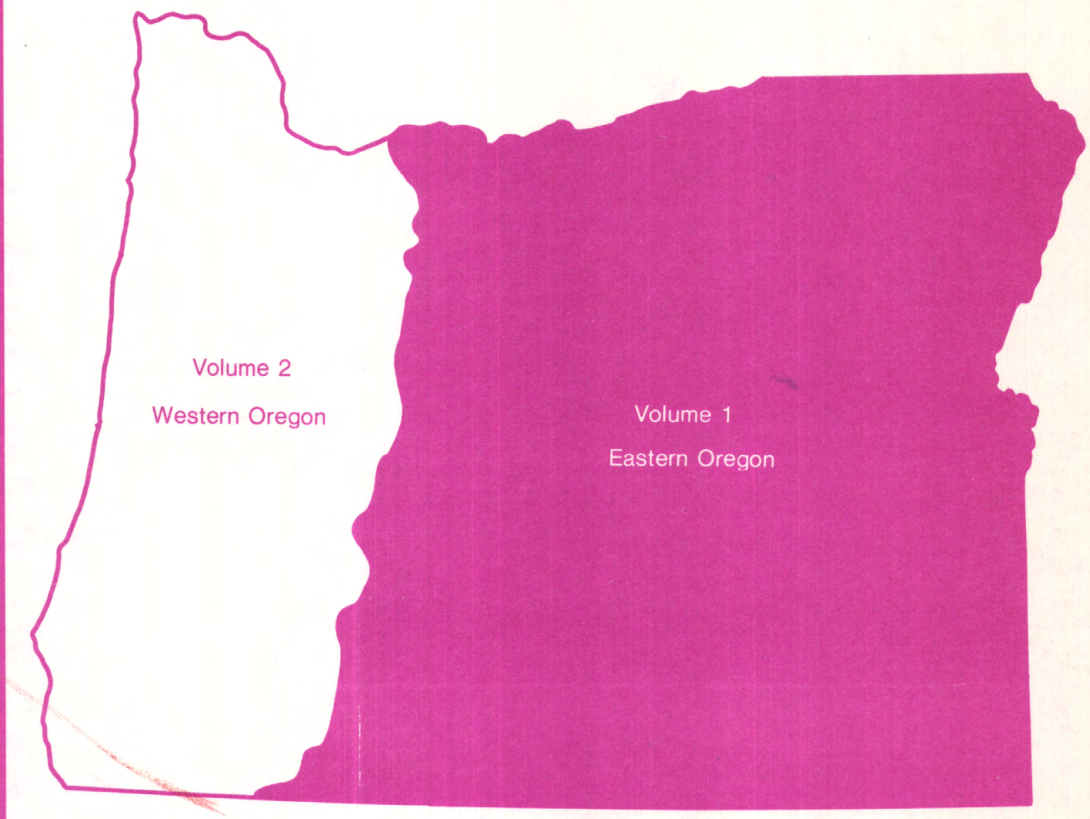
Water Resources Data Oregon Water Year 1984

Volume 1. Eastern Oregon



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-84-1
Prepared in cooperation with the Oregon Water Resources Department and with other agencies

CALENDAR FOR WATER YEAR 1984

1983

OCTOBER

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1984

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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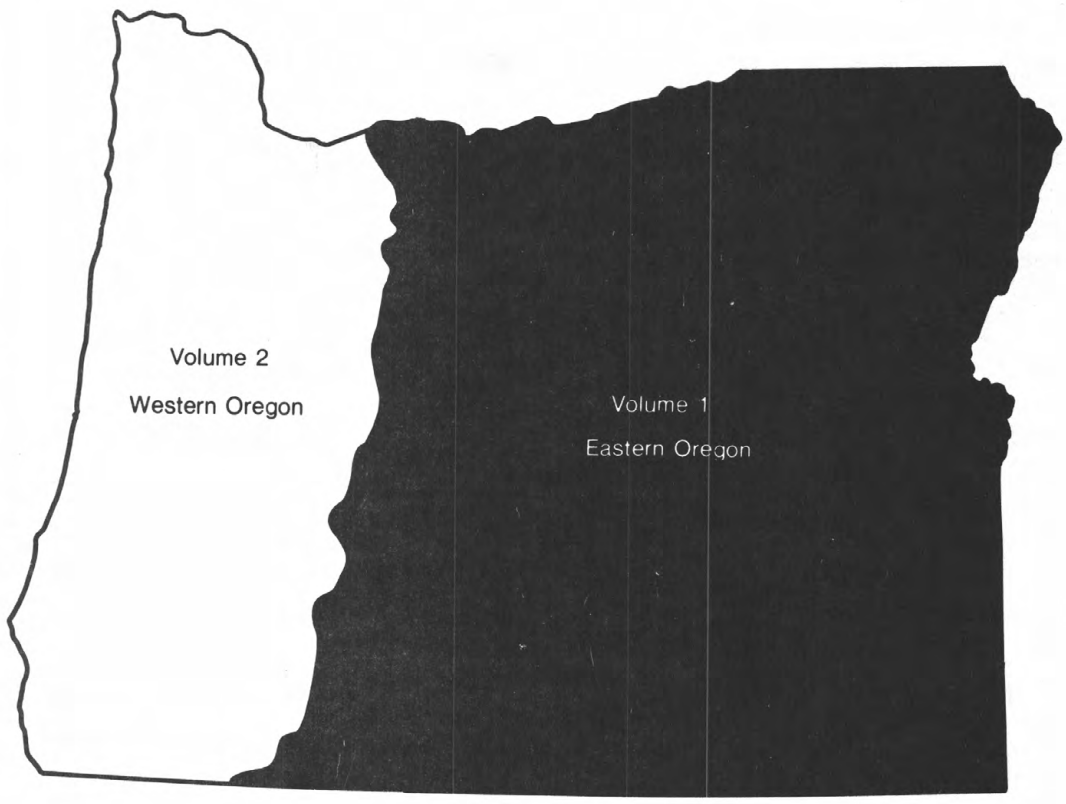
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Water Resources Data
Oregon
Water Year 1984

Volume 1. Eastern Oregon

by L.L. Hubbard, M.L. Smith, and L.E. Hubbard



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-84-1
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

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Portland, Oregon 97232

1986

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

16. Abstract (Limit: 200 words)

Water Resources Data for the 1984 water year for Oregon consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality in wells and springs. This report, in two volumes, contains discharge records for 259 gaging stations; stage only records for 8 gaging stations; stage and contents for 39 lakes and reservoirs; water quality for 96 stations, water levels for 59 observation wells; and water quality for 3 precipitation stations. Also included are 13 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, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Sampling sites, Water levels, Water analyses.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
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	20. Security Class (This Page) UNCLASSIFIED	22. Price

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ILLUSTRATIONS

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.

GAGING STATIONS, IN DOWNSTREAM ORDER--Continued

GAGING STATIONS, IN DOWNSTREAM ORDER--Continued

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED

GROUND-WATER LEVELS

GROUND-WATER LEVELS--Continued

WATER RESOURCES DATA FOR OREGON, 1984

INTRODUCTION

Water resources data for the 1984 water year for Oregon consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; water levels and water quality of wells and springs; and water quality of precipitation. This report, in two volumes, contains discharge records for 259 gaging stations; stage only records for 8 gaging stations; stage and contents for 39 lakes and reservoirs; water quality for 96 stations; water levels for 59 observation wells; and water quality for 3 precipitation stations. Also included are data for 13 crest-stage, partial-record stations. Locations of these sites, except for the precipitation station and observation wells, are shown on figures 2, 3, 4, and 5. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements and analyses. 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.

Records of discharge of streams and contents (or stage) of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a multiyear series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 Eads Street, Arlington, VA 22202.

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

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report OR-84-1 and OR-84-2." For archiving and general distribution, the reports for water years 1971-74 are also 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 the back of the 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 Transportation, State Highway Division,
Frank E. Terpin, Location Engineer.
Oregon Department of Fish and Wildlife, Jerry Bauer, Director.
Oregon State University, John V. Byrne, President.
Benton County Emergency Services, Reagan Crowell, 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 Public Works, Carl Gobel, 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.

HYDROLOGIC CONDITIONS

General Hydrologic Setting

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.

Precipitation and temperature

Precipitation data are published by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, for numerous sites in Oregon. These sites are generally situated in valley locations. Data for mountain precipitation, which occurs mainly as snow during the winter, are published by the U.S. Department of Agriculture, Soil Conservation Service, in the report "Water Supply Outlook For Oregon."

Precipitation for the 1984 water year ranged from average to above average across the state with the exception of a small area of the south-central Cascades which was slightly below normal. Only in the months of October and December did the precipitation totals fall below normal. As of April 1st, the 1984 mountain snowpack was above average across the state with the exception of the Mt. Hood area which was reported at 75 percent of normal.

Temperatures for the year ranged from normal in the coastal area to 4°F below normal in the La Grande area. Most stations reported from 1°F to 2°F below normal.

Streamflow

Runoff during the water year ranged from near normal on the north coast to over 300 percent of normal in the Owyhee basin (Table 1). At five of these representative streamflow gages, the 1984 runoff was the highest for the period of record.

Table 1.--Comparison of mean discharge for the 1984 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 1984 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	54	273	128	213	b1983	245
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	67	1,586	1,057	150	1956	2,187
13181000	Owyhee River near Rome	a8,000	35	3,400	1,019	337	b1952	2,357
13214000	Malheur River near Drewsey	a910	58	474	194	244	b1983	468
13331500	Minam River at Minam	a240	20	572	483	118	1974	713
14048000	John Day River at McDonald Ferry	a7,580	79	4,724	2,097	225	b1983	4,165
14137000	Sandy River near Marmot	262	73	1,455	1,370	106	1974	1,933
14178000	North Santiam River above Boulder Creek, near Detroit	216	58	1,109	1,010	110	1974	1,506
14301000	Nehalem River at Foss	667	45	2,674	2,736	98	1974	4,235
14321000	Umpqua River near Elkton	3,683	79	10,030	7,549	133	b1950	8,229
14325000	South Fork Coquille River at Powers	169	65	925	797	116	1974	1,374

a Approximately.
b Exceeded during 1984 water year.

Extreme flood events during the 1984 water year were limited to the Harney-Malheur Lake area of Harney county in southeastern Oregon. Record high runoff on inflow streams over the three-year period, 1982-84, resulted in extensive flooding of Malheur, Mud, and Harney Lakes. On June 27, the flood water of Malheur-Harney Lake reached a level of 4,102.4 feet, the highest level reached in recorded history (1903-84). The flooded lakes inundated 25 ranches, parts of two state highways, several miles of railroad, many miles of country roads, and much of the Malheur National Wildlife Refuge.

Peak discharges for representative gages are shown in Table 2.

Table 2.--Comparison of peak discharge for the 1984 water year with peak discharge for the period of record at long-term stations

Station number	Station name	Drainage area (mi^2)	Peak discharge 1984 water year Date	ft^3/s	Exceedance probability	Peak discharge period of record Date	ft^3/s
10396000	Donner und Blitzen River near Frenchglenn	a200	5-13	1,660	.20	4-26-78	4,270
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	3-18	4,070	.20	12-26-64	16,100
13181000	Owyhee River near Rome	a8,000	4-17	24,900	---	12-24-64	33,500
13214000	Malheur River near Drewsey	a910	3-21	3,310	.20	12-23-64	12,000
13331500	Minam River at Minam	a240	5-30	4,670	.10	6-16-74	6,260
14048000	John Day River at McDonald Ferry	a7,580	4-18	17,900	.20	12-24-64	42,800
14137000	Sandy River near Marmot	262	1-03	12,500	.50	12-22-64	61,400
14178000	North Santiam River above Boulder Creek, near Detroit	216	12-14	5,210	.50	12-22-64	26,700
14301000	Nehalem River at Foss	667	11-18	17,200	.80	1-20-72	46,900
14321000	Umpqua River near Elkton	3,683	2-13	145,000	.20	12-23-64	265,000
14325000	South Fork Coquille River at Powers	169	2-13	17,500	.20	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 1984 water year. The minimum streamflows for representative gages are shown in Table 3.

Table 3.--Comparison of minimum daily discharge for the 1984 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			
						Minimum 1984		Period of record	
			Date	ft^3/s		Date	ft^3/s	Date	ft^3/s
10396000	Donner und Blitzen River near Frenchglenn	a200	12-22	54	.50	11-22	48	12-09-72	4.2
11502500	Williamson River below Sprague River, near Chiloquin	a3,000	8-28	574	.50	8-29,30	568	10-14-20	320
13181000	Owyhee River near Rome	a8,000	10-01	231	.50	10-01	220	several days	42
13214000	Malheur River near Drewsey	a910	8-21	18	---	8-20,21,29	18	many days	0
13331500	Minam River at Minam	a240	11-30	47	.50	11-30	42	12-06-72	10
14048000	John Day River at McDonald Ferry	a7,580	8-31	402	.50	8-31	402	many days	0
14137000	Sandy River near Marmot	262	10-12,13	301	.50	10-12,13	297	10-27,28-52	195
14178000	North Santiam River above Boulder Creek, near Detroit	216	10-28,29	436	.50	10-28,29,30	436	9-13-09	250
14301000	Nehalem River at Foss	667	9-30	125	.50	9-30	122	8-29,30,31-67	34
14321000	Umpqua River near Elkton	3,683	10-06	1,160	.50	10-01	1,090	7-18-26	640
14325000	South Fork Coquille River at Powers	169	9-30	25	.50	9-30	24	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.

Quality of Streamflow

Review of stream water-quality records for 14 stations in Oregon indicated that few constituents were outside the range observed for the period of record. Current distributions of approximately 45 constituents (including physical, chemical, and biological measurements) per station were compared to those for the period of record to determine any unusual water-quality conditions. With the possible exception of the constituents for the stations listed in Table 4 whose maximum concentrations were greater than or equal to those for the period of record, no unusual water-quality conditions during the 1984 water year were detected.

Examination of records for the 74 daily mean temperature stations indicated 23 stations with period of record minimum temperatures for December 1983.

Table 4.--Comparison of minimum and maximum concentrations for selected 1984 water year water-quality constituents to minimum maximum values for the period of record

Station number	Station name	1984 Number of samples	1984 Minimum	1984 Maximum	Period of record through 1983 Number of samples	Period of record through 1983 Minimum	Period of record through 1983 Maximum
		Dissolved orthophosphorus as P, in milligrams per liter					
13331500	Minam R at Minam	4	.01	.04	18	<.01	.04
14128910	Columbia R at Warrendale	4	.02	.08	10	.01	.05
14211720	Willamette R at Portland	6	.03	.08	11	<.01	.08
		Fecal coliform, in colonies per milliliter					
14372300	Rogue R nr Agness	3	K4	400	68	<1	400
14312260	South Umpqua R nr Roseburg	7	K20	K2375	81	<1	K2300
		Fecal streptococci, in colonies per milliliter					
14211720	Willamette R at Portland	5	<1	K2896	66	<1	2600
14372300	Rogue R nr Agness	4	27	K3920	71	<1	3000
13184000	Owyhee R at Owyhee	5	70	K8600	31	50	7800
		Dissolved aluminum, in micrograms per liter					
14301000	Nehalem R nr Foss	4	10	50	5	<10	50
14306500	Alsea R nr Tidewater	4	10	70	4	<10	30
14207500	Tualatin R at West Linn	4	10	130	4	10	80
14211720	Willamette R at Portland	4	20	500	4	20	270
		Dissolved iron, in micrograms per liter					
14306500	Alsea R nr Tidewater	4	66	120	20	30	120
14307620	Siuslaw R nr Mapleton	4	28	210	23	20	190
14211720	Willamette R at Portland	4	48	370	38	27	300
14301000	Nehalem R nr Foss	4	88	450	43	40	330
		Dissolved lithium, in micrograms per liter					
14321000	Umpqua R nr Elkton	4	<4	9	4	5	9
14048000	John Day R at McDonalds Ferry	4	<4	18	4	7	11
14103000	Deschutes R at Moody	4	<4	18	4	8	13
		Dissolved nickel, in micrograms per liter					
13331500	Minam R at Minam	2	<1	7	14	<1	3
14312260	South Umpqua R nr Roseburg	2	3	7	20	<1	6
14307620	Siuslaw R nr Mapleton	4	<1	24	16	<1	11
		Dissolved strontium, in micrograms per liter					
14307620	Siuslaw R nr Mapleton	4	33	48	4	28	40
14301000	Nehalem R nr Foss	4	24	49	5	25	46
14103000	Deschutes R at Moody	4	43	61	4	41	53
14321000	Umpqua R nr Elkton	4	45	65	4	49	55
		Dissolved zinc, in micrograms per liter					
10396000	Donner und Blitzen R nr Frenchglen	4	<3	33	36	<3	30
14307620	Siuslaw R nr Mapleton	4	<3	52	23	<3	38
14312260	South Umpqua R nr Roseburg	2	12	70	22	<3	50

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

Ground-Water Levels

The U.S. Geological Survey, in cooperation with the Oregon Water Resources Department, measures water levels in a network of observation wells. Data from about ten percent of these wells are listed in volumes 1 and 2 of this report. Ground-water levels during the 1984 water year in most of Oregon were generally above average. In Harney County, in the closed basin region of south-central Oregon, ground-water levels in some long-term observation wells reached new record highs as ground-water storage increased in response to the continued above average precipitation. In the Fort Rock-Christmas Valley area in northern Lake County, ground-water pumpage for irrigation has resulted in a net decrease in ground-water storage in the ground-water reservoir and below average ground-water levels in most wells.

Ground-water pumpage for irrigation and other uses from basalt ground-water reservoirs in north-central Oregon declined in the 1984 water year partly in response to above average precipitation, higher pumping costs, and improved water conservation practices. These combined factors resulted in an overall decrease in the rate of ground-water decline.

Ground-water levels in most western Oregon wells ranged from above average to average during most of the water year. Those wells with water levels below average were either heavily pumped or were affected by nearby pumping.

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 of Units (SI) on the inside of the back cover.

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

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

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

Total coliform bacteria are a particular group of bacteria that may be 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 which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C + 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal coliform bacteria are a group of coliform 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 which produce blue colonies within 24 hours when incubated at 44.5°C + 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 + 1.0°C on M-enterrococcus medium (nutient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Benthic organisms (invertebrates) are animals inhabiting the bottom of an aquatic environment. They include a number of different types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are frequently used as indicators of environmental quality because many have restricted mobility during their aquatic life phase, as well as a relatively long lifespan which allows for response to prevailing and changing water-quality conditions. Many benthic organisms inhabit specific types of environments which, if changed, result in changes in the composition of the benthic community.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, used for decomposition of organic matter by microorganisms, such as bacteria.

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

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

Dry weight refers to the weight of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the weight remains unchanged. This weight represents the total organic matter, ash and sediment, in the sample. Dry weight values are expressed in the same units as ash weight.

Cfs-day (ft^3/s-day) 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, or about 646,000 gallons, or 2,445 cubic meters. It represents a runoff of approximately 0.0372 inch from 1 square mile or 0.3468 millimeter from 1 square kilometer.

Chemical oxygen demand (COD) indicates the quantity of oxidizable compounds in water and varies with water composition(s), temperature, period of contact, and other factors.

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

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.

Continuing water-quality record station is a specified site which meets one or all conditions listed.

1. Where chemical samples are collected daily or monthly for 10 or more months during the water year.
2. Where water-temperature records include observations taken one or more times daily.
3. Where sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

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.

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 approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, total fluids) that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a given time.

Mean discharge is the arithmetic average of discharge during a specific period.

Dissolved refers to that material in a representative water sample which passes through a 0.45-micrometer 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. It is recognized that certain kinds of samples cannot be filtered; to provide for this, procedures that are considered equivalent to filtering through a 0.45-micrometer membrane filter will be identified and announced at a later date.

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 gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO3).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per liter (UG/L, ug/l) is a unit expressing the concentration of chemical constituents in solution as weight (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 concentrations of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/l, and is based on the mass of sediment per liter of water-sediment mixture.

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

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Cells/volume refers to the number of cells of any organism which are 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 volume, usually milliliters (ml) or liters (l).

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m), acres, or hectares. 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 millimeters (ml) or liters (l). Number 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.

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

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by 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 recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

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

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

Percent of total 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, number, weight, or volume.

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While consisting primarily of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

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 primary food producers in the aquatic environment and are commonly known as algae.

Chlorophyta (green algae) have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats of floating "moss" in lakes.

Chrysophyta (yellow-green algae, yellow-brown algae, and diatoms) have pigments in which yellow-green to golden-brown algae predominate. The cell wall of these organisms, especially diatoms, often consists of two overlapping halves which are highly silicified.

Cryptophyta (cryptomonads) have pigments that are usually brown but also occur as red, blue or grass green. The cells are motile with two flagella and occur in freshwaters sometimes rich in organic and in nitrogenous materials.

Cyanophyta (blue-green algae) are groups of phytoplankton organisms having blue pigment in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Euglenophyta (euglenoids) are motile cells usually with one flagella and have a dominant grass-green pigment. They often occur in small pools rich in organic matter and are frequently present in sufficient amounts to color the water or the damp mud along river banks.

Pyrrhophyta (fire algae) have greenish-tan to golden-brown pigments. The cells are motile usually with two flagella. The freshwater forms are more abundant in pools, ditches, and small lakes with considerable vegetation.

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 food web. The zooplankton community is dominated by small crustaceans and rotifers.

Runoff in inches (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.

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

Specific conductance is a measure of the ability of water to conduct an electrical current. It is expressed in micromhos 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 micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

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

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-micrometer 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 would be 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-micrometer 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 classification 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.....Emphemeroptera
Family.....Ephemeridae
Genus.....Hexagenia
Species.....Hexagenia limbata

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

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

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

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

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 determines all of the constituent in the sample.)

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

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Formazin turbidity units (FTU), obtained from the Nephelometric method for turbidity determination which measures the intensity of light scattered by suspended particles at 90 degrees from the path of an incident light source.

Water year in Geological Survey reports dealing with surface-water supply refers to 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, 1984 is called "1984 water year."

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 year after thorough mixing in the reservoir.

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).

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

SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

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

Precipitation program was initiated by the U.S. Geological Survey after the eruption of Mount St. Helens to collect data on the quantity and quality of precipitation for specific events. Primary objectives of the program are to determine (1) the general quality of precipitation and (2) the effect of ash from Mount St. Helens on the quality of precipitation.

DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all main-stream stations are listed before the first main-stream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of stations in the front of this report, the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each water-quality station, gaging station, and partial-record station have been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continous-record stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 14105700 which appears just to the left of the station name, includes the 2-digit part number "14" plus the 6-digit downstream order number "105700." In this report, the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and Computation of Data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder which gives a continuous graph of the fluctuations (for digital recorders, a tape punched at 15-, 30-, or 60-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks on the measurement of stream discharge. Surface areas of lakes or reservoirs are determined from instrument surveys using standard methods.

For a stream-gaging station, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage heights to the rating table gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. 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 individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

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

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

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

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

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

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

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gage, general remarks, average discharge, and extremes of published records. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is determined by the Corps of Engineers. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published, along with the current records, in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are affected by the revision, that fact is brought out by notations after the year dates as follows: "(M)" means only the instantaneous maximum discharge was revised; "(m)" only the instantaneous minimum was revised; and "(P)" only the peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given.

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

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

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "EXTREMES," the extremes for the period of record are given first; information available outside the period of record is given second; and last, those for the current year are given. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations, peak discharges are listed with the time of occurrence and corresponding gage heights with "EXTREMES FOR THE CURRENT YEAR", if they are all independent peaks (including the maximum for the year) above the selected base. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "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 may also be 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, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

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

For most gaging stations on lakes and reservoirs, the data presented comprise a description of the station and monthly summary table to stage and contents. For some reservoirs, a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but it is not published for reservoirs for which only monthly data are given.

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

Accuracy of Data

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

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

Figures of daily mean discharge are shown to the nearest hundreth of a cubic foot per second for discharges of less than 1 ft^3/s, to tenths between 1.0 and 10 ft^3/s, to whole numbers between 10 and 1,000 ft^3/s, and to three significant figures greater than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumptive use, regulation, evaporation, or other factors. For such stations, discharge in cubic feet per second per square mile and runoff in inches are not published unless satisfacory adjustments can be made for such effects. 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 unadjusted losses (consumptive use, evaporation, seepage, etc.) are large in comparison with the observed discharge.

Other Data 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.

Records of Discharge Collected by Agencies Other than the Geological Survey

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 Reserouces Division, U.S. Geological Survey, National Center, Reston, VA., 22092, maintains an index of these sites and will furnish information about them.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Computation of Data

Records of surface water quality are listed in downstream order by station number. The data generally are collected at or near gaging stations, and are reported immediately following other records for those stations. Water-quality data for most ungaged sites are listed with the records for other surface-water stations, in regular downstream order. The exceptions are the less detailed data for several ungaged sites, which are grouped separately in the section titled "Analyses of samples collected at water-quality partial-record stations."

The descriptive headings for detailed records of surface-water quality give periods of record for the various categories of data, extremes for certain pertinent data, and general remarks. For less detailed records, only the overall period of record is listed.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey publications on Techniques of Water-Resources Investigations. (See "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS.")

One stream-water 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 for the accurate determination of mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling

as much as possible, consistent with available sampling techniques and methods of analysis. Where an apparent inconsistency exists between a reported pH value and 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 published records consist of daily maximum, minimum, and mean values. More detailed records may be obtained from the Oregon office.

Since October 1967, the U.S. Geological Survey has used the metric system for reporting data on chemical constituents and concentrations of suspended sediment. Chemical constituents are now reported in milligrams per liter (mg/l) except for certain minor elements that are reported in micrograms per liter (ug/l). Suspended sediment is reported in milligrams per liter and water temperatures in degrees Celsius (°C). In water with a density other than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter. To convert temperature in degrees Celsius to degrees Fahrenheit, see table 1 below.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. (See "DEFINITIONS OF TERMS.")

Table 5.--Degrees Celsius (°C) to degrees Fahrenheit (°F)*
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

*°C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32.

Water temperature

Water temperatures are measured at most of the water-quality stations. The water temperatures for daily stations are taken when a sample is collected, at about the same time each day. Large streams have small diurnal temperature changes; shallow streams may have a daily range of several degrees and may closely follow the changes in air temperature. Some streams may be affected by waste-heat discharges. At stations where continuously recording thermographs are used, maximum and minimum temperatures for each day are published.

Sediment

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

During periods of rapidly changing flow or concentration, samples may have been collected 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 discharges observed for other periods of similar discharge. A blank in the daily mean concentration column of the suspended-sediment discharge table indicates the value in the sediment discharge column was estimated.

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

In addition to records of the quantities of suspended sediment, records of periodic measurements of particle-size distribution of suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of Data

The observation-well program in Oregon, begun in 1928, was continued through 1984 in cooperation with the Oregon Water Resources Department. During the period 1962-65, the number of wells in the observation-well network was increased from 102 to 840. Observation wells in the program are part of a basic national network for providing a historical record of water-level changes in selected aquifers in the nation. Most of the wells are measured periodically by personnel of the Oregon Water Resources Department. Measurements are made in most of the wells three or four times a year to obtain records of the effects of pumping and seasonal changes in ground-water storage. The measurements are generally made in winter and spring before pumping begins, during the pumping season, and at the end of the pumping season. Water-level measurements in representative wells in the Oregon observation-well network are included in this report.

Each well is identified by means of a 15-digit number that is based on the grid system of latitude and longitude. The first six digits represent degrees, minutes, and seconds of north latitude; the next seven digits are degrees, minutes, and seconds, of west longitude; and the last two numbers are sequential numbers assigned in the order the wells are inventoried in a 1-second quadrangle. Each well is also identified by a local well number that provides continuity with older reports and local needs.

Well Descriptions

For each well, the well description includes, if available, the following information: Latitude-longitude number, local well number, owner, method of construction, use of well, aquifer name or lithology, diameter of casing, depth of well, depth interval perforated or screened, altitude of land-surface datum (lsd) National Geodetic Vertical Datum of 1929 (NGVD), and a description of the measuring point.

The depth of the well at the time it was inventoried is given in the well description, and any subsequent changes also are described. Well diameter reported is the inside of the innermost well casing at land surface.

Water Levels

Measurements are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Water-level measurements in this report are given in feet below land-surface datum unless otherwise indicated. Those water levels that are above land-surface datum are preceded by a plus (+) sign. Land-surface datum is a datum plane that is approximately at land surface at each well. The height of the measuring point (MP) above or below land-surface datum is given in each well description.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Most measurements are reported to a hundredth of a foot; others are reported only to a tenth of a foot or a larger unit. Water levels determined by air line are less accurate than those measured by other methods; therefore, these water levels are reported only to the nearest half a foot.

The highest and lowest water levels measured at each well for the period of record are reported. These are intended to represent static water levels, but the lowest levels reported for some wells may reflect recent pumping.

Hydrographs

Hydrographs show fluctuations of water levels during 1965-84 in selected observations wells. Generally, water levels are highest during the wet winter and spring months and lowest during the dry summer and autumn months. Water levels are shown on the hydrographs in feet below the land surface at the well.

Well-Numbering System

Local designations of wells discussed in this report are based on the official system for the rectangular subdivision of public lands, referenced to the Willamette base line and meridian. The number indicates the location of the well, by township, range, section, and its' position within the section. A graphic illustration of this method of well numbering is shown below (fig. 1). The numbers indicate the township, the range, and the section, respectively, in which the well is located. The letters following the section number locate the well within the section. The first letter denotes the quarter section (160 acres); the second, the quarter-quarter section (40 acres); and the third, the quarter-quarter-quarter section (10 acres). Where two or more wells are in the same 10-acre subdivision, serial numbers are added after the third letter. The section number and three-letter position indicator are shown on the location map adjacent to the well symbol. Within a county, the wells are arranged in sequential order based on increasing numbers for township and range by section number. For example, well 01S/32E-16CCC is in the NE¼NE¼NE¼ sec.16, T.01 S., R.32 E., and will be labeled as 16CCC. Several areas in Oregon have townships or ranges that are less than six sections wide (1/2 ranges). Wells located in these areas are designated with an X instead of a fraction, for example, 38S/11X-15DDA.

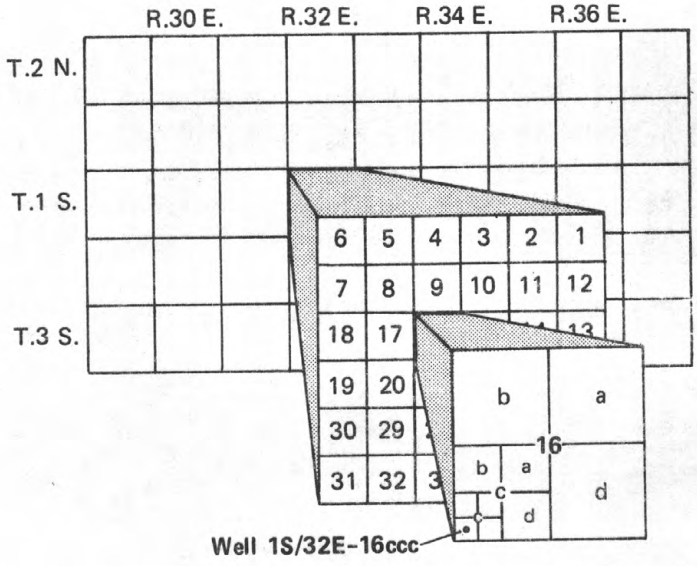

FIGURE 1.--Well-numbering system.

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 requestor. 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
MS 437 National Center
Reston, Virginia 22092

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.

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

3-A12. FLUOROMETRIC PROCEDURES FOR DYE TRACING, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. Not currently available.

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. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 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, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 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.

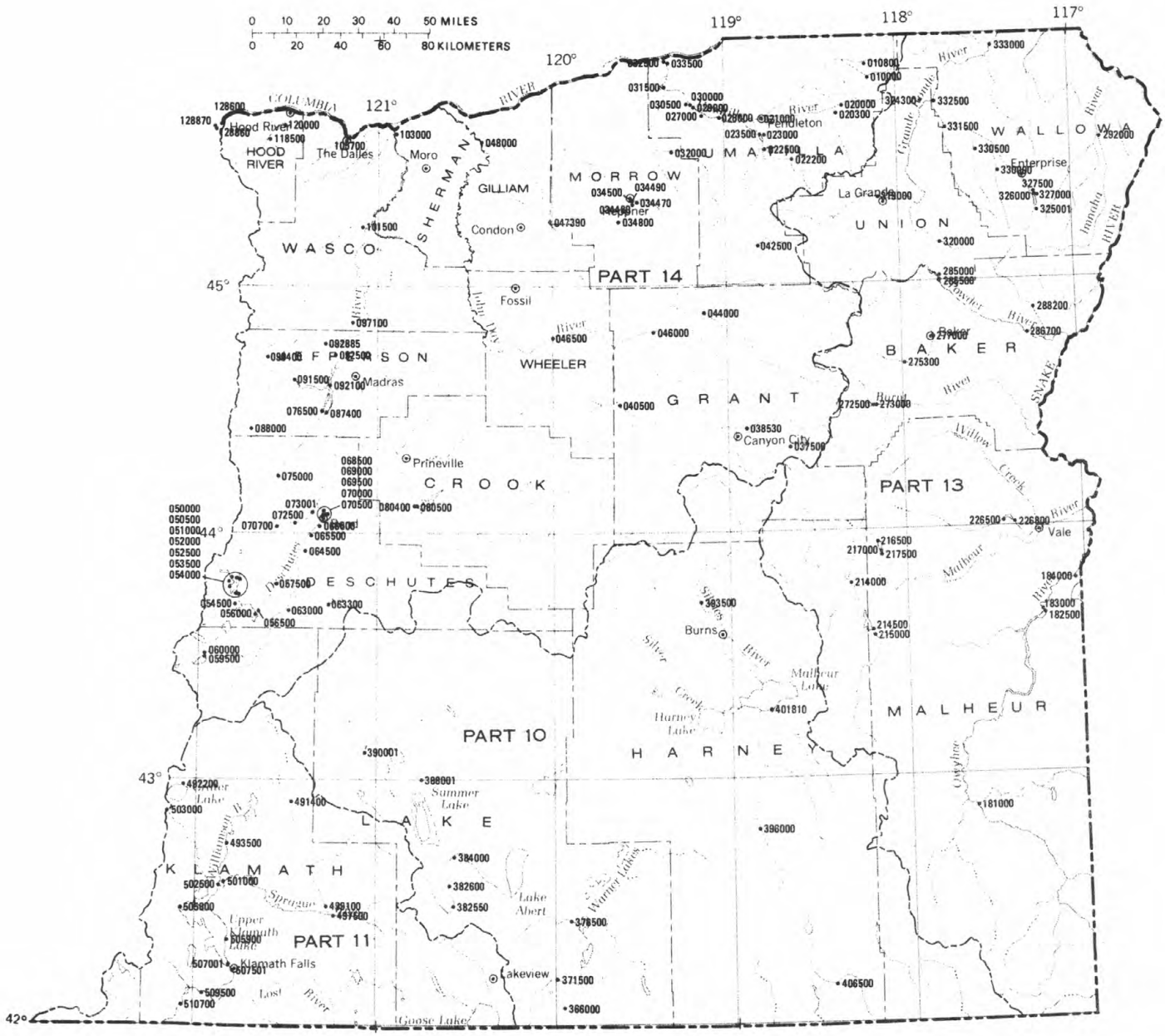


Figure 2. Map of Eastern Oregon showing location of active gaging stations

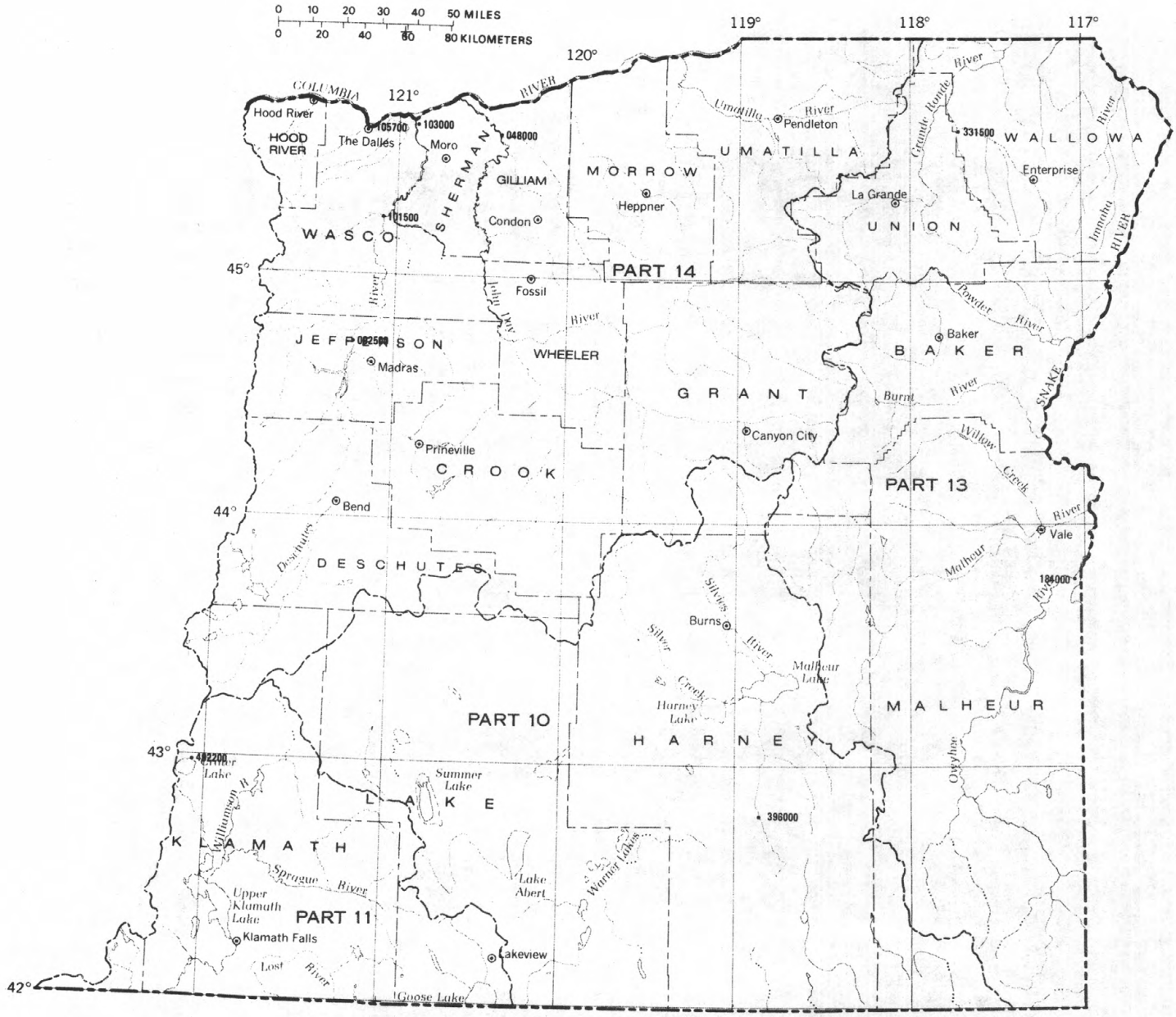


Figure 3. Map of Eastern Oregon showing sites where water-quality data are obtained

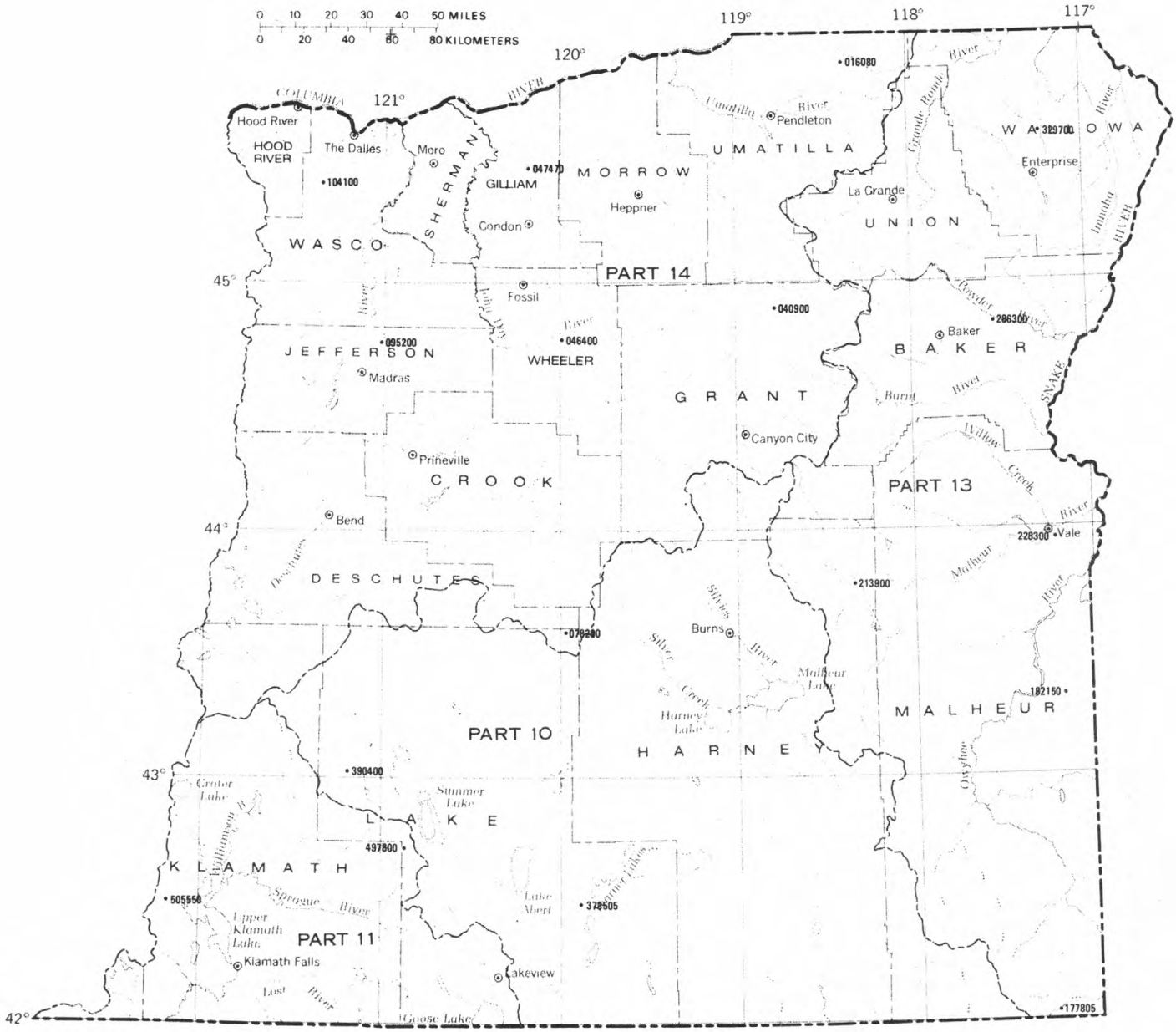


Figure 4. Map of Eastern Oregon showing location of partial-record stations

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 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.--Records excellent below 300 ft^3/s, good above. Some regulation by pumpage from Cowhead Lake. Diversions in Oregon for irrigation above station; considerable diversions for irrigation in Cowhead Lake area in California.

AVERAGE DISCHARGE.--49 years (water years 1911-15, 1919, 1941-44, 1946-84), 53.9 ft^3/s, 39,050 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 above base 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)
Dec. 30	--	1,230	7.08	Mar. 20	2330	809	5.75
Feb. 13	1530	881	5.99	Mar. 26	1930	630	5.13
Mar. 8	2230	1,050	6.52	May 4	0930	764	5.60
Mar. 13	2100	*1,350	*7.46				

Minimum, 0.61 ft^3/s Aug. 18, result of regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	9.1	13	309	21	176	143	182	152	51	7.7	6.8
2	6.4	10	14	163	19	359	136	218	136	47	7.3	6.0
3	6.4	10	14	118	20	289	118	294	124	47	6.8	5.6
4	6.4	9.7	11	74	24	204	166	541	163	44	6.8	5.1
5	6.0	9.7	10	80	35	141	166	196	147	43	6.4	5.1
6	6.0	8.4	10	90	62	194	163	121	152	43	6.0	5.1
7	6.0	9.7	11	93	71	383	128	108	161	39	6.0	5.6
8	6.0	8.4	14	77	74	560	208	110	112	34	6.0	5.6
9	6.0	8.4	16	65	138	672	147	131	98	32	5.6	5.6
10	6.4	10	27	48	96	528	143	141	95	30	5.1	5.6
11	6.4	14	22	43	49	426	159	239	90	29	4.7	5.1
12	6.4	16	19	48	43	342	163	303	89	28	4.7	5.6
13	6.4	18	18	30	541	614	186	311	87	19	4.3	5.6
14	6.4	12	100	26	347	717	234	311	87	15	4.7	5.6
15	6.4	12	320	25	168	530	252	230	93	15	4.7	6.0
16	6.4	14	80	23	126	369	178	188	93	15	4.3	6.0
17	6.4	18	40	22	86	311	148	182	89	15	2.9	5.6
18	6.4	18	25	22	59	232	154	184	87	15	1.0	6.0
19	6.4	15	20	30	47	272	156	208	86	15	1.7	6.0
20	6.4	17	15	35	34	468	143	265	84	13	2.7	6.0
21	6.8	15	12	24	39	517	113	202	78	13	5.1	6.8
22	6.8	12	12	19	52	287	116	202	71	12	5.1	6.4
23	8.4	13	12	18	28	237	128	314	68	12	5.1	6.4
24	9.1	16	14	27	24	345	116	234	69	12	4.7	6.4
25	7.7	17	17	52	22	254	104	237	69	10	5.1	6.4
26	7.3	19	19	59	22	448	102	254	69	8.4	5.1	6.4
27	7.3	15	15	45	20	292	105	208	68	5.6	5.1	6.4
28	7.3	13	13	37	23	186	104	204	63	3.8	4.7	6.4
29	7.3	12	30	32	39	194	99	216	65	4.7	5.1	6.4
30	9.7	12	950	26	---	128	105	222	59	6.4	6.0	6.0
31	9.7	---	600	23	---	147	---	190	---	6.4	7.7	---
TOTAL	213.4	391.4	2493	1783	2329	10822	4383	6946	2904	683.3	158.2	177.6
MEAN	6.88	13.0	80.4	57.5	80.3	349	146	224	96.8	22.0	5.10	5.92
MAX	9.7	19	950	309	541	717	252	541	163	51	7.7	6.8
MIN	6.0	8.4	10	18	19	128	99	108	59	3.8	1.0	5.1
AC-FT	423	776	4940	3540	4620	21470	8690	13780	5760	1360	314	352

CAL YR 1983	TOTAL	42095.8	MEAN	115	MAX	1690	MIN	5.0	AC-FT	83500
WTR YR 1984	TOTAL	33283.9	MEAN	90.9	MAX	950	MIN	1.0	AC-FT	66020

NOTE.--No gage-height record Nov. 10-18, Nov. 23 to Dec. 29.

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 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.--Records excellent except December to February, which are good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--56 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 above base 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)
Dec. 30	1400	807	3.31	Apr. 23	0130	746	3.21
Mar. 8	2030	776	3.26	May 4	0030	814	3.32
Mar. 13	2200	989	3.57	May 14	0500	*1,670	*4.41
Mar. 20	2400	849	3.37	May 23	1530	1,120	3.75
Mar. 26	1930	610	2.98	June 7	0300	1,250	3.91
Apr. 15	2330	1,190	3.84				

Minimum, 18 ft^3/s Aug. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	38	54	339	69	150	292	555	626	198	38	34
2	28	56	54	236	74	225	264	515	565	183	37	28
3	28	56	45	195	72	210	281	734	520	171	35	26
4	28	48	35	177	66	171	351	764	770	160	32	25
5	28	51	29	183	78	155	384	620	728	150	32	22
6	27	44	29	195	84	213	407	545	1060	143	31	21
7	27	82	29	195	80	295	359	540	1030	135	30	21
8	28	51	44	177	90	440	530	615	710	123	28	21
9	28	48	57	158	100	525	380	770	575	111	28	21
10	31	56	71	143	90	480	323	782	540	96	26	22
11	29	105	72	130	80	407	311	1170	480	86	25	23
12	28	74	69	109	90	347	299	1510	450	76	22	32
13	28	69	66	100	200	515	335	1430	411	72	22	31
14	29	57	102	100	140	626	505	1430	407	67	22	30
15	28	59	430	107	115	545	770	1050	393	60	22	29
16	28	59	350	95	110	407	877	884	398	51	21	29
17	28	105	200	90	80	343	807	814	384	50	20	29
18	28	107	150	85	90	295	716	770	371	54	20	28
19	28	74	130	100	100	411	610	821	371	57	20	28
20	28	54	115	165	110	565	500	926	384	51	20	29
21	28	57	111	109	120	644	445	856	355	47	25	31
22	28	48	107	92	86	416	530	814	315	44	21	30
23	37	54	109	78	91	407	644	1040	292	44	21	29
24	42	66	140	88	91	485	585	940	292	50	19	32
25	34	86	186	107	66	384	460	828	292	48	19	31
26	32	71	195	96	74	530	430	856	278	41	20	31
27	30	64	150	90	74	430	420	794	260	36	20	31
28	30	53	120	86	74	389	380	758	257	35	19	31
29	30	51	267	84	78	367	393	770	250	34	19	31
30	40	54	585	80	---	299	420	800	222	32	29	31
31	44	---	545	80	---	303	---	758	---	32	44	---
TOTAL	938	1897	4646	4069	2672	11979	14008	26459	13986	2537	787	837
MEAN	30.3	63.2	150	131	92.1	386	467	854	466	81.8	25.4	27.9
MAX	44	107	585	339	200	644	877	1510	1060	198	44	34
MIN	27	38	29	78	66	150	264	515	222	32	19	21
AC-FT	1860	3760	9220	8070	5300	23760	27780	52480	27740	5030	1560	1660

CAL YR 1983	TOTAL	90965	MEAN	249	MAX	1900	MIN	25	AC-FT	180400
WTR YR 1984	TOTAL	84815	MEAN	232	MAX	1510	MIN	19	AC-FT	168200

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 mi², 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 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.--Records good except those for Apr. 10 to May 6, which are fair. Slight regulation by five small reserviors, combined capacity, 870 acre-ft. Diversions for irrigation above station.

AVERAGE DISCHARGE.--58 years (water years 1911-14, 1931-84), 31.1 ft³/s, 22,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maxiumum discharge, 11,000 ft³/s Dec. 23, 1964, gage height, 13.4 ft, from floodmark, from rating curve extended above 250 ft³/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 above base of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 30	---	ice jam	a*5.20	May 12	0300	*518	4.98
Mar. 14	2230	349	4.41	May 23	1530	282	4.17
Apr. 16	unknown	413	a4.64				

Minimum, 0.37 ft³/s Aug. 28, 29.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	9.0	12	95	20	29	90	110	144	27	3.8	.75
2	3.1	7.0	13	65	17	62	85	130	124	26	3.4	.75
3	3.1	8.3	13	49	20	54	80	170	110	24	2.2	.75
4	3.1	8.3	10	51	20	42	79	150	118	23	2.3	.75
5	3.1	8.6	9.2	73	24	31	79	125	116	21	2.5	1.2
6	3.1	9.6	9.2	69	29	33	86	130	124	17	2.2	1.1
7	3.1	13	10	63	26	48	88	140	130	15	2.0	1.3
8	2.6	11	13	60	26	63	124	192	118	15	1.7	3.4
9	2.9	9.3	14	45	34	84	106	290	94	13	1.3	3.8
10	3.2	9.6	20	37	24	91	100	251	106	13	1.0	3.5
11	3.7	13	20	34	23	91	96	349	109	13	.85	2.0
12	3.7	14	17	33	21	72	92	430	92	9.6	.75	1.6
13	3.7	16	16	32	79	71	100	374	85	9.6	.65	1.3
14	3.7	11	34	28	56	182	140	374	77	9.3	.65	1.6
15	3.8	11	112	28	38	222	170	272	64	9.0	.65	1.6
16	4.0	12	47	25	35	119	190	233	60	9.3	.61	1.3
17	4.0	16	42	23	29	82	180	213	59	9.3	.52	.85
18	4.3	16	33	23	24	69	150	200	59	9.3	.47	.65
19	4.6	13	27	30	27	69	130	213	58	10	.52	1.4
20	4.8	13	21	38	25	103	115	229	60	9.0	.56	4.6
21	5.0	11	15	35	48	149	100	218	62	8.6	.56	5.0
22	5.0	11	11	26	30	135	105	194	53	8.0	.61	4.8
23	7.7	12	11	24	34	110	110	242	44	7.4	.52	2.3
24	9.6	15	11	24	25	120	105	227	35	8.3	.52	1.2
25	7.4	16	15	61	21	110	95	200	23	8.0	.52	2.5
26	6.7	18	17	46	21	115	95	186	29	6.4	.52	3.2
27	6.7	14	16	27	24	120	100	176	35	5.5	.44	3.2
28	6.7	12	12	25	27	100	95	167	29	4.8	.40	3.2
29	6.7	11	12	24	25	92	95	158	21	4.1	.40	3.1
30	7.4	11	50	21	---	92	100	156	24	4.1	.44	3.2
31	9.6	---	202	20	---	92	---	151	---	3.8	.75	---
TOTAL	149.2	359.7	864.4	1234	852	2852	3280	6650	2262	360.4	34.31	65.90
MEAN	4.81	12.0	27.9	39.8	29.4	92.0	109	215	75.4	11.6	1.11	2.20
MAX	9.6	18	202	95	79	222	190	430	144	27	3.8	5.0
MIN	2.6	7.0	9.2	20	17	29	79	110	21	3.8	.40	.65
AC-FT	296	713	1710	2450	1690	5660	6510	13190	4490	715	68	131

CAL YR 1983	TOTAL	27072.02	MEAN	74.2	MAX	557	MIN	.23	AC-FT	53700
WTR YR 1984	TOTAL	18963.91	MEAN	51.8	MAX	430	MIN	.40	AC-FT	37610

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. Altitude of gage is 5,030 ft, from topographic map.

REMARKS.--Records good except those for December through February, 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 daily, 25 ft^3/s Jan. 1, 2, 1983, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Dec. 30	1100	ice jam	*6.46	Apr. 8	0630	503	4.71
Mar. 13	2000	436	4.64	Apr. 16	2400	735	4.93
Mar. 20	2330	340	4.51	May 13	2400	*1,430	5.39

Minimum daily, 28 ft^3/s Feb. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	56	60	150	85	77	216	388	789	195	57	58
2	43	69	60	180	75	95	205	367	678	180	53	50
3	42	67	52	180	80	78	209	527	582	171	52	47
4	42	71	63	127	85	70	254	545	731	160	51	45
5	42	60	63	135	85	69	240	485	658	149	50	43
6	43	67	48	138	90	77	241	457	782	137	50	43
7	42	74	59	135	90	87	234	459	788	130	49	43
8	42	54	76	132	91	104	388	516	566	121	47	43
9	45	59	82	134	68	118	290	607	481	113	46	43
10	47	67	93	106	62	123	281	634	432	108	45	42
11	45	107	86	99	65	125	251	1120	381	101	44	41
12	43	82	88	90	66	130	244	1270	356	95	43	42
13	45	74	78	95	124	211	247	1220	347	87	43	43
14	43	65	110	90	94	267	286	1260	346	83	43	43
15	43	67	242	90	78	230	362	1040	364	79	43	44
16	42	69	200	85	74	201	495	869	375	76	42	43
17	42	93	170	75	56	182	598	779	368	76	42	42
18	42	74	147	80	63	168	524	746	362	81	42	41
19	42	72	105	100	68	193	466	791	361	86	42	42
20	42	69	80	120	62	239	399	893	362	73	42	44
21	41	62	55	154	67	276	380	842	332	70	41	46
22	42	69	40	109	57	232	424	785	298	68	40	43
23	55	69	45	91	59	250	470	1070	277	67	39	43
24	48	76	50	108	56	260	454	1050	269	88	39	43
25	44	74	55	144	54	242	401	975	266	69	39	43
26	43	59	65	130	52	302	383	927	263	63	40	43
27	42	74	75	110	57	271	360	881	256	60	39	43
28	42	59	60	100	57	262	339	857	249	59	38	43
29	43	59	70	100	58	251	334	877	238	58	38	43
30	69	60	90	90	---	229	334	967	215	57	55	44
31	57	---	120	80	---	227	---	952	---	56	123	---
TOTAL	1386	2077	2687	3557	2078	5646	10309	25156	12772	3016	1457	1316
MEAN	44.7	69.2	86.7	115	71.7	182	344	811	426	97.3	47.0	43.9
MAX	69	107	242	180	124	302	598	1270	789	195	123	58
MIN	41	54	40	75	52	69	205	367	215	56	38	41
AC-FT	2750	4120	5330	7060	4120	11200	20450	49900	25330	5980	2890	2610

CAL YR 1983	TOTAL	80289	MEAN	220	MAX	1700	MIN	25	AC-FT	159300
WTR YR 1984	TOTAL	71457	MEAN	195	MAX	1270	MIN	38	AC-FT	141700

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. Altitude of gage is 4,880 ft, from topographic map.

REMARKS.--Records good.

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 above base 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)
Mar. 13	1930	654	3.40	Apr. 17	0300	808	3.67
Mar. 21	0230	571	3.24	May 14	0400	*1,470	*4.59
Apr. 7	2400	732	3.54				

Minimum, 28 ft^3/s Nov. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	58	68	170	90	115	302	486	745	210	63	62
2	44	73	68	180	80	204	283	463	670	194	57	52
3	42	70	61	180	85	172	319	621	603	183	55	48
4	42	73	63	192	90	143	360	665	696	172	54	45
5	41	66	81	172	90	129	345	589	665	162	53	43
6	43	66	72	167	93	150	334	553	744	149	52	42
7	41	85	72	163	101	176	407	554	757	142	51	43
8	41	57	91	159	98	226	523	613	597	133	49	43
9	45	64	98	151	101	284	399	701	536	126	47	42
10	48	67	118	141	100	281	376	709	504	119	45	40
11	47	119	106	130	100	279	332	1110	466	112	44	39
12	44	90	92	110	93	281	323	1340	443	106	43	40
13	46	83	91	120	188	409	315	1280	421	98	43	42
14	44	69	143	110	143	485	366	1310	397	94	44	42
15	43	71	349	100	124	399	480	1070	387	90	43	44
16	43	74	233	90	105	331	607	921	386	86	42	42
17	43	107	195	85	106	296	724	853	379	86	42	40
18	43	84	150	90	90	263	673	782	372	92	42	40
19	41	79	120	130	111	315	612	830	371	101	42	40
20	41	76	85	160	120	373	532	901	372	84	41	42
21	41	62	70	156	126	479	492	860	348	79	40	46
22	41	69	55	128	113	366	535	803	316	76	39	42
23	59	79	45	118	101	381	597	1030	295	73	39	41
24	53	87	50	124	105	419	581	1000	285	99	39	41
25	45	85	55	135	94	373	507	915	282	78	39	42
26	44	58	65	132	89	462	480	872	278	70	39	42
27	43	80	80	116	94	405	453	837	271	67	39	42
28	43	65	70	100	111	387	420	809	263	65	38	41
29	42	60	90	95	100	363	416	833	252	63	37	41
30	70	68	110	90	---	325	410	878	230	61	51	43
31	63	---	150	85	---	324	---	859	---	61	136	---
TOTAL	1410	2244	3196	4079	3041	9595	13503	26047	13331	3331	1488	1292
MEAN	45.5	74.8	103	132	105	310	450	840	444	107	48.0	43.1
MAX	70	119	349	192	188	485	724	1340	757	210	136	62
MIN	41	57	45	85	80	115	283	463	230	61	37	39
AC-FT	2800	4450	6340	8090	6030	19030	26780	51660	26440	6610	2950	2560

CAL YR 1983	TOTAL	92392	MEAN	253	MAX	1900	MIN	30	AC-FT	183300
WTR YR 1984	TOTAL	82557	MEAN	226	MAX	1340	MIN	37	AC-FT	163800

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 mi².

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 National Geodetic Vertical Datum of 1929 (river-profile survey). See WSP 1734 for history of changes prior to Oct. 6, 1956.

REMARKS.--Records excellent. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--69 years, 148 ft³/s, 107,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,490 ft³/s Dec. 22, 1964, gage height, 8.35 ft, from rating curve extended above 900 ft³/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 above base of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	2330	735	3.20	May 4	0200	877	3.41
Mar. 21	0200	645	3.04	May 14	0530	*1,680	*4.31
Apr. 8	1000	856	3.38	May 23	1800	1,360	3.99
Apr. 17	0530	956	3.52	June 7	0700	1,040	3.62
Apr. 23	0300	787	3.28				

Minimum, 37 ft³/s Nov. 26, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	64	75	170	95	148	321	560	884	237	70	79
2	50	78	76	184	79	209	276	550	781	221	67	61
3	49	75	69	172	87	172	282	711	699	209	64	56
4	48	76	58	179	93	152	433	794	774	195	63	52
5	48	76	54	172	93	141	375	693	787	184	60	50
6	48	69	64	164	100	162	391	645	849	172	60	49
7	48	93	72	162	95	184	347	639	891	162	59	50
8	48	67	95	155	104	224	681	705	693	152	57	50
9	49	68	112	141	120	272	490	828	615	146	55	49
10	53	72	143	146	106	265	456	842	577	139	53	48
11	52	124	124	141	91	272	391	1280	525	130	52	47
12	50	100	100	108	108	262	347	1570	495	124	50	47
13	51	95	102	128	237	433	335	1500	465	116	50	49
14	51	78	167	122	177	571	424	1530	438	112	50	49
15	50	78	415	100	146	495	555	1260	424	106	50	50
16	50	83	290	97	139	375	723	1060	420	102	48	49
17	49	118	227	91	97	311	877	964	411	100	48	48
18	49	97	195	87	110	258	814	884	403	106	48	47
19	49	87	172	126	118	293	729	933	403	118	48	47
20	48	83	126	164	135	438	627	1040	403	100	48	48
21	48	69	100	148	152	550	582	996	391	93	47	52
22	48	67	80	118	108	420	633	926	355	89	46	50
23	61	84	60	110	116	442	711	1190	332	84	45	49
24	61	93	54	120	116	480	687	1190	318	110	45	50
25	52	95	60	132	104	433	593	1090	311	93	45	49
26	51	59	75	118	91	515	560	1030	307	81	46	49
27	50	86	90	106	116	470	535	988	300	76	45	49
28	49	81	80	97	120	442	495	948	293	73	44	49
29	49	65	100	97	116	424	490	972	283	72	43	48
30	67	75	120	93	---	343	480	1040	262	69	59	49
31	70	---	140	86	---	347	---	1020	---	69	164	---
TOTAL	1596	2455	3695	4034	3369	10503	15640	30378	15089	3840	1729	1519
MEAN	51.5	81.8	119	130	116	339	521	980	503	124	55.8	50.6
MAX	70	124	415	184	237	571	877	1570	891	237	164	79
MIN	48	59	54	86	79	141	276	550	262	69	43	47
AC-FT	3170	4870	7330	8000	6680	20830	31020	60250	29930	7620	3430	3010

CAL YR 1983	TOTAL	103973	MEAN	285	MAX	1990	MIN	36	AC-FT	206200
WTR YR 1984	TOTAL	93847	MEAN	256	MAX	1570	MIN	43	AC-FT	186100

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. Altitude 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.--Records excellent. All records presented herein include flow in Summer Lake Canal which diverts 300 ft above station for irrigation of lands along west side of Summer Lake. Flow regulated by gates at diversion dam.

AVERAGE DISCHARGE.--36 years (water years 1931-32, 1936, 1952-84), 91.0 ft^3/s, 65,930 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, 110 ft^3/s Jan. 11; minimum, 52 ft^3/s May 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	88	87	84	93	94	91	79	84	87	83	85
2	86	87	87	84	93	94	91	79	84	86	85	79
3	86	87	88	84	93	94	91	82	85	81	88	80
4	86	87	88	86	93	94	91	84	85	77	89	85
5	86	87	87	85	93	94	91	84	87	80	88	87
6	86	86	87	85	93	94	90	84	89	80	85	86
7	87	87	87	85	93	94	90	78	88	80	82	86
8	87	87	87	85	93	94	90	68	85	80	83	86
9	87	87	86	85	94	94	90	67	85	80	84	87
10	87	87	86	85	94	94	90	67	86	80	84	88
11	87	87	86	103	94	94	90	79	88	80	85	87
12	87	87	86	104	94	94	90	81	89	79	86	87
13	87	87	86	103	94	94	90	75	90	79	86	87
14	86	87	86	102	94	94	90	79	89	79	87	87
15	86	87	86	99	93	94	90	81	88	79	87	87
16	86	87	86	98	93	94	90	81	87	80	91	85
17	86	87	86	97	93	94	90	79	87	80	93	85
18	86	87	86	96	93	93	84	83	87	80	91	85
19	86	87	86	95	93	93	81	85	87	80	89	85
20	86	87	85	95	92	93	83	84	87	80	89	85
21	87	87	85	95	92	93	68	79	87	80	88	85
22	87	87	85	95	92	93	64	77	87	80	89	85
23	88	87	84	95	92	93	66	79	87	80	89	85
24	88	87	84	95	93	93	66	91	87	80	89	86
25	88	87	84	95	93	93	68	88	87	80	88	91
26	88	87	84	95	94	92	69	87	87	82	88	90
27	88	87	84	94	94	92	70	86	82	83	90	90
28	88	87	84	94	94	92	70	85	89	81	92	88
29	89	87	84	94	94	92	75	80	88	82	87	84
30	88	87	84	93	---	92	78	82	87	83	89	81
31	88	---	84	93	---	91	---	82	---	83	90	---
TOTAL	2694	2610	2655	2878	2703	2893	2477	2495	2605	2501	2714	2574
MEAN	86.9	87.0	85.6	92.8	93.2	93.3	82.6	80.5	86.8	80.7	87.5	85.8
MAX	89	88	88	104	94	94	91	91	90	87	93	91
MIN	86	86	84	84	92	91	64	67	82	77	82	79
AC-FT	5340	5180	5270	5710	5360	5740	4910	4950	5170	4960	5380	5110

CAL YR 1983	TOTAL	31771	MEAN	87.0	MAX	95	MIN	61	AC-FT	63020
WTR YR 1984	TOTAL	31799	MEAN	86.9	MAX	104	MIN	64	AC-FT	63070

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 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.--Records good except those for March to May, which are fair. Flow regulated by reservoir, capacity, 800 acre-ft, above diversion dam 1.5 mi above station and by Thompson Valley Reservoir, capacity, 17,400 acre-ft, 11 mi above station. Records given herein include flow in Silver Lake Irrigation District Canal which has diverted 1.5 mi above station. No record of diversion October 1943 to September 1965.

AVERAGE DISCHARGE.--72 years (water years 1906, 1910-27, 1930-41, 1944-84), 31.3 ft^3/s, 22,680 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, 482 ft^3/s May 14; minimum daily, 5.4 ft^3/s Dec. 3-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	7.1	5.7	8.8	8.9	13	198	151	150	74	49	45
2	11	7.3	5.7	8.8	9.4	14	188	156	147	73	50	40
3	10	7.1	5.4	8.8	9.4	14	178	157	134	60	52	36
4	10	6.7	5.4	9.6	9.4	14	178	169	110	60	52	40
5	9.7	6.3	5.4	9.2	8.9	14	180	179	107	59	52	31
6	8.2	6.2	6.0	12	8.7	14	173	180	111	59	51	27
7	8.1	6.2	6.3	15	8.7	14	169	177	107	57	51	27
8	7.6	6.5	6.3	14	8.7	23	214	177	104	56	50	28
9	7.6	6.5	6.6	14	9.4	42	211	225	100	54	49	28
10	7.0	5.9	6.6	13	9.4	49	201	245	99	51	49	28
11	7.0	5.9	6.6	13	9.4	71	186	283	85	50	49	33
12	6.7	5.9	6.6	12	9.4	91	166	420	81	50	49	35
13	6.7	5.9	7.3	11	11	130	159	450	76	41	52	35
14	6.7	6.2	8.2	9.1	15	171	158	437	85	36	58	35
15	6.7	6.2	37	8.1	15	155	187	384	82	36	55	35
16	6.7	6.2	25	7.6	15	152	208	329	81	36	53	35
17	6.7	6.2	18	7.6	14	181	227	284	80	36	52	34
18	6.7	6.2	14	7.6	14	166	251	249	76	35	51	34
19	6.7	6.2	12	7.6	14	169	259	227	70	35	48	34
20	6.7	6.1	9.6	8.1	14	228	246	217	70	34	49	33
21	7.0	6.0	8.6	8.7	14	312	224	206	77	34	49	27
22	7.0	6.0	7.6	8.8	14	288	209	192	76	34	48	25
23	7.0	6.0	7.1	8.8	14	286	201	186	76	39	49	23
24	7.0	6.0	7.6	8.9	14	283	199	183	75	42	49	20
25	7.0	5.7	9.1	8.9	14	277	195	177	75	40	49	20
26	7.3	5.7	11	9.1	14	270	185	166	74	40	51	20
27	7.9	5.7	9.7	9.4	14	255	169	160	74	40	50	20
28	7.6	5.7	8.5	8.9	14	242	161	157	74	40	48	20
29	7.3	5.7	9.2	8.9	13	231	155	157	74	40	48	20
30	7.3	5.7	9.2	9.1	---	219	154	160	74	44	56	15
31	7.3	---	8.9	8.9	---	208	---	158	---	48	63	---
TOTAL	238.2	185.0	300.2	303.3	346.7	4596	5789	6998	2704	1433	1581	883
MEAN	7.68	6.17	9.68	9.78	12.0	148	193	226	90.1	46.2	51.0	29.4
MAX	12	7.3	37	15	15	312	259	450	150	74	63	45
MIN	6.7	5.7	5.4	7.6	8.7	13	154	151	70	34	48	15
AC-FT	472	367	595	602	688	9120	11480	13880	5360	2840	3140	1750

CAL YR 1983	TOTAL	25931.9	MEAN	71.0	MAX	476	MIN	5.4	AC-FT	51440
WTR YR 1984	TOTAL	25357.4	MEAN	69.3	MAX	450	MIN	5.4	AC-FT	50300

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 National Geodetic Vertical Datum of 1929 (river-profile survey). See WSP 1734 for history of changes prior to Oct. 4, 1951.

REMARKS.--Records good. No regulation. Diversions for irrigation above station during periods of high flow only.

AVERAGE DISCHARGE.--71 years (water years 1904-5, 1910-12, 1918-21, 1923-84), 180 ft^3/s, 130,400 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, 4,300 ft^3/s Apr. 17, gage height, 14.16 ft, estimate of discharge based on slope-area survey; minimum, 41 ft^3/s Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	68	96	80	65	190	1250	1760	844	280	100	136
2	47	70	101	75	65	190	1270	2000	795	272	100	112
3	47	73	109	75	70	190	1270	2120	736	265	97	114
4	48	75	113	85	70	190	1370	2320	673	251	96	103
5	48	77	113	85	70	190	1610	2220	734	234	94	88
6	46	77	110	95	70	210	1790	2030	751	224	93	81
7	46	79	118	95	70	280	1880	1900	865	212	90	76
8	46	78	135	95	70	340	2090	1870	918	203	86	73
9	47	79	126	98	80	442	2250	1890	871	198	83	72
10	48	83	135	98	100	503	2270	1960	918	189	81	71
11	51	90	146	98	130	595	2100	2020	869	180	77	71
12	50	100	149	100	180	658	1790	2410	810	171	73	70
13	52	100	147	100	254	754	1610	2630	766	161	71	68
14	52	100	155	95	230	954	1570	2750	753	149	68	67
15	54	99	159	85	220	1200	1940	2820	679	143	66	66
16	53	101	150	70	220	1370	2770	2630	605	138	64	65
17	54	116	130	70	210	1380	3970	2480	546	130	63	64
18	54	127	120	70	210	1310	4100	2260	500	127	62	63
19	54	131	115	70	240	1330	4060	1990	468	125	59	62
20	54	129	100	70	240	1630	3800	1830	442	135	57	61
21	55	110	80	70	210	2050	3500	1740	447	138	55	59
22	55	94	60	70	210	2020	3150	1600	451	130	53	58
23	61	109	50	70	200	1900	3040	1490	446	120	51	58
24	63	111	60	95	190	1980	3010	1500	425	125	49	58
25	61	103	80	95	190	1900	2910	1410	395	136	47	59
26	62	106	110	80	190	1770	2720	1330	374	132	46	59
27	61	114	100	70	190	1760	2510	1270	350	135	44	61
28	62	110	80	65	190	1590	2290	1180	328	119	43	61
29	61	105	70	65	190	1420	2020	1090	310	109	42	61
30	63	101	100	65	---	1280	1800	990	294	105	43	59
31	67	---	100	65	---	1260	---	920	---	100	91	---
TOTAL	1669	2915	3417	2519	4624	32836	71710	58410	18363	5136	2144	2176
MEAN	53.8	97.2	110	81.3	159	1059	2390	1884	612	166	69.2	72.5
MAX	67	131	159	100	254	2050	4100	2820	918	280	100	136
MIN	46	68	50	65	65	190	1250	920	294	100	42	58
AC-FT	3310	5780	6780	5000	9170	65130	142200	115900	36420	10190	4250	4320

CAL YR 1983	TOTAL	217164	MEAN	595	MAX	3290	MIN	43	AC-FT	430700
WTR YR 1984	TOTAL	205919	MEAN	563	MAX	4100	MIN	42	AC-FT	408400

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 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.--Water-discharge records excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--54 years (water years 1912-13, 1915-16, 1918-21, 1939-84), 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 above base 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)
Dec. 14	2330	1,320	4.77	May 13	2130	*1,660	*5.22
Mar. 13	2130	1,450	4.96	May 20	2200	1,220	4.63
Mar. 20	2230	1,640	5.19	May 30	2400	1,370	4.85
Mar. 26	1930	979	4.28	June 4	1630	1,070	4.41
Apr. 5	2030	695	3.81	June 19	2400	947	4.23
Apr. 15	2200	859	4.09	June 28	2330	884	4.13
May 1	1900	754	3.91				

Minimum, 48 ft^3/s Nov. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	71	71	130	87	158	295	426	852	518	160	124
2	67	70	69	115	80	189	221	386	753	506	159	107
3	67	77	70	160	84	143	233	400	677	526	144	97
4	66	74	65	216	82	111	344	428	864	500	140	93
5	65	77	65	206	84	96	494	378	776	496	139	91
6	65	73	68	171	89	107	411	340	729	515	132	90
7	64	86	81	161	90	147	301	326	697	502	126	91
8	66	70	93	155	93	221	485	397	605	458	121	90
9	65	72	124	139	130	380	315	554	543	397	119	88
10	65	74	159	128	120	429	317	608	615	351	118	88
11	66	92	177	125	98	418	264	986	521	340	114	87
12	65	77	156	109	113	411	241	1230	482	345	112	87
13	67	74	105	113	267	656	257	1340	499	312	110	85
14	68	70	515	101	210	761	364	1220	506	289	106	84
15	65	73	612	85	165	533	539	961	554	270	105	84
16	65	71	234	79	141	345	614	758	630	278	106	83
17	65	77	161	75	114	309	610	695	647	286	103	81
18	65	75	121	77	99	240	527	712	684	284	101	80
19	63	72	110	82	96	544	549	842	762	284	100	81
20	63	74	93	86	105	855	449	1030	796	276	99	87
21	63	70	87	94	154	804	364	939	632	244	96	88
22	62	64	54	105	127	403	388	877	538	221	95	84
23	67	73	58	110	108	496	453	1110	564	226	96	83
24	65	77	64	120	99	478	441	1040	648	217	94	83
25	63	75	88	126	91	318	379	928	717	210	92	82
26	62	69	140	99	82	749	352	1020	714	201	91	82
27	61	68	120	90	86	445	320	970	690	194	91	81
28	61	69	96	88	97	387	290	957	717	177	90	81
29	61	66	130	87	113	374	272	1070	729	167	90	79
30	65	70	150	83	---	315	280	1160	607	162	102	79
31	67	---	170	83	---	329	---	1090	---	160	166	---
TOTAL	2006	2200	4306	3598	3304	12151	11369	25178	19748	9912	3517	2620
MEAN	64.7	73.3	139	116	114	392	379	812	658	320	113	87.3
MAX	68	92	612	216	267	855	614	1340	864	526	166	124
MIN	61	64	54	75	80	96	221	326	482	160	90	79
AC-FT	3980	4360	8540	7140	6550	24100	22550	49940	39170	19660	6980	5200

CAL YR 1983	TOTAL	91790	MEAN	251	MAX	1850	MIN	37	AC-FT	182100
WTR YR 1984	TOTAL	99909	MEAN	273	MAX	1340	MIN	54	AC-FT	198200

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (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)
NOV											
02...	1145	79	94	8.7	10.0	11.4	K6	K8	37	0	8.9
DEC											
29...	1100	130	79	7.7	.0	--	--	--	--	--	--
MAR											
01...	1100	100	88	8.8	6.0	13.0	K1	K2	35	0	8.1
JUN											
13...	1300	462	67	7.9	10.5	9.7	K8	K16	28	0	7.1
AUG											
08...	1200	125	86	8.6	18.0	9.8	K5	55	35	0	8.9

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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV											
02...	3.6	5.4	1.4	47	2.0	1.0	<.10	--	--	--	--
DEC											
29...	--	--	--	39	--	--	--	.060	.28	.30	.18
MAR											
01...	3.5	5.3	1.3	43	4.3	.90	.10	.040	.10	.30	--
JUN											
13...	2.5	3.5	.80	33	1.7	.40	<.10	.020	<.10	.50	.06
AUG											
08...	3.1	5.1	1.7	43	1.9	.70	.10	.030	<.10	.20	.03

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
NOV										
02...	--	--	28	77	79	16	1.0	7	1.5	74
DEC										
29...	.100	.100	--	--	--	--	--	--	--	--
MAR										
01...	.020	.050	29	77	79	21	12	4	1.1	75
JUN										
13...	.010	.060	24	56	60	70	5.8	67	84	--
AUG										
08...	.010	.030	27	69	74	23	2.8	9	3.0	87

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 02...	20	<1	10	<.5	<1	<1	<3	2	49	4
MAR 01...	360	<1	16	<.5	<1	<1	<3	2	190	2
JUN 13...	90	<1	12	<.5	<1	1	<3	2	67	2
AUG 08...	30	<1	13	1.0	<1	<1	<3	<1	22	2

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 02...	5	3	<.1	<10	5	<1	<1	55	<6	<3
MAR 01...	<4	4	<.1	<10	1	<1	<1	50	<6	33
JUN 13...	<4	5	<.1	<10	4	<1	<1	41	<6	14
AUG 08...	<4	6	<.1	<10	<1	<1	1	54	<6	12

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

10401800 MALHEUR LAKE NEAR VOLTAGE, OR

LOCATION.--Lat 43°15'45", long 118°49'17", in SE¼SE¼ sec.36, T.27 S., R.31 E., Harney County, Hydrologic Unit 17120001, in Malheur National Wildlife Refuge, near Voltage. Prior to Aug. 22, 1983, at present site or sites within 1 mi of present site.

DRAINAGE AREA.--2,150 mi^2, 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 4,090.00 ft above National Geodetic Vertical Datum (NGVD) of 1929, readings have been reduced to elevations, NGVD. Prior to Oct. 22, 1975, at site 6 mi northeast at break in Cole Island dike. Oct. 23, 1975, to Sept. 30, 1978, supplementary water-stage recorder at site 6 mi northeast. Apr. 20, 1983, to Aug. 21, 1984, at several sites within 1 mi of present site.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily elevation, 4,102.38 ft June 27, 29, 1984; 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, 4,102.38 ft June 27, 29; minimum daily, 4,097.89 ft Oct. 20, 21.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4097.95	4097.93	4098.13			---	4100.24	4101.27	4102.09	4102.33	4102.02	4101.65
2	4097.95	4097.93	4098.13			---	4100.22	4101.41	4102.11	4102.35	4102.03	4101.63
3	4097.95	4097.90	4098.13			---	4100.27	4101.52	4102.09	4102.33	4102.00	4101.61
4	4097.95	4097.95	4098.13			---	4100.29	4101.54	4102.14	4102.32	4101.99	4101.61
5	4097.95	4097.95	4098.16			---	4100.36	4101.57	4102.18	4102.32	4101.99	4101.55
6	4097.93	4097.93	4098.20			---	4100.45	4101.56	4102.18	4102.33	4101.98	4101.63
7	4097.93	4097.98	4098.25			---	4100.41	4101.56	4102.27	4102.32	4101.95	4101.58
8	4097.91	4097.95	4098.25			---	4100.50	4101.56	4102.29	4102.30	4101.95	4101.57
9	4097.93	4097.95	4098.25			---	4100.47	4101.65	4102.31	4102.27	4101.91	4101.56
10	4097.93	4097.93	4098.27			---	4100.68	4101.64	4102.34	4102.26	4101.88	4101.55
11	4097.90	4097.95	4098.29			---	4100.68	4101.65	4102.24	4102.24	4101.88	4101.54
12	4097.93	4097.93	4098.30			---	4100.68	4101.72	4102.29	4102.23	4101.86	4101.52
13	4097.93	4097.93	4098.31			---	4100.74	4101.72	4102.27	4102.22	4101.87	4101.48
14	4097.93	4097.97	4098.36			---	4100.77	4101.81	4102.29	4102.20	4101.84	4101.48
15	4097.93	4098.02	4098.40			4099.23	4100.73	4101.88	4102.33	4102.19	4101.82	4101.44
16	4097.93	4097.95	4098.40			4099.24	4100.79	4101.79	4102.34	4102.19	4101.79	4101.45
17	4097.90	4098.02	4098.40			4099.29	4100.81	4101.79	4102.34	4102.17	4101.78	4101.45
18	4097.93	4098.02	4098.43			4099.31	4100.81	4101.81	4102.34	4102.16	4101.79	4101.45
19	4097.91	4098.02	---			4099.36	4100.97	4101.84	4102.37	4102.17	4101.78	4101.41
20	4097.89	4098.06	---			4099.38	4101.02	4101.93	4102.35	4102.16	4101.73	4101.47
21	4097.89	4098.07	---			4099.45	4101.02	4101.93	4102.37	4102.15	4101.71	4101.48
22	4097.90	4098.04	---			4099.54	4101.04	4101.93	4102.37	4102.13	4101.70	4101.44
23	4097.93	4098.04	---			4099.57	4101.09	4102.02	4102.37	4102.08	4101.67	4101.47
24	4097.93	4098.04	---			4099.64	4101.22	4102.04	4102.35	4102.13	4101.67	4101.41
25	4097.93	4098.11	---			4099.64	4101.29	4101.98	4102.36	4102.12	4101.66	4101.38
26	4097.90	4098.09	---			4099.81	4101.29	4102.06	4102.37	4102.12	4101.64	4101.35
27	4097.90	4098.07	---			4099.86	4101.24	4102.06	4102.38	4102.11	4101.58	4101.36
28	4097.90	4098.11	---			4099.95	4101.25	4102.04	4102.36	4102.11	4101.62	4101.35
29	4097.93	4098.09	---			4100.15	4101.27	4102.04	4102.38	4102.07	4101.61	4101.34
30	4097.93	4098.11	---			4100.06	4101.29	4102.11	4102.36	4102.07	4101.58	4101.32
31	4097.93	---	---			4100.13	---	4102.15	---	4102.03	4101.63	---
MEAN	4097.92	4098.00	---			---	4100.80	4101.79	4102.29	4102.20	4101.80	4101.48
MAX	4097.95	4098.11	---			---	4101.29	4102.15	4102.38	4102.35	4102.03	4101.65
MIN	4097.89	4097.90	---			---	4100.22	4101.27	4102.09	4102.03	4101.58	4101.32

NOTE.--No record December 19 to March 14.

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 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.--Records good except those above 100 ft^3/s, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--53 years (water years 1923, 1933-84), 16.7 ft^3/s, 12,100 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 above base 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. 24	1630	73	2.74	Apr. 17	1830	194	3.54
Mar. 26	1830	76	2.81	May 13	0200	*385	*4.35
Mar. 30	2100	75	2.82	May 21	2100	339	4.18
Apr. 6	0030	81	2.88	June 17	0430	137	3.21
Apr. 9	0030	84	2.91	July 8	1030	62	2.64

Minimum, 5.6 ft^3/s Nov. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.8	8.5	18	16	19	67	63	227	57	22	12
2	11	8.5	8.0	18	16	19	61	60	207	51	21	11
3	9.8	8.8	8.2	21	16	17	52	63	185	49	18	11
4	9.8	8.2	8.2	22	16	17	62	77	198	46	17	9.6
5	9.4	8.2	7.8	25	16	17	74	78	191	43	16	9.1
6	9.4	8.0	7.8	25	16	17	64	77	201	47	15	9.1
7	9.1	8.5	9.0	25	16	19	59	75	180	49	15	9.9
8	9.1	7.7	11	25	16	20	76	72	155	50	14	9.9
9	9.8	7.7	11	25	17	23	77	86	142	46	14	9.6
10	9.4	8.2	13	27	17	26	74	138	142	42	13	9.4
11	9.1	12	15	26	16	29	61	211	128	38	12	9.4
12	8.8	10	15	25	20	29	57	293	116	36	12	9.4
13	8.8	8.5	16	23	25	31	56	314	107	35	12	9.4
14	10	8.5	24	20	23	35	64	293	104	33	11	9.1
15	9.4	8.5	35	19	22	37	86	288	116	30	11	9.1
16	9.1	8.5	26	19	22	36	142	252	123	27	10	8.9
17	9.1	12	20	19	21	37	185	233	123	25	11	8.9
18	8.8	12	19	19	21	35	176	223	119	26	10	8.6
19	8.8	11	18	19	24	36	171	231	119	25	9.4	8.6
20	8.5	11	16	19	24	39	145	269	123	24	9.4	9.4
21	8.5	11	14	19	20	48	128	295	108	24	8.9	11
22	8.2	11	11	19	22	50	123	263	86	24	8.6	9.9
23	8.8	11	9.0	20	20	50	128	276	84	23	8.9	9.9
24	9.4	12	7.7	34	17	50	132	283	84	22	8.6	10
25	8.8	11	16	25	17	49	120	267	84	21	9.1	9.9
26	8.5	14	27	19	19	68	116	265	75	20	9.6	10
27	8.5	10	27	17	19	59	92	263	75	20	9.6	9.9
28	8.2	9.9	17	17	16	53	77	252	69	20	9.1	9.6
29	8.2	8.5	17	16	16	54	71	252	69	20	9.1	10
30	8.8	8.2	28	17	---	57	68	269	64	19	12	11
31	9.8	---	19	16	---	67	---	247	---	19	13	---
TOTAL	283.9	292.2	489.2	658	546	1143	2864	6328	3804	1011	379.3	292.6
MEAN	9.16	9.74	15.8	21.2	18.8	36.9	95.5	204	127	32.6	12.2	9.75
MAX	11	14	35	34	25	68	185	314	227	57	22	12
MIN	8.2	7.7	7.7	16	16	17	52	60	64	19	8.6	8.6
AC-FT	563	580	970	1310	1080	2270	5680	12550	7550	2010	752	580

CAL YR 1983	TOTAL	13780.1	MEAN	37.8	MAX	237	MIN	4.0	AC-FT	27330
WTR YR 1984	TOTAL	18091.2	MEAN	49.4	MAX	314	MIN	7.7	AC-FT	35880

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. Altitude of gage is 4,550 ft, from topographic map.

REMARKS.--Records good. Diversions for irrigation above station.

AVERAGE DISCHARGE.--11 years, 73.5 ft^3/s, 53,250 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, 193 ft^3/s May 15, gage height, 3.06 ft; minimum daily, 58 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	72	75	76	78	85	134	159	140	82	71	73
2	70	73	75	75	77	87	131	161	137	82	69	69
3	70	73	75	74	77	87	128	162	135	81	71	68
4	70	73	74	73	77	88	132	170	135	81	71	68
5	69	71	74	73	77	88	138	170	138	80	70	68
6	69	73	75	72	79	89	140	167	140	79	70	68
7	71	72	78	72	79	91	135	162	140	78	69	68
8	71	70	79	72	79	93	145	162	140	77	69	68
9	73	72	79	71	81	95	145	163	135	77	68	68
10	73	72	84	71	81	96	147	169	135	76	68	68
11	72	73	84	71	80	97	150	176	130	75	67	68
12	71	73	81	70	81	96	146	187	125	75	63	69
13	71	74	81	70	87	100	143	190	125	74	64	69
14	71	74	85	69	90	103	139	191	120	74	65	69
15	71	74	93	67	89	109	141	191	115	74	65	70
16	70	75	89	65	87	110	150	187	110	73	64	70
17	70	81	91	68	83	110	162	185	107	74	64	69
18	70	78	92	68	82	108	167	180	103	73	63	69
19	70	78	93	65	82	109	171	175	100	73	62	69
20	70	82	90	65	83	110	169	175	96	72	64	71
21	70	78	80	75	86	115	164	170	94	72	64	70
22	70	77	70	78	85	117	163	170	92	72	65	69
23	72	76	65	78	84	117	166	172	90	72	63	73
24	71	78	58	79	83	119	171	176	89	72	63	74
25	70	78	60	80	82	120	169	180	87	72	65	74
26	70	75	75	79	80	127	164	178	86	71	65	74
27	70	75	85	79	81	124	161	174	85	69	63	74
28	70	74	80	79	82	125	156	168	84	70	62	74
29	69	73	65	78	83	127	156	162	83	72	64	73
30	71	73	75	78	---	125	158	155	83	72	72	74
31	71	---	78	78	---	127	---	145	---	72	84	---
TOTAL	2186	2240	2438	2268	2375	3294	4541	5332	3379	2316	2067	2108
MEAN	70.5	74.7	78.6	73.2	81.9	106	151	172	113	74.7	66.7	70.3
MAX	73	82	93	80	90	127	171	191	140	82	84	74
MIN	69	70	58	65	77	85	128	145	83	69	62	68
AC-FT	4340	4440	4840	4500	4710	6530	9010	10580	6700	4590	4100	4180

CAL YR 1983	TOTAL	36934	MEAN	101	MAX	210	MIN	55	AC-FT	73260
WTR YR 1984	TOTAL	34544	MEAN	94.4	MAX	191	MIN	58	AC-FT	68520

NOTE.--No gage-height record May 17 to July 5.

KLAMATH RIVER BASIN

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 snow melt 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, 6,178.86 ft June 6-10; minimum, 6,175.53 ft Oct. 29.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6175.91	6175.65	6176.56	6177.77	6177.63	6178.02	6178.40	6178.56	6178.61	6178.79	6178.46	6177.97
2	6175.88	6175.70	6176.59	6177.77	6177.63	6178.00	6178.39	6178.56	6178.59	6178.79	6178.46	6177.95
3	6175.88	6175.74	6176.61	6177.77	6177.61	6177.99	6178.38	6178.61	6178.61	6178.79	6178.45	6177.95
4	6175.86	6175.74	6176.61	6177.77	6177.59	6177.98	6178.39	6178.61	6178.72	6178.79	6178.43	6177.92
5	6175.84	6175.75	6176.63	6177.77	6177.57	6177.96	6178.38	6178.58	6178.77	6178.79	6178.41	6177.93
6	6175.81	6175.86	6176.82	6177.75	6177.56	6177.96	6178.36	6178.56	6178.86	6178.77	6178.38	6177.90
7	6175.80	6175.83	6176.89	6177.74	6177.55	6177.95	6178.41	6178.54	6178.86	6178.77	6178.38	6177.88
8	6175.80	6175.79	6176.88	6177.73	6177.52	6177.95	6178.46	6178.54	6178.86	6178.74	6178.36	6177.88
9	6175.80	6175.79	6176.99	6177.71	6177.59	6177.92	6178.48	6178.52	6178.86	6178.74	6178.34	6177.86
10	6175.81	6175.92	6176.98	6177.75	6177.59	6177.95	6178.58	6178.54	6178.86	6178.74	6178.33	6177.84
11	6175.79	6175.89	6177.04	6177.74	6177.61	6177.96	6178.56	6178.64	6178.84	6178.72	6178.31	6177.81
12	6175.77	6176.00	6177.11	6177.73	6177.74	6177.92	6178.59	6178.63	6178.84	6178.71	6178.29	6177.79
13	6175.73	6176.04	6177.22	6177.71	6177.89	6178.06	6178.57	6178.63	6178.84	6178.70	6178.27	6177.77
14	6175.71	6176.07	6177.55	6177.68	6177.88	6178.08	6178.55	6178.63	6178.83	6178.70	6178.24	6177.75
15	6175.70	6176.05	6177.57	6177.66	6177.97	6178.18	6178.55	6178.63	6178.82	6178.68	6178.22	6177.74
16	6175.68	6176.13	6177.58	6177.65	6177.96	6178.22	6178.54	6178.61	6178.82	6178.67	6178.20	6177.72
17	6175.66	6176.22	6177.57	6177.64	6177.95	6178.22	6178.52	6178.61	6178.81	6178.67	6178.20	6177.68
18	6175.65	6176.22	6177.58	6177.63	6177.95	6178.21	6178.55	6178.58	6178.80	6178.66	6178.16	6177.68
19	6175.63	6176.38	6177.57	6177.61	6177.95	6178.23	6178.58	6178.61	6178.80	6178.63	6178.15	6177.70
20	6175.63	6176.40	6177.59	6177.59	6177.96	6178.30	6178.56	6178.58	6178.82	6178.63	6178.13	6177.67
21	6175.61	6176.38	6177.58	6177.64	6177.98	6178.30	6178.55	6178.56	6178.81	6178.59	6178.13	6177.63
22	6175.63	6176.38	6177.55	6177.67	6177.96	6178.29	6178.54	6178.59	6178.81	6178.59	6178.09	6177.63
23	6175.63	6176.48	6177.54	6177.70	6177.95	6178.29	6178.52	6178.63	6178.80	6178.57	6178.07	6177.59
24	6175.61	6176.56	6177.63	6177.71	6178.07	6178.27	6178.52	6178.63	6178.80	6178.56	6178.04	6177.58
25	6175.59	6176.56	6177.67	6177.72	6178.06	6178.32	6178.50	6178.65	6178.80	6178.55	6178.02	6177.56
26	6175.59	6176.55	6177.66	6177.70	6178.04	6178.42	6178.49	6178.63	6178.80	6178.54	6178.02	6177.54
27	6175.57	6176.54	6177.64	6177.70	6178.02	6178.40	6178.46	6178.63	6178.80	6178.52	6177.97	6177.54
28	6175.56	6176.52	6177.66	6177.68	6178.02	6178.42	6178.45	6178.61	6178.80	6178.52	6177.93	6177.54
29	6175.55	6176.50	6177.75	6177.67	6178.00	6178.40	6178.43	6178.63	6178.80	6178.50	6177.92	6177.52
30	6175.59	6176.56	6177.79	6177.66	---	6178.38	6178.47	6178.61	6178.79	6178.49	6177.98	6177.49
31	6175.59	---	6177.79	6177.65	---	6178.41	---	6178.61	---	6178.47	6177.98	---
MEAN	6175.71	6176.14	6177.30	6177.70	6177.82	6178.16	6178.49	6178.60	6178.79	6178.66	6178.20	6177.73
MAX	6175.91	6176.56	6177.79	6177.77	6178.07	6178.42	6178.59	6178.65	6178.86	6178.79	6178.46	6177.97
MIN	6175.55	6175.65	6176.56	6177.59	6177.52	6177.92	6178.36	6178.52	6178.59	6178.47	6177.92	6177.49

CAL YR 1983 MEAN 6176.17 MAX 6177.79 MIN 6174.61
WTR YR 1984 MEAN 6177.77 MAX 6178.86 MIN 6175.55

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 for July 17, 1984 were collected at two locations on the lake. The sampling point identifiers are referenced to a numeric grid system. Details of grid system are available from Oregon office. Methods for metals analysis, with lower detection levels, were used for this sampling.

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 Aug. 11; minimum not determined, occurred during period of missing record between Dec. 18 and July 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLING DEPTH (M)	SAMPLING POINT NUMBER	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
OCT								
12...	1000	.00	3	112	6.8	10.0	27	0
JUL								
17...	1000	.00	23	109	7.0	18.0	28	0
17...	1200	300	23	108	7.0	--	28	0
17...	1400	.00	3	105	7.0	17.5	29	0

DATE	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)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)
OCT									
12...	6.6	2.6	10	2.0	28	12	9.7	.10	<.10
JUL									
17...	7.0	2.6	10	1.6	29	12	9.7	.10	<.10
17...	6.9	2.6	10	1.7	30	11	9.7	.10	<.10
17...	7.1	2.7	10	1.7	28	9.9	9.6	.10	<.10

DATE	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)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	TURBIDITY (NTU)
OCT								
12...	.040	.60	<.010	.030	17	72	77	.50
JUL								
17...	.030	.20	.010	.020	17	70	77	.40
17...	<.010	<.20	.010	.010	17	70	77	.30
17...	.040	.30	.010	.010	18	--	76	.30

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	SAMPLING DEPTH (M)	SAMPLING POINT NUMBER	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)
OCT											
12...	1000	.00	3	<10	3	14	<.5	2	<1	<3	2
JUL											
17...	1000	.00	23	.42	--	2.2	--	.23	--	--	.37
17...	1030	50.0	23	.08	--	1.1	--	.056	--	--	.38
17...	1100	100	23	.2	--	.7	--	.062	--	--	.45
17...	1130	200	23	.02	--	1.8	--	.065	--	--	.39
17...	1200	300	23	3.7	--	--	--	.09	--	--	.62
17...	1400	.00	3	2.0	--	1.9	--	.12	--	--	1.7

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	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)	ZINC, DISSOLVED (UG/L AS ZN)
OCT										
12...	5	31	43	<1	<.1	<10	2	<1	<1	<3
JUL										
17...	.6	.84	--	<.1	--	--	--	--	--	1.4
17...	<.1	.84	--	<.1	--	--	--	--	--	2.2
17...	.2	.79	--	<.1	--	--	--	--	--	2.0
17...	<.1	.8	--	<.1	--	--	--	--	--	1.6
17...	--	.85	--	--	--	--	--	--	--	13.6
17...	1.7	.9	--	.5	--	--	--	--	--	4.6

DATE	TIME	SAMPLING DEPTH (M)	SAMPLING POINT NUMBER	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (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)	URANIUM DISSOLVED, EXTRACTION (UG/L)
JUL										
17...	1000	.00	23	<1.4	<.4	2.0	1.7	<.4	<.4	<.01
17...	1200	300	23	<1.9	<.4	2.8	2.4	<.4	<.4	.03
17...	1400	.00	3	<1.6	<.4	2.5	2.2	<.4	<.4	.07

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	10.5	10.5	8.5	8.5	4.5	4.5						
2	10.5	10.5	8.5	8.5	4.5	4.5						
3	10.5	10.0	8.5	8.5	4.5	4.5						
4	10.5	10.0	8.5	8.0	4.5	4.5						
5	10.5	10.5	8.0	8.0	4.5	4.0						
6	10.5	10.5	8.0	7.5	4.5	4.0						
7	10.5	10.0	8.0	7.5	4.0	4.0						
8	10.5	10.0	7.5	7.5	4.0	4.0						
9	10.0	10.0	7.5	7.0	4.0	4.0						
10	10.0	10.0	7.0	7.0	4.0	4.0						
11	10.0	10.0	7.0	6.5	4.0	4.0						
12	10.0	10.0	6.5	6.5	4.0	4.0						
13	10.0	9.5	6.5	6.0	4.0	4.0						
14	10.0	9.5	6.0	6.0	4.0	4.0						
15	9.5	9.5	6.0	6.0	4.0	4.0						
16	9.5	9.5	6.0	6.0	4.0	4.0						
17	9.5	9.5	6.0	5.5	4.0	4.0						
18	9.5	9.5	5.5	5.5	4.0	4.0						
19	9.5	9.5	5.5	5.0	4.0	---						
20	9.5	9.0	5.5	5.0	---	---						
21	9.5	9.0	5.0	5.0	---	---						
22	9.0	9.0	5.0	5.0	---	---						
23	9.0	9.0	5.0	5.0	---	---						
24	9.0	9.0	5.0	4.5	---	---						
25	9.0	9.0	4.5	4.5	---	---						
26	9.0	9.0	5.0	4.5	---	---						
27	9.0	9.0	5.0	4.5	---	---						
28	9.0	9.0	5.0	4.5	---	---						
29	9.0	9.0	4.5	4.5	---	---						
30	9.0	9.0	4.5	4.5	---	---						
31	9.0	8.5	---	---	---	---						
MONTH	10.5	8.5	8.5	4.5	---	---						

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1							---	---	14.0	13.0	14.0	13.5
2							---	---	14.5	13.5	14.0	14.0
3							---	---	15.0	14.5	14.0	14.0
4							8.5	7.5	15.5	14.5	14.5	14.0
5							9.0	8.5	15.5	15.0	14.0	13.5
6							9.5	8.0	15.0	15.0	13.5	13.5
7							9.5	8.0	15.0	14.5	13.5	13.5
8							11.5	8.0	15.0	14.5	13.5	13.0
9							10.5	7.5	15.0	14.0	14.0	13.0
10							11.0	8.0	15.5	14.5	13.5	13.0
11							11.5	9.5	16.5	15.0	13.5	13.0
12							12.0	8.0	16.0	16.0	13.0	12.5
13							12.0	7.5	16.0	15.5	13.0	12.5
14							11.5	9.0	15.5	15.0	13.0	12.5
15							12.5	9.5	15.0	15.0	12.5	12.5
16							12.0	10.0	15.5	15.0	13.0	12.5
17							12.0	10.0	15.5	15.5	13.0	12.5
18							11.5	10.0	15.5	15.0	13.0	13.0
19							12.5	10.5	15.5	15.0	13.5	13.0
20							12.5	10.0	15.5	15.0	13.5	13.0
21							13.0	10.0	15.5	15.0	13.0	12.5
22							13.0	10.0	16.0	15.0	12.5	12.0
23							13.0	12.0	16.0	15.5	12.5	12.0
24							12.5	10.5	15.5	15.0	12.0	12.0
25							14.0	12.5	15.5	15.0	12.0	11.5
26							13.5	12.5	15.0	15.0	11.5	11.5
27							14.0	12.5	15.0	15.0	11.5	11.5
28							14.0	13.0	15.0	14.5	11.5	11.5
29							14.5	14.0	15.0	14.5	12.0	11.5
30							14.5	13.0	15.0	14.5	11.5	11.5
31							14.0	13.0	14.5	14.0	---	---
MONTH							---	---	16.5	13.0	14.5	11.5

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 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.--Records good. Flow affected by natural storage in Klamath Marsh. Small diversions above station for irrigation in vicinity of marsh.

AVERAGE DISCHARGE.--30 years (water years 1955-84), 208 ft^3/s, 150,700 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 Mar. 29, gage height, 5.16 ft; minimum, 17 ft^3/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	141	386	472	385	442	791	598	410	190	100	39
2	51	146	382	475	379	452	775	586	405	189	97	41
3	54	151	393	477	377	462	760	588	373	186	94	40
4	56	158	374	482	377	468	766	589	370	179	91	40
5	57	164	370	482	375	470	760	587	364	174	85	39
6	58	170	359	483	373	472	764	605	357	170	80	34
7	61	181	370	482	371	479	743	600	348	164	79	36
8	63	186	383	481	371	491	739	576	341	157	75	39
9	66	192	405	481	363	508	737	555	336	152	71	36
10	70	192	420	480	361	524	730	549	327	146	69	36
11	74	204	425	485	361	540	738	551	316	144	65	37
12	77	209	399	482	370	554	737	550	311	139	62	36
13	82	218	397	477	405	592	751	545	307	135	61	37
14	84	231	428	467	420	621	762	549	298	132	58	38
15	85	242	475	451	419	649	751	548	291	123	57	39
16	85	251	494	441	424	661	751	539	279	118	55	39
17	85	270	508	422	424	668	752	534	272	113	52	39
18	93	289	511	407	424	673	733	526	262	109	50	40
19	95	297	518	394	423	683	721	505	256	107	51	40
20	98	318	526	385	431	695	737	490	259	106	50	41
21	100	334	494	372	437	691	741	484	255	104	48	45
22	104	342	493	369	435	701	729	471	252	100	44	48
23	110	351	487	367	436	703	720	465	246	100	41	48
24	113	353	460	372	425	725	707	464	238	104	38	52
25	115	361	459	380	401	720	699	453	227	108	35	54
26	119	365	455	390	427	721	699	444	223	110	31	55
27	122	370	452	394	439	736	696	449	215	109	26	57
28	125	375	451	394	439	729	662	446	207	107	24	58
29	128	376	446	394	440	781	635	436	204	105	23	58
30	130	379	459	393	---	780	619	420	197	104	26	60
31	135	---	467	390	---	784	---	420	---	102	35	---
TOTAL	2744	7816	13646	13421	11712	19175	21905	16122	8746	4086	1773	1301
MEAN	88.5	261	440	433	404	619	730	520	292	132	57.2	43.4
MAX	135	379	526	485	440	784	791	605	410	190	100	60
MIN	49	141	359	367	361	442	619	420	197	100	23	34
AC-FT	5440	15500	27070	26620	23230	38030	43450	31980	17350	8100	3520	2580

CAL YR 1983	TOTAL	128739	MEAN	353	MAX	972	MIN	32	AC-FT	255400
WTR YR 1984	TOTAL	122447	MEAN	335	MAX	791	MIN	23	AC-FT	242900

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 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.--Records good except those for November to February, which are fair. No regulation. Diversions for irrigation above station in the vicinity of Bly.

AVERAGE DISCHARGE.--34 years (water years 1914-15, 1920, 1954-84), 317 ft^3/s, 229,700 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 recorded discharge, 1,980 ft^3/s May 12, 13, gage height, 7.96 ft; minimum, 125 ft^3/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	201	200	560	310	348	740	818	983	339	173	267
2	161	203	200	580	270	548	671	920	902	332	165	219
3	163	201	180	600	290	475	656	881	839	304	171	186
4	169	203	160	600	310	399	746	1060	824	290	169	169
5	165	203	150	580	310	365	815	1050	1010	290	167	163
6	165	192	160	560	320	380	791	958	1000	283	157	159
7	167	207	190	540	320	428	728	913	1130	272	155	153
8	165	198	240	520	340	506	878	934	1070	274	153	159
9	167	188	280	480	380	626	1310	1050	892	269	147	153
10	171	194	370	480	350	707	983	1120	830	267	145	157
11	186	215	350	450	300	740	874	1220	764	267	151	159
12	182	270	270	370	350	677	776	1780	725	254	138	155
13	182	250	280	420	750	725	722	1960	680	252	143	155
14	180	210	600	420	600	1020	707	1890	620	247	140	153
15	177	210	1800	350	500	1080	797	1810	584	234	141	157
16	175	230	1200	320	450	1030	972	1560	545	228	136	159
17	180	310	1000	300	320	833	1150	1370	531	230	141	165
18	175	270	800	290	350	737	1230	1230	517	217	143	159
19	175	240	650	400	380	674	1210	1190	506	211	138	159
20	175	220	450	540	430	782	1160	1220	528	205	140	163
21	175	200	300	480	480	958	1020	1240	531	211	134	169
22	175	180	230	400	350	948	955	1180	503	211	130	167
23	192	220	180	370	370	818	1000	1190	475	198	140	161
24	192	250	180	390	370	854	1060	1380	439	219	138	163
25	184	250	200	420	340	842	1020	1310	417	213	138	167
26	180	160	250	390	300	864	920	1210	396	194	138	167
27	177	230	300	350	292	1080	848	1150	383	188	140	169
28	177	220	270	320	322	958	788	1080	360	184	140	163
29	177	180	320	320	320	913	758	1000	370	171	132	165
30	188	200	370	300	---	812	779	1010	358	169	140	167
31	203	---	450	290	---	758	---	1020	---	163	243	---
TOTAL	5457	6505	12580	13390	10774	22885	27064	37704	19712	7386	4626	5027
MEAN	176	217	406	432	372	738	902	1216	657	238	149	168
MAX	203	310	1800	600	750	1080	1310	1960	1130	339	243	267
MIN	157	160	150	290	270	348	656	818	358	163	130	153
AC-FT	10820	12900	24950	26560	21370	45390	53680	74790	39100	14650	9180	9970

CAL YR 1983	TOTAL	163634	MEAN	448	MAX	1800	MIN	115	AC-FT	324600
WTR YR 1984	TOTAL	173110	MEAN	473	MAX	1960	MIN	130	AC-FT	343400

NOTE.--No gage-height record Nov. 12 to Feb. 26.

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.--Records good except those for December, January, and April, which are fair. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--11 years, 189 ft^3/s, 136,900 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 recorded discharge, 1,470 ft^3/s Mar. 21, gage height, 7.74 ft; minimum, 28 ft^3/s Aug. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	54	75	90	74	132	740	633	503	105	46	36
2	40	57	67	100	74	174	720	643	483	101	42	35
3	40	59	72	120	74	205	740	625	465	96	40	33
4	40	60	51	100	74	220	820	645	465	94	40	33
5	40	60	58	90	70	225	760	645	468	91	39	33
6	40	64	63	85	74	237	730	658	487	84	37	33
7	40	63	63	80	75	274	700	653	498	83	36	32
8	39	63	66	75	81	346	1000	623	487	81	37	34
9	40	67	82	72	90	498	940	596	468	77	36	36
10	40	68	109	70	88	610	860	623	446	72	35	35
11	40	70	124	67	87	693	780	760	420	67	32	37
12	40	72	103	64	90	760	720	877	398	64	32	39
13	40	77	95	62	121	1050	680	1040	366	62	33	39
14	40	77	120	60	141	1390	700	1150	326	60	31	38
15	40	77	269	58	165	1300	800	1150	288	59	31	37
16	40	87	346	57	160	1090	950	1060	256	60	30	38
17	40	116	350	55	157	804	920	912	229	58	30	37
18	40	114	332	57	153	728	880	798	202	57	31	39
19	40	110	324	64	138	813	860	728	188	53	32	38
20	41	114	280	65	133	1120	840	655	178	51	32	37
21	43	100	250	66	148	1410	819	620	172	50	31	43
22	44	88	170	67	156	1200	768	625	166	48	31	45
23	48	87	120	68	150	1140	708	635	163	49	31	41
24	45	92	35	69	144	1100	685	650	160	50	42	39
25	45	82	42	70	130	972	690	670	151	48	57	38
26	45	63	55	71	123	993	708	688	141	46	43	39
27	45	79	75	72	119	954	705	678	133	45	39	38
28	47	77	80	72	114	867	650	645	123	44	38	40
29	47	72	90	73	114	820	600	596	116	43	37	38
30	51	74	100	73	---	760	613	553	109	41	37	38
31	54	---	80	74	---	760	---	516	---	45	37	---
TOTAL	1313	2343	4146	2266	3317	23645	23086	22350	9055	1984	1125	1118
MEAN	42.4	78.1	134	73.1	114	763	770	721	302	64.0	36.3	37.3
MAX	54	116	350	120	165	1410	1000	1150	503	105	57	45
MIN	39	54	35	55	70	132	600	516	109	41	30	32
AC-FT	2600	4650	8220	4490	6580	46900	45790	44330	17960	3940	2230	2220

CAL YR 1983	TOTAL	124185	MEAN	340	MAX	1910	MIN	30	AC-FT	246300
WTR YR 1984	TOTAL	95748	MEAN	262	MAX	1410	MIN	30	AC-FT	189900

NOTE.--No gage-height record Dec. 20 to Jan. 18, Jan. 20 to Feb. 2.

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 12 mi upstream at different datum.

REMARKS.--Records good. Minor regulation from irrigation diversions above station.

AVERAGE DISCHARGE.--63 years (water years 1922-84), 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, 2,880 ft^3/s Mar. 18, gage height, 4.92 ft; minimum, 246 ft^3/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	316	405	560	863	491	807	2140	1640	1670	672	324	367
2	320	421	560	1090	478	904	1980	1600	1600	656	330	431
3	330	421	580	1240	471	1020	1850	1620	1550	634	333	465
4	330	421	600	1110	462	1150	1770	1650	1520	622	327	421
5	330	421	610	906	471	1140	1710	1670	1470	587	311	381
6	331	421	600	813	485	1060	1720	1680	1430	546	309	356
7	346	423	590	756	501	1030	1780	1730	1420	544	309	338
8	351	421	600	738	532	1050	1860	1760	1460	542	298	332
9	357	428	660	704	558	1140	1820	1720	1500	536	291	319
10	357	430	770	692	609	1270	1830	1680	1550	515	291	315
11	357	432	840	671	674	1440	2030	1700	1550	500	287	315
12	357	442	900	661	652	1630	2220	1740	1480	486	280	315
13	366	471	930	678	679	1810	2170	1800	1390	474	280	310
14	366	482	950	613	865	1980	1970	1930	1290	450	275	310
15	366	479	980	512	1100	2120	1790	2150	1200	441	270	310
16	366	476	1100	484	1200	2350	1640	2460	1110	439	265	310
17	366	484	1300	478	1040	2720	1590	2700	1000	422	256	310
18	366	496	1600	457	938	2870	1640	2820	926	416	263	310
19	373	557	1800	484	794	2730	1770	2730	871	420	259	320
20	375	620	1600	484	717	2380	1910	2490	834	390	264	330
21	373	590	1350	523	741	2180	2020	2230	812	356	274	330
22	367	580	1110	503	867	2160	2090	2050	811	351	274	330
23	375	580	670	512	976	2320	2100	1950	813	358	275	330
24	382	570	340	525	907	2540	2010	1880	787	378	273	330
25	390	560	540	510	792	2570	1900	1840	769	374	278	330
26	392	570	720	531	746	2520	1850	1820	739	361	277	330
27	385	580	780	577	698	2420	1850	1850	717	366	264	330
28	376	570	780	563	677	2320	1830	1890	705	346	255	330
29	380	560	990	532	723	2310	1780	1880	700	346	253	330
30	387	560	1080	520	---	2320	1710	1830	682	337	285	340
31	393	---	791	502	---	2280	---	1760	---	338	337	---
TOTAL	11226	14871	27281	20232	20844	58541	56330	60250	34356	14203	8867	10175
MEAN	362	496	880	653	719	1888	1878	1944	1145	458	286	339
MAX	393	620	1800	1240	1200	2870	2220	2820	1670	672	337	465
MIN	316	405	340	457	462	807	1590	1600	682	337	253	310
AC-FT	22270	29500	54110	40130	41340	116100	111700	119500	68150	28170	17590	20180

CAL YR 1983	TOTAL	382473	MEAN	1048	MAX	3760	MIN	290	AC-FT	758600
WTR YR 1984	TOTAL	337176	MEAN	921	MAX	2870	MIN	253	AC-FT	668800

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1923, at different datum.

REMARKS.--Records excellent. Some regulation by diversion dams and logpond operations of Sprague River. Diversions for irrigation above station.

AVERAGE DISCHARGE.--67 years, 1,057 ft^3/s, 765,800 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, 4,070 ft^3/s Mar. 18, gage height, 5.38 ft; minimum, 568 ft^3/s Aug. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	687	908	1170	1620	1160	1560	3460	2650	2400	1090	715	734
2	689	927	1170	1810	1140	1670	3260	2570	2330	1080	718	803
3	694	928	1210	1990	1140	1790	3090	2580	2270	1050	720	853
4	698	930	1270	1880	1130	1940	3000	2610	2240	1040	715	811
5	702	935	1270	1670	1130	1960	2930	2630	2180	1010	696	762
6	705	949	1230	1570	1130	1870	2910	2630	2140	963	687	727
7	715	950	1220	1510	1150	1840	2970	2690	2140	953	685	711
8	727	950	1250	1490	1180	1880	3070	2710	2180	944	668	701
9	739	968	1370	1450	1210	2000	3020	2650	2210	935	656	683
10	739	976	1610	1440	1240	2140	3000	2590	2250	916	650	670
11	743	983	1760	1420	1310	2350	3200	2630	2260	894	649	667
12	748	995	1860	1410	1310	2580	3420	2650	2190	878	639	667
13	758	1030	1940	1420	1380	2830	3400	2710	2080	863	634	661
14	762	1040	1930	1360	1550	3050	3200	2820	1960	857	631	652
15	766	1050	1970	1220	1790	3250	2990	3060	1860	841	619	655
16	770	1060	2080	1080	1930	3500	2810	3380	1750	831	611	650
17	770	1100	2340	1020	1790	3850	2730	3620	1630	821	603	653
18	770	1110	2700	973	1670	4040	2760	3740	1530	827	608	656
19	773	1180	2830	988	1530	3930	2870	3660	1460	828	605	669
20	779	1250	2590	1050	1450	3640	3010	3420	1410	794	606	694
21	781	1220	2210	1200	1480	3420	3140	3150	1380	754	610	685
22	803	1210	1780	1170	1600	3370	3230	2940	1370	761	607	691
23	834	1210	1220	1140	1710	3560	3220	2810	1360	778	607	690
24	842	1180	940	1170	1660	3770	3120	2730	1330	803	602	686
25	857	1160	1060	1170	1510	3830	3000	2670	1290	798	603	681
26	868	1180	1230	1190	1470	3800	2920	2630	1240	771	601	687
27	860	1200	1350	1230	1440	3720	2920	2650	1200	763	588	683
28	854	1180	1320	1240	1420	3610	2890	2690	1170	745	574	689
29	854	1160	1570	1210	1460	3580	2810	2680	1130	741	576	709
30	868	1160	1600	1190	---	3620	2730	2600	1110	729	621	715
31	883	---	1550	1180	---	3580	---	2500	---	731	700	---
TOTAL	24038	32079	50600	41461	41070	91530	91080	88050	53050	26789	19804	20995
MEAN	775	1069	1632	1337	1416	2953	3036	2840	1768	864	639	700
MAX	883	1250	2830	1990	1930	4040	3460	3740	2400	1090	720	853
MIN	687	908	940	973	1130	1560	2730	2500	1110	729	574	650
AC-FT	47680	63630	100400	82240	81460	181500	180700	174600	105200	53140	39280	41640

CAL YR 1983	TOTAL	635713	MEAN	1742	MAX	5020	MIN	649	AC-FT	1261000
WTR YR 1984	TOTAL	580546	MEAN	1586	MAX	4040	MIN	574	AC-FT	1152000

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 National Geodetic Vertical Datum of 1929 (National Park Service bench mark).

REMARKS.--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.--7 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, 18 ft^3/s July 6, gage height, 1.56 ft; minimum, 2.0 ft^3/s Apr. 8, 10-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	2.6	2.3	2.4	2.5	2.3	2.2	2.2	7.8	13	9.5	4.3
2	3.6	2.6	2.3	2.4	2.5	2.3	2.2	2.3	8.1	13	9.1	4.3
3	3.6	2.6	2.3	2.5	2.5	2.3	2.2	2.3	8.6	13	8.7	4.3
4	3.5	2.6	2.3	2.5	2.5	2.3	2.2	2.3	8.7	14	8.7	4.2
5	3.5	2.6	2.3	2.5	2.5	2.3	2.2	2.3	8.8	17	8.2	4.1
6	3.5	2.6	2.3	2.5	2.5	2.2	2.2	2.3	9.1	17	8.2	4.0
7	3.4	2.6	2.3	2.5	2.5	2.2	2.2	2.3	9.1	17	7.5	4.0
8	3.4	2.6	2.2	2.5	2.5	2.2	2.2	2.3	8.9	17	7.1	3.9
9	3.4	2.6	2.2	2.5	2.5	2.2	2.1	2.3	8.6	17	7.1	3.9
10	3.3	2.6	2.2	2.6	2.5	2.2	2.1	2.3	8.6	17	6.8	3.9
11	3.3	2.6	2.2	2.6	2.5	2.2	2.1	2.4	8.5	17	6.4	3.9
12	3.2	2.6	2.2	2.6	2.5	2.2	2.1	2.5	8.2	16	6.4	3.8
13	3.2	2.6	2.2	2.5	2.5	2.2	2.1	2.7	8.1	16	6.1	3.8
14	3.1	2.6	2.2	2.5	2.5	2.2	2.1	3.1	7.9	16	5.8	3.8
15	3.1	2.6	2.2	2.5	2.5	2.2	2.1	3.2	7.7	16	5.5	3.7
16	3.1	2.6	2.4	2.5	2.5	2.2	2.1	3.4	7.9	16	5.5	3.7
17	3.1	2.5	2.5	2.5	2.5	2.2	2.1	3.4	8.2	16	5.3	3.7
18	3.1	2.4	2.6	2.5	2.5	2.2	2.1	3.5	8.6	15	5.3	3.6
19	3.0	2.5	2.6	2.4	2.5	2.2	2.1	3.5	9.1	14	5.1	3.6
20	3.1	2.5	2.6	2.4	2.5	2.2	2.1	3.6	9.3	14	5.1	3.6
21	3.0	2.5	2.6	2.5	2.4	2.2	2.2	3.7	9.7	14	4.9	3.6
22	3.0	2.5	2.6	2.6	2.4	2.2	2.2	3.8	10	13	4.8	3.6
23	2.9	2.5	2.6	2.5	2.4	2.2	2.2	4.1	9.7	13	4.8	3.5
24	2.7	2.5	2.6	2.6	2.4	2.2	2.2	4.3	10	13	4.6	3.5
25	2.7	2.4	2.6	2.5	2.4	2.2	2.2	4.5	10	12	4.6	3.5
26	2.7	2.4	2.6	2.6	2.4	2.2	2.2	4.7	10	12	4.5	3.5
27	2.7	2.4	2.6	2.6	2.4	2.2	2.2	4.9	12	11	4.4	3.4
28	2.7	2.3	2.5	2.5	2.4	2.2	2.2	5.1	12	10	4.4	3.4
29	2.6	2.3	2.5	2.5	2.3	2.2	2.2	5.4	13	10	4.5	3.4
30	2.7	2.3	2.4	2.5	---	2.2	2.2	6.3	13	9.5	4.4	3.4
31	2.6	---	2.4	2.5	---	2.2	---	7.0	---	9.5	4.4	---
TOTAL	96.4	75.6	74.4	77.8	71.5	68.7	64.8	108.0	279.2	438.0	187.7	112.9
MEAN	3.11	2.52	2.40	2.51	2.47	2.22	2.16	3.48	9.31	14.1	6.05	3.76
MAX	3.6	2.6	2.6	2.6	2.5	2.3	2.2	7.0	13	17	9.5	4.3
MIN	2.6	2.3	2.2	2.4	2.3	2.2	2.1	2.2	7.7	9.5	4.4	3.4
AC-FT	191	150	148	154	142	136	129	214	554	869	372	224
MEAN†	3.14	2.54	2.42	2.54	2.49	2.24	2.18	3.51	9.38	14.2	6.18	3.83
AC-FT†	193	151	149	156	143	138	130	216	558	876	380	228

CAL YR 1983 TOTAL 1490.3 MEAN 4.08 MAX 12 MIN 1.1 AC-FT 2960 MEAN† 4.12 AC-FT† 2986
WTR YR 1984 TOTAL 1655.0 MEAN 4.52 MAX 17 MIN 2.1 AC-FT 3280 MEAN† 4.57 AC-FT† 3318

† 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 National Geodetic Vertical Datum of 1929, or 4,100.00 ft Bureau of Reclamation datum. Gage readings have been reduced to elevations 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, 4,143.13 ft June 14; minimum daily, 4,140.70 ft Jan. 9, 10.

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 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4142.00	4141.40	4140.96	4140.82	4141.06	4141.74	4142.59	4142.88	4142.98	4142.96	4142.32	4141.77
2	4141.98	4141.40	4140.91	4140.80	4141.08	4141.80	4142.55	4142.92	4142.99	4142.95	4142.30	4141.77
3	4141.98	4141.38	4140.96	4140.78	4141.10	4141.84	4142.54	4142.97	4142.96	4142.94	4142.28	4141.78
4	4141.98	4141.43	4140.86	4140.76	4141.11	4141.92	4142.58	4143.00	4142.94	4142.94	4142.26	4141.78
5	4141.96	4141.39	4140.82	4140.72	4141.13	4141.94	4142.62	4143.00	4142.95	4142.93	4142.23	4141.78
6	4141.94	4141.40	4140.80	4140.72	4141.15	4141.97	4142.63	4142.98	4142.98	4142.93	4142.21	4141.79
7	4141.91	4141.41	4140.81	4140.72	4141.18	4142.00	4142.59	4142.97	4143.07	4142.92	4142.18	4141.77
8	4141.86	4141.38	4140.83	4140.71	4141.22	4142.03	4142.67	4142.96	4143.08	4142.88	4142.16	4141.79
9	4141.85	4141.33	4140.80	4140.70	4141.24	4142.06	4142.60	4142.96	4143.11	4142.85	4142.14	4141.80
10	4141.84	4141.24	4140.82	4140.70	4141.28	4142.09	4142.70	4142.94	4143.11	4142.82	4142.11	4141.82
11	4141.82	4141.37	4140.88	4140.72	4141.32	4142.09	4142.69	4142.96	4143.11	4142.79	4142.07	4141.82
12	4141.80	4141.35	4140.84	4140.73	4141.38	4142.13	4142.76	4142.99	4143.12	4142.75	4142.06	4141.80
13	4141.79	4141.36	4140.92	4140.75	4141.45	4142.14	4142.77	41	4143.12	4142.73	4142.03	4141.80
14	4141.74	4141.41	4140.96	4140.76	4141.50	4142.20	4142.74	4143.08	4143.13	4142.68	4142.02	4141.81
15	4141.72	4141.35	4141.04	4140.77	4141.54	4142.22	4142.68	4143.07	4143.10	4142.65	4141.98	4141.79
16	4141.70	4141.34	4141.07	4140.79	4141.58	4142.24	4142.71	4143.06	4143.08	4142.61	4141.94	4141.79
17	4141.68	4141.39	4141.09	4140.79	4141.58	4142.31	4142.70	4143.08	4143.07	4142.58	4141.92	4141.79
18	4141.66	4141.34	4141.08	4140.80	4141.57	4142.31	4142.66	4143.10	4143.05	4142.56	4141.90	4141.79
19	4141.63	4141.32	4141.14	4140.81	4141.56	4142.34	4142.72	4143.11	4143.03	4142.54	4141.89	4141.78
20	4141.60	4141.34	4141.12	4140.83	4141.53	4142.32	4142.74	4143.12	4143.02	4142.54	4141.85	4141.84
21	4141.58	4141.30	4141.12	4140.86	4141.59	4142.29	4142.77	4143.10	4142.98	4142.52	4141.82	4141.83
22	4141.57	4141.22	4141.07	4140.88	4141.56	4142.27	4142.80	4143.06	4142.98	4142.47	4141.79	4141.84
23	4141.58	4141.18	4141.03	4140.89	4141.58	4142.30	4142.83	4143.11	4142.98	4142.44	4141.77	4141.82
24	4141.54	4141.17	4141.05	4140.92	4141.58	4142.34	4142.90	4143.08	4142.99	4142.44	4141.74	4141.80
25	4141.51	4141.18	4141.02	4140.93	4141.65	4142.34	4142.89	4143.04	4142.99	4142.40	4141.72	4141.80
26	4141.50	4141.13	4140.98	4140.96	4141.63	4142.48	4142.86	4143.05	4143.00	4142.41	4141.69	4141.79
27	4141.48	4141.08	4140.94	4140.98	4141.64	4142.47	4142.86	4143.04	4142.99	4142.39	4141.67	4141.80
28	4141.46	4141.04	4140.90	4141.00	4141.64	4142.53	4142.86	4143.02	4142.98	4142.37	4141.64	4141.80
29	4141.43	4141.00	4140.88	4141.01	4141.68	4142.54	4142.86	4143.00	4142.99	4142.36	4141.65	4141.78
30	4141.42	4140.97	4140.88	4141.04	---	4142.52	4142.86	4143.02	4142.99	4142.35	4141.72	4141.79
31	4141.39	---	4140.85	4141.04	---	4142.58	---	4143.02	---	4142.20	4141.77	---
MEAN	4141.71	4141.29	4140.95	4140.83	4141.42	4142.20	4142.72	4143.02	4143.03	4142.64	4141.96	4141.80
MAX	4142.00	4141.43	4141.14	4141.04	4141.68	4142.58	4142.90	4143.12	4143.13	4142.96	4142.32	4141.84
MIN	4141.39	4140.97	4140.80	4140.70	4141.06	4141.74	4142.54	4142.88	4142.94	4142.20	4141.64	4141.77
(†)	362300	332400	323500	340000	390000	465200	486400	498300	495700	445100	394800	400500
(‡)	-52100	-29900	-8900	+16500	+50000	+75200	+21200	+11900	-2600	-50600	-50300	+5700

CAL YR 1983 MEAN 4142.04 MAX 4143.14 MIN 4140.66 AC-FT‡ +8200
WTR YR 1984 MEAN 4141.96 MAX 4143.13 MIN 4140.70 AC-FT‡ -13900

† 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 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.--Records good. Flow regulated since 1919 by Upper Klamath Lake (see station 11507001). Large diurnal fluctuation caused by powerplant above station. Water diverted above station by main or "A" Canal of Klamath project (see station 11507200). Many other diversions above 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 below 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, 7,280 ft^3/s Mar. 20; minimum, 57 ft^3/s Aug. 22, result of regulation from Upper Klamath Lake, minimum daily, 213 ft^3/s Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	831	2100	3960	4080	1410	845	4370	1990	2200	953	593	417
2	830	2100	3940	4040	1300	998	4450	2570	2120	874	647	608
3	828	2010	4150	4030	1350	984	3980	2760	2090	765	715	716
4	921	2010	3850	4010	1420	953	3590	2930	1960	785	714	762
5	1600	1960	3730	3500	1340	1510	3560	3140	1960	770	686	750
6	1790	1960	3670	2990	1150	2040	3600	3140	1350	677	642	528
7	1780	1970	3640	2910	778	2300	3580	3210	1190	711	668	296
8	1930	2170	3810	2810	823	2060	3380	3310	1800	809	726	293
9	1870	2160	3620	2480	612	2420	3430	3070	1810	662	860	298
10	1810	2030	3790	2130	751	2570	3410	2660	1820	871	906	366
11	1900	2070	3980	1920	1330	2410	3310	2350	2070	878	643	476
12	1950	1880	3750	2150	1260	2640	3520	2390	2000	788	952	480
13	1830	2010	3830	1940	1090	3300	4020	2220	2260	888	906	447
14	1690	2670	4090	1650	1930	3830	4430	2190	2190	853	826	743
15	1700	3190	4230	1910	2490	4080	4550	2190	2220	811	762	675
16	1790	3430	4270	1700	2870	4520	4290	2530	2150	1000	736	654
17	1910	3990	4440	1500	2970	5580	3620	2920	2130	949	807	676
18	2190	4360	4370	1580	2690	5520	3520	3230	1960	776	776	904
19	2240	4270	4440	1490	2820	5860	3050	3520	1630	695	658	1010
20	2230	4410	4390	1460	2610	5980	2660	3520	1530	857	735	919
21	2230	4370	4460	1440	2210	5690	2450	3190	1180	950	637	873
22	2230	4170	4340	1660	1680	5170	2580	2900	793	647	633	731
23	2240	4090	4320	1720	1830	4290	2840	2960	629	834	993	729
24	2210	4090	4070	1770	1950	3970	3150	2930	494	697	811	727
25	2120	4270	4200	1320	1880	3950	2980	2930	539	678	768	786
26	2180	4160	4230	1350	1900	4120	2960	3030	948	903	717	1120
27	2220	4110	4200	1390	1550	3930	2460	3100	879	809	749	1150
28	2080	4060	4160	1470	1390	4310	2060	3120	935	738	741	1120
29	2180	4030	4140	1580	1220	4570	2270	2850	1220	600	779	969
30	2130	3990	4130	1520	---	4220	2040	2340	1020	598	549	945
31	2070	---	4110	1410	---	4260	---	2210	---	592	213	---
TOTAL	57510	94090	126310	66910	48604	108880	100110	87400	47077	24418	22548	21168
MEAN	1855	3136	4075	2158	1676	3512	3337	2819	1569	788	727	706
MAX	2240	4410	4460	4080	2970	5980	4550	3520	2260	1000	993	1150
MIN	828	1880	3620	1320	612	845	2040	1990	494	592	213	293
AC-FT	114100	186600	250500	132700	96410	216000	198600	173400	93380	48430	44720	41990

CAL YR 1983	TOTAL	856229	MEAN	2346	MAX	5940	MIN	284	AC-FT	1698000
WTR YR 1984	TOTAL	805025	MEAN	2200	MAX	5980	MIN	213	AC-FT	1597000

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 National Geodetic Vertical Datum of 1929 (from river-profile survey). See WSP 1735 for history of changes prior to Nov. 6, 1954.

REMARKS.--Records excellent. Flow regulated since 1919 by Upper Klamath Lake (see sta 11507001). Fluctuation by Keno powerplant 0.9 mi upstream. Diversions for irrigation above station.

AVERAGE DISCHARGE.--64 years, 1,702 ft^3/s, 1,233,000 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, 9,150 ft^3/s Dec. 16, gage height, 12.21 ft, caused by regulation from Keno powerplant 0.9 mi upstream; minimum, 260 ft^3/s July 8; minimum daily, 265 ft^3/s July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1460	2460	4660	5900	2310	2280	5450	2610	1870	554	576	1850
2	1460	2470	4660	5630	2310	2280	5460	3020	1820	491	623	1520
3	1460	2470	4730	5280	2310	2280	4950	3030	1820	394	660	1510
4	1530	2470	4860	5240	2310	2280	4430	3450	1830	392	663	1420
5	2070	2460	4620	5470	2310	2850	4430	3750	1830	392	668	1280
6	2430	2460	4540	5140	2050	3420	4440	3760	1480	393	661	1110
7	2400	2520	4720	4920	1800	3420	4440	3750	1740	392	670	1010
8	2400	2550	5390	4920	1790	3430	4430	3750	2310	373	672	1100
9	2400	2570	5470	4600	1890	3720	4440	3330	2310	269	669	997
10	2400	2560	5190	4570	2130	3940	4460	2850	2310	265	669	846
11	2400	2560	5750	4050	2270	3940	4470	2700	2310	269	668	759
12	2410	2560	5610	3050	2280	4260	4730	2710	2310	277	668	833
13	2410	2550	5430	2620	2450	4570	5440	2710	2310	277	670	1080
14	2380	3140	5490	2890	3620	4960	5760	2710	2310	273	670	1270
15	2370	4100	6820	3120	4530	5660	5770	2710	2170	275	677	1300
16	2370	4220	8160	2890	4700	6430	5280	3090	2010	277	666	1300
17	2470	4700	7030	2550	4500	6690	4480	3370	2020	277	665	1370
18	2570	5210	6380	2560	4300	6590	4130	3690	1800	273	666	1470
19	2610	5190	6520	2570	4290	6710	3640	3550	1360	272	666	1470
20	2610	5150	6430	2560	3980	6880	3390	3440	1160	319	666	1480
21	2610	5150	5820	2550	3620	6630	3390	3150	993	421	653	1310
22	2620	5030	5560	2430	3640	6100	3380	2890	677	418	651	1310
23	2620	4800	6050	2380	3630	5320	3550	2900	575	406	658	1310
24	2620	4860	6390	2320	3410	5050	3730	2900	573	408	664	1300
25	2540	4970	5740	2290	3240	5050	3490	2900	573	413	667	1410
26	2470	5000	5610	2280	3250	5060	2930	2900	566	413	667	1520
27	2470	4860	5650	2280	2870	5290	2630	2900	562	412	666	1520
28	2470	4710	5680	2290	2480	5620	2510	2910	562	418	663	1500
29	2460	4670	5930	2280	2340	5610	2500	2660	567	417	659	1460
30	2470	4670	6400	2150	---	5480	2420	2000	557	411	677	1460
31	2460	---	6410	2310	---	5460	---	1770	---	411	970	---
TOTAL	72420	113090	177700	106090	86610	147260	124550	93860	45285	11252	20808	39075
MEAN	2336	3770	5732	3422	2987	4750	4152	3028	1510	363	671	1303
MAX	2620	5210	8160	5900	4700	6880	5770	3760	2310	554	970	1850
MIN	1460	2460	4540	2150	1790	2280	2420	1770	557	265	576	759
AC-FT	143600	224300	352500	210400	171800	292100	247000	186200	89820	22320	41270	77510

CAL YR 1983	TOTAL	1113567	MEAN	3051	MAX	8470	MIN	296	AC-FT	2209000
WTR YR 1984	TOTAL	1038000	MEAN	2836	MAX	8160	MIN	265	AC-FT	2059000

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 National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--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 above station.

AVERAGE DISCHARGE.--25 years, 1,920 ft^3/s, 1,391,000 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, 9,340 ft^3/s Dec. 16, gage height, 8.77 ft; minimum, 354 ft^3/s July 11; minimum daily, 381 ft^3/s July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1720	2770	4560	5760	2600	2590	5440	2950	2260	850	930	2280
2	1740	2770	4560	5490	2590	2560	5430	3350	2130	760	902	1750
3	1720	2760	4570	5000	2600	2560	5090	3350	2030	664	991	1750
4	1730	2760	4770	5090	2580	2590	4460	3650	2120	667	953	1750
5	2360	2750	4540	5460	2590	2960	4660	3950	2110	665	945	1560
6	2630	2750	4460	5000	2310	3590	4380	3940	1950	712	947	1340
7	2630	2660	4600	4810	2080	3530	4540	3920	2020	669	947	1200
8	2640	2840	5200	4820	2080	3590	4560	3910	2710	823	895	1500
9	2640	2840	5360	4550	2080	3770	4520	3640	2670	785	941	1100
10	2640	2840	5000	3990	2360	4000	4540	3240	2640	381	939	1290
11	2640	2850	5590	3730	2600	4020	4540	3120	2630	384	988	1010
12	2660	2850	5460	3220	2570	4260	4680	3160	2610	385	987	1170
13	2670	2840	5410	2920	2720	4570	5380	3130	2630	558	944	1200
14	2670	3260	5480	3010	3590	4900	5740	3130	2630	567	901	1540
15	2660	4040	6710	3230	4480	5630	5800	3110	2530	534	901	1570
16	2660	4180	8260	3130	4640	6340	5470	3340	2340	514	900	1580
17	2670	4590	7280	2810	4460	6680	4610	3630	2350	566	900	1580
18	2820	5060	6270	2800	4290	6560	4350	3820	2020	562	949	1750
19	2850	5100	6360	2800	4270	6650	3910	3770	1730	590	952	1750
20	2850	5010	6250	2800	4090	7020	3660	3670	1210	720	946	1590
21	2850	4980	5780	2800	3740	6620	3660	3480	1450	697	946	1580
22	2850	4960	5360	2760	3780	6120	3640	3220	988	679	947	1570
23	2860	4670	5840	2660	3710	5290	3740	3220	885	674	943	1570
24	2860	4730	6550	2620	3590	5050	3920	3220	895	692	948	1570
25	2820	4800	6570	2620	3430	5020	3730	3220	886	680	944	1570
26	2770	4860	6360	2580	3400	5190	3310	3170	843	684	942	1760
27	2770	4710	6060	2570	3200	5430	3020	3210	846	766	897	1750
28	2770	4620	5980	2570	2770	5680	2890	3200	850	675	901	1740
29	2770	4530	5980	2570	2700	5740	2870	3010	852	671	902	1510
30	2770	4570	6270	2410	---	5490	2870	2300	845	720	909	1880
31	2770	---	6280	2590	---	5500	---	1910	---	717	1200	---
TOTAL	80460	114950	177720	109170	91900	149500	129410	102940	54660	20011	29237	46760
MEAN	2595	3832	5733	3522	3169	4823	4314	3321	1822	646	943	1559
MAX	2860	5100	8260	5760	4640	7020	5800	3950	2710	850	1200	2280
MIN	1720	2660	4460	2410	2080	2560	2870	1910	843	381	895	1010
AC-FT	159600	228000	352500	216500	182300	296500	256700	204200	108400	39690	57990	92750

CAL YR 1983	TOTAL	1189491	MEAN	3259	MAX	8920	MIN	603	AC-FT	2359000
WTR YR 1984	TOTAL	1106718	MEAN	3024	MAX	8260	MIN	381	AC-FT	2195000

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 mi^2, 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.--Records excellent. Flow regulated by Upper Klamath Lake (see station 11507001), other smaller reservoirs, and diversions upstream from station. Iron Gate Dam 0.6 mi upstream is a reregulating reservoir.

AVERAGE DISCHARGE.--24 years, 2,290 ft^3/s, 1,659,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft^3/s Dec. 22, 1964, gage height, 13.63 ft, from rating curve extended above 15,000 ft^3/s, on basis of slope-area measurement of maximum flow; minimum daily, 647 ft^3/s Oct. 30, Nov. 6, 1960, Sept. 24, Oct. 1, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,900 ft^3/s Dec. 17, gage height, 9.26 ft; minimum daily, 722 ft^3/s July 20, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1810	2960	5110	6860	2950	3340	6680	3360	2030	970	1020	1870
2	1810	2930	5130	6290	2950	3290	6420	3850	2020	900	1030	1990
3	1810	2910	5440	5800	2950	3210	6320	3880	2030	770	1030	1820
4	1840	2900	5330	5700	2940	3200	5710	4040	2110	768	1030	1950
5	2590	2900	5120	5920	2960	3350	5720	4520	2500	830	1030	1790
6	2870	2930	5540	5950	2780	4430	5660	4480	2250	909	1030	1760
7	2890	2920	6290	5460	2430	4290	5490	4420	2050	782	1030	1760
8	2790	2900	6010	5480	2420	4240	5620	4410	3090	755	1030	1760
9	2800	2920	6440	5350	2450	4390	5670	4330	3060	758	1030	1760
10	2820	2910	5830	4570	2640	4880	5700	3740	2840	768	1020	1760
11	2940	2930	6210	4460	3050	4750	5670	3650	2790	764	1020	1540
12	2920	2950	6390	3770	3040	4900	5510	3660	2790	762	1020	1320
13	2900	2990	7620	3230	3810	5550	6200	3540	2780	752	1030	1310
14	2930	3470	9550	3140	4740	5870	6680	3600	2770	729	1020	1330
15	2900	4460	9660	3560	5630	6710	6670	3650	2730	729	1020	1540
16	2890	4600	9810	3690	5810	7080	6630	3740	2580	725	1020	1560
17	2890	5040	9420	3160	5600	7820	5570	4240	2560	727	1020	1570
18	2900	5490	7280	2940	5200	7670	5230	4190	2480	726	1020	1570
19	2900	5680	7440	2890	5210	7440	4960	4400	1840	724	1020	1570
20	2900	5800	7160	2970	5060	8120	4530	4060	1400	722	1020	1570
21	2900	5440	6710	3130	4810	7640	4450	4010	1520	722	1020	1570
22	2910	5420	6060	3100	4750	7480	4410	3600	1180	727	1020	1570
23	2940	5220	6190	3040	4730	6310	4310	3530	981	726	1020	1570
24	2910	5410	6660	3030	4530	6010	4650	3510	970	726	1020	1690
25	2910	5450	6570	3100	4320	6000	4430	3520	969	726	1020	1790
26	2910	5360	6200	3110	4280	6860	3640	3510	967	737	1020	1790
27	2900	5240	6270	3010	3950	6790	3440	3490	988	731	1020	1790
28	2900	5040	6290	2980	3350	6950	3220	3490	971	731	1020	1790
29	2910	5000	6280	2970	3320	7040	3200	3410	966	731	1020	1790
30	2910	4850	7440	2840	---	6600	3380	2900	968	731	1040	1780
31	2920	---	7350	2890	---	6790	---	2130	---	743	1210	---
TOTAL	85120	125020	208800	124390	112660	179000	155770	116860	59180	23601	31920	50230
MEAN	2746	4167	6735	4013	3885	5774	5192	3770	1973	761	1030	1674
MAX	2940	5800	9810	6860	5810	8120	6680	4520	3090	970	1210	1990
MIN	1810	2900	5110	2840	2420	3200	3200	2130	966	722	1020	1310
AC-FT	168800	248000	414200	246700	223500	355000	309000	231800	117400	46810	63310	99630

CAL YR 1983 TOTAL 1369779 MEAN 3753 MAX 10500 MIN 720 AC-FT 2717000
WTR YR 1984 TOTAL 1272551 MEAN 3477 MAX 9810 MIN 722 AC-FT 2524000

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 mi^2, 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.--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.

AVERAGE DISCHARGE.--67 years, 120,200 ft^3/s, 87,080,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft^3/s June 12, 1948, gage height, 59.35 ft, site and datum then in use; minimum, 4,120 ft^3/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 ft^3/s, based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 254,000 ft^3/s June 29, elevation, 414.78 ft; minimum, 38,000 ft^3/s Oct. 29, elevation, 396.65 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87600	69600	142000	71300	126000	157000	72900	153000	133000	173000	90500	70500
2	81400	73700	147000	74300	145000	155000	107000	159000	115000	173000	107000	59500
3	92200	74400	149000	71700	140000	148000	117000	164000	121000	174000	106000	74900
4	80200	82000	137000	71600	148000	114000	131000	169000	145000	169000	86700	96900
5	78500	64900	142000	103000	153000	140000	126000	168000	128000	161000	81300	93500
6	74500	59600	147000	125000	138000	170000	128000	123000	132000	158000	97600	75900
7	78200	76500	145000	116000	150000	158000	122000	148000	133000	150000	112000	71400
8	71900	102000	121000	97700	162000	140000	104000	138000	130000	113000	119000	64300
9	69700	87100	109000	98400	162000	115000	118000	157000	127000	117000	119000	56700
10	93400	83900	92800	114000	157000	109000	138000	155000	96600	132000	125000	76600
11	79000	76500	73700	120000	135000	118000	132000	151000	101000	130000	99500	87200
12	71800	62400	108000	121000	102000	126000	139000	134000	133000	121000	80400	77200
13	78500	58700	107000	126000	107000	127000	127000	114000	122000	120000	119000	83300
14	92800	64500	97100	136000	123000	121000	116000	141000	131000	122000	122000	97900
15	77700	75800	98600	126000	123000	126000	137000	148000	160000	133000	114000	74900
16	65100	95000	109000	140000	118000	117000	131000	161000	165000	150000	123000	64200
17	70000	84000	123000	116000	146000	81400	142000	147000	166000	162000	117000	88300
18	70500	106000	138000	154000	156000	75600	138000	146000	167000	153000	105000	84100
19	76300	104000	147000	167000	128000	82800	142000	138000	163000	142000	84300	77800
20	70500	100000	145000	158000	130000	94200	158000	119000	162000	124000	103000	67900
21	62800	118000	144000	163000	152000	105000	165000	135000	157000	97400	115000	67300
22	59300	120000	136000	137000	159000	91900	172000	140000	156000	85800	117000	62200
23	56200	113000	159000	121000	156000	86500	159000	138000	142000	112000	107000	49000
24	70500	115000	162000	98200	152000	81800	170000	142000	147000	114000	113000	72700
25	66100	103000	110000	101000	139000	73400	160000	139000	160000	134000	81900	73300
26	66400	76200	87900	89100	134000	92200	174000	118000	171000	137000	91400	69100
27	66700	77500	90000	102000	128000	110000	163000	92300	173000	129000	113000	61300
28	70300	109000	112000	92100	130000	110000	148000	102000	176000	77300	119000	69700
29	56900	124000	107000	76700	153000	113000	139000	140000	207000	60800	108000	59300
30	58400	137000	78800	93300	---	110000	162000	152000	190000	87500	86800	56300
31	64500	---	72000	121000	---	77500	---	148000	---	80700	96700	---
TOTAL	2257900	2693300	3736900	3501400	4052000	3526300	4137900	4379300	4409600	3992500	3260100	2183200
MEAN	72840	89780	120500	112900	139700	113800	137900	141300	147000	128800	105200	72770
MAX	93400	137000	162000	167000	162000	170000	174000	169000	207000	174000	125000	97900
MIN	56200	58700	72000	71300	102000	73400	72900	92300	96600	60800	80400	49000
AC-FT	4479000	5342000	7412000	6945000	8037000	6994000	8208000	8686000	8746000	7919000	6466000	4330000

CAL YR 1983	TOTAL	47775800	MEAN	130900	MAX	240000	MIN	45600	AC-FT	94762992
WTR YR 1984	TOTAL	42130400	MEAN	115100	MAX	207000	MIN	49000	AC-FT	83566000

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 National Geodetic Vertical Datum of 1929. Prior to Feb 10, 1960, at datum 0.24 ft lower.

REMARKS.--Records excellent. 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 above station for irrigation.

AVERAGE DISCHARGE.--35 years, 1,019 ft^3/s, 738,300 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 above base 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. 16	0100	11,400	10.84	Apr. 17	a1700	*24,900	b*14.98
Mar. 21	1800	15,000	12.34	May 4	1230	13,000	10.99
Apr. 6	1600	17,600	12.99	May 16	1300	17,000	12.54

Minimum, 220 ft^3/s Oct. 1.

a Approximately.
b From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	288	685	1300	998	1120	7170	7760	6740	2210	605	366
2	256	292	655	1400	992	1690	7420	9720	6500	1840	600	404
3	273	296	660	1400	980	2560	7310	10800	6060	1810	645	399
4	304	304	670	1400	926	2110	7440	12300	5680	1720	580	417
5	324	312	665	1450	890	1640	9160	11300	5640	1610	600	408
6	316	312	680	1500	872	1470	14900	10300	5920	1510	615	395
7	316	316	710	1600	890	1650	12800	9240	6290	1440	565	382
8	316	312	986	1650	920	2340	11900	8920	6540	1370	525	382
9	292	320	1250	1650	962	3560	13100	9280	6390	1320	485	386
10	292	340	1410	1550	998	4690	10900	10100	5890	1240	458	395
11	292	344	1660	1480	1010	5560	9680	10300	5820	1150	444	374
12	284	348	2250	1330	1020	6440	8800	11700	6120	1030	426	354
13	292	372	2310	1310	1410	7020	9450	12700	5940	963	413	350
14	312	388	2060	1200	2230	7940	11200	13900	5920	903	404	350
15	296	376	3440	1050	3290	10400	15800	15000	5320	861	408	347
16	304	368	3470	818	2960	10200	20400	16400	5120	807	408	350
17	312	376	2730	690	2360	8870	22700	15100	4920	747	413	340
18	308	400	2110	665	2020	7660	22800	12300	4580	730	426	340
19	300	600	1810	645	1750	6850	20100	10900	4370	708	431	322
20	288	650	1500	645	1460	6640	16700	10300	4490	702	422	301
21	277	670	1220	806	1380	9980	14500	10200	4380	686	413	308
22	266	670	968	1040	1240	13400	13500	10200	4050	675	404	329
23	273	610	690	1170	1250	11700	13500	9870	3760	697	390	340
24	300	550	595	1170	1200	12100	14000	9700	3470	697	382	333
25	300	535	540	1140	1140	11100	12400	9370	3210	747	374	326
26	296	670	590	1350	1040	9180	10300	8920	2990	741	358	354
27	280	932	968	1440	1070	8850	9050	8390	2760	686	354	382
28	277	944	1350	1290	1080	7300	8340	7980	2570	655	358	374
29	277	812	1510	1190	1100	6600	7560	7510	2400	615	358	366
30	277	740	1470	1080	---	6340	7080	7150	2260	600	366	354
31	280	---	1200	1030	---	6990	---	6890	---	600	374	---
TOTAL	9011	14447	42812	37439	39438	203950	369960	324500	146100	32070	14004	10828
MEAN	291	482	1381	1208	1360	6579	12330	10470	4870	1035	452	361
MAX	324	944	3470	1650	3290	13400	22800	16400	6740	2210	645	417
MIN	231	288	540	645	872	1120	7080	6890	2260	600	354	301
AC-FT	17870	28660	84920	74260	78230	404500	733800	643600	289800	63610	27780	21480

CAL YR 1983	TOTAL	780477	MEAN	2138	MAX	15300	MIN	198	AC-FT	1548000
WTR YR 1984	TOTAL	1244559	MEAN	3400	MAX	22800	MIN	231	AC-FT	2469000

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 mi^2, 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, 1,128,000 acre-ft June 11, elevation, 2,670.47 ft; minimum, 912,400 acre-ft Oct. 10, elevation, 2,652.24 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 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2653.36	2653.05	2656.07	2661.72	2659.75	2660.28	2665.95	2663.37	2668.43	2670.00	2666.44	2660.79
2	2653.25	2653.06	2656.19	2661.56	2659.68	2660.33	2665.63	2663.57	2668.69	2670.01	2666.35	2660.61
3	2653.15	2653.14	2656.38	2661.40	2659.67	2660.52	2665.33	2663.94	2668.97	2670.01	2666.19	2660.42
4	2653.06	2653.21	2656.49	2661.27	2659.64	2660.66	2665.00	2664.43	2669.21	2670.01	2666.02	2660.24
5	2652.96	2653.31	2656.61	2661.10	2659.63	2660.70	2664.77	2664.86	2669.46	2670.01	2665.82	2660.08
6	2652.88	2653.39	2656.75	2660.95	2659.56	2660.66	2665.26	2665.07	2669.62	2669.97	2665.67	2659.86
7	2652.81	2653.44	2656.97	2660.80	2659.55	2660.63	2665.94	2665.13	2669.78	2669.92	2665.52	2659.68
8	2652.72	2653.49	2657.03	2660.67	2659.55	2660.82	2666.25	2665.10	2670.00	2669.85	2665.34	2659.58
9	2652.65	2653.56	2657.26	2660.62	2659.56	2661.09	2666.87	2665.04	2670.24	2669.80	2665.15	2659.41
10	2652.59	2653.69	2657.50	2660.65	2659.60	2661.56	2667.07	2665.11	2670.41	2669.71	2664.97	2659.29
11	2652.52	2653.77	2657.81	2660.59	2659.66	2661.98	2667.04	2665.23	2670.45	2669.60	2664.75	2659.15
12	2652.42	2653.85	2658.22	2660.50	2659.68	2662.39	2666.98	2665.49	2670.46	2669.53	2664.56	2659.03
13	2652.38	2653.90	2658.66	2660.43	2659.83	2662.90	2666.79	2665.99	2670.45	2669.40	2664.33	2658.89
14	2652.34	2653.93	2659.09	2660.35	2660.04	2663.24	2666.86	2666.64	2670.41	2669.30	2664.14	2658.75
15	2652.31	2654.03	2659.62	2660.26	2660.49	2664.09	2667.30	2667.45	2670.32	2669.12	2663.96	2658.67
16	2652.29	2654.13	2660.23	2660.13	2661.08	2664.81	2668.18	2668.27	2670.28	2668.98	2663.75	2658.56
17	2652.29	2654.23	2660.80	2659.98	2661.17	2665.23	2668.74	2668.94	2670.21	2668.89	2663.57	2658.46
18	2652.26	2654.30	2661.21	---	2661.15	2665.44	2669.43	2669.16	2670.16	2668.68	2663.34	2658.34
19	2652.25	2654.39	2661.61	---	2661.08	2665.28	2669.88	2669.18	2670.14	2668.50	2663.15	2658.22
20	2652.25	2654.45	2661.82	---	2660.99	2665.07	2669.76	2668.96	2670.25	2668.32	2662.96	2658.09
21	2652.25	2654.60	2662.05	---	2660.93	2665.50	2669.08	2668.78	2670.15	2668.13	2662.74	2657.99
22	2652.31	2654.73	2662.25	---	2660.82	2666.28	2668.12	2668.57	2670.07	2667.94	2662.51	2657.85
23	2652.38	2654.85	2662.39	---	2660.70	2666.77	2667.30	2668.31	2670.00	2667.81	2662.36	2657.74
24	2652.43	2655.06	2662.50	2659.67	2660.64	2667.14	2666.54	2668.11	2670.03	2667.64	2662.17	2657.64
25	2652.51	2655.13	2662.65	2659.75	2660.56	2667.54	2665.80	2668.03	2670.04	2667.52	2661.95	2657.55
26	2652.56	2655.27	2662.76	2659.81	2660.46	2667.60	2665.32	2668.02	2670.05	2667.37	2661.77	2657.46
27	2652.64	2655.38	2662.66	2659.82	2660.39	2667.61	2664.76	2668.01	2670.01	2667.27	2661.57	2657.35
28	2652.72	2655.58	2662.44	2659.85	2660.35	2667.34	2664.14	2668.08	2670.01	2667.12	2661.36	2657.29
29	2652.77	2655.74	2662.31	2659.83	2660.29	2666.99	2663.61	2668.16	2669.99	2666.97	2661.16	2657.20
30	2652.87	2655.91	2662.16	2659.83	---	2666.60	2663.38	2668.07	2669.99	2666.80	---	2657.12
31	2652.93	---	2661.94	2659.79	---	2666.27	---	2668.26	---	2666.65	2660.79	---
MEAN	2652.62	2654.22	2659.76	---	2660.22	2663.98	2666.57	2666.82	2669.94	2668.74	---	2658.71
MAX	2653.36	2655.91	2662.76	---	2661.17	2667.61	2669.88	2669.18	2670.46	2670.01	---	2660.79
MIN	2652.25	2653.05	2656.07	---	2659.55	2660.28	2663.38	2663.37	2668.43	2666.65	---	2657.12
(†)	919900	952900	1023000	997300	1003000	1075000	1040000	1100000	1122000	1080000	1009000	966600
(‡)	-5800	+33000	+70100	-25700	+5700	+72000	-35000	+60000	+22000	-42000	-71000	-42400

CAL YR 1983 MEAN 2662.13 MAX 2670.69 MIN 2652.25 AC-FT‡ +58600
WTR YR 1984 MEAN --- MAX --- MIN --- AC-FT‡ +40900

† 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.--Records excellent except those for March, which are good. Flow regulated since October 1932 by Lake Owyhee (see sta 13182500), and by many smaller reservoirs. Diversion of 438,000 acre-ft from Lake Owyhee during the year for irrigation of lands below station and outside the basin. Many smaller diversions above Lake Owyhee for irrigation above station.

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

AVERAGE DISCHARGE.--52 years (water years 1933-84), 430 ft^3/s, 311,500 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, 19,800 ft^3/s Apr. 17, gage height, 14.73 ft; minimum, 3.3 ft^3/s Nov. 20, 21, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	29	4.0	3420	1490	1460	10200	6770	4240	428	163	143
2	110	114	3.7	3480	1410	1490	10300	6920	3590	270	161	149
3	110	28	3.7	3590	1340	1760	10300	7700	3170	213	173	149
4	112	5.6	3.7	3510	1300	1990	10300	8320	2930	215	173	149
5	112	5.4	3.7	3520	1250	2160	10300	8400	2820	213	173	149
6	112	5.4	5.2	3710	1220	2180	10400	8540	3340	185	175	153
7	112	5.2	7.0	3380	1010	2190	10400	8600	3850	168	165	157
8	112	5.4	7.0	3080	1040	2260	10400	8480	3900	168	163	157
9	112	5.6	7.3	1990	1160	2380	10400	8460	3780	168	157	157
10	116	5.6	7.3	1700	910	3120	10400	8480	3880	168	157	141
11	118	6.2	7.8	2300	770	3990	10400	8580	4440	168	157	141
12	118	5.8	8.0	2100	825	4800	10400	8480	4980	168	157	141
13	120	5.6	8.3	2000	946	5210	10400	8660	5240	168	157	141
14	118	6.0	8.5	1970	1250	6470	10400	8600	5230	168	159	139
15	118	5.8	9.5	1870	636	8020	10600	8680	5040	168	155	139
16	118	5.6	8.5	1670	608	9960	12700	9840	4250	168	159	139
17	118	5.0	9.0	1690	2590	9720	17600	10500	3810	159	159	139
18	118	4.7	9.8	1620	2670	9540	17800	10600	3600	159	157	141
19	118	3.7	9.0	1400	2560	9720	17800	10500	2880	168	157	155
20	118	3.6	8.8	994	2440	10000	18000	10500	2890	168	157	135
21	84	3.4	8.8	1160	2340	10100	17900	10600	3560	168	157	117
22	66	3.4	9.0	1090	2230	10100	17900	10400	3370	168	157	117
23	66	3.4	9.0	922	2030	10000	17900	10500	2850	168	157	119
24	65	3.9	9.0	958	1940	10000	17700	10000	2150	168	157	115
25	65	3.7	10	1370	1870	10200	17200	8900	1720	168	153	102
26	65	3.6	349	1520	1710	10300	13200	8120	1600	165	153	107
27	30	3.6	1340	1520	1620	10200	12200	7580	1540	165	159	115
28	6.0	3.6	2100	1600	1550	10200	11700	6560	1250	163	149	109
29	6.2	3.4	2460	1620	1510	10200	10500	6500	1020	161	147	107
30	6.0	3.7	2570	1600	---	10100	8140	6290	468	163	149	105
31	6.2	---	3130	1540	---	10100	---	4440	---	163	143	---
TOTAL	2765.4	296.9	12134.6	63894	44225	209920	383840	265500	97388	5678	4915	4027
MEAN	89.2	9.90	391	2061	1525	6772	12790	8565	3246	183	159	134
MAX	120	114	3130	3710	2670	10300	18000	10600	5240	428	175	157
MIN	6.0	3.4	3.7	922	608	1460	8140	4440	468	159	143	102
AC-FT	5490	589	24070	126700	87720	416400	761300	526600	193200	11260	9750	7990
MEAN†	388	564	1532	1643	1624	7943	12740	10670	4895	977	439	380
AC-FT†	23860	33590	94170	101000	93420	488400	758200	656300	291300	60100	27000	22630

CAL YR 1983 TOTAL 586297.3 MEAN 1606 MAX 11300 MIN 3.3 AC-FT 1163000 MEAN† 2306 AC-FT† 1670000
WTR YR 1984 TOTAL 1094583.9 MEAN 2991 MAX 18000 MIN 3.4 AC-FT 2171000 MEAN† 3660 AC-FT† 2650000

† 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. Altitude of gage is 2,190 ft, from topographic map.

REMARKS.--Water-discharge records excellent. Flow regulated since October 1932 by Lake Owyhee (see station 13182500), and smaller reservoirs. Diversions from Lake Owyhee for irrigation of lands above station and outside the basin. Many smaller diversions above 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, 19,100 ft^3/s Apr. 17, gage height, 15.85 ft; minimum, 48 ft^3/s Oct. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	62	54	3320	1490	1570	10100	6260	4050	443	116	84
2	56	66	53	3150	1420	1570	10200	6180	3670	409	121	79
3	56	147	54	3540	1360	1690	10300	6650	3050	220	114	82
4	53	90	53	3360	1300	1950	10300	7260	2930	205	123	84
5	53	63	52	3210	1250	2170	10300	7390	2730	199	123	79
6	55	59	53	3650	1210	2230	10400	7430	2970	180	120	77
7	55	57	53	3370	1150	2230	10300	7610	3670	162	115	77
8	55	50	53	3090	863	2280	10300	7420	3630	149	107	77
9	56	51	58	2570	1120	2330	10200	7420	3620	141	114	78
10	57	54	61	1440	1050	2840	10200	7530	3610	144	116	80
11	59	58	67	2240	733	3640	10400	7500	3930	134	110	69
12	58	58	75	2130	783	4520	10000	7600	4520	135	109	72
13	60	59	68	2030	864	5010	10100	7530	4840	133	105	71
14	60	56	68	1970	1090	5670	10200	7630	4890	134	109	72
15	58	56	69	1900	1170	6890	10200	7680	4780	130	102	67
16	58	56	66	1780	142	9770	11000	8380	4310	130	101	66
17	57	57	63	1610	2020	10100	17500	9570	3600	130	102	66
18	53	56	62	1740	2670	9750	18600	9720	3540	124	102	66
19	53	57	62	1510	2600	9720	18300	9590	3400	123	101	62
20	63	56	62	1170	2500	10200	18400	9650	2770	131	102	79
21	63	54	59	1120	2400	10300	18300	9720	3260	134	102	65
22	68	53	57	1110	2310	10400	18200	9550	3240	139	98	59
23	54	53	53	1030	2150	10100	18200	9650	3000	142	96	58
24	49	58	50	841	2020	10400	18100	9270	2190	127	93	58
25	72	56	80	1280	1970	10100	17700	8300	1810	122	91	60
26	93	53	115	1470	1850	10400	13900	7200	1570	120	85	58
27	71	53	972	1530	1730	10300	11400	6910	1540	120	85	55
28	63	52	2110	1530	1660	10200	11000	6080	1330	120	87	58
29	62	52	2450	1580	1620	10300	10000	5910	1100	125	87	61
30	62	52	2520	1570	---	10200	8060	5920	686	121	82	59
31	62	---	2800	1540	---	10200	---	4610	---	118	98	---
TOTAL	1851	1804	12472	63381	44495	209030	382160	239120	94236	4944	3216	2078
MEAN	59.7	60.1	402	2045	1534	6743	12740	7714	3141	159	104	69.3
MAX	93	147	2800	3650	2670	10400	18600	9720	4890	443	123	84
MIN	49	50	50	841	142	1570	8060	4610	686	118	82	55
AC-FT	3670	3580	24740	125700	88260	414600	758000	474300	186900	9810	6380	4120

CAL YR 1983	TOTAL	593216	MEAN	1625	MAX	11900	MIN	49	AC-FT	1177000
WTR YR 1984	TOTAL	1058787	MEAN	2893	MAX	18600	MIN	49	AC-FT	2100000

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (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											
31...	1215	65	1130	8.3	12.0	10.0	K310	K3000	290	0	79
DEC											
27...	1315	1500	420	8.0	.0	--	--	--	130	0	36
FEB											
28...	1300	1650	254	8.1	4.0	11.2	K240	K200	73	0	20
APR											
09...	1530	10200	216	8.2	7.0	11.8	15	110	65	0	18
JUN											
11...	1400	3760	156	8.1	16.0	8.1	60	70	50	0	14
AUG											
06...	1240	125	505	8.1	21.5	7.2	K1500	K8600	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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT											
31...	22	140	9.5	289	240	42	1.2	.070	3.4	1.7	.12
DEC											
27...	8.8	42	4.0	127	62	15	1.0	.180	.71	2.7	.06
FEB											
28...	5.6	23	3.1	89	24	7.3	.70	.040	.37	.70	.12
APR											
09...	4.9	19	3.4	81	20	6.4	.70	.050	.34	.50	.31
JUN											
11...	3.7	11	2.6	58	15	4.4	.30	.070	.30	.60	.18
AUG											
06...	11	56	6.1	155	87	16	.80	.060	2.0	1.0	.31

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	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)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
31...	.040	.080	45	785	750	138	13	46	8.1	62
DEC										
27...	.010	--	27	269	270	1090	130	--	--	--
FEB										
28...	.050	.070	23	177	160	789	16	10	42	82
APR										
09...	.080	.270	25	152	150	4190	24	21	565	74
JUN										
11...	.070	.150	24	132	110	1340	70	42	426	--
AUG										
06...	.090	.220	30	354	340	119	70	68	23	97

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										
31...	10	45	54	<.5	<1	<1	<3	2	17	1
FEB										
28...	220	5	31	<.5	<1	<1	<3	3	160	2
APR										
09...	270	3	34	.6	1	<1	<3	4	320	<1
AUG										
06...	120	18	45	2.0	3	3	<3	11	81	3

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										
31...	110	41	.1	10	5	4	<1	310	27	7
FEB										
28...	15	6	<.1	<10	7	<1	<1	100	<6	6
APR										
09...	11	5	<.1	<10	2	<1	<1	89	<6	15
AUG										
06...	46	28	<.1	10	8	2	<1	180	15	14

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.--Records good except those for December and January, which are poor. Slight regulation by small reservoirs upstream from station. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--58 years (water years 1927-84), 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 above base 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)
Jan. 25	1200	1,140	6.24	Apr. 8	2100	2,000	7.46
Feb. 13	2100	1,040	5.94	Apr. 17	1430	2,200	7.74
Mar. 14	0730	2,620	8.91	May 2	0900	1,510	6.67
Mar. 21	1100	*3,310	*9.11	May 15	1100	1,520	6.69

Minimum, 18 ft^3/s Aug. 20, 21, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	96	107	180	287	235	1290	1060	768	320	77	68
2	77	97	120	120	258	369	1300	1370	724	283	83	60
3	75	100	128	148	248	394	1260	1240	664	258	85	50
4	75	105	116	192	238	331	1360	1300	656	235	85	44
5	75	105	114	206	250	317	1620	1240	772	226	79	41
6	74	105	126	200	243	373	1700	1180	716	202	70	41
7	74	107	166	190	223	516	1450	1090	732	182	69	42
8	74	107	338	190	228	723	1700	1070	648	174	69	47
9	74	105	296	190	235	1150	1620	1120	578	172	62	58
10	75	105	415	190	230	1350	1330	1180	599	162	60	64
11	78	116	464	190	220	1410	1170	1240	540	150	58	64
12	80	144	387	190	196	1360	1100	1410	547	140	51	51
13	80	146	305	190	376	1510	1100	1390	522	135	38	49
14	84	146	422	190	747	2260	1160	1430	473	142	54	67
15	88	144	300	190	513	2250	1540	1500	442	133	41	74
16	88	142	220	170	436	1870	1860	1340	388	127	29	68
17	88	260	240	160	352	1860	2020	1160	382	119	26	73
18	88	245	270	160	287	1580	2050	1040	385	116	24	75
19	88	162	220	230	248	1680	2030	950	388	122	21	74
20	88	144	170	230	266	2160	1820	937	382	127	19	75
21	89	120	130	230	287	2870	1640	960	406	119	18	77
22	89	96	120	260	275	2020	1640	937	424	113	19	78
23	91	118	110	250	287	1810	1730	914	373	111	19	79
24	96	136	150	266	284	1790	1700	928	358	122	20	83
25	97	168	200	807	272	1610	1530	865	350	138	20	90
26	97	162	250	723	228	1540	1360	848	353	82	21	90
27	96	148	220	544	225	1480	1240	796	367	85	21	90
28	96	144	200	439	225	1310	1150	764	382	85	20	98
29	96	140	250	390	228	1290	1010	736	370	79	18	93
30	96	116	260	334	---	1200	965	740	355	85	24	95
31	94	---	250	317	---	1280	---	788	---	81	61	---
TOTAL	2635	4029	7064	8266	8392	41898	44445	33523	15044	4625	1361	2058
MEAN	85.0	134	228	267	289	1352	1482	1081	501	149	43.9	68.6
MAX	97	260	464	807	747	2870	2050	1500	772	320	85	98
MIN	74	96	107	120	196	235	965	736	350	79	18	41
AC-FT	5230	7990	14010	16400	16650	83100	88160	66490	29840	9170	2700	4080

CAL YR 1983	TOTAL	173775	MEAN	476	MAX	2850	MIN	22	AC-FT	344700
WTR YR 1984	TOTAL	173340	MEAN	474	MAX	2870	MIN	18	AC-FT	343800

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 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, 191,600 acre-ft June 7, elevation, 3,406.13 ft; minimum, 113,100 acre-ft Sept. 30, elevation, 3,386.79 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 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3390.25	3390.80	3393.29	3391.67	3391.01	3393.48	3401.29	3403.05	3406.00	3404.97	3399.03	---
2	3390.20	3390.86	3393.36	3391.42	3391.00	3393.72	3401.17	3403.28	3406.06	3404.84	3398.84	---
3	3390.16	3390.93	3393.48	3391.18	3391.02	3393.95	3401.03	3403.46	3406.05	3404.66	3398.64	---
4	3390.12	3390.98	3393.54	3390.97	3391.09	3394.15	3401.01	3403.70	3406.01	3404.51	3398.48	---
5	3390.08	3391.05	3393.60	3390.75	3391.17	3394.33	3401.16	3403.88	3406.07	3404.34	3398.30	---
6	3390.04	3391.11	3393.73	3390.57	3391.22	3394.53	3401.33	3404.00	3406.11	3404.20	3398.10	---
7	3390.01	3391.16	3393.85	3390.36	3391.35	3394.80	3401.36	3404.09	3406.11	3404.04	3397.91	---
8	3389.98	3391.19	3394.04	3390.17	3391.49	3395.21	3401.47	3404.19	3406.05	3403.88	3397.68	---
9	3389.94	3391.25	3394.27	3390.06	3391.66	3395.79	3401.64	3404.33	3406.00	3403.73	3397.45	---
10	3389.91	3391.36	3394.51	3390.11	3391.78	3396.60	3401.60	3404.47	3405.97	3403.47	3397.23	---
11	3389.89	3391.42	3394.86	3390.18	3391.92	3397.42	3401.61	3404.51	3405.96	3403.17	3397.00	---
12	3389.85	3391.55	3395.01	3390.23	3392.06	3398.13	3401.70	3404.54	3405.96	3403.04	3396.73	---
13	3389.84	3391.62	3395.07	3390.24	3392.37	3398.91	3401.86	3404.49	3405.96	3402.82	3396.50	---
14	3389.84	3391.70	3395.28	3390.21	3392.87	3400.15	3402.04	3404.49	3405.94	3402.56	3396.25	---
15	3389.89	3391.77	3395.37	3390.14	3393.21	3401.18	3402.45	3404.50	3405.91	3402.37	3395.97	---
16	3389.94	3391.84	3395.33	3390.07	3393.28	3401.72	3403.00	3404.44	3405.87	3402.24	---	---
17	3390.00	3392.00	3395.20	3389.99	3393.19	3402.06	3403.49	3404.40	3405.85	3402.05	---	---
18	3390.03	3392.15	3395.09	3389.91	3393.05	3402.05	3403.91	3404.31	3405.81	3401.83	---	---
19	3390.07	3392.27	3394.90	3389.83	3392.88	3402.06	3404.17	3404.25	3405.73	3401.64	---	3388.16
20	3390.12	3392.35	3394.66	3389.76	3392.81	3402.40	3404.18	3404.28	3405.67	3401.44	---	3387.99
21	3390.17	3392.43	3394.40	3389.69	3392.84	3402.94	3404.09	3404.41	3405.62	3401.23	---	3387.86
22	3390.25	3392.49	3394.13	3389.64	3392.87	3402.77	3404.04	3404.74	3405.60	3401.02	---	3387.74
23	3390.31	3392.57	3393.82	3389.57	3392.91	3402.55	3404.04	3404.87	3405.60	3400.84	---	3387.59
24	3390.37	3392.68	3393.59	3389.79	3392.94	3402.42	3404.03	3405.04	3405.58	3400.68	---	3387.47
25	3390.43	3392.77	3393.32	3390.22	3392.97	3402.27	3403.92	3405.16	3405.54	3400.52	---	3387.36
26	3390.48	3392.87	3393.06	3390.37	3392.98	3402.13	3403.78	3405.27	3405.42	3400.28	---	3387.30
27	3390.53	3392.95	3392.81	3390.77	3393.05	3402.05	3403.60	3405.36	3405.39	3400.09	---	3387.12
28	3390.57	3393.04	3392.57	3390.87	3393.19	3401.90	3403.35	3405.42	3405.35	3399.87	---	3386.94
29	3390.63	3393.11	3392.37	3390.94	3393.33	3401.75	3403.07	3405.57	3405.24	3399.67	---	3386.88
30	3390.68	3393.22	3392.12	3390.97	---	3401.57	3402.99	3405.70	3405.11	3399.47	---	3386.79
31	3390.74	---	3391.91	3391.01	---	3401.43	---	3405.84	---	3399.24	3391.69	---
MEAN	3390.17	3391.92	3393.95	3390.38	3392.33	3399.24	3402.61	3404.52	3405.78	3402.22	---	---
MAX	3390.74	3393.22	3395.37	3391.67	3393.33	3402.94	3404.18	3405.84	3406.11	3404.97	---	---
MIN	3389.84	3390.80	3391.91	3389.57	3391.00	3393.48	3401.01	3403.05	3405.11	3399.24	---	---
(†)	127300	136700	131700	128300	137200	170600	177500	190200	186900	161200	130900	113100
(‡)	+1600	+9400	-5000	-3400	+8900	+33400	+6900	+12700	-3300	-25700	-30300	-17800

CAL YR 1983 AC-FT‡ -10500
WTR YR 1984 AC-FT‡ -12600

† 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. Altitude of gage is 3,305 ft, by barometer. See WSP 1317 or 1737 for history of changes prior to Sept. 29, 1949.

REMARKS.--Records excellent. Flow completely regulated since November 1919 by Warmsprings Reservoir (see station 13214500). Diversions for irrigation above station.

AVERAGE DISCHARGE.--65 years (water years 1920-84), 191 ft^3/s, 138,400 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, 3,150 ft^3/s Mar. 22, gage height, 9.70 ft (high-water mark); mininum, 0.10 ft^3/s Oct. 14, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	.37	.40	571	313	.40	1660	1010	430	595	479	457
2	160	.37	.40	567	313	.40	1660	1010	613	590	466	430
3	143	.37	.40	567	244	.40	1650	1010	693	609	457	430
4	135	.37	.40	567	139	.40	1480	1020	693	576	457	412
5	135	.37	.40	567	139	.40	1530	1020	599	552	461	376
6	135	.37	.40	562	139	.40	1660	1010	641	534	457	367
7	135	.37	.40	562	51	.40	1660	1010	735	493	461	385
8	135	.37	.40	562	.40	.40	1660	918	749	475	466	421
9	135	.37	.40	376	.40	257	1670	866	660	497	466	421
10	135	.37	.40	143	.40	475	1620	1010	627	506	466	421
11	139	.37	.40	143	.40	479	1290	1300	571	506	475	380
12	135	.37	127	143	.40	479	964	1550	543	502	488	344
13	139	.37	235	231	.40	660	876	1710	543	502	484	331
14	40	.37	362	308	.40	1210	880	1710	543	497	488	331
15	.34	.37	466	308	190	1610	880	1710	538	497	506	326
16	.34	.40	466	308	515	1680	1100	1610	470	497	515	326
17	.34	.40	466	308	557	1790	1530	1430	434	497	515	326
18	.34	.37	461	308	552	1910	1750	1360	493	502	515	322
19	.37	.40	524	308	552	1880	2020	1120	534	479	511	322
20	.37	.40	581	308	416	2100	2190	894	534	479	511	322
21	.37	.37	581	308	286	2650	2120	665	502	484	515	304
22	.37	.37	576	308	256	3030	2020	308	502	488	511	295
23	.37	.40	576	308	256	2650	2010	674	448	475	511	295
24	.37	.40	576	308	256	2410	2020	613	452	466	511	282
25	.37	.40	576	308	256	2190	2030	618	452	470	506	273
26	.37	.40	571	308	256	2020	1840	613	452	470	506	273
27	.37	.40	571	308	87	1920	1720	613	448	470	511	256
28	.37	.40	571	308	.40	1800	1700	613	484	470	511	240
29	.37	.40	571	313	.40	1710	1690	484	562	475	511	235
30	.37	.40	571	313	---	1670	1220	421	595	475	502	235
31	.37	---	571	313	---	1670	---	430	---	475	493	---
TOTAL	1867.17	11.46	10003.40	11120	5776.60	38253.20	48100	30330	16540	15603	15232	10138
MEAN	60.2	.38	323	359	199	1234	1603	978	551	503	491	338
MAX	160	.40	581	571	557	3030	2190	1710	749	609	515	457
MIN	.34	.37	.40	143	.40	.40	876	308	430	466	457	235
AC-FT	3700	23	19840	22060	11460	75880	95410	60160	32810	30950	30210	20110

CAL YR 1983	TOTAL 209047.03	MEAN 573	MAX 2590	MIN .34	AC-FT 414600					
WTR YR 1984	TOTAL 202974.83	MEAN 555	MAX 3030	MIN .34	AC-FT 402600					

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

LOCATION.--Lat 43°57'01", long 118°10'28", in NW¼NE¼ sec.4, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 500 ft upstream from Beulah Reservoir, 2.5 mi upstream from Warm Springs Creek, 3.5 mi northwest of Beulah, and at mile 18.0.

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. Datum of gage is 3,349.4 ft National Geodetic Vertical Datum of 1929. 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 present site at datum 1.6 ft higher.

REMARKS.--Records good except those for January, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--48 years (water years 1937-84), 139 ft^3/s, 100,700 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 above base 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)
Mar. 9	1930	1,300	5.38	Apr. 19	0030	1,340	5.58
Mar. 14	1800	1,600	5.92	May 1	2130	980	4.95
Mar. 21	0400	*1,630	*5.98	May 14	1330	1,130	5.29
Apr. 8	1130	1,270	5.40	May 31	1400	953	5.02

Minimum, 22 ft^3/s Jan. 16, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	78	76	60	93	119	700	766	860	240	103	127
2	71	91	72	60	90	174	684	766	733	223	96	93
3	71	93	76	65	80	184	673	739	630	209	91	88
4	71	93	86	66	90	167	755	739	635	198	88	86
5	68	81	73	66	95	161	849	706	620	191	83	81
6	66	91	93	66	98	209	926	656	600	181	86	73
7	66	91	156	66	98	272	821	625	565	170	83	81
8	68	78	161	63	103	372	1140	640	510	167	78	88
9	76	81	127	60	103	772	948	733	455	161	71	86
10	78	96	170	56	98	761	865	777	427	150	68	78
11	73	158	167	52	91	777	755	865	384	144	66	78
12	71	121	147	51	101	810	733	931	380	141	61	76
13	76	103	130	50	174	882	689	992	352	135	61	66
14	86	91	158	43	244	1290	733	1120	348	133	61	73
15	76	98	138	40	195	1100	942	1070	324	133	59	76
16	73	106	76	39	174	920	1170	931	336	130	59	73
17	73	156	83	34	156	926	1310	794	352	124	56	81
18	71	116	93	29	111	761	1290	706	356	116	56	68
19	71	101	93	29	113	942	1240	689	352	119	56	71
20	68	91	68	37	150	1130	1090	739	356	113	52	73
21	68	61	50	50	158	1380	1030	777	364	113	52	81
22	71	54	28	65	133	1060	1060	733	340	111	54	78
23	91	106	28	100	127	1030	1120	750	308	106	52	83
24	76	113	28	160	121	992	1070	761	288	124	52	83
25	73	111	45	250	119	860	953	733	276	113	48	81
26	71	101	70	200	88	843	849	733	288	103	48	83
27	71	101	60	150	113	750	755	678	292	106	56	76
28	71	98	52	125	103	684	700	673	288	101	66	83
29	71	78	52	100	103	585	645	689	276	101	63	83
30	73	88	60	100	---	575	630	832	260	98	106	83
31	78	---	60	98	---	662	---	948	---	98	184	---
TOTAL	2258	2925	2776	2430	3522	22150	27125	24291	12555	4352	2215	2430
MEAN	72.8	97.5	89.5	78.4	121	715	904	784	419	140	71.5	81.0
MAX	91	158	170	250	244	1380	1310	1120	860	240	184	127
MIN	66	54	28	29	80	119	630	625	260	98	48	66
AC-FT	4480	5800	5510	4820	6990	43930	53800	48180	24900	8630	4390	4820

CAL YR 1983	TOTAL	101876	MEAN	279	MAX	1340	MIN	28	AC-FT	202100
WTR YR 1984	TOTAL	109029	MEAN	298	MAX	1380	MIN	28	AC-FT	216300

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 mi^2, 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 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, 60,550 acre-ft June 1, gage height, 3,340.33 ft; minimum, 18,010 acre-ft Oct. 14, gage height, 3,311.06 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 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3314.43	3313.74	3318.98	3324.46	3326.04	3331.78	3335.74	3338.83	3340.24	3339.74	3332.03	3321.75
2	3314.14	3313.91	3319.12	3324.59	3326.19	3331.99	3335.87	3339.07	3340.17	3339.65	3331.74	3321.46
3	3313.87	3314.10	3319.28	3324.75	3326.37	3332.22	3335.98	3339.00	3340.01	3339.53	3331.44	3321.16
4	3313.59	3314.26	3319.43	3324.90	3326.54	3332.42	3336.10	3338.96	3339.84	3339.41	3331.10	3320.85
5	3313.31	3314.41	3319.57	3325.05	3326.71	3332.64	3336.32	3339.03	3339.84	3339.29	3330.79	3320.57
6	3313.01	3314.57	3319.75	3325.21	3326.88	3332.87	3336.61	3339.11	3339.92	3339.14	3330.46	3320.32
7	3312.71	3314.73	3319.98	3325.36	3327.02	3333.16	3336.82	3339.18	3339.99	3338.94	3330.17	3320.14
8	3312.40	3314.87	3320.26	3325.51	3327.19	3333.53	3337.21	3339.31	3340.02	3338.71	3329.87	3320.02
9	3312.11	3315.02	3320.50	3325.61	3327.37	3334.10	3337.65	3339.47	3340.00	3338.48	3329.52	3319.88
10	3311.83	3315.21	3320.75	3325.60	3327.54	3334.94	3337.93	3339.64	3340.00	3338.26	3329.16	3319.73
11	3311.57	3315.44	3321.07	3325.56	3327.68	3335.79	3338.10	3339.78	3339.94	3338.03	3328.79	3319.57
12	3311.36	3315.66	3321.37	3325.51	3327.86	3336.58	3338.22	3339.84	3339.92	3337.77	3328.41	3319.41
13	3311.17	3315.85	3321.61	3325.48	3328.07	3337.11	3338.30	3339.87	3339.94	3337.50	3328.03	3319.26
14	3311.12	3316.01	3321.89	3325.43	3328.43	3337.68	3338.40	3339.89	3339.94	3337.25	3327.66	3319.10
15	3311.26	3316.18	3322.16	3325.37	3328.75	3337.91	3338.62	3339.94	3339.91	3337.01	3327.29	3318.96
16	3311.40	3316.37	3322.33	3325.29	3329.07	3337.77	3339.01	3339.85	3339.92	3336.76	3326.92	3318.83
17	3311.56	3316.63	3322.46	3325.19	3329.31	3337.63	3339.46	3339.65	3340.00	3336.50	3326.55	3318.69
18	3311.70	3316.84	3322.62	3325.12	3329.50	3337.33	3339.73	3339.45	3340.10	3336.21	3326.21	3318.54
19	3311.84	3317.04	3322.77	3325.07	3329.66	3337.10	3339.65	3339.24	3340.08	3335.90	3325.87	3318.38
20	3311.99	3317.24	3322.88	3324.99	3329.86	3337.22	3339.43	3339.15	3340.01	3335.57	3325.52	3318.19
21	3312.13	3317.37	3322.98	3324.98	3330.13	3337.66	3339.28	3339.10	3340.00	3335.24	3325.19	3318.00
22	3312.27	3317.48	3323.06	3325.02	3330.33	3337.67	3339.15	3339.16	3340.05	3334.94	3324.85	3317.80
23	3312.45	3317.64	3323.10	3325.08	3330.54	3337.47	3339.02	3339.17	3340.08	3334.67	3324.52	3317.61
24	3312.60	3317.87	3323.20	3325.20	3330.74	3337.25	3338.85	3339.23	3340.08	3334.42	3324.18	3317.44
25	3312.74	3318.06	3323.34	3325.43	3330.93	3336.89	3338.74	3339.37	3340.06	3334.18	3323.84	3317.26
26	3312.88	3318.23	3323.54	3325.70	3331.08	3336.56	3338.67	3339.54	3340.01	3333.88	3323.50	3317.14
27	3313.02	3318.40	3323.71	3325.82	3331.23	3336.32	3338.61	3339.68	3339.98	3333.58	3323.15	3317.03
28	3313.17	3318.55	3323.82	3325.89	3331.41	3336.03	3338.62	3339.80	3339.96	3333.25	3322.80	3316.90
29	3313.30	3318.69	3323.99	3325.95	3331.60	3335.95	3338.63	3339.93	3339.88	3332.95	3322.47	3316.77
30	3313.45	3318.84	3324.18	3325.98	---	3335.81	3338.65	3340.02	3339.79	3332.67	3322.14	3316.65
31	3313.59	---	3324.33	3326.00	---	3335.65	---	3340.12	---	3332.34	3321.95	---
MEAN	3312.52	3316.31	3321.87	3325.33	3328.76	3335.65	3338.11	3339.46	3339.99	3336.51	3326.97	3318.91
MAX	3314.43	3318.84	3324.33	3326.00	3331.60	3337.91	3339.73	3340.12	3340.24	3339.74	3332.03	3321.75
MIN	3311.12	3313.74	3318.98	3324.46	3326.04	3331.78	3335.74	3338.83	3339.79	3332.34	3321.95	3316.65
(†)	20660	26810	34070	36480	45090	51960	57390	60150	59520	46300	30800	24150
(‡)	-1250	+6150	+7260	+2410	+8610	+6870	+5430	+2760	-630	-13220	-15500	-6650

CAL YR 1983 MEAN 3329.24 MAX 3340.34 MIN 3311.12 AC-FT‡ +2430
WTR YR 1984 MEAN 3328.36 MAX 3340.24 MIN 3311.12 AC-FT‡ +2240

† 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.--Records excellent except those less than 10 ft^3/s which are good. Flow regulated since 1935 by Beulah Reservoir (see sta 13217000). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--49 years (water years 1936-84), 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, 1,370 ft^3/s Apr. 18, gage height, 5.64 ft; minimum, 0.20 ft^3/s Oct. 31, Nov. 1, 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	243	.20	.75	.63	60	4.1	518	446	698	324	336	282
2	243	.27	.75	.75	2.7	4.6	522	675	779	324	339	282
3	243	.27	.75	.75	2.7	5.1	522	734	774	324	339	282
4	240	.27	.75	.75	2.7	5.6	526	614	675	321	339	270
5	240	.27	.75	.90	2.7	5.6	530	538	506	318	336	233
6	240	.27	.75	.90	2.7	5.6	534	538	462	321	321	193
7	240	.27	.75	.90	2.7	6.1	538	474	462	354	315	182
8	240	.27	.75	1.1	2.7	6.1	546	422	462	366	333	173
9	240	.33	.75	94	2.7	6.7	554	430	462	363	342	173
10	235	.40	.75	148	2.7	7.2	558	506	458	360	345	173
11	208	.63	.90	150	2.7	7.8	562	653	446	357	345	171
12	193	.52	.90	142	2.7	153	566	801	394	354	342	171
13	167	.52	.75	129	3.2	554	566	819	372	354	342	171
14	52	.52	.90	129	3.6	1020	566	833	406	351	342	171
15	.90	.52	.90	129	4.6	1310	570	930	354	345	339	171
16	.63	.63	.90	129	4.6	1220	578	985	285	342	339	171
17	.52	.75	.75	129	5.1	1160	716	915	273	342	321	171
18	.52	.52	.75	129	5.1	1070	1040	869	288	357	306	171
19	.63	.63	.75	131	5.1	1030	1330	747	387	381	306	171
20	1.1	.75	.63	129	4.6	1040	1170	711	360	378	306	182
21	.90	.63	.63	119	4.6	1150	1070	653	330	360	303	182
22	.63	.63	.52	86	4.1	1190	1060	622	327	348	300	184
23	.90	.63	.33	86	4.1	1190	1060	622	330	348	300	184
24	.75	.90	.33	86	3.6	1180	995	562	330	345	297	184
25	.63	.75	.33	86	4.1	1160	887	490	327	348	297	182
26	.52	.75	.33	115	4.6	1080	797	490	330	348	294	150
27	.52	.75	.33	138	4.6	990	666	494	330	348	294	156
28	.40	.75	.33	138	4.1	891	574	494	327	351	291	159
29	.33	.75	.40	138	4.1	620	566	502	327	348	285	159
30	.33	.75	.52	138	---	824	458	598	324	354	285	159
31	.33	---	.63	138	---	635	---	644	---	345	285	---
TOTAL	3034.54	16.10	20.31	2842.68	163.5	19531.5	21145	19811	12585	10779	9864	5663
MEAN	97.9	.54	.66	91.7	5.64	630	705	639	420	348	318	189
MAX	243	.90	.90	150	60	1310	1330	985	779	381	345	282
MIN	.33	.20	.33	.63	2.7	4.1	458	422	273	318	285	150
AC-FT	6020	32	40	5640	324	38740	41940	39300	24960	21380	19570	11230

CAL YR 1983	TOTAL 122490.92	MEAN 336	MAX 1630	MIN .20	AC-FT 243000				
WTR YR 1984	TOTAL 105455.63	MEAN 288	MAX 1330	MIN .20	AC-FT 209200				

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.--Records good except those for May through August, which are poor. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--27 years (water years 1906, 1912-16, 1964-84), 54.1 ft^3/s, 39,200 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)
Jan. 25	2215	820	3.14	Mar. 21	0400	1,870	4.36
Mar. 14	0200	*6,180	*6.35	Apr. 8	1830	705	3.22

Minimum daily, 1.3 ft^3/s Aug. 20-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	18	38	47	95	74	452	166	30	13	5.7	3.6
2	14	20	34	46	83	128	434	199	29	12	5.9	2.7
3	14	21	34	49	83	187	422	163	26	13	6.5	2.4
4	14	20	36	49	77	193	428	153	25	11	5.7	2.2
5	14	18	32	51	74	205	428	138	24	11	4.9	4.2
6	14	19	31	52	72	247	488	103	23	10	4.5	3.0
7	14	17	64	51	63	332	428	92	23	10	3.9	3.6
8	14	18	133	50	67	482	530	83	23	9.5	4.2	8.0
9	14	18	79	47	64	990	530	84	22	9.0	3.6	9.6
10	14	20	120	42	64	1290	458	77	22	8.7	3.0	10
11	14	24	196	41	58	1340	405	70	21	8.4	2.8	10
12	14	22	193	40	61	1350	375	64	21	8.1	2.5	9.6
13	14	23	128	40	64	1340	348	61	22	7.8	2.3	9.0
14	14	22	169	40	190	3260	336	66	22	7.6	2.3	9.0
15	13	22	205	31	140	2350	360	64	20	7.4	2.3	8.0
16	14	22	118	35	128	1470	416	61	20	7.2	2.2	7.0
17	14	26	90	30	103	1490	440	55	19	6.8	1.8	7.0
18	14	32	79	24	88	1010	416	49	19	6.6	1.7	6.1
19	13	29	74	21	81	892	422	46	18	6.4	1.5	3.6
20	14	30	57	29	70	1200	365	43	18	6.2	1.3	2.7
21	14	26	49	25	70	1570	324	41	18	6.2	1.3	2.7
22	14	22	38	36	77	1010	300	41	17	7.0	1.3	3.6
23	18	22	30	36	84	852	284	38	17	8.0	1.3	4.2
24	16	27	22	54	79	764	274	38	16	8.0	1.3	4.2
25	16	28	30	600	77	670	256	41	15	7.0	1.3	4.5
26	16	26	61	320	66	635	238	46	18	6.5	1.3	9.0
27	16	25	57	150	72	649	217	45	19	6.1	1.3	9.6
28	15	27	42	115	70	551	190	40	20	5.7	1.3	9.6
29	18	29	41	103	70	530	175	37	16	5.7	1.3	16
30	18	29	47	103	---	500	169	36	16	5.7	2.2	17
31	20	---	47	101	---	476	---	32	---	5.7	3.9	---
TOTAL	459	702	2374	2458	2390	28037	10908	2272	619	251.3	86.4	201.7
MEAN	14.8	23.4	76.6	79.3	82.4	904	364	73.3	20.6	8.11	2.79	6.72
MAX	20	32	205	600	190	3260	530	199	30	13	6.5	17
MIN	13	17	22	21	58	74	169	32	15	5.7	1.3	2.2
AC-FT	910	1390	4710	4880	4740	55610	21640	4510	1230	498	171	400

CAL YR 1983	TOTAL	62253.7	MEAN	171	MAX	4440	MIN	5.2	AC-FT	123500
WTR YR 1984	TOTAL	50758.4	MEAN	139	MAX	3260	MIN	1.3	AC-FT	100700

NOTE.--No gage-height record May 6 to Sept. 5.

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 mi^2.

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, 30,360 acre-ft May 10, elevation, 2,516.38 ft; minimum, 12,360 acre-ft Sept. 30, elevation, 2,494.13 ft.

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

2,484	7,000	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 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2500.07	2500.41	2502.74	2498.41	2498.31	2503.31	2510.12	2516.13	2515.22	2513.62	2506.51	2498.24
2	2500.02	2500.49	2502.83	2498.30	2498.61	2503.65	2510.49	2516.12	2515.13	2513.43	2506.26	2498.00
3	2500.00	2500.56	2502.96	2498.20	2498.90	2504.13	2510.86	2516.00	2515.06	2513.25	2506.02	2497.75
4	2499.98	2500.61	2503.02	2498.10	2499.17	2504.61	2511.34	2516.04	2514.97	2513.06	2505.81	2497.52
5	2499.95	2500.67	2503.12	2498.01	2499.44	2505.12	2511.80	2516.09	2514.91	2512.86	2505.61	2497.32
6	2499.92	2500.74	2503.24	2497.84	2499.68	2505.75	2512.23	2516.12	2514.86	2512.61	2505.36	2497.07
7	2499.86	2500.76	2503.44	2497.55	2499.91	2506.44	2512.54	2516.11	2514.81	2512.40	2505.15	2496.90
8	2499.84	2500.81	2503.85	2497.29	2500.15	2507.14	2512.96	2516.16	2514.77	2512.17	2504.93	2496.78
9	2499.79	2500.88	2504.15	2496.97	2500.38	2508.39	2513.19	2516.24	2514.77	2511.96	2504.71	2496.65
10	2499.74	2500.99	2504.52	2496.67	2500.59	2509.55	2513.23	2516.33	2514.76	2511.76	2504.46	2496.51
11	2499.70	2501.04	2505.21	2496.42	2500.80	2510.27	2513.21	2516.27	2514.76	2511.54	2504.21	2496.37
12	2499.67	2501.15	2505.38	2496.24	2501.03	2510.87	2513.20	2516.18	2514.80	2511.29	2503.97	2496.25
13	2499.65	2501.18	2504.83	2496.08	2501.27	2510.93	2513.35	2516.11	2514.83	2511.06	2503.69	2496.13
14	2499.64	2501.27	2504.30	2495.94	2501.88	2513.16	2513.53	2516.05	2514.88	2510.84	2503.41	2496.03
15	2499.63	2501.33	2503.86	2495.80	2502.39	2513.40	2513.79	2516.05	2514.88	2510.63	2503.13	2495.93
16	2499.64	2501.42	2503.18	2495.69	2502.62	2512.48	2514.49	2516.08	2514.85	2510.39	2502.84	2495.83
17	2499.69	2501.51	2502.44	2495.59	2502.65	2511.63	2514.96	2516.08	2514.84	2510.16	2502.54	2495.74
18	2499.75	2501.59	2501.70	2495.52	2502.68	2510.58	2515.20	2516.08	2514.80	2509.91	2502.24	2495.64
19	2499.80	2501.72	2501.23	2495.47	2502.68	2510.01	2515.40	2516.07	2514.69	2509.66	2501.91	2495.51
20	2499.85	2501.81	2500.82	2495.47	2502.75	2510.42	2515.41	2515.98	2514.61	2509.41	2501.62	2495.34
21	2499.90	2501.88	2500.46	2495.54	2502.83	2511.16	2515.36	2515.94	2514.55	2509.13	2501.33	2495.13
22	2499.97	2501.94	2500.18	2495.60	2502.77	2510.87	2515.46	2515.96	2514.54	2508.91	2501.05	2494.95
23	2500.00	2502.04	2499.90	2495.65	2502.75	2510.35	2515.38	2515.92	2514.51	2508.70	2500.77	2494.80
24	2500.03	2502.19	2499.66	2495.67	2502.74	2509.62	2515.38	2515.90	2514.48	2508.49	2500.49	2494.65
25	2500.06	2502.27	2499.43	2497.60	2502.73	2509.13	2515.57	2515.82	2514.45	2508.24	2500.21	2494.55
26	2500.11	2502.33	2499.23	2498.51	2502.69	2508.95	2515.66	2515.73	2514.34	2507.97	2499.94	2494.47
27	2500.15	2502.40	2499.08	2498.63	2502.78	2509.03	2515.73	2515.66	2514.26	2507.69	2499.63	2494.38
28	2500.20	2502.50	2498.90	2498.58	2502.94	2508.96	2515.83	2515.58	2514.16	2507.43	2499.33	2494.30
29	2500.24	2502.56	2498.78	2498.46	2503.11	2508.95	2516.00	2515.52	2513.92	2507.24	2499.05	2494.22
30	2500.31	2502.65	2498.67	2498.33	---	2509.01	2516.08	2515.38	2513.77	2506.99	2498.74	2494.13
31	2500.35	---	2498.54	2498.16	---	2509.54	---	2515.27	---	2506.74	2498.49	---
MEAN	2499.92	2501.46	2501.92	2496.98	2501.42	2508.95	2513.93	2515.97	2514.67	2510.31	2502.69	2495.90
MAX	2500.35	2502.65	2505.38	2498.63	2503.11	2513.40	2516.08	2516.33	2515.22	2513.62	2506.51	2498.24
MIN	2499.63	2500.41	2498.54	2495.47	2498.31	2503.31	2510.12	2515.27	2513.77	2506.74	2498.49	2494.13
(†)	16550	18270	15260	14990	18620	23960	30060	29260	27820	21560	15220	12360
(‡)	+180	+1720	-3010	-270	+3630	+5340	+6100	-800	-1440	-6260	-6340	-2860

CAL YR 1983 MEAN 2507.25 MAX 2516.83 MIN 2498.54 AC-FT‡ -3410
WTR YR 1984 MEAN 2505.35 MAX 2516.33 MIN 2494.13 AC-FT‡ -4010

† 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 mi^2.

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.--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, 25,850 acre-ft Apr. 19, elevation, 3,820.69 ft; minimum, 9,680 acre-ft Oct. 9, elevation, 3,800.13 ft.

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

3,800	9,600	3,815	20,770
3,805	12,960	3,820	25,220
3,810	16,680	3,821	26,150

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3801.05	3803.11	3806.99	3806.73	3808.62	---	3816.03	3817.04	3819.84	3819.53	3814.09	3807.19
2	3800.86	3803.27	3807.07	3806.77	3808.68	---	3816.19	3816.83	3819.70	3819.44	3813.90	3806.99
3	3800.70	3803.42	3807.12	3806.83	3808.73	---	3816.39	3816.76	3819.73	3819.31	3813.70	3806.81
4	3800.55	3803.53	3807.11	3806.88	3808.80	---	3816.62	3816.76	3819.87	3819.18	3813.49	3806.57
5	3800.43	3803.68	3807.12	3806.93	3808.84	---	3816.89	3816.74	3820.03	3819.05	3813.27	3806.35
6	3800.29	3803.80	3807.14	3806.97	3808.85	3808.44	3817.17	3816.69	3820.15	3818.87	3813.04	3806.16
7	3800.19	3803.93	3807.18	3806.98	3808.89	---	3817.27	3816.67	3820.19	3818.71	3812.82	3806.03
8	3800.15	3804.04	3807.17	3807.02	3808.92	---	3817.87	3816.88	3820.25	3818.53	3812.60	3805.90
9	3800.18	3804.18	3807.20	3807.05	3808.95	---	3818.03	3817.25	3820.29	3818.35	3812.36	3805.74
10	3800.26	3804.33	3807.19	3807.07	3808.95	---	3817.95	3817.68	3820.33	3818.17	3812.14	3805.59
11	3800.35	3804.46	3807.21	3807.10	3808.96	---	3817.78	3818.24	3820.41	3817.98	3811.90	3805.41
12	3800.44	3804.63	3807.18	3807.13	3808.98	---	3817.65	3818.80	3820.48	3817.80	3811.65	3805.27
13	3800.51	3804.75	3807.18	3807.16	3808.97	---	3817.57	3819.29	3820.50	3817.62	3811.41	3805.09
14	3800.57	3804.89	3807.15	3807.14	3808.99	3810.28	3817.78	3819.85	3820.46	3817.46	3811.18	3804.92
15	3800.67	3805.04	3807.03	3807.14	3809.03	3810.80	3818.55	3820.06	3820.36	3817.28	3810.92	3804.75
16	3800.76	3805.19	3806.92	3807.15	3809.06	3811.19	3819.69	3819.97	3820.26	3817.09	3810.65	3804.58
17	3800.84	3805.34	3806.84	3807.10	3809.02	3811.62	3820.44	3819.71	3820.20	3816.91	3810.39	3804.40
18	3800.92	3805.49	3806.79	3807.12	3808.95	3811.86	3820.56	3819.48	3820.16	3816.71	3810.12	3804.24
19	3801.05	3805.64	3806.70	3807.08	3808.95	3812.22	3820.63	3819.34	3820.09	3816.51	3809.84	3804.06
20	3801.21	---	3806.59	3807.11	3808.95	3813.02	3820.25	3819.42	3820.06	3816.31	3809.56	3803.85
21	3801.42	---	3806.45	3807.14	3808.96	3814.10	3819.90	3819.55	3820.07	3816.09	3809.28	3803.66
22	3801.65	3805.99	3806.31	3807.20	3808.94	3814.72	3819.84	3819.56	3820.00	3815.90	3809.03	3803.49
23	3801.86	3806.14	3806.28	3807.29	3808.92	3815.24	3819.89	3819.65	3819.93	3815.71	3808.77	3803.35
24	3802.08	3806.29	3806.33	3807.40	3808.89	3815.68	---	3819.70	3819.90	3815.56	---	3803.19
25	3802.23	3806.41	3806.34	3807.56	---	3815.90	3819.41	3819.68	3819.89	3815.38	---	3803.06
26	3802.35	3806.55	3806.33	3807.78	---	3815.96	3818.86	3819.83	3819.72	3815.17	---	3802.93
27	3802.48	3806.67	3806.40	3808.02	---	3815.98	3818.33	3819.84	3819.80	3815.03	---	3802.77
28	3802.61	3806.79	3806.47	3808.18	---	3815.92	3817.86	3819.77	3819.76	3814.84	3807.33	3802.62
29	3802.73	3806.86	3806.58	3808.33	3808.75	3815.83	3817.60	3819.78	3819.65	3814.66	3807.06	3802.46
30	3802.86	3806.93	3806.65	3808.44	---	3815.79	3817.33	3819.86	3819.58	3814.46	3806.89	3802.32
31	3802.97	---	3806.66	3808.53	---	3815.84	---	3819.92	---	3814.27	3807.26	---
MEAN	3801.20	---	3806.83	3807.30	---	---	---	3818.73	3820.06	3817.03	---	3804.66
MAX	3802.97	---	3807.21	3808.53	---	---	---	3820.06	3820.50	3819.53	---	3807.19
MIN	3800.15	---	3806.28	3806.73	---	---	---	3816.67	3819.58	3814.27	---	3802.32
(†)	11550	14360	14160	15540	15720	21500	22820	25140	24830	20150	14600	11110
(‡)	+1160	+2810	-200	+1380	+180	+5780	+1320	+2320	-310	-4680	-5550	-3490

CAL YR 1983 MEAN --- MAX 3820.44 MIN 3800.15 AC-FT‡ -2050
WTR YR 1984 MEAN --- MAX 3820.63 MIN 3800.15 AC-FT‡ +720

† 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 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.--Records excellent. Flow regulated since 1938 by Unity Reservoir (see station 13272500). Diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years (water years 1929-84), 87.5 ft^3/s, 63,390 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, 983 ft^3/s Apr. 17, gage height, 8.08 ft; minimum, 1.2 ft^3/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	9.7	30	46	54	90	353	510	357	93	119	122
2	94	9.7	27	46	61	89	354	508	338	104	118	122
3	94	9.7	45	46	64	89	355	452	230	115	118	122
4	87	9.7	59	47	65	89	356	426	192	114	117	120
5	78	9.7	59	48	65	93	400	412	206	114	117	102
6	77	9.7	58	48	67	99	446	378	213	114	116	97
7	65	9.7	57	48	67	106	458	353	206	114	116	88
8	58	9.7	58	49	68	110	462	313	199	123	115	87
9	26	12	64	49	68	119	512	297	198	124	115	88
10	8.8	10	64	49	71	127	535	294	198	124	115	87
11	8.9	11	71	49	74	129	513	345	210	119	114	86
12	8.9	11	75	49	74	142	501	423	223	116	114	94
13	8.9	11	75	49	74	163	499	487	223	114	114	99
14	8.9	11	86	48	73	184	499	528	223	114	114	98
15	8.9	11	91	48	74	192	527	573	223	113	121	98
16	8.9	11	91	47	74	213	634	578	199	113	125	97
17	9.0	12	90	47	81	227	854	566	174	113	125	96
18	9.3	11	89	47	84	226	973	513	167	113	124	100
19	9.3	11	88	46	83	225	974	498	167	118	124	105
20	9.3	11	87	46	83	221	967	418	167	122	123	105
21	9.3	11	86	45	84	233	883	403	167	122	123	102
22	9.3	9.6	74	45	83	290	770	399	167	121	123	94
23	9.3	9.3	44	46	83	332	753	394	150	121	121	99
24	9.5	9.3	44	47	88	349	751	392	128	121	121	98
25	9.7	8.9	44	48	92	351	743	391	113	121	120	98
26	9.7	8.6	44	49	92	353	736	390	109	120	120	97
27	9.7	8.9	44	51	92	355	665	395	99	120	122	97
28	9.7	8.9	44	52	90	355	611	396	94	120	122	96
29	9.7	24	45	52	90	353	504	374	93	120	122	96
30	9.7	32	45	53	---	352	496	362	93	119	122	96
31	9.7	---	46	53	---	353	---	359	---	119	122	---
TOTAL	877.4	341.1	1924	1493	2218	6609	18084	13127	5526	3618	3702	2986
MEAN	28.3	11.4	62.1	48.2	76.5	213	603	423	184	117	119	99.5
MAX	94	32	91	53	92	355	974	578	357	124	125	122
MIN	8.8	8.6	27	45	54	89	353	294	93	93	114	86
AC-FT	1740	677	3820	2960	4400	13110	35870	26040	10960	7180	7340	5920

CAL YR 1983	TOTAL	60434.5	MEAN	166	MAX	857	MIN	8.6	AC-FT	119900
WTR YR 1984	TOTAL	60505.5	MEAN	165	MAX	974	MIN	8.6	AC-FT	120000

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 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.--Records good. Flow completely regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--19 years, 115 ft^3/s, 83,320 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, 545 ft^3/s June 26 to July 9, gage height, 3.63 ft; minimum, 6.2 ft^3/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	14	110	104	96	191	440	525	540	130	48
2	15	14	14	117	104	96	191	440	525	540	152	48
3	15	14	14	117	104	96	191	440	520	540	185	48
4	15	14	14	167	104	96	191	440	510	540	185	48
5	15	14	14	167	104	96	191	440	471	540	182	40
6	15	14	14	155	104	96	191	440	471	540	182	13
7	15	14	14	123	104	96	191	440	471	540	182	12
8	15	14	14	125	104	96	194	148	471	540	209	12
9	15	14	14	125	104	96	218	106	471	540	314	11
10	14	14	14	125	123	96	300	106	471	540	386	8.3
11	14	14	14	125	167	96	303	106	471	540	378	7.8
12	14	14	14	125	167	63	382	106	471	540	342	8.3
13	14	14	14	125	152	17	435	108	471	535	318	8.3
14	14	14	14	125	39	16	435	167	471	510	300	8.3
15	14	14	14	66	20	14	435	268	471	510	293	8.3
16	14	14	14	24	20	14	440	366	471	485	293	7.8
17	14	14	14	24	20	14	440	431	471	453	293	7.8
18	14	14	14	25	20	16	440	453	471	440	293	8.9
19	14	14	14	35	20	74	440	453	471	395	293	26
20	14	14	14	117	20	108	440	453	471	395	293	37
21	14	14	14	108	20	108	440	453	471	395	318	37
22	14	14	14	104	20	108	440	453	480	395	318	33
23	14	14	14	104	20	125	444	453	505	209	300	39
24	14	14	14	104	20	137	444	453	505	185	293	31
25	14	14	14	104	20	137	444	453	510	236	293	16
26	14	14	14	104	20	162	444	453	540	236	293	16
27	14	14	14	104	50	182	444	453	540	203	259	16
28	14	14	14	104	45	188	440	458	540	175	233	15
29	14	14	14	104	45	191	440	495	540	177	239	15
30	14	14	14	104	---	191	440	520	540	177	249	15
31	14	---	14	104	---	191	---	525	---	150	125	---
TOTAL	443	420	434	3270	1964	3112	10659	11520	14787	12741	8123	649.8
MEAN	14.3	14.0	14.0	105	67.7	100	355	372	493	411	262	21.7
MAX	15	14	14	167	167	191	444	525	540	540	386	48
MIN	14	14	14	24	20	14	191	106	471	150	125	7.8
AC-FT	879	833	861	6490	3900	6170	21140	22850	29330	25270	16110	1290

CAL YR 1983	TOTAL	68316.7	MEAN	187	MAX	570	MIN	8.5	AC-FT	135500
WTR YR 1984	TOTAL	68122.8	MEAN	186	MAX	540	MIN	7.8	AC-FT	135100

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1971, nonrecording gage at site 0.7 mi downstream at different datum.

REMARKS.--Records excellent. 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 below station.

AVERAGE DISCHARGE.--12 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, 743 ft^3/s Aug. 31, gage height, 4.62 ft; maximum gage height, 5.57 ft Jan. 5 (ice jam); minimum discharge, 11 ft^3/s Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	19	24	100	119	64	278	468	536	463	108	86
2	16	20	23	110	117	107	274	488	531	463	111	66
3	17	20	24	130	113	115	268	481	523	459	153	59
4	16	23	22	150	113	114	271	484	533	455	153	57
5	16	24	24	180	112	116	294	488	478	447	152	52
6	16	25	27	135	113	120	353	491	494	452	145	33
7	16	25	28	133	112	126	290	480	517	459	137	22
8	16	25	29	133	112	134	323	294	515	448	141	21
9	16	25	29	135	112	153	306	163	503	448	211	20
10	16	25	33	135	116	190	390	155	496	447	286	19
11	16	28	35	136	165	217	382	159	493	445	298	17
12	16	27	34	136	169	215	424	164	493	444	273	15
13	16	28	32	135	175	148	511	174	482	445	244	14
14	16	25	32	135	98	196	516	224	482	421	225	14
15	16	28	30	135	50	230	538	324	478	415	214	14
16	16	28	28	130	48	210	574	399	472	408	216	13
17	17	33	26	120	46	222	602	451	475	358	218	13
18	17	31	28	110	42	164	590	469	466	358	218	12
19	16	29	31	105	44	219	627	470	450	310	218	12
20	16	29	34	100	58	367	594	481	438	307	217	26
21	16	28	40	90	47	413	563	488	442	306	233	28
22	18	28	53	79	51	302	559	478	435	305	255	27
23	20	27	67	78	45	279	559	175	450	208	231	27
24	18	30	80	77	41	334	556	470	446	98	220	31
25	18	30	90	87	41	268	534	462	439	153	220	23
26	18	29	96	110	41	278	522	482	470	156	219	22
27	18	28	100	142	40	312	507	460	472	161	208	21
28	18	29	105	123	61	298	507	457	466	132	166	22
29	18	27	110	121	62	292	498	470	467	125	158	21
30	18	25	120	117	---	279	482	537	467	140	179	21
31	19	---	110	117	---	278	---	544	---	140	353	---
TOTAL	522	798	1544	3724	2463	6760	13692	12630	14409	10376	6380	828
MEAN	16.8	26.6	49.8	120	84.9	218	456	407	480	335	206	27.6
MAX	20	33	120	180	175	413	627	544	536	463	353	86
MIN	16	19	22	77	40	64	268	155	435	98	108	12
AC-FT	1040	1580	3060	7390	4890	13410	27160	25050	28580	20580	12650	1640

CAL YR 1983	TOTAL	73247	MEAN	201	MAX	571	MIN	14	AC-FT	145300
WTR YR 1984	TOTAL	74126	MEAN	203	MAX	627	MIN	12	AC-FT	147000

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, 18,820 acre-ft May 31, elevation, 3,134.88 ft; minimum, 13,900 acre-ft Oct. 1, elevation, 3,128.12 ft.

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

3,125	11,880
3,130	15,210
3,135	18,910

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3128.18	3132.75	---	3133.29	---	3133.44	3134.01	3134.22	3134.66	3134.34	3133.19	3130.34
2	3128.21	3132.95	---	3133.32	---	3133.49	3134.04	3134.22	3134.50	3134.20	3133.16	3131.06
3	3128.25	3133.13	---	3133.36	---	3133.55	3134.00	3134.19	3134.37	3134.21	3133.12	3131.52
4	3128.32	3133.22	---	3133.39	---	3133.57	3133.98	3134.17	3134.35	3134.18	3133.12	3131.89
5	3128.31	3133.27	---	3133.46	---	3133.57	3133.99	3134.14	3134.41	3134.11	3133.03	3132.11
6	3128.32	3133.27	---	3133.52	---	3133.58	3133.97	3134.11	3134.46	3134.00	3132.99	3132.12
7	3128.33	3133.27	3133.32	3133.55	---	3133.60	3133.99	3134.10	3134.44	3133.96	3132.97	3132.13
8	3128.46	3133.27	3133.32	3133.58	---	3133.65	3133.99	3134.08	3134.41	3133.90	3132.94	3132.17
9	3128.60	3133.26	3133.36	3133.54	---	3133.73	3133.98	3133.96	3134.36	3133.86	3132.87	3132.13
10	3128.72	3133.28	3133.43	3133.54	---	3133.87	3133.98	3133.84	3134.37	3133.82	3132.67	3132.10
11	3128.93	3133.33	3133.36	3133.54	---	3133.98	3134.00	3133.81	3134.40	3133.78	3132.48	3132.01
12	3129.13	3133.34	3133.24	3133.53	---	3134.09	3134.05	3133.86	3134.40	3133.74	3132.24	3131.93
13	3129.29	3133.33	3133.44	3133.52	---	3134.25	3134.04	3133.95	3134.35	3133.70	3132.09	3131.84
14	3129.43	3133.32	3133.45	3133.48	---	3134.44	3134.11	3133.99	3134.36	3133.69	3132.05	3131.71
15	3129.59	3133.31	3133.43	---	---	3134.70	3134.15	3134.00	3134.35	3133.68	3132.00	3131.52
16	3129.77	3133.34	3133.37	---	---	3134.78	3134.21	3134.03	3134.32	3133.64	3131.91	3131.37
17	3129.94	3133.36	3133.34	---	---	3134.78	3134.24	3134.05	3134.33	3133.62	3131.70	3131.22
18	3130.11	3133.34	3133.36	---	---	3134.54	3134.33	3134.05	3134.33	3133.59	3131.43	3131.01
19	3130.29	3133.33	3133.31	---	---	3134.37	3134.40	3134.06	3134.39	3133.55	3131.05	3130.80
20	3130.47	3133.32	---	---	---	3134.52	3134.35	3134.12	3134.46	3133.51	3130.78	3130.55
21	3130.67	3133.31	---	---	---	3134.81	3134.39	3134.18	3134.57	3133.47	3130.53	3130.34
22	3130.85	---	---	3133.37	---	3134.65	3134.36	3134.21	3134.49	3133.50	3130.27	3130.11
23	3131.03	---	---	3133.38	3133.40	3134.48	3134.29	3134.22	3134.46	3133.51	3130.06	3129.97
24	3131.24	3133.33	---	3133.41	3133.36	3134.28	3134.31	3134.15	3134.46	3133.46	3129.80	3129.77
25	3131.45	3133.34	3133.20	3133.56	3133.39	3134.22	3134.31	3134.13	3134.53	3133.39	3129.56	3129.65
26	3131.61	3133.35	3133.23	---	3133.38	3134.18	3134.29	3134.37	3134.50	3133.30	3129.37	3129.63
27	3131.79	3133.36	3133.23	---	3133.38	3134.20	3134.28	3134.43	3134.52	3133.26	3129.13	3129.48
28	3131.99	---	3133.20	---	3133.38	3134.14	3134.25	3134.45	3134.54	3133.25	3128.84	3129.37
29	3132.19	---	3133.26	---	3133.42	3134.10	3134.26	3134.55	3134.46	3133.26	3128.59	3129.28
30	3132.40	3133.35	3133.25	---	---	3134.05	3134.25	3134.79	3134.46	3133.24	3128.33	3129.19
31	3132.58	---	3133.26	3133.53	---	3134.02	---	3134.81	---	3133.22	3129.35	---
MEAN	3129.95	---	---	---	---	3134.12	3134.16	3134.17	3134.43	3133.68	3131.34	3130.94
MAX	3132.58	---	---	---	---	3134.81	3134.40	3134.81	3134.66	3134.34	3133.19	3132.17
MIN	3128.18	---	---	---	---	3133.44	3133.97	3133.81	3134.32	3133.22	3128.33	3129.19
(†)	17090	17660	17600	17800	17720	18170	18340	18770	18500	17560	14750	14640
(‡)	+3190	+570	-60	+200	-80	+450	+170	+430	-270	-940	-2810	-110

CAL YR 1983 MEAN --- MAX 3134.58 MIN 3126.96 AC-FT‡ +150
WTR YR 1984 MEAN --- MAX 3134.81 MIN 3128.18 AC-FT‡ +740

† 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 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.--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 above station.

AVERAGE DISCHARGE.--6 years (water years 1979-84), 306 ft^3/s, 221,700 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, 2,140 ft^3/s May 31, gage height, 9.65 ft; minimum, 31 ft^3/s Oct. 7-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	32	168	176	302	242	693	967	1820	1170	148	169
2	61	33	166	195	280	264	693	954	1500	1050	141	170
3	61	37	170	225	273	318	665	934	1240	939	131	173
4	61	74	146	239	284	341	631	912	1110	893	121	173
5	61	110	159	275	284	346	646	892	1190	848	125	174
6	61	127	175	326	274	348	663	821	1260	787	122	174
7	49	130	185	365	275	365	657	780	1310	704	117	175
8	31	136	198	390	272	394	689	740	1250	626	116	175
9	31	134	223	394	268	429	663	686	1180	565	115	175
10	31	139	283	369	267	535	666	510	1140	499	155	175
11	31	156	294	359	279	684	656	436	1170	474	175	174
12	31	179	278	364	292	791	695	447	1190	440	175	173
13	31	176	279	354	343	952	702	491	1100	405	175	173
14	31	170	283	337	396	1210	731	617	1090	380	175	173
15	31	172	272	294	381	1280	770	667	1100	351	175	173
16	31	169	253	251	288	1280	829	676	1100	313	176	173
17	31	183	224	250	266	1440	914	664	1090	287	174	173
18	31	187	225	243	244	1670	1000	668	1090	281	173	173
19	31	190	227	237	226	1220	1200	687	1120	272	173	171
20	31	180	177	245	229	1210	1200	751	1210	260	172	170
21	31	182	134	234	218	1810	1130	851	1440	244	170	170
22	32	166	124	243	209	1750	1110	861	1470	226	170	170
23	32	163	128	229	220	1370	1080	873	1470	229	169	170
24	32	181	131	226	222	1150	1080	914	1470	228	168	169
25	32	191	131	315	213	989	1100	786	1470	147	168	170
26	32	197	142	376	219	898	1080	995	1480	104	168	169
27	32	199	157	370	220	934	1050	1210	1440	115	167	168
28	32	207	164	361	217	892	1000	1220	1420	128	166	168
29	32	193	174	359	227	825	1010	1320	1450	134	166	168
30	32	191	157	329	---	733	1000	1770	1360	128	166	168
31	32	---	158	318	---	712	---	2050	---	132	168	---
TOTAL	1169	4584	5985	9248	7688	27382	26003	27150	38730	13359	4880	5149
MEAN	37.7	153	193	298	265	883	867	876	1291	431	157	172
MAX	61	207	294	394	396	1810	1200	2050	1820	1170	176	175
MIN	31	32	124	176	209	242	631	436	1090	104	115	168
AC-FT	2320	9090	11870	18340	15250	54310	51580	53850	76820	26500	9680	10210

CAL YR 1983	TOTAL	150543	MEAN	412	MAX	1710	MIN	31	AC-FT	298600
WTR YR 1984	TOTAL	171327	MEAN	468	MAX	2050	MIN	31	AC-FT	339800

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Regulation by several reservoirs, the largest being Phillips Lake since Oct. 31, 1967, active capacity, 90,540 acre-ft, Thief Valley Reservoir, capacity, 17,400 acre-ft, and since April 1975, Wolf Creek Reservoir, capacity, 10,400 acre-ft. Diversions for irrigation above and below station.

AVERAGE DISCHARGE.--27 years, 281 ft^3/s, 203,600 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, 3,390 ft^3/s Mar. 17, gage height, 6.70 ft; minimum, 53 ft^3/s Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	55	201	210	420	322	1340	1460	2240	1330	114	395
2	79	55	188	240	390	436	1340	1500	2010	1170	141	258
3	80	56	178	290	370	573	1320	1490	1730	1050	129	237
4	80	56	186	310	400	615	1280	1480	1490	978	113	226
5	82	78	186	350	390	610	1280	1450	1420	943	98	225
6	79	121	175	400	370	636	1480	1390	1520	885	91	198
7	87	137	179	450	378	685	1380	1300	1620	814	101	200
8	92	139	201	520	381	752	1390	1270	1610	765	81	210
9	74	144	213	580	385	885	1380	1260	1540	694	69	210
10	77	144	277	500	341	1150	1310	1210	1460	561	57	204
11	78	152	340	440	373	1390	1270	1040	1410	497	78	211
12	77	168	485	423	352	1610	1250	1030	1420	446	111	211
13	79	190	402	461	440	1800	1270	1120	1410	412	114	192
14	74	184	394	503	639	2430	1260	1260	1310	380	116	182
15	72	193	394	400	634	2620	1370	1350	1280	345	115	188
16	72	190	346	360	530	3010	1560	1250	1280	313	116	189
17	72	197	309	350	449	3190	1720	1110	1270	279	159	187
18	71	210	276	330	411	2950	1750	1050	1270	268	131	187
19	70	209	280	320	355	2470	1860	1050	1250	252	116	184
20	70	214	268	340	334	2310	2010	1120	1310	291	157	191
21	72	198	205	310	344	2800	1890	1240	1420	278	161	208
22	69	194	140	340	318	3150	1820	1270	1570	210	119	203
23	76	180	173	310	301	2640	1810	1250	1520	208	121	222
24	70	201	180	300	306	2360	1780	1280	1410	225	122	213
25	68	218	190	390	298	2010	1720	1240	1390	201	123	227
26	67	222	200	450	293	1870	1650	1200	1420	124	131	235
27	66	221	220	540	296	1820	1580	1370	1430	150	133	232
28	62	229	240	520	299	1730	1510	1520	1420	129	150	229
29	56	232	260	500	296	1610	1460	1530	1380	139	154	232
30	55	210	220	450	---	1460	1460	1640	1390	141	143	241
31	55	---	200	430	---	1380	---	2050	---	125	305	---
TOTAL	2252	4997	7706	12317	11093	53274	45500	40780	44200	14603	3869	6527
MEAN	72.6	167	249	397	383	1719	1517	1315	1473	471	125	218
MAX	92	232	485	580	639	3190	2010	2050	2240	1330	305	395
MIN	55	55	140	210	293	322	1250	1030	1250	124	57	182
AC-FT	4470	9910	15280	24430	22000	105700	90250	80890	87670	28970	7670	12950

CAL YR 1983	TOTAL	195332	MEAN	535	MAX	2040	MIN	18	AC-FT	387400
WTR YR 1984	TOTAL	247118	MEAN	675	MAX	3190	MIN	55	AC-FT	490200

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.--Records good. No regulation. Some diversions above 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.--27 years, 330 ft^3/s, 239,100 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 above base 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)
Jan. 24	2000	ice jam	a*4.20	May 30	2000	*3,220	4.10
May 13	2000	1,860	3.37	June 20	2030	2,420	3.70
May 23	2130	2,040	3.48	June 28	2330	2,970	3.98

Minimum daily, 88 ft^3/s Oct. 26.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	106	126	96	110	111	265	447	1800	1570	362	209
2	95	117	122	100	100	115	276	507	1520	1570	352	183
3	94	122	122	110	110	116	278	536	1320	1560	341	172
4	93	140	116	130	115	115	285	543	1530	1550	343	165
5	93	128	128	150	110	117	330	511	1470	1560	316	159
6	91	171	141	140	115	120	379	476	1440	1630	295	155
7	91	148	132	130	115	126	343	472	1260	1360	264	160
8	89	133	122	120	120	133	443	511	1150	1110	246	167
9	92	129	125	115	140	141	407	615	1060	975	234	155
10	92	142	131	120	120	157	379	637	963	949	226	146
11	91	256	133	125	117	167	338	740	1080	999	219	141
12	91	181	129	125	121	171	332	932	1060	1080	216	137
13	90	166	129	122	136	189	321	1270	1170	968	205	131
14	95	152	127	116	127	253	365	1550	1370	857	196	126
15	95	155	122	115	124	267	525	1250	1670	846	188	118
16	94	161	110	110	126	268	768	950	1830	844	174	114
17	93	177	129	115	120	297	856	869	1830	829	170	110
18	93	154	121	110	117	268	787	984	1850	870	165	108
19	93	148	110	120	110	259	751	1250	1930	848	161	106
20	91	143	100	140	110	361	668	1590	2060	749	157	118
21	91	133	96	170	119	447	653	1460	1900	629	174	113
22	94	124	92	204	115	374	712	1390	1470	574	174	111
23	102	134	90	223	114	348	775	1820	1450	553	171	116
24	93	140	96	287	114	366	723	1620	1690	561	167	111
25	91	134	105	365	114	336	599	1350	2140	589	163	108
26	88	130	100	244	110	305	523	1540	2370	638	160	106
27	92	130	98	194	110	274	477	1560	2360	679	163	104
28	103	127	100	163	109	259	455	1750	2460	550	160	102
29	102	118	105	149	109	247	418	2220	2490	484	157	104
30	105	126	100	130	---	245	410	2720	1950	424	176	104
31	105	---	94	120	---	256	---	2300	---	385	270	---
TOTAL	2917	4325	3551	4658	3377	7208	14841	36370	49643	28790	6765	3959
MEAN	94.1	144	115	150	116	233	495	1173	1655	929	218	132
MAX	105	256	141	365	140	447	856	2720	2490	1630	362	209
MIN	88	106	90	96	100	111	265	447	963	385	157	102
AC-FT	5790	8580	7040	9240	6700	14300	29440	72140	98470	57100	13420	7850

CAL YR 1983	TOTAL	148136	MEAN	406	MAX	2320	MIN	82	AC-FT	293800
WTR YR 1984	TOTAL	166404	MEAN	455	MAX	2720	MIN	88	AC-FT	330100

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 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.--Records excellent. No regulation. Diversions for irrigation above station. Water is diverted from Big Sheep Creek and tributaries above station for irrigation in Wallowa River basin.

AVERAGE DISCHARGE.--56 years, 523 ft^3/s, 378,900 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 above base 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. 17	0330	2,250	4.63	June 29	0300	2,620	4.94
May 31	0130	*3,440	*5.58				

Minimum, 41 ft^3/s Dec. 23, result of freezeup, minimum daily, 90 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177	181	225	181	234	212	541	797	2430	1730	517	309
2	177	179	210	173	231	229	558	977	2080	1650	486	248
3	176	188	213	189	237	228	556	1100	1850	1620	458	230
4	173	250	205	223	240	227	559	1100	1840	1570	506	219
5	173	237	175	255	239	231	587	1070	1860	1540	454	211
6	173	232	197	238	252	239	771	1020	1970	1590	418	207
7	171	274	207	217	240	250	773	1000	1920	1510	386	210
8	171	221	217	213	230	277	866	1100	1790	1330	367	211
9	176	204	209	200	220	325	908	1200	1650	1220	351	209
10	176	203	250	203	240	375	907	1250	1560	1140	336	205
11	171	475	255	206	246	432	844	1300	1690	1120	324	199
12	168	342	259	205	242	450	803	1500	1850	1160	314	201
13	168	326	244	201	264	452	754	1800	1900	1130	304	212
14	168	284	250	181	277	531	748	2050	1940	1030	287	203
15	168	266	244	112	257	577	988	2200	2010	986	283	198
16	165	267	206	120	266	593	1670	2100	2070	974	278	194
17	165	299	180	140	253	589	2100	1830	1980	948	280	191
18	168	307	187	120	219	562	1820	1880	1910	963	278	199
19	165	288	180	110	205	523	1740	2110	1950	956	272	199
20	162	281	168	105	237	554	1470	2600	1940	899	263	212
21	159	264	140	110	248	837	1270	2400	2140	785	251	225
22	162	242	110	150	223	865	1250	2150	1790	731	242	193
23	194	240	100	190	219	822	1470	2510	1650	688	238	208
24	176	253	90	232	219	832	1480	2510	1690	685	228	210
25	165	259	100	254	222	786	1290	2160	1910	670	222	197
26	159	239	115	246	207	737	1120	2110	2140	690	215	192
27	159	231	110	221	207	664	986	2170	2280	729	208	190
28	159	233	120	212	206	608	916	2230	2210	739	203	196
29	159	228	130	208	209	572	847	2540	2410	706	198	194
30	159	184	150	209	---	533	801	3210	2070	615	219	191
31	169	---	170	208	---	522	---	3030	---	554	338	---
TOTAL	5231	7677	5616	5832	6789	15634	31393	57004	58480	32658	9724	6263
MEAN	169	256	181	188	234	504	1046	1839	1949	1053	314	209
MAX	194	475	259	255	277	865	2100	3210	2430	1730	517	309
MIN	159	179	90	105	205	212	541	797	1560	554	198	190
AC-FT	10380	15230	11140	11570	13470	31010	62270	113100	116000	64780	19290	12420

CAL YR 1983	TOTAL	259163	MEAN	710	MAX	3200	MIN	90	AC-FT	514000
WTR YR 1984	TOTAL	242301	MEAN	662	MAX	3210	MIN	90	AC-FT	480600

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.--Records excellent except those for December and January, which are fair. Since 1915, slight regulation by city of La Grande reservoir on Beaver Creek, capacity, about 900 acre-ft. Diversions for irrigation above station. Since 1909, city of La Grande has diverted about 3 ft^3/s from Beaver Creek above station for domestic water supply.

AVERAGE DISCHARGE.--76 years, 390 ft^3/s, 282,600 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)
Jan. 26	0200	3,230	7.59	May 3	2030	2,210	6.38
Mar. 14	2200	3,260	7.62	May 14	1000	2,880	7.20
Mar. 21	0500	*4,470	*8.73	May 23	1530	2,110	6.26
Apr. 6	0100	2,340	6.56	May 30	0630	2,620	6.90
Apr. 17	0230	3,880	8.23				

Minimum, 40 ft^3/s Oct. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	56	64	100	706	273	1530	1340	1790	473	96	273
2	45	63	60	190	592	348	1560	1690	1530	429	138	151
3	45	66	60	350	538	383	1480	2090	1380	392	170	118
4	44	71	56	600	474	354	1450	2110	1360	361	123	101
5	43	79	79	1020	422	381	1720	1940	1560	331	121	90
6	42	71	89	902	439	460	2150	1750	1660	305	126	87
7	41	89	93	720	420	577	1840	1550	1730	280	103	95
8	40	80	95	654	386	776	2030	1520	1750	262	92	112
9	48	69	101	559	358	1040	1930	1640	1620	244	85	97
10	57	66	110	486	325	1730	1740	1660	1530	227	80	86
11	53	65	129	461	278	2050	1550	1780	1450	211	76	80
12	48	75	121	397	316	1980	1400	2130	1560	196	72	77
13	46	72	131	361	441	1920	1310	2380	1580	183	68	74
14	45	68	152	285	666	2490	1530	2800	1560	173	66	71
15	45	74	158	169	638	2660	2600	2450	1520	163	64	69
16	45	78	97	125	590	2410	3620	1990	1420	152	62	66
17	45	89	94	120	518	2370	3610	1680	1300	143	72	64
18	46	101	100	110	373	1870	3190	1530	1180	136	63	60
19	47	90	90	110	378	1860	3010	1570	1080	132	58	58
20	45	85	80	110	472	2890	2540	1780	1090	121	56	60
21	45	81	64	130	393	4220	2200	1860	1120	115	54	72
22	46	76	52	150	345	3310	2080	1690	969	112	52	70
23	58	72	43	200	336	2930	2150	1980	890	109	51	84
24	63	80	50	1000	310	3080	2070	1960	839	121	50	87
25	52	82	60	3030	300	2300	1830	1750	804	124	49	81
26	50	80	80	2640	256	2140	1590	2030	766	104	48	75
27	48	78	70	1700	285	2150	1380	2090	712	103	45	75
28	47	87	80	1370	262	1920	1270	2050	660	137	43	74
29	46	89	90	1160	266	1670	1240	2190	619	160	43	70
30	47	61	100	964	---	1460	1230	2520	541	121	53	68
31	49	---	120	802	---	1480	---	2250	---	103	320	---
TOTAL	1465	2293	2768	20975	12083	55482	58830	59750	37570	6223	2599	2645
MEAN	47.3	76.4	89.3	677	417	1790	1961	1927	1252	201	83.8	88.2
MAX	63	101	158	3030	706	4220	3620	2800	1790	473	320	273
MIN	40	56	43	100	256	273	1230	1340	541	103	43	58
AC-FT	2910	4550	5490	41600	23970	110000	116700	118500	74520	12340	5160	5250

CAL YR 1983	TOTAL	188578	MEAN	517	MAX	3380	MIN	35	AC-FT	374000
WTR YR 1984	TOTAL	262683	MEAN	718	MAX	4220	MIN	40	AC-FT	521000

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.--Records good except those for period of ice effect Dec. 15 to Feb. 22, which are 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.--61 years (water years 1912, 1919, 1926-84), 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. 17	0200	519	2.65	May 30	1900	*1,410	*4.15
May 13	2330	815	3.27				

Minimum daily, 22 ft^3/s Dec. 23, Jan. 15, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	31	38	48	72	37	128	208	825	508	90	75
2	31	36	43	48	68	42	130	251	669	473	93	57
3	31	35	45	50	65	44	132	282	574	447	84	50
4	31	42	40	55	62	45	137	288	622	431	80	47
5	30	36	42	55	60	46	156	286	713	421	76	45
6	30	47	41	60	58	51	184	264	779	415	75	44
7	29	40	37	60	56	60	178	250	758	373	70	51
8	29	36	38	59	53	73	182	266	690	328	66	58
9	33	33	40	57	50	88	166	312	607	298	64	51
10	32	39	45	55	46	122	161	343	555	283	61	46
11	30	68	45	54	45	149	145	385	554	277	60	44
12	30	47	44	53	44	149	139	475	537	274	58	43
13	30	43	45	52	56	158	128	609	533	255	56	42
14	30	37	49	40	55	184	143	751	550	235	55	41
15	30	41	48	22	54	201	249	633	606	223	53	39
16	29	42	44	26	52	192	432	516	652	216	52	38
17	30	54	41	32	48	199	483	455	641	208	51	37
18	32	44	38	40	45	167	413	457	624	206	50	36
19	30	40	35	45	43	154	405	514	639	195	48	36
20	30	39	31	48	45	215	353	620	692	179	47	41
21	29	37	28	50	43	339	329	633	702	165	46	39
22	31	31	25	52	42	304	351	593	628	153	44	41
23	38	38	22	55	39	268	391	655	603	145	44	44
24	31	42	24	70	38	237	380	626	631	155	44	42
25	30	40	25	100	38	207	333	567	702	137	43	39
26	29	37	30	160	36	190	287	679	739	131	42	39
27	29	37	35	122	35	168	251	685	745	123	41	38
28	29	38	40	100	35	155	232	719	755	116	40	37
29	29	31	45	86	34	142	217	875	746	111	39	36
30	30	39	48	79	---	130	207	1270	601	100	52	35
31	31	---	50	75	---	127	---	1100	---	94	167	---
TOTAL	945	1200	1201	1908	1417	4643	7422	16567	19672	7675	1891	1311
MEAN	30.5	40.0	38.7	61.5	48.9	150	247	534	656	248	61.0	43.7
MAX	38	68	50	160	72	339	483	1270	825	508	167	75
MIN	29	31	22	22	34	37	128	208	533	94	39	35
AC-FT	1870	2380	2380	3780	2810	9210	14720	32860	39020	15220	3750	2600

CAL YR 1983	TOTAL	50620	MEAN	139	MAX	964	MIN	22	AC-FT	100400
WTR YR 1984	TOTAL	65852	MEAN	180	MAX	1270	MIN	22	AC-FT	130600

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.--Records fair. 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)
Jan. 25	unknown	unknown	unknown	May 13	2000	766	6.06
Mar. 22	1530	388	5.37	May 30	a2200	*1,100	*6.52
Apr. 16	2130	503	5.61				

Minimum, 25 ft^3/s Oct. 11, result of regulation at fish hatchery upstream.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	59	63	61	147	90	210	265	595	214	73	66
2	56	60	62	62	137	92	222	338	535	200	72	63
3	56	60	65	83	131	92	221	354	498	189	72	62
4	55	74	63	100	124	90	219	345	513	180	71	62
5	55	61	64	101	120	91	241	333	618	171	71	62
6	53	74	65	95	120	93	257	308	618	163	70	64
7	52	68	66	88	115	97	240	297	618	153	67	64
8	52	62	68	83	111	103	260	317	572	149	66	65
9	57	60	71	80	108	111	249	362	540	137	68	64
10	42	63	94	79	107	127	260	364	502	131	66	62
11	35	75	91	77	103	143	240	427	498	124	65	62
12	38	68	85	76	109	150	236	525	472	118	64	62
13	48	69	84	75	141	156	224	609	455	113	63	61
14	53	50	85	72	142	242	238	632	445	109	63	61
15	52	51	82	64	131	259	321	579	448	105	63	62
16	52	74	79	60	125	238	439	515	437	101	62	60
17	52	89	75	58	117	249	468	481	392	98	62	59
18	52	79	75	56	108	224	443	507	364	95	62	68
19	52	73	68	54	104	222	459	534	345	92	62	77
20	52	70	58	54	105	293	424	578	369	90	62	65
21	52	68	54	56	103	316	392	556	359	87	62	65
22	54	63	50	58	100	357	405	538	332	85	62	61
23	57	65	46	61	99	344	432	666	308	84	62	61
24	52	71	50	225	97	303	406	609	295	86	61	60
25	52	69	52	289	96	277	361	566	294	82	61	57
26	52	66	54	278	95	262	325	592	287	79	61	57
27	54	66	56	216	91	238	299	630	280	77	60	57
28	53	67	58	240	89	222	285	670	265	79	60	57
29	53	65	63	192	89	207	273	755	256	84	60	56
30	53	60	66	171	---	195	255	895	233	76	66	56
31	58	---	63	158	---	200	---	770	---	74	80	---
TOTAL	1610	1999	2075	3422	3264	6083	9304	15917	12743	3625	2019	1858
MEAN	51.9	66.6	66.9	110	113	196	310	513	425	117	65.1	61.9
MAX	58	89	94	289	147	357	468	895	618	214	80	77
MIN	35	50	46	54	89	90	210	265	233	74	60	56
AC-FT	3190	3970	4120	6790	6470	12070	18450	31570	25280	7190	4000	3690

CAL YR 1983	TOTAL	53748	MEAN	147	MAX	467	MIN	35	AC-FT	106600
WTR YR 1984	TOTAL	63919	MEAN	175	MAX	895	MIN	35	AC-FT	126800

NOTE.--No gage-height record Oct. 9 to 11 and May 27 to June 2.

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 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 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, 42,660 acre-ft July 9, gage height, 26.75 ft; minimum, 25,220 acre-ft Apr. 15, 16, gage height, 16.09 ft.

MONTHEND GAGE-HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Gage Height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	18.95	29,840	-
Oct. 31	18.25	28,700	-1,140
Nov. 30	19.04	29,980	+1,280
Dec. 31	18.38	28,920	-1,060
CAL YR 1983	-	-	-3,960
Jan. 31	18.60	29,270	+350
Feb. 29	17.05	26,770	-2,500
Mar. 31	16.18	25,370	-1,400
Apr. 30	g16.97	26,640	+1,270
May 31	22.67	35,920	+9,280
June 30	25.85	41,170	+5,250
July 31	24.99	39,740	-1,430
Aug. 31	18.15	28,540	-11,200
Sept.30	17.04	26,750	-1,790
WTR YR 1984	-	-	-3,090

g Plotted from graph.

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 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.--Records good. 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.--57 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, 744 ft^3/s June 30, gage height, 4.55 ft; minimum, 28 ft^3/s Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	52	71	67	79	95	67	34	253	671	434	199
2	79	52	71	67	101	94	67	34	297	511	432	154
3	79	52	70	67	101	94	67	34	337	406	428	154
4	79	53	70	67	101	94	68	34	344	405	424	154
5	79	53	70	67	101	94	69	34	344	406	425	153
6	79	53	70	67	100	94	69	34	342	408	422	153
7	79	53	69	67	100	93	69	34	342	409	419	151
8	79	53	69	67	99	92	69	34	340	411	417	149
9	79	53	68	67	99	92	69	34	338	412	413	147
10	79	53	68	68	99	92	69	34	337	412	380	146
11	79	53	68	67	99	75	69	39	334	412	343	146
12	79	53	69	67	99	66	69	76	333	412	327	145
13	79	53	69	68	98	65	69	85	332	412	326	145
14	79	53	69	69	98	65	70	85	330	412	311	145
15	79	52	69	68	98	65	70	86	329	412	303	146
16	78	52	69	69	98	66	70	86	329	411	304	145
17	78	52	69	69	98	66	70	86	330	411	316	144
18	64	52	69	68	98	66	70	85	331	410	313	83
19	52	60	69	68	98	65	70	86	331	414	310	39
20	52	70	70	67	98	65	70	86	332	414	296	34
21	52	70	69	67	98	66	70	86	333	413	269	34
22	52	70	68	67	98	66	70	87	347	414	259	34
23	52	70	67	67	98	66	53	86	355	426	254	34
24	52	70	68	66	98	66	34	132	353	424	245	35
25	52	70	68	65	97	66	34	164	382	435	223	35
26	52	70	68	65	97	66	34	164	418	439	221	36
27	52	69	68	65	97	66	34	164	475	439	221	36
28	52	69	67	65	96	65	34	164	517	439	219	36
29	52	70	67	65	96	65	34	164	554	439	218	31
30	53	71	66	65	---	65	34	171	705	439	217	29
31	53	---	66	66	---	67	---	214	---	436	217	---
TOTAL	2083	1776	2128	2074	2837	2322	1811	2736	11024	13314	9906	3072
MEAN	67.2	59.2	68.6	66.9	97.8	74.9	60.4	88.3	367	429	320	102
MAX	79	71	71	69	101	95	70	214	705	671	434	199
MIN	52	52	66	65	79	65	34	34	253	405	217	29
AC-FT	4130	3520	4220	4110	5630	4610	3590	5430	21870	26410	19650	6090
MEAN†	61.5	88.7	58.4	78.7	60.8	58.4	88.2	246	489	468	172	88.9
CFSM†	1.21	1.74	1.15	1.55	1.19	1.15	1.73	4.83	9.61	9.19	3.38	1.75
IN.†	1.39	1.95	1.32	1.78	1.29	1.32	1.93	5.57	10.72	10.61	3.89	1.95
AC-FT†	3780	5280	3590	4840	3500	3590	5250	15130	29100	28800	10560	5290

CAL YR 1983 TOTAL 53588 MEAN 147 MAX 474 MIN 28 AC-FT 106300 MEAN† 160 CFSM† 3.14 IN.† 42.58 AC-FT† 115550
WTR YR 1984 TOTAL 55083 MEAN 151 MAX 705 MIN 29 AC-FT 109300 MEAN† 164 CFSM† 3.22 IN.† 43.75 AC-FT† 118740

† 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 mi^2.

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. Altitude 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.--Records excellent. 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 above station.

AVERAGE DISCHARGE.--60 years (water years 1913, 1926-84), 197 ft^3/s, 142,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,550 ft^3/s June 16, 1974, gage height, 8.59 ft, present datum; minimum, 7.5 ft^3/s Mar. 2, 1966, result of freezeup; minimum daily, 10 ft^3/s Nov. 28-30, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 30	2130	1,980	7.79	June 29	0030	*2,270	a*8.28
June 20	2130	1,250	6.38				

Minimum, 17 ft^3/s Dec. 22.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	42	43	41	81	48	74	119	907	986	330	152
2	38	47	36	41	78	48	72	125	731	1020	330	113
3	37	54	35	119	76	47	70	122	636	1030	300	95
4	37	90	34	389	74	46	70	115	621	1040	309	86
5	37	69	35	308	72	46	73	112	578	1080	277	79
6	36	85	39	248	71	46	76	106	554	1160	251	81
7	35	76	40	213	69	46	71	102	504	986	214	84
8	35	64	42	180	67	47	78	106	459	804	189	103
9	37	56	42	156	66	49	74	138	415	724	177	96
10	38	58	50	139	64	53	75	137	384	717	170	85
11	36	83	45	127	62	55	72	157	439	768	165	79
12	35	69	44	115	63	55	71	245	457	829	158	75
13	35	64	43	106	78	59	68	355	493	754	149	71
14	34	58	44	93	73	66	70	514	575	674	134	68
15	34	59	42	90	68	64	97	430	740	670	127	64
16	33	60	32	82	66	63	164	351	864	697	124	62
17	33	60	35	88	63	64	223	307	856	696	119	59
18	35	57	34	76	58	61	205	316	884	753	114	57
19	32	54	32	68	60	62	187	406	972	763	108	56
20	31	52	28	70	61	88	167	585	1030	641	99	63
21	30	51	24	76	58	126	159	524	975	512	90	63
22	50	44	21	90	56	111	167	484	755	459	84	62
23	64	50	19	110	55	103	182	709	772	437	81	86
24	56	52	22	130	54	100	177	586	930	532	79	84
25	55	49	25	166	53	93	163	492	1260	570	76	79
26	52	47	28	126	51	89	151	629	1530	620	73	77
27	49	46	25	111	51	84	141	556	1640	689	69	76
28	46	45	30	100	49	81	133	604	1710	562	67	72
29	44	43	34	94	48	79	127	897	1860	505	64	69
30	42	34	42	85	---	76	123	1690	1260	398	74	65
31	44	---	42	82	---	75	---	1400	---	340	222	---
TOTAL	1239	1718	1087	3919	1845	2130	3580	13419	25791	22416	4823	2361
MEAN	40.0	57.3	35.1	126	63.6	68.7	119	433	860	723	156	78.7
MAX	64	90	50	389	81	126	223	1690	1860	1160	330	152
MIN	30	34	19	41	48	46	68	102	384	340	64	56
AC-FT	2460	3410	2160	7770	3660	4220	7100	26620	51160	44460	9570	4680

CAL YR 1983	TOTAL	72899	MEAN	200	MAX	1500	MIN	19	AC-FT	144600
WTR YR 1984	TOTAL	84328	MEAN	230	MAX	1860	MIN	19	AC-FT	167300

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 current year. 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. Altitude 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.--Records good except those for December and January, which are fair. No regulation. Diversions for irrigation above station. Water for irrigation in Lostine River basin diverted from Little Bear Creek, a tributary above station, in sec.32, T.1 S., R.43 E.

AVERAGE DISCHARGE.--60 years (water years 1925-84), 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 above base 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)
Jan. 24	1300	ice jam	a*5.38	May 30	1830	*1,450	3.82
May 13	2400	645	3.25	June 28	1930	1,020	3.48

a From high-water mark in well.

Minimum daily recorded, 11 ft^3/s Oct. 5-8, 11-17, 19-21, 26-30, Dec. 23, but may have been less during period of ice effect Nov. 30 to Dec. 10, 16-25, or period of no gage-height record Dec. 24-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	16	23	78	30	73	89	611	444	66	49
2	12	13	15	26	70	30	68	90	479	447	67	36
3	12	13	15	54	63	29	64	90	420	442	58	29
4	12	18	14	130	59	29	62	88	422	439	53	26
5	11	15	15	579	57	28	66	88	422	448	48	24
6	11	21	16	352	54	28	71	83	420	442	44	24
7	11	24	17	250	52	30	72	80	404	374	39	25
8	11	19	18	220	49	33	76	83	365	317	36	32
9	13	18	20	200	48	38	74	109	326	288	33	33
10	12	18	22	170	45	44	75	119	304	282	30	28
11	11	24	23	150	43	52	72	143	371	295	29	27
12	11	23	21	140	42	57	71	261	433	298	27	25
13	11	22	22	120	53	66	66	404	453	267	26	24
14	11	19	22	110	50	86	68	580	494	239	25	22
15	11	21	20	100	50	92	102	431	574	232	24	22
16	11	23	19	94	50	88	194	319	635	232	23	20
17	11	26	20	90	48	85	268	257	577	226	22	20
18	12	22	21	84	47	76	244	250	565	234	22	19
19	11	21	19	78	46	74	214	317	616	216	21	18
20	11	20	16	80	44	102	185	469	650	183	20	20
21	11	19	14	84	40	176	166	424	640	149	20	20
22	12	17	12	94	38	172	165	368	521	130	19	21
23	13	17	11	110	36	162	175	507	518	120	18	23
24	12	20	14	130	35	152	173	436	599	157	18	22
25	12	19	16	195	34	140	155	367	764	145	18	21
26	11	18	17	162	33	126	139	491	810	128	17	21
27	11	18	16	137	30	110	122	453	795	116	17	22
28	11	18	18	119	30	99	111	502	824	114	16	22
29	11	18	21	105	29	89	101	790	768	112	16	21
30	11	17	23	93	---	82	94	1210	530	85	20	21
31	12	---	25	85	---	77	---	907	---	72	80	---
TOTAL	355	573	558	4364	1353	2482	3586	10805	16310	7673	972	737
MEAN	11.5	19.1	18.0	141	46.7	80.1	120	349	544	248	31.4	24.6
MAX	13	26	25	579	78	176	268	1210	824	448	80	49
MIN	11	12	11	23	29	28	62	80	304	72	16	18
AC-FT	704	1140	1110	8660	2680	4920	7110	21430	32350	15220	1930	1460

CAL YR 1983	TOTAL	41792	MEAN	114	MAX	1100	MIN	11	AC-FT	82890
WTR YR 1984	TOTAL	49768	MEAN	136	MAX	1210	MIN	11	AC-FT	98710

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 National Geodetic Vertical Datum of 1929. June 1912 to March 1914, nonrecording gage at approximately same site at different datum.

REMARKS.--Water-discharge records good except those for winter periods, which are fair. 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.--20 years, 483 ft^3/s, 27.33 in/yr, 349,900 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 above base 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)
Jan. 25	1400	1,610	3.02	May 30	2130	*4,670	*5.65
May 14	0230	1,730	3.30	June 29	0030	3,930	5.19

Minimum, 42 ft^3/s Nov. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	74	70	160	346	206	303	355	2460	2110	447	299
2	73	85	83	170	316	212	299	389	2100	2020	473	201
3	73	97	100	250	307	212	288	399	1820	1990	423	176
4	73	138	110	433	287	205	281	396	1860	1960	419	163
5	73	140	95	514	276	209	290	395	1930	1960	379	154
6	71	141	110	453	273	214	318	374	1910	2030	349	155
7	68	164	130	427	267	223	308	353	1830	1810	311	160
8	67	124	179	412	259	241	330	362	1720	1550	288	177
9	75	110	142	375	253	274	314	442	1550	1380	267	192
10	83	105	176	337	250	317	318	482	1430	1320	251	163
11	75	160	177	315	239	372	305	529	1600	1340	242	153
12	71	164	163	293	242	370	301	871	1880	1440	229	147
13	70	141	164	265	284	380	291	1120	1800	1340	217	139
14	68	124	177	232	308	602	292	1580	1890	1220	205	133
15	68	128	171	175	306	612	387	1270	2080	1160	194	129
16	67	129	128	140	302	505	789	1060	2310	1180	186	125
17	67	150	110	130	286	465	1010	933	2240	1170	180	120
18	73	139	115	120	255	389	848	944	2200	1180	174	115
19	72	124	105	110	254	365	757	1110	2290	1180	168	112
20	68	118	90	120	264	458	654	1490	2390	1090	161	116
21	66	114	80	167	249	866	585	1480	2470	910	154	134
22	69	98	70	266	235	772	587	1350	2120	812	146	124
23	90	97	60	326	227	700	658	1720	2040	747	141	134
24	83	122	70	525	224	643	649	1620	2210	819	136	128
25	72	119	90	1380	223	553	573	1420	2630	855	131	119
26	69	106	110	951	211	496	503	1750	3030	881	127	116
27	66	104	100	613	210	421	447	1750	3100	1020	122	117
28	65	104	120	517	205	378	413	1860	3180	818	118	112
29	64	99	130	447	204	351	387	2360	3510	730	114	108
30	64	47	150	390	---	321	365	3850	2640	594	124	105
31	70	---	170	363	---	309	---	3380	---	503	423	---
TOTAL	2209	3565	3745	11376	7562	12641	13850	37394	66220	39119	7299	4326
MEAN	71.3	119	121	367	261	408	462	1206	2207	1262	235	144
MAX	90	164	179	1380	346	866	1010	3850	3510	2110	473	299
MIN	64	47	60	110	204	205	281	353	1430	503	114	105
CFSM	.30	.50	.50	1.53	1.09	1.70	1.92	5.02	9.20	5.26	.98	.60
IN.	.34	.55	.58	1.76	1.17	1.96	2.15	5.80	10.26	6.06	1.13	.67
AC-FT	4380	7070	7430	22560	15000	25070	27470	74170	131300	77590	14480	8580

CAL YR 1983	TOTAL	178160	MEAN	488	MAX	3800	MIN	47	CFSM	2.03	IN.	27.61	AC-FT	353400
WTR YR 1984	TOTAL	209306	MEAN	572	MAX	3850	MIN	47	CFSM	2.38	IN.	32.44	AC-FT	415200

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 current year.

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, 23.5°C Aug. 11, 17; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (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 26...	1030	68	59	7.6	2.0	12.4	<1	<1	21	0	6.1
JAN 30...	1100	388	53	--	.5	13.1	K11	K5	21	0	5.6
MAY 29...	1100	2170	35	7.4	6.0	11.6	K5	K3	15	0	4.2
AUG 17...	1030	179	43	7.6	19.0	8.7	K5	130	17	0	5.0

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT 26...	1.4	2.5	2.0	28	1.6	.50	<.10	.050	<.10	.40	.03
JAN 30...	1.7	2.3	1.1	--	5.1	.70	<.10	.080	<.10	<.20	.12
MAY 29...	1.0	1.6	.80	21	1.9	.40	<.10	.050	<.10	.60	.06
AUG 17...	1.0	2.0	1.1	20	1.6	.40	<.10	.040	<.10	.40	.03

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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										
26...	.010	.010	17	49	48	9.0	2.1	<1	--	--
JAN										
30...	.020	.020	23	47	56	49	7.1	<1	--	--
MAY										
29...	.010	.040	15	16	38	94	5.4	70	410	35
AUG										
17...	.010	.010	14	36	37	17	.50	5	2.4	--

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)
MAY										
29...	40	<1	8	<.5	<1	1	<3	1	32	3
AUG										
17...	20	<1	11	<.5	<1	<1	<3	2	10	<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)
MAY										
29...	<4	3	<.1	<10	<1	<1	<1	15	<6	15
AUG										
17...	6	2	<.1	<10	7	<1	<1	20	<6	19

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 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.0	5.5	10.0	7.5	3.0	.0	---	---	1.0	.0	5.0	1.5
2	11.5	6.5	8.5	6.5	.0	.0	.0	.0	1.0	.0	5.5	2.0
3	11.5	7.0	8.5	7.0	.0	.0	.0	.0	.5	.0	6.0	1.5
4	15.0	9.0	10.0	7.5	.0	.0	.0	.0	.0	.0	5.5	.0
5	14.0	7.0	7.5	5.5	.0	.0	.0	.0	.5	.0	5.5	1.0
6	11.5	7.0	7.0	5.5	.0	.0	.0	.0	.0	.0	6.5	1.0
7	11.5	4.5	5.5	4.0	.0	.0	.0	.0	2.0	.0	7.0	1.0
8	9.5	4.5	5.5	3.0	.0	.0	.0	.0	2.5	.0	6.0	1.5
9	11.0	8.0	4.0	2.0	.0	.0	.0	.0	1.0	.0	7.0	3.0
10	12.0	8.0	4.0	3.5	.0	.0	.0	.0	2.0	.0	6.0	3.0
11	11.5	5.5	7.0	4.0	.0	.0	.0	.0	1.0	.0	6.5	3.0
12	10.0	4.0	4.5	3.5	.0	.0	.0	.0	2.0	.0	5.5	3.5
13	10.5	6.5	3.5	2.5	1.0	.0	.0	.0	2.5	1.5	3.5	2.0
14	9.0	7.0	3.5	1.5	1.5	1.0	.0	.0	3.5	1.0	5.5	3.0
15	10.0	5.0	5.0	3.0	2.0	.0	.0	.0	3.5	.5	5.5	3.5
16	9.0	3.0	6.0	3.5	.5	.0	.0	.0	3.0	1.5	6.0	3.5
17	8.0	5.0	5.5	3.5	.0	.0	.0	.0	4.0	.0	5.5	3.5
18	10.0	4.5	5.0	3.0	.0	.0	.0	.0	1.5	.0	5.0	3.0
19	8.5	4.0	3.0	2.0	.0	.0	.0	.0	1.5	.0	7.0	4.0
20	11.0	5.5	3.0	1.5	.0	.0	.0	.0	2.0	.0	8.0	5.0
21	10.5	4.5	3.0	1.0	.0	.0	.0	.0	2.0	1.0	5.5	3.5
22	8.5	7.5	1.0	.0	.0	.0	.0	.0	3.0	.0	7.0	3.0
23	11.0	6.0	2.0	.0	.5	.0	.0	.0	3.0	.5	6.0	3.5
24	8.0	3.0	2.5	.0	---	---	.0	.0	3.5	.0	5.5	3.0
25	8.5	2.0	3.0	1.0	---	---	.0	.0	4.0	1.0	3.5	2.5
26	8.0	2.0	3.0	.5	---	---	1.5	.0	3.0	.0	6.0	2.5
27	8.5	3.0	4.0	1.5	---	---	3.0	1.5	5.0	.0	7.0	3.0
28	8.0	3.5	3.5	1.5	---	---	3.0	1.0	4.5	.0	5.0	2.5
29	9.0	4.0	2.0	.0	---	---	2.5	.5	3.5	.5	5.0	3.0
30	9.0	5.5	3.5	.5	---	---	2.5	.0	---	---	8.5	2.5
31	9.5	8.0	---	---	---	---	2.0	.0	---	---	8.0	3.0
MONTH	15.0	2.0	10.0	.0	---	---	3.0	.0	5.0	.0	8.5	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.5	4.5	6.5	4.0	7.5	3.0	10.5	5.5	19.5	14.0	16.5	10.0
2	6.5	4.0	8.0	5.0	7.0	4.5	11.0	7.0	19.5	13.5	18.5	11.0
3	6.5	2.5	9.5	5.5	8.5	5.0	11.0	7.0	20.5	14.0	19.0	12.0
4	7.0	4.5	7.5	3.5	7.0	5.5	11.5	7.5	21.5	15.0	20.5	12.5
5	7.5	4.5	7.5	4.0	7.5	5.0	12.0	7.5	19.5	15.5	20.5	13.5
6	6.5	3.5	8.0	4.0	7.5	5.5	11.5	8.0	20.0	13.5	15.5	12.0
7	6.5	2.5	11.0	3.5	6.5	5.5	10.0	6.5	20.0	13.0	15.0	10.5
8	5.5	4.0	9.5	6.0	6.0	5.0	10.5	7.0	21.0	13.0	16.0	12.0
9	6.5	3.0	9.0	6.5	8.0	5.0	11.5	7.5	21.5	14.0	17.5	12.0
10	5.0	3.0	9.0	5.5	8.0	5.0	12.5	8.5	22.5	16.5	17.0	10.5
11	6.0	2.5	9.0	6.0	8.5	6.0	13.5	9.0	23.5	16.5	14.5	10.5
12	7.5	3.5	10.5	5.5	8.0	5.0	12.5	9.0	22.0	16.0	15.5	8.5
13	9.5	2.5	11.0	6.0	10.0	5.5	12.5	8.5	20.5	13.5	15.5	7.5
14	11.5	4.0	8.5	4.5	10.5	6.0	13.0	8.5	21.0	13.5	15.0	7.0
15	11.5	5.0	5.0	4.0	10.5	6.0	14.0	9.5	22.5	14.0	17.5	10.0
16	8.5	5.5	8.0	4.0	9.5	5.5	14.5	10.5	22.5	15.5	18.0	10.5
17	6.0	5.0	10.0	4.0	9.5	5.0	14.5	11.0	23.5	15.5	19.0	11.0
18	5.5	4.5	10.0	5.5	10.0	5.5	14.0	12.0	22.5	16.0	19.5	12.0
19	6.0	4.5	8.5	5.5	8.0	5.5	14.5	10.5	21.5	14.5	19.0	13.0
20	7.5	4.0	9.0	5.5	7.0	6.0	14.0	10.5	20.5	12.0	16.0	12.5
21	9.5	4.5	8.0	4.5	7.0	5.0	14.5	10.0	21.0	11.5	12.5	10.0
22	10.0	5.0	8.0	4.0	9.5	5.5	13.0	9.5	18.0	13.0	10.0	7.0
23	9.0	5.5	7.5	5.5	10.5	5.5	13.5	10.5	21.0	12.5	9.0	6.0
24	5.5	3.5	7.5	4.0	10.5	6.0	16.0	11.5	21.0	13.5	11.5	5.5
25	5.0	2.0	6.0	4.0	10.5	6.0	17.0	13.0	21.5	13.0	9.0	5.0
26	6.0	2.5	7.0	5.0	10.0	6.0	18.5	14.0	22.0	13.5	11.5	7.0
27	8.5	2.5	9.0	4.5	10.5	6.0	17.5	14.0	21.5	14.5	12.0	6.5
28	5.0	3.0	10.5	4.5	11.0	6.0	17.5	13.5	20.5	13.5	11.5	5.0
29	6.5	2.5	10.5	5.0	9.0	6.5	17.5	13.5	20.5	12.0	12.0	4.5
30	5.5	3.0	7.0	4.5	8.5	5.0	18.5	12.5	17.5	14.5	11.5	5.5
31	---	---	6.5	3.5	---	---	18.0	12.5	16.0	11.0	---	---
MONTH	11.5	2.0	11.0	3.5	11.0	3.0	18.5	5.5	23.5	11.0	20.5	4.5

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above 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.--58 years, 2,184 ft³/s, 1,582,000 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 above base of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 25	1300	9,550	6.22	May 31	0030	*14,900	*8.11
Mar. 22	0200	10,300	6.52	June 29	0230	10,700	6.65
Apr. 19	0730	8,820	5.94				

Minimum, 291 ft³/s Dec. 24, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	640	635	731	560	3030	1560	4740	4040	10500	6820	1830	1970
2	640	671	705	762	2700	1820	4670	4480	9080	6450	1850	1560
3	645	721	702	903	2390	2010	4530	4810	8110	6130	1810	1360
4	641	829	685	1620	2180	1980	4370	5020	7980	5820	1830	1230
5	599	844	748	1920	2000	1960	4480	5060	8300	5670	1770	1120
6	594	855	727	1980	1910	2070	5080	4880	8390	5750	1720	1080
7	583	925	740	2020	1870	2270	4960	4600	8350	5170	1610	1080
8	593	826	861	1920	1780	2540	5260	4490	8100	4410	1490	1110
9	644	788	871	1800	1720	3000	5190	4680	7650	3990	1380	1160
10	676	762	1150	1680	1670	3770	5130	4790	7280	3770	1290	1080
11	651	835	1160	1590	1590	4730	4890	5040	7590	3680	1230	1040
12	642	871	1150	1510	1590	4900	4730	6050	8170	3840	1150	1010
13	644	840	1200	1430	2610	4990	4430	6900	8000	3600	1090	970
14	622	804	1340	1290	3140	7570	4250	8680	8260	3260	1040	942
15	621	835	1320	1100	2900	7800	4930	8290	8490	3060	977	931
16	618	844	1130	1040	2710	7180	6640	7630	8940	3080	938	901
17	630	921	976	1030	2440	7100	8080	6930	8550	3020	911	873
18	642	909	876	909	2190	6370	8260	6620	8190	2940	881	845
19	631	860	893	894	1960	6000	8610	6780	8150	3000	858	765
20	596	842	753	867	1930	7100	8050	7590	8270	2800	857	728
21	589	828	691	883	1880	9500	7330	7590	8720	2390	833	774
22	610	783	622	1010	1740	9750	6930	7140	7610	2170	805	763
23	686	770	603	1160	1670	8840	6880	8270	7270	2040	810	861
24	675	854	398	1980	1620	8430	6650	8260	7500	2110	772	890
25	658	856	460	6650	1600	7760	6170	7690	8390	2260	747	859
26	644	808	540	6390	1550	7460	5600	8520	9150	2270	721	848
27	623	797	500	5650	1510	6930	5050	8510	9360	2590	696	823
28	613	799	540	5100	1520	6380	4630	8700	9300	2350	657	794
29	607	794	600	4370	1510	5860	4320	9780	10000	2480	636	777
30	613	697	680	3880	---	5280	4080	13300	8160	2180	653	762
31	629	---	640	3470	---	4910	---	13000	---	1950	1860	---
TOTAL	19499	24403	24992	67368	58910	167820	168920	218120	251810	111050	35702	29906
MEAN	629	813	806	2173	2031	5414	5631	7036	8394	3582	1152	997
MAX	686	925	1340	6650	3140	9750	8610	13300	10500	6820	1860	1970
MIN	583	635	398	560	1510	1560	4080	4040	7270	1950	636	728
AC-FT	38680	48400	49570	133600	116800	332900	335100	432600	499500	220300	70810	59320

CAL YR 1983	TOTAL	922791	MEAN	2528	MAX	10700	MIN	398	AC-FT	1830000
WTR YR 1984	TOTAL	1178500	MEAN	3220	MAX	13300	MIN	398	AC-FT	2338000

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 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.--Records excellent. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above 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.--40 years, 3,154 ft^3/s, 2,285,000 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 above base 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)
Jan. 25	1730	11,000	6.65	May 14	0930	11,100	6.68
Mar. 15	0100	11,600	6.79	May 31	0530	*16,200	*7.71
Mar. 22	0430	13,500	7.17	June 29	0900	11,100	6.68
Apr. 17	1030	11,700	6.81				

Minimum daily, 600 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	805	846	981	1000	4070	1960	6330	5370	12300	7590	2210	2720
2	802	881	1010	1200	3610	2220	6280	6070	10600	6970	2200	2000
3	804	934	977	1800	3220	2480	6140	6450	9450	6620	2200	1690
4	802	1050	956	2590	2900	2510	5980	6600	9130	6270	2150	1540
5	782	1090	983	2750	2690	2470	6230	6580	9620	6040	2120	1420
6	773	1090	1020	2660	2520	2550	7180	6360	9710	6060	2070	1370
7	764	1190	978	2710	2470	2810	6930	6020	9650	5760	1930	1350
8	765	1080	1070	2530	2370	3180	7210	5950	9460	5320	1780	1380
9	819	1020	1130	2370	2280	3680	7150	6240	8910	4780	1650	1430
10	848	1020	1370	2210	2220	4800	7050	6360	8500	4440	1540	1380
11	841	1170	1650	2080	2100	6110	6790	6520	8540	4260	1480	1320
12	823	1200	1620	1960	2050	6610	6530	7680	9210	4440	1390	1290
13	819	1150	1610	1850	2790	6470	6370	8560	9170	4230	1300	1260
14	813	1100	1840	1720	4130	9400	6190	10700	9450	3850	1250	1220
15	804	1110	1890	1550	3790	10700	7170	10200	9540	3600	1190	1210
16	804	1160	1690	1410	3550	9570	9670	9380	9960	3570	1140	1160
17	805	1300	1440	1400	3200	9240	11500	8510	9630	3520	1110	1130
18	818	1360	1340	1370	2880	8430	11200	8150	9210	3390	1080	1100
19	825	1250	1240	1470	2560	7690	11400	8290	9050	3490	1060	1050
20	791	1200	1160	1610	2480	9380	10600	9110	9140	3300	1050	993
21	777	1160	1070	1620	2450	12800	9730	9290	9790	2880	1040	1020
22	791	1110	940	1860	2300	12900	9290	8690	8820	2590	1010	1030
23	854	1060	740	1880	2170	11600	9330	9740	8250	2440	1010	1100
24	870	1140	600	2390	2110	10900	8880	10100	8220	2410	982	1150
25	840	1170	740	7720	2070	9920	8110	9260	8910	2680	957	1120
26	828	1130	800	8680	2010	9360	7370	9960	9660	2610	929	1100
27	811	1100	740	7280	1930	8830	6680	10200	9950	2890	919	1080
28	799	1120	860	6580	1940	8170	6200	10300	9800	2750	917	1060
29	790	1110	1000	5860	1930	7590	5820	11100	10600	2920	901	1040
30	794	1050	980	5180	---	6920	5490	14300	9110	2640	920	1030
31	823	---	880	4630	---	6510	---	15100	---	2360	1450	---
TOTAL	25084	33351	35305	91920	76790	217760	230800	267140	283340	126670	42935	38743
MEAN	809	1112	1139	2965	2648	7025	7693	8617	9445	4086	1385	1291
MAX	870	1360	1890	8680	4130	12900	11500	15100	12300	7590	2210	2720
MIN	764	846	600	1000	1930	1960	5490	5370	8220	2360	901	993
AC-FT	49750	66150	70030	182300	152300	431900	457800	529900	562000	251200	85160	76850

CAL YR 1983	TOTAL	1197723	MEAN	3281	MAX	11900	MIN	600	AC-FT	2376000
WTR YR 1984	TOTAL	1469838	MEAN	4016	MAX	15100	MIN	600	AC-FT	2915000

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 mi^2, 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. For records collected at site 7.5 mi downstream see station 13353200.

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.--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.

COOPERATION.--Records furnished by U.S. Corps of Engineers. Records not reviewed.

AVERAGE DISCHARGE.--29 years (water years 1910-16, 1963-84), 56,640 ft^3/s, 41,036,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft^3/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, 262,000 ft^3/s May 31; maximum forebay elevation, 439.99 ft Mar. 23; minimum hourly discharge, 300 ft^3/s Dec. 7; minimum forebay elevation, 437.01 ft Dec. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23000	38900	34500	54100	54000	47700	83200	101000	224000	136000	49800	26900
2	11300	34800	57000	52600	58100	58200	108000	106000	205000	107000	45200	26700
3	23200	41400	38900	66500	49800	47700	96200	87500	203000	116000	32700	27300
4	23200	40100	34000	51200	58500	31400	98300	101000	176000	107000	34500	32900
5	24000	47700	58400	64200	48700	52300	84800	94700	174000	108000	33100	31200
6	32800	45200	56800	76100	50700	36500	94300	120000	188000	106000	33700	38400
7	30600	46700	43200	61800	53600	46200	97900	106000	180000	99300	26700	44500
8	26700	44600	46100	61800	42900	46600	96500	104000	180000	91500	28300	40800
9	22300	43700	48800	66600	43800	50000	102000	114000	181000	90700	40500	28100
10	26900	35000	47700	65900	41900	51300	99500	119000	171000	78500	37400	42300
11	26100	41100	40600	56400	48000	58000	100000	120000	166000	74100	32000	38700
12	28800	42300	55900	58900	65900	77800	98700	120000	166000	68500	25100	38800
13	35600	43300	52200	54700	70100	71200	99800	132000	165000	68900	26600	39800
14	33100	42900	49400	59800	60300	78600	92700	156000	176000	69400	25200	37300
15	26300	44000	50500	44400	65700	86000	103000	189000	187000	37000	27700	31100
16	27500	45800	53200	64900	64000	100000	106000	197000	190000	66700	25900	29200
17	29700	52200	45700	62300	54800	100000	138000	185000	192000	58100	23000	41400
18	35900	56800	30400	63500	38600	100000	136000	186000	200000	31300	17500	37300
19	40000	39400	60700	55200	41800	101000	142000	160000	187000	42300	18900	34000
20	36400	44600	55500	58600	43200	96800	140000	160000	187000	47900	26400	37400
21	39900	58600	45900	25700	51400	85500	140000	188000	203000	38200	27700	38000
22	41000	51600	56900	43400	52000	106000	133000	194000	220000	37300	23500	33100
23	35500	56100	53700	61300	48500	135000	130000	174000	180000	30500	36300	27700
24	34500	49200	35000	51700	45900	105000	135000	197000	181000	36400	36600	42100
25	38000	58400	23300	72600	30800	119000	134000	189000	170000	35800	30600	40300
26	36300	52000	53600	88400	46300	114000	133000	176000	181000	34400	17400	37400
27	31200	39200	55600	83900	65200	114000	128000	166000	181000	40800	29200	41900
28	38800	57000	49300	70800	44400	106000	112000	178000	178000	52000	15200	42300
29	44200	52900	51700	67200	40200	102000	115000	180000	172000	42300	39600	41400
30	33400	51400	59800	68800	---	104000	119000	199000	152000	30800	26900	26200
31	33800	---	53900	59500	---	105000	---	248000	---	51700	31100	---
TOTAL	970000	1396900	1498200	1892800	1479100	2532800	3395900	4727200	5516000	2034400	924300	1074500
MEAN	31290	46560	48330	61060	51000	81700	113200	152500	183900	65630	29820	35820
MAX	44200	58600	60700	88400	70100	135000	142000	248000	224000	136000	49800	44500
MIN	11300	34800	23300	25700	30800	31400	83200	87500	152000	30500	15200	26200
AC-FT	1924000	2771000	2972000	3754000	2934000	5024000	6736000	9376000	10941000	4035000	1833000	2131000

CAL YR 1983	TOTAL	24487700	MEAN	67090	MAX	198000	MIN	11300	AC-FT	48571000
WTR YR 1984	TOTAL	27442100	MEAN	74980	MAX	248000	MIN	11300	AC-FT	54431000

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. Altitude 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.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--63 years (water years 1908-17, 1932-84), 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 above base 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)
Jan. 4	0030	619	2.37	June 8	0730	613	2.36
Jan. 24	2130	*1,370	*3.63				

Minimum daily, 105 ft^3/s Dec. 22-25, Sept. 20-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	109	133	170	209	178	251	216	347	200	130	123
2	111	109	133	200	199	205	247	251	315	195	128	121
3	111	111	133	268	187	199	237	268	299	190	135	121
4	113	135	130	542	181	187	233	265	315	185	128	119
5	113	113	133	404	178	184	247	258	421	180	125	119
6	111	133	130	320	181	184	254	244	459	173	125	118
7	111	125	135	268	178	190	240	240	531	165	130	120
8	111	121	143	240	178	205	265	258	575	160	130	120
9	117	119	233	212	175	230	258	283	481	158	130	116
10	113	138	371	199	173	265	268	275	410	155	130	114
11	111	148	268	190	165	303	261	299	393	150	128	112
12	111	138	212	181	173	283	251	342	360	150	130	110
13	111	140	196	173	261	287	233	410	342	148	130	110
14	111	133	219	163	303	410	237	426	329	148	128	109
15	111	140	216	153	261	426	333	351	324	148	125	109
16	109	145	190	148	233	382	410	307	311	143	125	108
17	109	181	168	135	205	351	371	295	295	140	125	107
18	109	165	153	125	190	311	324	311	275	140	125	106
19	109	155	145	121	184	307	315	333	261	138	125	106
20	107	145	120	119	178	415	291	351	272	135	125	105
21	107	143	110	115	178	492	272	329	265	135	125	105
22	115	138	105	119	173	476	283	333	258	133	125	105
23	111	135	105	135	168	421	299	454	247	133	125	108
24	107	140	105	663	165	351	279	377	240	133	125	115
25	107	138	105	846	168	307	251	333	237	128	125	115
26	107	135	120	514	163	295	233	366	226	128	123	112
27	107	138	125	366	160	279	223	377	222	125	123	110
28	107	138	121	307	163	275	219	426	218	125	123	108
29	109	135	125	272	163	268	212	503	214	128	123	107
30	107	135	150	251	---	258	205	487	208	130	130	107
31	109	---	165	230	---	254	---	404	---	133	148	---
TOTAL	3413	4078	4897	8149	5493	9178	8002	10372	9650	4632	3952	3365
MEAN	110	136	158	263	189	296	267	335	322	149	127	112
MAX	117	181	371	846	303	492	410	503	575	200	148	123
MIN	107	109	105	115	160	178	205	216	208	125	123	105
CFSM	1.75	2.16	2.51	4.17	3.00	4.70	4.24	5.32	5.11	2.37	2.02	1.78
IN.	2.02	2.41	2.89	4.81	3.24	5.42	4.72	6.12	5.70	2.74	2.33	1.99
AC-FT	6770	8090	9710	16160	10900	18200	15870	20570	19140	9190	7840	6670

CAL YR 1983	TOTAL	68109	MEAN	187	MAX	696	MIN	105	CFSM	2.97	IN.	40.22	AC-FT	135100
WTR YR 1984	TOTAL	75181	MEAN	205	MAX	846	MIN	105	CFSM	3.25	IN.	44.39	AC-FT	149100

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. Altitude of gage is 1,940 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--15 years, 55.1 ft^3/s, 21.75 in/yr, 39,920 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 above base 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)
Jan. 3	2300	365	5.10	Feb. 13	2400	222	4.56
Jan. 24	2000	*600	*5.75	June 8	0830	420	5.27

Minimum, 8.0 ft^3/s Sept. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	13	19	27	75	84	84	69	59	30	13	14
2	9.4	13	19	31	62	141	81	81	50	28	13	11
3	9.4	14	19	182	56	106	77	114	44	27	17	10
4	9.4	28	19	308	51	81	74	128	59	26	15	9.4
5	9.4	19	18	245	47	72	85	124	117	25	15	9.4
6	9.4	23	18	192	46	68	93	115	143	24	15	10
7	9.4	24	18	152	46	70	87	114	248	23	13	10
8	9.7	21	21	124	46	78	111	124	380	22	13	11
9	13	19	45	99	45	95	114	152	317	21	12	10
10	12	21	118	81	44	128	118	154	230	20	12	9.4
11	11	27	83	69	42	165	105	166	210	19	12	9.4
12	11	25	56	61	44	145	95	180	170	19	12	9.0
13	10	26	48	54	126	123	79	202	148	19	12	9.0
14	10	25	63	47	208	168	84	198	121	18	12	8.7
15	10	26	72	42	157	206	145	159	102	17	12	8.7
16	10	26	54	41	132	188	204	126	84	17	12	8.7
17	10	26	41	37	106	168	204	102	70	17	11	8.4
18	10	26	35	32	87	136	184	97	63	16	11	8.4
19	10	24	32	31	76	131	180	103	55	16	11	8.4
20	11	24	29	30	67	186	156	111	59	15	11	8.4
21	11	23	26	30	64	250	132	100	57	15	11	8.4
22	13	21	19	31	58	258	132	90	56	15	11	9.0
23	14	20	14	31	53	228	139	154	48	15	12	11
24	12	21	14	301	51	192	129	136	44	15	12	11
25	11	21	14	406	51	159	108	115	42	14	11	9.4
26	11	20	17	273	49	147	90	114	39	14	11	9.0
27	11	20	18	206	51	123	79	97	37	14	11	9.0
28	11	20	17	161	55	114	72	90	35	14	11	8.7
29	11	20	18	131	57	112	68	90	35	14	11	8.7
30	11	19	23	108	---	103	66	90	32	13	13	8.7
31	13	---	25	89	---	95	---	75	---	13	22	---
TOTAL	332.5	655	1032	3652	2052	4320	3375	3770	3154	575	390	284.2
MEAN	10.7	21.8	33.3	118	70.8	139	113	122	105	18.5	12.6	9.47
MAX	14	28	118	406	208	258	204	202	380	30	22	14
MIN	9.4	13	14	27	42	68	66	69	32	13	11	8.4
CFSM	.31	.63	.97	3.43	2.06	4.04	3.28	3.55	3.05	.54	.37	.28
IN.	.36	.71	1.12	3.95	2.22	4.67	3.65	4.08	3.41	.62	.42	.31
AC-FT	660	1300	2050	7240	4070	8570	6690	7480	6260	1140	774	564

CAL YR 1983	TOTAL	18483.5	MEAN	50.6	MAX	458	MIN	9.4	CFSM	1.47	IN.	19.99	AC-FT	36660
WTR YR 1984	TOTAL	23591.7	MEAN	64.5	MAX	406	MIN	8.4	CFSM	1.87	IN.	25.51	AC-FT	46790

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 National Geodetic Vertical Datum of 1929. Prior to June 27, 1939, at site 1 mi downstream at datum 43.94 ft lower.

REMARKS.--Records good except those for April to July, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--51 years, 229 ft^3/s, 23.74 in/yr, 165,900 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 above base 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)
Jan. 24	2230	*2,770	*6.62	June 8	unknown	1,550	5.37
Mar. 20	1930	1,550	5.37				

Minimum, 42 ft^3/s Oct. 4-8, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	58	82	130	330	292	440	320	250	140	58	66
2	44	60	81	150	288	274	415	500	220	130	58	55
3	45	60	78	295	257	257	386	700	210	120	61	53
4	43	79	75	824	236	253	388	740	250	110	58	52
5	44	66	75	632	219	260	390	600	370	105	58	52
6	44	78	75	485	219	278	430	530	600	98	58	54
7	44	84	75	378	210	313	450	425	800	94	55	54
8	44	75	89	309	210	386	500	440	1300	90	54	55
9	52	69	215	260	207	530	500	500	850	85	55	54
10	47	69	510	225	198	614	550	540	700	82	54	52
11	45	72	386	210	185	535	500	600	600	78	54	52
12	44	72	295	198	213	566	450	740	500	74	54	50
13	44	75	274	188	768	1190	450	800	400	72	53	50
14	44	72	362	170	999	1140	550	850	350	70	53	49
15	45	87	378	155	632	1010	800	650	320	68	53	48
16	45	96	285	145	510	866	1200	450	290	67	52	47
17	45	125	216	130	350	754	950	370	250	67	50	49
18	46	125	180	105	267	626	750	370	230	66	50	48
19	45	105	158	95	253	692	650	400	210	64	52	48
20	45	94	150	95	236	1230	550	430	210	63	50	49
21	45	87	120	95	213	1440	500	410	250	63	50	49
22	52	81	80	95	204	1280	470	400	250	63	52	52
23	55	78	60	98	204	1030	540	640	250	62	52	57
24	49	90	54	1720	198	845	500	620	230	64	49	57
25	47	97	56	2180	185	686	420	550	220	62	49	53
26	46	94	68	1270	193	638	350	500	210	59	49	52
27	46	89	66	775	201	608	330	460	200	58	47	50
28	46	89	58	620	201	578	320	420	180	58	48	50
29	47	87	57	525	271	550	310	410	170	62	48	50
30	48	86	60	450	---	505	300	400	155	59	54	50
31	55	---	100	386	---	465	---	320	---	58	87	---
TOTAL	1436	2499	4818	13393	8657	20691	15339	16085	11025	2411	1675	1557
MEAN	46.3	83.3	155	432	299	667	511	519	368	77.8	54.0	51.9
MAX	55	125	510	2180	999	1440	1200	850	1300	140	87	66
MIN	43	58	54	95	185	253	300	320	155	58	47	47
CFSM	.35	.64	1.18	3.30	2.28	5.09	3.90	3.96	2.81	.59	.41	.40
IN.	.41	.71	1.37	3.80	2.46	5.88	4.36	4.57	3.13	.68	.48	.44
AC-FT	2850	4960	9560	26570	17170	41040	30420	31900	21870	4780	3320	3090

CAL YR 1983	TOTAL	85744	MEAN	235	MAX	1600	MIN	43	CFSM	1.79	IN.	24.35	AC-FT	170100
WTR YR 1984	TOTAL	99586	MEAN	272	MAX	2180	MIN	43	CFSM	2.08	IN.	28.28	AC-FT	197500

NOTE.--No gage-height record Apr. 3 to July 16.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--9 years, 214 ft^3/s, 16.51 in/yr, 155,000 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 above base 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)
Jan. 24	1930	*3,010	*5.57	Apr. 16	0030	2,130	5.06
Mar. 21	0330	2,080	5.02				

Minimum, 6.6 ft^3/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	18	68	90	402	226	670	386	281	108	20	19
2	13	21	66	110	339	278	628	744	264	99	24	18
3	12	21	63	160	295	300	599	1040	229	96	23	20
4	12	29	58	1220	266	287	571	1040	247	92	21	20
5	13	25	57	959	250	275	699	873	342	88	21	19
6	12	28	57	714	246	276	884	738	450	85	21	19
7	12	29	55	546	241	300	779	591	907	83	20	22
8	13	29	65	431	237	357	796	554	1240	78	18	19
9	17	28	160	351	235	432	761	637	987	72	18	18
10	15	29	285	306	228	649	758	592	730	66	17	17
11	15	29	260	274	216	789	692	629	554	62	17	17
12	15	29	235	245	223	757	633	861	457	58	16	16
13	15	30	243	222	614	692	583	887	435	54	15	15
14	15	29	307	194	1040	1050	697	931	372	50	14	14
15	15	35	374	154	760	1430	1410	650	319	48	14	13
16	15	40	297	140	596	1270	1820	455	287	45	13	12
17	15	51	225	126	471	1150	1520	370	260	42	12	12
18	15	62	174	94	392	938	1170	371	231	39	12	11
19	14	61	143	95	339	823	1130	394	219	37	12	9.9
20	13	56	117	85	300	1270	910	445	210	34	12	11
21	13	52	96	89	276	1900	756	408	210	32	11	11
22	15	48	80	90	249	1550	729	352	195	30	11	12
23	16	45	62	91	233	1300	808	513	179	28	11	17
24	15	55	50	1450	226	1100	728	479	167	26	11	17
25	14	64	64	2370	230	931	540	407	162	25	11	15
26	15	65	75	1600	216	845	419	451	154	25	9.2	14
27	15	62	67	965	214	841	339	448	145	25	8.1	15
28	15	63	60	758	218	830	295	432	136	24	7.8	15
29	15	68	60	636	219	773	305	448	130	25	7.8	14
30	15	70	84	549	---	668	313	473	120	23	12	14
31	18	---	108	472	---	641	---	362	---	20	26	---
TOTAL	445	1271	4115	15586	9771	24928	22942	17961	10619	1619	465.9	465.9
MEAN	14.4	42.4	133	503	337	804	765	579	354	52.2	15.0	15.5
MAX	18	70	374	2370	1040	1900	1820	1040	1240	108	26	22
MIN	12	18	50	85	214	226	295	352	120	20	7.8	9.9
CFSM	.08	.24	.76	2.86	1.91	4.57	4.35	3.29	2.01	.30	.09	.09
IN.	.09	.27	.87	3.29	2.07	5.27	4.85	3.80	2.24	.34	.10	.10
AC-FT	883	2520	8160	30910	19380	49440	45510	35630	21060	3210	924	924

CAL YR 1983	TOTAL	75811	MEAN	208	MAX	2010	MIN 10	CFSM	1.18	IN.	16.02	AC-FT	150400
WTR YR 1984	TOTAL	110188.8	MEAN	301	MAX	2370	MIN 7.8	CFSM	1.71	IN.	23.29	AC-FT	218600

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. 29, 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.--Records good except those for discharges between 630 and 4,590 ft^3/s, which are fair. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--50 years (water years 1935-84), 509 ft^3/s, 368,800 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 above base 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)
Jan. 4	1630	4,210	6.72	Mar. 15	0500	3,710	6.48
Jan. 25	0130	*6,630	*7.71	Mar. 21	0500	6,120	7.54
Feb. 13	2030	3,570	6.40	Apr. 16	0330	3,750	6.50

Minimum, 43 ft^3/s Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	81	204	698	860	647	1310	749	940	245	69	94
2	58	83	199	698	783	800	1160	1310	840	227	177	71
3	58	83	193	1380	698	800	1100	1950	749	215	83	62
4	56	104	182	3430	647	749	1020	2060	749	199	81	62
5	56	107	177	2060	585	732	1100	1810	1020	182	74	59
6	56	101	182	1550	570	732	1310	1550	1450	160	69	64
7	56	120	182	1160	540	749	1200	1200	2370	156	66	69
8	56	117	199	900	525	783	1450	1120	3160	152	62	69
9	74	107	456	749	525	860	1310	1480	2510	144	59	66
10	71	107	1730	681	510	1200	1620	1480	1990	136	59	64
11	64	107	1120	647	480	1550	1620	1480	1520	128	59	61
12	62	110	900	615	480	1480	1480	2060	1240	120	58	59
13	62	117	900	570	1880	1310	1380	2190	1140	117	56	56
14	61	117	1060	510	2780	2540	1270	2370	920	110	58	56
15	61	124	1810	456	1620	3520	2270	1950	820	107	56	58
16	62	166	1080	420	1310	2960	3390	1380	766	101	53	59
17	62	215	800	396	1100	2490	2780	1020	681	94	53	58
18	62	275	647	372	960	1950	2190	1000	600	94	51	54
19	62	251	510	350	840	1620	1950	1060	540	91	51	54
20	62	215	430	360	749	2320	1700	1200	495	88	51	54
21	61	199	350	360	732	4670	1450	1200	585	81	53	54
22	64	182	250	360	698	3830	1310	1000	495	81	51	59
23	74	166	180	360	647	3160	1550	1450	468	81	51	69
24	71	177	180	2720	630	2440	1450	1620	432	78	50	76
25	66	227	185	5260	681	2190	1160	1160	408	78	51	71
26	64	227	220	3460	630	1810	940	1270	372	76	51	66
27	64	215	210	1880	615	1810	783	1310	343	74	48	64
28	62	204	195	1450	630	1810	749	1270	309	76	45	64
29	64	210	185	1200	630	1730	732	1310	301	78	45	64
30	64	210	200	1120	---	1550	732	1620	269	78	53	64
31	69	---	500	1000	---	1450	---	1160	---	71	69	---
TOTAL	1940	4724	15616	37172	24335	56242	43466	44789	28482	3718	1912	1900
MEAN	62.6	157	504	1199	839	1814	1449	1445	949	120	61.7	63.3
MAX	74	275	1810	5260	2780	4670	3390	2370	3160	245	177	94
MIN	56	81	177	350	480	647	732	749	269	71	45	54
AC-FT	3850	9370	30970	73730	48270	111600	86210	88840	56490	7370	3790	3770

CAL YR 1983	TOTAL	204663	MEAN	561	MAX	5280	MIN	42	AC-FT	405900
WTR YR 1984	TOTAL	264296	MEAN	722	MAX	5260	MIN	45	AC-FT	524200

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. Altitude of gage is 1,870 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--11 years, 47.6 ft^3/s, 34,490 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, 0.30 ft^3/s July 15, 1975 (result of temporary construction upstream).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Jan. 5	unknown	530	a4.00	Mar. 14	1700	501	3.91
Jan. 24	0530	468	3.76	June 7	1230	374	3.39
Feb. 13	1600	*675	*4.52				

a From high-water mark in well.

Minimum, 0.67 ft^3/s Aug. 26, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.7	24	35	64	124	181	95	23	8.2	2.5	1.1
2	1.5	3.0	22	50	55	176	160	132	21	7.3	6.3	1.0
3	1.4	3.4	21	90	49	150	134	184	19	6.6	3.0	.95
4	1.4	7.4	18	160	44	123	120	152	30	5.9	2.3	.91
5	1.4	6.8	18	260	40	108	126	131	50	5.4	2.0	.88
6	1.4	8.6	19	210	39	102	127	109	107	4.9	1.9	1.2
7	1.4	13	19	170	38	104	111	91	294	4.5	1.8	1.8
8	1.5	11	26	140	36	112	179	80	251	4.1	1.7	1.7
9	2.4	9.0	78	110	36	141	186	69	176	3.8	1.6	1.5
10	2.0	9.4	180	90	34	187	200	62	126	3.5	1.4	1.3
11	1.9	14	112	78	33	196	192	62	99	3.2	1.2	1.3
12	1.7	13	85	73	65	164	187	53	87	3.0	1.2	1.3
13	1.8	15	95	65	411	200	162	47	77	2.9	1.2	1.3
14	1.9	14	171	55	339	445	152	43	63	2.8	1.2	1.2
15	1.9	31	196	47	208	422	161	43	52	2.6	1.1	1.2
16	1.9	32	114	42	172	336	136	37	43	2.4	1.0	1.2
17	1.9	38	75	33	140	272	113	32	37	2.2	1.0	1.2
18	2.0	31	55	28	118	212	111	28	31	2.1	1.0	1.2
19	1.9	25	43	25	100	203	101	26	26	2.1	.99	1.1
20	1.9	21	35	22	92	245	85	24	29	2.0	.98	1.2
21	1.9	18	29	23	84	291	73	21	28	2.0	.94	1.3
22	2.2	17	23	24	73	318	67	26	27	1.9	.94	1.6
23	2.3	17	21	24	70	272	60	52	22	1.8	.94	2.1
24	2.1	42	20	339	72	221	55	40	19	1.8	.92	2.1
25	2.0	46	30	325	82	196	50	42	16	1.8	.89	1.9
26	2.0	35	43	223	74	281	44	42	15	1.6	.78	1.9
27	2.0	29	35	161	79	289	39	40	13	1.6	.77	1.9
28	2.1	28	28	128	89	279	39	44	11	1.6	.76	1.9
29	2.1	28	34	106	93	289	44	47	11	1.6	.75	1.8
30	2.2	27	42	90	---	252	55	32	9.4	1.4	1.1	1.9
31	2.7	---	54	76	---	214	---	26	---	1.3	1.4	---
TOTAL	58.3	595.3	1765	3302	2829	6924	3450	1912	1812.4	97.9	45.56	42.94
MEAN	1.88	19.8	56.9	107	97.6	223	115	61.7	60.4	3.16	1.47	1.43
MAX	2.7	46	196	339	411	445	200	184	294	8.2	6.3	2.1
MIN	1.4	2.7	18	22	33	102	39	21	9.4	1.3	.75	.88
AC-FT	116	1180	3500	6550	5610	13730	6840	3790	3590	194	90	85

CAL YR 1983	TOTAL	17697.07	MEAN	48.5	MAX	412	MIN	.57	AC-FT	35100
WTR YR 1984	TOTAL	22834.40	MEAN	62.4	MAX	445	MIN	.75	AC-FT	45290

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 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.--Records good. No regulation. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years (water years 1927, 1930-84), 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.--Peak discharges above base of 840 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 4	0100	*1,460	*6.08	Mar. 22	2000	1,030	5.54
Jan. 24	1630	1,290	5.88	Mar. 26	1830	993	5.49
Feb. 13	1900	1,040	5.55	June 7	1830	909	5.37
Mar. 15	0130	930	5.40				

Minimum, 1.0 ft^3/s Aug. 23-25, 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	12	62	400	150	292	600	225	96	36	4.0	4.6
2	5.4	14	59	453	130	435	560	372	86	30	9.5	4.6
3	4.8	14	56	894	120	396	500	585	80	29	10	3.5
4	4.8	18	51	1180	110	336	450	600	91	26	6.8	3.5
5	4.8	20	48	698	105	280	490	530	144	21	6.1	2.5
6	4.8	20	51	485	100	246	545	445	268	13	5.3	3.0
7	5.4	26	52	356	95	243	475	376	662	13	4.6	4.6
8	5.4	24	60	268	90	250	605	332	716	10	4.0	6.1
9	6.5	22	140	210	86	292	615	324	530	10	3.0	6.1
10	7.0	22	357	174	82	384	605	288	404	9.5	2.5	5.3
11	7.0	23	260	165	76	455	575	288	316	8.6	2.5	5.3
12	6.5	23	205	153	89	400	540	308	257	7.6	1.6	4.6
13	6.5	23	217	135	560	412	480	288	260	7.6	2.0	4.0
14	6.5	24	353	113	656	782	450	284	204	7.6	2.5	4.0
15	6.5	33	506	86	460	842	550	239	165	6.1	2.0	3.5
16	7.0	46	302	76	416	722	620	204	135	5.3	2.0	3.5
17	7.0	48	190	64	356	662	565	171	113	4.6	2.0	3.0
18	7.0	48	133	56	312	560	515	153	96	4.6	2.0	2.0
19	7.0	42	106	56	264	525	495	141	84	4.0	2.5	2.0
20	7.0	39	94	56	253	620	408	138	86	3.5	2.0	2.0
21	7.0	38	70	48	257	881	344	129	91	3.0	2.0	2.5
22	7.7	36	66	43	229	958	308	115	82	3.5	1.6	3.5
23	9.8	35	66	39	219	902	300	186	72	3.5	1.3	4.6
24	9.1	46	66	881	219	782	268	177	64	4.0	1.0	5.3
25	8.4	62	66	1200	253	668	225	159	57	4.0	1.3	5.3
26	8.4	59	70	900	236	812	192	174	51	3.5	1.3	5.3
27	8.4	56	80	500	239	888	165	159	48	4.0	1.3	4.6
28	8.4	56	76	300	253	854	153	144	43	4.0	1.3	4.0
29	8.4	62	74	250	257	909	153	132	42	4.0	1.3	4.0
30	9.1	64	90	200	---	812	168	121	40	4.0	2.5	4.0
31	11	---	200	170	---	692	---	110	---	3.5	4.6	---
TOTAL	218.0	1055	4226	10609	6672	18292	12919	7897	5383	298.0	96.4	120.8
MEAN	7.03	35.2	136	342	230	590	431	255	179	9.61	3.11	4.03
MAX	11	64	506	1200	656	958	620	600	716	36	10	6.1
MIN	4.8	12	48	39	76	243	153	110	40	3.0	1.0	2.0
AC-FT	432	2090	8380	21040	13230	36280	25620	15660	10680	591	191	240

CAL YR 1983	TOTAL	50476.74	MEAN	138	MAX	1240	MIN	.87	AC-FT	100100
WTR YR 1984	TOTAL	67786.2	MEAN	185	MAX	1200	MIN	1.0	AC-FT	134500

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 mi^2.

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 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, 68,620 acre-ft May 11, 12, gage height, 1,317.77 ft; minimum, 16,360 acre-ft Oct. 6, gage height, 1,251.52 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 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1251.54	1252.14	1256.24	1271.97	1300.51	1313.99	1315.41	1317.38	1317.48	1316.51	1297.00	1272.28
2	1251.53	1252.17	1256.47	1272.52	1300.87	1314.68	1315.50	1317.32	1317.49	1316.22	1296.35	1271.67
3	1251.53	1252.22	1256.70	1275.35	1301.05	1315.31	1315.68	1317.36	1317.49	1315.81	1295.65	1270.97
4	1251.53	1252.26	1256.89	1278.98	1301.32	1315.83	1315.97	1317.26	1317.53	1315.42	1294.86	1270.26
5	1251.53	1252.35	1257.09	1281.16	1301.59	1316.10	1316.47	1317.13	1317.62	1314.98	1294.11	1269.53
6	1251.54	1252.40	1257.27	1282.64	1301.83	1316.20	1316.85	1317.08	1317.70	1314.52	1293.32	1268.81
7	1251.54	1252.46	1257.50	1283.59	1302.07	1316.29	1316.99	1317.15	1317.67	1314.10	1292.60	1268.19
8	1251.54	1252.56	1257.72	1284.46	1302.30	1316.37	1317.04	1317.35	1317.56	1313.64	1291.89	1267.56
9	1251.56	1252.64	1258.29	1285.16	1302.52	1316.46	1316.94	1317.55	1317.40	1313.21	1291.19	1266.94
10	1251.59	1252.74	1259.58	1285.74	1302.72	1316.57	1316.86	1317.71	1317.39	1312.76	1290.50	1266.33
11	1251.62	1253.80	1260.58	1286.29	1302.92	1316.57	1316.70	1317.77	1317.45	1312.23	1289.76	1265.82
12	1251.64	1252.90	1261.37	1286.82	1303.16	1316.47	1316.57	1317.75	1317.54	1311.75	1289.04	1265.33
13	1251.64	1252.96	1262.20	1287.31	1304.40	1316.49	1316.52	1317.74	1317.58	1311.23	1288.32	1264.84
14	1251.64	1253.05	1263.48	1287.72	1305.72	1316.78	1316.67	1317.66	1317.55	1310.74	1287.50	1264.36
15	1251.65	1253.14	1265.35	1288.07	1306.62	1316.97	1316.69	1317.56	1317.55	1310.23	1286.72	1263.86
16	1251.65	1253.32	1266.52	1288.37	1307.45	1316.99	1316.67	1317.48	1317.51	1309.63	1285.94	1263.39
17	1251.67	1253.49	1267.28	1288.64	1308.14	1316.81	1316.58	1317.47	1317.54	1309.08	1285.09	1262.88
18	1251.70	1253.66	1267.89	1288.82	1308.74	1316.45	1316.45	1317.47	1317.56	1308.32	1284.11	1262.39
19	1251.71	1253.83	1268.35	1289.02	1309.27	1316.08	1316.29	1317.43	1317.59	1307.60	1283.61	1261.87
20	1251.74	1253.96	1268.73	1289.17	1309.74	1315.87	1316.21	1317.39	1317.60	1306.80	1282.20	1261.28
21	1251.78	1254.10	1269.01	1289.36	1310.26	1316.14	1316.30	1317.34	1317.56	1306.04	1281.31	1260.60
22	1251.82	1254.31	1269.17	1289.57	1310.65	1316.27	1316.46	1317.29	1317.53	1305.27	1280.49	1259.81
23	1251.84	1254.46	1269.28	1289.74	1311.03	1316.21	1316.62	1317.48	1317.45	1304.49	---	1259.00
24	1251.86	1254.63	1269.42	---	1311.43	1315.97	1316.77	1317.61	1317.45	1303.72	1278.85	1258.36
25	1251.89	1254.83	1269.65	---	1311.86	1315.79	1316.86	1317.64	1317.43	1302.96	1278.12	1257.84
26	1251.94	1255.06	1269.85	1296.14	1312.27	1315.77	1317.02	1317.67	1317.26	1302.01	1277.15	1257.31
27	1251.97	1255.30	1270.05	1297.26	1312.68	1315.86	1317.17	1317.63	1317.11	1301.13	1276.37	1256.93
28	1251.98	1255.49	1270.20	1298.12	1313.06	1315.82	1317.25	1317.61	1316.98	1300.33	1275.60	1256.97
29	1252.01	1255.73	1270.40	1298.93	1313.50	1315.87	1317.32	1317.56	1316.79	1299.45	1274.78	1256.99
30	1252.04	1256.01	1270.65	1299.57	---	1315.81	1317.38	1317.50	1316.65	1298.64	1273.93	1257.02
31	1252.07	---	1271.35	1300.09	---	1315.53	---	1317.48	---	1297.85	1273.32	---
MEAN	1251.72	1253.60	1264.34	---	1306.54	1316.07	1316.61	1317.48	1317.43	1308.60	---	1263.65
MAX	1252.07	1256.01	1271.35	---	1313.50	1316.99	1317.38	1317.77	1317.70	1316.51	---	1272.28
MIN	1251.53	1252.14	1256.24	---	1300.51	1313.99	1315.41	1317.08	1316.65	1297.85	---	1256.93
(†)	16640	18680	27700	49920	63710	65990	68160	68280	67280	47880	28980	19230
(‡)	+260	+2040	+9020	+22220	+13790	+2280	+2170	+120	-1000	-19400	-18900	-9750

CAL YR 1983 AC-FT‡ -14390
WTR YR 1984 AC-FT‡ +2850

† 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.--Records excellent except those for January and February, which are poor. 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.--47 years (water years 1933-43, 1949-84), 98.5 ft^3/s, 71,360 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, 866 ft^3/s Mar. 23, gage height, 2.38 ft; no flow Oct. 1 to Jan. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.90	3.4	598	257	91	118	361	264
2	.00	.00	.00	.00	1.1	3.4	447	370	78	174	313	243
3	.00	.00	.00	.00	1.2	3.4	343	516	74	261	325	240
4	.00	.00	.00	.00	1.3	3.4	250	598	85	261	339	240
5	.00	.00	.00	.00	1.3	143	201	532	121	261	339	240
6	.00	.00	.00	.00	1.3	208	254	429	240	254	325	240
7	.00	.00	.00	.00	1.3	208	361	313	615	257	313	219
8	.00	.00	.00	.00	1.4	208	538	180	722	257	293	201
9	.00	.00	.00	.00	1.5	254	615	180	576	257	285	198
10	.00	.00	.00	.00	1.5	334	609	180	379	271	301	184
11	.00	.00	.00	.00	1.5	480	604	275	271	282	301	153
12	.00	.00	.00	.00	1.5	480	576	305	198	282	301	145
13	.00	.00	.00	.00	1.7	429	442	301	264	282	297	145
14	.00	.00	.00	.00	1.7	615	339	301	236	278	297	145
15	.00	.00	.00	.00	1.8	734	460	301	180	278	309	145
16	.00	.00	.00	.00	2.0	768	565	268	145	305	317	145
17	.00	.00	.00	.00	2.3	747	560	191	98	339	343	142
18	.00	.00	.00	.00	2.3	734	554	168	76	366	357	142
19	.00	.00	.00	.00	2.3	710	532	168	68	402	357	142
20	.00	.00	.00	.00	2.3	710	429	165	80	402	343	156
21	.00	.00	.00	.10	2.3	680	264	165	131	397	330	191
22	.00	.00	.00	.30	2.3	782	201	131	131	397	330	222
23	.00	.00	.00	.50	2.3	831	174	98	89	397	317	222
24	.00	.00	.00	.50	2.3	824	177	98	61	393	301	180
25	.00	.00	.00	.50	2.3	704	177	159	83	402	293	142
26	.00	.00	.00	.50	2.8	722	103	180	145	420	282	142
27	.00	.00	.00	.50	2.8	789	87	177	134	415	282	87
28	.00	.00	.00	.50	2.8	789	103	177	118	402	282	.20
29	.00	.00	.00	.50	2.8	789	121	159	118	402	282	.20
30	.00	.00	.00	.60	---	789	168	131	118	388	293	.11
31	.00	---	.00	.80	---	782	---	116	---	361	285	---
TOTAL	.00	.00	.00	5.30	54.90	16256.6	10852	7589	5725	9961	9693	4915.51
MEAN	.00	.00	.00	.17	1.89	524	362	245	191	321	313	164
MAX	.00	.00	.00	.80	2.8	831	615	598	722	420	361	264
MIN	.00	.00	.00	.00	.90	3.4	87	98	61	118	282	.11
AC-FT	.00	.00	.00	11	109	32240	21520	15050	11360	19760	19230	9750

CAL YR 1983	TOTAL	54656.00	MEAN	150	MAX	782	MIN	.00	AC-FT	108400
WTR YR 1984	TOTAL	65052.31	MEAN	178	MAX	831	MIN	.00	AC-FT	129000

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 National Geodetic Vertical Datum of 1929. See WSP 1318 or 1738 for history of changes prior to Oct. 21, 1948.

REMARKS.--Records excellent except those for January, which are good. 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 above station.

AVERAGE DISCHARGE.--81 years, 683 ft^3/s, 494,800 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 above base 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)
Jan. 4	2100	4,250	6.30	Mar. 21	0830	*6,920	*7.86
Jan. 25	0600	6,520	7.66	Apr. 16	0900	4,610	6.54
Mar. 15	0830	4,440	6.43	June 8	0830	4,200	6.27

Minimum, 71 ft^3/s Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	109	234	550	1050	790	2560	1140	1140	396	420	372
2	74	115	231	780	924	1180	2290	1620	969	390	517	306
3	74	117	231	1500	822	1140	2090	2280	862	492	426	294
4	74	130	219	3600	748	1060	1890	2670	879	474	444	294
5	74	150	213	2900	692	1060	1780	2670	1240	462	420	290
6	74	138	222	1800	657	1130	1870	2410	1630	444	402	294
7	74	156	216	1400	643	1130	1960	2100	2500	444	378	290
8	74	159	228	1100	622	1190	2320	1800	3940	432	354	282
9	99	148	375	950	629	1350	2560	1770	3240	420	326	274
10	99	145	1390	850	622	1770	2560	1840	2490	414	342	262
11	91	148	1220	760	580	2270	2620	1820	2060	414	336	238
12	89	148	930	720	559	2280	2560	2090	1760	408	336	222
13	87	150	900	670	1640	2100	2440	2340	1740	402	336	210
14	87	156	1040	610	3210	3160	2190	2620	1550	402	326	210
15	89	162	1660	550	2310	4340	2570	2390	1310	384	342	210
16	89	189	1230	500	1960	3920	4210	1910	1180	396	354	214
17	89	231	832	450	1610	3440	3850	1580	996	432	372	207
18	87	303	645	440	1340	2990	3310	1460	854	456	384	204
19	87	276	527	440	1190	2820	3350	1510	762	492	378	204
20	85	248	420	440	1070	3040	2930	1600	720	492	378	210
21	85	228	340	440	1040	5300	2440	1580	846	492	354	238
22	93	210	260	440	924	4790	1970	1390	769	486	354	294
23	103	198	235	474	822	4360	1980	1620	685	492	348	314
24	105	207	235	2280	798	3790	2000	1730	594	486	318	306
25	101	252	250	5820	906	3320	1940	1520	552	480	318	238
26	95	264	280	4070	806	3180	1490	1560	573	498	310	234
27	95	248	260	2640	755	3170	1420	1600	552	504	306	222
28	93	237	235	1870	783	3140	1110	1530	486	492	294	110
29	91	244	235	1650	776	3060	1090	1520	450	480	294	103
30	95	237	235	1380	---	2920	1100	1580	432	480	318	98
31	99	---	350	1190	---	2730	---	1410	---	438	342	---
TOTAL	2731	5703	15878	43264	30488	81920	68450	56660	37761	13974	11127	7244
MEAN	88.1	190	512	1396	1051	2643	2282	1828	1259	451	359	241
MAX	105	303	1660	5820	3210	5300	4210	2670	3940	504	517	372
MIN	74	109	213	440	559	790	1090	1140	432	384	294	98
AC-FT	5420	11310	31490	85810	60470	162500	135800	112400	74900	27720	22070	14370

CAL YR 1983	TOTAL	324520	MEAN	889	MAX	5800	MIN	74	AC-FT	643700
WTR YR 1984	TOTAL	375200	MEAN	1025	MAX	5820	MIN	74	AC-FT	744200

NOTE.--No gage-height record Dec. 20 to Jan. 22.

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.--Records excellent except for December and January, which are good. No regulation. Several small diversions for irrigation above station. Water is diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River basin, for irrigation below station.

AVERAGE DISCHARGE.--52 years (water years 1930, 1932, 1934-41, 1943-84), 28.0 ft^3/s, 20,290 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)
Jan. 3	0700	*1,780	*8.21	Apr. 9	0300	250	3.71
Mar. 17	0830	222	3.57	Apr. 19	0100	232	3.62
Mar. 21	0500	230	3.61				

Minimum, 2.6 ft^3/s Aug. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	14	20	300	76	95	160	97	69	25	11	14
2	9.4	14	21	350	70	139	152	116	62	24	10	12
3	9.1	15	21	940	68	115	143	125	59	24	12	12
4	9.1	15	20	557	63	99	136	124	60	23	11	12
5	9.1	17	20	352	61	90	165	116	72	21	11	11
6	9.4	16	20	236	60	85	210	110	72	23	12	11
7	9.1	16	21	194	58	81	185	103	74	22	11	13
8	9.8	16	25	157	56	80	214	103	75	21	9.8	17
9	12	16	36	135	56	85	222	106	69	21	9.2	13
10	12	16	88	119	55	106	197	104	70	20	9.2	12
11	12	16	65	110	52	138	190	109	67	17	7.4	12
12	12	18	51	100	52	130	176	115	65	15	6.2	12
13	10	17	45	96	99	124	162	115	65	15	6.2	11
14	10	17	57	75	146	151	154	121	66	15	8.6	10
15	10	16	90	50	116	185	162	116	57	17	6.2	13
16	10	18	68	35	110	185	178	107	54	15	4.1	12
17	10	21	55	25	100	195	180	99	49	15	3.6	12
18	10	24	47	19	90	173	173	92	46	14	3.6	11
19	10	22	43	19	90	159	204	92	43	14	4.1	11
20	10	21	39	20	93	168	178	95	43	13	5.7	11
21	10	20	33	20	102	214	160	95	55	12	7.4	12
22	12	20	29	22	95	212	151	90	51	13	7.4	14
23	12	19	28	40	90	210	146	107	44	13	8.0	17
24	12	20	29	85	88	195	138	97	41	12	6.8	16
25	12	21	40	143	86	176	130	92	38	12	8.0	15
26	12	22	50	125	80	171	119	93	36	11	8.0	14
27	12	20	50	103	80	167	107	86	36	11	8.0	13
28	12	20	45	96	80	165	102	83	31	11	7.4	13
29	12	22	45	88	82	168	100	78	26	12	8.0	13
30	12	22	50	82	---	185	97	76	26	11	8.0	13
31	13	---	85	77	---	173	---	75	---	10	10	---
TOTAL	333.4	551	1336	4770	2354	4619	4791	3137	1621	502	248.9	382
MEAN	10.8	18.4	43.1	154	81.2	149	160	101	54.0	16.2	8.03	12.7
MAX	13	24	90	940	146	214	222	125	75	25	12	17
MIN	9.1	14	20	19	52	80	97	75	26	10	3.6	10
AC-FT	661	1090	2650	9460	4670	9160	9500	6220	3220	996	494	758

CAL YR 1983	TOTAL	23962.7	MEAN	65.7	MAX	728	MIN	5.2	AC-FT	47530
WTR YR 1984	TOTAL	24645.3	MEAN	67.3	MAX	940	MIN	3.6	AC-FT	48880

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 1983 TO SEPTEMBER 1984

MONTH	FURNISH CANAL	UMATILLA PROJECT FEED CANAL	ALLEN CANAL	WESTERN LAND CANAL	MAXWELL CANAL	WEST DIVISION MAIN CANAL
OCTOBER	133	0	0.9	2,540	1,100	1,750
NOVEMBER	0	3,040	0	1,880	0	0
DECEMBER	0	6,310	0	260	0	0
JANUARY	0	1,470	0	46	0	0
FEBRUARY	0	11,030	0	266	0	0
MARCH	0	10,590	0	3,130	0	0
APRIL	2,010	11,710	76	5,840	1,510	3,490
MAY	6,180	12,240	908	11,320	2,690	7,010
JUNE	7,530	7,530	903	12,270	2,490	8,000
JULY	8,060	46	1,010	13,520	2,570	8,860
AUGUST	6,530	0	973	13,100	2,390	9,080
SEPTEMBER	4,140	0	282	9,100	2,030	6,070
WTR YR 1984	34,590	63,960	4,150	73,280	14,780	44,260

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 National Geodetic Vertical Datum of 1929. Oct. 21, 1903 to Jan. 25, 1931, nonrecording gage.

REMARKS.--Records fair above 200 ft^3/s and poor below. Some regulation since 1927 by McKay Reservoir (see sta 14023000). Many diversions above station for irrigation of lands above and below station; Brownell Canal diverts below station. Diversions since 1908 to Cold Springs Reservoir, an off-channel reservoir, capacity, 52,380 acre-ft.

AVERAGE DISCHARGE.--57 years (water years 1928-84), 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 above base 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)
Jan. 5	0300	5,400	6.02	Mar. 21	1830	8,130	6.70
Jan. 25	1430	*8,520	*6.79	Apr. 16	1500	4,180	5.60
Feb. 14	0630	3,770	5.40	June 8	1500	3,770	5.40
Mar. 15	1600	5,020	5.89				

Minimum, 1.0 ft^3/s July 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	164	158	800	1220	690	2560	768	684	32	3.4	42
2	73	170	154	900	1040	1020	2180	1180	478	16	2.0	74
3	61	183	147	1000	880	1160	1980	1930	357	6.2	26	34
4	62	188	141	2600	768	1110	1780	2490	330	21	3.6	29
5	62	208	136	4390	701	1010	1670	2310	526	37	38	31
6	48	224	136	3170	614	1050	2000	2050	976	19	34	39
7	45	211	139	2420	598	998	2160	1720	1630	10	16	51
8	51	232	153	1950	568	1030	2420	1310	3440	14	8.1	64
9	66	234	205	1630	564	1160	2800	1340	3270	19	11	55
10	91	230	889	1380	568	1500	2680	1430	2400	4.2	14	42
11	91	227	1430	1230	541	2090	2890	1410	1860	2.5	10	26
12	97	223	1100	1110	503	2260	2520	1790	1420	1.4	2.0	40
13	111	227	937	1010	891	2160	2290	2020	1230	1.5	1.3	29
14	184	226	967	929	3440	2710	2020	2180	1040	1.8	1.2	21
15	181	232	1570	833	2740	4570	2360	2030	784	1.4	1.7	23
16	188	242	1500	736	2160	4460	3730	1550	610	1.3	1.2	32
17	192	287	1060	692	1900	3730	3800	1130	452	1.2	1.5	21
18	164	359	786	619	1440	3450	3460	873	308	1.3	1.7	21
19	160	430	686	521	1210	2960	3520	863	196	1.1	1.3	28
20	155	391	580	515	1070	3080	2930	948	152	1.1	1.2	22
21	145	328	520	497	1050	5440	2210	1010	226	1.1	1.3	33
22	145	200	480	561	966	5250	1910	898	248	1.1	1.8	47
23	148	167	470	972	837	4840	1830	937	214	7.3	1.1	175
24	156	149	460	1540	771	3920	1800	1360	134	7.2	2.4	199
25	173	143	600	6340	840	3570	1570	1160	71	4.2	10	151
26	170	177	800	5480	854	3490	1270	1150	53	1.2	24	107
27	161	184	720	3460	740	3410	969	1270	57	12	9.1	91
28	157	173	660	2350	701	3260	748	1170	48	34	1.6	90
29	155	168	700	1940	713	3300	688	1040	41	54	1.9	72
30	154	164	800	1640	---	3160	662	992	40	30	1.4	63
31	161	---	940	1410	---	2910	---	941	---	7.4	4.0	---
TOTAL	3892	6741	20024	54625	30888	84748	65407	43250	23275	352.5	237.8	1752
MEAN	126	225	646	1762	1065	2734	2180	1395	776	11.4	7.67	58.4
MAX	192	430	1570	6340	3440	5440	3800	2490	3440	54	38	199
MIN	45	143	136	497	503	690	662	768	40	1.1	1.1	21
AC-FT	7720	13370	39720	108300	61270	168100	129700	85790	46170	699	472	3480

CAL YR 1983	TOTAL	261741.8	MEAN	717	MAX	6350	MIN	1.2	AC-FT	519200
WTR YR 1984	TOTAL	335192.3	MEAN	916	MAX	6340	MIN	1.1	AC-FT	664900

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 mi^2.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,085.41 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Many diversions for irrigation above station. Part of flow of Ditch Creek (John Day River basin) is diverted to Willow Creek above station.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 140 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 14	2345	157	5.34	Mar. 22	2145	171	5.42
Dec. 31	1900	ice jam	*6.52	Apr. 8	0615	153	5.32
Jan. 3	2000	ice jam	5.46	Apr. 19	0315	*223	5.71

Minimum, 1.5 ft^3/s Aug. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	8.1	13	37	38	52	110	101	63	25	5.5	5.1
2	3.0	8.9	12	34	33	65	101	115	56	23	5.8	3.8
3	2.6	8.1	13	60	31	63	91	125	50	23	4.8	4.7
4	2.6	9.3	12	162	29	57	89	122	55	22	4.4	4.4
5	2.8	8.6	12	127	29	52	109	114	67	20	4.6	3.3
6	2.8	9.4	12	105	28	48	123	105	68	19	3.3	3.4
7	2.7	11	11	89	27	46	114	97	81	18	4.0	7.2
8	2.8	9.5	17	76	26	45	145	91	87	18	4.5	8.2
9	4.4	8.9	29	61	27	48	134	92	82	16	3.7	6.4
10	4.6	9.0	53	57	26	59	127	91	79	15	2.6	6.1
11	3.9	12	45	50	24	87	115	94	73	10	2.8	5.9
12	3.8	10	38	45	28	84	105	99	72	9.6	3.2	5.9
13	3.8	11	39	40	59	80	94	108	68	9.3	2.6	5.7
14	4.1	10	84	33	72	92	90	125	63	9.1	2.5	5.6
15	4.5	13	108	27	68	120	100	118	56	8.5	3.0	5.5
16	4.6	14	66	25	65	124	121	100	53	7.0	3.1	5.2
17	4.6	15	45	22	59	120	126	88	48	6.2	3.0	4.4
18	4.6	13	35	21	54	103	131	80	45	6.8	4.0	4.3
19	5.3	12	29	19	51	93	194	81	43	6.6	4.1	4.3
20	6.5	11	18	20	57	94	174	88	47	6.7	3.1	4.4
21	6.3	10	14	19	67	139	155	87	52	7.1	3.7	4.7
22	6.9	9.4	12	21	63	153	139	82	55	6.1	4.2	5.3
23	8.7	9.8	11	22	60	158	126	102	49	5.4	3.0	9.0
24	7.1	14	15	63	56	153	118	96	43	5.5	2.2	9.7
25	6.5	15	19	79	55	135	108	88	41	4.7	2.3	9.8
26	6.7	14	23	73	50	138	99	87	39	3.2	1.7	9.3
27	6.5	14	28	65	48	137	90	83	37	4.4	1.8	8.6
28	6.3	14	26	56	48	133	85	77	33	4.6	1.8	8.7
29	6.3	14	21	51	46	141	82	78	30	3.1	2.2	7.7
30	6.3	12	26	45	---	136	87	84	28	3.7	3.7	7.2
31	7.6	---	38	41	---	122	---	75	---	3.2	5.3	---
TOTAL	152.3	338.0	924	1645	1324	3077	3482	2973	1663	329.8	106.5	183.8
MEAN	4.91	11.3	29.8	53.1	45.7	99.3	116	95.9	55.4	10.6	3.44	6.13
MAX	8.7	15	108	162	72	158	194	125	87	25	5.8	9.8
MIN	2.6	8.1	11	19	24	45	82	75	28	3.1	1.7	3.3
AC-FT	302	670	1830	3260	2630	6100	6910	5900	3300	654	211	365

CAL YR 1983	TOTAL	12495.3	MEAN	34.2	MAX	248	MIN	1.4	AC-FT	24780
WTR YR 1984	TOTAL	16198.4	MEAN	44.3	MAX	194	MIN	1.7	AC-FT	32130

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 mi^2.

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.--Records good. Diversion for irrigation of about 170 acres upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190 ft^3/s Mar. 4, 1983, gage height, 4.90 ft, from rating curve extended above 82 ft^3/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 ft^3/s June 14, 1903, result of slope-area measurement (see WSP 96).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 58 ft^3/s Mar. 29, gage height, 4.16 ft, maximum gage height, 4.88 ft Dec. 30, result of ice jam, no peak above base of 60 ft^3/s; minimum, 0.12 ft^3/s Aug. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.73	.86	1.3	3.5	6.2	15	24	19	2.4	3.0	.59	.75
2	.58	.99	1.3	3.3	6.0	19	20	17	3.0	2.8	.63	.77
3	.45	.90	1.4	4.0	5.8	17	17	19	3.2	2.6	.66	.75
4	.43	.88	1.4	25	5.6	15	15	17	4.1	2.4	.36	.75
5	.42	.97	1.4	18	5.4	13	16	15	5.1	2.0	.15	.76
6	.46	1.1	1.4	15	5.2	12	18	13	6.1	1.2	.17	.80
7	.46	1.1	1.5	12	5.0	11	16	12	5.7	1.2	.19	.95
8	.48	1.1	1.7	11	4.9	9.7	23	11	5.4	1.3	.20	.93
9	.65	1.1	4.0	9.5	4.6	9.0	22	9.6	5.1	1.3	.23	.95
10	.54	1.0	5.3	8.6	4.4	9.1	21	8.8	5.1	1.1	.29	.97
11	.54	1.0	4.6	8.0	4.1	14	19	8.4	5.0	.96	.28	.94
12	.55	1.0	4.3	7.5	4.2	13	17	7.5	4.8	.87	.30	.99
13	.55	1.0	5.3	7.0	5.5	12	15	6.7	5.1	.99	.38	.99
14	.52	1.0	18	6.4	7.1	16	13	6.7	4.8	.75	.35	1.0
15	.49	1.2	21	5.5	7.6	20	12	6.6	3.4	.59	.33	1.1
16	.50	1.1	13	5.0	8.4	19	11	5.8	2.9	.60	.39	1.0
17	.50	1.1	9.1	4.7	8.3	17	10	5.5	3.0	.74	.64	.98
18	.50	1.1	7.1	4.3	8.5	16	13	5.3	2.9	.70	.90	.97
19	.50	1.1	5.9	4.2	9.0	14	30	5.2	2.7	.70	.86	.93
20	.50	1.1	4.7	3.9	13	14	23	5.0	3.4	.75	.60	.93
21	.50	1.2	3.1	3.9	16	21	18	4.9	3.4	.75	.55	.94
22	.67	1.2	2.5	4.1	16	31	16	5.0	3.5	.83	.54	1.0
23	.70	1.2	2.0	4.0	15	31	14	5.6	3.6	.83	.45	1.3
24	.69	1.5	2.2	8.5	15	26	14	4.8	3.4	.81	.40	1.3
25	.67	1.4	2.3	8.6	14	20	12	4.7	3.0	.76	.75	1.3
26	.69	1.3	2.5	8.9	13	25	12	4.9	2.8	.67	.78	1.3
27	.72	1.3	2.7	8.7	13	33	12	4.7	2.8	.67	.75	1.3
28	.66	1.3	2.5	8.1	14	34	12	4.5	2.7	.68	.75	1.3
29	.70	1.4	2.3	7.5	13	43	12	4.1	3.0	.64	.72	1.3
30	.76	1.4	3.0	7.0	---	39	15	2.9	3.2	.54	.82	1.4
31	.84	---	3.8	6.5	---	30	---	2.0	---	.51	.77	---
TOTAL	17.95	33.90	142.6	242.2	257.8	617.8	492	252.2	114.6	34.24	15.78	30.65
MEAN	.58	1.13	4.60	7.81	8.89	19.9	16.4	8.14	3.82	1.10	.51	1.02
MAX	.84	1.5	21	25	16	43	30	19	6.1	3.0	.90	1.4
MIN	.42	.86	1.3	3.3	4.1	9.0	10	2.0	2.4	.51	.15	.75
AC-FT	36	67	283	480	511	1230	976	500	227	68	31	61

CAL YR 1983	TOTAL	1343.22	MEAN	3.68	MAX	61	MIN	.11	AC-FT	2660
WTR YR 1984	TOTAL	2251.72	MEAN	6.15	MAX	43	MIN	.15	AC-FT	4470

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 mi^2.

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 construction; 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, 4,600 acre-ft Apr. 20, elevation, 2,065.10 ft; minimum observed, 91 acre-ft Jan. 9, elevation, 2,001.00 ft.

MONTHEND ELEVATIONS AND CONTENTS AT 2400, OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	g2,005.08	176	---
Oct. 31	g2,004.93	173	-3
Nov. 30	g2,004.09	154	-19
Dec. 31	g2,005.81	193	+39
February to December 1983	---	---	+193
Jan. 31	g2,002.65	123	-70
Feb. 29	2,042.10	2,090	+1,970
Mar. 31	2,063.85	4,440	+2,350
Apr. 30	2,062.98	4,320	-120
May 31	2,064.54	4,530	+210
June 30	2,062.73	4,290	-240
July 31	2,062.66	4,280	-10
Aug. 31	g2,062.81	4,300	+20
Sept. 30	2,063.45	4,380	+80
WTR YR 1984	---	---	+4,200

g Computed from graph based on gage readings.

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

WATER QUALITY RECORDS

LOCATION.--Lat 45°20'36", long 119°31'54", in SW¼SW¼ sec.36, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, U.S. Corps of Engineer's land, 0.6 mi southeast of outlet structure on Willow Creek Dam, and 1.1 mi southeast of Heppner.

PERIOD OF RECORD.--June 1984.

REMARKS.--Local identifier 4520361193154 Willow Creek Lake Site 1.

WATER QUALITY DATA, JUNE 19-20, 1984

DATE JUN	TIME	DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN DISSOLVED (MG/L)	PH (STANDARD UNITS)	SPECIFIC CONDUCTANCE (US/CM)	TURBIDITY (NTU)
19	1630	0.0	19.0	--	8.1	170	--
19	1632	1.0	19.0	--	8.1	192	--
19	1634	2.0	19.0	--	8.1	192	8.3
19	1636	3.0	15.0	--	8.2	196	--
19	1638	4.0	12.0	--	8.0	200	--
19	1644	7.0	10.0	--	7.6	186	--
19	1646	8.0	9.0	--	7.6	189	8.9
19	1648	9.5	8.5	--	7.4	188	--
20	1000	0.0	18.0	9.6	--	--	--
20	1010	2.0	18.0	9.6	--	--	--
20	1012	3.0	16.0	9.5	--	--	--
20	1015	4.0	13.0	8.5	--	--	--
20	1021	6.0	10.0	7.5	--	--	--
20	1024	7.0	9.5	6.8	--	--	--
20	1027	8.0	9.0	5.7	--	--	--
20	1030	9.0	8.5	5.2	--	--	--
20	1035	9.5	8.0	1.8	--	--	--
20	1040	10.0	8.0	1.8	--	--	--

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.--Water years 1984 to current year (summer season only).

REMARKS.--Local identifier 452037119321000 Willow Creek Lake Site 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN DISSOLVED (MG/L)	PH (STANDARD UNITS)	SPECIFIC CONDUCTANCE (US/CM)	ALKALINITY FIELD (MG/L AS CACO3)
JUN							
19	1800	0.0	19.0	--	7.8	191	--
19	1804	2.0	19.0	--	7.8	190	--
19	1806	3.0	14.3	--	7.9	190	--
19	1808	4.0	13.0	--	7.8	195	--
19	1814	7.0	10.0	--	7.5	190	--
19	1816	8.0	9.0	--	7.4	191	--
19	1818	9.0	8.0	--	7.4	--	--
19	1820	10.0	8.0	--	7.4	191	--
19	1826	13.0	6.0	--	7.3	198	--
20	1300	0.0	17.5	10.0	--	--	--
20	1310	2.0	17.5	10.0	--	--	--
20	1315	3.0	15.5	9.5	--	--	--
20	1320	4.0	12.0	8.4	--	--	--
20	1325	7.0	10.0	7.5	--	--	--
20	1330	8.0	9.2	7.3	--	--	--
20	1335	9.0	9.0	6.9	--	--	--
20	1340	10.0	8.5	6.6	--	--	--
20	1345	11.0	8.2	6.1	--	--	--
20	1350	13.0	8.0	5.8	--	--	--
JUL							
2	1930	0.0	21.5	9.1	8.2	217	--
2	1935	2.0	20.0	8.6	8.2	218	--
2	1940	4.0	14.5	6.6	8.0	236	--
2	1945	8.0	9.5	4.7	7.9	190	--
2	1950	12.0	8.0	5.1	7.4	186	--
16	1940	0.0	24.6	8.2	8.1	247	--
16	1945	2.0	22.1	8.2	8.1	246	--
16	1950	4.0	17.8	5.4	7.8	253	125
16	1955	8.0	9.2	4.1	7.6	200	--
16	2000	14.0	8.0	3.9	7.7	194	91
30	1950	0.0	24.0	9.0	--	230	--
30	1955	2.0	23.5	8.8	8.6	224	135
30	2000	4.0	21.0	6.8	8.3	242	--
30	2005	6.0	14.0	3.1	--	178	--
30	2010	8.0	9.0	2.9	--	164	--
30	2015	10.0	8.5	2.2	7.4	162	--
30	2020	12.0	8.5	2.0	--	162	95
AUG							
7	1930	0.0	23.0	8.5	8.1	296	--
7	1935	2.0	22.6	7.5	8.0	295	144
7	1940	4.0	21.2	5.2	7.8	299	--
7	1945	6.0	14.0	2.3	--	212	--
7	1950	8.0	10.0	2.1	7.3	200	99
7	1955	10.0	8.7	1.4	--	169	--
7	2000	12.0	8.5	1.4	--	169	--
16	1800	0.0	23.2	10.5	8.9	--	--
16	1810	2.0	23.1	10.6	--	--	146
16	1820	4.0	21.8	7.2	--	--	--
16	1830	6.0	15.8	1.0	7.7	--	118
16	1840	8.0	11.0	1.2	7.6	--	97
16	1850	10.0	9.5	1.3	--	--	--
16	1900	12.0	9.1	0.7	7.7	--	--
16	1910	14.0	8.9	1.0	--	--	--
22	1650	0.0	22.0	9.6	8.5	300	--
22	1655	2.0	22.0	9.8	8.5	299	146
22	1700	4.0	21.5	8.8	8.4	302	--
22	1705	6.0	16.0	0.5	6.9	238	--
22	1710	8.0	10.5	0.8	6.8	206	98
22	1720	10.0	9.0	0.6	6.8	204	--
22	1725	12.0	9.0	0.3	6.8	202	--
22	1730	14.0	9.0	0.4	6.8	200	--
30	1515	0.0	21.5	11.6	8.8	301	--
30	1519	2.0	21.0	11.3	8.8	298	151
30	1523	4.0	20.5	8.0	8.5	305	--
30	1527	5.0	19.5	4.8	7.9	318	--
30	1531	6.0	17.5	0.3	7.6	297	--
30	1535	8.0	10.0	0.4	6.9	207	108
30	1539	10.0	9.5	0.2	6.9	202	--
30	1545	13.0	9.0	0.2	6.9	200	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN DISSOLVED (MG/L)	PH (STANDARD UNITS)	SPECIFIC CONDUCTANCE (US/CM)	ALKALINITY FIELD (MG/L AS CACO3)
SEP							
6	1520	0.0	19.0	9.9	--	--	--
6	1525	2.0	19.0	9.8	8.9	282	144
6	1530	4.0	19.0	9.8	--	282	--
6	1535	6.0	19.0	9.7	--	282	--
6	1540	8.0	13.0	0.0	7.4	221	110
6	1545	10.0	10.0	0.1	--	197	--
6	1550	12.0	9.0	0.0	--	203	--
13	1525	0.0	18.0	8.8	--	276	--
13	1530	2.0	17.5	8.8	8.6	271	147
13	1535	4.0	17.0	8.4	--	283	--
13	1538	6.0	13.0	0.2	--	234	--
13	1542	8.0	9.0	0.1	--	203	--
13	1545	10.0	8.0	0.1	--	208	--
13	1550	12.0	8.0	0.1	--	201	--
20	1400	0.0	18.0	9.6	--	282	--
20	1405	2.0	18.0	9.5	8.7	288	149
20	1410	4.0	18.0	9.5	--	293	--
20	1415	6.0	17.5	9.4	--	296	--
20	1420	8.0	14.0	0.1	--	286	--
20	1425	9.0	9.5	0.1	--	207	--
20	1430	12.0	8.5	0.1	--	206	--
27	1650	0.0	15.0	8.4	--	--	--
27	1655	2.0	15.0	8.4	8.4	--	148
27	1700	4.0	14.5	8.1	8.4	--	--
27	1705	6.0	14.5	7.8	--	--	--
27	1710	7.0	14.5	7.1	--	--	--
27	1715	8.0	14.0	6.2	8.0	--	--
27	1720	9.0	12.5	3.7	--	--	--
27	1725	10.0	10.0	0.2	--	--	--
27	1730	11.0	9.5	0.1	--	--	--
27	1735	14.0	9.0	0.1	7.1	--	--

DATE	DEPTH (M)	NITROGEN NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA ORGANI TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	SULFIDE DISSOLVED (MG/L AS S)	TURBIDITY (NTU)	TRANSPARENCY (SECCHI DISK) (M)	CHLOROPHYLL (uG/L)	PHEOPHYTIN (uG/L)
JUN									
19	2.0	--	--	--	--	6.4	--	--	--
20	2.0	--	--	--	<.5	--	--	--	--
JUL									
2	2.0	--	--	--	--	9.6	--	--	--
2	12.0	--	--	--	--	15.0	--	--	--
16	2.0	<.10	.50	0.04	<.5	3.5	3.1	--	--
16	4.0	--	--	--	--	6.7	--	--	--
16	14.0	--	--	--	--	12.5	--	--	--
30	2.0	<.10	.40	0.04	<.5	2.5	2.4	2.2	0.40
30	4.0	--	--	--	--	3.4	--	3.7	3.70
30	12.0	--	--	--	--	9.6	--	--	--
AUG									
7	2.0	<.10	.30	0.04	<.5	--	--	1.7	0.66
7	8.0	--	--	--	--	3.3	--	--	--
16	2.0	--	.60	0.03	<.5	6.0	--	9.9	0.01
16	8.0	--	--	--	--	3.5	--	--	--
16	12.0	--	--	--	--	--	--	--	--
22	2.0	<.10	.50	0.01	<.5	--	3.0	7.6	0.01
22	4.0	--	--	--	--	--	--	6.2	0.03
30	0.0	--	--	--	--	--	1.7	--	--
30	2.0	<.10	.50	0.02	<.5	--	--	8.1	0.01
30	4.0	--	--	--	--	--	--	8.8	0.01
SEP									
6	0.0	--	--	--	--	--	1.4	--	--
6	2.0	<.10	.70	0.02	<.5	13.0	--	6.0	0.92
6	4.0	--	--	--	--	--	--	11.9	0.01
6	8.0	--	--	--	--	3.1	--	--	--
13	2.0	<.10	.40	0.02	<.5	5.9	1.7	4.1	0.87
13	4.0	--	--	--	--	--	--	3.4	0.47
13	8.0	--	--	--	--	3.5	--	--	--
20	2.0	--	--	--	--	2.4	--	--	--
20	4.0	--	--	--	--	1.8	--	--	--
20	8.0	--	--	--	--	2.4	--	--	--
20	12.0	--	--	--	--	3.0	--	--	--
27	2.0	<.10	.50	0.01	<.5	1.5	3.0	2.8	0.52
27	4.0	--	--	--	--	1.6	--	0.8	0.01
27	8.0	--	--	--	--	2.1	--	--	--
27	14.0	--	--	--	--	3.5	--	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	84/08/07		84/08/16		84/08/22		84/08/30		84/09/09		84/09/13	
SPECIES DIVERSITY	2.45		0.79		2.60		2.35		0.71		1.00	
TOTAL COUNT #/ml	44.		2368.		1037.		2503.		2270.		1465.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS SPP.	23	53.1	59	2.5	17	1.6	--	---	--	---	--	---
--TETRASPORALES												
---PALMELLACEAE												
----SPHAEROCYSTIS SCHROETERI	--	---	--	---	33	3.2	124	5.0	--	---	25	1.7
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	1	3.1	--	---	83	8.0	53	2.1	20	0.9	37	2.5
----OOCYSTIS PUSILLA	--	---	20	0.8	41	4.0	142	5.7	--	---	12	0.8
---COELASTRACEAE												
----COELASTRUM MICROPORUM	--	---	--	---	--	---	18	0.7	--	---	--	---
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM SP.	--	---	--	---	50	4.8	36	1.4	--	---	--	---
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	--	---	--	---	--	---	--	---	--	---	12	0.8
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	--	---	--	---	183	17.6	320	12.8	40	1.8	62	4.2
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	--	---	--	---	33	3.2	18	0.7	--	---	--	---
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----CYCLOTELLA MENEGHINIANA	--	---	39	1.7	17	1.6	--	---	--	---	12	0.8
----MELOSIRA GRANULATA ANGUSTISSIM	--	---	--	---	8	0.8	53	2.1	60	2.7	25	1.7
----STEPHANODISCUS HANTZSCHII	3	6.3	--	---	--	---	--	---	--	---	--	---
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	6	12.5	2036	86.0	133	12.8	18	0.7	--	---	12	0.8
----FRAGILARIA CROTONENSIS	--	---	--	---	--	---	976	39.0	2009	88.5	1256	85.7
----FRAGILARIA VAUCHERIAE	1	3.1	--	---	--	---	--	---	--	---	--	---
---ACHNANTHACEAE												
----ACHNANTHES LANCEOLATA	1	3.1	--	---	--	---	--	---	--	---	--	---
----ACHNANTHES MINUTISSIMA	1	3.1	--	---	--	---	--	---	--	---	--	---
----RHOICOSPHENIA CURVATA	1	3.1	--	---	--	---	--	---	--	---	--	---
---NAVICULACEAE												
----NAVICULA SPP.	--	---	--	---	--	---	--	---	--	---	12	0.8
----NAVICULA TRIPUNCTATA	3	6.3	--	---	--	---	--	---	--	---	--	---
----CALONEIS SPP.	1	3.1	--	---	--	---	--	---	--	---	--	---
---NITZSCHIACEAE												
----NITZSCHIA FRUSTULUM	1	3.1	--	---	--	---	--	---	--	---	--	---
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	--	---	215	9.1	440	42.4	746	29.8	141	6.2	--	---

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	84/09/20		84/09/21		84/09/27		84/09/28		84/10/04		84/10/11	
SPECIES												
DIVERSITY	1.85		2.06		2.68		2.74		2.39		2.61	
TOTAL COUNT #/ml	397.		466.		169.		203.		525.		532.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---VOLVOCACEAE												
----PANDORINA MORUM	--	---	--	---	--	---	5	2.7	--	---	--	---
--TETRASPORALES												
---PALMELLACEAE												
----SPHAEROCYSTIS SCHROETERI	14	3.4	4	0.9	2	0.9	5	2.7	40	7.5	11	2.0
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	54	13.7	72	15.5	25	15.1	25	12.4	15	2.8	11	2.0
----CLOSTERIOPSIS LONGISSIMA	--	---	--	---	--	---	--	---	--	---	5	1.0
----OOCYSTIS PUSILLA	3	0.9	12	2.6	2	0.9	4	1.8	--	---	--	---
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM SP.	--	---	--	---	2	0.9	--	---	--	---	--	---
EUGLENOPHYTA EUGLENOIDS												
-EUGLENOPHYCEAE												
--EUGLENALES												
---EUGLENACEAE												
----TRACHELOMONAS SPP.	--	---	--	---	2	0.9	--	---	--	---	--	---
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	--	---	--	---	3	1.9	5	2.7	15	2.8	11	2.0
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	31	7.7	64	13.8	32	18.9	49	23.9	149	28.3	111	20.8
----CHROOMONAS SPP.	--	---	--	---	--	---	--	---	--	---	5	1.0
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	7	1.7	16	3.4	14	8.5	7	3.5	69	13.2	32	5.9
----CRYPTOMONAS OVATA	--	---	--	---	2	0.9	2	0.9	--	---	--	---
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-CHRYSOPHYCEAE												
--CHRYSOMONADALES												
---SYNURACEAE												
----MALLOMONAS SPP.	--	---	--	---	--	---	--	---	5	0.9	16	3.0
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----CYCLOTELLA MENEGHINIANA	3	0.9	--	---	--	---	--	---	--	---	5	1.0
----MELOSIRA GRANULATA ANGUSTISSIM	--	---	12	2.6	3	1.9	4	1.8	--	---	--	---
----STEPHANODISCUS ASTREA MINUTULA	--	---	--	---	--	---	--	---	--	---	11	2.0
----STEPHANODISCUS HANTZSCHII	--	---	--	---	--	---	2	0.9	--	---	--	---
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	7	1.7	16	3.4	16	9.4	13	6.2	35	6.6	163	30.7
----FRAGILARIA CROTONENSIS	261	65.8	261	56.0	64	37.7	77	38.1	193	36.8	147	27.7
---ACHNANTHACEAE												
----ACHNANTHES LANCEOLATA	3	0.9	--	---	2	0.9	--	---	--	---	--	---
---NAVICULACEAE												
----NAVICULA CRYPTOCEPHALA	3	0.9	--	---	--	---	2	0.9	--	---	--	---
----NAVICULA PUPULA	3	0.9	--	---	2	0.9	2	0.9	--	---	--	---
---GOMPHONEMACEAE												
----GOMPHONEMA SPP.	--	---	4	0.9	--	---	--	---	--	---	--	---
---EPITHEMIACEAE												
----EPITHEMIA SOREX	3	0.9	--	---	--	---	--	---	--	---	--	---
---NITZSCHIACEAE												
----NITZSCHIA SPP.	3	0.9	--	---	--	---	--	---	--	---	--	---
----NITZSCHIA DISSIPATA	--	---	--	---	--	---	--	---	--	---	5	1.0
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	--	---	4	0.9	--	---	2	0.9	5	0.9	--	---

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452037119321000 WILLOW CREEK LAKE SITE 2--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	84/10/12		84/10/17		84/10/18		84/11/01	
SPECIES								
DIVERSITY	2.62		2.35		2.62		2.11	
TOTAL COUNT	419.		599.		500.		904.	
#/ml								
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE								
-CHLOROPHYCEAE								
--TETRASPORALES								
---PALMELLACEAE								
----SPHAEROCYSTIS SCHROETERI	--	---	--	---	4	0.9	--	---
--CHLOROCOCCALES								
---OOCYSTACEAE								
----ANKISTRODESMUS FALCATUS	4	0.9	6	0.9	--	---	--	---
----CLOSTERIOPSIS LONGISSIMA	4	0.9	11	1.9	31	6.1	--	---
----OOCYSTIS PUSILLA	4	0.9	--	---	--	---	--	---
MISCELLANEOUS GREEN ALGAE	--	---	6	0.9	--	---	--	---
PYRRHOPHYTA								
-DINOPHYCEAE DINOFLAGELLATES								
--PERIDINIALES								
---PERIDINIACEAE								
----PERIDINIUM CINCTUM	15	3.6	11	1.9	22	4.4	55	6.0
CRYPTOPHYTA								
-CRYPTOPHYCEAE								
--CRYPTOMONADALES								
---CRYPTOCHRYSIDACEAE								
----RHODOMONAS MINUTA	75	17.9	62	10.4	22	4.4	62	6.9
---CRYPTOMONADACEAE								
----CRYPTOMONAS EROSA	30	7.1	34	5.7	31	6.1	39	4.3
CHRYSOPHYTA YELLOW-BROWN ALGAE								
-CHRYSOPHYCEAE								
--CHRYSOMONADALES								
---CHROMULINACEAE								
----KEPHYRION SPP.	--	---	--	---	4	0.9	--	---
---SYNURACEAE								
----MALLOMONAS SPP.	22	5.4	96	16.0	88	17.5	234	25.9
--RHIZOCHRYSIDALES								
---RHIZOCHRYSIDACEAE								
----LAGYNION SPP.	--	---	11	1.9	9	1.8	--	---
-BACILLARIOPHYCEAE DIATOMS								
--PENNALES PENNATE DIATOMS								
---FRAGILARIACEAE								
----ASTERIONELLA FORMOSA	112	26.8	283	47.2	175	35.1	421	46.6
----FRAGILARIA CROTONENSIS	135	32.1	79	13.2	110	21.9	86	9.5
---NAVICULACEAE								
----NAVICULA CAPITATA	4	0.9	--	---	--	---	--	---
----NAVICULA CRYPTOCEPHALA	4	0.9	--	---	--	---	--	---
---CYMBELLACEAE								
----AMPHORA PERPUSILLA	--	---	--	---	--	---	8	0.9
---EPITHEMIACEAE								
----EPITHEMIA SOREX	4	0.9	--	---	--	---	--	---
----EPITHEMIA TURGIDA	--	---	--	---	4	0.9	--	---
CYANOPHYTA BLUE-GREEN ALGAE								
-MYXOPHYCEAE								
--OSCILLATORIALES								
---NOSTOCACEAE								
----ANABAENA FLOS-AQUAE	7	1.8	--	---	--	---	--	---

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.--Water years 1984 to current year (summer season only).

REMARKS.--Local identifier 452046119323200 Willow Creek Lake Site 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN DIS-SOLVED (MG/L)	PH (STAND-ARD UNITS)	SPECIFIC CONDUCT-ANCE (US/CM)	ALKA-LINITY FIELD (MG/L AS CACO3)
JUN							
19	1420	0.0	18.0	--	8.1	193	--
19	1424	2.0	17.0	--	8.1	192	100
19	1426	3.0	15.0	--	8.1	198	--
19	1430	5.0	11.5	--	7.8	203	--
19	1432	7.0	10.0	--	7.6	195	--
19	1434	8.0	9.0	--	7.6	189	93
19	1436	9.0	8.0	--	7.5	194	--
19	1438	10.0	9.0	--	7.5	189	--
19	1440	11.0	8.5	--	7.4	184	--
19	1442	12.0	8.0	--	7.4	186	--
19	1444	13.0	8.0	--	7.4	186	--
19	1450	16.0	8.0	--	7.3	186	--
19	1456	19.0	8.0	--	7.2	183	89
19	1458	20.0	8.0	--	7.2	183	--
20	1400	0.0	16.0	10.1	--	--	--
20	1405	2.0	15.5	9.9	--	--	--
20	1410	3.0	14.0	9.0	--	--	--
20	1415	5.0	11.5	7.6	--	--	--
20	1420	7.0	10.0	7.2	--	--	--
20	1425	8.0	9.0	7.4	--	--	--
20	1430	9.0	8.5	7.2	--	--	--
20	1435	10.0	8.5	7.2	--	--	--
20	1440	11.0	8.2	6.7	--	--	--
20	1445	12.0	8.0	6.4	--	--	--
20	1450	13.0	8.0	6.6	--	--	--
20	1455	16.0	8.0	6.4	--	--	--
20	1458	18.0	8.0	6.3	--	--	--
20	1500	19.0	7.8	6.1	--	--	--
20	1505	20.0	7.0	6.0	--	--	--
JUL							
2	1700	0.0	21.0	9.3	8.1	218	--
2	1710	2.0	19.0	8.6	8.2	218	112
2	1715	3.0	18.0	8.0	8.0	221	--
2	1720	4.0	15.0	7.0	7.8	217	109
2	1725	5.0	12.5	6.0	7.6	211	--
2	1730	6.0	11.0	6.5	7.7	202	--
2	1735	7.0	9.5	6.4	7.6	200	--
2	1740	8.0	9.0	6.0	7.5	190	94
2	1805	13.0	8.0	5.2	7.4	186	--
2	1810	17.0	8.0	5.1	7.3	186	91
2	1815	18.0	8.0	5.0	7.2	186	--
16	1720	0.0	25.0	8.2	8.1	250	--
16	1725	1.0	25.0	8.3	8.0	240	--
16	1730	2.0	22.5	7.9	8.0	246	125
16	1735	3.0	21.5	7.2	7.9	246	--
16	1740	4.0	17.5	5.4	7.7	241	--
16	1745	5.0	13.5	4.2	7.6	219	--
16	1750	6.0	11.0	4.7	7.5	203	--
16	1755	7.0	10.0	5.4	7.4	195	--
16	1800	8.0	9.2	5.1	7.4	196	97
16	1820	12.0	8.2	4.4	7.2	191	--
16	1830	16.0	8.0	3.9	7.2	191	--
16	1720	18.0	7.9	3.9	7.2	191	--
16	1840	18.5	8.0	3.8	7.1	191	--
30	1600	0.0	24.0	8.9	8.2	265	--
30	1610	2.0	24.0	8.8	8.2	265	136
30	1615	3.0	23.5	9.2	8.2	268	--
30	1620	4.0	20.7	7.5	7.9	282	139
30	1625	5.0	16.5	4.2	7.6	244	--
30	1630	6.0	12.0	2.9	7.4	206	--
30	1635	7.0	10.5	3.7	7.3	202	--
30	1640	8.0	10.0	4.0	7.2	197	98
30	1645	9.0	9.0	3.5	7.2	196	--
30	1650	10.0	8.5	3.3	7.2	191	--
30	1655	11.0	8.5	2.8	7.2	191	--
30	1720	17.0	8.0	2.6	7.0	130	96
30	1735	21.0	8.0	1.7	7.0	194	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE AUG	TIME	DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN DIS-SOLVED (MG/L)	PH (STAND-ARD UNITS)	SPECIFIC CONDUCT-ANCE (US/CM)	ALKA-LINITY FIELD (MG/L AS CACO3)
7	1730	0.0	23.0	8.0	--	297	--
7	1733	2.0	23.0	8.0	8.4	291	145
7	1736	4.0	22.0	7.5	8.3	312	--
7	1739	5.0	19.0	3.8	--	238	--
7	1742	6.0	14.5	2.7	--	199	--
7	1745	7.0	11.0	3.0	--	208	--
7	1748	9.0	9.0	2.6	7.6	203	96
7	1751	11.0	8.5	2.4	--	--	--
7	1754	13.0	8.5	2.5	--	--	--
7	1757	15.0	8.0	1.8	--	--	--
7	1800	19.0	8.0	1.5	7.4	--	--
7	1805	21.0	8.0	1.0	--	--	--
16	1500	0.0	23.2	10.7	8.7	--	146
16	1510	2.0	22.2	10.9	8.9	--	146
16	1515	3.0	22.0	8.8	--	--	--
16	1520	4.0	21.6	7.7	8.7	--	145
16	1525	5.0	19.2	1.7	--	--	--
16	1530	6.0	15.5	0.7	7.7	--	131
16	1535	7.0	11.9	1.7	--	--	--
16	1540	8.0	10.7	1.8	7.6	--	97
16	1550	10.0	9.3	2.0	--	--	--
16	1600	14.0	9.0	1.5	7.9	--	92
16	1620	18.0	9.0	0.0	7.6	--	88
22	1515	0.0	22.0	10.0	8.5	298	--
22	1520	1.0	23.0	10.2	8.5	292	--
22	1525	2.0	21.5	8.8	8.4	300	146
22	1530	3.0	21.0	9.0	8.4	301	--
22	1535	4.0	21.0	6.8	7.9	307	146
22	1540	5.0	20.0	2.1	7.5	309	--
22	1545	6.0	17.0	0.4	7.2	243	--
22	1550	7.0	12.0	1.0	6.9	210	--
22	1555	8.0	11.0	1.1	6.8	202	98
22	1600	9.0	9.0	1.2	7.0	206	--
22	1605	10.0	9.0	1.6	6.9	196	--
22	1610	15.0	9.0	0.7	6.8	201	--
22	1615	16.0	8.5	0.0	7.2	201	--
22	1620	18.0	8.5	0.0	7.1	200	95
22	1624	20.0	8.5	0.0	7.1	209	--
30	1340	0.0	22.0	11.2	8.6	297	--
30	1345	1.0	21.0	11.7	8.6	298	--
30	1350	2.0	21.0	11.2	8.6	298	148
30	1355	3.0	21.0	10.8	8.5	301	--
30	1400	4.0	20.5	9.2	8.4	301	150
30	1405	5.0	20.0	8.0	8.2	309	--
30	1410	6.0	17.0	1.1	7.4	280	--
30	1415	7.0	13.0	0.5	6.8	207	--
30	1420	8.0	11.0	0.7	6.8	201	--
30	1425	9.0	10.0	0.3	6.8	204	--
30	1430	10.0	9.5	0.5	6.8	200	--
30	1435	11.0	9.0	1.3	6.8	200	--
30	1440	12.0	9.0	0.6	6.8	200	--
30	1450	18.0	8.5	0.1	6.8	206	99
30	1500	20.0	8.5	0.1	6.8	207	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE SEP	TIME	DEPTH (M)	TEMPER-ATURE (DEG C)	OXYGEN DIS-SOLVED (MG/L)	PH (STAND-ARD UNITS)	SPECIFIC CONDUCT-ANCE (US/CM)	ALKA-LINITY FIELD (MG/L AS CACO3)
6	1350	0.0	19.0	9.9	8.4	282	--
6	1353	2.0	19.0	9.9	8.9	282	147
6	1356	3.0	19.0	9.9	--	282	--
6	1358	4.0	19.0	9.7	8.7	282	141
6	1400	6.0	19.0	9.4	--	282	--
6	1403	7.0	14.0	0.1	--	222	--
6	1406	8.0	12.0	0.1	7.4	213	107
6	1409	9.0	11.0	0.1	--	206	--
6	1412	11.0	9.0	0.5	--	197	--
6	1415	12.0	9.0	0.5	7.2	197	--
6	1418	14.0	9.0	0.1	7.2	199	--
6	1422	18.0	8.5	0.1	7.3	202	97
6	1425	20.0	8.5	0.0	--	--	--
13	1440	0.0	20.0	9.6	--	--	--
13	1443	2.0	20.0	9.6	8.7	293	148
13	1446	5.0	18.5	9.4	8.6	293	146
13	1449	6.0	17.0	0.5	--	295	--
13	1452	7.0	11.0	0.1	--	--	--
13	1455	8.0	9.5	0.1	7.2	239	113
13	1458	11.0	8.5	0.1	--	204	--
13	1500	14.0	8.0	0.1	--	--	--
13	1506	16.0	8.0	0.1	--	202	--
13	1510	18.0	8.0	0.1	7.1	202	98
13	1513	19.0	8.0	0.1	--	--	--
20	1300	0.0	17.5	9.4	--	288	--
20	1303	2.0	17.5	9.4	8.6	287	148
20	1306	3.0	17.0	9.4	--	287	--
20	1309	4.0	17.0	8.2	8.6	287	149
20	1312	6.0	15.5	4.0	--	301	--
20	1315	7.0	15.0	0.2	--	303	--
20	1318	8.0	11.0	0.0	7.4	235	129
20	1321	10.0	9.0	0.0	--	195	--
20	1324	12.0	8.5	0.0	--	200	--
20	1327	14.0	8.0	0.0	--	203	--
20	1330	18.0	8.0	0.0	7.1	203	99
20	1333	20.0	8.0	0.0	--	--	--
27	1530	0.0	15.0	8.2	--	--	--
27	1535	2.0	14.9	8.2	8.2	--	148
27	1540	4.0	14.7	8.2	8.3	--	149
27	1543	6.0	14.7	7.6	8.3	--	--
27	1545	7.0	14.7	7.1	--	--	--
27	1550	8.0	13.8	3.3	7.6	--	138
27	1555	9.0	12.8	0.9	--	--	--
27	1600	10.0	10.5	0.3	7.0	--	--
27	1605	11.0	9.8	0.2	--	--	--
27	1610	12.0	9.3	0.2	7.0	--	--
27	1615	18.0	8.6	0.1	7.1	--	100
27	1620	19.0	8.6	0.1	--	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	DEPTH (M)	NITRO-GEN NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	SUL-FIDE DIS-SOLVED (MG/L AS S)	TURBID-ITY (NTU)	TRANS-PAR-ENCY (SECCHI DISK) (M)	CHLORO-PHYLL (uG/L)	PHEO-PHYTIN (uG/L)
JUN									
19	2.0	--	--	--	--	6.1	--	--	--
19	8.0	--	--	--	--	8.7	--	--	--
19	19.0	--	--	--	--	13.0	--	--	--
20	2.0	<0.1	0.5	0.04	<0.5	--	--	--	--
20	8.0	0.17	0.5	0.06	--	--	--	--	--
20	18.0	0.25	0.2	0.04	--	--	--	--	--
JUL									
2	2.0	<0.1	0.6	0.06	--	10.0	--	--	--
2	4.0	0.1	0.4	0.05	--	8.5	--	--	--
2	8.0	0.19	0.4	0.06	<0.5	9.5	--	--	--
2	17.0	--	--	--	--	15.0	--	--	--
2	18.0	0.24	0.4	0.07	<0.5	--	--	--	--
16	2.0	<.10	.60	0.04	--	3.2	3.1	--	--
16	4.0	.10	.40	0.08	<.5	4.6	--	--	--
16	8.0	.18	.30	0.08	--	12.0	--	--	--
16	18.0	.26	.40	0.09	<.5	10.0	--	--	--
30	2.0	<.10	.40	0.04	<.5	2.1	2.4	1.1	0.78
30	4.0	<.10	.60	0.07	--	3.8	--	6.0	2.84
30	8.0	.24	.30	0.07	--	5.0	--	--	--
30	17.0	.47	.30	0.10	<.5	13.0	--	--	--
30	21.0	--	--	--	--	--	--	--	--
AUG									
7	2.0	<.10	.30	0.04	<.5	1.0	--	1.9	1.08
7	4.0	<.10	.40	0.05	<.5	1.3	--	2.3	2.01
7	9.0	.23	.20	0.07	--	3.3	--	--	--
7	19.0	.32	.30	0.11	<.5	7.0	--	--	--
16	2.0	--	.60	0.03	<.5	7.5	--	13.2	0.01
16	4.0	--	.70	0.05	--	5.5	--	13.2	0.01
16	8.0	--	.30	0.08	--	--	--	--	--
16	18.0	--	.40	0.10	<.5	--	--	--	--
22	0.0	--	--	--	--	--	3.0	--	--
22	2.0	<.10	.50	0.01	<.5	--	--	4.1	1.43
22	4.0	<.10	.40	0.01	--	--	--	4.2	1.02
22	8.0	.12	.30	0.08	--	--	--	--	--
22	18.0	.260	.40	0.11	<.5	--	--	--	--
30	0.0	--	--	--	--	--	1.7	--	--
30	2.0	<.10	.50	0.84	<.5	--	--	8.5	0.01
30	4.0	<.10	.40	0.02	--	--	--	8.5	0.60
30	8.0	.140	.30	0.08	--	--	--	--	--
30	18.0	.280	.30	0.10	<.5	--	--	--	--
SEP									
6	0.0	--	--	--	--	--	1.4	--	--
6	2.0	<.10	.90	0.02	<.5	13.0	--	5.5	0.50
6	4.0	<.10	.60	0.02	--	10.0	--	2.3	0.09
6	8.0	<.10	.50	0.07	--	--	--	--	--
6	18.0	.24	.60	0.12	<.5	--	--	--	--
13	0.0	--	--	--	--	--	1.7	--	--
13	2.0	<.10	2.4	0.01	<.5	--	--	4.4	--
13	5.0	<.10	.30	0.01	--	4.0	--	4.8	0.25
13	8.0	<.10	.50	0.03	--	3.0	--	--	--
13	18.0	.17	.40	0.11	<.5	--	--	--	--
20	2.0	<.10	.30	0.01	<.5	2.1	--	--	--
20	4.0	<.10	.20	0.01	--	2.7	--	3.7	0.59
20	8.0	<.10	.60	0.04	--	2.6	--	--	--
20	18.0	<.10	.40	0.15	<.5	4.4	--	--	--
27	0.0	--	--	--	--	--	3.0	--	--
27	2.0	<.10	.50	0.01	<.5	1.6	--	--	--
27	4.0	.10	.60	0.01	--	1.6	--	2.5	0.00
27	6.0	--	--	--	--	--	--	1.7	0.48
27	8.0	.15	.30	0.03	--	1.6	--	--	--
27	18.0	<.10	.50	0.15	<.5	3.6	--	--	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	84/08/07		84/08/16		84/08/22		84/08/30		84/09/09		84/09/13	
SPECIES DIVERSITY	1.72		0.94		2.27		2.51		0.91		0.86	
TOTAL COUNT #/ml	28.		2375.		1081.		1885.		1659.		1611.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS SPP.	17	60.0	21	0.9	--	---	15	0.8	32	1.9	16	1.0
---VOLVOCACEAE												
----PANDORINA MORUM	--	---	--	---	--	---	15	0.8	--	---	--	---
--TETRASPORALES												
---PALMELLACEAE												
----SPHAEROCYSTIS SCHROETERI	--	---	--	---	21	2.0	61	3.3	48	2.9	--	---
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	--	---	21	0.9	95	8.8	15	0.8	--	---	31	1.9
----OOCYSTIS PUSILLA	--	---	--	---	11	1.0	123	6.5	--	---	16	1.0
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM SP.	--	---	--	---	64	5.9	77	4.1	--	---	--	---
EUGLENOPHYTA EUGLENOIDS												
-EUGLENOPHYCEAE												
--EUGLENALES												
---EUGLENACEAE												
----TRACHELOMONAS SPP.	--	---	--	---	--	---	15	0.8	--	---	--	---
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	--	---	--	---	159	14.7	138	7.3	16	1.0	16	1.0
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	--	---	--	---	64	5.9	31	1.6	--	---	--	---
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-CHRYSOPHYCEAE												
--CHRYSOMONADALES												
---OCHROMONADACEAE												
----OCHROMONAS SPP.	--	---	--	---	--	---	--	---	16	1.0	--	---
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----CYCLOTELLA MENEGHINIANA	4	13.3	21	0.9	--	---	--	---	--	---	16	1.0
----MELOSIRA GRANULATA ANGUSTISSIM	--	---	--	---	--	---	61	3.3	81	4.9	78	4.9
----MELOSIRA VARIANS	1	4.4	--	---	--	---	--	---	--	---	--	---
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	5	17.8	1824	76.8	148	13.7	46	2.4	--	---	--	---
----FRAGILARIA CROTONENSIS	--	---	--	---	--	---	828	43.9	1433	86.4	1408	87.4
---NAVICULACEAE												
----NAVICULA SPP.	--	---	--	---	--	---	--	---	--	---	--	---
----NAVICULA CRYPTOCEPHALA	--	---	--	---	--	---	--	---	16	1.0	--	---
--MISCELLANEOUS PENNATE DIATOMS	--	---	--	---	--	---	--	---	--	---	--	---
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	--	---	488	20.5	519	48.0	460	24.4	16	1.0	31	1.9

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	84/09/20		84/09/21		84/09/27		84/10/04		84/10/11		84/10/12	
SPECIES DIVERSITY	1.01		0.79		2.41		2.55		2.82		3.19	
TOTAL COUNT #/ml	828.		936.		297.		334.		476.		483.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE												
-CHLOROPHYCEAE												
--VOLVOCALES												
---CHLAMYDOMONADACEAE												
----CHLAMYDOMONAS SPP.	--	---	--	---	--	---	--	---	--	---	4	0.9
---VOLVOCACEAE												
----PANDORINA MORUM	--	---	--	---	6	2.0	3	0.9	8	1.7	4	0.9
--TETRASPORALES												
---PALMELLACEAE												
----SPHAEROCYSTIS SCHROETERI	--	---	9	1.0	15	5.0	20	6.1	16	3.4	21	4.3
--CHLOROCOCCALES												
---OOCYSTACEAE												
----ANKISTRODESMUS FALCATUS	72	8.7	36	3.9	12	4.0	17	5.2	16	3.4	13	2.6
----CLOSTERIOPSIS LONGISSIMA	--	---	--	---	--	---	3	0.9	8	1.7	21	4.3
----OOCYSTIS PUSILLA	--	---	--	---	3	1.0	--	---	--	---	--	---
----NEPHROCYTIUM SPP.	16	1.9	--	---	--	---	--	---	--	---	--	---
---COELASTRACEAE												
----COELASTRUM MICROPORUM	--	---	--	---	--	---	--	---	--	---	3	0.7
--ZYGNEMATALES												
---DESMIDIACEAE DESMIDS												
----STAURASTRUM SP.	8	1.0	--	---	--	---	--	---	--	---	4	0.9
EUGLENOPHYTA EUGLENOIDS												
-EUGLENOPHYCEAE												
--EUGLENALES												
---EUGLENACEAE												
----TRACHELOMONAS VOLVOCINA	--	---	--	---	--	---	3	0.9	--	---	--	---
PYRRHOPHYTA												
-DINOPHYCEAE DINOFLAGELLATES												
--PERIDINIALES												
---PERIDINIACEAE												
----PERIDINIUM CINCTUM	--	---	--	---	3	1.0	15	4.3	20	4.2	8	1.7
CRYPTOPHYTA												
-CRYPTOPHYCEAE												
--CRYPTOMONADALES												
---CRYPTOCHRYSIDACEAE												
----RHODOMONAS MINUTA	8	1.0	--	---	109	36.6	75	22.6	84	17.6	104	21.6
----CHROOMONAS SPP.	--	---	--	---	--	---	--	---	4	0.8	--	---
---CRYPTOMONADACEAE												
----CRYPTOMONAS EROSA	8	1.0	27	2.9	29	9.9	23	7.0	12	2.5	29	6.0
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-CHRYSOPHYCEAE												
--CHRYSOMONADALES												
---CHROMULINACEAE												
----KEPHYRION SPP.	--	---	--	---	--	---	3	0.9	--	---	--	---
---SYNURACEAE												
----MALLOMONAS SPP.	--	---	--	---	--	---	--	---	36	7.6	17	3.5
--RHIZOCHRYSIDALES												
---RHIZOCHRYSIDACEAE												
----LAGYNION SPP.	--	---	9	1.0	--	---	--	---	4	0.8	4	0.9
-BACILLARIOPHYCEAE DIATOMS												
--CENTRALES CENTRIC DIATIOMS												
---COSCINODISCACEAE												
----CYCLOTELLA MENEGHINIANA	--	---	--	---	--	---	3	0.9	--	---	--	---
----MELOSIRA GRANULATA ANGUSTISSIM	16	1.9	18	1.9	--	---	3	0.9	--	---	--	---
----STEPHANODISCUS ASTREA MINUTULA	--	---	--	---	--	---	3	0.9	--	---	--	---
--PENNALES PENNATE DIATOMS												
---FRAGILARIACEAE												
----ASTERIONELLA FORMOSA	8	1.0	9	1.0	18	5.9	15	4.3	104	21.8	108	22.4
----FRAGILARIA CROTONENSIS	691	83.5	827	88.3	97	32.7	148	44.3	156	32.8	100	20.7
---NAVICULACEAE												
----NAVICULA CAPITATA	--	---	--	---	3	1.0	--	---	--	---	--	---
----NAVICULA TRIPUNCTATA	--	---	--	---	--	---	--	---	--	---	4	0.9
---EPITHEMIACEAE												
----RHOPALODIA GIBBA	--	---	--	---	--	---	--	---	4	0.8	--	---
---NITZSCHIACEAE												
----NITZSCHIA DISSIPATA	--	---	--	---	--	---	--	---	--	---	4	0.91

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

452046119323200 WILLOW CREEK LAKE SITE 3--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	84/09/20		84/09/21		84/09/27		84/10/04		84/10/11		84/10/12	
SPECIES DIVERSITY	1.01		0.79		2.41		2.55		2.82		3.19	
TOTAL COUNT #/ml	828.		936.		297.		334.		476.		483.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHRYSOPHYTA YELLOW-BROWN ALGAE												
-BACILLARIOPHYCEAE DIATOMS												
--PENNALES PENNATE DIATOMS												
---NITZSCHIACEAE												
----NITZSCHIA FRUSTULUM	--	---	--	---	--	---	--	---	--	---	4	0.9
CYANOPHYTA BLUE-GREEN ALGAE												
-MYXOPHYCEAE												
--OSCILLATORIALES												
---NOSTOCACEAE												
----ANABAENA FLOS-AQUAE	--	---	--	---	3	1.0	--	---	4	0.8	29	6.0

DATE	84/10/17		84/10/18		84/11/01	
SPECIES DIVERSITY	2.46		2.50		1.83	
TOTAL COUNT #/ml	560.		563.		776.	
	COUNT	PCT	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE						
-CHLOROPHYCEAE						
*-CHLOROCOCCALES						
---OOCYSTACEAE						
----ANKISTRODESMUS FALCATUS	10	1.8	--	---	--	---
----CLOSTERIOPSIS LONGISSIMA	--	---	11	2.0	--	---
----OOCYSTIS PUSILLA	5	0.9	--	---	--	---
EUGLENOPHYTA EUGLENOIDS						
-EUGLENOPHYCEAE						
--EUGLENALES						
---EUGLENACEAE						
----TRACHELOMONAS SPP.	5	0.9	--	---	--	---
PYRRHOPHYTA						
-DINOPHYCEAE DINOFLAGELLATES						
--PERIDINIALES						
---PERIDINIACEAE						
----PERIDINIUM CINCTUM	5	0.9	33	5.9	20	2.5
CRYPTOPHYTA						
-CRYPTOPHYCEAE						
--CRYPTOMONADALES						
---CRYPTOCHRYSIDACEAE						
----RHODOMONAS MINUTA	46	8.2	11	2.0	13	1.7
---CRYPTOMONADACEAE						
----CRYPTOMONAS EROSA	51	9.1	33	5.9	7	0.8
CHRYSOPHYTA YELLOW-BROWN ALGAE						
-CHRYSOPHYCEAE						
--CHRYSOMONADALES						
---CHROMULINACEAE						
----KEPHYRION SPP.	--	---	6	1.0	--	---
---SYNURACEAE						
----MALLOMONAS SPP.	102	18.2	56	9.9	267	34.5
--RHIZOCHRYSIDALES						
---RHIZOCHRYSIDACEAE						
----LAGYNION SPP.	--	---	22	4.0	20	2.5
-BACILLARIOPHYCEAE DIATOMS						
--CENTRALES CENTRIC DIATIOMS						
---COSCINODISCACEAE						
----CYCLOTELLA MENEGHINIANA	--	---	6	1.0	--	---
--PENNALES PENNATE DIATOMS						
---FRAGILARIACEAE						
----ASTERIONELLA FORMOSA	204	36.4	223	39.6	359	46.2
----FRAGILARIA CROTONENSIS	122	21.8	150	26.7	91	11.8
CYANOPHYTA BLUE-GREEN ALGAE						
-MYXOPHYCEAE						
--OSCILLATORIALES						
---NOSTOCACEAE						
----ANABAENA FLOS-AQUAE	10	1.8	11	2.0	--	---

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

WATER QUALITY RECORDS

LOCATION.--Lat 45°20'32", long 119°32'39", in NE¼NW¼ sec.2, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, U.S. Corps of Engineer's land, 0.3 mi southeast of outlet structure on Willow Creek Dam, at the mouth of Balm Fork, and 0.8 mi southeast of Heppner.

PERIOD OF RECORD.--June to September 1984.

REMARKS.--Local identifier 4520321193239 Willow Creek Lake Site 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	DEPTH (M)	TEMPERATURE (DEG C)	OXYGEN DISSOLVED (MG/L)	PH (STANDARD UNITS)	SPECIFIC CONDUCTANCE (US/CM)	ALKALINITY FIELD (MG/L AS CACO3)
JUN							
19	1530	0.0	20.0	--	8.2	189	--
19	1534	2.0	17.0	--	8.2	195	--
19	1536	3.0	16.0	--	8.3	206	--
19	1540	5.0	12.0	--	8.0	219	--
19	1544	7.0	10.0	--	7.8	202	--
19	1546	8.0	9.5	--	7.7	197	--
19	1548	9.0	9.0	--	7.7	191	--
19	1550	10.0	8.6	--	7.6	191	--
19	1554	12.0	8.2	--	7.5	191	--
20	1100	0.0	17.5	10.6	--	--	--
20	1110	2.0	17.0	10.6	--	--	--
20	1115	3.0	14.5	9.6	--	--	--
20	1125	5.0	11.5	7.6	--	--	--
20	1135	7.0	10.0	6.6	--	--	--
20	1140	8.0	9.5	6.3	--	--	--
20	1145	9.0	8.5	6.2	--	--	--
20	1150	10.0	8.0	5.6	--	--	--
20	1200	12.0	8.0	5.6	--	--	--
JUL							
2	1835	0.0	22.0	9.2	8.2	218	--
2	1840	2.0	19.5	8.9	8.2	220	--
2	1845	4.0	16.0	7.6	8.2	237	--
2	1850	8.0	9.5	5.6	7.8	197	--
2	1855	11.0	8.5	4.7	7.6	191	--
16	1900	0.0	25.0	8.2	8.1	250	--
16	1910	2.0	22.5	7.9	8.1	247	126
16	1915	4.0	18.5	5.6	8.0	262	--
16	1920	8.0	9.1	4.5	7.6	199	97
16	1930	11.0	8.2	2.6	7.4	194	--
30	1800	0.0	24.0	8.9	--	234	--
30	1810	2.0	24.0	8.9	8.2	234	--
30	1820	4.0	21.5	8.1	8.2	247	--
30	1830	8.0	10.5	3.5	7.4	172	--
30	1840	11.0	8.5	1.8	--	171	--
AUG							
7	1830	0.0	23.5	8.1	8.0	296	--
7	1835	2.0	22.3	8.2	8.0	296	143
7	1840	4.0	21.8	6.9	7.7	308	--
7	1845	6.0	14.6	1.2	7.8	217	--
7	1850	8.0	9.7	1.2	7.3	204	100
7	1855	9.0	9.0	1.4	7.3	177	--
7	1900	10.5	8.5	1.4	--	169	--
16	1940	0.0	23.7	10.6	--	--	--
16	1950	2.0	22.1	10.2	8.8	--	146
16	2000	4.0	21.5	7.2	8.6	--	--
16	2010	6.0	13.5	0.8	8.0	--	122
16	2020	8.0	10.2	0.9	7.8	--	98
16	2030	10.0	9.3	0.4	7.9	--	96
22	1745	0.0	23.0	10.2	8.6	301	--
22	1755	2.0	22.0	10.2	8.5	297	148
22	1805	4.0	21.0	5.2	7.8	312	--
22	1815	6.0	17.0	0.3	7.2	251	--
22	1830	8.0	10.5	0.5	6.9	207	--
30	1600	0.0	22.0	11.8	8.8	298	--
30	1603	2.0	21.0	12.0	8.8	300	149
30	1606	4.0	20.0	8.7	8.5	300	--
30	1609	5.0	19.0	4.0	7.8	310	--
30	1612	6.0	16.5	0.5	7.6	255	--
30	1615	8.0	9.5	0.1	7.0	210	100
30	1618	10.0	9.5	0.1	6.9	203	--
SEP							
6	1600	0.0	19.0	10.1	0.0	283	--
6	1605	2.0	19.0	10.1	8.5	283	143
6	1610	4.0	18.0	5.9	0.0	283	--
6	1615	6.0	17.5	0.0	0.0	290	--
6	1620	8.0	12.0	0.0	7.2	200	110
6	1625	10.0	9.5	0.0	0.0	200	--
6	1630	11.0	9.0	0.0	0.0	203	--
13	1615	0.0	19.0	9.6	0.0	271	--
13	1620	2.0	18.5	9.4	0.0	280	--
13	1625	4.0	18.5	9.4	0.0	280	--
13	1630	6.0	14.0	0.3	0.0	311	--
13	1635	8.0	11.0	0.1	0.0	206	--
13	1640	10.0	10.0	0.1	0.0	204	--

14034490 WILLOW CREEK LAKE AT HEPPNER, OR--Continued

4520321193239 WILLOW CREEK LAKE SITE 4--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	DEPTH (M)	TURBIDITY (NTU)	CHLOROPHYLL (uG/L)	PHEOPHYTIN (uG/L)
JUN				
19	2.0	4.6	--	--
19	11.0	7.8	--	--
JUL				
2	2.0	10.0	--	--
2	11.0	42.0	--	--
16	2.0	3.3	--	--
16	8.0	11.0	--	--
30	2.0	--	3.0	2.02
30	4.0	3.0	--	--
30	8.0	5.7	--	--
AUG				
7	2.0	1.0	1.6	1.01
7	4.0	1.4	3.0	2.49
16	2.0	7.5	--	--
16	8.0	5.0	--	--
22	2.0	--	7.1	0.01
30	2.0	--	8.0	0.01
30	4.0	--	9.9	0.14

DATE	84/08/16	84/08/22
SPECIES		
DIVERSITY	1.13	2.27
TOTAL COUNT	2221.	1069.
#/ml		

	COUNT	PCT	COUNT	PCT
CHLOROPHYTA GREEN ALGAE				
-CHLOROPHYCEAE				
--VOLVOCALES				
---CHLAMYDOMONADACEAE				
----CHLAMYDOMONAS SPP.	69	3.1	9	0.8
--TETRASPORALES				
---PALMELLACEAE				
----SPHAEROCYSTIS SCHROETERI	35	1.6	36	3.4
--CHLOROCOCCALES				
---OOCYSTACEAE				
----ANKISTRODESMUS FALCATUS	35	1.6	54	5.0
----OOCYSTIS PUSILLA	--	---	36	3.4
--ZYGNEMATALES				
---DESMIDIACEAE DESMIDS				
----STAURASTRUM SP.	--	---	9	0.8
CRYPTOPHYTA				
-CRYPTOPHYCEAE				
--CRYPTOMONADALES				
---CRYPTOCHRYSIDACEAE				
----RHODOMONAS MINUTA	--	---	269	25.2
---CRYPTOMONADACEAE				
----CRYPTOMONAS EROSA	--	---	18	1.7
CHRYSOPHYTA YELLOW-BROWN ALGAE				
-BACILLARIOPHYCEAE DIATOMS				
--CENTRALES CENTRIC DIATIOMS				
---COSCINODISCACEAE				
----CYCLOTELLA MENEGHINIANA	--	---	9	0.8
--PENNALES PENNATE DIATOMS				
---FRAGILARIACEAE				
----ASTERIONELLA FORMOSA	1735	78.1	108	10.1
---NAVICULACEAE				
----NAVICULA CRYPTOCEPHALA	17	0.8	--	---
---EPITHEMIACEAE				
----EPITHEMIA SOREX	--	---	18	1.7
---NITZSCHIACEAE				
----NITZSCHIA FRUSTULUM	17	0.8	--	---
CYANOPHYTA BLUE-GREEN ALGAE				
-MYXOPHYCEAE				
--OSCILLATORIALES				
---NOSTOCACEAE				
----ANABAENA FLOS-AQUAE	312	14.1	503	47.1

WILLOW CREEK BASIN

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.

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.--Records poor. 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, 270 ft^3/s Jan. 4, gage height, 3.43 ft (high-water mark in well); minimum, 1.2 ft^3/s Apr. 17, Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	7.7	17	54	37	4.9	197	105	91	31	3.2	3.1
2	2.2	8.0	16	49	30	4.9	159	130	90	27	3.2	2.9
3	2.2	7.9	14	56	34	5.0	128	154	89	18	3.3	3.0
4	2.2	7.9	14	240	26	4.1	115	158	59	17	3.3	3.7
5	2.2	7.9	15	190	35	4.3	126	153	57	17	3.4	3.2
6	2.2	8.0	15	150	24	4.4	155	151	61	16	3.4	3.1
7	2.2	20	15	120	18	6.6	165	117	61	16	3.5	3.8
8	2.1	16	15	100	24	19	164	91	74	16	3.2	4.4
9	2.2	9.8	28	90	13	3.2	189	86	81	12	3.2	4.4
10	2.0	9.9	43	86	13	3.3	124	85	81	8.4	3.2	4.5
11	2.0	10	55	70	33	3.4	164	85	68	8.5	3.2	3.9
12	2.7	10	64	58	33	3.6	165	85	62	8.4	3.4	5.8
13	2.9	11	56	51	42	3.9	122	86	62	7.4	3.4	6.6
14	2.8	16	75	44	67	32	115	123	62	5.8	3.4	6.4
15	2.8	17	130	43	34	113	116	141	47	6.0	3.4	6.3
16	2.8	15	81	36	3.9	128	138	140	44	6.3	3.4	6.3
17	3.7	17	53	33	4.2	126	124	100	44	6.3	3.4	6.3
18	6.0	18	52	29	3.2	127	199	73	38	6.3	3.4	6.3
19	6.6	18	26	27	2.6	90	216	64	36	5.1	3.4	6.3
20	6.6	18	20	30	3.2	79	237	64	37	3.8	3.3	6.3
21	6.6	12	26	32	3.5	147	227	70	43	3.6	3.4	6.3
22	7.0	8.5	18	32	4.0	94	225	71	46	3.6	3.4	6.3
23	6.8	11	21	40	4.5	110	171	97	46	3.6	3.4	6.3
24	8.4	12	24	72	4.8	203	145	108	45	3.6	3.4	9.8
25	8.0	12	29	84	5.1	195	143	65	39	3.6	3.4	11
26	6.9	12	35	72	5.1	163	126	37	36	3.9	3.4	12
27	7.4	15	40	66	4.8	163	117	37	34	3.8	3.4	12
28	7.5	28	37	68	4.8	165	105	38	32	3.2	3.1	12
29	7.5	27	33	65	4.7	157	94	57	31	3.2	3.5	12
30	7.5	17	37	39	---	205	94	69	31	3.2	3.2	12
31	7.5	---	57	47	---	200	---	83	---	3.1	3.1	---
TOTAL	141.9	407.6	1161	2173	521.4	2567.6	4565	2923	1627	280.7	103.3	196.3
MEAN	4.58	13.6	37.5	70.1	18.0	82.8	152	94.3	54.2	9.05	3.33	6.54
MAX	8.4	28	130	240	67	205	237	158	91	31	3.5	12
MIN	2.0	7.7	14	27	2.6	3.2	94	37	31	3.1	3.1	2.9
AC-FT	281	808	2300	4310	1030	5090	9050	5800	3230	557	205	389

CAL YR 1983	TOTAL	14192.87	MEAN	38.9	MAX	306	MIN	.48	AC-FT	28150
WTR YR 1984	TOTAL	16667.8	MEAN	45.5	MAX	240	MIN	2.0	AC-FT	33060

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 mi², approximately.

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

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.--Records good Oct. 1 to Nov. 23; fair Nov. 24 to Apr. 17; excellent Apr. 18 to Sept. 30. No regulation. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--24 years, 22.6 ft³/s, 16,370 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft³/s June 10, 1969, gage height, 7.05 ft, site and datum then in use, from rating curve extended above 130 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 9	1600	252	4.94	Mar. 22	1900	269	4.67
Dec. 14	2100	389	*5.30	Mar. 27	1800	317	4.78
Jan. 3	unknown	*unknown	unknown	Apr. 18	2130	332	4.51

Minimum, 5.8 ft³/s Oct. 20, 21.

REVISIONS.--Revised daily discharges, in cubic feet per second, for September 1983, are given below. These figures supersede those published in the report for 1983.

September 1	5.5	September 9	4.7	September 17	4.7	September 25	5.5
2	5.5	10	5.0	18	5.2	26	5.5
3	5.0	11	5.0	19	8.0	27	5.5
4	5.0	12	5.0	20	6.7	28	5.5
5	4.7	13	4.7	21	6.4	29	5.5
6	4.5	14	4.7	22	6.1	30	5.8
7	4.7	15	4.7	23	5.8		
8	4.7	16	4.7	24	5.8		

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
September 1983	160.1	5.34	8.0	4.5	318
Wtr Yr 1983	18119.5	49.6	477	3.9	35940

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	9.7	21	190	27	91	144	151	45	37	12	11
2	5.8	9.7	21	250	24	123	127	162	41	33	17	9.3
3	5.8	9.0	21	420	22	102	110	178	38	31	13	9.0
4	5.8	9.7	19	364	22	85	113	160	47	27	11	8.4
5	5.8	9.3	18	203	21	71	174	144	57	27	13	8.7
6	5.8	11	18	137	19	65	173	129	67	26	13	9.3
7	5.8	11	28	107	20	59	156	113	70	25	11	14
8	6.1	9.7	68	88	20	59	208	98	64	24	9.9	13
9	9.3	9.3	174	71	22	63	181	88	64	24	11	10
10	8.0	11	186	61	21	87	178	83	68	23	11	10
11	7.0	13	111	54	21	98	160	83	62	21	9.3	11
12	7.0	11	82	48	25	87	150	76	61	21	9.9	10
13	6.7	12	79	41	85	94	137	76	88	21	9.6	9.6
14	6.7	12	220	34	100	123	123	83	71	20	9.3	9.3
15	6.7	13	226	29	82	163	115	86	55	20	9.3	9.6
16	6.4	15	121	28	82	145	124	79	50	20	9.0	9.3
17	7.0	18	81	28	71	160	130	70	45	18	8.7	9.0
18	6.6	17	60	28	63	150	190	60	43	18	9.0	8.7
19	6.0	17	50	27	67	140	260	60	38	18	8.7	8.4
20	5.8	16	42	25	87	130	238	61	50	17	8.7	9.0
21	5.8	17	42	20	102	199	200	60	56	17	7.8	9.3
22	7.0	16	42	18	87	226	176	61	55	17	6.5	9.9
23	8.3	16	42	17	82	195	160	78	48	15	7.0	15
24	7.3	55	55	46	80	155	157	65	41	14	7.3	13
25	7.0	36	70	49	76	125	144	64	36	13	7.8	12
26	7.3	30	75	42	67	179	135	62	35	13	7.8	12
27	7.0	24	75	41	67	205	122	55	40	12	7.3	11
28	7.0	27	65	40	67	212	116	51	44	12	7.0	11
29	7.0	24	70	37	67	197	118	50	44	11	7.5	10
30	7.7	22	90	33	---	160	131	52	40	10	10	10
31	10	---	150	30	---	158	---	50	---	9.9	11	---
TOTAL	211.3	510.4	2422	2606	1596	4106	4650	2688	1563	614.9	300.4	309.8
MEAN	6.82	17.0	78.1	84.1	55.0	132	155	86.7	52.1	19.8	9.69	10.3
MAX	10	55	226	420	102	226	260	178	88	37	17	15
MIN	5.8	9.0	18	17	19	59	110	50	35	9.9	6.5	8.4
AC-FT	419	1010	4800	5170	3170	8140	9220	5330	3100	1220	596	614

CAL YR 1983	TOTAL 19059.3	MEAN 52.2	MAX 477	MIN 4.5	AC-FT 37800				
WTR YR 1984	TOTAL 21577.8	MEAN 59.0	MAX 420	MIN 5.8	AC-FT 42800				

NOTE.--No gage-height record Dec. 30 to Jan. 3.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those about 20 ft^3/s, which are poor. Flow affected by natural storage in Strawberry Lake. No diversion above station.

AVERAGE DISCHARGE.--54 years, 13.1 ft^3/s, 25.41 in/yr, 9,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 354 ft^3/s May 31, 1983, gage height, 2.15 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, 162 ft^3/s May 31, gage height, 1.87 ft; minimum daily, 3.1 ft^3/s Dec. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	3.7	4.2	4.3	5.0	4.1	6.3	12	124	92	26	9.8
2	4.5	3.8	4.1	4.5	5.0	3.9	5.9	12	115	105	27	9.4
3	4.5	4.0	3.6	5.1	4.8	3.9	5.9	12	102	102	25	9.1
4	4.5	4.6	3.6	6.3	4.6	3.8	5.7	12	95	102	23	9.1
5	4.5	4.2	3.6	6.9	4.6	3.6	5.5	12	93	101	22	9.0
6	4.4	4.6	3.6	6.9	4.6	3.7	5.4	11	89	99	20	8.7
7	4.2	4.3	3.7	7.2	4.6	3.7	5.6	11	86	96	19	8.5
8	4.2	4.2	3.6	7.3	4.6	3.8	7.1	11	82	91	18	8.3
9	4.5	4.3	3.6	7.3	4.6	4.2	7.8	13	76	81	18	7.9
10	4.2	4.8	3.7	6.8	4.6	4.5	7.9	14	70	73	17	7.9
11	4.2	4.9	3.6	6.5	4.5	4.8	7.4	21	66	70	17	7.7
12	4.2	4.9	3.6	6.3	4.7	5.1	7.2	32	63	70	16	7.3
13	4.2	4.7	3.6	6.3	6.0	5.8	6.7	41	61	69	16	7.3
14	4.2	4.5	3.6	6.3	6.7	6.5	6.6	50	60	67	15	7.1
15	4.2	4.5	3.7	6.3	6.9	6.8	9.1	46	61	63	14	6.8
16	3.9	4.8	3.9	6.3	6.8	6.8	16	42	67	60	14	6.8
17	3.9	5.0	3.6	6.2	6.3	6.6	22	40	73	59	14	6.6
18	3.9	4.8	3.6	5.8	6.3	6.2	22	40	81	58	14	6.3
19	3.9	4.7	3.5	5.7	6.0	6.0	19	42	85	56	13	6.3
20	3.9	4.7	3.4	5.4	5.4	6.2	17	48	90	56	13	6.5
21	3.9	4.8	3.3	5.2	5.2	7.6	15	50	93	53	12	6.2
22	4.1	4.6	3.2	4.7	5.0	8.5	15	49	86	50	12	5.9
23	4.0	4.5	3.1	4.3	4.8	8.6	16	55	85	46	12	5.9
24	3.8	4.4	3.2	5.0	4.6	8.5	16	55	90	50	11	5.9
25	3.6	4.2	3.3	5.0	4.5	8.5	16	56	99	47	10	5.7
26	3.6	4.2	3.5	5.0	4.2	8.4	15	62	109	42	9.9	5.4
27	3.6	4.2	3.6	5.0	4.2	7.7	14	70	101	39	9.8	5.4
28	3.6	4.2	3.7	5.0	4.2	7.3	14	81	86	35	9.4	5.4
29	3.6	4.2	3.8	5.0	4.2	6.9	13	82	79	33	9.2	5.0
30	3.7	4.2	4.0	5.0	---	6.8	12	94	92	31	9.9	5.0
31	3.6	---	3.8	5.0	---	6.3	---	121	---	28	12	---
TOTAL	125.6	133.5	111.9	177.9	147.5	185.1	342.1	1297	2559	2024	478.2	212.2
MEAN	4.05	4.45	3.61	5.74	5.09	5.97	11.4	41.8	85.3	65.3	15.4	7.07
MAX	4.5	5.0	4.2	7.3	6.9	8.6	22	121	124	105	27	9.8
MIN	3.6	3.7	3.1	4.3	4.2	3.6	5.4	11	60	28	9.2	5.0
CFSM	.58	.64	.52	.82	.73	.85	1.63	5.97	12.2	9.33	2.20	1.01
IN.	.67	.71	.59	.95	.78	.98	1.82	6.89	13.60	10.76	2.54	1.13
AC-FT	249	265	222	353	293	367	679	2570	5080	4010	949	421

CAL YR 1983	TOTAL	7130.9	MEAN	19.5	MAX	215	MIN	3.1	CFSM	2.79	IN.	37.90	AC-FT	14140
WTR YR 1984	TOTAL	7794.0	MEAN	21.3	MAX	124	MIN	3.1	CFSM	3.04	IN.	41.42	AC-FT	15460

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.--Records excellent except for November, April, and May, which are good. Some regulation from irrigation ditches upstream. Many diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--16 years, 226 ft^3/s, 163,700 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)
Feb. 13	1700	*2,030	*6.79	Apr. 8	1500	974	5.39
Mar. 2	0230	1,150	5.64	Apr. 17	2300	1,080	5.55
Mar. 9	2100	1,110	5.59	May 14	1730	1,380	5.97
Mar. 14	0300	1,110	5.58	May 31	0500	1,340	5.92
Mar. 21	2130	1,250	5.77	Aug. 31	1330	1,230	5.76
Mar. 26	2030	1,480	6.10				

Minimum, 51 ft^3/s Aug. 26, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	118	144	346	269	459	591	560	1020	585	170	315
2	108	132	139	285	251	891	567	600	837	525	173	208
3	108	140	146	281	241	591	537	650	777	495	160	173
4	106	140	139	456	244	483	525	620	831	471	157	157
5	104	140	144	478	269	441	591	590	843	447	155	144
6	104	134	149	440	277	501	645	570	819	435	144	136
7	102	140	162	395	273	597	579	560	861	429	128	144
8	102	132	217	365	277	639	825	580	765	381	122	141
9	106	127	265	337	310	967	717	600	711	348	117	136
10	108	140	375	310	297	873	735	660	669	315	112	131
11	106	160	277	297	258	897	681	780	615	295	103	133
12	104	150	244	281	375	711	645	960	597	290	99	136
13	106	150	248	258	1100	741	579	1100	585	280	96	131
14	106	150	360	234	819	1000	585	1370	549	266	87	126
15	106	170	332	182	591	855	753	1230	537	242	80	126
16	106	190	258	167	537	747	967	994	573	226	76	126
17	106	250	244	144	441	687	1060	825	591	215	71	124
18	106	179	223	123	353	597	1020	747	591	219	66	112
19	104	162	217	140	320	573	1000	771	615	223	69	117
20	102	157	194	162	320	609	900	909	699	193	71	119
21	102	149	159	170	331	954	850	935	753	183	62	122
22	102	144	127	180	305	980	850	849	651	177	60	124
23	125	144	130	182	300	825	850	961	585	183	62	155
24	114	167	135	370	295	837	800	922	609	230	59	152
25	112	159	160	591	290	717	720	849	687	200	56	147
26	112	149	200	584	258	961	660	861	747	173	54	147
27	112	149	220	461	270	1020	620	867	741	177	54	147
28	108	157	230	400	270	843	600	849	747	173	56	147
29	108	154	310	355	285	813	560	935	741	173	54	144
30	114	139	456	314	---	699	540	1210	657	157	89	141
31	118	---	445	293	---	627	---	1280	---	160	747	---
TOTAL	3337	4572	7049	9581	10426	23135	21552	26194	21003	8866	3609	4361
MEAN	108	152	227	309	360	746	718	845	700	286	116	145
MAX	125	250	456	591	1100	1020	1060	1370	1020	585	747	315
MIN	102	118	127	123	241	441	525	560	537	157	54	112
AC-FT	6620	9070	13980	19000	20680	45890	42750	51960	41660	17590	7160	8650

CAL YR 1983	TOTAL	117508	MEAN	322	MAX	1960	MIN	51	AC-FT	233100
WTR YR 1984	TOTAL	143685	MEAN	393	MAX	1370	MIN	54	AC-FT	285000

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 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.--Records excellent. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--58 years, 502 ft^3/s, 363,700 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 above base 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)
Jan. 5	unknown	1,880	a7.78	Mar. 27	0330	4,060	10.38
Jan. 26	0130	1,810	7.68	Apr. 8	2230	4,240	10.55
Feb. 13	2130	4,460	10.75	Apr. 17	1300	*4,890	*11.14
Mar. 2	1100	2,010	7.98	May 14	1630	4,100	10.42
Mar. 15	0100	3,770	10.09	May 31	1130	2,750	8.96
Mar. 22	0430	4,250	10.56				

Minimum, 106 ft^3/s Aug. 28, 29.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	288	347	860	901	1040	2500	2350	2390	1060	318	970
2	226	291	341	750	834	1720	2410	2630	2000	963	328	574
3	227	303	349	770	815	1560	2300	2550	1850	881	320	500
4	224	317	348	1200	794	1290	2370	2550	1880	803	306	400
5	219	322	343	1500	827	1190	2610	2470	2020	769	341	350
6	220	315	351	1400	878	1210	3080	2370	1980	722	359	310
7	218	316	424	1300	880	1450	2710	2240	2170	704	323	300
8	217	305	691	1200	897	1800	3530	2210	2140	673	302	310
9	234	299	708	1100	931	2880	3690	2430	1940	638	281	350
10	246	304	1290	1030	940	3250	3260	2540	1890	606	271	330
11	247	320	1010	995	866	3330	3150	2720	1740	569	252	280
12	239	338	819	954	877	2880	2940	3180	1630	521	240	270
13	234	331	756	891	2730	2810	2740	3370	1630	509	220	270
14	238	325	1250	825	2930	3600	2640	3920	1560	497	206	260
15	246	328	1330	637	1920	3550	3200	3830	1470	467	195	250
16	243	356	944	500	1740	3250	4320	3240	1430	439	177	240
17	241	479	827	470	1480	3050	4750	2710	1410	414	162	240
18	243	469	737	468	1260	2600	4630	2410	1370	399	149	230
19	244	407	686	450	1180	2450	4520	2370	1300	399	145	220
20	241	404	607	500	1210	2710	4050	2610	1400	379	145	220
21	238	380	485	520	1200	3840	3430	2670	1670	364	145	230
22	240	360	411	560	1130	3940	3230	2470	1550	354	137	250
23	272	351	309	610	1080	3590	3290	2500	1360	343	133	270
24	282	394	290	751	1060	3370	3280	2530	1280	390	134	290
25	271	420	350	1370	1040	3020	3090	2350	1300	417	129	300
26	264	387	600	1490	949	3300	2830	2330	1340	366	127	290
27	263	367	740	1230	964	3600	2570	2290	1330	339	117	280
28	261	369	690	1120	943	3240	2370	2200	1290	327	110	270
29	260	380	620	1050	952	3000	2240	2230	1260	339	107	270
30	263	363	620	973	---	2730	2190	2490	1170	320	148	260
31	279	---	860	929	---	2610	---	2690	---	305	737	---
TOTAL	7566	10588	20133	28403	34208	83860	93920	81450	48750	16276	7064	9584
MEAN	244	353	649	916	1180	2705	3131	2627	1625	525	228	319
MAX	282	479	1330	1500	2930	3940	4750	3920	2390	1060	737	970
MIN	217	288	290	450	794	1040	2190	2200	1170	305	107	220
AC-FT	15010	21000	39930	56340	67850	166300	186300	161600	96700	32280	14010	19010

CAL YR 1983	TOTAL	409035	MEAN	1121	MAX	5800	MIN	126	AC-FT	811300
WTR YR 1984	TOTAL	441802	MEAN	1207	MAX	4750	MIN	107	AC-FT	876300

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 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.--Records excellent except those for December and January, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--48 years (water years 1915-17, 1922-23, 1942-84), 97.4 ft^3/s, 70,570 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 above base 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)
Jan. 4	0800	Ice jam	a*5.50	Apr. 5	2130	598	2.42
Jan. 24	1930	*1,620	3.63	Apr. 8	1730	598	2.42
Mar. 10	2130	571	2.38	Apr. 15	2230	1,170	3.15
Mar. 14	1800	618	2.45	May 13	2130	605	2.43
Mar. 21	0130	1,030	2.98				

Minimum, 4.1 ft^3/s Aug. 29.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	11	22	110	173	93	302	268	188	53	10	22
2	6.0	12	21	88	162	121	305	312	147	46	21	16
3	5.9	12	18	90	173	117	303	391	126	41	22	13
4	5.7	16	19	160	126	108	301	390	148	36	16	12
5	5.7	14	19	309	116	107	420	364	222	33	14	11
6	5.7	15	20	256	109	114	500	328	272	30	12	13
7	5.6	18	21	211	102	140	407	294	316	27	11	20
8	5.7	15	27	182	99	184	561	311	353	25	9.5	20
9	11	14	38	157	96	269	472	346	325	24	8.8	15
10	9.9	13	96	141	86	402	416	344	281	22	8.7	13
11	7.7	14	84	126	78	486	350	408	245	20	8.2	13
12	7.0	14	68	114	90	411	317	487	256	19	7.8	12
13	6.8	16	63	104	253	433	293	523	299	18	7.1	11
14	7.2	15	74	95	284	557	388	572	304	17	6.9	11
15	6.8	16	68	84	227	541	782	445	268	16	6.2	10
16	6.6	22	55	70	198	495	1020	337	236	14	6.2	9.7
17	6.6	31	56	64	165	471	932	276	199	14	5.9	9.3
18	6.7	30	52	58	130	372	807	252	165	13	5.9	9.3
19	6.7	27	47	60	135	379	701	264	143	13	5.8	8.4
20	6.4	25	45	70	133	616	557	307	156	12	5.6	9.5
21	6.4	24	32	80	118	870	479	304	165	11	5.7	11
22	9.7	21	22	180	105	661	462	264	156	11	5.2	11
23	15	21	17	400	99	639	484	352	134	11	5.2	14
24	10	24	18	1050	95	669	438	324	123	13	5.2	14
25	8.5	24	23	1140	91	496	365	274	114	13	5.1	12
26	7.8	23	38	664	81	424	307	285	104	11	4.9	11
27	7.4	22	88	424	82	370	264	273	93	14	4.7	11
28	7.1	25	84	326	82	342	242	257	80	12	4.8	10
29	7.0	24	76	269	84	303	230	272	71	11	4.5	9.8
30	7.2	22	74	226	---	273	238	313	63	11	8.2	9.6
31	9.7	---	120	194	---	287	---	258	---	9.6	31	---
TOTAL	231.4	580	1505	7502	3772	11750	13643	10395	5752	620.6	283.1	371.6
MEAN	7.46	19.3	48.5	242	130	379	455	335	192	20.0	9.13	12.4
MAX	15	31	120	1140	284	870	1020	572	353	53	31	22
MIN	5.6	11	17	58	78	93	230	252	63	9.6	4.5	8.4
AC-FT	459	1150	2990	14880	7480	23310	27060	20620	11410	1230	562	737

CAL YR 1983	TOTAL	38192.6	MEAN	105	MAX	786	MIN	5.0	AC-FT	75760
WTR YR 1984	TOTAL	56405.7	MEAN	154	MAX	1140	MIN	4.5	AC-FT	111900

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 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--55 years, 255 ft³/s, 184,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,730 ft³/s Jan. 30, 1965, gage height, 8.39 ft, from rating curve extended above 2,200 ft³/s; maximum gage height, 9.13 ft Feb. 1, 1963, ice jam; minimum discharge, 0.90 ft³/s Aug. 19, 20, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 24	1300	ice jam	*6.77	Apr. 8	1930	1,940	5.85
Jan. 25	0600	1,330	5.24	Apr. 17	1400	*2,560	6.42
Feb. 13	1900	1,120	5.00	May 14	1400	2,300	6.19
Mar. 11	0230	1,610	5.52	May 31	0100	1,920	5.83
Mar. 15	0030	1,680	5.58	June 5	0430	1,590	5.50
Mar. 21	1000	2,110	6.01	June 11	2200	2,030	5.93

Minimum, 38 ft³/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	73	74	169	353	287	964	1010	1450	675	126	335
2	51	78	85	142	323	522	953	1160	1230	632	140	169
3	51	79	89	170	312	420	925	1180	1090	584	133	130
4	51	85	86	235	302	374	925	1200	1170	542	119	112
5	51	90	87	308	303	360	1130	1170	1460	506	128	101
6	51	79	90	289	293	419	1430	1100	1360	475	134	97
7	50	87	93	235	295	566	1180	1010	1420	428	118	107
8	50	77	118	231	284	770	1560	1050	1360	386	105	146
9	56	73	130	212	259	1060	1530	1190	1250	354	98	119
10	61	74	252	192	254	1270	1330	1260	1290	324	94	106
11	59	89	230	189	228	1370	1160	1430	1350	302	89	99
12	56	86	185	178	239	1170	1080	1800	1570	286	84	95
13	56	90	172	167	767	1180	1020	1920	1270	264	81	92
14	56	85	348	157	691	1520	1070	2230	1150	245	80	89
15	56	89	284	125	509	1470	1590	2090	1080	229	78	86
16	55	98	184	107	448	1270	2190	1760	1080	215	76	83
17	55	150	166	100	389	1250	2450	1450	1010	202	73	81
18	55	144	136	92	307	1010	2310	1310	975	191	72	79
19	54	110	142	87	301	948	2260	1350	955	182	71	77
20	58	102	121	89	321	1220	2000	1500	970	170	69	82
21	56	94	90	100	297	2020	1700	1540	1050	160	68	94
22	58	85	80	120	274	1750	1630	1420	995	154	68	88
23	71	86	66	140	259	1520	1740	1540	904	159	66	109
24	70	93	70	350	250	1460	1720	1530	897	174	67	114
25	62	105	80	1150	248	1220	1520	1360	950	166	66	100
26	59	96	100	913	219	1290	1300	1560	974	139	65	94
27	57	91	130	698	229	1220	1130	1430	943	134	62	93
28	57	111	110	581	223	1120	1040	1390	922	140	61	91
29	57	112	142	505	227	1050	980	1560	902	164	60	87
30	58	81	153	454	---	922	960	1880	773	139	87	85
31	67	---	205	399	---	926	---	1800	---	124	412	---
TOTAL	1755	2792	4298	8884	9404	32954	42777	45180	33800	8845	3050	3240
MEAN	56.6	93.1	139	287	324	1063	1426	1457	1127	285	98.4	108
MAX	71	150	348	1150	767	2020	2450	2230	1570	675	412	335
MIN	50	73	66	87	219	287	925	1010	773	124	60	77
AC-FT	3480	5540	8530	17620	18650	65360	84850	89610	67040	17540	6050	6430

CAL YR 1983	TOTAL	157611	MEAN	432	MAX	2220	MIN	46	AC-FT	312600
WTR YR 1984	TOTAL	196979	MEAN	538	MAX	2450	MIN	50	AC-FT	390700

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 mi^2, 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 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.--Records excellent. Very slight regulation by small reservoirs upstream. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--59 years, 1,290 ft^3/s, 934,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft^3/s Jan. 30, 1965, gage height, 18.45 ft, from rating curve extended above 17,000 ft^3/s; minimum, 6 ft^3/s sometime during period Nov. 2-13, 1936 (result of freezeup); minimum daily, 17 ft^3/s Dec. 12, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 4	1100	Ice jam	*10.88	Apr. 8	2230	9,430	9.51
Jan. 25	2130	6,970	8.41	Apr. 17	0900	*11,400	10.35
Feb. 13	2300	7,540	8.67	May 14	0830	11,200	10.23
Mar. 15	0300	9,430	9.51	May 30	0730	10,200	9.83
Mar. 21	2300	10,500	9.94				

Minimum, 178 ft^3/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	210	416	1700	1980	1920	4800	4390	6650	2560	474	1640
2	189	226	427	1500	1730	2960	4560	5400	5530	2330	548	754
3	189	255	443	1600	1630	2600	4290	5490	4850	2170	641	539
4	189	294	438	2400	1560	2180	4260	5460	4900	2030	525	452
5	188	325	448	3240	1490	2000	5360	5190	6340	1910	502	400
6	185	357	460	2660	1490	2090	6750	4840	6230	1800	508	377
7	181	386	476	2230	1480	2520	5550	4390	6660	1640	485	402
8	179	362	683	2050	1450	3100	7800	4610	6840	1490	421	496
9	214	386	998	1870	1460	4340	7650	5260	5940	1380	387	495
10	235	330	2570	1750	1380	5820	6360	5570	5980	1270	366	420
11	241	303	2360	1630	1270	6560	5780	6000	5280	1180	343	379
12	223	357	1660	1510	1330	5720	5240	7710	5870	1130	327	359
13	215	406	1450	1400	4710	5800	4790	8620	5420	1050	312	344
14	209	381	2020	1270	5170	8300	4690	10800	5290	987	302	330
15	205	352	2100	920	3600	8530	6490	9350	4950	926	295	321
16	205	432	1590	820	3160	7370	9700	7420	4820	868	282	310
17	204	729	1300	760	2680	7080	11000	6180	4470	816	272	299
18	200	896	1140	747	2140	5540	10500	5710	4160	768	266	289
19	200	653	1080	760	1970	4950	10600	6070	3960	737	259	277
20	201	569	912	780	2180	5980	9030	7090	3980	685	253	286
21	201	518	641	820	2090	9780	7590	7410	4620	635	248	314
22	201	476	580	900	1870	8780	7050	6590	4290	600	244	341
23	206	448	560	980	1760	8010	7510	7640	3790	578	237	367
24	235	596	600	1890	1690	7470	7330	7750	3640	611	230	412
25	272	721	700	6470	1680	6190	6490	6590	3740	682	230	387
26	256	582	1200	5490	1510	6460	5590	7640	3830	569	227	363
27	225	536	1500	4050	1540	6670	4850	7520	3700	510	218	349
28	215	562	1400	3290	1540	6110	4400	7100	3530	529	209	345
29	210	596	1300	2840	1650	5800	4120	7650	3480	634	203	331
30	205	512	1300	2460	---	5080	3950	9450	2990	553	253	319
31	201	---	1900	2150	---	4880	---	8760	---	482	618	---
TOTAL	6467	13756	34652	62937	59190	170590	194080	209650	145730	34110	10685	12697
MEAN	209	459	1118	2030	2041	5503	6469	6763	4858	1100	345	423
MAX	272	896	2570	6470	5170	9780	11000	10800	6840	2560	641	1640
MIN	179	210	416	747	1270	1920	3950	4390	2990	482	203	277
AC-FT	12830	27290	68730	124800	117400	338400	385000	415800	289100	67660	21190	25180

CAL YR 1983	TOTAL	837500	MEAN	2295	MAX	12800	MIN	167	AC-FT	1661000
WTR YR 1984	TOTAL	954544	MEAN	2608	MAX	11000	MIN	179	AC-FT	1893000

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 National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Feb. 24, 1957.

REMARKS.--Records excellent except those for period of no gage-height record, May 6 to June 13, which are fair. Very slight regulation by several small reservoirs above station. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years, 1,935 ft^3/s, 1,402,000 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 above base 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)
Jan. 4	1830	8,590	8.36	Apr. 9	0530	14,200	10.62
Jan. 26	0600	9,750	8.86	Apr. 17	1600	*16,400	*11.41
Feb. 14	0500	12,900	10.13	May 14	2000	15,100	10.93
Mar. 15	1100	13,900	10.49	May 30	1600	12,500	9.96
Mar. 22	0530	15,200	10.97	June 8	1130	9,840	8.90

Minimum, 326 ft^3/s Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	606	954	2870	3390	3190	8400	7010	9970	3980	835	2640
2	481	644	881	2360	3110	4730	7940	8430	8250	3590	896	1810
3	484	673	891	2410	2910	4870	7460	8450	7210	3320	989	1240
4	484	704	922	3880	2820	4170	7290	8620	6770	3110	967	1010
5	478	742	908	4870	2740	3730	8310	8290	8380	2940	880	890
6	473	797	936	4670	2770	3640	10500	7930	8480	2780	910	807
7	468	749	982	4240	2810	4110	9490	7290	8860	2600	885	779
8	467	778	1220	3910	2770	4910	10600	7180	9560	2390	812	817
9	500	753	1650	3670	2830	6640	13000	7850	8440	2200	730	923
10	540	706	3080	3430	2840	9530	10700	8520	8470	2040	724	837
11	556	701	4000	3260	2620	10600	10200	8790	7510	1910	655	763
12	557	760	3070	3070	2470	9690	9010	10800	7850	1770	608	728
13	537	856	2530	2860	5980	8850	8500	11900	7520	1690	581	719
14	527	812	3070	2640	10500	12000	7980	14000	7250	1610	549	694
15	525	793	4480	2200	6710	12900	9660	14000	6760	1520	539	677
16	525	785	3380	1610	5860	12000	13500	11700	6450	1430	519	656
17	525	1030	2610	1540	4990	11100	15800	9820	6190	1340	488	639
18	520	1580	2320	1440	4300	9430	15600	8750	5820	1260	463	620
19	519	1320	2090	1400	3720	8110	15500	8700	5500	1200	443	596
20	525	1140	1930	1530	3780	8880	14200	9660	5420	1160	438	598
21	521	1070	1420	1580	3940	12900	11900	10500	6270	1080	434	641
22	522	992	959	1730	3730	14200	11000	9760	6350	1030	422	682
23	546	940	777	1920	3410	12700	11100	9830	5590	1010	405	727
24	592	968	815	2110	3300	11700	11200	10900	5170	1000	389	793
25	621	1190	1060	7390	3270	10400	10500	9690	5140	1120	391	827
26	588	1210	1770	8480	3080	10400	9410	9880	5250	1070	382	788
27	562	1060	2330	6300	2930	11800	8340	10300	5240	930	376	759
28	554	1010	2160	5210	2980	10700	7530	9690	5030	885	351	740
29	548	1080	1970	4560	3050	10000	7050	9740	4910	995	336	736
30	550	1080	1930	4070	---	9150	6670	11300	4550	986	360	721
31	572	---	2760	3640	---	8410	---	11800	---	877	650	---
TOTAL	16347	27529	59855	104850	109610	275440	308340	301080	204160	54823	18407	25857
MEAN	527	918	1931	3382	3780	8885	10280	9712	6805	1768	594	862
MAX	621	1580	4480	8480	10500	14200	15800	14000	9970	3980	989	2640
MIN	467	606	777	1400	2470	3190	6670	7010	4550	877	336	596
AC-FT	32420	54600	118700	208000	217400	546300	611600	597200	405000	108700	36510	51290

CAL YR 1983	TOTAL	1299215	MEAN	3559	MAX	19200	MIN	370	AC-FT	2577000
WTR YR 1984	TOTAL	1506298	MEAN	4116	MAX	15800	MIN	336	AC-FT	2988000

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.--Records good except those for January and August, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--9 years, 62.2 ft^3/s, 45,060 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 above base 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)
Dec. 10	0830	284	6.56	Mar. 17	0600	*732	6.94
Dec. 15	0130	380	6.77	Mar. 23	0130	712	6.89
Jan. 4	unknown	unknown	a*7.61	Mar. 26	2230	719	6.88
Jan. 4	unknown	680	7.25	Apr. 6	0100	608	6.69
Feb. 13	2300	660	6.87	Apr. 8	0930	680	6.80
Mar. 2	0030	380	6.44	Apr. 19	0400	686	6.81
Mar. 11	0230	492	6.61	May 1	2400	357	6.26

Minimum daily, 3.5 ft^3/s Aug. 21-26.

a Crest-gage reading, backwater from ice, debris.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	13	26	120	95	184	485	221	48	34	15	9.7
2	6.0	14	25	155	90	344	425	321	46	30	10	9.7
3	6.0	15	25	450	86	273	375	269	43	29	7.0	9.3
4	6.0	15	24	480	77	228	348	249	52	27	5.5	9.0
5	6.0	13	22	390	77	207	449	224	79	24	5.0	8.6
6	6.0	14	24	300	82	194	550	217	130	24	4.7	8.2
7	5.6	16	24	240	82	207	437	194	169	21	4.7	9.0
8	6.0	16	36	200	82	231	628	171	147	20	4.7	9.3
9	8.7	16	91	155	88	294	531	163	116	19	4.7	9.7
10	11	16	256	130	77	420	511	160	112	17	4.7	9.3
11	11	18	164	120	70	449	518	157	107	17	4.7	9.0
12	9.6	20	115	100	74	362	473	147	99	16	4.7	8.6
13	9.1	19	102	80	339	357	415	135	101	15	4.7	8.2
14	8.7	19	143	65	425	583	380	123	152	14	4.5	8.2
15	8.3	19	280	55	273	576	395	121	107	13	4.2	8.2
16	8.3	21	140	46	242	563	390	114	86	11	3.9	8.2
17	7.9	50	106	46	210	622	375	101	72	10	3.9	8.2
18	8.3	50	82	47	169	443	362	95	63	9.7	3.9	8.2
19	8.7	32	69	47	163	390	628	88	56	8.5	3.9	8.2
20	8.7	26	50	48	174	420	511	84	54	7.5	3.7	7.9
21	8.7	24	32	55	197	654	415	77	88	7.0	3.5	7.9
22	8.7	22	27	60	184	589	362	72	114	6.7	3.5	8.2
23	9.6	20	25	80	169	615	312	92	101	6.6	3.5	10
24	9.6	25	25	130	166	524	285	92	79	6.5	3.5	12
25	10	35	26	155	163	437	273	77	64	6.4	3.5	13
26	9.6	31	30	155	135	524	249	84	56	5.6	3.5	13
27	9.1	28	55	140	147	615	224	76	51	5.6	3.8	12
28	9.1	26	60	130	147	635	203	63	45	5.6	4.5	12
29	9.6	30	65	120	163	596	197	57	40	5.7	5.3	12
30	9.6	29	100	110	---	550	184	53	36	5.7	6.2	11
31	11	---	120	100	---	511	---	53	---	8.0	8.6	---
TOTAL	260.5	692	2369	4509	4446	13597	11890	4150	2513	436.1	157.5	285.8
MEAN	8.40	23.1	76.4	145	153	439	396	134	83.8	14.1	5.08	9.53
MAX	11	50	280	480	425	654	628	321	169	34	15	13
MIN	5.6	13	22	46	70	184	184	53	36	5.6	3.5	7.9
AC-FT	517	1370	4700	8940	8820	26970	23580	8230	4980	865	312	567

CAL YR 1983	TOTAL	45280.5	MEAN	124	MAX	1860	MIN	1.9	AC-FT	89810
WTR YR 1984	TOTAL	45305.9	MEAN	124	MAX	654	MIN	3.5	AC-FT	89860

NOTE.--No gage-height record Dec. 23 to Feb. 1, July 20 to Aug. 29.

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 National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1930, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records excellent. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--79 years (water years 1906-84), 2,097 ft^3/s, 1,519,000 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 above base 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)
Jan. 3	1900	16,200	9.52	Apr. 10	0130	15,900	9.44
Jan. 27	0300	10,300	7.48	Apr. 18	1230	*17,900	*10.03
Feb. 15	0130	13,400	8.63	May 15	1600	15,800	9.41
Mar. 16	0430	15,400	9.28	May 31	1330	13,000	8.48
Mar. 22	2400	17,100	9.79	June 9	0530	10,600	7.60

Minimum, 402 ft^3/s Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	501	662	1330	2830	4360	3910	10300	7840	12300	5060	1070	435
2	523	697	1280	3480	4010	4260	10100	8210	10400	4510	986	1370
3	536	700	1140	6440	3740	5620	9530	9600	8800	4030	962	2290
4	547	740	1100	7370	3450	5830	9000	9630	7950	3730	1000	1550
5	547	780	1110	6250	3360	5140	8940	9700	7580	3490	1090	1240
6	539	820	1150	6410	3250	4650	10300	9280	9290	3260	1030	1070
7	533	860	1170	5970	3230	4520	12200	8830	9440	3090	962	969
8	525	930	1210	5430	3260	4920	11100	8190	9940	2920	986	906
9	532	880	1320	4980	3230	5830	13200	8080	10300	2740	947	874
10	567	900	2270	4670	3270	7910	14400	8750	9200	2530	892	910
11	590	860	3460	4410	3290	10800	12300	9450	9190	2330	843	980
12	612	820	4800	4160	3100	11700	11800	9760	8160	2170	810	908
13	630	800	3840	3870	3060	10500	10600	11800	8580	2030	745	842
14	629	900	3360	3580	7750	10500	10000	12800	8270	1900	708	806
15	606	1000	4830	3260	10800	14000	9520	15200	7930	1810	675	795
16	593	990	5650	2880	7730	14500	11400	14500	7380	1740	631	775
17	591	969	4350	2470	6920	13400	15600	12200	7060	1640	607	759
18	592	1020	3370	2070	5990	12500	17500	10500	6790	1530	583	737
19	590	1480	2990	1910	5300	10600	17600	9570	6410	1430	559	718
20	586	1670	2700	1760	4730	9490	17300	9600	6110	1370	539	689
21	583	1430	2760	1890	4850	11400	15500	10500	6130	1320	527	657
22	603	1320	2150	2040	5090	16200	13300	11100	7040	1260	497	678
23	602	1260	1280	2200	4800	15800	12300	10500	7020	1200	488	742
24	605	1220	845	2390	4450	14300	12500	10800	6230	1170	468	795
25	611	1160	630	2850	4270	13300	12500	11500	5790	1130	459	828
26	661	1230	707	7810	4190	12000	11600	10400	5710	1140	453	890
27	703	1460	876	9000	4000	13000	10500	10700	5800	1240	455	909
28	676	1360	1100	6950	3770	13700	9400	10900	5740	1130	449	876
29	654	1260	931	5920	3830	12800	8570	10400	5530	1020	434	851
30	654	1230	1570	5280	---	12000	8130	10500	5360	1010	433	834
31	648	---	2650	4790	---	11000	---	12200	---	1120	413	---
TOTAL	18369	31408	67929	135320	133080	316080	356990	322990	231430	66050	21701	27683
MEAN	593	1047	2191	4365	4589	10200	11900	10420	7714	2131	700	923
MAX	703	1670	5650	9000	10800	16200	17600	15200	12300	5060	1090	2290
MIN	501	662	630	1760	3060	3910	8130	7840	5360	1010	413	435
AC-FT	36430	62300	134700	268400	264000	626900	708100	640700	459000	131000	43040	54910

CAL YR 1983	TOTAL	1501073	MEAN	4113	MAX	21800	MIN	438	AC-FT	2977000
WTR YR 1984	TOTAL	1729030	MEAN	4724	MAX	17600	MIN	413	AC-FT	3430000

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (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)
NOV											
16...	1100	994	146	8.4	9.0	11.6	K330	110	110	0	25
MAR											
08...	1100	4850	203	8.2	9.0	11.3	31	93	88	0	21
MAY											
03...	1110	9930	199	8.2	11.0	10.6	K500	93	80	0	20
AUG											
16...	1020	665	281	8.6	24.0	9.1	--	K340	120	0	27

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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV											
16...	11	15	2.2	130	11	2.9	.10	.100	<.10	.60	.06
MAR											
08...	8.7	11	1.7	100	9.7	2.0	.10	.040	.16	.20	.18
MAY											
03...	7.3	8.7	1.6	92	9.3	1.6	.10	.050	<.10	.40	.12
AUG											
16...	12	17	2.6	136	14	3.1	.10	.020	<.10	.60	.03

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
NOV										
16...	<.010	.020	26	161	170	432	3.3	15	40	83
MAR										
08...	.050	.080	32	143	150	1870	16	46	602	--
MAY										
03...	.050	.190	32	129	140	3460	33	263	7050	54
AUG										
16...	<.010	.010	22	173	180	311	1.1	<1	--	--

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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 16...	20	1	21	<.5	<1	<1	<3	1	41	<1
MAR 08...	140	<1	20	<.5	<1	<1	<3	<1	100	<1
MAY 03...	50	<1	17	<.5	<1	<1	<3	3	36	<1
AUG 16...	<10	<1	23	1.0	1	<1	<3	3	5	<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 16...	18	2	<.1	<10	1	<1	<1	110	7	7
MAR 08...	<4	2	<.1	<10	<1	<1	<1	85	7	10
MAY 03...	<4	1	<.1	<10	4	<1	<1	89	7	3
AUG 16...	<4	4	<.1	<10	2	<1	<1	120	9	9

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 mi^2, including Sparks, Elk, and Mud Lake basins, which have no surface outflow to Deschutes River; hydrologic drainage boundary uncertain owing to 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.--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.--47 years, 152 ft^3/s, 110,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480 ft^3/s Aug. 19, 1974, gage height, 3.17 ft; maximum gage height, 4.12 ft Jan. 21, 1943 (ice jam); minimum discharge, 40 ft^3/s sometime during period Dec. 22, 1959, to Mar. 2, 1960, result of freezeup; minimum daily, 55 ft^3/s for many days April to June 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 387 ft^3/s Aug. 30, gage height, 2.23 ft; maximum gage height, about 3.9 ft occurred sometime between Dec. 18 and Jan. 4 (backwater from ice); minimum discharge, 115 ft^3/s Mar. 5, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	213	181	152	133	123	123	140	213	223	284	382
2	269	210	178	156	130	121	123	143	215	223	289	381
3	266	210	175	156	128	119	121	145	215	223	293	379
4	264	208	175	156	128	117	121	143	226	223	293	376
5	262	205	172	150	128	115	121	140	234	226	295	376
6	259	210	183	150	128	117	121	138	239	226	295	373
7	254	202	183	148	125	117	123	138	239	226	318	371
8	254	200	178	145	125	119	128	140	234	226	330	362
9	262	200	178	143	128	119	125	140	234	226	337	362
10	254	197	178	145	128	119	130	143	231	228	341	362
11	249	200	178	143	130	119	128	150	231	231	337	361
12	247	200	175	140	138	119	130	150	231	231	341	362
13	244	197	181	140	153	125	125	156	228	231	346	357
14	244	197	200	138	143	130	125	158	228	231	355	350
15	239	194	200	138	143	130	125	164	226	231	361	350
16	236	197	189	135	138	130	125	164	223	234	361	343
17	234	202	183	130	133	128	125	167	223	234	364	339
18	231	194	178	128	130	125	133	167	223	236	368	339
19	228	200	173	128	128	125	133	170	223	236	364	339
20	226	197	170	125	128	125	130	175	226	244	361	339
21	226	194	167	130	130	128	130	181	226	244	364	335
22	223	192	164	130	130	123	130	183	223	247	373	335
23	221	194	159	133	128	123	130	189	221	252	379	335
24	215	197	157	145	130	121	133	189	223	257	381	330
25	215	192	156	140	133	123	133	192	223	259	382	326
26	215	186	155	138	125	133	133	194	223	262	381	322
27	215	183	153	135	123	125	133	197	223	259	379	318
28	213	181	151	133	123	125	133	200	223	269	381	314
29	210	178	150	133	121	123	133	205	223	273	382	314
30	210	181	150	133	---	123	133	213	223	278	384	310
31	210	---	150	133	---	123	---	213	---	282	386	---
TOTAL	7364	5911	5320	4329	3788	3812	3836	5187	6773	7471	10805	10442
MEAN	238	197	172	140	131	123	128	167	226	241	349	348
MAX	269	213	200	156	153	133	133	213	239	282	386	382
MIN	210	178	150	125	121	115	121	138	213	223	284	310
AC-FT	14610	11720	10550	8590	7510	7560	7610	10290	13430	14820	21430	20710

CAL YR 1983	TOTAL	71029	MEAN	195	MAX	293	MIN	112	AC-FT	140900
WTR YR 1984	TOTAL	75038	MEAN	205	MAX	386	MIN	115	AC-FT	148800

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. Altitude 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.--Records excellent. No regulation or diversions above station.

AVERAGE DISCHARGE.--50 years, 63.1 ft^3/s, 45,720 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, 115 ft^3/s June 6-8, gage height, 0.90 ft, maximum gage height, 0.92 ft July 23, Aug. 30 to Sept. 1, 19, 20; minimum, 58 ft^3/s Feb. 4-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	80	77	66	60	62	66	70	105	96	102	96
2	87	80	77	66	60	62	66	72	105	96	105	96
3	87	80	77	66	60	60	68	72	105	94	105	96
4	84	80	77	66	60	60	68	72	108	94	105	94
5	84	80	75	66	58	60	68	72	112	94	105	94
6	84	80	77	66	58	60	66	72	112	94	105	94
7	84	80	75	66	58	60	66	70	115	99	102	94
8	84	80	75	66	58	62	68	72	110	102	102	94
9	84	80	75	66	58	62	68	72	108	102	102	94
10	84	80	77	66	58	62	68	72	105	102	105	94
11	84	80	77	66	58	62	68	75	105	102	105	94
12	84	80	77	66	60	62	68	75	105	99	105	94
13	84	80	77	66	60	62	68	75	105	99	105	94
14	84	80	80	66	62	62	68	75	102	102	102	94
15	84	80	77	66	62	62	68	75	102	102	102	94
16	82	80	77	64	62	62	70	80	102	99	102	94
17	82	80	77	64	62	62	70	82	102	99	102	94
18	82	80	77	64	62	62	70	82	102	99	102	94
19	82	80	77	64	62	62	68	84	99	102	102	94
20	82	80	75	62	62	62	68	87	99	102	102	94
21	82	77	75	62	62	62	68	89	99	102	99	94
22	82	80	75	62	62	62	68	89	99	99	99	94
23	82	80	72	62	62	62	70	92	94	102	99	94
24	82	80	72	62	62	62	70	92	96	102	99	92
25	80	80	70	62	62	64	70	92	96	102	99	92
26	80	80	70	62	62	64	70	94	96	102	99	92
27	80	80	70	62	62	64	70	96	96	102	99	92
28	80	77	68	62	62	64	70	99	96	102	96	92
29	80	77	68	62	62	64	70	105	96	102	96	92
30	80	77	68	62	---	66	70	110	96	102	96	92
31	80	---	68	62	---	66	---	108	---	102	99	---
TOTAL	2567	2388	2309	1990	1758	1930	2054	2572	3072	3097	3147	2812
MEAN	82.8	79.6	74.5	64.2	60.6	62.3	68.5	83.0	102	99.9	102	93.7
MAX	87	80	80	66	62	66	70	110	115	102	105	96
MIN	80	77	68	62	58	60	66	70	94	94	96	92
AC-FT	5090	4740	4580	3950	3490	3830	4070	5100	6090	6140	6240	5580

CAL YR 1983	TOTAL	29620	MEAN	81.2	MAX	128	MIN	62	AC-FT	58750
WTR YR 1984	TOTAL	29696	MEAN	81.1	MAX	115	MIN	58	AC-FT	58900

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 owing to 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.--Records good except those for October to January, which are poor. Some regulation by fish screens at Cultus Lake since 1962. No diversion above station.

AVERAGE DISCHARGE.--47 years (water years 1938-84), 22.9 ft^3/s, 16,590 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, 161 ft^3/s June 7, 8, gage height, 3.01 ft; minimum daily, 1.6 ft^3/s Oct. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	2.5	6.5	20	23	26	27	25	130	88	26	5.2
2	2.9	2.5	5.8	20	22	26	27	25	126	85	25	5.2
3	2.9	3.0	5.2	21	22	25	26	28	119	82	23	4.9
4	2.9	3.8	5.2	22	21	24	25	28	124	80	22	4.5
5	2.9	3.8	6.0	21	20	23	25	28	135	78	21	4.2
6	3.1	3.2	9.0	21	20	22	24	28	146	76	20	3.5
7	3.6	2.9	11	21	19	21	24	28	159	74	20	3.5
8	3.6	2.9	12	20	19	21	25	26	156	71	19	3.5
9	3.6	2.9	12	19	19	21	25	26	149	69	19	3.5
10	3.2	2.9	12	19	18	21	26	25	138	66	19	3.5
11	2.9	2.8	12	18	19	21	26	26	126	64	17	3.2
12	2.9	2.8	12	17	22	21	27	27	119	61	16	3.2
13	2.9	2.8	20	16	29	22	26	31	112	58	14	3.2
14	2.9	3.0	30	14	33	23	25	39	107	56	14	3.2
15	2.9	3.8	40	12	36	23	25	47	106	54	14	3.2
16	2.5	4.0	38	10	37	24	25	47	102	52	13	3.2
17	2.5	4.5	35	9.0	36	24	24	48	101	50	13	3.2
18	2.8	4.5	31	8.2	34	24	25	49	101	48	12	2.9
19	2.8	4.0	28	8.2	33	24	24	50	100	43	11	2.9
20	2.8	3.5	25	8.4	33	24	24	53	100	41	11	2.7
21	2.8	3.5	23	9.0	33	25	24	57	100	39	11	2.2
22	2.6	4.5	21	10	31	25	23	60	96	38	9.7	2.2
23	2.3	7.0	20	14	31	25	23	70	95	37	8.8	2.2
24	2.2	10	19	20	31	25	23	77	95	36	7.9	2.7
25	1.8	10	19	23	33	25	23	80	95	34	8.3	2.7
26	1.8	9.0	19	24	31	29	23	85	95	31	8.3	2.7
27	1.8	8.0	19	25	29	29	23	94	95	30	7.5	2.7
28	1.8	7.0	20	25	28	29	23	105	96	29	6.3	2.7
29	1.6	6.5	20	24	27	29	23	111	94	28	6.3	2.7
30	1.6	6.5	20	23	---	28	23	125	91	27	5.9	2.4
31	2.0	---	20	23	---	28	---	132	---	26	4.9	---
TOTAL	81.8	138.1	575.7	544.8	789	757	736	1680	3408	1651	433.9	97.6
MEAN	2.64	4.60	18.6	17.6	27.2	24.4	24.5	54.2	114	53.3	14.0	3.25
MAX	3.6	10	40	25	37	29	27	132	159	88	26	5.2
MIN	1.6	2.5	5.2	8.2	18	21	23	25	91	26	4.9	2.2
AC-FT	162	274	1140	1080	1560	1500	1460	3330	6760	3270	861	194

CAL YR 1983	TOTAL	10864.4	MEAN	29.8	MAX	199	MIN	1.6	AC-FT	21550
WTR YR 1984	TOTAL	10892.9	MEAN	29.8	MAX	159	MIN	1.6	AC-FT	21610

NOTE.--No gage-height record Oct. 30 to Jan. 3, Jan. 5-29.

14052000 DEER CREEK ABOVE CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°48'43", 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 owing to 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.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--47 years (water years 1938-84), 7.59 ft^3/s, 5,500 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, 71 ft^3/s June 7, gage height, 2.66 ft; maximum gage height, 2.99 ft Dec. 23, backwater from ice; minimum discharge, 0.03 ft^3/s Oct. 1, 3, 4, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.24	2.9	9.1	9.7	7.8	12	15	54	14	1.4	.21
2	.09	.24	2.6	8.5	8.8	7.2	11	16	48	13	1.5	.21
3	.09	.27	2.4	8.8	8.3	6.7	11	19	42	12	1.4	.21
4	.09	.40	2.2	9.4	7.2	6.2	11	19	45	10	1.3	.21
5	.09	.30	2.2	9.4	6.5	5.6	11	19	51	9.4	1.2	.24
6	.09	.88	3.8	9.4	6.0	5.6	11	19	57	8.3	1.2	.27
7	.12	.75	5.6	9.4	5.6	5.4	11	19	66	7.2	1.2	.21
8	.12	.65	5.6	9.1	5.2	5.4	12	19	65	6.5	1.1	.24
9	.27	.70	5.2	8.8	5.2	5.8	12	19	58	5.6	1.1	.21
10	.21	.75	5.2	8.5	5.2	6.5	13	20	47	4.8	1.1	.21
11	.18	.80	5.0	8.5	5.6	7.0	12	23	41	4.4	1.0	.15
12	.18	.80	5.2	8.0	8.3	7.2	12	25	36	4.1	.96	.15
13	.18	.96	7.0	7.5	15	8.3	11	29	35	3.8	.60	.15
14	.18	.96	14	6.7	16	9.1	11	33	32	3.3	.40	.15
15	.18	1.1	19	5.8	17	10	12	36	30	3.2	.27	.18
16	.18	1.4	18	5.0	17	10	12	35	29	2.9	.27	.15
17	.15	2.0	17	4.0	15	10	13	32	30	2.6	.24	.15
18	.18	2.0	16	3.6	14	9.7	13	32	29	2.4	.27	.15
19	.18	3.0	16	3.6	12	10	14	32	27	2.2	.40	.18
20	.18	3.3	19	3.8	12	11	14	36	26	1.8	.30	.18
21	.18	3.0	16	4.1	12	12	14	39	27	1.6	.21	.18
22	.21	2.6	12	4.6	11	12	14	40	25	1.4	.18	.18
23	.21	2.7	9.2	5.4	10	12	15	45	23	1.5	.21	.21
24	.15	4.4	8.5	8.8	10	12	15	46	21	1.7	.24	.18
25	.15	4.8	8.5	10	11	12	16	46	19	1.7	.21	.18
26	.18	3.9	12	11	9.7	15	15	48	19	1.5	.18	.15
27	.15	3.5	10	12	8.8	15	14	47	19	1.4	.15	.15
28	.15	3.2	9.4	12	8.3	15	14	48	17	1.4	.18	.15
29	.15	2.7	9.1	12	7.5	14	14	51	16	1.3	.23	.15
30	.15	2.7	10	11	---	13	14	58	14	1.2	.24	.18
31	.18	---	9.7	11	---	13	---	58	---	1.1	.24	---
TOTAL	4.89	55.00	288.3	248.8	287.9	299.5	384	1023	1048	137.3	19.48	5.52
MEAN	.16	1.83	9.30	8.03	9.93	9.66	12.8	33.0	34.9	4.43	.63	.18
MAX	.27	4.8	19	12	17	15	16	58	66	14	1.5	.27
MIN	.09	.24	2.2	3.6	5.2	5.4	11	15	14	1.1	.15	.15
AC-FT	9.7	109	572	493	571	594	762	2030	2080	272	39	11

CAL YR 1983	TOTAL	3454.78	MEAN	9.47	MAX	64	MIN	.09	AC-FT	6850
WTR YR 1984	TOTAL	3801.69	MEAN	10.4	MAX	66	MIN	.09	AC-FT	7540

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.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--50 years, 24.2 ft^3/s, 17,530 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 daily discharge, 52 ft^3/s June 1-9; maximum gage height, 3.07 ft June 7 (backwater from Crane Prairie Reservoir); minimum daily discharge, 24 ft^3/s Feb. 7-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	30	31	27	25	26	29	34	52	46	44	42
2	33	30	31	27	25	26	29	34	52	46	44	42
3	33	30	31	27	25	26	30	34	52	46	44	41
4	33	30	31	27	25	26	30	34	52	46	45	41
5	33	31	31	27	25	26	30	34	52	45	43	40
6	34	30	31	27	25	26	31	34	52	45	43	40
7	33	30	31	27	24	26	31	34	52	45	43	39
8	33	31	31	27	24	26	31	34	52	45	43	39
9	33	31	31	27	24	26	32	35	52	45	43	38
10	33	30	31	27	24	26	32	36	51	45	43	38
11	32	30	31	27	24	27	32	36	51	45	43	38
12	33	31	31	27	25	27	33	37	50	45	43	37
13	33	31	31	27	25	27	33	37	50	45	43	37
14	32	29	31	27	25	27	33	38	50	45	43	36
15	32	29	31	27	25	27	33	38	49	45	43	36
16	34	30	31	27	26	27	33	39	49	45	43	35
17	32	31	31	26	26	27	33	40	48	44	43	35
18	32	31	31	26	26	27	33	40	48	44	43	35
19	32	31	31	26	26	27	33	41	47	44	43	35
20	33	31	31	26	26	27	33	41	47	43	43	34
21	31	31	31	26	26	27	33	42	47	44	43	34
22	32	31	31	26	26	27	33	43	47	44	43	34
23	32	31	30	26	26	27	33	43	47	43	43	34
24	31	31	30	26	26	27	33	44	47	44	43	33
25	31	31	29	26	26	27	33	45	46	44	43	33
26	31	31	29	26	26	27	34	45	46	43	43	33
27	31	31	29	25	26	28	34	46	46	44	43	32
28	31	31	28	25	26	28	34	47	46	43	43	32
29	31	31	28	25	26	28	34	48	46	44	43	31
30	31	31	28	25	---	29	34	50	46	44	43	31
31	30	---	27	25	---	29	---	51	---	44	43	---
TOTAL	999	917	940	817	734	834	969	1234	1472	1380	1338	1085
MEAN	32.2	30.6	30.3	26.4	25.3	26.9	32.3	39.8	49.1	44.5	43.2	36.2
MAX	34	31	31	27	26	29	34	51	52	46	45	42
MIN	30	29	27	25	24	26	29	34	46	43	43	31
AC-FT	1980	1820	1860	1620	1460	1650	1920	2450	2920	2740	2650	2150

CAL YR 1983	TOTAL	12171	MEAN	33.3	MAX	50	MIN	25	AC-FT	24140
WTR YR 1984	TOTAL	12719	MEAN	34.8	MAX	52	MIN	24	AC-FT	25230

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, 56,180 acre-ft June 7, elevation, 4,445.17 ft; minimum, 38,000 acre-ft Oct. 1, elevation, 4,441.26 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,441.26	38,000	-
Oct. 31	4,442.70	44,400	+6,400
Nov. 30	4,444.09	50,900	+6,500
Dec. 31	4,445.45	52,650	+1,750
CAL YR 1983	-	-	+6,700
Jan. 31	4,443.97	50,320	-2,330
Feb. 29	4,444.31	51,970	+1,650
Mar. 31	4,444.62	53,480	+1,510
Apr. 30	4,444.92	54,940	+1,460
May 31	4,444.99	55,280	+340
June 30	4,440.40	52,400	-2,880
July 31	4,443.66	48,860	-3,540
Aug. 31	4,443.70	49,050	+190
Sept.30	4,443.16	46,510	-2,540
WTR YR 1984	-	-	+8,510

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 owing to 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 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.--Records excellent. Flow regulated since 1922 by Crane Prairie Reservoir (see sta 14053500). No diversion above station.

AVERAGE DISCHARGE.--66 years, 213 ft^3/s, 154,300 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, 520 ft^3/s June 6, 7, 29, 30, July 12, 13, gage height, 2.12 ft; minimum, 134 ft^3/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	292	139	142	304	197	197	197	296	401	515	370	460
2	292	139	139	304	197	197	197	296	401	515	374	460
3	292	139	142	304	197	197	197	296	401	515	374	460
4	292	139	142	300	197	197	197	296	401	515	374	460
5	292	139	139	300	197	197	197	296	420	515	374	460
6	292	139	142	300	197	197	197	296	430	515	374	460
7	292	139	142	300	197	197	197	296	465	515	374	460
8	292	139	142	300	197	197	197	296	515	515	374	465
9	203	139	142	300	197	197	197	296	515	515	374	465
10	136	139	142	300	197	197	197	296	515	515	374	465
11	139	139	142	300	197	197	197	296	515	515	374	465
12	136	142	142	300	197	197	197	296	515	515	374	460
13	136	142	142	300	197	197	197	296	515	435	374	460
14	136	142	144	296	197	197	197	296	515	370	374	460
15	136	142	206	296	197	197	197	296	515	370	374	460
16	136	142	304	296	197	197	197	296	515	370	374	460
17	136	142	304	256	197	197	197	296	515	370	374	460
18	136	142	304	197	197	197	197	296	515	370	374	460
19	136	142	304	197	197	197	197	296	515	370	374	460
20	136	142	304	197	197	197	197	296	515	370	425	460
21	136	142	304	197	197	197	197	296	515	370	460	460
22	136	142	304	197	197	197	197	296	515	370	460	460
23	139	142	304	197	197	197	197	296	515	370	460	460
24	139	142	304	197	197	197	197	296	515	370	460	465
25	139	142	304	197	197	197	197	296	515	365	460	465
26	139	142	304	197	197	197	197	296	515	365	460	465
27	139	142	304	197	197	197	197	296	515	365	460	465
28	139	142	304	197	197	197	197	296	515	365	460	465
29	139	142	304	197	197	197	197	312	515	365	460	465
30	139	142	304	197	---	197	249	388	520	365	460	465
31	139	---	304	197	---	197	---	401	---	365	460	---
TOTAL	5561	4227	7054	7814	5713	6107	5962	9389	14769	13240	12587	13855
MEAN	179	141	228	252	197	197	199	303	492	427	406	462
MAX	292	142	304	304	197	197	249	401	520	515	460	465
MIN	136	139	139	197	197	197	197	296	401	365	370	460
AC-FT	11030	8380	13990	15500	11330	12110	11830	18620	29290	26260	24970	27480

CAL YR 1983	TOTAL	102322	MEAN	280	MAX	650	MIN	90	AC-FT	203000
WTR YR 1984	TOTAL	106278	MEAN	290	MAX	520	MIN	136	AC-FT	210800

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.--Records good prior to Aug. 22, excellent thereafter. No regulation. No diversion upstream from station.

AVERAGE DISCHARGE.--49 years, 38.7 ft^3/s, 28,040 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, 63 ft^3/s Aug. 11, gage height, 0.98 ft, but may have been higher during period of no gage-height record Aug. 11-21; minimum, 41 ft^3/s many days January, February, March.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	52	47	42	41	42	48	48	46	50	52	58
2	51	51	46	42	41	42	48	48	46	50	52	58
3	52	52	46	42	41	42	48	50	46	50	52	58
4	52	52	46	42	41	41	48	48	48	50	53	60
5	52	51	46	42	41	41	48	48	48	50	52	58
6	52	54	47	42	42	41	48	47	49	48	53	58
7	52	51	49	42	41	41	48	47	49	48	53	58
8	52	50	48	42	41	42	50	46	48	50	53	58
9	55	50	48	42	41	44	48	46	48	50	57	58
10	53	51	49	42	42	45	49	46	48	50	62	58
11	53	50	48	42	41	44	48	47	48	50	62	58
12	53	50	46	42	43	45	49	46	48	50	61	58
13	53	50	47	42	48	47	48	46	48	50	61	58
14	53	50	54	42	46	47	48	46	49	50	60	59
15	52	50	54	42	44	46	49	46	49	49	60	59
16	52	51	52	42	43	45	49	46	49	50	60	59
17	53	52	50	42	42	45	49	46	49	50	60	59
18	52	50	48	42	42	46	49	46	49	50	60	58
19	52	52	46	42	41	48	49	46	49	51	59	60
20	52	51	44	42	42	48	48	46	50	53	59	58
21	52	50	43	42	42	48	48	46	48	52	59	58
22	53	49	42	41	42	48	48	46	48	51	59	58
23	53	48	42	42	42	48	48	47	48	51	59	58
24	52	49	42	44	42	48	48	46	48	50	59	57
25	53	49	42	44	41	47	48	46	50	50	58	57
26	53	48	42	43	41	51	48	46	50	50	58	57
27	52	49	42	42	41	49	48	46	50	50	58	57
28	52	49	42	42	41	49	46	46	49	51	58	57
29	52	47	42	42	41	48	47	46	48	51	58	57
30	52	47	42	41	---	47	48	46	48	52	59	57
31	52	---	42	41	---	48	---	46	---	51	58	---
TOTAL	1624	1505	1424	1304	1217	1413	1446	1442	1451	1558	1784	1741
MEAN	52.4	50.2	45.9	42.1	42.0	45.6	48.2	46.5	48.4	50.3	57.5	58.0
MAX	55	54	54	44	48	51	50	50	50	53	62	60
MIN	51	47	42	41	41	41	46	46	46	48	52	57
AC-FT	3220	2990	2820	2590	2410	2800	2870	2860	2880	3090	3540	3450

CAL YR 1983	TOTAL	17594	MEAN	48.2	MAX	56	MIN	39	AC-FT	34900
WTR YR 1984	TOTAL	17909	MEAN	48.9	MAX	62	MIN	41	AC-FT	35520

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 owing to 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 above 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, 199,950 acre-ft Apr. 11-13, elevation, 4,337.65 ft; minimum observed, 116,240 acre-ft Sept. 23, 24, elevation, 4,328.34 ft.

CORRECTIONS.--The September 30 elevation for water year 1983 is 4,328.89; the previously published figure was in error.

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,328.89	119,980	-
Oct. 31	4,330.70	133,470	+13,490
Nov. 30	4,332.89	151,930	+18,460
Dec. 31	4,335.59	177,910	+25,980
CAL YR 1983	-	-	-11,740
Jan. 31	4,336.56	188,050	+10,140
Feb. 29	4,337.03	193,070	+5,020
Mar. 31	4,337.45	197,730	+4,660
Apr. 30	4,337.34	196,510	-1,220
May 31	4,337.00	192,740	-3,770
June 30	4,336.72	189,760	-2,980
July 31	4,333.19	154,650	-35,110
Aug. 31	4,329.71	125,900	-28,750
Sept.30	4,328.54	117,600	-8,300
WTR YR 1984	-	-	-2,380

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 owing to 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 National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Records excellent January to June, good October to December and July to September. 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 above station to Tumalo Creek basin.

AVERAGE DISCHARGE.--46 years, 740 ft^3/s, 536,130 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, 1,690 ft^3/s July 21, gage height, 7.22 ft, maximum gage height, 7.22 ft July 21-23, Aug. 29, 30; minimum discharge, 288 ft^3/s Dec. 29-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	904	454	454	343	596	596	596	725	1050	1220	1430	1490
2	858	454	454	457	596	596	596	697	1050	1140	1400	1490
3	764	454	454	499	596	596	596	697	1050	1080	1370	1490
4	767	454	454	499	596	596	599	697	1050	1250	1360	1460
5	767	457	454	499	596	596	599	697	949	1360	1360	1440
6	767	457	454	499	596	596	596	697	799	1380	1360	1400
7	767	457	454	499	596	596	596	697	641	1410	1360	1360
8	767	454	454	499	596	596	596	697	638	1440	1440	1360
9	767	454	454	499	596	599	596	697	638	1450	1520	1360
10	704	454	454	499	596	599	666	711	641	1460	1530	1370
11	645	454	457	499	596	599	697	743	641	1470	1520	1370
12	638	454	454	502	596	599	697	746	645	1500	1520	1370
13	582	454	454	613	596	599	729	774	648	1550	1520	1380
14	505	454	454	697	596	599	746	872	641	1560	1520	1380
15	448	454	454	701	596	596	746	918	652	1570	1510	1380
16	448	454	454	697	596	596	746	918	802	1590	1510	1380
17	448	454	454	673	596	596	743	914	890	1630	1500	1270
18	454	451	454	599	596	596	743	918	1030	1650	1500	1190
19	457	451	454	596	596	596	743	918	1130	1660	1490	1200
20	457	451	457	592	592	592	743	918	1130	1670	1490	1200
21	457	451	448	589	596	592	739	869	1130	1670	1490	1200
22	457	451	322	596	596	596	739	837	1120	1680	1480	1200
23	457	451	298	599	596	596	739	823	1120	1620	1490	1100
24	457	451	298	599	599	596	739	774	1120	1570	1490	1010
25	457	448	293	596	606	599	739	739	1120	1540	1520	1010
26	454	448	290	599	603	599	746	729	1140	1540	1520	1010
27	454	448	290	599	599	599	746	736	1220	1490	1530	1020
28	454	451	293	599	599	599	743	736	1240	1420	1540	1020
29	457	451	290	599	596	599	743	785	1220	1410	1560	1020
30	454	451	290	599	---	599	743	890	1220	1400	1560	1010
31	457	---	290	592	---	596	---	1010	---	1410	1520	---
TOTAL	17929	13581	12488	17527	17306	18504	20785	24579	28365	45790	45910	37940
MEAN	578	453	403	565	597	597	693	793	946	1477	1481	1265
MAX	904	457	457	701	606	599	746	1010	1240	1680	1560	1490
MIN	448	448	290	343	592	592	596	697	638	1080	1360	1010
AC-FT	35560	26940	24770	34760	34330	36700	41230	48750	56260	90820	91060	75250

CAL YR 1983	TOTAL	308424	MEAN	845	MAX	1580	MIN	290	AC-FT	611800
WTR YR 1984	TOTAL	300704	MEAN	822	MAX	1680	MIN	290	AC-FT	596400

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 owing to 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. Altitude of gage is 4,220 ft, by barometer.

REMARKS.--Records excellent. Diversion only to ponds at fish hatchery 50 ft above station, from which water returns to river above station. Stream is spring fed and momentary extremes are caused by operation of fish hatchery.

AVERAGE DISCHARGE.--46 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 recorded, 208 ft^3/s Apr. 12, gage height, 1.70 ft; minimum recorded, 145 ft^3/s Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	162	162	159	159	162	177	188	184	185	186	181
2	167	162	162	159	157	160	179	188	184	185	186	181
3	166	162	162	159	157	160	179	188	184	185	186	181
4	166	162	162	159	157	160	181	188	188	185	184	181
5	166	160	160	159	157	160	181	188	186	185	186	181
6	166	164	166	159	157	160	181	186	186	185	184	179
7	166	160	164	159	157	160	183	186	186	185	184	181
8	166	160	162	159	157	160	183	186	186	185	184	179
9	167	160	162	159	159	162	183	186	186	185	184	179
10	166	162	162	159	157	164	184	186	186	185	184	179
11	166	162	162	157	159	164	183	188	186	185	184	179
12	166	164	162	157	162	166	184	186	186	185	184	179
13	166	162	162	157	164	169	183	186	186	185	184	179
14	164	162	167	157	160	169	183	186	186	185	184	179
15	164	162	162	157	160	171	183	186	186	185	184	179
16	164	164	162	155	160	171	184	186	186	185	184	179
17	164	164	160	155	160	169	184	186	186	185	183	179
18	164	162	160	155	160	169	186	184	186	185	183	177
19	164	166	160	155	160	171	186	186	186	185	183	179
20	162	164	160	155	160	171	184	184	186	185	183	179
21	162	164	160	157	160	171	184	184	186	185	183	177
22	164	164	160	157	160	171	184	186	186	185	183	179
23	162	166	159	157	160	172	184	186	186	185	183	179
24	162	166	160	160	160	172	184	184	186	185	183	177
25	162	164	160	159	160	176	184	186	186	185	183	177
26	162	162	160	159	160	176	184	186	186	185	183	177
27	162	162	160	159	160	176	184	184	186	186	181	177
28	160	162	160	159	160	176	184	184	186	186	181	177
29	160	160	160	159	160	176	184	184	186	186	183	177
30	162	164	160	159	---	176	186	184	185	186	183	177
31	162	---	159	159	---	177	---	184	---	186	181	---
TOTAL	5087	4880	4999	4894	4619	5217	5493	5760	5575	5740	5691	5364
MEAN	164	163	161	158	159	168	183	186	186	185	184	179
MAX	167	166	167	160	164	177	186	188	188	186	186	181
MIN	160	160	159	155	157	160	177	184	184	185	181	177
AC-FT	10090	9680	9920	9710	9160	10350	10900	11420	11060	11390	11290	10640

CAL YR 1983	TOTAL	60191	MEAN	165	MAX	177	MIN	143	AC-FT	119400
WTR YR 1984	TOTAL	63319	MEAN	173	MAX	188	MIN	155	AC-FT	125600

NOTE.--No gage-height record June 5 to July 25.

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 owing to 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, 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, owing to 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, 87,070 acre-ft July 31, elevation, 4,845.58 ft; minimum, 75,540 acre-ft Oct. 6, elevation, 4,842.62 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,842.80	76,240	-
Oct. 31	4,843.22	77,880	+1,640
Nov. 30	4,844.47	82,740	+4,860
Dec. 31	4,845.22	85,670	+2,930
CAL YR 1983	-	-	+25,120
Jan. 31	-	a83,510	-2,160
Feb. 29	4,844.55	83,060	-450
Mar. 31	4,844.73	83,760	+700
Apr. 30	4,844.74	83,800	+40
May 31	4,845.57	87,030	+3,230
June 30	4,844.65	83,440	-3,590
July 31	4,843.99	80,870	-2,570
Aug. 31	4,843.04	77,180	-3,690
Sept.30	4,843.47	78,850	+1,670
WTR YR 1984	-	-	+2,610

a Contents interpolated.

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 National Geodetic Vertical Datum of 1929. See WSP 1935 for history of changes prior to Sept. 11, 1956.

REMARKS.--Records good. Flow regulated since 1922 by Crescent Lake (see station 14059500). No diversion above station.

AVERAGE DISCHARGE.--58 years (water years 1913-14, 1929-84), 57.3 ft^3/s, 41,510 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, 256 ft^3/s May 31, gage height, 2.80 ft; minimum, 9.8 ft^3/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	21	21	121	118	67	68	71	249	244	163	47
2	112	21	21	121	117	67	68	71	249	207	163	47
3	112	21	21	121	117	67	68	71	247	163	163	47
4	112	21	21	121	117	67	68	71	247	163	162	47
5	64	21	21	121	117	67	68	71	247	163	162	47
6	20	21	21	121	117	67	68	72	247	163	162	47
7	20	21	21	121	117	67	68	72	247	163	161	47
8	20	21	21	121	117	67	68	72	247	163	161	47
9	20	21	21	120	117	67	68	72	246	163	161	47
10	20	21	21	120	117	67	68	72	246	163	161	47
11	20	21	21	120	117	67	68	73	246	163	161	47
12	20	21	21	120	117	67	68	73	246	163	159	47
13	20	21	62	120	117	67	68	73	246	163	159	47
14	20	21	121	120	97	67	68	73	246	163	159	47
15	20	21	121	120	67	67	68	85	246	163	159	47
16	20	21	121	120	67	67	69	100	246	162	158	47
17	20	21	121	120	67	67	69	100	246	162	158	47
18	20	21	121	118	67	67	69	100	246	162	158	47
19	20	21	121	118	67	67	69	100	246	162	158	47
20	20	21	121	118	67	67	69	100	246	162	158	47
21	20	21	120	118	67	67	69	124	246	162	157	47
22	20	21	121	118	67	67	70	152	246	162	157	47
23	20	21	121	118	67	67	70	152	246	162	99	47
24	20	21	121	118	67	67	70	152	246	162	47	47
25	20	21	121	118	67	67	70	152	246	163	47	47
26	20	21	121	118	67	68	70	152	244	163	47	47
27	20	21	121	118	67	68	70	152	246	163	47	47
28	20	21	121	118	67	68	70	152	246	163	47	47
29	20	21	121	118	67	68	71	152	244	162	48	47
30	20	21	121	118	---	68	71	152	244	162	47	47
31	20	---	121	118	---	68	---	209	---	163	47	---
TOTAL	1032	630	2491	3700	2624	2083	2066	3293	7386	5167	3996	1410
MEAN	33.3	21.0	80.4	119	90.5	67.2	68.9	106	246	167	129	47.0
MAX	112	21	121	121	118	68	71	209	249	244	163	47
MIN	20	21	21	118	67	67	68	71	244	162	47	47
AC-FT	2050	1250	4940	7340	5200	4130	4100	6530	14650	10250	7930	2800

CAL YR 1983	TOTAL	17537.9	MEAN	48.0	MAX	122	MIN	4.5	AC-FT	34790
WTR YR 1984	TOTAL	35878	MEAN	98.0	MAX	249	MIN	20	AC-FT	71160

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 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 a present site at different datums.

REMARKS.--Records good. Flow regulated since 1922 by Crescent Lake (see station 14059500). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--60 years (water years 1925-84), 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, 830 ft^3/s June 9, gage height, 7.01 ft; minimum, 93 ft^3/s Oct. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	126	157	410	340	286	482	480	657	583	283	128
2	169	132	146	410	330	318	482	478	684	583	294	128
3	168	135	158	450	320	325	452	500	764	583	325	122
4	166	138	142	470	310	306	442	518	810	590	292	115
5	164	142	143	470	310	290	450	533	795	585	281	112
6	160	150	139	470	300	283	454	535	776	496	273	110
7	114	175	146	470	290	289	446	535	785	434	267	110
8	107	175	198	460	292	303	454	528	790	415	263	115
9	120	158	223	440	297	322	482	510	810	405	259	113
10	133	146	229	430	293	334	528	500	810	398	256	108
11	130	153	231	410	282	348	520	500	785	390	254	105
12	121	165	213	390	287	357	494	496	764	376	251	103
13	112	173	195	370	402	364	460	508	740	363	248	102
14	106	179	206	360	503	406	446	525	712	356	247	101
15	106	164	356	340	560	440	442	543	680	362	245	106
16	104	164	450	310	492	440	444	565	668	339	242	109
17	103	197	540	300	378	405	470	590	657	327	241	106
18	101	229	530	290	338	370	503	615	639	317	240	103
19	99	216	490	280	324	353	525	624	627	311	237	100
20	98	217	450	280	328	362	538	612	627	306	235	106
21	97	228	350	290	338	412	548	595	630	299	233	126
22	95	199	310	350	332	434	538	583	627	299	230	131
23	107	178	280	400	313	432	525	585	624	300	230	124
24	123	176	260	410	299	427	523	615	621	306	227	121
25	120	203	260	480	292	429	533	657	615	321	154	124
26	111	203	260	480	273	442	538	692	603	314	127	127
27	107	180	310	440	270	470	528	692	588	300	119	124
28	105	171	310	420	273	508	505	684	575	290	109	121
29	105	163	320	400	278	533	490	672	575	297	104	119
30	105	152	400	380	---	515	484	664	578	289	109	117
31	115	---	410	360	---	488	---	657	---	283	127	---
TOTAL	3739	5187	8812	12220	9644	11991	14726	17791	20616	11817	7002	3436
MEAN	121	173	284	394	333	387	491	574	687	381	226	115
MAX	169	229	540	480	560	533	548	692	810	590	325	131
MIN	95	126	139	280	270	283	442	478	575	283	104	100
AC-FT	7420	10290	17480	24240	19130	23780	29210	35290	40890	23440	13890	6820

CAL YR 1983	TOTAL	103064	MEAN	282	MAX	756	MIN	95	AC-FT	204400
WTR YR 1984	TOTAL	126981	MEAN	347	MAX	810	MIN	95	AC-FT	251900

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 owing to 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.--Records excellent except those for January, 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, result of regulation; minimum, 0.19 ft^3/s Oct. 19, 1982, Nov. 22, 1983, result of regulation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 49 ft^3/s June 15, gage height, 2.04 ft, result of regulation; minimum, 0.19 ft^3/s Nov. 22, result of regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	19	1.1	18	19	23	27	26	22	29	24	35
2	21	19	1.5	18	19	23	26	25	22	29	26	35
3	21	19	1.8	18	19	22	25	27	22	28	28	34
4	21	19	2.0	17	19	21	25	25	26	28	28	34
5	22	19	2.4	17	18	21	26	25	28	28	28	34
6	22	19	3.5	17	19	20	25	24	29	27	28	34
7	22	19	6.2	16	19	20	26	23	31	27	28	33
8	22	19	9.4	16	18	19	30	23	31	25	28	33
9	23	19	12	16	20	20	30	22	31	25	27	32
10	23	19	13	16	20	20	32	21	32	25	27	32
11	23	19	15	16	21	20	31	25	31	24	27	31
12	23	19	15	15	23	21	31	24	32	24	25	31
13	23	19	18	15	30	23	29	24	32	23	26	30
14	23	19	23	15	30	25	28	23	32	23	26	31
15	23	19	26	14	31	27	26	23	40	23	25	30
16	22	20	24	14	31	28	25	22	45	23	25	30
17	22	20	24	14	29	27	25	21	43	23	25	30
18	22	20	24	14	28	26	25	21	41	24	24	30
19	25	20	23	14	27	25	26	21	39	26	25	30
20	22	20	23	15	27	25	25	22	38	26	25	31
21	23	20	22	16	28	28	24	21	38	25	25	30
22	20	6.2	21	18	26	27	24	21	37	25	25	31
23	20	.23	19	20	22	26	22	24	36	25	25	31
24	20	.25	17	22	24	25	22	23	34	25	30	30
25	19	.28	16	23	26	25	22	23	33	25	35	30
26	21	.33	16	22	25	30	22	23	32	25	34	28
27	19	.40	16	22	24	30	22	23	32	25	34	28
28	19	.49	17	21	23	30	21	23	31	25	33	28
29	19	.63	17	21	22	29	21	22	31	25	33	28
30	19	.83	18	21	---	28	23	23	30	24	34	29
31	19	---	18	19	---	27	---	22	---	24	36	---
TOTAL	664	414.64	464.9	540	687	761	766	715	981	783	869	933
MEAN	21.4	13.8	15.0	17.4	23.7	24.5	25.5	23.1	32.7	25.3	28.0	31.1
MAX	25	20	26	23	31	30	32	27	45	29	36	35
MIN	19	.23	1.1	14	18	19	21	21	22	23	24	28
AC-FT	1320	822	922	1070	1360	1510	1520	1420	1950	1550	1720	1850

CAL YR 1983	TOTAL	8929.04	MEAN	24.5	MAX	59	MIN	.23	AC-FT	17710
WTR YR 1984	TOTAL	8578.54	MEAN	23.4	MAX	45	MIN	.23	AC-FT	17020

NOTE.--No gage-height record Dec. 23 to Jan. 23.

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 mi².

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.--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.--67 years (water years 1907-13, 1925-84), 1,415 ft³/s, 1,025,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft³/s, estimated, Nov. 27, 1909 (gage height not determined); minimum, 363 ft³/s Jan. 20, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,500 ft³/s July 22, 23, gage height, 6.10 ft; minimum daily discharge, 839 ft³/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1620	1080	1120	1150	1480	1450	1710	1880	2140	2290	2200	2210
2	1590	1090	1130	1200	1460	1470	1690	1840	2200	2270	2220	2160
3	1570	1090	1130	1350	1430	1480	1680	1830	2250	2240	2240	2150
4	1480	1090	1120	1450	1420	1480	1680	1810	2260	2160	2200	2140
5	1460	1090	1120	1470	1420	1470	1680	1800	2310	2200	2180	2120
6	1460	1120	1130	1470	1430	1460	1650	1820	2350	2350	2160	2100
7	1460	1130	1160	1450	1460	1460	1670	1830	2230	2400	2150	2070
8	1430	1130	1190	1430	1490	1460	1690	1830	2060	2420	2140	2030
9	1430	1140	1210	1410	1460	1480	1690	1830	1970	2410	2150	2020
10	1430	1130	1250	1390	1440	1500	1710	1840	1990	2380	2220	2010
11	1380	1120	1250	1370	1440	1520	1770	1850	1990	2370	2260	2010
12	1310	1120	1230	1360	1450	1520	1830	1850	1990	2370	2260	2000
13	1280	1140	1220	1360	1560	1560	1830	1850	1970	2380	2270	2000
14	1220	1140	1260	1430	1580	1590	1830	1860	1950	2400	2270	2000
15	1130	1150	1290	1500	1610	1610	1830	1950	1920	2420	2270	2000
16	1070	1140	1320	1500	1630	1630	1820	2010	1900	2420	2250	2000
17	1050	1160	1380	1450	1640	1640	1820	2030	1960	2440	2250	2000
18	1050	1170	1400	1410	1620	1640	1830	2040	2050	2460	2240	1970
19	1050	1220	1450	1340	1520	1600	1850	2060	2120	2470	2240	1890
20	1050	1230	1460	1310	1500	1570	1850	2070	2250	2470	2240	1860
21	1040	1200	1460	1330	1510	1580	1870	2100	2270	2470	2220	1860
22	1040	1210	1360	1350	1500	1590	1870	2080	2260	2500	2220	1850
23	1060	1200	1070	1360	1500	1620	1890	2040	2260	2500	2210	1860
24	1050	1200	839	1440	1480	1630	1890	2010	2250	2470	2210	1840
25	1060	1180	1120	1480	1470	1630	1870	1960	2240	2430	2210	1730
26	1070	1180	1070	1500	1460	1640	1860	1940	2230	2380	2220	1700
27	1060	1190	1110	1500	1450	1650	1880	1950	2240	2370	2200	1700
28	1050	1160	1070	1500	1440	1650	1880	1980	2270	2360	2180	1700
29	1050	1150	1030	1520	1440	1660	1880	1990	2290	2300	2180	1700
30	1060	1150	1090	1520	---	1680	1880	2020	2290	2240	2200	1700
31	1070	---	1140	1510	---	1700	---	2090	---	2220	2220	---
TOTAL	38130	34500	37179	43810	43290	48620	53880	60040	64460	73560	68680	58380
MEAN	1230	1150	1199	1413	1493	1568	1796	1937	2149	2373	2215	1946
MAX	1620	1230	1460	1520	1640	1700	1890	2100	2350	2500	2270	2210
MIN	1040	1080	839	1150	1420	1450	1650	1800	1900	2160	2140	1700
AC-FT	75630	68430	73740	86900	85870	96440	106900	119100	127900	145900	136200	115800

CAL YR 1983	TOTAL	599519	MEAN	1643	MAX	2550	MIN	839	AC-FT	1189000
WTR YR 1984	TOTAL	624529	MEAN	1706	MAX	2500	MIN	839	AC-FT	1239000

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 1983 to SEPTEMBER 1984

MONTH	ARNOLD CANAL	CENTRAL OREGON CANAL	DESCHUTES COUNTY MUNICIPAL IMPROVEMENT DISTRICT CANAL	NORTH UNIT MAIN CANAL	NORTH CANAL	SWALLEY CANAL	TOTAL
OCTOBER	1,850	8,420	0	17,730	10,210	3,220	41,430
NOVEMBER	452	1,960	0	0	1,750	413	4,580
DECEMBER	26	464	0	0	248	50	788
JANUARY	636	1,740	0	0	1,170	1,090	4,640
FEBRUARY	171	2,490	0	0	1,700	476	4,840
MARCH	442	2,050	0	0	1,830	540	4,860
APRIL	1,410	7,930	0	9,330	8,430	2,380	29,480
MAY	5,970	28,160	1,160	31,540	27,820	5,760	100,400
JUNE	6,600	31,090	1,170	34,950	30,690	6,750	111,200
JULY	5,930	34,960	1,700	48,140	34,360	6,540	131,600
AUGUST	6,490	33,950	7,580	34,480	35,620	7,100	125,200
SEPTEMBER	5,120	25,950	6,410	28,660	29,090	5,680	100,900
WTR YR 1984	35,100	179,200	18,030	204,800	182,900	40,000	660,000

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.--Records excellent except those for December, which are 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.--70 years, 503 ft^3/s, 364,400 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 discharge, 1,790 ft^3/s Apr. 12, gage height, 4.49 ft; maximum gage height, 5.15 ft, backwater from ice, Dec. 26; minimum discharge, 40 ft^3/s June 27, July 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	201	1030	1060	964	1370	1320	1650	678	47	115	82	198
2	140	1030	1050	922	1370	1320	1630	636	59	74	115	207
3	186	1040	1080	971	1370	1320	1610	575	74	70	168	198
4	150	1040	1080	1020	1350	1350	1610	520	88	128	168	190
5	125	1040	1060	985	1340	1180	1620	465	198	115	148	185
6	128	1070	1050	1020	1190	1120	1600	430	331	103	120	175
7	138	1070	1050	1260	1140	1130	1600	345	374	90	84	165
8	138	1060	1080	1340	1180	1130	1630	207	320	113	64	150
9	153	1080	1100	1350	1170	1260	1590	159	258	105	59	125
10	168	1080	1130	1330	1230	1420	1590	96	265	72	74	105
11	174	1060	1130	1300	1370	1430	1630	54	280	53	74	105
12	123	1060	1100	1300	1370	1260	1720	54	294	47	68	105
13	105	1070	1100	1300	1330	1180	1740	54	284	47	78	108
14	316	845	1130	1330	1230	1240	1740	60	240	50	88	113
15	585	550	1150	1430	1260	1260	1740	84	133	62	96	148
16	495	550	1180	1470	1280	1350	1380	98	54	64	92	189
17	515	560	1230	1420	1310	1580	845	94	64	62	113	244
18	545	660	1230	1380	1370	1560	762	113	76	74	143	258
19	540	1100	1100	1300	1480	1530	804	120	48	88	135	180
20	545	1110	1150	1290	1400	1470	810	120	62	100	133	148
21	540	1080	1240	1280	1380	1450	708	133	189	105	135	150
22	545	1090	1240	1300	1370	1450	678	128	234	140	138	195
23	555	1080	900	1260	1370	1470	660	110	231	200	135	240
24	936	1100	800	1270	1370	1480	605	110	237	230	130	273
25	957	1100	1000	1340	1350	1510	620	88	171	200	120	222
26	964	1100	1000	1340	1340	1570	648	80	90	148	108	255
27	957	1150	1050	1330	1370	1590	660	62	57	171	108	294
28	950	1150	1050	1350	1360	1580	636	90	98	213	98	309
29	943	1140	1000	1400	1320	1580	642	100	148	195	96	320
30	957	1130	1000	1400	---	1610	642	78	138	140	105	316
31	971	---	980	1390	---	1630	---	47	---	103	156	---
TOTAL	14745	30225	33500	39342	38340	43330	35800	5988	5142	3477	3431	5870
MEAN	476	1008	1081	1269	1322	1398	1193	193	171	112	111	196
MAX	971	1150	1240	1470	1480	1630	1740	678	374	230	168	320
MIN	105	550	800	922	1140	1120	605	47	47	47	59	105
AC-FT	29250	59950	66450	78030	76050	85950	71010	11880	10200	6900	6810	11640

CAL YR 1983	TOTAL	233904	MEAN	641	MAX	1550	MIN	38	AC-FT	463900
WTR YR 1984	TOTAL	259190	MEAN	708	MAX	1740	MIN	47	AC-FT	514100

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. Altitude of gage is 5,180 ft, from topographic map.

REMARKS.--Records good. Water is diverted into Bridge Creek from unnamed springs on Middle Fork of Tumalo Creek 3.0 mi above station.

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, 168 ft^3/s May 30, gage height, 1.70 ft, from rating curve extended above 110 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 18 ft^3/s Dec. 23-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	22	21	25	25	24	24	25	73	61	27	22
2	22	21	21	25	25	23	23	28	64	60	27	22
3	22	23	21	37	25	22	23	27	58	60	27	22
4	22	23	21	37	25	22	23	25	65	58	26	22
5	22	22	21	36	25	22	23	24	70	56	26	23
6	22	30	20	35	25	22	22	23	61	53	25	23
7	22	23	21	34	24	22	22	24	61	46	25	25
8	22	22	21	34	24	22	22	27	54	42	26	23
9	25	22	21	31	24	23	22	27	50	41	26	22
10	24	23	21	31	24	23	22	27	44	40	25	22
11	22	23	21	30	23	23	22	38	44	40	25	22
12	21	22	21	30	33	23	22	39	46	38	25	22
13	21	21	21	28	33	22	22	42	46	37	25	22
14	21	21	29	27	30	22	23	42	48	36	25	22
15	21	24	31	28	28	22	25	37	57	36	24	22
16	21	24	26	26	28	22	25	37	61	36	24	22
17	21	25	25	25	27	22	25	36	61	36	23	22
18	21	22	25	25	27	22	25	39	62	35	23	22
19	21	21	24	25	26	24	25	45	62	33	23	21
20	21	21	22	25	26	26	25	50	63	32	23	22
21	21	21	20	25	27	26	25	44	55	30	23	21
22	22	21	19	25	26	25	25	47	53	29	23	21
23	21	21	18	25	26	25	26	53	59	30	23	21
24	21	23	18	38	26	25	26	46	73	30	23	21
25	21	22	18	32	25	25	25	52	84	30	22	21
26	21	21	19	29	24	25	23	65	82	29	23	21
27	21	21	21	28	24	25	23	61	94	28	22	21
28	20	21	21	27	24	25	22	70	99	28	22	21
29	20	21	27	27	24	24	22	99	89	27	22	21
30	22	21	32	26	---	24	24	124	66	27	22	21
31	22	---	26	26	---	24	---	92	---	27	23	---
TOTAL	668	668	693	902	753	726	706	1415	1904	1191	748	655
MEAN	21.5	22.3	22.4	29.1	26.0	23.4	23.5	45.6	63.5	38.4	24.1	21.8
MAX	25	30	32	38	33	26	26	124	99	61	27	25
MIN	20	21	18	25	23	22	22	23	44	27	22	21
AC-FT	1320	1320	1370	1790	1490	1440	1400	2810	3780	2360	1480	1300

CAL YR 1983	TOTAL	11733	MEAN	32.1	MAX	394	MIN	18	AC-FT	23270
WTR YR 1984	TOTAL	11029	MEAN	30.1	MAX	124	MIN	18	AC-FT	21880

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 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.--Records good. All records given herein include flow in Columbia Southern Canal, which diverts 8 mi above station for irrigation of land near Tumalo. No flow in the canal Oct. 1 to May 9. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Diversion above station for municipal supply of Bend since Dec. 15, 1926, 4,930 acre-ft during water year 1984.

AVERAGE DISCHARGE.--66 years (water years 1914, 1917-21, 1924-35, 1937-84), 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, 501 ft^3/s May 30; minimum daily, 50 ft^3/s Dec. 22-25, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	87	79	100	87	85	91	102	217	276	128	99
2	75	89	81	100	85	81	89	102	209	296	123	97
3	75	109	79	110	87	79	91	104	203	300	123	95
4	75	106	77	125	85	79	91	102	207	289	117	88
5	75	85	81	113	85	79	89	102	222	279	111	81
6	75	163	85	109	85	79	87	99	214	279	109	99
7	75	104	89	109	85	79	91	99	209	242	97	106
8	75	93	83	106	85	81	91	106	194	231	95	94
9	91	91	83	106	85	85	89	120	189	229	98	88
10	85	93	85	104	83	85	91	128	172	226	99	84
11	79	97	83	104	83	83	89	155	169	232	99	82
12	79	91	81	99	106	83	91	167	179	228	96	81
13	79	89	83	97	115	87	87	172	179	218	89	80
14	79	89	106	89	99	87	91	192	189	212	85	80
15	79	89	118	85	99	87	99	179	213	220	84	82
16	79	91	102	75	97	87	104	174	231	226	85	80
17	79	93	95	68	93	83	102	171	228	226	86	77
18	79	89	93	62	93	83	104	172	229	226	85	78
19	77	91	91	60	91	87	102	182	232	204	83	76
20	77	89	77	60	95	97	99	198	234	186	81	81
21	75	85	65	60	93	97	99	190	215	173	80	78
22	83	85	50	65	89	91	104	188	198	162	81	76
23	83	85	50	87	89	95	109	205	219	178	83	78
24	77	93	50	113	89	93	106	187	256	191	84	75
25	77	89	50	104	87	93	106	185	297	185	87	76
26	77	83	55	97	85	97	104	232	325	176	86	61
27	77	85	65	95	83	93	102	211	376	157	85	68
28	75	83	65	93	85	93	99	216	393	152	86	68
29	75	81	105	91	83	89	99	259	393	144	85	70
30	87	81	125	91	---	89	97	308	304	135	90	68
31	91	---	110	89	---	93	---	272	---	144	97	---
TOTAL	2439	2778	2541	2866	2606	2699	2893	5279	7095	6622	2917	2446
MEAN	78.7	92.6	82.0	92.5	89.9	87.1	96.4	170	237	214	94.1	81.5
MAX	91	163	125	125	115	97	109	308	393	300	128	106
MIN	75	81	50	60	83	79	87	99	169	135	80	61
AC-FT	4840	5510	5040	5680	5170	5350	5740	10470	14070	13130	5790	4850

CAL YR 1983	TOTAL	43122	MEAN	118	MAX	442	MIN	50	AC-FT	85530
WTR YR 1984	TOTAL	43181	MEAN	118	MAX	393	MIN	50	AC-FT	85650

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. Altitude 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.--Records excellent except those Dec. 18 to Feb. 9, which are fair. 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 above station, for irrigation in Three Creek basin.

AVERAGE DISCHARGE.--72 years (water years 1907-18, 1920, 1926-84), 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 above base 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 28	2100	*472	*2.88	No other peak greater than base discharge.			

Minimum daily, 50 ft^3/s Dec. 24, during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	81	75	135	88	85	76	73	212	268	185	122
2	73	82	81	127	86	82	74	73	206	275	185	116
3	72	129	78	222	84	79	73	73	194	289	179	111
4	73	121	73	222	82	79	74	68	203	285	176	111
5	72	94	72	179	82	79	71	68	203	285	173	131
6	72	222	81	153	80	79	70	66	185	285	164	141
7	70	117	90	143	80	79	71	67	176	261	153	133
8	70	96	79	136	80	80	71	79	158	243	153	129
9	81	94	81	122	80	82	70	85	150	236	158	127
10	75	99	82	118	80	82	70	79	141	236	161	113
11	70	99	78	111	80	79	68	138	141	243	164	105
12	67	90	78	102	161	79	70	143	143	240	158	98
13	67	84	81	95	185	85	67	143	143	233	148	94
14	66	85	141	85	133	84	73	153	155	229	143	92
15	65	107	168	75	122	80	82	127	179	233	141	92
16	64	96	127	70	116	79	84	116	194	243	143	94
17	64	96	111	75	109	79	77	113	191	247	145	94
18	62	85	85	85	107	77	77	116	197	247	145	96
19	62	89	96	85	107	88	74	136	206	233	138	100
20	61	84	80	85	111	103	73	164	203	215	131	111
21	61	81	65	90	105	101	73	141	182	203	127	103
22	70	78	55	100	100	92	74	145	170	188	127	98
23	66	81	52	109	98	90	76	179	191	188	129	90
24	61	133	50	182	94	87	76	150	233	209	127	88
25	60	98	52	136	90	88	71	176	282	219	122	85
26	60	87	60	111	90	92	68	268	313	215	120	84
27	58	85	75	105	88	84	68	209	372	203	122	82
28	61	81	85	100	85	80	68	215	392	200	129	80
29	60	79	80	95	84	79	67	257	396	188	127	80
30	85	78	90	95	---	77	67	306	292	188	129	80
31	87	---	150	90	---	77	---	257	---	188	131	---
TOTAL	2110	2931	2651	3638	2887	2586	2173	4383	6403	7215	4533	3080
MEAN	68.1	97.7	85.5	117	99.6	83.4	72.4	141	213	233	146	103
MAX	87	222	168	222	185	103	84	306	396	289	185	141
MIN	58	78	50	70	80	77	67	66	141	188	120	80
AC-FT	4190	5810	5260	7220	5730	5130	4310	8690	12700	14310	8990	6110

CAL YR 1983	TOTAL	44758	MEAN	123	MAX	400	MIN	50	AC-FT	88780
WTR YR 1984	TOTAL	44590	MEAN	122	MAX	396	MIN	50	AC-FT	88440

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 mi^2.

PERIOD OF RECORD.--July 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,980 ft 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.--Records excellent. Flow regulated by Crescent Lake and Crane Prairie and Wickiup Reservoirs (see elsewhere in this report). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--32 years, 922 ft^3/s, 668,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,680 ft^3/s Dec. 24, 1964, gage height, 10.00 ft, from rating curve extended above 2,200 ft^3/s on basis of slope-area measurement of peak flow; minimum, 418 ft^3/s July 7, 8, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,480 ft^3/s Feb. 13, gage height, 6.11 ft; minimum, 521 ft^3/s Aug. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	721	1600	1700	1660	2050	1940	2270	1190	671	775	578	658
2	706	1620	1660	1660	2020	1950	2270	1220	615	701	560	684
3	656	1680	1670	1710	2040	1940	2250	1160	597	674	582	682
4	707	1710	1660	1940	2020	1960	2250	1090	605	679	640	669
5	690	1630	1660	1870	2010	1980	2250	1030	638	739	634	665
6	661	1730	1700	1760	1980	1770	2230	976	760	737	616	661
7	665	1740	1730	1920	1800	1800	2210	957	877	712	588	662
8	676	1650	1730	2070	1820	1800	2240	806	888	674	558	669
9	699	1650	1740	2080	1850	1820	2200	695	797	672	537	625
10	721	1700	1780	2060	1810	2020	2160	661	753	647	528	593
11	733	1700	1810	2030	1930	2030	2190	600	756	620	537	589
12	744	1660	1800	1990	1980	2020	2270	624	780	608	543	580
13	692	1660	1780	1990	2350	1700	2300	597	783	556	533	581
14	669	1660	1740	1990	2030	1750	2300	597	755	542	545	586
15	969	1330	1860	2040	2010	1800	2320	594	713	536	554	590
16	1120	1220	1780	2050	2020	1810	2270	583	617	549	562	626
17	1050	1190	1790	2040	2020	2030	1680	592	571	562	558	669
18	1100	1140	1890	2010	2030	2120	1300	584	573	568	582	724
19	1110	1350	1980	1980	2150	2110	1370	603	591	572	607	726
20	1110	1600	1690	1910	2140	2110	1370	628	571	571	603	656
21	1110	1590	1900	1910	2060	2060	1360	640	590	576	605	628
22	1110	1620	1560	1940	2000	2040	1250	631	706	578	603	629
23	1120	1650	1540	1920	1980	2050	1250	632	728	588	606	680
24	1210	1680	1540	1910	1980	2020	1200	635	749	631	602	726
25	1400	1720	1540	1960	1960	2100	1170	610	816	684	604	747
26	1400	1680	1540	1930	2020	2170	1210	663	794	668	590	699
27	1410	1700	1670	1900	2030	2180	1230	688	801	626	585	748
28	1420	1720	1670	1910	1980	2180	1210	651	881	638	578	779
29	1440	1700	1650	2010	1970	2180	1190	707	979	692	574	790
30	1530	1710	1950	2040	---	2220	1190	789	934	663	567	800
31	1570	---	1850	2070	---	2260	---	783	---	612	596	---
TOTAL	30919	47990	53560	60260	58040	61920	53960	23216	21889	19650	17955	20121
MEAN	997	1600	1728	1944	2001	1997	1799	749	730	634	579	671
MAX	1570	1740	1980	2080	2350	2260	2320	1220	979	775	640	800
MIN	656	1140	1540	1660	1800	1700	1170	583	571	536	528	580
AC-FT	61330	95190	106200	119500	115100	122800	107000	46050	43420	38980	35610	39910

CAL YR 1983	TOTAL	425543	MEAN	1166	MAX	2010	MIN	485	AC-FT	844100
WTR YR 1984	TOTAL	469480	MEAN	1283	MAX	2350	MIN	528	AC-FT	931200

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 mi², approximately, of which 500 mi² 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, 178,100 acre-ft Apr. 20, elevation, 3,242.75 ft; minimum, 90,380 acre-ft Jan. 12, elevation, 3,210.00 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 1983 TO SEPTEMBER 1984
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3219.40	3213.80	3213.60	3213.40	3210.80	3215.00	3238.40	3237.45	3233.50	3231.65	3227.75	3222.85
2	3219.30	3213.55	3213.40	3213.70	3210.50	3216.30	3238.00	3237.25	3233.65	3231.60	3227.55	3222.85
3	3219.20	3213.35	3213.25	3213.40	3210.50	3217.25	3237.60	3236.80	3233.75	3231.50	3227.45	3222.75
4	3219.00	3213.10	3213.00	3213.00	3210.40	3218.05	3237.50	3236.45	3233.95	3231.40	3227.30	3222.65
5	3218.90	3212.85	3212.85	3212.65	3210.40	3218.80	3237.80	3236.10	3234.10	3231.35	3227.10	3222.50
6	3218.70	3212.65	3212.70	3212.25	3210.30	3219.50	3238.20	3235.75	3234.30	3231.25	3226.90	3222.40
7	3218.50	3212.45	3212.60	3211.80	3210.30	3220.25	3238.40	3235.25	3234.50	3231.20	3226.80	3222.25
8	3218.30	3212.40	3212.60	3211.40	3210.45	3221.60	3238.80	3234.85	3234.60	3231.10	3226.70	3222.15
9	3218.20	3212.50	3212.60	3210.90	3210.55	3224.30	3239.40	3234.90	3234.70	3231.00	3226.50	3222.00
10	3218.00	3212.70	3212.90	3210.40	3210.75	3227.40	3239.45	3234.90	3234.75	3230.95	3226.30	3221.80
11	3217.90	3212.80	3213.35	3210.05	3210.85	3229.90	3239.50	3234.85	3234.80	3230.85	3226.10	3221.60
12	3217.80	3213.00	3213.60	3210.10	3211.10	3231.50	3239.15	3235.30	3234.80	3230.75	3225.85	3221.45
13	3217.65	3213.10	3213.70	3210.40	3211.90	3232.90	3238.70	3235.50	3234.70	3230.60	3225.70	3221.30
14	3217.45	3213.30	3213.60	3210.80	3213.70	3234.05	3238.40	3235.80	3234.65	3230.50	3225.65	3221.05
15	3217.25	3213.40	3214.00	3211.10	3214.70	3234.95	3239.00	3235.80	3234.60	3230.45	3225.55	3220.90
16	3217.10	3213.60	3214.00	3211.30	3215.00	3235.70	3240.60	3235.65	3234.40	3230.30	3225.35	3220.75
17	3216.95	3213.85	3214.00	3211.50	3214.75	3236.00	3241.50	3235.25	3234.25	3230.25	3225.20	3220.60
18	3216.80	3214.15	3213.95	3211.70	3214.30	3236.00	3242.20	3234.50	3234.05	3230.05	3224.90	3220.45
19	3216.60	3214.40	3213.50	3211.80	3213.70	3235.90	3242.65	3234.10	3233.85	3229.85	3224.80	3220.25
20	3216.35	3214.65	3212.95	3211.90	3213.10	3236.10	3242.75	3233.80	3233.60	3229.60	3224.60	3220.05
21	3216.15	3214.80	3212.30	3212.00	3212.95	3237.55	3242.50	3233.55	3233.30	3229.40	3224.40	3219.85
22	3215.95	3214.90	---	3212.10	3212.80	3238.25	3242.30	3233.40	3233.20	3229.15	3224.25	3219.65
23	3215.70	3215.05	---	3212.30	3213.10	3238.60	3242.20	3233.10	3233.00	3229.00	3224.05	3219.50
24	3215.50	3214.80	---	3212.30	3213.30	3238.90	3242.00	3233.20	3232.70	3228.85	3223.85	3219.30
25	3215.30	3214.65	---	3212.50	3213.70	3239.10	3241.60	3233.20	3232.55	3228.75	3223.70	3219.15
26	3215.10	3214.40	---	3212.65	3213.85	3239.50	3241.10	3233.20	3232.25	3228.60	3223.55	3219.05
27	3214.80	3214.30	3213.10	3212.60	3214.00	3239.70	3240.50	3233.15	3232.05	3228.45	3223.40	3218.85
28	3214.60	3214.10	3213.20	3212.30	3214.20	3239.80	3239.70	3233.05	3231.95	3228.30	3223.20	3218.70
29	3214.40	3213.95	3212.90	3211.95	3214.50	3239.60	3238.95	3232.90	3231.80	3228.15	3223.00	3218.55
30	3214.20	3213.80	3212.60	3211.60	---	3239.00	3238.10	3232.80	3231.70	3228.05	3222.95	3218.35
31	3213.95	---	3212.60	3211.20	---	3238.65	---	3233.25	---	3227.90	3222.85	---
MEAN	3216.94	3213.68	---	3211.84	3212.43	3231.29	3239.90	3234.68	3233.67	3230.03	3225.27	3220.79
MAX	3219.40	3215.05	---	3213.70	3215.00	3239.80	3242.75	3237.45	3234.80	3231.65	3227.75	3222.85
MIN	3213.95	3212.40	---	3210.05	3210.30	3215.00	3237.50	3232.80	3231.70	3227.90	3222.85	3218.35
(†)	98760	98430	95840	92870	99960	164800	163000	148200	143600	132900	119600	108700
(‡)	-12740	-330	-2590	-2970	+7090	+64840	-1800	-14800	-4600	-10700	-13300	-10900

WTR YR 1984 AC-FT‡ -2800

† 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 mi^2, approximately, of which 500 mi^2 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 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.--Records excellent above 300 ft^3/s, good below. Flow completely regulated since December 1960 by Prineville Reservoir (see station 14080400). Diversions for irrigation above 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 ft^3/s, 273,700 acre-ft/yr; 24 years (water years 1961-84), 367 ft^3/s, 265,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,410 ft^3/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, 3,310 ft^3/s Mar. 16, gage height, 7.78 ft; minimum, 3.5 ft^3/s Nov. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	367	417	79	937	358	2850	2940	507	317	261	226
2	261	367	417	340	744	360	2930	3150	510	315	259	226
3	261	367	417	796	496	361	2940	3190	511	315	259	226
4	261	367	415	1010	496	363	2980	2800	511	269	259	226
5	261	367	414	1070	496	364	3070	2560	511	243	259	226
6	267	367	415	1070	386	365	3060	2510	625	243	259	226
7	273	288	414	1070	323	367	3060	2470	733	242	257	228
8	273	88	414	1070	323	369	3070	2240	770	242	256	228
9	273	20	425	1070	323	573	3100	2000	773	241	254	228
10	273	11	440	1060	323	689	3010	2000	774	241	254	262
11	273	11	441	835	323	696	2980	2000	774	241	254	283
12	273	11	475	236	323	1260	3030	2010	774	241	252	283
13	288	11	604	64	323	1850	3060	2040	774	240	252	283
14	300	11	799	64	517	2700	3020	2230	774	239	252	285
15	300	11	799	64	657	3280	3050	2320	774	239	252	285
16	300	11	799	64	1160	3020	3070	2300	775	240	252	285
17	300	11	799	64	1430	2890	2980	2270	775	241	252	285
18	300	11	799	64	1430	2900	3010	2250	775	305	254	285
19	300	11	953	115	1430	2820	3030	2250	776	339	254	285
20	340	11	1060	148	1430	2770	3030	2250	776	339	237	286
21	373	11	1050	148	1140	2810	3020	1930	775	339	226	288
22	373	11	773	148	701	2790	3010	1770	774	339	225	288
23	373	188	493	228	561	2850	3040	1420	774	338	224	288
24	354	417	411	300	431	2850	3060	1300	774	293	225	287
25	370	417	411	300	356	2840	3020	1300	774	266	226	285
26	370	417	403	486	356	2880	2970	1300	774	266	226	285
27	370	417	395	890	358	2890	2950	1300	580	266	226	286
28	370	417	393	1050	358	2870	2870	1300	474	263	226	288
29	370	417	393	1050	358	2940	2810	1300	376	262	226	288
30	370	417	220	979	---	2980	2950	988	318	261	226	288
31	368	---	79	937	---	2910	---	433	---	261	227	---
TOTAL	9699	5848	16737	16869	18489	59965	90030	62121	20365	8486	7571	8018
MEAN	313	195	540	544	638	1934	3001	2004	679	274	244	267
MAX	373	417	1060	1070	1430	3280	3100	3190	776	339	261	288
MIN	261	11	79	64	323	358	2810	433	318	239	224	226
AC-FT	19240	11600	33200	33460	36670	118900	178600	123200	40390	16830	15020	15900

CAL YR 1983	TOTAL	283479	MEAN	777	MAX	3210	MIN	11	AC-FT	562300
WTR YR 1984	TOTAL	324198	MEAN	886	MAX	3280	MIN	11	AC-FT	643000

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 National Geodetic Vertical Datum of 1929 (Portland General Electric Co. bench mark).

REMARKS.--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 above station. Practically all of the summer flow comes from Opal Springs and other springs within 15 mi above station. Simultaneous records (1961-63) at former gaging station 5.6 mi downstream indicated over 15 percent increase to summer flow from springs below this station.

AVERAGE DISCHARGE.--23 years, 1,609 ft^3/s, 1,166,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 ft^3/s Dec. 24, 1964, gage height, 9.36 ft; minimum recorded, 611 ft^3/s Aug. 17, 18, 20, 22, 1984, caused by testing control gates on dam upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,170 ft^3/s Mar. 16, gage height, 7.93 ft; minimum recorded, 611 ft^3/s Aug. 17, 18, 20, 22, caused by testing control gates on dam upstream from gage; minimum daily, 1,220 ft^3/s Nov. 14, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1510	1600	1620	1340	2210	1820	4730	4670	1420	1460	1360	1450
2	1600	1600	1620	1330	2200	1850	4640	4590	1490	1460	1350	1480
3	1610	1590	1620	1570	1980	1830	4680	4770	1490	1430	1360	1490
4	1540	1580	1610	2230	1820	1820	4690	4760	1530	1410	1380	1470
5	1490	1580	1610	2700	1810	1810	4730	4190	1560	1380	1390	1440
6	1480	1580	1630	2660	1810	1820	4840	3920	1650	1330	1400	1440
7	1460	1580	1650	2640	1710	1830	4800	3860	1890	1330	1400	1440
8	1470	1530	1650	2610	1670	1840	4810	3700	1990	1330	1400	1430
9	1560	1380	1670	2570	1630	1890	4850	3370	2060	1340	1390	1430
10	1600	1280	1780	2540	1600	2120	4870	3230	2130	1330	1400	1420
11	1580	1260	1780	2520	1580	2220	4820	3220	2110	1320	1400	1430
12	1590	1240	1730	2230	1570	2190	4750	3290	2050	1290	1410	1450
13	1620	1230	1740	1740	1770	2840	4800	3310	1990	1270	1410	1460
14	1610	1220	1940	1520	2070	3480	4830	3340	1920	1270	1410	1460
15	1610	1230	2770	1430	2130	4230	4780	3570	1870	1280	1410	1480
16	1610	1250	2480	1410	2300	5100	4830	3630	1830	1290	1390	1490
17	1630	1230	2250	1410	2860	4910	4860	3590	1750	1270	1390	1490
18	1630	1240	2180	1390	2930	4720	4780	3470	1720	1260	1350	1490
19	1610	1250	2160	1390	2890	4690	4850	3260	1710	1290	1390	1480
20	1580	1240	2320	1390	2880	4610	4970	3240	1730	1360	1400	1510
21	1610	1230	2360	1430	2920	4610	4950	3230	1790	1370	1430	1540
22	1650	1220	2340	1420	2570	4720	4890	2820	1860	1370	1320	1530
23	1650	1230	1970	1420	2160	4660	4840	2790	1870	1380	1360	1540
24	1690	1290	1590	1470	2070	4670	4840	2360	1860	1410	1340	1560
25	1660	1600	1320	1580	1910	4650	4850	2380	1860	1380	1330	1580
26	1590	1610	1360	1620	1840	4650	4810	2400	1800	1340	1340	1580
27	1590	1610	1360	1820	1830	4790	4790	2400	1780	1360	1370	1570
28	1590	1620	1340	2220	1820	4750	4720	2390	1600	1360	1350	1560
29	1590	1610	1330	2310	1820	4720	4620	2330	1520	1380	1350	1570
30	1610	1620	1340	2320	---	4760	4570	2240	1480	1370	1370	1580
31	1600	---	1350	2240	---	4770	---	1840	---	1350	1440	---
TOTAL	49220	42330	55470	58470	60360	109370	143790	102160	53310	41770	42790	44840
MEAN	1588	1411	1789	1886	2081	3528	4793	3295	1777	1347	1380	1495
MAX	1690	1620	2770	2700	2930	5100	4970	4770	2130	1460	1440	1580
MIN	1460	1220	1320	1330	1570	1810	4570	1840	1420	1260	1320	1420
AC-FT	97630	83960	110000	116000	119700	216900	285200	202600	105700	82850	84870	88940

CAL YR 1983	TOTAL	751330	MEAN	2058	MAX	4930	MIN	1220	AC-FT	1490000
WTR YR 1984	TOTAL	803880	MEAN	2196	MAX	5100	MIN	1220	AC-FT	1594000

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 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.--Records good except for period Nov. 21 to Dec. 28, which is fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--69 years (water years 1916-84), 52.7 ft^3/s, 38,180 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, 143 ft^3/s May 28, gage height, 3.22 ft, maximum recorded gage height, 3.29 ft Feb. 13; minimum, 27 ft^3/s Oct. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	32	36	57	70	57	77	71	92	52	39	34
2	30	32	35	61	69	56	75	69	88	50	38	33
3	29	36	34	70	66	55	76	71	81	49	37	33
4	28	42	34	66	63	53	72	76	81	48	35	33
5	29	45	34	71	61	53	72	82	80	48	36	35
6	29	54	38	79	60	53	69	81	82	45	36	38
7	28	45	46	82	58	52	69	76	90	45	36	38
8	29	37	46	83	56	50	72	74	93	43	35	36
9	30	35	46	81	58	51	70	72	95	42	37	34
10	30	35	46	82	57	52	81	72	90	42	38	33
11	30	36	46	79	58	55	74	78	83	42	37	33
12	29	37	46	74	58	60	79	74	78	40	36	32
13	30	39	48	72	115	62	69	82	74	40	34	33
14	29	36	60	72	107	67	67	87	69	41	34	33
15	29	36	80	68	115	69	68	91	66	41	35	33
16	29	37	95	64	112	71	65	92	65	41	36	33
17	30	42	70	62	106	73	66	91	62	42	36	33
18	30	41	55	60	97	71	70	87	61	41	35	33
19	31	44	45	59	89	71	70	86	61	39	34	33
20	29	47	40	57	83	72	67	81	61	39	35	35
21	30	41	35	59	80	81	51	81	61	36	35	33
22	32	38	32	61	74	81	59	86	58	34	36	34
23	32	42	30	61	71	81	65	91	60	36	35	36
24	31	45	29	72	75	81	68	93	61	40	34	34
25	30	50	28	72	75	86	68	105	58	42	34	33
26	30	48	30	74	65	92	65	97	56	39	35	34
27	31	45	38	78	62	85	65	105	54	38	35	34
28	30	43	51	80	60	86	67	119	55	38	34	33
29	30	40	59	78	58	82	63	102	53	37	35	33
30	31	38	66	75	---	79	63	98	50	38	36	33
31	32	---	58	72	---	79	---	95	---	38	35	---
TOTAL	927	1218	1436	2181	2178	2116	2062	2665	2118	1286	1103	1015
MEAN	29.9	40.6	46.3	70.4	75.1	68.3	68.7	86.0	70.6	41.5	35.6	33.8
MAX	32	54	95	83	115	92	81	119	95	52	39	38
MIN	28	32	28	57	56	50	51	69	50	34	34	32
AC-FT	1840	2420	2850	4330	4320	4200	4090	5290	4200	2550	2190	2010

CAL YR 1983	TOTAL	20529	MEAN	56.2	MAX	142	MIN	25	AC-FT	40720
WTR YR 1984	TOTAL	20305	MEAN	55.5	MAX	119	MIN	28	AC-FT	40270

NOTE.--No gage-height record Nov. 22 to Dec. 27.

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 September 1984.

GAGE.--Water-stage recorder. Altitude of gage is 2,780 ft, from topographic map.

REMARKS.--Records excellent. No regulation or diversion above station.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Jan. 3	1730	*316	*2.82	June 29	0900	223	2.44
Feb. 12	1900	255	2.58				

Minimum daily, 64 ft^3/s Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	84	82	93	97	95	93	92	139	155	130	106
2	92	88	82	100	96	93	92	106	138	163	130	104
3	92	99	81	218	95	92	92	97	136	164	128	103
4	91	108	79	199	95	90	91	93	154	162	127	102
5	91	90	79	144	94	90	90	91	169	165	126	108
6	90	140	81	128	93	90	89	89	151	159	125	112
7	90	95	86	120	93	90	90	90	150	148	123	121
8	90	87	83	116	92	91	90	94	137	145	122	108
9	89	87	82	108	92	96	90	96	132	145	122	105
10	89	97	91	105	91	96	89	93	127	145	123	102
11	89	96	83	102	92	95	89	112	128	146	122	101
12	88	89	82	99	154	93	89	121	132	146	122	99
13	88	86	90	97	164	94	88	121	132	144	119	98
14	88	85	125	94	127	96	90	129	139	143	117	96
15	87	101	125	92	117	96	95	112	153	144	116	96
16	87	101	101	89	112	95	97	106	153	146	116	95
17	87	104	93	85	107	93	93	106	147	148	118	94
18	86	92	90	83	105	93	92	109	146	146	117	94
19	86	94	87	85	104	102	91	122	149	142	115	95
20	85	92	81	81	107	113	89	137	156	139	114	96
21	85	87	72	87	106	111	89	121	163	138	112	94
22	92	85	70	91	102	103	91	124	145	135	111	95
23	87	85	68	92	101	102	92	153	150	135	111	95
24	85	124	66	162	100	100	91	127	167	139	111	93
25	84	98	64	161	98	99	89	139	168	143	109	92
26	83	90	66	121	96	100	88	184	178	139	108	92
27	83	89	68	110	96	97	87	151	199	136	108	91
28	82	87	70	105	95	96	86	149	188	133	109	90
29	82	84	83	102	93	94	86	172	199	131	107	90
30	86	83	159	100	---	93	86	185	157	131	108	89
31	85	---	108	99	---	94	---	152	---	131	110	---
TOTAL	2711	2827	2677	3468	3014	2982	2704	3773	4582	4486	3636	2956
MEAN	87.5	94.2	86.4	112	104	96.2	90.1	122	153	145	117	98.5
MAX	92	140	159	218	164	113	97	185	199	165	130	121
MIN	82	83	64	81	91	90	86	89	127	131	107	89
AC-FT	5380	5610	5310	6880	5980	5910	5360	7480	9090	8900	7210	5860

WTR YR 1984 TOTAL 39816 MEAN 109 MAX 218 MIN 64 AC-FT 78980

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. Altitude of gage is 3,230 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 347 ft^3/s Jan. 3, 1984, gage height, 2.61 ft; minimum, 47 ft^3/s Oct. 27-29, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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. 6	0800	231	2.25	May 29	2230	225	2.23
Jan. 3	2000	*347	*2.61	June 5	0900	222	2.22
Feb. 12	1830	234	2.26	June 29	0830	299	2.47

Minimum, 47 ft^3/s Oct. 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	58	62	71	78	75	81	72	140	143	119	88
2	61	61	63	74	76	73	78	82	133	153	120	81
3	61	84	62	180	74	71	76	77	130	158	117	81
4	62	88	60	240	74	69	76	74	141	158	112	81
5	60	70	59	178	74	67	76	73	174	159	111	96
6	59	132	60	143	73	67	75	72	143	157	105	92
7	58	79	62	133	73	67	75	71	137	138	99	103
8	58	63	61	121	73	68	76	74	125	130	99	111
9	58	62	60	109	73	72	73	78	116	129	108	97
10	57	72	69	106	73	74	75	76	109	129	113	82
11	56	73	63	95	74	73	70	87	108	133	111	76
12	56	63	60	90	135	73	74	97	108	133	110	68
13	56	61	76	80	170	75	72	104	108	130	96	66
14	53	61	92	75	124	78	72	120	109	127	90	64
15	51	74	87	75	114	78	76	106	121	130	88	65
16	51	80	76	70	106	76	79	99	131	137	93	68
17	50	87	72	70	98	73	78	96	123	144	101	74
18	50	74	69	70	95	73	78	95	120	142	103	77
19	50	74	67	70	91	76	77	104	123	132	94	79
20	48	71	64	70	91	88	75	118	131	126	89	84
21	48	65	55	70	92	93	73	109	128	120	87	74
22	66	62	52	75	87	85	73	112	116	114	88	68
23	55	62	50	85	86	85	75	136	120	113	90	61
24	52	97	48	115	83	84	75	116	143	128	85	59
25	51	79	48	130	81	84	75	127	155	143	84	57
26	50	72	48	110	76	87	72	163	164	141	85	56
27	48	70	50	100	76	83	70	146	209	128	92	55
28	47	68	56	90	76	82	69	144	211	121	93	53
29	48	66	66	85	75	82	67	172	223	114	90	52
30	61	64	108	80	---	81	67	208	163	116	94	51
31	62	---	78	80	---	81	---	164	---	117	91	---
TOTAL	1705	2192	2003	3140	2571	2393	2228	3372	4162	4143	3057	2219
MEAN	55.0	73.1	64.6	101	88.7	77.2	74.3	109	139	134	98.6	74.0
MAX	66	132	108	240	170	93	81	208	223	159	120	111
MIN	47	58	48	70	73	67	67	71	108	113	84	51
CFSM	2.63	3.50	3.09	4.83	4.24	3.69	3.56	5.22	6.65	6.41	4.72	3.54
IN.	3.03	3.90	3.57	5.59	4.58	4.26	3.97	6.00	7.41	7.37	5.44	3.95
AC-FT	3380	4350	3970	6230	5100	4750	4420	6690	8260	8220	6060	4400

CAL YR 1983	TOTAL	37647	MEAN	103	MAX	267	MIN	47	CFSM	4.93	IN.	67.01	AC-FT	74670
WTR YR 1984	TOTAL	33185	MEAN	90.7	MAX	240	MIN	47	CFSM	4.34	IN.	59.07	AC-FT	65820

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 owing to 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 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.--Records excellent. No regulation. Many small diversions for irrigation above station. Stream is spring fed. Records herein are for measuring site.

AVERAGE DISCHARGE.--64 years (water years 1913, 1922-84), 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, 2,600 ft^3/s Feb. 13, gage height, 2.88 ft; minimum, 1,390 ft^3/s Oct. 27-29..

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1500	1410	1430	1520	1640	1660	1670	1580	1740	1730	1600	1500
2	1500	1420	1430	1510	1620	1650	1650	1620	1720	1750	1600	1490
3	1480	1450	1430	1810	1610	1640	1650	1610	1710	1750	1580	1480
4	1480	1500	1410	1970	1600	1620	1650	1600	1740	1750	1580	1480
5	1470	1450	1420	1860	1590	1620	1640	1590	1840	1750	1570	1500
6	1460	1590	1440	1800	1580	1610	1620	1580	1810	1750	1560	1550
7	1450	1470	1470	1760	1570	1610	1620	1570	1800	1700	1550	1540
8	1440	1440	1480	1740	1570	1610	1630	1570	1770	1680	1550	1540
9	1440	1430	1470	1700	1570	1640	1620	1570	1740	1670	1560	1510
10	1430	1460	1510	1680	1560	1650	1650	1570	1710	1670	1570	1490
11	1410	1460	1480	1660	1560	1650	1630	1610	1690	1670	1560	1480
12	1410	1440	1470	1630	1740	1650	1660	1630	1690	1670	1560	1470
13	1410	1440	1560	1610	2450	1680	1630	1640	1690	1660	1540	1460
14	1410	1430	1680	1600	2210	1700	1620	1680	1680	1650	1530	1460
15	1410	1470	1740	1570	2070	1720	1630	1650	1710	1640	1520	1460
16	1410	1480	1630	1550	1990	1720	1640	1630	1740	1650	1510	1460
17	1410	1530	1580	1540	1910	1720	1620	1620	1710	1670	1510	1450
18	1400	1480	1560	1530	1870	1690	1620	1610	1700	1670	1530	1470
19	1400	1500	1540	1520	1830	1710	1620	1640	1710	1640	1530	1470
20	1400	1510	1530	1510	1810	1750	1610	1690	1740	1630	1510	1490
21	1400	1460	1470	1510	1800	1790	1590	1650	1770	1620	1500	1470
22	1430	1440	1450	1540	1750	1750	1580	1650	1730	1600	1510	1470
23	1410	1440	1440	1540	1740	1740	1590	1760	1710	1600	1510	1470
24	1400	1590	1420	1750	1740	1730	1590	1700	1760	1620	1500	1450
25	1400	1520	1400	1880	1720	1720	1580	1700	1790	1650	1500	1450
26	1400	1470	1400	1800	1690	1760	1570	1850	1800	1640	1500	1440
27	1400	1460	1400	1740	1670	1720	1570	1790	1850	1620	1500	1440
28	1400	1450	1400	1710	1670	1700	1560	1780	1860	1610	1510	1440
29	1400	1440	1450	1690	1650	1690	1560	1810	1890	1590	1500	1440
30	1420	1450	1660	1670	---	1680	1560	1870	1780	1590	1510	1440
31	1420	---	1570	1650	---	1690	---	1810	---	1590	1510	---
TOTAL	44200	44080	46320	51550	50780	52270	48430	51630	52580	51480	47570	44260
MEAN	1426	1469	1494	1663	1751	1686	1614	1665	1753	1661	1535	1475
MAX	1500	1590	1740	1970	2450	1790	1670	1870	1890	1750	1600	1550
MIN	1400	1410	1400	1510	1560	1610	1560	1570	1680	1590	1500	1440
AC-FT	87670	87430	91880	102200	100700	103700	96060	102400	104300	102100	94360	87790

CAL YR 1983	TOTAL	614710	MEAN	1684	MAX	2730	MIN	1400	AC-FT	1219000
WTR YR 1984	TOTAL	585150	MEAN	1599	MAX	2450	MIN	1400	AC-FT	1161000

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, 534,700 acre-ft June 22, Sept. 5, 6, elevation, 1,945.00 ft; minimum observed, 491,000 acre-ft Jan. 16, elevation, 1,933.62 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	1,941.20	519,900	-
Oct. 31	1,943.99	530,700	+10,800
Nov. 30	1,941.94	522,700	-8,000
Dec. 31	1,933.99	492,400	-30,300
CAL YR 1983	-	-	-35,400
Jan. 31	1,938.34	508,900	+16,500
Feb. 29	1,939.70	514,100	+5,200
Mar. 31	1,942.97	526,700	+12,600
Apr. 30	1,943.22	527,700	+1,000
May 31	1,943.61	529,200	+1,500
June 30	1,944.44	532,500	+3,300
July 31	1,944.06	531,000	-1,500
Aug. 31	1,944.25	531,800	+800
Sept.30	1,941.39	520,600	-11,200
WTR YR 1984	-	-	+700

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 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.--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.--61 years, 4,535 ft^3/s, 3,286,000 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, 10,300 ft^3/s Mar. 17, gage height, 4.78 ft; minimum, 3,460 ft^3/s May 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5020	5890	6250	6100	6110	5810	9100	7950	5010	5010	4190	4170
2	5020	6060	6240	6090	6160	6150	9110	7990	4650	4660	4240	4160
3	4970	6000	6110	6110	6150	6370	9620	7990	4650	4580	4320	4150
4	4740	6070	6060	6470	6150	6480	9900	8020	4500	4570	4310	4330
5	4350	6100	5930	7170	6150	6060	9830	7990	4260	4530	4310	4570
6	4210	6070	5290	7030	6120	5720	9520	7990	4240	4530	4300	4730
7	4110	5660	5210	7010	6160	5730	9460	7450	4540	4520	4310	5030
8	4030	5150	5510	7020	6160	5740	9460	6900	5100	4520	4300	4710
9	4020	5200	6400	7030	5980	5730	9460	6660	5610	4470	4270	4140
10	4030	5440	6920	7020	5770	5740	9510	6030	5660	4360	4260	4180
11	3980	5430	6830	7030	5750	5740	9570	5330	5390	4290	4270	4180
12	4000	5450	6600	7020	5780	5750	9560	5070	5050	4200	4300	4020
13	4010	5410	6250	6890	6220	5750	9520	5100	4890	4360	4260	3910
14	3990	5190	6630	6720	6920	6200	9530	5670	5170	4380	4170	3900
15	4000	5030	7100	6690	7090	7450	9530	6320	5360	4390	4200	3900
16	4020	4740	7070	6240	7130	9100	9480	6500	5240	4380	4210	4550
17	3960	4840	7100	5860	7060	9880	9490	6380	5100	4260	4270	5570
18	4060	5290	7080	5870	7530	10000	9500	6480	4610	4230	4290	5610
19	4240	5280	6380	5640	7850	10000	8960	6590	4290	4320	4290	5560
20	4370	5270	5530	5470	7720	10000	8370	6620	4310	4360	4200	5580
21	4630	5270	5960	5470	7720	9950	8330	6680	4700	4340	4110	5580
22	5090	5230	6940	5490	7600	9850	8340	6710	5230	4340	4140	4750
23	5050	5230	7040	5510	7210	9410	8310	6430	5530	4330	4190	4430
24	5110	5310	6970	5510	6950	9090	8240	5920	5710	4300	4170	4420
25	5110	5250	7030	5510	6770	9080	8110	4980	5300	4300	4160	4410
26	5080	5270	7020	5510	6740	9080	8030	4580	5040	4340	4140	4410
27	4480	5220	6570	5510	6510	9330	7950	4610	5270	4530	4200	4350
28	4950	5210	5680	5510	6130	9800	7970	4610	5380	4730	4220	4420
29	5730	5210	5820	5510	5950	9920	7950	5090	5400	4710	4180	4420
30	5740	5460	6120	5840	---	9410	7940	6180	5390	4740	4160	4440
31	5730	---	6100	6160	---	9090	---	5900	---	4350	4170	---
TOTAL	141830	162230	197740	192010	191540	243410	269650	196720	150580	137930	131110	136580
MEAN	4575	5408	6379	6194	6605	7852	8988	6346	5019	4449	4229	4553
MAX	5740	6100	7100	7170	7850	10000	9900	8020	5710	5010	4320	5610
MIN	3960	4740	5210	5470	5750	5720	7940	4580	4240	4200	4110	3900
AC-FT	281300	321800	392200	380900	379900	482800	534900	390200	298700	273600	260100	270900

CAL YR 1983	TOTAL	2121120	MEAN	5811	MAX	9860	MIN	3680	AC-FT	4207000
WTR YR 1984	TOTAL	2151330	MEAN	5878	MAX	10000	MIN	3900	AC-FT	4267000

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, 14.0°C Oct. 1-6, Aug. 15 to Sept. 19, Sept. 21; minimum recorded, 6.0°C Feb. 10-12, 16-25.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	14.0	13.5							---	---	7.0	6.5
2	14.0	13.5							---	---	7.0	6.5
3	14.0	13.5							---	---	7.0	6.5
4	14.0	13.5							---	---	7.0	6.5
5	14.0	13.5							---	---	7.0	6.5
6	14.0	13.5							---	---	7.0	6.5
7	13.5	13.5							---	---	7.0	6.5
8	13.5	13.5							---	---	7.0	6.5
9	13.5	13.5							---	---	7.0	6.5
10	13.5	13.5							6.5	6.0	7.0	6.5
11	13.5	13.5							6.5	6.0	7.0	6.5
12	13.5	13.0							6.5	6.0	7.0	6.5
13	13.5	13.0							6.5	6.5	6.5	6.5
14	13.0	13.0							6.5	6.5	7.0	6.5
15	---	---							6.5	6.5	7.0	6.5
16	---	---							6.5	6.0	7.0	6.5
17	---	---							6.5	6.0	7.0	6.5
18	---	---							6.5	6.0	7.0	6.5
19	---	---							6.0	6.0	7.0	7.0
20	---	---							6.5	6.0	7.5	7.0
21	---	---							6.5	6.0	7.5	7.0
22	---	---							6.5	6.0	7.5	7.0
23	---	---							6.5	6.0	7.5	7.0
24	---	---							6.5	6.0	7.5	7.0
25	---	---							6.5	6.0	8.0	7.5
26	---	---							6.5	6.5	7.5	7.0
27	---	---							6.5	6.5	7.5	7.0
28	---	---							6.5	6.5	---	---
29	---	---							6.5	6.5	---	---
30	---	---							---	---	7.5	7.5
31	---	---							---	---	8.0	7.5
MONTH	---	---							---	---	---	---

14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.5	8.0	9.0	8.5	10.5	10.0	12.0	11.0	13.5	13.0	14.0	13.5
2	8.0	8.0	9.5	9.0	11.0	10.0	12.0	11.5	13.5	12.5	14.0	13.5
3	8.0	7.5	9.5	9.0	11.0	10.0	12.0	11.5	13.5	13.0	14.0	13.5
4	8.5	7.5	9.5	9.0	10.5	10.0	12.5	11.5	13.5	12.5	14.0	13.5
5	8.5	8.0	9.5	9.0	10.5	10.0	12.5	11.5	13.5	13.0	14.0	13.5
6	8.0	8.0	9.5	9.0	10.5	10.0	12.5	11.5	13.5	13.0	14.0	13.5
7	8.0	8.0	9.5	9.0	---	10.0	12.5	11.5	13.5	13.0	14.0	13.5
8	8.5	7.5	9.5	8.5	10.5	10.0	12.5	11.5	13.5	13.0	14.0	13.5
9	8.0	7.5	9.5	9.0	10.5	10.0	12.5	11.5	13.5	13.0	14.0	13.5
10	8.0	8.0	9.5	9.0	11.0	10.0	12.5	11.5	13.5	13.0	14.0	13.0
11	8.0	8.0	9.5	9.0	11.0	10.0	12.5	12.0	13.5	13.0	14.0	13.0
12	8.5	8.0	10.0	9.0	11.0	10.0	12.5	12.0	13.5	13.0	14.0	13.0
13	8.5	7.5	10.0	9.5	11.0	10.0	12.5	12.0	13.5	13.0	14.0	13.0
14	8.5	7.5	10.0	9.5	11.5	---	12.5	12.0	13.5	13.0	14.0	13.0
15	8.5	8.0	10.0	9.0	11.5	10.5	12.5	12.0	14.0	13.0	---	13.5
16	9.0	8.0	10.0	9.0	11.5	10.5	13.0	12.0	14.0	13.0	14.0	13.0
17	9.0	8.5	10.0	9.0	11.5	10.5	12.5	12.0	14.0	13.5	14.0	13.5
18	8.5	8.0	10.0	9.5	11.5	10.5	12.5	12.0	14.0	13.5	14.0	13.5
19	8.5	8.0	10.0	9.5	11.5	10.5	13.0	12.0	14.0	---	14.0	13.5
20	8.0	8.0	10.0	9.5	11.0	11.0	13.0	12.0	14.0	13.5	13.5	13.5
21	8.5	8.0	10.5	10.0	11.0	11.0	13.0	12.0	14.0	13.5	14.0	13.0
22	8.5	8.0	10.5	9.5	11.5	10.5	13.0	12.5	14.0	13.5	13.5	13.0
23	8.0	8.0	10.0	9.5	11.5	11.0	13.0	12.5	14.0	13.5	13.5	13.0
24	9.0	8.0	10.0	9.5	11.5	11.0	13.0	12.5	14.0	13.0	13.5	13.0
25	8.5	8.0	10.0	9.5	11.5	11.0	13.5	12.5	14.0	13.5	13.5	13.0
26	8.5	8.5	11.0	10.0	11.5	11.0	13.0	12.5	14.0	13.5	13.5	13.0
27	9.0	8.5	10.5	10.0	12.0	11.0	13.0	12.5	14.0	13.5	13.5	13.0
28	8.5	8.5	10.5	10.0	11.5	11.0	13.0	12.5	14.0	13.5	13.5	---
29	9.0	8.5	11.0	10.0	12.0	11.0	13.5	12.5	14.0	13.0	13.5	---
30	9.0	8.5	10.5	10.0	12.0	11.0	13.5	12.5	14.0	13.5	13.5	---
31	---	---	11.0	10.0	---	---	13.0	12.5	14.0	13.5	---	---
MONTH	9.0	7.5	11.0	8.5	---	---	13.5	11.0	14.0	---	---	---

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.--Records excellent except those for period of no gage-height record, Feb. 26 to Apr. 9, which are poor. No regulation or diversion above 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 (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 30	0930	ice jam	a*3.22	Feb. 13	0930	b*376	2.35

Minimum, 32 ft^3/s Oct. 29, 30.

a Ice jam.
b From rating curve extended above 170 ft^3/s.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	38	56	89	78	72	86	61	151	123	77	47
2	39	41	54	80	74	70	82	80	139	134	76	46
3	39	55	48	234	71	70	78	87	134	136	74	45
4	38	94	46	328	69	68	74	84	150	133	71	45
5	38	55	45	251	68	68	72	78	196	133	70	49
6	38	130	45	189	66	66	70	74	173	126	68	65
7	37	77	46	164	65	66	68	70	160	105	65	58
8	37	63	47	154	64	68	65	70	142	100	64	52
9	37	58	47	133	63	75	64	79	128	102	64	48
10	36	72	58	119	61	80	64	80	117	102	65	46
11	35	84	54	105	61	90	61	93	113	104	63	45
12	35	68	51	94	148	100	63	133	117	103	63	45
13	35	62	68	86	341	100	61	142	125	99	61	44
14	35	57	97	79	234	110	62	182	125	95	60	43
15	35	76	128	72	180	120	67	143	144	96	58	42
16	35	84	102	65	147	125	77	120	153	101	57	41
17	35	105	85	60	124	130	80	108	133	104	56	41
18	35	93	75	55	111	125	77	104	125	100	57	40
19	35	88	68	52	100	130	75	115	127	91	55	39
20	33	79	58	52	96	145	72	159	138	88	53	42
21	33	69	45	55	95	160	69	139	141	86	53	41
22	43	63	40	58	87	150	69	130	123	80	52	42
23	43	59	40	57	83	140	69	186	123	82	52	44
24	37	111	35	101	80	130	69	152	146	91	51	42
25	36	100	35	159	77	120	68	145	153	95	51	41
26	34	81	40	127	74	125	65	236	160	89	50	40
27	33	74	40	110	72	115	62	201	197	83	49	40
28	33	70	45	101	72	110	60	179	173	81	48	39
29	32	64	60	94	72	100	59	211	190	77	47	38
30	35	60	160	88	---	95	58	248	134	76	47	38
31	38	---	110	83	---	90	---	191	---	77	49	---
TOTAL	1123	2230	1928	3494	2933	3213	2066	4080	4330	3092	1826	1328
MEAN	36.2	74.3	62.2	113	101	104	68.9	132	144	99.7	58.9	44.3
MAX	43	130	160	328	341	160	86	248	197	136	77	65
MIN	32	38	35	52	61	66	58	61	113	76	47	38
CFSM	1.73	3.55	2.97	5.40	4.82	4.97	3.29	6.30	6.88	4.76	2.81	2.12
IN.	2.00	3.96	3.43	6.21	5.21	5.71	3.67	7.25	7.69	5.49	3.24	2.36
AC-FT	2230	4420	3820	6930	5820	6370	4100	8090	8590	6130	3620	2630

CAL YR 1983	TOTAL	36744	MEAN	101	MAX	582	MIN	32	CFSM	4.82	IN.	65.28	AC-FT	72880
WTR YR 1984	TOTAL	31643	MEAN	86.5	MAX	341	MIN	32	CFSM	4.13	IN.	56.21	AC-FT	62760

NOTE.--No gage-height record Feb. 26 to Apr. 9.

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. Altitude of gage is 1,600 ft, from topographic map.

REMARKS.--Records good. No regulation. Some diversion for irrigation and Warm Springs water supply.

AVERAGE DISCHARGE.--10 years, 99.0 ft^3/s, 17.74 in/yr, 71,730 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 above base 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)
Feb. 13	1100	*436	*4.88	No other peak greater than base discharge.			

!Minimum, 32 ft^3/s Dec. 23, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	52	68	207	131	123	115	81	172	131	83	60
2	52	53	66	161	121	121	110	97	155	144	84	58
3	51	62	64	217	115	111	105	108	149	146	81	57
4	51	90	62	318	110	107	103	104	157	147	78	57
5	49	77	60	276	107	104	100	98	202	139	76	57
6	49	121	61	240	102	102	97	91	192	146	77	75
7	49	105	61	220	101	101	94	85	177	117	73	67
8	49	78	63	210	99	102	95	85	162	110	72	64
9	49	69	64	185	98	111	94	93	147	109	71	61
10	49	73	73	166	95	121	96	96	134	112	70	58
11	48	99	74	152	93	126	92	98	127	110	71	57
12	48	84	69	133	133	125	97	148	127	114	69	57
13	48	75	85	120	400	133	94	158	139	108	68	57
14	48	69	138	108	331	138	91	195	136	103	66	56
15	46	78	178	94	289	144	95	170	153	102	67	55
16	47	92	142	91	258	147	106	142	170	109	66	55
17	46	103	114	83	228	155	110	124	149	113	66	54
18	46	102	98	75	208	138	110	119	137	112	66	54
19	46	98	89	70	190	135	106	125	137	100	65	53
20	46	99	80	70	182	149	99	170	152	96	64	55
21	46	84	68	70	185	182	93	162	159	96	63	55
22	48	76	55	75	166	170	92	141	139	88	63	54
23	62	70	45	90	158	162	93	190	130	88	63	58
24	52	99	40	130	153	156	93	173	151	95	62	56
25	49	128	40	280	145	144	90	154	165	105	62	55
26	48	100	50	223	133	150	87	228	169	102	60	54
27	46	88	70	192	126	140	84	216	199	91	60	55
28	45	82	100	174	123	134	82	189	190	89	59	55
29	45	77	120	163	120	125	80	206	200	84	58	54
30	48	74	220	151	---	118	79	245	157	81	58	54
31	50	---	228	140	---	118	---	211	---	83	59	---
TOTAL	1508	2557	2745	4884	4700	4092	2882	4502	4733	3370	2100	1717
MEAN	48.6	85.2	88.5	158	162	132	96.1	145	158	109	67.7	57.2
MAX	62	128	228	318	400	182	115	245	202	147	84	75
MIN	45	52	40	70	93	101	79	81	127	81	58	53
CFSM	.64	1.12	1.17	2.08	2.14	1.74	1.27	1.91	2.08	1.44	.89	.75
IN.	.74	1.25	1.35	2.40	2.31	2.01	1.41	2.21	2.32	1.65	1.03	.84
AC-FT	2990	5070	5440	9690	9320	8120	5720	8930	9390	6680	4170	3410

CAL YR 1983	TOTAL	47366	MEAN	130	MAX	460	MIN	40	CFSM	1.72	IN.	23.25	AC-FT	93950
WTR YR 1984	TOTAL	39790	MEAN	109	MAX	400	MIN	40	CFSM	1.44	IN.	19.53	AC-FT	78920

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 September 1984. Prior to October 1983, published as "at Hehe Mill near Warm Springs."

GAGE.--Water-stage recorder. Datum of gage is 2,533.78 ft 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.--Records excellent. No regulation or diversions.

AVERAGE DISCHARGE.--6 years (water years 1950-54, 1984) 182 ft^3/s, 23.10 in/yr, 131,900 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 above base 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)
Jan. 25	2030	385	3.58	Feb. 13	1600	*439	*3.74

Minimum daily, 100 ft^3/s Dec. 23-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	127	132	150	234	202	246	205	197	147	134	125
2	126	127	132	160	223	203	240	220	193	145	134	125
3	125	128	130	170	214	196	234	223	190	144	133	125
4	125	133	128	190	206	191	231	215	194	143	134	124
5	125	129	130	199	201	189	231	210	196	142	133	128
6	125	139	133	195	196	188	227	205	198	141	133	136
7	125	131	131	189	194	188	221	200	195	141	133	130
8	125	126	132	185	190	189	224	201	190	140	133	127
9	126	126	135	180	190	197	221	202	186	140	132	125
10	126	132	144	177	186	204	238	202	182	139	133	125
11	125	130	139	174	184	211	225	206	177	138	132	125
12	125	127	135	170	210	212	238	215	177	138	132	125
13	125	127	157	166	374	224	229	216	183	137	132	124
14	125	129	190	163	362	239	221	222	177	137	130	123
15	125	131	170	160	333	241	224	217	171	136	129	123
16	125	137	160	140	309	244	227	212	167	136	129	122
17	125	139	150	130	276	246	228	209	165	136	129	122
18	125	144	140	130	260	237	229	204	163	135	129	121
19	125	147	130	120	247	236	227	203	162	135	128	122
20	125	164	120	110	244	245	223	207	162	135	128	123
21	125	139	110	110	242	273	218	205	166	135	128	121
22	128	133	110	110	228	268	217	205	165	135	127	125
23	126	133	100	120	221	263	219	227	160	134	127	127
24	124	158	100	212	222	258	217	214	157	134	127	123
25	125	148	100	339	219	263	213	216	155	134	125	122
26	124	138	100	339	206	286	208	231	154	134	125	122
27	123	137	110	309	200	270	202	215	153	134	125	121
28	123	136	120	286	198	266	199	208	151	134	125	121
29	123	134	140	272	196	259	197	207	151	133	125	121
30	129	137	160	258	---	252	199	208	149	133	125	121
31	127	---	160	246	---	253	---	204	---	135	125	---
TOTAL	3881	4066	4128	5859	6765	7193	6673	6534	5186	4260	4014	3724
MEAN	125	136	133	189	233	232	222	211	173	137	129	124
MAX	129	164	190	339	374	286	246	231	198	147	134	136
MIN	123	126	100	110	184	188	197	200	149	133	125	121
CFSM	1.17	1.27	1.24	1.77	2.18	2.17	2.07	1.97	1.62	1.28	1.21	1.16
IN.	1.35	1.41	1.44	2.04	2.35	2.50	2.32	2.27	1.80	1.48	1.40	1.29
AC-FT	7700	8060	8190	11620	13420	14270	13240	12960	10290	8450	7960	7390

WTR YR 1984 TOTAL 62283 MEAN 170 MAX 374 MIN 100 CFSM 1.59 IN. 21.65 AC-FT 123500

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 September 1984.

GAGE.--Water-stage recorder. Elevation of gage is 3,380 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Dec. 25	0700	ice jam	*6.23	Feb. 13	1000	*175	5.81
Jan. 4	0900	138	5.63				

Minimum, 42 ft^3/s Oct. 4, 7, 15, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	52	69	86	74	67	70	71	104	77	49	48
2	46	52	67	85	72	66	68	78	101	75	49	48
3	45	54	66	115	72	63	67	80	100	72	47	47
4	46	60	65	132	70	62	66	78	104	69	48	47
5	46	55	65	120	70	61	67	77	109	68	48	50
6	45	66	66	113	70	61	66	75	110	65	48	56
7	45	62	67	107	70	61	65	73	107	62	48	51
8	45	58	68	102	70	62	66	73	105	61	48	49
9	45	58	69	98	70	64	66	74	100	57	48	48
10	45	63	76	96	69	66	69	77	96	57	47	48
11	45	63	71	93	69	67	67	80	91	57	47	48
12	45	62	70	87	93	67	72	87	89	56	47	48
13	44	62	91	84	146	69	70	92	89	56	47	47
14	44	60	101	80	111	72	69	98	88	55	48	49
15	45	63	98	80	94	73	70	96	86	55	48	48
16	45	66	90	75	87	72	71	91	88	54	48	48
17	45	78	82	70	82	72	70	88	90	52	47	48
18	45	80	77	70	79	70	70	87	88	52	47	48
19	45	80	73	75	77	71	70	84	85	52	47	48
20	45	84	71	70	75	74	70	91	84	52	47	48
21	45	77	70	73	75	79	70	93	88	52	46	48
22	51	72	65	80	73	78	70	92	89	52	47	49
23	48	71	60	85	71	78	70	101	87	51	47	51
24	46	87	55	120	71	77	70	101	86	49	47	49
25	45	85	55	120	70	75	70	100	85	50	47	49
26	44	79	58	95	67	80	69	113	84	49	47	49
27	46	76	62	85	66	76	67	111	84	49	47	48
28	47	74	70	80	65	74	66	108	83	49	46	48
29	48	71	74	78	64	73	66	109	82	49	46	48
30	52	71	93	76	---	70	66	116	80	49	47	48
31	52	---	93	74	---	72	---	112	---	47	47	---
TOTAL	1426	2041	2257	2804	2242	2172	2053	2806	2762	1750	1467	1459
MEAN	46.0	68.0	72.8	90.5	77.3	70.1	68.4	90.5	92.1	56.5	47.3	48.6
MAX	52	87	101	132	146	80	72	116	110	77	49	56
MIN	44	52	55	70	64	61	65	71	80	47	46	47
CFSM	1.72	2.54	2.72	3.38	2.88	2.62	2.55	3.38	3.44	2.11	1.76	1.81
IN.	1.98	2.83	3.13	3.89	3.11	3.01	2.85	3.89	3.83	2.43	2.04	2.03
AC-FT	2830	4050	4480	5560	4450	4310	4070	5570	5480	3470	2910	2890

WTR YR 1984 TOTAL 25239 MEAN 69.0 MAX 146 MIN 44 CFSM 2.57 IN. 35.03 AC-FT 50060

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 September 1984.

GAGE.--Water-stage recorder. Elevation of gage is 2,260 ft, from topographic map.

REMARKS.--Records excellent. No regulation or diversions above station.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 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)
Jan. 24	1630	*1,150	*5.19	Feb. 13	1530	809	4.58

Minimum daily, 39 ft^3/s many days in October, August, and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	41	50	100	204	145	147	93	81	53	42	39
2	40	42	49	200	180	144	137	97	78	51	42	39
3	40	42	49	350	166	135	131	96	77	51	42	39
4	40	44	48	450	153	128	128	92	81	50	42	39
5	40	43	48	360	145	124	127	89	85	50	42	39
6	40	46	49	310	136	122	121	86	83	49	42	44
7	39	45	49	238	131	120	115	83	84	49	40	42
8	40	43	48	209	127	120	113	81	78	49	40	41
9	40	42	54	181	127	130	111	82	76	48	40	40
10	40	44	69	164	122	143	125	82	74	48	40	40
11	39	47	90	152	119	154	119	85	71	46	40	39
12	40	44	80	133	149	148	139	85	70	45	40	39
13	40	43	110	116	575	164	132	84	73	45	40	39
14	40	44	318	101	447	198	117	86	77	45	40	39
15	40	46	264	83	376	200	112	85	71	44	40	39
16	40	54	140	80	361	200	113	83	67	44	40	39
17	40	58	97	75	265	180	111	82	66	44	40	39
18	40	58	82	70	233	180	111	80	64	44	40	39
19	40	58	73	73	211	220	111	80	63	43	40	39
20	40	76	66	72	215	260	105	81	63	43	40	39
21	40	58	57	74	225	260	101	80	64	43	40	39
22	41	52	50	80	189	240	99	80	64	43	40	39
23	41	51	45	116	175	220	98	95	61	43	40	42
24	40	83	40	765	174	200	96	87	59	43	39	40
25	39	69	40	839	180	200	96	87	58	43	40	40
26	39	59	40	594	158	220	93	102	57	42	39	40
27	39	55	45	421	150	190	88	90	56	42	39	39
28	39	57	50	348	143	170	85	87	54	42	39	39
29	39	54	100	302	138	167	83	86	54	42	39	39
30	42	53	200	262	---	156	87	87	54	42	39	39
31	42	---	150	232	---	154	---	85	---	42	39	---
TOTAL	1239	1551	2650	7550	5974	5392	3351	2678	2063	1408	1245	1188
MEAN	40.0	51.7	85.5	244	206	174	112	86.4	68.8	45.4	40.2	39.6
MAX	42	83	318	839	575	260	147	102	85	53	42	44
MIN	39	41	40	70	119	120	83	80	54	42	39	39
CFSM	.28	.36	.59	1.68	1.42	1.20	.77	.60	.47	.31	.28	.27
IN.	.32	.40	.68	1.94	1.53	1.38	.86	.69	.53	.36	.32	.30
AC-FT	2460	3080	5260	14980	11850	10700	6650	5310	4090	2790	2470	2360

WTR YR 1984 TOTAL 36289 MEAN 99.2 MAX 839 MIN 39 CFSM .68 IN. 9.31 AC-FT 71980

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. Altitude of gage is 1,400 ft, from topographic map.

REMARKS.--Records excellent. No regulation. Diversions above station.

AVERAGE DISCHARGE.--12 years, 457 ft^3/s, 11.80 in/yr, 331,100 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 above base 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)
Jan. 24	2200	*3,300	5.88	Feb. 13	1800	2,370	4.87

Minimum, 261 ft^3/s Aug. 24, 27-31, Sept. 4-5, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	279	289	338	448	752	609	678	515	578	368	278	267
2	279	291	332	416	697	623	646	552	549	357	275	266
3	279	292	325	457	662	599	627	571	529	348	273	265
4	278	302	316	1020	634	581	618	557	533	342	273	263
5	277	305	317	1060	612	566	617	540	563	338	272	261
6	278	318	330	911	591	560	603	528	576	329	272	296
7	275	330	327	786	581	555	586	511	575	323	272	292
8	275	309	328	731	569	555	586	504	551	319	270	283
9	278	302	347	671	570	586	579	508	530	318	270	275
10	276	312	375	631	560	611	601	515	511	312	269	271
11	275	329	422	611	540	640	604	524	487	310	268	268
12	275	316	406	565	579	634	617	549	471	308	268	270
13	275	310	495	524	1640	656	631	568	478	301	268	269
14	275	304	1010	487	1620	743	590	593	484	298	268	268
15	271	315	1080	408	1270	760	584	608	459	297	268	268
16	270	329	664	390	1210	761	587	583	443	292	267	269
17	272	362	519	380	962	960	588	551	437	289	266	266
18	272	382	450	380	869	766	593	539	427	287	266	265
19	269	381	423	390	806	739	592	532	418	284	265	265
20	268	445	394	394	787	743	580	550	418	283	265	270
21	268	398	360	400	825	841	562	567	427	283	269	268
22	274	357	340	428	745	831	556	556	442	284	270	268
23	284	343	330	458	700	787	553	606	421	282	268	284
24	275	410	330	1460	689	762	552	617	406	282	264	280
25	272	437	330	2370	699	738	547	588	399	281	265	274
26	272	396	340	1730	657	792	535	657	394	284	265	272
27	273	366	340	1290	630	776	519	642	394	275	262	269
28	271	360	380	1090	613	738	507	610	387	275	262	267
29	272	351	479	977	600	712	504	598	378	275	262	268
30	286	350	486	884	---	683	506	609	377	277	263	263
31	290	---	560	811	---	684	---	616	---	280	264	---
TOTAL	8533	10291	13473	23558	22669	21591	17448	17564	14042	9381	8307	8130
MEAN	275	343	435	760	782	696	582	567	468	303	268	271
MAX	290	445	1080	2370	1640	960	678	657	578	368	278	296
MIN	268	289	316	380	540	555	504	504	377	275	262	261
CFSM	.52	.65	.83	1.44	1.49	1.32	1.11	1.08	.89	.58	.51	.52
IN.	.60	.73	.95	1.67	1.60	1.53	1.23	1.24	.99	.66	.59	.57
AC-FT	16930	20410	26720	46730	44960	42830	34610	34840	27850	18610	16480	16130

CAL YR 1983	TOTAL	208414	MEAN	571	MAX	3620	MIN	268	CFSM	1.09	IN.	14.74	AC-FT	413400
WTR YR 1984	TOTAL	174987	MEAN	478	MAX	2370	MIN	261	CFSM	.91	IN.	12.38	AC-FT	347100

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 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.--Water-discharge records excellent except those for period of ice effect, which are fair. No regulation. Diversions above station for irrigation.

AVERAGE DISCHARGE.--67 years, 429 ft^3/s, 310,800 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 above base 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)
Jan. 4	1730	*3,240	*5.97	Jan. 25	2330	1,910	4.70

Minimum, 117 ft^3/s Oct. 5, 10-12, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	142	260	450	814	554	714	474	580	332	161	133
2	127	146	251	400	752	555	681	535	544	323	155	129
3	127	159	241	959	701	531	655	535	517	310	151	129
4	128	186	225	2820	663	509	641	484	547	302	149	126
5	127	198	218	1990	636	492	639	460	595	292	148	124
6	125	239	232	1540	613	482	612	446	571	284	149	153
7	122	225	223	1330	597	476	589	432	591	270	143	178
8	121	192	222	1180	575	478	596	432	583	260	141	181
9	121	183	279	1020	569	504	568	436	556	252	145	159
10	119	201	411	907	547	555	585	432	521	237	148	139
11	117	234	408	842	530	614	557	480	495	235	146	135
12	120	198	334	758	644	602	584	568	473	232	143	136
13	122	183	658	682	1190	629	586	584	478	230	139	131
14	122	181	841	622	1260	695	555	629	500	226	136	127
15	123	207	727	519	1160	728	592	580	469	210	137	127
16	122	273	558	400	1120	748	638	529	458	201	139	127
17	125	325	454	380	954	830	625	496	431	199	144	128
18	128	319	400	380	861	772	615	487	415	198	145	127
19	127	296	366	380	795	792	628	488	398	187	144	127
20	126	344	327	390	777	897	607	534	410	177	140	133
21	124	281	270	400	773	1090	581	512	455	176	137	128
22	127	242	230	430	718	1070	566	488	461	173	136	125
23	148	230	220	506	672	1030	553	599	411	169	136	155
24	127	333	210	1060	671	983	532	547	406	168	134	144
25	123	355	200	1700	665	921	514	531	403	167	136	139
26	124	286	210	1630	610	1010	489	645	397	175	138	134
27	124	294	230	1320	580	943	474	602	393	164	138	130
28	123	350	280	1180	565	887	455	587	387	156	134	129
29	124	308	450	1070	551	830	441	620	375	155	127	129
30	135	286	700	966	---	779	436	704	357	158	130	128
31	147	---	540	885	---	752	---	645	---	156	130	---
TOTAL	3902	7396	11175	29096	21563	22738	17308	16521	14177	6774	4379	4090
MEAN	126	247	360	939	744	733	577	533	473	219	141	136
MAX	148	355	841	2820	1260	1090	714	704	595	332	161	181
MIN	117	142	200	380	530	476	436	432	357	155	127	124
AC-FT	7740	14670	22170	57710	42770	45100	34330	32770	28120	13440	8690	8110

CAL YR 1983	TOTAL	195629	MEAN	536	MAX	3730	MIN	117	AC-FT	388000
WTR YR 1984	TOTAL	159119	MEAN	435	MAX	2820	MIN	117	AC-FT	315600

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 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.--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.--80 years, 5,865 ft^3/s, 4,249,000 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, 16,500 ft^3/s Jan. 3, gage height, 5.51 ft; minimum, 4,400 ft^3/s Oct. 8, Sept. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5580	6600	6960	7610	8470	7880	11400	9760	7590	6450	4870	4770
2	5570	6930	7420	7490	8250	7840	11300	9850	6450	5800	4810	4780
3	5550	7030	7400	9510	8190	8330	11200	9870	6220	5470	4870	4770
4	5460	7070	7120	15400	8110	8300	11800	9840	6270	5480	4910	4740
5	5120	7240	7140	14000	8050	8260	11800	9780	6070	5410	4900	5040
6	4810	7230	6730	11800	7960	7660	11600	9720	5900	5340	4910	5240
7	4760	7370	6260	11000	7940	7500	11300	9690	5930	5340	4900	5540
8	4570	6250	6190	10500	7920	7490	11300	8900	6440	5270	4890	5700
9	4570	5930	7130	10000	7910	7540	11300	8540	7110	5260	4870	5130
10	4590	6200	8460	9800	7630	7680	11300	8310	7550	5100	4840	4780
11	4570	6430	9150	9530	7480	7800	11400	7560	7330	5020	4830	4800
12	4570	6420	8630	9320	7510	7820	11500	6980	6900	4880	4850	4800
13	4620	6350	8490	9110	8830	7860	11500	6960	6390	4860	4880	4560
14	4540	6250	9400	8740	12100	8190	11400	7080	6340	5020	4790	4500
15	4570	5870	12100	8360	10900	9130	11300	7990	6770	5010	4740	4500
16	4590	5900	9980	8210	10800	10600	11400	8390	6770	5000	4760	4630
17	4600	5620	9200	7450	10300	12200	11400	8340	6510	4980	4800	5480
18	4540	6180	8860	7170	9830	12600	11400	8110	6390	4820	4840	6170
19	4680	6460	8650	7230	10300	12400	11500	8360	5540	4800	4840	6150
20	4880	6510	7570	6830	10200	12500	10700	8430	5400	4890	4880	6130
21	4960	6500	6460	6770	10300	13200	10400	8510	5490	4930	4710	6170
22	5410	6260	7310	6790	10300	13200	10300	8540	6230	4930	4650	5980
23	5820	6180	7900	7060	9800	12800	10300	8650	6650	4930	4690	5370
24	5810	6350	7820	7670	9390	11900	10200	8260	6970	4920	4770	5180
25	5790	6650	7920	10300	9130	11600	10100	7590	7100	4900	4770	5160
26	5740	6440	8010	10300	8970	11800	9930	6770	6320	4890	4760	5130
27	5680	6260	8130	9190	8820	12000	9810	6610	6200	4950	4740	5090
28	5040	6310	7560	8730	8340	12200	9740	6510	6580	5240	4810	5050
29	5930	6230	6500	8420	8130	12500	9720	6450	6560	5400	4800	5130
30	6570	6200	7250	8190	---	12200	9730	7380	6580	5390	4760	5130
31	6590	---	7650	8520	---	11500	---	8560	---	5370	4760	---
TOTAL	160080	193220	245350	281000	261860	314480	328030	256290	194550	160050	149200	155600
MEAN	5164	6441	7915	9065	9030	10140	10930	8267	6485	5163	4813	5187
MAX	6590	7370	12100	15400	12100	13200	11800	9870	7590	6450	4910	6170
MIN	4540	5620	6190	6770	7480	7490	9720	6450	5400	4800	4650	4500
AC-FT	317500	383300	486700	557400	519400	623800	650600	508400	385900	317500	295900	308600

CAL YR 1983	TOTAL	2730360	MEAN	7480	MAX	16600	MIN	4050	AC-FT	5416000
WTR YR 1984	TOTAL	2699710	MEAN	7376	MAX	15400	MIN	4500	AC-FT	5355000

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 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (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)
NOV											
15...	1400	5880	130	8.3	9.5	11.8	K4	K710	42	0	7.9
JAN											
10...	1440	10000	135	8.1	7.0	12.0	K8	230	47	0	9.6
MAR											
07...	1500	7500	139	8.2	9.0	12.8	<1	38	46	0	9.5
MAY											
02...	1415	9860	163	8.2	11.5	12.2	21	75	54	0	12
JUN											
28...	0935	6490	124	8.3	17.5	10.3	22	92	44	0	9.5
AUG											
15...	1312	4850	126	8.6	19.0	10.6	--	K370	43	0	8.8

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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV											
15...	5.3	9.7	2.1	61	2.7	2.7	.10	.080	.10	.60	.12
JAN											
10...	5.5	11	2.0	67	4.4	2.4	.10	.060	.19	<.20	.21
MAR											
07...	5.5	11	2.0	66	3.9	2.3	.10	.050	<.10	<.20	.15
MAY											
02...	5.8	11	2.2	72	4.5	2.5	.20	.030	.12	.30	.15
JUN											
28...	4.9	9.5	1.9	62	4.0	2.0	.10	.010	<.10	.30	.15
AUG											
15...	5.0	9.7	1.8	61	3.6	2.0	.10	.040	<.10	.30	.12

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

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
NOV										
15...	.040	.060	27	97	94	1540	1.2	9	143	63
JAN										
10...	.060	.100	29	101	100	2730	7.4	61	1650	--
MAR										
07...	.060	.060	30	101	100	2050	4.8	13	263	--
MAY										
02...	.080	.080	30	107	110	2850	11	21	559	52
JUN										
28...	.040	.070	27	94	96	1650	3.9	15	263	--
AUG										
15...	.040	.060	26	90	94	1180	2.6	4	52	--

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)
NOV										
15...	10	1	15	<.5	<1	1	<3	<1	16	<1
MAR										
07...	70	1	15	<.5	<1	3	<3	<1	40	<1
MAY										
02...	100	<1	17	<.5	<1	<1	<3	3	55	<1
AUG										
15...	10	<1	11	1.0	<1	<1	<3	1	11	<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)
NOV										
15...	18	1	<.1	<10	1	<1	<1	43	14	5
MAR										
07...	<4	<1	<.1	<10	<1	<1	<1	51	11	7
MAY										
02...	6	2	<.1	<10	1	<1	<1	61	11	8
AUG										
15...	<4	3	<.1	<10	<1	<1	<1	47	11	6

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 mi^2, 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.--Water-discharge records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--106 years, 193,800 ft^3/s, 140,400,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since 1858), 1,240,000 ft^3/s June 6, 1894, elevation, 106.5 ft; minimum (since 1878), 12,100 ft^3/s Apr. 16, 1968 (due to closure of John Day dam, recorded by AVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 396,000 ft^3/s June 27; maximum elevation, 82.6 ft May 16, 24; minimum daily discharge, 89,000 ft^3/s Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116000	112000	219000	123000	230000	185000	241000	319000	382000	370000	149000	119000
2	97800	111000	226000	139000	239000	199000	220000	282000	382000	327000	145000	124000
3	113000	122000	186000	153000	225000	218000	245000	300000	357000	271000	147000	101000
4	122000	127000	165000	175000	179000	225000	243000	282000	368000	255000	115000	114000
5	135000	130000	233000	186000	172000	195000	226000	244000	357000	296000	104000	103000
6	117000	126000	211000	205000	233000	193000	240000	271000	334000	269000	114000	122000
7	111000	128000	196000	208000	230000	205000	266000	269000	343000	262000	166000	122000
8	98000	142000	188000	208000	229000	212000	246000	294000	333000	265000	184000	126000
9	89000	147000	180000	227000	236000	198000	239000	267000	310000	207000	151000	102000
10	114000	141000	154000	210000	228000	184000	272000	336000	312000	195000	141000	110000
11	132000	137000	121000	197000	226000	203000	276000	340000	308000	200000	141000	130000
12	168000	126000	175000	198000	185000	225000	252000	293000	320000	202000	126000	150000
13	114000	126000	180000	200000	203000	235000	301000	273000	353000	207000	139000	127000
14	109000	124000	173000	204000	232000	212000	250000	322000	341000	204000	152000	115000
15	114000	117000	176000	206000	252000	258000	249000	379000	353000	191000	143000	125000
16	123000	134000	190000	231000	209000	257000	298000	383000	375000	211000	145000	122000
17	121000	150000	196000	238000	205000	258000	285000	363000	387000	210000	159000	130000
18	139000	164000	182000	236000	213000	242000	331000	355000	391000	187000	124000	135000
19	131000	177000	231000	216000	219000	221000	339000	357000	392000	194000	142000	125000
20	129000	150000	214000	254000	204000	199000	325000	325000	386000	176000	123000	127000
21	136000	177000	246000	181000	204000	215000	369000	338000	387000	165000	129000	118000
22	95100	199000	220000	166000	236000	248000	346000	356000	370000	158000	154000	117000
23	91400	198000	218000	205000	226000	268000	348000	371000	378000	140000	149000	91900
24	114000	167000	187000	202000	243000	271000	345000	382000	364000	138000	151000	114000
25	120000	167000	153000	202000	208000	250000	348000	376000	355000	147000	149000	118000
26	108000	161000	148000	228000	156000	218000	344000	335000	368000	146000	129000	135000
27	101000	140000	170000	218000	209000	256000	345000	295000	396000	174000	136000	117000
28	123000	156000	177000	200000	210000	271000	294000	317000	382000	186000	132000	125000
29	126000	187000	180000	187000	212000	248000	278000	340000	380000	147000	136000	122000
30	118000	225000	182000	200000	---	251000	301000	361000	373000	142000	159000	90500
31	113000	---	151000	198000	---	263000	---	390000	---	162000	120000	---
TOTAL	3638300	4468000	5828000	6201000	6253000	7083000	8662000	10115000	10837000	6404000	4354000	3577400
MEAN	117400	148900	188000	200000	215600	228500	288700	326300	361200	206600	140500	119200
MAX	168000	225000	246000	254000	252000	271000	369000	390000	396000	370000	184000	150000
MIN	89000	111000	121000	123000	156000	184000	220000	244000	308000	138000	104000	90500
AC-FT	7217000	8862000	11560000	12300000	12403000	14049000	17181000	20063000	21495000	12702000	8636000	7096000

CAL YR 1983	TOTAL	79686000	MEAN	218300	MAX	426000	MIN	89000	AC-FT	158057000		
WTR YR 1984	TOTAL	77420700	MEAN	211500	MAX	396000	MIN	89000	AC-FT	153564000		

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 mi^2.

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 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.--Records excellent. No regulation. Dee Irrigation District canal diverts from right bank about 6 mi above station for irrigation above station and in Middle Fork Basin. Diversions from Green Point Creek basin above station for irrigation near Oak Grove; water from two of these diversions is carried in Hood River Irrigation District canal.

AVERAGE DISCHARGE.--53 years (water years 1914, 1933-84), 559 ft^3/s, 405,000 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 ft^3/s Dec. 23, 1964; minimum, 93 ft^3/s Aug. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 25	0630	*3,910	*7.52				

Minimum, 128 ft^3/s Oct. 9-17, 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	181	544	469	665	597	632	572	629	389	228	180
2	137	207	492	486	606	679	598	911	587	373	220	165
3	136	576	446	2330	565	643	570	960	558	356	208	156
4	141	840	440	2700	531	584	554	769	668	351	202	152
5	140	595	435	1950	502	546	537	730	776	348	201	183
6	135	1330	425	1540	494	522	513	665	722	342	196	276
7	132	840	420	1310	480	510	624	616	779	310	188	332
8	132	618	520	1130	459	531	714	609	792	295	189	305
9	130	527	650	912	452	590	642	616	822	290	196	231
10	132	616	840	891	452	708	746	635	735	282	199	191
11	130	656	770	921	480	748	685	794	651	277	193	194
12	130	563	740	794	1580	933	831	824	599	273	191	205
13	129	544	1450	697	2290	1020	786	800	563	267	182	178
14	134	616	1850	620	1590	1220	737	841	544	260	176	169
15	131	992	1270	555	1200	1250	800	745	539	260	172	164
16	128	1170	940	518	982	1110	772	685	506	269	173	162
17	135	1480	752	502	814	1030	711	625	469	273	178	159
18	134	1450	642	477	713	1050	685	587	453	263	182	157
19	130	1240	567	430	646	1270	661	622	438	244	174	157
20	132	1310	502	401	628	1510	637	799	465	237	166	165
21	130	926	470	385	651	1830	595	673	631	235	163	155
22	245	730	420	542	592	1490	587	661	565	229	164	183
23	190	644	400	769	594	1240	584	969	508	231	166	191
24	160	1090	360	2130	615	1040	540	830	484	245	161	163
25	151	1010	360	3090	601	962	508	832	459	283	158	156
26	145	830	360	1940	550	1310	476	1070	456	257	158	153
27	141	886	370	1380	515	1030	450	909	497	230	172	148
28	137	847	380	1130	500	933	439	831	453	222	170	143
29	137	725	410	970	488	822	430	864	483	216	156	142
30	157	622	480	836	---	737	444	866	428	217	159	143
31	197	---	529	741	---	680	---	725	---	224	164	---
TOTAL	4456	24661	19234	33546	21235	29125	18488	23635	17259	8548	5605	5458
MEAN	144	822	620	1082	732	940	616	762	575	276	181	182
MAX	245	1480	1850	3090	2290	1830	831	1070	822	389	228	332
MIN	128	181	360	385	452	510	430	572	428	216	156	142
AC-FT	8840	48920	38150	66540	42120	57770	36670	46880	34230	16950	11120	10830

CAL YR 1983	TOTAL	216570	MEAN	593	MAX	6130	MIN	128	AC-FT	429600
WTR YR 1984	TOTAL	211250	MEAN	577	MAX	3090	MIN	128	AC-FT	419000

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 mi^2.

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 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.--Records good. Some daily fluctuation caused by diversion dam above station and sawmill at Dee. Diversions for irrigation above station.

AVERAGE DISCHARGE.--24 years (water years 1898-99, 1914, 1916-17, 1966-84), 1,090 ft^3/s, 789,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ft^3/s Dec. 13, 1977, gage height, 15.59 ft; minimum recorded, 136 ft^3/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 ft^3/s, from rating curve extended above 1,500 ft^3/s on basis of slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 3	1900	5,620	8.26	Feb. 12	1830	4,900	7.82
Jan. 25	0800	*5,940	*8.45				

Minimum, 288 ft^3/s Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	356	509	908	841	1330	1180	1250	1090	1310	781	550	339
2	352	536	851	867	1230	1250	1190	1540	1240	777	532	315
3	353	915	804	3660	1160	1190	1140	1580	1190	736	495	303
4	373	1480	763	4540	1110	1100	1120	1320	1340	730	480	292
5	368	925	757	3240	1070	1050	1100	1260	1520	734	484	333
6	357	1960	749	2590	1050	1020	1050	1170	1400	736	464	573
7	345	1300	722	2250	1030	999	1170	1110	1430	653	419	671
8	343	1050	768	2030	995	1020	1320	1110	1430	619	422	662
9	340	908	824	1730	986	1090	1200	1130	1440	595	452	561
10	334	977	1210	1650	972	1240	1380	1140	1310	569	482	440
11	326	1020	1180	1670	1010	1310	1250	1420	1200	558	466	403
12	326	887	1030	1470	2540	1500	1500	1520	1130	555	464	401
13	327	855	2060	1320	3780	1680	1410	1460	1090	546	413	358
14	339	894	2630	1200	2740	1920	1330	1570	1060	532	373	344
15	339	1400	1960	1090	2200	1990	1450	1390	1080	532	351	344
16	334	1700	1540	1030	1920	1820	1430	1290	1050	562	343	346
17	344	1980	1260	961	1650	1740	1320	1200	975	589	387	349
18	344	1950	1120	913	1490	1720	1280	1160	936	582	405	352
19	338	1700	1020	877	1380	1980	1240	1210	887	535	360	361
20	341	1840	917	843	1360	2330	1190	1510	901	514	328	397
21	338	1300	786	834	1380	2780	1130	1300	1100	513	312	368
22	526	1070	714	1040	1260	2350	1130	1250	1020	487	316	390
23	469	989	653	1260	1240	2070	1130	1790	933	471	325	440
24	407	1560	600	3120	1290	1840	1070	1540	934	498	309	450
25	390	1450	610	4800	1250	1730	1020	1510	914	582	297	390
26	383	1210	630	3110	1150	2160	960	1970	905	595	299	370
27	395	1250	640	2270	1100	1830	918	1710	983	529	348	360
28	418	1240	660	1970	1060	1690	906	1580	944	500	343	350
29	417	1100	688	1780	1030	1530	888	1660	1010	487	301	350
30	465	997	760	1600	---	1400	908	1750	869	487	315	350
31	552	---	880	1450	---	1320	---	1510	---	512	316	---
TOTAL	11639	36952	30694	58006	41763	49829	35380	43750	33531	18096	12151	11962
MEAN	375	1232	990	1871	1440	1607	1179	1411	1118	584	392	399
MAX	552	1980	2630	4800	3780	2780	1500	1970	1520	781	550	671
MIN	326	509	600	834	972	999	888	1090	869	471	297	292
AC-FT	23090	73290	60880	115100	82840	98840	70180	86780	66510	35890	24100	23730

CAL YR 1983	TOTAL	412342	MEAN	1130	MAX	10600	MIN	326	AC-FT	817900
WTR YR 1984	TOTAL	383753	MEAN	1049	MAX	4800	MIN	292	AC-FT	761200

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 mi^2, 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, 78.48 ft May 15; minimum, 72.14 ft July 10.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	76.80	75.96	76.39	76.02	74.97	75.44	76.39	73.94	75.57	76.15	74.52	75.02
2	76.58	75.76	76.28	75.71	74.66	75.08	76.80	73.89	75.63	75.61	74.65	75.22
3	76.86	75.54	76.42	75.48	74.29	74.81	76.64	75.26	75.98	76.54	74.36	75.09
4	76.74	76.03	76.40	75.73	74.46	75.10	76.78	74.87	75.98	77.42	75.19	76.47
5	76.81	75.92	76.36	75.75	74.80	75.15	77.01	74.29	75.95	77.07	75.58	76.21
6	76.67	75.53	76.24	75.87	74.38	75.11	76.41	73.37	74.67	76.72	74.10	75.43
7	76.67	75.73	76.28	75.90	74.96	75.57	76.15	73.79	75.25	77.01	74.42	75.79
8	76.69	75.67	76.16	76.43	75.28	75.87	76.61	73.51	75.23	77.25	74.11	75.55
9	76.84	75.81	76.42	76.61	75.32	75.97	76.35	73.74	75.11	77.49	74.61	76.15
10	76.66	75.47	76.19	76.69	75.83	76.26	76.82	73.97	75.27	77.21	74.21	75.86
11	76.60	75.51	76.09	76.59	74.58	75.55	76.57	75.02	75.56	76.90	74.49	75.34
12	76.51	75.48	76.09	76.55	75.01	75.93	76.97	73.23	75.32	76.70	73.77	75.08
13	76.04	74.73	75.53	76.46	74.79	75.63	77.26	74.86	76.25	76.71	74.58	75.66
14	76.11	74.96	75.58	76.20	74.97	75.63	77.24	74.67	75.90	76.71	75.65	76.14
15	76.42	75.71	75.96	76.17	74.72	75.38	76.85	74.66	75.96	76.52	74.82	75.75
16	76.20	73.78	74.75	76.19	74.43	75.17	76.67	74.61	75.70	76.40	74.87	75.70
17	76.20	74.70	75.18	77.12	75.30	76.24	77.12	75.19	75.95	76.79	74.99	75.92
18	76.18	75.41	75.86	77.09	75.20	76.44	76.52	73.99	75.25	76.94	75.17	76.34
19	76.33	74.96	75.60	77.27	76.17	76.72	77.06	74.63	75.55	76.57	74.37	75.47
20	76.42	74.83	75.53	76.63	74.70	75.69	77.30	74.35	76.04	77.60	74.92	76.44
21	76.28	75.19	75.70	76.14	73.76	74.78	77.06	74.15	75.74	77.10	75.42	76.35
22	76.12	75.34	75.82	75.40	73.87	74.64	77.04	74.33	75.71	76.98	75.59	76.22
23	75.95	75.15	75.60	76.17	73.86	74.94	76.77	73.64	75.43	76.81	74.05	75.64
24	75.86	74.80	75.38	76.10	73.75	74.72	75.83	73.19	74.35	77.13	74.81	76.24
25	75.87	74.87	75.36	76.68	74.59	75.62	75.05	72.67	73.54	77.08	74.11	75.80
26	75.70	74.61	75.15	76.61	74.80	75.79	76.56	74.97	75.53	77.08	74.52	75.69
27	76.19	75.56	75.90	76.09	74.18	74.93	76.45	74.97	75.63	76.89	74.89	75.70
28	76.37	75.55	76.07	75.70	73.32	74.80	76.55	74.93	75.84	76.01	75.30	75.73
29	76.25	75.18	75.71	75.85	73.40	74.67	76.00	73.62	74.98	76.54	75.97	76.24
30	76.29	75.32	75.79	76.32	73.67	74.89	75.68	73.17	74.55	76.53	74.44	75.75
31	76.20	75.29	75.72	---	---	---	76.25	73.71	75.06	76.22	73.78	74.82
MONTH	76.86	73.78	75.86	77.27	73.32	75.42	77.30	72.67	75.43	77.60	73.77	75.77

14128600 COLUMBIA RIVER AT STEVENSON, WA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	77.03	74.79	75.83	76.54	74.10	75.34	76.81	75.17	75.89	77.99	76.56	77.32
2	75.94	74.24	75.03	76.85	74.48	75.67	77.14	75.31	76.08	78.08	75.80	77.03
3	76.68	74.14	75.67	77.13	74.70	76.00	77.85	76.66	77.15	77.93	75.89	76.97
4	76.58	74.50	75.65	76.83	75.81	76.30	76.97	75.35	76.11	77.10	75.52	76.27
5	76.55	74.91	75.70	76.72	75.13	75.82	77.58	75.53	76.74	76.23	75.69	76.02
6	76.76	75.47	76.11	76.34	75.01	75.87	78.03	76.73	77.37	76.87	75.67	76.29
7	77.10	75.63	76.51	76.06	73.69	74.74	77.14	75.48	76.41	77.31	75.54	76.36
8	77.15	74.73	75.85	76.45	75.14	75.78	77.52	75.15	76.10	77.54	75.54	76.49
9	78.08	75.06	76.31	76.35	75.43	75.92	77.35	75.39	76.64	76.97	74.73	75.92
10	77.24	73.95	75.41	76.82	76.23	76.57	77.50	76.08	76.76	77.19	75.83	76.53
11	76.98	73.53	75.16	76.67	75.82	76.22	77.50	76.24	76.74	77.66	76.09	76.88
12	76.69	74.74	75.73	76.91	75.54	76.32	76.83	74.78	75.92	77.73	76.22	76.83
13	76.63	74.06	75.37	76.68	75.35	76.03	77.93	76.63	77.40	77.33	75.83	76.67
14	76.71	74.83	75.58	76.53	75.62	75.99	77.51	76.33	77.00	77.76	76.09	76.81
15	76.72	74.52	75.66	77.53	75.40	76.70	77.62	76.68	77.09	78.48	76.83	77.45
16	76.82	74.62	75.76	77.68	76.20	77.11	77.69	77.05	77.39	78.32	76.83	77.56
17	77.16	74.91	76.12	77.45	76.65	77.07	77.39	76.04	76.52	78.27	76.63	77.41
18	76.87	74.94	75.92	77.36	75.44	76.52	77.59	76.22	76.96	78.00	76.44	77.25
19	76.77	75.40	76.10	77.30	75.29	76.49	77.75	76.22	77.01	77.60	76.53	77.18
20	76.61	74.52	75.72	77.02	75.66	76.20	77.43	76.53	77.01	78.06	75.96	76.90
21	77.35	74.44	76.05	77.51	74.69	75.88	77.83	76.61	77.13	77.67	76.10	76.99
22	77.56	74.87	76.38	77.55	76.34	76.97	77.41	76.56	76.98	77.34	76.30	76.94
23	76.90	75.24	76.07	77.64	76.41	77.25	77.14	76.50	76.87	78.12	75.94	76.99
24	76.40	75.05	75.79	77.55	76.73	77.13	77.72	77.04	77.46	78.01	76.30	77.21
25	76.69	75.77	76.19	77.88	76.17	77.15	77.48	76.72	77.05	77.64	75.79	76.97
26	76.64	74.53	75.33	77.22	75.20	76.06	77.68	76.87	77.26	77.96	76.17	77.17
27	76.75	73.94	75.04	77.81	75.83	76.58	77.67	76.77	77.12	77.21	75.63	76.63
28	76.50	74.98	75.89	77.47	75.52	76.70	77.61	76.54	77.17	77.30	75.91	76.74
29	76.62	74.81	75.76	78.07	75.92	77.02	77.40	76.42	76.88	77.72	77.16	77.37
30	---	---	---	77.67	76.33	77.07	77.45	75.75	76.66	78.01	75.80	77.07
31	---	---	---	77.09	75.61	76.37	---	---	---	78.33	76.99	77.68
MONTH	78.08	73.53	75.78	78.07	73.69	76.35	78.03	74.78	76.83	78.48	74.73	76.90

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	78.12	76.94	77.61	77.82	76.93	77.48	76.81	74.21	75.31	76.50	76.08	76.32
2	78.13	77.40	77.81	77.40	75.84	76.80	76.69	74.55	75.75	76.62	75.14	75.98
3	77.98	76.95	77.48	77.63	76.24	76.85	76.61	74.67	75.86	76.30	75.08	75.69
4	78.17	77.20	77.53	77.58	77.07	77.35	75.77	74.55	75.14	76.49	74.94	75.53
5	77.92	77.04	77.52	78.09	76.21	77.01	75.89	75.01	75.39	76.60	75.98	76.28
6	77.86	76.85	77.36	77.68	77.02	77.36	76.68	75.57	76.01	76.51	75.67	76.05
7	78.33	76.69	77.39	77.81	76.75	77.33	76.69	74.66	75.70	76.52	75.68	76.01
8	77.84	76.90	77.36	77.12	75.50	76.27	76.35	75.30	75.86	76.08	75.57	75.90
9	77.45	76.50	77.00	76.25	74.36	75.12	75.35	73.59	74.42	76.01	74.94	75.49
10	77.45	76.00	76.93	74.25	72.14	72.91	76.41	74.08	75.27	75.93	74.53	75.19
11	77.30	76.69	77.01	74.63	72.38	73.30	76.81	75.28	75.96	75.94	74.81	75.51
12	77.13	76.02	76.47	75.18	73.10	74.23	76.13	74.91	75.50	75.92	75.62	75.83
13	77.92	76.53	76.89	76.13	73.02	74.69	76.55	75.02	75.73	75.86	75.14	75.60
14	78.03	76.66	77.37	76.98	75.87	76.17	76.73	74.71	75.54	76.34	74.32	75.13
15	77.84	76.15	76.92	76.69	75.18	75.70	77.03	75.08	75.83	76.45	75.78	76.05
16	77.85	77.10	77.45	77.07	76.00	76.54	76.63	75.00	75.84	76.46	75.46	75.84
17	77.57	77.07	77.34	76.78	75.17	76.08	76.61	75.21	75.85	76.26	74.88	75.45
18	77.84	77.32	77.56	76.73	74.50	75.11	76.87	75.27	76.10	76.74	75.52	75.92
19	77.90	77.46	77.65	75.02	72.96	73.95	76.52	76.04	76.28	76.58	75.36	75.89
20	78.07	77.04	77.55	76.80	74.43	75.31	76.02	74.49	75.30	76.36	74.87	75.41
21	77.49	76.89	77.18	76.62	75.00	75.76	76.25	75.26	75.67	76.22	75.40	75.95
22	77.42	76.33	76.85	76.76	74.28	75.45	76.87	74.97	76.01	76.05	74.90	75.40
23	77.16	75.69	76.16	76.86	75.92	76.33	76.99	75.29	76.21	75.87	75.15	75.47
24	77.75	76.38	77.01	76.85	75.22	75.97	76.95	74.40	75.70	75.54	74.96	75.26
25	77.75	76.18	76.83	77.11	74.94	76.03	76.71	74.78	76.00	75.54	74.64	74.99
26	77.37	76.02	76.54	76.78	74.90	76.14	76.77	74.84	75.71	76.11	74.67	75.39
27	77.16	75.73	76.31	77.03	74.58	75.93	76.61	75.01	75.79	75.83	74.99	75.42
28	77.20	75.40	76.47	76.33	74.06	75.39	76.91	74.97	75.92	76.13	74.48	75.34
29	77.24	76.26	76.89	76.96	73.44	74.80	76.46	75.40	76.00	76.44	75.66	76.06
30	77.77	76.73	77.34	76.81	74.28	75.66	76.81	74.78	76.04	76.23	74.84	75.29
31	---	---	---	76.68	74.26	75.53	76.66	75.20	75.96	---	---	---
MONTH	78.33	75.40	77.13	78.09	72.14	75.76	77.03	73.59	75.73	76.74	74.32	75.65
YEAR	78.48	72.14	76.05									

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, 77.13 ft Mar. 29; minimum, 70.79 ft July 10.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	76.34	75.56	75.95	75.66	74.56	75.05	75.36	71.80	74.44	75.64	73.95	74.50
2	76.17	75.33	75.85	75.33	74.20	74.69	76.19	72.15	74.49	75.09	74.12	74.63
3	76.42	75.04	75.94	75.09	73.83	74.29	76.05	74.11	75.12	75.81	73.67	74.46
4	76.40	75.62	75.95	75.26	74.00	74.64	76.13	74.17	75.28	76.35	74.50	75.68
5	76.27	75.41	75.88	75.26	74.29	74.63	75.88	72.41	74.69	76.03	74.44	75.17
6	76.31	75.15	75.82	75.38	73.87	74.62	75.56	71.65	73.43	75.82	72.73	74.35
7	76.34	75.46	75.94	75.43	74.42	75.05	75.38	72.65	74.35	76.07	73.16	74.73
8	76.36	75.41	75.86	75.89	74.79	75.37	75.77	72.43	74.31	76.33	72.83	74.46
9	76.53	75.52	76.13	76.18	74.77	75.46	75.41	72.38	74.18	76.37	73.17	75.00
10	76.28	75.04	75.83	76.25	75.14	75.72	76.27	73.13	74.58	76.19	72.65	74.77
11	76.30	75.03	75.63	76.14	74.01	75.05	75.94	74.36	74.96	75.66	73.04	74.18
12	75.96	74.85	75.43	76.10	74.52	75.46	76.20	72.46	74.61	76.04	72.63	74.13
13	75.74	74.24	75.11	76.00	74.26	75.15	76.44	73.91	75.40	75.83	73.49	74.69
14	75.77	74.55	75.20	75.73	74.43	75.15	76.36	73.61	75.01	75.79	74.60	75.16
15	76.01	75.36	75.58	75.67	74.20	74.87	76.14	73.76	75.13	75.58	73.63	74.70
16	75.76	73.24	74.27	75.69	73.73	74.61	75.84	73.64	74.81	75.37	73.46	74.53
17	75.77	74.18	74.78	76.46	74.60	75.62	76.29	74.29	75.11	75.64	73.77	74.76
18	75.75	74.89	75.38	76.41	74.37	75.71	75.67	72.92	74.36	75.92	74.03	75.23
19	75.92	74.49	75.16	76.49	75.32	75.89	76.31	72.41	74.33	75.53	73.13	74.38
20	75.95	74.35	75.08	75.85	73.94	74.92	76.34	73.35	75.06	76.59	73.54	75.27
21	75.84	74.69	75.24	75.37	72.49	73.74	75.90	72.19	74.39	76.40	74.68	75.62
22	76.00	75.04	75.49	74.49	72.26	73.58	76.35	72.67	74.62	76.32	74.79	75.51
23	75.61	74.84	75.29	75.41	72.57	73.94	75.84	72.18	74.38	75.68	73.09	74.62
24	75.52	74.43	75.02	75.25	72.78	73.84	75.00	72.07	73.33	76.06	73.57	75.16
25	75.52	74.42	74.96	75.92	73.75	74.84	74.51	72.19	73.10	75.90	72.99	74.68
26	75.40	74.22	74.82	75.83	73.95	74.99	76.09	74.41	75.02	75.84	72.99	74.37
27	75.89	75.25	75.59	75.49	73.39	74.21	75.98	73.99	74.88	75.70	73.63	74.45
28	75.99	75.12	75.67	74.94	72.48	74.04	75.89	74.08	75.14	75.23	74.16	74.70
29	75.81	74.68	75.29	75.17	71.65	73.73	75.24	72.69	74.17	75.77	75.03	75.40
30	75.93	74.92	75.39	75.74	71.85	73.66	74.88	72.27	73.68	75.74	72.92	74.82
31	75.80	74.89	75.34	---	---	---	75.76	72.99	74.46	75.22	72.42	73.78
MONTH	76.53	73.24	75.45	76.49	71.65	74.75	76.44	71.65	74.54	76.59	72.42	74.77

COLUMBIA RIVER MAIN STEM

14128860 COLUMBIA RIVER AT BONNEVILLE DAM, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	75.80	73.41	74.66	75.71	73.08	74.45	75.77	73.86	74.56	76.16	74.55	75.38
2	74.50	72.61	73.64	76.17	73.25	74.73	76.00	74.19	75.00	76.69	74.08	75.39
3	76.03	72.45	74.63	76.14	73.57	74.93	76.59	75.28	75.88	76.33	73.71	74.96
4	76.04	73.57	74.95	75.73	74.41	75.18	75.75	73.99	74.83	75.37	73.82	74.56
5	75.96	74.07	74.98	75.73	73.71	74.85	76.62	74.00	75.65	75.05	74.28	74.69
6	75.65	74.23	74.98	75.50	73.63	74.92	76.62	75.37	76.12	75.56	74.09	74.77
7	76.27	74.46	75.49	75.04	72.38	73.69	75.72	73.50	74.86	75.73	73.76	74.78
8	76.13	73.44	74.72	75.43	73.99	74.74	76.48	73.76	74.83	75.85	73.78	74.84
9	77.02	73.74	75.14	75.49	74.42	74.97	76.33	73.57	75.40	75.36	72.86	74.33
10	76.04	72.63	74.19	76.08	75.45	75.81	76.12	73.75	75.18	75.02	73.33	74.22
11	75.91	71.94	73.87	75.89	74.77	75.24	76.07	74.02	75.07	76.02	73.42	74.71
12	75.85	73.70	74.83	75.95	74.16	75.16	75.39	73.42	74.43	76.12	74.33	75.05
13	75.74	72.23	74.14	75.60	73.98	74.76	76.21	75.16	75.73	75.85	74.06	75.09
14	75.72	73.12	74.22	75.57	74.31	74.84	76.10	74.94	75.64	76.10	73.86	74.84
15	75.46	72.88	74.16	76.18	74.11	75.38	76.33	75.35	75.86	76.31	73.87	74.75
16	75.98	73.04	74.64	76.35	74.72	75.73	75.82	75.32	75.62	75.62	73.88	74.77
17	76.30	73.52	75.07	76.09	75.13	75.64	75.38	74.24	74.70	75.67	74.13	74.80
18	75.77	73.75	74.81	75.98	73.84	75.17	75.67	74.30	74.83	75.45	74.20	74.82
19	75.77	74.01	74.97	76.27	73.87	75.31	75.70	73.40	74.65	75.17	73.77	74.71
20	75.84	73.09	74.68	75.88	74.40	75.10	75.46	74.09	74.94	75.71	74.01	74.77
21	76.31	73.38	75.04	76.15	73.60	74.78	75.28	73.58	74.43	75.36	73.77	74.70
22	76.21	73.67	75.15	76.22	74.87	75.60	74.95	73.75	74.47	75.18	73.43	74.34
23	75.34	73.93	74.81	76.17	74.66	75.70	74.85	73.74	74.45	75.56	73.05	74.22
24	75.15	73.23	74.45	76.29	75.03	75.60	75.78	74.34	75.13	75.21	73.32	74.40
25	75.86	74.40	75.13	76.40	74.63	75.75	75.25	74.10	74.66	74.98	72.68	74.16
26	75.83	73.66	74.48	75.84	73.60	74.81	75.64	74.43	74.91	75.56	74.19	74.77
27	75.99	72.68	74.13	76.43	74.41	75.16	75.47	74.36	74.82	75.68	73.87	74.98
28	75.68	73.92	74.86	75.92	73.60	75.18	76.15	74.80	75.47	75.68	73.79	74.83
29	75.70	73.27	74.69	77.13	74.40	75.66	75.98	74.80	75.31	75.69	74.90	75.17
30	---	---	---	76.59	74.91	75.78	75.85	73.96	74.91	75.53	73.00	74.48
31	---	---	---	75.49	74.03	74.78	---	---	---	75.70	74.19	74.89
MONTH	77.02	71.94	74.67	77.13	72.38	75.14	76.62	73.40	75.08	76.69	72.68	74.75

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	75.50	74.09	74.87	75.50	74.30	74.87	76.21	73.51	74.62	76.01	75.56	75.80
2	75.43	74.59	75.06	75.54	72.96	74.59	76.31	73.72	75.08	76.11	74.59	75.47
3	75.74	74.46	74.99	76.54	74.32	75.39	75.98	73.90	75.18	75.83	74.57	75.21
4	75.69	74.45	74.99	76.46	75.59	76.11	75.10	73.81	74.59	76.05	74.41	75.06
5	75.59	74.30	75.02	76.55	74.37	75.30	75.47	74.47	74.92	76.14	75.46	75.80
6	75.61	74.56	75.16	76.22	75.38	75.94	76.08	74.96	75.50	76.00	75.03	75.52
7	76.03	74.60	75.17	76.50	75.61	76.04	75.91	73.89	74.99	76.01	75.16	75.47
8	75.61	74.74	75.15	75.66	73.65	74.76	75.50	74.12	74.94	75.60	74.96	75.34
9	75.64	74.17	75.17	75.02	72.98	73.89	74.34	72.49	73.60	75.58	74.41	75.00
10	75.60	74.01	74.99	73.07	70.79	71.74	75.89	73.38	74.69	75.54	73.99	74.70
11	75.52	74.73	75.16	73.76	70.90	72.27	76.18	74.68	75.33	75.42	74.19	74.94
12	75.37	74.02	74.38	74.35	72.04	73.24	75.49	74.28	74.91	75.34	74.99	75.16
13	75.20	74.10	74.68	75.35	71.95	73.78	75.89	74.45	75.12	75.48	74.71	75.05
14	75.38	74.32	74.89	76.25	75.07	75.40	76.09	73.96	74.86	75.89	73.91	74.71
15	75.51	73.98	74.64	75.92	74.36	74.90	76.47	74.43	75.22	76.00	75.14	75.53
16	75.53	74.20	74.73	76.26	75.00	75.62	76.03	74.27	75.19	75.96	74.88	75.30
17	74.67	74.13	74.46	75.88	73.59	75.10	75.99	74.47	75.15	75.76	74.30	74.91
18	74.98	74.41	74.68	75.80	72.82	73.99	76.39	74.71	75.56	76.29	74.83	75.35
19	75.05	74.52	74.76	73.95	71.71	72.84	75.88	75.40	75.65	76.05	74.81	75.34
20	75.32	74.09	74.64	76.14	73.60	74.59	75.42	73.89	74.73	75.82	74.18	74.82
21	74.59	73.78	74.21	75.87	74.08	74.94	75.81	74.67	75.13	75.68	74.89	75.40
22	74.56	73.35	73.98	76.30	73.55	74.79	76.26	74.15	75.35	75.66	74.37	74.90
23	74.58	72.66	73.39	76.29	75.36	75.74	76.32	74.56	75.54	75.42	74.62	75.04
24	75.42	73.86	74.51	76.35	74.53	75.37	76.36	73.66	75.03	75.10	74.31	74.75
25	75.46	73.48	74.26	76.43	74.29	75.38	76.02	74.08	75.33	75.02	74.00	74.46
26	74.87	73.13	73.70	76.13	74.09	75.47	76.21	74.28	75.15	75.59	73.99	74.85
27	74.07	72.56	73.18	76.40	73.44	75.11	76.15	74.42	75.18	75.40	74.43	74.92
28	74.18	72.20	73.34	75.44	72.59	74.38	76.38	74.38	75.35	75.76	73.94	74.91
29	74.91	73.14	74.09	76.25	72.74	74.10	75.88	74.75	75.38	75.98	75.19	75.59
30	75.40	73.92	74.83	76.48	73.59	75.04	76.12	74.03	75.35	75.71	74.41	74.81
31	---	---	---	76.12	73.43	74.77	76.18	74.55	75.43	---	---	---
MONTH	76.03	72.20	74.57	76.55	70.79	74.69	76.47	72.49	75.10	76.29	73.91	75.14
YEAR	77.13	70.79	74.89									

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 mi², 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, 30.40 ft June 11, 1981; minimum, 7.00 ft Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 27.54 ft June 28; minimum, 8.78 ft Oct. 17.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.36	9.69	10.66	11.91	10.97	11.35	20.75	15.53	18.65	14.31	12.95	13.47
2	10.56	9.51	9.91	11.94	11.19	11.47	21.24	15.79	18.66	15.09	13.08	14.24
3	11.60	9.56	10.69	14.48	11.29	12.72	18.52	15.50	17.20	16.36	13.12	14.64
4	13.09	10.40	11.66	13.95	12.13	13.12	17.42	15.00	15.97	19.31	14.82	16.98
5	14.13	10.85	12.84	13.84	13.24	13.57	20.29	16.02	18.78	19.41	18.73	19.09
6	12.92	11.08	11.99	14.24	12.21	13.11	20.28	16.35	18.84	19.43	18.43	18.92
7	11.85	9.79	10.99	14.15	13.15	13.63	18.85	15.67	16.97	18.90	18.61	18.78
8	10.67	9.61	10.09	13.95	12.90	13.55	17.71	16.94	17.24	18.97	18.55	18.70
9	10.18	8.96	9.68	14.04	13.49	13.77	18.08	16.36	17.22	19.52	18.17	19.03
10	12.21	9.29	10.84	14.72	13.16	13.87	17.31	15.28	15.97	20.05	17.42	18.65
11	13.57	10.19	12.21	14.75	13.18	13.57	15.38	14.72	15.03	19.68	18.06	18.94
12	16.23	13.20	14.61	13.36	11.85	12.84	16.69	14.50	15.43	18.14	16.88	17.53
13	15.89	9.95	11.80	13.56	11.68	12.81	17.66	16.77	17.14	17.89	16.72	17.47
14	11.56	9.86	10.41	13.36	12.42	13.10	17.76	16.99	17.43	18.05	17.59	17.82
15	11.76	9.97	10.72	14.04	11.60	13.00	17.45	17.20	17.31	18.32	17.84	18.07
16	12.18	11.71	11.89	14.68	11.44	13.66	18.07	17.15	17.56	19.52	18.17	18.93
17	12.56	8.78	10.77	16.24	14.39	15.16	17.97	17.00	17.67	19.85	18.84	19.36
18	13.47	11.56	12.52	17.10	15.70	16.58	17.86	16.87	17.30	20.07	18.61	19.12
19	13.29	11.93	12.31	19.98	16.73	17.54	21.82	16.79	18.96	23.55	18.13	18.81
20	12.78	11.80	12.09	18.50	16.67	17.26	20.71	17.20	18.28	19.53	18.33	19.34
21	12.99	12.49	12.73	18.95	16.82	18.07	20.93	17.87	20.10	18.41	16.04	16.70
22	12.96	9.72	10.65	19.76	17.86	18.32	20.70	17.38	18.93	16.27	15.84	16.02
23	10.47	9.41	9.92	18.63	16.28	17.89	19.20	17.58	18.64	18.98	15.70	17.26
24	11.36	9.60	10.68	17.82	16.15	16.90	19.53	15.14	17.45	19.80	16.59	18.55
25	12.98	10.62	11.64	17.47	16.01	16.78	17.24	12.18	12.76	19.99	17.94	18.88
26	11.63	9.61	10.55	17.38	16.31	16.87	13.19	12.66	12.88	20.35	19.99	20.21
27	10.33	9.42	9.87	16.56	15.30	15.59	16.27	12.90	15.22	20.51	19.33	19.88
28	11.88	10.24	11.23	16.24	14.96	15.52	16.08	14.43	15.50	19.42	16.90	18.60
29	12.17	11.58	11.82	19.61	15.66	16.83	16.28	15.53	15.86	17.96	16.40	17.16
30	12.19	11.09	11.44	20.97	15.85	18.54	17.15	15.56	16.31	19.47	14.14	17.20
31	11.75	10.81	11.27	---	---	---	16.96	14.18	14.91	19.30	15.94	17.60
MONTH	16.23	8.78	11.31	20.97	10.97	14.90	21.82	12.18	16.97	23.55	12.95	17.93

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	19.96	16.03	18.50	18.31	16.29	16.98	21.51	18.89	20.36	23.83	22.89	23.33
2	20.25	19.13	19.73	18.45	16.05	17.44	19.33	18.44	18.80	23.51	21.62	22.34
3	20.33	16.40	18.42	20.07	16.81	18.06	20.53	19.04	20.02	24.07	22.71	23.59
4	16.41	14.73	15.78	20.49	18.46	19.03	20.56	18.80	19.84	23.14	22.20	22.61
5	16.45	14.55	15.19	19.45	16.16	17.82	20.78	16.82	19.00	22.34	19.91	20.95
6	18.76	16.77	18.27	18.61	15.49	17.21	21.04	16.86	19.64	22.33	19.91	21.23
7	18.79	17.00	18.12	17.91	15.81	17.21	22.29	20.70	21.15	22.29	21.05	21.68
8	18.82	17.33	18.33	18.14	17.64	17.92	21.06	19.32	19.99	22.60	20.41	21.88
9	19.15	18.71	19.00	18.22	16.35	17.48	21.39	18.99	19.86	22.70	18.89	21.45
10	19.28	17.61	18.88	16.42	16.04	16.25	23.23	19.83	21.41	25.12	21.92	23.86
11	19.55	17.67	19.10	18.56	16.00	17.27	23.69	21.27	22.26	25.43	22.98	24.35
12	17.62	17.08	17.32	20.50	18.18	18.76	22.69	20.24	21.42	23.64	22.47	23.06
13	20.87	17.11	18.62	19.95	19.06	19.54	23.34	20.49	22.47	22.51	21.31	22.20
14	21.43	19.47	20.59	19.72	17.43	18.97	23.21	20.79	21.45	24.95	21.11	23.12
15	22.26	19.94	21.25	21.08	18.81	20.24	21.85	20.32	20.64	26.94	25.03	26.06
16	21.61	18.17	20.18	21.38	20.54	21.08	23.38	21.66	22.66	27.22	26.46	26.84
17	20.41	17.72	19.24	21.47	21.29	21.37	24.08	22.17	22.96	27.24	25.69	26.51
18	19.32	19.08	19.20	21.47	20.61	20.95	25.27	22.53	23.83	26.89	24.85	25.88
19	20.18	18.42	19.27	20.72	19.55	20.03	25.65	24.46	24.89	26.21	25.42	25.63
20	19.43	17.51	18.52	19.72	18.82	19.18	24.95	23.26	24.11	25.75	23.25	24.49
21	18.90	17.55	18.12	20.69	16.34	18.86	26.24	24.54	25.64	25.64	23.82	24.82
22	21.02	18.61	19.44	21.89	20.10	20.93	26.07	24.91	25.28	26.30	24.51	25.62
23	21.48	19.48	19.95	22.30	20.39	21.94	25.60	23.74	24.83	26.50	26.14	26.30
24	21.08	19.51	20.05	22.47	21.26	22.07	25.79	23.94	24.89	26.90	26.22	26.63
25	20.37	17.76	18.89	21.87	21.09	21.27	25.23	23.81	24.65	27.17	26.15	26.65
26	17.76	16.04	16.79	21.26	18.28	20.11	25.15	24.36	24.81	27.06	23.80	25.98
27	17.61	15.88	16.88	22.06	17.88	20.42	25.03	24.42	24.70	23.51	22.64	22.97
28	19.62	16.88	18.03	22.40	20.38	21.47	24.72	21.90	22.84	24.75	22.57	23.43
29	19.63	17.81	18.49	22.18	19.77	21.02	21.91	21.56	21.73	25.38	24.17	24.76
30	---	---	---	21.86	19.41	20.63	23.41	21.35	22.17	26.38	24.88	25.66
31	---	---	---	22.21	21.29	21.68	---	---	---	27.03	26.38	26.72
MONTH	22.26	14.55	18.63	22.47	15.49	19.46	26.24	16.82	22.28	27.24	18.89	24.21

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.02	26.40	26.82	26.60	25.74	26.28	15.59	14.74	15.08	13.36	12.42	12.72
2	27.04	26.52	26.85	26.39	23.40	24.98	15.15	14.36	14.87	13.56	11.66	12.98
3	26.96	24.79	26.20	23.20	20.08	21.74	15.95	14.48	14.85	12.24	11.16	11.57
4	26.53	24.98	25.93	21.24	19.87	20.30	15.06	11.42	13.07	11.82	11.21	11.47
5	26.71	24.73	26.12	22.58	21.21	21.97	12.16	10.42	11.31	11.94	11.31	11.60
6	25.43	24.45	25.06	22.42	20.40	21.37	13.23	10.49	12.04	13.14	11.38	12.55
7	25.83	24.49	25.13	21.30	18.91	20.59	16.45	12.00	14.93	13.52	12.87	13.20
8	25.83	24.69	25.17	21.73	19.70	21.25	18.87	16.39	17.48	13.66	13.12	13.35
9	25.05	23.82	24.14	20.28	17.56	19.27	18.14	14.75	16.27	13.41	11.49	12.19
10	24.59	23.88	24.24	19.33	15.75	17.61	14.75	12.94	13.64	12.95	11.31	11.76
11	24.47	22.83	23.95	18.26	15.63	16.86	14.86	12.68	14.03	14.46	12.85	13.21
12	25.14	23.91	24.46	18.13	15.86	16.94	14.78	13.25	13.85	15.49	14.35	14.85
13	26.47	23.83	24.75	17.99	15.49	16.73	14.64	13.04	13.87	15.49	11.77	13.93
14	27.09	24.24	25.99	16.74	16.36	16.58	15.48	14.19	14.80	12.01	10.27	11.08
15	25.90	23.69	24.94	16.72	16.31	16.52	15.43	14.02	14.43	13.38	11.48	12.56
16	26.90	25.59	26.32	18.31	15.41	16.80	14.83	14.40	14.62	13.48	12.79	13.13
17	27.09	26.73	26.87	19.49	15.84	17.27	15.45	14.78	15.27	13.47	12.79	13.14
18	27.25	26.68	27.02	19.11	16.86	17.21	15.58	11.66	13.09	14.01	12.96	13.36
19	27.49	26.93	27.05	17.70	15.59	17.03	14.47	11.96	14.22	13.38	12.63	13.04
20	27.30	26.74	27.08	15.61	13.82	14.45	14.71	12.14	13.46	13.27	12.88	13.12
21	27.50	26.70	27.13	15.87	13.87	14.96	13.05	12.24	12.69	13.32	12.38	13.13
22	27.53	26.29	26.92	15.59	12.38	14.01	14.64	12.83	14.38	12.57	11.83	12.19
23	26.80	25.85	26.32	13.40	12.09	12.77	15.96	14.41	14.87	12.61	10.03	11.23
24	26.09	25.70	25.93	13.54	12.15	12.78	15.51	14.59	15.00	13.11	9.76	12.09
25	26.14	25.49	25.85	13.73	12.22	12.95	16.08	14.54	15.22	13.33	12.14	12.75
26	26.84	25.66	26.29	14.33	10.89	13.42	14.58	12.54	13.68	14.03	12.34	13.32
27	27.38	26.76	27.00	16.40	13.46	15.10	16.23	13.45	14.19	14.01	12.70	13.10
28	27.54	26.88	27.18	18.31	15.24	17.26	14.12	13.36	13.72	12.88	11.85	12.23
29	27.42	25.62	26.77	18.16	14.18	15.38	15.09	13.78	14.49	12.96	11.83	12.19
30	26.69	25.74	26.10	16.38	14.16	14.64	15.68	14.79	15.37	12.99	10.73	11.72
31	---	---	---	17.13	14.40	15.79	15.00	11.65	13.18	---	---	---
MONTH	27.54	22.83	25.99	26.60	10.89	17.45	18.87	10.42	14.26	15.49	9.76	12.63
YEAR	27.54	8.78	17.99									

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 1983 TO SEPTEMBER 1984

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE SIUM DIS-SOLVE (MG/L AS MG	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SODIUM, DIS-SOLVED (MG/L AS NA)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT							
04-11	.23	.072	.145	.313	.130	.62	.27
18-25	.04	.013	.014	.034	<.020	.11	.07
25-31	.21	.053	<.008	.119	<.020	.15	.10
NOV							
01-01	.21	.053	<.008	.119	<.020	.15	.10
01-08	2.00	.353	.977	1.110	.040	.11	1.46
08-15	.08	.018	.033	.066	.030	.09	.09
15-22	.04	<.008	.012	.020	<.020	.12	.06
22-29	.50	.101	.055	.196	.030	.31	.15
29-30	.04	.009	<.004	.049	.060	.41	.07
DEC							
01-06	.04	.009	<.004	.049	.060	.41	.07
06-13	.01	<.008	<.003	.027	.060	.35	.10
13-20	.11	.073	.028	.119	.100	.40	.13
20-27	.10	.026	.022	.056	.080	.37	.09
27-31	.16	.040	.048	.088	.220	.47	.16
JAN							
01-03	.16	.040	.048	.088	.220	.47	.16
10-17	.35	.198	.291	1.117	.470	.93	.93
FEB							
14-21	.23	.032	<.007	.110	.130	.87	.15
MAR							
06-13	1.09	.234	.095	.430	.230	2.29	.55
13-20	1.64	.301	.083	.856	.380	1.75	.71
20-27	.16	.029	.071	.094	.080	.27	.15
27-31	.10	.041	.008	.067	.040	.48	.13
APR							
01-03	.10	.041	.008	.067	.040	.48	.13
03-10	.09	.030	.014	.050	.080	.39	.06
24-30	.71	.173	.134	.277	.150	1.37	.35
MAY							
01-01	.71	.173	.134	.277	.150	1.37	.35
08-15	.26	.118	.021	.383	.030	.35	.38
22-29	.18	.081	.010	.120	<.020	.20	.14
29-31	.06	.039	.015	.097	<.020	.13	.11
JUN							
01-05	.06	.039	.015	.097	<.020	.13	.11
05-12	.10	.048	.018	.080	.080	.38	.09
12-19	1.05	.511	.209	1.107	.150	2.47	.81
19-26	.61	.502	1.574	.637	<.150	<.15	1.27
JUL							
17-24	1.58	1.055	.378	2.952	<.080	2.01	1.40
24-31	.75	.427	.108	.812	1.01	6.58	.80
SEP							
18-25	.12	.038	.057	.083	.110	.84	.12

* 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.

CHEMICAL QUALITY OF PRECIPITATION

SILVER LAKE BASIN

430701121040001 SILVER LAKE RANGER STATION, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (UNITS)	PH LAB (UNITS)	PRECIP-ITATION TOTAL INCHES/ WEEK
OCT							
04-11	.42	<.001	5.5	5.9	4.81	6.21	.12
18-25	<.10	<.001	2.9	2.4	5.24	5.68	.43
25-31	.43	.001	3.4	5.5	5.25	6.17	.12
NOV							
01-01	.43	.001	3.4	5.5	5.25	6.17	.12
01-08	1.22	<.001	4.3	25.9	5.41	6.63	.22
08-15	.42	<.001	3.6	2.1	5.20	5.63	.40
15-22	<.10	<.001	4.6	2.0	5.24	5.53	.68
22-29	.51	<.001	--	7.8	--	6.10	.08
29-30	.43	<.001	4.3	4.3	5.10	5.03	1.05
DEC							
01-06	.43	<.001	4.3	4.3	5.10	5.03	1.05
06-13	.51	<.001	4.6	3.0	5.01	5.40	1.41
13-20	.49	<.001	4.0	4.3	5.42	6.27	.38
20-27	.50	<.001	3.9	3.6	4.92	5.39	.93
27-31	.43	<.001	5.9	5.7	5.02	6.12	.13
JAN							
01-03	.43	<.001	5.9	5.7	5.02	6.12	.13
10-17	4.31	<.001	--	20.6	--	6.24	.08
FEB							
14-21	.36	.002	6.5	5.1	4.88	5.75	.24
MAR							
06-13	1.42	<.001	13.2	14.9	4.90	6.40	.08
13-20	1.64	.002	16.7	19.4	5.69	6.68	.33
20-27	.11	<.001	3.5	3.3	5.11	5.85	.46
27-31	.52	.005	5.9	3.9	4.79	5.73	.11
APR							
01-03	.52	.005	5.9	3.9	4.79	5.73	.11
03-10	.34	<.001	8.9	3.5	4.64	5.36	.68
24-30	1.40	.002	10.4	11.4	5.02	6.51	.17
MAY							
01-01	1.40	.002	10.4	11.4	5.02	6.51	.17
08-15	.52	.004	7.1	6.1	4.88	6.23	.14
22-29	.43	.002	5.4	3.4	4.89	6.13	.17
29-31	.37	<.001	3.0	3.0	4.97	5.58	.10
JUN							
01-05	.37	<.001	3.0	3.0	4.97	5.58	.10
05-12	.52	<.001	5.6	3.6	4.78	5.55	.27
12-19	2.46	<.001	--	20.1	--	6.32	.01
19-26	3.67	<.021	--	19.3	--	6.46	.00
JUL							
17-24	3.08	<.004	--	35.3	--	6.95	.00
24-31	3.72	<.003	--	28.9	--	5.65	.02
SEP							
18-25	.69	<.001	9.1	7.4	4.51	4.98	.18

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 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 8 ft above ground level.

REMARKS.--Inches of precipitation obtained from an on-site recording weighing-bucket gage.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SODIUM, DIS-SOLVED (MG/L AS NA)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAR							
06-13	.09	.039	.011	.076	.080	.18	.06
13-20	.03	.008	<.003	.016	.050	.13	<.02
27-31	.14	.060	.014	.101	.040	.48	.18
APR							
01-03	.14	.060	.014	.101	.040	.48	.18
03-10	.04	.011	.009	.027	.050	.21	.07
10-17	.12	.039	.005	.086	.050	.17	.09
17-24	.13	.047	.013	.142	.090	.39	.13
24-30	.24	.043	.030	.120	.090	.73	.18
MAY							
01-01	.24	.043	.030	.120	.090	.73	.18
01-08	.09	.019	.016	.038	.060	.37	.10
08-15	.26	.044	.036	.070	.170	.73	.12
15-22	.53	.151	.034	.174	.320	2.29	.33
22-29	.07	.020	.011	.049	.040	.31	.08
29-31	.06	.017	.016	.028	<.020	.31	.09
JUN							
01-05	.06	.017	.016	.028	<.020	.31	.09
12-19	.15	.040	.077	.077	.160	.64	.13
19-26	.11	.034	.078	.078	.110	.71	.13
26-30	.49	.276	.401	.478	<.070	.30	.51
JUL							
01-03	.49	.276	.401	.478	<.070	.30	.51
17-24	.09	.039	.027	.070	.110	.83	.12
31-31	.17	.027	.067	.043	.350	1.39	.13
AUG							
01-07	.17	.027	.067	.043	.350	1.39	.13
14-21	.98	.399	.290	.874	<.110	2.84	.66
28-31	.06	.014	.041	.042	.090	.90	.11
SEP							
01-04	.06	.014	.041	.042	.090	.90	.11
04-11	1.0	.014	.012	.032	<.020	.16	.05

* 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.

CHEMICAL QUALITY OF PRECIPITATION

GRANDE RONDE RIVER BASIN

451328118304100 STARKEY EXPERIMENTAL STATION, OR--Continued

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (UNITS)	PH LAB (UNITS)	PRECIP-ITATION TOTAL INCHES/ WEEK
MAR							
06-13	.24	<.001	3.9	2.9	5.19	6.18	.23
13-20	<.10	<.001	2.5	2.0	5.32	5.52	.64
27-31	.79	.005	7.8	5.2	4.89	5.56	.28
APR							
01-03	.79	.005	7.8	5.2	4.89	5.56	.28
03-10	.26	<.001	3.4	2.8	5.18	5.41	.82
10-17	.38	.002	3.6	2.7	5.23	5.95	.18
17-24	.54	<.001	4.8	3.9	5.16	5.69	.37
24-30	.58	<.001	7.3	5.7	5.10	5.62	.47
MAY							
01-01	.58	<.001	7.3	5.7	5.10	5.62	.47
01-08	.72	<.001	4.2	3.5	5.17	5.47	.51
08-15	.53	<.001	8.6	5.6	4.96	5.58	.52
15-22	1.04	.002	--	10.9	--	5.60	.06
22-29	.44	<.001	4.8	3.5	5.07	5.34	1.03
29-31	.42	.002	4.6	3.9	5.07	5.15	.88
JUN							
01-05	.42	.002	4.6	3.9	5.07	5.15	.88
12-19	.44	<.001	8.7	4.8	4.83	5.48	.12
19-26	.76	<.001	9.4	8.7	4.75	4.84	.35
26-30	1.62	<.003	--	10.3	--	6.29	.01
JUL							
01-03	1.62	<.003	--	10.3	--	6.29	.01
17-24	.42	<.001	17.0	5.6	4.54	5.14	.16
31-31	.69	<.001	11.5	9.1	4.74	5.01	1.30
AUG							
01-07	.69	<.001	11.5	9.1	4.74	5.01	1.30
14-21	3.55	<.001	--	17.0	--	5.48	<.01
28-31	.74	<.001	11.3	8.7	4.63	4.84	1.73
SEP							
01-04	.74	<.001	11.3	8.7	4.63	4.84	1.73
04-11	.40	<.001	3.4	3.7	5.33	5.26	.65

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station Name	Location	Drainage area (mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (ft^3/s)
		WARNER LAKES BASIN					
10378505	MINERS DRAW NEAR PLUSH, OR (Station discontinued)	Lat 42°29'15", long 119°53'57", in SW¼ sec.33, T.35 S., R.24 E., Lake County, at culvert on Hogback Road, 5.2 miles north of Plush.	15.9	1980-84	12-30-83	12.79	7.4
		KLAMATH RIVER BASIN					
11499495	WEST FORK WHISKEY CREEK NEAR BEATTY, OR (Station discontinued)	Lat 42°22'32", long 121°22'52", in SW¼ sec.11, T.37 S., R.11 E., Klamath County, at culvert on Road No. 4083 in Winema of State Highway 66, and 7.2 miles southwest of Beatty.	4.40	1980-84	5-12-84	15.27	11
		OWYHEE RIVER BASIN					
13177805	TENT CREEK NEAR MCDERMITT, NV (Station discontinued)	Lat 42°02'00", long 117°16'15", in NW¼ sec.12, T.41 S., R.46 E., Malheur County, at culvert on BLM Star Valley access road, 8 miles southwest of Lookout Lake, and 23 miles east of McDermitt.	11.6	1974-84	5-15-84	11.23	220
13182150	LONG GULCH NEAR ROCKVILLE, OR (Station discontinued)	Lat 43°19'17", long 117°11'42", in NW¼NE¼ sec.10, T.26 S., R.45 E., Malheur County, at culvert on Bureau of Land Management Lesle Gulch road, 1.3 miles upstream from Bannock Gulch, and 4 miles west of Rockville.	1.38	1970-79, 1982-84	4- 8-84	9.93	11
		JOHN DAY RIVER BASIN					
14047470	JUNIPER CANYON TRIBUTARY NEAR MIKKALO, OR (Station discontinued)	Lat 45°27'51", long 120°11'54", in SW¼ sec.21, T.1 S., R.21 E., Gilliam County, at culvert on Mikkalo Road, 0.1 mile upstream from mouth, and 1.7 miles east of Mikkalo.	1.94	1972-84	12-10-83	9.90	117

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Discharge measurements at miscellaneous sites during water year 1984

Stream	Tributary to	Location	Drainage area (mi)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
Part 11		KLAMATH RIVER BASIN				
Munson Creek	Annie Creek	Lat 42°52'45", long 122°08'15".	---	1967-68, 1977-83	10-12-83	*7.14
					7- 2-84	70.8
					9-11-84	*8.59
		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, 1960-83	10- 3-83	a683
					12- 1-83	a465
					1- 9-84	a550
					2-23-84	a406
					4-19-84	a442
					5-24-84	a596
					7-10-84	a805
					8- 3-84	a752

* Base flow.
‡ 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.

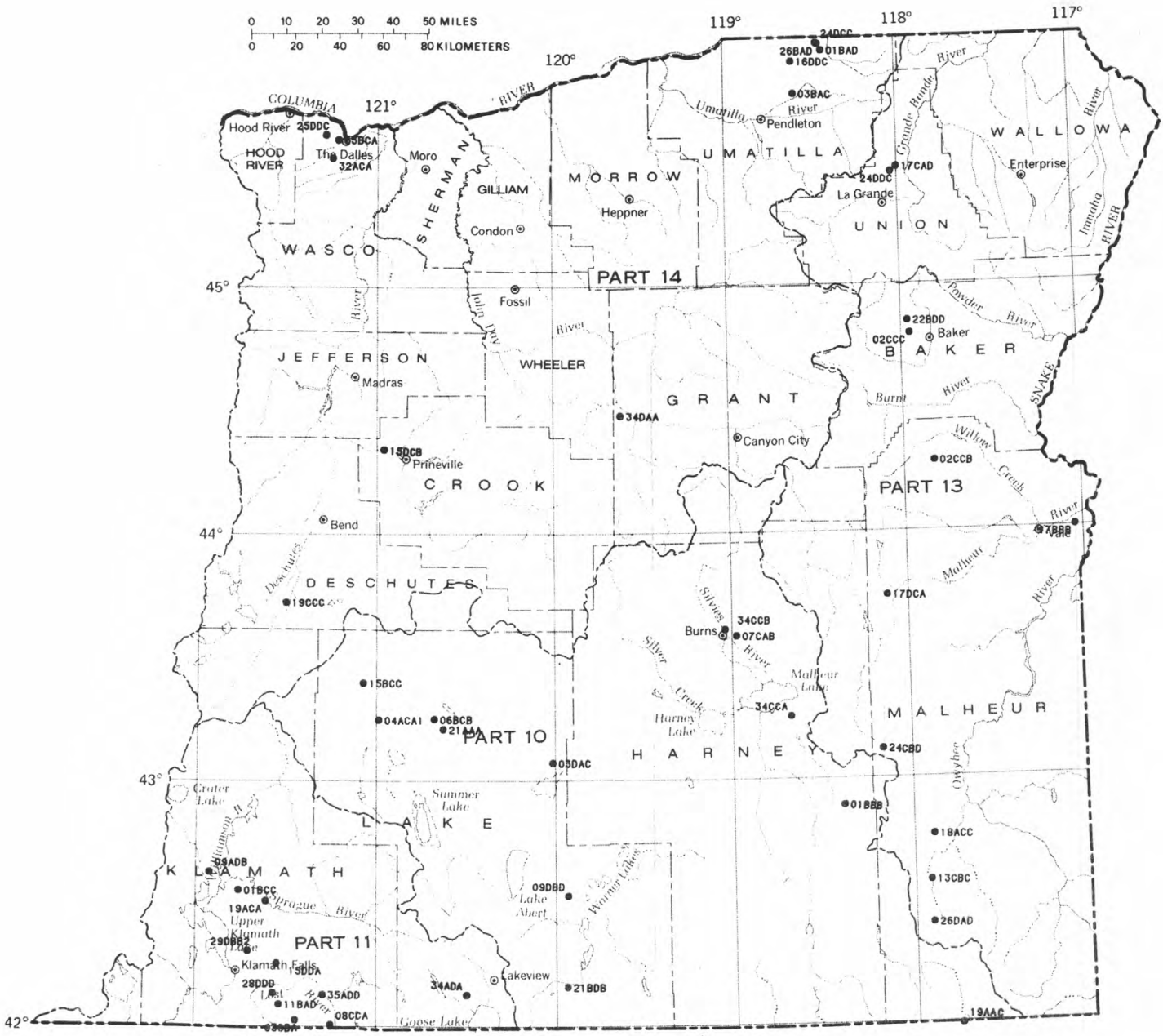


Figure 5. Map of Eastern Oregon showing location of observation wells

BAKER COUNTY

445116117551601. Local number 08S/39E-22BDD.
LOCATION.--Lat 44°51'16", long 117°55'16", Hydrologic Unit 17050203.
Owner: Baker County
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Dug observation well, size 18x18 in, depth 11 ft cribbed with wood to 9 ft, perforated 12-in steel casing 7-11 ft.
DATUM.--Land surface datum is 3,385.78 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of 1¼-in pipe, 0.50 ft above datum.
PERIOD OF RECORD.--1936, 1938 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.90 ft below datum, Feb. 19, 1982; lowest measured, 9.95 ft below datum, Nov. 10, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 3	3.44	MAY 11	2.84	AUG 9	4.79

444813117543401. Local number 09S/39E-02CCC.
LOCATION.--Lat 44°48'13", long 117°54'34", Hydrologic Unit 17050203.
Owner: Warren Spencer.
AQUIFER.--Sand and gravel.
WELL CHARACTERISTICS.--Drilled unused well, diam 12 in, depth 321 ft perforated 0-321 ft.
DATUM.--Altitude of land surface datum is about 3,412 ft. Measuring point: Top of casing, 0.70 ft above datum.
PERIOD OF RECORD.--1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.37 ft below datum, Feb. 17, 1965; lowest measured, 13.95 ft below datum, Jan. 20, 1955.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 3	10.85	FEB 10	10.97	MAY 11	3.35	AUG 9	8.41

CROOK COUNTY

442103120545001. Local number 14S/15E-15DCB.
LOCATION.--Lat 44°21'03", long 120°54'50", Hydrologic Unit 17070305.
Owner: Evert Hibbitts.
AQUIFER.--Sand and gravel.
WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 4 in, depth 210 ft.
DATUM.--Land surface datum is 2,846.8 ft National Geodetic Vertical Datum of 1929. Measuring point: Center of pressure gage, 6.50 ft above datum.
PERIOD OF RECORD.--1944-79, 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.5 ft above datum, Mar. 12, 1964; lowest measured, 34.5 ft above datum, May 13, 1977.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL
MAY 9	+50.82

DESCHUTES COUNTY

434400121275801. Local number 21S/11E-19CCC.
LOCATION.--Lat 43°44'00", long 121°27'58", Hydrologic Unit 17070302.
Owner: Randy Kellems.
AQUIFER.--Sand and gravel.
WELL CHARACTERISTICS.--Dug domestic and stock well, diam 6 in, depth 100 ft, cased to 70 ft.
DATUM.--Altitude of land surface datum is about 4,220 ft. Measuring point: Top of casing, 0.20 ft above datum.
PERIOD OF RECORD.--1945, 1948 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.90 ft below datum, Aug. 14, 1956; lowest measured, 41.63 ft below datum Oct. 23, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

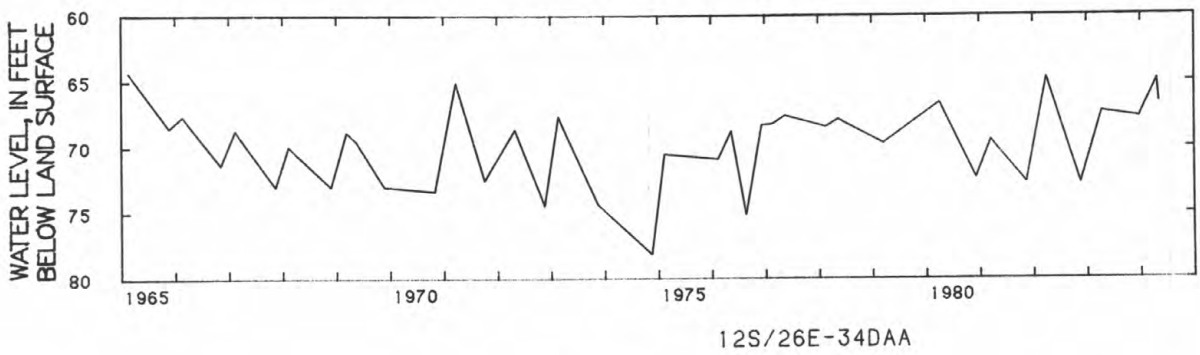
DATE	WATER LEVEL
MAY 17	13.99

GRANT COUNTY

442901119342501. Local number 12S/26E-34DAA.
LOCATION.--Lat 44°29'01", long 119°34'25", Hydrologic Unit 17070201.
Owner: Dayville Cemetery.
AQUIFER.--Tuffaceous sand and gravel.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 6 in, depth 465 ft, cased to 222 ft, perforated 177-222 ft.
DATUM.--Altitude of land surface datum is about 2,340 ft. Measuring point: Top hole in casing seal 1.50 ft below datum.
PERIOD OF RECORD.--1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 64.33 ft below datum, Feb. 19, 1965; lowest measured, 78.14 ft below datum, Nov. 15, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 20	67.73	APR 24	64.87	MAY 5	66.57

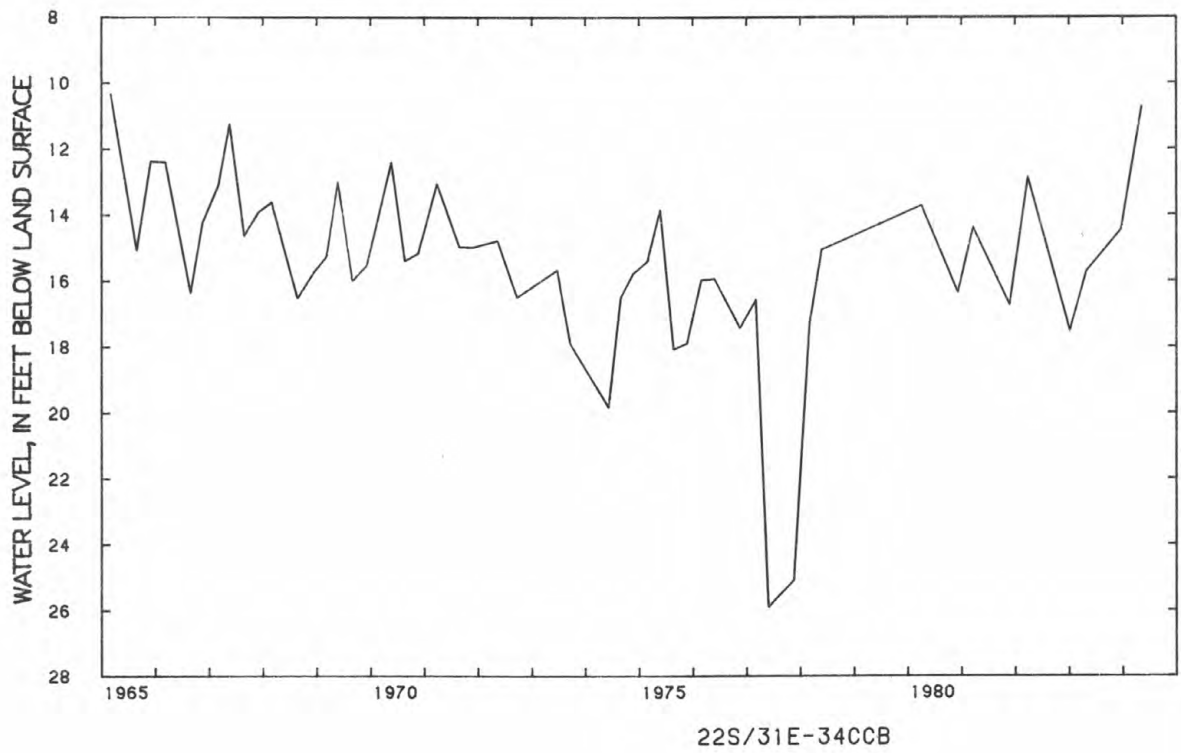


HARNEY COUNTY

433705118595401. Local number 22S/31E-34CCB.
LOCATION.--Lat 43°37'05", long 118°59'54", Hydrologic Unit 17120001.
Owner: Jay Hoyt.
AQUIFER.--Volcanic or sedimentary rock.
WELL CHARACTERISTICS.--Drilled stock well, diam 18 to 8 in, depth 288 ft, cased to 68 ft.
DATUM.--Land surface datum is 4,153.17 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of well cover, 1.00 ft above datum.
PERIOD OF RECORD.--1936 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.50 ft below datum, Apr. 21, 1936; lowest measured, 19.82 ft below datum, June 6, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 18	14.45	MAY 7	10.74



HARNEY COUNTY--Continued

433527118560502. Local number 23S/32E-07CAB.
LOCATION.--Lat 43°35'27", long 118°56'05", Hydrologic Unit 17120001.
Owner: Dorland Ray.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 18 in, depth 93 ft, cased to bottom, perforated 38-86 ft.
DATUM.--Land surface datum is 4,135.24 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.36 ft below datum.
PERIOD OF RECORD.--1928 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.56 ft below datum, May 7, 1984; lowest measured, 38.37 ft below datum, July 30, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 19	4.55	MAY 7	0.56

431551118381001. Local number 26S/33E-34CCA.
LOCATION.--Lat 43°15'51", long 118°38'10", Hydrologic Unit 17120001.
Owner: Davis Farms.
AQUIFER.--Cinders.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 14 in, depth 81 ft, cased to 30 ft.
DATUM.--Altitude of land surface datum is 4,120 ft. Measuring point: Top of casing, 0.50 ft above datum.
PERIOD OF RECORD.--1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.96 ft below datum, Mar. 19, 1984; lowest measured, 23.60 ft below datum, Dec. 15, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 30	18.22	MAR 19	17.96

425437118210601. Local number 31S/35E-01BBB.
LOCATION.--Lat 42°54'37", long 118°21'06", Hydrologic Unit 17120009.
Owner: Fred Pallock.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled domestic well, diam 8 in, depth 32 ft.
DATUM.--Altitude of land surface datum is 4,270 ft. Measuring point: Top of casing, 0.50 ft above datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.06 ft below datum, May 5, 1984; lowest measured, 18.12 ft below datum, Nov. 20, 1963, May 21, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 17	1.89	MAY 5	1.06

KLAMATH COUNTY

423832121524801. Local number 34S/07E-09ADB.
LOCATION.--Lat 42°38'32", long 121°52'48", Hydrologic Unit 18010201.
Owner: State of Oregon.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in, depth 221 ft, cased to 43 ft.
DATUM.--Altitude of land surface datum is 4,220 ft. Measuring point: Bolt above top of casing, 4.84 ft below datum.
PERIOD OF RECORD.--1955-79, 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.25 ft below datum, Dec. 1, 1983; lowest measured, 27.08 ft below datum, Oct. 16, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	18.25	MAY 17	p29.01

423408121430901. Local number 35S/08E-01BCC.
LOCATION.--Lat 42°34'08", long 121°43'09", Hydrologic Unit 18010202.
Owner: H.G. Wolff.
WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in, depth 102 ft.
DATUM.--Altitude of land surface datum is 4,305 ft. Measuring point: Top of casing 0.50 ft above datum.
PERIOD OF RECORD.--1954-80, 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.45 ft below datum, Apr. 8, 1956; lowest mesured, 17.14 ft below datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	13.02	MAY 15	6.07

p Pumping.

423133121340801. Local number 35S/10E-19ACA.
LOCATION.--Lat 42°31'31", long 121°34'08", Hydrologic Unit 18010202.
Owner: Wolfe Butte Ranch.
AQUIFER.--Volcanic rock.
WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in, depth 360 ft, cased to 70 ft.
DATUM.--Altitude of land surface datum is 4,300 ft. Measuring point: Top of casing, 0.50 ft above datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.80 ft below datum, Apr. 20, 1983; lowest measured, 25.55 ft below datum, Jan. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	11.37	MAY 15	21.47

421920121400001. Local number 37S/10E-29DBB2.
LOCATION.--Lat 42°19'20", long 121°40'00", Hydrologic Unit 18010204.
Owner: Edgewood Ranch.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Drilled stock well, diam 18 in, depth 860 ft, cased to 20 ft.
DATUM.--Altitude of land surface datum is 4,186 ft. Measuring point: Top of casing, at datum.
PERIOD OF RECORD.--1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.78 ft below datum, Apr. 17, 1958; lowest measured, 34.56 ft below datum, Nov. 5, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	31.30	MAY 15	30.34

421612121302501. Local number 38S/11X-15DDA.
LOCATION.--Lat 42°16'12", long 121°30'25", Hydrologic Unit 18010204.
Owner: George McCollum.
AQUIFER.--Lava rock and cinders.
WELL CHARCTERISTICS.--Drilled irrigation well, diam 12 in, depth 495 ft.
DATUM.--Altitude of land surface datum is 4,185 ft. Measuring point: Airline hole in pumpbase, 1.05 ft above datum.
PERIOD OF RECORD.--1948, 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 70.36 ft below datum, Dec. 3, 1983; lowest measured, 82.20 ft below datum, Oct. 3, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	70.36	MAY 16	76.33

420908121313701. Local number 39S/11X-28DDD.
LOCATION.--Lat 42°09'08", long 121°31'37", Hydrologic Unit 18010204.
Owner: Lost River Ranch.
AQUIFER.--Diatomite.
WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in, depth 460 ft, cased to 60 ft.
DATUM.--Altitude of land surface datum is 4,105 ft. Measuring point: Top south side of concrete curb, 0.30 ft above datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.50 ft below datum, Aug. 25, 1955; lowest measured, 37.16 ft below datum, July 24, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	11.55	MAY 16	13.5

420844121150801. Local number 39S/12E-35ADD.
LOCATION.--Lat 42°08'44", long 121°15'08", Hydrologic Unit 18010204.
Owner: Quentin Steele.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in, depth 360 ft.
DATUM.--Altitude of land surface datum is 4,180 ft. Measuring point: Top of casing at datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.26 ft below datum, Aug. 5, 1958; lowest measured, 42.80 ft below datum, Apr. 3, 1962.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	37.30	MAY 16	38.22

420632121293601. Local number 40S/11E-11BAD.
LOCATION.--Lat 42°06'32", long 121°29'36", Hydrologic Unit 18010204.
Owner: A. W. Shaupp.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled irrigation and stock well, diam 12 in, depth 992 ft.
DATUM.--Altitude of land surface datum is 4,150 ft. Measuring point: ¼-in hole in top of pumpbase flange, 0.60 ft above datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.38 ft below datum, Apr. 7, 1956; lowest measured, 28.83 ft below datum, July 22, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	18.12	MAY 16	15.95

420232121241201. Local number 41S/12E-03CBA.
LOCATION.--Lat 42°02'32", long 121°24'12", Hydrologic Unit 18010204.
Owner: Al Prescott.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled domestic well, diam 4 in, depth 76 ft.
DATUM.--Altitude of land surface datum is 4,110 ft. Measuring point: Top of casing, 0.30 ft above datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.75 ft below datum, Feb. 18, 1955; lowest measured, 4.56 ft below datum, July 24, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	2.64	MAY 16	2.92

420124121122801. Local number 41S/14E-08CCA.
LOCATION.--Lat 42°01'24", long 121°12'28", Hydrologic Unit 18010204.
Owner: Charles Kilgore.
AQUIFER.--Basalt fragments.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 16 in, depth 210 ft, cased to 8 ft.
DATUM.--Altitude of land surface datum is 4,160 ft. Measuring point: Hole in pumpbase, 1.00 ft above datum.
PERIOD OF RECORD.--1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.84 ft below datum, Jan. 28, 1965; lowest measured, 21.12 ft below datum, Apr. 25, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	16.73	MAY 16	p87.72

p Pumping.

LAKE COUNTY

432435121015001. Local number 25S/14E-15BCC.
LOCATION.--Lat 43°24'35", long 121°01'50", Hydrologic Unit 17120005.
Owner: Leroy Surcamp.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled well, diam 18 in, depth 220 ft.
DATUM.--Altitude of land surface datum is about 4,350 ft. Measuring point: Top of casing, at datum.
PERIOD OF RECORD.--1932, 1935-36, 1938 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.88 ft below datum, Oct 7, 1974; lowest measured, 52.88 ft below datum, Oct. 22, 1948.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 22	45.86	JAN 10	45.68	MAR 18	45.44	JUL 25	49.23

431536120563901. Local number 27S/15E-04ACA1.
LOCATION.--Lat 43°15'36", long 120°56'39", Hydrologic Unit 17120005.
Owner: M. Y. Parks.
AQUIFER.--Basaltic fragments.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 16 in, depth 257 ft, cased to 14 ft.
DATUM.--Altitude of land surface datum is about 4,335 ft. Measuring point: Airline entry, 2.00 ft above datum.
PERIOD OF RECORD.--1932, 1935-36, 1938 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.30 ft below datum, May 15, 1975; lowest measured, 44.11 ft below datum, July 24, 1984.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 22	39.15	JAN 10	38.74	MAR 16	38.34	APR 17	38.18
MAY 24	39.21	JUL 24	44.11				

431547120380201. Local number 27S/18E-06BCB.
LOCATION.--Lat 43°15'47", long 120°38'02", Hydrologic Unit 17120005.
Owner: Rose T. Morici.
AQUIFER.--Sand.
WELL CHARACTERISTICS.--Drilled unused well, diam 8 in, depth 83 ft, cased to 10 ft.
DATUM.--Altitude of land surface datum is about 4,317 ft. Measuring point: Top of casing, 0.50 ft above datum.
PERIOD OF RECORD.--1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.94 ft below datum, Oct. 8, 1974; lowest measured, 25.19 ft below datum, Apr. 1, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 21	16.48	MAR 17	16.40	JUL 18	15.73

431320120350001. Local number 27S/18E-21AAA.
LOCATION.--Lat 43°13'20", long 120°35'00", Hydrologic Unit 17120005.
Owner: Chewaucan Land & Cattle Co.
AQUIFER.--Basalt (?).
WELL CHARACTERISTICS.--Drilled abandoned oil-test well, diam 6-1/2 in, depth 635 ft.
DATUM.--Altitude of land surface datum is about 4,330 ft. Measuring point: Top of casing, at datum.
PERIOD OF RECORD.--1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.41 ft below datum, Apr. 5, 1967; lowest measured, 30.33 ft below datum, July 22, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 21	30.05	JAN 10	29.45	MAR 17	29.05	MAR 23	28.98
MAY 24	29.00	JUL 17	30.23				

430508119582001. Local number 29S/23E-03DAC.
LOCATION.--Lat 43°05'08", long 119°58'20", Hydrologic Unit 17120005.
Owner: U.S. Bureau of Land Management
AQUIFER.--Basalt (?).
WELL CHARACTERISTICS.--Drilled stock well, diam 8 in, depth 177 ft.
DATUM.--Altitude of land surface datum is about 4,225 ft. Measuring point: Top of casing collar, at datum.
PERIOD OF RECORD.--1945, 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.42 ft below datum, July 27, 1965; lowest measured, 19.62 ft below datum, Apr. 23, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL
MAY 14	18.44

423245119532201. Local number 35S/24E-09DBD.
LOCATION.--Lat 42°32'45", long 119°53'22", Hydrologic Unit 17120007.
Owner: U.S. Bureau of Land Management.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled well, diam 8 in, depth 376 ft, cased to 22 ft.
DATUM.--Altitude of land surface datum is 4,470 ft. Measuring point: Top of casing collar, 0.50 ft above datum.
REMARKS.--Hogback well on Rabbit Hills SW quadrangle map.
PERIOD OF RECORD.--1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.76 ft below datum, May 8, 1973; lowest measured, 11.15 ft below datum, July 31, 1979.

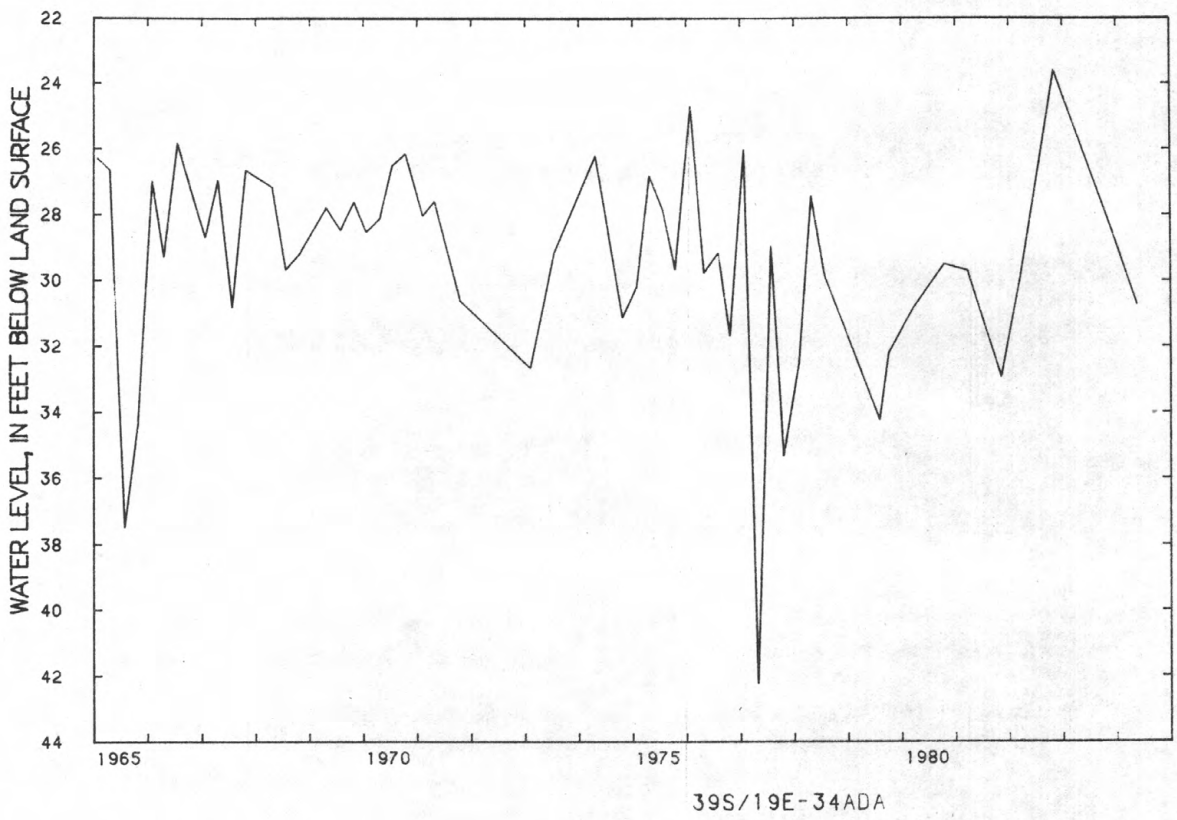
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 30	7.33	MAY 14	6.72

420844120271601. Local number 39S/19E-34ADA.
LOCATION.--Lat 42°08'44", long 120°27'16", Hydrologic Unit 18020001.
Owner: Hilltop Dairy.
WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in, depth 110 ft, cased to 110 ft.
DATUM.--Altitude of land surface datum is 4,792 ft. Measuring point: Top of vent pipe, 2.00 ft above datum.
PERIOD OF RECORD.--1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.61 ft below datum, Nov. 2, 1982; lowest measured, 34.23 ft below datum, July 31, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	28.55	MAY 15	30.72



421036119535201. Local number 39S/24E-21BDB.
LOCATION.--Lat 42°10'36", long 119°53'52", Hydrologic Unit 17120007.
Owner: E.G. & T.M. Sanford
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in, depth 165 ft.
DATUM.--Altitude of land surface datum is about 4,538 ft. Measuring point: Top of casing, 0.50 ft above datum.
PERIOD OF RECORD.--1948 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.00 ft below datum, July 23, 1974; lowest measured, 19.34 ft below datum, Jan. 15, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 30	17.25	MAY 14	17.07

441710117472301. Local number 15S/40E-02CCB.
LOCATION.--Lat 44°17'11", long 117°47'22", Hydrologic Unit 17050119.
Owner: Rankin Crow.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 10 in, depth 310 ft, cased to 170 ft, perforated 80-170 ft.
DATUM.--Altitude of land surface datum is about 3,898.3 ft. Measuring point: Top of port pipe, 1.00 ft above datum.
PERIOD OF RECORD.--1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.06 ft below datum, Mar. 18, 1951; lowest measured, 60.36 ft below datum, Nov. 10, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	50.26	APR 4	44.86

440036117001301. Local number 18S/47E-17BBB.
LOCATION.--Lat 44°00'36", long 117°00'13", Hydrologic Unit 17050115.
Owner: Earl Weaver.
WELL CHARACTERISTICS.--Drilled domestic well, diam 3 in, depth 135 ft, cased to 135 ft.
DATUM.--Altitude of land surface datum is about 2,180 ft. Measuring point: Top of casing, 0.95 ft above datum.
PERIOD OF RECORD.--1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.91 ft below datum, Sept. 9, 1952; lowest measured, 15.15 ft below datum, Aug. 31, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL
DEC 15	8.15

434446118044201. Local number 21S/38E-17DCA.
LOCATION.--Lat 43°44'46", long 118°04'42", Hydrologic Unit 17050116. Formerly lat 43°44'50", long 118°04'40".
Owner: Walter Bodkin.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Dug stock well, diam 12 in, depth 14 ft, cribbed to bottom.
DATUM.--Altitude of land surface datum is about 2,960 ft. Measuring point: Top of concrete tile, at land surface datum.
PERIOD OF RECORD.--1945-56, 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.07 ft below datum, June 23, 1952; lowest measured, 11.37 ft below datum, May 8, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 15	7.33	APR 30	8.38

430722118073601. Local number 28S/37E-24CBD.
LOCATI-Lat 43°07'22", long 118°07'36", Hydrologic Unit 17050110.
Owner: Earl Obenchain.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Dug domestic well, diam 4 ft, depth 30 ft, cribbed with rock to bottom.
DATUM.--Altitude of land surface datum is about 4,120 ft. Measuring point: Top of south side of concrete casing, 1.85 ft above datum.
PERIOD OF RECORD.--1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.95 ft below datum, Mar. 8, 1967; lowest measured, 18.40 ft below datum, Jan. 22, 1955.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 30	11.65	MAR 19	4.64	JUN 12	9.65	SEP 17	15.60

MALHEUR COUNTY--Continued

424639117510501. Local number 32S/40E-18ACC.
LOCATION.--Lat 42°46'39", long 117°51'03", Hydrologic Unit 17050109.
Owner: Clarence J. Eckstein.
AQUIFER.--Volcanic rock.
WELL CHARACTERISTICS.--Drilled domestic and public-supply well, diam 6 in, depth 358 ft, cased to 160 ft.
DATUM.--Altitude of land surface datum is about 3,930 ft . Measuring point: Hole in top of casing, 0.70 ft above datum.
PERIOD OF RECORD.--1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 234.17 ft below datum, Apr. 13, 1983; lowest measured, 243.89 ft below datum, June 4, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	236.40	MAY 4	235.92

423527117522501. Local number 34S/39E-13CBC.
LOCATION.--Lat 42°35'27", long 117°52'25", Hydrologic Unit 17050109.
Owner: Civil Aeronautics Administration.
AQUIFER.--Basalt (?).
WELL CHARACTERISTICS.--Drilled observation well, diam 10 in, depth 246 ft.
DATUM.--Altitude of land surface datum is 4,050 ft. Meauring point: Top of casing, at datum.
PERIOD OF RECORD.--1954-56, 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 193.07 ft below datum, Dec. 16, 1983; lowest measured, 207.20 ft below datum, Sept. 13, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	193.07	MAY 4	194.27

422504117515501. Local number 36S/41E-26DAD.
LOCATION.--Lat 42°25'04", long 117°51'55", Hydrologic Unit 17050109.
Owner: U.S. Bureau of Land Management.
AQUIFER.--Basalt (?).
WELL CHARACTERISTICS.--Drilled unused well, diam 8 in, depth 222 ft.
DATUM.--Altitude of land surface datum is 4,200 ft. Measuring point: Top of casing, 1.00 ft above datum.
PERIOD OF RECORD.--1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 204.26 ft below datum, Nov. 15, 1966; lowest measured, 219.12 ft below datum, Nov. 16, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	209.85	MAY 4	210.42

415956117430201. Formerly 420010117431001. Local number 41S/43E-19AAC. Formerly local number 41S/43E-19AA.
LOCATION.--Lat 41°59'56", long 117°43'02", Hydrologic Unit 16040201. Formerly lat 42°00'10", long 117°43'10".
Owner: Victor Albisu.
AQUIFER.--Alluvium.
WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in, depth 98 ft.
DATUM.--Altitude of land surface datum is 4,420 ft. Measuring point: Top of casing, 5.35 ft below datum.
PERIOD OF RECORD.--1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.60 ft below datum, May 4, 1984; lowest measured, 32.11 ft below datum, Aug. 23, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	12.43	MAY 4	8.60

454625118330901. Local number 03N/34E-03BAC.
LOCATION.--Lat 45°46'25", long 118°33'09", Hydrologic Unit 17070103.
Owner: Berkley Davis.
AQUIFER.--Columbia River Basalt Group.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 12 in, depth 1,263 ft, deepened from 298 ft in 1972; cased to 60 ft.
DATUM.--Altitude of land surface datum is 1,544 ft. Measuring point: Center of air gage, 1.90 ft above datum.
PERIOD OF RECORD.--1953-79, 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.0 ft below datum, May 2, 1954; lowest measured, 131.5 ft below datum, Dec. 11, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL
FEB 13	73.69

455418118333001. Formerly 455418118334001. Local number 05N/34E-16DDC.
LOCATION.--Lat 45°54'18", long 118°33'30", Hydrologic Unit 17070102. Formerly long 118°33'39".
Owner: R.M. Thompson.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in, depth 228 ft.
DATUM.--Altitude of land surface datum is 2,130 ft. Measuring point: Top of hole in sanitary seal, 0.50 ft above datum.
PERIOD OF RECORD.--1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 136.1 ft below datum, Feb. 13, 1984; lowest measured, 162.50 ft below datum, Nov. 30, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL
FEB 13	136.1

455645118225901. Local number 05N/35E-01BAD.
LOCATION.--Lat 45°56'45", long 118°22'59", Hydrologic Unit 17070102.
Owner: W. Bingham.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Dug irrigation well, size 6 x 8 ft, depth 37 ft, cased with concrete to 19 ft, curbed with wood.
DATUM.--Land surface datum is 995.60 ft National Geodetic Vertical Datum of 1929. Measuring point: At datum.
PERIOD OF RECORD.--1933 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.22 ft below datum, Dec. 19, 1946; lowest measured, dry Sept. 21 1981.

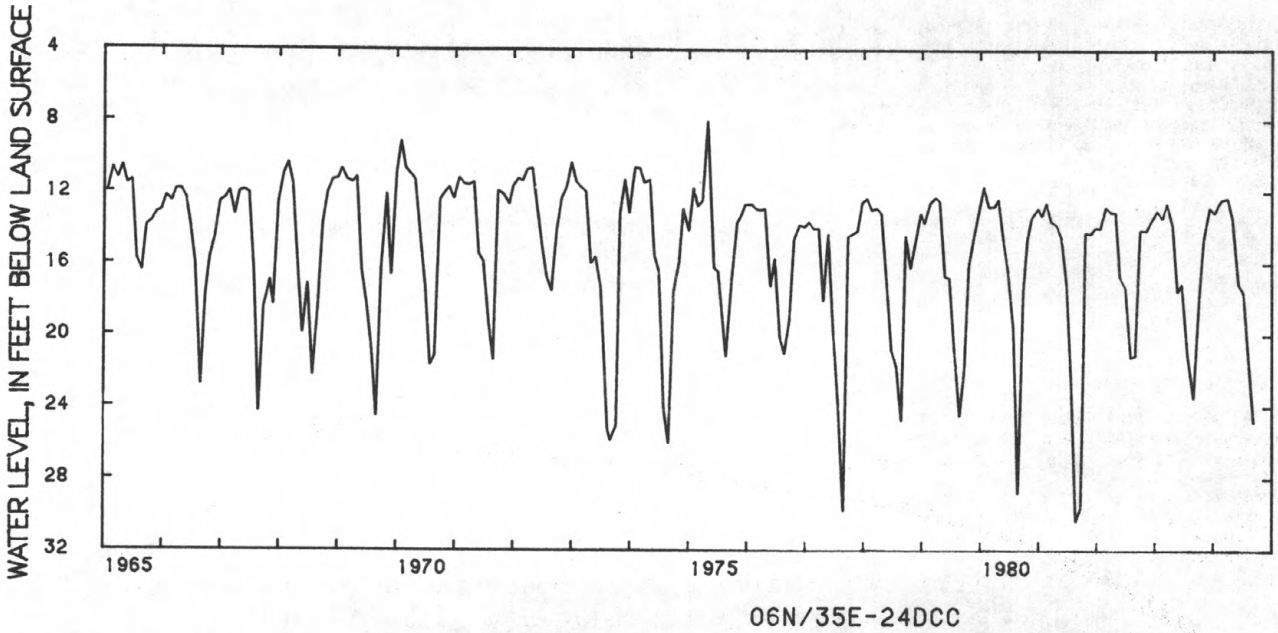
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	25.35	JAN 6	21.4	APR 27	22.27	AUG 7	27.80
NOV 1	23.90	FEB 17	21.80	JUN 4	23.30	SEP 6	26.90
DEC 6	22.70	MAR 27	21.59	JUL 5	18.50	-	-

455839118224501. Local number 06N/35E-24DCC.
LOCATION.--Lat 45°58'39", long 118°22'45", Hydrologic Unit 17070102.
Owner: G. Ransom.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Dug and drilled irrigation well, size 6 x 6 ft to 10-in diam, depth 165 ft, cased to 45 ft.
DATUM.--Land surface datum is 864.30 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of 4- x 6-in plank on east side of well curb, 0.50 ft above datum.
PERIOD OF RECORD.--1933 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.65 ft below datum, July 29, 1948; lowest measured, 30.35 ft below datum, Aug. 20, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	14.60	FEB 17	12.41	JUN 4	17.10	SEP 6	24.79
DEC 6	12.85	MAR 27	12.30	JUL 5	17.60	-	-
JAN 6	13.10	APR 27	13.40	AUG 7	21.50	-	-



455826118241001. Local number 06N/35E-26BAD.
LOCATION.--Lat 45°58'26", long 118°24'10", Hydrologic Unit 17070102.
Owner: Earl Ransom.
AQUIFER.--Gravel.
WELL CHARACTERISTICS.--Dug and drilled irrigation well, size 6 x 6 ft to 8-in diam, depth 110 ft, dug part cased with concrete to 10 ft, cased with steel to 44 ft.
DATUM.--Land surface datum is 867.12 ft National Geodetic Vertical Datum of 1929. Measuring point: 1/2-in pipe in roof of well house, 3.8 ft above datum.
PERIOD OF RECORD.--1933 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.81 ft below datum, May 25, 1939; lowest measured, 37.6 ft below datum, Feb. 22, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	21.20	JAN 6	28.0	APR 27	22.85	AUG 7	23.91
NOV 1	27.15	FEB 17	27.30	JUN 4	17.10	SEP 6	24.58
DEC 6	27.35	MAR 27	24.5	JUL 5	17.41		

UNION COUNTY

452730117595901. Local number 01S/38E-24DDC1.
LOCATION.--Lat 45°27'26", long 117°59'50", Hydrologic Unit 17060104.
Owner: H. L. Wagner.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 12 to 8 in, depth 1,150 ft, cased to 1,105 ft.
DATUM.--Altitude of land surface datum is 2,750 ft. Measuring point: Center line of pressure gage, 6.00 ft above datum.
PERIOD OF RECORD.--1950-74, 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.5 ft above datum, Aug. 7, 1974; lowest measured, 53 ft above datum, Aug. 13, 1951.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 3	+88.00	FEB 10	+91.47	MAY 11	+93.78	AUG 9	+92.62

422834117574501. Local number 01S/39E-17CAD.
LOCATION.--Lat 45°28'34", long 117°57'45", Hydrologic Unit 17060104.
Owner: A. F. Furman.
AQUIFER.--Sand.
WELL CHARACTERISTICS.--Drilled domestic well, diam 4 in, depth 44.6 ft.
DATUM.--Altitude of land surface datum is 2,735 ft. Measuring point: Top of coupling on casing, 1.00 ft above datum.
PERIOD OF RECORD.--1940 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.07 ft below datum, Feb. 19, 1982; lowest measured, 24.14 ft below datum, June 9, 1945.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

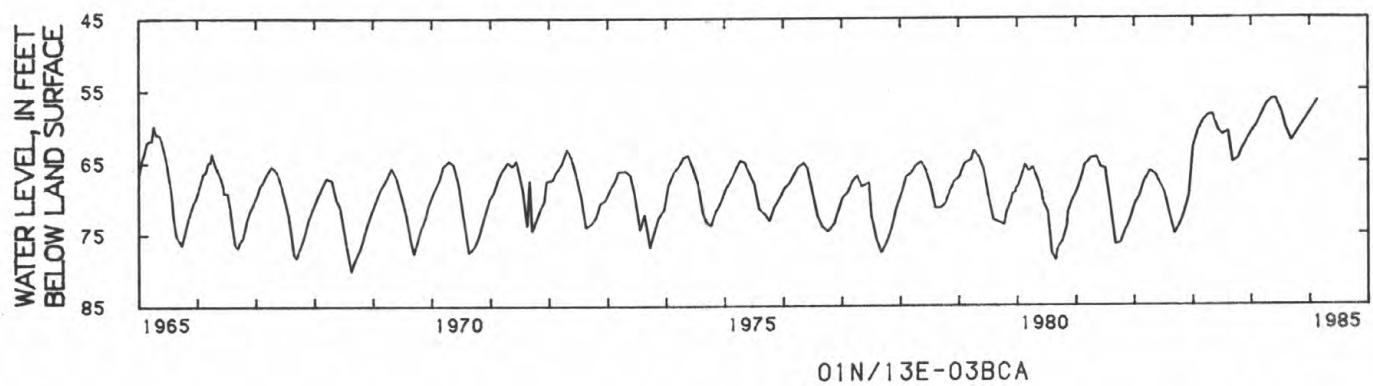
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 3	8.71	FEB 10	4.60	MAY 11	4.19	AUG 9	6.81

WASCO COUNTY

453606121105701. Local number 01N/13E-03BCA.
LOCATION.--Lat 45°36'06", long 121°10'57", Hydrologic Unit 17070105.
Owner: City of The Dalles.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled municipal well, diam 12 in, depth 200 ft, cased to 62 ft.
DATUM.--Land surface datum is 99.5 ft National Geodetic Vertical Datum of 1929. Measuring point: Hole in pumpbase, 6.40 ft below datum.
REMARKS.--Water levels published for this well Jan. 2, 1962, to Sept. 5, 1978, did not use proper measuring point correction (Jan. 2, 1962, to June 11, 1971, subtract 0.6 ft from published water levels, Sept. 1, 1971, to Sept. 5, 1978, subtract 6.4 ft from published water levels). Corrected values are available at the district office, Portland, Oregon.
PERIOD OF RECORD.--1926-30, 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.90 ft below datum, July 19, 1928; lowest measured, 80.03 ft below datum, Aug. 16, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	64.58	JAN 3	60.83	APR 6	57.00	JUL 6	57.99
NOV 2	63.25	FEB 3	59.88	MAY 4	56.37	AUG 3	60.31
DEC 5	61.88	MAR 2	58.53	JUN 1	56.25	SEP 7	62.09



WASCO COUNTY--Continued

453142121125501. Local number 01N/13E-32ACA.
LOCATION.--Lat 45°31'42", long 121°12'55", Hydrologic Unit 17070105.
Owner: Milton Martin.
AQUIFER.--Basalt.
WELL CHARACTERISTICS.--Drilled irrigation well, diam 6 in, depth 368 ft, cased to 244 ft.
DATUM.--Altitude of land surface datum is about 1,200 ft. Measuring point: Center line of pressure gage, 3.0 ft above datum.
PERIOD OF RECORD.--1946 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 201.5 ft above datum, Jan. 13, 1965; lowest measured, 52.3 ft above datum, July 30, 1958.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 9	+112.73	MAR 20	+111.57	MAR 31	+115.61

453715121151801. Local number 02N/12E-25DDC.
LOCATION.--Lat 45°37'15", long 121°15'18", Hydrologic Unit 17070105.
Owner: Ernest A. Kuck.
AQUIFER.--Sandstone of Dalles Formation.
WELL CHARACTERISTICS.--Drilled well, diam 8 in, depth 443 ft, cased to 30 ft.
DATUM.--Altitude of land surface datum is about 520 ft. Measuring point: Airline port in pumpbase, 0.80 ft above datum.
PERIOD OF RECORD.--1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.93 ft below datum, Mar. 16, 1951; lowest measured, 151.54 ft below datum, Aug. 6, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 10	109.65	MAR 30	107.62

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)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^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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