	1.5	.39	.49
6	6.3	7.8	8.8	11	11	29	89	31	16	1.5	.38	.68
7	5.8	7.6	13	10	11	26	88	31	17	1.1	.29	.59
8	5.5	7.8	12	9.8	11	27	86	28	18	1.3	.29	.62
9	5.3	8.4	13	9.0	9.9	26	88	27	15	1.2	.38	.64
10	4.8	8.9	17	8.9	9.8	27	96	26	14	.91	.39	.72
11	6.3	11	15	8.6	19	28	124	25	13	.90	.39	.68
12	7.2	13	15	8.2	31	29	109	22	11	.98	.40	.52
13	7.1	13	15	8.1	23	29	101	22	11	.85	.44	.68
14	6.7	12	15	8.5	23	30	100	24	9.2	.76	.44	1.0
15	6.9	10	15	9.0	32	33	101	22	6.5	.74	.44	1.6
16	6.8	9.9	14	8.3	33	38	97	20	6.9	.67	.41	1.3
17	6.8	9.4	13	8.4	29	44	83	20	6.7	.75	.35	1.3
18	6.4	9.5	8.4	9.0	27	49	74	19	6.4	.64	.37	1.5
19	6.4	9.2	7.5	9.6	26	52	66	17	6.1	.60	.39	1.5
20	6.4	10	13	14	26	54	55	15	5.6	.62	.39	1.5
21	6.4	13	17	17	26	59	48	15	5.4	.49	.43	1.5
22	6.1	9.8	15	18	34	53	45	14	4.4	.40	.44	1.5
23	6.1	11	15	18	40	49	44	13	4.8	.39	.44	1.4
24	6.3	16	14	17	47	55	41	12	4.5	.39	.44	1.4
25	6.5	14	14	15	52	53	41	11	2.8	.38	.40	1.4
26	9.3	13	14	15	44	48	39	10	3.5	.33	.38	1.6
27	8.6	13	14	14	39	45	35	11	2.6	.26	.33	1.8
28	8.0	14	13	13	36	42	30	12	2.7	.23	.28	1.8
29	7.4	14	13	13	---	38	32	15	2.3	.25	.24	1.8
30	7.3	14	13	10	---	39	34	18	1.8	.27	.25	1.7
31	7.1	---	13	9.0	---	47	---	15	---	.30	.25	---
TOTAL	207.1	321.1	406.3	349.7	682.2	1229	2193	686	282.2	27.31	11.84	32.76
MEAN	6.68	10.7	13.1	11.3	24.4	39.6	73.1	22.1	9.41	.88	.38	1.09
MAX	9.3	16	17	18	52	59	124	44	19	2.5	.56	1.8
MIN	4.8	6.7	7.5	8.1	8.0	26	30	10	1.8	.23	.24	.32
AC-FT	411	637	806	694	1350	2440	4350	1360	560	54	23	65

CAL YR 1984	TOTAL	15718.6	MEAN	42.9	MAX	194	MIN	1.7	AC-FT	31180
WTR YR 1985	TOTAL	6428.51	MEAN	17.6	MAX	124	MIN	.23	AC-FT	12750

14034470 WILLOW CREEK ABOVE WILLOW CREEK LAKE, NEAR HEPPNER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to September 1985.

REMARKS.--Local identifier 452027119305300 Willow Creek site.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	COLIFORM, TOTAL, DELAYED (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	DATE	TIME	COLIFORM, TOTAL, DELAYED (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAY				AUG			
29...	1745	5800	2900	21...	1715	390	K55
JUN				29...	1455	1000	70
11...	1600	4500	K89	SEP			
27...	1720	K180	K17	05...	1610	230	81
JUL				12...	1640	K830	250
11...	1430	K290	K130	19...	1840	310	180
AUG				25...	1840	K1600	660
08...	1630	460	140				
15...	1630	270	150				

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

14034480 BALM FORK NEAR HEPPNER, OR

LOCATION.--Lat 45°19'56", long 119°32'24", in NW¼SE¼ sec.2, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank, 0.7 mi upstream from bridge on Willow Creek Road, 1.0 mi southeast of Heppner, 1.2 mi upstream from Willow Creek dam, and at mile 1.1.

DRAINAGE AREA.--26.3 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR OR-83-1: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Aug. 24, 1982. Datum of gage is 2,101.52 ft above National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Estimated daily discharges: Dec. 19, 20, Jan. 31 to Feb. 6. Records fair; periods of ice effect Dec. 19, 20, Jan. 31 to Feb. 6. Diversion for irrigation of about 170 acres upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190 ft³/s Mar. 4, 1983, gage height, 4.90 ft, from rating curve extended above 82 ft³/s on basis of slope-area measurement of peak flow; no flow for part of each day Sept. 8, 9, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 36,000 ft³/s June 14, 1903, result of slope-area measurement (see WSP 96).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 60 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 24	1945	*22	*3.77				

Minimum, 0.13 ft³/s Aug. 31, Sept. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.8	3.1	3.3	2.3	14	17	2.4	2.0	.29	.22	.19
2	1.2	2.1	2.9	3.5	2.2	13	17	2.2	1.8	.28	.20	.22
3	1.2	1.9	3.1	3.2	2.0	12	16	2.4	1.6	.29	.20	.20
4	1.2	1.8	2.8	3.0	1.8	12	15	2.4	1.5	.28	.22	.22
5	1.2	1.8	2.6	3.1	1.9	10	13	2.2	1.5	.24	.22	.22
6	1.2	2.0	2.4	3.1	2.4	9.7	13	2.3	1.6	.28	.21	.24
7	1.2	1.6	2.6	2.9	2.6	9.3	12	2.3	1.6	.26	.21	.21
8	1.2	1.7	2.7	2.9	2.5	9.5	11	2.3	1.5	.24	.19	.43
9	1.2	1.9	2.7	2.6	2.5	9.5	9.7	2.1	1.3	.21	.18	.47
10	1.2	1.8	3.1	2.6	2.4	10	7.9	1.9	1.1	.19	.23	.52
11	1.3	1.8	3.0	2.5	5.0	11	7.9	2.1	1.0	.23	.20	.57
12	1.3	1.8	3.2	2.5	13	11	5.7	2.2	.81	.24	.19	.57
13	1.2	1.8	3.2	2.4	8.2	11	5.1	2.1	.82	.22	.17	.58
14	1.3	1.8	3.2	2.4	9.8	11	4.8	2.1	.86	.25	.20	.87
15	1.4	1.8	3.5	2.4	15	12	4.8	1.8	.84	.24	.22	.78
16	1.4	1.8	3.5	2.2	13	14	4.6	1.8	.78	.18	.20	.71
17	1.5	1.8	3.2	2.2	11	15	4.1	1.6	.73	.19	.30	.72
18	1.7	1.8	2.5	2.3	9.7	16	3.3	1.5	.69	.19	.37	.69
19	1.6	1.8	2.4	2.3	9.7	15	4.1	1.4	.64	.17	.49	.69
20	1.6	2.1	2.3	3.4	9.4	15	3.8	1.5	.51	.17	.42	.69
21	1.6	2.4	3.0	3.9	10	15	4.1	1.5	.47	.16	.42	.68
22	1.7	2.3	3.5	3.8	15	14	4.1	1.4	.46	.16	.39	.68
23	1.8	2.7	3.9	4.0	17	13	3.8	1.4	.46	.16	.39	.66
24	1.9	2.9	3.9	4.2	19	15	3.9	1.4	.52	.17	.38	.68
25	1.9	2.7	3.9	4.1	17	14	4.4	1.4	.44	.17	.37	.66
26	2.3	2.7	3.9	3.5	14	13	4.1	1.3	.33	.23	.32	.67
27	2.0	2.9	3.9	3.3	12	11	4.1	1.4	.25	.21	.18	.66
28	2.0	2.8	3.8	3.3	12	11	3.9	1.4	.28	.22	.17	.64
29	1.9	2.8	3.8	3.1	---	9.8	3.5	1.5	.31	.24	.16	.69
30	1.9	3.0	3.8	2.8	---	11	2.6	1.8	.31	.24	.18	.70
31	1.9	---	3.7	2.6	---	14	---	1.7	---	.22	.18	---
TOTAL	47.3	63.9	99.1	93.4	242.4	380.8	218.3	56.8	27.01	6.82	7.98	16.51
MEAN	1.53	2.13	3.20	3.01	8.66	12.3	7.28	1.83	.90	.22	.26	.55
MAX	2.3	3.0	3.9	4.2	19	16	17	2.4	2.0	.29	.49	.87
MIN	1.2	1.6	2.3	2.2	1.8	9.3	2.6	1.3	.25	.16	.16	.19
AC-FT	94	127	197	185	481	755	433	113	54	14	16	33

CAL YR 1984	TOTAL	2267.57	MEAN	6.20	MAX	43	MIN	.15	AC-FT	4500
WTR YR 1985	TOTAL	1260.32	MEAN	3.45	MAX	19	MIN	.16	AC-FT	2500

14034480 BALM FORK NEAR HEPPNER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to September 1985.

REMARKS.--Local identifier 452013119324000.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	COLIFORM, TOTAL, DELAYED (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	DATE	TIME	COLIFORM, TOTAL, DELAYED (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAY				AUG			
29...	1715	3500	2000	15...	1600	3100	1500
JUN				21...	1645	2400	440
11...	1530	430	260	29...	1445	1400	600
27...	1650	780	260	SEP			
JUL				05...	1600	K870	K310
11...	1330	2000	580	12...	1620	K570	K460
25...	1730	2600	K1200	19...	1820	650	280
AUG				25...	1920	310	130
08...	1600	5300	1800				

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

14034490 WILLOW CREEK LAKE AT HEPPNER, OR

LOCATION.--Lat 45°20'50", long 119°32'37", in NW¼SE¼ sec.35, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, U.S. Corps of Engineers land, on top left side of spillway on dam on Willow Creek, 2,000 ft upstream from Court Street bridge and at mile 52.4.

DRAINAGE AREA.--96.6 mi².

MONTH-END ELEVATIONS

PERIOD OF RECORD.--February 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Dec. 22, 1983, nonrecording gage at nearby site at present datum.

REMARKS.--Lake is formed by roller-compacted, concrete dam; storage began Feb. 16, 1983. Capacity, 14,020 acre-ft between elevations 2,000.0 ft, sill of outlet gates, and 2,113.5 ft, crest of spillway. Average minimum lake elevation 2,047.0 ft, storing 2,540 acre-ft. Dead storage, 73 acre-ft below elevation 2,000.0 ft. Reservoir used for flood control. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,600 acre-ft Apr. 20, 1984, elevation, 2,065.10 ft; no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,400 acre-ft Oct. 3, elevation, 2,063.60 ft; minimum, 2,940 acre-ft Feb. 4, elevation, 2,050.98 ft.

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

2,050	2,840	2,060	3,950
2,055	3,370	2,065	4,590

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2063.48	2063.08	2062.39	2059.59	2051.08	2057.52	2059.22	2060.55	2061.38	2061.69	2059.61	2057.53
2	2063.58	2063.11	2062.30	2059.45	2051.09	2057.86	2059.42	2060.67	2061.50	2061.67	2059.55	2057.48
3	2063.17	2063.14	2062.24	2059.45	2051.03	2058.16	2059.37	2060.87	2061.61	2061.63	2059.50	2057.43
4	2063.16	2063.17	2062.14	2058.63	2050.99	2058.46	2059.17	2061.01	2061.67	2061.57	2059.44	2057.36
5	2063.16	2063.18	2062.04	2058.29	2051.03	2058.66	2059.10	2061.11	2061.73	2061.53	2059.36	2057.27
6	2063.16	2063.20	2061.91	2057.95	2051.11	2058.84	2059.20	2061.14	2061.83	2061.48	2059.29	2057.22
7	2063.14	2063.22	2061.84	2057.60	2051.16	2058.98	2059.32	2061.21	2061.92	2061.42	2059.20	2057.15
8	2063.10	2063.24	2061.76	2057.24	2051.18	2059.14	2059.41	2061.31	2062.00	2061.37	2059.12	2057.10
9	2063.08	2063.22	2061.71	2056.85	2051.18	2059.27	2059.51	2061.38	2062.06	2061.30	2059.05	2057.05
10	2063.08	2063.15	2061.73	2056.47	2051.19	2059.43	2059.87	2061.42	2062.08	2061.23	2058.99	2057.00
11	2063.10	2063.23	2061.73	2056.08	2051.38	2059.52	2060.44	2061.46	2062.10	2061.16	2058.93	2056.94
12	2063.10	2063.25	2061.71	2055.69	2051.79	2059.56	2061.13	2061.45	2062.08	2061.08	2058.87	2056.93
13	2063.06	2063.24	2061.69	2055.31	2051.92	2059.60	2061.60	2061.46	2062.06	2061.01	2058.79	2056.92
14	2063.05	2063.24	2061.66	2054.92	2052.11	2059.68	2062.08	2061.64	2062.02	2060.95	2058.74	2056.91
15	2062.47	2063.21	2061.64	2054.54	2052.53	2059.77	2062.46	2061.64	2061.93	2060.86	2058.67	2056.91
16	2062.54	2063.18	2061.61	2054.15	2052.89	2059.89	2062.55	2061.60	2061.85	2060.79	2058.61	2056.90
17	2062.56	2063.11	2061.55	2053.76	2053.15	2060.12	2062.45	2061.53	2061.84	2060.72	2058.55	2056.90
18	2062.62	2063.04	2061.38	2053.38	2053.35	2060.07	2062.21	2061.46	2061.89	2060.66	2058.49	2056.86
19	2062.65	2063.01	2061.21	2053.03	2053.55	2059.93	2061.86	2061.35	2061.93	2060.59	2058.41	2056.84
20	2062.66	2063.02	2061.15	2052.78	2053.71	2059.91	2061.38	2061.27	2061.94	2060.53	2058.35	2056.83
21	2062.69	2062.91	2061.18	2052.55	2053.88	2059.90	2060.85	2061.25	2061.95	2060.46	2058.29	2056.80
22	2062.74	2062.87	2061.25	2052.34	2054.25	2059.82	2060.57	2061.19	2061.94	2060.38	2058.24	2056.77
23	2062.77	2062.80	2061.29	2052.12	2054.73	2059.68	2060.49	2061.15	2061.92	2060.30	2058.17	2056.75
24	2062.82	2062.82	2061.34	2051.95	2055.34	2059.63	2060.39	2061.10	2061.92	2060.22	2058.12	2056.71
25	2062.92	2062.82	2061.36	2051.82	2055.96	2059.52	2060.42	2061.04	2061.89	2060.14	2058.06	2056.68
26	2062.99	2062.86	2061.32	2051.67	2056.42	2059.34	2060.49	2060.98	2061.87	2060.06	2058.01	2056.66
27	2063.02	2062.59	2061.12	2051.50	2056.78	2059.10	2060.52	2060.96	2061.84	2059.97	2057.92	2056.64
28	2063.03	2062.54	2060.84	2051.33	2057.09	2058.79	2060.47	2060.98	2061.82	2059.90	2057.76	2056.61
29	2063.04	2062.49	2060.54	2051.13	---	2058.58	2060.44	2061.06	2061.76	2059.83	2057.69	2056.59
30	2063.05	2062.44	2060.25	2051.05	---	2058.58	2060.47	2061.18	2061.72	2059.74	2057.62	2056.57
31	2063.05	---	2059.94	2051.08	---	2058.72	---	2061.25	---	2059.69	2057.56	---
MEAN	2062.97	2063.01	2061.48	2054.64	2052.92	2059.23	2060.56	2061.22	2061.87	2060.77	2058.61	2056.94
MAX	2063.58	2063.25	2062.39	2059.59	2057.09	2060.12	2062.55	2061.64	2062.10	2061.69	2059.61	2057.53
MIN	2062.47	2062.44	2059.94	2051.05	2050.99	2057.52	2059.10	2060.55	2061.38	2059.69	2057.56	2056.57
(†)	4330	4250	3940	2950	3610	3800	4010	4100	4160	3910	3660	3550
(‡)	-50	-80	-310	-990	+660	+190	+210	+90	+60	-250	-250	-110

CAL YR 1984 MEAN ------- MAX ------- MIN ------- AC-FT‡ +3750
WTR YR 1985 MEAN 2059.56 MAX 2063.58 MIN 2050.99 AC-FT‡ -830

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

WATER QUALITY RECORDS

LOCATION.--Lat 45°20'37", long 119°32'10", in SE¼SE¼ sec.35, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, U.S. Corps of Engineer's land, 0.4 mi southeast of outlet structure on Willow Creek Dam, 200 ft northeast of boat launch, and 1.0 mi southeast of Heppner.

PERIOD OF RECORD.--June 1984 to current year.

REMARKS.--Local identifier 452037119321000 Willow Creek Lake Site 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	ALKALINITY FIELD (MG/L AS CACO3)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
OCT									
04...	1500	.00	287	--	14.5	9.7	--	--	3.7
04...	1505	1.0	291	--	14.5	9.7	--	--	--
04...	1510	2.0	297	8.50	14.5	9.8	153	1.7	--
04...	1515	3.0	297	--	14.5	9.8	--	--	--
04...	1520	4.0	300	--	14.5	9.8	--	--	--
04...	1525	5.0	297	--	14.5	9.7	--	--	--
04...	1530	6.0	298	--	14.0	9.4	--	--	--
04...	1535	7.0	297	--	14.0	8.4	--	2.3	--
04...	1540	8.0	294	--	13.0	5.7	--	--	--
04...	1545	9.0	254	--	11.5	.9	--	2.4	--
04...	1550	10.0	233	--	11.0	.2	--	--	--
04...	1555	11.0	227	--	10.0	.2	--	--	--
04...	1600	12.0	227	--	10.0	.1	--	3.4	--
11...	1500	.00	307	--	14.0	9.4	--	--	3.1
11...	1505	1.0	314	--	14.0	9.0	--	--	--
11...	1510	2.0	314	8.00	14.0	9.2	148	2.2	--
11...	1515	3.0	311	--	14.0	9.0	--	--	--
11...	1520	4.0	309	--	14.0	9.0	--	--	--
11...	1525	5.0	307	--	14.0	9.0	--	--	--
11...	1530	6.0	306	--	14.0	9.2	--	2.3	--
11...	1535	7.0	306	--	14.0	9.0	--	--	--
11...	1540	8.0	305	--	14.0	9.2	--	--	--
11...	1545	9.0	319	--	12.0	5.0	--	--	--
11...	1550	10.0	327	--	10.5	.1	--	--	--
11...	1555	11.0	255	--	10.0	.1	--	3.0	--
11...	1600	12.0	236	--	9.5	.1	--	3.6	--
11...	1605	13.0	254	--	9.0	.1	--	--	--
17...	1600	.00	281	--	11.0	8.6	--	--	--
17...	1605	2.0	283	7.90	11.0	9.0	142	--	--
17...	1610	4.0	288	--	11.0	9.1	--	--	--
17...	1615	6.0	288	--	11.0	9.6	--	--	--
17...	1620	8.0	290	8.20	11.0	9.7	--	5.8	--
17...	1625	10.0	290	--	11.0	10.0	--	--	--
17...	1630	12.0	295	--	10.5	10.1	--	--	--
17...	1635	14.0	299	8.10	10.5	9.8	--	7.1	--
NOV									
01...	1500	.00	279	--	8.5	9.6	--	--	--
01...	1505	2.0	279	7.90	8.5	9.6	141	3.9	--
01...	1510	8.0	276	--	8.5	9.6	--	--	--
01...	1520	12.0	276	--	8.5	9.6	--	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
MAY								
30...	1400	.00	234	8.40	17.5	8.7	--	2.00
30...	1401	1.0	231	8.40	16.5	8.5	--	--
30...	1402	2.0	234	8.40	16.0	8.4	6.2	--
30...	1403	3.0	237	8.40	15.5	8.5	--	--
30...	1404	4.0	247	8.30	14.5	8.3	6.4	--
30...	1405	5.0	211	8.20	12.0	6.3	--	--
30...	1406	6.0	208	8.10	10.5	6.0	--	--
30...	1408	8.0	206	7.90	9.0	5.5	6.9	--
30...	1410	10.0	202	7.80	9.0	5.9	--	--
30...	1411	11.0	--	--	8.5	--	9.5	--
30...	1412	12.0	201	7.80	8.5	6.1	--	--
JUN								
11...	1200	.00	256	8.00	21.0	10.3	--	1.80
11...	1205	1.0	256	8.10	19.0	10.5	--	--
11...	1210	2.0	256	8.10	18.0	10.4	7.3	--
11...	1215	3.0	260	8.00	16.5	9.0	--	--
11...	1220	3.5	--	--	--	--	6.8	--
11...	1225	4.0	265	7.90	15.0	7.0	--	--
11...	1230	5.0	245	7.80	13.0	5.0	--	--
11...	1235	6.0	232	7.80	11.5	4.7	--	--
11...	1240	7.0	224	7.70	10.5	4.9	--	--
11...	1245	9.0	214	7.60	9.0	4.0	8.8	--
11...	1250	11.0	215	7.50	8.5	4.3	--	--
11...	1255	13.0	214	7.50	8.0	4.6	9.4	--
27...	1300	.00	271	9.20	20.5	9.2	--	1.90
27...	1305	1.0	223	9.20	20.5	9.2	--	--
27...	1310	2.0	229	9.10	20.5	9.2	3.3	--
27...	1315	3.0	234	9.00	20.0	9.4	--	--
27...	1320	4.0	245	9.00	19.0	9.3	3.5	--
27...	1325	5.0	226	8.30	15.0	5.3	--	--
27...	1330	6.0	225	7.80	12.0	2.6	--	1.90
27...	1335	7.0	223	7.70	10.5	2.0	--	--
27...	1340	8.5	229	7.70	8.0	2.1	8.5	--
27...	1345	10.0	216	7.60	8.5	2.2	--	--
27...	1350	12.5	187	7.60	8.0	2.7	8.2	--
27...	1400	12.5	127	7.60	8.0	2.7	8.3	--
JUL								
11...	1200	.00	267	8.30	23.5	8.3	--	1.50
11...	1205	1.0	268	8.30	23.5	8.2	--	--
11...	1210	2.0	267	8.30	23.0	8.2	1.1	--
11...	1215	3.0	266	8.40	23.0	8.2	--	--
11...	1220	4.0	268	8.40	21.5	8.1	1.5	--
11...	1225	5.0	244	8.20	16.0	4.1	--	--
11...	1230	6.0	218	8.00	12.0	1.0	--	--
11...	1235	7.0	212	7.90	10.5	.2	--	--
11...	1240	9.0	207	7.90	9.0	.6	9.1	--
11...	1245	11.0	206	7.80	8.5	1.3	9.4	--
25...	1500	.00	284	8.80	24.0	8.6	--	3.4
25...	1510	1.0	283	8.80	24.0	8.6	--	--
25...	1515	2.0	283	8.70	23.5	8.6	3.6	--
25...	1520	3.0	282	8.80	23.0	8.7	--	--
25...	1525	4.0	284	8.60	22.0	7.8	2.8	--
25...	1530	5.0	271	8.20	19.0	5.4	--	--
25...	1535	6.0	236	7.40	13.0	1.8	--	--
25...	1540	7.0	223	7.20	11.0	.7	--	--
25...	1545	8.0	222	7.00	10.0	.3	--	--
25...	1550	9.0	228	7.00	9.0	.2	6.1	--
25...	1555	10.0	219	6.80	9.0	.5	--	--
25...	1600	12.0	217	7.10	8.0	.4	5.3	--
AUG								
08...	1300	.00	268	8.50	20.5	8.6	--	--
08...	1305	1.0	262	8.40	20.5	8.6	--	--
08...	1310	2.0	265	8.50	21.0	8.6	4.4	1.70
08...	1315	3.0	265	8.60	21.0	8.6	--	--
08...	1320	4.0	265	8.60	21.0	8.6	4.0	--
08...	1325	5.0	265	8.60	21.0	8.5	--	--
08...	1330	6.0	234	7.60	16.5	7.5	--	--
08...	1335	7.0	217	7.20	11.5	.1	--	--
08...	1340	8.0	213	7.10	10.5	.1	--	--
08...	1345	10.0	212	7.00	9.0	.1	--	--
08...	1350	12.0	210	7.00	9.0	.1	--	--
08...	1355	14.0	213	6.90	8.5	.1	--	--
08...	1400	16.0	213	6.80	8.5	.1	--	--
15...	1200	.00	263	8.90	21.5	12.6	--	1.40
15...	1205	2.0	265	8.80	20.5	12.2	--	--
15...	1210	4.0	269	8.60	20.0	9.0	--	--
15...	1215	6.0	247	7.60	16.0	2.3	--	--
15...	1220	8.0	213	7.30	10.0	.3	--	--
15...	1225	10.0	213	7.20	9.0	.2	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
AUG								
22...	1200	.00	262	--	19.5	7.9	--	1.20
22...	1205	2.0	262	8.90	18.5	7.6	--	--
22...	1210	4.0	265	8.90	18.5	7.3	--	--
22...	1215	6.0	255	7.90	16.0	.5	--	--
22...	1220	8.0	224	7.40	10.5	.3	--	--
22...	1225	10.0	216	7.20	8.5	.2	--	--
29...	1200	.00	241	8.90	21.0	13.1	--	.80
29...	1205	1.0	242	8.80	20.5	13.0	--	--
29...	1210	2.0	244	8.80	20.0	12.2	28	--
29...	1215	3.0	262	8.50	19.0	7.1	--	--
29...	1220	4.0	266	8.50	18.0	6.5	10	--
29...	1225	5.0	264	8.20	17.5	1.5	--	--
29...	1230	6.0	256	7.60	15.5	.2	--	--
29...	1235	7.0	229	7.20	12.0	.1	--	--
29...	1240	8.0	222	7.00	9.5	.1	--	--
29...	1245	10.0	216	7.00	8.5	.1	--	--
29...	1250	12.0	215	6.90	8.5	.1	--	--
SEP								
05...	1130	.00	252	8.60	18.0	8.5	--	--
05...	1135	1.0	252	8.60	18.0	8.4	--	--
05...	1140	2.0	252	8.60	18.0	8.3	13	--
05...	1145	3.0	252	8.60	18.0	8.3	--	--
05...	1150	4.0	252	8.60	18.0	8.3	--	--
05...	1155	5.0	252	8.60	18.0	8.3	12	--
05...	1200	6.0	255	7.70	16.5	.8	--	--
05...	1205	7.0	234	7.30	11.5	.7	--	--
05...	1210	8.0	228	7.10	10.0	.7	--	--
05...	1215	10.0	221	7.00	8.5	.7	--	--
05...	1220	12.0	221	6.90	8.0	.7	4.5	--
05...	1225	13.0	--	--	--	--	4.7	--
05...	1230	14.0	221	6.90	8.0	.7	--	--
12...	1200	.00	260	8.40	15.5	7.0	--	1.80
12...	1205	1.0	260	8.40	15.5	6.2	--	--
12...	1210	2.0	260	8.40	15.5	5.2	4.2	--
12...	1215	3.0	260	8.40	15.5	5.4	--	--
12...	1220	4.0	260	8.40	15.5	5.3	3.6	--
12...	1225	5.0	259	8.40	15.5	4.7	--	--
12...	1230	6.0	259	8.30	15.5	4.2	--	--
12...	1235	7.0	241	7.60	12.0	.4	--	--
12...	1240	8.0	229	7.40	10.0	.4	--	--
12...	1245	9.0	--	--	--	--	--	--
12...	1250	10.0	223	7.20	9.0	.4	--	--
12...	1255	11.0	223	7.20	8.5	.4	5.7	--
12...	1300	12.0	223	7.10	8.5	.4	--	--
19...	1200	.00	258	8.60	15.0	11.0	--	--
19...	1205	1.0	260	8.60	14.5	10.5	--	1.40
19...	1210	2.0	258	8.50	14.5	8.8	--	--
19...	1215	3.0	258	8.40	14.5	8.5	--	--
19...	1220	4.0	260	8.40	14.0	8.7	--	--
19...	1225	5.0	260	8.30	14.0	7.5	--	--
19...	1230	6.0	262	8.30	14.0	7.2	--	--
19...	1235	7.0	263	8.10	14.0	7.7	--	--
19...	1240	8.0	247	7.60	11.0	1.0	--	--
19...	1245	9.0	229	7.40	9.5	1.0	--	--
19...	1250	10.0	225	7.20	8.5	1.0	--	--
19...	1255	11.0	225	7.10	8.5	1.0	--	--
26...	1105	.00	258	8.80	14.5	13.6	--	1.60
26...	1110	1.0	256	8.80	14.5	13.5	--	--
26...	1115	2.0	258	8.80	14.5	13.5	2.8	--
26...	1120	3.0	258	8.80	14.5	13.0	--	--
26...	1125	4.0	260	8.60	14.0	11.0	--	--
26...	1130	5.0	263	8.40	14.0	7.8	--	--
26...	1135	6.0	268	8.00	13.5	5.2	3.7	--
26...	1140	7.0	272	7.70	13.0	1.0	--	--
26...	1145	8.0	270	7.40	11.5	.2	--	--
26...	1150	9.0	239	7.20	9.5	.2	--	--
26...	1155	10.0	231	7.10	8.5	.2	--	--
26...	1200	11.0	--	--	--	--	5.4	--
26...	1205	12.0	223	7.10	8.5	.2	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	SULFIDE TOTAL (MG/L AS S)	PHEOPHY-TIN A FLUORO-METRIC METHOD (UG/L)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L)
OCT								
04...	1510	.40	<.10	.020	--	--	.660	4.60
04...	1535	--	--	--	--	--	.790	5.00
11...	1510	.40	<.10	.020	--	--	.350	7.80
11...	1530	--	--	--	--	--	.010	8.50
17...	1605	.30	<.10	.040	--	--	.580	7.10
17...	1620	--	--	--	--	--	.630	6.50
NOV								
01...	1505	.70	<.10	.040	--	--	.010	12.5
MAY								
30...	1402	.40	<.10	.060	.18	--	1.35	6.50
30...	1411	.20	.33	.100	.31	--	--	--
JUN								
11...	1210	.40	<.10	.050	.15	--	1.11	7.70
11...	1255	.40	.38	.120	.37	--	--	--
27...	1310	.40	<.10	.040	.12	--	4.90	2.30
27...	1350	.50	.37	.150	.46	--	--	--
27...	1400	.50	.37	.150	.46	--	--	--
JUL								
11...	1210	.30	<.10	.010	.03	--	--	--
11...	1245	.30	.30	.150	.46	--	--	--
25...	1515	.30	<.10	.030	.09	--	.390	2.80
25...	1600	.40	.21	.160	.49	<.5	--	--
AUG								
08...	1310	.50	<.10	.010	.03	--	.300	4.20
15...	1205	.80	<.10	.020	.06	--	.010	19.0
22...	1205	.70	<.10	.020	.06	--	2.10	21.4
22...	1220	.70	<.10	.140	.43	<.5	--	--
29...	1210	1.3	<.10	.050	.15	--	.010	30.8
SEP								
05...	1140	1.0	<.10	.030	.09	--	.210	19.8
05...	1225	.70	<.10	.240	.74	1.6	--	--
12...	1210	.70	<.10	.040	.12	--	--	--
12...	1245	--	--	--	--	<.5	--	--
12...	1255	.60	<.10	.260	.80	<.5	--	--
19...	1210	.80	<.10	.050	.15	--	.320	29.7
19...	1255	.60	<.10	.280	.86	4.8	--	--
26...	1115	.70	<.10	.040	.12	--	--	--
26...	1200	.70	<.10	.230	.71	2.0	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

PHYTOPLANKTON

DATE	85/05/30		85/06/11		85/06/27		85/07/11		85/07/25		85/08/08	
SPECIES DIVERSITY	2.11		2.05		1.67		1.09		1.09		2.91	
TOTAL COUNT (#/ML)	344.		1096.		1376.		328.		540.		854.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS-LIKE	--	---	10	0.9	--	---	--	---	--	---	--	---
----CHLAMYDOMONAS SPP.	26	7.5	21	1.9	73	5.3	--	---	--	---	--	---
---VOLVOCACEAE												
----EUDORINA ELEGANS	--	---	--	---	12	0.9	--	---	--	---	31	3.6
----PANDORINA MORUM	10	2.8	21	1.9	--	---	--	---	--	---	--	---
--TETRASPORALES												
---PALMELLACEAE												
----GLOEOCYSTIS AMPLA	--	---	--	---	--	---	--	---	416	77.1	8	0.9
----SPHAEROCYSTIS SCHROETERI	6	1.9	--	---	--	---	--	---	--	---	--	---
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	10	2.8	41	3.8	304	22.1	--	---	89	16.5	85	9.9
----OOCYSTIS LACUSTRIS	--	---	--	---	--	---	--	---	5	0.9	38	4.5
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM PINQUE	--	---	--	---	--	---	6	1.7	--	---	--	---
MISCELLANEOUS GREEN ALGAE	--	---	--	---	12	0.9	--	---	--	---	--	---
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	--	---	--	---	12	0.9	--	---	--	---	--	---
-MISCELLANEOUS DINOFLAGELLATES	--	---	--	---	--	---	--	---	--	---	8	0.9
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	--	---	41	3.8	24	1.8	--	---	--	---	177	20.7
----CHROOMONAS SPP.	--	---	10	0.9	--	---	--	---	--	---	8	0.9
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	84	24.3	41	3.8	--	---	11	3.5	--	---	54	6.3
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----MELOSIRA GRANULATA	--	---	--	---	--	---	14	4.3	--	---	292	34.2
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	180	52.3	259	23.6	852	61.9	--	---	--	---	8	0.9
----FRAGILARIA CROTONENSIS	10	2.8	600	54.7	85	6.2	20	6.1	--	---	62	7.2
----FRAGILARIA VAUCHERIAE	3	0.9	--	---	--	---	--	---	--	---	--	---
---ACHNANTHACEAE												
----ACHNANTHES LANCEOLATA	--	---	--	---	--	---	--	---	5	0.9	--	---
----COCCONEIS PLACENTULA	--	---	--	---	--	---	--	---	--	---	8	0.9
---NITZSCHIACEAE												
----NITZSCHIA FRUSTULUM	3	0.9	--	---	--	---	--	---	--	---	--	---
----NITZSCHIA PALEA	--	---	--	---	--	---	--	---	--	---	15	1.8
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--CHROOCOCCALES												
---CHROOCOCCACEAE												
----CHROOCOCCUS SPP.	--	---	--	---	--	---	--	---	10	1.8	--	---
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	13	3.7	52	4.7	--	---	9	2.6	--	---	--	---
----ANABAENA CIRCINALIS	--	---	--	---	--	---	268	81.7	15	2.8	62	7.2

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

PHYTOPLANKTON

DATE	85/08/15		85/08/15		85/08/22		85/08/29		85/09/05		85/09/12	
SPECIES DIVERSITY	1.78		1.61		0.91		1.07		2.16		2.54	
TOTAL COUNT (#/ML)	441.		616.		605.		1338.		1044.		169.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS SPP.	--	---	--	---	--	---	12	0.9	--	---	3	1.9
---VOLVOCACEAE												
----EUDORINA ELEGANS	5	1.2	29	4.8	--	---	--	---	--	---	3	1.9
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	5	1.2	--	---	6	0.9	12	0.9	10	1.0	2	1.0
----OOCYSTIS LACUSTRIS	--	---	12	1.9	--	---	--	---	10	1.0	--	---
----OOCYSTIS PUSILLA	--	---	--	---	--	---	12	0.9	--	---	5	2.9
----NEPHROCYTIUM SPP.	--	---	--	---	--	---	--	---	--	---	3	1.9
---COCCOMYXACEAE												
----ELAKATOTHRIX GELATINOSA	--	---	--	---	--	---	--	---	--	---	8	4.8
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM PINQUE	--	---	--	---	6	0.9	--	---	--	---	16	9.5
MISCELLANEOUS GREEN ALGAE	--	---	--	---	--	---	--	---	--	---	2	1.0
EUGLENOPHYTA EUGLENOIDS												
-EUGLENOPHYCEAE												
--EUGLENALES												
---EUGLENACEAE												
----TRACHELOMONAS SPP.	5	1.2	6	1.0	6	0.9	12	0.9	--	---	--	---
----TRACHELOMONAS VOLVOCINA	5	1.2	--	---	--	---	--	---	--	---	--	---
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	5	1.2	--	---	--	---	--	---	21	2.0	5	2.9
---CERATIACEAE												
----CERATIUM HIRUNDINIELLA	--	---	--	---	6	0.9	23	1.7	83	7.9	27	16.2
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	--	---	--	---	--	---	--	---	21	2.0	--	---
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	11	2.4	12	1.9	6	0.9	46	3.4	165	15.8	--	---
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-CHRYSOPHYCEAE												
--CHRYSOMONADALES												
---SYNURACEAE												
----MALLOMONAS SPP.	--	---	--	---	6	0.9	12	0.9	--	---	--	---
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----MELOSIRA GRANULATA	53	12.0	65	10.5	6	0.9	--	---	--	---	--	---
----MELOSIRA VARIANS	--	---	--	---	--	---	--	---	--	---	2	1.0
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	--	---	6	1.0	--	---	--	---	--	---	--	---
----FRAGILARIA CROTONENSIS	48	10.8	35	5.7	34	5.6	35	2.6	41	4.0	84	49.5
---ACHNANTHACEAE												
----ACHNANTHES LANCEOLATA	--	---	--	---	--	---	12	0.9	--	---	--	---
----COCCONEIS PLACENTULA	--	---	6	1.0	--	---	12	0.9	10	1.0	--	---
----RHOICOSPHENIA CURVATA	--	---	--	---	--	---	--	---	10	1.0	--	---
---NAVICULACEAE												
----NAVICULA SPP.	--	---	--	---	--	---	--	---	10	1.0	--	---
----NAVICULA CRYPTOCEPHALA VENETA	--	---	--	---	--	---	12	0.9	--	---	--	---
----NAVICULA GRACILOIDES	--	---	--	---	6	0.9	--	---	--	---	2	1.0
---GOMPHONEMACEAE												
----GOMPHONEMA SPP.	--	---	--	---	--	---	--	---	10	1.0	--	---
---CYMBELLACEAE												
----AMPHORA PERPUSILLA	--	---	--	---	--	---	--	---	10	1.0	--	---
----CYMBELLA AFFINIS	--	---	--	---	--	---	--	---	10	1.0	--	---
---EPITHEMIACEAE												
----EPITHEMIA SOREX	5	1.2	--	---	--	---	--	---	--	---	--	---
---NITZSCHIACEAE												
----NITZSCHIA DISSIPATA	5	1.2	--	---	--	---	--	---	--	---	--	---
----NITZSCHIA LINEARIS	--	---	--	---	--	---	--	---	10	1.0	--	---
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	--	---	6	1.0	--	---	--	---	--	---	--	---
----ANABAENA CIRCINALIS	292	66.3	440	71.4	526	86.9	1142	85.3	620	59.4	8	4.8

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

PHYTOPLANKTON

DATE	85/09/19		85/09/26		85/10/10		85/10/24		85/11/01	
SPECIES DIVERSITY	1.89		2.59		2.20		0.70		0.33	
TOTAL COUNT (#/ML)	1768.		1160.		974.		1220.		3724.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE										
-CHLOROPHYCEAE										
--TETRASPORALES										
---PALMELLACEAE										
----SPHAEROCYSTIS SCHROETERI	--	---	11	0.9	--	---	--	---	--	---
--CHLOROCOCCALES										
---OOCYSTACEAE										
----ANKISTRODESMUS FALCATUS	--	---	11	0.9	--	---	--	---	--	---
----QUADRIGULA CLOSTERIOIDES	--	---	--	---	8	0.8	--	---	--	---
--ZYGNEMATALES										
---DESMIDIACEAE DESMIDS										
----STAURASTRUM PINQUE	--	---	11	0.9	--	---	--	---	--	---
EUGLENOPHYTA EUGLENOIDS										
-EUGLENOPHYCEAE										
--EUGLENALES										
---EUGLENACEAE										
----TRACHELOMONAS SPP.	--	---	11	0.9	8	0.8	12	1.0	--	---
----TRACHELOMONAS VOLVOCINA	--	---	--	---	8	0.8	--	---	--	---
PYRRHOPHYTA										
-DINOPHYCEAE DINOFLAGELLATES										
--PERIDINIALES										
---PERIDINIACEAE										
----PERIDINIUM CINCTUM	--	---	11	0.9	8	0.8	--	---	31	0.8
---CERATIACEAE										
----CERATIUM HIRUNDINIELLA	193	10.9	179	15.5	24	2.5	--	---	--	---
CRYPTOPHYTA										
-CRYPTOPHYCEAE										
--CRYPTOMONADALES										
---CRYPTOCHRYSIDACEAE										
----RHODOMONAS MINUTA	980	55.5	422	36.4	383	39.3	12	1.0	--	---
---CRYPTOMONADACEAE										
----CRYPTOMONAS EROSA	113	6.4	63	5.5	16	1.6	36	2.9	62	1.7
CHRYSOPHYTA YELLOW-BROWN ALGAE										
-CHRYSOPHYCEAE										
--CHRYSOMONADALES										
---CHROMULINACEAE										
----KEPHYRION SPP.	--	---	--	---	--	---	12	1.0	--	---
---SYNURACEAE										
----MALLOMONAS SPP.	64	3.6	105	9.1	295	30.3	1101	90.2	3569	95.8
-BACILLARIOPHYCEAE DIATOMS										
--CENTRALES CENTRIC DIATIOMS										
---COSCINODISCACEAE										
----CYCLOTELLA MENEGHINIANA	--	---	--	---	--	---	--	---	31	0.8
--PENNALES PENNATE DIATOMS										
---FRAGILARIACEAE										
----ASTERIONELLA FORMOSA	32	1.8	--	---	8	0.8	--	---	--	---
----FRAGILARIA CROTONENSIS	370	20.9	285	24.5	192	19.7	36	2.9	31	0.8
----FRAGILARIA VAUCHERIAE	--	---	--	---	8	0.8	--	---	--	---
---ACHNANTHACEAE										
----ACHNANTHES HUNGARICA	--	---	11	0.9	--	---	--	---	--	---
----ACHNANTHES MINUTISSIMA	--	---	--	---	8	0.8	--	---	--	---
----COCCONEIS PLACENTULA	--	---	21	1.8	8	0.8	--	---	--	---
---CYMBELLACEAE										
----CYMBELLA ANGUSTATA	--	---	--	---	--	---	12	1.0	--	---
---NITZSCHIACEAE										
----NITZSCHIA SPP.	16	0.9	11	0.9	--	---	--	---	--	---
CYANOPHYTA BLUE-GREEN ALGAE										
-MYXOPHYCEAE										
--OSCILLATORIALES										
---NOSTOCACEAE										
----APHANIZOMENON FLOS-AQUAE	--	---	11	0.9	--	---	--	---	--	---

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

WATER QUALITY RECORDS

LOCATION.--Lat 45°20'46", long 119°32'32", in SW¼SE¼ sec.35, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, U.S. Corps of Engineer's land, 0.1 mi southeast of outlet structure on Willow Creek Dam, and 0.6 mi southeast of Heppner.

PERIOD OF RECORD.--June 1984 to current year.

REMARKS.--Local identifier 452046119323200 Willow Creek Lake Site 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	ALKALINITY FIELD (MG/L AS CACO3)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
OCT									
04...	1400	.00	288	--	14.5	9.3	--	--	--
04...	1405	1.0	294	--	14.5	9.5	--	--	3.9
04...	1410	2.0	294	8.40	14.0	9.5	151	2.2	--
04...	1415	3.0	297	--	14.0	9.4	--	--	--
04...	1420	4.0	297	--	14.0	8.8	--	--	--
04...	1425	5.0	296	--	14.0	8.2	--	--	--
04...	1430	6.0	295	--	14.0	7.7	--	--	--
04...	1435	7.0	297	--	13.5	6.3	--	--	--
04...	1440	8.0	298	7.90	13.0	5.1	151	2.3	--
04...	1445	9.0	293	--	12.5	2.8	--	--	--
04...	1450	10.0	269	--	11.0	.4	--	--	--
04...	1455	11.0	211	--	10.0	.2	--	--	--
04...	1500	12.0	207	7.40	9.5	.2	110	3.1	--
04...	1505	13.0	207	--	9.0	.2	--	--	--
04...	1510	14.0	210	--	9.0	.1	--	--	--
04...	1515	15.0	--	--	9.0	.3	--	--	--
04...	1520	16.0	--	--	9.0	.2	--	--	--
04...	1525	17.0	--	--	9.0	.2	--	--	--
04...	1530	18.0	208	7.30	9.0	.2	103	4.4	--
04...	1535	19.0	--	--	9.0	.1	--	--	--
11...	1400	.00	304	--	14.0	9.2	--	--	3.2
11...	1405	1.0	--	--	14.0	9.0	--	--	--
11...	1410	2.0	303	8.00	14.0	9.0	149	1.7	--
11...	1415	3.0	--	--	14.0	9.0	--	--	--
11...	1420	4.0	304	8.30	14.0	9.0	--	--	--
11...	1425	5.0	--	--	14.0	9.1	--	--	--
11...	1430	6.0	303	--	14.0	9.0	--	--	--
11...	1435	7.0	--	--	14.0	8.8	--	--	--
11...	1440	8.0	297	7.70	14.0	4.3	--	--	--
11...	1445	9.0	--	--	12.5	2.1	--	--	--
11...	1450	10.0	259	--	11.0	.4	--	--	--
11...	1455	11.0	231	7.20	10.0	.1	112	3.0	--
11...	1500	12.0	--	--	10.0	.1	--	--	--
11...	1505	13.0	--	--	9.0	.1	--	--	--
11...	1510	14.0	207	7.10	9.0	.1	--	--	--
11...	1515	15.0	--	--	9.0	.1	--	--	--
11...	1520	16.0	207	7.10	9.0	.1	--	--	--
11...	1525	17.0	--	--	9.0	.1	--	--	--
11...	1530	18.0	210	7.10	8.5	.1	102	4.4	--
11...	1535	19.0	--	--	8.5	.1	--	--	--
17...	1600	.00	274	--	11.0	8.1	--	--	--
17...	1605	1.0	274	--	11.0	8.3	--	--	--
17...	1610	2.0	288	7.90	11.0	8.4	142	4.5	--
17...	1615	3.0	288	--	11.0	8.5	--	--	--
17...	1620	4.0	288	--	11.0	8.5	--	--	--
17...	1625	5.0	288	--	11.0	8.4	--	--	--
17...	1630	6.0	288	--	11.0	8.3	--	9.3	--
17...	1635	7.0	288	--	11.0	8.2	--	--	--
17...	1640	8.0	288	--	11.0	8.1	--	--	--
17...	1645	9.0	288	--	11.0	8.0	--	--	--
17...	1650	10.0	288	--	11.0	8.0	--	--	--
17...	1655	11.0	288	7.90	11.0	7.9	142	5.6	--
17...	1700	12.0	288	--	11.0	7.1	--	--	--
17...	1705	13.0	267	--	10.5	3.1	--	--	--
17...	1710	14.0	282	--	10.0	1.0	--	--	--
17...	1715	15.0	--	--	9.0	.3	--	--	--
17...	1720	16.0	204	7.00	9.0	.2	103	6.8	--
17...	1725	17.0	--	--	9.0	.2	--	--	--
17...	1730	18.0	207	7.10	9.0	.2	103	13	--
17...	1735	19.0	--	--	9.0	.1	--	--	--
17...	1740	20.0	--	--	9.0	.1	--	--	--
17...	1745	21.0	--	--	9.0	.1	--	--	--
NOV									
01...	1400	.00	283	--	8.5	9.3	--	--	--
01...	1405	1.0	283	--	8.5	9.5	--	--	--
01...	1410	2.0	280	8.00	8.5	9.6	141	2.5	--
01...	1415	3.0	280	--	8.5	9.7	--	--	--
01...	1420	4.0	280	--	8.5	9.6	--	--	--
01...	1425	6.0	283	--	8.5	9.6	--	--	--
01...	1430	8.0	283	--	8.5	9.7	141	--	--
01...	1435	9.0	283	8.10	8.5	9.7	141	4.1	--
01...	1440	10.0	283	--	8.5	9.7	--	--	--
01...	1445	12.0	283	--	8.5	9.8	--	--	--
01...	1450	14.0	290	--	8.5	9.8	--	--	--
01...	1455	16.0	--	--	8.5	10.0	--	--	--
01...	1500	18.0	282	8.10	8.5	10.0	141	4.7	--
01...	1505	20.0	--	--	8.5	10.0	--	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
MAY								
30...	1300	.00	233	8.20	16.5	8.7	9.0	1.70
30...	1301	1.0	235	8.20	16.0	8.6	--	--
30...	1302	2.0	232	8.20	15.5	8.2	9.0	--
30...	1303	3.0	233	8.20	15.0	8.2	--	--
30...	1304	4.0	229	8.10	14.5	7.3	11	--
30...	1305	5.0	216	8.10	12.5	6.4	--	--
30...	1306	6.0	210	8.00	10.5	6.3	--	--
30...	1307	7.0	209	7.90	10.0	6.1	--	--
30...	1308	8.0	206	7.80	9.5	6.2	--	--
30...	1309	9.0	202	7.80	9.0	6.5	--	--
30...	1310	10.0	203	7.70	8.5	6.3	--	--
30...	1311	11.0	--	--	--	--	15	--
30...	1312	15.0	207	7.60	7.5	6.2	--	--
30...	1316	18.0	--	--	--	--	10	--
30...	1318	19.0	204	7.50	7.5	5.5	10	--
JUN								
11...	1030	.00	257	8.30	19.0	11.0	--	1.80
11...	1035	1.0	256	8.40	18.5	10.7	--	--
11...	1040	2.0	255	8.30	18.5	10.3	6.8	--
11...	1045	3.0	260	8.30	16.0	8.2	--	--
11...	1050	4.0	260	8.10	15.0	7.1	6.6	--
11...	1055	5.0	243	8.00	13.0	5.1	--	--
11...	1100	6.0	227	7.90	11.0	5.0	--	--
11...	1105	7.0	219	7.80	10.0	4.9	--	--
11...	1110	8.0	213	7.80	9.0	5.2	--	--
11...	1115	10.0	213	7.70	8.5	5.1	8.0	--
11...	1125	12.0	213	7.60	8.5	5.2	--	--
11...	1130	16.0	213	7.60	8.0	4.8	--	--
11...	1135	20.0	214	7.40	8.0	4.2	9.8	--
27...	1030	.00	269	9.00	20.5	9.3	--	2.50
27...	1035	1.0	270	9.00	20.0	9.2	--	--
27...	1040	2.0	270	9.00	20.0	9.4	2.9	--
27...	1045	3.0	272	9.00	19.5	9.4	--	--
27...	1050	4.0	250	8.80	19.0	8.6	4.3	--
27...	1055	5.0	263	8.00	16.0	6.3	--	--
27...	1100	6.0	235	7.50	12.5	2.6	--	--
27...	1105	7.0	230	7.40	11.0	2.1	--	--
27...	1110	8.0	224	7.40	10.0	2.1	--	--
27...	1115	10.0	226	7.40	9.0	2.8	8.0	--
27...	1120	15.0	220	7.40	8.0	3.2	--	--
27...	1125	19.0	222	7.60	8.0	2.8	7.9	--
JUL								
11...	1035	1.0	264	8.00	23.0	8.4	--	--
11...	1040	2.0	264	8.10	23.0	8.4	1.3	--
11...	1045	3.0	264	8.10	23.0	8.4	--	--
11...	1050	4.0	266	8.10	20.5	7.9	1.8	--
11...	1055	5.0	251	8.00	17.5	5.3	--	--
11...	1100	6.0	219	7.90	12.5	.9	--	--
11...	1105	7.0	210	7.70	10.5	.4	--	--
11...	1110	9.0	203	7.70	9.0	1.5	--	--
11...	1115	11.0	204	7.60	8.5	1.6	9.1	--
11...	1120	13.0	204	7.60	8.5	1.7	--	--
11...	1125	15.0	204	7.60	8.0	1.6	--	--
11...	1130	17.0	204	7.50	8.0	1.4	--	--
11...	1135	19.0	206	7.50	8.0	.3	--	--
25...	1210	.00	283	8.70	24.0	8.5	--	3.2
25...	1215	1.0	282	8.70	23.0	8.5	--	--
25...	1220	2.0	283	8.60	23.0	8.6	3.1	--
25...	1225	3.0	284	8.60	23.0	8.5	--	--
25...	1230	4.0	282	8.60	22.0	8.5	2.2	--
25...	1235	5.0	273	7.80	19.0	4.7	--	--
25...	1240	6.0	244	7.40	14.0	2.3	--	--
25...	1245	7.0	223	7.20	11.0	.7	--	--
25...	1250	8.0	220	7.20	10.0	.2	--	--
25...	1255	9.0	218	7.20	9.0	.3	--	--
25...	1300	10.0	219	7.20	9.0	.5	--	--
25...	1305	12.0	218	7.30	9.0	.7	--	--
25...	1310	16.0	221	7.30	8.0	1.3	4.6	--
25...	1315	19.0	225	7.50	8.0	.2	6.8	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
AUG								
08...	1030	.00	267	8.40	20.5	8.6	--	1.90
08...	1035	1.0	267	8.40	20.5	8.6	--	--
08...	1040	2.0	266	8.40	20.5	8.6	4.0	--
08...	1045	3.0	265	8.50	21.0	8.5	3.4	--
08...	1050	4.0	263	8.50	21.0	8.1	--	--
08...	1055	5.0	229	7.50	15.5	.1	--	--
08...	1100	6.0	236	7.10	15.0	.1	--	--
08...	1105	7.0	222	7.10	12.5	.1	--	--
08...	1110	8.0	213	7.00	10.5	.1	--	--
08...	1115	10.0	209	6.90	9.0	.1	2.8	--
08...	1120	12.0	209	6.80	9.0	.1	--	--
08...	1125	14.0	212	6.80	8.5	.1	--	--
08...	1130	16.0	212	6.80	8.5	.1	--	--
08...	1135	18.0	216	6.80	8.5	.1	2.5	--
08...	1140	19.0	219	6.80	8.5	.1	--	--
15...	1300	.00	265	--	22.0	11.4	--	1.90
15...	1305	1.0	263	8.80	22.0	11.4	--	--
15...	1310	2.0	262	8.70	21.0	11.8	--	--
15...	1315	3.0	266	8.60	20.0	10.1	--	--
15...	1320	4.0	269	8.50	19.5	9.0	--	--
15...	1325	5.0	270	8.40	19.0	8.0	--	--
15...	1330	6.0	249	7.50	16.5	1.6	--	--
15...	1335	7.0	220	7.20	12.0	.2	--	--
15...	1340	8.0	212	7.00	9.0	.2	--	--
15...	1345	9.0	209	7.00	9.0	.2	--	--
15...	1350	10.0	212	6.90	8.5	.2	--	--
15...	1355	12.0	209	6.90	8.5	.2	--	--
15...	1400	14.0	210	6.90	8.5	.1	--	--
15...	1405	16.0	215	6.80	8.0	.1	--	--
15...	1410	18.0	219	6.80	8.0	.1	--	--
22...	1030	.00	261	8.80	18.5	8.0	--	1.30
22...	1035	1.0	262	8.90	18.5	8.1	--	--
22...	1040	2.0	262	8.90	18.5	8.0	--	--
22...	1045	3.0	264	8.90	18.5	7.9	--	--
22...	1050	4.0	264	8.90	18.0	7.6	--	--
22...	1055	5.0	263	8.90	18.0	7.4	--	--
22...	1100	6.0	259	7.70	16.0	.8	--	--
22...	1105	8.0	217	7.30	10.0	.4	--	--
22...	1110	10.0	215	7.20	8.5	.4	--	--
22...	1115	15.0	218	7.10	8.0	.3	--	--
22...	1120	20.0	222	7.00	8.0	.3	--	--
29...	1300	.00	241	9.00	21.0	13.6	--	.90
29...	1305	1.0	242	8.80	20.0	13.2	--	--
29...	1310	2.0	251	8.70	19.5	10.6	20	--
29...	1315	3.0	263	8.60	18.5	7.9	--	--
29...	1320	4.0	265	8.60	18.0	6.4	4.0	--
29...	1325	5.0	264	8.30	17.5	4.6	--	--
29...	1330	6.0	243	7.50	14.5	.2	--	--
29...	1335	7.0	229	7.20	12.0	.2	--	--
29...	1340	8.0	220	7.10	9.0	.1	--	--
29...	1345	9.0	215	7.00	9.0	.1	--	--
29...	1350	10.0	216	7.10	8.5	.2	--	--
29...	1355	11.0	--	--	--	--	2.4	--
29...	1400	12.0	212	7.00	8.5	.1	--	--
29...	1405	14.0	215	7.00	8.0	.2	--	--
29...	1410	16.0	218	6.90	8.0	.2	--	--
29...	1415	18.0	221	6.90	8.0	.2	3.8	--
29...	1420	20.0	234	6.90	8.0	.2	--	--
29...	1425	21.0	240	6.90	8.0	.2	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SAMPLING DEPTH (M)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)
SEP								
05...	1000	.00	252	8.60	18.0	8.2	--	1.10
05...	1005	1.0	253	8.60	18.0	8.2	--	--
05...	1010	2.0	253	8.60	18.0	8.2	6.2	--
05...	1015	3.0	253	8.60	18.0	8.1	--	--
05...	1020	4.0	253	8.60	18.0	7.9	6.6	--
05...	1025	5.0	264	8.60	16.0	2.8	--	--
05...	1030	6.0	256	7.50	14.5	.6	--	--
05...	1035	7.0	241	7.30	13.0	.6	--	--
05...	1040	8.0	224	7.10	10.0	.6	--	--
05...	1045	9.0	219	7.00	9.0	.7	--	--
05...	1050	10.0	218	6.90	8.5	.7	--	--
05...	1055	11.0	--	--	--	--	4.8	--
05...	1100	12.0	221	6.90	8.0	.7	--	--
05...	1105	14.0	221	6.90	8.0	.7	--	--
05...	1110	16.0	221	6.90	8.0	.7	--	--
05...	1115	18.0	222	6.90	8.0	.7	4.9	--
12...	1030	.00	260	8.30	15.5	7.0	--	1.80
12...	1035	1.0	260	8.30	15.5	7.0	--	--
12...	1040	2.0	260	8.30	15.5	7.0	3.7	--
12...	1045	3.0	259	8.30	15.5	7.0	--	--
12...	1050	4.0	259	8.30	15.5	7.0	3.6	--
12...	1055	5.0	259	8.30	15.5	6.8	--	--
12...	1100	6.0	259	8.30	15.5	6.8	--	--
12...	1105	7.0	234	7.60	12.0	.1	--	--
12...	1110	8.0	227	7.20	10.0	.1	--	--
12...	1115	10.0	220	7.20	8.5	.1	--	--
12...	1120	11.0	221	7.10	8.0	.1	5.3	--
12...	1125	12.0	219	7.00	8.0	.1	--	--
12...	1130	14.0	222	7.00	8.0	.1	--	--
12...	1135	16.0	224	7.00	8.0	.1	--	--
12...	1140	17.0	--	--	--	--	6.7	--
12...	1145	18.0	225	7.00	8.0	1.0	--	--
19...	1000	.00	258	8.40	15.0	11.8	--	1.70
19...	1005	1.0	261	8.50	14.5	11.8	--	--
19...	1010	2.0	261	8.50	14.5	9.8	--	--
19...	1015	3.0	260	8.50	14.5	9.5	--	--
19...	1020	4.0	260	8.40	14.5	9.0	--	--
19...	1025	5.0	262	8.40	14.0	7.8	--	--
19...	1030	6.0	263	8.40	14.0	6.2	--	--
19...	1035	7.0	264	8.00	13.5	3.5	--	--
19...	1040	8.0	241	8.00	11.0	1.0	--	--
19...	1045	9.0	225	7.30	9.0	1.0	--	--
19...	1050	10.0	223	7.20	8.5	1.0	--	--
19...	1055	12.0	222	7.00	8.5	1.0	--	--
19...	1100	14.0	224	7.00	8.0	1.0	--	--
19...	1105	16.0	224	7.00	8.0	1.0	--	--
19...	1110	18.0	226	7.00	8.0	1.0	--	--
26...	0930	.00	258	8.70	14.5	13.5	--	1.60
26...	0935	1.0	260	8.70	14.5	13.5	--	--
26...	0940	2.0	260	8.70	14.5	13.5	4.4	--
26...	0945	3.0	260	8.70	14.5	12.6	--	--
26...	0950	4.0	262	8.50	14.0	10.5	--	--
26...	0955	5.0	263	8.40	14.0	8.8	3.5	--
26...	1000	6.0	270	7.90	13.5	3.5	--	--
26...	1005	7.0	271	7.50	12.0	1.2	--	--
26...	1010	8.0	247	7.40	11.0	.8	--	--
26...	1015	9.0	229	7.20	9.0	.8	--	--
26...	1020	10.0	229	7.10	9.0	.6	--	--
26...	1025	12.0	223	7.00	8.0	.5	5.2	--
26...	1030	14.0	225	7.00	8.0	.5	--	--
26...	1035	16.0	225	6.90	8.0	.5	--	--
26...	1040	18.0	225	6.90	8.0	.5	6.2	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	SULFIDE TOTAL (MG/L AS S)	PHEOPHY-TIN A FLUORO-METRIC METHOD (UG/L)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L)
OCT								
04...	1410	.30	<.10	.150	--	<.5	.510	6.20
04...	1440	.30	<.10	.010	--	<.5	--	9.00
04...	1500	.30	<.10	.020	--	<.5	--	--
04...	1530	.50	<.10	.080	--	<.5	--	--
11...	1410	.40	<.10	.030	--	<.5	.530	7.60
11...	1440	.30	<.10	.020	--	<.5	.160	7.30
11...	1455	.30	<.10	.090	--	<.5	--	--
11...	1530	.50	<.10	.150	--	<.5	--	--
17...	1610	.40	<.10	.040	--	<.5	.720	8.80
17...	1630	--	--	--	--	--	1.52	5.70
17...	1655	.60	<.10	.160	--	<.5	--	--
17...	1720	.60	<.10	.160	--	<.5	--	--
17...	1730	.60	<.10	.190	--	<.5	--	--
NOV								
01...	1410	.80	<.10	.040	--	<.5	.010	12.5
01...	1435	.60	<.10	.040	--	<.5	.010	11.2
01...	1500	.60	<.10	.050	--	<.5	--	--
MAY								
30...	1302	.40	<.10	.070	.21	--	.390	6.20
30...	1304	--	--	--	--	--	.780	5.60
30...	1311	--	--	--	--	--	.420	.200
30...	1316	.30	.41	.100	.31	--	--	--
JUN								
11...	1040	.50	<.10	.050	.15	--	.310	7.70
11...	1050	--	--	--	--	--	2.56	11.8
11...	1135	.30	.41	.140	.43	--	--	--
27...	1040	.60	<.10	.040	.12	--	.460	3.50
27...	1050	--	--	--	--	--	1.66	8.60
27...	1125	.40	.40	.160	.49	--	--	--
JUL								
11...	1040	.30	<.10	.010	.03	--	--	--
11...	1100	--	--	--	.67	--	--	--
11...	1135	.40	.29	.220	.67	--	--	--
25...	1220	.30	<.10	.020	.06	--	.190	2.10
25...	1230	--	--	--	--	--	.180	3.10
25...	1315	.50	<.10	.270	.83	<.5	--	--
AUG								
08...	1040	.60	<.10	.020	.06	--	3.22	5.70
08...	1045	--	--	--	--	--	1.60	7.10
08...	1115	--	--	--	--	<.5	--	--
08...	1135	2.6	--	.190	.58	<.5	--	--
15...	1310	.90	<.10	.020	.06	--	.010	23.1
15...	1320	--	--	--	--	--	1.10	4.00
15...	1405	.40	.21	.160	.49	<.5	--	--
22...	1040	.80	<.10	.020	.06	--	.010	22.2
22...	1050	--	--	--	--	--	2.14	21.4
22...	1120	.80	<.10	.300	.92	<.5	--	--
29...	1310	1.1	<.10	.020	.06	--	.010	33.0
29...	1320	--	--	--	--	--	2.05	7.50
29...	1415	.70	<.10	.220	.67	1.6	--	--
SEP								
05...	1010	.90	<.10	.030	.09	--	.100	13.9
05...	1020	--	--	--	--	--	2.60	14.2
05...	1115	.80	--	.300	.92	4.8	--	--
12...	1040	.60	<.10	.020	.06	--	1.21	8.00
12...	1050	--	--	--	--	--	1.50	11.1
12...	1120	--	--	--	--	<.5	--	--
12...	1140	.70	<.10	.320	.98	<.5	--	--
19...	1010	1.1	<.10	.060	.18	--	1.97	35.2
19...	1055	--	--	--	--	1.6	--	--
19...	1110	.70	<.10	.330	1.0	.5	.660	.600
26...	0940	.60	<.10	.040	.12	--	.170	11.8
26...	0955	--	--	--	--	--	.480	12.7
26...	1025	--	--	--	--	<.5	--	--
26...	1040	.90	<.10	.350	1.1	3.2	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

PHYTOPLANKTON

DATE	85/05/30		85/06/11		85/06/27		85/07/11		85/07/25		85/08/08	
SPECIES DIVERSITY	1.99		2.29		1.67		1.09		1.20		2.45	
TOTAL COUNT (#/ML)	650.		1273.		1403.		480.		497.		887.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS SPP.	29	4.4	58	4.6	27	1.9	--	---	--	---	--	---
---VOLVOCACEAE												
----EUDORINA ELEGANS	6	0.9	--	---	13	1.0	--	---	--	---	--	---
----PANDORINA MORUM	6	0.9	23	1.8	--	---	4	0.9	--	---	--	---
--TETRASPORALES												
---PALMELLACEAE												
----GLOEOCYSTIS AMPLA	--	---	--	---	--	---	9	1.9	355	71.4	--	---
----SPHAEROCYSTIS SCHROETERI	--	---	--	---	--	---	9	1.9	5	1.0	18	2.0
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	308	47.4	12	0.9	214	15.2	399	83.2	114	22.9	79	8.9
----OOCYSTIS LACUSTRIS	--	---	--	---	13	1.0	--	---	5	1.0	26	3.0
----OOCYSTIS PUSILLA	--	---	--	---	--	---	18	3.7	5	1.0	--	---
---SCENEDESMACEAE												
----SCENEDESMUS SPP.	--	---	--	---	13	1.0	--	---	--	---	--	---
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM PINQUE	--	---	--	---	13	1.0	--	---	--	---	--	---
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	--	---	--	---	27	1.9	18	3.7	--	---	--	---
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	--	---	23	1.8	--	---	--	---	--	---	272	30.7
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	51	7.9	105	8.3	--	---	--	---	--	---	9	1.0
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----MELOSIRA GRANULATA	--	---	--	---	--	---	--	---	--	---	342	38.6
----STEPHANODISCUS ASTREA MINUTULA	--	---	12	0.9	--	---	--	---	--	---	--	---
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	217	33.3	269	21.1	909	64.8	--	---	--	---	9	1.0
----FRAGILARIA CROTONENSIS	11	1.8	607	47.7	174	12.4	4	0.9	5	1.0	9	1.0
---ACHNANTHACEAE												
----ACHNANTHES MINUTISSIMA	--	---	--	---	--	---	--	---	--	---	18	2.0
---NAVICULACEAE												
----NAVICULA GRACILOIDES	--	---	12	0.9	--	---	--	---	--	---	--	---
---EPITHEMIACEAE												
----EPITHEMIA SOREX	--	---	--	---	--	---	--	---	--	---	9	1.0
---NITZSCHIACEAE												
----NITZSCHIA ACICULARIS	6	0.9	--	---	--	---	--	---	--	---	--	---
----NITZSCHIA FRUSTULUM	6	0.9	--	---	--	---	--	---	--	---	9	1.0
----NITZSCHIA LINEARIS	--	---	12	0.9	--	---	--	---	--	---	--	---
----NITZSCHIA PALEA	6	0.9	--	---	--	---	--	---	--	---	--	---
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	6	0.9	140	11.0	--	---	--	---	--	---	9	1.0
----ANABAENA CIRCINALIS	--	---	--	---	--	---	18	3.7	9	1.9	79	8.9

WILLOW CREEK BASIN

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

PHYTOPLANKTON

DATE	85/08/15		85/08/15		85/08/22		85/08/29		85/09/05		85/09/12	
SPECIES DIVERSITY	1.77		1.49		1.12		1.57		1.77		1.90	
TOTAL COUNT (#/ML)	911.		605.		770.		1019.		770.		326.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS SPP.	18	1.9	--	---	--	---	--	---	--	---	--	---
---VOLVOCACEAE												
----EUDORINA ELEGANS	18	1.9	6	1.0	--	---	--	---	--	---	3	0.9
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	655	71.8	--	---	--	---	--	---	--	---	6	1.9
----OOCYSTIS LACUSTRIS	--	---	6	1.0	14	1.8	19	1.9	--	---	3	0.9
----OOCYSTIS PUSILLA	62	6.8	--	---	7	0.9	--	---	--	---	6	1.9
----NEPHROCYTIUM SPP.	--	---	--	---	--	---	--	---	--	---	6	1.9
---COCCOMYXACEAE												
----ELAKATOTHRIX GELATINOSA	--	---	--	---	--	---	--	---	--	---	9	2.8
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM PINQUE	--	---	--	---	--	---	19	1.9	7	0.9	25	7.9
MISCELLANEOUS GREEN ALGAE	--	---	--	---	--	---	--	---	7	0.9	--	---
EUGLENOPHYTA EUGLENOIDS												
-EUGLENOPHYCEAE												
--EUGLENALES												
---EUGLENACEAE												
----TRACHELOMONAS SPP.	--	---	--	---	7	0.9	9	0.9	--	---	6	1.9
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	9	1.0	--	---	--	---	--	---	--	---	--	---
---CERATIACEAE												
----CERATIUM HIRUNDINIELLA	--	---	6	1.0	7	0.9	9	0.9	53	6.9	18	5.7
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	27	2.9	--	---	--	---	9	0.9	13	1.7	--	---
----CHROOMONAS SPP.	--	---	--	---	--	---	--	---	7	0.9	--	---
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	18	1.9	12	1.9	--	---	38	3.7	40	5.2	--	---
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----MELOSIRA GRANULATA	--	---	41	6.8	--	---	--	---	13	1.7	--	---
----STEPHANODISCUS HANTZSCHII	--	---	--	---	7	0.9	--	---	--	---	--	---
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	9	1.0	--	---	--	---	--	---	7	0.9	--	---
----FRAGILARIA CROTONENSIS	44	4.9	35	5.8	69	8.9	123	12.0	66	8.6	228	69.8
----SYNEDRA PARASITICA	--	---	--	---	7	0.9	--	---	--	---	--	---
---ACHNANTHACEAE												
----COCCONEIS PLACENTULA	--	---	6	1.0	--	---	9	0.9	--	---	--	---
----RHOICOSPHENIA CURVATA	--	---	--	---	--	---	--	---	7	0.9	--	---
---NAVICULACEAE												
----NAVICULA SPP.	--	---	6	1.0	--	---	--	---	--	---	--	---
----NAVICULA CRYPTOCEPHALA VENETA	--	---	--	---	--	---	--	---	7	0.9	--	---
---CYMBELLACEAE												
----AMPHORA OVALIS	--	---	--	---	--	---	9	0.9	--	---	--	---
---EPITHEMIACEAE												
----EPITHEMIA SOREX	9	1.0	6	1.0	--	---	--	---	--	---	3	0.9
---NITZSCHIACEAE												
----NITZSCHIA SPP.	9	1.0	--	---	--	---	--	---	--	---	--	---
----NITZSCHIA CONSTRICTA	9	1.0	--	---	7	0.9	--	---	--	---	3	0.9
----NITZSCHIA FRUSTULUM	--	---	--	---	--	---	--	---	7	0.9	--	---
----NITZSCHIA LINEARIS	--	---	--	---	--	---	9	0.9	--	---	--	---
----NITZSCHIA PALEA	--	---	--	---	--	---	--	---	--	---	3	0.9
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	23	3.9	23	3.9	14	1.8	19	1.9	--	---	--	---
----ANABAENA CIRCINALIS	27	2.9	458	75.7	632	82.1	745	73.1	537	69.8	3	0.9
----APHANIZOMENON FLOS-AQUAE	--	---	--	---	--	---	--	---	--	---	3	0.9

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

PHYTOPLANKTON

DATE	85/09/19		85/09/26		85/10/10		85/10/24		85/11/01	
SPECIES DIVERSITY	1.31		2.04		2.06		0.82		0.31	
TOTAL COUNT (#/ML)	5746.		933.		1073.		1246.		3013.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE										
-CHLOROPHYCEAE										
--TETRASPORALES										
---PALMELLACEAE										
----SPHAEROCYSTIS SCHROETERI	--	---	9	0.9	--	---	12	1.0	--	---
--CHLOROCOCCALES										
---OOCYSTACEAE										
----ANKISTRODESMUS FALCATUS	--	---	9	0.9	10	0.9	--	---	--	---
----OOCYSTIS LACUSTRIS	--	---	--	---	10	0.9	--	---	--	---
----NEPHROCYTIUM SPP.	43	0.7	--	---	--	---	--	---	--	---
--ZYGNEMATALES										
---DESMIDIACEAE DESMIDS										
----STAURASTRUM PINQUE	85	1.5	9	0.9	10	0.9	--	---	--	---
EUGLENOPHYTA EUGLENOIDS										
-EUGLENOPHYCEAE										
--EUGLENALES										
---EUGLENACEAE										
----TRACHELOMONAS SPP.	--	---	--	---	--	---	36	2.9	--	---
PYRRHOPHYTA										
-DINOPHYCEAE DINOFLAGELLATES										
--PERIDINIALES										
---PERIDINIACEAE										
----PERIDINIUM CINCTUM	85	1.5	--	---	19	1.8	24	1.9	--	---
---CERATIACEAE										
----CERATIUM HIRUNDINIELLA	511	8.9	291	31.1	--	---	--	---	--	---
CRYPTOPHYTA										
-CRYPTOPHYCEAE										
--CRYPTOMONADALES										
---CRYPTOCHRYSIDACEAE										
----RHODOMONAS MINUTA	4427	77.0	273	29.2	329	30.6	36	2.9	--	---
----CHROOMONAS SPP.	--	---	--	---	--	---	12	1.0	--	---
---CRYPTOMONADACEAE										
----CRYPTOMONAS EROSA	170	3.0	18	1.9	10	0.9	--	---	--	---
CHRYSOPHYTA YELLOW-BROWN ALGAE										
-CHRYSOPHYCEAE										
--CHRYSOMONADALES										
---CHROMULINACEAE										
----KEPHYRION SPP.	--	---	--	---	--	---	--	---	22	0.7
---SYNURACEAE										
----MALLOMONAS SPP.	85	1.5	18	1.9	474	44.1	1102	88.5	2905	96.4
-BACILLARIOPHYCEAE DIATOMS										
--PENNALES PENNATE DIATOMS										
---FRAGILARIACEAE										
----ASTERIONELLA FORMOSA	--	---	--	---	10	0.9	--	---	22	0.7
----FRAGILARIA CROTONENSIS	341	5.9	299	32.1	174	16.2	12	1.0	22	0.7
----FRAGILARIA VAUCHERIAE	--	---	--	---	10	0.9	--	---	--	---
---ACHNANTHACEAE										
----ACHNANTHES LINEARIS	--	---	--	---	--	---	--	---	22	0.7
----COCCONEIS PLACENTULA	--	---	--	---	10	0.9	--	---	--	---
---NAVICULACEAE										
----NAVICULA SPP.	--	---	9	0.9	--	---	12	1.0	--	---
----NAVICULA CRYPTOCEPHALA VENETA	--	---	--	---	--	---	--	---	22	0.7
CYANOPHYTA BLUE-GREEN ALGAE										
-MYXOPHYCEAE										
--OSCILLATORIALES										
---NOSTOCACEAE										
----APHANIZOMENON FLOS-AQUAE	--	---	--	---	10	0.9	--	---	--	---

14034500 WILLOW CREEK AT HEPPNER, OR

LOCATION.--Lat 45°21'02", long 119°32'56", in SE¼NW¼ sec.35, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank at Heppner, 100 ft upstream from Court Street bridge, 800 ft southeast of Morrow County courthouse, 0.2 mi downstream from Willow Creek Dam and at mile 52.2.

DRAINAGE AREA.--96.8 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WDR OR-83-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,952.73 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 17-27, Sept. 9-17. Records fair. Flow regulated by Willow Creek Lake, 0.2 mi upstream, since Feb. 16, 1983. Many diversions for irrigation upstream from station. Part of flow of Ditch Creek (John Day River basin) is diverted to Willow Creek upstream from station.

AVERAGE DISCHARGE.--31 years (water years 1951-82), 19.1 ft^3/s, 13,840 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 812 ft^3/s May 10, 1957, gage height, 6.15 ft, from rating curve extended above 230 ft^3/s; maximum gage height, 6.46 ft May 25, 1971, backwater from Shobe Canyon; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 36,000 ft^3/s June 14, 1903, result of slope-area measurement (see WSP 96). Discharge for flood of Feb. 22, 1949, was 1,700 ft^3/s, result of slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 101 ft^3/s Apr. 4, gage height, 2.49 ft (high-water mark in well); minimum, 2.3 ft^3/s Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	22	32	11	23	44	33	12	3.8	3.6	3.2
2	11	12	22	32	11	22	80	34	12	3.7	3.6	3.2
3	12	12	22	32	11	22	99	34	12	3.6	3.6	3.2
4	13	12	22	32	11	23	99	34	12	3.6	3.6	3.6
5	13	12	21	32	11	23	86	34	12	3.6	3.5	4.3
6	14	12	21	32	11	23	76	34	12	3.6	3.4	4.5
7	14	13	21	32	11	23	77	31	12	3.6	3.5	4.6
8	13	13	21	32	11	23	78	27	12	3.0	3.4	4.6
9	11	13	21	32	11	23	78	27	12	3.6	3.4	4.6
10	7.4	15	21	32	11	23	67	27	12	3.6	3.4	4.5
11	7.6	16	21	31	15	30	58	27	12	3.6	3.4	4.5
12	10	16	21	31	22	33	59	27	12	3.6	3.4	4.5
13	14	17	21	31	21	33	59	27	12	3.6	3.4	4.5
14	14	17	21	31	21	33	59	26	12	3.6	2.8	4.5
15	9.6	18	21	31	21	34	72	27	12	3.6	3.8	4.5
16	7.0	18	21	31	21	35	85	26	12	3.6	3.4	4.5
17	7.2	18	21	31	21	35	85	27	7.2	3.4	3.4	4.5
18	7.2	18	20	31	21	53	87	27	3.7	3.9	3.6	4.9
19	7.2	18	20	32	21	60	86	26	3.6	3.3	3.5	4.3
20	7.2	18	18	32	21	57	85	23	4.5	3.2	3.6	4.3
21	7.2	18	16	32	21	59	85	20	4.2	3.2	3.6	4.4
22	7.2	18	16	32	21	61	64	19	4.3	3.2	3.6	4.4
23	7.6	18	16	31	21	62	48	17	4.3	3.5	3.6	4.4
24	7.4	18	16	28	21	61	48	15	4.3	3.8	3.6	4.4
25	9.6	18	16	26	22	60	42	15	4.3	3.8	3.6	4.4
26	12	18	21	26	23	59	38	15	4.3	3.7	3.6	4.4
27	12	18	27	25	23	60	38	15	4.0	3.6	3.5	4.4
28	12	18	32	25	23	59	38	14	3.8	3.8	3.6	4.4
29	12	20	32	25	---	52	38	12	3.8	3.7	3.6	4.4
30	12	25	32	17	---	44	35	12	3.8	3.6	3.3	4.4
31	12	---	32	11	---	44	---	12	---	3.6	3.2	---
TOTAL	321.4	489	675	910	490	1252	1993	744	252.1	110.6	108.1	129.3
MEAN	10.4	16.3	21.8	29.4	17.5	40.4	66.4	24.0	8.40	3.57	3.49	4.31
MAX	14	25	32	32	23	62	99	34	12	3.9	3.8	4.9
MIN	7.0	12	16	11	11	22	35	12	3.6	3.0	2.8	3.2
AC-FT	637	970	1340	1800	972	2480	3950	1480	500	219	214	256

CAL YR 1984	TOTAL	16442.7	MEAN	44.9	MAX	240	MIN	2.6	AC-FT	32610
WTR YR 1985	TOTAL	7474.5	MEAN	20.5	MAX	99	MIN	2.8	AC-FT	14830

14034500 WILLOW CREEK AT HEPPNER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1985.

REMARKS.--Local identifier 452057119324800.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, TOTAL, DELAYED (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT							
04...	1400	--	--	14.0	9.5	--	--
11...	1830	--	--	12.5	9.7	--	--
17...	1700	--	--	9.5	11.3	--	--
NOV							
01...	1700	--	--	8.0	11.6	--	--
MAY							
29...	1730	--	--	--	--	K27	K23
JUN							
27...	1705	--	--	20.5	10.3	63	16
JUL							
11...	1400	252	9.10	21.5	11.0	39	25
25...	1745	263	9.00	20.0	9.9	77	K75
AUG							
08...	1615	267	7.30	--	--	57	K8
15...	1615	267	--	--	9.5	K160	K10
21...	1700	262	--	17.5	10.0	K1	15
29...	1515	255	8.90	19.0	11.4	--	--
SEP							
05...	1630	235	8.50	--	--	35	13
12...	1700	--	--	--	--	K3	K7
19...	1900	--	--	--	--	K33	K2
25...	1900	--	--	--	--	21	25
26...	1100	--	8.40	14.0	11.4	--	--

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

14034800 RHEA CREEK NEAR HEPPNER, OR

LOCATION.--Lat 45°15'46", long 119°36'51", in NW¼SW¼ sec.32, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on left bank 150 ft downstream from road bridge, 0.8 mi downstream from Sanford Canyon, 8 mi southwest of Heppner, and at mile 25.6. Prior to Nov. 4, at site 1,000 ft downstream.

DRAINAGE AREA.--120 mi^2, approximately.

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

REVISED RECORD.--WDR OR-84-1: 1983.

GAGE.--Water-stage recorder. Elevation of gage is 2,320 ft, from topographic map. Prior to May 28, 1976, at site 0.6 mi downstream at different datum and May 28, 1976 to Nov. 3, 1982, at site 1,000 ft downstream at datum 10.5 ft lower.

REMARKS.--Estimated daily discharges: Dec. 19-21, Jan. 2-8, 10, 17, 18, Feb. 2-5. Records excellent. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--25 years, 22.9 ft^3/s, 16,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft^3/s June 10, 1969, gage height, 7.05 ft, site and datum then in use, from rating curve extended above 130 ft^3/s on basis of slope-area measurement at gage height 6.72 ft; maximum gage height, 7.41 ft Dec. 22, 1964, site and datum then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 230 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 1	2100	*200	*3.78				

Minimum, 2.2 ft^3/s Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	13	31	15	12	81	168	37	23	7.0	7.8	5.3
2	9.9	19	24	14	11	73	166	36	20	6.8	7.3	5.8
3	10	17	24	13	11	65	155	38	18	6.3	6.3	5.5
4	10	15	20	13	11	65	135	37	18	5.3	5.8	5.0
5	11	14	19	13	16	60	124	35	18	5.8	6.0	5.0
6	11	15	16	14	18	53	120	32	18	5.5	5.8	5.5
7	10	14	19	14	17	50	116	30	18	5.3	5.5	5.5
8	10	15	19	14	18	51	109	29	18	5.3	5.3	5.8
9	10	15	20	14	16	53	109	28	16	5.8	5.3	6.3
10	11	17	30	14	15	61	118	26	16	5.3	5.5	6.8
11	13	18	31	14	30	65	151	24	14	5.3	5.8	6.5
12	14	23	32	14	64	67	129	23	13	5.5	5.5	6.8
13	13	22	29	14	49	64	113	20	12	5.3	4.8	6.3
14	13	20	27	14	91	73	107	23	12	5.3	5.5	8.1
15	14	18	27	14	116	86	102	21	12	5.3	5.5	11
16	13	18	25	14	86	105	96	20	11	5.0	5.3	7.5
17	13	18	22	14	64	120	84	19	9.6	4.8	5.0	8.1
18	13	18	17	14	59	133	78	19	9.3	4.8	5.0	8.1
19	13	18	13	16	51	129	75	18	9.0	4.4	5.0	7.0
20	13	21	13	30	49	124	67	17	8.7	4.0	4.8	6.5
21	11	25	15	29	50	124	64	17	7.8	3.8	5.3	6.3
22	13	24	25	30	73	100	59	17	6.3	4.0	5.0	6.3
23	12	28	23	29	93	91	56	16	7.3	4.2	3.8	6.0
24	12	47	22	28	116	120	51	17	8.1	4.0	4.2	6.0
25	13	39	22	26	107	98	50	16	7.8	4.0	3.8	6.3
26	17	32	22	24	83	83	47	16	7.3	4.0	4.6	6.3
27	15	30	21	22	70	76	44	17	7.0	4.0	4.2	6.0
28	15	34	20	22	68	70	42	16	7.0	4.0	4.2	6.0
29	15	35	20	21	---	65	40	21	6.5	4.6	4.6	6.3
30	15	34	19	18	---	78	39	23	6.8	5.0	4.6	6.3
31	15	---	19	18	---	120	---	18	---	6.5	4.8	---
TOTAL	387.8	676	686	563	1464	2603	2814	726	365.5	156.2	161.9	194.2
MEAN	12.5	22.5	22.1	18.2	52.3	84.0	93.8	23.4	12.2	5.04	5.22	6.47
MAX	17	47	32	30	116	133	168	38	23	7.0	7.8	11
MIN	9.9	13	13	13	11	50	39	16	6.3	3.8	3.8	5.0
AC-FT	769	1340	1360	1120	2900	5160	5580	1440	725	310	321	385

CAL YR 1984	TOTAL	20183.9	MEAN	55.1	MAX	420	MIN	6.5	AC-FT	40030
WTR YR 1985	TOTAL	10797.6	MEAN	29.6	MAX	168	MIN	3.8	AC-FT	21420

14037500 STRAWBERRY CREEK ABOVE SLIDE CREEK, NEAR PRAIRIE CITY, OR

LOCATION.--Lat 44°20'30", long 118°39'20", in SE¼NW¼ sec.20, T.14 S., R.34 E., Grant County, Hydrologic Unit 17070201, on left bank 100 ft upstream from Slide Creek, 8.5 mi south of Prairie City, and at mile 9.0.

DRAINAGE AREA.--7.00 mi^2.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1944, published as "above South Fork, near Prairie City."

REVISED RECORDS.--WSP 1488: 1932-33. WSP 1738: Drainage area.

GAGE.--Water-stage recorder and log control. Datum of gage is 4,909.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 19-27, Dec. 31 to Jan. 6, Jan. 11-15, Jan. 24 to Feb. 7, Feb. 16-18, 27, Mar. 6-9, 26. Records fair except for estimated daily discharges, which are poor. Flow affected by natural storage in Strawberry Lake. No diversion upstream from station.

AVERAGE DISCHARGE.--55 years, 13.0 ft^3/s, 25.22 in/yr, 9,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 354 ft^3/s May 31, 1983, gage height, 2.45 ft, from rating curve extended above 190 ft^3/s; maximum gage height, 3.23 ft May 24, 1956 (backwater from logs); minimum discharge, 1.0 ft^3/s Mar. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 88 ft^3/s May 24, gage height, 1.70 ft; minimum, 1.2 ft^3/s Feb. 25, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	4.2	3.9	2.8	2.2	2.0	2.5	21	47	18	5.8	3.4
2	5.0	4.8	3.9	2.6	2.1	1.9	2.9	27	42	17	5.5	3.6
3	4.8	4.5	3.9	2.6	2.0	1.9	3.7	30	39	16	5.2	3.5
4	4.6	4.2	3.9	2.7	2.0	1.9	4.0	29	38	16	5.0	3.3
5	4.6	4.2	3.9	2.9	2.2	1.9	4.4	28	38	15	5.0	3.2
6	4.6	4.2	3.9	2.9	2.5	1.8	5.0	27	43	15	4.8	3.4
7	4.6	4.2	3.9	2.9	2.6	1.8	6.5	27	52	14	4.6	3.6
8	4.4	4.2	3.9	2.9	2.7	1.8	8.5	26	63	14	4.6	4.3
9	4.2	4.2	3.7	2.9	2.7	1.8	10	27	63	14	4.4	3.6
10	4.2	4.2	3.6	2.7	2.7	1.9	13	27	58	14	4.2	3.3
11	4.6	4.6	3.6	2.6	2.7	1.9	14	25	53	13	4.3	3.4
12	4.3	4.6	3.6	2.5	2.7	1.9	14	24	50	13	4.4	3.2
13	4.4	4.7	3.6	2.6	2.7	1.9	15	24	49	12	4.2	3.2
14	4.2	4.5	3.6	2.6	2.5	1.9	18	25	47	12	4.2	3.3
15	4.1	4.4	3.6	2.7	2.4	1.9	24	25	45	11	4.2	3.2
16	4.0	4.2	3.6	2.7	2.3	1.9	27	26	42	11	4.2	3.2
17	4.0	4.2	3.6	2.7	2.3	2.0	26	27	40	10	4.1	3.2
18	3.9	4.2	3.6	2.7	2.3	2.2	23	28	37	9.9	4.0	3.0
19	3.9	4.0	3.4	2.7	2.4	2.3	22	30	35	9.7	4.0	2.9
20	4.0	4.2	2.8	2.7	2.4	2.4	20	33	33	9.2	3.9	2.9
21	3.9	3.9	2.8	2.7	2.4	2.5	19	41	31	8.8	3.9	2.9
22	4.0	3.8	2.8	2.7	2.2	2.7	18	50	30	8.5	3.7	3.1
23	3.9	4.0	2.9	2.7	2.2	2.7	17	58	29	7.9	3.5	3.2
24	4.2	3.9	2.9	2.7	2.2	2.6	16	75	26	7.6	3.5	3.2
25	4.1	3.8	2.9	2.5	2.0	2.4	15	82	24	7.3	3.5	3.2
26	4.6	3.8	2.9	2.4	1.9	2.4	14	81	22	7.0	3.5	3.2
27	4.2	3.9	2.9	2.4	1.9	2.4	15	79	21	6.6	3.5	3.2
28	4.3	3.9	2.9	2.5	1.9	2.4	15	70	20	6.3	3.5	3.1
29	4.2	3.6	3.2	2.6	---	2.4	16	62	19	6.3	3.3	2.9
30	4.1	3.8	3.2	2.5	---	2.4	18	57	18	6.0	3.2	2.9
31	4.2	---	2.9	2.4	---	2.4	---	52	---	6.0	3.2	---
TOTAL	133.1	124.9	105.8	82.5	65.1	66.3	426.5	1243	1154	342.1	128.9	97.6
MEAN	4.29	4.16	3.41	2.66	2.32	2.14	14.2	40.1	38.5	11.0	4.16	3.25
MAX	5.0	4.8	3.9	2.9	2.7	2.7	27	82	63	18	5.8	4.3
MIN	3.9	3.6	2.8	2.4	1.9	1.8	2.5	21	18	6.0	3.2	2.9
CFSM	.61	.59	.49	.38	.33	.31	2.03	5.73	5.50	1.57	.59	.46
IN.	.71	.66	.56	.44	.35	.35	2.27	6.61	6.13	1.82	.69	.52
AC-FT	264	248	210	164	129	132	846	2470	2290	679	256	194

CAL YR 1984	TOTAL	7786.8	MEAN	21.3	MAX	124	MIN	2.8	CFSM	3.04	IN.	41.38	AC-FT	15450
WTR YR 1985	TOTAL	3969.8	MEAN	10.9	MAX	82	MIN	1.8	CFSM	1.56	IN.	21.10	AC-FT	7870

14038530 JOHN DAY RIVER NEAR JOHN DAY, OR

LOCATION.--Lat 44°25'07", long 118°54'19", in SW¼SE¼ sec.19, T.13 S., R.32 E., Grant County, Hydrologic Unit 17070201, on left bank 1,200 ft downstream from Dog Creek, 2.5 mi east of John Day, and at mile 250.8.

DRAINAGE AREA.--386 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 3,130.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 20-22, Jan. 15-18, Feb. 3-5. Records good. No regulation upstream. Many diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--17 years, 224 ft^3/s, 162,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,830 ft^3/s June 9, 1969, gage height, 10.80 ft, from floodmark; minimum, 3.5 ft^3/s Aug. 26-28, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 16	2100	*941	*5.43	No other peak greater than base discharge.			

Minimum, 28 ft^3/s Aug. 19, 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	158	225	137	115	363	371	359	319	66	57	32
2	141	172	182	158	139	265	455	413	302	64	68	34
3	139	200	182	160	105	224	515	477	272	60	66	42
4	143	177	172	158	79	218	495	464	244	60	64	44
5	142	169	163	170	102	198	484	408	239	60	66	44
6	141	167	166	165	152	189	509	371	253	61	64	49
7	139	166	181	155	154	177	552	320	276	56	58	49
8	137	167	173	155	148	177	643	317	304	54	62	111
9	137	173	198	141	138	204	662	324	271	57	64	139
10	136	176	353	133	133	305	700	318	241	55	58	106
11	162	185	267	138	132	364	720	320	204	53	58	112
12	159	226	242	133	148	371	669	281	182	53	51	117
13	158	216	224	132	146	393	648	253	164	41	45	104
14	159	222	207	147	143	507	676	285	151	37	45	106
15	171	202	211	145	159	606	728	250	143	40	48	105
16	163	194	198	145	171	636	740	287	138	43	43	97
17	159	185	172	130	157	670	690	261	133	48	38	107
18	155	183	180	135	151	660	636	268	123	50	30	106
19	152	178	145	144	155	609	611	329	101	49	32	101
20	156	191	138	147	154	559	523	390	91	46	37	101
21	157	210	190	146	150	511	466	370	75	46	42	101
22	151	187	195	145	224	397	433	343	80	47	33	100
23	152	184	185	142	300	387	403	366	81	51	31	105
24	155	272	182	137	312	473	363	430	80	49	33	108
25	156	227	177	127	332	397	347	441	84	39	30	106
26	169	206	174	120	284	319	320	447	85	32	29	107
27	170	200	174	117	238	304	304	428	80	32	29	106
28	180	234	172	141	277	277	301	477	73	30	32	107
29	177	233	166	137	---	260	311	492	71	34	35	104
30	164	242	167	120	---	259	321	421	66	42	31	103
31	161	---	162	125	---	285	---	332	---	48	32	---
TOTAL	4784	5902	5923	4385	4898	11564	15596	11242	4926	1503	1411	2753
MEAN	154	197	191	141	175	373	520	363	164	48.5	45.5	91.8
MAX	180	272	353	170	332	670	740	492	319	66	68	139
MIN	136	158	138	117	79	177	301	250	66	30	29	32
AC-FT	9490	11710	11750	8700	9720	22940	30930	22300	9770	2980	2800	5460

CAL YR 1984	TOTAL	145336	MEAN	397	MAX	1370	MIN	54	AC-FT	288300
WTR YR 1985	TOTAL	74887	MEAN	205	MAX	740	MIN	29	AC-FT	148500

14040500 JOHN DAY RIVER AT PICTURE GORGE, NEAR DAYVILLE, OR

LOCATION.--Lat 44°31'15", long 119°37'30", in SW¼ sec.17, T.12 S., R.26 E., Grant County, Hydrologic Unit 17070201, on right bank 0.7 mi upstream from Rock Creek, 5.5 mi northwest of Dayville, and at mile 205.1.

DRAINAGE AREA.--1,680 mi^2, approximately.

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only April 1926, published in WSP 1318.

REVISED RECORDS.--WSP 1218: 1950. WSP 1348: Drainage area. WSP 1448: 1926, 1928, 1932(M), 1936.

GAGE.--Water-stage recorder. Datum of gage is 2,229.84 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1926, nonrecording gage and Oct. 11, 1926, to Sept. 30, 1930, water-stage recorder at same site at datum 2.50 ft higher. Oct. 1, 1930, to Aug. 28, 1970, at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Oct. 1-17, Dec. 18-23, Jan. 10-22, and Feb. 2-5. Records excellent except those for periods of no gage-height record, Oct. 1-17, Jan. 15-22, and periods of ice effect, Dec. 18-23, Jan. 10-14, and Feb. 2-5, which are fair. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--59 years, 503 ft^3/s, 364,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,170 ft^3/s Dec. 22, 1964, gage height, 14.97 ft; minimum, 1.0 ft^3/s for several days in August and September 1930, Aug. 8, 9, 1936, Sept. 9, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 19	0500	2,200	8.23	Apr. 11	0630	*3,040	*9.33

Minimum, 26 ft^3/s July 25-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	388	753	411	338	827	1610	1070	725	135	99	53
2	260	410	601	407	290	774	2130	1120	714	131	128	55
3	260	506	572	443	270	637	2440	1150	656	116	126	60
4	260	480	527	454	280	674	2330	1170	597	109	119	58
5	260	445	490	474	320	598	2270	1070	557	103	116	58
6	255	432	469	478	422	591	2390	988	565	99	113	64
7	255	426	494	473	453	547	2520	883	577	102	104	68
8	255	423	509	469	509	559	2780	838	598	98	99	84
9	250	438	550	439	436	574	2840	835	562	95	103	175
10	250	485	893	370	399	655	2900	822	509	92	89	205
11	300	621	930	330	421	839	2950	805	463	82	81	201
12	390	1090	820	310	476	909	2700	769	412	77	84	222
13	370	983	745	300	490	881	2470	721	381	74	76	220
14	380	964	670	320	473	1020	2410	741	358	74	61	218
15	390	760	683	370	521	1290	2460	713	338	76	48	228
16	370	670	645	390	578	1490	2440	736	316	77	49	217
17	353	613	563	410	507	1690	2260	711	299	74	48	217
18	356	608	475	425	472	1860	2050	696	277	75	47	223
19	352	582	430	440	496	1910	1960	714	256	69	48	216
20	363	673	420	470	496	1880	1750	788	230	54	56	212
21	380	778	470	480	483	1840	1580	802	202	52	57	207
22	368	659	530	454	508	1480	1510	735	175	51	55	205
23	359	604	560	429	710	1360	1410	710	163	45	58	204
24	358	796	563	416	759	1610	1310	727	165	42	56	201
25	365	748	521	396	805	1430	1250	732	159	32	55	194
26	378	653	540	363	737	1220	1190	736	152	26	54	191
27	400	633	524	351	649	1140	1130	730	149	26	55	190
28	403	770	520	435	653	1080	1080	727	148	26	53	187
29	434	760	507	440	---	1010	1050	887	150	29	52	187
30	413	799	508	393	---	990	1050	930	144	36	59	184
31	397	---	498	375	---	1110	---	794	---	73	57	---
TOTAL	10444	19197	17980	12715	13951	34475	60220	25850	10997	2250	2305	5004
MEAN	337	640	580	410	498	1112	2007	834	367	72.6	74.4	167
MAX	434	1090	930	480	805	1910	2950	1170	725	135	128	228
MIN	250	388	420	300	270	547	1050	696	144	26	47	53
AC-FT	20720	38080	35660	25220	27670	68380	119400	51270	21810	4460	4570	9930

CAL YR 1984	TOTAL	451136	MEAN	1233	MAX	4750	MIN	107	AC-FT	894800
WTR YR 1985	TOTAL	215388	MEAN	590	MAX	2950	MIN	26	AC-FT	427200

14042500 CAMAS CREEK NEAR UKIAH, OR

LOCATION.--Lat 45°09'25", long 118°49'10", in SE¼SE¼ sec.3, T.5 S., R.32 E., Umatilla County, Hydrologic Unit 17070202, on right bank 1.2 mi upstream from Cable Creek, 5.8 mi east of Ukiah, and at mile 18.7.

DRAINAGE AREA.--121 mi^2.

PERIOD OF RECORD.--May 1914 to September 1917, November 1919 to July 1920, November 1920 to June 1924, March 1932 to June 1940 (fragmentary), November 1940 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "above Cable Creek, near Ukiah" 1914-17, 1919-24.

REVISED RECORDS.--WSP 1448: 1916, 1920, 1922(M), 1924.

GAGE.--Water-stage recorder. Datum of gage is 3,588.61 ft above National Geodetic Vertical Datum of 1929 (levels by State Highway Department). May 1, 1914, to June 30, 1924, nonrecording gage and Mar. 1, 1932, to July 2, 1940, water-stage recorder at site 1.2 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 3 to Mar. 14. Records good except those for period of ice effect, Dec. 3 to Mar. 14, which are poor. No regulation. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--49 years (water years 1915-17, 1922-23, 1942-85), 97.3 ft^3/s, 70,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,840 ft^3/s Jan. 30, 1965, gage height, 5.21 ft; maximum gage height, 5.92 ft Jan. 24, 1982 (ice jam); minimum discharge recorded, 1.0 ft^3/s Aug. 9, 1932, June 24 to July 2, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 2	2000	*1,290	*3.28	No other peak greater than base discharge.			

Minimum, 3.8 ft^3/s Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	16	42	29	24	54	708	260	156	14	12	4.1
2	9.2	37	39	30	22	58	957	283	176	13	9.3	4.6
3	8.8	65	33	31	20	45	920	293	159	13	8.1	4.9
4	8.8	52	31	32	18	47	781	246	137	12	7.3	4.6
5	8.8	44	30	34	20	45	837	199	124	11	6.8	4.7
6	8.7	41	32	37	23	43	892	172	112	11	6.3	5.3
7	8.4	39	36	37	25	40	891	154	102	11	5.9	5.8
8	8.2	37	42	34	33	38	906	146	95	10	6.2	6.7
9	8.1	36	54	29	36	39	906	143	80	12	5.9	7.8
10	7.9	37	68	25	31	45	945	141	70	11	6.0	6.9
11	13	44	65	23	29	50	990	131	61	9.4	6.3	6.7
12	15	61	56	22	35	56	801	114	53	9.2	5.9	7.4
13	14	65	54	23	36	64	702	103	49	8.8	5.6	6.5
14	16	66	50	24	33	70	674	125	44	8.4	5.3	7.5
15	15	58	49	26	35	102	656	106	41	8.4	5.3	7.6
16	14	54	48	28	38	140	572	113	36	7.9	4.6	6.9
17	13	47	45	30	40	186	459	120	32	7.9	4.8	10
18	13	46	35	26	36	240	384	128	29	7.4	4.7	10
19	13	42	27	28	34	289	331	129	27	7.3	4.9	8.0
20	13	46	27	29	34	337	264	119	25	7.0	4.8	7.0
21	11	49	34	30	34	330	234	104	24	7.0	5.0	6.7
22	11	48	44	31	35	234	213	93	22	6.9	5.1	6.5
23	11	69	50	29	36	216	237	96	20	6.9	4.5	6.3
24	13	60	48	27	50	321	222	118	19	6.6	4.3	6.2
25	13	52	43	26	58	244	217	99	19	6.7	4.2	5.8
26	18	48	43	25	60	194	199	83	18	6.2	4.1	6.0
27	20	45	42	24	47	173	190	72	17	6.1	4.1	6.0
28	19	46	41	26	50	148	199	75	16	6.1	4.1	6.0
29	19	44	38	27	---	133	223	84	15	6.4	4.2	6.0
30	17	44	38	26	---	132	239	89	14	9.7	4.1	6.0
31	18	---	37	26	---	252	---	83	---	18	4.1	---
TOTAL	395.2	1438	1321	874	972	4365	16749	4221	1792	286.3	173.8	194.5
MEAN	12.7	47.9	42.6	28.2	34.7	141	558	136	59.7	9.24	5.61	6.48
MAX	20	69	68	37	60	337	990	293	176	18	12	10
MIN	7.9	16	27	22	18	38	190	72	14	6.1	4.1	4.1
AC-FT	784	2850	2620	1730	1930	8660	33220	8370	3550	568	345	386

CAL YR 1984	TOTAL	57243.5	MEAN	156	MAX	1140	MIN	4.5	AC-FT	113500
WTR YR 1985	TOTAL	32781.8	MEAN	89.8	MAX	990	MIN	4.1	AC-FT	65020

14044000 MIDDLE FORK JOHN DAY RIVER AT RITTER, OR

LOCATION.--Lat 44°53'20", long 119°08'25", in SW¼NW¼ sec.8, T.8 S., R.30 E., Grant County, Hydrologic Unit 17070203, on left bank 0.2 mi south of Ritter, 0.8 mi downstream from Twelvemile Creek, and at mile 14.9.

DRAINAGE AREA.--515 mi^2.

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 739: 1931. WSP 1218: 1950. WSP 1448: 1930-32, 1937, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,544.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 18-23, Jan. 2-7, 11-18, Feb. 2-7. Records excellent except those for periods of ice effect, Dec. 18-23, Jan. 2-7, 11-18, Feb. 2-7, which are fair. No regulation. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--56 years, 255 ft^3/s, 184,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,730 ft^3/s Jan. 30, 1965, gage height, 8.39 ft, from rating curve extended above 2,200 ft^3/s; maximum gage height, 9.13 ft Feb. 1, 1963, ice jam; minimum discharge, 0.90 ft^3/s Aug. 19, 20, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 17	2330	1,020	4.94	Apr. 11	0730	*1,800	*5.77

Minimum, 27 ft^3/s Aug. 26-31, Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	99	171	97	80	230	981	625	419	75	59	28
2	84	108	119	90	70	210	1430	679	439	73	56	29
3	83	165	118	90	65	181	1550	748	373	67	56	31
4	81	143	109	95	65	183	1400	714	346	65	50	33
5	79	126	98	110	75	169	1330	631	337	62	46	31
6	79	121	104	120	90	158	1450	590	326	60	43	33
7	78	123	110	125	100	154	1490	573	320	57	39	38
8	75	121	123	128	111	152	1620	567	322	54	38	43
9	74	136	165	103	106	163	1660	535	283	56	37	67
10	73	140	274	89	100	206	1700	517	258	55	37	57
11	90	159	225	82	96	273	1740	490	234	52	40	52
12	118	273	205	74	96	301	1590	447	219	51	39	59
13	111	250	192	70	105	319	1450	421	205	50	37	54
14	114	258	170	75	100	388	1470	470	191	48	34	54
15	117	202	169	90	102	502	1550	433	177	47	33	52
16	105	179	169	100	107	643	1550	455	160	45	32	52
17	100	163	146	100	100	766	1380	483	149	44	32	59
18	99	156	125	105	102	824	1220	496	139	43	31	62
19	96	154	105	110	99	845	1110	525	127	42	31	54
20	94	156	100	124	104	855	961	541	119	40	34	51
21	95	188	115	127	105	862	853	536	112	39	37	48
22	90	153	135	121	113	649	778	524	108	38	35	47
23	89	146	140	114	135	565	733	537	103	40	33	45
24	93	199	148	111	156	670	668	613	100	39	30	44
25	99	183	136	103	175	566	622	568	99	37	29	44
26	106	160	134	98	168	448	573	511	95	36	28	44
27	122	147	142	89	156	436	537	453	91	35	28	43
28	118	135	135	107	172	400	527	454	87	35	28	42
29	120	175	135	110	---	370	538	475	82	35	28	42
30	109	179	134	94	---	373	563	451	78	39	27	43
31	107	---	133	90	---	490	---	403	---	43	27	---
TOTAL	2983	4897	4484	3141	3053	13351	35024	16465	6098	1502	1134	1381
MEAN	96.2	163	145	101	109	431	1167	531	203	48.5	36.6	46.0
MAX	122	273	274	128	175	862	1740	748	439	75	59	67
MIN	73	99	98	70	65	152	527	403	78	35	27	28
AC-FT	5920	9710	8890	6230	6060	26480	69470	32660	12100	2980	2250	2740

CAL YR 1984	TOTAL	200498	MEAN	548	MAX	2450	MIN	60	AC-FT	397700
WTR YR 1985	TOTAL	93513	MEAN	256	MAX	1740	MIN	27	AC-FT	185500

14046000 NORTH FORK JOHN DAY RIVER AT MONUMENT, OR

LOCATION.--Lat 44°48'50", long 119°25'50", in SE¼ sec.2, T.9 S., R.27 E., Grant County, Hydrologic Unit 17070202, on right bank just downstream from entrance to canyon, 0.7 mi downstream from Cottonwood Creek, 0.8 mi west of Monument, and at mile 15.3.

DRAINAGE AREA.--2,520 mi², approximately.

PERIOD OF RECORD.--March 1925 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 754: 1932(M). WSP 1448: 1927, 1931(M), 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,959.64 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1925, nonrecording gage and Nov. 24, 1925, to Oct. 16, 1928, water-stage recorder at datum 1.10 ft higher. Oct. 17, 1928, to Sept. 30, 1930, water-stage recorder at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 21-25, Dec. 4-11, 20-23, Jan. 2 to Feb. 15. Records excellent except those for periods of no gage-height record, Nov. 21-25, and ice effect, Dec. 4-11, 20-23, Jan. 2 to Feb. 15, which are fair. Very slight regulation by small reservoirs upstream. Many small diversions for irrigation upstream from station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--60 years, 1,291 ft³/s, 935,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft³/s Jan. 30, 1965, gage height, 18.45 ft, from rating curve extended above 17,000 ft³/s; minimum, 6 ft³/s sometime during period Nov. 2-13, 1936 (result of freezeup); minimum daily, 17 ft³/s Dec. 12, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	0300	5,760	7.81	Apr. 11	0500	*10,800	*10.09

Minimum, 105 ft³/s Aug. 30 to Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	310	416	1060	517	470	1170	5880	3470	2050	368	248	105
2	302	396	864	500	380	1060	8670	4040	2440	351	286	108
3	296	778	668	540	350	891	9000	4410	2120	337	259	115
4	287	803	630	560	340	951	7740	4190	1950	321	241	117
5	279	638	600	630	380	859	7460	3490	1860	305	212	121
6	276	589	580	680	450	815	8110	3130	1860	288	183	123
7	273	589	600	700	560	773	8270	2970	1830	278	169	124
8	265	569	700	660	700	752	8720	2900	1840	268	157	150
9	258	582	900	540	640	769	9000	2800	1640	268	154	181
10	254	631	1300	450	600	870	9350	2710	1480	275	152	262
11	289	770	1800	460	560	1080	10300	2560	1360	253	154	216
12	367	1580	1640	480	700	1170	9180	2280	1250	233	156	202
13	408	1490	1340	450	700	1200	8420	2100	1170	225	155	221
14	420	1620	1120	480	660	1430	8430	2270	1100	215	144	210
15	432	1220	1080	530	750	1840	8810	2200	1020	206	138	209
16	401	1020	1010	580	814	2250	8640	2190	951	196	132	199
17	368	929	917	540	731	2860	7510	2300	880	187	130	217
18	364	880	812	520	686	3560	6510	2430	816	181	128	256
19	349	872	444	560	672	4200	5780	2570	752	176	127	282
20	348	921	400	600	685	4570	4820	2590	687	171	125	226
21	348	1100	650	610	659	5030	4160	2540	635	164	129	203
22	332	1050	750	600	689	3580	3740	2410	595	158	134	190
23	305	930	850	560	907	2930	3550	2430	552	155	135	181
24	320	1300	895	520	1080	4420	3290	2790	517	156	130	176
25	366	1200	751	500	1250	3490	3040	2690	501	152	124	173
26	404	1050	754	480	1060	2610	2770	2420	481	145	120	168
27	490	963	740	470	943	2330	2660	2120	456	140	116	166
28	488	963	711	520	961	2150	2680	2060	426	135	113	162
29	478	1110	681	530	---	1910	2860	2220	402	134	109	160
30	448	1140	686	520	---	1930	3090	2200	386	143	105	157
31	386	---	676	500	---	2550	---	2020	---	174	105	---
TOTAL	10911	28099	26609	16787	19377	66000	192440	83500	34007	6758	4770	5380
MEAN	352	937	858	542	692	2129	6415	2694	1134	218	154	179
MAX	490	1620	1800	700	1250	5030	10300	4410	2440	368	286	282
MIN	254	396	400	450	340	752	2660	2020	386	134	105	105
AC-FT	21640	55730	52780	33300	38430	130900	381700	165600	67450	13400	9460	10670

CAL YR 1984	TOTAL	965288	MEAN	2637	MAX	11000	MIN	203	AC-FT	1915000
WTR YR 1985	TOTAL	494638	MEAN	1355	MAX	10300	MIN	105	AC-FT	981100

14046500 JOHN DAY RIVER AT SERVICE CREEK, OR

LOCATION.--Lat 44°47'38", long 120°00'20", in NW¼NE¼ sec.18, T.9 S., R.23 E., Wheeler County, Hydrologic Unit 17070204, on left bank 0.2 mi downstream from bridge on State Highway 207, 0.8 mi downstream from Service Creek, 0.5 mi southwest of town of Service Creek, and at mile 156.7.

DRAINAGE AREA.--5,090 mi^2, approximately.

PERIOD OF RECORD.--March 1925 to September 1926, October 1929 to current year. Monthly discharge only March 1925 to September 1926, published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 1,632.42 ft above National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Feb. 24, 1957.

REMARKS.--Estimated daily discharges: Feb. 3-5. Records excellent except those for period of ice effect, Feb. 3-5, which are fair. Very slight regulation by several small reservoirs upstream from station. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--57 years, 1,939 ft^3/s, 1,405,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,200 ft^3/s Dec. 23, 1964, gage height, 17.85 ft, from rating curve extended above 14,000 ft^3/s on basis of slope-area measurement of peak flow; minimum, 6.0 ft^3/s Aug. 23, 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 21	1130	8,570	8.33	Apr. 11	1230	*14,300	*10.43

Minimum, 159 ft^3/s July 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	707	919	2230	1290	873	2320	6700	4710	2970	558	297	169
2	699	927	1910	970	731	2460	11100	5250	3380	532	414	177
3	688	1120	1510	1040	720	2070	12100	5680	3180	508	451	185
4	679	1580	1410	1110	730	1960	11100	5820	2880	475	422	196
5	669	1330	1200	1140	790	1930	10300	5110	2690	465	403	196
6	666	1200	1120	1290	884	1800	10900	4570	2660	432	378	197
7	659	1160	1170	1410	1110	1700	11300	4240	2650	409	340	204
8	654	1150	1260	1390	1300	1640	11900	4070	2670	395	302	215
9	639	1140	1490	1310	1220	1630	12400	3980	2560	382	290	271
10	632	1250	2260	1040	1110	1760	12700	3840	2290	373	290	414
11	653	1330	3270	901	1050	2210	13600	3700	2080	381	276	526
12	742	2620	2650	970	1280	2480	12800	3460	1910	349	268	512
13	856	2910	2400	956	1300	2540	11500	3160	1780	316	266	501
14	861	3270	2200	911	1220	2790	11200	3080	1670	306	253	506
15	901	2620	2080	991	1330	3530	11500	3330	1560	294	234	515
16	900	2090	2010	1160	1490	4230	11600	3110	1440	287	210	515
17	877	1890	1820	1160	1430	5030	10600	3250	1320	293	203	511
18	841	1730	1680	1080	1310	5920	9300	3330	1210	273	197	511
19	835	1740	1200	1080	1310	6670	8400	3450	1100	263	196	550
20	835	1670	909	1160	1350	7030	7300	3570	1000	255	184	551
21	864	2120	1250	1240	1350	7620	6380	3600	921	231	185	507
22	853	2090	1870	1220	1420	6170	5830	3430	847	223	193	480
23	814	1730	2080	1160	1870	5020	5380	3330	780	217	202	466
24	786	2060	1760	1070	2270	6100	5220	3590	729	216	203	460
25	812	2470	1560	1070	2570	6000	4800	3720	699	212	191	458
26	905	2090	1520	1000	2390	4760	4520	3480	681	202	188	453
27	985	1880	1520	931	2130	4020	4210	3210	658	174	182	446
28	1060	1910	1480	971	2000	3860	4070	3010	627	175	181	437
29	1050	2130	1430	1090	---	3530	4180	3320	602	165	177	428
30	1040	2180	1430	1070	---	3390	4420	3530	579	185	172	421
31	969	---	1430	915	---	3740	---	3240	---	213	169	---
TOTAL	25131	54306	53109	34096	38538	115910	267310	118170	50123	9759	7917	11978
MEAN	811	1810	1713	1100	1376	3739	8910	3812	1671	315	255	399
MAX	1060	3270	3270	1410	2570	7620	13600	5820	3380	558	451	551
MIN	632	919	909	901	720	1630	4070	3010	579	165	169	169
AC-FT	49850	107700	105300	67630	76440	229900	530200	234400	99420	19360	15700	23760

CAL YR 1984	TOTAL	1535113	MEAN	4194	MAX	15800	MIN	336	AC-FT	3045000
WTR YR 1985	TOTAL	786347	MEAN	2154	MAX	13600	MIN	165	AC-FT	1560000

14047390 ROCK CREEK ABOVE WHYTE PARK, NEAR CONDON, OR

LOCATION.--Lat 45°15'53", long 120°01'15", in NE¼SW¼ sec.36, T.3 S., R.22 E., Gilliam County, Hydrologic Unit 17070204, on left bank 0.2 mi upstream from Whyte Park, 8.0 mi northeast of Condon, and at mile 40.8.

DRAINAGE AREA.--297 mi^2.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,714.50 ft above National Geodetic Vertical Datum of 1929 (Soil Conservation Service temporary bench mark).

REMARKS.--Estimated daily discharges: Dec. 3, 18-21; Jan. 2, 3, 5-8, 10-12, 31; Feb. 2-6. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--10 years, 62.8 ft^3/s, 45,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,360 ft^3/s May 5, 1983, gage height, 9.17 ft; maximum gage height, 9.4 ft Feb. 6, 1979; minimum discharge, 0.08 ft^3/s Aug. 17, 19, 20, 22, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 11	2330	261	6.08	Mar. 24	0730	479	6.49
Feb. 24	2400	257	6.10	Apr. 2	0030	*758	*6.92
Mar. 21	0400	537	6.58				

Minimum, 1.2 ft^3/s July 26-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	16	55	32	32	177	607	66	23	4.0	2.3	2.2
2	11	26	42	30	31	165	663	61	23	3.8	2.3	2.6
3	11	49	40	29	28	134	611	56	21	3.1	2.2	2.9
4	11	35	38	28	28	139	519	55	20	2.9	2.2	2.8
5	11	27	35	27	28	118	489	52	19	2.6	2.2	2.8
6	11	24	28	27	35	110	493	48	21	2.6	2.2	2.9
7	11	22	38	26	49	93	463	43	23	2.6	2.0	3.4
8	11	20	40	27	52	98	411	40	23	2.3	2.0	3.8
9	11	22	36	27	38	98	377	38	22	2.3	2.2	4.2
10	11	24	56	27	34	100	348	37	18	2.2	2.2	6.1
11	12	30	58	27	77	114	384	37	17	2.0	2.3	6.1
12	13	122	74	26	168	127	315	35	15	2.0	2.3	5.5
13	13	130	68	27	107	130	262	31	14	2.0	2.2	5.1
14	13	112	64	27	119	150	235	31	14	2.0	2.2	5.5
15	14	67	62	29	187	191	209	30	14	1.9	2.2	6.7
16	15	55	55	29	157	249	195	26	13	1.9	2.0	8.6
17	15	48	51	29	122	312	171	23	10	1.7	2.0	7.6
18	14	50	48	32	110	411	156	23	9.0	1.7	2.0	7.2
19	14	55	46	33	106	443	155	23	8.2	1.6	2.3	7.1
20	14	51	44	61	104	440	145	22	6.7	1.4	2.3	6.9
21	15	65	43	67	97	466	134	21	5.8	1.3	2.3	6.6
22	15	61	86	63	131	342	133	19	5.8	1.3	2.5	6.5
23	15	57	62	58	179	272	134	18	5.8	1.4	2.5	6.4
24	15	74	53	55	222	432	129	18	5.5	1.4	2.3	6.5
25	15	71	49	51	225	350	123	18	5.5	1.4	2.2	6.8
26	17	63	48	47	176	255	114	17	5.5	1.4	2.2	7.0
27	19	57	46	42	143	220	104	17	4.9	1.3	2.0	7.0
28	19	58	43	44	142	205	90	18	4.7	1.3	1.9	7.1
29	18	65	44	40	---	194	79	24	4.5	1.3	2.0	7.3
30	18	62	42	35	---	191	72	30	4.0	1.4	2.0	7.3
31	17	---	41	33	---	327	---	26	---	2.5	2.0	---
TOTAL	430	1618	1535	1135	2927	7053	8320	1003	385.9	62.6	67.5	168.5
MEAN	13.9	53.9	49.5	36.6	105	228	277	32.4	12.9	2.02	2.18	5.62
MAX	19	130	86	67	225	466	663	66	23	4.0	2.5	8.6
MIN	11	16	28	26	28	93	72	17	4.0	1.3	1.9	2.2
AC-FT	853	3210	3040	2250	5810	13990	16500	1990	765	124	134	334

CAL YR 1984	TOTAL	45567.4	MEAN	125	MAX	654	MIN	3.5	AC-FT	90380
WTR YR 1985	TOTAL	24705.5	MEAN	67.7	MAX	663	MIN	1.3	AC-FT	49000

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR
(National stream quality accounting network station)

LOCATION.--Lat 45°35'16", long 120°24'30", in NE¼NW¼ sec.11, T.1 N., R.19 E., Sherman County, Hydrologic Unit 17070204, on left bank at McDonald Ferry, 0.8 mi downstream from Rock Creek, 10 mi east of Klondike, and at mile 20.9.

DRAINAGE AREA.--7,580 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1904 to current year. Prior to Oct. 1, 1930, published as "at McDonald."

REVISED RECORDS.--WSP 1094: 1894(M), 1932(M). WSP 1448: 1908-9, 1912, 1916, 1920(M), 1922, 1932.

GAGE.--Water-stage recorder. Datum of gage is 392.27 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1930, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--80 years (water years 1906-85), 2,102 ft^3/s, 1,523,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,800 ft^3/s Dec. 24, 1964, gage height, 13.59 ft, from floodmark, from rating curve extended above 11,000 ft^3/s on basis of slope-area measurement of peak flow; no flow for part of Sept. 2, 1966, Aug. 15 to Sept. 16, 1973, Aug. 13, 14, 19-25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1894 reached a stage of 12.8 ft, from floodmarks, discharge, 39,100 ft^3/s, from rating curve extended above 22,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 22	0930	9,040	7.05	Apr. 12	0930	*14,600	*9.07

Minimum, 193 ft^3/s Aug. 29, 30, Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	840	1120	2560	1700	1260	2670	4560	4760	3610	639	216	203
2	821	1110	2590	1650	1060	2870	7830	5020	3310	613	246	202
3	798	1250	2350	1650	1020	3140	12200	5510	3580	583	286	205
4	782	1260	1990	1490	841	2790	12800	5940	3510	544	341	205
5	772	1580	1740	1780	967	2530	11700	6090	3190	517	433	214
6	763	1660	1630	1880	1110	2560	11200	5430	3000	490	423	210
7	754	1450	1340	1920	987	2350	11800	4890	2930	460	406	223
8	754	1350	1380	1900	1300	2230	12100	4570	2870	445	382	231
9	737	1330	1510	1780	1640	2120	12700	4390	2870	417	352	245
10	728	1350	1600	1660	1670	2100	13000	4280	2820	392	330	291
11	728	1470	2090	1390	1710	2170	13300	4120	2530	381	310	310
12	724	1590	3520	1160	4170	2520	14100	4000	2270	362	298	367
13	745	2450	3040	1090	2650	2940	13000	3790	2060	361	293	512
14	824	3440	2810	1150	2130	3060	12000	3470	1900	359	283	510
15	951	3530	2590	1100	2380	3260	11700	3290	1770	336	269	528
16	970	3120	2430	1140	2330	4010	12100	3560	1650	317	268	557
17	992	2530	2380	1240	2110	4770	12000	3310	1530	305	254	555
18	983	2240	2120	1380	2050	5620	10900	3440	1420	295	251	542
19	964	2060	1970	1300	1900	6540	9820	3490	1320	287	238	533
20	941	2030	1660	1300	1840	7300	8970	3610	1220	286	232	539
21	956	2070	1070	1530	1860	7630	7880	3750	1120	269	229	574
22	954	2260	1180	1570	1900	8200	6970	3800	1020	260	228	587
23	962	2520	1890	1560	2110	6840	6380	3670	944	265	217	543
24	956	2270	2460	1510	2490	5800	5880	3540	879	238	209	517
25	921	2230	2170	1410	3030	6810	5720	3720	821	221	206	499
26	917	2800	2010	1340	3240	6680	5290	3960	778	219	214	492
27	952	2600	1830	1330	3110	5470	5020	3740	742	213	223	472
28	1060	2290	1840	1240	2810	4710	4680	3490	714	216	207	456
29	1120	2220	1790	1190	---	4520	4510	3360	689	211	205	448
30	1150	2420	1740	1260	---	4210	4570	3600	661	203	202	448
31	1140	---	1700	1330	---	4050	---	3820	---	205	205	---
TOTAL	27659	61600	62980	44930	55675	132470	284680	127410	57728	10909	8456	12218
MEAN	892	2053	2032	1449	1988	4273	9489	4110	1924	352	273	407
MAX	1150	3530	3520	1920	4170	8200	14100	6090	3610	639	433	587
MIN	724	1110	1070	1090	841	2100	4510	3290	661	203	202	202
AC-FT	54860	122200	124900	89120	110400	262800	564700	252700	114500	21640	16770	24230

CAL YR 1984	TOTAL	1763563	MEAN	4818	MAX	17600	MIN	413	AC-FT	3498000
WTR YR 1985	TOTAL	886715	MEAN	2429	MAX	14100	MIN	202	AC-FT	1759000

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1911-12, 1960-68, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1975 to September 1981.
WATER TEMPERATURES: October 1962 to September 1968, October 1975 to September 1981.
SEDIMENT CONCENTRATIONS: October 1962 to September 1968.
SEDIMENT DISCHARGE: October 1962 to September 1968.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT											
24...	1030	954	267	8.50	9.5	10.8	32	K12	120	0	29
FEB											
22...	1105	1890	247	8.20	5.5	12.1	K40	270	110	0	27
MAY											
14...	1240	3440	143	7.90	14.5	9.5	K1	K6	62	0	15
AUG											
21...	0900	232	324	8.50	15.5	9.4	32	380	130	0	28

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT										
24...	12	16	1.7	134	12	3.4	.10	.050	<.10	<.20
FEB										
22...	11	15	2.1	130	14	3.6	.20	.130	.23	1.5
MAY										
14...	5.9	7.1	1.4	79	7.0	1.7	<.10	.070	<.10	.20
AUG										
21...	14	23	2.9	158	16	4.8	.20	.040	<.10	.50

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	TUR-BID-ITY (NTU)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT										
24...	<.010	<.010	.010	27	185	180	477	4.3	--	--
FEB										
22...	.040	.130	.340	31	166	180	847	65	428	2180
MAY										
14...	.020	.020	.040	28	100	110	929	7.0	28	260
AUG										
21...	<.010	<.010	.020	26	199	210	125	1.4	3	1.9

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
OCT										
24...	20	<1	23	2.0	1	<1	<3	1	13	3
FEB										
22...	440	<1	32	<.5	<1	<1	<3	3	210	4
MAY										
14...	120	<1	13	<.5	<1	<1	<3	6	69	2
AUG										
21...	<10	2	20	.6	<1	1	<3	3	6	<1

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
OCT										
24...	6	3	<.1	<10	1	<1	<1	130	7	7
FEB										
22...	4	8	--	<10	3	<1	<1	100	8	<3
MAY										
14...	<4	5	<.1	<10	2	<1	<1	69	<6	12
AUG										
21...	5	3	<.1	<10	<1	<1	<1	130	11	6

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

14050000 DESCHUTES RIVER BELOW SNOW CREEK, NEAR LA PINE, OR

LOCATION.--Lat 43°48'51", long 121°46'33", in NW¼ sec.28, T.20 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, on left bank at flow line of Crane Prairie Reservoir, 20 ft downstream from Snow Creek, 200 ft upstream from highway bridge, and 17 mi northwest of La Pine.

DRAINAGE AREA.--132 mi², including Sparks, Elk, and Mud Lake basins, which have no surface outflow to Deschutes River; hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only October 1937, published in WSP 1318. Published as "near Lapine" 1937-64.

REVISED RECORDS.--WSP 1248: 1951.

GAGE.--Water-stage recorder. Elevation of gage is 4,445 ft, from elevation of Crane Prairie Reservoir when slack water extended to gage. Prior to Sept. 10, 1938, nonrecording gage at site 450 ft downstream at different datum.

REMARKS.--Estimated daily discharges: May 12, 13. Records excellent. No regulation. Crater Creek Canal diverts water to Tumalo Creek basin from tributaries of Soda Creek. Stream is spring fed and peak discharge may occur several months after the precipitation which caused it.

AVERAGE DISCHARGE.--48 years, 152 ft³/s, 110,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480 ft³/s Aug. 19, 1974, gage height, 3.17 ft; maximum gage height, 4.12 ft Jan. 21, 1943 (ice jam); minimum discharge, 40 ft³/s sometime during period Dec. 22, 1959, to Mar. 2, 1960, result of freezeup; minimum daily, 55 ft³/s for many days April to June 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 306 ft³/s Oct. 1, gage height, 1.96 ft; minimum, 89 ft³/s Mar. 22, 25, 26, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	245	213	159	121	98	92	111	155	157	208	222
2	297	273	211	156	121	98	92	115	153	156	209	222
3	295	265	210	156	118	96	92	117	152	155	211	220
4	294	253	207	155	118	97	92	117	152	153	213	218
5	291	249	204	152	118	96	93	118	152	155	214	218
6	282	249	200	150	117	96	93	122	160	158	215	219
7	282	247	194	149	116	95	95	123	161	158	217	216
8	280	244	193	147	116	94	95	123	158	158	218	216
9	277	243	192	145	116	94	96	125	155	158	219	221
10	275	248	197	144	116	94	97	126	154	159	221	216
11	275	249	191	144	116	94	99	124	153	161	222	216
12	277	252	198	144	116	94	97	123	153	163	223	215
13	277	251	191	144	113	93	99	122	152	165	223	216
14	272	244	190	143	111	93	102	122	152	165	223	215
15	270	239	187	141	109	94	104	121	151	166	224	213
16	269	236	184	140	107	93	107	125	151	166	225	213
17	267	233	181	138	108	93	109	125	151	169	225	214
18	265	232	181	136	106	93	111	128	150	172	225	211
19	268	226	181	135	105	92	111	129	151	175	224	209
20	267	225	181	132	104	92	110	131	151	178	223	206
21	264	220	179	129	102	92	113	131	150	181	226	205
22	260	217	175	127	100	91	111	132	150	184	225	203
23	258	217	172	125	101	92	114	133	150	187	224	201
24	257	217	169	125	102	92	110	135	150	187	224	200
25	254	215	167	124	102	91	108	138	151	190	223	198
26	262	213	169	123	100	93	106	140	153	193	223	195
27	256	216	172	123	98	93	107	141	154	196	223	191
28	256	218	172	123	98	92	108	145	154	200	222	188
29	252	216	169	122	---	91	109	147	155	202	221	186
30	249	221	167	121	---	91	109	147	157	208	219	185
31	248	---	162	121	---	92	---	153	---	210	220	---
TOTAL	8398	7073	5759	4273	3075	2899	3081	3989	4591	5385	6832	6268
MEAN	271	236	186	138	110	93.5	103	129	153	174	220	209
MAX	302	273	213	159	121	98	114	153	161	210	226	222
MIN	248	213	162	121	98	91	92	111	150	153	208	185
AC-FT	16660	14030	11420	8480	6100	5750	6110	7910	9110	10680	13550	12430

CAL YR 1984	TOTAL	77673	MEAN	212	MAX	386	MIN	115	AC-FT	154100
WTR YR 1985	TOTAL	61623	MEAN	169	MAX	302	MIN	91	AC-FT	122200

14050500 CULTUS RIVER ABOVE CULTUS CREEK, NEAR LA PINE, OR

LOCATION.--Lat 43°49'06", long 121°47'40", near line between secs.20 and 29, T.20 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, Deschutes National Forest, on left bank at highway culvert, 2 mi upstream from Cultus Creek, and 18 mi northwest of La Pine.

DRAINAGE AREA.--16.5 mi^2, hydrologic drainage boundry uncertain owing to ground-water exchange.

PERIOD OF RECORD.--October 1922 to September 1925, October 1937 to current year. Monthly discharge only October 1937, published in WSP 1318. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 1448: 1923-25, 1947.

GAGE.--Water-stage recorder and cement bag control. Elevation of gage is 4,450 ft, by barometer. Oct 1, 1922, to Sept. 30, 1925, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: June 11-24. Records excellent. No regulation or diversions upstream from station.

AVERAGE DISCHARGE.--51 years, 63.3 ft^3/s, 45,860 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178 ft^3/s May 31, 1956, gage height, 1.04 ft; maximum gage height, 1.32 ft May 16, 1972 (backwater from Crane Prairie Reservoir); minimum discharge, 26 ft^3/s May 26-31, Nov. 23 to Dec. 4, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96 ft^3/s Nov. 2, gage height, 0.93 ft; minimum, 56 ft^3/s Mar. 11 to April 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	89	77	66	69	60	56	65	80	75	72	70
2	93	92	77	68	65	59	56	64	80	76	72	70
3	92	92	77	68	65	58	56	64	80	77	72	70
4	92	90	77	68	66	58	58	64	77	77	72	70
5	92	89	76	67	64	58	58	64	75	76	72	70
6	92	89	77	64	64	58	58	66	76	75	72	70
7	92	89	77	65	63	58	58	67	77	75	72	70
8	92	89	77	66	61	58	60	68	77	75	72	70
9	93	88	77	66	60	58	60	70	76	75	72	72
10	92	87	77	66	60	58	60	70	75	75	71	72
11	92	87	75	66	62	56	60	70	75	72	70	70
12	92	87	77	66	62	56	60	70	75	72	70	70
13	92	87	77	66	62	56	60	70	75	75	70	70
14	92	87	76	66	62	56	61	70	75	75	70	70
15	92	87	71	66	62	56	62	72	75	75	70	70
16	92	87	69	66	62	56	62	75	75	75	70	70
17	92	86	66	66	62	56	62	75	75	75	70	70
18	92	85	64	67	62	56	62	77	75	75	71	70
19	91	84	66	67	61	56	62	80	75	75	72	70
20	89	84	66	66	60	56	62	80	75	75	71	70
21	89	84	66	67	60	58	63	81	75	72	70	69
22	89	85	66	68	60	57	64	80	75	72	69	68
23	89	87	65	68	60	58	64	80	75	72	70	68
24	89	86	64	66	60	57	64	81	75	72	70	68
25	89	84	65	67	60	56	64	81	75	73	70	68
26	89	84	66	66	60	58	66	80	75	75	70	68
27	89	84	66	66	60	56	64	80	75	75	70	68
28	89	84	66	66	60	56	65	80	75	75	70	68
29	89	86	65	67	---	56	66	79	75	75	70	68
30	89	83	65	66	---	56	66	79	75	75	70	68
31	89	---	64	67	---	56	---	79	---	73	70	---
TOTAL	2819	2602	2194	2060	1734	1767	1839	2281	2273	2309	2192	2085
MEAN	90.9	86.7	70.8	66.5	61.9	57.0	61.3	73.6	75.8	74.5	70.7	69.5
MAX	94	92	77	68	69	60	66	81	80	77	72	72
MIN	89	83	64	64	60	56	56	64	75	72	69	68
AC-FT	5590	5160	4350	4090	3440	3500	3650	4520	4510	4580	4350	4140

CAL YR 1984	TOTAL	30047	MEAN	82.1	MAX	115	MIN	58	AC-FT	59600
WTR YR 1985	TOTAL	26155	MEAN	71.7	MAX	94	MIN	56	AC-FT	51880

14051000 CULTUS CREEK ABOVE CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°49'17", long 121°49'22", in SW¼ sec.19, T.20 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, on left bank 1,000 ft upstream from highway bridge, 1.0 mi downstream from Cultus Lake, and 19 mi northwest of La Pine.

DRAINAGE AREA.--33.2 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--March to September 1924 (published as "above Crane Prairie, near Lapine"), October 1937 to current year. Monthly discharge only October 1937 to September 1949, published in WSP 1318. Records for October 1923 to February 1924, published in WSP 594, have been found to be unreliable and should not be used. Published as "near Lapine" 1937-64.

REVISED RECORDS.--WSP 1568: 1957. WRD Oreg. 1973: 1972. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Elevation of gage is 4,545 ft, by barometer. Mar. 1 to Sept. 30, 1924, nonrecording gage at site 100 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 16-29, Dec. 21-26, Jan. 27, Feb. 3, 4, Mar. 2, 7, 9, June 13 to July 4, July 8-11. Records good. Some regulation by fish screens at Cultus Lake since 1962. No diversion upstream from station.

AVERAGE DISCHARGE.--48 years (water years 1938-85), 22.8 ft^3/s, 16,520 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 336 ft^3/s Dec. 25, 1964, gage height, 4.15 ft, from floodmark, from rating curve extended above 90 ft^3/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 105 ft^3/s May 26, gage height, 2.63 ft; minimum, 0.80 ft^3/s Sept. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	1.7	15	12	6.1	7.2	7.1	22	84	38	8.4	1.2
2	2.2	3.8	14	11	6.3	7.1	7.1	22	81	37	7.8	1.2
3	2.4	3.7	15	11	6.5	7.1	7.1	21	78	35	7.8	1.1
4	2.4	4.1	15	11	6.5	7.1	7.1	23	76	34	7.1	1.1
5	2.4	4.8	16	10	6.3	7.1	7.0	26	75	33	6.7	.99
6	2.4	5.9	17	9.8	6.1	7.1	6.9	27	79	33	6.5	.95
7	2.4	6.4	16	9.7	6.6	6.9	7.0	29	84	31	5.8	1.0
8	2.4	6.9	16	9.2	7.0	6.8	7.1	30	93	30	5.4	1.1
9	2.2	8.0	15	9.0	7.5	6.7	7.1	30	96	28	5.2	1.2
10	2.2	12	14	8.7	7.5	6.7	7.2	30	94	26	4.0	1.2
11	2.2	14	14	8.3	8.1	6.3	7.4	31	92	24	3.6	1.3
12	2.3	17	14	8.3	9.2	6.3	8.1	31	89	23	3.7	1.2
13	2.2	18	13	8.0	8.7	6.3	8.7	31	86	22	3.9	1.6
14	1.7	17	13	7.9	8.6	5.9	9.7	32	82	21	4.1	1.6
15	1.6	17	12	7.7	8.8	5.9	11	32	79	19	4.3	1.5
16	1.6	18	12	7.5	8.8	5.9	13	34	74	18	4.1	1.4
17	1.6	18	11	7.1	8.3	5.4	15	37	72	16	3.8	1.0
18	1.6	18	11	7.1	8.1	5.2	17	40	69	16	3.3	1.1
19	1.6	18	11	6.8	8.0	5.2	20	44	65	16	3.2	1.1
20	1.8	17	10	6.7	8.3	5.2	22	51	62	15	3.1	1.2
21	1.8	16	10	6.6	8.3	5.4	24	59	60	15	2.9	.92
22	1.8	15	10	6.7	8.3	5.6	25	67	57	13	2.7	.94
23	1.8	16	10	6.7	7.9	6.0	22	75	53	12	2.4	1.1
24	1.8	21	10	6.6	7.9	6.3	20	91	50	11	2.2	1.1
25	1.8	19	10	6.3	7.8	6.3	20	99	46	11	1.9	1.1
26	1.8	18	10	6.3	7.5	6.8	19	103	44	11	1.8	1.0
27	1.7	17	11	6.1	7.5	7.1	20	102	43	10	1.7	1.0
28	1.6	17	11	6.0	7.2	7.4	20	100	43	9.9	1.6	1.1
29	1.6	16	11	5.9	---	7.5	20	95	42	9.2	1.5	1.1
30	1.6	15	13	5.9	---	7.3	21	89	40	9.2	1.2	1.1
31	1.6	---	13	5.9	---	7.2	---	88	---	9.2	1.2	---
TOTAL	60.3	399.3	393	245.8	213.7	200.3	413.6	1591	2088	635.5	122.9	34.50
MEAN	1.95	13.3	12.7	7.93	7.63	6.46	13.8	51.3	69.6	20.5	3.96	1.15
MAX	2.4	21	17	12	9.2	7.5	25	103	96	38	8.4	1.6
MIN	1.6	1.7	10	5.9	6.1	5.2	6.9	21	40	9.2	1.2	.92
AC-FT	120	792	780	488	424	397	820	3160	4140	1260	244	68

CAL YR 1984	TOTAL	10949.9	MEAN	29.9	MAX	159	MIN	1.6	AC-FT	21720
WTR YR 1985	TOTAL	6397.90	MEAN	17.5	MAX	103	MIN	.92	AC-FT	12690

14052000 DEER CREEK ABOVE CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°48'48", long 121°50'18", in SE¼SW¼ sec.25, T.20 S., R.7 E., Deschutes County, Hydrologic Unit 17070301, on right bank 150 ft downstream from highway bridge, 1.2 mi downstream from Little Cultus Lake, and 19 mi northwest of La Pine.

DRAINAGE AREA.--21.5 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--February to September 1924 (published as "above Crane Prairie, near Lapine"). October 1937 to current year. Monthly discharge only October 1937 to September 1949, published in WSP 1318. Records for October 1923 to January 1924, published in WSP 594, have been found to be unreliable and should not be used. Published as "near Lapine" 1937-64.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder and sharp-crested weir control. Elevation of gage is 4,520 ft, by barometer. Feb. 1 to Sept. 30, 1924, nonrecording gage at site 75 ft upstream at various datums. Oct. 1, 1937, to Sept. 30, 1938, water-stage recorder at bridge 150 ft upstream at different datum. Oct. 1, 1938, to Aug. 13, 1968, water-stage recorder and wooden weir control at present site and datum 0.60 ft higher.

REMARKS.--Estimated daily discharges: Nov. 27 to Dec. 26; Jan. 1, 3, 4, 10-19, 27-31; Feb. 1-6, 26; Mar. 1, 2, 5, 7, 8, 13; Aug. 11 to Sept. 7. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--48 years (water years 1938-85), 7.56 ft^3/s, 5,480 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 200 ft^3/s, estimated, Dec. 25, 1964; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45 ft^3/s May 25, gage height, 2.38 ft; minimum daily discharge, 0.09 ft^3/s Sept. 21-25, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	1.8	4.0	2.9	1.3	1.5	2.7	17	27	1.8	.26	.14
2	.17	8.4	3.9	2.7	1.3	1.5	2.7	19	25	1.7	.25	.15
3	.16	12	3.8	2.6	1.4	1.5	2.8	22	22	1.6	.24	.16
4	.17	11	4.0	2.4	1.4	1.5	3.0	24	21	1.4	.20	.16
5	.16	9.1	4.1	2.2	1.4	1.5	3.2	25	19	1.3	.17	.17
6	.15	8.2	4.3	2.0	1.4	1.5	3.5	26	20	1.2	.19	.16
7	.15	7.4	4.2	2.0	1.5	1.5	4.0	26	21	1.0	.21	.16
8	.16	6.6	4.1	1.9	1.7	1.5	4.7	27	23	.97	.24	.17
9	.16	6.7	4.0	1.8	1.9	1.5	5.5	26	22	.90	.21	.22
10	.13	8.4	3.9	1.7	2.0	1.4	6.7	24	21	.80	.13	.21
11	.15	9.1	3.7	1.7	2.1	1.4	8.5	24	19	.73	.13	.18
12	.22	11	3.7	1.7	2.8	1.3	11	22	17	.67	.14	.15
13	.31	12	3.5	1.6	2.4	1.3	14	21	15	.58	.15	.16
14	.28	12	3.3	1.6	2.3	1.2	16	21	14	.56	.16	.20
15	.30	11	3.2	1.6	2.0	1.2	19	21	13	.50	.18	.16
16	.30	10	3.1	1.5	2.0	1.2	21	24	11	.42	.19	.15
17	.30	9.1	3.0	1.5	1.9	1.2	24	28	10	.36	.17	.17
18	.33	8.8	2.9	1.4	1.8	1.2	26	32	9.4	.33	.19	.16
19	.69	8.1	2.7	1.4	1.7	1.2	27	36	8.6	.29	.18	.14
20	.94	7.7	2.6	1.3	1.8	1.3	26	39	7.4	.26	.17	.11
21	.93	7.0	2.5	1.3	1.8	1.7	23	41	6.2	.26	.16	.09
22	.89	6.0	2.5	1.3	1.7	2.0	22	42	5.5	.23	.15	.09
23	.89	5.7	2.5	1.2	1.7	2.0	21	41	4.5	.25	.15	.09
24	.97	5.6	2.5	1.2	1.7	2.4	20	43	3.7	.25	.17	.09
25	.91	5.3	2.5	1.2	1.7	2.3	19	45	3.3	.23	.18	.09
26	2.1	5.0	2.5	1.2	1.7	3.2	17	43	3.2	.22	.19	.11
27	2.3	4.7	2.5	1.2	1.7	3.9	16	40	2.9	.21	.21	.12
28	2.5	4.5	2.7	1.2	1.6	2.7	16	37	2.6	.17	.19	.12
29	2.3	4.4	2.7	1.2	---	2.6	15	34	2.3	.22	.18	.12
30	2.0	4.2	3.2	1.2	---	2.6	16	30	2.0	.29	.17	.09
31	1.9	---	3.1	1.2	---	2.6	---	29	---	.29	.15	---
TOTAL	23.09	230.8	101.2	50.9	49.7	55.4	416.3	929	381.6	19.99	5.66	4.29
MEAN	.74	7.69	3.26	1.64	1.77	1.79	13.9	30.0	12.7	.64	.18	.14
MAX	2.5	12	4.3	2.9	2.8	3.9	27	45	27	1.8	.26	.22
MIN	.13	1.8	2.5	1.2	1.3	1.2	2.7	17	2.0	.17	.13	.09
AC-FT	46	458	201	101	99	110	826	1840	757	40	11	8.5

CAL YR 1984	TOTAL	3808.59	MEAN	10.4	MAX	66	MIN	.13	AC-FT	7550
WTR YR 1985	TOTAL	2267.93	MEAN	6.21	MAX	45	MIN	.09	AC-FT	4500

14052500 QUINN RIVER NEAR LA PINE, OR

LOCATION.--Lat 43°47'03", long 121°50'06", in SW¼NW¼ sec.1, T.21 S., R.7 E., Deschutes County, Hydrologic Unit 17070302, Deschutes National Forest, on left bank at flow line of Crane Prairie Reservoir, 150 ft downstream from springs at head of river, and 18 mi northwest of La Pine.

DRAINAGE AREA.--Indeterminate, normal flow is entirely from springs 150 ft upstream.

PERIOD OF RECORD.--June 1922 to September 1925, October 1937 to current year. Published as "above Crane Prairie Reservoir near Lapine" 1922-25, and as "near Lapine" 1937-64. Monthly discharge only October 1937, published in WSP 1318.

REVISED RECORDS.--WSP 1448: 1939, 1941.

GAGE.--Water-stage recorder and log control. Datum of gage is 4,442.1 ft above National Geodetic Vertical Datum of 1929, based on elevation of Crane Prairie Reservoir when slack water reached station. June 1, 1922, to Sept. 30, 1925, nonrecording gage at site 150 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 26, Apr. 7 to June 24, Aug. 10 to Sept. 25. Records excellent except those for April to June, which are good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--51 years, 24.3 ft^3/s, 17,610 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59 ft^3/s July 4, 1949, gage height, 1.97 ft; maximum gage height, 3.92 ft June 25, 1943 (backwater from Crane Prairie Reservoir); practically no flow Nov. 14, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40 ft^3/s Oct. 19, gage height, 1.86 ft; maximum gage height, 2.91 ft May 15 (backwater from Crane Prairie Reservoir); minimum discharge, 18 ft^3/s Mar. 17-22, 30, 31, Apr. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	31	28	24	22	20	18	28	35	35	31	31
2	31	31	28	24	22	20	19	28	35	35	31	31
3	32	31	28	24	22	20	19	29	34	35	32	31
4	30	31	26	24	23	20	20	29	34	35	32	31
5	30	31	26	25	23	20	22	30	34	35	32	31
6	33	31	26	26	23	20	23	30	35	35	32	31
7	29	31	26	24	23	20	24	31	36	35	32	31
8	29	31	26	23	23	20	24	31	36	35	32	31
9	32	31	26	23	23	20	24	32	36	35	32	31
10	33	31	26	23	24	20	24	32	36	35	32	31
11	33	31	26	22	24	19	24	32	36	35	32	31
12	33	31	26	22	22	19	24	33	36	35	32	30
13	33	31	26	22	22	19	24	33	36	35	32	30
14	33	31	26	22	22	20	25	33	35	35	32	30
15	33	31	26	22	22	20	25	33	35	35	32	30
16	32	31	26	23	22	20	25	34	35	34	32	30
17	32	31	26	22	22	19	25	34	35	33	32	29
18	35	29	26	22	22	18	25	34	35	33	32	29
19	34	29	26	22	22	18	25	34	35	33	32	29
20	32	29	26	22	22	18	26	34	35	35	32	28
21	32	29	26	22	22	18	26	34	35	33	32	28
22	32	29	26	22	22	18	26	35	35	33	32	28
23	34	29	26	22	23	19	26	35	35	33	32	27
24	32	29	26	22	21	20	27	35	35	34	32	27
25	32	28	26	22	21	20	27	35	35	34	32	27
26	33	28	26	22	21	19	27	35	35	32	32	27
27	33	28	24	22	20	19	27	36	35	32	32	27
28	32	28	24	23	20	19	27	36	35	32	32	27
29	32	28	24	22	---	19	27	36	35	32	32	27
30	33	28	24	22	---	18	28	36	35	33	32	26
31	31	---	24	22	---	18	---	36	---	33	31	---
TOTAL	996	898	802	704	620	597	733	1023	1054	1054	989	877
MEAN	32.1	29.9	25.9	22.7	22.1	19.3	24.4	33.0	35.1	34.0	31.9	29.2
MAX	35	31	28	26	24	20	28	36	36	35	32	31
MIN	29	28	24	22	20	18	18	28	34	32	31	26
AC-FT	1980	1780	1590	1400	1230	1180	1450	2030	2090	2090	1960	1740

CAL YR 1984	TOTAL	12559	MEAN	34.3	MAX	52	MIN	24	AC-FT	24910
WTR YR 1985	TOTAL	10347	MEAN	28.3	MAX	36	MIN	18	AC-FT	20520

14053500 CRANE PRAIRIE RESERVOIR NEAR LA PINE, OR

LOCATION.--Lat 43°45'20", long 121°47'00", in SW¼NW¼ sec.16, T.21 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, on control structure at Crane Prairie Dam on Deschutes River, 15.0 mi northwest of La Pine, and at mile 238.3.

DRAINAGE AREA.--254 mi^2, hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--November 1922 to November 1935, April to December 1936, April 1937 to current year. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1318: 1925, 1940-41, 1950. WSP 1448: 1925(M,m), 1940(m), 1950(m).

GAGE.--Water-stage recorder. Datum of gage is 4,400.0 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation); gage readings have been reduced to elevations NGVD. Prior to July 13, 1940, nonrecording gage, at site 150 ft upstream at same datum. July 13, 1940, to Sept. 15, 1966, nonrecording gage, at present site and datum.

REMARKS.--Reservoir originally formed by earthfill dam completed in 1922, reconstructed as rock-faced, earthfill dam in 1940. Capacity, 55,340 acre-ft between elevation 4,424.0 ft lip of fish-screen structure and 4,445.0 ft crest of spillway. Some dead storage in isolated pools in reservoir at stages below 4,428 ft and natural flow passing through reservoir when outlet gates are open prevents withdrawal of remaining storage to elevation of sill of gates. Crater Creek Canal diverts water to Tumalo Creek basin from tributaries of Soda Creek upstream from station. Released water diverted from Deschutes River near Bend for irrigation near Bend and Redmond.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 60,500 acre-ft June 5-7, 1943, elevation, 4,446.0 ft; no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 55,280 acre-ft May 14, 15, elevation, 4,444.99 ft; minimum, 30,880 acre-ft Sept. 23, elevation, 4,439.56 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,443.16	46,510	-
Oct. 31	4,442.52	43,590	-2,920
Nov. 30	4,442.70	44,400	+810
Dec. 31	4,441.49	39,000	-5,400
CAL YR 1984	-	-	-13,650
Jan. 31	4,440.71	35,640	-3,360
Feb. 28	4,442.19	42,090	+6,450
Mar. 31	4,443.57	48,440	+6,350
Apr. 30	4,444.76	54,160	+5,720
May 31	4,444.56	53,180	-980
June 30	4,442.80	44,860	-8,320
July 31	4,440.51	34,800	-10,060
Aug. 31	4,439.65	31,240	-3,560
Sept.30	4,439.87	32,130	+890
WTR YR 1985	-	-	-14,380

14054000 DESCHUTES RIVER BELOW CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°45'13", long 121°46'57", in SW¼NW¼ sec.16, T.21 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, Deschutes National Forest, on left bank 0.1 mi downstream from Crane Prairie Dam, 15 mi northwest of La Pine, and at mile 238.2.

DRAINAGE AREA.--254 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--August 1907 to November 1908 and August 1912 to September 1913 (fragmentary), October 1913 to September 1917, February 1922 to current year. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1949, published as "at Crane Prairie, near Lapine." Published as "near Lapine" 1949-64.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1318: 1929(M).

GAGE.--Water-stage recorder. Datum of gage is 4,419.78 ft above National Geodetic Vertical Datum of 1929 (Pacific Power & Light Co. bench mark). Aug. 15, 1907, to Sept. 30, 1917, and Feb. 23 to June 8, 1922, nonrecording gage at site 0.5 mi upstream at different datums. June 9, 1922, to May 9, 1932, nonrecording gage or water-stage recorder at present site and datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since 1922 by Crane Prairie Reservoir (see sta 14053500). No diversion upstream from station.

AVERAGE DISCHARGE.--67 years, 214 ft^3/s, 155,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,170 ft^3/s July 28, 1947, gage height, 3.34 ft; no flow Nov. 15, 1978, when gates in Crane Prairie Dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 465 ft^3/s Oct. 1-11, gage height, 2.01 ft; minimum, 49 ft^3/s Feb. 22 to Mar. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	465	383	383	370	94	49	53	144	420	420	425	329
2	465	383	383	370	94	49	53	144	420	420	425	329
3	460	383	383	370	94	50	53	144	415	420	419	329
4	462	383	383	370	96	50	53	144	415	420	415	329
5	465	383	383	370	96	50	53	144	415	420	415	330
6	465	383	381	368	96	51	53	144	415	420	418	333
7	465	383	379	304	96	52	53	144	415	420	420	333
8	465	383	379	246	96	52	53	144	415	423	420	333
9	465	383	379	246	96	52	53	144	415	425	420	333
10	465	383	379	246	96	52	53	144	415	425	420	333
11	461	383	379	246	97	52	53	144	418	425	420	333
12	460	383	375	246	98	52	53	144	420	425	420	333
13	460	383	374	246	100	52	53	144	420	425	420	333
14	460	383	374	246	100	52	53	144	420	425	416	333
15	418	383	374	246	100	53	53	237	420	425	389	333
16	388	383	374	243	100	53	53	304	420	423	338	333
17	388	383	374	243	100	53	53	304	417	425	338	333
18	388	383	374	243	100	53	53	304	415	425	338	333
19	388	383	374	243	100	53	53	304	415	425	338	333
20	388	383	374	243	100	53	53	304	415	425	338	333
21	388	383	374	243	100	53	53	304	415	425	337	333
22	387	383	374	243	75	53	53	304	415	425	333	333
23	383	383	374	243	49	53	53	304	415	425	333	233
24	383	383	374	243	49	53	53	304	415	425	333	165
25	383	383	372	243	49	53	53	304	421	425	333	167
26	383	383	370	243	49	53	103	304	425	425	333	166
27	383	383	370	243	49	53	144	304	425	425	333	164
28	383	383	370	243	49	53	144	368	422	425	332	164
29	383	383	370	243	---	53	144	420	420	425	329	164
30	383	383	370	243	---	53	144	420	420	425	329	164
31	383	---	370	170	---	53	---	420	---	425	329	---
TOTAL	13063	11490	11646	8305	2418	1616	2004	7529	12533	13136	11606	8694
MEAN	421	383	376	268	86.4	52.1	66.8	243	418	424	374	290
MAX	465	383	383	370	100	53	144	420	425	425	425	333
MIN	383	383	370	170	49	49	53	144	415	420	329	164
AC-FT	25910	22790	23100	16470	4800	3210	3970	14930	24860	26060	23020	17240

CAL YR 1984	TOTAL	125635	MEAN	343	MAX	520	MIN	197	AC-FT	249200
WTR YR 1985	TOTAL	104040	MEAN	285	MAX	465	MIN	49	AC-FT	206400

14054500 BROWN CREEK NEAR LA PINE, OR

LOCATION.--Lat 43°42'57", long 121°48'10", in NE¼SW¼ sec.29, T.21 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, on right bank at highway crossing and 15 mi northwest of La Pine.

DRAINAGE AREA.--21 mi^2, approximately, hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--May 1922 to September 1925, July 1938 to current year. Monthly discharge only July 1938 to September 1949, published in WSP 1318. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 1448: 1922-24. WDR OR-78-1: 1977.

GAGE.--Water-stage recorder. Elevation of gage is 4,370 ft, from topographic map. May 24, 1922, to Sept. 30, 1925, nonrecording gage, and July 1, 1938, to Nov. 1, 1945, water-stage recorder at site 0.4 mi downstream at different datums. Nov. 2, 1945, to Aug. 25, 1971, water-stage recorder at site 0.8 mi upstream at datum of 4,372.94 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 8, Nov. 26 to Mar.12. Records good. No regulation. No diversion upstream from station.

AVERAGE DISCHARGE.--50 years, 38.8 ft^3/s, 28,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104 ft^3/s Aug. 4, 1956, gage height, 1.64 ft; maximum gage height, 3.50 ft Jan. 30, 1980, backwater from ice; minimum discharge, 16 ft^3/s July 22-25, 1941, and at times December 1941 to March 1942.

EXTREMES FOR CURRENT YEAR.--Maximum recorded discharge, 69 ft^3/s Nov. 1, gage height, 1.00 ft; minimum, 38 ft^3/s June 12-18, 23, July 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	63	49	45	46	43	41	42	39	38	39	42
2	56	60	49	45	45	42	42	41	39	38	39	42
3	56	56	49	45	45	42	43	41	39	38	39	42
4	56	55	48	45	44	42	44	41	39	38	39	42
5	56	55	48	45	44	43	45	41	39	38	39	42
6	57	55	48	45	43	43	45	41	39	38	40	43
7	56	54	48	44	43	43	46	41	39	38	39	42
8	56	54	48	44	43	43	46	41	39	38	39	43
9	56	55	48	44	43	43	45	41	39	38	39	43
10	56	58	48	44	43	42	46	41	39	38	39	43
11	56	60	48	44	43	41	45	41	38	38	39	43
12	57	59	48	44	43	40	44	40	38	38	39	43
13	56	56	48	44	43	40	44	40	38	38	39	43
14	56	55	47	44	43	40	45	40	38	38	39	43
15	56	54	47	44	43	40	45	40	38	39	40	43
16	56	54	45	44	43	40	45	40	38	39	40	43
17	56	55	44	44	43	41	44	40	38	39	40	43
18	56	54	43	44	43	41	44	40	38	39	40	43
19	57	54	44	45	43	41	44	40	38	39	40	43
20	56	53	44	45	43	42	44	40	38	38	40	44
21	56	53	44	45	43	41	44	40	38	38	41	44
22	55	53	44	45	43	41	44	39	38	38	41	44
23	56	53	43	45	43	41	44	39	38	38	41	43
24	55	53	43	45	43	41	43	39	38	39	41	43
25	56	52	44	45	43	40	43	39	38	39	41	43
26	56	51	45	45	44	40	43	39	38	39	41	43
27	55	50	45	45	44	40	43	39	38	39	41	44
28	55	50	45	45	44	40	43	39	38	39	41	44
29	55	50	44	45	---	39	42	39	38	39	41	44
30	54	50	44	46	---	39	42	39	38	39	41	44
31	54	---	45	46	---	40	---	39	---	39	41	---
TOTAL	1730	1634	1427	1385	1216	1274	1318	1242	1150	1191	1238	1291
MEAN	55.8	54.5	46.0	44.7	43.4	41.1	43.9	40.1	38.3	38.4	39.9	43.0
MAX	57	63	49	46	46	43	46	42	39	39	41	44
MIN	54	50	43	44	43	39	41	39	38	38	39	42
AC-FT	3430	3240	2830	2750	2410	2530	2610	2460	2280	2360	2460	2560

CAL YR 1984	TOTAL	18147	MEAN	49.6	MAX	63	MIN	41	AC-FT	35990
WTR YR 1985	TOTAL	16096	MEAN	44.1	MAX	63	MIN	38	AC-FT	31930

14056000 WICKIUP RESERVOIR NEAR LA PINE, OR

LOCATION.--Lat 43°41'02", long 121°41'20", in SW¼NE¼ sec. 7, T.22 S., R.9 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, in gate-chamber structure at Wickiup Dam on Deschutes River, 9.0 mi west of La Pine, and at mile 226.8.

DRAINAGE AREA.--482 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--December 1942 to current year. Prior to Oct. 1, 1964, published as "near Lapine."

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Jan. 15, 1945, nonrecording gage at nearby sites at same datum.

REMARKS.--Reservoir is formed by rock-faced, earthfill dam completed in 1949. Some storage began in December 1942, capacity, 182,100 acre-ft between elevations 4,265.0 ft, no storage, and 4,336.0 ft crest of spillway, with earth plug to elevation 4,339.0 ft. Crater Creek Canal diverts water upstream from station to Tumalo Creek basin. Released water is diverted from Deschutes River at Bend for irrigation near Madras.

COOPERATION.--Daily elevations furnished by North Unit Irrigation District, and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 204,000 acre-ft Apr. 8,1974, elevation, 4,338.01 ft; minimum observed since reservoir first filled in March 1949, 534 acre-ft, revised on basis of computer expanded capacity table dated June 1970, Oct. 18, 1952, elevation, 4,270.86 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 200,700 acre-ft Apr. 5-8, elevation, 4,337.72 ft; minimum observed, 67,870 acre-ft Sept. 8, 9, elevation, 4,317.32 ft.

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,328.54	117,600	-
Oct. 31	4,331.03	136,100	+18,500
Nov. 30	4,334.75	169,500	+33,400
Dec. 31	4,335.00	171,900	+2,400
CAL YR 1984	-	-	-6,010
Jan. 31	4,335.25	174,400	+2,500
Feb. 28	4,336.19	184,100	+9,700
Mar. 31	4,337.50	198,300	+14,200
Apr. 30	4,337.32	196,300	-2,000
May 31	4,334.25	164,600	-31,700
June 30	4,331.35	138,700	-25,900
July 31	4,324.19	92,570	-46,130
Aug. 31	4,318.21	70,540	-22,030
Sept.30	4,320.99	79,510	+8,970
WTR YR 1985	-	-	-38,090

14056500 DESCHUTES RIVER BELOW WICKIUP RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°41'10", long 121°41'13", in NW¼NE¼ sec.7, T.22 S., R.9 E., Deschutes County, Hydrologic Unit 17070301, on left bank 1,000 ft downstream from Wickiup Dam, 9 mi west of La Pine, and at mile 226.4.

DRAINAGE AREA.--483 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--June 1938 to current year. Monthly discharge only June 1938, published in WSP 1318. Published as "near Lapine" 1938-64.

REVISED RECORDS.--WSP 1448: 1944(m), 1947-51(m).

GAGE.--Water-stage recorder. Datum of gage is 4,257.41 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Estimated daily discharge: June 25. Records excellent October to March, July to September; good April to June. Flow regulated by Crane Prairie Reservoir (see sta 14053500), and since 1942 by Wickiup Reservoir (see sta 14056000). Some leakage from Crane Prairie and Wickiup Reservoirs does not pass station. Some spill bypassed station in 1955. Crater Creek canal diverts water upstream from station to Tumalo Creek basin.

AVERAGE DISCHARGE.--47 years, 743 ft^3/s, 538,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,280 ft^3/s July 28 to Aug. 1, 1956, July 31, Aug. 1, 2, 1962; minimum, 1.9 ft^3/s Nov. 10, 1973; minimum daily, 10 ft^3/s Jan. 17, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,900 ft^3/s July 11, gage height, 6.86 ft; minimum discharge, 35 ft^3/s Nov. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	945	533	911	846	452	323	198	1040	734	1770	1590	1370
2	908	535	910	843	451	325	197	1100	701	1770	1540	1340
3	911	535	915	843	451	325	197	1130	772	1760	1470	1280
4	911	512	916	840	450	324	293	1120	805	1760	1470	1220
5	911	178	916	840	449	325	473	1090	805	1760	1470	1180
6	911	38	917	839	448	325	480	1070	806	1760	1450	1130
7	911	43	917	764	446	326	485	1070	860	1750	1450	1080
8	911	41	917	709	447	326	561	1070	995	1780	1410	1080
9	911	41	918	710	447	325	639	1070	1160	1850	1380	992
10	911	42	919	715	448	325	684	1070	1300	1870	1380	847
11	912	42	920	716	449	325	765	1080	1370	1890	1380	751
12	912	42	918	712	449	325	817	1070	1390	1890	1380	674
13	911	106	924	714	449	325	817	1080	1420	1890	1380	663
14	912	145	923	710	449	325	821	1080	1430	1890	1380	632
15	860	145	922	709	449	326	799	1080	1430	1860	1380	603
16	781	271	923	705	450	326	732	1080	1440	1790	1430	603
17	722	429	922	704	450	326	637	1140	1450	1810	1470	603
18	725	514	926	702	450	298	553	1190	1510	1830	1470	605
19	664	715	880	702	450	254	481	1300	1560	1830	1490	597
20	558	715	845	701	449	237	464	1360	1620	1830	1500	592
21	531	714	841	701	449	238	392	1440	1650	1820	1500	593
22	535	713	839	701	450	215	337	1490	1670	1770	1490	589
23	536	716	840	704	451	199	340	1490	1670	1710	1490	587
24	536	718	843	698	452	198	414	1480	1670	1690	1490	588
25	535	719	839	697	408	198	507	1480	1710	1690	1490	589
26	534	752	840	697	366	198	549	1480	1720	1690	1440	588
27	535	776	837	696	365	198	550	1390	1730	1680	1400	660
28	534	777	838	693	355	198	663	1210	1760	1680	1400	699
29	535	825	839	692	---	198	792	1070	1770	1680	1400	698
30	534	915	840	543	---	198	928	893	1770	1690	1380	648
31	533	---	845	453	---	198	---	807	---	1660	1370	---
TOTAL	22976	13247	27500	22299	12279	8552	16565	36520	40678	55100	44720	24081
MEAN	741	442	887	719	439	276	552	1178	1356	1777	1443	803
MAX	945	915	926	846	452	326	928	1490	1770	1890	1590	1370
MIN	531	38	837	453	355	198	197	807	701	1660	1370	587
AC-FT	45570	26280	54550	44230	24360	16960	32860	72440	80680	109300	88700	47760

CAL YR 1984	TOTAL	320429	MEAN	875	MAX	1680	MIN	38	AC-FT	635600
WTR YR 1985	TOTAL	324517	MEAN	889	MAX	1890	MIN	38	AC-FT	643700

14057500 FALL RIVER NEAR LA PINE, OR

LOCATION.--Lat 43°47'48", long 121°34'18", in NW¼SE¼ sec.31, T.20 S., R.10 E., Deschutes County, Hydrologic Unit 17070301, on left bank 50 ft downstream from pond spillway at State fish hatchery, 9 mi northwest of La Pine, and at mile 4.8.

DRAINAGE AREA.--45.1 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--July 1938 to current year. Records for May to September 1912 at site 3 mi downstream not equivalent owing to difference in drainage area. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 984: 1938-42(M,m).

GAGE.--Water-stage recorder. Elevation of gage is 4,220 ft, by barometer.

REMARKS.--Estimated daily discharge: Sept. 26. Records excellent. Diversion only to ponds at fish hatchery 50 ft upstream from station, from which water returns to river upstream from station. Stream is spring fed and momentary extremes are caused by operation of fish hatchery.

AVERAGE DISCHARGE.--47 years, 150 ft^3/s, 108,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 254 ft^3/s June 5, 1965, gage height, 2.02 ft; minimum, 67 ft^3/s sometime during period Sept. 20-30, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 210 ft^3/s Oct. 4, gage height, 1.71 ft; minimum, 143 ft^3/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177	176	172	167	163	159	157	160	159	157	157	154
2	177	182	172	167	163	159	158	160	159	157	156	154
3	177	179	172	167	162	159	157	159	159	157	157	154
4	177	176	172	167	162	159	158	159	159	157	157	154
5	177	176	172	167	162	159	159	159	159	156	157	154
6	177	177	171	167	162	159	159	159	159	156	156	154
7	177	176	171	167	164	159	160	159	159	157	156	156
8	177	176	171	167	164	158	160	159	158	156	156	154
9	177	177	172	167	163	159	161	159	158	156	156	154
10	177	177	172	166	162	159	161	159	158	156	156	154
11	178	178	171	166	163	158	160	159	158	157	155	154
12	178	177	172	166	162	158	160	159	158	157	156	154
13	178	177	171	166	162	157	160	159	158	156	156	154
14	177	176	171	166	161	157	160	159	158	156	156	153
15	177	176	171	166	161	157	163	159	158	157	156	154
16	177	176	171	165	160	157	162	159	158	157	156	154
17	177	175	171	165	160	157	161	159	158	156	156	153
18	177	175	171	165	160	157	161	159	158	156	155	152
19	178	174	171	165	161	157	160	159	157	156	155	152
20	177	175	171	164	160	157	161	159	157	156	155	152
21	177	174	170	164	160	157	162	159	157	157	155	152
22	176	174	169	164	160	157	161	159	157	156	155	152
23	176	174	169	164	160	158	161	159	157	157	155	152
24	176	174	169	164	159	157	160	159	157	156	155	151
25	176	174	169	164	159	157	160	159	156	157	155	152
26	177	173	169	164	159	159	160	159	157	157	154	150
27	176	175	170	164	159	159	160	159	157	156	155	150
28	176	175	169	164	159	159	160	159	157	157	155	150
29	176	174	170	164	---	157	160	158	157	157	154	150
30	176	174	169	163	---	157	159	158	157	157	154	150
31	176	---	167	162	---	157	---	160	---	157	155	---
TOTAL	5482	5272	5288	5124	4512	4895	4801	4930	4734	4853	4822	4583
MEAN	177	176	171	165	161	158	160	159	158	157	156	153
MAX	178	182	172	167	164	159	163	160	159	157	157	156
MIN	176	173	167	162	159	157	157	158	156	156	154	150
AC-FT	10870	10460	10490	10160	8950	9710	9520	9780	9390	9630	9560	9090

CAL YR 1984	TOTAL	64395	MEAN	176	MAX	188	MIN	155	AC-FT	127700
WTR YR 1985	TOTAL	59296	MEAN	162	MAX	182	MIN	150	AC-FT	117600

14059500 CRESCENT LAKE NEAR CRESCENT, OR

LOCATION.--Lat 43°30'05", long 121°58'20", in SW¼ sec.11, T.24 S., R.6 E., Klamath County, Hydrologic Unit 17070302, Deschutes National Forest, on outlet works at dam on Crescent Creek, 0.8 mi south of town of Crescent Lake, 14.0 mi west of Crescent, and at mile 30.0.

DRAINAGE AREA.--60.7 mi^2, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

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

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1318: 1922-31. WSP 1448: 1923-31(M,m).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Oct. 1, 1956, nonrecording gage at nearby site at datum 4,825.16 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1956, to Sept. 12, 1966, nonrecording gage, at present site and datum.

REMARKS.--Reservoir originally formed by dam of earth and logs completed in 1922, reconstructed as earthfill dam in 1956. Capacity, 117,200 acre-ft between elevations 4,821.5 ft, sill of outlet gate and 4,853.0 ft, crest of spillway. Maximum allowable storage, 86,050 acre-ft elevation, 4,845.32 ft. Dead storage about 500,000 acre-ft, Oregon Game Commission survey. Records given herein represent total contents (previously reported as usable contents) above elevation 4,821.5 ft, water surface probably cannot be lowered below elevation 4,823.4 ft, 5,360 acre-ft, because of natural flow through reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,010 acre-ft June 6, 1975, elevation, 4,847.09 ft; minimum observed, 9,640 acre-ft Oct. 21, 1931, elevation, 4,827.91 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 87,550 acre-ft Dec. 12, elevation, 4,845.70 ft; minimum, 63,770 acre-ft Sept. 21-23, 25, 28-30, elevation, 4,839.56 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,843.47	78,850	-
Oct. 31	4,844.12	81,380	+2,530
Nov. 30	4,845.73	87,670	+6,290
Dec. 31	4,845.45	86,560	-1,110
CAL YR 1984	-	-	+890
Jan. 31	4,844.80	84,030	-2,530
Feb. 28	4,844.44	82,630	-1,400
Mar. 31	4,844.58	83,170	+540
Apr. 30	4,845.26	85,820	+2,650
May 31	4,845.40	86,370	+550
June 30	4,844.46	82,700	-3,670
July 31	4,842.35	74,510	-8,190
Aug. 31	4,840.37	66,880	-7,630
Sept.30	4,839.56	63,770	-3,110
WTR YR 1985	-	-	-15,080

14060000 CRESCENT CREEK AT CRESCENT LAKE, NEAR CRESCENT, OR

LOCATION.--Lat 43°30'11", long 121°58'20", in SE¼SW¼ sec.11, T.24 S., R.6 E., Klamath County, Hydrologic Unit 17070302, Deschutes National Forest, on left bank 400 ft downstream from Crescent Lake Dam, 0.5 mi south of town of Crescent Lake, 14 mi west of Crescent, and at mile 29.9.

DRAINAGE AREA.--60.7 mi^2, hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--January to September 1911 (gage heights and discharge measurements only), January 1912 to July 1915, July to September 1927, May 1928 to current year. Published as Crescent Lake outlet near Crescent January 1911 to September 1912, and as Crescent Creek at outlet of Crescent Lake, near Crescent October 1913 to July 1915.

REVISED RECORDS.--WSP 1218: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 4,819.96 ft above National Geodetic Vertical Datum of 1929. See WSP 1935 for history of changes prior to Sept. 11, 1956.

REMARKS.--Estimated daily discharges: Feb. 5-11. Records excellent. Flow regulated since 1922 by Crescent Lake (see station 14059500). No diversion upstream from station.

AVERAGE DISCHARGE.--59 years (water years 1913-14, 1929-85), 57.9 ft^3/s, 41,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 313 ft^3/s July 9, 1929, Aug. 9, 1936; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 183 ft^3/s May 31, gage height, 2.26 ft; minimum, no flow Oct. 10-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	56	94	93	91	90	22	22	182	179	167	157
2	45	45	94	93	91	90	22	22	182	179	163	157
3	45	30	94	92	91	90	22	22	182	179	164	157
4	45	30	94	92	91	90	22	22	181	179	163	156
5	45	30	94	92	91	90	22	22	181	178	163	156
6	45	30	94	92	91	90	22	22	181	178	163	156
7	45	30	94	92	91	90	21	22	182	178	163	155
8	45	30	94	92	91	90	21	51	182	178	163	154
9	21	29	94	92	91	90	21	115	182	177	162	154
10	.00	29	94	92	91	90	21	116	182	177	162	154
11	.00	29	94	92	91	89	21	115	182	177	162	154
12	.00	30	94	92	91	57	22	115	182	177	162	153
13	.00	30	94	92	91	21	22	115	182	177	162	153
14	.00	30	94	92	91	21	22	115	182	176	162	153
15	.00	30	93	92	91	21	22	115	182	176	161	153
16	21	30	93	92	91	21	22	115	182	176	160	93
17	56	30	93	92	91	21	22	115	182	175	160	50
18	56	30	93	92	91	21	22	115	182	174	160	50
19	56	30	93	92	91	21	22	115	182	174	160	50
20	56	30	93	92	91	21	22	115	182	173	159	50
21	56	30	93	92	91	22	22	115	182	173	159	50
22	56	30	93	92	91	22	22	116	182	173	159	50
23	56	30	93	92	91	22	22	116	182	172	159	50
24	56	30	93	92	91	22	22	116	181	172	159	50
25	56	31	93	92	90	22	22	145	181	171	159	50
26	56	31	93	92	90	22	22	182	181	171	158	50
27	56	31	93	92	90	22	22	181	180	170	158	50
28	56	65	93	91	90	22	22	181	181	170	158	50
29	56	94	92	91	---	22	22	181	180	170	158	50
30	56	94	93	91	---	22	22	181	179	169	157	50
31	56	---	93	91	---	22	---	182	---	169	157	---
TOTAL	1243.00	1104	2896	2850	2544	1456	655	3282	5446	5417	4982	3115
MEAN	40.1	36.8	93.4	91.9	90.9	47.0	21.8	106	182	175	161	104
MAX	56	94	94	93	91	90	22	182	182	179	167	157
MIN	.00	29	92	91	90	21	21	22	179	169	157	50
AC-FT	2470	2190	5740	5650	5050	2890	1300	6510	10800	10740	9880	6180

CAL YR 1984	TOTAL	36968.00	MEAN	101	MAX	249	MIN	.00	AC-FT	73330
WTR YR 1985	TOTAL	34990.00	MEAN	95.9	MAX	182	MIN	.00	AC-FT	69400

14063000 LITTLE DESCHUTES RIVER NEAR LA PINE, OR

LOCATION.--Lat 43°41'21", long 121°30'06", in SW¼SW¼ sec.2, T.22 S., R.10 E., Deschutes County, Hydrologic Unit 17070302, on right bank 10 ft downstream from highway bridge, 1.1 mi north of La Pine, and at mile 26.8.

DRAINAGE AREA.--859 mi^2, hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--September 1910 to January 1911, March, April, August 1911, March to September 1912, June to October 1913, June to November 1918, August to October 1920, May 1924 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as Deschutes River near Lapine 1910-12, as East Fork Deschutes River near Lapine 1913-20, and as Little Deschutes River near Lapine 1924-64.

REVISED RECORDS.--WSP 1218: 1950.

GAGE.--Water-stage recorder. Datum of gage is 4,192.81 ft above National Geodetic Vertical Datum of 1929. Sept. 1, 1910, to Aug. 31, 1911, nonrecording gage at present site at different datum. Mar. 1 to Sept. 30, 1912, nonrecording gage at site 1.2 mi downstream at different datum. June 1, 1913, to Sept. 28, 1928, nonrecording gage and Sept. 29, 1928, to Sept. 30, 1931, water-stage recorder at present site at different datums.

REMARKS.--Estimated daily discharges: Dec. 15 to Feb. 26. Records good except for estimated daily discharges, which are fair. Flow regulated since 1922 by Crescent Lake (see station 14059500). Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--61 years (water years 1925-85), 208 ft^3/s, 150,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,660 ft^3/s Dec. 25, 1964, gage height, 8.18 ft; minimum, 8 ft^3/s Sept. 2, 3, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 490 ft^3/s Apr. 21, gage height, 5.55 ft; maximum gage height, 5.89 ft May 31; minimum, 88 ft^3/s Oct. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	162	223	190	170	201	161	290	478	268	224	171
2	130	182	256	180	170	198	180	291	472	263	224	188
3	127	285	254	170	170	189	206	294	468	257	213	199
4	123	366	237	165	150	188	215	305	443	252	204	194
5	122	308	236	170	140	181	220	325	415	248	198	188
6	121	267	234	170	140	179	237	336	402	244	192	186
7	121	237	226	170	170	177	251	342	401	241	188	187
8	118	234	245	170	200	174	273	342	415	238	187	192
9	116	213	228	160	220	170	304	337	422	235	186	211
10	117	201	225	160	220	174	331	345	420	231	185	215
11	94	227	288	160	200	184	354	384	418	229	183	217
12	90	297	259	155	220	194	371	388	414	225	181	211
13	95	349	250	150	240	196	386	382	403	223	178	204
14	108	339	248	150	240	152	393	372	389	222	176	209
15	114	297	230	150	230	148	401	365	380	219	174	214
16	106	245	210	160	220	158	414	357	373	217	171	212
17	99	218	200	160	210	166	429	359	367	216	167	197
18	136	203	200	160	200	165	445	363	362	215	169	142
19	158	202	200	160	210	168	465	357	355	214	186	130
20	173	203	180	170	210	173	480	355	348	212	194	124
21	189	197	170	170	210	176	487	357	340	213	195	117
22	184	180	170	170	220	169	479	364	333	213	188	111
23	171	168	210	170	230	160	459	371	327	212	183	110
24	166	163	210	170	220	167	435	377	323	210	180	107
25	162	167	200	170	210	173	420	377	317	207	177	103
26	161	155	200	160	200	162	395	379	305	205	175	101
27	174	162	200	160	200	146	366	390	298	199	183	98
28	186	154	200	170	198	142	332	422	288	196	179	100
29	187	161	210	180	---	143	300	452	280	197	174	103
30	179	210	210	170	---	144	293	470	273	208	171	101
31	169	---	200	170	---	152	---	482	---	226	170	---
TOTAL	4322	6752	6809	5140	5618	5269	10482	11330	11229	6955	5755	4842
MEAN	139	225	220	166	201	170	349	365	374	224	186	161
MAX	189	366	288	190	240	201	487	482	478	268	224	217
MIN	90	154	170	150	140	142	161	290	273	196	167	98
AC-FT	8570	13390	13510	10200	11140	10450	20790	22470	22270	13800	11420	9600

CAL YR 1984	TOTAL	127126	MEAN	347	MAX	810	MIN	90	AC-FT	252200
WTR YR 1985	TOTAL	84503	MEAN	232	MAX	487	MIN	90	AC-FT	167600

14063300 PAULINA CREEK NEAR LA PINE, OR

LOCATION.--Lat 43°42'47", long 121°16'39", in SW¼NE¼ sec.34, T.21 S., R.12 E., Deschutes County, Hydrologic Unit 17070302, on right bank 180 ft downstream from dam at outlet of Paulina Lake and 12 mi east of La Pine.

DRAINAGE AREA.--10.1 mi^2, of which 2.2 mi^2 is lake surface at elevation 6,331 ft, hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

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

GAGE.--Water-stage recorder. Datum of gage is 6,315.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Feb. 5-10, Sept. 25-30. Records excellent except those for Feb. 5-10, which are good. Flow regulated by dam at outlet of Paulina Lake 180 ft upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66 ft^3/s Apr. 29, 1983, gage height, 2.35 ft; minimum, 0.19 ft^3/s Oct. 19, 1982, Nov. 22, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36 ft^3/s July 16, gage height, 1.78 ft; minimum, 0.27 ft^3/s Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	3.9	24	24	22	19	22	20	25	16	31	15
2	29	3.8	24	24	24	20	22	19	25	19	31	15
3	28	3.8	23	23	25	20	21	20	24	19	31	14
4	28	3.8	22	23	28	21	21	19	24	19	31	14
5	28	3.7	20	22	29	21	21	19	23	18	30	16
6	28	3.4	18	22	28	22	20	19	24	18	30	20
7	27	3.1	18	21	28	22	20	19	25	17	30	20
8	27	3.0	18	21	27	21	19	19	25	22	29	21
9	27	3.0	18	21	27	21	19	19	24	33	29	21
10	25	3.0	19	21	26	20	19	19	24	33	29	21
11	21	3.1	20	21	25	19	19	19	23	31	29	21
12	21	3.5	23	21	25	19	19	19	22	31	28	20
13	21	3.7	23	20	24	19	19	19	22	30	28	20
14	20	3.8	22	20	23	19	18	19	21	30	28	21
15	17	4.7	23	20	22	18	18	18	21	29	28	21
16	17	6.1	22	20	21	18	18	19	21	30	28	20
17	17	7.3	22	20	21	17	18	18	20	36	27	21
18	13	8.4	23	20	21	17	19	19	19	36	27	21
19	6.0	9.1	22	20	20	17	21	19	19	36	27	20
20	5.0	12	22	19	21	17	21	19	19	36	26	20
21	4.9	13	22	19	20	17	22	19	18	36	26	19
22	4.7	13	22	19	20	18	22	19	18	35	25	19
23	4.7	15	21	19	19	19	23	19	17	34	26	19
24	4.5	16	21	19	19	21	22	19	17	34	25	19
25	4.5	16	21	19	19	21	22	19	16	34	25	19
26	4.5	16	21	19	19	22	21	19	15	33	25	19
27	4.5	17	21	19	18	23	21	19	15	32	25	20
28	4.2	20	22	19	18	24	21	20	15	32	24	19
29	4.0	21	22	20	---	24	21	24	15	31	22	19
30	4.0	25	25	19	---	24	20	25	15	31	16	19
31	4.0	---	24	20	---	23	---	26	---	31	15	---
TOTAL	482.5	268.2	668	634	639	623	609	608	611	902	831	573
MEAN	15.6	8.94	21.5	20.5	22.8	20.1	20.3	19.6	20.4	29.1	26.8	19.1
MAX	29	25	25	24	29	24	23	26	25	36	31	21
MIN	4.0	3.0	18	19	18	17	18	18	15	16	15	14
AC-FT	957	532	1320	1260	1270	1240	1210	1210	1210	1790	1650	1140

CAL YR 1984	TOTAL	8453.7	MEAN	23.1	MAX	45	MIN	3.0	AC-FT	16770
WTR YR 1985	TOTAL	7448.7	MEAN	20.4	MAX	36	MIN	3.0	AC-FT	14770

14064500 DESCHUTES RIVER AT BENHAM FALLS, NEAR BEND, OR

LOCATION.--Lat 43°55'49", long 121°24'39", in SW¼NE¼ sec.16, T.19 S., R.11 E., Deschutes County, Hydrologic Unit 17070301, Deschutes National Forest, on right bank 0.5 mi upstream from Benham Falls, 10 mi southwest of Bend, and at mile 181.4.

DRAINAGE AREA.--1,759 mi^2.

PERIOD OF RECORD.--April 1906 to September 1913, April to September 1914, August to December 1920, April to September 1921, February 1924 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "at West's ranch, near Lava" April 1906 to February 1909, April to September 1914. Records for January 1905 to March 1906 and October 1913 to September 1914, published under present name in WSP 370 and 394, have been found to be unreliable and should not be used.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 4,142.10 ft above National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). See WSP 1738 for history of changes prior to Nov. 20, 1958.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Crane Prairie Reservoir, Crescent Lake, and Wickiup Reservoir (see elsewhere in this report). Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--68 years (water years 1907-13, 1925-85), 1,418 ft^3/s, 1,027,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft^3/s, estimated, Nov. 27, 1909 (gage height not determined); minimum, 363 ft^3/s Jan. 20, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,570 ft^3/s July 12, gage height, 6.21 ft; minimum, 855 ft^3/s Nov. 9, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1700	1290	1650	1610	1180	1160	935	1670	1920	2530	2350	2000
2	1660	1330	1650	1600	1180	1120	943	1800	1840	2520	2330	2020
3	1610	1390	1660	1590	1160	1110	956	1890	1770	2510	2270	2000
4	1600	1400	1690	1580	1150	1100	975	1950	1720	2510	2210	1970
5	1600	1420	1700	1580	1160	1090	1140	1980	1770	2500	2170	1920
6	1600	1190	1700	1580	1160	1080	1260	1990	1800	2490	2150	1870
7	1590	926	1690	1600	1180	1070	1290	1960	1780	2490	2130	1840
8	1590	868	1700	1540	1180	1070	1300	1970	1760	2480	2120	1790
9	1590	860	1710	1480	1180	1070	1380	1960	1790	2500	2090	1800
10	1590	860	1730	1480	1170	1070	1480	1960	1910	2540	2060	1740
11	1610	863	1720	1480	1170	1070	1540	1960	2040	2550	2050	1610
12	1600	894	1730	1470	1170	1080	1650	1980	2180	2570	2040	1500
13	1590	922	1720	1460	1170	1090	1710	2000	2260	2560	2040	1420
14	1580	968	1710	1450	1180	1100	1730	2000	2290	2560	2040	1410
15	1590	1070	1700	1450	1200	1070	1750	1990	2300	2560	2030	1380
16	1560	1060	1700	1450	1210	1070	1740	1990	2310	2550	2030	1350
17	1480	1080	1690	1460	1220	1080	1700	1980	2310	2510	2050	1340
18	1410	1240	1680	1460	1220	1090	1610	1980	2310	2490	2090	1340
19	1430	1300	1670	1460	1220	1060	1550	2020	2310	2500	2090	1300
20	1410	1490	1600	1460	1220	1020	1490	2060	2340	2500	2100	1260
21	1320	1510	1580	1460	1210	1000	1490	2130	2390	2500	2130	1250
22	1300	1500	1580	1470	1210	995	1500	2200	2420	2490	2130	1240
23	1300	1480	1590	1470	1220	973	1420	2270	2460	2460	2130	1230
24	1290	1480	1620	1470	1230	954	1370	2330	2470	2410	2120	1220
25	1290	1470	1620	1470	1250	947	1360	2350	2480	2370	2120	1220
26	1290	1460	1620	1460	1220	951	1420	2350	2480	2360	2110	1210
27	1290	1490	1620	1460	1170	940	1490	2340	2500	2350	2100	1210
28	1290	1540	1630	1450	1160	921	1500	2350	2510	2340	2060	1260
29	1300	1530	1620	1450	---	914	1470	2310	2520	2330	2040	1310
30	1300	1580	1620	1450	---	916	1570	2170	2530	2340	2030	1320
31	1300	---	1610	1300	---	926	---	2070	---	2350	2020	---
TOTAL	45660	37461	51510	46150	33350	32107	42719	63960	65470	76720	65430	45330
MEAN	1473	1249	1662	1489	1191	1036	1424	2063	2182	2475	2111	1511
MAX	1700	1580	1730	1610	1250	1160	1750	2350	2530	2570	2350	2020
MIN	1290	860	1580	1300	1150	914	935	1670	1720	2330	2020	1210
AC-FT	90570	74300	102200	91540	66150	63680	84730	126900	129900	152200	129800	89910

CAL YR 1984	TOTAL	649351	MEAN	1774	MAX	2500	MIN	860	AC-FT	1288000
WTR YR 1985	TOTAL	605867	MEAN	1660	MAX	2570	MIN	860	AC-FT	1202000

DIVERSIONS FROM DESCHUTES RIVER NEAR BEND, OR

The following six canals, all in Deschutes County, Hydrologic Unit 17070301, are the only diversions from Deschutes River between gaging stations at Benham Falls and below Bend.

14065500 ARNOLD CANAL NEAR BEND diverts at mile 174.5 from right bank at head of Lava Island, in SW¼ sec.27, T.18 S., R.11 E., water used for irrigation southeast of Bend. Records available, October 1912 to current year.

14066500 CENTRAL OREGON CANAL ABOVE PILOT BUTTE CANAL, NEAR BEND diverts at mile 169.5 from right bank in NE¼ sec.13, T.18 S., R.11 E., water used for irrigation east of Bend. Records available, October 1932 to current year.

14068500 DESCHUTES COUNTY MUNICIPAL IMPROVEMENT DISTRICT CANAL AT BEND diverts at mile 165.8 from left bank in SW¼SE¼ sec.29, T.17 S., R.12 E., at Bend, water stored in Crescent Lake for Tumalo project is diverted by this canal and supplements flow in Tumalo project feed canal for irrigation near Tumalo. Records available, May 1923 to current year.

14069000 NORTH UNIT MAIN CANAL NEAR BEND diverts at mile 164.8 from right bank in NE¼ sec.29, T.17 S., R.12 E., water used for irrigation near Madras. Records available, October 1945 to current year.

14069500 NORTH CANAL NEAR BEND diverts at mile 164.8 from right bank in NE¼ sec.29, T.17 S., R.12 E., water used for irrigation north of Bend, mostly near Redmond. Records available, June 1913 to current year.

14070000 SWALLEY CANAL NEAR BEND diverts at mile 164.8 from right bank in NE¼ sec.29, T.17 S., R.12 E., water used for irrigation north of Bend. Records available 1913, to current year.

Records of monthly discharge of these canals, published as a group, are available from October 1926 to current year; records for each canal published separately prior to 1926.

DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1984 to SEPTEMBER 1985

MONTH	ARNOLD CANAL	CENTRAL OREGON CANAL	DESCHUTES COUNTY MUNICIPAL IMPROVEMENT DISTRICT CANAL	NORTH UNIT MAIN CANAL	NORTH CANAL	SWALLEY CANAL	TOTAL
OCTOBER	1,900	12,870	829	13,450	14,140	3,170	46,360
NOVEMBER	571	2,750	0	0	1,720	555	5,600
DECEMBER	0	2,150	0	0	1,400	474	4,020
JANUARY	300	2,250	0	0	1,890	357	4,800
FEBRUARY	482	2,040	0	0	1,660	476	4,660
MARCH	0	2,160	0	0	1,720	615	4,500
APRIL	1,490	16,280	0	26,050	15,600	2,350	61,770
MAY	6,480	33,140	2,530	35,040	30,800	6,020	114,000
JUNE	7,110	32,640	1,070	39,470	31,030	6,990	118,300
JULY	7,330	35,600	7,180	50,880	34,310	7,470	142,800
AUGUST	6,630	33,110	8,750	33,700	33,430	7,370	123,000
SEPTEMBER	4,600	22,060	4,280	22,490	23,040	5,290	81,760
WTR YR 1985	36,900	197,100	24,630	221,100	190,700	41,140	711,600

14070500 DESCHUTES RIVER BELOW BEND, OR

LOCATION.--Lat 44°04'59", long 121°18'24", in SE¼SE¼ sec.20, T.17 S., R.12 E., Deschutes County, Hydrologic Unit 17070301, on right bank 0.4 mi downstream from North Canal, at city limits of town of Bend, and at mile 164.4.

DRAINAGE AREA.--1,899 mi^2.

PERIOD OF RECORD.--October 1914 to current year.

REVISED RECORDS.--WSP 1318: 1916-18(M), 1926(M), 1931(M).

GAGE.--Water-stage recorder. Datum of gage is 3,503.96 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, water-stage recorder at site 200 ft downstream at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Oct. 28, 29; Nov. 17 to Dec. 26; Jan. 8-10; Jan. 29 to Mar. 5; May 16; June 11. Records good. Flow regulated by powerplant at Bend, Crescent Lake, Crane Prairie Reservoir, and Wickiup Reservoir (see elsewhere in this report). Six large canals and several small ditches divert water upstream from station for irrigation.

AVERAGE DISCHARGE.--71 years, 505 ft^3/s, 365,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,820 ft^3/s Dec. 27, 1964, gage height, 4.90 ft; maximum gage height, 5.38 ft Dec. 15, 1932 (backwater from ice); minimum discharge, 1.0 ft^3/s Aug. 25, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge near this site since 1905, 4,820 ft^3/s Nov. 27, 1909.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,700 ft^3/s Dec. 10-12; maximum recorded gage height, 4.37 ft Dec. 28; minimum discharge, 20 ft^3/s Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	339	1290	1570	1600	1140	1050	445	51	275	59	42	44
2	340	1370	1590	1590	1120	1030	455	51	179	59	79	45
3	293	1420	1600	1580	1120	1020	464	51	163	55	135	46
4	288	1410	1630	1570	1110	1010	406	51	69	49	119	100
5	262	1450	1680	1560	1100	1000	453	51	57	49	85	104
6	240	1290	1680	1560	1100	994	556	51	111	48	63	77
7	249	876	1650	1570	1140	982	554	51	82	46	48	74
8	232	560	1650	1500	1140	984	570	88	52	45	52	51
9	235	736	1680	1470	1120	974	614	123	48	45	51	127
10	268	830	1700	1440	1100	973	399	111	48	45	47	203
11	300	816	1700	1450	1000	825	219	98	47	45	48	160
12	329	845	1700	1440	940	756	254	103	46	45	46	104
13	329	874	1680	1430	900	732	313	106	45	44	46	61
14	323	898	1650	1410	920	726	290	116	44	44	47	44
15	392	958	1620	1400	1000	763	276	71	44	45	46	61
16	451	919	1610	1400	1100	916	251	56	42	46	41	65
17	400	940	1600	1360	1100	926	229	51	43	62	41	115
18	324	1040	1600	1370	1000	786	174	51	47	49	47	139
19	341	900	1600	1370	980	706	95	50	51	44	49	126
20	892	950	1550	1190	950	686	135	51	51	43	45	107
21	1300	990	1500	962	920	655	132	50	56	44	46	65
22	1230	1020	1200	906	960	691	194	49	55	43	47	46
23	1230	1100	1100	891	1070	890	183	49	54	44	67	43
24	1220	1400	1100	894	1100	858	84	49	54	49	44	45
25	1180	1380	1170	1150	1100	851	44	49	53	41	44	45
26	1220	1390	1300	1410	1070	859	47	48	52	41	47	45
27	1220	1400	1530	1410	1050	886	53	50	50	43	47	46
28	1220	1450	1620	1410	1060	802	52	96	53	42	45	47
29	1260	1480	1620	1390	---	822	51	177	45	41	45	49
30	1300	1500	1620	1370	---	812	51	204	54	43	44	48
31	1290	---	1600	1200	---	827	---	254	---	43	44	---
TOTAL	20497	33482	48100	42253	29410	26792	8043	2507	2070	1441	1697	2332
MEAN	661	1116	1552	1363	1050	864	268	80.9	69.0	46.5	54.7	77.7
MAX	1300	1500	1700	1600	1140	1050	614	254	275	62	135	203
MIN	232	560	1100	891	900	655	44	48	42	41	41	43
AC-FT	40660	66410	95410	83810	58330	53140	15950	4970	4110	2860	3370	4630

CAL YR 1984	TOTAL	282799	MEAN	773	MAX	1740	MIN	47	AC-FT	560900
WTR YR 1985	TOTAL	218624	MEAN	599	MAX	1700	MIN	41	AC-FT	433600

14070700 BRIDGE CREEK NEAR BEND, OR

LOCATION.--Lat 44°01'52", long 121°34'16", in SW¼NE¼ sec.7, T.18 S., R.10 E., Deschutes County, Hydrologic Unit 17070301, on left bank 0.2 mi upstream from city of Bend water intake dam, 14 mi west of Bend, and at mile 0.4.

DRAINAGE AREA.--6.58 mi^2.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,180 ft, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 22, Dec. 11, 16, 18, 19, Jan. 26, 27, 30, Feb. 4, 5. Records good. Water is diverted into Bridge Creek from unnamed springs on Middle Fork of Tumalo Creek 3.0 mi upstream from station.

AVERAGE DISCHARGE.--5 years, 28.0 ft^3/s, 20,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 545 ft^3/s May 29, 1983, gage height, 1.93 ft, from rating curve extended above 110 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 2.99 ft Dec. 24, 1983 (backwater from ice); minimum discharge, 3.6 ft^3/s Oct. 1-9, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 382 ft^3/s June 7, gage height, 1.85 ft, from rating curve extended above 110 ft^3/s on basis of slope-area measurement of peak flow; minimum, 15 ft^3/s Feb. 11, 16, 19, 25, 27, Mar. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	21	19	18	16	16	17	32	43	29	19	19
2	21	22	19	18	16	16	18	36	41	29	19	19
3	21	22	19	18	16	16	18	36	42	28	20	19
4	21	21	19	18	16	16	18	33	46	28	19	19
5	21	20	19	18	16	16	19	33	45	27	20	19
6	21	21	18	18	16	16	19	32	97	27	20	20
7	21	21	18	18	16	16	20	31	167	26	19	20
8	21	20	19	18	16	16	21	30	97	26	19	20
9	21	20	19	17	16	16	23	30	77	25	19	22
10	21	21	19	17	16	16	24	30	69	25	19	21
11	21	21	19	17	17	16	25	28	70	24	19	19
12	23	21	19	17	17	16	26	29	76	24	19	19
13	23	23	18	17	16	16	28	30	74	23	19	19
14	21	21	18	17	17	16	29	31	73	23	19	20
15	21	21	18	17	16	16	32	32	69	22	19	20
16	20	21	18	17	16	16	32	34	60	22	19	20
17	20	21	18	17	16	16	31	38	56	22	19	22
18	20	21	18	18	16	16	30	44	59	22	19	19
19	20	20	18	17	16	16	29	51	61	22	19	19
20	20	20	18	17	16	16	27	51	56	22	19	19
21	21	20	18	17	16	16	26	53	48	21	19	19
22	20	19	18	17	16	16	26	57	45	21	19	19
23	20	19	18	16	16	16	25	75	40	21	19	19
24	21	19	18	16	16	16	25	86	36	21	19	19
25	23	19	18	16	16	16	24	73	34	21	19	19
26	26	19	18	16	16	16	24	67	32	21	20	19
27	22	19	18	16	16	16	24	65	32	21	19	19
28	21	19	18	16	16	16	26	57	31	20	19	19
29	21	19	18	16	---	16	27	47	30	20	19	19
30	21	19	18	16	---	16	29	42	30	20	19	19
31	21	---	18	16	---	16	---	42	---	20	19	---
TOTAL	656	610	568	527	451	496	742	1355	1736	723	593	584
MEAN	21.2	20.3	18.3	17.0	16.1	16.0	24.7	43.7	57.9	23.3	19.1	19.5
MAX	26	23	19	18	17	16	32	86	167	29	20	22
MIN	20	19	18	16	16	16	17	28	30	20	19	19
AC-FT	1300	1210	1130	1050	895	984	1470	2690	3440	1430	1180	1160

CAL YR 1984	TOTAL	10834	MEAN	29.6	MAX	124	MIN	18	AC-FT	21490
WTR YR 1985	TOTAL	9041	MEAN	24.8	MAX	167	MIN	16	AC-FT	17930

14073001 TUMALO CREEK NEAR BEND, OR

LOCATION.--Lat 44°05'16", long 121°22'18", in NW¼SE¼ sec.23, T.17S. R.11 E., Deschutes County, Hydrologic Unit 17070301, on left bank 0.25 mi upstream from diversion to Tumalo feed canal, 3.0 mi northwest of Bend, and at mile 3.1.

DRAINAGE AREA.--47.3 mi^2.

PERIOD OF RECORD.--October 1913 to December 1921, February, April to November 1922, March 1923 to current year. Published as "below Bend" 1949-50.

REVISED RECORDS.--WSP 864: 1937. WSP 1218: Drainage area. WSP 1448: 1923(M), 1927-29(M), 1935(M), 1942(M). WDR OR-75-1: 1974(M).

GAGE.--Water-stage recorder. Datum of gage is 3,566.82 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 27, 1915, nonrecording gage and Apr. 27, 1915, to Sept. 30, 1918, water-stage recorder or nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 2-7, 16-31; Jan. 1-14, 27, 28, 31; Feb. 1-12; Apr. 11. Records good. All records given herein include flow in Columbia Southern Canal, which diverts 8 mi upstream from station for irrigation of land near Tumalo. No flow in the canal Oct. 1 to Apr. 10. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Diversion upstream from station for municipal supply of Bend since Dec. 15, 1926, 5,910 acre-ft during water year 1985.

AVERAGE DISCHARGE.--67 years (water years 1914, 1917-21, 1924-35, 1937-85), 102 ft^3/s, 73,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,140 ft^3/s Nov. 9, 1968 (no flow in canal), from rating curve extended above 780 ft^3/s on basis of slope-area measurement at 3.45 ft; minimum daily, 25 ft^3/s Jan. 3, 1924.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 640 ft^3/s June 7; minimum, 7.9 ft^3/s Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	83	77	68	66	63	70	127	169	155	73	66
2	73	106	72	68	64	63	72	147	166	169	68	69
3	73	98	72	68	64	63	77	157	163	173	65	65
4	74	90	70	68	64	63	78	144	194	171	67	62
5	74	85	70	68	64	61	74	137	194	158	67	63
6	73	85	70	68	64	59	84	138	302	141	62	72
7	72	82	70	68	64	60	91	134	476	140	62	71
8	71	80	76	68	64	60	97	125	444	131	64	69
9	76	82	77	68	64	60	97	122	354	126	61	76
10	76	87	79	68	64	61	86	119	302	121	61	72
11	80	90	77	68	64	61	105	112	290	127	62	68
12	89	96	81	68	64	61	113	107	314	115	61	67
13	95	97	79	68	64	62	117	111	329	107	61	70
14	82	88	76	68	65	62	129	126	328	101	62	75
15	79	85	75	68	65	64	144	122	330	96	62	70
16	79	84	68	68	64	64	142	144	311	91	62	67
17	78	83	68	69	63	66	121	155	289	85	62	79
18	80	83	68	69	64	66	121	184	304	80	65	71
19	82	81	70	68	64	67	118	208	323	79	67	67
20	81	81	70	69	63	69	115	216	305	81	64	65
21	82	79	70	67	63	69	115	213	268	80	63	65
22	80	79	70	67	63	68	110	222	254	76	61	64
23	80	79	70	67	63	71	109	248	243	77	60	63
24	87	79	70	67	65	69	105	291	218	76	61	63
25	88	77	70	67	63	66	101	278	184	73	62	61
26	121	77	68	66	62	67	98	254	180	72	64	61
27	101	80	68	66	63	65	99	244	192	72	69	42
28	95	80	68	66	63	64	105	233	203	70	65	66
29	90	77	68	66	---	63	109	206	198	67	62	68
30	85	80	68	67	---	66	113	174	175	75	61	67
31	85	---	68	66	---	68	---	165	---	75	64	---
TOTAL	2554	2533	2223	2095	1787	1991	3115	5363	8002	3260	1970	2004
MEAN	82.4	84.4	71.7	67.6	63.8	64.2	104	173	267	105	63.5	66.8
MAX	121	106	81	69	66	71	144	291	476	173	73	79
MIN	71	77	68	66	62	59	70	107	163	67	60	42
AC-FT	5070	5020	4410	4160	3540	3950	6180	10640	15870	6470	3910	3970

CAL YR 1984	TOTAL	42733	MEAN	117	MAX	393	MIN	60	AC-FT	84760
WTR YR 1985	TOTAL	36897	MEAN	101	MAX	476	MIN	42	AC-FT	73190

14075000 SQUAW CREEK NEAR SISTERS, OR

LOCATION.--Lat 44°14'02", long 121°33'57", in SE¼SW¼ sec.29, T.15 S., R.10 E., Deschutes County, Hydrologic Unit 17070301, on right bank 800 ft upstream from intake of McAllister ditch, 4 mi south of Sisters, and at mile 26.8.

DRAINAGE AREA.--45.2 mi^2, not including 12.6 mi^2 of Pole Creek. See REMARKS.

PERIOD OF RECORD.--July 1906 to October 1918, June to August 1919, October 1919 to September 1920, May 1921 to September 1924 (no winter records), April 1925 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WDR OR-83-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,490 ft, by barometer. July 1, 1906, to May 29, 1913, nonrecording gage at site 1,000 ft downstream at different datum, below intake of McAllister ditch (records include flow in McAllister ditch). May 30, 1913, to Sept. 2, 1915, nonrecording gage and Mar. 24, 1916, to Oct. 5, 1928, water-stage recorder at site 300 ft downstream at different datum. Oct. 6, 1928, to Nov. 7, 1967, water-stage recorder at site 200 ft downstream at datum 2.64 ft lower.

REMARKS.--Estimated daily discharges: Nov. 23, 24; Dec. 2-8, 17-22; Jan. 2 to Feb. 28. Records good except those for January and February, which are poor. No regulation. A canal near mouth of Pole Creek has diverted the entire flow of that creek since 1885. Prior to Oct. 1, 1982, drainage area of 57.8 mi^2 included that of Pole Creek. Water is diverted from Snow Creek, a tributary upstream from station, for irrigation in Three Creek basin.

AVERAGE DISCHARGE.--73 years (water years 1907-18, 1920, 1926-85), 106 ft^3/s, 76,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge since 1909, 2,000 ft^3/s Dec. 25, 1980, from rating curve extended above 690 ft^3/s on basis of slope-area measurement of peak flow; a maximum gage height of 9.2 ft from water-borne ice was observed on Jan. 11, 1979, and probably occurred on Jan. 10, 1979; previous maximum gage height, about 8.75 ft, over top of gage Nov. 22, 1909, site and datum then in use (discharge not determined); minimum discharge, 14 ft^3/s Mar. 2, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 470 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 7	1630	*894	*3.74	No other peak greater than base discharge.			

Minimum daily, 33 ft^3/s Feb. 4, during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	72	64	51	48	57	50	89	140	180	111	83
2	74	131	58	49	45	52	55	103	139	186	106	85
3	74	99	57	47	35	47	56	108	140	195	106	78
4	74	84	58	47	33	44	56	92	164	200	111	76
5	73	82	58	52	45	43	60	87	167	198	110	80
6	72	82	70	55	52	43	61	88	418	191	107	100
7	72	77	85	52	52	42	65	88	633	194	107	87
8	75	75	85	52	52	42	70	84	479	192	103	80
9	81	74	64	52	52	43	75	83	324	193	97	89
10	77	81	65	52	50	42	84	79	270	190	96	79
11	76	86	60	50	54	41	90	75	260	182	94	74
12	106	105	59	50	54	41	88	74	289	175	96	73
13	99	104	62	52	54	41	92	79	308	166	97	80
14	77	89	66	55	56	41	102	85	320	156	98	80
15	74	84	59	58	56	42	111	82	334	152	99	72
16	73	80	56	62	45	43	112	85	291	153	99	69
17	71	78	50	66	45	44	102	98	268	146	98	79
18	70	76	44	66	52	44	97	119	287	141	99	71
19	73	73	40	64	52	45	89	139	329	139	95	67
20	71	73	65	63	53	46	83	146	321	144	92	66
21	69	70	70	62	56	45	78	148	279	145	87	66
22	68	67	80	55	56	45	74	157	266	140	86	64
23	68	66	70	54	56	47	75	187	240	137	88	62
24	78	66	59	54	56	46	69	232	209	135	89	61
25	80	69	67	53	47	44	66	224	191	129	92	61
26	131	66	56	53	47	44	64	206	190	128	97	61
27	83	66	55	52	50	45	66	202	199	127	99	61
28	78	67	54	50	55	46	74	190	202	122	93	60
29	75	66	53	48	---	45	78	159	198	120	90	58
30	72	65	54	48	---	46	82	139	186	124	87	58
31	71	---	50	48	---	47	---	139	---	117	84	---
TOTAL	2410	2373	1893	1672	1408	1383	2324	3866	8041	4897	3013	2180
MEAN	77.7	79.1	61.1	53.9	50.3	44.6	77.5	125	268	158	97.2	72.7
MAX	131	131	85	66	56	57	112	232	633	200	111	100
MIN	68	65	40	47	33	41	50	74	139	117	84	58
AC-FT	4780	4710	3750	3320	2790	2740	4610	7670	15950	9710	5980	4320

CAL YR 1984	TOTAL	43574	MEAN	119	MAX	396	MIN	40	AC-FT	86430
WTR YR 1985	TOTAL	35460	MEAN	97.2	MAX	633	MIN	33	AC-FT	70330

14076500 DESCHUTES RIVER NEAR CULVER, OR

LOCATION.--Lat 44°29'56", long 121°19'12", in NW¼SE¼ sec.29, T.12 S., R.12 E., Jefferson County, Hydrologic Unit 17070301, on right bank 2.5 mi downstream from Squaw Creek, 6.0 mi southwest of Culver, and at mile 120.6.

DRAINAGE AREA.--2,705 mi².

PERIOD OF RECORD.--July 1952 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,980 ft above National Geodetic Vertical Datum of 1929 (river-profile survey). July 14, 1952, to Sept. 30, 1961, at site 4.1 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Feb. 18, 19. Records excellent. Flow regulated by Crescent Lake and Crane Prairie and Wickiup Reservoirs (see elsewhere in this report). Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--33 years, 929 ft³/s, 673,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,680 ft³/s Dec. 24, 1964, gage height, 10.00 ft, from rating curve extended above 2,200 ft³/s on basis of slope-area measurement of peak flow; minimum, 418 ft³/s July 7, 8, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,330 ft³/s Dec. 19, gage height, 5.90 ft; minimum, 510 ft³/s Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	799	1840	2080	2130	1790	1640	1270	564	833	555	533	521
2	830	1990	2140	2140	1720	1650	1030	563	747	550	530	527
3	806	1990	2150	2130	1710	1610	1030	549	679	553	547	526
4	768	1950	2190	2110	1620	1600	1030	558	651	553	603	526
5	768	1950	2230	2140	1690	1580	955	547	583	543	586	563
6	738	2010	2230	2140	1700	1580	1100	539	649	538	550	595
7	724	1760	2250	2130	1710	1570	1150	538	1090	530	541	566
8	734	1400	2250	2140	1720	1560	1170	537	1200	528	521	563
9	709	1280	2260	2070	1700	1560	1180	552	919	524	522	554
10	719	1440	2280	2030	1690	1550	1260	600	828	524	524	611
11	759	1490	2280	2030	1700	1540	843	587	777	523	522	703
12	785	1510	2290	2020	1560	1360	763	578	772	526	522	659
13	843	1480	2280	2000	1480	1360	818	576	799	524	519	609
14	824	1470	2270	1990	1450	1330	860	584	810	525	515	573
15	814	1510	2280	1990	1490	1340	833	592	821	526	515	534
16	966	1490	2200	1980	1650	1440	845	565	791	526	514	540
17	1020	1450	2250	1960	1680	1510	827	538	721	527	516	551
18	966	1500	2220	1930	1600	1520	858	534	712	532	518	599
19	918	1630	2150	1880	1500	1310	778	542	750	534	519	635
20	1050	1380	2200	1870	1440	1310	807	556	771	527	522	625
21	1650	1510	2180	1610	1430	1290	766	558	718	539	522	608
22	1770	1540	2160	1450	1410	1260	737	541	675	525	521	567
23	1770	1560	1780	1440	1620	1390	734	551	652	523	523	537
24	1800	1880	1670	1450	1680	1470	686	593	620	524	538	527
25	1790	2020	1610	1480	1680	1450	601	666	608	527	525	529
26	1860	2000	1740	1880	1690	1380	558	650	582	524	525	529
27	1830	2010	1840	1930	1650	1410	545	629	564	523	528	526
28	1810	2060	2090	1960	1610	1410	553	623	558	523	527	525
29	1800	2040	2170	1940	---	1380	557	684	556	525	525	579
30	1850	2050	2170	1920	---	1380	563	717	558	521	518	585
31	1850	---	2150	1980	---	1380	---	713	---	525	520	---
TOTAL	36320	51190	66040	59850	45370	45120	25707	18124	21994	16447	16411	17092
MEAN	1172	1706	2130	1931	1620	1455	857	585	733	531	529	570
MAX	1860	2060	2290	2140	1790	1650	1270	717	1200	555	603	703
MIN	709	1280	1610	1440	1410	1260	545	534	556	521	514	521
AC-FT	72040	101500	131000	118700	89990	89500	50990	35950	43630	32620	32550	33900

CAL YR 1984	TOTAL	490561	MEAN	1340	MAX	2350	MIN	528	AC-FT	973000
WTR YR 1985	TOTAL	419665	MEAN	1150	MAX	2290	MIN	514	AC-FT	832400

14080400 PRINEVILLE RESERVOIR NEAR PRINEVILLE, OR

LOCATION.--Lat 44°06'50", long 120°46'50", in SW¼NW¼ sec.11, T.17 S., R.16 E., Crook County, Hydrologic Unit 17070304, at right end of Prineville Dam on Crooked River, 13.8 mi south of Prineville, and at mile 72.5.

DRAINAGE AREA.--2,700 mi^2, approximately, of which 500 mi^2 is probably noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Aug. 13, 1969, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam with ungated concrete spillway and concrete outlet tunnel controlled by two 4-ft by 6-ft regulating gates. Storage began in December 1960. Total capacity at elevation 3,234.80 ft, crest of spillway, is 154,700 acre-ft, of which 152,800 acre-ft is active storage above 3,114.00 ft, proposed minimum pool. Reservoir used for flood control, irrigation, and recreation. Figures given herein represent active storage.

COOPERATION.--Gage inspected and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 178,100 acre-ft Apr. 20, 1984, elevation, 3,242.75 ft; minimum observed, 37,400 acre-ft Oct. 31, Nov. 1, 1977, elevation, 3,177.40 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 157,700 acre-ft May 8-10, elevation, 3,236.40 ft; minimum, 74,440 acre-ft Feb. 22, 23, elevation, 3,201.80 ft.

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

3,175	34,560	3,210	90,380
3,180	40,600	3,215	101,100
3,185	47,390	3,220	112,600
3,190	54,740	3,230	138,700
3,195	62,640	3,235	153,400
3,200	71,190	3,240	169,100
3,205	80,430	3,243	178,900

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3218.20	3214.20	3216.50	3207.90	3206.10	3203.10	3219.25	3236.00	3235.30	3230.95	3226.05	3220.95
2	3218.05	3213.50	3216.20	3207.90	3205.80	3203.20	3221.10	3236.10	3235.30	3230.85	3225.90	3220.80
3	3217.90	3213.20	3215.70	3207.90	3205.50	3203.30	3223.15	3236.30	3235.30	3230.65	3225.80	3220.65
4	3217.70	3212.70	3214.80	3207.90	3205.20	3203.40	3225.10	3236.30	3235.20	3230.50	3225.60	3220.50
5	3217.60	3211.50	3214.00	3207.90	3204.90	3203.40	3227.00	3236.30	3235.10	3230.35	3225.45	3220.30
6	3217.40	3209.90	3213.20	3207.90	3204.60	3203.40	3228.90	3236.30	3235.00	3230.20	3225.30	3220.15
7	3217.25	3208.40	3212.30	3208.00	3204.30	3203.50	3230.60	3236.30	3234.90	3230.00	3225.15	3219.95
8	3217.05	3206.80	3211.40	3208.10	3204.10	3203.50	3232.30	3236.40	3234.90	3229.85	3224.95	3219.80
9	3216.85	3205.20	3210.60	3208.20	3203.80	3203.50	3233.10	3236.40	3234.80	3229.70	3224.75	3219.65
10	3216.70	3203.60	3209.80	3208.20	3203.50	3203.50	3233.60	3236.30	3234.70	3229.55	3224.60	3219.55
11	3216.55	3202.10	3209.00	3208.20	3203.30	3203.60	3233.90	3236.30	3234.70	3229.45	3224.50	3219.45
12	3216.40	3203.10	3208.40	3208.20	3203.10	3203.80	3234.10	3236.30	3234.60	3229.25	3224.35	3219.35
13	3216.30	3204.80	3208.00	3208.20	3202.90	3204.00	3234.20	3236.30	3234.40	3229.15	3224.20	3219.25
14	3216.20	3206.10	3207.60	3208.20	3202.70	3204.40	3234.30	3236.30	3234.30	3229.00	3224.05	3219.15
15	3216.05	3207.20	3207.40	3208.10	3202.60	3205.00	3234.50	3236.30	3234.20	3228.80	3223.85	3219.00
16	3216.00	3208.20	3207.00	3208.00	3202.50	3206.00	3234.80	3236.20	3234.00	3228.65	3223.70	3218.90
17	3215.90	3209.00	3206.80	3207.90	3202.40	3207.50	3234.90	3236.20	3233.80	3228.50	3223.55	3218.80
18	3215.70	3209.70	3206.80	3207.70	3202.20	3208.80	3235.10	3236.20	3233.65	3228.40	3223.35	3218.70
19	3215.60	3210.60	3206.70	3207.60	3202.10	3209.80	3235.30	3236.10	3233.50	3228.20	3223.20	3218.60
20	3215.50	3211.20	3206.60	3207.50	3202.00	3210.70	3235.50	3236.00	3233.20	3228.00	3222.95	3218.50
21	3215.40	3212.10	3206.50	3207.40	3201.90	3211.80	3235.60	3236.00	3233.00	3227.80	3222.80	3218.40
22	3215.30	3212.80	3206.60	3207.30	3201.80	3212.40	3235.80	3235.90	3232.75	3227.65	3222.65	3218.30
23	3215.20	3213.20	3206.80	3207.20	3201.90	3212.80	3235.90	3235.80	3232.55	3227.50	3222.50	3218.20
24	3215.00	3213.70	3207.00	3207.10	3202.10	3213.60	3236.10	3235.70	3232.30	3227.30	3222.35	3218.05
25	3214.90	3214.40	3207.10	3207.00	3202.50	3214.60	3236.30	3235.60	3232.15	3227.15	3222.20	3217.95
26	3214.80	3214.80	3207.20	3206.80	3202.70	3215.30	3236.30	3235.40	3231.90	3227.00	3222.00	3217.80
27	3214.80	3215.10	3207.40	3206.70	3202.80	3215.90	3236.30	3235.30	3231.70	3226.85	3221.85	3217.65
28	3214.70	3215.50	3207.50	3206.50	3202.90	3216.45	3236.20	3235.20	3231.55	3226.70	3221.65	3217.55
29	3214.70	3216.10	3207.60	3206.50	---	3216.90	3236.00	3235.20	3231.35	3226.50	3221.50	3217.40
30	3214.60	3216.50	3207.70	3206.40	---	3217.30	3236.00	3235.20	3231.10	3226.35	3221.30	3217.25
31	3214.60	---	3207.80	3206.30	---	3217.95	---	3235.30	---	3226.20	3221.20	---
MEAN	3216.09	3210.51	3209.29	3207.57	3203.29	3208.46	3232.71	3235.98	3233.71	3228.61	3223.65	3219.02
MAX	3218.20	3216.50	3216.50	3208.20	3206.10	3217.95	3236.30	3236.40	3235.30	3230.95	3226.05	3220.95
MIN	3214.60	3202.10	3206.50	3206.30	3201.80	3203.10	3219.25	3235.20	3231.10	3226.20	3221.20	3217.25
(†)	100200	104400	85910	82950	76470	107800	156500	154300	141900	128300	115500	106100
(‡)	-8500	+4200	-18490	-2960	-6480	+31330	+48700	-2200	-12400	-13600	-12800	-9400

CAL YR 1984 MEAN 3223.00 MAX 3242.75 MIN 3202.10 AC-FT‡ -9930
WTR YR 1985 MEAN 3219.15 MAX 3236.40 MIN 3201.80 AC-FT‡ -2600

† Contents in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

14080500 CROOKED RIVER NEAR PRINEVILLE, OR

LOCATION.--Lat 44°06'50", long 120°47'40", in SW¼NE¼ sec.10, T.17 S., R.16 E., Crook County, Hydrologic Unit 17070304, on right bank 0.4 mi downstream from Prineville Dam, 13.6 mi south of Prineville, and at mile 72.1.

DRAINAGE AREA.--2,700 mi², approximately, of which 500 mi² is probably noncontributing.

PERIOD OF RECORD.--November 1908 to September 1914, March 1941 to current year. Published as "near Prineville" 1908-12, as "at Hoffman's ranch, near Prineville" 1913-14, and as "above Hoffman Dam, near Prineville" March 1941 to September 1960. The estimate of monthly mean discharge for October 1908, published in WSP 370, has been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1448: 1909-13, 1914(M), drainage area (at sites prior to Apr. 24, 1961). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 3,070.85 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to September 1914, nonrecording gage at several sites from 9 mi to 23 mi downstream at various datums. Mar. 26, 1941, to Apr. 23, 1961, water-stage recorder at site 5.5 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent above 300 ft³/s, good below. Flow completely regulated since December 1960 by Prineville Reservoir (see station 14080400). Diversions for irrigation upstream from station. Discharge not adjusted for storage or release from Prineville Reservoir as evaporation from reservoir at times exceeds natural flow.

AVERAGE DISCHARGE.--24 years (water years 1910-14, 1942-60), 378 ft³/s, 273,700 acre-ft/yr; 25 years (water years 1961-85), 372 ft³/s, 269,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,410 ft³/s Mar. 26, 1952, gage height, 8.2 ft, from floodmark, site and datum then in use; no flow Aug. 13-21, 1959, Jan. 3-5, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,270 ft³/s Apr. 9, gage height, 7.75 ft; minimum, 1.9 ft³/s Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290	657	593	261	449	430	460	548	331	300	232	230
2	290	966	589	261	522	430	878	510	330	264	232	230
3	290	1190	996	261	522	430	1100	518	329	264	232	229
4	290	1190	1350	261	522	430	1400	527	325	264	232	229
5	290	1610	1350	261	521	430	1630	533	322	264	232	229
6	290	1990	1240	261	519	431	1640	502	319	264	232	229
7	293	2010	1340	261	519	431	1930	478	316	264	232	228
8	291	2000	1330	261	518	433	2140	434	313	244	232	228
9	290	1980	1330	261	518	433	2750	411	312	232	232	209
10	293	1970	1320	261	518	433	2920	376	310	231	232	195
11	293	1960	1320	261	518	433	2930	357	310	231	232	195
12	293	1900	1180	261	518	433	2610	356	310	232	232	195
13	293	1780	963	261	518	433	2440	354	310	232	231	195
14	293	1630	831	261	518	433	2440	348	310	231	231	195
15	293	507	829	339	518	436	2100	343	293	218	230	195
16	293	16	829	384	518	437	1910	340	295	201	230	195
17	293	20	577	383	517	438	1760	336	341	241	230	195
18	293	13	430	382	458	854	1460	332	364	266	230	195
19	325	11	360	381	427	1420	1160	327	364	264	230	195
20	373	11	318	381	427	1590	1080	322	364	264	230	195
21	373	11	293	381	427	1600	1090	317	364	264	230	195
22	373	11	259	381	427	1300	984	311	364	245	230	195
23	373	11	259	381	427	1140	934	344	364	232	230	195
24	373	11	259	381	427	1140	488	365	343	232	230	195
25	373	11	259	381	427	695	635	354	331	232	230	195
26	340	11	261	381	427	453	867	344	331	232	230	195
27	364	12	261	381	430	454	840	337	331	232	230	195
28	364	11	261	344	430	457	832	329	331	232	230	195
29	363	14	261	323	---	457	695	328	329	232	230	195
30	225	219	261	323	---	457	635	328	329	232	230	195
31	304	---	261	323	---	459	---	330	---	232	230	---
TOTAL	9774	23733	21970	9884	13487	19830	44738	11939	9885	7568	7156	6136
MEAN	315	791	709	319	482	640	1491	385	330	244	231	205
MAX	373	2010	1350	384	522	1600	2930	548	364	300	232	230
MIN	225	11	259	261	427	430	460	311	293	201	230	195
AC-FT	19390	47070	43580	19600	26750	39330	88740	23680	19610	15010	14190	12170

CAL YR 1984	TOTAL	347391	MEAN	949	MAX	3280	MIN	11	AC-FT	689100
WTR YR 1985	TOTAL	186100	MEAN	510	MAX	2930	MIN	11	AC-FT	369100

14087400 CROOKED RIVER BELOW OPAL SPRINGS, NEAR CULVER, OR

LOCATION.--Lat 44°29'33", long 121°17'50", in NW¼NE¼ sec.33, T.12 S., R.12 E., Jefferson County, Hydrologic Unit 17070305, on right bank 0.2 mi downstream from Opal Springs, 4.8 mi southwest of Culver, and at mile 6.7.

DRAINAGE AREA.--4,300 mi^2, approximately, of which 500 mi^2 is probably noncontributing.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,953.60 ft above National Geodetic Vertical Datum of 1929 (Portland General Electric Co. bench mark).

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated since December 1960 by Prineville Reservoir (see station 14080400) and Ochoco Reservoir, capacity, 47,500 acre-ft. Many diversions for irrigation upstream from station. Practically all of the summer flow comes from Opal Springs and other springs within 15 mi upstream from station. Simultaneous records (1961-63) at former gaging station 5.6 mi downstream indicated over 15 percent increase to summer flow from springs downstream from this station.

AVERAGE DISCHARGE.--24 years, 1,612 ft^3/s, 1,168,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 ft^3/s Dec. 24, 1964, gage height, 9.36 ft; minimum daily, 1,090 ft^3/s May 11, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,130 ft^3/s Apr. 11, gage height, 6.79 ft; minimum discharge not determined, occurred when stage dropped below intakes briefly, on many days, due to powerplant operation; minimum daily, 1,220 ft^3/s May 23, July 11, 12, 14, 17, 18, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1580	1520	1510	1490	1570	1770	1700	1520	1620	1340	1300	1320
2	1550	1890	1900	1500	1730	1780	1770	1420	1620	1340	1270	1350
3	1560	2230	1900	1490	1830	1760	2250	1390	1610	1290	1280	1370
4	1540	2350	2370	1490	1810	1780	2320	1420	1600	1290	1300	1350
5	1510	2350	2560	1490	1830	1770	2730	1440	1560	1290	1300	1360
6	1510	2900	2550	1480	1750	1770	2830	1450	1560	1270	1270	1380
7	1520	3100	2460	1480	1710	1750	2850	1420	1550	1260	1260	1370
8	1520	3110	2550	1480	1740	1750	3210	1390	1500	1260	1250	1390
9	1510	3100	2560	1480	1750	1750	3270	1350	1430	1250	1250	1410
10	1520	3150	2580	1480	1740	1740	3880	1320	1410	1230	1260	1430
11	1530	3150	2590	1470	1730	1750	4070	1320	1350	1220	1280	1440
12	1560	3200	2580	1470	1780	1780	4080	1290	1280	1220	1290	1440
13	1600	3190	2380	1450	1870	1790	3720	1320	1240	1230	1270	1440
14	1600	3120	2190	1460	1870	1810	3590	1310	1230	1220	1260	1470
15	1620	2690	2110	1480	1870	1820	3570	1310	1240	1240	1260	1480
16	1670	1750	2090	1550	1880	1810	3070	1320	1250	1230	1250	1470
17	1650	1430	2090	1580	1840	1840	2890	1280	1250	1220	1260	1450
18	1670	1420	1810	1580	1830	1850	2670	1280	1280	1220	1260	1450
19	1710	1410	1700	1580	1770	2300	2390	1270	1290	1260	1290	1420
20	1800	1400	1590	1590	1740	2790	2120	1260	1290	1250	1300	1400
21	1740	1430	1610	1600	1760	2950	2090	1250	1270	1250	1290	1400
22	1640	1430	1570	1640	1770	2960	2080	1230	1290	1260	1300	1400
23	1620	1390	1520	1660	1810	2550	1940	1220	1290	1270	1300	1390
24	1620	1360	1550	1690	1790	2460	1910	1230	1330	1230	1290	1380
25	1610	1320	1550	1700	1790	2450	1490	1260	1390	1220	1300	1370
26	1620	1290	1550	1670	1760	1890	1610	1260	1360	1230	1330	1360
27	1580	1330	1550	1660	1750	1730	1830	1260	1350	1230	1320	1340
28	1600	1360	1530	1590	1750	1710	1760	1250	1330	1240	1310	1340
29	1590	1350	1510	1610	---	1700	1750	1300	1330	1250	1300	1350
30	1600	1360	1500	1550	---	1690	1580	1610	1340	1250	1300	1370
31	1510	---	1490	1590	---	1690	---	1570	---	1310	1310	---
TOTAL	49460	62080	61000	48030	49820	60940	77020	41520	41440	38870	39810	41890
MEAN	1595	2069	1968	1549	1779	1966	2567	1339	1381	1254	1284	1396
MAX	1800	3200	2590	1700	1880	2960	4080	1610	1620	1340	1330	1480
MIN	1510	1290	1490	1450	1570	1690	1490	1220	1230	1220	1250	1320
AC-FT	98100	123100	121000	95270	98820	120900	152800	82350	82200	77100	78960	83090

CAL YR 1984	TOTAL	829400	MEAN	2266	MAX	5100	MIN	1260	AC-FT	1645000
WTR YR 1985	TOTAL	611880	MEAN	1676	MAX	4080	MIN	1220	AC-FT	1214000

14088000 LAKE CREEK NEAR SISTERS, OR

LOCATION.--Lat 44°25'35", long 121°43'30", in NE¼SW¼ sec.24, T.13 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, on left bank 300 ft downstream from Suttle Lake and 13 mi northwest of Sisters.

DRAINAGE AREA.--22.2 mi^2.

PERIOD OF RECORD.--June to November 1911, March to September 1912, May to October 1913, April 1915 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1124: 1943, 1947. WSP 1218: Drainage area. WSP 1448: 1916(M), 1925. WDR OR-81-1: 1974(M), 1978(M).

GAGE.--Water-stage recorder. Datum of gage is 3,431.68 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 1, 1916, nonrecording gage at two sites 400 ft upstream at different datums. Apr. 1, 1916, to Oct. 12, 1928, nonrecording gage or water-stage recorder at site 640 ft downstream at different datum. Oct. 13, 1928, to Aug. 13, 1967, water-stage recorder at site 600 ft downstream at datum 1.61 ft lower.

REMARKS.--No estimated daily discharges. Records excellent except those for December to February, which are good. Flow occasionally regulated by Suttle Lake 150 ft upstream from station.

AVERAGE DISCHARGE.--70 years (water years 1916-85), 52.6 ft^3/s, 38,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 446 ft^3/s Dec. 15, 1977, gage height, 4.78 ft, but may have been higher during period of no gage-height record Dec. 23, 1964; minimum, 1.0 ft^3/s Nov. 4, 5, 1940; minimum daily, 8 ft^3/s Nov. 5, 1940, Oct. 6, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum recorded discharge, 107 ft^3/s Apr. 19, gage height, 2.92 ft; minimum, 19 ft^3/s July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	35	56	47	39	38	39	71	71	39	35	33
2	32	71	52	46	40	38	39	76	68	40	34	34
3	33	79	50	46	39	38	32	81	65	40	34	33
4	33	64	48	46	38	39	33	86	63	40	40	32
5	32	60	46	45	38	39	39	87	61	38	40	33
6	33	60	45	45	42	38	42	85	69	37	36	33
7	33	58	44	45	50	38	46	82	72	39	34	33
8	34	54	43	45	52	38	49	81	75	40	34	31
9	33	55	44	45	51	38	52	80	87	38	34	33
10	34	67	52	45	48	37	60	80	90	36	34	33
11	35	58	47	43	50	37	62	78	84	36	33	33
12	36	57	63	43	47	36	67	75	76	36	33	32
13	47	64	67	43	42	36	75	72	66	35	33	32
14	45	67	61	43	40	37	76	72	63	35	33	33
15	38	72	51	43	40	38	83	70	61	36	33	33
16	34	73	49	41	40	38	87	71	58	34	32	32
17	30	70	47	41	40	38	94	73	56	34	33	33
18	29	68	50	40	40	38	102	75	53	35	34	32
19	38	62	49	40	41	37	104	75	52	29	34	31
20	41	60	50	39	41	38	99	77	51	22	32	31
21	40	58	50	39	40	41	95	79	49	20	32	31
22	36	55	47	39	40	40	92	81	48	23	32	30
23	35	53	46	39	38	44	92	83	47	40	32	30
24	33	53	45	38	38	45	83	83	44	47	33	30
25	33	49	44	38	38	41	78	83	44	39	33	30
26	42	47	44	38	38	44	70	85	44	37	33	30
27	42	53	48	38	38	44	68	81	44	35	33	29
28	40	59	50	38	38	41	70	81	41	37	31	29
29	37	53	50	38	---	41	70	80	39	36	32	29
30	35	64	53	38	---	41	69	74	37	35	30	29
31	35	---	49	37	---	40	---	75	---	35	29	---
TOTAL	1110	1798	1540	1291	1166	1216	2067	2432	1778	1103	1035	947
MEAN	35.8	59.9	49.7	41.6	41.6	39.2	68.9	78.5	59.3	35.6	33.4	31.6
MAX	47	79	67	47	52	45	104	87	90	47	40	34
MIN	29	35	43	37	38	36	32	70	37	20	29	29
AC-FT	2200	3570	3050	2560	2310	2410	4100	4820	3530	2190	2050	1880

CAL YR 1984	TOTAL	21172	MEAN	57.8	MAX	119	MIN	29	AC-FT	41990
WTR YR 1985	TOTAL	17483	MEAN	47.9	MAX	104	MIN	20	AC-FT	34680

14090350 JEFFERSON CREEK NEAR CAMP SHERMAN, OR

LOCATION.--Lat 44°34'18", long 121°38'17", in SW¼SE¼ sec.34, T.11 S., R.9 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, on left bank 100 ft upstream from bridge, 7.6 mi north of Camp Sherman, and at mile 1.3.

DRAINAGE AREA.--27.8 mi^2.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,780 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 340 ft^3/s June 7, 1985, gage height, 2.91 ft; minimum discharge, 52 ft^3/s Feb. 4, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 2	1500	255	2.58	June 7	1400	*340	*2.91

Minimum, 52 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	85	85	72	63	59	65	91	116	131	105	89
2	86	193	83	72	61	58	67	102	116	132	104	89
3	87	152	83	71	58	58	68	106	118	137	103	88
4	86	113	82	71	55	58	67	93	131	138	104	87
5	86	102	82	71	60	58	70	89	132	135	103	91
6	85	102	81	70	59	58	73	90	205	134	101	101
7	85	96	82	70	63	57	77	90	267	135	102	90
8	85	92	82	70	61	57	80	88	193	134	101	88
9	86	91	84	69	61	57	83	87	157	133	100	89
10	85	111	93	69	60	57	90	86	149	131	99	89
11	87	124	84	68	67	57	95	84	151	126	97	87
12	97	121	83	68	69	57	92	83	166	123	97	88
13	103	118	81	67	63	57	93	86	161	121	96	89
14	90	105	82	68	62	57	100	90	163	120	96	89
15	87	98	80	67	63	57	103	91	172	119	96	89
16	86	96	79	67	61	58	103	98	156	118	95	86
17	85	94	79	68	60	58	97	105	151	117	94	95
18	85	94	72	68	60	59	92	119	157	116	95	89
19	86	91	68	67	60	59	88	128	170	115	94	86
20	85	90	71	66	60	59	85	128	162	115	93	84
21	85	89	77	66	59	59	83	124	154	114	93	83
22	84	87	78	65	60	58	82	129	153	113	91	83
23	84	91	77	65	60	59	82	144	144	113	91	82
24	93	89	75	65	60	59	79	163	136	112	91	82
25	106	87	75	64	59	58	78	146	133	110	90	82
26	144	85	75	64	59	58	77	135	134	109	91	81
27	98	88	75	63	59	58	80	134	138	108	91	81
28	92	88	74	64	59	57	84	128	135	107	90	81
29	88	86	74	63	---	56	84	118	135	106	89	81
30	86	87	74	61	---	58	86	110	132	107	89	80
31	85	---	73	63	---	60	---	114	---	106	89	---
TOTAL	2794	3045	2443	2082	1701	1795	2503	3379	4587	3735	2970	2599
MEAN	90.1	102	78.8	67.2	60.8	57.9	83.4	109	153	120	95.8	86.6
MAX	144	193	93	72	69	60	103	163	267	138	105	101
MIN	84	85	68	61	55	56	65	83	116	106	89	80
AC-FT	5540	6040	4850	4130	3370	3560	4960	6700	9100	7410	5890	5160

CAL YR 1984	TOTAL	39883	MEAN	109	MAX	218	MIN	68	AC-FT	79110
WTR YR 1985	TOTAL	33633	MEAN	92.1	MAX	267	MIN	55	AC-FT	66710

14090400 WHITEWATER RIVER NEAR CAMP SHERMAN, OR

LOCATION.--Lat 44°43'04", long 121°38'07", in SE¼NE¼ sec.11, T.10 S., R.9 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, on left bank 0.2 mi downstream from Lionshead Creek, 18 mi north of Camp Sherman, and at mile 7.1.

DRAINAGE AREA.--22.9 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,230 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 19, 20, Feb. 4, 5, Feb. 28 to Apr. 15. Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 422 ft^3/s June 7, 1985, gage height, 2.81 ft; minimum discharge, 42 ft^3/s Sept. 29, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 2	0900	388	2.72	June 7	1430	*422	*2.81

Minimum discharge, 42 ft^3/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	52	69	51	47	49	60	85	99	109	75	61
2	50	263	69	51	47	50	62	93	97	115	74	59
3	50	174	69	50	46	50	64	100	100	126	78	59
4	51	113	68	50	46	50	66	94	107	133	84	61
5	50	105	67	50	45	49	70	91	112	127	80	79
6	48	104	65	50	45	48	75	88	190	122	78	102
7	51	94	64	49	45	47	80	87	322	130	79	69
8	58	84	64	49	45	46	85	84	227	134	74	59
9	59	81	67	48	45	45	90	84	175	135	69	57
10	61	103	75	48	45	45	95	81	152	134	68	54
11	58	105	68	48	51	45	100	80	142	121	67	50
12	68	110	65	48	58	45	100	77	152	113	73	49
13	75	114	60	47	51	46	100	77	154	108	74	51
14	57	104	61	47	49	47	110	81	155	104	74	50
15	54	98	64	47	48	48	115	79	177	104	75	51
16	52	93	61	47	48	48	110	82	164	104	76	47
17	49	91	61	48	48	49	105	89	144	99	77	62
18	48	92	59	48	48	50	101	102	150	97	76	53
19	50	87	58	48	48	52	96	112	162	99	73	49
20	48	86	58	48	48	53	92	114	172	104	69	47
21	48	82	58	48	47	54	88	113	153	106	65	48
22	47	79	58	48	47	55	84	116	143	101	66	46
23	49	81	58	48	47	55	89	134	132	105	71	46
24	62	80	56	48	48	54	82	155	118	105	76	47
25	71	77	55	48	48	54	78	147	111	94	83	47
26	121	75	55	48	49	52	75	135	111	95	88	47
27	69	78	55	48	48	52	76	128	119	92	82	47
28	60	84	54	48	48	52	81	121	118	91	76	45
29	55	75	53	48	---	52	83	111	116	89	72	44
30	53	76	51	49	---	54	83	104	110	89	68	44
31	50	---	51	48	---	56	---	103	---	82	63	---
TOTAL	1773	2940	1896	1501	1335	1552	2595	3147	4384	3367	2303	1630
MEAN	57.2	98.0	61.2	48.4	47.7	50.1	86.5	102	146	109	74.3	54.3
MAX	121	263	75	51	58	56	115	155	322	135	88	102
MIN	47	52	51	47	45	45	60	77	97	82	63	44
CFSM	2.74	4.69	2.93	2.32	2.28	2.40	4.14	4.88	6.99	5.22	3.56	2.60
IN.	3.16	5.23	3.37	2.67	2.38	2.76	4.62	5.60	7.80	5.99	4.10	2.90
AC-FT	3520	5830	3760	2980	2650	3080	5150	6240	8700	6680	4570	3230

CAL YR 1984	TOTAL	33894	MEAN	92.6	MAX	263	MIN	47	CFSM	4.43	IN.	60.33	AC-FT	67230
WTR YR 1985	TOTAL	28423	MEAN	77.9	MAX	322	MIN	44	CFSM	3.73	IN.	50.59	AC-FT	56380

14091500 METOLIUS RIVER NEAR GRANDVIEW, OR

LOCATION.--Lat 44°37'33", long 121°28'55", in SE¼SW¼ sec.12, T.11 S., R.10 E., Jefferson County, Hydrologic Unit 17070301, Deschutes National Forest, on right bank 1.0 mi upstream from maximum controlled pool of Lake Billy Chinook, 15.0 mi northwest of Culver, and at mile 13.6.

DRAINAGE AREA.--316 mi^2, at cableway 1.0 mi downstream, where all discharge measurements are made. Hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--April 1910 to February 1912 (gage heights and discharge measurements only), March 1912 to December 1913, October 1921 to current year. Published as "at Hubbard's ranch, near Sisters" 1910, and as "at Hubbard's ranch, near Grandview" 1910-13.

REVISED RECORDS.--WSP 1448: 1913.

GAGE.--Water-stage recorder. Datum of gage is 1,974.36 ft above National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.). Prior to Dec. 31, 1913, nonrecording gage at site 2.3 mi upstream at different datum. Oct. 1, 1921, to May 3, 1949, nonrecording gage and May 4, 1949, to June 18, 1963, water-stage recorder at site 2.7 mi downstream at datum 64 ft lower.

REMARKS.--No estimated daily discharges. Records excellent. No regulation. Many small diversions for irrigation upstream from station. Stream is spring fed. Records herein are for measuring site.

AVERAGE DISCHARGE.--65 years (water years 1913, 1922-85), 1,498 ft^3/s, 1,085,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 ft^3/s Dec. 24, 1964, gage height, 6.81 ft; minimum, 1,080 ft^3/s Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,270 ft^3/s June 7, gage height, 2.53 ft; minimum, 1,260 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1430	1430	1580	1440	1380	1410	1450	1540	1580	1550	1440	1380
2	1430	1970	1560	1440	1380	1400	1470	1560	1570	1560	1440	1390
3	1430	2030	1540	1430	1370	1400	1470	1590	1570	1570	1440	1380
4	1430	1730	1530	1430	1310	1410	1470	1570	1600	1580	1450	1380
5	1430	1620	1510	1430	1380	1400	1480	1560	1610	1570	1440	1400
6	1420	1600	1500	1420	1370	1400	1500	1550	1790	1560	1440	1460
7	1420	1580	1500	1420	1410	1400	1510	1550	2100	1570	1440	1410
8	1430	1550	1500	1420	1400	1400	1520	1540	2000	1570	1430	1390
9	1440	1550	1500	1410	1390	1390	1540	1530	1800	1570	1420	1410
10	1430	1660	1570	1410	1370	1400	1570	1530	1740	1560	1410	1400
11	1440	1740	1530	1400	1410	1400	1590	1520	1710	1550	1410	1380
12	1460	1760	1540	1400	1450	1400	1580	1500	1730	1530	1410	1380
13	1520	1780	1510	1400	1410	1390	1590	1500	1740	1520	1410	1390
14	1470	1720	1510	1400	1400	1400	1610	1500	1720	1500	1410	1390
15	1440	1670	1510	1400	1400	1400	1630	1500	1750	1500	1410	1390
16	1440	1640	1500	1400	1400	1400	1640	1520	1720	1500	1410	1370
17	1420	1620	1490	1400	1400	1400	1630	1540	1670	1500	1410	1400
18	1420	1620	1470	1400	1400	1410	1620	1570	1680	1490	1420	1390
19	1450	1600	1430	1400	1400	1410	1610	1610	1710	1480	1410	1370
20	1440	1580	1440	1400	1400	1420	1590	1630	1710	1480	1400	1370
21	1440	1560	1470	1400	1400	1440	1580	1630	1670	1480	1400	1370
22	1430	1550	1470	1400	1400	1430	1570	1640	1650	1470	1400	1360
23	1420	1550	1470	1390	1400	1450	1590	1680	1630	1480	1400	1360
24	1450	1550	1460	1390	1410	1460	1550	1750	1590	1500	1400	1350
25	1460	1540	1460	1390	1410	1440	1540	1750	1570	1470	1400	1350
26	1620	1520	1460	1380	1400	1460	1510	1710	1570	1470	1410	1350
27	1500	1550	1460	1380	1400	1450	1510	1690	1580	1460	1410	1350
28	1480	1600	1460	1380	1400	1440	1520	1670	1580	1460	1400	1350
29	1450	1580	1460	1380	---	1430	1520	1630	1570	1460	1390	1350
30	1440	1620	1460	1370	---	1440	1520	1600	1560	1470	1390	1350
31	1430	---	1450	1370	---	1450	---	1600	---	1460	1380	---
TOTAL	44910	49070	46300	43480	39050	43930	46480	49260	50470	46890	43830	41370
MEAN	1449	1636	1494	1403	1395	1417	1549	1589	1682	1513	1414	1379
MAX	1620	2030	1580	1440	1450	1460	1640	1750	2100	1580	1450	1460
MIN	1420	1430	1430	1370	1310	1390	1450	1500	1560	1460	1380	1350
AC-FT	89080	97330	91840	86240	77460	87140	92190	97710	100100	93010	86940	82060

CAL YR 1984	TOTAL	590830	MEAN	1614	MAX	2450	MIN	1420	AC-FT	1172000
WTR YR 1985	TOTAL	545040	MEAN	1493	MAX	2100	MIN	1310	AC-FT	1081000

14092100 LAKE BILLY CHINOOK NEAR METOLIUS, OR

LOCATION.--Lat 44°36'14", long 121°16'40", in SW¼NE¼ sec.22, T.11 S., R.12 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, near left end of Round Butte Dam on Deschutes River, 5.0 mi west of Metolius, and at mile 110.6.

DRAINAGE AREA.--7,490 mi^2, approximately.

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.).

REMARKS.--Reservoir is formed by rock fill dam completed in June 1964 by Portland General Electric Co.; storage began Jan. 2, 1964. Total capacity is 534,700 acre-ft at elevation 1,945.0 ft proposed upper limit of operation, and usable capacity is 273,900 acre-ft between elevations 1,860.0 ft, proposed lower limit of operation, and 1,945.0 ft. Reservoir used for power generation under FERC license 2030. Figures given herein represent total contents.

COOPERATION.--Gage readings and capacity tables furnished by Portland General Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 538,700 acre-ft July 15, 16, 1972, elevation, 1,946.00 ft; minimum observed since first filling, 431,100 acre-ft Feb. 13, 1972, elevation, 1,917.13 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 534,200 acre-ft May 31, elevation, 1,944.87 ft; minimum observed, 502,200 acre-ft Mar. 18, elevation, 1,936.56 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	1,941.39	520,600	-
Oct. 31	1,944.08	531,100	+10,500
Nov. 30	1,944.07	531,000	-100
Dec. 31	1,943.98	530,700	-300
CAL YR 1984	-	-	+38,300
Jan. 31	1,940.17	515,900	-14,800
Feb. 29	1,940.18	516,000	+100
Mar. 31	1,938.60	509,900	-6,100
Apr. 30	1,942.48	524,800	+14,900
May 31	1,944.59	533,100	+8,300
June 30	1,944.07	531,000	-2,100
July 31	1,944.11	531,200	+200
Aug. 31	1,944.18	531,500	+300
Sept.30	1,942.78	526,000	-5,500
WTR YR 1985	-	-	+5,400

14092500 DESCHUTES RIVER NEAR MADRAS, OR

LOCATION.--Lat 44°43'34", long 121°14'45", in SE¼SW¼ sec.1, T.10 S., R.12 E., Jefferson County, Hydrologic Unit 17070306, on right bank 400 ft downstream from reregulating dam, 2.7 mi downstream from Pelton Dam, 8.5 mi northwest of Madras, and at mile 100.1.

DRAINAGE AREA.--7,820 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1398: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,390.25 ft above National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.). See WSP 1738 for history of changes prior to Nov. 23, 1957.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Diurnal fluctuation caused by Lake Simtustus and reregulating reservoir since 1957, combined capacity for normal operation, 6,500 acre-ft. Some winter and spring runoff stored in Ochoco Reservoir, capacity, 47,500 acre-ft, in Crescent Lake, Crane Prairie and Wickiup Reservoirs, combined capacity, 354,600 acre-ft, and since 1960, in Prineville Reservoir, capacity, 152,800 acre-ft, and since 1964, in Lake Billy Chinook, capacity, 534,700 acre-ft. Large diversions in upper basin for irrigation.

AVERAGE DISCHARGE.--62 years, 4,544 ft^3/s, 3,292,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft^3/s July 16, 1983, accidental release from Pelton Dam, gage height, 7.70 ft, from floodmarks; minimum, 916 ft^3/s July 4, 1982, caused by power company testing control gates on dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,730 ft^3/s Dec. 11, gage height, 4.09 ft; minimum daily discharge, 3,770 ft^3/s Apr. 30, May 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4410	5620	5650	5620	5470	5560	5260	3780	5210	4140	3960	4010
2	4390	6170	6080	5810	5520	5510	5260	3770	5190	4130	4160	4060
3	4420	6950	6230	5900	5520	5510	5270	4120	5140	4170	4130	3970
4	4420	7220	6430	5870	5540	5510	5250	4250	5080	4140	4160	3960
5	4440	7240	6950	5800	5550	5510	5280	4250	4840	4160	4210	4030
6	4310	6970	7160	5820	5570	5500	5280	4250	4840	4170	4270	4040
7	4310	6880	7040	5820	5560	5510	5280	4250	4860	4150	4200	4040
8	4400	7370	7020	5810	5540	5500	5330	4260	5290	4160	3950	4030
9	4430	7060	6960	5860	5530	5500	5650	4260	5390	4300	3930	4130
10	4450	6880	7170	6170	5520	5480	6390	4260	5400	4160	3960	3990
11	4460	6890	7500	6670	5590	5940	6780	4260	4790	4160	3970	4060
12	4430	7090	7220	6840	5580	6550	6800	4250	4310	4160	3950	4410
13	4420	7230	6900	6830	5610	6530	6760	4070	4300	4180	3980	4430
14	4420	7030	6900	6840	5590	6530	6780	3960	4330	4180	3980	4460
15	4430	6920	6840	6550	5540	6510	6780	3990	4380	4020	4000	4610
16	4420	6300	6850	6240	5520	6420	6590	4100	4400	3800	4130	4570
17	4350	5920	6490	6210	5510	6450	6440	3980	4390	3830	4110	4560
18	4310	5730	6200	6220	5510	6010	6290	3990	4330	3930	3970	4540
19	4380	5160	6050	6180	5540	5520	5980	3980	3900	3960	4000	4450
20	4360	4970	5930	6110	5520	5490	5510	3990	4400	4040	4040	4530
21	4380	4960	5840	5490	5530	5550	5260	3980	4400	4100	4030	4550
22	4520	4960	5810	5500	5530	5560	5040	3990	4840	4210	4030	4510
23	5030	4960	5840	5300	5520	5550	4820	4000	4840	4290	4060	4560
24	5240	4960	5730	5130	5520	5550	4430	3950	4810	4180	4170	4530
25	5230	4980	5600	5070	5530	5550	4300	3970	4420	4210	4110	4520
26	5220	5240	5380	5080	5550	5540	4240	3970	4200	4290	4000	4010
27	5220	5450	5130	5100	5530	5590	4210	3990	4190	4290	4020	3980
28	5230	5520	5160	5080	5560	5580	4220	4560	4180	4210	4040	4030
29	5480	5560	5530	5280	---	5410	3960	4580	4210	4210	4080	4030
30	5680	5530	5720	5490	---	5270	3770	4590	4270	4290	4150	3970
31	5630	---	5630	5490	---	5270	---	4650	---	4210	4140	---
TOTAL	144820	183720	194940	181180	155100	177460	163210	128250	139130	128430	125890	127570
MEAN	4672	6124	6288	5845	5539	5725	5440	4137	4638	4143	4061	4252
MAX	5680	7370	7500	6840	5610	6550	6800	4650	5400	4300	4270	4610
MIN	4310	4960	5130	5070	5470	5270	3770	3770	3900	3800	3930	3960
AC-FT	287300	364400	386700	359400	307600	352000	323700	254400	276000	254700	249700	253000

CAL YR 1984	TOTAL	2173010	MEAN	5937	MAX	10000	MIN	3900	AC-FT	4310000
WTR YR 1985	TOTAL	1849700	MEAN	5068	MAX	7500	MIN	3770	AC-FT	3669000

14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1971 to current year.

INSTRUMENTATION.--Temperature recorder since October 1971.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.0°C occurred during period Aug. 1 to Sept. 30, 1974; minimum, 3.5°C Feb. 8, 1979.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 14.5°C many days in August and September; minimum, 5.0°C Feb. 12-14.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.5	12.5	12.0	11.5	8.5	8.5	6.5	6.5	6.0	6.0	6.0	6.0
2	13.5	12.5	11.5	11.5	8.5	8.5	6.5	6.5	6.0	5.5	6.0	6.0
3	13.0	12.5	12.0	11.5	8.5	8.0	6.5	6.5	5.5	5.5	6.0	5.5
4	13.0	12.5	11.5	11.5	8.0	8.0	6.5	6.5	5.5	5.5	6.0	6.0
5	13.0	12.5	11.5	11.5	8.0	7.5	6.5	6.0	5.5	5.5	6.0	6.0
6	13.0	12.5	11.5	11.0	8.0	7.5	6.5	6.5	5.5	5.5	6.0	6.0
7	13.0	12.5	11.5	11.0	7.5	7.5	6.5	6.0	5.5	5.5	6.0	6.0
8	13.0	12.5	11.5	11.0	7.5	7.5	6.5	6.0	6.0	5.5	6.5	6.0
9	13.0	12.5	11.0	10.5	7.5	7.5	6.5	6.0	5.5	5.5	6.5	6.0
10	13.0	12.5	10.5	10.5	7.5	7.5	6.5	6.0	5.5	5.5	6.5	6.0
11	13.0	12.5	10.5	10.5	7.5	7.5	6.5	6.0	5.5	5.5	6.5	6.0
12	13.0	12.5	10.5	10.0	7.5	7.5	6.5	6.0	5.5	5.0	6.5	6.0
13	---	---	10.0	10.0	7.5	7.0	6.5	6.0	5.5	5.0	6.5	6.0
14	---	---	10.0	10.0	7.5	7.5	6.5	6.0	5.5	5.0	6.5	6.0
15	---	---	10.0	9.5	7.5	7.5	6.5	6.0	5.5	5.5	6.5	6.0
16	12.5	---	10.0	10.0	7.5	7.5	6.5	6.0	6.0	5.5	7.0	6.0
17	12.5	12.0	10.0	10.0	7.5	7.0	6.5	6.0	6.0	5.5	7.0	6.5
18	12.0	12.0	10.0	9.5	7.0	6.5	6.5	6.0	5.5	5.5	7.0	6.5
19	12.0	12.0	9.5	9.5	7.0	6.5	6.5	6.0	5.5	5.5	7.0	6.5
20	---	---	9.5	9.5	6.5	6.5	6.5	6.0	5.5	5.5	7.0	6.5
21	---	---	10.0	9.5	6.5	6.5	6.5	6.0	5.5	5.5	7.0	6.5
22	---	---	9.5	9.5	7.0	6.5	6.0	6.0	6.0	5.5	7.0	6.5
23	---	---	9.5	9.0	7.0	7.0	6.0	6.0	6.0	5.5	7.0	6.5
24	---	---	9.0	9.0	7.0	7.0	6.0	5.5	6.0	6.0	7.0	6.5
25	---	---	9.0	9.0	7.0	7.0	6.0	5.5	6.5	6.0	7.0	6.5
26	---	---	9.0	8.5	7.0	6.5	6.0	5.5	6.0	6.0	7.0	6.5
27	---	---	9.0	8.5	7.0	6.5	5.5	5.5	6.5	6.0	7.0	6.5
28	---	---	9.0	8.5	6.5	6.5	6.0	5.5	6.0	6.0	7.0	6.5
29	---	---	8.5	8.5	7.0	6.5	6.0	5.5	---	---	7.0	6.5
30	---	---	9.0	8.5	7.0	6.5	6.0	5.5	---	---	7.0	6.5
31	---	---	---	---	6.5	6.5	6.0	5.5	---	---	7.0	7.0
MONTH	---	---	12.0	8.5	8.5	6.5	6.5	5.5	6.5	5.0	7.0	5.5

14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.5	7.0	9.5	9.0	10.5	9.5			---	---	14.0	13.5
2	8.0	7.0	9.5	9.0	10.5	9.5			---	---	14.5	13.5
3	7.5	7.0	9.5	9.0	10.5	10.0			---	---	14.5	13.5
4	8.0	7.0	9.5	9.0	10.5	10.0			---	---	14.0	13.5
5	8.0	7.0	9.5	9.0	10.5	10.0			---	---	14.0	14.0
6	8.0	7.0	9.5	9.0	10.5	10.0			14.0	---	14.0	13.5
7	8.0	7.0	9.5	9.0	10.5	10.0			14.0	13.5	14.0	13.5
8	8.0	7.0	9.5	9.0	11.0	10.0			14.0	13.5	14.0	13.5
9	8.0	7.5	9.5	9.0	11.0	10.0			14.0	13.5	14.0	13.5
10	8.0	7.5	9.5	9.0	11.0	10.0			14.0	13.5	14.0	13.5
11	8.0	7.5	9.5	9.0	11.0	10.5			14.5	13.5	14.0	13.5
12	8.5	8.0	9.5	8.5	11.0	10.5			14.5	13.5	14.0	13.5
13	8.5	8.0	9.5	9.0	11.0	10.5			14.5	13.5	13.5	13.5
14	8.5	8.0	9.5	9.0	11.0	10.5			14.0	13.5	13.5	13.5
15	8.5	8.0	10.0	9.0	11.5	10.5			14.5	13.5	14.0	13.0
16	8.5	8.0	10.0	9.0	11.5	10.5			14.5	13.5	13.5	13.0
17	9.0	8.0	10.0	9.5	11.5	10.5			14.5	13.5	13.5	13.0
18	8.5	8.0	10.0	9.5	11.5	11.0			14.0	14.0	14.0	13.0
19	8.5	8.0	10.0	9.5	---	---			14.5	14.0	13.5	13.0
20	8.5	8.0	10.5	9.5	---	---			14.0	13.5	13.5	13.0
21	8.5	8.0	10.5	9.5	12.5	11.5			14.0	13.5	13.5	13.0
22	8.5	8.0	10.0	9.5	12.5	11.5			14.5	13.5	13.5	13.0
23	9.0	8.5	10.5	9.5	12.5	11.5			14.0	13.5	13.5	13.0
24	8.5	8.5	10.0	9.5	12.5	11.5			14.0	13.5	13.5	13.0
25	9.0	8.0	10.5	9.5	12.5	12.0			14.5	13.5	13.5	13.0
26	9.0	8.5	10.5	9.5	12.5	12.0			14.5	14.0	13.5	13.0
27	9.5	8.5	10.5	9.5	---	---			14.5	14.0	13.5	13.0
28	9.5	9.0	10.0	10.0	---	---			14.5	13.5	13.5	12.5
29	9.5	9.0	10.0	10.0	---	---			14.5	13.5	13.5	12.5
30	9.5	8.5	10.5	9.5	---	---			14.5	13.5	13.5	12.5
31	---	---	10.0	10.0	---	---			14.5	13.5	---	---
MONTH	9.5	7.0	10.5	8.5	---	---			---	---	14.5	12.5

14092750 SHITIKE CREEK AT PETERS PASTURE, NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°45'02", long 121°37'56", in NW¼NE¼ sec.35, T.9 S., R.9 E., Jefferson County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on left bank 0.5 mi downstream from Peters Pasture, and 18 mi west of town of Warm Springs.

DRAINAGE AREA.--22.9 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,580 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 18-21, Feb. 3-6, Feb. 9 to Apr. 10. Records excellent except for flows above 250 ft^3/s and estimated daily discharges, which are fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 690 ft^3/s Jan. 6, 1983, gage height, 2.67 ft, from rating curve extended above 170 ft^3/s; minimum, 32 ft^3/s Oct. 29, 30, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*) from rating curve extended above 170 ft^3/s:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 2	1530	442	2.50	June 7	1730	*681	*2.94

Minimum, 31 ft^3/s Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	46	59	41	36	40	50	88	113	88	52	35
2	37	313	55	41	35	40	57	110	109	90	51	37
3	36	312	55	41	34	40	62	133	113	94	51	36
4	35	166	52	40	32	39	71	115	128	94	50	35
5	35	117	51	40	32	38	72	104	140	88	48	34
6	35	101	50	39	34	37	80	97	246	85	47	48
7	35	91	50	39	36	37	86	93	486	86	48	42
8	34	84	50	38	35	37	93	89	341	86	52	39
9	34	76	52	38	36	37	100	86	206	84	49	39
10	34	98	67	37	36	37	120	82	170	81	46	40
11	37	130	63	37	39	37	137	79	161	75	46	40
12	46	135	62	36	45	37	135	74	174	72	45	38
13	69	142	59	36	41	37	131	72	170	70	44	42
14	51	132	58	36	40	38	144	75	160	67	43	42
15	45	113	59	36	39	39	150	77	169	67	42	43
16	42	90	55	36	38	40	153	85	147	66	41	40
17	40	83	53	36	38	40	138	102	133	64	41	46
18	39	80	50	37	37	43	124	132	132	62	41	45
19	41	75	48	38	37	44	112	161	145	61	41	41
20	39	81	48	39	37	46	101	167	137	60	40	38
21	39	72	52	40	37	47	93	161	122	59	40	36
22	39	64	50	40	38	47	86	163	118	58	40	35
23	38	61	49	40	39	47	89	186	113	58	39	34
24	48	63	47	40	38	46	80	230	96	57	38	33
25	56	62	46	40	39	46	74	202	93	54	38	33
26	124	53	45	39	39	46	71	173	94	53	37	32
27	69	59	45	38	40	44	71	159	100	52	37	31
28	59	70	44	38	40	43	73	148	98	52	36	31
29	53	64	43	37	---	43	78	129	95	51	36	31
30	48	64	43	36	---	43	81	112	91	52	35	31
31	46	---	42	36	---	48	---	110	---	54	35	---
TOTAL	1420	3097	1602	1185	1047	1283	2912	3794	4600	2140	1329	1127
MEAN	45.8	103	51.7	38.2	37.4	41.4	97.1	122	153	69.0	42.9	37.6
MAX	124	313	67	41	45	48	153	230	486	94	52	48
MIN	34	46	42	36	32	37	50	72	91	51	35	31
CFSM	2.19	4.92	2.47	1.82	1.79	1.98	4.64	5.83	7.31	3.30	2.05	1.80
IN.	2.52	5.50	2.85	2.11	1.86	2.28	5.17	6.74	8.17	3.80	2.36	2.00
AC-FT	2820	6140	3180	2350	2080	2540	5780	7530	9120	4240	2640	2240

CAL YR 1984	TOTAL	32481	MEAN	88.7	MAX	341	MIN	34	CFSM	4.24	IN.	57.70	AC-FT	64430
WTR YR 1985	TOTAL	25536	MEAN	70.0	MAX	486	MIN	31	CFSM	3.34	IN.	45.36	AC-FT	50650

14092885 SHITIKE CREEK BELOW WOLFORD CANYON, NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°46'20", long 121°18'15", in NW¼SE¼ sec.21, T.9 S., R.12 E., Jefferson County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on left bank at bridge crossing 2.3 mi upstream from Tenino Creek, and 2.1 mi northwest of Warm Springs.

DRAINAGE AREA.--75.8 mi^2.

PERIOD OF RECORD.--October 1974 to current year. Records for June 1911 to October 1916, April 1923 to September 1928, and October 1972 to September 1974 (see sta 14093000) at sites downstream not equivalent owing to difference in drainage areas.

GAGE.--Water-stage recorder. Elevation of gage is 1,600 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 20-22, Feb. 4, 5. Records good except those above 1,000 ft^3/s, which are poor. No regulation. Some diversion for irrigation and Warm Springs water supply.

AVERAGE DISCHARGE.--11 years, 98.1 ft^3/s, 17.58 in/yr, 71,070 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft^3/s Feb. 21, 1982, gage height, 6.91 ft, from floodmark, from rating curve extended above 620 ft^3/s; maximum gage height, 7.35 ft Dec. 13, 1977; minimum daily discharge, 17 ft^3/s Oct. 12-15, 17-22, 24-27, Nov. 12, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 2	2000	473	4.91	June 7	2200	*619	*5.13

Minimum, 25 ft^3/s Feb. 4, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	55	89	60	55	73	84	90	119	110	73	50
2	49	270	86	60	55	71	94	109	113	111	69	52
3	48	395	84	59	56	70	101	141	115	114	68	51
4	47	216	81	56	40	71	106	131	126	121	68	50
5	47	153	77	60	50	69	109	115	142	114	66	49
6	47	126	78	57	65	68	112	107	204	110	64	58
7	47	118	76	57	62	67	116	102	426	110	63	62
8	46	107	73	57	55	66	122	96	407	111	66	55
9	47	98	74	57	55	65	126	93	252	111	67	59
10	47	130	88	55	57	65	141	89	205	107	63	58
11	49	171	88	55	55	66	163	85	182	102	62	56
12	51	178	87	55	67	66	165	81	192	96	60	54
13	77	192	83	62	61	66	157	80	203	95	58	58
14	65	180	81	58	60	67	165	81	184	89	57	59
15	58	151	84	63	62	68	175	82	196	88	56	60
16	54	132	79	54	61	70	177	86	181	87	56	57
17	53	119	76	54	61	73	161	101	154	86	55	58
18	51	114	69	56	62	75	144	130	153	83	55	64
19	54	108	66	58	60	77	130	166	166	82	55	58
20	52	104	60	59	60	80	117	178	168	81	54	53
21	50	97	55	60	60	86	109	174	150	80	54	51
22	51	90	65	60	63	82	99	171	140	76	54	49
23	50	88	75	59	66	83	100	187	136	76	52	48
24	55	89	67	59	69	87	92	236	118	75	52	47
25	58	87	66	58	71	82	84	225	111	73	52	46
26	123	84	65	57	70	84	80	189	110	71	50	46
27	81	86	65	60	69	81	78	170	117	70	50	44
28	70	94	65	56	70	78	80	162	127	69	50	44
29	64	92	63	55	---	76	82	141	118	68	50	44
30	60	95	63	55	---	75	86	120	118	72	50	44
31	58	---	62	55	---	79	---	114	---	75	50	---
TOTAL	1758	4019	2290	1786	1697	2286	3555	4032	5133	2813	1799	1584
MEAN	56.7	134	73.9	57.6	60.6	73.7	119	130	171	90.7	58.0	52.8
MAX	123	395	89	63	71	87	177	236	426	121	73	64
MIN	46	55	55	54	40	65	78	80	110	68	50	44
CFSM	.75	1.77	.97	.76	.80	.97	1.57	1.72	2.26	1.20	.77	.70
IN.	.86	1.97	1.12	.88	.83	1.12	1.74	1.98	2.52	1.38	.88	.78
AC-FT	3490	7970	4540	3540	3370	4530	7050	8000	10180	5580	3570	3140

CAL YR 1984	TOTAL	41047	MEAN	112	MAX	400	MIN	46	CFSM	1.48	IN.	20.14	AC-FT	81420
WTR YR 1985	TOTAL	32752	MEAN	89.7	MAX	426	MIN	40	CFSM	1.18	IN.	16.07	AC-FT	64960

14095500 WARM SPRINGS RIVER NEAR SIMNASHO, OR

LOCATION.--Lat 44°58'10", long 121°28'35", in SE¼SW¼ sec.7, T.7 S., R.11 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank abutment of log bridge at Hehe Butte rodeo grounds, 3.3 mi upstream from Badger Creek, and 6.2 mi west of Simnasho.

DRAINAGE AREA.--107 mi^2.

PERIOD OF RECORD.--June to September 1915, August 1949 to September 1954, October 1983 to current year. Prior to October 1983, published as "at Hehe Mill near Warm Springs."

GAGE.--Water-stage recorder. Datum of gage is 2,533.78 ft above National Geodetic Vertical Datum of 1929. June to September 1915 1.0 mi downstream at different datum. August 1949 to September 1954 0.5 mi downstream at datum 7.12 ft lower.

REMARKS.--Estimated daily discharges: Dec. 17-29. Records excellent except for estimated daily discharges, which are fair. No regulation or diversions.

AVERAGE DISCHARGE.--7 years (water years 1950-54, 1984-85) 179 ft^3/s, 22.72 in/yr, 129,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 662 ft^3/s Feb. 11, 1951, gage height, 2.80 ft (site and datum then in use); minimum discharge observed, 97 ft^3/s July 30, Sept. 5, 30, 1915.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 12	1530	*309	*3.44				

Minimum daily, 118 ft^3/s Oct. 1-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	122	165	134	126	185	186	213	179	134	123	122
2	118	222	157	133	125	181	194	219	172	134	121	123
3	118	284	153	132	124	176	204	230	169	135	122	122
4	118	219	150	131	124	177	211	223	166	133	122	121
5	118	181	147	131	124	173	218	218	168	133	121	122
6	118	170	145	131	123	170	226	216	202	133	120	124
7	118	164	144	130	124	167	230	213	211	132	123	123
8	118	155	144	130	120	165	233	209	186	131	124	122
9	118	152	145	129	119	165	238	207	171	129	124	128
10	118	171	165	129	119	166	247	206	164	128	124	132
11	118	193	154	128	131	165	259	200	160	128	123	124
12	120	203	156	128	148	165	261	196	157	127	123	123
13	136	204	151	128	138	164	260	195	154	127	122	124
14	133	197	151	128	135	165	266	195	152	127	123	124
15	124	183	156	128	139	165	272	192	150	126	122	123
16	121	177	151	127	138	167	275	194	148	127	122	122
17	121	172	145	127	135	168	271	195	146	126	122	124
18	119	171	135	127	135	169	265	200	144	126	122	122
19	126	167	135	128	139	171	258	203	142	126	122	121
20	126	165	160	128	140	177	250	204	140	125	121	121
21	123	158	180	128	140	184	248	201	139	125	121	120
22	121	153	160	128	152	183	237	199	138	124	121	120
23	119	157	150	128	173	190	241	199	137	125	121	119
24	121	161	160	126	183	194	227	201	138	125	121	119
25	121	152	150	126	186	187	219	198	138	125	120	119
26	145	148	145	126	182	190	212	194	138	125	121	119
27	135	155	140	126	179	191	210	189	137	123	121	119
28	132	165	140	126	180	185	214	186	136	120	121	119
29	126	170	140	126	---	178	210	187	135	120	121	119
30	123	174	139	124	---	178	209	183	135	122	121	120
31	123	---	138	125	---	182	---	185	---	124	121	---
TOTAL	3813	5265	4651	3976	3981	5443	7051	6250	4652	3945	3776	3660
MEAN	123	176	150	128	142	176	235	202	155	127	122	122
MAX	145	284	180	134	186	194	275	230	211	135	124	132
MIN	118	122	135	124	119	164	186	183	135	120	120	119
CFSM	1.15	1.64	1.40	1.20	1.33	1.64	2.20	1.89	1.45	1.19	1.14	1.14
IN.	1.33	1.83	1.62	1.38	1.38	1.89	2.45	2.17	1.62	1.37	1.31	1.27
AC-FT	7560	10440	9230	7890	7900	10800	13990	12400	9230	7820	7490	7260

CAL YR 1984	TOTAL	63937	MEAN	175	MAX	374	MIN	110	CFSM	1.64	IN.	22.23	AC-FT	126800
WTR YR 1985	TOTAL	56463	MEAN	155	MAX	284	MIN	118	CFSM	1.45	IN.	19.63	AC-FT	112000

14096300 MILL CREEK NEAR BADGER BUTTE, NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°51'42", long 121°37'35", in SW¼ sec.23, T.8 S., R.9 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 200 ft upstream from bridge on road B241, 3.4 mi upstream from headworks of Mill Creek Canal, and 19.3 mi northwest of Warm Springs.

DRAINAGE AREA.--26.8 mi^2.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,380 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 18-21, Feb. 4, 5, Aug. 10-19. Records good. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 194 ft^3/s Nov. 2, 1984; maximum gage height, 6.23 ft Dec. 25, 1983 resulting from an ice jam; minimum discharge, 36 ft^3/s Aug. 30, Sept. 29, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 130 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 2	2230	*194	*5.92	Feb. 4	1600	139	5.66
Dec. 20	1200	149	5.71	June 8	0130	170	5.85

Minimum, 36 ft^3/s Aug. 30, Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	51	74	62	54	57	71	73	91	50	44	42
2	48	132	71	60	54	57	71	77	86	50	44	43
3	48	163	69	59	52	57	76	87	84	49	43	41
4	48	108	65	58	48	58	75	88	83	49	43	41
5	48	88	63	60	60	57	76	83	87	48	43	42
6	48	80	61	59	55	56	77	79	103	48	43	44
7	48	77	60	57	56	56	77	78	138	48	44	43
8	48	74	60	57	58	55	77	76	147	48	44	42
9	48	73	63	56	57	56	81	74	124	48	44	45
10	48	83	75	56	58	56	85	73	113	47	43	46
11	49	94	69	56	64	55	91	72	104	47	43	44
12	49	95	70	54	74	57	94	71	96	47	42	44
13	62	95	70	53	65	57	94	70	93	46	42	45
14	57	90	68	54	62	59	95	70	90	46	42	45
15	52	82	69	57	62	59	96	71	86	45	41	44
16	50	77	65	57	57	58	98	73	84	46	41	43
17	49	73	63	57	57	60	96	78	80	46	41	45
18	49	73	60	57	56	60	92	88	77	46	41	44
19	49	70	55	57	54	60	90	98	73	47	41	43
20	49	69	52	57	57	62	84	103	70	46	41	43
21	49	66	70	58	55	62	81	101	67	45	40	42
22	49	62	63	55	57	59	78	101	64	44	41	42
23	49	63	60	56	59	63	84	102	61	45	40	42
24	51	64	59	56	62	66	78	109	59	44	40	41
25	49	62	58	56	59	62	74	110	57	45	40	40
26	62	63	58	56	58	62	73	107	56	44	40	40
27	56	65	58	54	58	61	71	103	53	44	40	40
28	56	72	60	55	58	62	71	101	52	44	40	39
29	54	74	60	55	---	62	71	99	51	43	40	40
30	50	78	60	53	---	65	72	95	51	44	41	40
31	50	---	60	53	---	67	---	93	---	45	41	---
TOTAL	1570	2416	1968	1750	1626	1843	2449	2703	2480	1434	1293	1275
MEAN	50.6	80.5	63.5	56.5	58.1	59.5	81.6	87.2	82.7	46.3	41.7	42.5
MAX	62	163	75	62	74	67	98	110	147	50	44	46
MIN	48	51	52	53	48	55	71	70	51	43	40	39
CFSM	1.89	3.00	2.37	2.11	2.17	2.22	3.04	3.25	3.09	1.73	1.56	1.59
IN.	2.18	3.35	2.73	2.43	2.26	2.56	3.40	3.75	3.44	1.99	1.79	1.77
AC-FT	3110	4790	3900	3470	3230	3660	4860	5360	4920	2840	2560	2530

CAL YR 1984	TOTAL	25469	MEAN	69.6	MAX	163	MIN	46	CFSM	2.60	IN.	35.35	AC-FT	50520
WTR YR 1985	TOTAL	22807	MEAN	62.5	MAX	163	MIN	39	CFSM	2.33	IN.	31.66	AC-FT	45240

14096850 BEAVER CREEK BELOW QUARTZ CREEK, NEAR SIMNASHO, OR

LOCATION.--Lat 44°57'32", long 121°23'35", in NE¼SW¼ sec.14, T.7 S., R.11 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 600 ft downstream from culvert on Warm Springs Reservation Highway 9, 200 ft downstream from Quartz Creek, and 2.4 mi west of Simnasho.

DRAINAGE AREA.--145 mi^2.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,260 ft, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 4, 5. Records excellent. No regulation or diversions upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,150 ft^3/s, Jan. 24, 1984, gage height, 5.19 ft; minimum discharge, 38 ft^3/s many days in August and September 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 24	2200	*296	*3.34				

Minimum discharge, 38 ft^3/s many days in August and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	41	103	82	53	170	133	99	76	46	44	38
2	40	114	86	73	53	150	144	103	73	46	41	39
3	40	228	78	65	51	139	156	107	70	45	41	38
4	40	153	73	66	50	141	163	107	68	45	41	38
5	40	104	68	65	50	131	162	102	67	45	40	38
6	40	84	65	63	51	127	164	98	77	44	40	40
7	40	76	66	61	53	122	161	97	90	44	41	39
8	40	69	71	60	52	114	158	94	78	44	41	39
9	40	66	73	59	53	110	157	91	71	42	41	40
10	40	120	89	58	53	110	160	90	67	42	40	45
11	40	140	82	56	59	111	167	89	64	42	40	42
12	40	164	83	55	93	111	166	85	63	43	40	39
13	46	164	79	54	87	109	159	83	61	42	40	39
14	48	138	77	55	95	109	159	83	60	42	40	40
15	44	112	83	55	203	110	160	81	58	42	40	39
16	42	100	78	55	148	113	159	81	57	42	40	39
17	41	93	76	55	107	115	151	83	55	42	40	39
18	40	96	63	57	95	119	142	85	54	42	40	39
19	41	92	60	57	98	121	137	89	54	42	39	39
20	42	94	60	62	111	126	128	91	53	41	38	38
21	41	95	78	66	110	134	124	90	53	41	38	38
22	40	80	81	65	186	133	120	88	51	41	38	38
23	40	77	97	63	222	135	119	87	51	41	38	38
24	41	84	105	60	246	139	114	89	50	41	38	38
25	42	76	95	60	226	128	109	88	50	41	38	38
26	51	70	88	57	185	128	104	85	49	41	38	38
27	51	73	84	55	161	136	102	82	49	41	38	38
28	53	106	80	56	159	132	102	80	47	41	38	38
29	52	106	80	55	---	121	101	78	47	41	38	38
30	44	109	86	52	---	119	98	77	46	41	38	38
31	42	---	93	55	---	126	---	76	---	43	38	---
TOTAL	1321	3124	2480	1857	3110	3889	4179	2758	1809	1316	1225	1167
MEAN	42.6	104	80.0	59.9	111	125	139	89.0	60.3	42.5	39.5	38.9
MAX	53	228	105	82	246	170	167	107	90	46	44	45
MIN	40	41	60	52	50	109	98	76	46	41	38	38
CFSM	.29	.72	.55	.41	.77	.86	.96	.61	.42	.29	.27	.27
IN.	.34	.80	.64	.48	.80	.00	1.07	.71	.46	.34	.31	.30
AC-FT	2620	6200	4920	3680	6170	7710	8290	5470	3590	2610	2430	2310

CAL YR 1984	TOTAL	37774	MEAN	103	MAX	839	MIN	39	CFSM	.71	IN.	9.69	AC-FT	74920
WTR YR 1985	TOTAL	28235	MEAN	77.4	MAX	246	MIN	38	CFSM	.53	IN.	7.24	AC-FT	56000

14097100 WARM SPRINGS RIVER NEAR KAHNEETA HOT SPRINGS, OR

LOCATION.--Lat 44°51'24", long 121°08'55", in SE¼SW¼ sec.23, T.8 S., R.13 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 25 ft upstream from bridge, 2.5 mi east of Kahneeta Hot Springs, and at mile 4.6.

DRAINAGE AREA.--526 mi^2.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent. No regulation. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--13 years, 454 ft^3/s, 11.72 in/yr, 328,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,540 ft^3/s Dec. 15, 1977, gage height, 8.86 ft; minimum daily, 160 ft^3/s Jan. 1, 2, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 3	1800	*1,680	*4.01				

Minimum, 204 ft^3/s Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	289	524	376	303	620	550	540	523	300	289	262
2	261	578	454	360	308	584	580	552	494	298	276	270
3	262	1430	428	334	293	552	614	584	470	295	270	266
4	261	972	402	333	257	557	642	614	460	292	270	262
5	261	630	385	340	318	536	655	592	453	288	268	262
6	264	522	368	340	313	523	668	577	502	288	266	267
7	263	488	370	326	332	509	676	567	644	287	262	272
8	262	449	384	329	320	489	680	556	714	284	269	268
9	263	433	383	326	311	476	685	541	611	282	269	288
10	264	587	440	328	309	474	700	535	538	278	263	308
11	265	797	438	321	323	474	736	529	494	277	262	292
12	267	763	435	315	404	476	760	513	465	276	262	275
13	292	746	419	309	397	471	753	499	445	274	259	275
14	325	689	407	316	390	472	757	496	433	275	258	281
15	301	593	421	320	511	478	777	497	417	273	257	277
16	284	544	398	319	555	484	788	495	405	272	256	271
17	279	511	400	315	456	494	779	505	392	272	257	270
18	275	510	357	319	417	504	748	524	373	270	258	272
19	287	491	363	320	420	511	726	558	364	269	261	268
20	304	489	416	327	449	524	695	587	352	269	258	266
21	294	487	484	335	436	549	673	596	344	266	258	264
22	286	439	411	336	549	555	650	590	336	265	257	262
23	283	419	408	329	754	552	639	587	329	266	254	262
24	287	443	419	324	772	579	625	601	326	265	254	262
25	289	421	397	320	741	554	592	612	322	266	254	260
26	333	397	389	317	661	549	567	591	318	265	253	259
27	356	402	383	308	607	559	551	570	314	264	252	258
28	332	485	378	316	594	559	548	554	309	263	252	258
29	323	556	373	312	---	528	548	545	307	264	251	258
30	304	529	380	296	---	509	539	530	305	268	251	259
31	295	---	387	311	---	533	---	513	---	280	260	---
TOTAL	8883	17089	12601	10077	12500	16234	19901	17150	12759	8551	8086	8074
MEAN	287	570	406	325	446	524	663	553	425	276	261	269
MAX	356	1430	524	376	772	620	788	614	714	300	289	308
MIN	261	289	357	296	257	471	539	495	305	263	251	258
CFSM	.55	1.08	.77	.62	.85	.00	1.26	1.05	.81	.52	.50	.51
IN.	.63	1.21	.89	.71	.88	1.15	1.41	1.21	.90	.60	.57	.57
AC-FT	17620	33900	24990	19990	24790	32200	39470	34020	25310	16960	16040	16010

CAL YR 1984	TOTAL	181263	MEAN	495	MAX	2370	MIN	261	CFSM	.94	IN.	12.82	AC-FT	359500
WTR YR 1985	TOTAL	151905	MEAN	416	MAX	1430	MIN	251	CFSM	.79	IN.	10.74	AC-FT	301300

14101500 WHITE RIVER BELOW TYGH VALLEY, OR

LOCATION.--Lat 45°14'30", long 121°05'38", in NE¼NE¼ sec.7, T.4 S., R.14 E., Wasco County, Hydrologic Unit 17070306, on left bank 200 ft downstream from former Pacific Power & Light Co. powerplant at White River Falls, 3.9 mi east of town of Tygh Valley, and at mile 2.0.

DRAINAGE AREA.--417 mi^2.

PERIOD OF RECORD.--October 1917 to current year.

REVISED RECORDS.--WSP 1448: 1920, 1923, 1927-28, drainage area. WSP 1935: 1956.

GAGE.--Water-stage recorder. Datum of gage is 870.15 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.). Prior to July 28, 1931, at site 750 ft downstream at different datum. July 28, 1931, to Sept. 30, 1954, at site 700 ft downstream at different datums.

REMARKS.--Estimated daily discharges: Dec. 19 to Jan. 2. Records good except for estimated daily discharges, which are fair. No regulation. Diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--68 years, 428 ft^3/s, 310,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft^3/s Jan. 6, 1923, gage height, about 13.3 ft, site and datum then in use, from rating curve extended above 5,000 ft^3/s; minimum, 7.5 ft^3/s Aug. 31, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 15	0530	*1,240	*3.89				

Minimum, 107 ft^3/s Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	184	429	300	222	458	603	623	569	218	162	113
2	128	561	383	280	230	453	709	699	520	209	147	116
3	129	1000	351	262	211	438	826	800	510	205	140	116
4	127	686	325	258	174	435	851	755	499	201	143	116
5	126	502	301	263	243	416	827	684	497	198	142	117
6	124	422	285	256	241	405	854	639	597	190	139	166
7	125	405	288	248	247	391	891	610	862	186	136	139
8	127	365	292	242	236	371	930	575	770	186	149	120
9	134	345	300	238	232	359	977	560	656	177	147	127
10	131	436	396	230	230	356	1090	542	591	170	134	173
11	131	615	366	224	257	358	1180	527	542	165	131	164
12	133	698	357	217	540	363	1150	492	530	160	125	141
13	178	732	345	219	398	363	1120	492	522	159	121	139
14	192	676	338	217	350	368	1180	512	500	159	117	138
15	178	572	372	225	471	377	1210	498	487	159	118	138
16	161	509	337	220	391	390	1180	564	462	157	118	136
17	152	459	328	221	346	411	1090	663	431	151	116	151
18	150	448	265	226	331	437	976	745	413	146	117	164
19	154	434	230	229	334	460	895	782	398	148	116	145
20	163	426	220	244	349	482	812	812	385	148	116	139
21	158	403	220	249	325	510	751	780	356	146	114	137
22	153	372	250	247	361	504	685	765	332	143	112	142
23	151	363	370	243	393	510	690	792	308	147	112	141
24	161	376	330	239	425	527	643	878	288	145	116	139
25	173	344	290	238	473	493	599	842	273	134	117	138
26	298	325	270	232	463	487	566	779	254	132	120	129
27	249	338	260	230	446	482	571	730	250	132	117	127
28	232	401	250	236	441	465	619	684	242	129	116	126
29	218	479	270	239	---	435	606	638	233	130	112	125
30	196	468	350	225	---	437	594	632	228	133	112	128
31	193	---	330	237	---	532	---	590	---	154	110	---
TOTAL	5052	14344	9698	7434	9360	13473	25675	20684	13505	5017	3892	4090
MEAN	163	478	313	240	334	435	856	667	450	162	126	136
MAX	298	1000	429	300	540	532	1210	878	862	218	162	173
MIN	124	184	220	217	174	356	566	492	228	129	110	113
AC-FT	10020	28450	19240	14750	18570	26720	50930	41030	26790	9950	7720	8110

CAL YR 1984	TOTAL	165740	MEAN	453	MAX	2820	MIN	124	AC-FT	328700
WTR YR 1985	TOTAL	132224	MEAN	362	MAX	1210	MIN	110	AC-FT	262300

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR
(National stream quality accounting network station)

LOCATION.--Lat 45°37'20", long 120°54'05", in SW¼SE¼ sec.26, T.2 N., R.15 E., Sherman County, Hydrologic Unit 17070306, on right bank at Moody, 4.0 mi southwest of Biggs, and at mile 1.4.

DRAINAGE AREA.--10,500 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to December 1899 (published as "near Moro"), July 1906 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 754: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 167.54 ft above National Geodetic Vertical Datum of 1929. Oct. 19, 1897, to Dec. 31, 1899, nonrecording gage at site 10 mi upstream at different datum. July 22, 1906, to July 18, 1930, nonrecording gage at site 300 ft downstream at datum 0.50 ft lower.

REMARKS.--No estimated daily discharges. Water-discharge records excellent. Some fluctuation caused by regulation at Lake Simtustus since 1957. Some winter and spring runoff stored in Ochoco Reservoir, capacity, 46,420 acre-ft, in Crescent Lake, Crane Prairie, and Wickiup Reservoirs, combined capacity, 323,390 acre-ft, and since 1960, in Prineville Reservoir (see station 14080400), and since 1964 in Lake Billy Chinook (see station 14092100). Large diversions in upper river basin for irrigation.

AVERAGE DISCHARGE.--81 years, 5,868 ft^3/s, 4,251,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,500 ft^3/s Dec. 22, 1964, gage height, 11.80 ft, from rating curve extended above 47,000 ft^3/s; minimum, 2,400 ft^3/s Dec. 5, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 ft^3/s Nov. 4, gage height, 4.50 ft; minimum, 4,310 ft^3/s July 17, Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5150	6350	7020	6590	6180	6900	6610	5190	6150	4950	4700	4530
2	5130	6770	7090	6540	6180	6930	6750	5250	6420	4860	4510	4490
3	5110	10100	7370	6740	6200	6830	6950	5340	6360	4830	4610	4510
4	5120	10400	7320	6700	6070	6780	7050	5800	6260	4840	4580	4430
5	5120	9140	7570	6640	6090	6800	7100	5740	6110	4790	4590	4430
6	5120	8740	8100	6640	6280	6750	7120	5660	6060	4790	4630	4500
7	5020	8150	8080	6610	6360	6700	7150	5610	6540	4800	4670	4510
8	5040	8340	8040	6600	6350	6640	7210	5570	7050	4780	4610	4500
9	5140	8520	7990	6590	6270	6590	7290	5530	7050	4810	4450	4570
10	5150	8660	8070	6630	6240	6570	7870	5500	6920	4870	4400	4770
11	5180	9410	8560	7100	6420	6560	8860	5470	6500	4760	4410	4610
12	5180	9220	8790	7530	7970	7330	9030	5440	5890	4770	4390	4680
13	5210	9610	8160	7550	7500	7600	8920	5410	5550	4770	4380	4920
14	5300	9730	8040	7550	7030	7580	8940	5190	5550	4740	4370	4950
15	5290	8890	8030	7580	7250	7590	9010	5150	5530	4710	4380	4980
16	5240	8600	8010	7150	7290	7560	9060	5220	5540	4530	4420	5070
17	5230	7580	7920	6940	6880	7550	8680	5360	5490	4380	4530	5020
18	5110	7430	7290	6980	6680	7600	8480	5380	5430	4410	4500	5050
19	5170	6940	6990	6960	6620	6910	8140	5460	5230	4500	4410	4980
20	5280	6520	6690	6980	6690	6740	7590	5550	5040	4540	4460	4920
21	5240	6650	6790	6720	6630	6790	7210	5580	5350	4590	4490	4960
22	5190	6430	6900	6340	6660	6870	6900	5550	5380	4630	4480	4940
23	5390	6230	7000	6320	7030	6870	6530	5560	5630	4730	4480	4930
24	5890	6240	6990	5990	7150	6890	6210	5650	5610	4730	4510	4950
25	5930	6260	6740	5870	7230	6860	5860	5670	5480	4660	4590	4940
26	6060	6170	6630	5850	7080	6810	5650	5630	5150	4680	4520	4800
27	6220	6510	6240	5850	6970	6830	5600	5530	4950	4730	4440	4440
28	6100	6720	6140	5830	6870	6850	5590	5600	4940	4710	4460	4400
29	6050	7090	6110	5840	---	6770	5590	5950	4920	4650	4480	4470
30	6400	7010	6740	6120	---	6470	5250	5920	4970	4690	4500	4450
31	6420	---	6710	6190	---	6500	---	5880	---	4780	4550	---
TOTAL	168180	234410	228120	205520	188170	215020	218200	171340	173050	146010	139500	141700
MEAN	5425	7814	7359	6630	6720	6936	7273	5527	5768	4710	4500	4723
MAX	6420	10400	8790	7580	7970	7600	9060	5950	7050	4950	4700	5070
MIN	5020	6170	6110	5830	6070	6470	5250	5150	4920	4380	4370	4400
AC-FT	333600	465000	452500	407600	373200	426500	432800	339900	343200	289600	276700	281100

CAL YR 1984	TOTAL	2731770	MEAN	7464	MAX	15400	MIN	4500	AC-FT	5418000
WTR YR 1985	TOTAL	2229220	MEAN	6107	MAX	10400	MIN	4370	AC-FT	4422000

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1911-12, 1953-58, 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1981.
WATER TEMPERATURES: December 1952 to February 1954, November 1954 to September 1958, June 1962 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUC-TANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT											
23...	1310	5510	141	8.40	10.0	11.2	K10	80	55	0	12
DEC											
11...	0830	8620	139	7.90	7.0	10.2	K9	--	48	0	9.7
FEB											
12...	1245	8420	128	7.50	6.5	--	--	130	48	0	10
MAY											
16...	1115	5230	125	8.10	14.5	11.0	K5	33	44	0	9.2
JUL											
16...	0945	4600	131	8.00	18.0	9.7	K2	610	46	0	9.1
SEP											
18...	0945	5080	133	7.80	13.5	10.9	K14	690	45	0	9.1

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT										
23...	6.0	12	2.0	66	3.1	2.4	.10	.010	.19	.20
DEC										
11...	5.7	12	2.0	70	6.3	2.3	.10	.020	.21	.20
FEB										
12...	5.5	9.9	2.1	65	5.2	2.7	.10	.060	.32	1.1
MAY										
16...	5.0	10	1.9	66	3.8	2.5	.10	.040	<.10	<.20
JUL										
16...	5.6	11	2.0	64	3.7	2.4	<.10	.050	<.10	.30
SEP										
18...	5.4	11	2.2	67	3.7	3.8	.10	.060	.10	.30

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, TOTAL (MG/L AS P)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER DAY)	TURBIDITY (NTU)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT										
23...	.060	.060	.070	31	104	110	1550	2.0	--	--
DEC										
11...	.050	.050	.080	30	93	110	2160	3.3	--	--
FEB										
12...	.050	.070	.250	31	97	110	2210	55	312	7090
MAY										
16...	.050	.060	.050	29	101	100	1430	3.9	13	184
JUL										
16...	.060	.050	.070	30	83	100	1030	2.6	9	112
SEP										
18...	.080	.050	.080	30	94	110	1290	2.6	12	165

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
OCT										
23...	<10	<1	16	2.0	2	<1	<3	<1	20	5
FEB										
12...	290	<1	20	<.5	<1	1	<3	4	150	2
MAY										
16...	<10	<1	9	<.5	<1	<1	<3	4	13	3
JUL										
16...	<10	<1	9	<.5	<1	<1	<3	1	11	<1

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
OCT										
23...	8	8	--	<10	1	<1	<1	49	14	51
FEB										
12...	5	5	<.1	<10	4	<1	<1	50	13	11
MAY										
16...	4	4	<.1	<10	1	<1	<1	49	11	6
JUL										
16...	6	2	<.1	<10	2	<1	<1	49	12	10

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

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi downstream from Mill Creek, 2.6 mi downstream from The Dalles Dam, and at mile 188.9.

DRAINAGE AREA.--237,000 mi², approximately.

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept 30, 1968, water-stage recorder at site 0.4 mi upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Jan. 31, Feb. 11, 12, Apr. 19-22, Sept. 8-17. Records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--107 years, 193,500 ft³/s, 140,200,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since 1858), 1,240,000 ft³/s June 6, 1894, elevation, 106.5 ft; minimum (since 1878), 12,100 ft³/s Apr. 16, 1968 (due to closure of John Day dam, recorded by AVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 295,000 ft³/s May 6; maximum elevation, 80.8 ft May 6; minimum daily discharge, 71,900 ft³/s July 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108000	137000	175000	167000	237000	210000	178000	222000	244000	145000	101000	93800
2	150000	146000	179000	204000	187000	206000	197000	243000	228000	162000	111000	86600
3	151000	135000	174000	195000	197000	183000	164000	253000	268000	181000	104000	89700
4	166000	104000	176000	193000	244000	191000	185000	216000	240000	138000	88400	98700
5	137000	117000	158000	182000	260000	174000	184000	214000	188000	138000	113000	99000
6	99400	126000	173000	169000	212000	164000	184000	295000	196000	132000	109000	122000
7	90400	128000	168000	205000	199000	173000	160000	263000	218000	127000	97700	90000
8	104000	132000	153000	206000	212000	189000	159000	246000	205000	120000	114000	88500
9	115000	156000	156000	211000	210000	160000	168000	224000	225000	115000	90800	97800
10	119000	156000	181000	211000	189000	173000	188000	257000	239000	129000	87600	115000
11	137000	126000	168000	206000	196000	213000	228000	262000	239000	123000	73800	115000
12	135000	123000	165000	211000	177000	159000	221000	225000	220000	120000	103000	114000
13	117000	132000	167000	208000	214000	142000	203000	271000	196000	127000	88800	110000
14	123000	130000	159000	212000	229000	150000	197000	254000	180000	90300	109000	87000
15	140000	170000	152000	206000	229000	164000	204000	226000	189000	88200	114000	90000
16	139000	175000	154000	205000	211000	158000	231000	223000	178000	76500	110000	98400
17	106000	166000	198000	213000	179000	144000	236000	225000	186000	119000	90900	109000
18	117000	142000	175000	202000	191000	149000	285000	225000	186000	137000	78200	105000
19	163000	145000	150000	229000	215000	167000	282000	228000	215000	129000	105000	110000
20	109000	140000	203000	201000	210000	189000	266000	239000	195000	122000	85000	130000
21	130000	170000	172000	203000	217000	189000	281000	239000	203000	99800	100000	99200
22	150000	110000	171000	239000	200000	201000	250000	256000	176000	91400	101000	92500
23	143000	142000	135000	216000	192000	203000	173000	231000	161000	101000	91500	115000
24	128000	140000	119000	247000	157000	182000	198000	270000	164000	114000	72500	129000
25	123000	143000	115000	235000	202000	198000	262000	237000	153000	105000	85700	139000
26	165000	132000	144000	195000	184000	222000	242000	260000	153000	90600	92000	128000
27	147000	146000	148000	198000	206000	178000	187000	222000	154000	79700	99500	137000
28	117000	142000	149000	210000	214000	174000	176000	254000	137000	71900	113000	95100
29	109000	141000	168000	201000	---	181000	244000	260000	123000	95400	88100	92100
30	130000	178000	152000	186000	---	162000	230000	250000	128000	77200	83000	118000
31	143000	---	135000	204000	---	137000	---	239000	---	84100	86800	---
TOTAL	4010800	4230000	4992000	6370000	5770000	5485000	6363000	7529000	5787000	3529100	2987300	3194400
MEAN	129400	141000	161000	205500	206100	176900	212100	242900	192900	113800	96360	106500
MAX	166000	178000	203000	247000	260000	222000	285000	295000	268000	181000	114000	139000
MIN	90400	104000	115000	167000	157000	137000	159000	214000	123000	71900	72500	86600
AC-FT	7955000	8390000	9902000	12635000	11445000	10879000	12621000	14934000	11479000	7000000	5925000	6336000

CAL YR 1984	TOTAL	76719200	MEAN	209600	MAX	396000	MIN	90400	AC-FT	152173000	
WTR YR 1985	TOTAL	60247600	MEAN	165100	MAX	295000	MIN	71900	AC-FT	119501000	

14118500 WEST FORK HOOD RIVER NEAR DEE, OR

LOCATION.--Lat 45°35'55", long 121°38'05", in SE¼ sec.1, T.1 N., R.9 E., Hood River County, Hydrologic Unit 17070105, on left bank 0.3 mi upstream from Dead Point Creek, 0.8 mi northwest of Dee, and at mile 0.4.

DRAINAGE AREA.--95.6 mi².

PERIOD OF RECORD.--September 1913 to February 1916 (incomplete), June 1932 to current year.

REVISED RECORDS.--WDR OR-80-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 802.1 ft above National Geodetic Vertical Datum of 1929. Sept. 1, 1913, to Feb. 12, 1916, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. No regulation. Dee Irrigation District canal diverts from right bank about 6 mi upstream from station for irrigation upstream from station and in Middle Fork Basin. Diversions from Green Point Creek basin upstream from station for irrigation near Oak Grove; water from two of these diversions is carried in Hood River Irrigation District canal.

AVERAGE DISCHARGE.--54 years (water years 1914, 1933-85), 558 ft³/s, 404,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, Dec. 22, 1964, gage height, 27.0 ft, from floodmarks; maximum daily, 15,000 ft³/s Dec. 23, 1964; minimum, 93 ft³/s Aug. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 4,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 3	0600	*4,030	*7.62				

Minimum, 137 ft³/s Aug. 31, Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	403	902	535	235	528	1230	780	575	286	243	143
2	143	1870	720	475	227	485	1320	899	540	289	197	150
3	144	3310	604	430	220	451	1350	1010	513	297	193	142
4	149	1880	526	396	221	440	1110	841	554	296	192	141
5	151	1160	466	370	232	405	964	721	559	292	187	176
6	145	995	424	348	224	381	942	657	1150	277	179	347
7	145	1010	398	329	221	356	930	615	2150	272	199	197
8	153	800	394	314	221	333	927	584	1510	278	316	174
9	161	725	551	298	215	319	1000	574	993	276	215	175
10	154	960	1010	284	213	314	1150	574	794	277	195	323
11	166	1330	707	270	277	315	1240	565	693	263	184	219
12	253	1340	660	260	405	320	1130	501	653	248	183	200
13	461	1400	591	253	308	316	1100	501	626	241	181	223
14	464	1190	633	255	287	322	1140	573	601	234	178	200
15	323	879	733	292	377	334	1110	550	565	231	174	243
16	263	710	609	265	352	349	1040	699	516	227	172	212
17	262	615	545	271	328	374	876	835	483	226	169	326
18	232	712	490	296	314	406	802	862	479	224	169	312
19	224	686	472	308	329	429	734	829	468	227	164	244
20	229	644	470	325	350	487	641	765	438	226	161	234
21	208	568	472	326	348	537	584	702	401	220	157	208
22	199	508	663	319	469	495	592	707	383	208	154	191
23	195	544	997	308	541	708	849	768	365	216	154	180
24	241	556	843	296	724	738	724	785	340	215	157	179
25	427	499	685	285	728	604	653	702	321	198	163	208
26	882	455	598	274	611	553	603	644	319	195	164	189
27	728	481	565	266	537	510	733	613	318	192	156	174
28	824	1160	513	258	508	459	827	575	307	188	152	163
29	627	1210	556	250	---	425	764	616	302	190	147	157
30	521	1230	706	241	---	641	732	695	292	200	148	155
31	491	---	626	235	---	1050	---	603	---	230	144	---
TOTAL	9708	29830	19129	9632	10022	14384	27797	21345	18208	7439	5547	6185
MEAN	313	994	617	311	358	464	927	689	607	240	179	206
MAX	882	3310	1010	535	728	1050	1350	1010	2150	297	316	347
MIN	143	403	394	235	213	314	584	501	292	188	144	141
AC-FT	19260	59170	37940	19110	19880	28530	55140	42340	36120	14760	11000	12270

CAL YR 1984	TOTAL	221566	MEAN	605	MAX	3310	MIN	142	AC-FT	439500
WTR YR 1985	TOTAL	179226	MEAN	491	MAX	3310	MIN	141	AC-FT	355500

14120000 HOOD RIVER AT TUCKER BRIDGE, NEAR HOOD RIVER, OR

LOCATION.--Lat 45°39'20", long 121°32'50", in SE¼ sec.15, T.2 N., R.10 E., Hood River County, Hydrologic Unit 17070105, on right bank 25 ft downstream from Tucker Bridge, 0.5 mi upstream from Odell Creek, 4.0 mi, southwest of town of Hood River, and at mile 6.1.

DRAINAGE AREA.--279 mi².

PERIOD OF RECORD.--October 1897 to December 1899, September 1913 to September 1914, August 1915 to September 1917, January 1965 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1318: 1899. WSP 1935: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 383.2 ft above National Geodetic Vertical Datum of 1929 (Oregon State Highway Department bench mark). Prior to July 23, 1915, nonrecording gage at bridge at various datums. July 23 to Dec. 21, 1915, water-stage recorder at site 0.8 mi upstream at different datum. January 1916 to September 1917, nonrecording gage at bridge at different datum. Jan. 16 to July 23, 1965, nonrecording gage at bridge.

REMARKS.--Estimated daily discharges: Oct. 1-17, Dec. 18, 19, Feb. 2-21. Records good. Some daily fluctuation caused by diversion dam upstream from station and sawmill at Dee. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--25 years (water years 1898-99, 1914, 1916-17, 1966-85), 1,082 ft³/s, 783,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ft³/s Dec. 13, 1977, gage height, 15.59 ft; minimum recorded, 136 ft³/s Sept. 16, 1915, caused by temporary storage behind dam at Dee.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 20.6 ft, present datum, discharge, 33,200 ft³/s, from rating curve extended above 1,500 ft³/s on basis of slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 3	0600	*5,620	*8.44	No other peak greater than base discharge.			

Minimum, 248 ft³/s Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	713	1490	996	544	933	1690	1360	1060	565	471	261
2	340	2790	1250	913	540	880	1790	1550	991	580	374	268
3	340	4830	1090	846	530	837	1860	1750	954	615	370	255
4	340	2650	985	800	520	837	1640	1500	1020	650	387	266
5	350	1730	897	768	530	793	1500	1330	1020	650	371	330
6	340	1510	842	737	520	763	1510	1230	1890	593	343	654
7	340	1520	812	711	520	715	1530	1140	3610	609	361	406
8	350	1260	808	690	520	664	1550	1120	2650	654	513	328
9	370	1170	964	666	510	640	1680	1110	1820	684	375	324
10	360	1450	1710	640	510	632	1910	1090	1480	681	333	532
11	370	1930	1250	616	700	632	2070	1080	1310	609	318	384
12	400	1970	1210	602	860	638	1970	972	1250	555	322	347
13	700	2010	1100	590	760	627	1910	962	1240	532	319	379
14	900	1800	1130	589	680	624	1990	1070	1210	506	312	358
15	700	1420	1310	639	800	636	1970	1030	1180	507	312	396
16	540	1210	1120	599	760	654	1880	1250	1060	498	312	369
17	500	1100	1030	604	720	688	1680	1500	971	499	311	501
18	476	1210	980	638	690	729	1570	1570	959	475	313	490
19	471	1180	920	649	680	758	1450	1560	966	474	306	404
20	490	1130	904	670	700	826	1300	1490	924	483	296	384
21	458	1020	929	672	740	911	1200	1390	847	473	277	366
22	446	943	1110	655	926	860	1180	1390	799	446	276	345
23	438	996	1490	638	1020	1120	1530	1490	750	467	283	340
24	496	1030	1330	624	1200	1200	1330	1590	673	468	305	338
25	711	941	1150	606	1220	1010	1210	1450	626	408	337	367
26	1370	871	1050	590	1070	939	1130	1340	614	413	361	345
27	1120	920	1030	584	964	900	1280	1260	621	399	343	330
28	1230	1770	967	573	914	821	1440	1180	611	383	331	314
29	996	1870	1030	562	---	778	1340	1160	592	406	305	304
30	836	1890	1240	544	---	989	1300	1210	582	424	292	304
31	822	---	1120	539	---	1490	---	1100	---	443	268	---
TOTAL	17950	46834	34248	20550	20648	25524	47390	40224	34280	16149	10397	10989
MEAN	579	1561	1105	663	737	823	1580	1298	1143	521	335	366
MAX	1370	4830	1710	996	1220	1490	2070	1750	3610	684	513	654
MIN	340	713	808	539	510	624	1130	962	582	383	268	255
AC-FT	35600	92900	67930	40760	40960	50630	94000	79780	67990	32030	20620	21800

CAL YR 1984	TOTAL	403500	MEAN	1102	MAX	4830	MIN	292	AC-FT	800300
WTR YR 1985	TOTAL	325183	MEAN	891	MAX	4830	MIN	255	AC-FT	645000

14128600 COLUMBIA RIVER AT STEVENSON, WA

LOCATION.--Lat 45°41'58", long 121°52'02", in NW¼SE¼ sec.36, T.3 N., R.7-1/2 E., Skamania County, Hydrologic Unit 17070105, on right bank 0.9 mi east of Stevenson, and at mile 151.3.

DRAINAGE AREA.--239,800 mi², approximately.

PERIOD OF RECORD.--October 1973 to current year (gage heights only).

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

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 79.79 ft June 20, 1974; minimum, 70.39 ft Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 77.83 ft May 3; minimum, 72.63 ft Aug. 12.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	76.39	74.45	75.27	76.53	74.97	75.79	76.81	76.42	76.67	77.03	75.54	76.33
2	76.58	75.63	76.19	76.47	75.09	75.95	77.04	75.73	76.28	77.08	75.80	76.53
3	75.96	74.82	75.54	76.69	75.37	76.09	76.92	75.27	76.17	76.35	74.31	75.39
4	76.58	75.50	76.05	76.57	74.86	75.59	75.86	74.05	74.89	76.41	74.48	75.47
5	76.52	75.30	75.93	76.45	75.62	76.10	76.24	73.65	74.94	76.35	74.67	75.65
6	76.36	75.94	76.15	76.45	74.89	75.63	76.33	74.95	75.67	76.28	74.16	75.23
7	76.02	75.18	75.67	76.15	75.52	75.81	75.84	74.48	75.13	77.08	74.77	75.93
8	75.80	75.12	75.49	76.43	74.92	75.73	75.63	74.27	74.93	76.96	75.31	76.33
9	75.92	75.20	75.67	77.11	75.20	75.89	76.59	75.48	75.94	76.72	75.23	75.89
10	76.23	74.82	75.51	76.97	75.57	76.27	76.95	73.65	75.19	77.19	75.56	76.24
11	76.37	75.23	75.74	77.00	75.39	76.20	76.71	74.90	75.98	76.81	74.95	76.11
12	76.35	75.63	75.93	76.72	75.80	76.32	76.63	74.84	75.73	76.31	75.31	75.81
13	76.52	75.61	76.19	76.75	75.83	76.35	77.03	75.10	76.01	76.90	75.38	75.93
14	76.65	75.84	76.39	76.70	75.67	76.17	76.53	74.51	75.48	77.21	75.32	76.30
15	76.49	75.39	75.86	77.09	75.42	76.34	76.32	73.79	75.06	76.82	75.15	76.03
16	76.36	75.22	75.79	77.23	75.31	76.39	76.44	73.95	75.38	76.55	75.12	75.96
17	76.02	75.27	75.63	77.41	74.86	76.28	76.94	74.53	75.70	77.20	74.86	76.16
18	76.26	74.87	75.59	77.37	74.78	76.09	77.15	74.69	76.28	76.66	74.37	75.15
19	76.76	74.85	75.63	76.55	74.88	75.85	76.78	74.17	75.63	77.35	75.67	76.43
20	76.63	75.91	76.20	76.45	74.88	75.74	76.71	74.87	75.93	77.10	75.10	75.98
21	76.85	75.82	76.33	76.77	74.78	75.83	76.65	75.16	75.82	77.09	74.97	75.83
22	76.89	75.42	76.17	76.63	74.91	75.53	76.03	73.66	75.02	77.05	75.74	76.49
23	76.62	75.13	76.06	76.23	75.30	75.74	75.94	74.09	74.83	76.47	74.87	75.63
24	76.32	75.71	76.02	76.59	74.82	75.61	75.95	74.93	75.25	77.00	73.61	75.16
25	76.81	75.03	75.80	76.80	76.12	76.47	75.93	73.92	74.86	77.01	75.25	76.14
26	77.00	76.04	76.59	76.02	75.04	75.55	76.25	74.88	75.65	76.25	73.99	74.89
27	76.66	75.26	76.01	76.09	74.63	75.44	76.49	75.20	75.97	77.02	75.81	76.39
28	76.25	75.62	75.99	76.86	74.84	75.76	76.47	75.37	75.96	76.44	74.37	75.63
29	76.26	75.55	76.03	77.23	74.98	76.08	76.62	75.06	75.73	76.90	75.27	75.95
30	76.07	74.74	75.41	76.89	75.44	76.30	76.61	75.62	76.06	76.69	75.05	75.81
31	76.43	75.70	76.07	---	---	---	75.58	73.78	74.79	76.86	74.07	75.40
MONTH	77.00	74.45	75.90	77.41	74.63	75.96	77.15	73.65	75.58	77.35	73.61	75.88

14128600 COLUMBIA RIVER AT STEVENSON, WA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	76.69	74.51	75.67	77.20	74.95	75.98	76.82	74.73	75.67	76.48	74.84	75.45
2	76.10	73.96	75.21	76.70	75.14	75.77	76.82	75.45	75.96	77.00	75.13	75.92
3	76.05	74.86	75.50	76.54	75.10	75.77	76.61	75.22	76.12	77.83	75.40	76.44
4	75.95	74.22	75.00	76.46	75.43	75.94	76.92	75.20	75.80	77.41	75.42	76.13
5	77.30	74.74	76.05	76.20	74.97	75.41	75.93	74.17	74.86	77.02	76.00	76.47
6	76.57	73.59	75.41	75.73	74.70	75.21	76.27	74.34	75.44	77.52	75.45	76.54
7	77.08	73.74	75.55	77.10	75.33	75.95	76.21	74.24	75.21	77.77	74.91	76.01
8	77.00	74.09	75.69	76.31	75.15	75.54	76.05	74.34	75.24	76.73	75.09	75.70
9	77.02	73.60	75.26	75.92	75.55	75.68	76.07	74.76	75.73	76.14	74.27	75.04
10	77.08	74.14	75.46	77.13	75.38	75.99	76.59	74.67	75.91	77.17	74.15	75.60
11	76.13	73.76	75.07	77.08	75.53	76.16	76.65	74.35	75.46	77.77	76.38	77.13
12	76.11	73.51	74.49	76.65	75.11	75.85	76.04	74.58	75.15	76.85	74.19	75.54
13	76.90	74.66	75.85	76.98	75.13	76.17	75.23	73.17	74.32	76.41	74.06	75.24
14	77.42	74.54	76.16	77.04	74.94	76.10	75.70	73.92	74.46	77.14	75.86	76.71
15	76.86	74.30	75.88	76.81	75.20	76.16	75.99	73.95	75.24	75.79	74.61	75.12
16	76.72	75.01	75.78	76.20	74.89	75.47	75.79	74.14	75.01	76.26	73.42	74.60
17	76.78	75.44	75.95	75.95	74.86	75.35	75.72	73.51	74.68	76.10	75.35	75.75
18	76.96	74.95	75.96	76.24	74.96	75.60	76.91	74.55	75.77	76.74	75.59	76.14
19	77.07	73.99	75.46	76.36	75.39	75.97	76.95	75.31	76.21	76.68	75.59	76.04
20	76.67	73.94	75.31	75.58	75.08	75.30	76.91	75.99	76.41	76.38	75.05	75.61
21	77.16	74.38	75.95	75.61	75.15	75.37	77.11	76.10	76.63	76.84	74.72	75.74
22	76.97	75.09	75.84	75.63	74.99	75.26	77.07	75.65	76.55	77.07	75.05	76.02
23	76.76	75.04	75.85	75.41	75.00	75.20	77.03	74.80	75.44	76.26	73.97	75.27
24	76.77	74.79	75.56	75.61	74.81	75.28	76.59	75.34	75.95	77.53	73.84	75.67
25	77.16	75.35	76.26	75.80	74.65	75.01	77.54	75.12	76.33	77.03	74.76	75.99
26	77.17	75.54	76.26	74.97	74.15	74.67	76.72	74.19	75.43	77.45	74.71	76.21
27	76.67	75.15	75.82	75.82	74.59	75.29	76.72	74.94	75.44	77.14	73.86	75.29
28	76.49	75.27	75.91	75.60	74.59	75.07	75.52	74.40	75.04	77.33	73.97	75.93
29	---	---	---	76.07	74.38	74.83	75.99	73.83	74.53	77.62	74.14	75.93
30	---	---	---	76.20	75.39	75.77	77.04	75.29	75.93	77.21	74.25	75.89
31	---	---	---	76.33	74.78	75.40	---	---	---	76.47	74.12	75.17
MONTH	77.42	73.51	75.65	77.20	74.15	75.57	77.54	73.17	75.53	77.83	73.42	75.82

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	77.27	74.16	75.76	76.16	73.38	74.69	76.26	75.39	75.72	75.63	74.31	74.90
2	77.03	73.94	75.16	76.43	74.41	75.46	76.15	74.74	75.48	75.50	74.95	75.16
3	77.49	73.56	75.81	76.48	73.39	74.99	76.07	74.36	75.17	75.33	74.82	75.07
4	76.63	73.85	75.35	76.81	74.46	75.56	75.33	73.74	74.21	75.83	74.50	75.06
5	76.05	74.10	75.25	76.64	74.51	75.69	75.02	73.08	73.86	75.98	75.25	75.65
6	76.56	75.30	75.93	76.62	74.58	75.65	75.33	73.58	74.47	76.05	74.91	75.52
7	77.14	76.15	76.70	76.65	75.10	75.93	75.21	74.04	74.47	75.75	74.64	75.16
8	76.64	75.10	75.95	77.08	74.79	75.87	75.96	72.72	73.65	74.91	74.35	74.55
9	77.29	75.41	76.35	76.48	75.63	76.05	76.14	75.61	75.95	74.77	73.36	73.98
10	77.04	75.59	76.37	76.76	75.15	75.94	75.88	75.05	75.32	74.01	73.25	73.56
11	76.89	75.35	76.15	76.78	75.65	76.31	75.31	73.38	74.21	75.48	73.91	74.45
12	76.69	75.02	75.75	76.58	75.12	75.62	74.70	72.63	73.20	75.59	75.17	75.43
13	76.91	75.15	76.13	76.98	74.80	75.79	74.81	73.77	74.03	75.47	74.32	74.96
14	76.14	75.35	75.77	76.50	74.77	75.69	74.11	72.77	73.49	75.48	74.00	74.56
15	76.43	75.41	75.92	75.75	74.77	75.35	74.48	72.79	73.37	74.83	74.02	74.54
16	76.13	75.37	75.74	74.76	73.15	73.56	75.12	73.02	73.91	74.38	73.53	74.10
17	75.92	74.37	75.22	74.78	72.81	73.41	75.20	74.57	74.92	75.33	73.65	74.39
18	76.34	75.23	75.76	75.90	74.22	74.90	75.00	74.13	74.50	75.09	73.71	74.50
19	76.09	73.76	74.88	76.32	74.65	75.36	75.37	74.20	74.72	74.07	72.90	73.53
20	76.79	73.91	75.33	76.39	74.93	75.58	75.32	73.72	74.57	75.22	73.17	74.46
21	77.03	75.45	76.38	75.64	73.38	74.55	74.73	72.77	73.61	75.08	74.21	74.67
22	76.69	75.24	75.97	75.27	74.07	74.42	75.15	73.66	74.31	75.19	74.75	75.02
23	77.01	75.14	76.00	74.56	73.88	74.31	75.19	74.45	74.81	75.31	74.31	74.91
24	76.77	75.74	76.23	76.53	73.89	75.07	74.81	73.60	73.90	75.69	73.62	74.68
25	76.94	75.26	76.10	76.16	74.35	75.32	74.54	72.98	73.59	76.07	74.16	75.11
26	76.91	75.33	76.15	75.99	74.78	75.37	74.81	74.05	74.46	76.11	74.75	75.40
27	76.99	74.57	75.70	76.14	75.48	75.81	74.77	73.43	74.10	76.55	75.20	76.03
28	77.05	74.99	75.97	75.88	75.30	75.61	75.56	73.65	74.46	76.39	75.67	75.97
29	76.13	74.02	74.93	76.02	74.77	75.44	75.56	74.46	74.89	75.87	75.32	75.72
30	74.95	73.17	74.12	75.79	74.80	75.26	74.94	74.37	74.63	76.79	74.85	75.59
31	---	---	---	76.12	74.94	75.45	74.88	74.31	74.64	---	---	---
MONTH	77.49	73.17	75.76	77.08	72.81	75.29	76.26	72.63	74.41	76.79	72.90	74.89
YEAR	77.83	72.63	75.52									

14128860 COLUMBIA RIVER AT BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'36", long 121°56'21", in sec.22, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on north shore of Bradford Island, 200 ft upstream from Bonneville Dam, at mile 146.1.

DRAINAGE AREA.--239,900 mi^2, approximately.

PERIOD OF RECORD.--May 1981 to current year (gage heights only).

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

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 77.13 ft Mar. 29, 1984; minimum, 69.65 ft Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 76.66 ft July 8; minimum, 71.62 ft Apr. 17.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	75.94	73.95	74.82	76.00	74.34	75.24	76.09	75.51	75.80	76.33	74.93	75.65
2	75.85	74.90	75.48	75.90	74.37	75.21	76.34	74.93	75.51	76.28	74.80	75.57
3	75.35	74.13	74.88	76.05	74.62	75.42	76.20	74.46	75.35	75.51	73.26	74.45
4	75.91	74.72	75.32	75.91	74.29	75.04	74.97	73.11	74.03	75.61	73.49	74.57
5	75.93	74.74	75.35	75.91	75.06	75.59	75.42	72.52	74.22	75.46	73.65	74.74
6	75.94	75.44	75.72	75.91	74.31	75.06	75.43	74.06	74.84	75.53	73.12	74.47
7	75.60	74.69	75.24	75.64	74.95	75.22	74.91	73.49	74.27	76.13	73.92	75.04
8	75.38	74.35	75.01	75.86	74.30	75.14	74.96	73.45	74.18	75.98	74.21	75.31
9	75.42	74.54	75.17	76.48	74.38	75.19	75.86	74.77	75.19	75.74	74.17	74.86
10	75.71	74.33	75.00	76.31	74.83	75.56	76.19	72.61	74.29	76.34	74.47	75.25
11	75.76	74.60	75.15	76.39	74.71	75.59	75.90	73.91	75.12	75.87	73.77	75.08
12	75.70	75.00	75.33	76.14	75.25	75.74	75.85	73.84	74.84	75.42	74.15	74.82
13	76.05	75.02	75.66	76.12	75.19	75.73	76.36	74.00	75.20	76.01	74.31	75.03
14	76.18	75.23	75.82	76.14	75.03	75.56	75.64	73.64	74.64	76.26	74.23	75.30
15	75.90	74.71	75.24	76.36	74.82	75.64	75.45	72.92	74.24	75.83	74.04	74.99
16	75.83	74.60	75.21	76.32	74.19	75.50	75.77	72.57	74.54	75.57	74.10	74.96
17	75.48	74.65	75.13	76.47	74.25	75.56	76.07	73.60	74.78	76.17	73.74	75.09
18	75.77	74.36	75.09	76.34	74.18	75.42	76.39	73.71	75.48	75.48	72.99	74.01
19	76.07	74.22	74.97	75.98	74.14	75.20	76.00	73.28	74.86	76.15	74.50	75.34
20	76.16	75.36	75.71	75.97	74.16	75.08	76.07	74.02	75.01	76.17	73.64	74.93
21	76.31	75.32	75.81	75.99	73.91	75.07	75.88	74.19	74.91	76.11	73.85	74.80
22	76.31	74.75	75.52	76.15	74.29	75.00	75.22	72.54	74.11	75.85	74.57	75.30
23	76.00	74.38	75.44	75.54	74.59	75.11	75.28	73.24	74.07	75.09	73.54	74.41
24	75.78	75.06	75.44	76.02	74.22	74.99	75.32	74.23	74.62	75.84	72.14	73.91
25	76.19	74.53	75.29	76.10	75.30	75.80	75.48	73.30	74.33	75.87	73.63	74.87
26	76.21	75.36	75.83	75.36	74.34	74.91	75.56	74.13	74.98	75.30	72.89	73.87
27	75.95	74.47	75.32	75.41	73.88	74.79	75.77	74.45	75.25	76.24	74.91	75.43
28	75.75	75.01	75.45	76.20	73.99	75.02	75.73	74.62	75.16	75.28	73.17	74.49
29	75.99	74.93	75.50	76.41	74.16	75.42	75.81	74.22	74.90	76.19	74.17	74.97
30	75.44	74.22	74.83	76.02	74.39	75.39	75.88	74.74	75.21	75.90	73.98	74.86
31	75.77	74.98	75.44	---	---	---	75.04	72.84	74.10	75.89	73.05	74.39
MONTH	76.31	73.95	75.33	76.48	73.88	75.31	76.39	72.52	74.78	76.34	72.14	74.86

14128860 COLUMBIA RIVER AT BONNEVILLE DAM, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	75.58	73.04	74.27	76.42	73.95	74.89	75.83	73.88	74.84	74.94	73.47	74.03
2	75.35	72.84	74.27	75.67	73.79	74.64	75.82	74.32	74.85	75.41	73.86	74.57
3	75.23	73.68	74.52	75.52	74.06	74.79	75.90	74.12	75.26	76.24	74.09	75.05
4	75.03	72.23	73.51	75.57	74.33	74.97	76.01	73.97	74.71	76.02	74.04	74.87
5	75.90	73.21	74.62	75.08	73.93	74.46	75.27	72.91	73.82	76.10	74.57	75.34
6	75.55	71.99	74.24	74.87	73.94	74.41	75.36	73.20	74.45	75.84	73.56	74.73
7	76.14	72.67	74.56	76.23	74.38	75.15	75.55	73.05	74.30	76.11	72.91	74.25
8	75.97	72.83	74.57	75.41	73.59	74.56	75.30	73.50	74.49	75.52	73.16	74.08
9	76.11	72.25	74.17	75.24	74.52	74.88	75.33	73.92	74.89	74.95	72.49	73.74
10	76.03	72.88	74.40	76.29	74.62	75.25	75.66	73.66	74.92	75.70	72.61	74.18
11	75.22	72.40	74.03	76.03	73.99	75.03	75.15	72.93	74.11	76.31	74.77	75.62
12	75.16	72.40	73.48	75.74	74.04	75.03	74.31	73.13	73.69	75.08	72.34	74.00
13	75.85	73.57	74.82	76.40	74.21	75.55	74.15	71.90	73.15	75.15	72.48	73.69
14	76.21	73.27	74.96	76.35	74.05	75.43	74.63	72.72	73.32	75.57	74.45	75.18
15	75.47	72.72	74.53	75.98	74.23	75.36	75.05	72.58	74.08	74.32	73.08	73.71
16	75.80	73.75	74.68	75.46	74.16	74.71	74.77	72.38	73.55	74.93	72.29	73.40
17	75.86	74.40	74.98	75.31	74.03	74.64	74.30	71.62	73.11	74.90	74.05	74.49
18	76.18	73.97	74.98	75.62	74.17	74.90	75.07	72.76	73.98	75.57	74.28	74.94
19	75.86	72.75	74.32	75.44	74.21	75.12	75.84	73.50	74.42	75.36	74.14	74.76
20	75.41	72.39	74.04	74.97	74.01	74.32	75.61	73.88	74.78	74.98	73.30	74.10
21	76.10	73.03	74.83	74.85	74.02	74.36	75.57	74.15	74.89	75.59	73.17	74.42
22	75.90	73.89	74.71	74.76	73.70	74.16	75.57	74.37	75.10	75.73	73.72	74.52
23	75.91	73.87	74.84	74.44	73.72	74.07	75.42	73.74	74.40	74.93	72.45	73.87
24	75.89	73.98	74.73	74.70	73.78	74.31	75.61	74.50	74.93	76.29	72.08	74.09
25	76.22	74.29	75.22	75.00	72.89	73.83	75.77	73.74	74.83	75.52	73.18	74.57
26	76.17	74.31	75.23	73.90	72.24	73.27	75.39	72.04	73.94	76.06	73.32	74.74
27	75.42	74.03	74.72	75.04	73.95	74.43	75.44	73.74	74.29	75.60	72.40	73.91
28	75.26	74.00	74.71	74.79	73.58	74.09	74.55	73.13	74.05	75.84	72.36	74.50
29	---	---	---	75.32	73.30	73.93	74.77	72.32	73.09	76.14	72.36	74.36
30	---	---	---	75.48	74.55	74.94	75.71	73.97	74.70	75.82	72.58	74.34
31	---	---	---	75.65	74.01	74.65	---	---	---	75.39	72.44	73.78
MONTH	76.22	71.99	74.53	76.42	72.24	74.65	76.01	71.62	74.30	76.31	72.08	74.38

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	75.98	72.63	74.44	75.58	72.69	74.06	75.85	74.82	75.25	75.26	73.84	74.50
2	75.63	72.29	73.68	75.59	73.62	74.65	75.66	74.14	74.97	75.12	74.47	74.72
3	75.77	71.88	74.23	75.76	72.28	74.09	75.59	73.77	74.65	74.94	74.32	74.62
4	75.30	72.29	73.88	76.27	73.75	74.89	74.83	73.17	73.67	75.43	73.93	74.60
5	75.10	72.94	74.23	76.15	73.74	75.07	74.53	72.60	73.34	75.49	74.54	75.17
6	75.79	74.22	74.96	76.16	73.91	75.04	74.84	73.06	73.97	75.57	74.31	74.95
7	76.07	74.84	75.41	76.10	74.46	75.34	74.70	73.46	73.93	75.15	74.08	74.70
8	75.35	74.00	74.76	76.66	74.18	75.33	75.62	72.08	73.17	74.57	73.91	74.14
9	75.82	74.31	75.12	75.98	75.06	75.52	75.82	75.25	75.53	74.33	72.77	73.46
10	76.04	74.24	75.08	76.21	74.60	75.39	75.43	74.60	74.87	73.65	72.58	73.01
11	75.39	74.03	74.72	76.32	74.94	75.79	74.90	72.83	73.73	75.09	73.26	73.97
12	75.82	73.85	74.56	76.00	74.38	75.01	74.32	71.96	72.74	75.20	74.61	74.93
13	75.81	74.16	75.13	76.53	74.28	75.28	74.47	73.24	73.59	75.03	73.74	74.46
14	75.27	74.39	74.81	76.14	74.30	75.24	73.68	72.22	72.96	75.00	73.53	74.11
15	75.42	74.47	74.94	75.43	74.25	74.86	74.03	72.11	72.83	74.46	73.45	74.06
16	75.13	74.08	74.81	74.21	72.61	73.05	74.72	72.56	73.46	73.90	73.02	73.61
17	75.12	73.38	74.32	74.39	72.12	72.91	74.83	74.03	74.49	74.92	73.07	73.88
18	75.46	74.20	74.86	75.52	73.55	74.38	74.51	73.65	74.07	74.62	73.15	73.93
19	74.93	72.45	73.68	76.01	73.93	74.82	74.86	73.71	74.23	73.43	72.20	72.95
20	76.02	72.79	74.36	75.95	74.37	75.02	75.05	73.12	74.06	74.70	72.61	73.94
21	76.06	74.14	75.35	75.17	72.83	74.07	74.31	72.38	73.15	74.62	73.66	74.16
22	75.81	74.29	75.08	74.71	73.34	73.91	74.76	73.15	73.86	74.86	74.26	74.58
23	76.32	74.27	75.21	74.11	73.34	73.82	74.81	74.01	74.38	74.90	73.80	74.41
24	75.97	74.90	75.40	76.03	73.36	74.61	74.29	73.18	73.48	75.19	73.02	74.14
25	76.26	74.51	75.41	75.61	73.80	74.82	74.17	72.55	73.18	75.50	73.56	74.57
26	76.13	74.55	75.40	75.68	74.29	74.97	74.37	73.65	74.02	75.53	74.12	74.82
27	76.24	73.82	74.97	75.78	75.01	75.43	74.33	72.88	73.61	76.04	74.46	75.50
28	76.39	74.33	75.34	75.45	74.89	75.23	75.11	73.13	73.96	76.02	75.24	75.59
29	75.62	73.23	74.24	75.63	74.24	75.01	75.10	73.98	74.44	75.54	74.92	75.32
30	74.28	72.40	73.42	75.42	74.08	74.87	74.54	73.98	74.22	76.30	74.37	75.12
31	---	---	---	75.77	74.53	75.07	74.52	73.88	74.23	---	---	---
MONTH	76.39	71.88	74.73	76.66	72.12	74.76	75.85	71.96	73.94	76.30	72.20	74.40
YEAR	76.66	71.62	74.66									

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'20", long 121°57'16", in sec.21, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.4 mi downstream from Bonneville Dam left bank powerhouse, 0.5 mi upstream from Tanner Creek, and at mile 145.0.

DRAINAGE AREA.--239,900 mi^2, approximately.

PERIOD OF RECORD.--May 1981 to current year (gage heights only).

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

REMARKS.--Gage heights for Jan. 17 to Mar. 26 were taken from backup system having less-than-normal precision. Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 30.40 ft June 11, 1981; minimum, 7.00 ft Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 23.74 ft May 6; minimum, 7.12 ft July 29.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.57	9.65	10.68	12.84	10.13	12.06	17.82	16.69	17.53	15.58	12.52	14.13
2	16.37	10.87	14.55	15.71	12.35	14.24	17.11	16.17	16.77	18.44	15.67	16.86
3	15.52	13.91	14.67	15.90	14.71	15.06	17.15	16.67	16.88	16.67	16.01	16.49
4	16.62	14.74	15.54	14.79	11.66	13.41	16.81	15.64	16.28	16.25	15.81	15.99
5	15.59	12.04	14.26	13.02	11.32	12.56	16.47	11.48	14.39	16.37	15.95	16.19
6	11.99	10.62	11.08	13.51	12.67	13.10	16.05	14.71	15.38	15.88	13.44	14.73
7	11.22	9.99	10.72	14.20	13.03	13.50	15.97	14.97	15.56	17.78	15.10	16.31
8	12.52	9.14	11.48	14.17	12.92	13.33	15.00	14.23	14.62	17.72	17.43	17.53
9	13.17	10.29	12.28	15.29	13.79	14.53	15.83	13.95	14.80	17.73	17.23	17.42
10	13.56	12.26	12.87	15.75	14.78	15.11	16.52	15.29	15.85	17.51	16.67	17.33
11	15.04	11.92	13.61	15.80	13.76	14.51	16.59	15.60	16.05	17.75	17.16	17.54
12	15.02	13.39	14.45	14.48	13.55	13.89	16.21	15.70	15.89	17.72	16.49	17.14
13	13.76	12.27	12.98	14.68	14.21	14.43	16.15	15.53	15.81	17.00	15.36	16.48
14	14.43	12.57	13.44	14.73	14.05	14.32	16.51	15.31	15.64	17.57	16.92	17.25
15	14.38	13.85	14.13	16.65	14.16	15.33	17.17	12.08	14.98	17.60	17.27	17.41
16	14.35	13.35	13.96	18.07	15.25	17.01	17.62	12.01	15.13	17.32	16.89	17.14
17	13.74	10.98	12.33	17.64	13.36	15.22	17.14	15.59	16.28	18.70	17.30	17.60
18	12.66	10.54	11.65	17.62	13.41	14.75	17.17	14.14	16.11	18.30	17.10	17.70
19	15.03	12.57	13.67	15.97	13.86	14.55	15.65	14.09	15.16	19.30	16.80	17.80
20	14.36	9.64	11.29	14.93	13.26	14.33	18.78	13.77	16.04	19.20	16.40	17.60
21	13.10	9.47	11.13	16.48	13.11	15.35	17.00	15.21	16.34	17.60	17.30	17.40
22	14.03	13.07	13.58	16.48	11.30	13.29	16.93	15.47	15.85	19.60	17.30	18.70
23	14.09	12.08	13.16	15.77	10.60	13.10	15.75	13.83	14.49	19.70	18.40	17.80
24	13.78	11.30	12.89	15.71	13.78	14.20	14.22	12.52	13.41	18.80	18.40	18.60
25	13.50	10.55	11.29	15.35	13.66	14.59	12.50	11.16	11.69	20.90	18.40	19.20
26	16.22	13.51	14.82	15.38	13.62	14.31	14.24	11.46	13.37	18.50	16.70	17.60
27	15.53	14.00	14.58	16.10	11.34	13.53	14.40	13.87	14.17	18.70	16.00	16.80
28	14.42	11.60	12.43	16.01	14.73	15.37	15.39	13.98	14.68	19.20	16.60	17.50
29	12.48	10.39	11.85	17.21	12.02	14.94	15.90	14.79	15.19	18.00	15.80	16.80
30	12.90	11.30	11.87	17.74	16.99	17.45	15.83	15.44	15.64	16.90	15.20	16.30
31	13.95	12.65	13.21	---	---	---	15.75	12.20	14.04	18.30	15.60	16.70
MONTH	16.62	9.14	12.92	18.07	10.13	14.38	18.78	11.16	15.29	20.90	12.52	17.10

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	20.00	17.70	19.20	19.80	16.20	17.40	17.43	13.75	15.34	21.41	17.68	19.75
2	18.80	15.60	16.70	19.90	16.40	17.70	18.19	17.22	17.78	21.00	18.33	19.45
3	17.70	15.50	16.70	17.70	14.80	16.80	18.25	14.64	16.09	21.55	17.79	19.93
4	20.90	16.70	19.20	17.80	14.40	16.60	18.40	15.70	17.35	21.72	17.85	19.62
5	21.20	19.00	19.90	18.10	15.30	16.60	18.12	15.41	17.32	19.93	17.79	18.49
6	21.10	17.50	18.30	16.30	14.40	15.30	18.36	15.57	17.09	23.74	19.91	21.76
7	17.80	16.50	17.10	18.80	14.20	15.30	17.61	15.08	16.15	22.76	20.04	22.08
8	18.50	17.60	18.10	18.40	15.10	16.40	15.60	14.43	15.19	21.99	19.58	21.12
9	18.50	17.30	17.90	18.50	12.70	15.70	16.51	15.24	15.83	20.76	18.06	19.28
10	18.30	16.60	17.60	17.40	12.40	14.60	17.70	16.05	17.01	20.77	18.68	19.71
11	17.60	16.80	17.10	19.20	17.40	17.90	20.63	17.59	19.04	22.07	19.84	20.85
12	17.20	16.10	16.70	17.70	13.60	15.70	20.76	19.06	20.05	21.70	19.58	20.52
13	18.00	16.10	17.30	15.00	12.10	13.40	19.62	17.25	18.10	21.78	19.72	20.29
14	19.60	17.80	18.50	14.90	12.60	13.50	18.08	17.25	17.60	21.45	19.77	20.70
15	19.70	18.80	19.40	15.40	14.90	15.20	19.61	16.21	17.97	20.89	19.05	19.84
16	18.80	17.50	18.20	15.90	13.80	14.50	20.58	17.39	19.28	19.70	16.97	18.08
17	17.60	16.30	17.10	15.10	13.60	14.00	20.80	19.40	19.85	19.54	17.93	18.85
18	17.40	16.00	16.60	14.30	13.40	13.80	22.55	20.44	21.44	19.59	17.40	18.41
19	18.90	17.10	17.60	17.80	13.40	14.90	22.54	20.63	21.94	19.64	17.88	19.03
20	19.00	17.90	18.50	17.20	15.70	16.80	22.66	18.88	21.11	20.88	18.79	20.03
21	18.20	17.80	18.00	17.90	15.40	16.80	22.73	20.59	21.82	20.04	18.75	19.37
22	18.20	17.50	17.90	18.80	16.30	17.60	22.49	19.70	20.75	21.68	18.60	20.20
23	18.10	16.70	17.30	18.50	16.70	17.70	21.16	16.48	17.79	20.43	18.93	19.69
24	16.90	14.20	15.60	18.60	16.40	17.00	19.03	15.16	16.95	21.53	18.73	20.38
25	18.10	15.20	16.80	19.70	16.00	17.90	22.01	18.79	20.00	20.90	18.96	19.94
26	18.90	13.70	17.30	20.60	17.80	19.10	22.16	---	---	20.86	19.54	20.24
27	19.70	14.10	17.40	17.63	15.86	16.62	---	---	---	20.83	18.50	19.39
28	19.90	16.00	18.00	17.85	15.57	16.67	---	---	---	20.67	19.08	19.74
29	---	---	---	16.39	15.37	15.85	---	---	---	21.29	19.91	20.52
30	---	---	---	16.13	14.46	15.29	20.04	18.35	18.91	21.36	20.03	20.71
31	---	---	---	15.06	13.90	14.48	---	---	---	20.08	19.20	19.76
MONTH	21.20	13.70	17.71	20.60	12.10	16.04	-----	-----	-----	23.74	16.97	19.93

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	19.92	19.22	19.47	13.20	12.39	12.83	11.37	7.62	9.95	9.36	8.42	8.88
2	20.35	19.60	20.07	15.87	12.20	14.42	11.60	10.59	10.95	9.34	8.41	8.92
3	23.09	19.31	20.61	16.51	14.70	15.75	11.54	10.61	10.99	9.65	8.31	9.09
4	21.16	19.69	20.22	14.96	12.60	13.74	11.26	9.78	10.46	9.48	8.21	8.95
5	20.07	16.55	17.61	13.21	12.17	12.71	10.91	9.12	10.16	10.64	8.48	9.32
6	17.61	16.26	17.16	12.82	11.98	12.46	10.97	9.49	10.18	12.18	10.74	11.53
7	21.20	16.25	19.13	12.48	11.88	12.25	11.00	10.38	10.59	11.06	8.60	9.89
8	20.21	17.86	19.16	12.30	10.47	11.38	11.03	7.82	9.71	10.34	8.12	8.66
9	21.19	17.44	19.10	11.86	10.73	11.25	9.04	8.01	8.60	11.67	8.22	9.99
10	21.27	18.00	19.68	13.15	10.07	11.49	9.40	8.52	8.87	12.44	9.06	10.89
11	21.28	18.81	20.08	11.98	10.38	11.39	9.33	8.53	8.88	10.99	8.75	9.88
12	20.72	17.02	18.70	12.74	10.67	11.98	9.40	8.23	8.84	12.25	8.44	10.77
13	18.31	16.39	17.28	13.45	9.95	10.91	9.75	8.53	9.10	11.54	10.70	11.00
14	18.10	15.32	16.64	10.32	9.41	9.87	10.85	9.34	10.26	11.09	9.00	10.01
15	17.85	15.03	16.47	10.19	8.33	9.53	11.46	9.49	10.81	11.13	8.25	9.93
16	17.27	14.96	16.47	10.64	8.34	9.41	10.98	9.49	10.12	10.99	8.74	10.01
17	16.88	15.58	16.29	12.02	8.63	10.35	10.58	8.83	9.60	11.51	8.92	10.54
18	17.42	14.43	16.10	12.63	9.74	11.70	9.69	7.95	8.82	13.16	10.02	11.70
19	18.79	17.13	17.99	12.70	10.84	12.05	11.09	7.94	9.67	13.00	10.39	11.66
20	17.13	15.62	16.51	12.87	10.89	12.12	11.14	8.02	10.01	11.85	10.46	11.00
21	17.93	15.66	17.12	11.78	9.59	10.51	11.21	7.72	9.40	11.74	9.08	10.05
22	17.91	15.25	16.09	12.24	8.44	10.37	10.15	9.19	9.56	10.12	8.80	9.39
23	15.23	13.78	14.67	10.54	8.40	9.74	10.04	8.21	9.21	11.32	9.32	10.69
24	16.94	13.82	14.98	10.42	8.84	9.57	10.03	7.47	8.55	12.10	10.78	11.45
25	14.15	13.49	13.91	10.98	9.35	10.59	8.80	7.49	8.03	12.72	11.74	12.05
26	14.89	13.42	14.21	9.63	7.56	8.83	9.63	7.53	8.95	13.07	11.71	12.32
27	14.27	13.21	13.85	8.93	7.41	8.32	10.30	9.28	9.73	13.12	11.44	12.43
28	13.46	12.61	13.04	8.66	7.19	8.11	10.76	9.36	10.16	11.36	9.49	10.17
29	13.63	12.44	12.91	10.41	7.12	9.35	10.46	8.40	9.66	9.97	9.06	9.46
30	13.29	12.41	12.89	10.09	7.66	8.67	9.29	7.91	8.68	11.56	9.31	10.59
31	---	---	---	9.58	7.18	8.51	9.45	8.51	8.92	---	---	---
MONTH	23.09	12.41	16.95	16.51	7.12	10.97	11.60	7.47	9.59	13.16	8.12	10.37

SILVER LAKE BASIN

430701121040001 SILVER LAKE RANGER STATION, OR

LOCATION.--Lat 43°07'01", Long 121°04'00", in NE¼SW¼ sec.21, T.28 S., R.14 E., Lake County, Hydrologic Unit 17120005, at Silver Lake Ranger Station, 0.5 mi south of State Highway 31, and 1 mi southwest of town of Silver Lake.

PERIOD OF RECORD.--August 1983 to current year (weekly composite).

INSTRUMENTATION.--The wet-deposition sample collector is an Aerochem Metrics Model 301* wet/dry deposition collector. The sensing circuit is activated by wet deposition, causing the motor to move the cover from the wet bucket and cover the dry bucket. When the heater in the sensor evaporates the precipitation, the cycle is reversed. The sample buckets are polyethylene and have a capacity of 13 liters (28.6 cm inside diameter, 23.2 cm deep). The opening of the collector is approximately 5 ft above ground level.

REMARKS.--Inches of precipitation obtained from an on-site recording weighing-bucket gage.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ATM DEP WET TOTAL FOR PERIOD (IN)	SAMPLE SIZE (ML)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 02-09	0.03	59	1.1	--	18.5	--	6.65	0.72
OCT 09-16	0.25	490	1.1	4.2	3.0	4.90	5.81	0.08
OCT 16-23	--	390	--	5.7	4.4	4.87	6.05	0.12
OCT 23-30	--	330	--	3.	4.3	4.96	5.99	0.17
OCT 30-NOV 06	1.52	2500	0.95	2.8	2.6	5.01	5.41	0.04
NOV 06-13	--	550	--	3.6	2.8	5.02	5.51	0.05
NOV 13-20	0.28	4	0.01	--	--	--	--	--
NOV 20-27	--	220	--	5.4	5.4	5.13	6.07	0.19
NOV 27-DEC 04	0.18	200	0.66	3.4	3.7	5.29	5.94	0.18
DEC 04-11	--	550	--	2.6	2.4	5.01	5.51	0.04
DEC 11-18	0.2	330	0.95	5.5	6.8	4.78	6.14	0.15
DEC 18-26	0.0	1	--	--	--	--	--	--
DEC 26-JAN 02	0.76	20	0.39	--	--	--	--	--
JAN 02-08	0.0	0	--	--	--	--	--	--
JAN 08-15	0.0	0	--	--	--	--	--	--
JAN 15-22	0.0	2	--	--	--	--	--	--
JAN 22-29	0.08	100	0.76	5.4	6.7	4.67	6.10	0.22
JAN 29-FEB 05	0.07	94	0.78	3.8	5.8	4.66	6.19	0.17
FEB 05-12	0.22	310	0.81	2.8	3.1	4.79	5.28	0.05
FEB 12-19	0.0	38	--	--	16.4	--	6.50	--
FEB 19-26	0.0	0	0.0	--	--	--	--	--
FEB 26-MAR 05	0.31	480	0.9	4.1	4.0	4.68	5.78	0.21
MAR 05-12	0.25	350	0.81	3.1	3.3	4.96	5.68	0.12
MAR 12-19	0.0	3	--	--	--	--	--	--
MAR 19-26	0.2	180	0.52	3.8	3.5	4.75	6.00	0.08
MAR 26-APR 02	0.19	130	0.39	3.9	2.7	4.57	5.72	0.08
APR 02-09	0.0	2	--	--	--	--	--	--
APR 09-16	0.0	0	--	--	--	--	--	--
APR 16-23	0.3	510	0.98	3.8	3.5	4.64	5.80	0.05
APR 23-30	0.0	0	--	--	--	--	--	--
APR 30-MAY 07	0.0	0	--	--	--	--	--	--
MAY 07-14	0.15	220	0.86	--	--	--	--	--
MAY 14-21	0.15	250	0.96	12.8	10.2	4.28	5.02	0.22
MAY 21-28	0.01	11	0.66	--	--	--	--	--
MAY 28-JUN 04	--	530	--	5.4	4.8	4.41	5.09	0.06
JUN 04-11	0.04	67	0.97	--	5.6	--	5.89	0.14
JUN 11-18	0.0	0	--	--	--	--	--	--
JUN 18-25	0.0	1	--	--	--	--	--	--
JUN 25-JUL 02	0.0	0	--	--	--	--	--	--

* The use of the brand name in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

SILVER LAKE BASIN

430701121040001 SILVER LAKE RANGER STATION, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)	PHOSPHATE, DISSOLVED (MG/L AS PO4)
OCT 02-09	0.5	1.31	0.2	2.02	0.42	0.29	1.0	0.003
OCT 09-16	0.023	0.154	0.149	0.28	0.22	<0.02	0.17	0.003
OCT 16-23	0.039	0.29	0.263	0.3	0.37	<0.02	0.23	0.009
OCT 23-30	0.049	0.185	0.238	0.32	0.29	0.07	0.16	0.003
OCT 30-NOV 06	0.012	0.034	0.014	0.31	0.04	<0.02	0.18	0.003
NOV 06-13	0.03	0.099	0.028	0.21	0.09	0.05	0.07	0.003
NOV 13-20	--	--	--	--	--	--	--	--
NOV 20-27	0.091	0.394	0.283	0.34	0.43	<0.02	0.14	0.003
NOV 27-DEC 04	0.066	0.188	0.06	0.33	0.15	<0.02	0.23	0.004
DEC 04-11	0.019	0.071	0.023	0.32	0.06	<0.02	0.11	0.003
DEC 11-18	0.066	0.292	0.552	0.36	0.65	0.21	0.44	0.003
DEC 18-26	--	--	--	--	--	--	--	--
DEC 26-JAN 02	--	--	--	--	--	--	--	--
JAN 02-08	--	--	--	--	--	--	--	--
JAN 08-15	--	--	--	--	--	--	--	--
JAN 15-22	--	--	--	--	--	--	--	--
JAN 22-29	0.113	0.28	0.074	0.52	0.19	<0.02	0.81	0.008
JAN 29-FEB 05	0.073	0.41	0.276	0.46	0.46	0.04	0.33	0.003
FEB 05-12	0.022	0.041	0.016	0.42	0.09	<0.02	0.06	0.003
FEB 12-19	--	--	--	--	--	--	--	--
FEB 19-26	--	--	--	--	--	--	--	--
FEB 26-MAR 05	0.046	0.168	0.058	0.6	0.16	<0.02	0.31	0.007
MAR 05-12	0.035	0.09	0.108	0.27	0.15	<0.02	0.29	0.01
MAR 12-19	--	--	--	--	--	--	--	--
MAR 19-26	0.025	0.133	0.102	0.23	0.22	0.07	0.18	0.003
MAR 26-APR 02	0.036	0.071	0.014	0.27	0.14	<0.02	0.27	0.003
APR 02-09	--	--	--	--	--	--	--	--
APR 09-16	--	--	--	--	--	--	--	--
APR 16-23	0.014	0.165	0.164	0.15	0.28	0.05	0.19	0.003
APR 23-30	--	--	--	--	--	--	--	--
APR 30-MAY 07	--	--	--	--	--	--	--	--
MAY 07-14	--	--	--	--	--	--	--	--
MAY 14-21	0.047	0.2	0.086	0.84	0.19	0.32	1.3	0.01
MAY 21-28	--	--	--	--	--	--	--	--
MAY 28-JUN 04	0.019	0.054	0.026	0.31	0.11	<0.02	0.37	0.01
JUN 04-11	0.04	0.348	0.308	0.28	0.49	0.12	0.37	0.01
JUN 11-18	--	--	--	--	--	--	--	--
JUN 18-25	--	--	--	--	--	--	--	--
JUN 25-JUL 02	--	--	--	--	--	--	--	--

CHEMICAL QUALITY OF PRECIPITATION

SILVER LAKE BASIN

430701121040001 SILVER LAKE RANGER STATION, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ATM DEP WET TOTAL FOR PERIOD (IN)	SAMPLE SIZE (ML)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)
JUL 02-09	0.0	0	--	--	--	--	--	--
JUL 09-16	0.0	0	--	--	--	--	--	--
JUL 16-23	0.07	140	1.1	25.2	18.4	4.32	5.44	0.66
JUL 23-30	0.72	1300	1.0	14.3	6.4	4.48	5.12	0.12
JUL 30-AUG 06	0.4	740	1.1	6.6	6.6	4.84	5.03	0.05
AUG 06-13	0.0	0	0.0	--	--	--	--	--
AUG 13-20	0.4	680	0.98	13.9	10.7	4.47	4.98	0.26
AUG 20-27	0.0	0	--	--	--	--	--	--
AUG 27-SEP 03	0.25	470	1.1	4.8	4.1	4.81	5.28	0.04
SEP 03-10	1.06	1800	0.99	3.8	3.6	4.89	5.14	0.02
SEP 10-17	0.54	940	1.0	--	4.6	5.08	5.50	0.05
SEP 17-24	0.0	3	--	--	--	--	--	--
SEP 24-OCT 01	0.0	0	--	--	--	--	--	--

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)	PHOS-PHATE, DIS-SOLVED (MG/L AS PO4)
JUL 02-09	--	--	--	--	--	--	--	--
JUL 09-16	--	--	--	--	--	--	--	--
JUL 16-23	0.134	0.676	0.642	1.54	0.89	0.72	2.3	0.01
JUL 23-30	0.03	0.102	0.065	0.38	0.11	0.13	0.67	0.01
JUL 30-AUG 06	0.017	0.121	0.095	0.45	0.13	0.15	0.71	0.01
AUG 06-13	--	--	--	--	--	--	--	--
AUG 13-20	0.045	0.149	0.146	0.91	0.25	0.28	1.3	0.01
AUG 20-27	--	--	--	--	--	--	--	--
AUG 27-SEP 03	0.015	0.068	0.107	0.27	0.19	<0.02	0.22	0.01
SEP 03-10	0.009	0.02	0.014	<0.11	0.03	<0.02	0.07	0.01
SEP 10-17	0.015	0.074	0.235	0.22	0.23	0.13	0.3	0.01
SEP 17-24	--	--	--	--	--	--	--	--
SEP 24-OCT 01	--	--	--	--	--	--	--	--

GRANDE RONDE RIVER BASIN

451328118304100 STARKEY EXPERIMENTAL STATION, OR

LOCATION.--Lat 45°13'28", long 118°30'41", in NE¼NW¼ sec.14, T.4 S., R.34 E., Union County, Hdyrologic Unit 17060104, in the Starkey Experimental Forest, 2.5 mi north of State Highway 244, 29 mi west of LaGrande.

PERIOD OF RECORD.--March 1984 to current year (weekly composite).

INSTRUMENTATION.--The wet-deposition sample collector is an Aerochem Matrics Model 301* wet/dry deposition collector. The sensing circuit is activated by wet deposition, causing the motor to move the cover from the wet bucket and cover the dry bucket. When the heater in the sensor evaporates the precipitation, the cycle is reversed. The sample buckets are polyethylene and have a capacity of 13 liters (28.6 cm inside diameter, 23.2 cm deep). The opening of the collector is approximately 8 ft above ground level.

REMARKS.--Inches of precipitation obtained from an on-site recording weighing-bucket gage.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ATM DEP WET TOTAL FOR PERIOD (IN)	SAMPLE SIZE (ML)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 02-09	0.01	23	1.4	--	17.2	--	6.60	0.67
OCT 09-16	1.01	1300	0.75	3.3	3.1	5.50	5.46	0.11
OCT 16-23	1.23	1300	0.63	3.0	2.3	5.28	5.44	0.04
OCT 23-30	--	--	--	--	--	--	--	--
OCT 30-NOV 06	0.63	1000	0.96	7.5	7.6	6.40	6.46	0.32
NOV 06-13	0.49	760	0.9	3.6	3.0	5.11	5.36	0.04
NOV 13-20	0.26	270	0.61	3.9	3.2	5.20	5.93	0.08
NOV 20-27	0.98	870	0.51	3.7	3.1	5.16	5.31	0.03
NOV 27-DEC 04	0.71	240	0.19	2.7	2.6	5.31	5.64	0.1
DEC 04-11	0.76	1100	0.87	5.6	4.9	4.95	5.12	0.04
DEC 11-18	1.25	0	--	--	--	--	--	--
DEC 18-26	0.34	52	0.09	--	6.6	--	6.22	0.29
DEC 26-JAN 02	27.69	1000	0.53	2.6	2.4	5.40	5.74	0.08
JAN 02-08	0.0	4	--	--	--	--	--	--
JAN 08-15	0.01	6	0.35	--	30.7	--	6.98	--
JAN 15-22	0.13	200	0.89	5.9	6.9	5.05	6.39	0.29
JAN 22-29	0.05	39	0.46	--	8.0	--	5.58	0.33
JAN 29-FEB 05	0.39	520	0.77	3.7	2.8	5.17	5.32	0.04
FEB 05-12	1.02	1100	0.64	3.4	3.0	5.20	5.18	0.07
FEB 12-19	0.05	1	0.02	--	--	--	--	--
FEB 19-26	0.47	630	0.78	3.9	3.8	5.17	5.19	0.06
FEB 26-MAR 05	0.41	570	0.8	3.4	3.0	5.45	5.54	0.14
MAR 05-12	0.25	410	0.95	4.4	4.1	5.35	5.45	0.11
MAR 12-19	0.0	1	--	--	--	--	--	--
MAR 19-26	0.91	1300	0.82	2.9	3.0	5.32	5.54	0.07
MAR 26-APR 02	0.45	670	0.87	3.3	2.7	5.34	5.38	0.06
APR 02-09	0.0	0	--	--	--	--	--	--
APR 09-16	0.24	390	0.95	--	--	--	--	--
APR 16-23	--	1500	--	3.3	2.8	5.21	5.42	0.02
APR 23-30	--	250	--	9.5	9.2	4.80	4.81	0.12
APR 30-MAY 07	--	320	--	6.0	4.3	5.09	5.50	0.18
MAY 07-14	0.66	1200	1.0	9.3	6.4	4.93	5.23	0.18
MAY 14-21	0.04	86	1.2	20.7	19.7	4.64	4.72	0.45
MAY 21-28	0.58	1000	1.0	9.9	6.2	4.78	5.30	0.09
MAY 28-JUN 04	1.59	2700	0.98	4.9	3.8	5.18	5.39	0.07
JUN 04-11	0.25	410	0.94	5.0	4.9	5.34	5.07	0.07
JUN 11-18	0.0	0	--	--	--	--	--	--
JUN 18-25	0.0	0	--	--	--	--	--	--
JUN 25-JUL 02	0.0	0	--	--	--	--	--	--

* The use of the brand name in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

GRANDE RONDE RIVER BASIN

451328118304100 STARKEY EXPERIMENTAL STATION, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, NITRATE DISSOLVED (MG/L AS NO3)	PHOSPHATE, DISSOLVED (MG/L AS PO4)
OCT 02-09	0.384	1.264	0.207	1.92	0.53	0.26	1.0	0.011
OCT 09-16	0.031	0.117	0.035	0.22	0.17	<0.02	0.22	0.003
OCT 16-23	0.014	0.027	0.006	0.39	0.05	0.08	0.11	0.003
OCT 23-30	--	--	--	--	--	--	--	--
OCT 30-NOV 06	0.061	1.12	0.154	0.5	<0.26	<0.02	<0.02	0.012
NOV 06-13	0.016	0.04	0.008	0.12	0.07	<0.02	0.2	0.003
NOV 13-20	0.048	0.105	0.02	0.39	0.08	0.07	0.29	0.003
NOV 20-27	0.02	0.045	0.006	0.29	0.04	<0.02	0.16	0.003
NOV 27-DEC 04	0.029	0.07	0.01	0.29	0.07	<0.02	0.12	0.003
DEC 04-11	0.016	0.035	<0.003	0.42	0.03	<0.02	0.34	0.003
DEC 11-18	--	--	--	--	--	--	--	--
DEC 18-26	0.169	0.362	0.029	0.56	0.22	0.07	0.59	0.003
DEC 26-JAN 02	0.019	0.057	0.017	0.17	0.06	<0.02	0.21	0.008
JAN 02-08	--	--	--	--	--	--	--	--
JAN 08-15	--	--	--	--	--	--	--	--
JAN 15-22	0.217	0.54	0.057	0.87	0.19	<0.02	0.64	0.003
JAN 22-29	0.071	0.089	0.033	0.6	0.31	<0.02	1.3	0.008
JAN 29-FEB 05	0.019	0.011	0.01	0.41	0.06	<0.02	0.39	0.003
FEB 05-12	0.024	0.036	0.009	0.1	0.06	<0.02	0.29	<0.003
FEB 12-19	--	--	--	--	--	--	--	--
FEB 19-26	0.009	0.047	0.003	0.26	0.07	<0.02	0.35	0.003
FEB 26-MAR 05	0.017	0.036	0.003	0.21	0.05	<0.02	0.33	0.003
MAR 05-12	0.02	0.045	0.014	0.34	0.09	0.09	0.56	0.009
MAR 12-19	--	--	--	--	--	--	--	--
MAR 19-26	0.017	0.075	0.01	0.17	0.14	<0.02	0.21	0.003
MAR 26-APR 02	0.011	0.086	0.014	0.25	0.07	<0.02	0.27	0.003
APR 02-09	--	--	--	--	--	--	--	--
APR 09-16	--	--	--	--	--	--	--	--
APR 16-23	0.004	0.026	0.008	0.2	0.04	<0.02	0.14	0.003
APR 23-30	0.028	0.062	0.017	0.79	0.15	0.04	0.68	0.003
APR 30-MAY 07	0.045	0.106	0.028	0.45	0.15	<0.02	0.47	0.003
MAY 07-14	0.027	0.063	0.028	0.76	0.11	0.17	0.75	0.01
MAY 14-21	0.119	0.278	0.103	1.45	0.4	0.45	2.7	0.01
MAY 21-28	0.027	0.052	0.031	0.49	0.08	0.24	0.74	0.01
MAY 28-JUN 04	0.014	0.025	0.019	0.28	<0.11	<0.02	<0.03	0.01
JUN 04-11	0.021	0.026	0.014	0.36	0.06	<0.02	0.39	0.01
JUN 11-18	--	--	--	--	--	--	--	--
JUN 18-25	--	--	--	--	--	--	--	--
JUN 25-JUL 02	--	--	--	--	--	--	--	--

GRANDE RONDE RIVER BASIN

451328118304100 STARKEY EXPERIMENTAL STATION, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

DATE	ATM DEP WET TOTAL FOR PERIOD (IN)	SAMPLE SIZE (ML)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)
JUL 02-09	0.01	18	1.1	--	65.2	--	5.66	2.7
JUL 09-16	0.0	0	--	--	--	--	--	--
JUL 16-23	0.0	0	--	--	--	--	--	--
JUL 23-30	0.01	17	1.0	--	18.9	--	5.43	0.68
JUL 30-AUG 06	0.94	1600	0.97	8.5	8.5	4.90	4.92	0.14
AUG 06-13	0.04	69	1.0	15.5	9.4	4.63	5.27	0.25
AUG 13-20	0.0	0	--	--	--	--	--	--
AUG 20-27	0.06	95	0.93	8.5	9.2	4.78	4.77	0.1
AUG 27-SEP 03	0.03	58	1.1	--	--	--	--	--
SEP 03-10	0.68	1100	0.91	--	--	--	--	--
SEP 10-17	0.71	1300	1.0	4.9	4.0	5.06	5.29	0.07
SEP 17-24	0.39	640	0.95	7.8	5.0	5.06	5.08	0.01
SEP 24-OCT 01	0.0	0	--	--	--	--	--	--

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)	PHOS-PHATE, DIS-SOLVED (MG/L AS PO4)
JUL 02-09	0.467	0.766	1.787	8.67	1.7	3.9	12	0.013
JUL 09-16	--	--	--	--	--	--	--	--
JUL 16-23	--	--	--	--	--	--	--	--
JUL 23-30	0.183	0.37	0.252	1.68	1.2	0.89	3.0	0.015
JUL 30-AUG 06	0.027	0.05	0.043	0.45	0.11	<0.02	0.28	0.01
AUG 06-13	0.086	0.403	0.172	1.01	0.43	<0.02	0.58	0.01
AUG 13-20	--	--	--	--	--	--	--	--
AUG 20-27	0.057	0.038	0.012	0.25	0.17	<0.02	0.84	0.01
AUG 27-SEP 03	--	--	--	--	--	--	--	--
SEP 03-10	--	--	--	--	--	--	--	--
SEP 10-17	0.014	0.016	0.011	<0.24	0.03	<0.02	0.11	0.01
SEP 17-24	0.015	0.064	0.004	0.27	0.1	<0.02	0.25	0.01
SEP 24-OCT 01	--	--	--	--	--	--	--	--

Discharge measurements made at miscellaneous sites during water year 1985

Stream	Tributary to	Location	Drainage area (mi)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		MALHEUR RIVER BASIN				
S.F. Malheur River at Riverside	Malheur River	Lat 43°33'15", long 118°10'01", Malheur County, Hydrologic Unit 17050116, 1,000 ft upstream from mouth, and 1 mi northwest of Riverside.	630	1910-14 1919-20 1927-28 1938	7-23-85 8- 5-85 8-16-85 9- 9-85 9-23-85	5.3 10.8 4.4 14.2 13.3
Malheur River above Juntura	Snake River	Lat 43°43'20", long 118°04'23", Malheur County, Hydrologic Unit 17050116, 1.2 mi above station 13216350, and 1.6 mi south of Juntura.	---	----	7-23-85 8- 5-85 8-19-85 9- 9-85 9-23-85	561 451 471 341 190
Malheur River near Jonesboro	.....do.....	Lat 43°48'04", long 117°55'50", Malheur County, Hydrologic Unit 17050117, upstream side of private bridge, 0.2 mi downstream of Trail Creek, and 1.1 mi west of Jonesboro.	---	----	7-24-85 8- 6-85 8-20-85 9-11-85 9-24-85	801 750 805 421 222
Harper-Southside Canal above Harper	Malheur River	Lat 43°49'30", long 117°38'27", Malheur County, Hydrologic Unit 17050117, 50 ft below control gate at diversion from Malheur River.	---	----	7-24-85 8- 6-85 8-20-85 9-11-85 9-24-85	37.7 37.7 36.5 30.7 12.0
Malheur River at Little Valley	Snake River	Lat 43°53'50", long 117°30'22", Malheur County, Hydrologic Unit 17050117, upstream from county bridge at Little Valley.	3,010	1949-79	7-24-85 8- 7-85 8-20-85 9-11-85 9-25-85	246 224 186 163 96
Vines Ditch near inflow of J-H Canal near Hope	Malheur River	Lat 43°57'18", long 117°27'20", Malheur County, Hydrologic Unit 17050117, 30 ft below wood bridge at end of dirt road that follows J-H Canal.	---	----	7-22-85 8 -7-85 8-21-85 9-12-85 9-25-85	18.5 12.9 13.4 9.33 3.06
Diversion from J-H Canal (Storey ditch) near Hope	.....do.....	Lat 43°56'35", long 117°26'27", Malheur County, Hydrologic Unit 17050117, 20 ft below diversion gate from J-H Canal.	---	----	7-21-85 8- 7-85 8-21-85 9-12-85 9-25-85	10.7 6.18 11.2 6.12 0.50
Malheur River below J-H Canal near Hope	Snake River	Lat 43°57'21", long 117°26'57", Malheur County, Hydrologic Unit 17050117, approximately 1,000 ft downstream from J-H Canal diversion dam.	---	----	7-22-85 8- 7-85 8-21-85 9-12-85 9-25-85	134 118 45.3 128 61.3
Malheur River near Hope	.....do.....	Lat 43°56'34", long 117°22'06", Malheur County, Hydrologic Unit 17050117, 600 ft upstream from State Highway 20 at Hope.	---	----	7-22-85 8- 7-85 8-22-85 9-12-85 9-25-85	142 130 60.5 136 71
Malheur River below Gellerman-Froman Canal	.....do.....	Lat 43°55'13", long 117°18'18", Malheur County, Hydrologic Unit 17050117, 100 ft upstream from bridge on 2nd Boulevard South, southwest of Vale.	---	----	9-12-85 9-25-85	145 73.2
Bully Creek at Vale	Malheur River	Lat 43°59'01", long 117°14'45", Malheur County, Hydrologic Unit 17050118, 20 ft downstream from bridge on Main Street in Vale, and approximately 0.3 mi above mouth.	620	1904, 1905	7-24-85 8- 8-85 8-22-85 9-12-85 9-26-85	56.7 43.4 48.3 69.5 59.1
Willow Creek at Vale	.....do.....	Lat 43°59'17", long 117°13'47", Malheur County, Hydrologic Unit 17050119, downstream side of bridge on Foothill Drive, and 300 ft above mouth.	---	----	7-25-85 8- 8-85 8-22-85 9-13-85 9-26-85	99.6 116 77.7 170 129
Malheur River near mouth near Ontario	Snake River	Lat 44°02'23", long 117°01'03", Malheur County, Hydrologic Unit 17050117, 200 ft below county bridge, 1 mi north of Ontario Airport.	---	----	7-25-85 8- 8-85 8-23-85 9-13-85 9-26-85	285 292 242 613 397
		DESCHUTES RIVER BASIN				
Deschutes River	Columbia River	SE¼SE¼ sec.20, T.21 S., R.8 E., just below Sheep Springs, 15 mi northwest of La Pine.	---	1938-49‡, 1950, 1952-57, 1960-84	10- 4-84 11-29-84 1-16-85 3-18-85 5-10-85 7-23-85 9- 9-85	a869 a634 a550 a289 a475 a894 a754

‡ Operated as a continuous record gaging station.
a Base flow from intervening springs can be obtained by subtracting flow of Deschutes River below Crane Prairie Reservoir.

Discharge measurements made at miscellaneous sites during water year 1985--Continued

Stream	Tributary to	Location	Drainage area (mi)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		DESCHUTES RIVER BASIN--Continued				
Soda Creek	Deschutes River	Lat 44°01'33", long 121°43'30"	---	----	9-18-85	*14.0
Spring River	.....do.....	Lat 43°51'52", long 121°28'29"	---	----	9-17-85	*44.9
Metolius River above Lake Creek	.....do.....	Lat 44°26'49", long 121°38'14"	---	----	9-16-85	*126
Metolius River above North Fork Lake Creek	.....do.....	Lat 44°27'15", long 121°38'25"	---	----	9-16-85	*194
North Fork Lake Creek	Metolius River	Lat 44°27'21", long 121°38'32"	---	----	9-16-85	*94.4
Metolius River	Deschutes River	Lat 44°33'24", long 121°37'09"	---	1973,1974	9-17-85	*1180
Spring Creek	Metolius River	Lat 44°35'06", long 121°25'01"	---	----	7-12-85	*0.80
					8-15-85	*0.54
					9-18-85	*0.45
Fly Creek at mouth	.....do.....	Lat 44°35'07", long 121°23'29"	---	----	7-10-85	*0.10
					8-15-85	*0.02
					9-18-85	*0.10
Fly Creek	.....do.....	Lat 44°33'54", long 121°25'01"	---	----	8-15-85	*0.02
Big Canyon Creek	Deschutes River	Lat 44°32'34", long 121°24'36"	---	----	6-13-85	*no flow
Deschutes River	Columbia River	Lat 44°36'30", long 121°16'29"	---	----	8-23-85	7140
					9-18-85	7320
					9-18-85	7280
					9-19-85	6400
unnamed tributary	Deschutes River	Lat 44°35'01", long 121°14'47"	---	----	6-13-85	5.39
					7-11-85	9.18
					8-15-85	3.27
					9-18-85	6.87
Deschutes River	Columbia River	Lat 44°37'42", long 121°17'01"	---	----	8-23-85	7340
					9-18-85	7110
					9-19-85	7700
					9-19-85	6630
Seekseequa Creek	Deschutes River	Lat 44°40'28", long 121°17'28"	---	1973,1974	6-14-85	*2.14
					7- 9-85	*1.20
					8- 7-85	*1.20
					9-17-85	*2.96
Willow Creek	.....do.....	Lat 44°40'19", long 121°13'36"	---	1973,1974	6-11-85	29.2
					7- 9-85	27.8
					8- 8-85	24.6
					9-17-85	21.9
Deschutes River	Columbia River	Lat 44°41'44", long 121°13'48"	---	----	8-22-85	*3850
Campbell Creek	Deschutes River	Lat 44°42'53", long 121°13'32"	---	1973,1974	6-12-85	8.8
					7- 8-85	10.4
					8- 8-85	11.8
					9-17-85	4.87
Deschutes River	Columbia River	Lat 44°45'32", long 121°13'37"	---	----	8-21-85	*3995
Tenino Creek	Shitike Creek	Lat 44°45'38", long 121°16'00"	---	1973,1974	6-14-85	*0.33
					7- 9-85	*0.20
					8- 8-85	*0.07
					9-17-85	*0.06
Dry Creek	Deschutes River	Lat 44°47'49", long 121°13'37"	---	1973,1974	6-13-85	*0.30
					7-11-85	*0.17
					8- 7-85	*0.10
					9-17-85	*0.11
Warm Springs River	.....do.....	Lat 44°54'38", long 121°11'48"	---	----	9-18-85	*278
Deschutes River	Columbia River	Lat 44°47'34", long 121°08'39"	---	----	8-21-85	*4120
Trout Creek	Deschutes River	Lat 44°49'02", long 121°04'31"	---	1973,1974	6- 5-85	*43.1
					7-10-85	9.38
					8- 7-85	11.2
					9-18-85	17.4
Deschutes River	Columbia River	Lat 44°51'24", long 121°04'35"	---	----	8-21-85	*4130
Skookum Creek	Deschutes River	Lat 44°55'19", long 121°04'51"	---	1973,1974	6-12-85	*0.34
					7- 9-85	*0.14
					8- 7-85	*0.05
					9-17-85	*0.08
Deschutes River	Columbia River	Lat 45°02'20", long 121°06'39"	---	1973,1974	8-20-85	*4350
					9-16-85	*4760

* Base flow.

October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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