LOW STREAMFLOW CONDITIONS IN THE WESTERN STATES DURING 1987

By Larry L. Hubbard

U.S. GEOLOGICAL SURVEY

Water Resources Investigations Report 87-4267

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CONVERSION FACTORS AND ABBREVIATIONS

The following factors may be used to convert the inch-pound units published herein to the metric (International System) units:

Multiply inch-pound	Ву	To obtain SI units
	LENGTH	
<pre>inch (in.) inch (in.) foot (ft) mile (mi)</pre>	25.4 0.0254 0.3048 1.609	meter (m)
	AREA	
square mile (mi ²) acre	2.590 0.4047	square kilometer (km²) hectare (ha)
***************************************	FLOW	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m ³ /s)
	SLOPE	
foot per mile (ft/mi)	0.189	meter per kilometer (m/km)

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ABSTRACT

Drought conditions prevailed throughout the States of California, Nevada, Idaho, Oregon, and Washington during the summer of 1987. Streamflows were the lowest since the drought of 1977. Many streams had less discharge in August-September 1987 than in August-September of 1977. At some sites flows for July, August, and September were the minimum ever recorded for those months. The reasons for the low flows, which occurred in spite of near normal precipitation for the 1987 water year (October 1, 1986 to September 30, 1987), were low winter snowpack, unseasonably early melt of that snowpack, and prolonged periods of well-above-average temperatures.

Conditions are conducive for a potentially serious drought in 1988. The low flows and a large demand for water during the summer of 1987 left many storage reservoirs at well-below-average levels. At least four cities had less than a 2-month supply of surface water at the end of September. In some areas, ground-water levels have lowered considerably, as indicated by the need to deepen irrigation wells in Oregon. Cities that used ground water did not experience serious problems in 1987 but could have extreme shortages in 1988 if ground-water supplies are not replenished.

Even though the flow conditions worsened noticeably during the 1987 water year, careful management and conservative water-use practices prevented widespread critical water shortages. The U.S. Geological Survey is measuring the quantity and quality of streamflow in order to assess the extent and severity of the drought.

INTRODUCTION

Background

In 1987, Western states experienced the lowest streamflows since the 1977 drought. Provisional data indicate that summer flows in southern Idaho were the lowest ever recorded for that time of year and in western Washington flows were the lowest in 40 years. Low winter precipitation produced well-below average snowpack, and many Federal and State water agencies are planning for the possibility of an ensuing drought.

Severe water shortages occurred only in localized areas without adequate reservoir storage. In much of the West, storage levels in reservoirs at the beginning of the 1987 water year (October 1, 1986 to September 30, 1987) equalled or exceeded the average for that time of year. The quantity of water in storage and efficient management practices provided an adequate supply of water for most uses, but some municipalities and other water suppliers instituted either voluntary- or mandatory-use restrictions. Some municipal reservoirs became critically low by the end of September.

The 1987 water year may be the beginning of a severe drought in the Western states. If 1988 is another dry year, major water shortages will develop throughout the West. Conditions in 1987 are already approaching those that prevailed during the second year of the 1976-77 drought; another dry year would result in even more extreme conditions.

Purpose and Scope

The purpose of this report is to document the meteorologic and hydrologic conditions for the 1987 water year in order to forewarn of a potential drought and show conditions that could lead to serious water shortages. Tables and illustrations compare precipitation and streamflow during the 1987 water year to the average and minimum flows during the period of record and to the flows of 1977 at selected gaging stations.

Hydrologic and meteorologic data for periods prior to the 1987 water year used in this report are from published records of the U.S. Geological Survey and the National Weather Service. The preliminary 1987 hydrologic and meteorologic data were obtained from 24 selected U.S. Geological Survey stream-gaging stations and 22 National Weather Service weather stations (fig. 1). Other 1987 water-supply information is from data provided by Federal and State agencies, public utilities, and the news media.

METEOROLOGICAL FACTORS

Precipitation and Temperature

There was no consistent precipitation pattern throughout the West during 1987 water year, but generally the fall and winter precipitation was below average, with the December precipitation extremely low at most sites (fig. 2). Above average precipitation occurred in March, May, and July in some areas. The March precipitation fell largely as rain and caused snow to melt, rather than accumulate as it does in March of most years, and the May rainfall further accelerated the snowmelt.

The July rain provided some relief to wilting crops but was not enough to have much impact on streamflow. For example, a 1-day rainfall of over an inch at Spokane, Washington, caused little or no increase in streamflow (R. L. Blazs, Spokane Field Office Chief, U.S. Geological Survey, oral commun., August, 1987).

Total precipitation for the period October 1986 through September 1987 was near normal for most of the weather stations for which records are included in this report (table 2, at back of report). Long periods of hot dry weather separated the periods of precipitation, so that dry conditions developed by the end of summer. In the State of Washington, the Stampede Pass weather station (which is used as an index station in the State) recorded temperatures considerably above normal from February through June, with April and June averaging more than 4 degrees Fahrenheit above normal (Lee Krogh, Hydrologist, National Weather Service, oral commun., September 10, 1987).

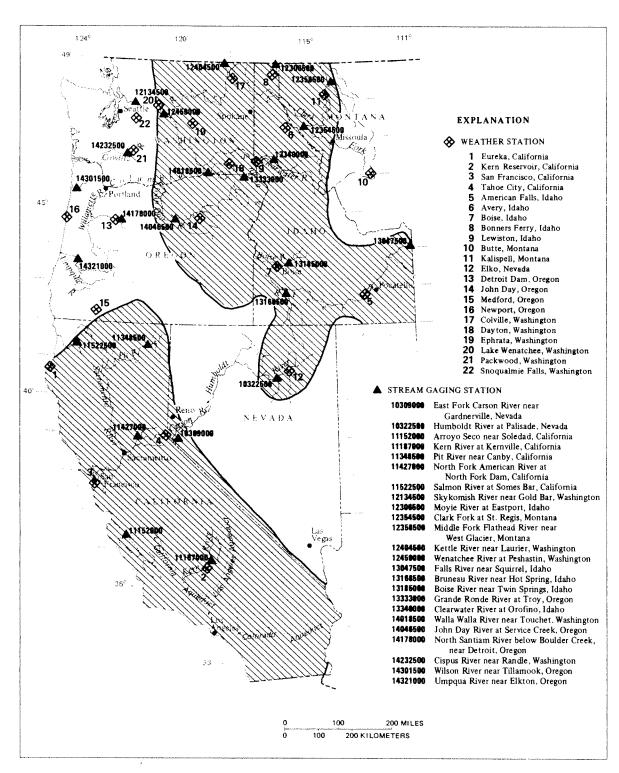


Figure 1.--Map of western states showing selected weather stations and stream-gaging stations. Shaded area shows areas experiencing severe to extreme drought on August 15, 1987.

Figure 2.--Monthly precipitation at selected weather stations for 1987 water year and the long-term averages.

Drought Index

The National Weather Service and Soil Conservation Service utilize a drought index, known as the Palmer Index, to rate the severity of a drought (Palmer, 1965). The Palmer Index reflects abnormal wetness or dryness for prolonged periods, long-term moisture, runoff, recharge, deep percolation, and evapotranspiration. A drought-index map for August 15 indicates severe to extreme drought conditions in nearly all of California, north-central Washington, northeastern Oregon, and central and southwestern Idaho (fig. 3). The severe conditions extend into northeastern Nevada, northern Utah, and western Wyoming.

Winter Snowpack

The snowpack for the Western states was well below normal throughout the 1986-87 winter and was greatly depleted by hot weather in April. For example, by May 1, 1987, the snowpacks in the Carson and Humboldt River basins had been depleted to 14 and 17 percent of average, respectively. The snowpack in the Columbia River basin was 53 percent of the weighted average on May 1. This value compares to 31 percent for the 1977 water year. By May 1, the water equivalent of the snowpack statewide in California was only about 20 percent of normal. In Montana, the water content at 30 percent of the snow courses was the lowest ever recorded on May 1.

STREAMFLOW CONDITIONS

The 1987 water year began with below average streamflow at most stations. Streamflow increased during the winter but stayed below average at most stream-gaging stations. The rainfall in March and May of 1987 and the hot weather in April caused early snowmelt and above-average flow in some streams, but in most streams the flow remained below average during the entire spring and summer runoff period. Even in areas receiving above average rainfall, the streamflow decreased rapidly after the early snowmelt and by mid June some streams reached extremely low discharges. Others did not become critically low until August or September. Figures 4 and 5 compare the mean daily discharges in 1987 to the minimum daily discharges for two selected streams during 39 or 49 year periods and to the discharges that were exceeded 50 percent of the time during these same periods.

Throughout the West, total streamflows for the 1987 water year were well below average and are the lowest since 1977. In the Great Basin in northern Nevada, the flows of East Fork Carson River and Humboldt River have averaged only about 40 percent of the long-term average flow (table 3, at back of report). Most 1987 water-year flows in western Oregon and western Washington were about 70 to 80 percent of average. Rivers in the Columbia River basin in Idaho, Montana, Oregon, and Washington ranged from 50 to 80 percent of the long-term average. Flows in the Snake River drainage in Idaho and Oregon have ranged from as low as 40 percent in the Bruneau River in southern Idaho to about 60 percent in the Grande Ronde River in northwestern Oregon. In California, the total flow of the Arroyo Seco was only 30 percent of the long-term average.

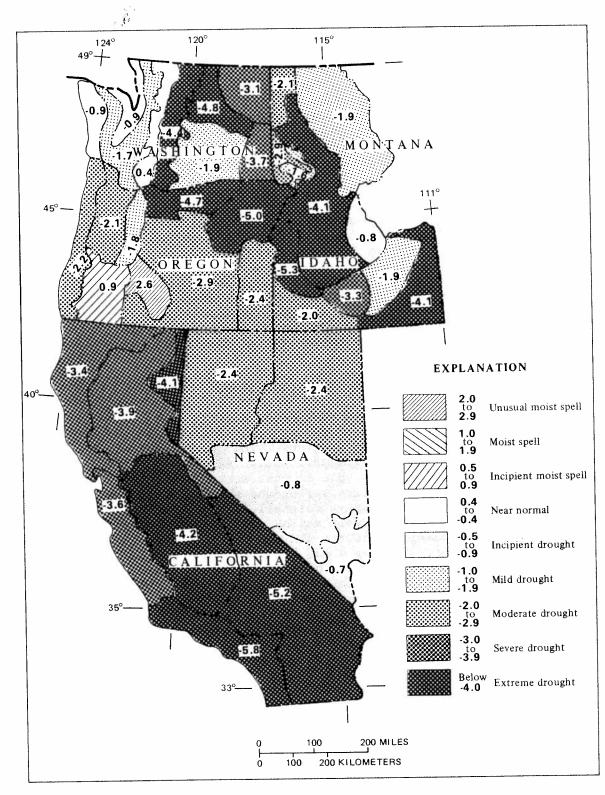


Figure 3.--Map of western states showing Palmer drought index as of August 15, 1977 (Written commun., National Weather Service, 1987).

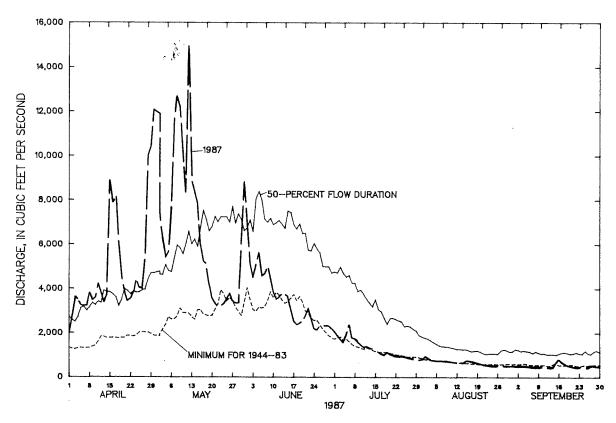


Figure 4.--Minimum daily discharges for 1945-84, discharges that were equalled or exceeded 50 percent of the time, and daily discharges during 1987 for Skykomish River near Goldbar, Washington.

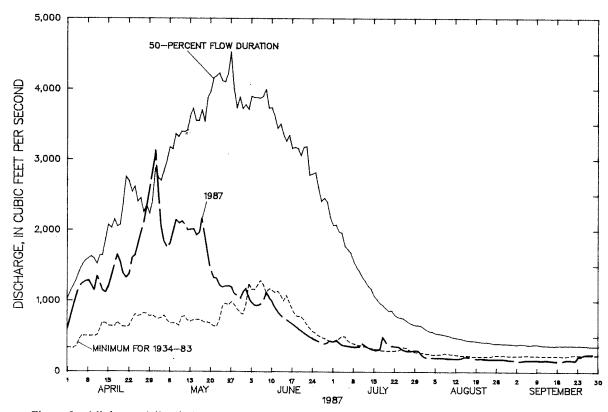


Figure 5.--Minimum daily discharges for 1934-86, discharges that were equalled or exceeded 50 percent of the time, and daily discharge during 1987 at Boise River near Twin Springs, Idaho.

Although total streamflow for the 1987 water year was not as low as the total for the 1977 water year, the monthly mean flows for 1 or more of the summer months (June through September) in 1987 were lower than flows for the same months in 1977 at several stations, as shown in figure 6. At selected stations, the total June-through-September flows in 1987, shown as a percentage of the 1977 flows for the same months, are as follows:

Humboldt River at Palisade, Nevada	21 percent
Skykomish River near Gold Bar, Washington	44 percent
Kettle River near Laurier, Washington	33 percent
Bruneau River near Hotspring, Idaho	25 percent
Boise River near Twin Springs, Idaho	25 percent
Clearwater River at Orofino, Idaho	28 percent
Cispus River near Randle, Washington	49 percent
Grande Ronde River at Troy, Oregon	38 percent
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The above comparisons show that for many streams in the West flow conditions leading into the next water year (1988) are much lower than they were in 1977.

Some of the most extreme low flows in the West occurred in southern Idaho. The monthly flows of the Boise River near Twin Springs, Idaho, were the lowest on record (for period 1912-87) for the months of July and August; after April the monthly mean discharges were less than the monthly means that are exceeded 90 percent of the time. The 1987 monthly mean discharges for six streams are compared to those discharges exceeded 50 and 90 percent of the time in figure 7.

COLLECTION OF FIELD DATA

The U.S. Geological Survey offices in Washington, Idaho, Oregon and Nevada, in cooperation with Federal, State and local governments, are making, and have made, special streamflow measurements to document the low flows at active gaging stations, at former stations, and at miscellaneous sites. Many of the sites were measured during the low flows of 1977. The Geological Survey also is studying the effects of the drought on the quality of surface water. Results from these special studies were not available at the time of this report, but the studies will provide data that can be used at a later date for analyzing the severity of the drought. The data will provide insight into the processes associated with droughts and may help to develop methods for coping with droughts.

RESERVOIR STORAGE

At the beginning of the 1987 water year (October 1, 1986) storage in major reservoirs was slightly above the average in California, Oregon, and Idaho, but well below average in Washington; storage in the Yakima Basin was the lowest since 1973 (Soil Conservation Service, 1987e).

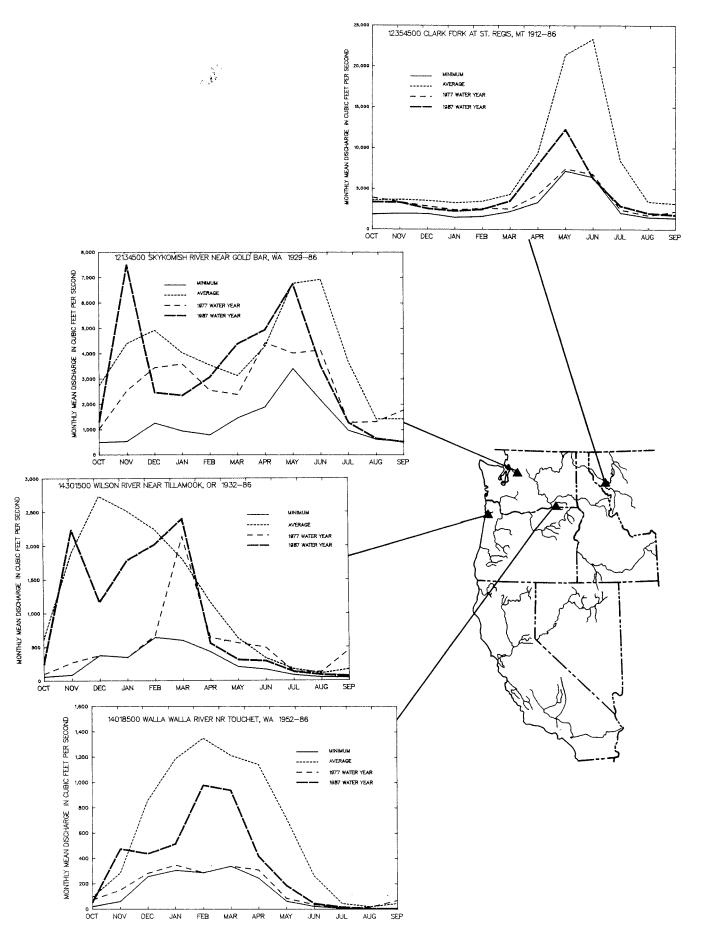


Figure 6.--Long-term average monthly means, historical minimum monthly means, 1977 monthly means and 1987 monthly means at selected streamflow gaging stations.

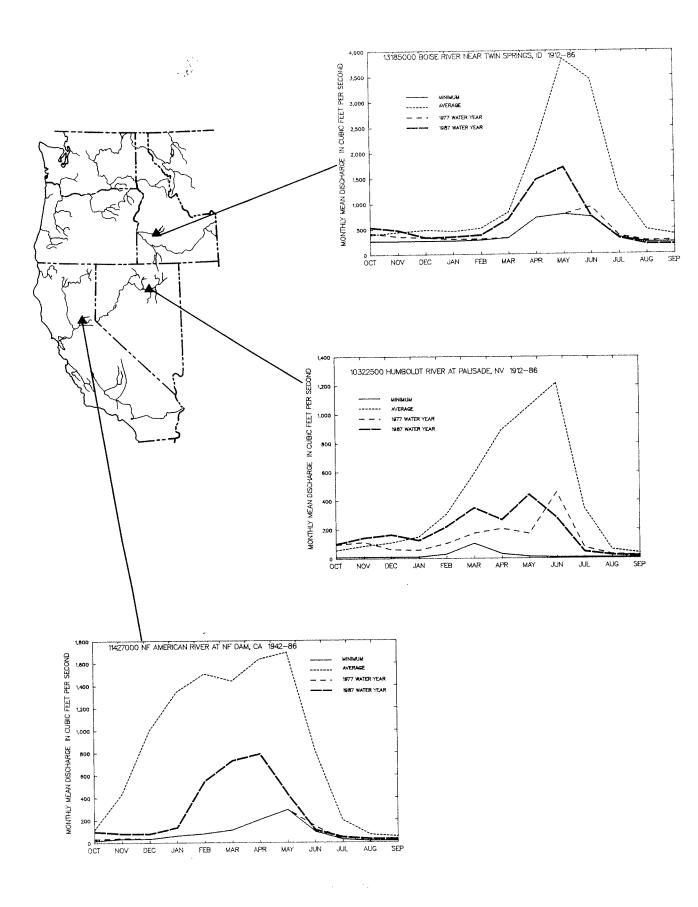


Figure 6.--Long-term average monthly means, historical minimum monthly means, 1977 monthly means and 1987 monthly means at selected streamflow gaging stations--continued.

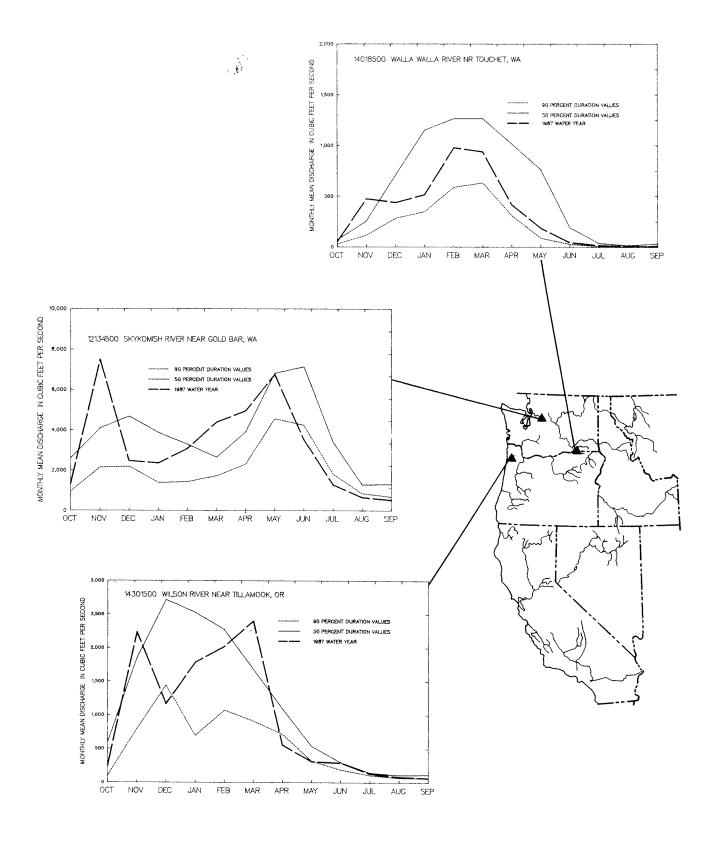


Figure 7.--Fifty-percent and 90-percent flow duration values and 1987 monthly mean flows for selected streamflow gaging stations.

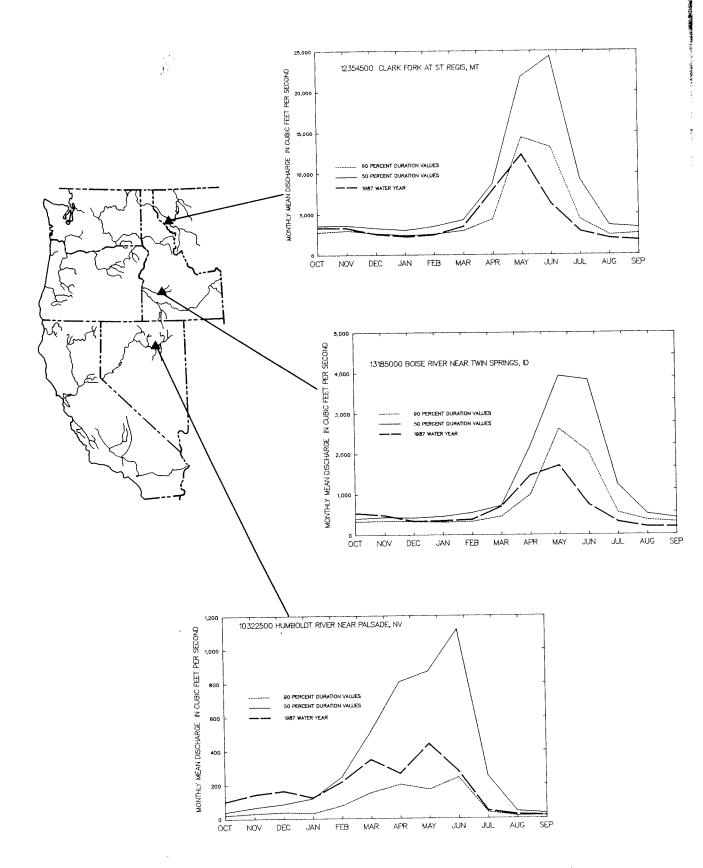


Figure 7.--Fifty-percent and 90-percent flow duration values and 1987 monthly mean flows for selected streamflow gaging stations--continued.

By the end of September 1987, most irrigation reservoirs had been drawn down sufficiently to cause the quantity of water stored to be considerably below the average. Because reservoir storage generally is used to augment summer flows, 1 year of deficient precipitation and low runoff does not normally result in severe water shortages for the year. However, when reservoir storage is depleted at the end of one irrigation season, the coming winter and spring runoff may not increase storage enough to provide needed streamflow in the next irrigation season.

On September 30, 1987, the total storage in 26 major irrigation reservoirs and the total storage in 29 major power and multipurpose reservoirs in the Northwest were 51 percent and 101 percent, respectively, of the 10-year average. Even though it was the tenth worst water year under the Bonneville Power Administration (BPA) system, the major power reservoirs in the Pacific Northwest were essentially full because of conservative operations and reduced power sales (Leslie Ratchye, Assistant to the Area Manager, External Affairs, Bonneville Power Administration, oral commun., August 5, 1987). The total storage in the 150 major California reservoirs was 81 percent of the 10-year average. Examples of end-of-September reservoir storage are shown in table 1. Irrigation storage in 1987 has been depleted to the point that a low-flow year in 1988 could cause critical water shortages in some regions.

Municipal reservoirs have reached critically low levels. The cities of Seattle and Tacoma, Washington; Coos Bay, Oregon; and Willets, California, finished September 1987 with less than a 2-month water supply in storage. In October, Seattle was pumping from a pool that was below the normal outlet from the reservoir; Tacoma was supplementing its supply by pumping water from a natural lake, and the release rate from the dam upstream from the Tacoma intake was less than that required for either municipal or instream uses--let alone being enough for both. Portland, Oregon, pumped heavily from its emergency well field, without which the surface reservoir would have gone dry.

Cities that use mostly ground water have not experienced severe impacts from the drought but could begin to do so within a few months if ground-water levels are not replenished soon. Several Idaho, California, Oregon, and Washington cities could be short of water in 1988 if precipitation continues below normal.

EFFECTS OF LOW STREAMFLOWS

Even though low flows occurred during the 1987 water year, no widespread critical water shortages were observed because many agencies, utilities, and private companies adjusted their water-management practices. For example, the State of Washington Legislature approved Second Substitute Senate Bill 5993 (Hedia Adelsman, State of Washington Department of Ecology, written commun., 1987). This 1987 Emergency Water Supply Alleviation Bill gives the Department of Ecology authority to issue temporary permits for withdrawals of surface and ground waters, construct facilities, and make temporary changes of water rights consistent with State law. Also in Washington State, the Cities of Seattle and Tacoma imposed restrictions on domestic water use. Nearly all of the cities around San Franciso Bay entered into a large-scale publicity campaign to promote a voluntary reduction in water use.

Table 1.--September 1987 month-end contents of major reservoirs in the West compared to the

10-year average month-end September contents

	NUMBER OF	CONTENT,	IN ACRE-FEET	PERCENT
RESERVOIRS	RESERVOIRS	SEPTEMBER	1975-84 AVERAGE	OF AVERAGE
RRIGATION RESERVOIRS:			390,000	24
AKIMA RIVER BASIN (WA)	5	94,000	2,450,000	42
PPER SNAKE RIVER BASIN (ID)	8	1,040,000	928,000	61
WYHEE AND MALHEUR RIVER BASINS (OR, ID, NV)	2	562,000	1,150,000	62
BOISE AND PAYETTE RIVER BASINS (ID)	6	718,000	267,000	79
DESCHUTES RIVER BASIN (OR)	5	210,000	207,000	
FLOOD CONTROL RESERVOIRS:	5	201,000	221,000	91
HYDROELECTRIC POWER RESERVOIRS:				
TOTAL MODELLEST	1.7	59,300,000	58,000,000	102
COLUMBIA RIVER BASIN (PACIFIC NORTHWEST) BASINS WEST OF CASCADE RANGE (OR, WA)	12	5,500,000	6,070,000	91
MAJOR CALIFORNIA RESERVOIRS	150	18,800,000	23,300,000	81

Even in years of average streamflow, there is strong competition among various water-using interests; the competition becomes extremely intense in a dry year. In May 1987, the U.S. Army Corps of Engineers (COE) and the Oregon Water Resources Department (OWRD) began a series of coordinating meetings with other State and Federal agencies representing various water interests (recreation, fisheries, water quality, navigation, etc.). These meetings were held to provide the COE with information necessary to optimize the operation of their reservoirs in the Willamette system in order to minimize the negative effects on the various water uses. In general, adequate flows were maintained to meet power-generation and irrigation requirements.

In order to maintain at least a few high-quality recreational reservoirs in the Willamette River basin, three reservoirs that filled to normal levels were maintained at levels suitable for recreation, while reservoirs that did not fill were drafted heavily to augment summer flows for fisheries, water quality, and other management purposes (Dave Jarrett, Hydrographer, Oregon Water Resources Department, oral commun., 1987). On August 19, 1987, representatives from various State and Federal agencies met and agreed to the State of Oregon's request for special flow releases from the Lost Creek Reservoir on the Rogue River to avert a major fish kill during the fall Chinook Salmon run. Because of the advance planning, the effects of low flows on regulated rivers in Oregon generally were minimized during the year.

Delivery of irrigation water in some regions was curtailed, but no widespread irrigation crises were reported. Severe shortages did occur within some small areas of Idaho. A project on Big Wood River in Idaho had to greatly curtail its delivery in June (San Francisco Examiner, June 14, 1987). In southwestern Oregon, the Watermaster reported increased well-construction activity to deepen or replace irrigation wells that went dry during the irrigation season. The Division of Emergency Management in Washington State reported that some irrigation wells were drying up in Kittitas, Chelan, and Okanogan Counties in eastern Washington (Division of Emergency Management, written commun., 1987). Under Oregon water law, water delivery is based on the date of the water right, with the oldest water right being the last to be cut off. Water rights dating back to 1885 were cut off on one stream in northeastern Oregon.

FOREST FIRES

As in most years of low summer precipition, forest fires were numerous in the summer of 1987. On August 5, the decline in percent moisture in combustible forest fuels was 15 days ahead of normal in western Washington and 30-35 days ahead of normal in the Cascades, eastern Washington, and the Olympic peninsula (Howard Thronsen, Fire Prevention Specialist, Washington State Department of Natural Resources, oral commun., 1987). Green-vegetation drying was 30 days ahead of normal at that time, and some surface-water sources used for fire suppression were dried up. In early October the U.S. Forest Service reported that the moisture content of dead and downed trees in the forests of California was less than that of kiln dried lumber.

The forest material had a water content of 4 to 6 percent; kiln dried lumber has a moisture content of 14 to 16 percent (R. E.Greffenius, U.S. Forest Service, oral commun, October 15, 1987). The fire season began earlier than usual in Oregon, according to Jim Fisher of the Oregon State Forestry Department. Soils and forest fuels had dried out 4 to 6 weeks earlier than in most years. By early September, more than 500,000 acres of forests had burned in northern California and more than 100,000 acres had burned in Oregon (The Portland Oregonian, September 10, 1987).

SUMMARY

Below average streamflows were common throughout the West in 1987. Annual flows were the lowest since the drought of 1977. Summer flows of many streams reached levels that were lower than those in 1977, but total flows for the year generally exceeded those of 1977. At some sites flows for July, August, and September were the lowest ever recorded for those months. Reasons for the low flows, which occurred in spite of near normal precipitation for the year, include a low winter snowpack, unseasonably early melt of that snowpack, and prolonged periods of well-above-average temperatures.

Even though the flow conditions worsened noticeably during the year, widespread critical water shortages did not occur. This probably was due to careful management and conservative water-use practices by many agencies, utilities, and private companies.

Conditions are conducive for a potentially serious drought in 1988. The low flows during 1987 left many storage reservoirs at well-below-average levels, and in some areas, ground-water levels have been lowered considerably, as indicated by the need to deepen irrigation wells in Oregon. The western states need at least average rainfall and an adequate snowpack to avert critical water shortages in the coming year.

U.S. Geological Survey offices are cooperating with local, State, and Federal agencies in special measuring programs to document the degree and extent of the drought. Increased insight into the hyrologic and climatological processes associated with droughts may improve our ability to anticipate the possibility of a drought and to cope with its detrimental effects.

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1987Ъ,	Water	supply	outlook	for	Nevada.
1987c,	Water	supply	outlook	for	Oregon.
1987d,	Water	supply	outlook	for	Washington.
1987e,	Water	supply	outlook	for	western United States.

Table 2.--Comparison of 1987 monthly precipitation with average monthly precipitation, historic minimum monthly precipitation, and 1977 monthly precipitation

STATION 1	EUREK	CA, CA											
YEARS OF RECORD	100												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	2.67	5.41	6.42	6.60	5.74	5.23	3.15	1.76	0.68	0.12	0.24	0.87	38.89
MINIMUM	0.00		0.52	0.66	0.50	0.07	0.00	0.00	0.00	0.00	0.00	0.00	
1977	0.28	2.98	0,52	1.90	2.24	4.33	1.20	2.10	0.07	0.00	0.20	3.35	
1987	1.75	1.85	3.83	6.48	3.38	6.10	1.15	0.41	0.26	0.20	0.06	0.02	25.49
1987 (PERCENT OF AV	G) 66	34	60	98	59	117	37	23	38	167	25	2	66
STATION 2	KERN	RIVER	PH1										
YEARS OF RECORD	83												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	0.55	1.02	1.54	1.81	1.74	1.97	1.24	0.48	0.10	0.01	0.06	0.20	10.72
MINIMUM	0.00	_,	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1977	0.47		0.20	0.73	0.48	1.96	0.00	0.86	0.95	0.00	0.95	0.00	
1987	0.07	0.83	1.29	3.10	1.24	2.91	0.39	0.10	0.09	0.00	0.00	0.00	10.02
1987 (PERCENT OF AV	G) 13	81	84	171	71	148	31	21	90				93
STATION 3 YEARS OF RECORD	SAN 59	FRANCI	SCO, C	W (WIK	PORT)								
	29												
	OCT	моч	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE		NOV 2.35	DEC 3.55		FEB							SEP 0.19	
	OCT							0.32					OCT-SEP
	OCT	2.35	3.55	4.65	3.25	2.64	1.53	0.32	0.11	0.03	0.05	0.19	19.73
MINIMUM	OCT 1.06 0.00	2.35	3.55 0.00	4.65 0.37	3.25	2.64	1.53	0.32	0.11	0.03 0.00 0.35	0.05	0.19	19.73 10.26
	OCT 1.06 0.00 0.34 0.02	2.35 0.00 1.37	3.55 0.00 2.70	4.65 0.37 2.22	3.25 0.00 1.04	2.64 0.18 2.01	1.53 0.00 0.00	0.32 0.00 0.41	0.11 0.00 0.00	0.03 0.00 0.35	0.05 0.00 0.00	0.19 0.00 0.47	19.73
MINIMUM 1977 1987	OCT 1.06 0.00 0.34 0.02 JG) 2	2.35 0.00 1.37 0.06	3.55 0.00 2.70 1.66 47	4.65 0.37 2.22 2.80	3.25 0.00 1.04 3.52	2.64 0.18 2.01 1.98	1.53 0.00 0.00 0.16	0.32 0.00 0.41 0.06	0.11 0.00 0.00	0.03 0.00 0.35	0.05 0.00 0.00	0.19 0.00 0.47	19.73 10.26
MINIMUM 1977 1987 1987 (PERCENT OF AV	OCT 1.06 0.00 0.34 0.02 JG) 2	2.35 0.00 1.37 0.06 3	3.55 0.00 2.70 1.66 47	4.65 0.37 2.22 2.80	3.25 0.00 1.04 3.52	2.64 0.18 2.01 1.98	1.53 0.00 0.00 0.16	0.32 0.00 0.41 0.06	0.11 0.00 0.00	0.03 0.00 0.35	0.05 0.00 0.00	0.19 0.00 0.47	19.73 10.26
MINIMUM 1977 1987 1987 (PERCENT OF AV	OCT 1.06 0.00 0.34 0.02 VG) 2	2.35 0.00 1.37 0.06 3	3.55 0.00 2.70 1.66 47	4.65 0.37 2.22 2.80	3.25 0.00 1.04 3.52	2.64 0.18 2.01 1.98	1.53 0.00 0.00 0.16	0.32 0.00 0.41 0.06	0.11 0.00 0.00	0.03 0.00 0.35	0.05 0.00 0.00	0.19 0.00 0.47	19.73 10.26 52
MINIMUM 1977 1987 1987 (PERCENT OF AV	OCT 1.06 0.00 0.34 0.02 VG) 2 TAHOE 77 OCT 1.81	2.35 0.00 1.37 0.06 3 CITY,	3.55 0.00 2.70 1.66 47 CA	4.65 0.37 2.22 2.80 60 JAN 6.03	3.25 0.00 1.04 3.52 108	2.64 0.18 2.01 1.98 75 MAR 3.92	1.53 0.00 0.00 0.16 10 APR 2.16	0.32 0.00 0.41 0.06 19	0.11 0.00 0.00 0.00	0.03 0.00 0.35 0.00	0.05 0.00 0.00 0.00	0.19 0.00 0.47 0.00 SEP	19.73 10.26 52 OCT-SEP
MINIMUM 1977 1987 1987 (PERCENT OF AV STATION 4 YEARS OF RECORD	OCT 1.06 0.00 0.34 0.02 VG) 2 TAHOE 77 OCT 1.81	2.35 0.00 1.37 0.06 3 CITY,	3.55 0.00 2.70 1.66 47 CA	4.65 0.37 2.22 2.80 60 JAN 6.03	3.25 0.00 1.04 3.52 108	2.64 0.18 2.01 1.98 75 MAR 3.92	1.53 0.00 0.00 0.16 10 APR 2.16	0.32 0.00 0.41 0.06 19	0.11 0.00 0.00 0.00	0.03 0.00 0.35 0.00	0.05 0.00 0.00 0.00	0.19 0.00 0.47 0.00 SEP 0.60 0.00	19.73 10.26 52 OCT-SEP
MINIMUM 1977 1987 1987 (PERCENT OF AV STATION 4 YEARS OF RECORD	OCT 1.06 0.00 0.34 0.02 7G) 2 TAHOE 77 OCT 1.81 0.00	2.35 0.00 1.37 0.06 3 CITY,	3.55 0.00 2.70 1.66 47 CA DEC 5.62 0.23	4.65 0.37 2.22 2.80 60 JAN 6.03 0.35	3.25 0.00 1.04 3.52 108	2.64 0.18 2.01 1.98 75 MAR 3.92	1.53 0.00 0.00 0.16 10 APR 2.16	0.32 0.00 0.41 0.06 19 MAY	0.11 0.00 0.00 0.00	0.03 0.00 0.35 0.00 JUL 0.27 0.00 0.06	0.05 0.00 0.00 0.00 AUG 0.29 0.00	0.19 0.00 0.47 0.00 SEP 0.60 0.00 0.15	19.73 10.26 52 OCT-SEP 31.29
MINIMUM 1977 1987 1987 (PERCENT OF AV STATION 4 YEARS OF RECORD AVERAGE MINIMUM	OCT 1.06 0.00 0.34 0.02 7G) 2 TAHOE 77 OCT 1.81 0.00 1.05	2.35 0.00 1.37 0.06 3 CITY, NOV 3.70 0.00	3.55 0.00 2.70 1.66 47 CA DEC 5.62 0.23 0.29	4.65 0.37 2.22 2.80 60 JAN 6.03 0.35 1.07	3.25 0.00 1.04 3.52 108 FEB 5.12 0.00	2.64 0.18 2.01 1.98 75 MAR 3.92 0.11	1.53 0.00 0.00 0.16 10 APR 2.16 0.06	0.32 0.00 0.41 0.06 19 MAY 1.11 0.00 1.50	0.11 0.00 0.00 0.00	0.03 0.00 0.35 0.00 JUL 0.27 0.00	0.05 0.00 0.00 0.00 AUG 0.29 0.00	0.19 0.00 0.47 0.00 SEP 0.60 0.00	19.73 10.26

Table 2.--Comparison of 1\$87 monthly precipitation with average monthly precipitation, historic minimum monthly precipitation, and 1977 monthly precipitation--Continued

TO A TO TO E	AMEDIC	AM PAT	10 10										
STATION 5 PERIOD OF RECORD	AMERIC 1949-8		.LS, 10	ı									
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	0.93	1.04	0.95	1.11	0.80	0.96	1.06	1.43	0.96	0.56	0.64	0.74	11.18
MINIMUM	0.00	0.00	0.11	0.13	0.09	0.11	0.13	0.26	0.08	0.00	0.03	0.00	
1977	0.76	0.00	0.11	0.46	0.43	0.83	0.15	2.25	0.91	0.86	0.30	0.94	
1987	0.38	0.34	0.18	0.80	0.76	1.21	0.17	3.23	1.50	1.26	0.04	0.00	9.87
1987 (PERCENT OF A	AVG) 41	33	19	72	95	126	16	226	156	225	6		88
STATION 6	AVERY,	ID											
PERIOD OF RECORD	1914-8	15											
	ост	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL.	AUG	SEP	OCT-SEP
AVERAGE	2.84	3.87	4.35	4.39	3.25	3.28	2.50	2.46	2.36	1.07	1.24	1.92	33.53
MINIMUM	0.06	0.18	0.47	0.59	0.50	0.74	0.15	0.22	0.00	0.00	0.00	0.00	
1977	1.85	2.17	2.79	2.89	2.30	3.51	0.41	5.08	1.16	1.92	3.40	4.14	
1987	1.36	5.54	1.83	2.64	2.32	3.52	2.61	2.28	1.25	2.67	0.68	0.05	26.75
1987 (PERCENT OF A	AVG) 48	143	42	60	71	107	104	93	53	250	55	3	80
STATION 7	BOISE.	ID								· · · · · · · · · · · · · · · · · · ·			
PERIOD OF RECORD	1909-8	5											
	ост	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	0.94	1.40	1.38	1.50	1.24	1.23	1.21	1.20	0.87	0.30	0.28	0.59	12.14
MINIMUM	0.00	0.01	0.09	0.12	0.19	0.18	0.09	0.01	0.00	0.00	0.00	0.00	
1977	0.52	0.14	0.09	0.65	0.57	0.86	0.19	1.80	1.26	0.41	0.73	1.20	
1987	0.33	1.00	0.12	0.73	1.24	2.01	0.38	0.69	0.58	0.70	0.11	0.00	7.89
1987 (PERCENT OF A	AVG) 35	⁻ 71	9	49	100	163	31	58	67	233	39		65
STATION 8	BONNER	S FERF	Y, ID										
PERIOD OF RECORD	1928-8												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	2.09	3.13	3.48	3.00	2.05	1.67	1.30	1.52	1.69	0.87	0.94	1.33	23.07
MINIMUM	0.04	0,15	0.21	0.22	0.40	0.32	0.12	0.24	0.06	0.00	0.00	0.10	
1977	0.84	1.06	0.85	0.96	0.79	0.89	0.33	1.08	0.99	0.59	1.77	1.88	
1987	1.14	4.44	1.49	1.46	1.88	3.,84	1.47	1.05	1.49	1.38	0.83	0.36	20.83
	AVG) 55		43	49	92	230							

Table 2.--Comparison of 1987 monthly precipitation with average monthly precipitation, historic minimum monthly precipitation, and 1977 monthly precipitation--Continued

TATION 9 PERIOD OF RECORD	LEWISTO 1948-85												
	OCT	моч	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	1.09	1.18	1.28	1.29	0.93	1.05	1.12	1.47	1.45	0.60	0.73	0.80	12.99
MINIMUM	0.01	0.23	0.14	0.24	0.21	0.25	0.05	0.27	0.24	0.00	0.00	0.00	
1977	1.13	0.23	0.26	0.34	0.36	0.92	0.10	1.63	0.35	0.39	1.65	2.22	
1987	0.30	1.44	0.53	0.56	0.44	0.91	0.83	0.84	1.44	2.60	0.34	0.01	10.24
1987 (PERCENT OF A	AVG) 28	122	41	43	47	87	74	57	99	433	47	1	79
STATION 10	BUTTE,	MT											
PERIOD OF RECORD	1900-8	5											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	0.82	0.60	0.61	0.61	0.54	0.82	1.04	1.89	2.32	1.21	1.12	1.15	12.73
MINIMUM	0.00	0.00	0.02	0.00	0.02	0.07	0.11	0.09	0.29	0.04	0.00	0.00	
1977	0.32	0.15	0.06	0.77	0.04	0.71	0.67	1.61	1.78	1.84	1.34	3.15	
					0.00	0 07	0.36	3.88	0.49	4.44	1.51	0.07	13.90
1987	0.26	1.34	0.10	0.22	0.36	0.87	0.30	3.00					
1987 (PERCENT OF	AVG) 32	223	16	36	67	106	35	205	21	367	135	6	109
1987 (PERCENT OF		223 ELL, M	16				-				135	6	109
1987 (PERCENT OF STATION 11	AVG) 32 KALISP	223 ELL, M	16				-				135	5 SEP	
	AVG) 32 KALISP 1900-8	223 ELL, M	16	36	67	106	35	205 MAY	21	367 JUL			
PERIOD OF RECORD	AVG) 32 KALISP 1900-8 OCT	223 ELL, M	16 TT DEC 1.81	36	67 FEB	106	35 APR 1.18	205 MAY	JUN 2.59	367 JUL	AUG	SEP	OCT-SEP
1987 (PERCENT OF STATION 11 PERIOD OF RECORD	AVG) 32 KALISP 1900-8 OCT 1.33	223 ELL, M 5 NOV	16 TT DEC 1.81 0.32	36 JAN 1.66	67 FEB	106 MAR 1.02	35 APR 1.18	205 MAY 2.07	JUN 2.59	367 JUL 1.21	AUG	SEP 1.48 0.09 2.19	OCT-SEP 18.47
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM	KALISP 1900-8 OCT 1.33 0.00	223 ELL, M 5 NOV 1.59 0.12	16 TT DEC 1.81 0.32	JAN 1.66 0.20	FEB 1.22 0.00	106 MAR 1.02 0.17	35 APR 1.18 0.20	205 MAY 2.07 0.43	JUN 2.59 0.33	JUL 1.21 0.02 2.57 3.98	AUG 1.31 0.00 1.13 1.35	SEP 1.48 0.09 2.19 0.60	OCT-SEP 18.47 16.30
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977	XALISP 1900-8 OCT 1.33 0.00 0.38 0.51	223 ELL, M 5 NOV 1.59 0.12 0.47	16 DEC 1.81 0.32 0.65	JAN 1.66 0.20 0.81	FEB 1.22 0.00 0.97	106 MAR 1.02 0.17 1.18	AFR 1.18 0.20 0.43	205 MAY 2.07 0.43 1.40	JUN 2.59 0.33 0.43	JUL 1.21 0.02 2.57	AUG 1.31 0.00 1.13	SEP 1.48 0.09 2.19	OCT-SEP
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987	XALISP 1900-8 OCT 1.33 0.00 0.38 0.51	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116	16 DEC 1.81 0.32 0.65 0.52	JAN 1.66 0.20 0.81 0.66	FEB 1.22 0.00 0.97 0.61	106 MAR 1.02 0.17 1.18 2.96	APR 1.18 0.20 0.43 1.19	205 MAY 2.07 0.43 1.40 0.88	JUN 2.59 0.33 0.43 1.20	JUL 1.21 0.02 2.57 3.98	AUG 1.31 0.00 1.13 1.35	SEP 1.48 0.09 2.19 0.60	OCT-SEP 18.47 16.30
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF	AVG) 32 KALISP 1900-8 OCT 1.33 0.00 0.38 0.51 AVG) 38	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116	16 DEC 1.81 0.32 0.65 0.52	JAN 1.66 0.20 0.81 0.66	FEB 1.22 0.00 0.97 0.61	106 MAR 1.02 0.17 1.18 2.96	APR 1.18 0.20 0.43 1.19	205 MAY 2.07 0.43 1.40 0.88	JUN 2.59 0.33 0.43 1.20	JUL 1.21 0.02 2.57 3.98	AUG 1.31 0.00 1.13 1.35	SEP 1.48 0.09 2.19 0.60	OCT-SEP 18.47 16.30
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 12	AVG) 32 KALISP 1900-8 OCT 1.33 0.00 0.38 0.51 AVG) 38	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116	DEC 1.81 0.32 0.65 0.52 29	JAN 1.66 0.20 0.81 0.66	FEB 1.22 0.00 0.97 0.61	106 MAR 1.02 0.17 1.18 2.96	APR 1.18 0.20 0.43 1.19	205 MAY 2.07 0.43 1.40 0.88 43	JUN 2.59 0.33 0.43 1.20	JUL 1.21 0.02 2.57 3.98	AUG 1.31 0.00 1.13 1.35	SEP 1.48 0.09 2.19 0.60	OCT-SEP 18.47 16.30 88
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 12	XALISP 1900-8 OCT 1.33 0.00 0.38 0.51 AVG) 38	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116 NV 35	DEC 1.81 0.32 0.65 0.52 29	JAN 1.66 0.20 0.81 0.66 40	FEB 1.22 0.00 0.97 0.61 50	106 MAR 1.02 0.17 1.18 2.96 290	APR 1.18 0.20 0.43 1.19 101	205 MAY 2.07 0.43 1.40 0.88 43	JUN 2.59 0.33 0.43 1.20 46	JUL 1.21 0.02 2.57 3.98 329	AUG 1.31 0.00 1.13 1.35 103	SEP 1.48 0.09 2.19 0.60 41	OCT-SEP 18.47 16.30 88
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 12 PERIOD OF RECORD	AVG) 32 KALISP 1900-8 OCT 1.33 0.00 0.38 0.51 AVG) 38 ELKO, 1952-8	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116 NV 35 NOV 0.93	DEC 1.81 0.32 0.65 0.52 29 DEC	JAN 1.66 0.20 0.81 0.66 40 JAN 1.09	FEB 1.22 0.00 0.97 0.61 50 FEB	MAR 1.02 0.17 1.18 2.96 290 MAR 0.98	APR 1.18 0.20 0.43 1.19 101 APR 0.84	MAY 2.07 0.43 1.40 0.88 43	JUN 2.59 0.33 0.43 1.20 46	JUL 1.21 0.02 2.57 3.98 329 JUL 0.32	AUG 1.31 0.00 1.13 1.35 103 AUG 0.62	SEP 1.48 0.09 2.19 0.60 41	OCT-SEP 18.47 16.30 88
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 12 PERIOD OF RECORD	AVG) 32 KALISP 1900-8 OCT 1.33 0.00 0.38 0.51 AVG) 38 ELKO, 1952-8 OCT 0.64	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116 NV 35 NOV 0.93 0.00	DEC 1.81 0.32 0.65 0.52 29 DEC 1.12 0.00	JAN 1.66 0.20 0.81 0.66 40 JAN 1.09 0.04	FEB 1.22 0.00 0.97 0.61 50 FEB 0.77 0.08	MAR 1.02 0.17 1.18 2.96 290 MAR 0.98 0.13	APR 1.18 0.20 0.43 1.19 101 APR 0.84 0.14	MAY 2.07 0.43 1.40 0.88 43 MAY 1.00 0.00	JUN 2.59 0.33 0.43 1.20 46 JUN 0.88 0.01	JUL 1.21 0.02 2.57 3.98 329 JUL 0.32 0.00	AUG 1.31 0.00 1.13 1.35 103 AUG 0.62 0.00	SEP 1.48 0.09 2.19 0.60 41 SEP 0.58	OCT-SEP 18.47 16.30 88
1987 (PERCENT OF STATION 11 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 12 PERIOD OF RECORD AVERAGE MINIMUM	AVG) 32 KALISP 1900-8 OCT 1.33 0.00 0.38 0.51 AVG) 38 ELKO, 1952-8 OCT 0.64 0.00	223 ELL, M 5 NOV 1.59 0.12 0.47 1.84 116 NV 35 NOV 0.93 0.00 0.26	DEC 1.81 0.32 0.65 0.52 29 DEC 1.12 0.00 0.00	JAN 1.66 0.20 0.81 0.66 40 JAN 1.09 0.04 0.30	FEB 1.22 0.00 0.97 0.61 50 FEB 0.77 0.08 0.26	MAR 1.02 0.17 1.18 2.96 290 MAR 0.98 0.13	APR 1.18 0.20 0.43 1.19 101 APR 0.84 0.14 0.18	MAY 2.07 0.43 1.40 0.88 43 MAY 1.00 0.00 1.44	JUN 2.59 0.33 0.43 1.20 46 JUN 0.88 0.01 1.02	JUL 1.21 0.02 2.57 3.98 329 JUL 0.32 0.00 0.22	AUG 1.31 0.00 1.13 1.35 103 AUG 0.62 0.00 1.57	SEP 1.48 0.09 2.19 0.60 41 SEP 0.58 0.00	OCT-SEP 18.47 16.30 88

Table 2.--Comparison of 1987 monthly precipitation with average monthly precipitation, historic minimum monthly precipitation, and 1977 monthly precipitation--Continued

STATION 13	DETROI	T DAM	OR										
PERIOD OF RECORD	1951-8												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	7.46	12.62	15.14	13.36	10.24	9.68	6.32	4.91	3.45	0.74	1,56	3.44	88.92
MINIMUM	0.51	2.71	3.56	0.43	3,68	1.76	2.52	1.35	0.35	0.00	0.00	0.01	
1977	2.66	2.86	3.56	1.98	5.19	12.15	3.07	10.60	1.28	0.45	3.33	6.40	
1987	3.55	18.99	4.21	11.00	10.01	9.20	4.64	4.42	1.14	2.60	0.40	0.95	71.11
1987 (PERCENT OF A	AVG) 48	150	28	82	98	95	73	90	33	351	26	28	80
STATION 14	JOHN D	AY. O	3										
PERIOD OF RECORD	1912-8	-											
	ост	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	1.11	1.45	1.56	1.53	1.11	1.30	1.42	1.54	1.38	0.48	0.69	0.85	14.42
MINIMUM	0.00	0.06	0.13	0.10	0.04	0.16	0.25	0.04	0.00	0.00	0.00	0.00	
1977	0.60	0.55	0.19	0.47	0.23	1.17	0.64	1.98	0.81	0.07	1.08	1.43	
1987	0.80	1.92	0.14	0.78	0.50	0.82	0.58	1.92	1.72	1.84	0.11	0.00	11.13
1987 (PERCENT OF A	AVG) 72	132	9	51	45	63	41	125	125	383	16		77

STATION 15	NEWPOR	T OR											
	NEWPOR	•											
		•	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEE
PERIOD OF RECORD	1934-8 OCT	NOV		JAN 10.36			APR 4.63		JUN 2.57		AUG	SEP 2.81	OCT-SEE
PERIOD OF RECORD	1934-8 OCT	NOV 9.83	12.01		8.37		4.63	3.09					
PERIOD OF RECORD AVERAGE MINIMUM	1934-8 OCT 5.95 0.53	NOV 9.83 1.14	12.01 2.86	10.36	8.37 2.66	8.06	4.63 0.86	3.09 0.36	2.57	0.92	1.17	2.81	
AVERAGE MINIMUM 1977	1934-8 OCT 5.95 0.53 2.34	NOV 9.83 1.14 2.06	12.01 2.86 2.86	10.36 0.68 2.30	8.37 2.66 7.09	8.06 1.35 8.82	4.63 0.86 1.20	3.09 0.36	2.57 0.14 1.15	0.92	1.17	2.81	
AVERAGE MINIMUM 1977 1987	1934-8 OCT 5.95 0.53 2.34 4.42	9.83 1.14 2.06 9.68	12.01 2.86 2.86 4.08	10.36 0.68 2.30 11.94	8.37 2.66 7.09 7.12	8.06 1.35 8.82 11.02	4.63 0.86 1.20	3.09 0.36 6.21	2.57 0.14 1.15	0.92 0.00 2.30	1.17 0.03 3.07	2.81 0.03 5.37	
STATION 15 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1934-8 OCT 5.95 0.53 2.34 4.42	9.83 1.14 2.06 9.68 98	12.01 2.86 2.86 4.08	10.36 0.68 2.30 11.94	8.37 2.66 7.09 7.12	8.06 1.35 8.82 11.02	4.63 0.86 1.20 2.11	3.09 0.36 6.21 7.75	2.57 0.14 1.15 0.63	0.92 0.00 2.30 2.43	1.17 0.03 3.07 0.10	2.81 0.03 5.37 0.21	69.77 61.49
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1934-8 OCT 5.95 0.53 2.34 4.42 AVG) 74	9.83 1.14 2.06 9.68 98	12.01 2.86 2.86 4.08	10.36 0.68 2.30 11.94	8.37 2.66 7.09 7.12	8.06 1.35 8.82 11.02	4.63 0.86 1.20 2.11	3.09 0.36 6.21 7.75	2.57 0.14 1.15 0.63	0.92 0.00 2.30 2.43	1.17 0.03 3.07 0.10	2.81 0.03 5.37 0.21	69.77 61.49
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1934-8 OCT 5.95 0.53 2.34 4.42 AVG) 74 MEDFOR	9.83 1.14 2.06 9.68 98	12.01 2.86 2.86 4.08 34	10.36 0.68 2.30 11.94 115	8.37 2.66 7.09 7.12 85	8.06 1.35 8.82 11.02	4.63 0.86 1.20 2.11	3.09 0.36 6.21 7.75	2.57 0.14 1.15 0.63	0.92 0.00 2.30 2.43	1.17 0.03 3.07 0.10	2.81 0.03 5.37 0.21	69.77 61.49 88
AVERAGE MINIMUM 1977 1987 1987 1987 (PERCENT OF A	1934-8 OCT 5.95 0.53 2.34 4.42 AVG) 74 MEDFOR 1912-8	9.83 1.14 2.06 9.68 98 RD, OR	12.01 2.86 2.86 4.08 34	10.36 0.68 2.30 11.94 115	8.37 2.66 7.09 7.12 85	8.06 1.35 8.82 11.02 137	4.63 0.86 1.20 2.11 46	3.09 0.36 6.21 7.75 251	2.57 0.14 1.15 0.63 25	0.92 0.00 2.30 2.43 264	1.17 0.03 3.07 0.10 9	2.81 0.03 5.37 0.21 7	69.77 61.49 88
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION 16 PERIOD OF RECORD	1934-8 OCT 5.95 0.53 2.34 4.42 AVG) 74 MEDFOR 1912-6 OCT 1.60	9.83 1.14 2.06 9.68 98 RD, OR	12.01 2.86 2.86 4.08 34 DEC	10.36 0.68 2.30 11.94 115	8.37 2.66 7.09 7.12 85 FEB	8.06 1.35 8.82 11.02 137 MAR	4.63 0.86 1.20 2.11 46 APR	3.09 0.36 6.21 7.75 251 MAY	2.57 0.14 1.15 0.63 25 JUN 0.82	0.92 0.00 2.30 2.43 264	1.17 0.03 3.07 0.10 9	2.81 0.03 5.37 0.21 7	69.77 61.49 88
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION 16 PERIOD OF RECORD AVERAGE MINIMUM	1934-8 OCT 5.95 0.53 2.34 4.42 AVG) 74 MEDFOR 1912-8 OCT 1.60 0.00	9.83 1.14 2.06 9.68 98 RD, OR 85 NOV 2.87 0.01	12.01 2.86 2.86 4.08 34 DEC 3.20 0.36	10.36 0.68 2.30 11.94 115 JAN 2.73 0.19	8.37 2.66 7.09 7.12 85 FEB 2.11 0.10	8.06 1.35 8.82 11.02 137 MAR 1.66	4.63 0.86 1.20 2.11 46 APR 1.20 0.16	3.09 0.36 6.21 7.75 251 MAY 1.15 0.00	2.57 0.14 1.15 0.63 25 JUN 0.82 0.00	0.92 0.00 2.30 2.43 264 JUL 0.25 0.00	1.17 0.03 3.07 0.10 9 AUG 0.32 0.00	2.81 0.03 5.37 0.21 7 SEP 0.73 0.00	69.77 61.49 88
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1934-8 OCT 5.95 0.53 2.34 4.42 AVG) 74 MEDFOR 1912-6 OCT 1.60	9.83 1.14 2.06 9.68 98 RD, OR 85 NOV 2.87 0.01	12.01 2.86 2.86 4.08 34 DEC 3.20 0.36 0.36	10.36 0.68 2.30 11.94 115	8.37 2.66 7.09 7.12 85 FEB 2.11 0.10	8.06 1.35 8.82 11.02 137 MAR 1.66 0.00 1.12	4.63 0.86 1.20 2.11 46 APR 1.20 0.16 0.81	3.09 0.36 6.21 7.75 251 MAY	2.57 0.14 1.15 0.63 25 JUN 0.82 0.00	0.92 0.00 2.30 2.43 264	1.17 0.03 3.07 0.10 9	2.81 0.03 5.37 0.21 7	69.77 61.49 88 OCT-SEF

Table 2.--Comparison of 1987 monthly precipitation with average monthly precipitation, historic minimum monthly precipitation, and 1977 monthly precipitation--Continued

TATION 17	COLVILL	F WA											
ERIOD OF RECORD	1928-85	-											
	OCT	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
VERAGE	1.32	2.09	2.27	1.92	1.45	1.31	1.03	1.52	1.60	0.80	0.83	0.91	17.05
INIMUM		_,	0.54	0.40	0.11	0.15	0.03	0.07	0.16	0.00	0.00	0.01	
977			0.74	0.72	0.36	0.93	0.13	2.10	1.18	0.40	1.23	1.50	
.987	0.87	1.67	1.49	1.60	0.67	3.57	1.22	1.72	1.91	1.60	0.70	0.37	17.39
987 (PERCENT OF A	AVG) 66	80	66	83	46	273	118	113	119	200	84	41	102
STATION 18	DAYTON	, WA											
PERIOD OF RECORD	1910-8												
	OCT	VOИ	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERA CE	1.63	2.50	2.61	2.38	1.91	2.10	1.54	1.39	1.29	0.41	0.54	0.96	19.26
AVERAGE	0.00	0.04	0.84	0.31		0.35		0.12		0.00	0.00	0.01	
MINIMUM 1977	0.38	1.08	0.96	0.31		1.61		1.48	0.49	0.27	2.33	1.09	
1987	0.72	4.18	0.28	2.40			1.40	1.93	0.73	1.53	0.64	0.12	16.66
											110	12	87
1987 (PERCENT OF	AVG) 44	167	11	101	82	52	91	139	57	373	119	13	
STATION 19 PERIOD OF RECORD	EPHRAT	A, WA	11	101	82	52	91	139	57	3/3	119	13	
STATION 19	EPHRAT	A, WA	DEC DEC	JAN	FEB	52	91 APR	139 MAY	JUN	JUL	AUG	SEP	OCT-SEP
STATION 19 PERIOD OF RECORD	EPHRAT 1926-8 OCT	A, WA 5 NOV	DEC	JAN	FEB	MAR			. <u></u>				
STATION 19 PERIOD OF RECORD AVERAGE	EPHRAT 1926-8 OCT 0.60	A, WA 5 NOV 1.04	DEC 1.14		e e e e e e e e e e e e e e e e e e e	·················	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM	EPHRAT 1926-8 OCT	A, WA 5 NOV 1.04	DEC	JAN 0.92	FEB 0.72	MAR 0.64	APR 0.49	MAY 0.60	JUN 0.72	JUL 0.24	AUG 0.26	SEP 0.43	OCT-SEP
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977	EPHRAT 1926-8 OCT 0.60 0.01	NOV 1.04 0.00 0.00	DEC 1.14 0.07	JAN 0.92 0.00	FEB	MAR 0.64 0.01	APR 0.49 0.00	MAY 0.60 0.00	JUN 0.72 0.00	JUL 0.24 0.00	AUG 0.26 0.00	SEP 0.43 0.00	OCT-SEP
STATION 19 PERIOD OF RECORD AVERAGE	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48	NOV 1.04 0.00 0.00	DEC 1.14 0.07 0.07	JAN 0.92 0.00 0.00	FEB 0.72 0.00 0.46	MAR 0.64 0.01 0.30	APR 0.49 0.00 0.01	MAY 0.60 0.00 0.37	JUN 0.72 0.00 0.44	JUL 0.24 0.00 0.02	AUG 0.26 0.00 0.63	SEP 0.43 0.00 0.71	OCT-SEP
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80	A, WA 5 NOV 1.04 0.00 0.00	DEC 1.14 0.07 0.07 1.29 113	JAN 0.92 0.00 0.00 0.81 88	FEB 0.72 0.00 0.46 0.38	MAR 0.64 0.01 0.30 1.34	APR 0.49 0.00 0.01 0.10	MAY 0.60 0.00 0.37 0.24	JUN 0.72 0.00 0.44 0.69	JUL 0.24 0.00 0.02 1.28	AUG 0.26 0.00 0.63 0.02	SEP 0.43 0.00 0.71 0.02	OCT-SEP 7.80 7.34
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80	NOV 1.04 0.00 0.00 0.69 66	DEC 1.14 0.07 0.07 1.29 113	JAN 0.92 0.00 0.00 0.81 88	FEB 0.72 0.00 0.46 0.38	MAR 0.64 0.01 0.30 1.34	APR 0.49 0.00 0.01 0.10	MAY 0.60 0.00 0.37 0.24	JUN 0.72 0.00 0.44 0.69	JUL 0.24 0.00 0.02 1.28	AUG 0.26 0.00 0.63 0.02	SEP 0.43 0.00 0.71 0.02	OCT-SEP 7.80 7.34
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80	NOV 1.04 0.00 0.00 0.69 66	DEC 1.14 0.07 0.07 1.29 113	JAN 0.92 0.00 0.00 0.81 88	FEB 0.72 0.00 0.46 0.38	MAR 0.64 0.01 0.30 1.34	APR 0.49 0.00 0.01 0.10	MAY 0.60 0.00 0.37 0.24 40	JUN 0.72 0.00 0.44 0.69 96	JUL 0.24 0.00 0.02 1.28 533	AUG 0.26 0.00 0.63 0.02 8	SEP 0.43 0.00 0.71 0.02 5	OCT-SEP 7.80 7.34 94
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80	1.04 0.00 0.00 0.69 66	DEC 1.14 0.07 0.07 1.29 113	JAN 0.92 0.00 0.00 0.81 88	FEB 0.72 0.00 0.46 0.38 53	MAR 0.64 0.01 0.30 1.34	APR 0.49 0.00 0.01 0.10 20	MAY 0.60 0.00 0.37 0.24 40	JUN 0.72 0.00 0.44 0.69 96	JUL 0.24 0.00 0.02 1.28	AUG 0.26 0.00 0.63 0.02	SEP 0.43 0.00 0.71 0.02	OCT-SEP 7.80 7.34
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80	1.04 0.00 0.00 0.69 66	DEC 1.14 0.07 0.07 1.29 113 HEE, WA	JAN 0.92 0.00 0.00 0.81 88	FEB 0.72 0.00 0.46 0.38 53	MAR 0.64 0.01 0.30 1.34 209	APR 0.49 0.00 0.01 0.10 20	MAY 0.60 0.00 0.37 0.24 40	JUN 0.72 0.00 0.44 0.69 96	JUL 0.24 0.00 0.02 1.28 533	AUG 0.26 0.00 0.63 0.02 8	SEP 0.43 0.00 0.71 0.02 5	OCT-SEP 7.80 7.34 94
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 20 PERIOD OF RECORD	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80 LAKE V 1915-4	A, WA 5 NOV 1.04 0.00 0.69 66 WENATCH	DEC 1.14 0.07 0.07 1.29 113 HEE, W	JAN 0.92 0.00 0.00 0.81 88 A JAN 7.27	FEB 0.72 0.00 0.46 0.38 53	MAR 0.64 0.01 0.30 1.34 209	APR 0.49 0.00 0.01 0.10 20 APR 1.53	MAY 0.60 0.00 0.37 0.24 40 MAY	JUN 0.72 0.00 0.44 0.69 96 JUN 1.01	JUL 0.24 0.00 0.02 1.28 533	AUG 0.26 0.00 0.63 0.02 8 AUG 0.66 0.00	SEP 0.43 0.00 0.71 0.02 5 SEP 1.30 0.04	OCT-SEP 7.80 7.34 94 OCT-SEP
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 20 PERIOD OF RECORD	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80 LAKE 1 1915-1	A, WA 5 NOV 1.04 0.00 0.00 0.69 66 WENATCE	DEC 1.14 0.07 0.07 1.29 113 HEE, W.	JAN 0.92 0.00 0.00 0.81 88 A JAN 7.27	FEB 0.72 0.00 0.46 0.38 53 FEB 4.96 0.50	MAR 0.64 0.01 0.30 1.34 209 MAR 3.35 0.20	APR 0.49 0.00 0.01 0.10 20 APR 1.53 0.10 0.66	MAY 0.60 0.00 0.37 0.24 40 MAY 1.17 0.03 1.38	JUN 0.72 0.00 0.44 0.69 96 JUN 1.01 0.00 0.75	JUL 0.24 0.00 0.02 1.28 533 JUL 0.47 0.00 0.52	AUG 0.26 0.00 0.63 0.02 8 AUG 0.66 0.00 1.70	SEP 0.43 0.00 0.71 0.02 5 SEP 1.30 0.04 2.36	OCT-SEP 7.80 7.34 94 OCT-SEP 39.07
STATION 19 PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF STATION 20 PERIOD OF RECORD AVERAGE MINIMUM	EPHRAT 1926-8 OCT 0.60 0.01 0.12 0.48 AVG) 80 LAKE V 1915-1	A, WA 5 NOV 1.04 0.00 0.69 66 WENATCE 85 NOV 5.94	DEC 1.14 0.07 0.07 1.29 113 HEE, W. DEC 8.01 1.63 3.89	JAN 0.92 0.00 0.00 0.81 88 A JAN 7.27 0.75 2.44	FEB 0.72 0.00 0.46 0.38 53 FEB 4.96 0.50 4.11	MAR 0.64 0.01 0.30 1.34 209 MAR 3.35 0.20 4.19	APR 0.49 0.00 0.01 0.10 20 APR 1.53 0.10 0.66	MAY 0.60 0.00 0.37 0.24 40 MAY 1.17 0.03 1.38 2.19	JUN 0.72 0.00 0.44 0.69 96 JUN 1.01 0.00 0.75 0.68	JUL 0.24 0.00 0.02 1.28 533 JUL 0.47 0.00 0.52 0.82	AUG 0.26 0.00 0.63 0.02 8 AUG 0.66 0.00 1.70 0.04	SEP 0.43 0.00 0.71 0.02 5 SEP 1.30 0.04	OCT-SEP 7.80 7.34 94 OCT-SEP

Table 2.--Comparison of 1987 monthly precipitation with average monthly precipitation, historic minimum monthly precipitation, and 1977 monthly precipitation--Continued

STATION 21	PACKWO	OD, WA											
PERIOD OF RECORD	1928-8	35											
	ост	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	5.04	8.03	9.82	8.94	6.25	5.32	3.18	2.29	2.11	0.66	1.07	2.26	54.97
MINIMUM	0.81	0.73	2.48	0.59	0.99	1.39	0.58	0.24	0.10	0.00	0.00	0.00	
1977	4.02	2.43	2.48	2.15	3.23	6.12	1.40	3.69	1.11	0.41	2.84	4.60	
1987	3.44	11.67	5.01	7.55	4.46	6.79	3.14	3.27	0.72	1.84	0.11	0.51	48.51
1987 (PERCENT OF A	ATTC \ 60	145	51	84	71	128	99	143	34	279	10	23	88
		,,	····										
STATION 22 PERIOD OF RECORD		ALMIE F	····										
STATION 22	SNOQUA	ALMIE F	····		FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
STATION 22	SNOQUA 1908-4	ALMIE F	DEC	WA JAN	FEB					JUL 1.29	AUG	SEP 3.08	OCT-SEP
STATION 22 PERIOD OF RECORD	SNOQUA 1908-4	ALMIE F 35 NOV 7.96	DEC	WA JAN 7.95	FEB								
STATION 22 PERIOD OF RECORD	SNOQUA 1908-8 OCT 5.40	ALMIE F 35 NOV 7.96 1.33	DEC 8.87 2.04	WA JAN 7.95	FEB 6.06 0.69	5.75	4.30	3.26	2.73	1.29	1.55	3.08	OCT-SEP 58.20
STATION 22 PERIOD OF RECORD AVERAGE MINIMUM	SNOQUA 1908-8 OCT 5.40 0.75 3.09	ALMIE F 35 NOV 7.96 1.33	DEC 8.87 2.04	WA JAN 7.95 1.11	FEB 6.06 0.69	5.75	4.30	3.26 0.69	2.73	1.29	1.55	3.08 0.06	

TATION	10309000	EA:	ST FORE	CARS	ON RIV	er nr (GARDNE	RVILLE	, nv				
ERIOD OF RECORD	1940-86												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
VERAGE	89	143	185	189	223	273	590	1199	1043	400	146	97	381
Inimum	32	45	46	49	59	68	185	205	182	63	30	19	
977	63	53	49	49	59	68	185	205	259	63	30	19	
987	115	91	85	80	88	120	454	542	186	88	53	35	161
987 (PERCENT OF AV	G) 129	64	46	42	39	44	77	45	18	22	36	36	42
MOITATE	1032250	0 HU	MBOLDT	RIVER	R AT PA	LISADE	, nv						
PERIOD OF RECORD	1912-86	i.											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
	50	0.0	110	150	306	584	890	1052	1217	346	60	36	408
AVERAGE	58	88	110	10	30	104	30	11	6	6	4	7	
MINIMUM	10	10 115	61	57	104	174	206	170	456	73	27	20	
1977	97 102	144	165	124	219	349	265	441	278	44	21	15	181
1987 1987 (PERCENT OF AV	102	164	150	83	72	60	30	42	23	13	33	42	44
です ∧ すて○M	111520	00 A	RROYO	SECU N	K POFF								
	1902-8	6											
STATION PERIOD OF RECORD		юом	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
	1902-8		DEC	JAN 387	FEB 591			MAY 97	JUN 40		AUG 6	SEP 5	OCT-SEP
PERIOD OF RECORD	1902-8 OCT	NOV				MAR	APR						
PERIOD OF RECORD	1902-8 OCT 10	NOV 59	177	387	591	MAR 461	APR 269	97 4	40	15 0 0	6 0 0	5 0 0	176
PERIOD OF RECORD AVERAGE MINIMUM	1902-8 OCT 10 0	NOV 59	177 8	387 10	591 12	MAR 461 19	APR 269 8	97 4 4	40 1 3 8	15 0 0 3	6 0	5 0	176 45
PERIOD OF RECORD AVERAGE MINIMUM 1977	1902-8 OCT 10 0 1 18	NOV 59 0 3	177 8 10	387 10 24	591 12 12	MAR 461 19	APR 269 8 8	97 4 4 23	40 1 3 8	15 0 0	6 0 0	5 0 0	176
PERIOD OF RECORD AVERAGE MINIMUM 1977 1987	1902-8 OCT 10 0 1 18	NOV 59 0 3 21 36	177 8 10 28	387 10 24 38 10	591 12 12 190 32	MAR 461 19 19 152 33	APR 269 8 8 54	97 4 4 23	40 1 3 8	15 0 0 3	6 0 0	5 0 0	176 45
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1902-8 OCT 10 0 1 18 NVG) 180	NOV 59 0 3 21 36	177 8 10 28 16	387 10 24 38 10	591 12 12 190 32	MAR 461 19 19 152 33	APR 269 8 8 54	97 4 4 23	40 1 3 8	15 0 0 3	6 0 0	5 0 0	176 45
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1902-8 OCT 10 0 1 18 VG) 180	NOV 59 0 3 21 36	177 8 10 28 16 KERN R	387 10 24 38 10	591 12 12 190 32	MAR 461 19 19 152 33	APR 269 8 8 54 20	97 4 4 23 24	40 1 3 8 20	15 0 0 3	6 0 0	5 0 0	176 45
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1902-8 OCT 10 0 1 18 VG) 180	NOV 59 0 3 21 36	177 8 10 28 16 KERN RI	387 10 24 38 10	591 12 12 190 32 I KERN'	MAR 461 19 19 152 33 VILLE,	APR 269 8 8 54 20 CA	97 4 4 23 24	40 1 3 8 20	15 0 0 3 20 JUL 1187	6 0 0 0 0	5 0 0 0 SEP	176 45 33
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD	1902-8 OCT 10 0 1 18 VG) 180 111870 1954-8	NOV 59 0 3 21 36 000 1 36 NOV 280	177 8 10 28 16 KERN RI	387 10 24 38 10 	591 12 12 190 32 T KERN' FEB	MAR 461 19 19 152 33 WILLE, MAR 796	APR 269 8 8 54 20 CA	97 4 4 23 24 4 MAX	40 1 3 8 20 7 JUN 3 2331	JUL 1187 118	6 0 0 0 521 113	5 0 0 0 SEP 310 95	176 45 33
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD	1902-8 OCT 10 0 1 18 VG) 180 111870 1954-8 OCT 250	NOV 59 0 3 21 36 000 1 36 NOV 280 114	177 8 10 28 16 KERN RI DEC 465 137	387 10 24 38 10 	591 12 12 190 32 I KERN' FEB 658 164	MAR 461 19 152 33 WILLE, MAR 796 186	APR 269 8 8 54 20 CA APR 1271 344	97 4 23 24 24 MAY 1 2218	40 1 3 8 20 20 2 JUN 3 2331 3 2331	JUL 1187 1187	6 0 0 0 521 113 144	5 0 0 0 SEP 310 95	176 45 33 OCT-SEP 900
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD AVERAGE MINIMUM	1902-8 OCT 10 0 1 18 VG) 180 111870 1954-8 OCT 250 90	NOV 59 0 3 21 36 000 1 36 NOV 280 114 176	177 8 10 28 16 KERN RI DEC 465 137 143	387 10 24 38 10 EVER A' JAN 510 150 168	591 12 190 32 I KERN' FEB 658 164 187	MAR 461 19 152 33 WILLE, MAR 796 186 186	APR 269 8 8 54 20 CA APR 1271 344 344	97 4 23 24 1 MAY 1 2218 4 366 4 366	40 1 3 8 20 7 JUN 3 2331 5 281 5 554	JUL 1187 118 166	6 0 0 0 521 113 144	5 0 0 0 SEP 310 95 95 163	176 45 33

STATION	113485	00 P	IT RIV	ER NR	CANBY,	CA							
ERIOD OF RECORD	1932-8	6											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
VERAGE	82	107	207	313	440	546	494	441	279	70	47	69	258
MINIMUM	0	13	31	15	19	6	1	7	14	7	0	0	
1977	72	79	79	57	98	71	18	144	73	18	21	31	
1987	81	84	87	100	151	197	94	108	69	57	27	28	90
1987 (PERCENT OF AV	(G) 99	79	42	32	34	36	19	24	25	81	57	41	35
STATION	114270	00 N	f amer	ICAN R	IVER A	T NF D	AM, CA						
PERIOD OF RECORD	1942-8	6											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	117	434	999	1345	1506	1441	1636	1696	821	198	68	51	859
MINIMUM	18	36	34	62	81	114	207	294	95	26	13	15	
1977	33	42	34	62	81	114	207	294	142	26	13	15	
1987	99	80	78	136	548	730	790	432	110	45	29	28	259
1987 (PERCENT OF AV	/G) 85	18	8	10	26		۸.0	~-	10				20
(LENGENT OF A	,	10	0	10	36	51	48	25	13	23	45	55	30
, (EERODII OF AV								25	13		4 5		30
STATION	115225	00 S		RIVER				25			45		
STATION		00 S						25			45		30
STATION	115225	00 S						MAY	JUN	JUL	AUG	SEP	OCT-SEP
STATION PERIOD OF RECORD	115225 1928-8	00 S	ALMON	RIVER JAN	AT SOM	ES BAR	, CA						
STATION PERIOD OF RECORD AVERAGE MINIMUM	115225 1928-8 OCT	00 S 6 NOV	ALMON DEC	RIVER	AT SOM	ES BAR	, CA	MAY	JUN	JUL	AUG	SEP	OCT-SEP
STATION PERIOD OF RECORD AVERAGE MINIMUM	115225 1928-8 OCT	00 S 6 NOV 1196	ALMON DEC	JAN 2926	AT SOM FEB 3013	ES BAR MAR 2913	, CA APR 3011	MAY 3145	JUN 1872	JUL 608	AUG 258	SEP	OCT-SEP
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977	115225 1928-8 OCT 360 118	00 S 6 NOV 1196	DEC 2368 175	JAN	FEB 3013 255	ES BAR MAR 2913 448	, CA APR 3011 710	MAY 3145 786	JUN 1872 427	JUL 608 146	AUG 258 82	SEP 200 83	OCT-SEP
STATION PERIOD OF RECORD AVERAGE	115225 1928-8 OCT 360 118 191 412	00 S 6 NOV 1196 130 219	DEC 2368 175 187	JAN	FEB 3013 255 255	MAR 2913 448 448	, CA APR 3011 710 710	MAY 3145 786 786	JUN 1872 427 603	JUL 608 146 152	AUG 258 82 98	SEP 200 83 206	OCT-SEP
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987	115225 1928-8 OCT 360 118 191 412 VG) 114	00 S 6 NOV 1196 130 219 430 36	DEC 2368 175 187 631 27	JAN 2926 190 218 1349 46	FEB 3013 255 255 2163 72	MAR 2913 448 448 2429 83	, CA APR 3011 710 710 2299 76	MAY 3145 786 786 1731 55	JUN 1872 427 603 572	JUL 608 146 152 239	AUG 258 82 98 144	SEP 200 83 206 125	OCT-SEP 1823
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AV	115225 1928-8 OCT 360 118 191 412	00 S 6 NOV 1196 130 219 430 36	DEC 2368 175 187 631 27	JAN 2926 190 218 1349	FEB 3013 255 255 2163 72	MAR 2913 448 448 2429 83	, CA APR 3011 710 710 2299 76	MAY 3145 786 786 1731 55	JUN 1872 427 603 572	JUL 608 146 152 239	AUG 258 82 98 144	SEP 200 83 206 125	OCT-SEP 1823
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AV	115225 1928-8 OCT 360 118 191 412 VG) 114	00 S 6 NOV 1196 130 219 430 36	DEC 2368 175 187 631 27	JAN 2926 190 218 1349 46	AT SOM FEB 3013 255 255 2163 72 VER NR	MAR 2913 448 448 2429 83	, CA APR 3011 710 710 2299 76	MAY 3145 786 786 1731 55	JUN 1872 427 603 572 31	JUL 608 146 152 239 39	AUG 258 82 98 144 56	SEP 200 83 206 125 63	OCT-SEP 1823 1044 57
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERCENT	115225 1928-8 OCT 360 118 191 412 VG) 114	00 S 6 NOV 1196 130 219 430 36	DEC 2368 175 187 631 27	JAN 2926 190 218 1349 46	FEB 3013 255 255 2163 72	MAR 2913 448 448 2429 83	, CA APR 3011 710 710 2299 76	MAY 3145 786 786 1731 55	JUN 1872 427 603 572	JUL 608 146 152 239	AUG 258 82 98 144	SEP 200 83 206 125	OCT-SEP 1823
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERCENT	115225 1928-8 OCT 360 118 191 412 VG) 114	00 S 6 NOV 1196 130 219 430 36 500 S	DEC 2368 175 187 631 27	JAN 2926 190 218 1349 46	FEB 3013 255 255 2163 72 VER NR	MAR 2913 448 448 2429 83	, CA APR 3011 710 710 2299 76	MAY 3145 786 786 1731 55	JUN 1872 427 603 572 31	JUL 608 146 152 239 39	AUG 258 82 98 144 56	SEP 200 83 206 125 63	OCT-SEP 1823 1044 57
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AV	115225 1928-8 OCT 360 118 191 412 VG) 114 121345 1929-8	00 S 6 NOV 1196 130 219 430 36 500 S	DEC 2368 175 187 631 27	PRIVER JAN 2926 190 218 1349 46 CSH RIV	FEB 3013 255 255 2163 72 VER NR	MAR 2913 448 448 2429 83 GOLD F	, CA APR 3011 710 710 2299 76 AR, WA	MAY 3145 786 786 1731 55	JUN 1872 427 603 572 31	JUL 608 146 152 239 39	AUG 258 82 98 144 56	SEP 200 83 206 125 63	OCT-SEP 1823 1044 57
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERAGE) STATION PERIOD OF RECORD	115225 1928-8 OCT 360 118 191 412 VG) 114 121345 1929-8	00 S 6 NOV 1196 130 219 430 36 800 S 86 NOV	ALMON DEC 2368 175 187 631 27 KYKOMI	JAN 2926 190 218 1349 46 CSH RIV JAN 4037 945	FEB 3013 255 255 2163 72 VER NR FEB 3554 791	MAR 2913 448 448 2429 83 GOLD F	, CA APR 3011 710 710 2299 76 AR, WA APR 4298	MAY 3145 786 786 1731 55 MAY 6778	JUN 1872 427 603 572 31 JUN 6938	JUL 608 146 152 239 39 JUL 3687	AUG 258 82 98 144 56	SEP 200 83 206 125 63 SEP	OCT-SEP 1823 1044 57 OCT-SEP
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 (PERCENT OF AVERAGE) STATION PERIOD OF RECORD AVERAGE MINIMUM	115225 1928-8 OCT 360 118 191 412 VG) 114 121345 1929-8 OCT 2737 488	00 S 6 NOV 1196 130 219 430 36 NOV 4405 534	DEC 2368 175 187 631 27 EKYKOMI DEC 4925 1263	JAN 2926 190 218 1349 46 CSH RIV	FEB 3013 255 255 2163 72 VER NR FEB 3554 791	MAR 2913 448 448 2429 83 GOLD F MAR 3139 1469	, CA APR 3011 710 710 2299 76 AR, WA APR 4298 1908	MAY 3145 786 786 1731 55 MAY 6778 3425	JUN 1872 427 603 572 31 JUN 6938 2169	JUL 608 146 152 239 39 JUL 3687 971	AUG 258 82 98 144 56 AUG 1424 612	SEP 200 83 206 125 63 SEP 1430 515	OCT-SEP 1823 1044 57 OCT-SEP

Table 3.--Comparison of 1987 monthly mean flows with historic monthly mean flows, historic minimum monthly mean flows, and 1977 monthly mean flows--Continued

TATION	1230650	0 MC	YIE RI	VER A	r easti	PORT,	[D						
ERIOD OF RECORD	1930-86	3											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
VERAGE	152	214	211	167	179	274	1286	3202	2003	473	134	102	700
INIMUM	43	42	53	42	55	69	317	1174	526	127	58	44	
.977	109	97	77	76	83	79	457	1205	575	131	70	72	
.987	120	232	218	138	125	524	1412	2216	576	195	104	51	493
.987 (PERCENT OF AV	G) 79	108	103	83	70	191	110	69	29	41	78	50	70
STATION	123545	00 C	LARK F	ork at	ST RE	GIS, M	T						
PERIOD OF RECORD	1912-8	6											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	3621	3668	3526	3254	3457	4319	9358	21411	23343	8388	3379	3140	7572
MINIMUM	1854	1942	1909	1450	1592	2199	3333	7190	6395	1998	1454	1351	
1977	3907	3345	2838	2387	2584	2502	4262	7456	6758	2398	1690	2198	
1987	3356	3290	2527	2220	2467	3496		12293	6270	2848	1972	1729	4200
1987 (PERCENT OF AV		90	72	68	71	81	85	57	27	34	58	55	55
	100505			TIEAD T	TIVED N	D WEST	. CI AC.	TED M	т				
STATION PERIOD OF RECORD	123585 1940-8		F FLAT	HEAD F	RIVER N	R WEST	GLAC	IER, M	r ,				
			IF FLAT	HEAD F	RIVER N	R WEST	GLAC:	IER, M		JUL	AUG	SEP	OCT-SEP
PERIOD OF RECORD	1940-8	6						MAY		JUL 4043	AUG 1368	SEP 992	OCT-SEP
	1940-8 OCT	6 NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN 10451				
PERIOD OF RECORD	1940-8 OCT 1083	NOV	DEC 896	JAN 710	FEB 700	MAR 811	APR 3039	MAY 9812 5259	JUN 10451 3576	4043	1368	992	
PERIOD OF RECORD AVERAGE MINIMUM	1940-8 OCT 1083 367	NOV 1040 279	DEC 896 262	JAN 710 319	FEB 700 300	MAR 811 307	APR 3039 664	MAY 9812 5259 5849	JUN 10451 3576 4163	4043 1249	1368 576	992 551	
PERIOD OF RECORD AVERAGE MINIMUM 1977	1940-8 OCT 1083 367 614 935	NOV 1040 279 458	DEC 896 262 406	JAN 710 319 337	FEB 700 300 378	MAR 811 307 412	APR 3039 664 2352	MAY 9812 5259 5849 8817	JUN 10451 3576 4163 4068	4043 1249 1504	1368 576 1073	992 551 1152	2912
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1940-8 OCT 1083 367 614 935	NOV 1040 279 458 1180 113	DEC 896 262 406 852 95	JAN 710 319 337 478 67	FEB 700 300 378 432	MAR 811 307 412 1122 138	APR 3039 664 2352 5202 171	MAY 9812 5259 5849 8817	JUN 10451 3576 4163 4068	4043 1249 1504 1892	1368 576 1073 1176	992 551 1152 679	2912 2236
AVERAGE MINIMUM 1977 1987	1940-8 OCT 1083 367 614 935 VG) 86	1040 279 458 1180 113	DEC 896 262 406 852 95	JAN 710 319 337 478 67	FEB 700 300 378 432 62	MAR 811 307 412 1122 138	APR 3039 664 2352 5202 171	MAY 9812 5259 5849 8817	JUN 10451 3576 4163 4068	4043 1249 1504 1892	1368 576 1073 1176	992 551 1152 679	2912 2236
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERAGE)	1940-8 OCT 1083 367 614 935 VG) 86	1040 279 458 1180 113	DEC 896 262 406 852 95	JAN 710 319 337 478 67 RIVER	FEB 700 300 378 432 62 NR LA	MAR 811 307 412 1122 138	APR 3039 664 2352 5202 171	9812 5259 5849 8817 90	JUN 10451 3576 4163 4068 39	4043 1249 1504 1892	1368 576 1073 1176	992 551 1152 679	2912 2236
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERAGE)	1940-8 OCT 1083 367 614 935 VG) 86	1040 279 458 1180 113	DEC 896 262 406 852 95 KETTLE	JAN 710 319 337 478 67 RIVER	FEB 700 300 378 432 62 NR LA	MAR 811 307 412 1122 138 URIER,	APR 3039 664 2352 5202 171 WA	9812 5259 5849 8817 90	JUN 10451 3576 4163 4068 39	4043 1249 1504 1892 47	1368 576 1073 1176 86	992 551 1152 679 68	2912 2236 77
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERAGE) STATION PERIOD OF RECORD	1940-8 OCT 1083 367 614 935 VG) 86 124045 1930-8	1040 279 458 1180 113 500 1	DEC 896 262 406 852 95 KETTLE	JAN 710 319 337 478 67 RIVER JAN 533	FEB 700 300 378 432 62 NR LA	MAR 811 307 412 1122 138 URIER, MAR	AFR 3039 664 2352 5202 171 WA AFR 4901	9812 5259 5849 8817 90	JUN 10451 3576 4163 4068 39 JUN 2 9336	4043 1249 1504 1892 47 JUL	1368 576 1073 1176 86	992 551 1152 679 68	2912 2236 77 OCT-SEP
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF AVERAGE) STATION PERIOD OF RECORD	1940-8 OCT 1083 367 614 935 VG) 86 124045 1930-8	1040 279 458 1180 113 5000 1	DEC 896 262 406 852 95 KETTLE DEC 624 154	JAN 710 319 337 478 67 RIVER JAN 533 77	FEB 700 300 378 432 62 NR LA	MAR 811 307 412 1122 138 URIER, MAR 1034 212	APR 3039 664 2352 5202 171 WA APR 4901 1478	MAY 9812 5259 5849 8817 90 MAY	JUN 10451 3576 4163 4068 39 JUN 2 9336	4043 1249 1504 1892 47 JUL 2740	1368 576 1073 1176 86 AUG	992 551 1152 679 68 SEP	2912 2236 77 OCT-SEP
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF ATTEMPT OF ATTEMPT OF RECORD STATION PERIOD OF RECORD AVERAGE MINIMUM	1940-8 OCT 1083 367 614 935 VG) 86 124045 1930-8	1040 279 458 1180 113 500 1 36 NOV	DEC 896 262 406 852 95 KETTLE DEC 624 154 429	JAN 710 319 337 478 67 RIVER JAN 533 77 341	FEB 700 300 378 432 62 NR LA FEB 580 98 396	MAR 811 307 412 1122 138 	APR 3039 664 2352 5202 171 WA APR 4901 1478	MAY 9812 5259 5849 8817 90 MAY	JUN 10451 3576 4163 4068 39 JUN 2 9336 3 3783 6 116	4043 1249 1504 1892 47 JUL 2740 759	1368 576 1073 1176 86 AUG 841 250 337	992 551 1152 679 68 SEP 693 157	2912 2236 77 OCT-SEP

STATION	124590	00 W	ENATCH	EE RIV	ER AT	PESHAS	TIN. W	A					
PERIOD OF RECORD	1930-8						•						
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	1148	1737	1840	1536	1536	1792	3620	8018	9074	4625	1532	862	3110
MINIMUM	336	329	421	421	476	839	1583	3506	3191	1164	572	426	
1977	781	1043	1056	1575	1356	1115	2786	3506	4566	1255	943	855	
1987	620	2182	1287	845	783	2343	4600	9281	5537	1866	699	467	2543
1987 (PERCENT OF A	VG) 54	126	70	55	51	131	127	116	61	40	46	54	82
STATION	130475	00 F	ALLS R	IVER N	R SQUI	RREL,	ID						
PERIOD OF RECORD	1919-8	16											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	509	497	454	412	403	406	677	1926	2176	903	577	538	790
MINIMUM	259	276	283	219	287	293	404	1086	589	298	316	315	
1977	550	471	440	400	383	372	738	1201	917	325	316	365	
1987	595	689	474	461	420	425	959	1627	671	405	301	289	610
1987 (PERCENT OF A	VG) 117	139	104	112	104	105	142	84	31	45	52	54	77
STATION	131685	100 P	DIINFAII	DIVER	אווס אור	יום פוצייוו	NG IN	1					
	131685 1944-8		RUNEAU	RIVER	NR HO	OT SPRI	NG, ID)					
			RUNEAU	RIVER JAN	NR HO	OT SPRI	NG, ID	MAY	JUN	JUL	AUG	SEP	OCT-SEP
STATION PERIOD OF RECORD	1944-8	36	DEC				·		JUN 1062	JUL 306	AUG 106	SEP 86	OCT-SEP
PERIOD OF RECORD	1944-8 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY					
PERIOD OF RECORD AVERAGE MINIMUM	1944-8 OCT 104	NOV 124	DEC 	JAN 171	FEB 228	MAR 360	APR 817	MAY 1333	1062	306	106	86	
PERIOD OF RECORD AVERAGE MINIMUM 1977	1944-8 OCT 104 54	NOV 124 71	DEC 136 73	JAN 171 81	FEB 228 99	MAR 360 119	APR 817 196	MAY 1333 362	1062 179	306 62	106 38	86 35	
PERIOD OF RECORD	1944-8 OCT 104 54 146 121	NOV 124 71 123	DEC 136 73 98	JAN 171 81 95	FEB 228 99 116	MAR 360 119 136	APR 817 196 395	MAY 1333 362 397	1062 179 645	306 62 129	106 38 69	86 35 64	403
AVERAGE MINIMUM 1977 1987	1944-8 OCT 104 54 146 121	NOV 124 71 123 129 104	DEC 136 73 98 96	JAN 171 81 95 101 59	FEB 228 99 116 129 57	MAR 360 119 136 216 60	APR 817 196 395 361 44	MAY 1333 362 397 569 43	1062 179 645 236	306 62 129 78	106 38 69 42	86 35 64 39	403 176
PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	OCT 104 54 146 121 VG) 116	NOV 124 71 123 129 104	DEC 136 73 98 96 71	JAN 171 81 95 101 59	FEB 228 99 116 129 57	MAR 360 119 136 216 60	APR 817 196 395 361 44	MAY 1333 362 397 569 43	1062 179 645 236	306 62 129 78	106 38 69 42	86 35 64 39	403 176
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	1944-8 OCT 104 54 146 121 VG) 116	NOV 124 71 123 129 104	DEC 136 73 98 96 71	JAN 171 81 95 101 59	FEB 228 99 116 129 57	MAR 360 119 136 216 60	APR 817 196 395 361 44	MAY 1333 362 397 569 43	1062 179 645 236	306 62 129 78	106 38 69 42	86 35 64 39	403 176 44
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD	1944-8 OCT 104 54 146 121 VG) 116	124 71 123 129 104	DEC 136 73 98 96 71	JAN 171 81 95 101 59	FEB 228 99 116 129 57	MAR 360 119 136 216 60 SPRIN	817 196 395 361 44	MAY 1333 362 397 569 43	1062 179 645 236 22	306 62 129 78 25	106 38 69 42 40	86 35 64 39 45	403 176 44
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD AVERAGE MINIMUM	1944-8 OCT 104 54 146 121 VG) 116 131850 1912-8	124 71 123 129 104	DEC 136 73 98 96 71 OOISE R	JAN 171 81 95 101 59 IVER N	FEB 228 99 116 129 57 IR TWIN	MAR 360 119 136 216 60 V SPRIN	AFR 817 196 395 361 44	MAY 1333 362 397 569 43	1062 179 645 236 22 JUN	306 62 129 78 25	106 38 69 42 40	86 35 64 39 45	403 176 44
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD AVERAGE MINIMUM 1977	1944-8 OCT 104 54 146 121 VG) 116 131850 1912-8 OCT 396 267 422	124 71 123 129 104 000 E 86 NOV 446 263 352	DEC 136 73 98 96 71 OOISE R DEC 484 265 325	JAN 171 81 95 101 59 IVER N JAN 455 265 297	FEB 228 99 116 129 57 IR TWIN FEB 518 283 305	MAR 360 119 136 216 60 SPRIN MAR 827 326 326	APR 817 196 395 361 44 GGS, ID APR 2150 717	MAY 1333 362 397 569 43 MAY 3838 782 782	1062 179 645 236 22 JUN 3432 723 923	306 62 129 78 25 JUL 1238 321 351	106 38 69 42 40 AUG	86 35 64 39 45 SEP	403 176 44
AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD	1944-8 OCT 104 54 146 121 VG) 116 131850 1912-8 OCT 396 267 422 538	124 71 123 129 104 000 F 36 NOV	DEC 136 73 98 96 71 OISE R	JAN 171 81 95 101 59 IVER N JAN 455 265	FEB 228 99 116 129 57 IR TWIN FEB 518 283	MAR 360 119 136 216 60 SPRIN MAR 827 326 326	AFR 817 196 395 361 44 GGS, ID AFR 2150 717	MAY 1333 362 397 569 43 MAY 3838 782 782	1062 179 645 236 22 JUN 3432 723	306 62 129 78 25 JUL 1238 321	106 38 69 42 40 AUG 473 224	86 35 64 39 45 SEP 375 223	403 176 44

MOITAT	1333300	0 GF	RANDE I	RONDE 1	RIVER A	TRO	Y, OR						
ERIOD OF RECORD	1945-86	3											
							4.70	144.77	TITAL	JUL	AUG	SEP	OCT-SEP
	OCT	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	365	NUG	DEL	001 001
VERAGE	922	1247	2073	2251	3151	4145	6364	7574	6046	2298	883	810	3147
INIMUM	603	688	685	702	769	888	2257	2368	2159	520	448	574	
.977	831	836	720	766	769	888	2541	2368	2267	520	448	706	
.987	816	1155	1032	900	1887	4463	4187	4143	1959	831	538	467	1865
987 (PERCENT OF A	VG) 89	93	50	40	60	108	66	55	32	36	61	58	59
THA HITON	133400	00 C	T FADUA	ים סדי	VER AT	OROFT	NO TE	1					
STATION PERIOD OF RECORD	1965-8		LEARWA	IEK KI	VER AL	OROL 1	.110, 11						
	OCT	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	2443	3300	4308	4839	5839	8220	14484	29944	28646	7958	2378	2200	9547
AVERAGE MINIMUM	1230	1332	1438	1543	1830			17110		2818	1250	1086	
1977	2086	2094	1706	1663	1984			17110		2818	1548	2168	
													E207
1987	1910	3236	2279	1912	3112	7191	15014	18468	6746	2553	1329	889	5387
1987 (PERCENT OF A	.VG) 78	98	53	40	53	87	104	62	6746 24	2553 32	56	40	56
1987 (PERCENT OF A		98 600 W	53	40		87	104	62					
1987 1987 (PERCENT OF A STATION PERIOD OF RECORD	.VG) 78	98 600 W	53	40	53 RIVER N	87	104	62 WA					
1987 (PERCENT OF A	140185 1952-8	98 	53	VALLA I	53 RIVER N	87 R TOUG	104 CHET, I	62 WA MAY	JUN	32	56	40	56
1987 (PERCENT OF A STATION PERIOD OF RECORD	140185 1952-8	98 600 W 66 NOV	53 WALLA V	40 VALLA I	53 RIVER N FEB 1350	87 R TOUG	104 CHET, 1 APR	62 WA MAY 716	JUN 260	JUL	56	40 SEP	56 OCT-SEP
1987 (PERCENT OF A STATION PERIOD OF RECORD	140185 1952-8 OCT	98 600 W	53 WALLA V DEC 859	40 NALLA I JAN 1187 306	53 RIVER N FEB 1350 286	87 R TOUG	104 CHET, 1 APR 1141 243	62 WA MAY 716 61	JUN 260 21	32 JUL 44	56 AUG 20	40 SEP 46	56 OCT-SEP
1987 (PERCENT OF A STATION PERIOD OF RECORD AVERAGE MINIMUM	140185 1952-8 OCT 94	98 600 W 66 NOV 286 61	53 NALLA V DEC 859 257	JAN 1187 306 348	53 RIVER N FEB 1350 286 286	87 R TOUG MAR 1213 339	104 CHET, V APR 1141 243 308	62 MAY 716 61 84	JUN 260 21 35	32 JUL 44 6	56 AUG 20 3	40 SEP 46 9	56 OCT-SEP 601
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977	140185 1952-8 OCT 94 20 72 53	98 600 W 66 NOV 286 61 152	53 MALLA V DEC 859 257 283	JAN 1187 306 348 516	53 RIVER N FEB 1350 286 286 978	87 R TOUC MAR 1213 339 339	104 CHET, 1 APR 1141 243 308 415	62 MAY 716 61 84 184	JUN 260 21 35 43	JUL 44 6 10	56 AUG 20 3 17	40 SEP 46 9	OCT-SEP
AVERAGE MINIMUM 1987 (PERCENT OF A 1987 (PERCENT OF A	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166	53 PALLA V DEC 859 257 283 436 51	JAN 1187 306 348 516 43	53 RIVER N FEB 1350 286 286 978 72	87 R TOUG MAR 1213 339 339 937 77	104 CHET, 1 APR 1141 243 308 415	62 MAY 716 61 84 184 26	JUN 260 21 35 43	JUL 44 6 10 15	56 AUG 20 3 17 4	40 SEP 46 9 69	56 OCT-SEP 601
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166	53 PALLA V DEC 859 257 283 436 51	JAN 1187 306 348 516 43	53 RIVER N FEB 1350 286 286 978	87 R TOUG MAR 1213 339 339 937 77	104 CHET, 1 APR 1141 243 308 415	62 MAY 716 61 84 184 26	JUN 260 21 35 43	JUL 44 6 10 15	56 AUG 20 3 17 4	40 SEP 46 9 69	56 OCT-SEP 601
AVERAGE MINIMUM 1987 (PERCENT OF A 1987 (PERCENT OF A	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166	53 PALLA V DEC 859 257 283 436 51	JAN 1187 306 348 516 43	53 RIVER N FEB 1350 286 286 978 72	87 R TOUG MAR 1213 339 339 937 77	104 CHET, 1 APR 1141 243 308 415	62 MAY 716 61 84 184 26	JUN 260 21 35 43	JUL 44 6 10 15	56 AUG 20 3 17 4	40 SEP 46 9 69	56 OCT-SEP 601
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166	53 MALLA V DEC 859 257 283 436 51 JOHN D	JAN 1187 306 348 516 43	53 RIVER N FEB 1350 286 286 978 72	87 R TOUG MAR 1213 339 339 937 77	104 CHET, 1 APR 1141 243 308 415 36	62 MAY 716 61 84 184 26	JUN 260 21 35 43 17	JUL 44 6 10 15 34	56 AUG 20 3 17 4	40 SEP 46 9 69	56 OCT-SEP 601
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166 500 86	53 PALLA V DEC 859 257 283 436 51 JOHN D	JAN 1187 306 348 516 43 AY RIV	53 RIVER N FEB 1350 286 286 978 72 FER AT :	87 R TOUG MAR 1213 339 339 77 77 SERVIC	104 CHET, 1 APR 1141 243 308 415 36	62 MAY 716 61 84 184 6 26 KK, OR	JUN 260 21 35 43 17	JUL 44 6 10 15 34 JUL 582	AUG 20 3 17 4 20 AUG 181	40 SEP 46 9 69 6 13	OCT-SEP 601 338 56
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166 500 86 NOV	53 PALLA V DEC 859 257 283 436 51 JOHN D DEC 1246	JAN 1187 306 348 516 43 AY RIV	53 RIVER N FEB 1350 286 286 978 72 FER AT 5	87 R TOUC MAR 1213 339 339 937 77 SERVIC	104 APR 1141 243 308 415 36 EE CREE	62 MAY 716 61 84 184 26 KK, OR R MAY	JUN 260 21 35 43 17 JUN 2536 416	JUL 44 6 10 15 34 JUL 582 91	AUG 20 3 17 4 20 AUG 181 15	SEP 46 9 69 6 13 SEP 189 31	56 OCT-SEP 601 338 56
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD	140185 1952-8 OCT 94 20 72 53 AVG) 56	98 600 W 66 NOV 286 61 152 474 166 500 86 NOV	53 PALLA V DEC 859 257 283 436 51 JOHN D DEC 1246 216	JAN 1187 306 348 516 43 AY RIV	53 RIVER N FEB 1350 286 286 978 72 FER AT :	87 R TOUG MAR 1213 339 339 937 77 SERVIC MAR 3640 597 597	104 CHET, 1 APR 1141 243 308 415 36 E CREE 1 5302 7 1010	62 MAY 716 61 84 184 26 KK, OR MAY 2 5020 3 491 3 1780	JUN 260 21 35 43 17 JUN 2536 416 1036	JUL 44 6 10 15 34 JUL 582 91 137	AUG 20 3 17 4 20 AUG 181 15 44	SEP 46 9 69 6 13 SEP 189 31 132	OCT-SEP 601 338 56 OCT-SEP 1969
STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF A STATION PERIOD OF RECORD AVERAGE MINIMUM	140185 1952-8 OCT 94 20 72 53 AVG) 56 140465 1930-6 OCT 327 71	98 600 W 66 NOV 286 61 152 474 166 500 86 NOV 602 152 403	53 WALLA V DEC 859 257 283 436 51 JOHN D DEC 1246 216 360	JAN 1187 306 348 516 43 AY RIV	53 RIVER N FEB 1350 286 286 978 72 FER AT :	87 R TOUG MAR 1213 339 339 937 77 SERVIC MAR 3640 597 597	104 CHET, 1 APR 1141 243 308 415 36 E CREE 1 5302 7 1010 7 1850 9 4786	62 MAY 716 61 84 184 26 KK, OR MAY 2 5020 0 491 0 1780 6 2338	JUN 260 21 35 43 17 2536 416 1036 846	JUL 44 6 10 15 34 JUL 5822 91 137 372	AUG 20 3 17 4 20 AUG 181 15 44 132	SEP 46 9 69 6 13 SEP 189 31	56 OCT-SEP 601 338 56

STATION	14178	000	N SANT	IAM R	IVER B	LW BOUI	DER CE	NR DE	TROIT.	OR			
PERIOD OF RECORD	1929-												
	ocm	1 17071											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	526	986	1407	1311	1297	1165	1342	1470	1140	641	480	446	1018
MINIMUM	312	336	432	-383	404	616	610	701	441	375	326	319	
1977	461	476	432	414	404	639	1048	1050	743	411	371	381	
1987	443	1428	915	956	1406	1152	1030	875	670	494	413	364	846
1987 (PERCENT OF	AVG) 84	145	65	73	108	99	77	60	59	77	86	82	83
STATION	14232	500	CISPUS	סקעוס	ND DAI	NDLE. W	TA.						
PERIOD OF RECORD			010100	WI APW	III KA	NDLE, N	ın						
	OCT	NOA	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE	587	1220	1678	1451	1412	1279	1713	2529	2168	1063	568	450	1343
MINIMUM	266	251	350	396	328	586	794	1331	784	499	374	306	1545
1977	381	386	392	441	445		1534	1615	1515	499	399	456	
1987	408	1500	924	962	1780	2130	1600	1950	922	512	379	277	1112
1987 (PERCENT OF	AVG) 70	123	55	66	126	167	93	77	43	48	67	62	83
STATION	14201	F00	III CON	D. 7.11									
PERIOD OF RECORD	14301: 1932-:		WILSON	KIVER	NR TII	LLAMOOK	, OR						
	1002	1500							•				
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT-SEP
AVERAGE													
	612	1906	2733	2515	2239	1802	1170	628	334	171	109	169	1199
MINIMUM	612 58		2733 378	2515 344	2239 642	1802 595		628 202	334 164	171 79	109 44	169 40	1199
		87				595	1170						1199
1977	58	87 271	378 378	344	642 673	595 2135	1170 426	202	164	79	44	40	1199 939
1977 1987	58 97 245	87 271 2234	378 378 1164	344 344	642 673	595 2135	1170 426 639	202 556	164 490	79 130	44 127	40 455	
1977 1987 1987 (PERCENT OF	58 97 245 AVG) 40	87 271 2234 117	378 378 1164 43	344 344 1784 71	642 673 2022 90	595 2135 2400 133	1170 426 639 553 47	202 556 308	164 490 289	79 130 128	44 127 81	40 455 65	939
1977 1987 1987 (PERCENT OF	58 97 245	87 271 2234 117	378 378 1164 43	344 344 1784 71	642 673 2022 90	595 2135 2400	1170 426 639 553 47	202 556 308	164 490 289	79 130 128	44 127 81	40 455 65	939
1977 1987 1987 (PERCENT OF	58 97 245 AVG) 40	87 271 2234 117	378 378 1164 43	344 344 1784 71	642 673 2022 90	595 2135 2400 133	1170 426 639 553 47	202 556 308	164 490 289	79 130 128	44 127 81	40 455 65	939
1977 1987 1987 (PERCENT OF	58 97 245 AVG) 40	87 271 2234 117	378 378 1164 43	344 344 1784 71	642 673 2022 90	595 2135 2400 133	1170 426 639 553 47	202 556 308	164 490 289	79 130 128	44 127 81	40 455 65	939
1977 1987 1987 (PERCENT OF STATION PERIOD OF RECORD	58 97 245 AVG) 40 143210 1906-8	87 271 2234 117 000 1	378 378 1164 43 UMPQUA	344 344 1784 71 RIVER	642 673 2022 90 NR ELI	595 2135 2400 133 CTON, O	1170 426 639 553 47	202 556 308 49	164 490 289 87	79 130 128 75	44 127 81 74	40 455 65 38	939 78
1977 1987 1987 (PERCENT OF ESTATION PERIOD OF RECORD	58 97 245 AVG) 40 143210 1906-8	87 271 2234 117 000 1	378 378 1164 43 UMPQUA DEC	344 344 1784 71 RIVER	642 673 2022 90 NR ELI FEB	595 2135 2400 133 CTON, O	1170 426 639 553 47 R	202 556 308 49 MAY	164 490 289 87 JUN	79 130 128 75	44 127 81 74	40 455 65 38 SEP	939 78 OCT-SEP
1977 1987 1987 (PERCENT OF STATION PERIOD OF RECORD AVERAGE MINIMUM	58 97 245 AVG) 40 14321(1906-6	87 271 2234 117 000 1 86 NOV 7239 832	378 378 1164 43 UMPQUA DEC 13644 1238	344 344 1784 71 RIVER JAN 16006	642 673 2022 90 NR ELI FEB 15511 1365	595 2135 2400 133 KTON, O MAR 12427 3462	1170 426 639 553 47 R APR	202 556 308 49 MAY	164 490 289 87 JUN 3786	79 130 128 75 JUL 1749	44 127 81 74 AUG	40 455 65 38 SEP	939 78 OCT-SEP
MINIMUM 1977 1987 1987 (PERCENT OF STATION PERIOD OF RECORD AVERAGE MINIMUM 1977 1987 1987 (PERCENT OF	58 97 245 AVG) 40 143210 1906-0 OCT 1936 857 1329 2047	87 271 2234 117 000 1 86 NOV 7239 832 1385 10460	378 378 1164 43 UMPQUA DEC 13644 1238 1238	344 344 1784 71 RIVER JAN 16006 1440	642 673 2022 90 NR ELM FEB 15511 1365 1365	595 2135 2400 133 KTON, O MAR 12427 3462	1170 426 639 553 47 R APR 9663 2432	202 556 308 49 MAY 6534 1934	164 490 289 87 JUN 3786 1053	79 130 128 75 JUL 1749 742	44 127 81 74 AUG 1180 703	40 455 65 38 SEP 1207 740	939 78 OCT-SEP
